2013 Ducati Superbike Panigale S Tricolore 1199 Workshop Manual

- SBK.01 - General
  - Symbols - Abbreviations - References
    - Product specifications
  - Hazardous Products - Warnings
    - General safety rules
    - General maintenance indications
- SBK.02 - Information about the model
  - Identification data
    - Identification data
- SBK.03 - Technical data
  - Technical specifications
    - General
    - Colours
    - Transmission
    - Timing system/valves
    - Crankshaft
    - Cylinder/Piston
    - Gearbox
    - Cooling system
    - Front wheel
    - Front suspension
    - Rear wheel
    - Rear suspension
    - Hydraulic brakes
    - Charging system/alternator
    - Injection-ignition system
    - Fuel system
    - Injection system
    - Lights/instrument panel
  - Dimensions
    - Dimensions
  - Fuel, lubricants and other fluids
    - Fuel, lubricants and other fluids
  - Torque settings
    - Frame torque settings
- SBK.04 - Maintenance operations
  - Vehicle pre-delivery
    - Vehicle pre-delivery
  - Scheduled maintenance chart
    - Operations to be carried out by the dealer
    - Operations to be carried out by the customer
  - Maintenance operations
    - Check engine oil level
    - Changing the engine oil and filter cartridge
    - Checking valve clearances
    - Spark plugs replacement
    - Changing and cleaning the air filters
    - Checking the coolant level
    - Changing the coolant
    - Changing the fluid in the front brake circuit
    - Changing the rear brake circuit fluid
    - Changing the clutch fluid
    - Draining the clutch hydraulic circuit
    - Filling the clutch circuit
    - Adjusting the chain tension
    - Checking front brake pad wear
    - Checking rear brake pad wear
    - Adjusting the clutch lever and front brake lever
    - Adjusting the position of the gear change and rear brake pedals
    - Adjusting the front fork
    - Adjusting the rear shock absorber
    - Adjusting the rear ride height

http://www.ducati-manuals.com
no. 140312

- SBK.05 - Fairings
  - Rear-view mirrors
    - Removal of the rear-view mirrors
    - Refitting the rear-view mirrors
  - Headlight fairing
    - Removal of the headlight shell
    - Refitting the headlight shell
  - Fairing panels
    - Removal of the side fairings
    - Refitting the side fairings
  - Seat - seat cowling and side panels
    - Removal of the pillion seat
    - Refitting the pillion seat
    - Removal of the rider seat
    - Refitting the rider seat
    - Removal of the side panels
    - Refitting the side panels
    - Removal of the seat release mechanism
    - Refitting the seat release mechanism
  - Front and rear mudguard
    - Removal of the front mudguard
    - Refitting the front mudguard
    - Removing the rear mudguard
    - Refitting the rear mudguard
- SBK.06 - Electric system and engine control system
  - Wiring diagram
    - Key to wiring diagram
    - Routing of wiring on frame
    - Table A
    - Table B
    - Table C
    - Table D
    - Table E
    - Table F
    - Table G
    - Table H
    - Table I
    - Table J
    - Table K
    - Table L
    - Table M
    - Table N
    - Table O
    - Table P
    - Table Q
    - Table R
    - Table S
    - Table T
    - Table U
    - Table V
  - Battery charging system
    - Checking the battery charging system
    - Recharging the battery
    - Topping up the electrolyte
    - Battery
  - Lights and indicating devices
    - Renewal of the headlight
  - Instruments
    - Instrument panel
    - Acronyms and abbreviations used in the Manual
    - Technological Dictionary
    - Function push-buttons
    - How to set/display parameters
    - Main functions

http://www.ducati-manuals.com
no. 140312

        - Riding Mode
        - DTC
        - EBC
        - DQS
        - Menu 1 functions
        - Menu 1: Odometer (TOT)
        - Menu 1: Trip meter 1 (TRIP 1)
        - Menu 1: Trip meter 2 (TRIP 2)
        - Menu 1: Partial fuel reserve counter (TRIP FUEL)
        - Menu 1: Lap time (LAP time)
        - Menu 1: Lap time (LAP time)
        - MENU 2 functions
        - MENU 2: Coolant temperature
        - MENU 2: Instantaneous fuel consumption
        - MENU 2: Average fuel consumption
        - MENU 2: Average speed
        - MENU 2: Trip time
        - MENU 2: Air temperature
        - Auxiliary functions
        - Auxiliary functions
        - CLOCK
        - Service warning (SERVICE)
        - Zero OIL SERVICE warning
        - OIL SERVICE or DESMO SERVICE warning
        - Warnings/Alarms (Warning)
        - Error indication
        - Side stand status display
        - Setting MENU
        - Battery voltage
        - DDA
        - Pin Code
        - Changing the PIN CODE
        - Clock setup
        - Setting the date
        - Setting the display background
        - Setting the unit of measurement
        - Other functions
        - Display background colour
        - The Immobilizer system
        - Keys
        - Operation
        - Duplicate keys
        - Vehicle release through PIN CODE
        - ABS
- SBK.07 - Chassis
    - Front wheel
        - Removal of the front wheel
        - Overhauling the front wheel
        - Refitting the front wheel
    - Rear wheel
        - Removing of the rear wheel
        - Overhauling the rear wheel
        - Refitting the rear wheel
    - Front brake control
        - Removal of the front brake master cylinder
        - Refitting the front brake master cylinder
        - Removal of the front brake system
        - Removal of the brake discs
        - Overhauling the front brake components
        - Refitting the brake disks
        - Refitting the front brake system
    - Rear brake
        - Removing of the rear brake control
        - Refitting the rear brake control

http://www.ducati-manuals.com
no. 140312

        - Removal of the rear brake calliper
        - Refitting the rear brake calliper
    - ABS system components
        - Removing of the ABS control unit
        - Refitting the ABS control unit
        - Flexible wiring/hoses positioning
    - Handlebar unit: throttle twistgrip
        - Removal of the throttle twistgrip
        - Refitting the throttle twistgrip
    - Handlebar unit: hydraulic clutch control
        - Removal of the clutch transmission unit
        - Refitting the clutch transmission unit
    - Steering damper
        - Removal of the steering damper
        - Refitting the steering damper
    - Gearchange mechanism
        - Removal of the gearchange control
        - Refitting the gearchange mechanism
    - Fork - steering head: front fork
        - Removal of the front forks
        - Overhauling the front forks
        - Refitting the front forks
    - Rear shock absorber assembly
        - Removal of the rear shock absorber
        - Refitting the rear suspension
        - Removal of the shock absorber support
        - Refitting the shock absorber support
    - Swingarm
        - Removal of the rear wheel eccentric hub and rear wheel shaft
        - Refitting the rear wheel eccentric hub and rear wheel shaft
        - Removal of the swingarm
        - Overhauling the rear swingarm
        - Refitting the swingarm
    - Final drive
        - Inspecting the final drive
        - Removing of the front sprocket
        - Refitting the front sprocket
        - Replacing of the rear sprocket
        - Refitting the rear sprocket
        - Washing the chain
        - Lubricating the chain
    - Footrest brackets
        - Removal of the front footrests
        - Refitting the front footrests
        - Removing the front footrest brackets
        - Reassembling the front footrest brackets
    - Stands
        - Removing of the side stand
        - Refitting the side stand
    - Frame inspection
        - Disassembly of structural components and the frame
        - Removal of the tool tray
        - Removing the frame and the lateral footrests
        - Checking the frame
        - Reassembly of structural components and the frame
        - Reassembling the frame and the lateral footrests
        - Reassembly of the tool tray
    - Tail light - number plate holder
        - Removal of the licence plate holder
        - Refitting the number plate holder
        - Removal of the tail light
        - Refitting the tail light
- SBK.08 - Fuel/Exhaust System
    - Fuel tank

http://www.ducati-manuals.com
no. 140312

        - Removal of the fuel tank
        - Removal of the fuel tank filler cap
        - Refitting the filler cap
        - Replacing the tank flange and fuel sensor.
        - Refitting the fuel tank
    - Airbox ◆ Throttle Body
        - Removal the airbox and throttle body
        - Refitting the airbox and throttle body
    - Air intake
        - Removal of the air filters
        - Refitting the air filters
    - Exhaust system
        - Removing the silencer
        - Removal of the exhaust system
        - Refitting the exhaust system
        - Refitting the silencer
    - Evaporative emissions canister
        - Evaporative emissions canister system
        - Removal of the evaporative emissions canister
        - Refitting the evaporative emissions canister
- SBK.09 - Engine
    - Cooling system: radiator
        - Removal of the radiator
        - Renewal of the cooling fan
        - Refitting of the radiator
        - Removal of the cooling system hoses and unions
        - Refitting of the cooling system hoses and unions
    - Removal of the engine assembly from the vehicle - Refitting of the engine assembly to the vehicle
        - Removal of the engine
        - Refitting of the engine
    - Flywheel - alternator
        - Removal of the generator cover
        - Disassembly of the generator cover
        - Removal of the flywheel/alternator assembly
        - Overhaul of the flywheel/alternator assembly
        - Fitting of the flywheel-alternator assembly
        - Fitting of the alternator-side crankcase cover
    - Clutch assembly: clutch
        - Description of the clutch assembly
        - Removal of the clutch
        - Checks and overhaul of the components
        - Refitting of the clutch
    - Clutch assembly: clutch cover
        - Removal of the clutch cover
        - Disassembly of the clutch cover
        - Reassembly of the clutch-side crankcase cover
        - Refitting of the clutch cover
    - Cooling system: water pump
        - Removal of the water pump
        - Refitting of the water pump
    - Lubrication system: oil delivery pump
        - Removal of the oil delivery pump
        - Disassembly of the oil delivery pump
        - Reassembly of the oil delivery pump
        - Refitting of the oil delivery pump
    - Lubrication system: oil heat exchanger
        - Removal of the oil heat exchanger
        - Refitting of the oil heat exchanger
    - Gearbox assembly: gearchange mechanism
        - Removal of the gear selector lever
        - Refitting of the gear selector lever
    - Cylinder head assemblies: checks and adjustments
        - Check of the engine timing

http://www.ducati-manuals.com
no. 140312

- Cylinder head assemblies: camshafts
  - Removal of the camshafts
  - Check of the camshafts and supports
  - Refitting of the camshafts
  - Positioning crankshaft at power stroke TDC
- Cylinder head assemblies: rocker arms
  - Removal of the rocker arms
- Cylinder head assemblies: timing system
  - Removing of the chain
  - Refitting of the chain
  - Removal of the heads without removing the timing chain
  - Refitting of the heads (from removal of the heads without removing the timing chain)
  - Removal of the heads with timing chain removal
  - Refitting of the heads (from removal of the heads with timing chain removal)
- Cylinder head assemblies: valves
  - Removal of the valves
  - Refitting of the valves
- Sleeve-piston set
  - Overhaul of the sleeve-piston set components
- Crankcase assembly: external components
  - Removal of the outer components
  - Refitting of the external components
- Crankcase assembly: crankcase halves
  - Separation of the crankcase halves
  - Overhaul of the crankcase halves
  - Crankshaft main bearings
  - Refitting of the crankcase halves
  - Reassembly of the crankcase halves
- Crankcase assembly: crankshaft/connecting rods assembly
  - Removal of the crankshaft/connecting rods assembly
  - Disassembly of the crankshaft/connecting rods assembly
  - Refitting of the crankshaft/connecting rod assembly
- Lubrication system: scavenge oil pump
  - Removal of the scavenge oil pump
  - Refitting of the scavenge oil pump
- Gearbox assembly: gearbox shafts
  - Removal of the gearbox assembly
  - Disassembly of the gearbox shafts
  - Overhaul of the gearbox
  - Inspection of the gear selector forks
  - Inspection of the gear selector drum
  - Reassembly of the gearbox shafts
  - Refitting of the gearbox

http://www.ducati-manuals.com
no. 140312

Symbols - Abbreviations - References

To allow quick and easy consultation, this manual uses graphic symbols to highlight situations in which maximum care is required, as well as practical advice or information. Pay attention to the meaning of the symbols since they serve to avoid repeating technical concepts or safety warnings throughout the text. The symbols should therefore be seen as an aid to memory. Please refer to this page whenever in doubt as to their meaning.

The terms right-hand and left-hand refer to the motorcycle viewed from the riding position.

Warning
Failure to comply with these instructions may put you at risk and lead to severe injury or death.

Important
Failure to follow the instructions in text marked with this symbol can lead to serious damage to the motorcycle and its components.

Note
This symbol indicates additional useful information for the current operation.

Product specifications

Symbols in the diagram show the type of thread locker, sealant or lubricant to be used at the points indicated. The table below shows the symbols used and the specifications of the various products.

Symbol		Specifications	Recommended product
		Engine oil (for characteristics see Fluids and lubricants).	SHELL Advance 4T Ultra
		DOT 4 special hydraulic brake fluid.	SHELL Advance Brake DOT 4
		SAE 80-90 gear oil or special products for chains with O rings.	SHELL Advance Chain or Advance Teflon Chain
		Antifreeze (nitride, amine and phosphate free) 30 to 40% solution in water.	SHELL Advance coolant or Glycoshell
	GREASE A	Multipurpose, medium fibre, lithium grease.	SHELL Alvania R3
	GREASE B	Molybdenum disulphide grease, high mechanical stress and high temperature resistant.	SHELL Retinax HDX2
	GREASE C	Bearing/joint grease for parts subject to prolonged mechanical stress. Temperature range: -10 to 110 °C.	SHELL Retinax LX2

http://www.ducati-manuals.com
no. 140312

	GREASE D	Protective grease, with anti-corrosive and waterproofing properties.	SHELL Retinax HD2
	GREASE E	Grease	PANKL - PLB 05
	GREASE F	Grease	OPTIMOL - PASTE WHITE T
	GREASE G	Grease	PANKL - PLB07
	GREASE H	Grease	KLÜBER STABURAGS NBU 30 PTM
	GREASE I	Copper grease	CUPRUM 320
	LOCK 1	Low-strength thread locker.	Loctite 222
	LOCK 2	Medium-strength thread locker, compatible with oil.	Loctite 243
	LOCK 3	High-strength thread locker for threaded parts.	Loctite 270
	LOCK 4	Flange sealant resistant to high mechanical stress and solvents. Resists high temperatures (up to 200 °C) and pressures up to 350 bar; fills gaps up to 0.4 mm.	Loctite 510
	LOCK 5	Permanent adhesive for smooth or threaded cylindrical fasteners on mechanical parts. High resistance to mechanical stress and solvents. Temperature range: 55 to 175 °C.	Loctite 128455
	LOCK 6	Pipe sealant for pipes and medium to large fasteners. For water and gases (except oxygen). Maximum filling capacity: 0.40 mm diameter clearance.	Loctite 577
	LOCK 7	Speed bonder for rubber and plastics with elastomer charged ethylic base.	Loctite 480
	LOCK 8	High-strength retaining compound for threaded parts, bearings, bushes, splines and keys. Temperature range: 55 to 150 °C.	Loctite 601

http://www.ducati-manuals.com
no. 140312

			
	LOCK 9	Medium-strength thread locker.	Loctite 406
	LOCK 10	Product for metal parts to seal and lock cylindrical freely sliding or threaded couplings. Resistant to high mechanical stress and high temperature, excellent resistance to solvents and chemical attack.	Loctite 128443
	LOCK 11	Medium-strength thread locker.	Loctite 401
	LOCK 12	Instant adhesive gel offering tensile/shear strength.	Loctite 454 gel
		DUCATI liquid gasket.	942470014
		Exhaust pipe paste. Self-sealing paste, hardens when heated; resists temperatures exceeding 1000 °C.	Holts Firegum
		Spray used to protect electrical systems. Eliminates moisture and condensation and provides excellent corrosion resistance. Water repellent.	SHELL Advance Contact Cleaner
		Dry lubricant, polymerising on contact with air.	Molykote D321R Molycote M55 Plus
		Emulsion for lubrication of rubber.	P 80
		Protective lubricant emulsion.	KIUBERPLUS S 06/100
		Lubricant for mechanical parts	Castor oil

http://www.ducati-manuals.com
no. 140312

General safety rules

Carbon monoxide

When a maintenance operation must be performed with the engine running, make sure that the working area is well-ventilated. Never run the engine in an enclosed space.

Warning
Exhaust fumes contain carbon monoxide, which is a poisonous gas that can cause unconsciousness or even death if inhaled.

Run the engine outdoors or, if working indoors, use an exhaust fume extraction system.

Fuel

Always make sure the working area is well ventilated. Keep any sources of ignition, such as cigarettes, open flames or sparks, well away from working area and fuel storage area.

Warning
Petrol is highly flammable and can explode under certain conditions. Keep away from children.

Hot parts

Warning
The engine and exhaust parts become hot when the motorcycle engine is running and will stay hot for some time after the engine has been stopped. Wear heat-resistant gloves before handling these components or allow the engine and exhaust system to cool down before proceeding.

Warning
The exhaust system might be hot, even after engine is switched off; pay particular attention not to touch exhaust system with any body part and do not park the vehicle next to inflammable material (wood, leaves etc.).

Used engine oil

Warning
Prolonged or repeated contact with used engine oil may cause skin cancer. If exposed to used engine oil on a daily basis, make it a rule to wash your hands thoroughly with soap immediately after use. Keep away from children.

Brake lining debris

Never clean the brake assemblies using compressed air or a dry brush.

Warning
Inhalation of asbestos fibres is a proven cause of respiratory illness and cancer.

Brake fluid

Warning
Avoid spilling brake fluid onto plastic, rubber or painted parts of the motorcycle to avoid the risk of damage. Protect these parts with a clean shop cloth before proceeding to service the motorcycle. Keep away from children.

Coolant

Engine coolant contains ethylene glycol, which may ignite under particular conditions, producing invisible flames. Although the flames from burning ethylene glycol are not visible, they are still capable of causing severe burns.

http://www.ducati-manuals.com
no. 140312

Warning

Take care not to spill engine coolant on the exhaust system or engine parts. These parts may be hot and ignite the coolant, which will subsequently burn with invisible flames. Coolant (ethylene glycol) is an irritant and is poisonous when ingested. Keep away from children. Never remove the radiator cap when the engine is hot. The coolant will be scalding hot and is under high pressure.

The cooling fan operates automatically: keep hands well clear and make sure your clothing does not snag on the fan.

Battery

Warning

The battery gives off explosive gases; keep it away from any source of ignition such as sparks, flames and cigarettes. Charge the battery in a well-ventilated area.

http://www.ducati-manuals.com
no. 140312

General maintenance indications

Useful tips

Ducati recommends that you follow the instructions below in order to prevent problems and obtain the best end result:

- when diagnosing faults, primary consideration should always be given to what the customer reports about motorcycle operation since this information can highlight anomalies; your questions to the customer concerning symptoms of the fault should be aimed at clarifying the problem;
- diagnose the problem systematically and accurately before proceeding further. This manual provides the theoretical background for troubleshooting; this basis must be combined with personal experience and attendance at periodic training courses held by Ducati;
- repair work should be planned carefully in advance to prevent any unnecessary downtime, for example obtaining the required spare parts or preparing the necessary tools, etc.;
- limit the number of operations needed to access the part to be repaired. Note that the disassembly procedures in this manual describe the most efficient way to reach the part to be repaired.

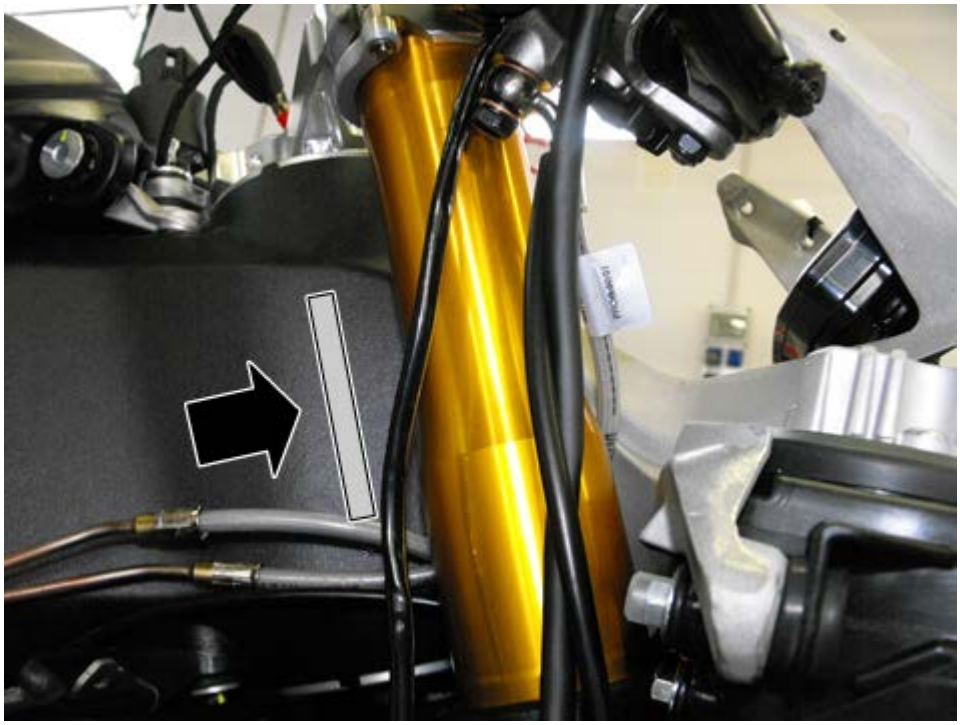
General advice on repair work

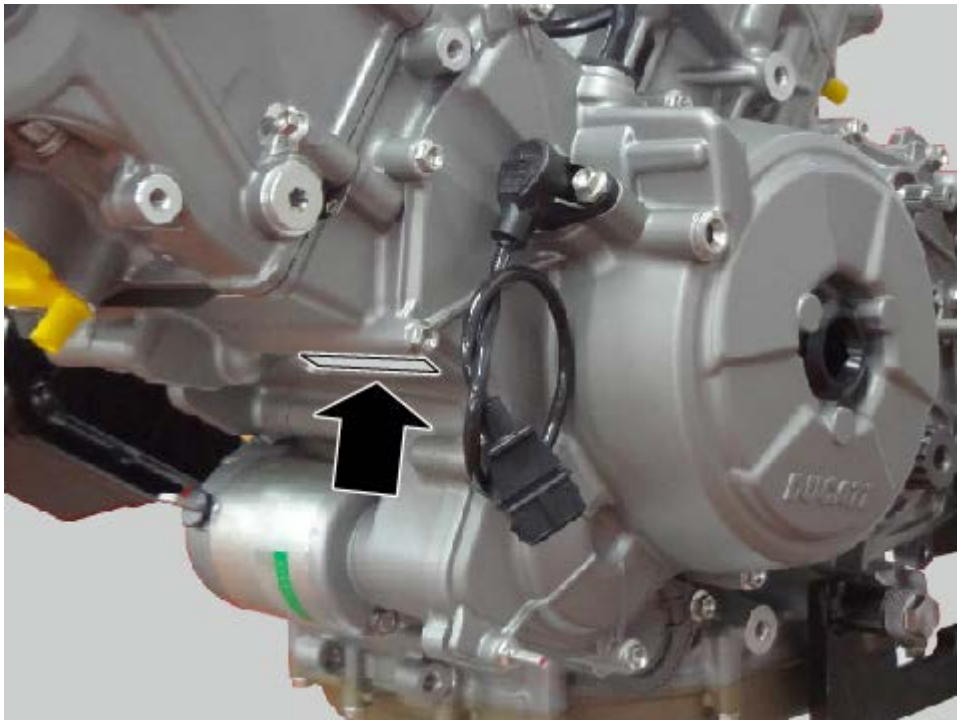
- Always use top quality tools. When lifting the motorcycle, only use devices that comply fully with the relevant European directives.
- When working on the motorcycle, always keep the tools within reach, ideally in the order required, and never put them on the motorcycle or in hard-to-reach or inaccessible places.
- The workplace must be kept clean and tidy at all times.
- Always replace gaskets, sealing rings and split pins with new parts.
- When loosening or tightening nuts or screws, always start with the largest or start from the centre; tighten nuts and screws to the specified torque working in a crosswise sequence.
- Always mark any parts and positions which might easily be confused at the time of reassembly.
- Use exclusively Ducati original replacement parts and the recommended brands of lubricants.
- Use special service tools where specified.
- Ducati Technical Bulletins often contain updated versions of the service procedures described in this manual. Check the latest Bulletins for details.

http://www.ducati-manuals.com
no. 140312

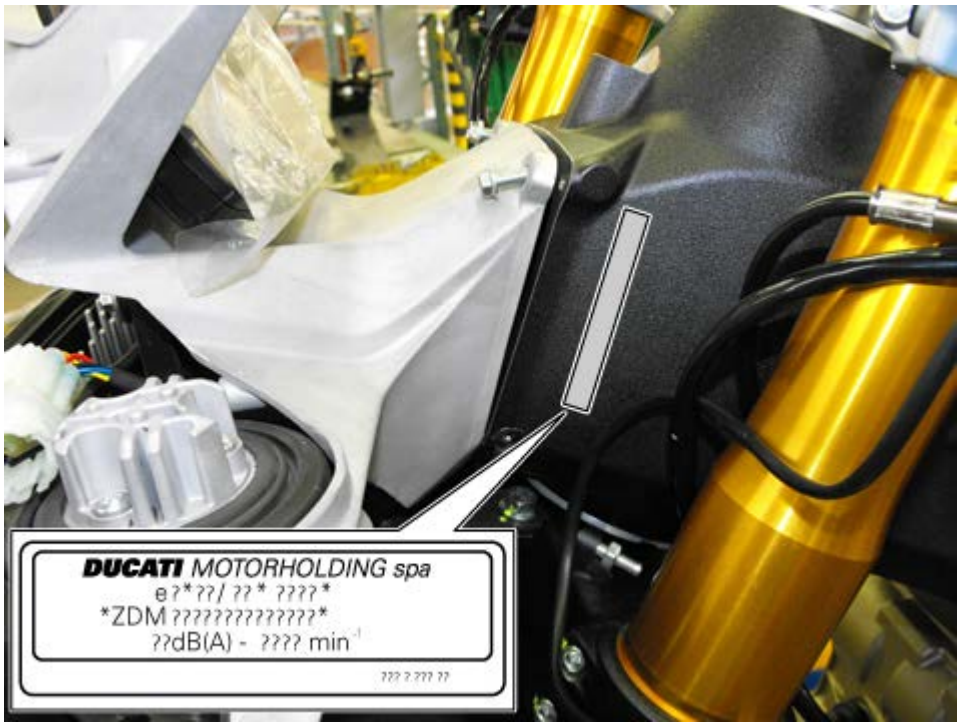
Identification data

Each Ducati motorcycle has two identification numbers - the frame number and the engine number- and an EC nameplate (A) (not present on the US version).





http://www.ducati-manuals.com
no. 140312

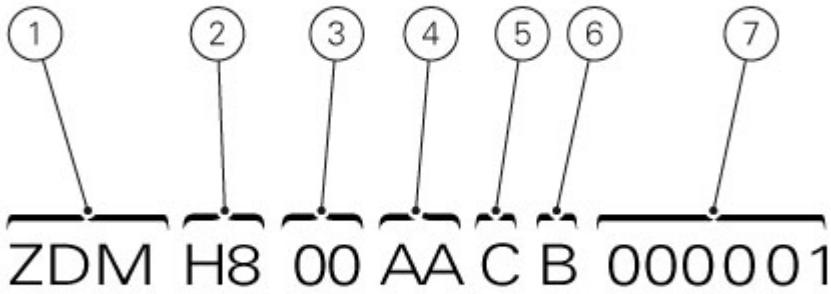


Data stamped on the frame

Europe/France/Australia Version

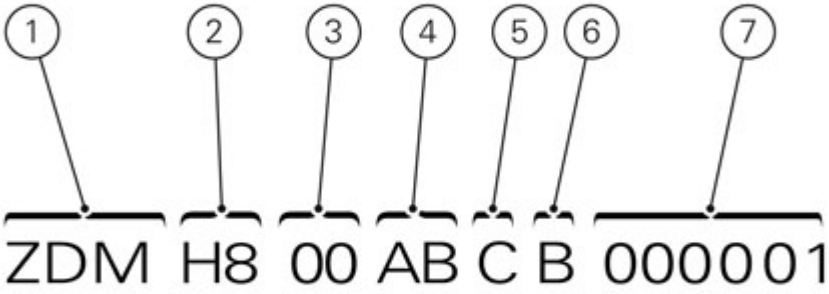
1 Manufacturer: Ducati Motor Holding
2 Type - identical for all the models
3 Variant
4 Version:
AA = 1199 Panigale / 1199 Panigale S
AB = 1199 Panigale ABS / 1199 Panigale S ABS / 1199 Panigale S Tricolore
5 Year of manufacture:
(C=2012)
(D=2013)
6 Manufacturing facility
7 Progressive serial No.

Data stamped on the frame - Europe/Australia

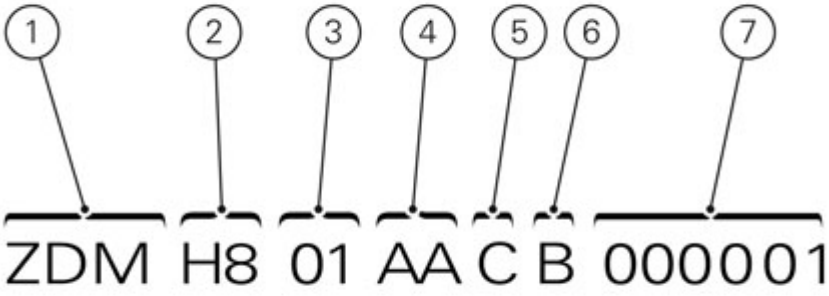


Data stamped on the frame - Europe/Australia (ABS)

http://www.ducati-manuals.com
no. 140312

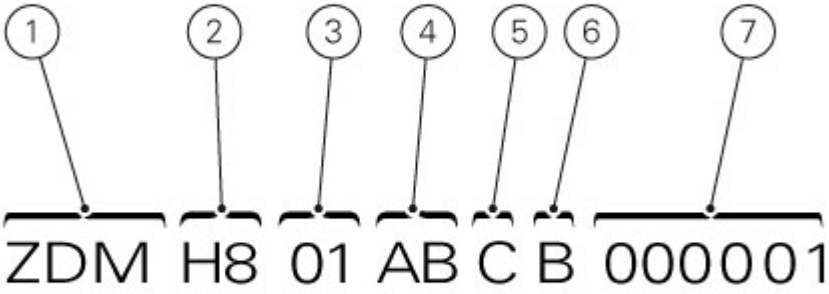


Data stamped on the frame - France



Data stamped on the frame - France (ABS)

http://www.ducati-manuals.com
no. 140312

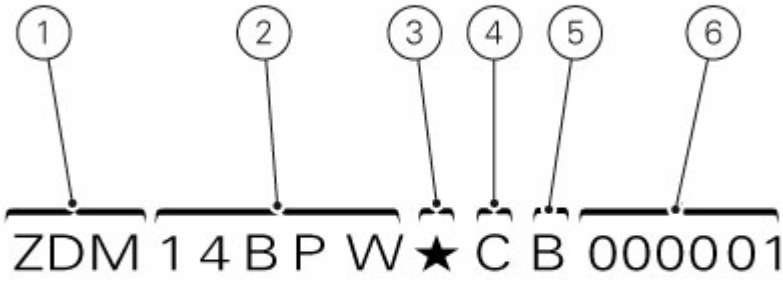


Data stamped on the frame

US version

1 Manufacturer: Ducati Motor Holding
2 Motorcycle type
3 Motorcycle variant- numeric or X (Check digit)
4 Model year:
(C=2012)
(D=2013)
5 Manufacturing plant
6 Progressive serial No.

Data stamped on the frame - US



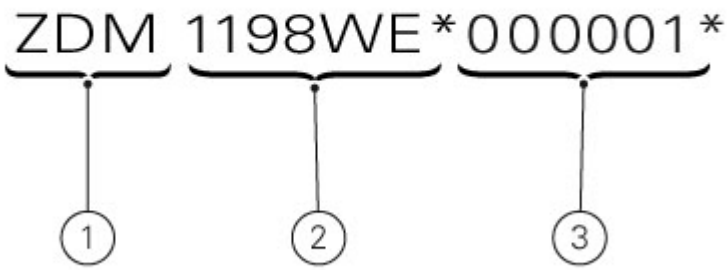
Data stamped on engine

Europe version

http://www.ducati-manuals.com
no. 140312

1 Manufacturer: Ducati Motor Holding
2 Engine type
3 Progressive production No.

Data stamped on engine - Europe/France

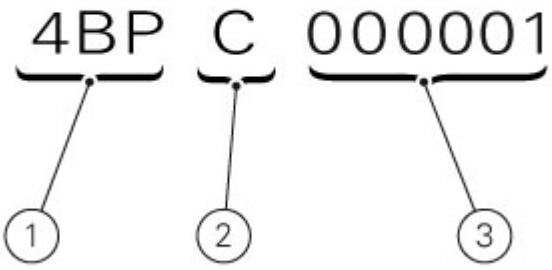


Data stamped on engine

US version

1 Engine type
2 Model year (C=2012)
3 Progressive production No.

Data stamped on engine - US



http://www.ducati-manuals.com
no. 140312

General

	Reference	Technical specifications
Motorcycle dimensions	Total length	2075 mm
	Total width	810 mm
	Total height	1110 mm
	Seat height	825 mm
	Minimum ground clearance	129 mm
	Front footpeg height	399 mm
	Wheelbase	1437 mm
Frame	Type	Aluminium alloy cast monocoque frame
Subframe	Type	Aluminium alloy cast rear subframe
	Steering head angle	24.5°
	Steering angle	27° on the LH side / 27° on the RH side
	Trail	100 mm
	Front suspension	ÖHLINS: hydraulic upside-down fork with electronic adjustment (through the Dashboard) for rebound, compression, and preload (for inner springs of fork legs). Fork legs Ø 43 mm
	Front wheel travel	120 mm
	Rear suspension	ÖHLINS: the rear suspension features a pressurised hydraulic monoshock which is adjustable for rebound and compression through the dashboard. The spring preload can be adjusted manually. Wheel travel: 130 mm. Shock absorber stroke: 59.5 mm.
	Front rim	Forged in light alloy, with three spokes
	Front rim size	MT 3.50x17”
	Front tyre size	120/70 - ZR 17
	Rear rim	Forged in light alloy, with three spokes
	Rear rim size	MT 5.50x17”
	Rear tyre size	200/55 - ZR 17
	Type of tyres	“Tubeless” radial type

http://www.ducati-manuals.com
no. 140312

	Front brake	Hydraulic, 2 callipers with standard ABS
	Rear brake	Hydraulic, 1 calliper with standard ABS
Engine	Type	Longitudinal 90° “L” twin cylinder, four-stroke, with deep sump die-cast crankcase.
	Bore	112 mm
	Stroke	60.8 mm
	Displacement	1198 cm3
	Compression ratio	12.5±0.5:1
	Timing system	Double overhead camshaft (DOHC) driven by chain and gearwheels, 4 valves per cylinder, desmodromic system.
	Lubrication system	forced, with pump featuring a double radiator
	Type of oil pump	Gear pump with by-pass valve
	Cooling system	Liquid-cooled, with thermostat
	Air filter	One filtering element inside the air-box
	Crankshaft type	One-piece

http://www.ducati-manuals.com
no. 140312

Colours

Description	Code
Ducati anniversary red	473.101 (PPG)
Tricolore White	929.D398 (PALINAL)
Gloss black	248514 (PPG)
Clear coat	228.880 (PPG)
Monocoque Grey frame and black rims	

http://www.ducati-manuals.com
no. 140312

Transmission

	Reference	Technical specifications
	Clutch	Multiplate wet clutch
	Clutch control	Hydraulic
	Gearbox	Six speed
	Primary drive	30/53
	Drive ratio	0.53
	Final drive	15/39
	Gearbox type	With constant mesh spur gears, operated by a lever on the left side of the motorcycle
Transmission	Gear ratios	
	1st	15/37
	2nd	16/30
	3rd	18/27
	4th	20/25
	5th	22/24
	6th	24/23

http://www.ducati-manuals.com
no. 140312

Timing system/valves

	Reference	Assembly value	Set mileage interval inspection (24,000 Km / 15,000 mi)
Timing diagram	With 1 mm valve clearance		
	Intake	Opening 19° B.T.D.C. Closing 60° A.B.D.C.	
	Exhaust	Opening 63° B.B.D.C. Closing 26° A.T.D.C.	
	Intake valve diameter	46.8 mm	
	Exhaust valve diameter	38.2 mm	
Valve lift	With 0 mm valve clearance	Intake 16 mm Exhaust 14.3 mm	
	Opening rocker arm - intake	0.10÷0.15 mm	0.07÷0.22 mm
	Opening rocker arm - exhaust	0.15÷0.20 mm	0.12÷0.27 mm
	Closing rocker arm - intake	0.13÷0.18 mm	0.13÷0.23 mm
	Closing rocker arm - exhaust	0.08÷0.13 mm	0.08÷0.18 mm

http://www.ducati-manuals.com
no. 140312

Crankshaft

	Reference	Standard value	Limit value
Crankshaft	Ovality		n.a.
	Taper		n.a.
	Main bearing journal alignment		n.a.

http://www.ducati-manuals.com
no. 140312

Piston cylinder

	Reference	Standard value	Limit value
	Cylinder liner nominal diameter	112 mm	
	Max. ovality		n.a.
	Max. taper		n.a.
	Diameter Section A Section B Section C	112.000 mm ÷ 112.010 mm 112.010 mm ÷ 112.020 mm 112.020 mm ÷ 112.030 mm	
Piston-cylinder coupling clearance		0.065 ÷ 0.085 mm	
Piston	Nominal diameter		
	Diameter Section A Section B Section C	111.925 mm ÷ 111.935 mm 111.935 mm ÷ 111.945 mm 111.945 mm ÷ 111.955 mm	
Con-rod	Con-rod big end diameter	49 mm	
	Crankshaft class	Con-rod class	Bearing colour
Con-rod big end bearing pairing	A A B B C C	A B A B A B	Blue + Blue Blue + Yellow Blue + Yellow Yellow + Yellow Yellow + Yellow Yellow + Black
Con-rod big end bearing-crankshaft journal coupling clearance	Pin selection	0.055÷0.078 mm	
Piston and gudgeon pin clearance		0.015÷0.025 mm	
	Nominal diameter	Ø 22 mm	
	Piston	Ø 22 mm / 0.020 ÷ 0.015	
	Gudgeon pin	Ø 22 mm / 0 ÷ 0.005	
Con-rod and gudgeon pin clearance		0.035÷0.050 mm	
Cylinder compression measured with DDS2		n.a.	n.a.

http://www.ducati-manuals.com
no. 140312

Gearbox

	Reference	Standard value	Limit value
Gearbox shafts	End float		n.a.
Gearbox drum	End float		n.a.
Gear selector fork	Lateral sliding shoe thickness	5.75÷5.85 mm	n.a.
	Central sliding shoe thickness	5.25÷5.55 mm	n.a.
	Fork-to-gear clearance for lateral sliding shoes	0.1÷0.3 mm	n.a.
	Fork-to-gear clearance for central sliding shoe	0.4÷0.8 mm	n.a.

http://www.ducati-manuals.com
no. 140312

Cooling system

	Reference	Technical specifications
Type	Liquid-cooled, with two closed loop radiators featuring double curved radiator with double fan and mixing thermostat	
Coolant capacity		2.3±0.5 litres
Thermostat	Starts opening at	65 °C ±2 °C
	Electric fan enabling	103 °C
	Electric fan disabling	102 °C

http://www.ducati-manuals.com
no. 140312

Front wheel

	Reference	Standard value	Limit value
Minimum tread depth	At the point where tread is most worn down		2 mm
Tyre pressure	Cold	2.1 bar - 2.3 kg/sq. cm	
Wheel shaft runout	On 100 mm		0.2 mm
Wheel rim runout	Radial	0.8 mm	2 mm
	Lateral	0.5 mm	2 mm

http://www.ducati-manuals.com
no. 140312

Front suspension

	Reference	Technical specifications
Type		ÖHLINS hydraulic upside-down fork provided with electronic adjustment (through the Dashboard) for rebound, compression, and preload (for inner springs of fork legs). Ø 43 mm fork legs, TIN-coated.
	Travel	120 mm
Fork	Oil level per leg	155 cc (per leg)
	Standard setting	Rebound: 10 clicks; Compression: 8 clicks; Spring preload: 8 mm.

http://www.ducati-manuals.com
no. 140312

Rear wheel

	Reference	Standard value	Limit value
Minimum tread depth	At the point where tread is most worn down		2 mm
Tyre pressure	Cold	2.2 bar - 2.4 kg/sq. cm	
Swingarm shaft runout	On 100 mm		0.2 mm
Wheel rim runout	Radial	0.8 mm	2 mm
	Lateral	0.5 mm	2 mm
Drive chain	Make	Regina	
	Number of links	106	

http://www.ducati-manuals.com
no. 140312

Rear suspension

	Reference	Technical specifications
Type		ÖHLINS: the rear suspension features a pressurised hydraulic monoshock which is adjustable for rebound and compression through the dashboard. The spring preload can be adjusted manually.
Shock absorber	Stroke	59.5 mm
	Wheel travel	130 mm
	Standard setting	Rebound: 10 clicks Compression: 10 clicks Spring preload: 6 mm

http://www.ducati-manuals.com
no. 140312

Hydraulic brakes

	Reference	Standard value	Limit value
FRONT			
Brake disc	Type	Semi-floating drilled twin-disc	
	Thickness	5 mm	
	Carrier material	aluminium	
	Braking material	steel	
	Diameter	330 mm	
Brake calliper	Make	Brembo	
	Type	M50	
	Calliper cylinder diameter	30	
	Pad friction material	TT2910 HH	
Master cylinder	Type	PR 16/21	
	Master cylinder diameter	16	
REAR			
Brake disc	Type	Drilled fixed disc	
	Thickness	5 mm	
	Material	steel	
	Diameter	245 mm	
Brake calliper	Make	Brembo	
	Type	P34c	
	Calliper cylinder diameter	34	
	Pad friction material	Ferodo Ferit I/D 450 FF	
Master cylinder	Type	PS13	
	Master cylinder diameter	13	

http://www.ducati-manuals.com
no. 140312

Generator/charging system

	Reference	Technical specifications
Battery	Voltage	12 V
	Charge	6.5 Ah
	Type	Sealed
Generator	Capacity	12 V - 380 W

http://www.ducati-manuals.com
no. 140312

Ignition system

	Reference	Technical specifications
Ignition	Type	Inductive electric discharge I.A.W. type
Starting	Type	12 V - 0.6 kW starter motor
Spark plugs	Make and type	NGK MAR09A-J

http://www.ducati-manuals.com
no. 140312

Fuel supply system

Important

Do not use any additives in fuel or lubricants. Using them could result in severe damage of the engine and motorcycle components.

Warning

The vehicle is compatible only with fuel having a maximum content of ethanol of 10% (E10). Using fuel with ethanol content over 10% is prohibited. Using it could result in severe damage of the engine and motorcycle components. Using fuel with ethanol content over 10% will render the Warranty null and void.

Make	Type
Unleaded fuel Fuel for the US market	95-98 RON Unleaded fuel with a minimum octane rating of 90 (RON+MON)/2
Throttle body	Oval throttle body, Ø 67.5 mm
Injectors per cylinder	2
Firing points per injector	12

http://www.ducati-manuals.com
no. 140312

Injection system

	Make	Type
Control unit	MITSUBISHI	Indirect electronic injection type: a/n / a/n.

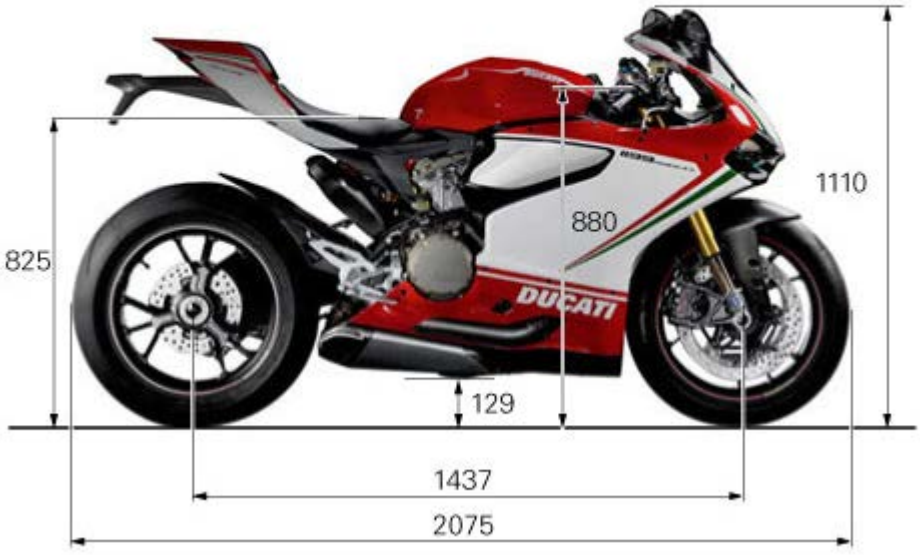
http://www.ducati-manuals.com
no. 140312

Lights/Instruments

	Reference	Technical specifications
Headlight	low beam type	no. 2 ALTILON LAFL-C4L-850 LEDs
	high beam type	no. 8 LUMILEDS LXMA-PW01-0100 LEDs
Parking light	Light type	no. 8 ORSAM LW G6SP-EAFA-JK LEDs
Tail light	Light type	no. 2 REBEL LXM2-PH01-0060 LEDs
Stop lights	Light type	no. 8 LA G6SP-CBEA-24-1 LEDs
Front turn indicators	Light type	-
Rear turn indicators	Light type	no. 4 ORSAM LYE65F LEDs
Number plate light	Light type	no. 3 CREE CLA1A-WKW-CXAYB453 LEDs
Fuses	Regulator	30 A
Front LH fuse box key	-	-
	GPS	5 A
	Key-sense	10 A
	Diagnostics	5 A
	Throttle opening relay (ETV)	10 A
	Instrument panel	10 A
	Spare	5 A
	Spare	10 A
	Spare	20 A
Front RH fuse box key	ABS 1	30 A
	ABS 2	15 A
	Injection relay	20 A
	Lights	10 A
	ECU	10 A
	Black Box System (BBS)	15 A
	Spare	5 A
	Spare	10 A
	Spare	20 A

http://www.ducati-manuals.com
no. 140312

Overall dimensions





http://www.ducati-manuals.com
no. 140312

Fuel, lubricants and other fluids

Warning
Failure to observe weight limits could result in poor handling and impair the performance of your motorcycle, and you may lose control of the motorcycle.

Top-ups	Type	cu. dm (litres)
Fuel tank, including a reserve of 5 cu. dm (litres)	Unleaded fuel with 95-98 fuel octane rating (at least) Per il mercato USA, benzina verde con un numero minimo di ottano di almeno 90 (RON+MON)/2.	17
Oil sump and filter	SHELL Advance 4T Ultra	3.7 dm3 (litres)
Front/rear brake and clutch circuits	Special hydraulic fluid SHELL Advance Brake Dot 4	
Protectant for electric contacts	SHELL - Advance Contact Cleaner spray for electric systems	
Front fork	SHELL - Advance Fork 7.5 or Donax TA	155 cc (per leg)
Cooling circuit	Liquido antigelo ENI Agip Permanent Spezial (da usare senza diluire)	2.3 cu.dm

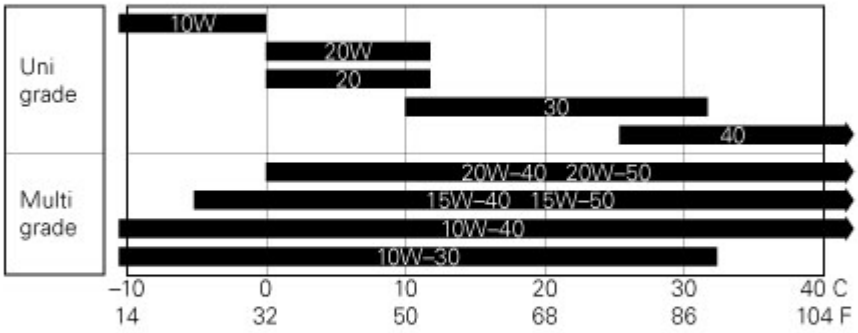
Important
Do not use any additives in fuel or lubricants. Using them could result in severe damage of the engine and motorcycle components.

Warning
The vehicle is compatible only with fuel having a maximum content of ethanol of 10% (E10). Using fuel with ethanol content over 10% is prohibited. Using it could result in severe damage of the engine and motorcycle components. Using fuel with ethanol content over 10% will render the Warranty null and void.

Engine oil
A good quality engine oil has special properties. Use only a highly detergent engine oil with certified SE, SF or SG or higher service ratings as marked on the container.

Viscosity
SAE 15W-50
The other viscosity grades specified in the table can be used where the average ambient temperatures are within the limits shown.

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Frame tightening torques

Part	Thread (mm)	Nm Tolerance ±10%	Notes
ACCESSORIES AND OUTFIT			
Passenger seat strap nut	M6X1	8	Grease B (on underside only)
STAND			
Side stand pivot pack fastener	M8X1.25	25	Grease B
Stand spring rod stop grub screw fastener	M6X1	5	LOCK 8
Spring centring rod hinge pivot fastener		Interference fit and caulking	
Side stand magnet fastener		Glued with silicone and caulking	
CHAIN - SPROCKET			
Sprocket cover retaining screw	M5X0.8	4	LOCK 2
Front sprocket retaining screw	M10X1.25	55 *	Grease B
Chain slider retaining screw	M6x1	13	
LIGHT UNITS			
Screw securing conveyor to headlight	M3.5	1	
Screw securing headlight to support	M5x0.8	5	Grease B
Screw securing headlight to tail guard compartment	M4.5 ST	3	
Screw retaining mirrors to subframe	M5x0.8	6	
Screw retaining turn indicators to number plate holder	M5x0.8	3	
INSTRUMENT PANEL			
Nut retaining silent block to headlight support	M5x0.8	3	
FRONT FORK			
Steering shaft to bottom yoke fastener	M37x1	40	LOCK 5
Screw retaining bottom yoke clamps to forks	M6X1	8*	Grease B (Sequence: 1-2-3 / 2-1-3)
Nut retaining steering stop screw	M6X1	10	LOCK 2
Screw retaining splashguard to bottom yoke	M5x0.8	5	
Screw retaining Ohlins fork bottom end clamps to shaft	M8x1.25	19*	Grease B
Screw retaining steering head clamps to forks	M8x1.25	22*	Grease B

http://www.ducati-manuals.com
no. 140312

Screw retaining steering head clamps to steering shaft	M8x1.25	22*	Grease B
Ring nut retaining steering shaft pack	M35x1	25*	Grease C
Screw retaining eyelet to Ohlins steering damper	M8x1.25	10	LOCK 8
Screw retaining steering damper to frame	M6X1	10	LOCK 1
Screw retaining steering damper to handlebar	M6X1	10	LOCK 1
ELECTRICAL - ELECTRONIC SYSTEM			
Electrical system mounts to frame fastener	M5x0.8	5	LOCK 1
Screw securing battery support to engine	M6x1	10	
Screw securing cover to battery support	M5x0.8	5	
Screw securing fuse cable protection to battery support	M5 ST	3	
Screw retaining cable eyelets to solenoid starter	M6x1	4	
Nut retaining cable eyelets to starter motor	M5x0.8	3	Grease C
Screw retaining wiring bracket to head	M5x0.8	4	LOCK 1
Self-locking nut retaining solenoid starter support to generator cover	M5x0.8	6	
Screw retaining voltage regulator	M6x1	8	
Screw retaining control unit bracket	M5x0.8	3	
Coil screw	M6x1	8	
Map sensor screw	M6x1	2	
Screw retaining throttle shells	M5x0.8	1,5	
Screw retaining RH switchgear shells	M4x0.7	1,3	
Screw retaining LH switchgear shells	M4x0.7	1,3	
Side stand switch screw	M4x0.5	3	LOCK 2
Ignition switch special screw	M6x1	10	Pre-applied threadlocker on new part - LOCK 2 for reuse
Speed sensor screw	M6x1	10	
Lambda sensor fastener	M12x1.25	25	Pre-applied grease on new part - Grease B for reuse
Number plate light retaining screws	3	0,7	
Air temperature sensor screw	M5x0.8	3	
Rear stop switch fastener	M8x1	5	
Horn screw	M8x1.25	18	Pre-applied threadlocker on new part - LOCK 2 for reuse

http://www.ducati-manuals.com
no. 140312

Exhaust valve motor screw	M5 ST	4	
Screw retaining motor cover to extractor	M5 ST	4	
Screw retaining actuator to air-box bottom	M5x0.8	4	
Screw retaining secondary air system pipe support clamp	M3.5 ST	1	
Screw retaining wiring tab on LH seat-tank cover	M4x0.5	2	
Screw retaining GPS to instrument panel cover	M4x0.7	1.5	
FRONT BRAKE			
Screw retaining front brake master cylinder to handlebar	M6x1	10	(Sequence: 1-(UP)-2-1)
Brake fluid reservoir plate screw	M6x1	10	
Self-locking nut retaining brake fluid reservoir to plate	M5x0.8	5	
Screw retaining brake lines coupling to brake master cylinder	M10x1	23	
Screw retaining brake lines coupling to RH brake calliper	M10x1	23	
Screw retaining brake lines coupling to LH brake calliper	M10x1	23	
Braking system black bleeder	M6x1		
Screw retaining callipers to fork bottom end	M10x1.25	45*/pre-torque 2*	Grease B
Screw retaining front brake line guide to bottom yoke	M5x0.8	5	
REAR SWINGARM			
Fastener retaining right-hand swingarm shaft to engine block	M20x1.5	100*	Grease B
Fastener retaining left-hand swingarm shaft to engine block	M20x1.5	100*	Grease B
Chain slider retaining screw	M6x1	8	Pre-applied threadlocker on new part - LOCK 2 for reuse
Lower chain splashguard screw	M6x1	8	Pre-applied threadlocker on new part - LOCK 2 for reuse
Upper chain splashguard black screw	M5x0.8	5	Pre-applied threadlocker on new part - LOCK 2 for reuse
Screw retaining swingarm clamp to eccentric	M12x1.25	25*	Grease B (Sequence: 1-2-1)
Calliper holder plate reference pin fastener	M12x1.25	33*	LOCK 8
REAR BRAKE			
Union retaining screw	M10x1	23	

http://www.ducati-manuals.com
no. 140312

Rear brake fluid reservoir screw	M6x1	2	
Front screw retaining brake master cylinder support to footpeg bracket	M5x0.8	6	Use pre-torque setting
Rear screw retaining brake master cylinder support to footpeg bracket	M6x1	10	LOCK 1
Screw retaining rear brake master cylinder to support	M6x1	8	
Screw retaining rear brake calliper to plate	M8x1.25	25*	Grease B
Screw retaining rear brake line guide to swinging arm	M5x0.8	3,5	LOCK 2
Special nut retaining brake line grommet to clutch cover	M5x0.8	5	
Rear brake line guide tie fastener	M6x1	8	
ABS			
Fastener retaining ABS bracket to horizontal head	M6x1	10	
Fastener retaining ABS control unit rubber block to support bracket	M6x1	8	
Fastener retaining ABS brake lines to control unit	M12x1	23	
Fastener retaining ABS brake lines to control unit	M10x1	23	
Front fastener retaining ABS compartment cover	M5x0.8	3	
Rear fastener retaining ABS compartment cover	M5x0.8	5	
Fastener retaining front and rear ABS line grommets to frame	M6x1	5	LOCK 2
NUMBER PLATE HOLDER			
Screw retaining lower to upper number plate holder	M5 ST	5	
Screw retaining number plate holder to subframe	M5x0.8	6	
Screw retaining number plate holder plate to number plate holder	M6x1	5	
Nut retaining cat's eye to number plate holder plate	M4x0.5	2	
HANDLEBAR - CLUTCH CONTROL			
Screw retaining clutch master cylinder to handlebar	M6x1	10	Sequence 1 (UP)-2-1
Clutch fluid reservoir plate screw	M6x1	-	
Nut retaining brake fluid reservoir to plate	M5x0.8	-	
Union retaining special screw	M10x1	-	

http://www.ducati-manuals.com
no. 140312

Braking system bleeder	M6x1	-	
Union retaining screw	M10x1	-	
Screw retaining clutch slave cylinder to engine block	M6x1	10	Sequence: 1-2-3-1
Screw retaining handlebar clamp to fork	M8x1.25	22*	Grease B
Screw retaining handlebar clamp to tube	M6x1	8	Grease B (Sequence: external-internal-external)
Fastener retaining counterweight to handlebar	M18x1.5	25	LOCK 1
REAR SUSPENSION			
Screw retaining support to engine block	M8x1.25	25*	Grease B
Screw retaining rocker arm halves to LH support	M8x1.25	60*	Grease B
Special screw retaining suspension reaction rod clamp	M6x1	10*	Grease B
Special screw retaining suspension linkage to swingarm	M10x1.25	45*	Grease B
Nut retaining suspension linkage to rocker arm	M10x1.25	45*	Grease B
Screw retaining shock absorber to engine block	M10x1.5	45*	Grease B
Screw retaining shock absorber to rocker arm	M10x1.5	45*	Grease B
Screw retaining shock absorber spring guard	M5x0.8	6	
Rear suspension linkage centre distance adjustment	M14x1		GREASE C
FRONT MUDGUARD			
Mudguard clip retaining screw	M3.5 ST	0,4	
Screw retaining mudguard to bracket	M6x1	10	
RADIATOR			
Screw securing radiator support to frame	M5x0.8	6	Grease B
Black screw with wide head retaining radiator support to horizontal head	M5x0.8	4	LOCK 1
Black screw retaining radiator support cover	M5x0.8	2,5	
Screw securing top radiator to radiator support	M5x0.8	5	Grease B
Screw retaining heat exchanger breather pipe eyelet	M10x1	14	
Screw retaining electric fan to front extractor	M5 ST	3	
Screw retaining rear extractor to front extractor	M5 ST	4	

http://www.ducati-manuals.com
no. 140312

Screw securing extractor to radiator support	M5x0.8	5	Grease B
Black screw retaining extractor to sump	M5x0.8	4	Pre-applied threadlocker on new part - LOCK 2 for reuse
Screw on clamp retaining water pipes to radiators and distributor	-	2,5	
FOOTPEGS AND LEVERS			
Screw retaining LH support to engine block	M8x1.25	25*	Grease B
Screw retaining LH support and stand to engine block	M8x1.25	25*	Grease B
Screw retaining LH support clamp to swingarm shaft	M8x1.25	8*	Grease B
Screw retaining LH footrest holder plate to support	M8x1.25	25*	Grease B
Screw retaining LH heel guard to footrest holder plate	M5x0.8	6	
Pin retaining gearchange pedal to footrest holder plate	M8x1.25	25	Grease C on collar
Nut retaining ball joint to rod	M6x1	5	LOCK 1
Nut retaining quick-shift actuator to rod	M8x1.25	15	LOCK 1
Screw retaining complete rod to gearchange pedal	M6x1	10	LOCK 1
Screw retaining complete rod to gearchange transmission lever	M6x1	10	
Screw retaining gearchange transmission lever clamp to selector shaft	M6x1	10	
Screw retaining RH support to engine block	M8x1.25	25*	
Screw retaining RH support clamp to swingarm shaft	M8x1.25	8*	Grease B
Screw retaining RH footrest holder plate to support	M8x1.25	25*	Grease B
Rear screw retaining RH heel guard	M5x0.8	6	LOCK 2
Front screw retaining RH heel guard/cylinder support	M5x0.8	6	LOCK 2
Pin retaining rear brake lever to footrest holder plate	M8x1.25	25	Grease C on collar
Nut retaining rear brake lever adjuster screw	M6x1	8	
Nut retaining fork to rear brake linkage	M6x1	7,5	
Pin retaining rear brake linkage to brake lever	M6x1	10	LOCK 2
Screw retaining passenger footpeg holder plates	M6x1	10	
Front screw retaining footrest holder plates	M8x1.25	25	

http://www.ducati-manuals.com
no. 140312

to subframe			
Rear screw retaining footrest holder plates to subframe	M8x1.25	25	
REAR MUDGUARD			
Black screw retaining rear mudguard to swinging arm	M5x0.8	5	Pre-applied threadlocker on new part - LOCK 2 for reuse
FRONT WHEEL			
Screw retaining brake discs and phonic wheel to wheel rim	M8x1.25	30*	
Nut retaining front wheel pack to LH fork leg	M25x1.25	63*	Grease B (on thread and underside)
REAR WHEEL			
Special screw retaining driving pin	M8x1	25*	DRILOC 218 on new part - clean and LOCK 2 for reuse
Rear phonic wheel retaining screw	M5x0.8	5*	LOCK 2
Rear sprocket cush drive damper nut	M10x1	44	LOCK 2
Rear wheel nut (sprocket side and wheel side)	M48x1.5	230*	Grease B (on thread and underside)
Rear wheel eccentric	More		GREASE C
FUEL TANK			
Tank rear pivot fastener	M8x1.25	18	
Male quick coupling fastener	1/4 NPT	5,5*	LOCK 6
Tank front hinge spacer retaining screw	M6x1	10	Grease B
Tank plug screw	M5x0.8	4	
Tank support top bracket front nut	M5x0.8	6	
Tank support top bracket rear screw	M6x1	10	Grease B
EXHAUST			
Copper nut retaining manifold to head	M6x1	10	
Screw retaining heat guard to horizontal manifold	M5x0.8	5	
CO plug fastener	G 1/8" A	25	Grease I
Copper nut retaining manifold to head	M6x1	10	
CO plug fastener	G 1/8" A	25	Grease I
Screw retaining exhaust silencer to central body	M6x1	10	
Nut retaining front bracket to silencer	M6x1	10	
Screw retaining silencer front bracket to engine block	M8x1.25	25	Grease B

http://www.ducati-manuals.com
no. 140312

Screw retaining rear bracket to silencer	M6x1	10	
Screw retaining silencer rear bracket to engine block	M8x1.25	25	Grease B
Screw retaining heat guard to vertical manifold	M5x0.8	4	
Self-locking nut retaining Bowden cable heat guard to sump screws	M5x0.8	6	
Fastener retaining silencer bracket to footrest holder plate (Japan version)	M5x0.8	6	LOCK 2
Fastener retaining silencer bracket to carbon tailpipe (Japan version)	M6x1	15	
Fastener retaining tailpipe bracket spring unit to silencer bracket (Japan version)	M8x1.25	15	
Fastener retaining heat guard to carbon tailpipe (Japan version)	M5x0.8	4	
SEAT			
Black screw retaining seat spacer to tank bracket	M5x0.8	5	
FRAME			
Nut retaining frame to cylinder heads	M10x1	45*	Grease B
Side screw retaining switch bracket to frame	M6x1	10	Grease B
Central screw retaining switch bracket to frame	M6x1	10	Grease B
Screw retaining rear subframe to frame	M8x1.25	28*	Grease B
Screw retaining rear subframe to vertical head	M8x1.25	22*	Grease B
Screw retaining secondary air system pipe tab	M4 ST	2	
Special screw retaining tail guard compartment to rear subframe	M8x1.25	18	
Special screw retaining tank support bottom bracket to rear subframe	M6x1	10	Grease B
Nut retaining seat lock revolving plug to side body panel	M22x1.5	3	
Screw securing seat latch to tail guard compartment	M6x1	8	
AIR INLET/OIL BREATHER			
Bottom screw retaining front subframe to frame	M6x1	10	Grease B
Top screw retaining front subframe to frame	M6x1	10	Grease B
Screw retaining instrument panel cover to front subframe	M5x0.8	3	LOCK 1
FUEL SYSTEM			

http://www.ducati-manuals.com
no. 140312

Screw retaining throttle body to intake manifolds	M6x1	10	LOCK 1
Nut retaining intake funnels to throttle body	M5x0.8	6	
Screw retaining injector caps to throttle body/shower	M5x0.8	6	
Screw retaining fuel supply unit to fuel tank	M5x0.8	5	Grease B
Fastener retaining ABS bracket to horizontal head (USA-CAL)	M6x1	10	
Fastener retaining canister bracket to ABS special screws (USA-CAL)	M5x0.8	6	
FAIRING			
Screw retaining headlight fairing to subframe	M5x0.8	5	
Screw retaining Plexiglas to headlight fairing	M4x0.5	0,2	
Screw retaining headlight fairing splashguard to headlight	M5x0.8	5	
Black special screw retaining LH upper half-fairing to headlight fairing	M5x0.8	2,5	
Black special screw retaining LH upper half-fairing to electrical system support	M5x0.8	2,5	
Black special screw retaining LH upper half-fairing to lower half-fairing	M5x0.8	2,5	
Black special screw retaining LH lower half-fairing to LH support	M5x0.8	5	
Black special screw retaining LH lower half-fairing to rear extractor	M5x0.8	2,5	
Black special screw retaining RH upper half-fairing to headlight fairing	M5x0.8	2,5	
Black special screw retaining RH upper half-fairing to electrical system support	M5x0.8	2,5	
Black special screw retaining RH upper half-fairing to lower half-fairing	M5x0.8	2,5	
Black special screw retaining RH lower half-fairing to RH support	M5x0.8	5	
Black special screw retaining RH lower half-fairing to rear extractor	M5x0.8	2,5	
Special screw securing lower half-fairings to radiator support	M5x0.8	2,5	
Side black special screw securing half-fairings to radiator support	M5x0.8	2,5	
Black special screw retaining LH side body panel to subframe	M5x0.8	2,5	
Black special screw retaining LH side body panel to tail guard compartment	M5x0.8	2,5	

http://www.ducati-manuals.com
no. 140312

Black special screw retaining RH side body panel to subframe	M5x0.8	2,5	
Black screw retaining RH side body panel to tail guard compartment	M5x0.8	2,5	
Black screw retaining tail guard frame to tail guard compartment	M5x0.8	2,5	
Black screw retaining tail guard frame to tail guard side body panels	M5x0.8	2,5	
Special nut retaining ignition switch cover to bracket	M5x0.8	8	
Fastener retaining switch cover to conveyor covers	M5x0.8	2.5	
Fastener retaining Japan sound-deadening panel to engine	M5x0.8	5	

* critical point for dynamic safety. Tightening torque tolerance must be ±5%.

http://www.ducati-manuals.com
no. 140312

Vehicle pre-delivery

1. Inspect packaging and make sure it is not damaged (if applicable):
2. Remove packaging (if applicable);
3. Inspect motorcycle and make sure it is not damaged;
4. Make sure standard kit supplied is complete (use checklist in the kit);
5. Install Plexiglas (Installation of the headlight fairing);
6. Install rear-view mirrors (Installation of the rear-view mirrors);
7. On request of the Customer, install passenger seat and footpegs (Installation of the passenger seat) and set the rear suspension (FLAT - PROGRESSIVE) (Changing the motorcycle track alignment);
8. Prepare the battery (Charging the battery- Electrolyte top-up) and install it on the motorcycle (Installation of the battery);
9. Check the drive chain tension;
10. Check tyre pressure (Front: 2.1 bar, Rear: 2.2 bar);
11. Check coolant, brake and clutch fluid level (and top up if necessary);
12. Check engine oil level (and top up if necessary);
13. Check lighting, turn indicators, horn and controls. Check headlight beam height. Check handlebar freedom of movement and for any interference;
14. Check key operation and steering lock on the right and left sides;
15. Check front and rear wheel shafts tightening (Front: 63 Nm±5% - Rear: 230 Nm±10%);
16. Check tightening of brake calliper screws (Front: 45 Nm±5% - Rear: 25 Nm±5%);
17. Fill with fuel until the low fuel light goes off (approx. 5 litres);
18. Check the operation of engine stop switch, side stand switch and clutch lever switch;
19. Check the presence of any technical updates and recall campaigns on the DCS;
20. Install any Ducati Performance accessories requested by the Customer and check their operation;
21. Final test and road test of the motorcycle (testing the safety devices, and electric fan);
22. Reading of the error memory with DDS 2.0 and check of Software version update on control units (use the Global Scan function);
23. Clean the motorcycle;
24. Activate the motorcycle warranty and fill out the on-board documentation (general warranty terms and conditions);
25. Explain motorcycle operation to the Customer and deliver all standard documents and literature.

http://www.ducati-manuals.com
no. 140312

Scheduled maintenance chart

Scheduled maintenance plan: operations to be performed by the Dealer

Warning

This scheduled maintenance chart is designed for a road use of the 1199 Panigale. If it is used on the track, even if not during sport competitions, all parts of the bike are more stressed so routine maintenance operations must be carried out more frequently than indicated.

List of operations and type of intervention	km. x 1000	1	12	24	36	48	Time Months
	mi. x 1000	0.6	7.5	15	22.5	30	
Read the error memory with DDS 2.0 and check whether any update is available for control unit software version.		•	•	•	•	•	12
Check whether there are technical updates and recall campaigns		•	•	•	•	•	12
Change engine oil and filter		•	•	•	•	•	12
Clean engine oil mesh filter at intake				•		•	
Check and/or adjust valve clearance				•		•	
Visual check for wear of the chain timing system						•	
Change the spark plug				•		•	
Clean the air filter			•		•		
Change the air filter				•		•	
Check the proper tightening of the clutch cover and clutch protection cover bolts			•	•	•	•	
Check the proper tightening of the oil sump bolts				•		•	
Check brake and clutch fluid level		•	•	•	•	•	12
Change brake and clutch fluid							24
Check brake pads. Replace if necessary		•	•	•	•	•	12
Check the proper tightening of brake calliper bolts and brake disc carrier							12

http://www.ducati-manuals.com
no. 140312

bolts	•	•	•	•	•	
Check front and rear wheel nuts tightening	•	•	•	•	•	12
Check wheel hub bearings			•		•	
Check and lubricate the rear wheel shaft			•		•	24
Check the cush drive damper on rear sprocket			•		•	
Check the proper tightening of secondary drive front and rear sprocket nuts	•	•	•	•	•	12
Check chain sliders for wear	•	•	•	•	•	12
Check the drive chain tension and lubrication	•	•	•	•	•	12
Check steering bearings and lubricate, if necessary			•		•	24
Change the front fork fluid						36
Visually check the front fork and rear shock absorber seals	•	•	•	•	•	12
Check the proper tightening of the frame-to-engine fasteners		•	•	•	•	12
Check the freedom of movement and tightening of the side stand	•	•	•	•	•	12
Visually check the fuel lines		•	•	•	•	12
Check rubbing points, clearance, freedom of movement and routing of the flexible cables and electric wiring	•	•	•	•	•	12
Lubricate the levers at the handlebar and pedal controls		•	•	•	•	12
Change coolant						36
Check coolant level	•	•	•	•	•	12
Check electric fan operation	•	•	•	•	•	12
Check tyre pressure and wear	•	•	•	•	•	12

http://www.ducati-manuals.com
no. 140312

Check the battery charge level	•	•	•	•	•	12
Check idling	•	•	•	•	•	12
Check secondary air system operation			•		•	
Check the operation of all electric safety devices (side stand sensor, front and rear brake switches, engine kill switch, gear/neutral sensor)	•	•	•	•	•	12
Check the indicators and lighting	•	•	•	•	•	12
Reset the Service indication through the DDS 2.0	•	•	•	•	•	12
Road test of the motorcycle, testing the safety devices (ex. ABS and DTC)	•	•	•	•	•	12
Cleaning the motorcycle	•	•	•	•	•	12
Fill out Warranty Certificate with service data	•	•	•	•	•	12

http://www.ducati-manuals.com
no. 140312

Scheduled maintenance chart: operations to be performed by the customer

List of operations and type of intervention [set mileage (km/mi) or time interval *]	km. x1000	1
	mi. x1000	0.6
Check the engine oil level		•
Check brake and clutch fluid level		•
Check tyre pressure and wear		•
Check the drive chain tension and lubrication. If necessary, contact your dealer to adjust		•
Check brake pads. If necessary, contact your dealer to replace pads		•

* Service on the set interval, whichever comes first (mileage or months)

http://www.ducati-manuals.com
no. 140312

Checking the engine oil level

The engine oil level can be checked through the sight glass (1) set on oil sump right-hand side.
When checking oil level, the motorcycle should be perfectly upright and the engine cold.
Allow a few minutes for the oil level to stabilize after stopping the engine.
The level shall be between the MIN and MAX marks. If it is too low, top it up.
Remove filler plug (2) and add the specified oil until the required level is reached.
Refit filler plug (2).



http://www.ducati-manuals.com
no. 140312

Changing the engine oil and the filter cartridge

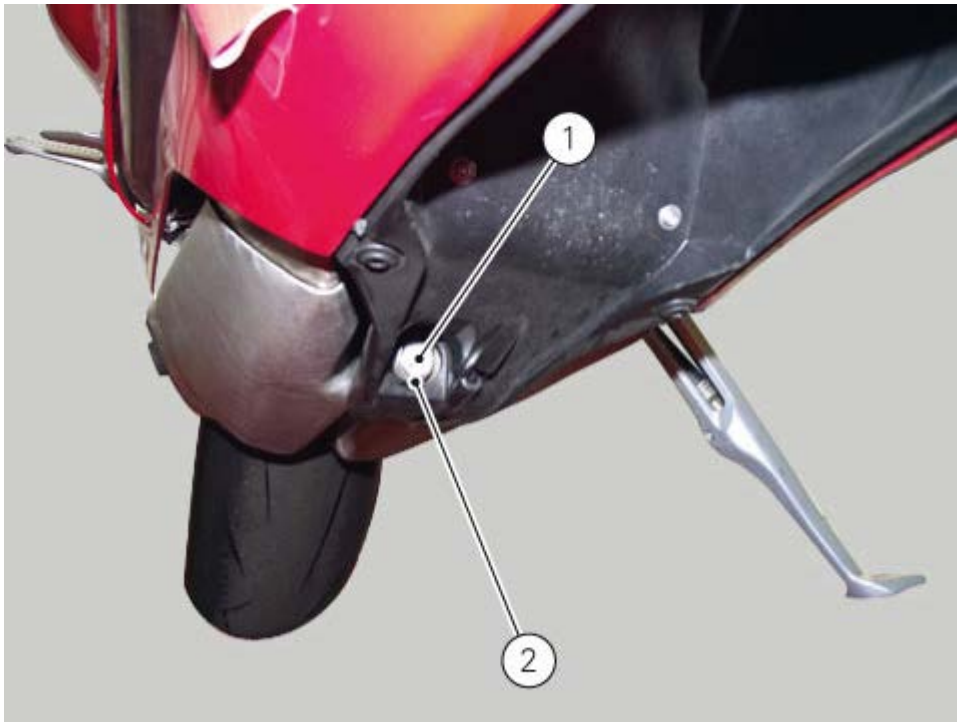
Note

This operation has to be carried out with hot engine (but turned off) because the oil in these conditions is more fluid and its evacuation is faster and complete.

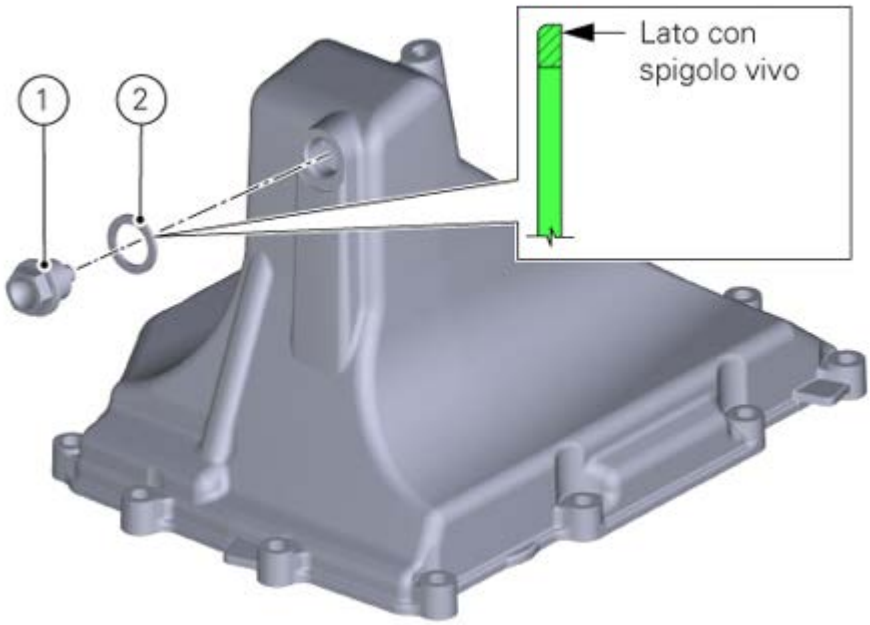
Remove the drain plug (1) with seal (2) from the oil sump and allow the oil to drain off.

Warning

Dispose of oil and/or filter cartridges in compliance with environmental protection regulations.

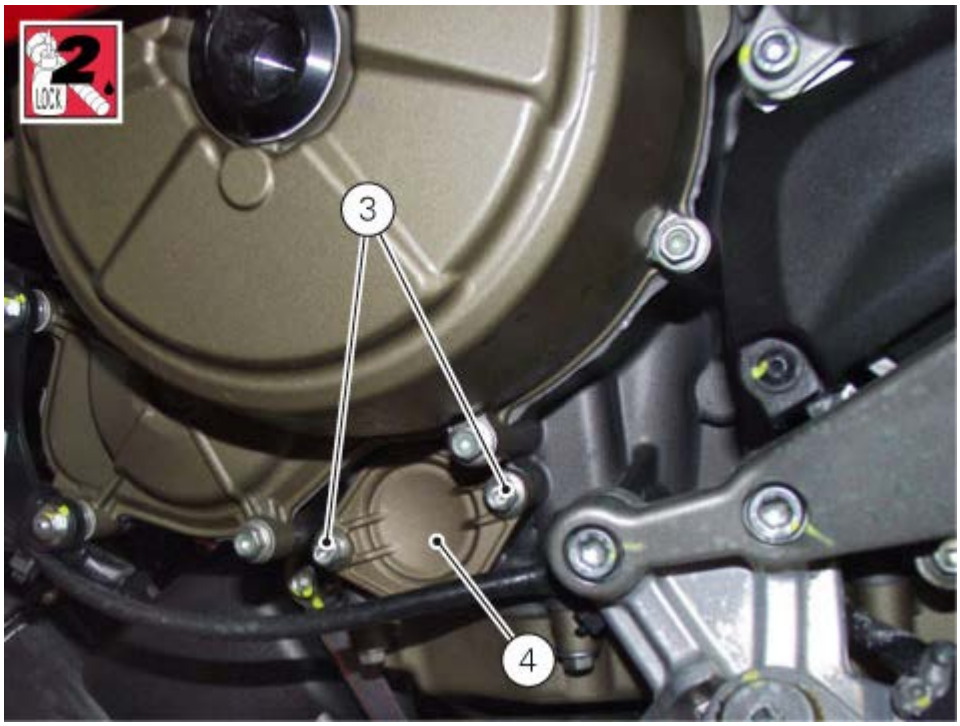


Remove any metallic deposits from the end of the magnetic drain plug (1). Clean the threads of the drain plug and apply THREEBOND TB1215. Refit the drain plug complete with seal (2) to the sump.
Position seal (2) ensuring that the sharp edge faces the chain-side casing.
Tighten drain plug (1) to a torque of 14 Nm (Min. 13 Nm - Max. 15 Nm).



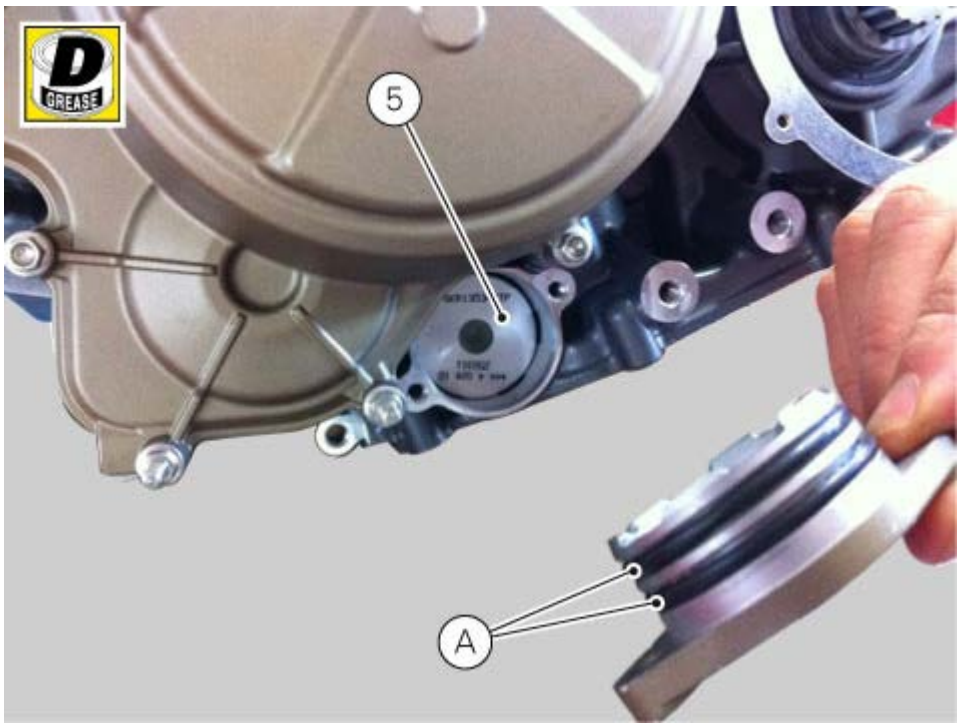
http://www.ducati-manuals.com
no. 140312

Remove the left-hand side fairing (Removal of the side fairings).
Loosen screws (3) and remove oil filter cover (4).



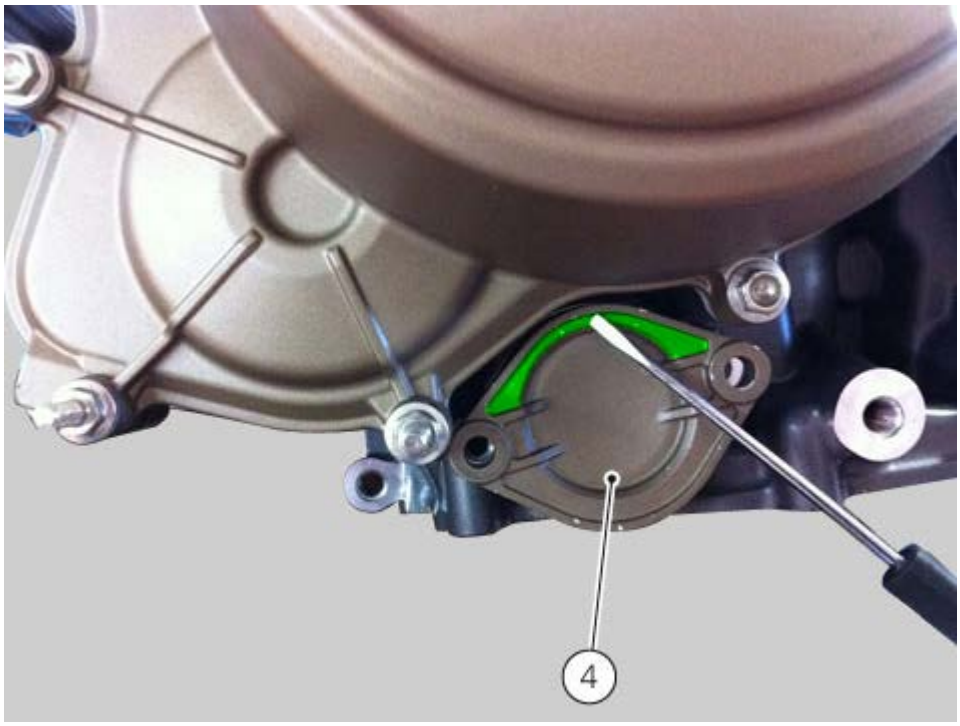
Important
Dispose of the used cartridge, do not attempt to re-utilise it.

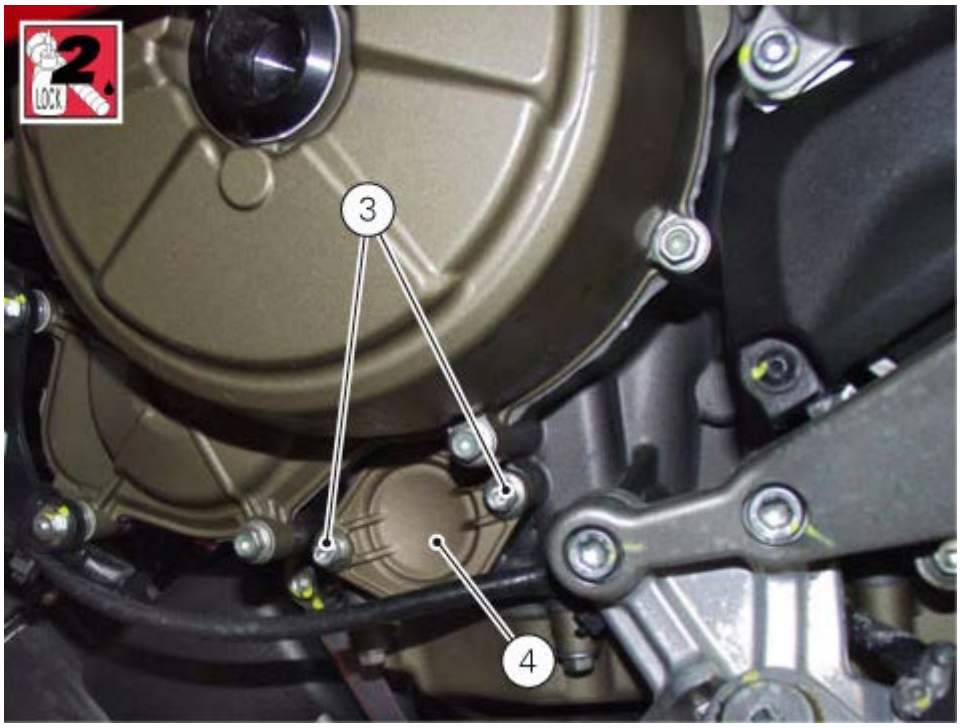
Replace oil filter cartridge (5) with a new one.
Drive oil filter cartridge (5) fully home into the relevant seat on casing.
Grease O-rings (A) fitted onto oil filter cover (4).



Fit oil filter cover (4) ensuring that the thin side faces upwards.
Apply the specified threadlocker onto screws (3) and tighten them to a torque of 13 Nm (Min. 12 Nm - Max. 14 Nm).

http://www.ducati-manuals.com
no. 140312



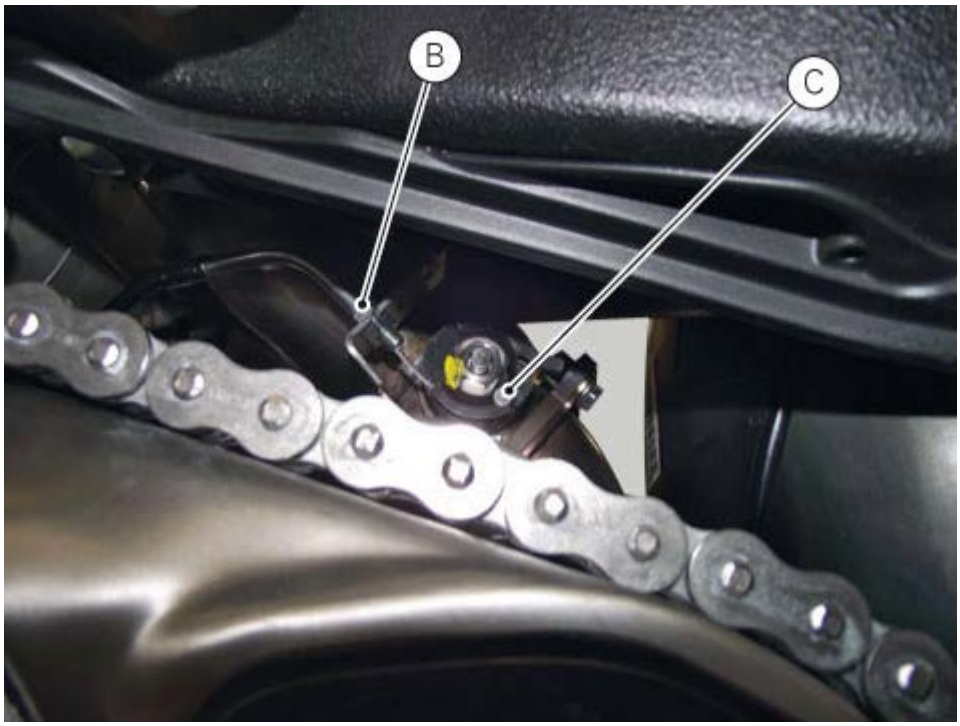


Every two oil changes, clean the oil pickup gauze filter.

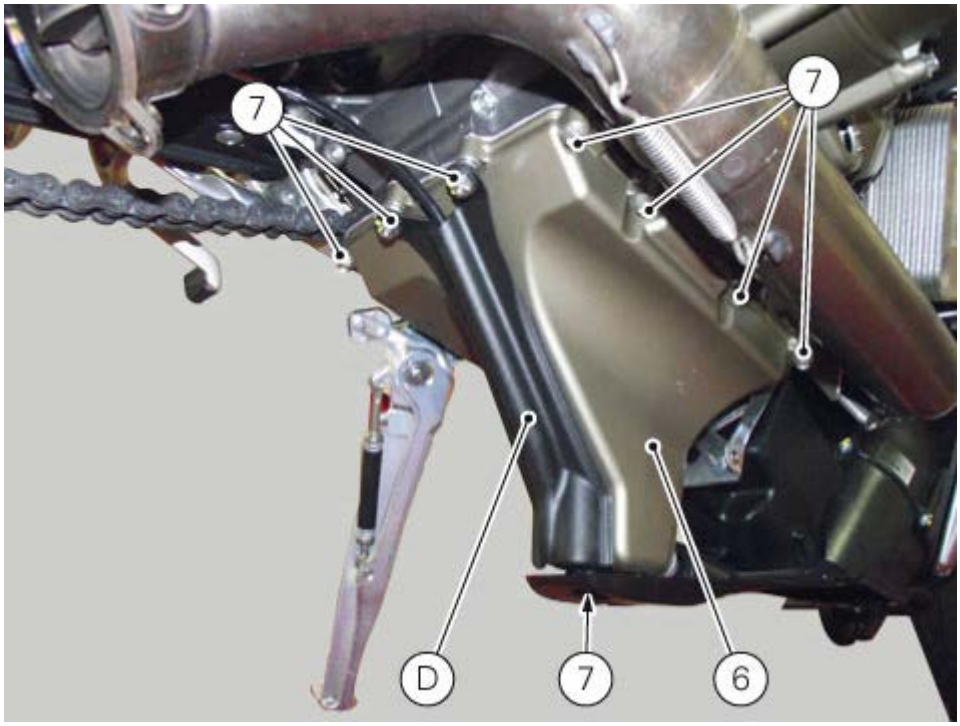
Remove the exhaust tail pipes (Removal of the silencers).
Remove the right-hand side fairing (Removal of the side fairings).

Loosen nut (B), release nipple (C) and remove the exhaust valve cable with guide (D).

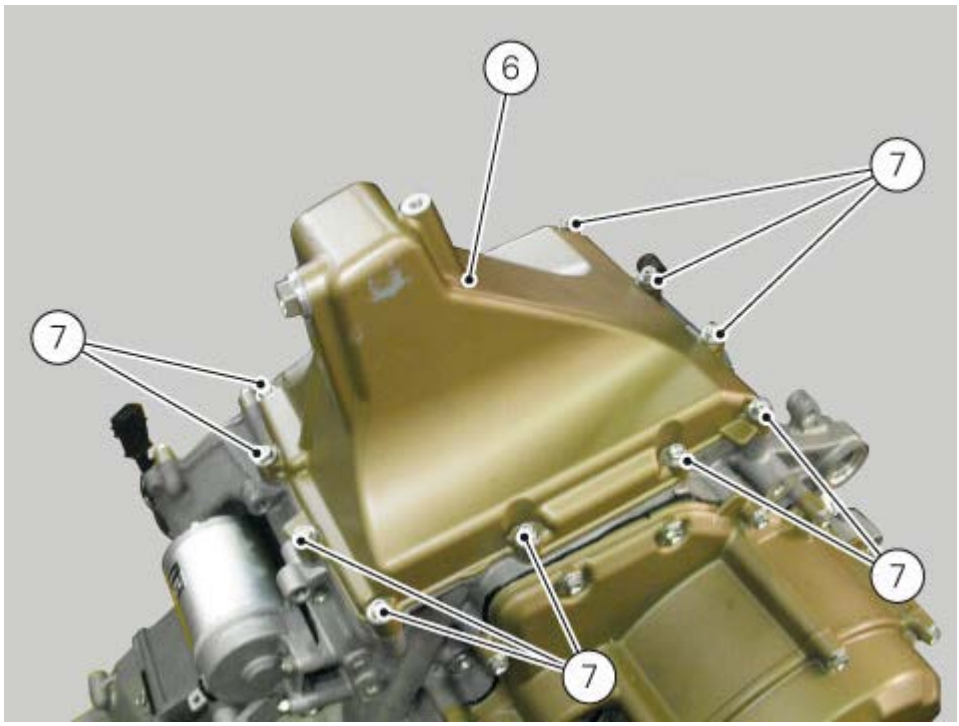
http://www.ducati-manuals.com
no. 140312



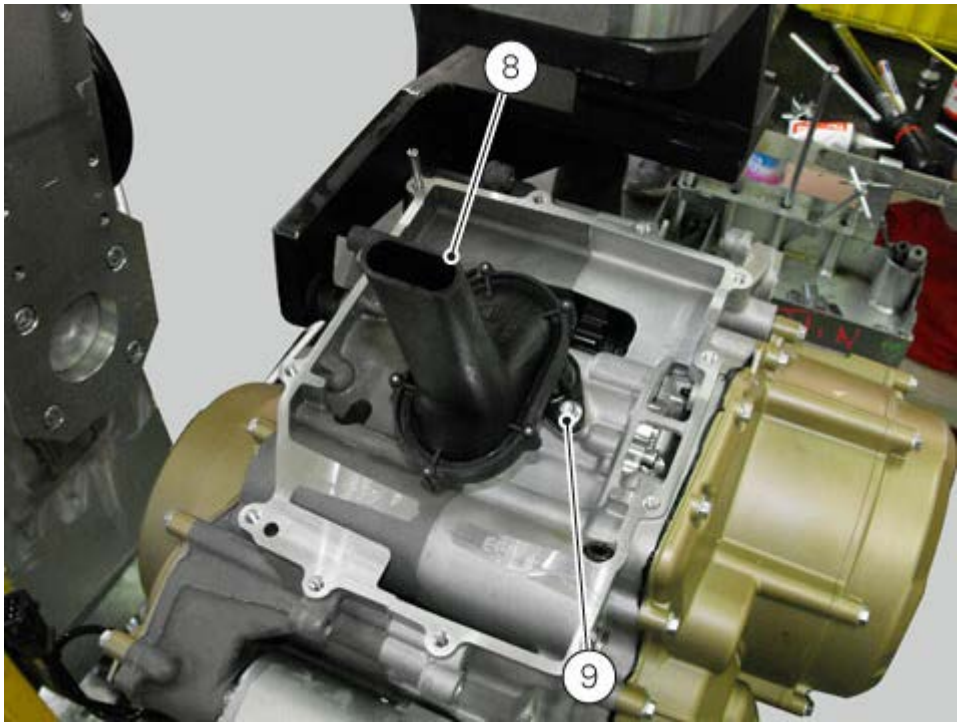
Remove oil sump (6) by loosening screws (7) and by moving away the radiator support lower end.



http://www.ducati-manuals.com
no. 140312



Loosen screw (9) and remove the complete mesh filter assembly (8).



Clean it with compressed air, aiming the jet from the inside towards the outside.

http://www.ducati-manuals.com
no. 140312

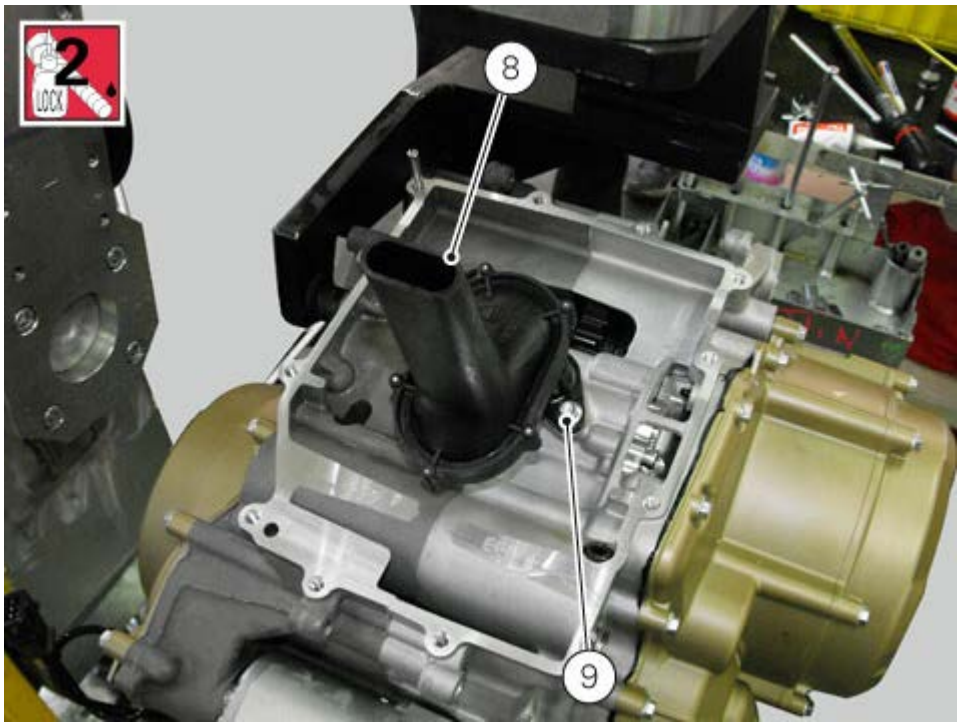


Fit seal (10) onto oil drain plug ensuring that its sharp edge faces the oil sump.
Smear seal(10) with the specified grease and position it in the complete mesh filter assembly (9).

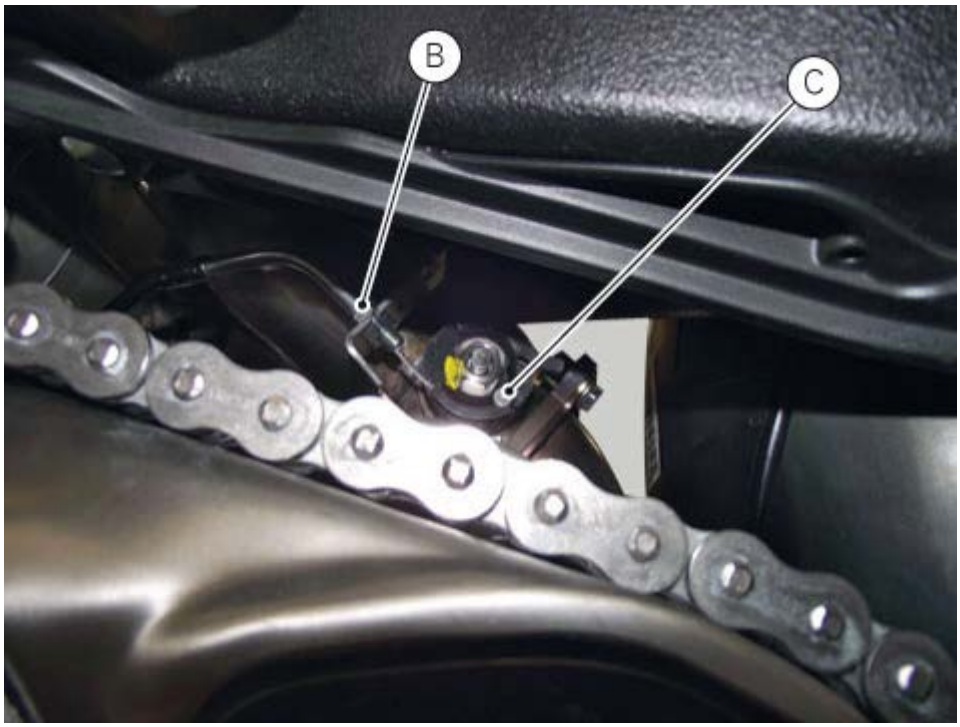


Apply the recommended threadlocker on screw (9).
Fit the complete mesh filter assembly (8) by driving the flange fully home onto casing and tighten screw (9) to 10 Nm (Min.9 Nm – Max. 11Nm).

http://www.ducati-manuals.com
no. 140312

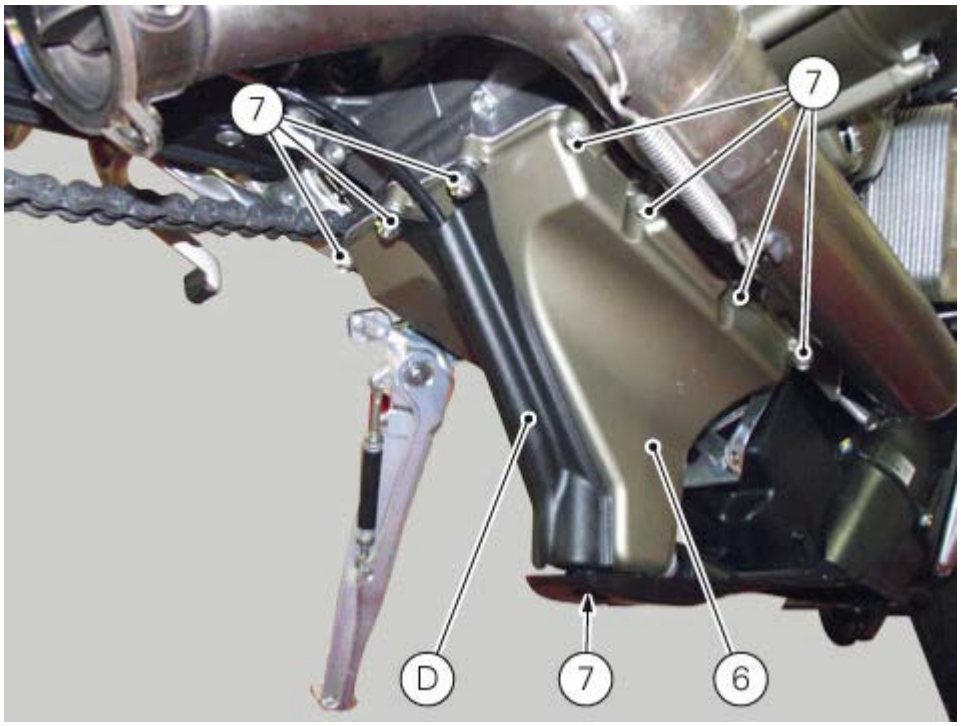


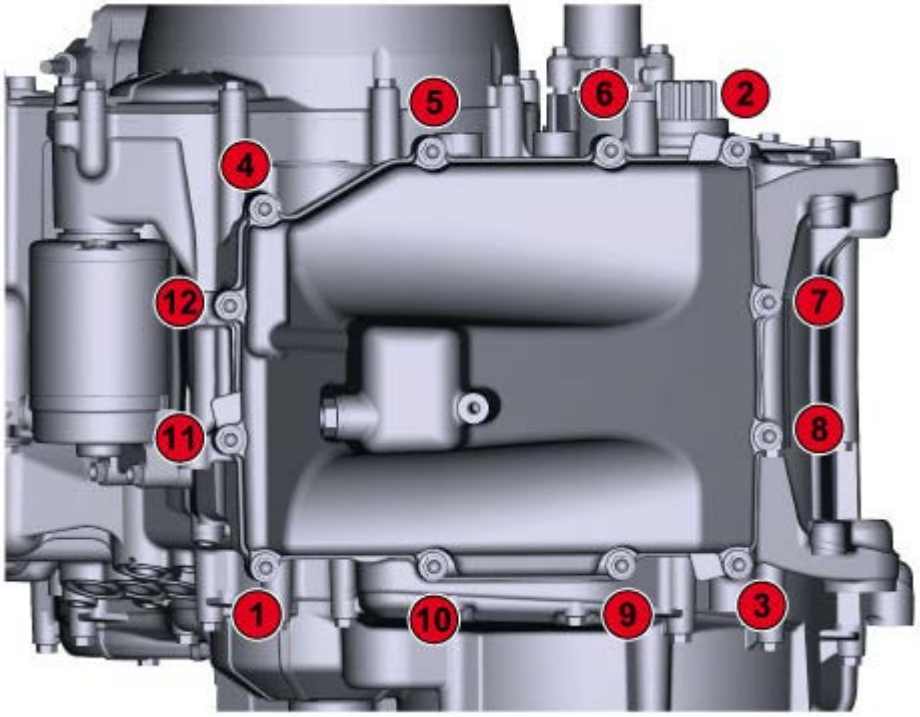
Carefully clean the mating surface between oil sump and casing.
Smear the oil sump surface with liquid gasket.
Centre the sump on the crankcase by means of the locating dowels.
Fit nipple (C) in the proper seat on the exhaust valve and tighten nut (B).



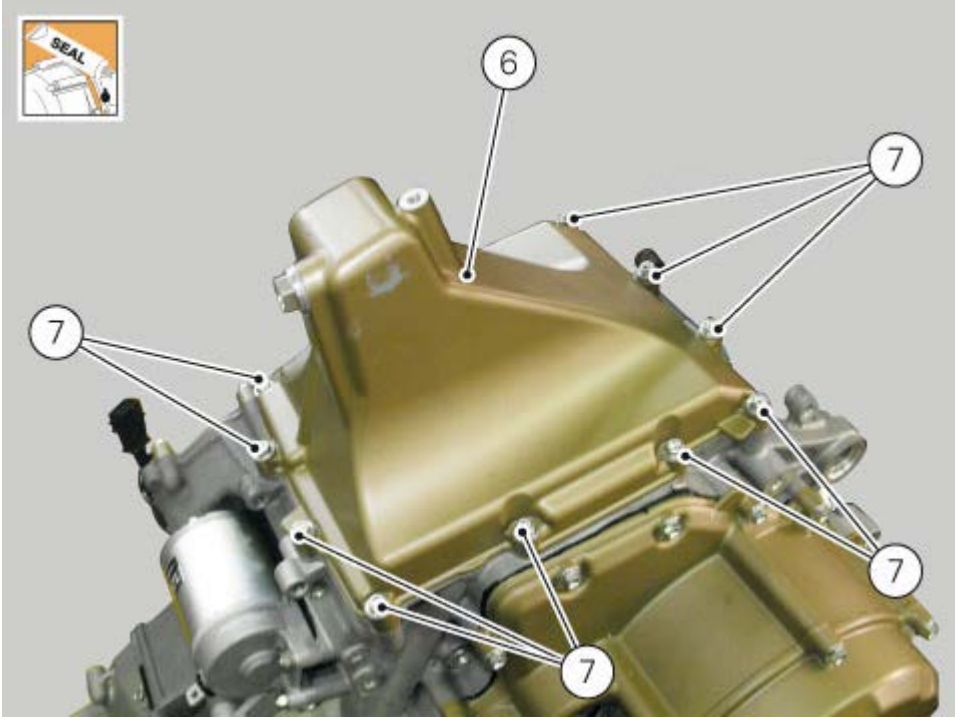
Position guide (D) onto oil sump starting screws (7).
Tighten screws (7) to a torque of 13 Nm (Min.12 Nm – Max.14 Nm) following the specified sequence.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Refit the exhaust tail pipes (Refitting of the silencers).
Refit the fairings (Refitting of the side fairings).

http://www.ducati-manuals.com
no. 140312

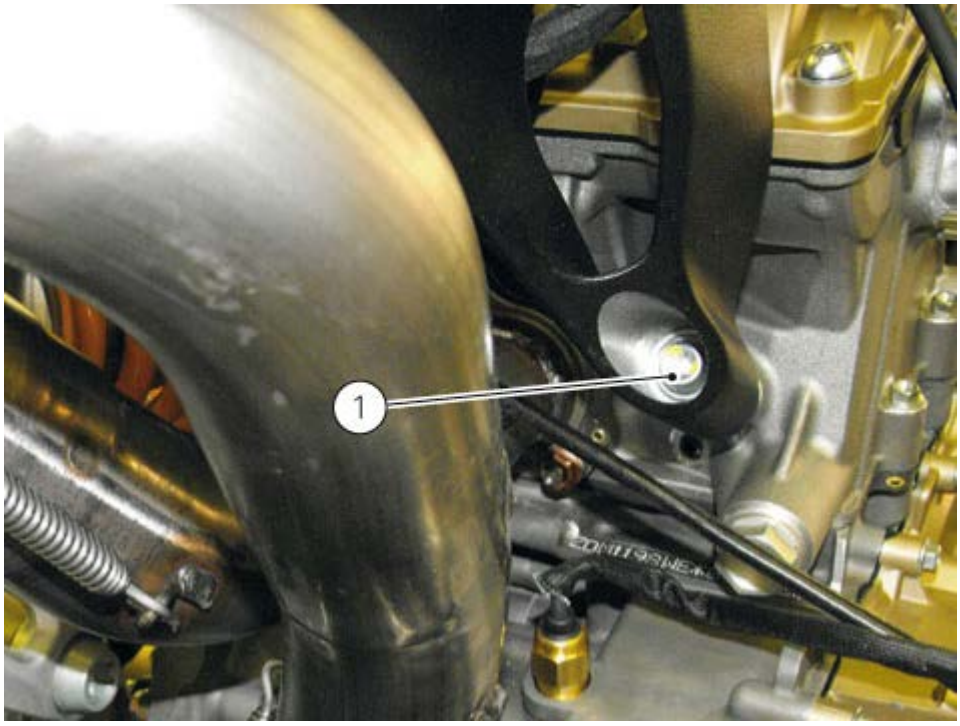
Checking valve clearances

To check the valve clearances, it is necessary to have access to the cylinder head covers and then remove the components listed below.

Remove the rider seat (Removal of the rider seat).
Remove both fairings (Removal of the side fairings).
Remove the fuel tank (Removal of the fuel tank).
Remove the radiator assembly (Removal of the radiator).

Lift the rear subframe removing lower screws (1) and loosening upper screws (2).





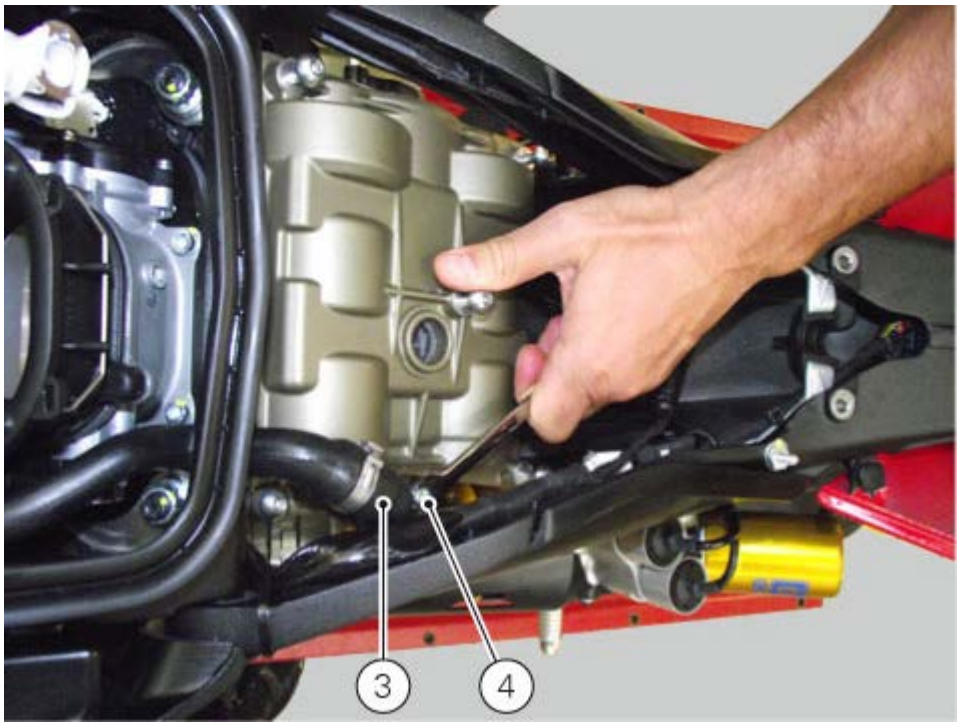
http://www.ducati-manuals.com
no. 140312





Remove blow-by union (3) from the vertical head cover by loosening screw (4).

http://www.ducati-manuals.com
no. 140312



Remove the covers from the heads as described in the paragraph "Removal of the camshafts".

Use the handle of tool **88713.3824** to position the crankshaft so that the valve to be checked is in rest position.
Then, with the valve in the rest position, slide a feeler gauge between rocker arm sliding shoe (A) and the lowest side of the cam (D) to measure the clearance.

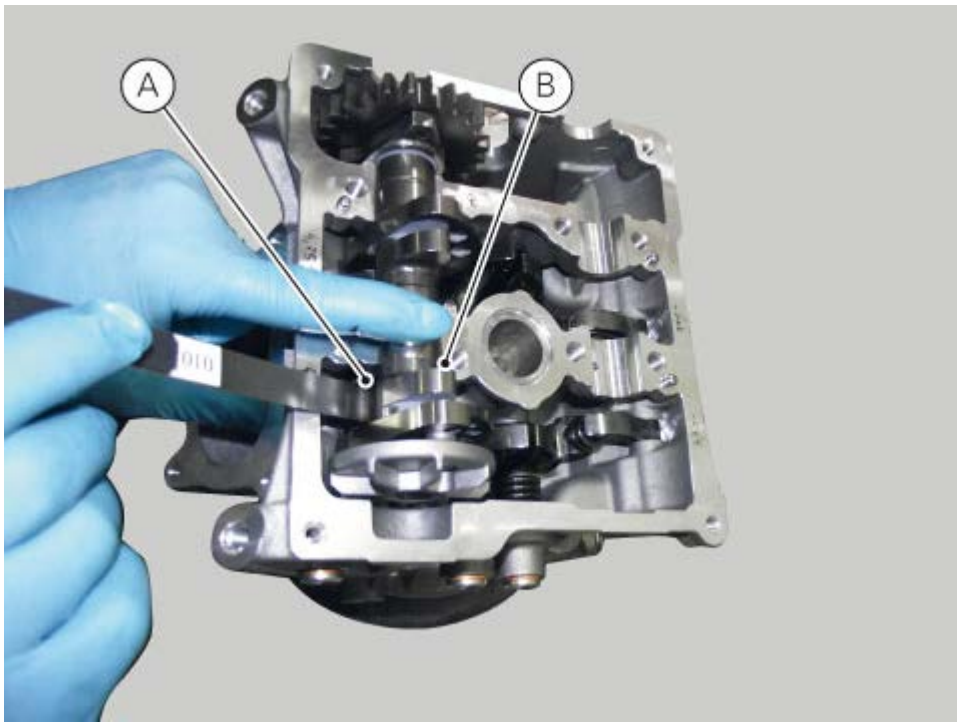
Important
Keep the feeler gauge handgrip at a distance of 4-5 cm at least from the insertion point between cam and rocker arm, as shown in the figure.

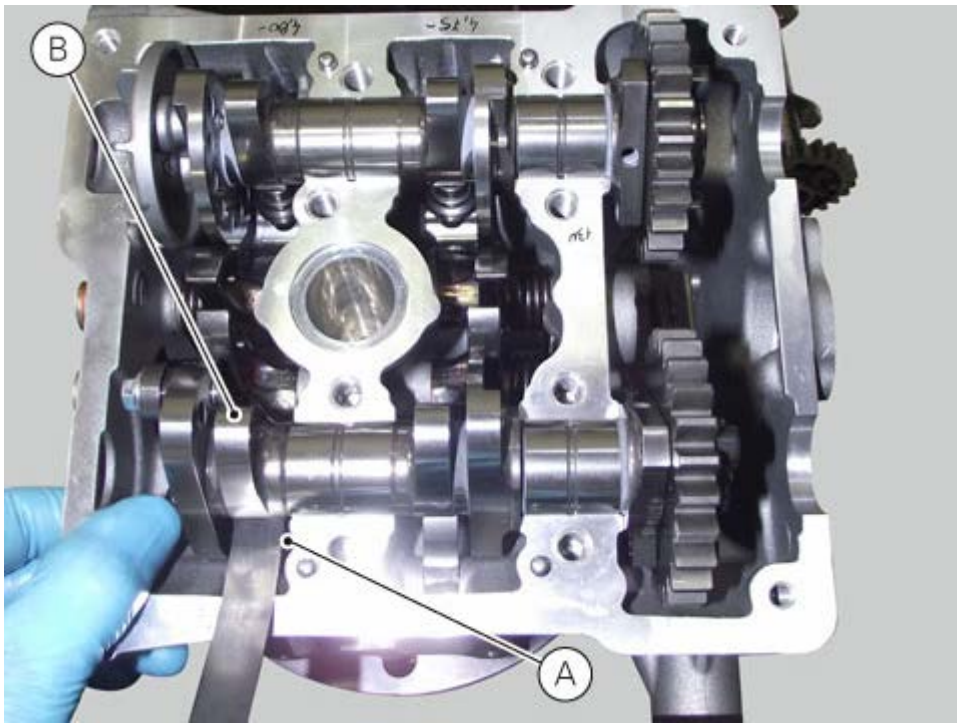
The clearances must be within the specified limits:

Opening rocker arm	
INTAKE:	
Operation	0.10÷0.15 mm
Checking clearance	0.07÷0.22 mm
EXHAUST:	
Operation	0.15÷0.20 mm
Checking clearance	0.12÷0.27 mm

Note
For clarity, the pictures show the heads removed from the vehicle.

http://www.ducati-manuals.com
no. 140312



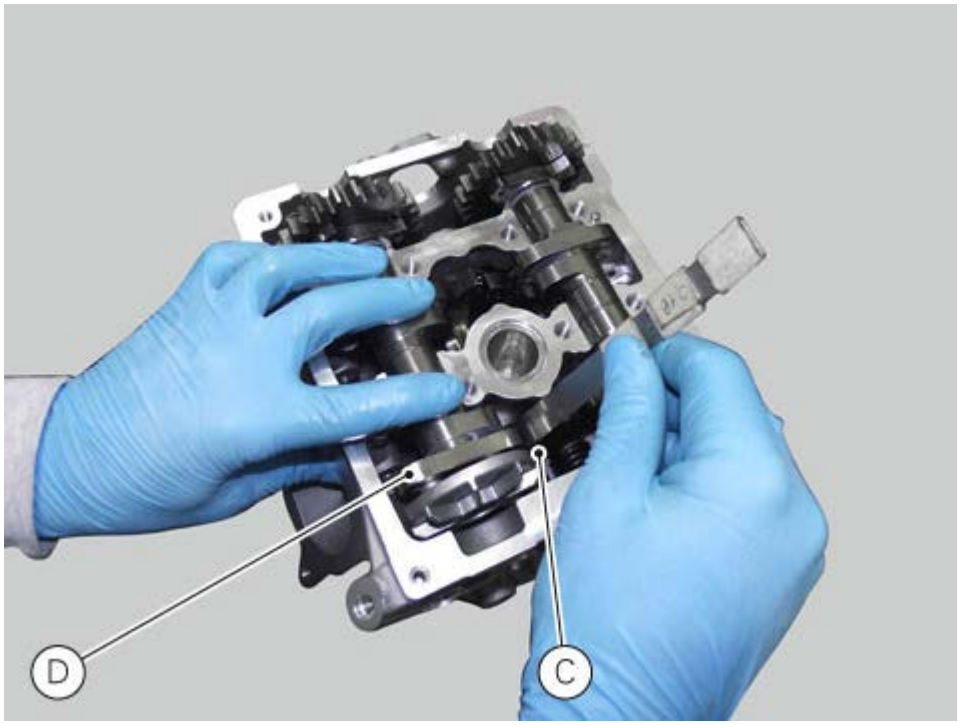


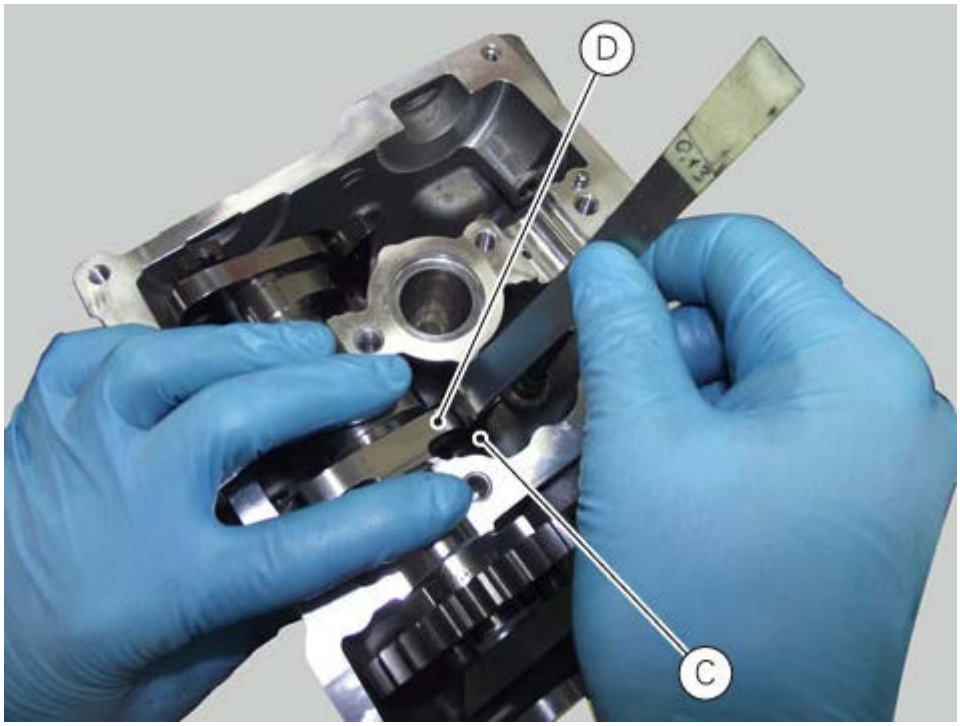
With the valve in the rest position, slide a feeler gauge between the closing rocker arm sliding shoe (C) and the highest side of the cam (D) to measure the clearance.

Closing rocker arm	
INTAKE:	
Operation	0.13÷0.18 mm
Checking clearance	0.13÷0.23 mm
EXHAUST:	
Operation	0.08÷0.13 mm
Checking clearance	0.08÷0.18 mm

http://www.ducati-manuals.com
no. 140312

Note
For clarity, the pictures show the heads removed from the vehicle.





If detected values exceed the specified limits, replace opening and/or closing shims, as described in paragraph "Removing the valves", with one featuring an adequate height to obtain the recommended clearance.

Note
The following tables show the rocker arm opening and closing shims available as spare parts: they are marked with their own size.

840.2.001.3A Rocker arm opening shim		
840.1.031.3A - 1.8	840.1.012.3A - 2.55	840.1.027.3A - 3.3
840.1.032.3A - 1.85	840.1.013.3A - 2.6	840.1.028.3A - 3.35

http://www.ducati-manuals.com
no. 140312

840.1.033.3A - 1.9	840.1.014.3A - 2.65	840.1.029.3A - 3.4
840.1.034.3A - 1.95	840.1.015.3A - 2.7	840.1.030.3A - 3.45
840.1.001.3A - 2.0	840.1.016.3A - 2.75	840.1.072.3A - 3.6
840.1.002.3A - 2.05	840.1.017.3A - 2.8	840.1.073.3A - 3.8
840.1.003.3A - 2.1	840.1.018.3A - 2.85	840.1.108.3A - 3.5
840.1.004.3A - 2.15	840.1.019.3A - 2.9	840.1.109.3A - 3.55
840.1.005.3A - 2.2	840.1.020.3A - 2.95	840.1.110.3A - 3.65
840.1.006.3A - 2.25	840.1.021.3A - 3.0	840.1.111.3A - 3.7
840.1.007.3A - 2.3	840.1.022.3A - 3.05	840.1.112.3A - 3.75
840.1.008.3A - 2.35	840.1.023.3A - 3.1	840.1.113.3A - 3.85
840.1.009.3A - 2.4	840.1.024.3A - 3.15	840.1.114.3A - 3.9
840.1.010.3A - 2.45	840.1.025.3A - 3.2	
840.1.011.3A - 2.5	840.1.026.3A - 3.25	

840.2.002.2B Rocker arm closing shim (half rings)		
840.1.041.2B - 2.2	840.1.057.2B - 3.0	840.1.073.2B - 3.8
840.1.042.2B - 2.25	840.1.058.2B - 3.05	840.1.074.2B - 3.85
840.1.043.2B - 2.3	840.1.059.2B - 3.1	840.1.075.2B - 3.9
840.1.044.2B - 2.35	840.1.060.2B - 3.15	840.1.076.2B - 3.95
840.1.045.2B - 2.4	840.1.061.2B - 3.2	840.1.077.2B - 4.0
840.1.046.2B - 2.45	840.1.062.2B - 3.25	840.1.078.2B - 4.05
840.1.047.2B - 2.5	840.1.063.2B - 3.3	840.1.079.2B - 4.1
840.1.048.2B - 2.55	840.1.064.2B - 3.35	840.1.080.2B - 4.15
840.1.049.2B - 2.6	840.1.065.2B - 3.4	840.1.081.2B - 4.2
840.1.050.2B - 2.65	840.1.066.2B - 3.45	840.1.082.2B - 4.25
840.1.051.2B - 2.7	840.1.067.2B - 3.5	840.1.083.2B - 4.3
840.1.052.2B - 2.75	840.1.068.2B - 3.55	840.1.084.2B - 4.35
840.1.053.2B - 2.8	840.1.069.2B - 3.6	840.1.085.2B - 4.4
840.1.054.2B - 2.85	840.1.070.2B - 3.65	840.1.086.2B - 4.45
840.1.055.2B - 2.9	840.1.071.2B - 3.7	840.1.087.2B - 4.5
840.1.056.2B - 2.95	840.1.072.2B - 3.75	

840.2.190.1A Rocker arm closing shim (valve collets)

http://www.ducati-manuals.com
no. 140312

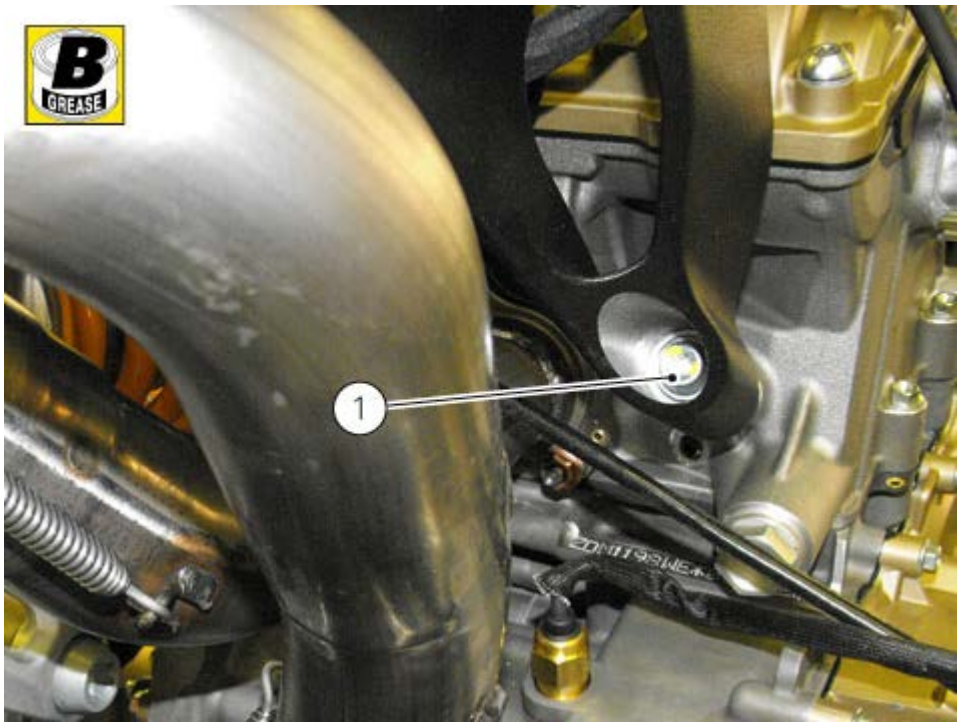
840.1.190.1AA - 4.14	840.1.190.1AJ - 4.60
840.1.190.1AB - 4.20	840.1.190.1AK - 4.65
840.1.190.1AC - 4.25	840.1.190.1AL - 4.70
840.1.190.1AD - 4.30	840.1.190.1AM - 4.75
840.1.190.1AE - 4.35	840.1.190.1AN - 4.80
840.1.190.1AF - 4.40	840.1.190.1AO - 4.85
840.1.190.1AG - 4.45	840.1.190.1AP - 4.90
840.1.190.1AH - 4.50	840.1.190.1AQ - 4.95
840.1.190.1AI - 4.55	840.1.190.1AR - 5.00

Refit the covers on heads as described in paragraph "Refitting the camshafts".

Smear screws (1) and (2) with the specified grease.
Lower the rear subframe and lock it by starting the lower screws.
Tighten screws (1) to a torque of 22 Nm and screws (2) to a torque of 28 Nm.



http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

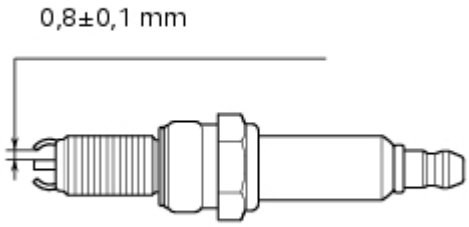


Refit the radiator assembly (Refitting the radiator).
Refit the fuel tank (Refitting the fuel tank).
Refit both fairings (Refitting the side fairings).
Refit the rider seat (Refitting the rider seat).

http://www.ducati-manuals.com
no. 140312

Spark plugs replacement as described in the scheduled maintenance plan

Check the colour of the ceramic insulation around the central electrode: an even, light brown colour indicates that the engine is in good condition and running at the right temperature.
Inspect the central electrode for wear and check spark plug gap, which should be: **0.8±0.1** mm.



Important

Check the gap between the central and side electrodes. Replace the spark plug if taken value is different from the specified one or the spark plug shows clear signs of carbon settling.

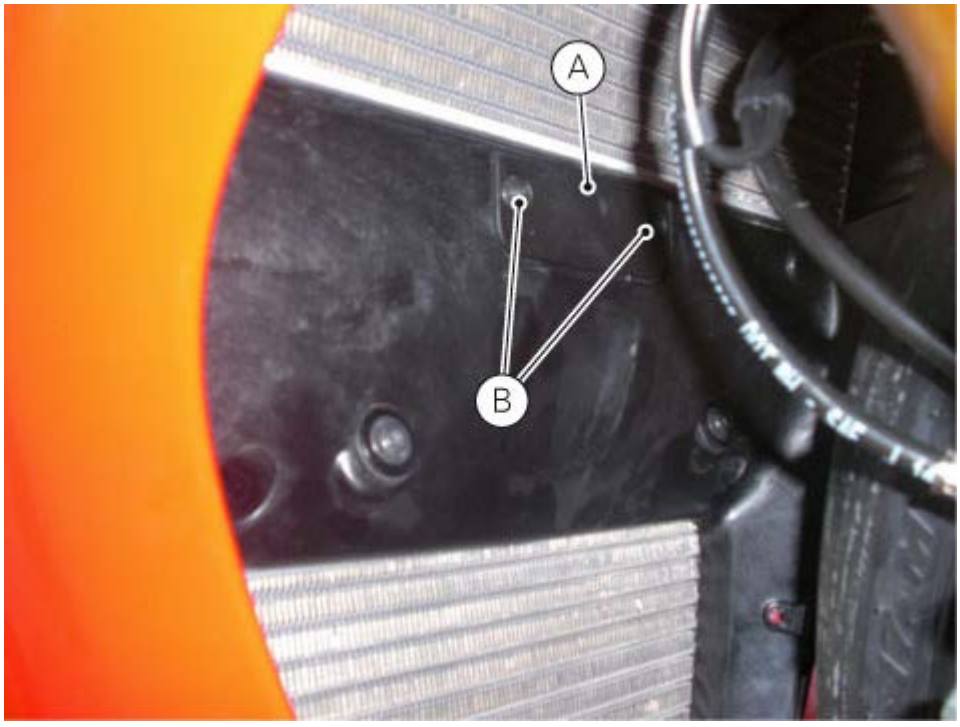
Warning

Do not use spark plugs with inadequate thermal rating or incorrect thread length.
The spark plug must be securely installed.
If a spark plug is loose, it can overheat and damage the engine.

Spark plug type
Make: NGK
Type: MAR09A-J.

Remove the following components to gain access to the vertical head spark plug:
Remove the rider seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).

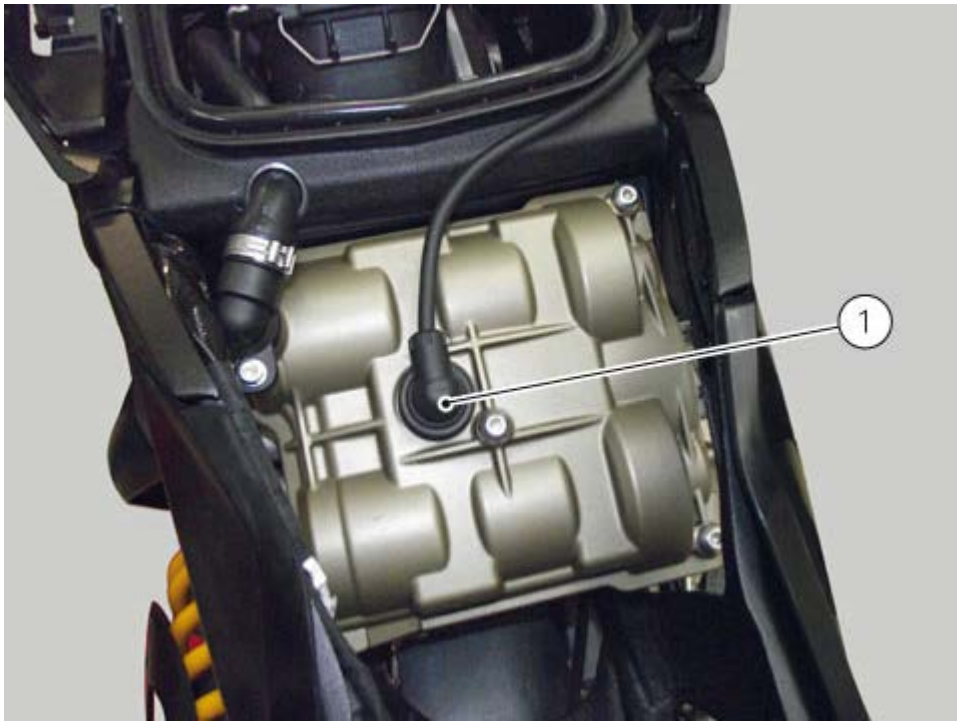
Remove the following components to gain access to the horizontal head spark plug:
Remove cover (A) by loosening screws (B).



Remove the coil-spark plug wires (1) of both spark plugs.

http://www.ducati-manuals.com
no. 140312

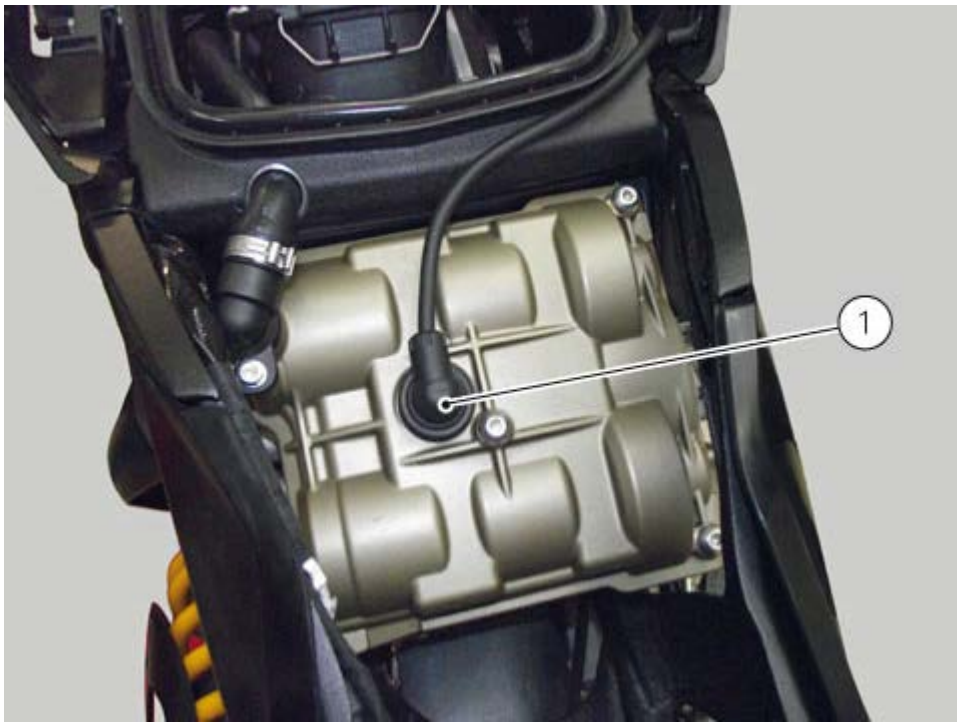
Use tool part no. **88713.2877** to replace spark plugs.





Position the coil-spark plug wires (1) in the relevant seats.

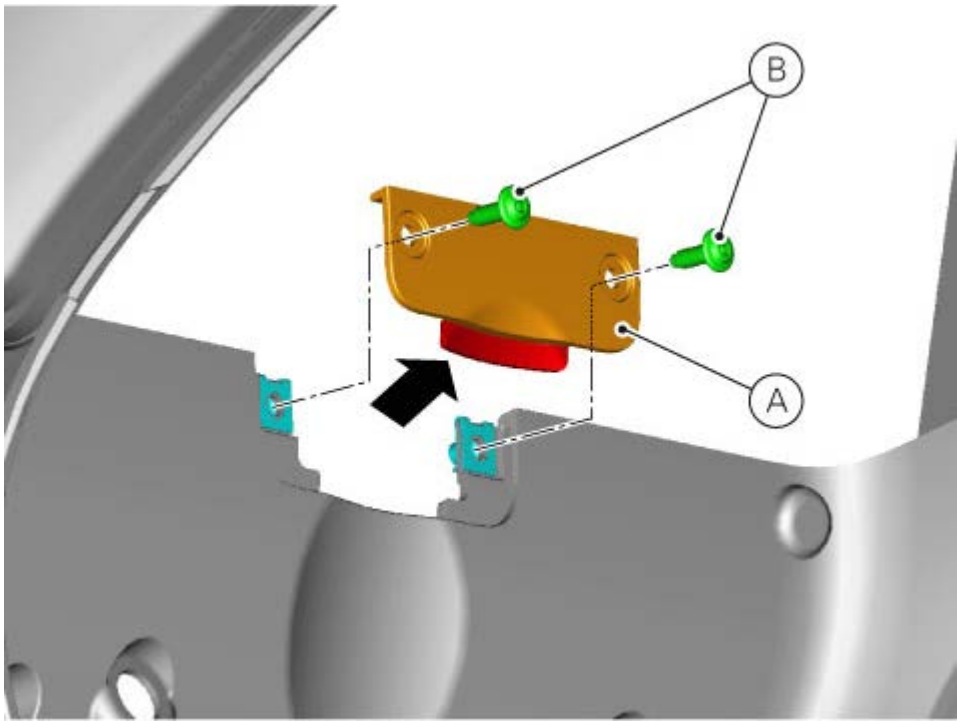
http://www.ducati-manuals.com
no. 140312





Position cover (A) by fitting it from above.
Fasten cover (A) by starting and tightening screws (B) to a torque of 2.5 Nm±10%.

http://www.ducati-manuals.com
no. 140312



Refit the tank (Refitting the fuel tank)
Refit the rider seat (Refitting the rider seat).

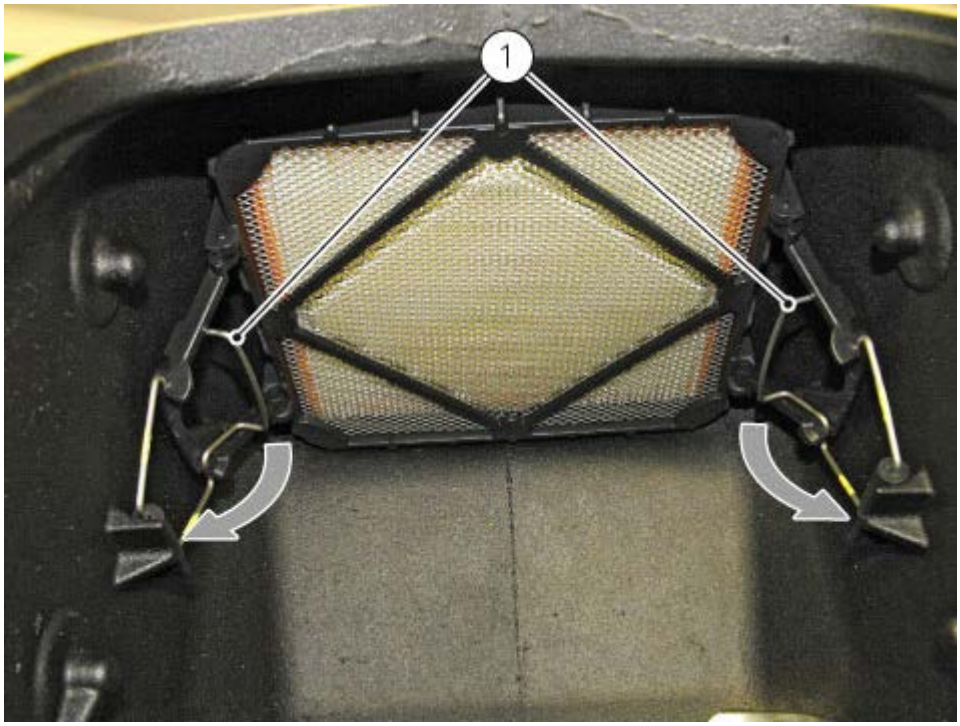
http://www.ducati-manuals.com
no. 140312

Changing and cleaning the air filters

The air filter must be replaced at the intervals specified in the “Scheduled maintenance chart”.

Remove the rider seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).
Remove the injector pipes (Removal of the airbox and throttle body).

Release the air filter retaining springs (1).
Slide the air filter cartridge out of its seat.



Remove the air filter form the support.



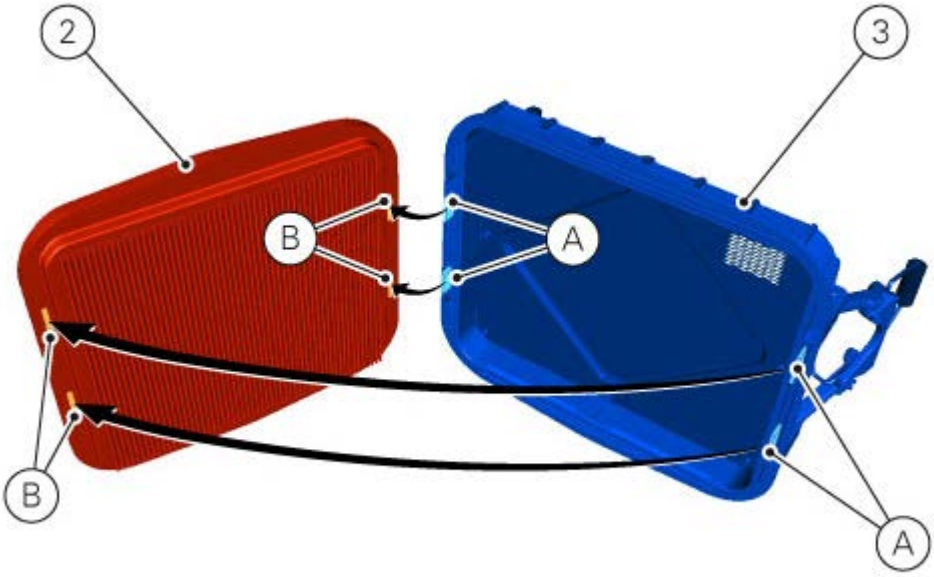
The filter cartridge can be cleaned with a jet of compressed air or replaced if necessary.

Important
A clogged air filter will reduce air intake and engine power, increase fuel consumption and cause a build

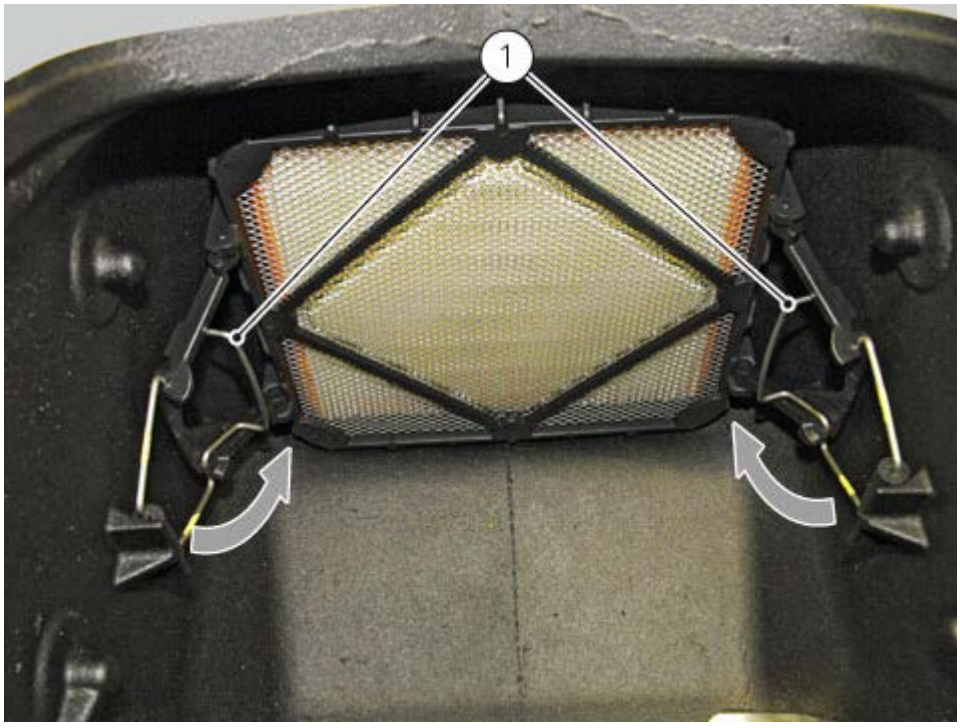
http://www.ducati-manuals.com
no. 140312

up of deposits on the spark plugs. Do not use the motorcycle without a filter as impurities in the air could get into the engine and cause damage.

Secure air filter (2) to support (3) by driving retainers (A) fully home into openings (B).



Refit the air filter cartridge correctly on the frame ensuring that the rubber side perfectly matches the relevant seat.

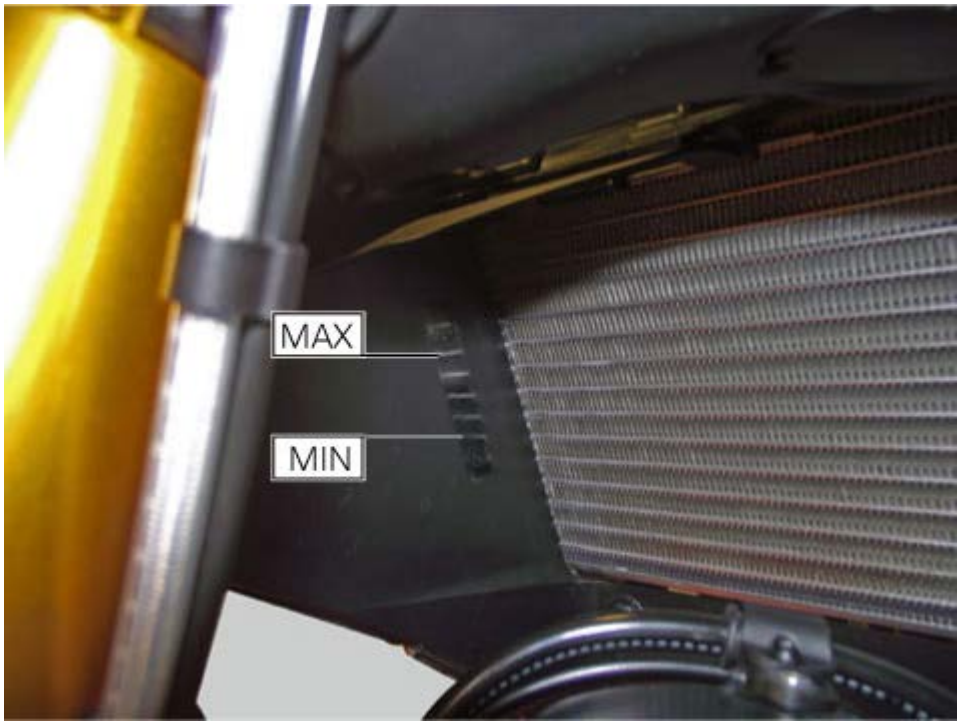


Refit the injector pipes (Refitting the airbox and throttle body).
Refit the tank (Refitting the fuel tank).
Refit the rider seat (Refitting the rider seat).

http://www.ducati-manuals.com
no. 140312

Checking the coolant level

According to the intervals specified in the "Scheduled maintenance chart", check the coolant level contained in the expansion reservoir, on the right-hand side of the vehicle.
The level must be between the MAX and MIN marks on the reservoir.



If the level is low, top up with the recommended coolant.

Remove the right-hand side fairing (Removal of the side fairings).

Remove the filler plug (1) and top up with new coolant until the specified level is reached.
Refit plug (1).



For optimal operating conditions (coolant mixture starting to freeze at 20 °C), the recommended fluid antifreeze should be mixed with water in the following percentages:
ANTIFREEZE: **35÷40%** of the volume;
WATER: **65÷60%** of the volume.

http://www.ducati-manuals.com
no. 140312

Important

Very hard water with a high mineral salt content can damage the engine.
Increase the amount of antifreeze to up to **55%** of volume, in the case of very cold climates.

Important

Solutions with less than **30%** of antifreeze will not provide sufficient protection against corrosion.

Refit the right-hand side fairing (Refitting the side fairings).

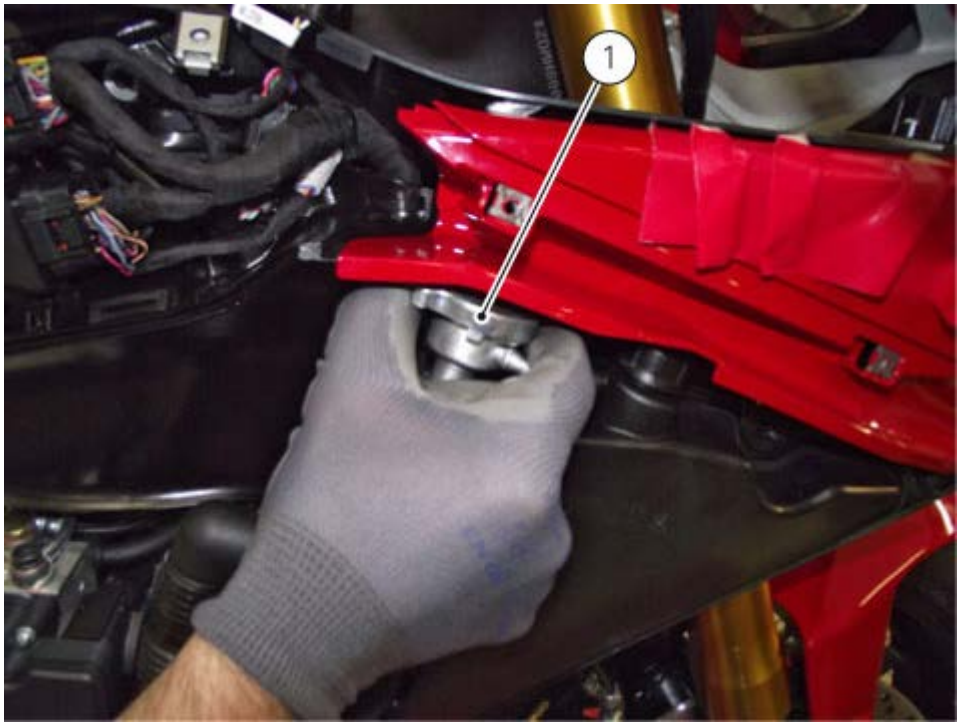
http://www.ducati-manuals.com
no. 140312

Changing the coolant

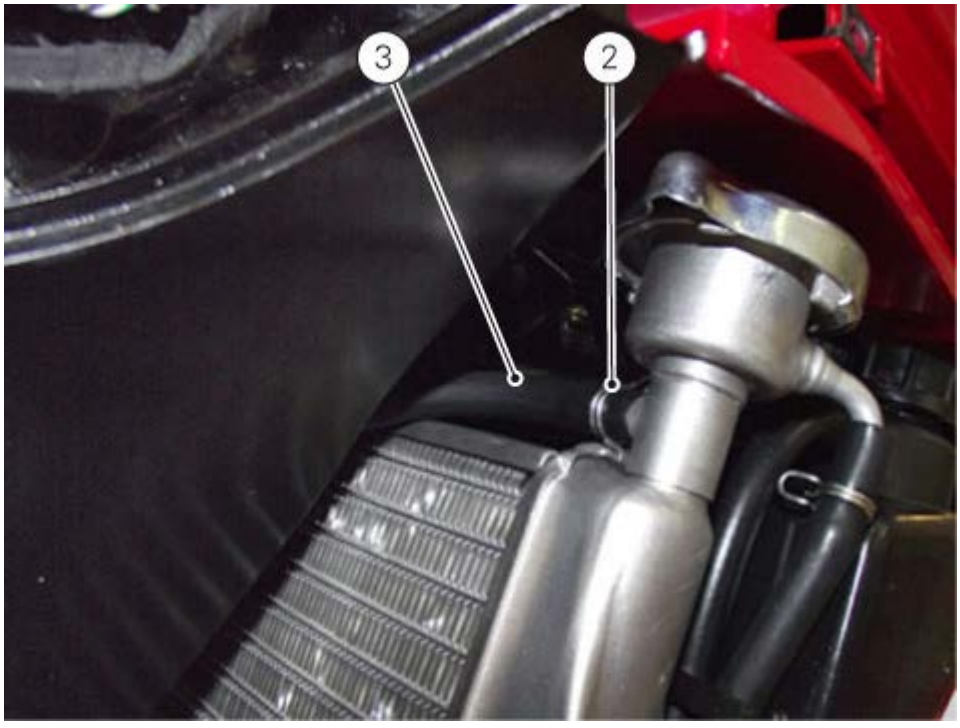
Warning
Make sure the engine is cold before proceeding. A warm engine could provoke the ejection of coolant or hot vapor resulting in serious burns.

Remove both fairings (Removal of the side fairings).

Place a container under the engine and set the motorcycle on its side stand.
Loosen the remote filler plug (1) of the expansion reservoir.

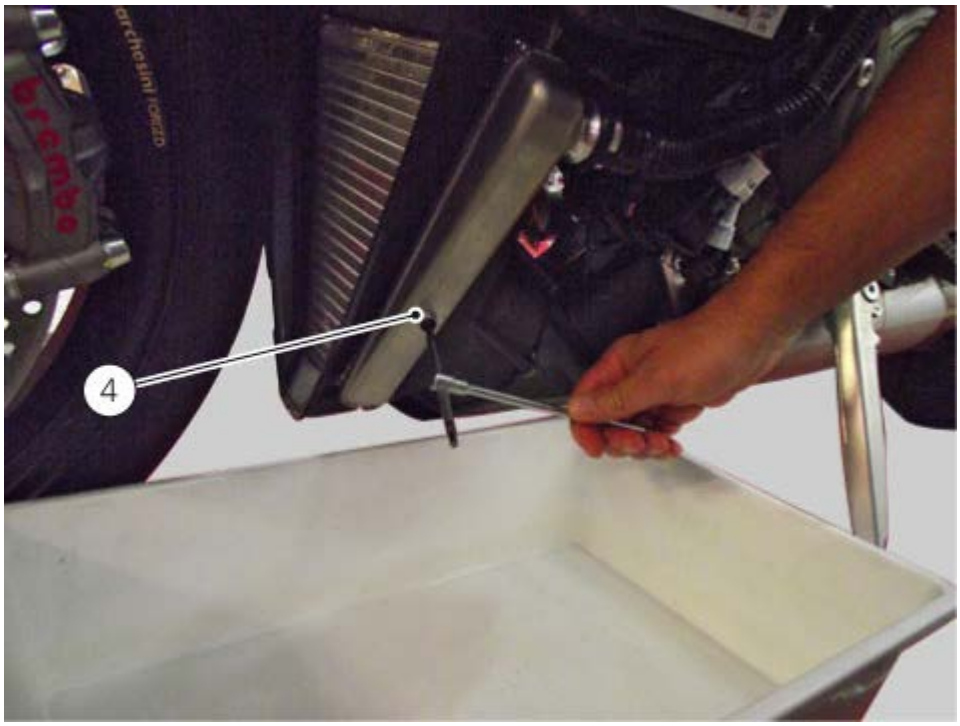


Loosen clip (2), disconnect hose (3) and drain the coolant inside a container.

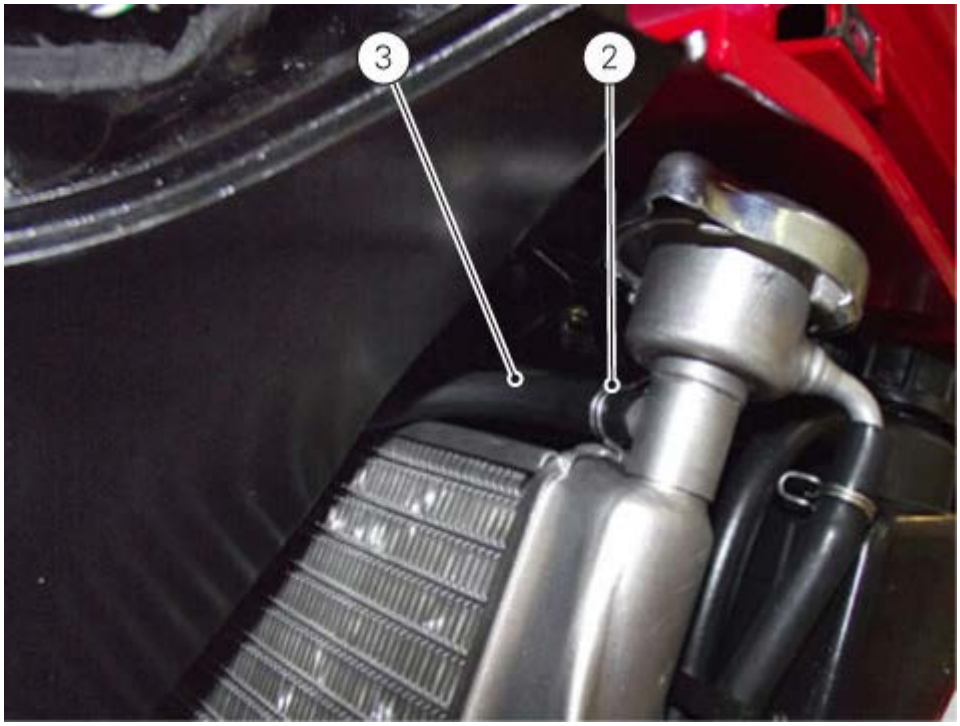


Remove plug (4) from the fluid drain hole set on lower radiator.
Allow the coolant to drain off completely.
Refit plug (4) into fluid drain hole.

http://www.ducati-manuals.com
no. 140312

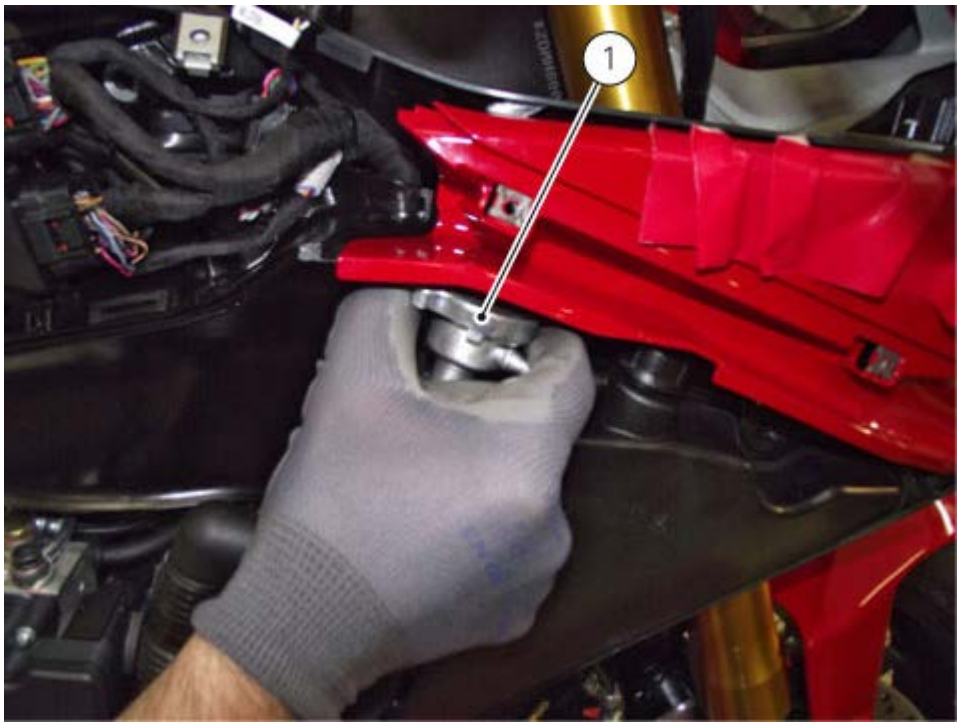


Connect hose (3) and lock it with clip (2).



Refill the circuit by pouring new coolant via the remote filler plug (1), then refit plug in its seat.

http://www.ducati-manuals.com
no. 140312



Allow some minutes for the coolant to fill all the internal ducts.
Start the engine and allow the coolant to reach 110 °C; run the engine for about **10** minutes.
Stop the engine and allow it to cool down so that all air is expelled from the cooling circuit.

Warning
Keep your hands, clothing and tools well clear of the radiator fan at all times; this fan starts automatically without warning and could cause serious injury or damage.

Important
Check the cooling circuit for possible leaks.

Top up the coolant through the expansion reservoir filler to bring the level up to the MAX mark.
Tighten the expansion reservoir plug (5).



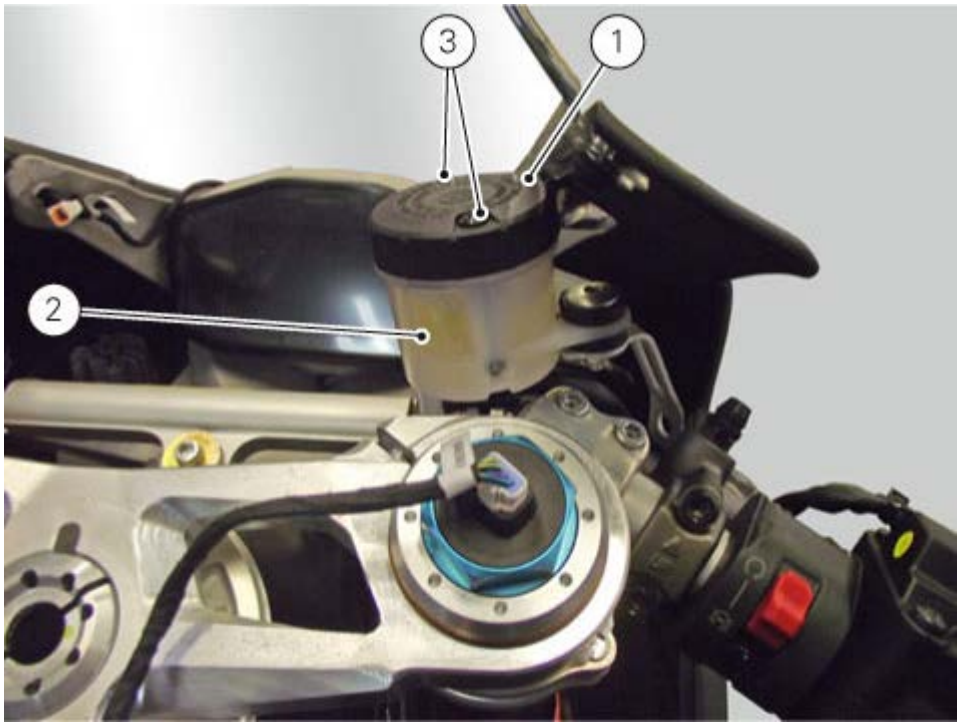
Refit both fairings (Refitting the side fairings).

http://www.ducati-manuals.com
no. 140312

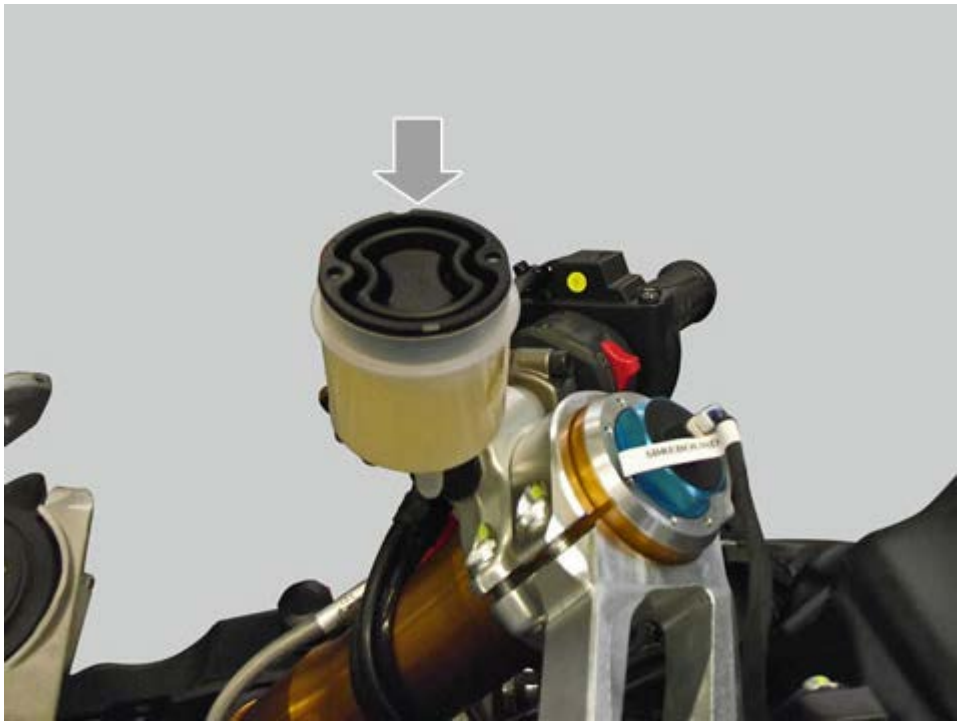
Changing the front brake system fluid

Warning
Brake fluid is corrosive and will damage paint. Avoid contact with eyes and skin. In case of accidental contact, wash thoroughly with water.

Remove cover (1) with the membrane from the front brake fluid reservoir (2) by loosening screws (3). Siphon off the fluid from the reservoir (2).



Replace the membrane (without the plug) on the reservoir to avoid brake fluid splashes during the following operations.



Move the brake calipers pistons back: to carry out this operation unscrew the fixing screws (4) of the calipers on the fork plates and push, by removing them from each other, both pads from every caliper; during this operation pay attention to the fluid level: fluid must always be sucked when it flows back in the reservoir.

http://www.ducati-manuals.com
no. 140312



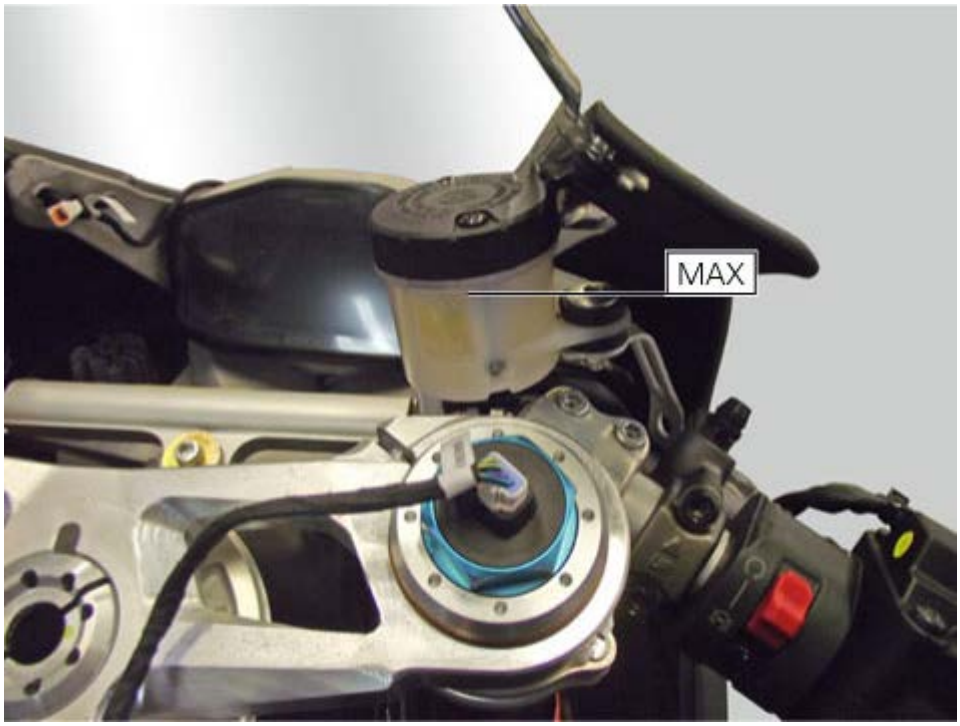


Once all pistons of both calipers are fully moved back and all the fluid in the reservoir has been sucked, connect a transparent tube to the bleed valve (5) and immerse the end in a container placed on the floor.

http://www.ducati-manuals.com
no. 140312



Fill the front brake fluid reservoir with new brake fluid up to the MAX mark.
Operate the lever so that its end stroke is equal to 20-30 mm and keep the lever in this position by using a non-elastic clamp.

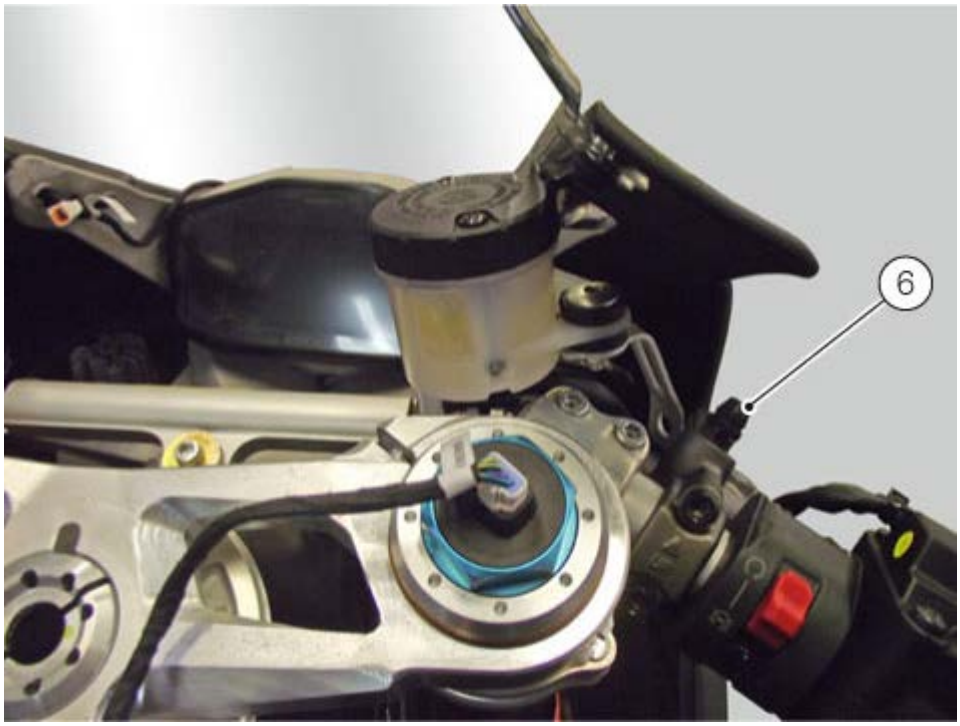


Loosen the bleed valve of the left caliper (from the rider view) (5) and then take the lever through the whole stroke to allow fluid to escape.
The lever rests against the handgrip.
Tighten bleed valve (5), then release the lever.

http://www.ducati-manuals.com
no. 140312



Repeat the above-described operation until the old fluid flows out completely.
In particular, operate in the same way on bleed valve (6) in order to completely remove the air trapped in the highest point of front brake master cylinder.



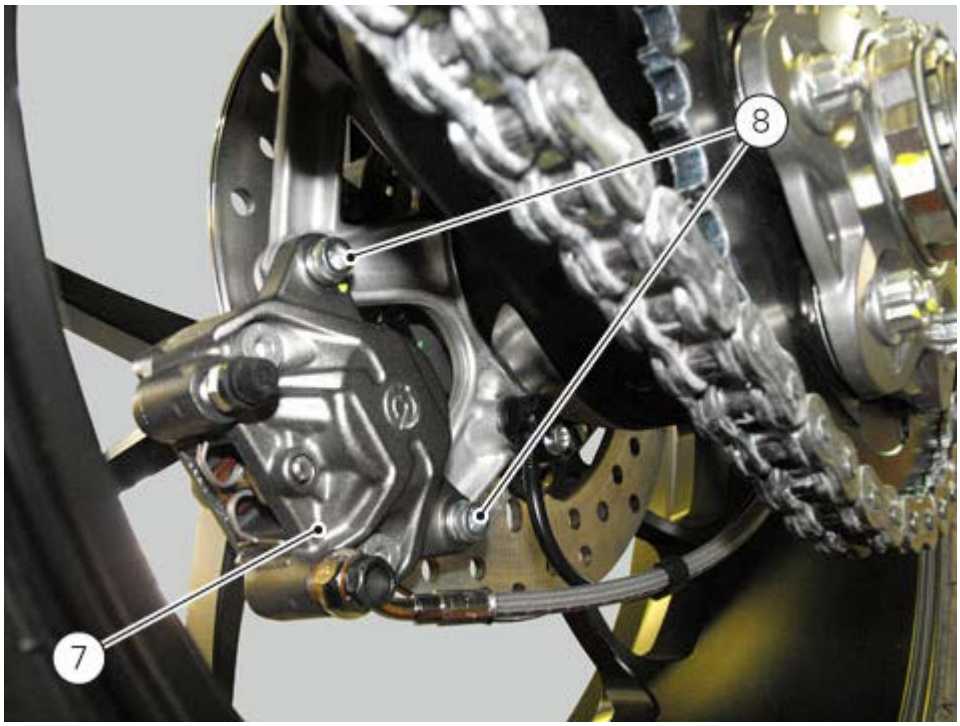
Then, with the bleed valve definitely closed, actuate repeatedly the lever until a pressure is detected in the brake system.

Warning
After eliminating the old fluid from the tank, during the refilling operation always keep the oil level above the MIN mark to prevent the formation of air bubbles inside the circuit.

http://www.ducati-manuals.com
no. 140312

Changing the rear brake circuit fluid

Remove the rear brake caliper (7) by loosening screws (8).

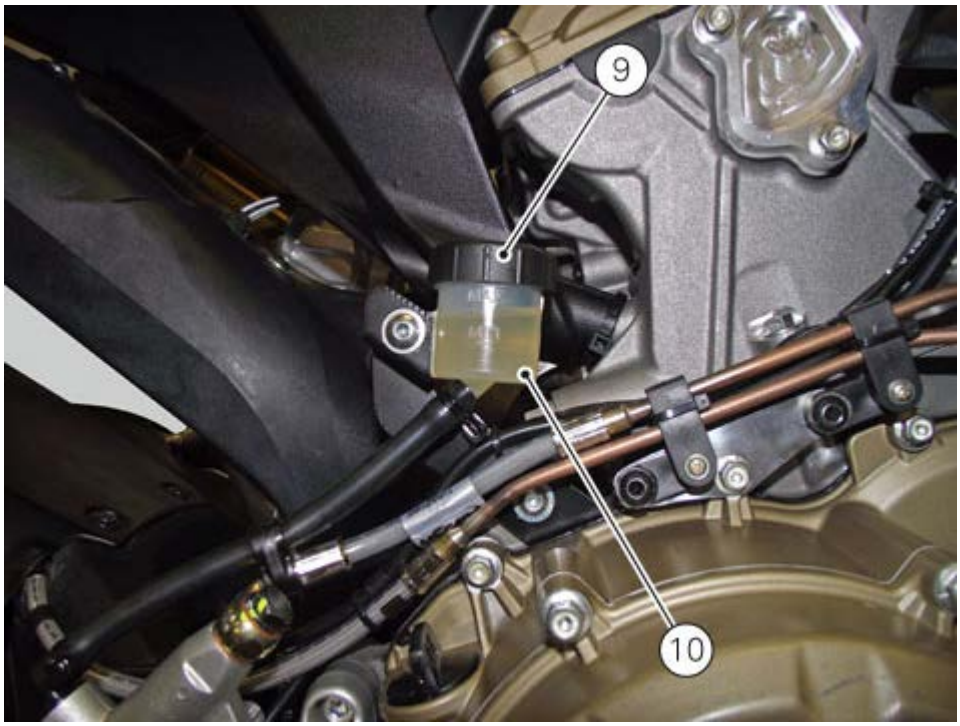


Remove clamps (A).



Unscrew the plug (9) of the rear brake fluid reservoir (10).

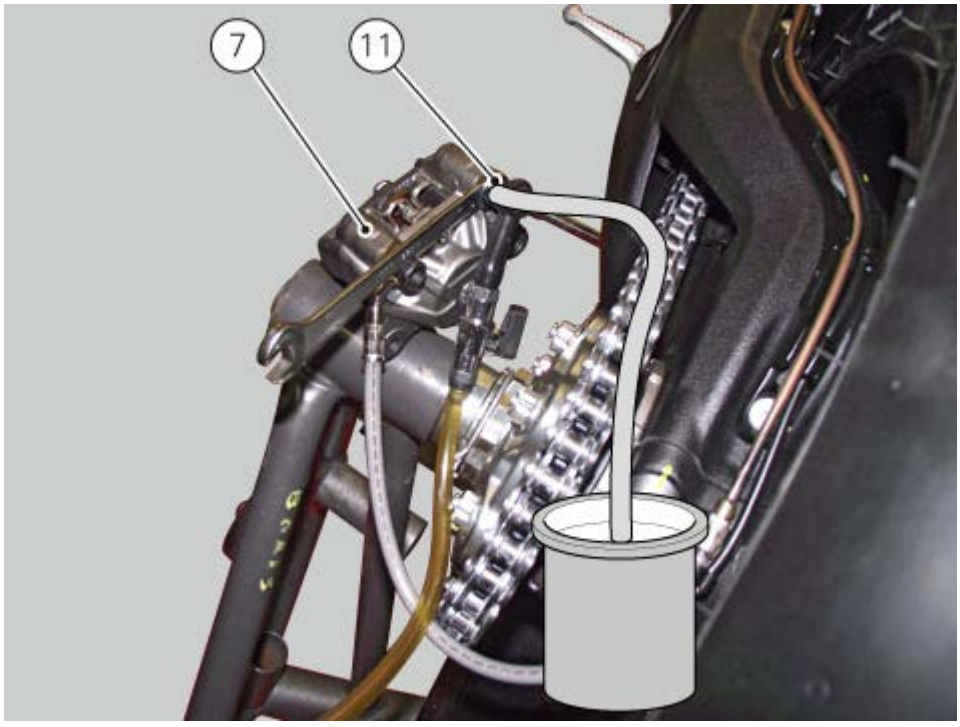
http://www.ducati-manuals.com
no. 140312



Rear brake caliper (7) shall be set as high as possible during the whole procedure (with drain plug facing upwards, as indicated in the figure).
Fit a shim of the same thickness as the disc between the rear brake caliper pads.
Connect a transparent tube to the bleed valve (11) and immerse the end in a container.

Attention
It is recommended to use a NEW container of CASTROL RESPONSE SUPER DOT4 brake fluid - 250 cc.

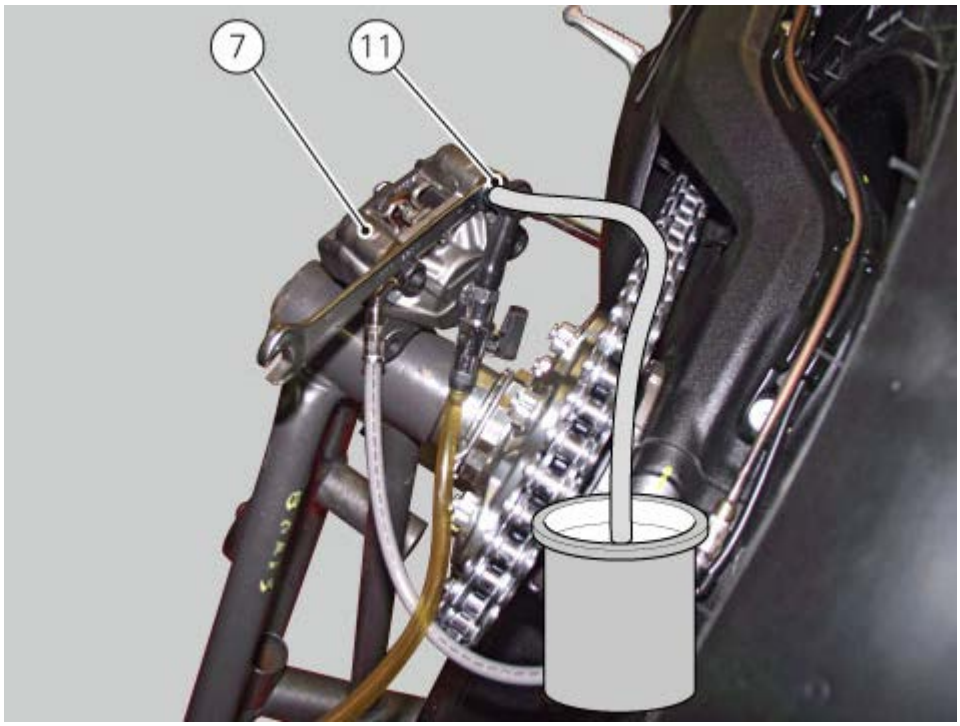
1 Press the pedal to allow the circuit to go under pressure.
2 Keep it pressed downwards.
3 Loosen bleed valve (11) by 1/4 of a turn so as to allow fluid to come out and push the pedal all the way down.
4 Tighten the bleed valve again.
5 Release the brake lever and top up the reservoir until fluid level is between min and max marks. During such operation always ensure that the fluid is above the minimum level in order to prevent air from entering the system from the reservoir.



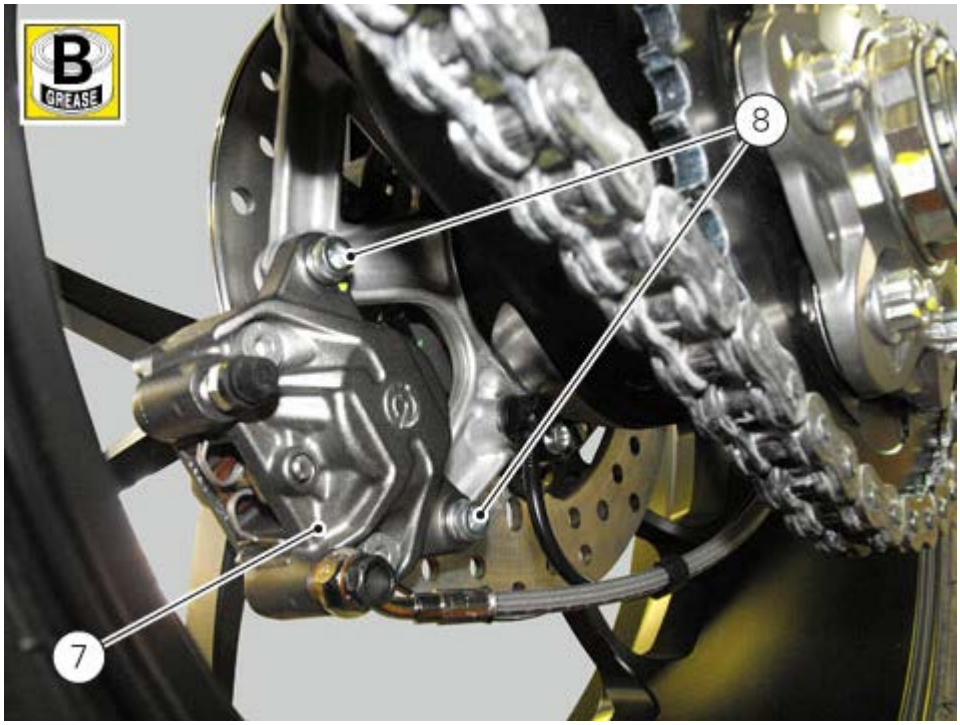
Repeat the operations from 1 to 5 until you have used up the whole 250 cc brake fluid container. Then,

http://www.ducati-manuals.com
no. 140312

tighten bleed valve (11) to a torque of 12 Nm ±10%.
Use absorbent paper to remove any fluid residue from the drain plug hole and after that, refit the rubber cover.
Move the pistons completely back pushing onto the pads; then, top up the reservoir until the MAX fluid level is reached.
Remove the rear brake caliper shim.

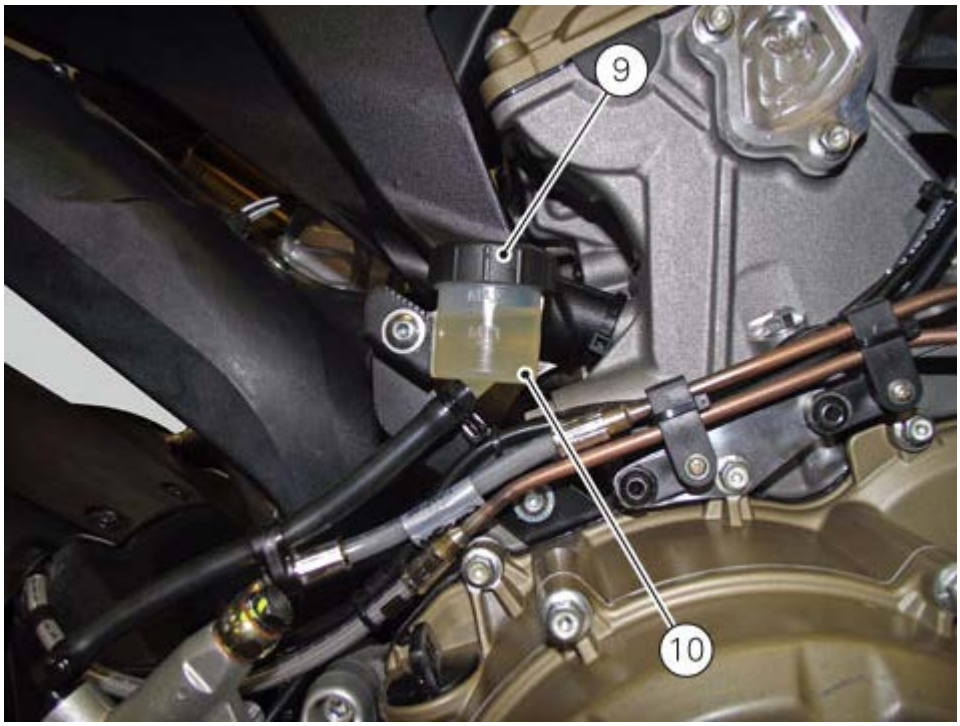


Smear screw (8) with the specified threadlocker.
Fit the rear brake caliper onto the brake disc aligning it with the caliper mounting bracket holes; tighten screws (8) to a torque of 25 Nm ±5%.



Operate the brake lever repeatedly until the pads rest against the disc and make sure that the fluid level in the reservoir is between MIN and MAX marks; if not so, top up.
After removing the membrane from the plug and before fitting it again on the reservoir, clean it and dry with absorbent paper.
Tighten plug (9) of rear brake fluid reservoir (10).

http://www.ducati-manuals.com
no. 140312



Refit clamps (A).



Test the motorcycle on the road at a speed of about 50 Km/h; activate the ABS 10 times at least, by operating the rear brake only.
Ensure that the rear brake lever stroke has not increased, otherwise, repeat the bleeding procedure.

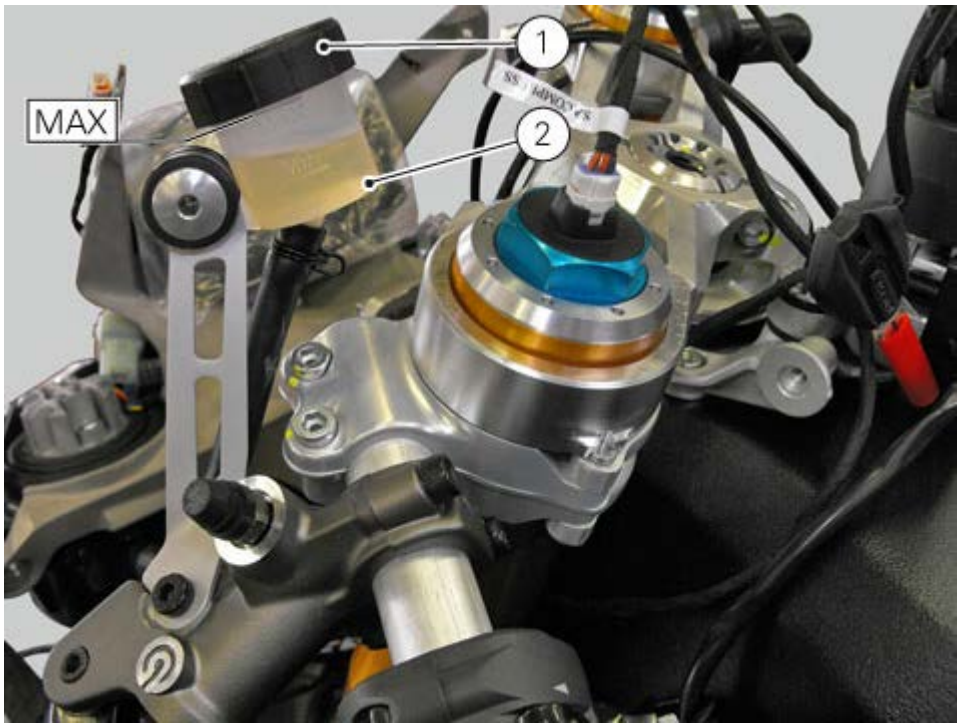
http://www.ducati-manuals.com
no. 140312

Changing the clutch fluid

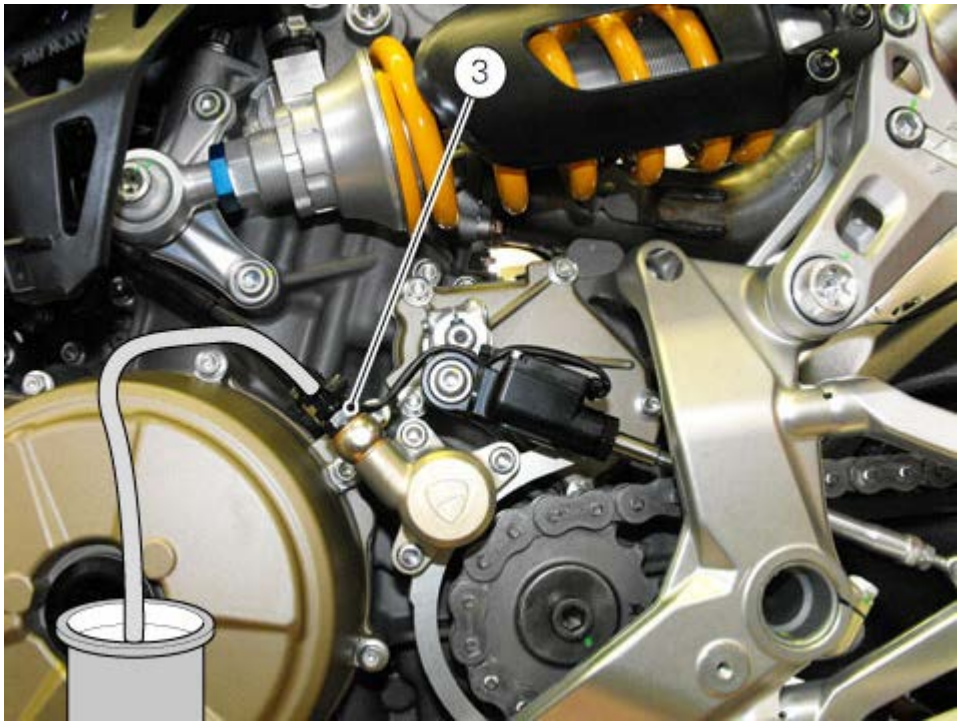
Warning

Clutch fluid is corrosive and will damage paint. Avoid contact with eyes and skin. In case of accidental contact, wash thoroughly with water.

Remove cover (1) and membrane from clutch fluid reservoir (2).
Siphon the clutch fluid from the reservoir (2).
Top up reservoir (2) with new fluid until the MAX level is reached.



Operate the lever two or three times until the circuit is pressurised.
Hold the lever pulled towards the handgrip.
Connect a transparent tube to the bleed valve (3) and immerse the end in a container placed on the floor.
Open bleed valve (3) to allow fluid to escape.



Attention

http://www.ducati-manuals.com
no. 140312

During the filling operation, always keep the fluid level above the MIN mark to prevent the formation of air bubbles in the circuit.

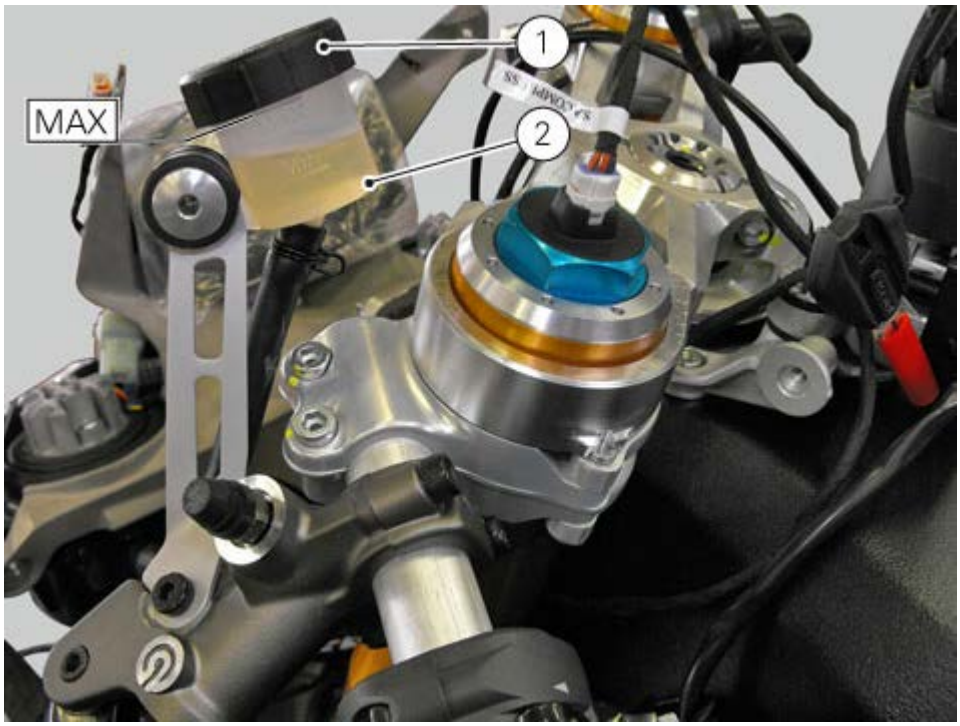
Allow the fluid to flow from bleed valve (3) until it changes colour.
Refit bleed valve (3) and tighten it to a torque of 4 Nm ±10%; restore the correct fluid level inside the reservoir.

http://www.ducati-manuals.com
no. 140312

Draining the clutch circuit

Warning
Clutch fluid is corrosive and will damage paint. Avoid contact with eyes and skin. In case of accidental contact, wash thoroughly with water.

Remove cover (1) and membrane from clutch fluid reservoir (2).

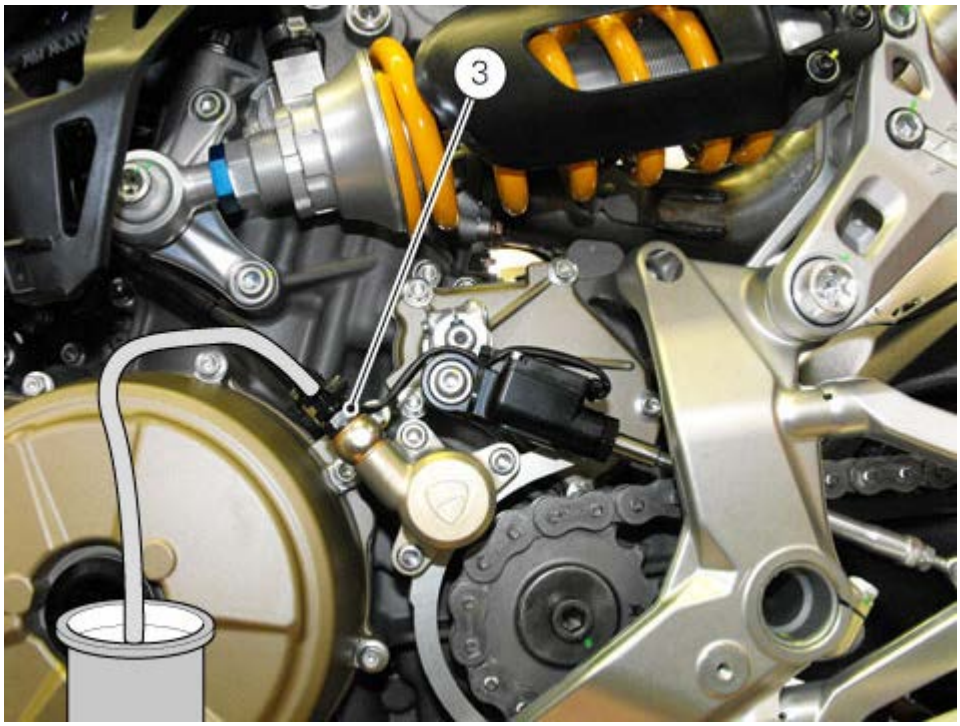


Remove protection cover from bleed valve (3).
Connect a bleeder to bleed valve (3) of slave cylinder.

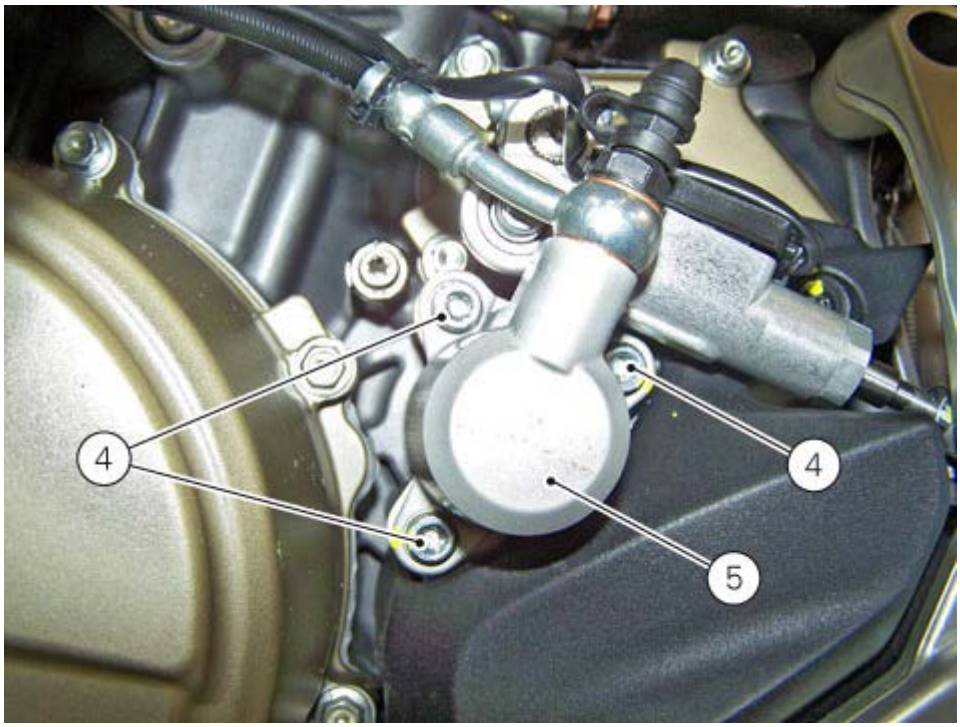
Note
Follow the manufacturer's instructions when using a commercial clutch bleeding tool.

Open bleed valve and pump with the bleeder until no more fluid comes out.
If you do not have a bleeder available, connect a length of transparent plastic tubing to bleed valve (3) and place the other end of the tubing into a container with spent clutch fluid in it that you will have placed on the floor.

http://www.ducati-manuals.com
no. 140312

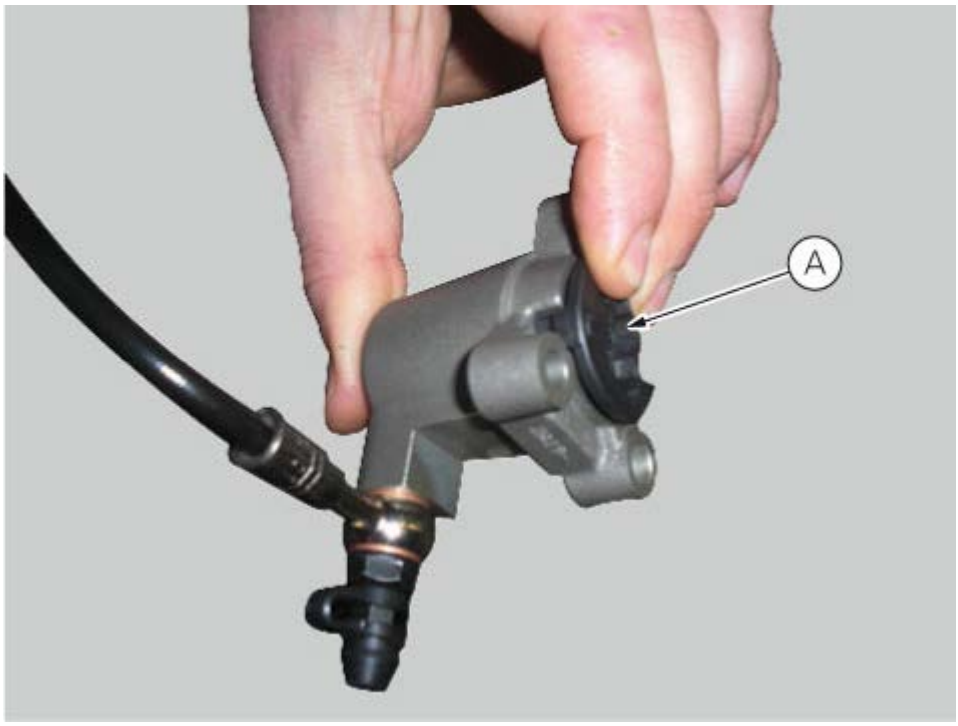


Loosen bleed valve by **1 / 4** of a turn.
Operate clutch lever until all fluid comes out.
To drain all fluid from the circuit, it is advisable to remove the clutch slave cylinder cap.
Loosen the screws (4) and pull off the clutch slave cylinder (5).

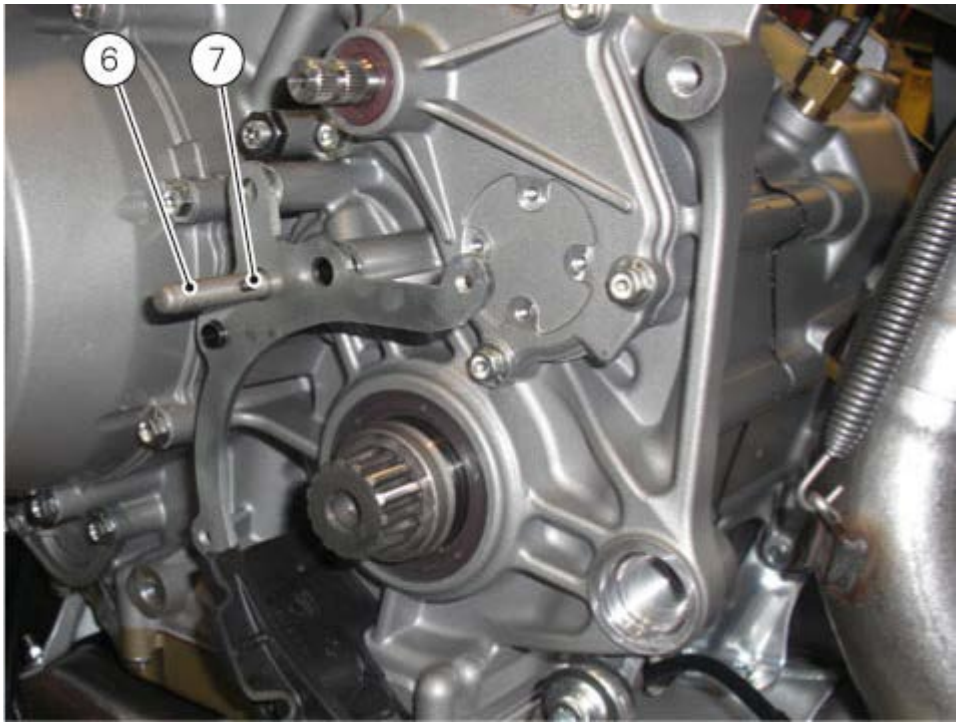


Press on the inner piston (A) to push all fluid out of the cap.

http://www.ducati-manuals.com
no. 140312

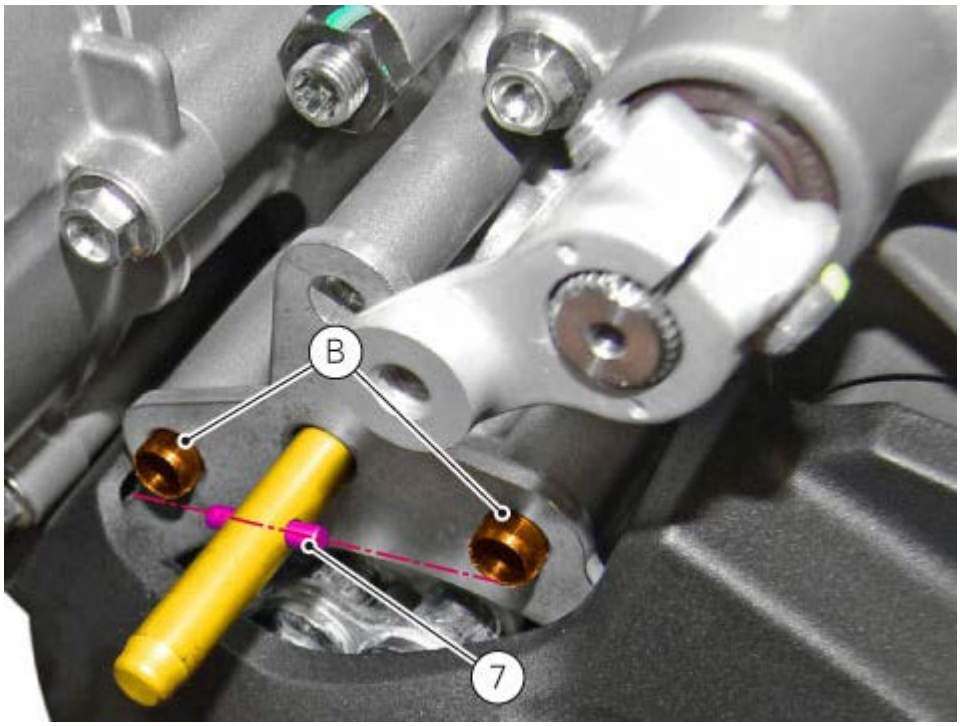


Make sure the anti-rotation pin (7) is in place on the clutch pushrod (6).

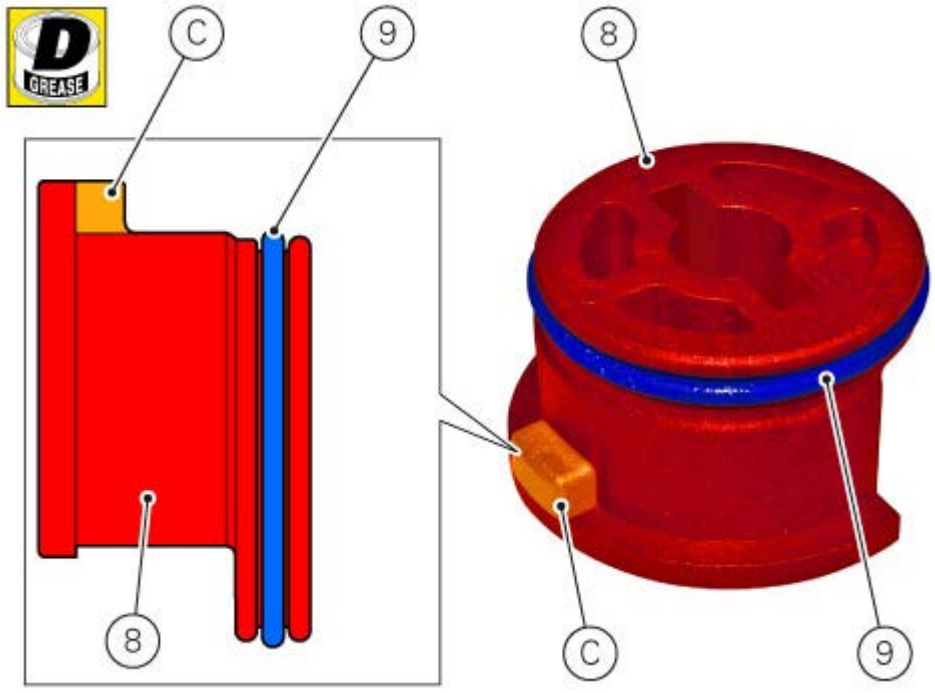


Set anti-rotation pin (7) in line with the pins (B) on clutch-side casing as shown.

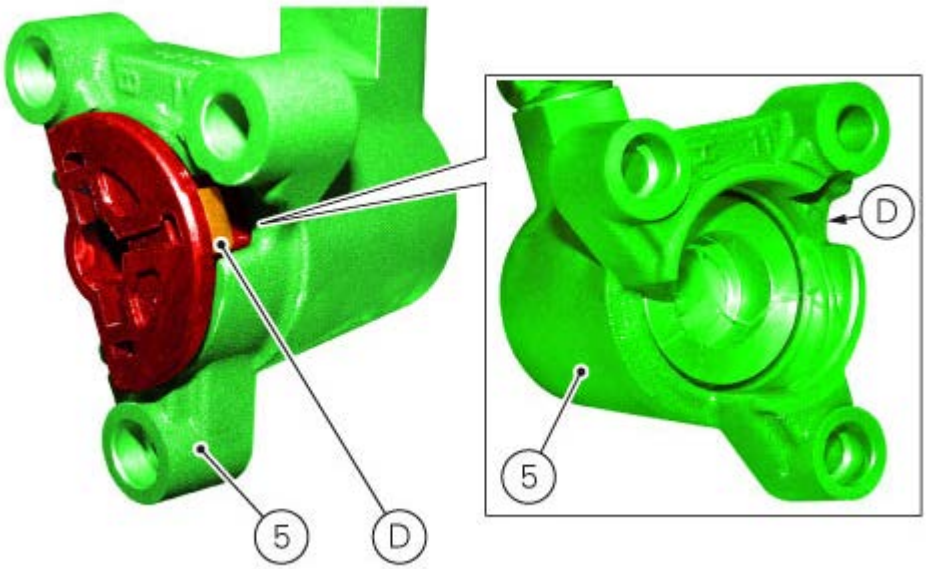
http://www.ducati-manuals.com
no. 140312

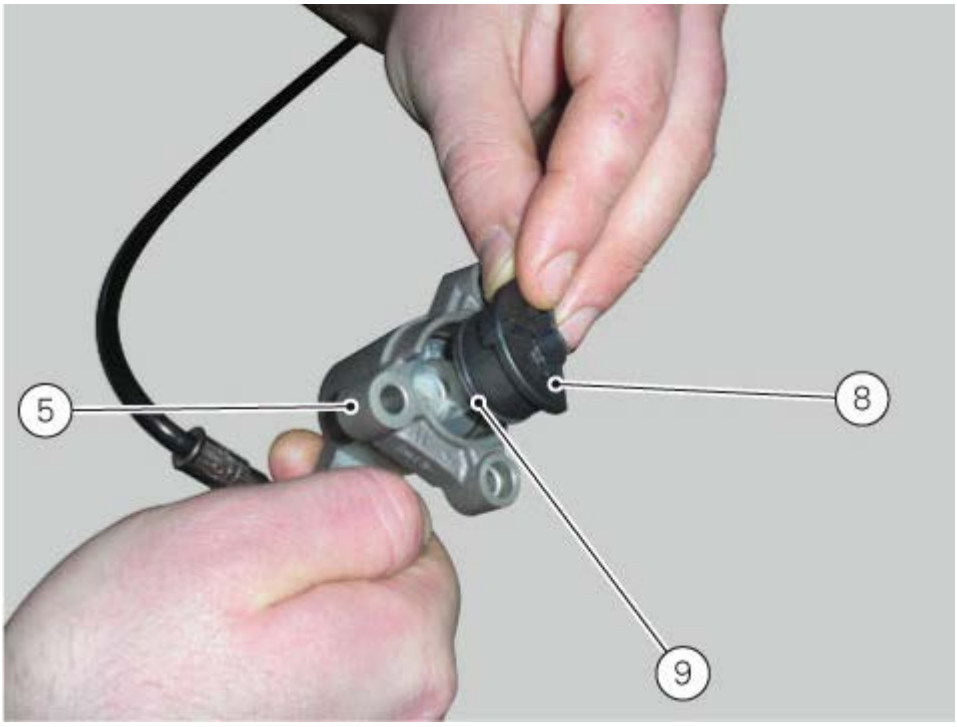


Fit seal (9) to anti-rotation insert (8).
Smear specified grease on seal (9).
Fit anti-rotation insert (8) into slave cylinder (5), making sure tab (C) of insert (8) fits into recess (D) in slave cylinder.



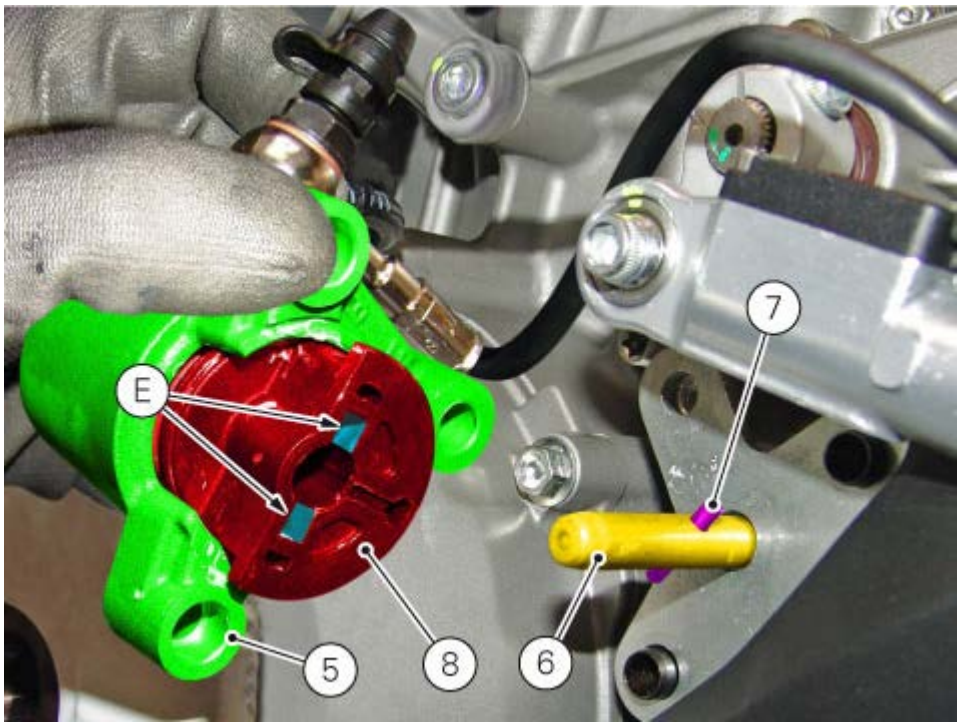
http://www.ducati-manuals.com
no. 140312





Insert slave cylinder (5) with anti-rotation insert (8) onto pushrod (6) – you will have set the timing previously.
The anti-rotation pin (7) must fit into the seats (E) in the anti-rotation insert (8).

http://www.ducati-manuals.com
no. 140312

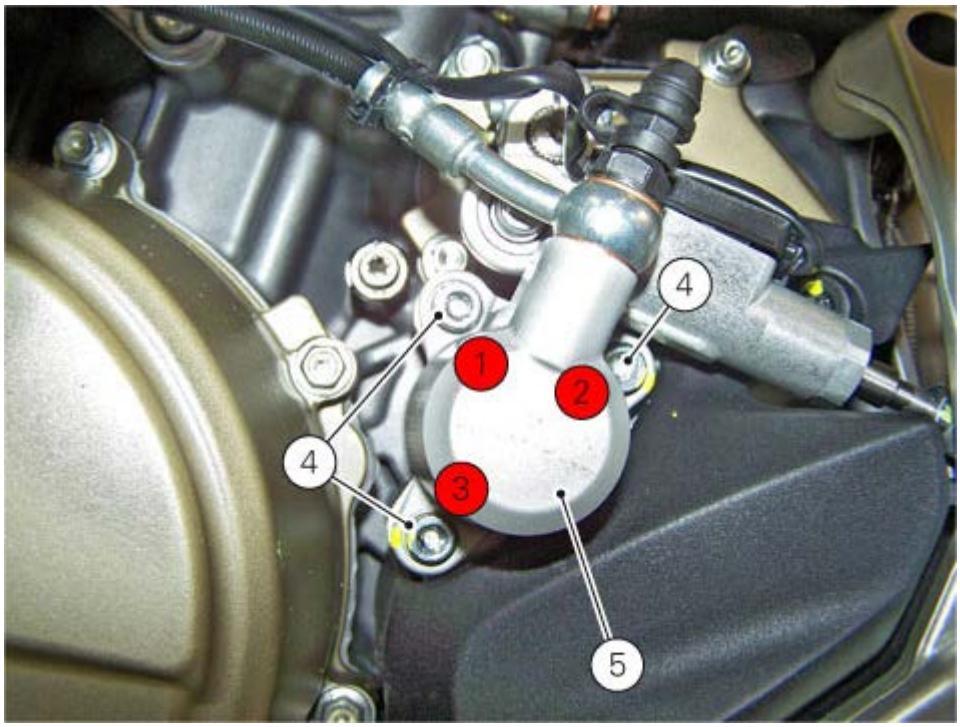


Start screws (4) in their holes to hold slave cylinder (5) in place.

Note

Tighten screws (4) evenly and progressively to draw mating face of slave cylinder (5) and casing cover together squarely.

Tighten screws (4) to 10 Nm ±10%, following a 1 - 2 - 3 - 1 sequence.



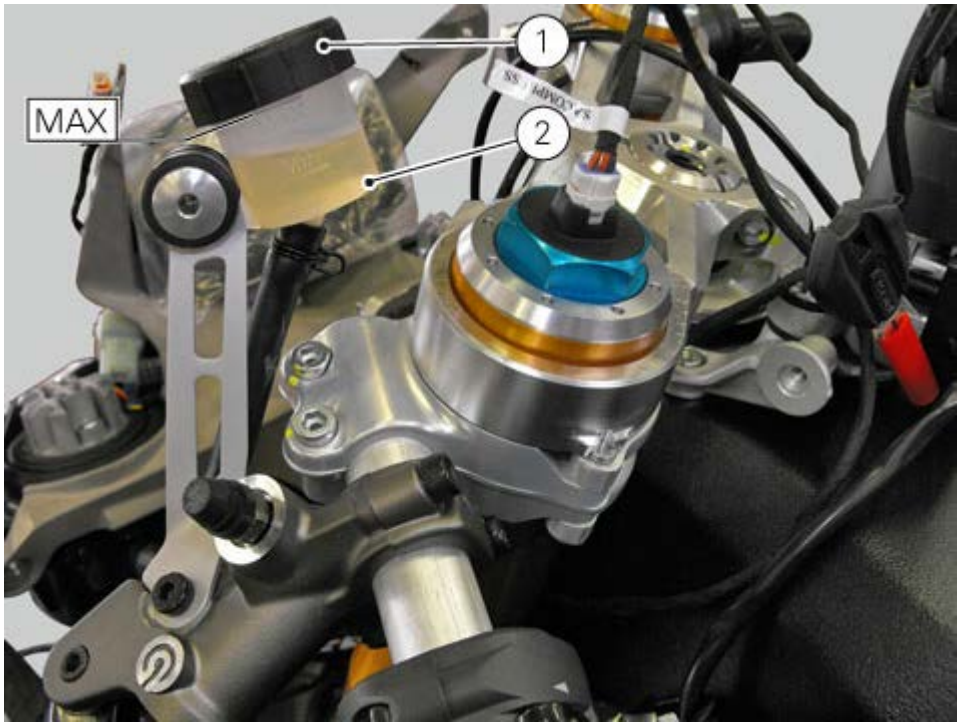
http://www.ducati-manuals.com
no. 140312

Filling the clutch circuit

Warning
Clutch fluid is corrosive and will damage paint. Avoid contact with eyes and skin. In case of accidental contact, wash thoroughly with water.

Remove cover (1) and membrane from clutch fluid reservoir (2).
Fill the reservoir with the recommended fluid (Fluids and lubricants), taken from a new container.

Important
During the following operation, the fluid level must remain topped up at all times. The end of the transparent plastic tubing must remain immersed in the discharged fluid at all times.

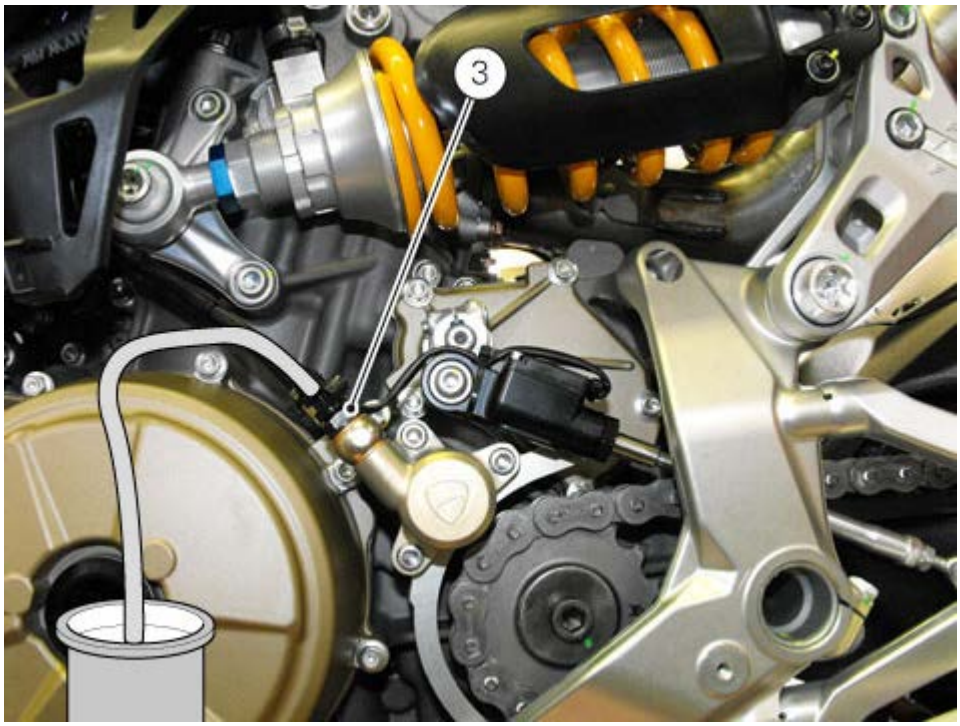


Operate the clutch lever several times to fill the circuit and expel any air.
Connect the relevant bleeder to bleed valve (3).

Note
Follow the manufacturer's instructions when using a commercial clutch bleeding tool.

Open bleed valve (3) and pump with the bleeder. Make sure that the level inside the reservoir does not fall below the MIN mark.
Repeat this procedure until the fluid emerging from the transparent tube connected to the bleed valve is free of air bubbles.
If you do not have a brake bleeding tool available, connect a length of transparent plastic tubing to bleed valve (3) as outlined in the draining procedure.

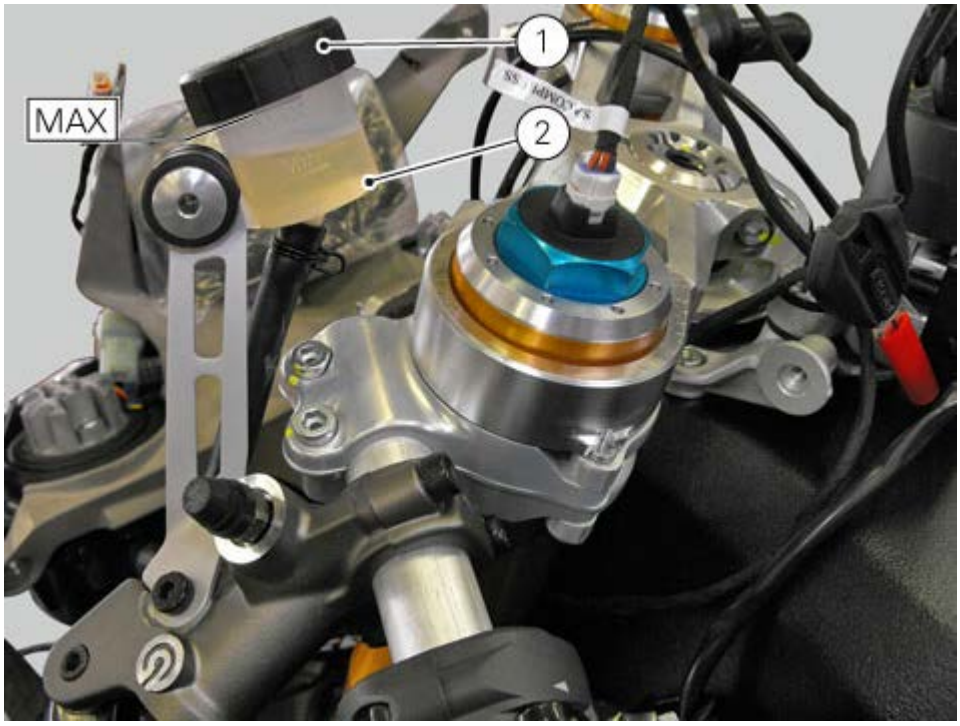
http://www.ducati-manuals.com
no. 140312



Open the bleed valve (3) by **1 / 4** of a turn and operate the clutch lever until the fluid comes out of the bleed valve.
Pull the lever fully in and then loosen the bleed valve by **1 / 4** of a turn at least. Wait for a few seconds; then release the lever gradually while simultaneously closing bleed valve (3).

Important
Do not release the clutch lever until the bleed valve has been fully tightened.

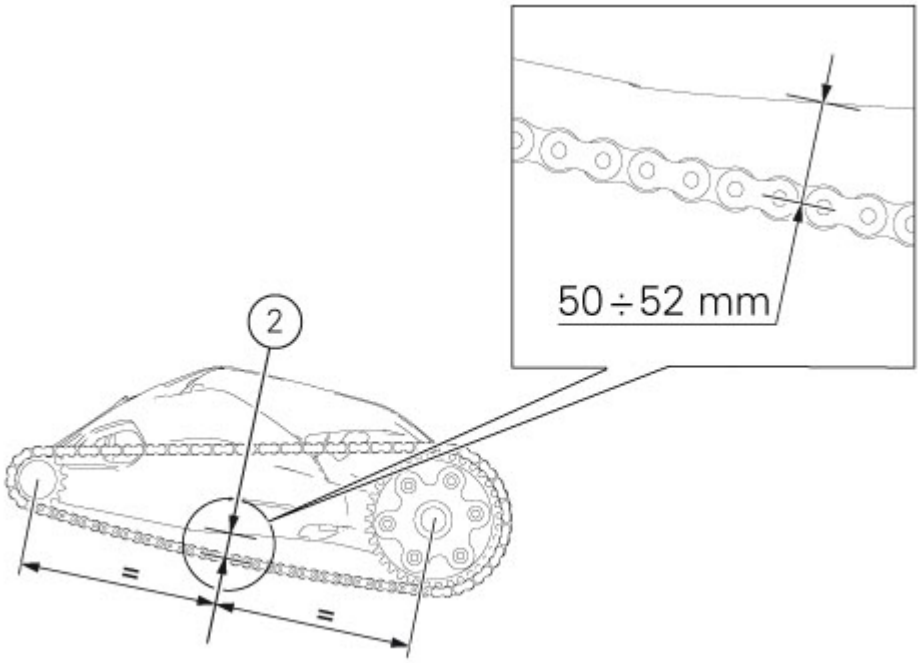
Repeat the described operation until the fluid coming out of the plastic tube is free of air bubbles.
Tighten bleed valve (3) to a torque of 4 Nm ±10% and fit the protection cover.
Top up the fluid level to about **3** mm above the MIN mark in the reservoir.
Refit cover (1) and membrane of clutch fluid reservoir (2).

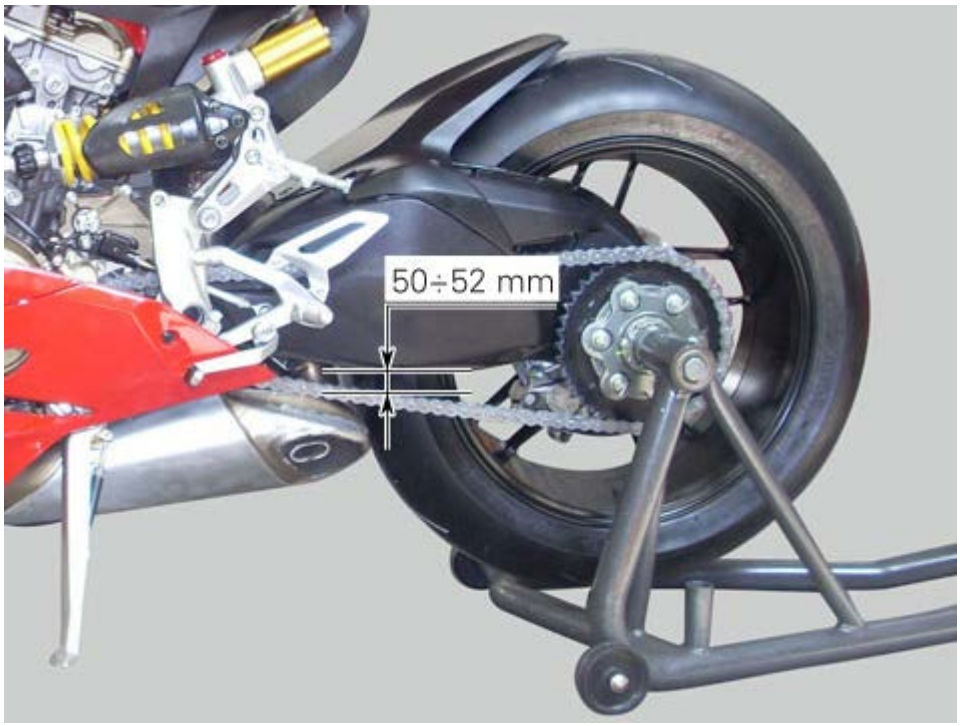


http://www.ducati-manuals.com
no. 140312

Adjusting the chain tension

Make the rear wheel turn until you find the position where chain is tightest.
Set the vehicle on the side stand.
With just a finger, push down the chain at the point of measurement and release.
Measure the distance between the centre of the chain pins and the aluminium section of the swingarm: it must be between 50 ÷ 52 mm.





Important
If the drive chain is too tight or too slack, adjust it so that tension reading will fall within specified range.

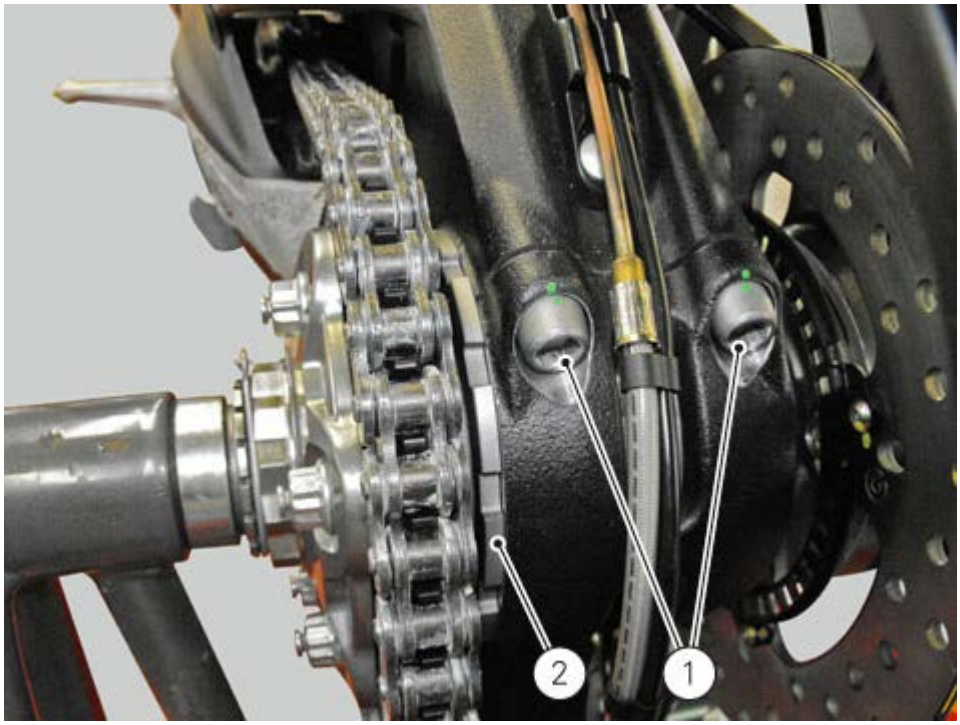
Loosen the two screws (1) fastening the rear hub to the swingarm.
Use the pin wrench part no. **88713.1038**, inserting its tooth in the eccentric hub (2).
Turn eccentric hub (2) to obtain the correct chain tension.
Turn anticlockwise to tighten the chain; turn clockwise to loosen it (from chain side).

http://www.ducati-manuals.com
no. 140312

Important

An incorrectly tensioned chain will lead to accelerated wear of the transmission components.

If screws (1) are removed, smear under head and thread with the recommended grease, then, tighten screws (1) to a torque of 25 Nm ±5%, following the sequence 1-2-1.



Warning

For the safety of the rider and passenger, it is essential that the eccentric hub screws are correctly tightened.

http://www.ducati-manuals.com
no. 140312

Checking front brake pad wear

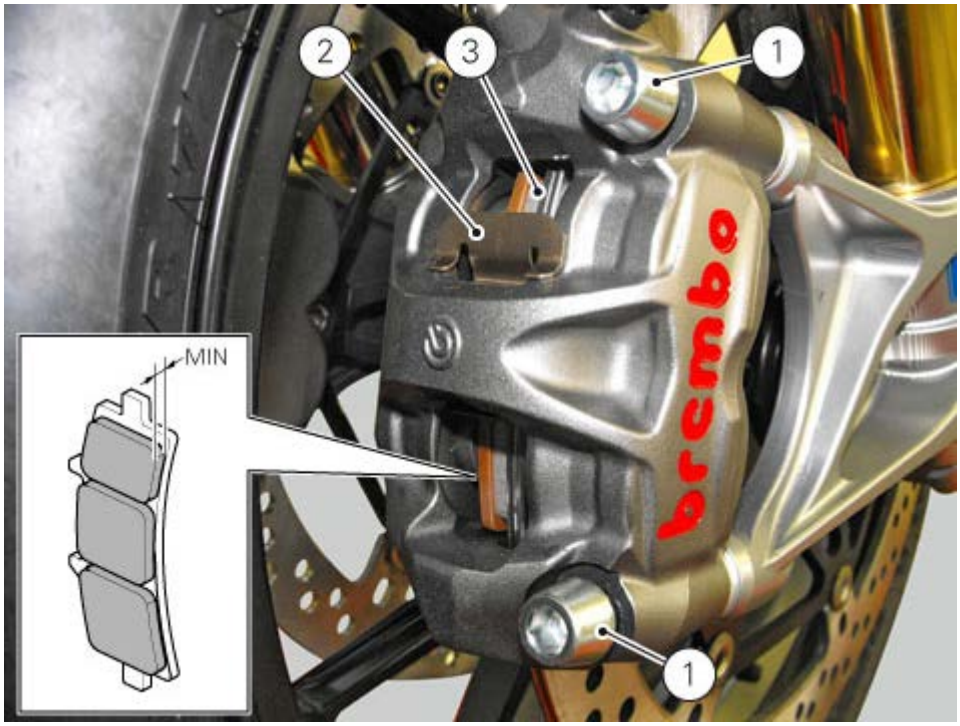
Warning
Brake fluid is corrosive and will damage paint. Avoid contact with eyes and skin. In case of accidental contact, wash thoroughly with water.

Important
On handing over the motorcycle after changing the brake pads, inform the customer that the front brake must be used gently for the first 100 km to allow the pads to bed in completely.

Check brake pads for wear through the inspection hole in the calipers.
Change both pads if friction material thickness of even just one pad is approximately 1 mm.

Warning
Friction material wear beyond this limit would lead to metal support contact with the brake disc and compromise braking efficiency, disc integrity and rider safety.

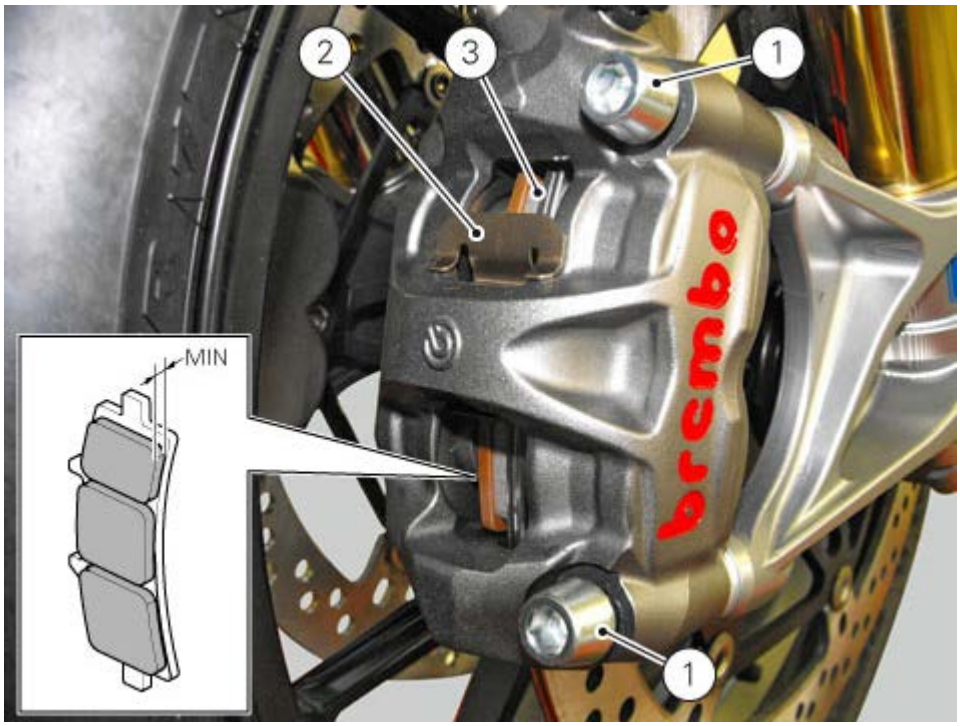
Remove the calipers by loosening the retaining screws (1) of the front brake caliper to the fork leg.
Remove safety cotter pin (2).
Remove the worn pads (3).



Note
Change pads that have a shiny or “vitrified” appearance.

Fit the new pads (3) with the relevant safety cotter pin (2), push the caliper pistons fully inside their seats by forcing the pads apart. Insert front brake calipers on discs.
Smear retaining screws (2) with the recommended grease.
Tighten by hand the screws to secure the calipers to the fork legs.

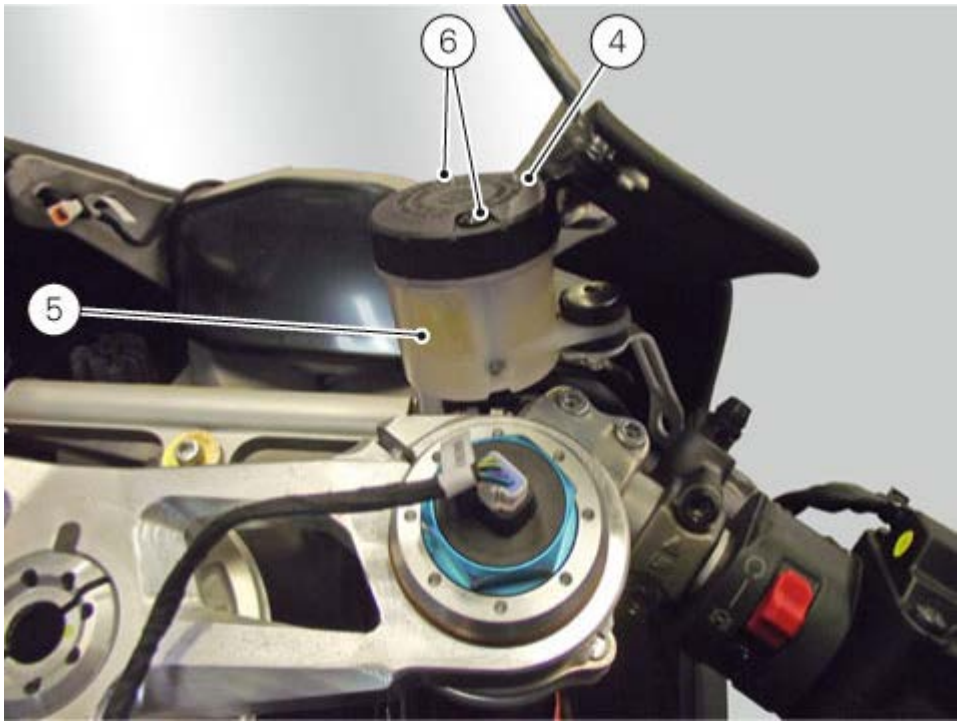
http://www.ducati-manuals.com
no. 140312



Note

Operate the brake lever repeatedly so that the pads are firmly bedded in against the disc by the force of the brake fluid.

Ensure that the level inside the master cylinder reservoir is not below the MIN mark.
If necessary, top up as follows.
Turn the handlebar so that the reservoir is levelled.
Remove cover (4) and membrane from front brake fluid reservoir (5) by loosening screws (6).
Top up with the recommended fluid (Fluids and lubricants) until the MAX mark is reached.



Hold the lever pulled in towards the handgrip and simultaneously tighten the caliper screws (1) to a torque of 45 Nm ±5%.

http://www.ducati-manuals.com
no. 140312



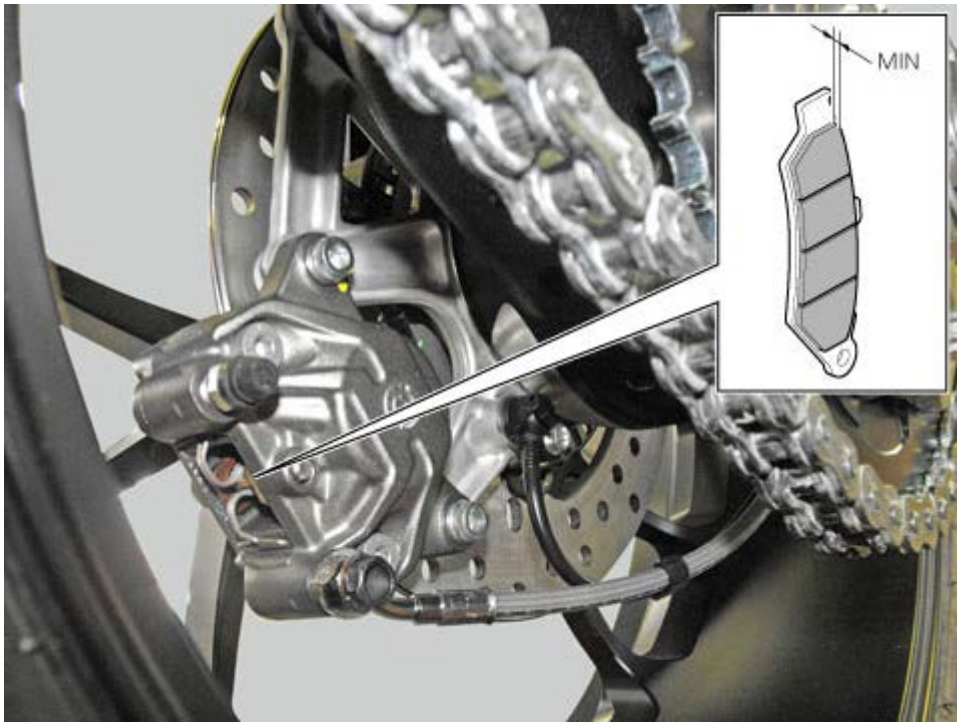
http://www.ducati-manuals.com
no. 140312

Checking the rear brake pad wear

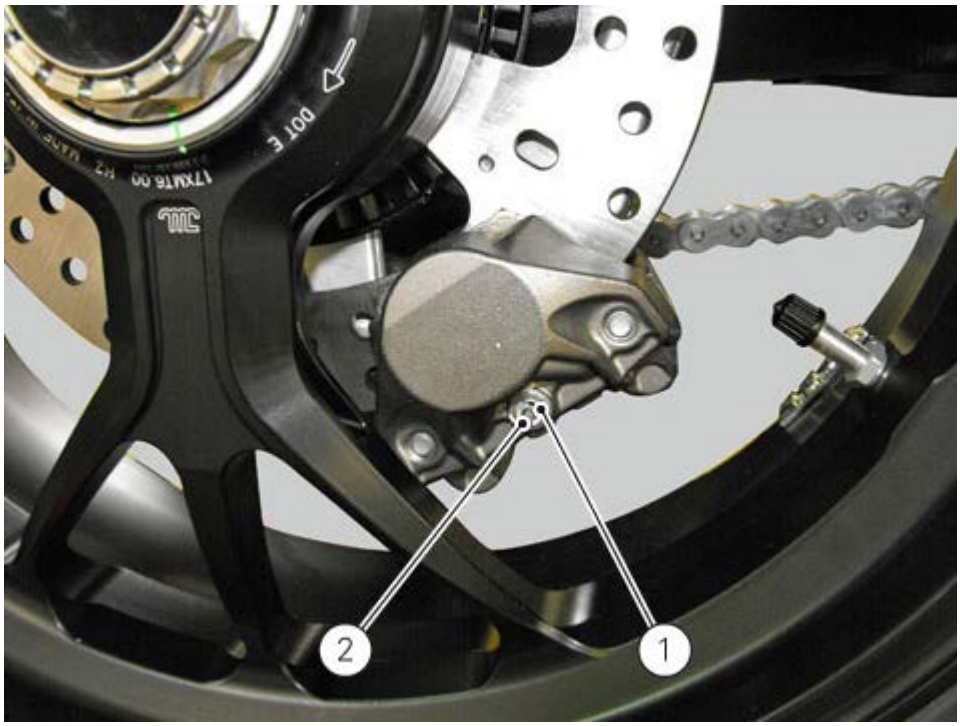
Warning
Brake fluid is corrosive and will damage paint. Avoid contact with eyes and skin. In case of accidental contact, wash thoroughly with water.

Check brake pads for wear through the inspection hole in the calipers.
Change both pads if friction material thickness of even just one pad is approximately 1 mm.

Warning
Friction material wear beyond this limit would lead to metal support contact with the brake disc and compromise braking efficiency, disc integrity and rider safety.

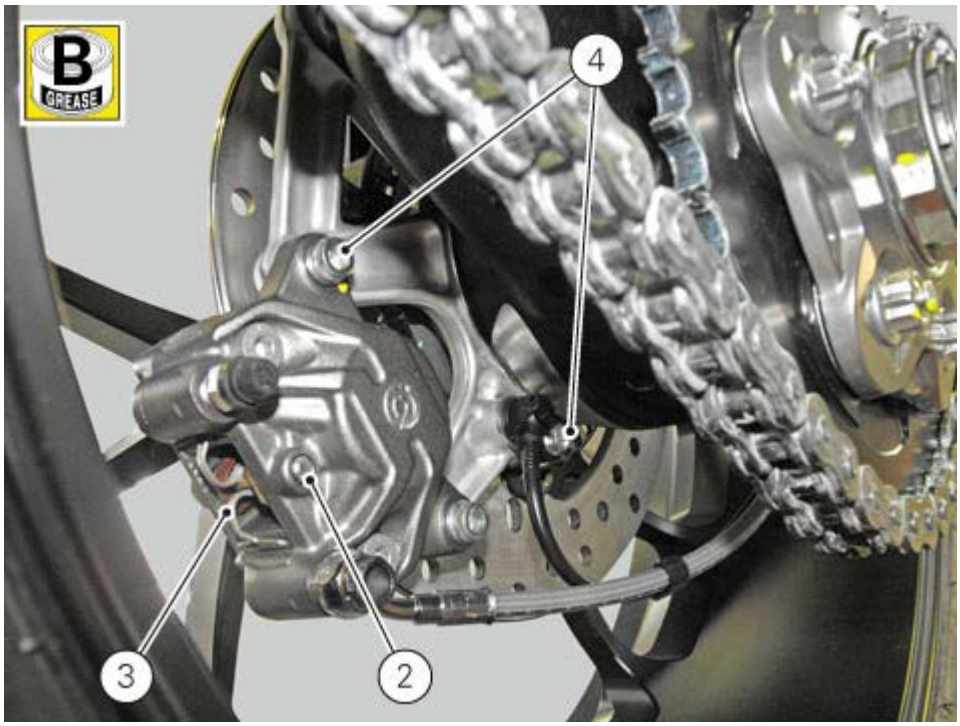


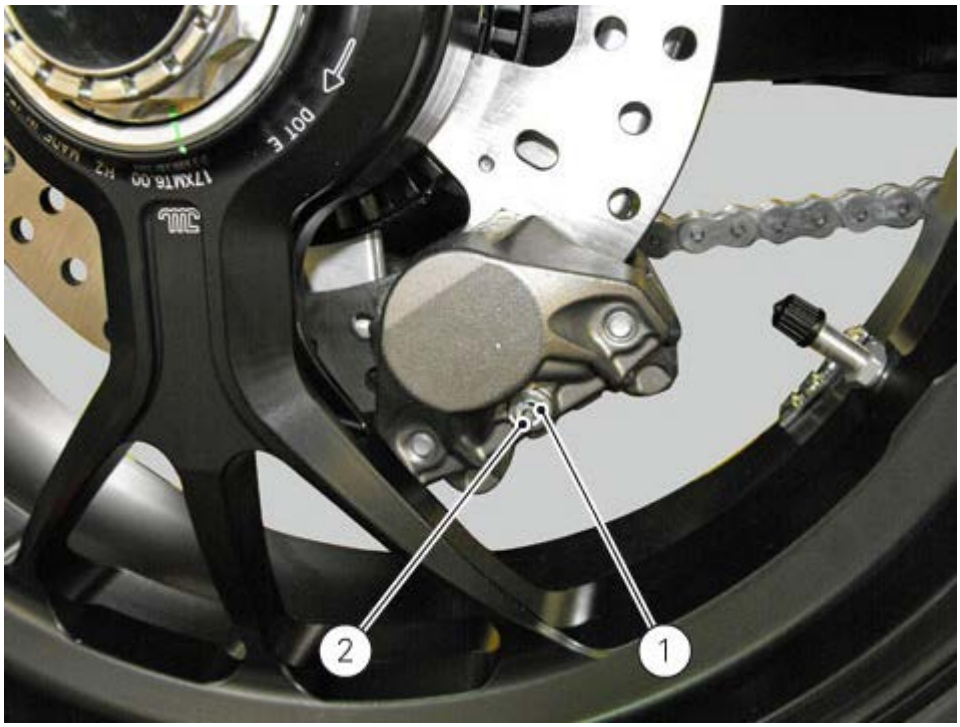
Change the brake pads as follows.
Remove circlip (1) from pad retaining pin (2).



http://www.ducati-manuals.com
no. 140312

Remove pad retaining pin (2) by pulling it outwards.
Remove the clip (3) from between the two calliper halves.
Loosen screws (4) to remove the rear brake caliper.
Push the caliper pistons fully inside their seats by forcing the pads apart.
Remove the worn pads.
Fit the new pads.
Refit the rear brake caliper by starting and tightening screws (4) to a torque of 25 Nm ± 5%.
Fit clip (3), then, pad retaining pin (2) and lock it with ring (1).





Operate the brake pedal repeatedly so that the pads are bedded in against the disc by the force of the brake fluid.
Check that the brake fluid level in the reservoir is between the MIN and MAX. marks. If this is not the case, unscrew the reservoir cap (5) and top-up.

http://www.ducati-manuals.com
no. 140312



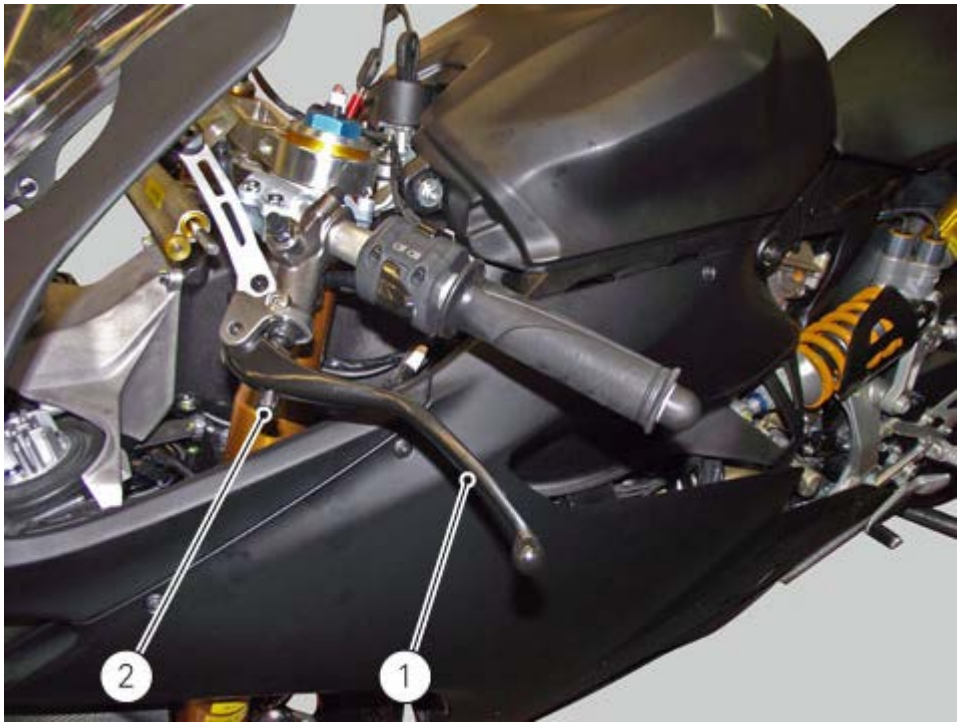
http://www.ducati-manuals.com
no. 140312

Adjusting the clutch lever and the front brake lever

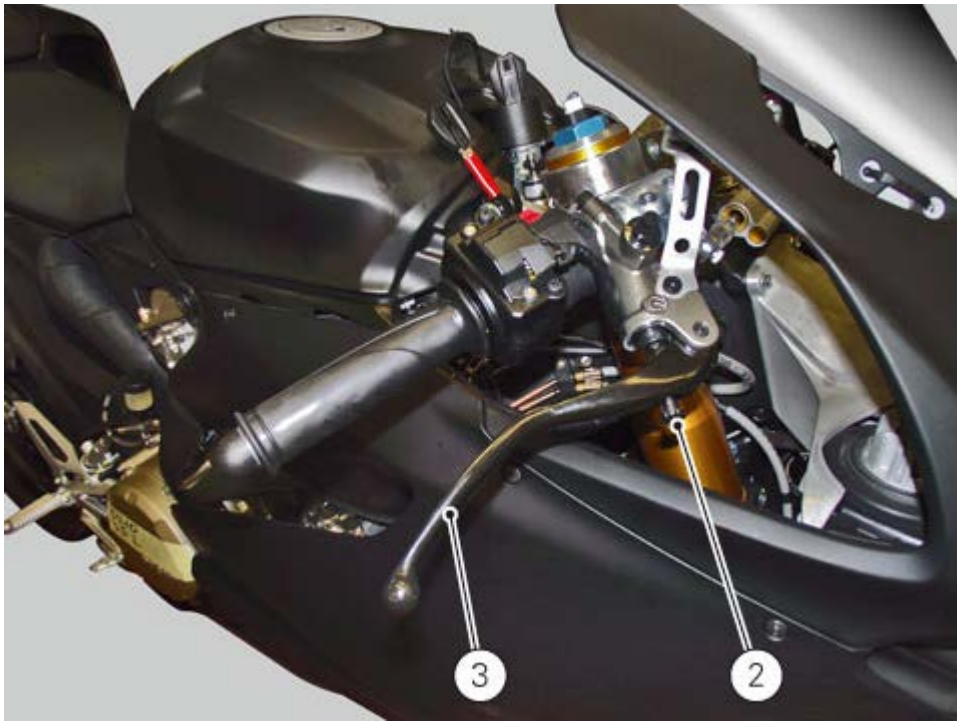
Attention

Any adjustment of clutch and brake levers must only be carried out when motorcycle is stationary.

The clutch lever (1) is fitted with a span adjuster (2) which can be used to alter the distance of the lever from the handgrip on the handlebar.
The lever distance can be adjusted through 10 clicks of the dial (2). Turn the span adjuster clockwise to increase lever distance from the handgrip.
Turn it anticlockwise to decrease it.
When clutch lever (1) is operated, drive from the engine to the gearbox and the drive wheel is disengaged. Correct use of the clutch lever is very important in all riding situations, especially when moving off.



The position of the front brake lever (3) can be adjusted in the same way.



Any adjustment of clutch and brake levers must only be carried out when motorcycle is stationary.

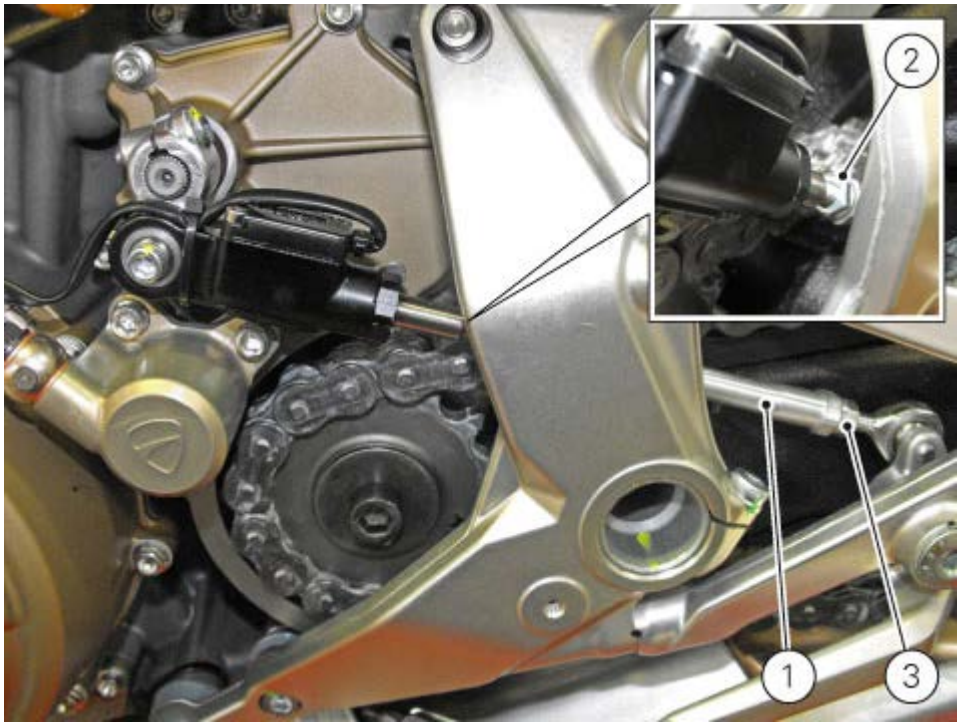
http://www.ducati-manuals.com
no. 140312

Adjusting the position of the gear change and rear brake pedals

The position of the gear change and rear brake pedals in relation to the footrests can be adjusted to suit the preferred riding position.
To adjust the position of the gear change pedal, proceeding as follows:
hold the linkage (1) and slacken lock nuts (2) and (3).

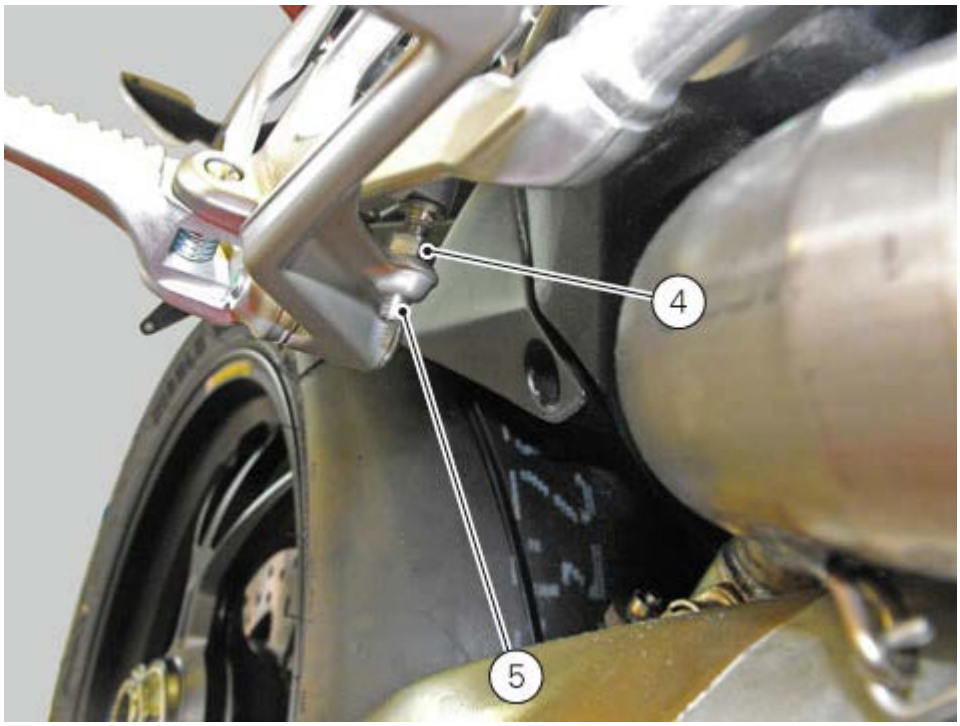
Note
Nut (2) has a left-hand thread.

Fit an open-ended wrench to the hexagonal element of rod (1) and rotate until setting pedal in the desired position.
Tighten both check nuts against the rod.



Modify rear brake pedal position as follows.
Loosen check nut (4).
Turn pedal travel adjusting screw (5) until pedal is in the desired position.
Tighten check nut (4).
Operate the pedal by hand to check that there is a freeplay of about 1.5÷2 mm before the brake begins to bite.

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Adjusting the front fork

The fork is adjusted (rebound and compression) by electric pulses sent by the instrument panel to the adjusters inside the fork legs.

STANDARD values:
Rebound: 10 clicks;
Compression: 8 clicks;
Spring preload: 8 mm.



http://www.ducati-manuals.com
no. 140312

Adjusting the rear shock absorber

The shock absorber is adjusted by electric impulses sent by the instrument panel to the adjusters inside the shock absorber body.

Use ring nuts (1) to adjust the preload of the shock absorber external spring.
Slacken the upper locking ring nut to adjust spring preload.
Then TIGHTEN or SLACKEN the lower ring nut to INCREASE or DECREASE spring preload. After setting the desired preload, tighten the upper locking ring nut.
STANDARD setting; from the fully closed position (clockwise), loosen as follows:
Compression: 10 clicks from the fully closed position;
Rebound: 10 clicks from the fully closed position;
Spring preload: 12 mm.



http://www.ducati-manuals.com
no. 140312

Changing the motorcycle track alignment

Motorcycle setup is the result of tests carried out under different riding conditions by our technical staff. Modifying factory setting is a very delicate operation, which may lead to serious damage if carried out by unskilled people.
The rider can modify setup according to his/her needs by changing working position of the shock absorber.

Important
The FLAT position (F) allows for different track alignment, as on the racing versions. The PROGRESSIVE position (P) is recommended with a passenger aboard.

Warning
Using the vehicle set to FLAT (F) with a passenger aboard may result in vehicle instability.
Ducati does not recommend to use the vehicle with the rear suspension set to FLAT (F) and a passenger aboard.

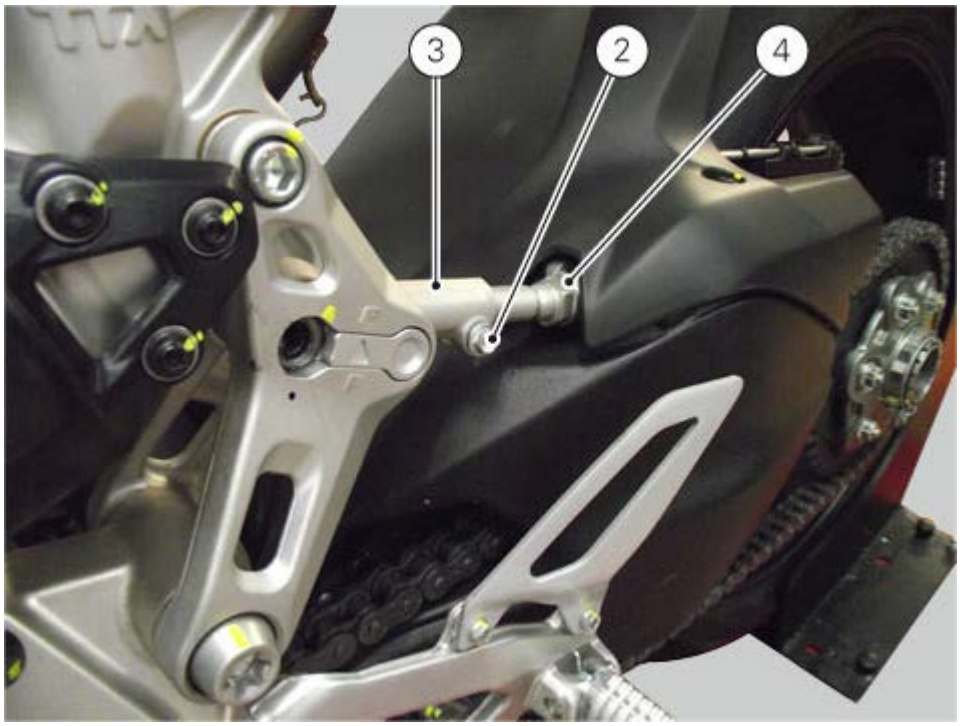
Keep the vehicle rear end lifted from the ground.
Remove the rear mudguard (Removal of the rear mudguard).

Hold the nut and loosen screw (1) retaining the adjuster plate.

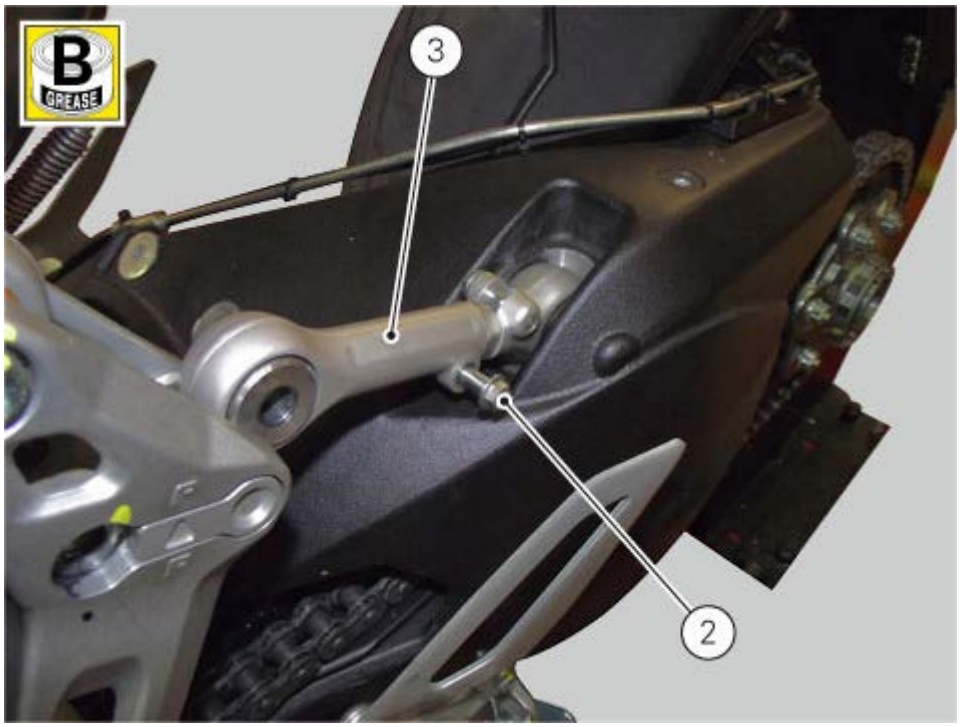


Loosen adjuster screw (2) of linkage (3).
Tighten the linkage (3) until it gets fully home against lower joint (4).

http://www.ducati-manuals.com
no. 140312



Smear specified grease on screw (2).
Fasten linkage (3) tightening screw (2) to 10 Nm ± 5%.

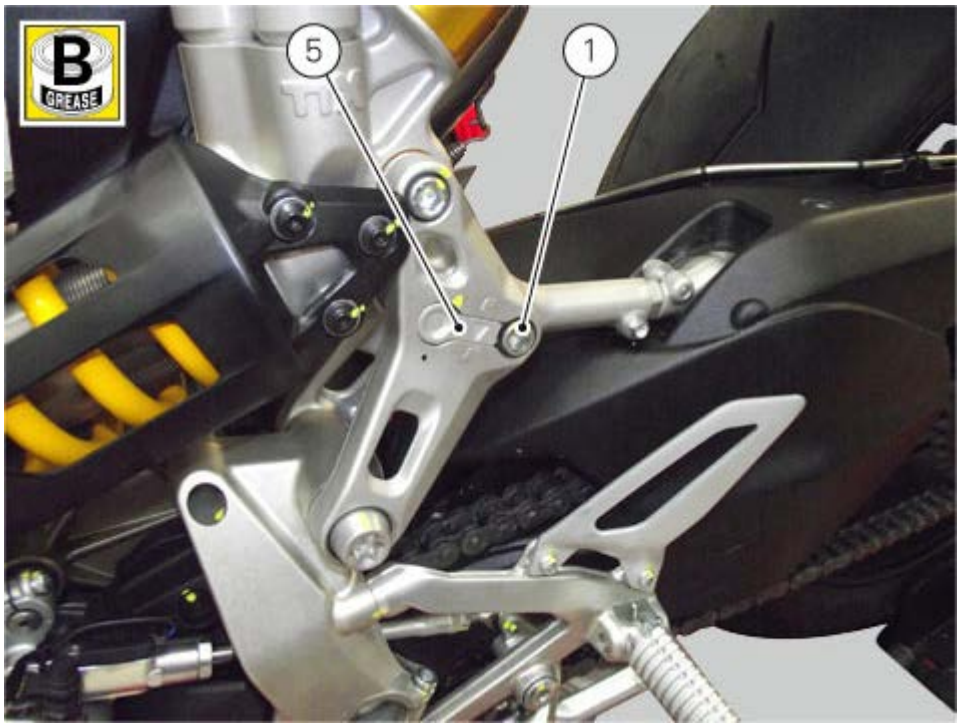


Set the adjuster plate (5) with the arrow pointing at the desired setting.

http://www.ducati-manuals.com
no. 140312



Smear specified grease on screw (1).
Fasten adjuster plate (5) tightening screw (1) to 45 Nm ± 5%.



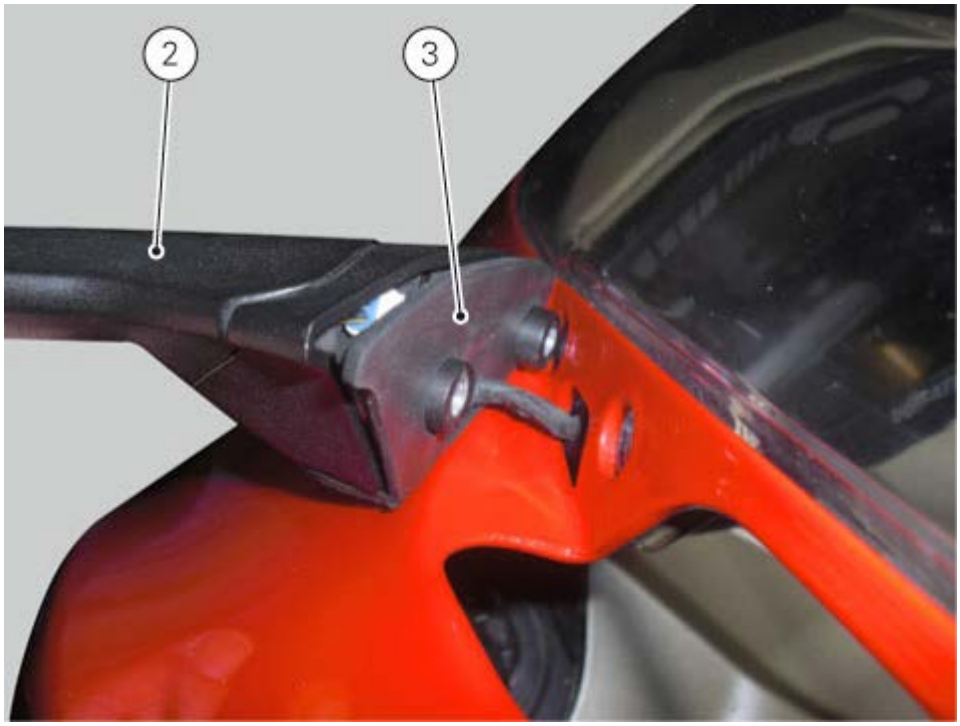
http://www.ducati-manuals.com
no. 140312

Removal of the rear-view mirrors

Loosen screws (1) retaining the left-hand rear-view mirror.



Release the rear-view mirror (2) and remove gasket (3) between mirror and headlight fairing.



Detach gasket (3) located between mirror and headlight fairing and disconnect turn indicator connector (A) from wiring.
Carry out the same operations to remove the other mirror.
Wrap the mirrors in protective material and set them aside to avoid damaging them.

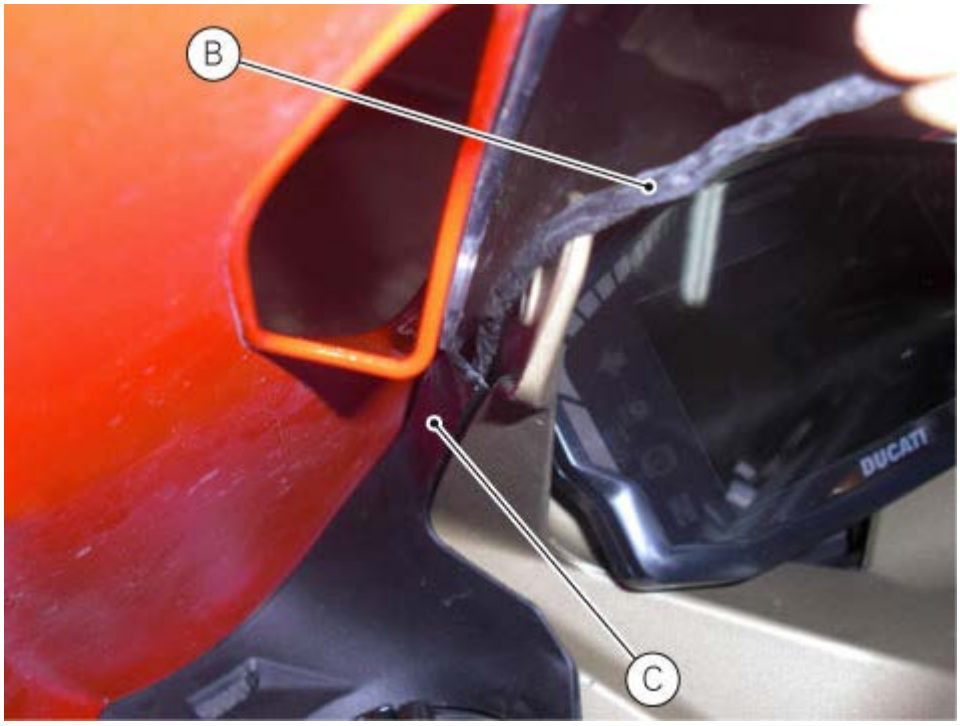
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Installation of the rear-view mirrors.

Before refitting the rear-view mirrors, lay down the main wiring (B) of turn indicator inside the recess on headlight fairing (C) and make sure it slides smoothly.

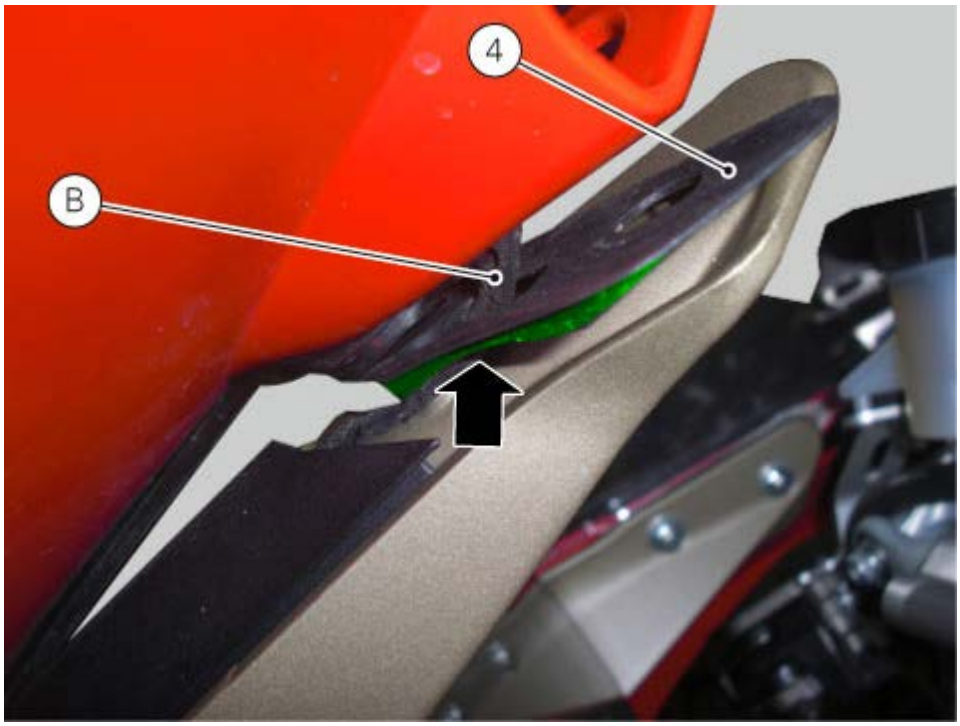


Insert the main wiring (B) of turn indicator through the hole on gasket (4) located between headlight fairing and subframe.

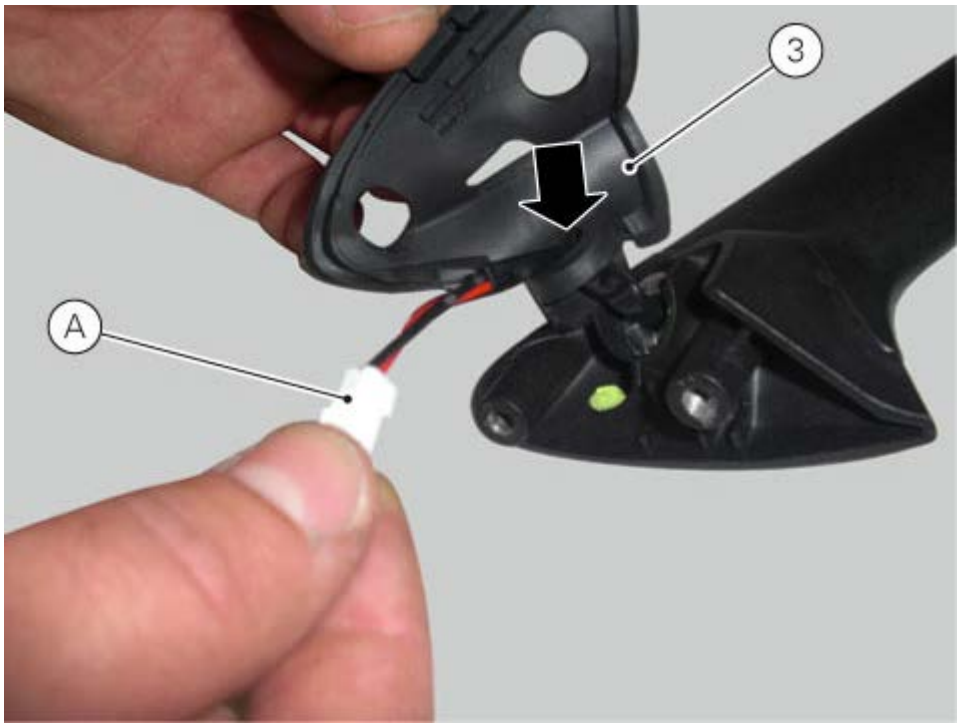


Position gasket located between headlight fairing and subframe (4) between headlight fairing and headlight support, with the protruding part facing the headlight support.
Insert turn indicator wiring connector in the relevant hole on headlight fairing and push it out.

http://www.ducati-manuals.com
no. 140312

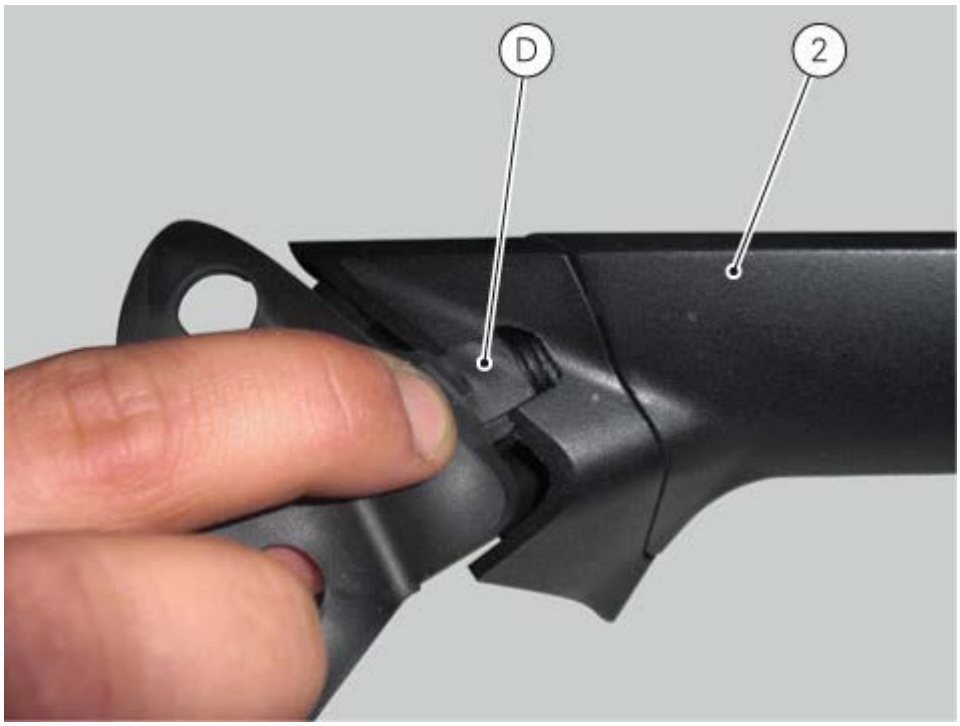


Push turn indicator connector (A) through the hole on gasket (3) located between mirror and headlight fairing.

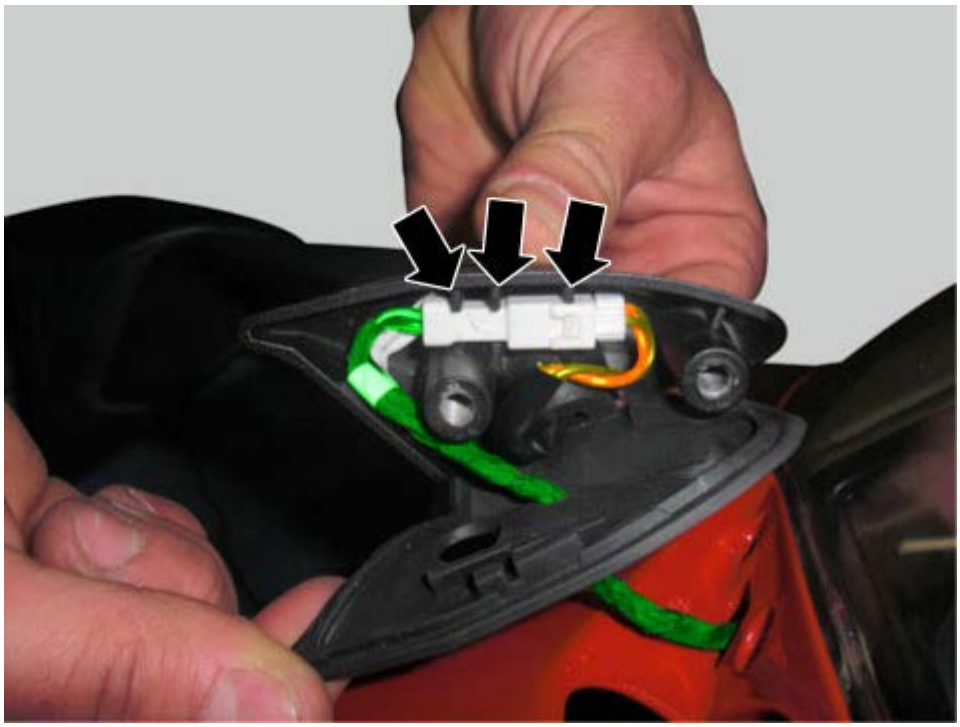


Install gasket (3) located between mirror and headlight fairing and fit tab (D) inside recess on rear-view mirror (2).

http://www.ducati-manuals.com
no. 140312

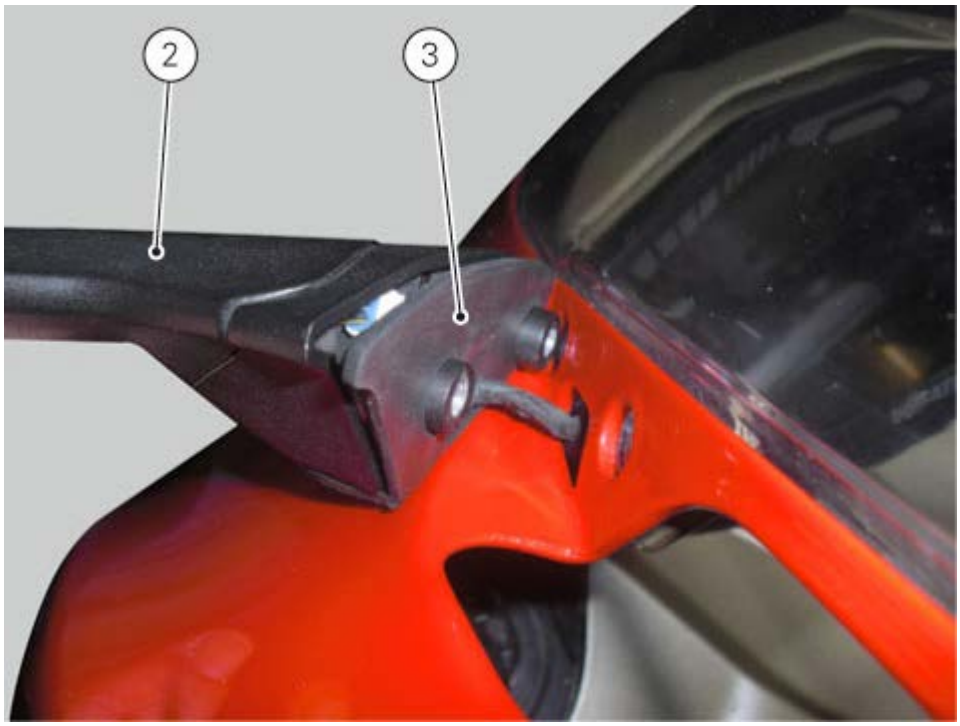


Connect turn indicator connector to main wiring harness and lay down connectors in the relevant seat, inside the rear-view mirror support, as shown.



Position the rear-view mirror (2) and insert the bushes of mirror-to-headlight fairing gasket (3) in the holes on headlight fairing.

http://www.ducati-manuals.com
no. 140312



Start the screws (1) and tighten them to a torque of 6 Nm ± 10%.



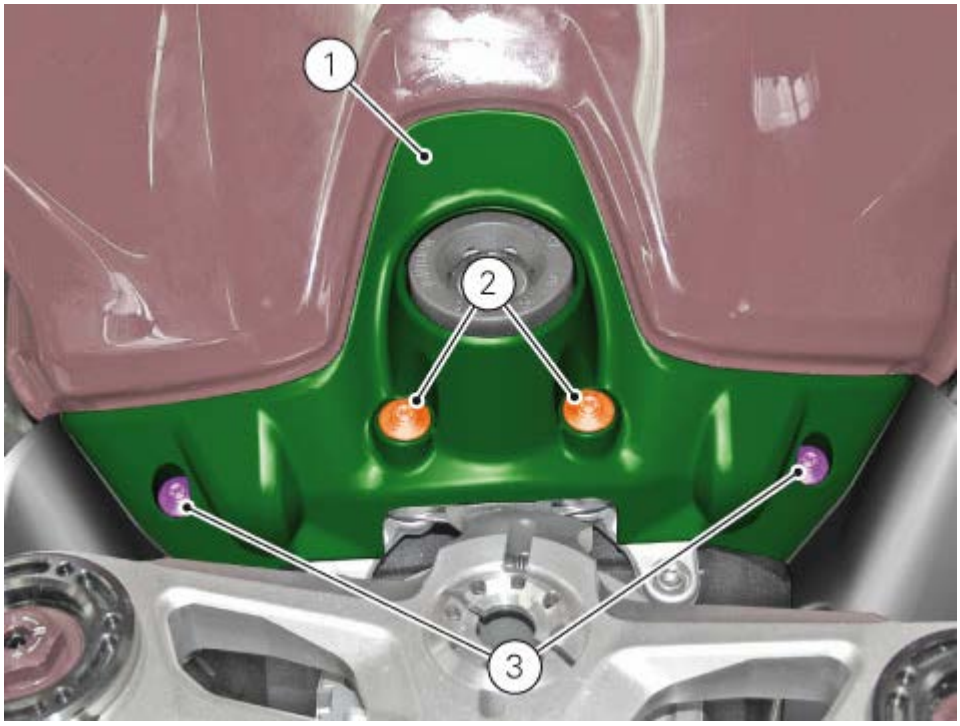
Carry out the same operations to refit the right-hand side mirror.

http://www.ducati-manuals.com
no. 140312

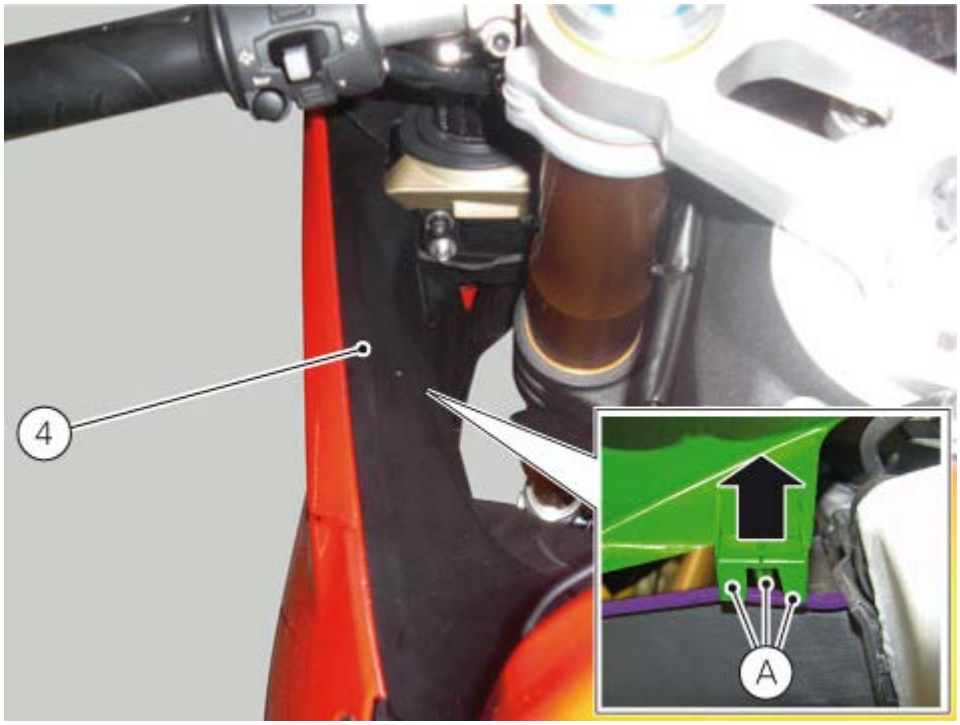
Removal of the headlight fairing

Remove the rear-view mirrors (Removal of the rear-view mirrors).
Remove the fairings (Removal of the side fairings).

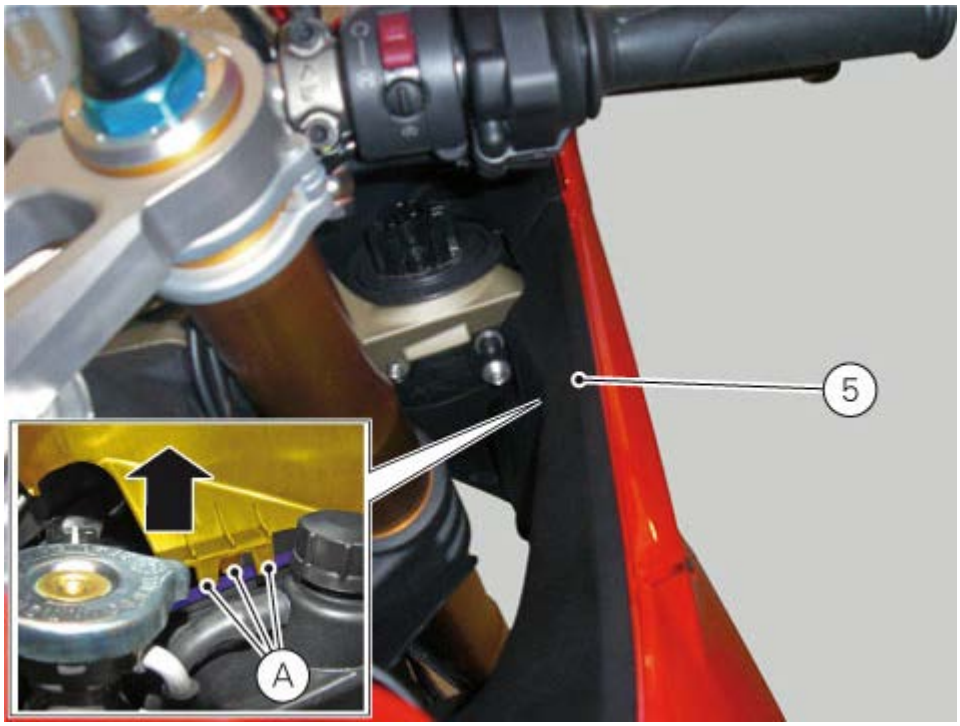
Remove the ignition switch cover (1) by undoing nuts (2) and screws (3).



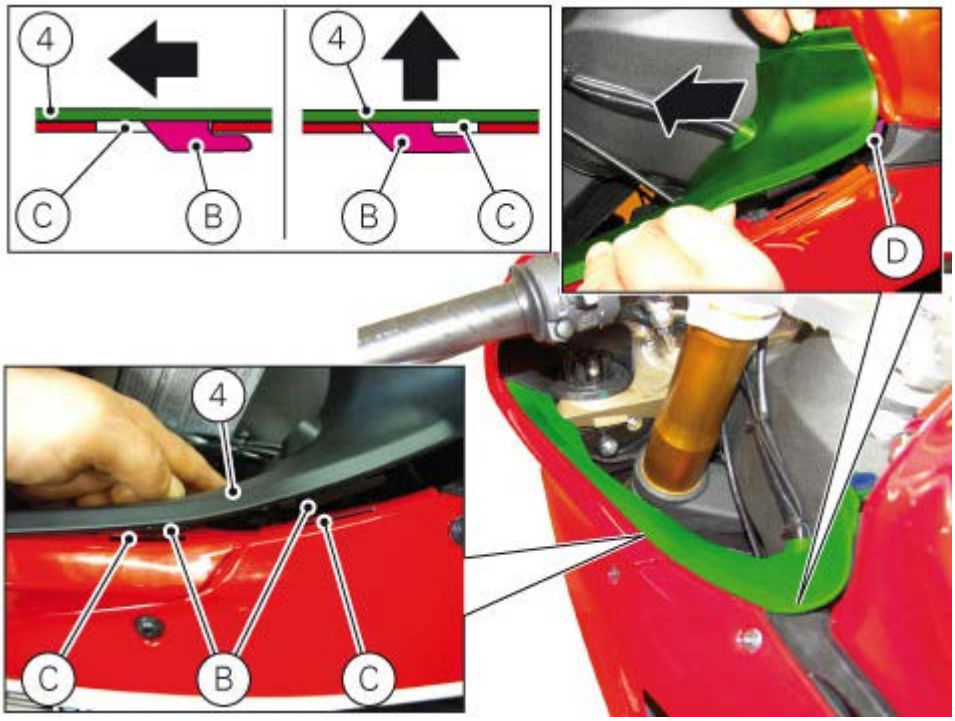
Lift the internal part of conveyor covers (4) and (5), and disengage tabs (A) from the radiator mounts.



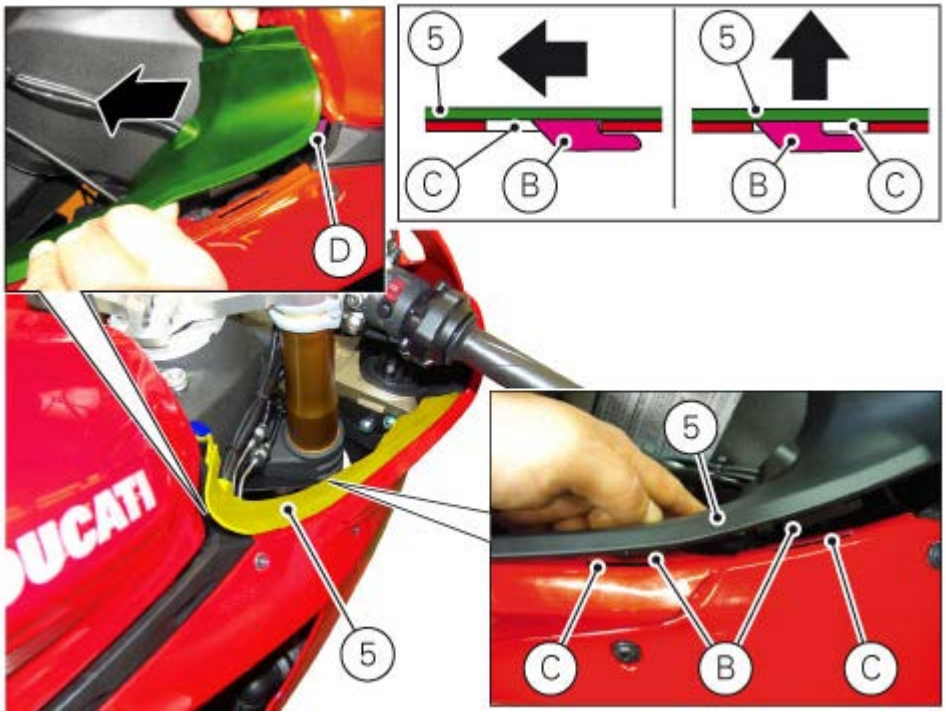
http://www.ducati-manuals.com
no. 140312



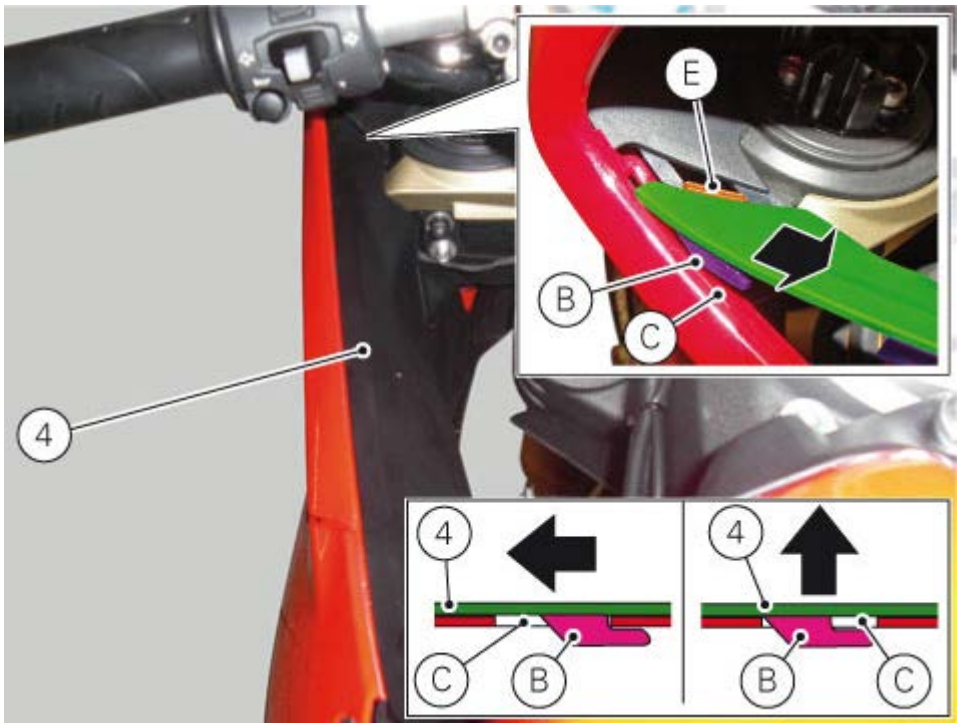
Move conveyor covers (4) and (5) to the front end and lift them up to release tabs (B) from sots (C) on fairing, as shown.
Then move conveyor covers (4) and (5) to the front end and release tab (D) from its housing on fairing.



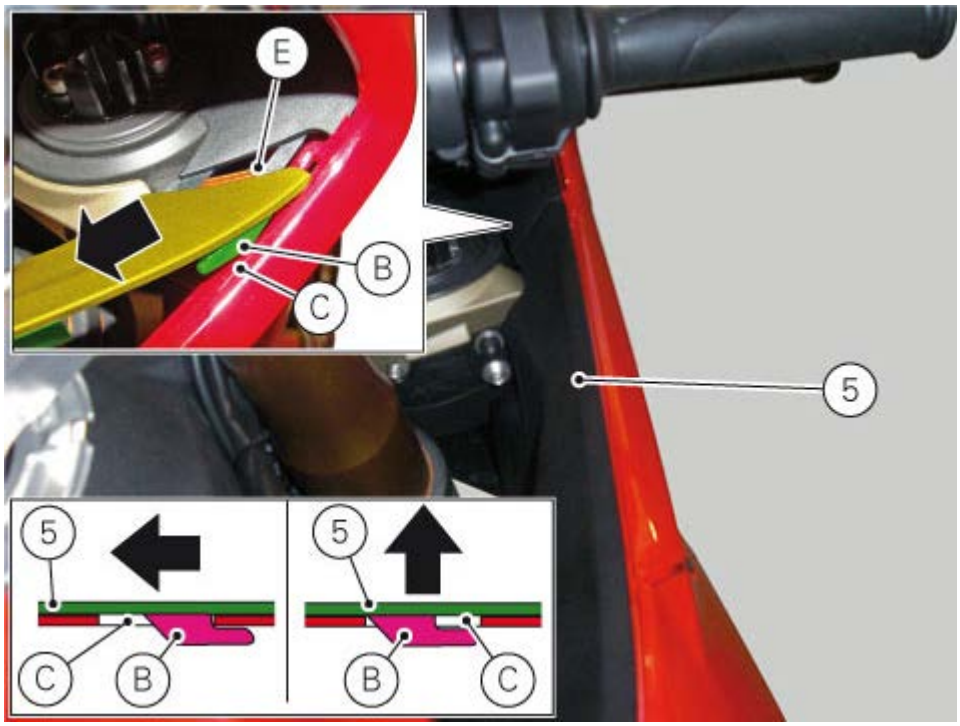
http://www.ducati-manuals.com
no. 140312



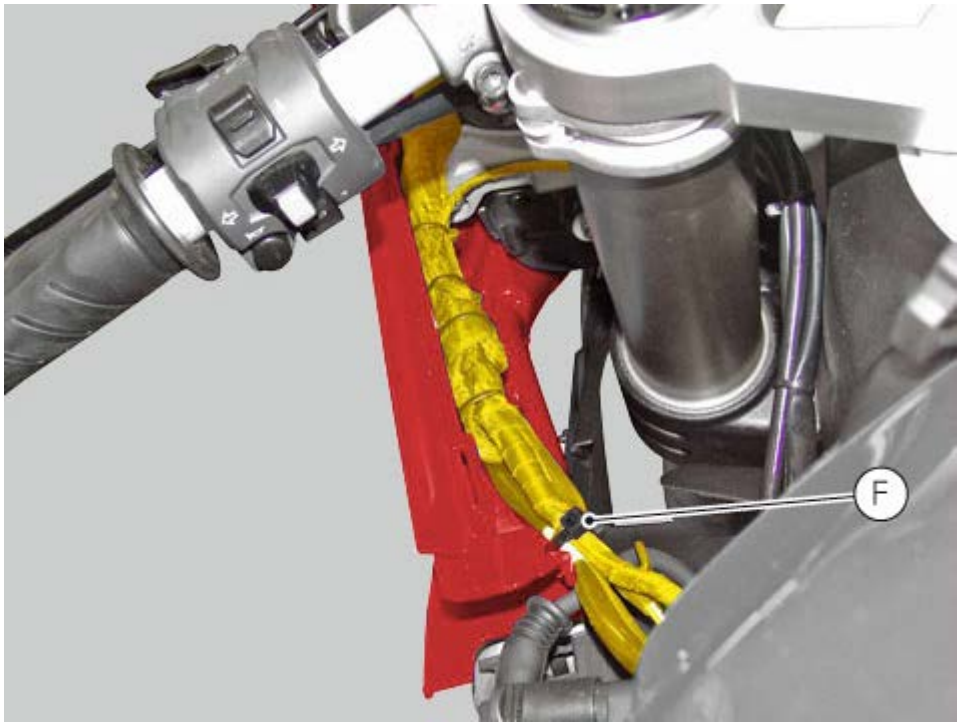
Move conveyor covers (4) and (5) to the front end and lift them up to release tab (B) from sot (C) on fairing, as shown.
Then move conveyor covers (4) and (5) to the rear end and release tab (E) from its housing on instrument panel cover.



http://www.ducati-manuals.com
no. 140312



Remove tie (F) and release the front section of main wiring harness from the headlight fairing.



Loosen and remove screw (6) retaining the splashguard (7).

http://www.ducati-manuals.com
no. 140312

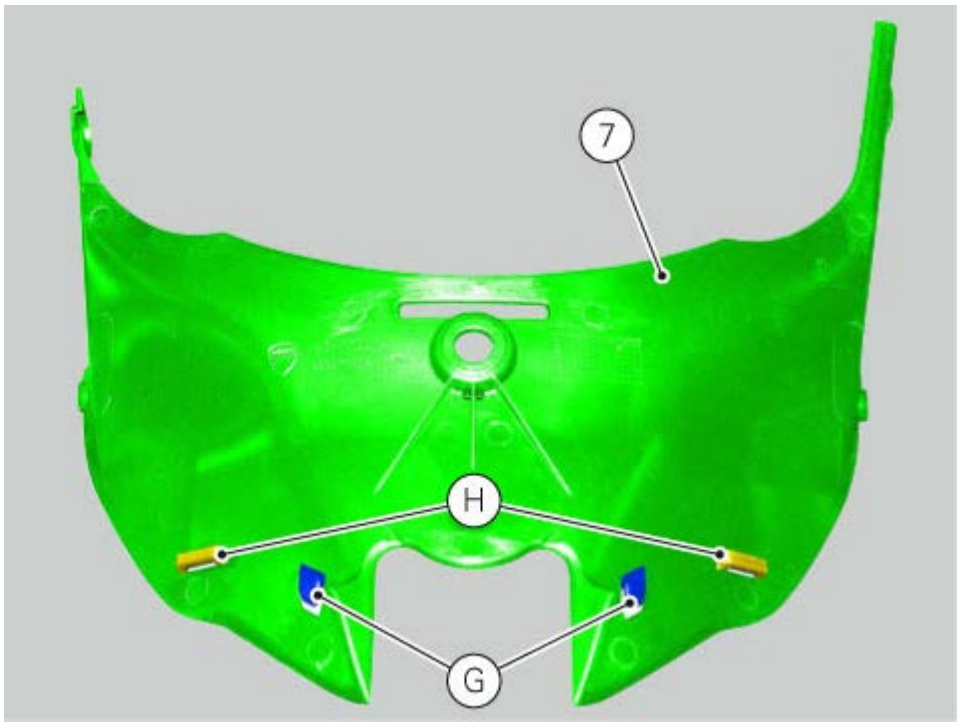


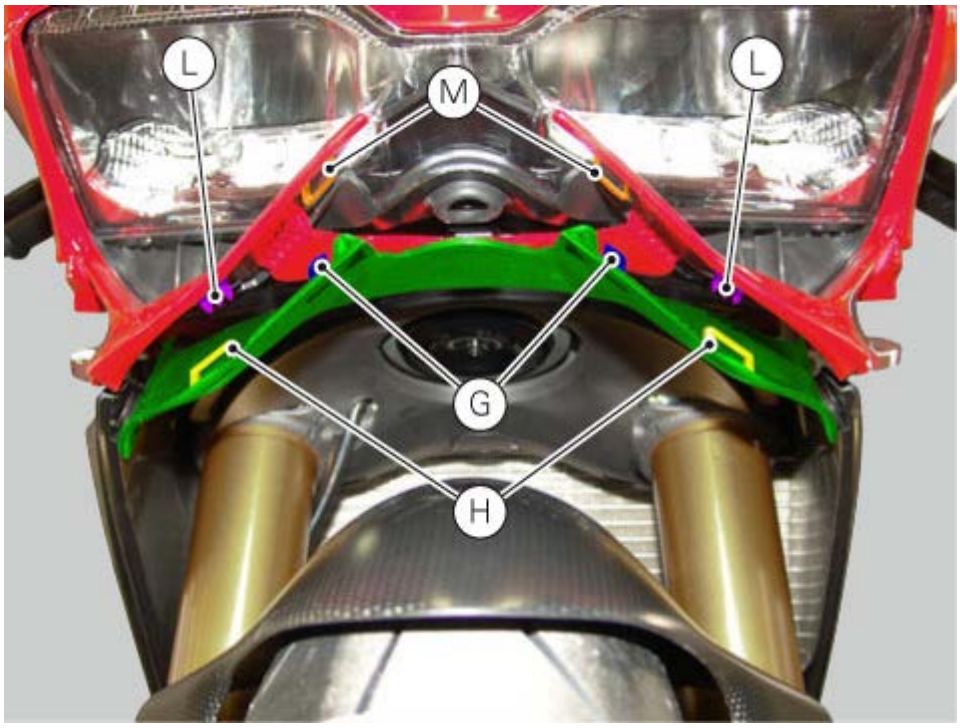
Remove quick-fittings (8) from splashguard (7).



Release splashguard (7) from headlight fairing by pulling it to the rear end of the bike, so as to release tabs (G) from slots (H) on headlight fairing, and headlight fairing tabs (L) from slots (M).

http://www.ducati-manuals.com
no. 140312

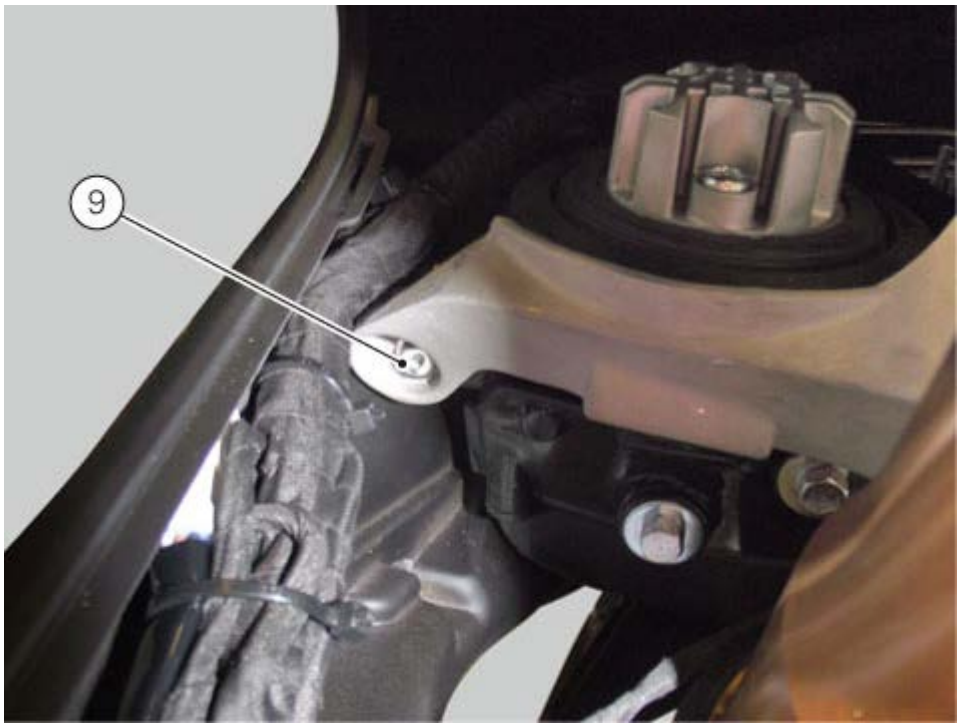




Loosen screws (9) on either side of headlight subframe.

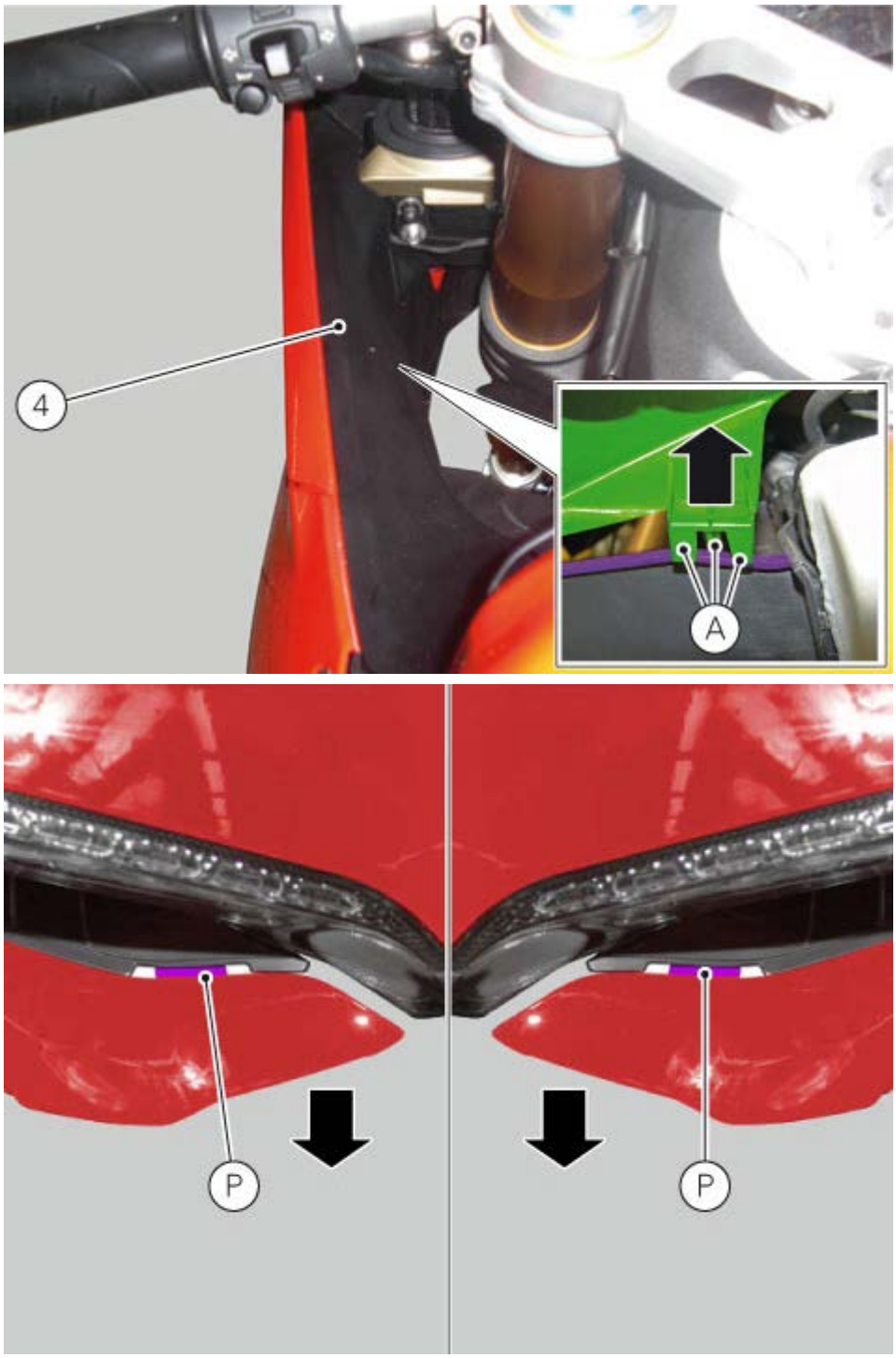
http://www.ducati-manuals.com
no. 140312





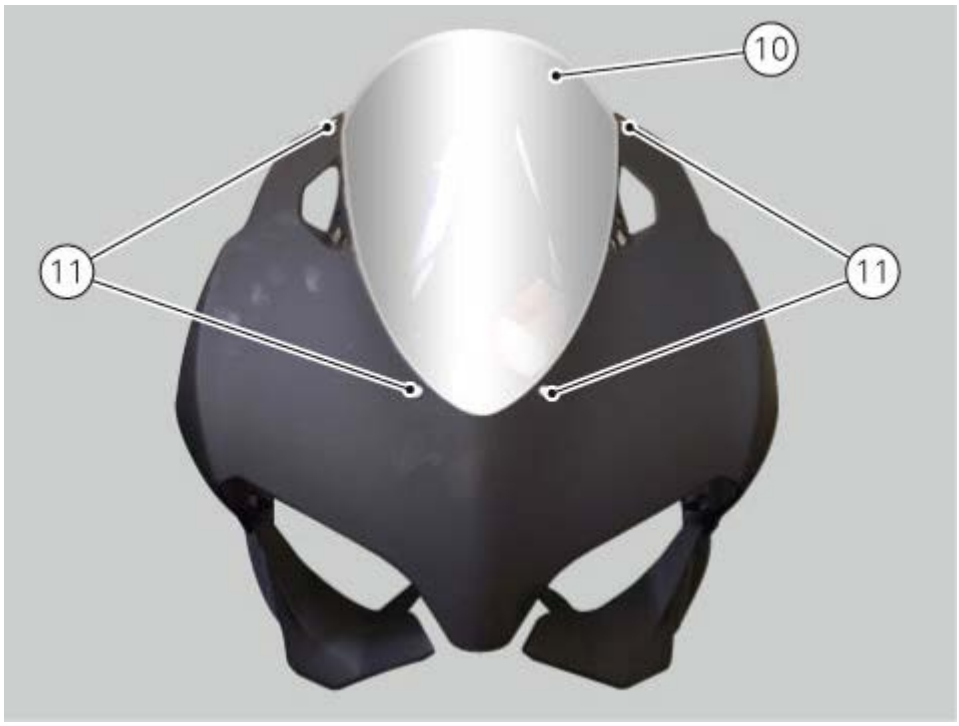
Slide headlight fairing forward so as to disengage pin (N) from vibration damper (O) and tabs (P) from the bottom of the headlight.

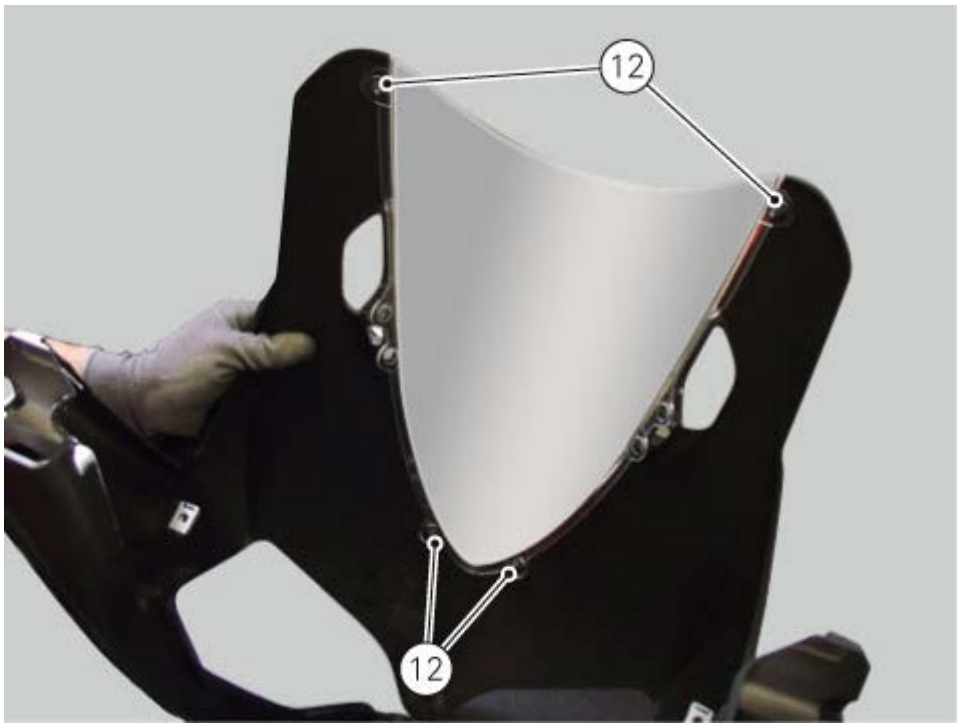
http://www.ducati-manuals.com
no. 140312



If Plexiglas (10) needs replacing, loosen screws (11) with washer, and remove Plexiglas and inserts (12).

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

Installation of the headlight fairing

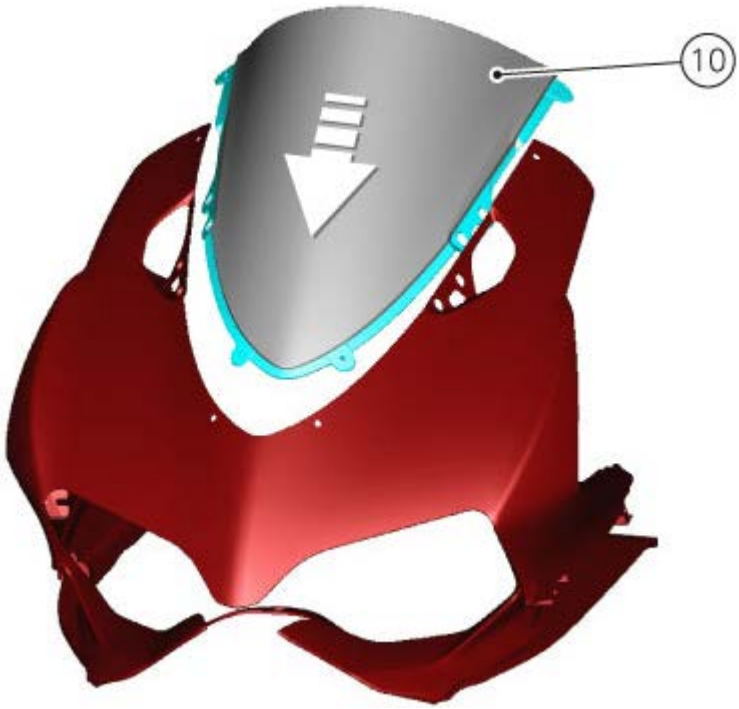
Important

During reassembly always fit nylon washers when tightening fastening screws to avoid damage to painted parts and Plexiglas windscreen of headlight fairing.

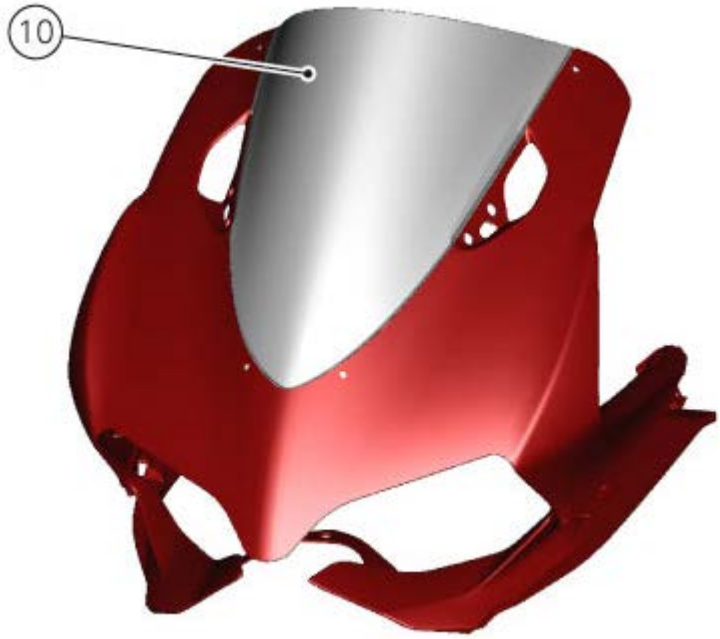
Remove the protective film from Plexiglas (10).



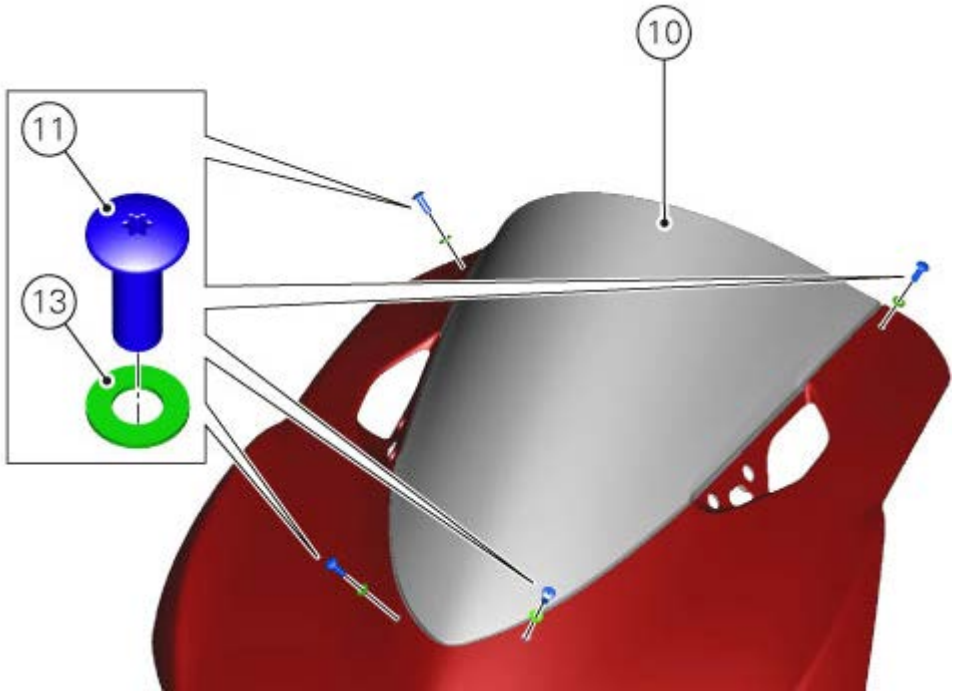
Fit Plexiglas windscreen (10) by setting its bottom edge under the headlight fairing profile, as shown.



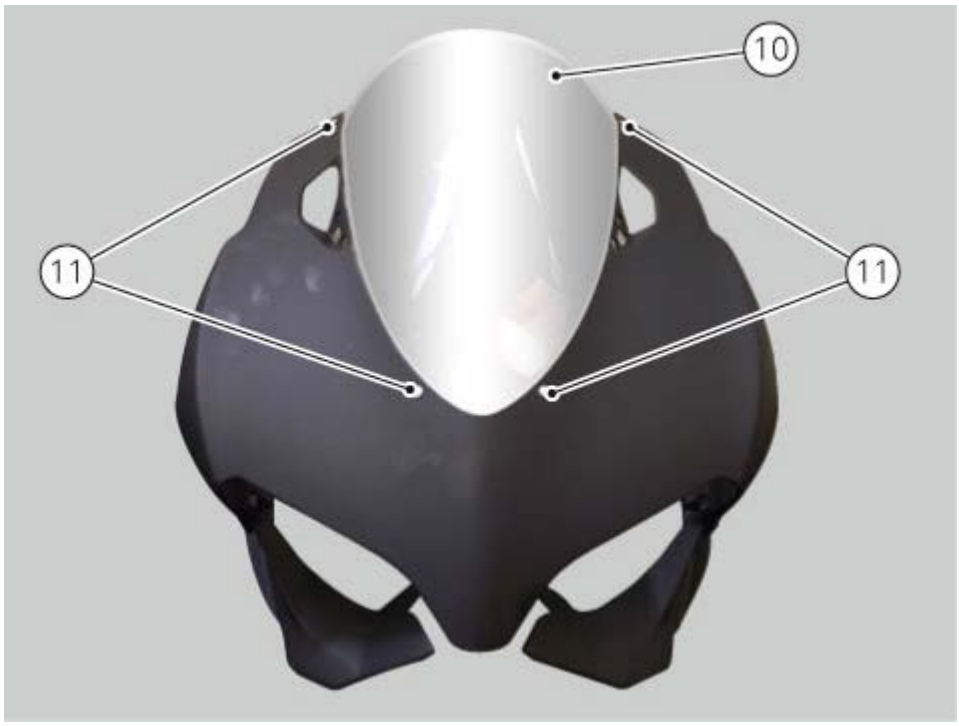
http://www.ducati-manuals.com
no. 140312

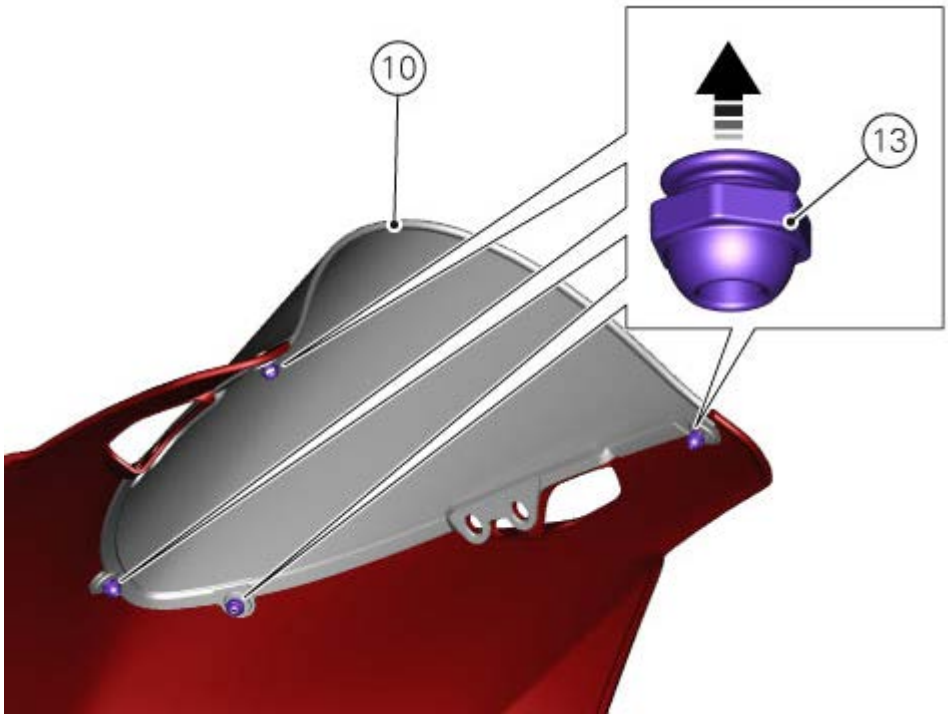


Fit nylon washers (13) onto screws (11).
Fasten Plexiglas (10) by starting screws (11) in their holes on headlight fairing and starting, from the inside, inserts (12). The latter shall be positioned as shown.
Tighten screws (11) to 0.2 Nm ± 10%.

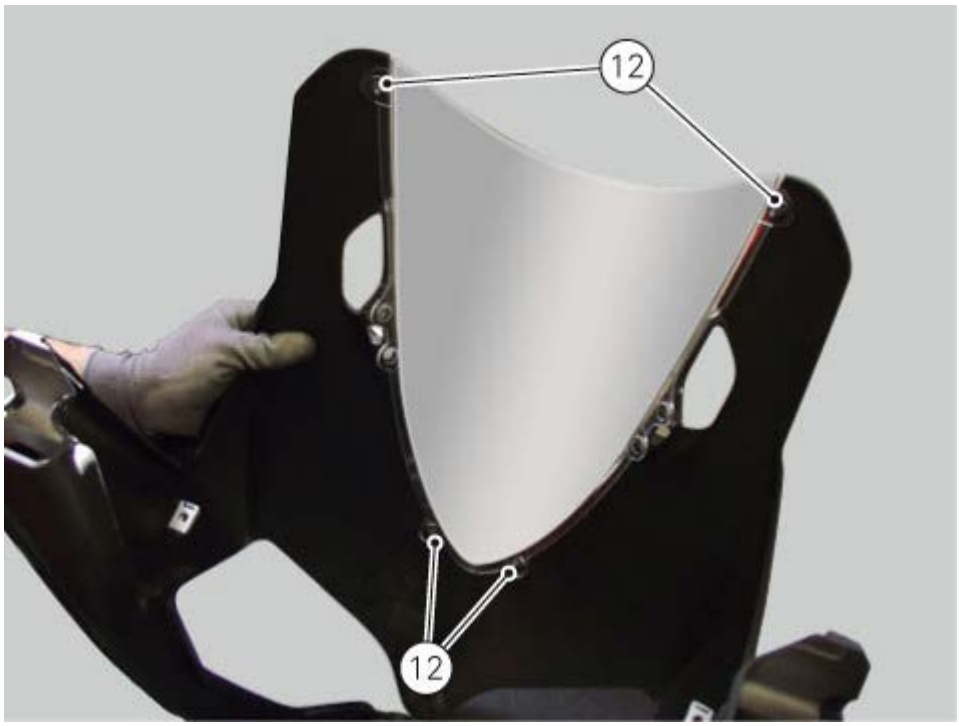


http://www.ducati-manuals.com
no. 140312

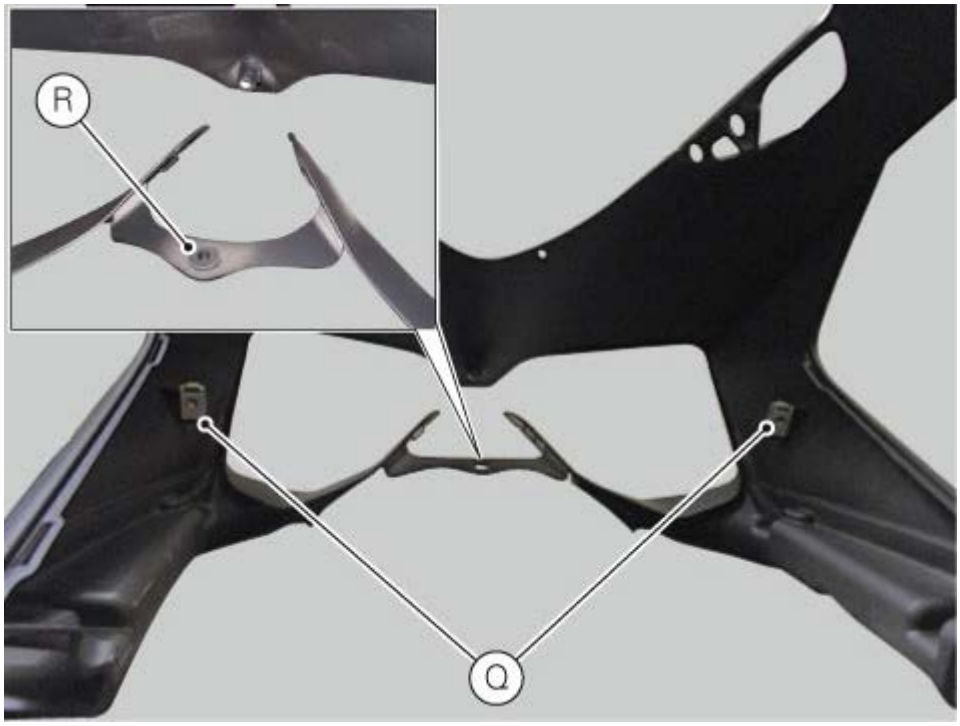




http://www.ducati-manuals.com
no. 140312

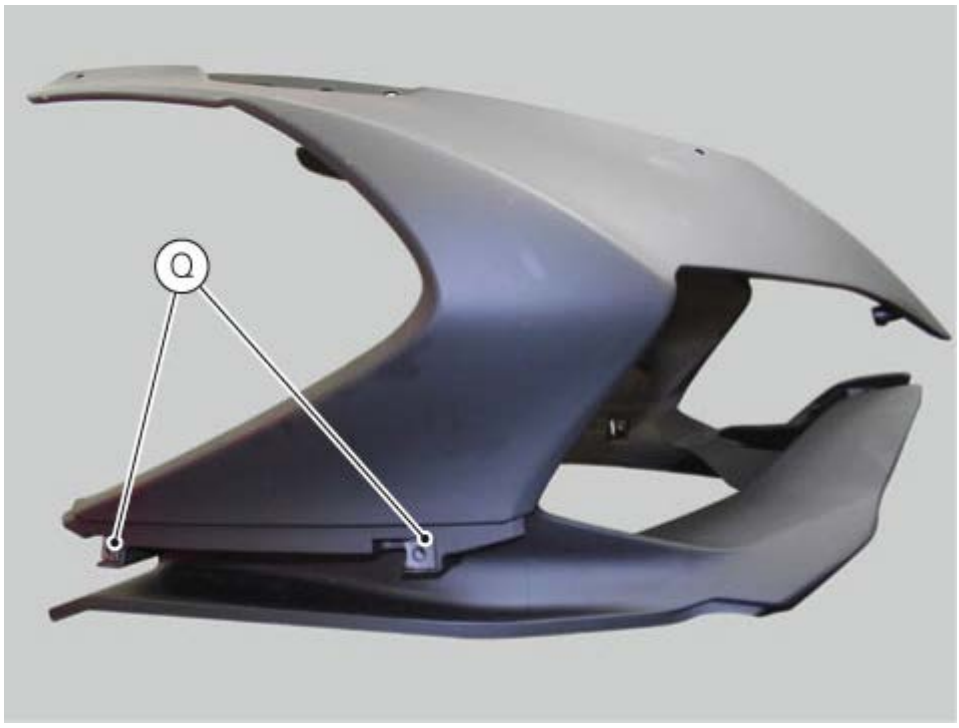


Make sure that headlight fairing fits the threaded inserts (Q) and rubber block (R).



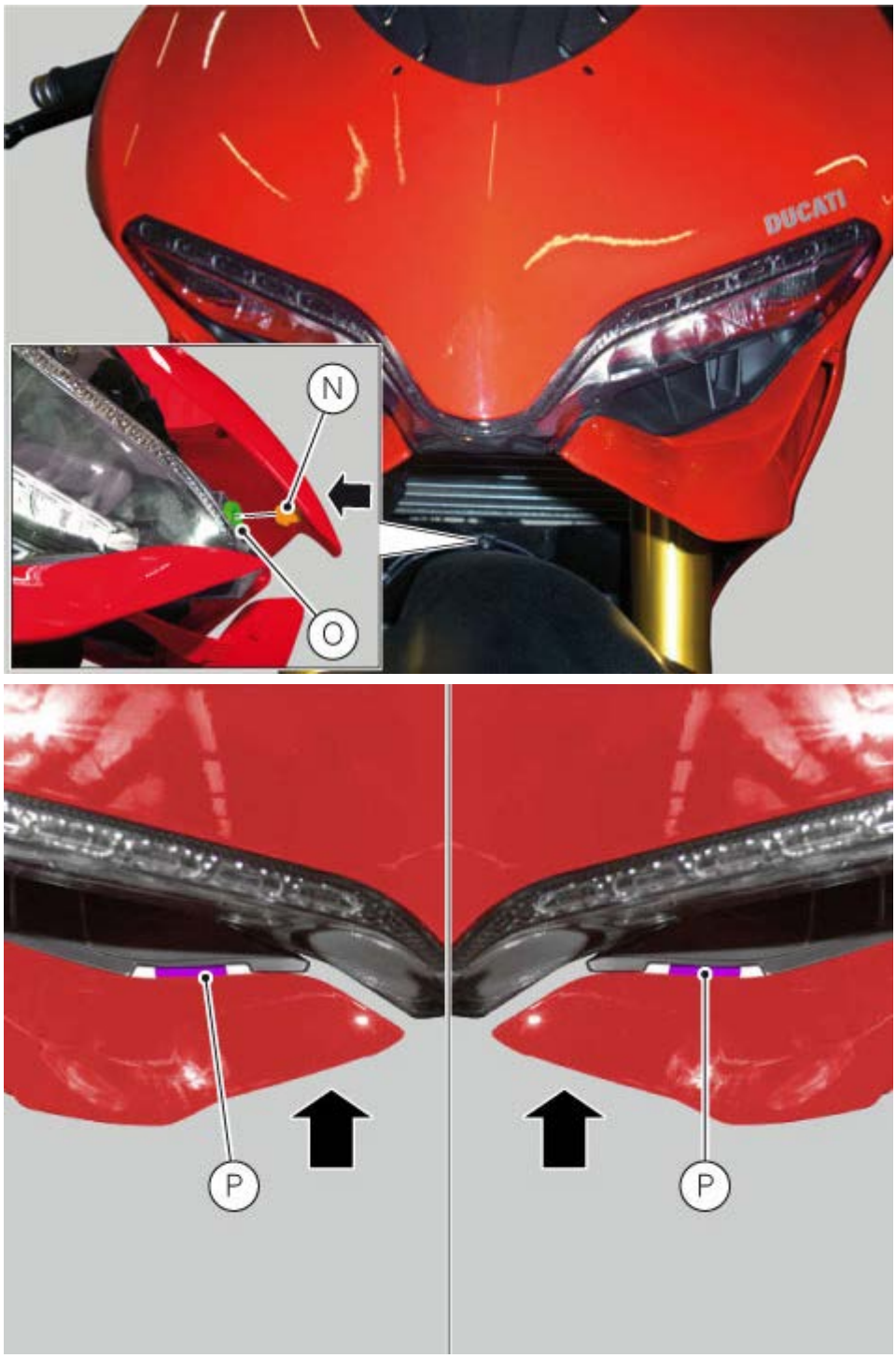
http://www.ducati-manuals.com
no. 140312





Make sure that turn indicator wiring is laid down in the relevant recesses along headlight fairing supports.
Set headlight fairing onto headlight, start headlight fairing pin (N) inside rubber block (O) and tabs (P) under the headlight lower profile, as shown.

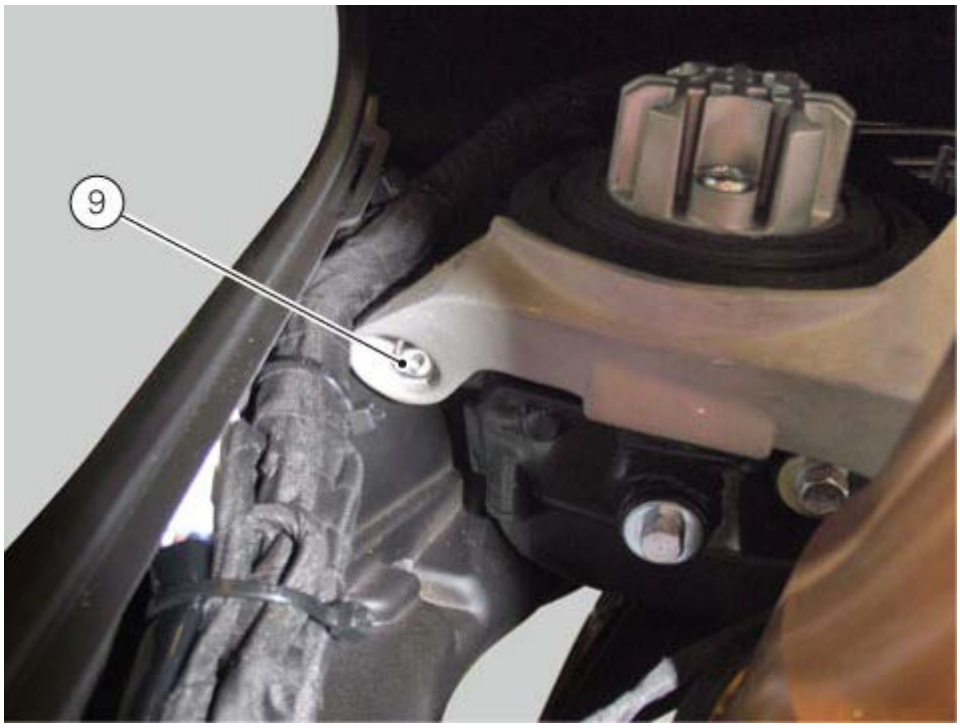
http://www.ducati-manuals.com
no. 140312



Fit and tighten screws (9) (on either side of headlight subframe).
Tighten screws (9) to 5 Nm ± 10%.

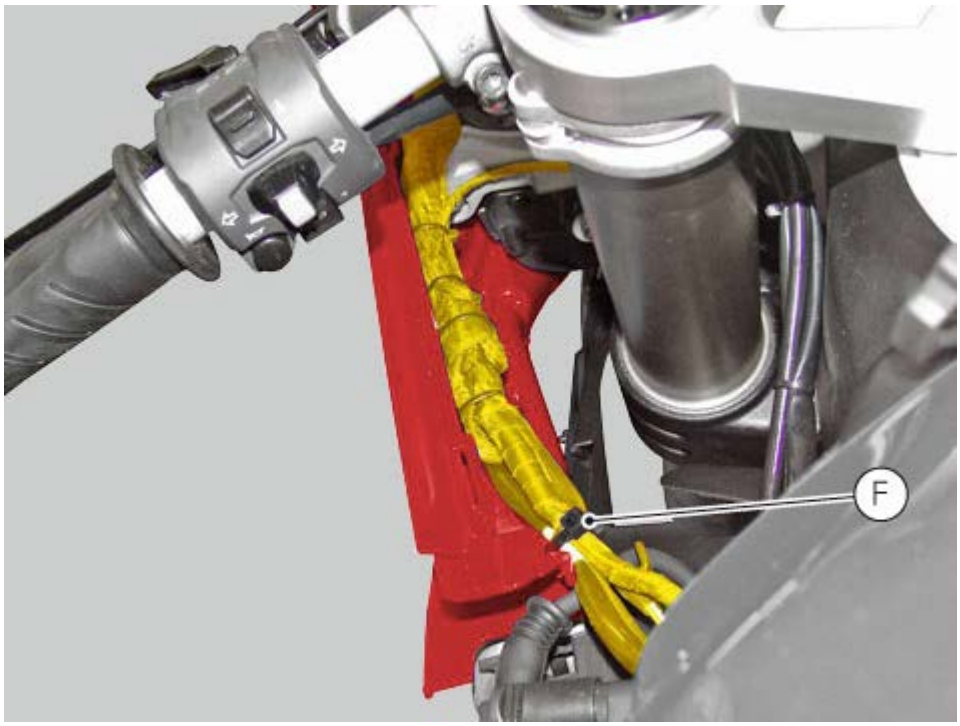
http://www.ducati-manuals.com
no. 140312



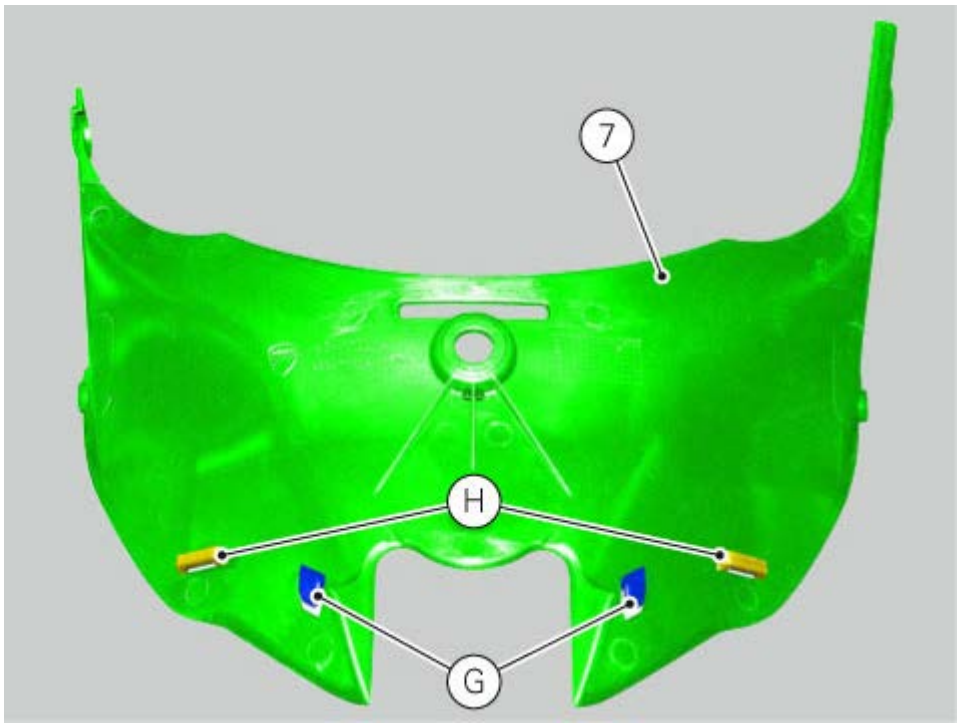


Fit a tie (F) in the relevant recess on headlight fairing to fasten the main wiring section.

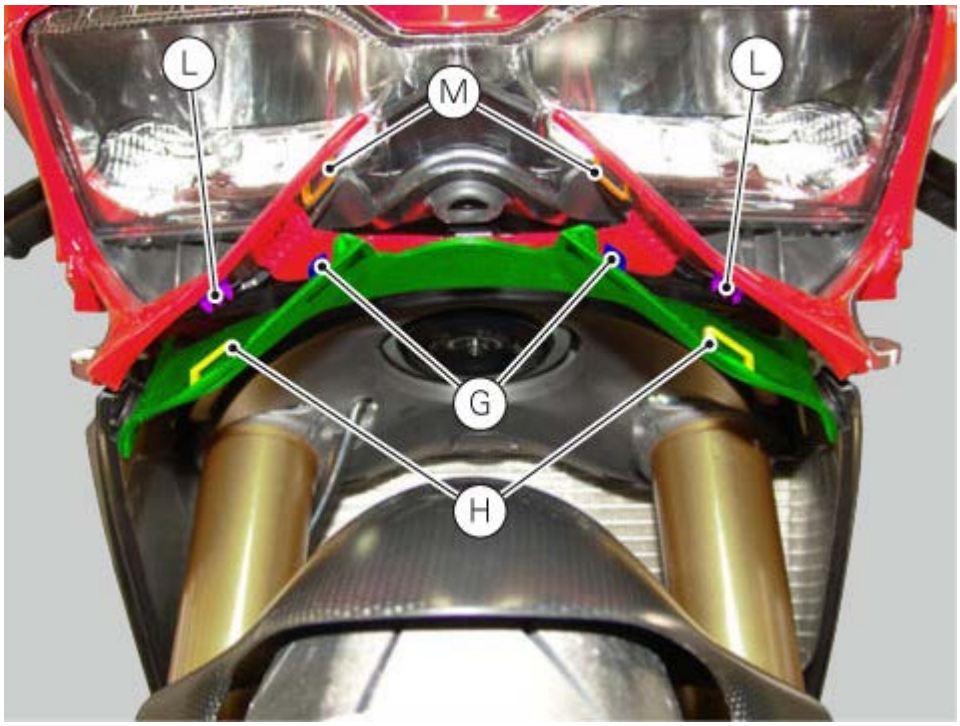
http://www.ducati-manuals.com
no. 140312



Fit splashguard (7) by fitting its tabs (G) in slots (M) on headlight fairing and headlight fairing tabs (L) in slots (H).



http://www.ducati-manuals.com
no. 140312



Fasten splashguard (7) at the sides using quick-fittings (7), and pressing pin fully home.

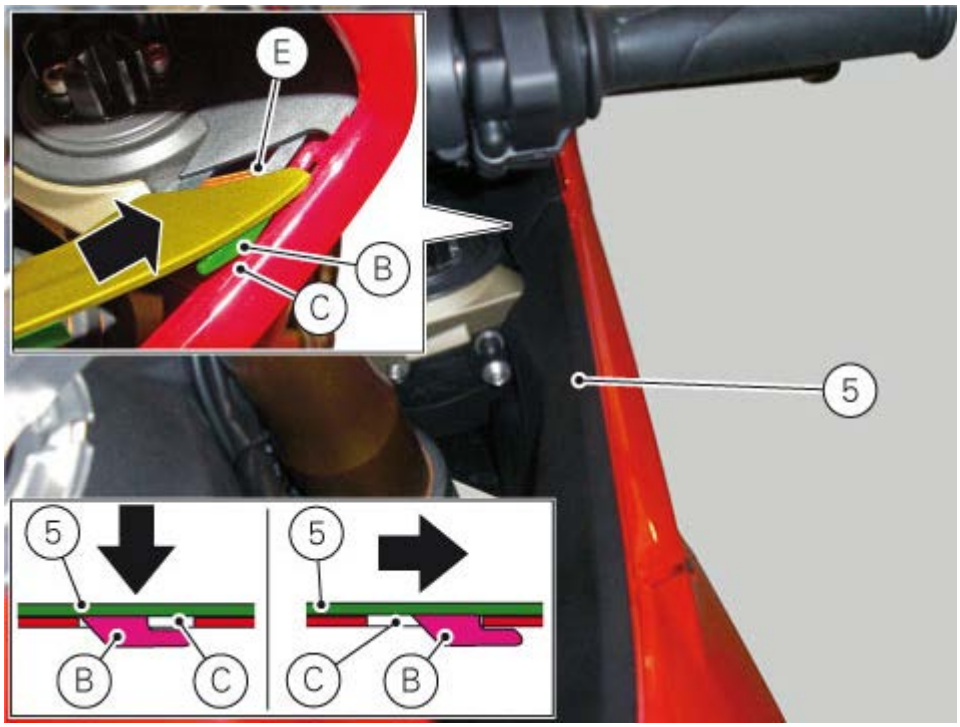


Refit splashguard (7) by tightening the screw (6) to a torque of 5 Nm ± 10%.

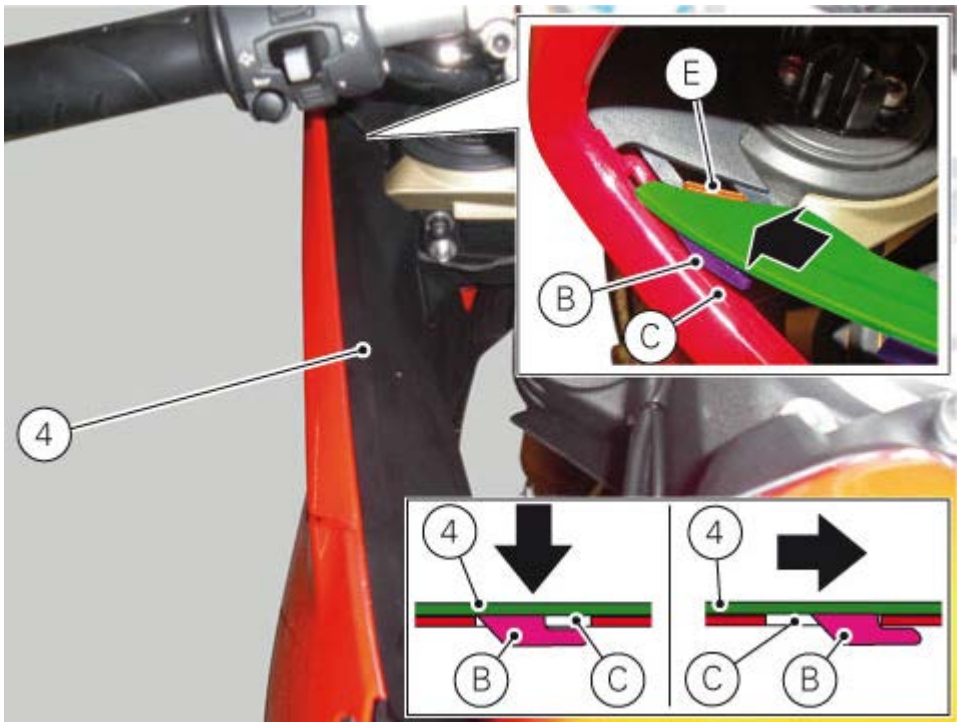
http://www.ducati-manuals.com
no. 140312



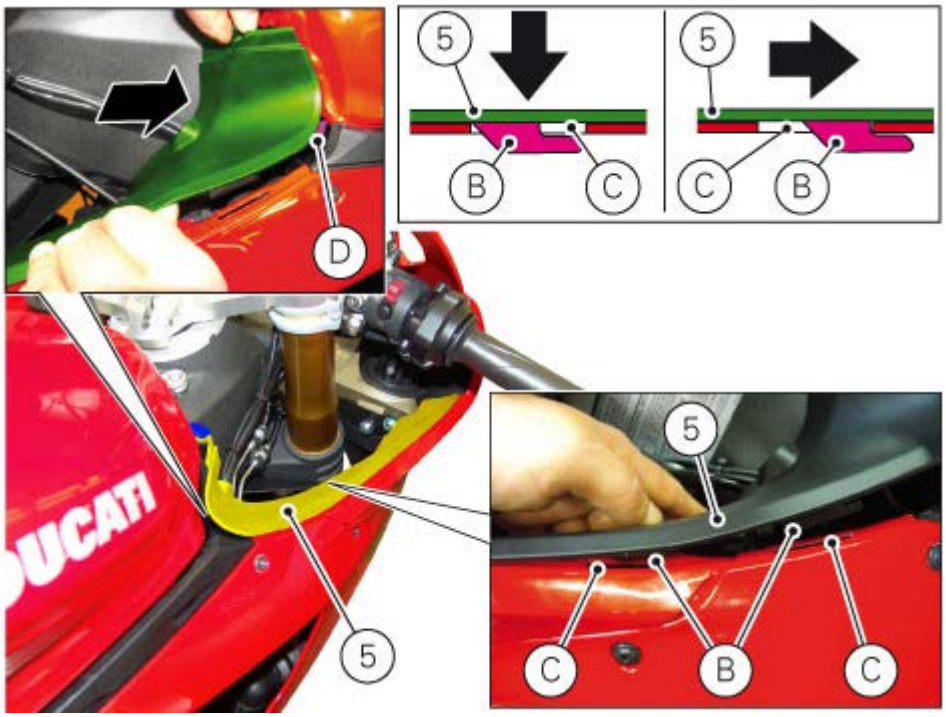
Position conveyor covers (4) and (5) and fit their tab (E) inside the recess on instrument panel cover and then tab (B) into slot (C) on fairing, as shown.



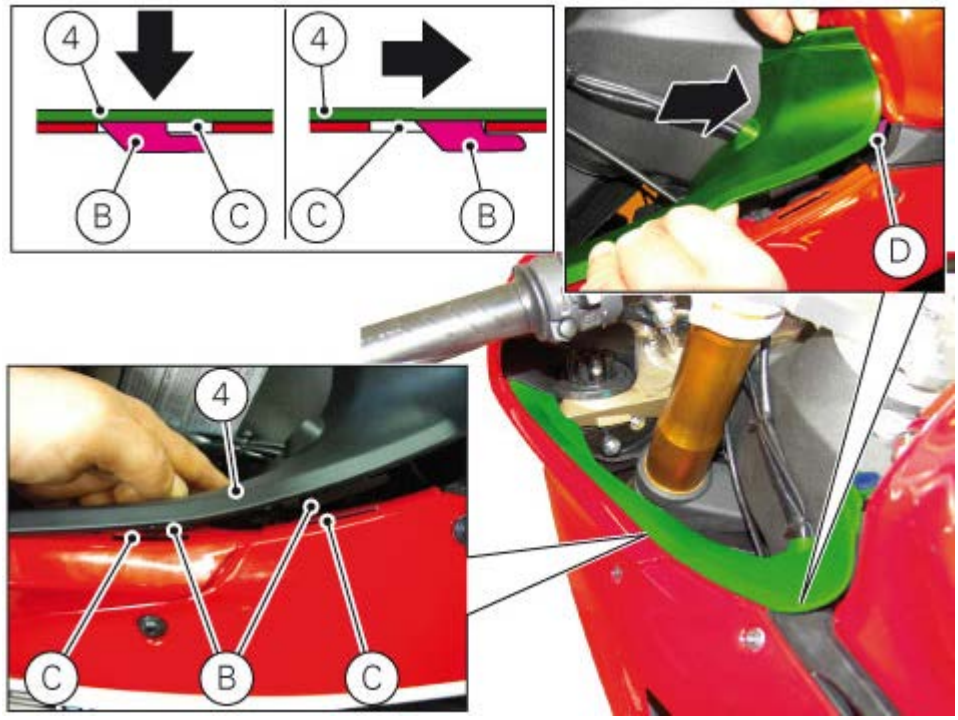
http://www.ducati-manuals.com
no. 140312



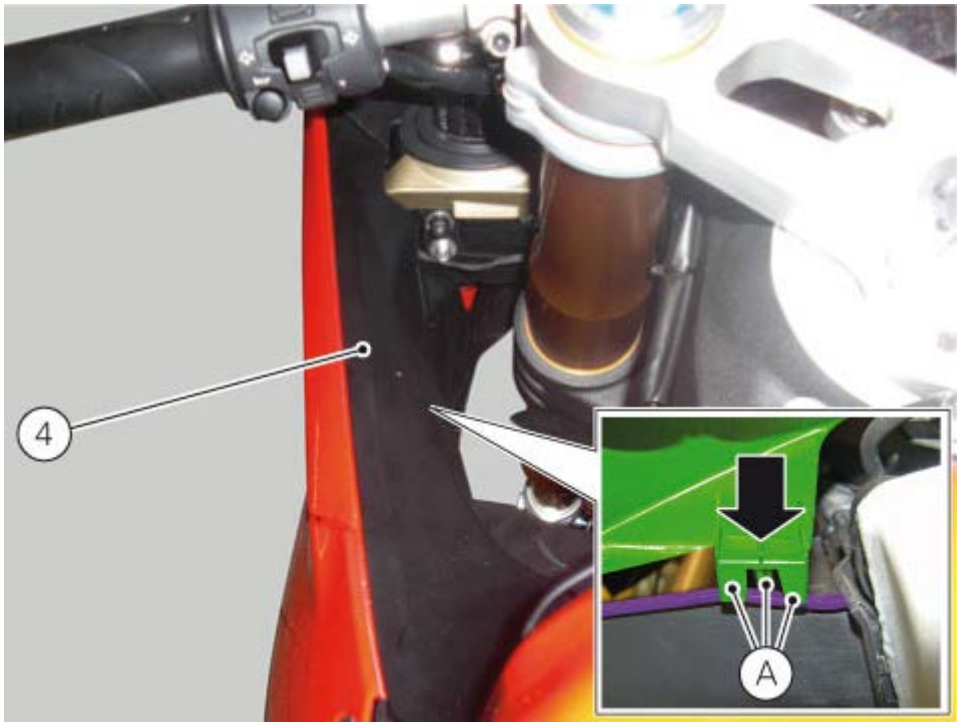
Fit tabs (D) in the recess on fairing and tabs (B) in slots (C) on fairing, as shown.



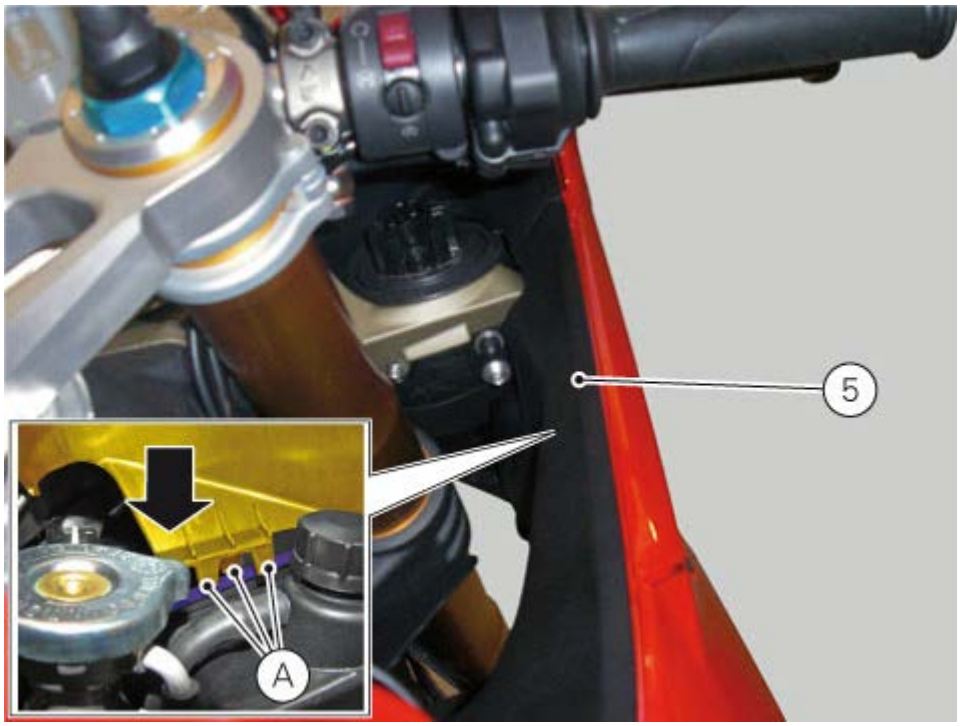
http://www.ducati-manuals.com
no. 140312



Fasten conveyor covers (4) and (5) by engaging tabs (A) in the radiator mount profile.



http://www.ducati-manuals.com
no. 140312

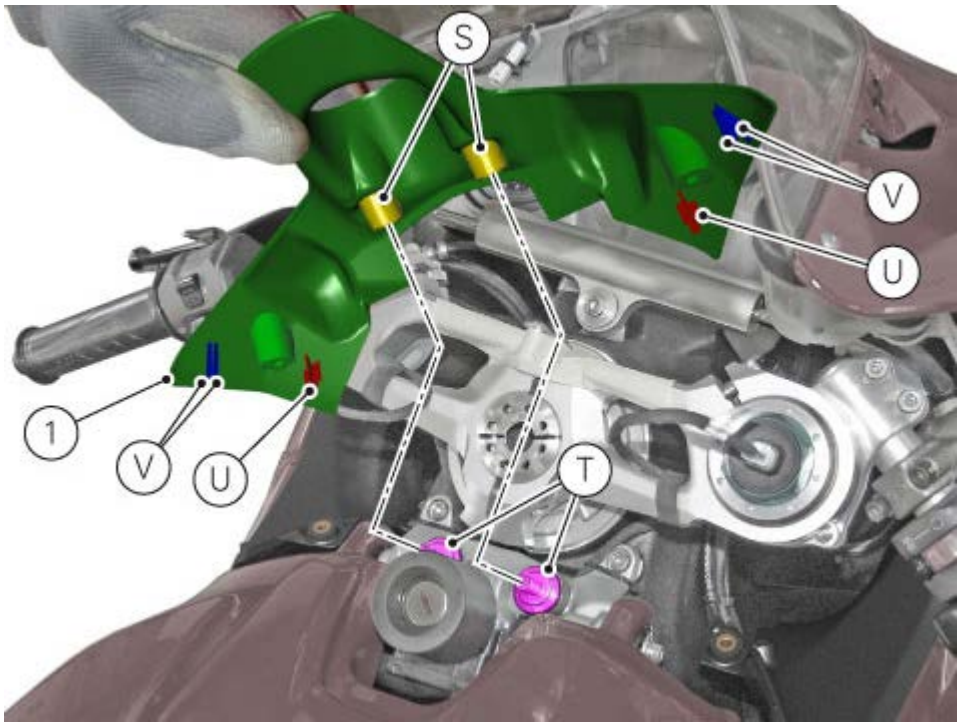


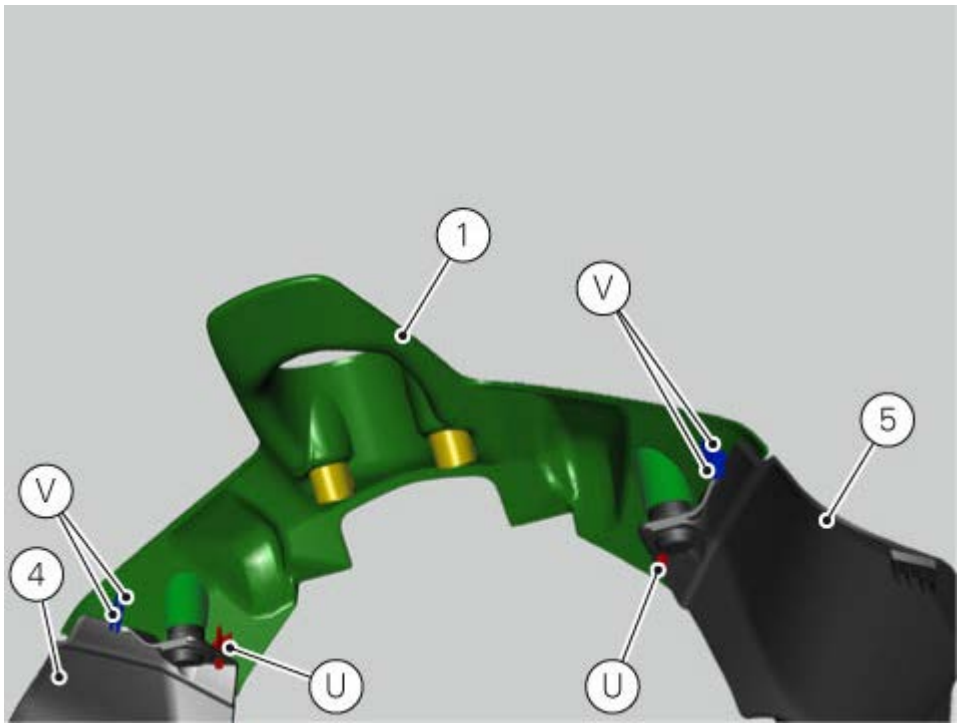
Make sure that the horn cable comes out of the left-hand conveyor cover (4) at the point indicated by the arrow and that it is positioned as shown.



Fit the ignition switch cover (1) by fitting poppets (S) into stud bolts (T).
Make sure that pins (U) engage in the relevant holes on conveyor covers (4) and (5) and that tabs (V) set onto the top profile of conveyor covers, as shown.

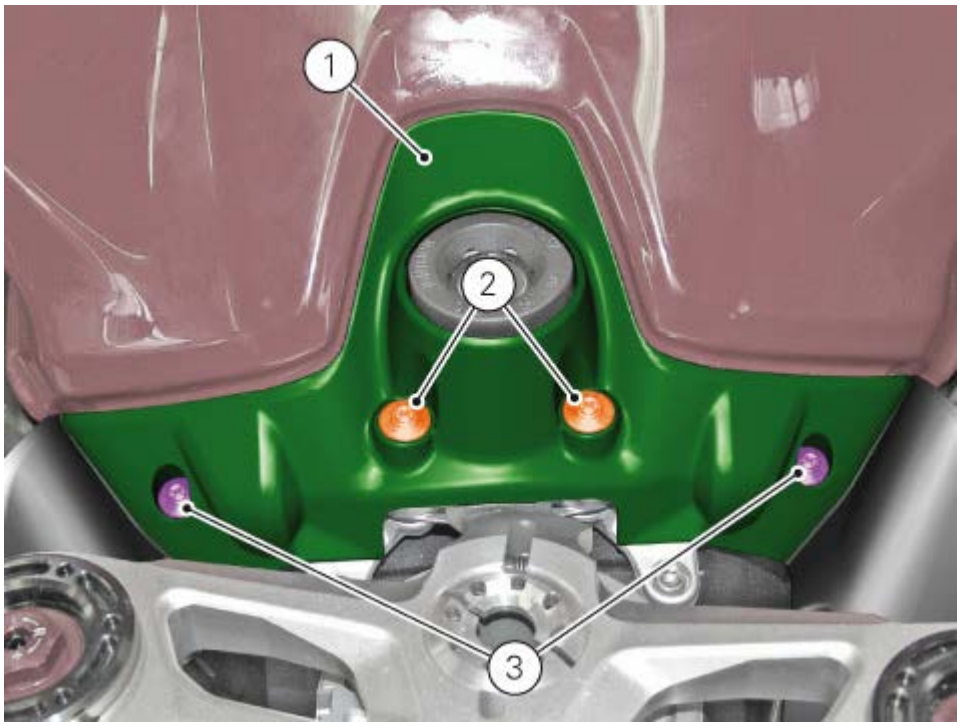
http://www.ducati-manuals.com
no. 140312





Start nuts (2) and screws (3).
Tighten nuts (2) to 8 Nm ± 10% and screws (3) to 2.5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

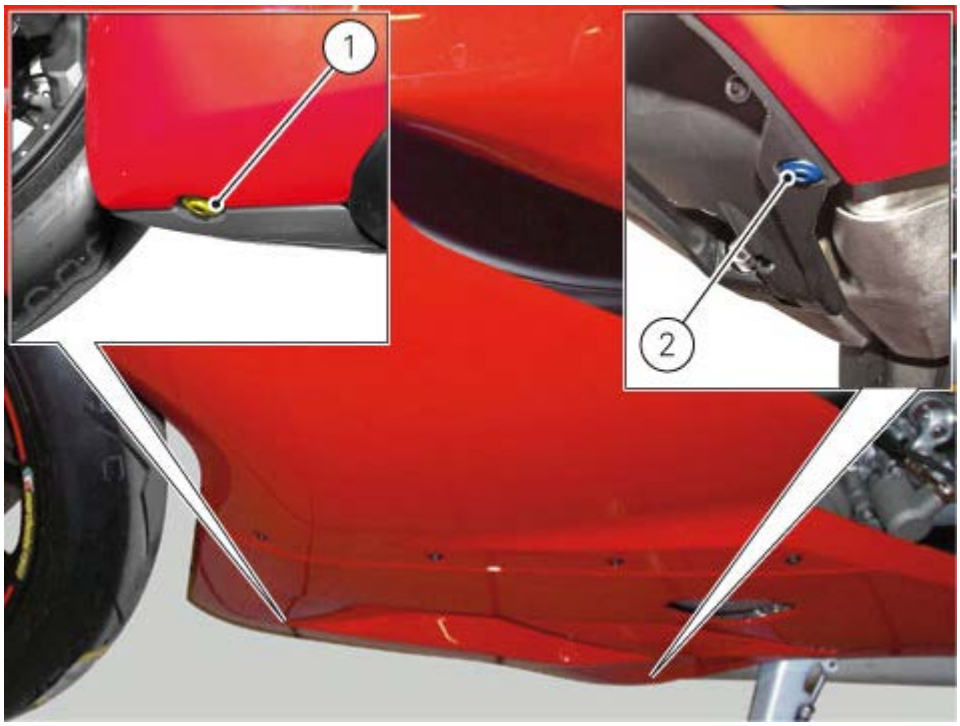


Refit the fairings (Installation of the side fairings).
Refit the rear-view mirrors (Installation of the rear-view mirrors).

http://www.ducati-manuals.com
no. 140312

Removal of the side fairings

Loosen screws (1) and (2) retaining the left-hand side fairing at the bottom.

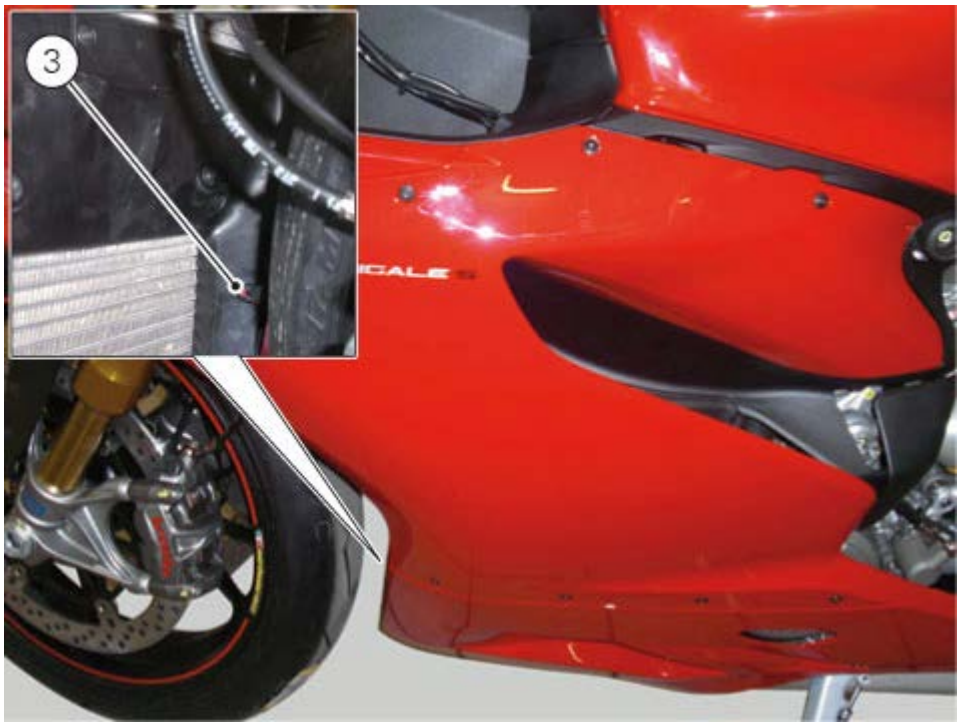


Remove the quick-fitting (A) retaining splashguard to left-hand side fairing.

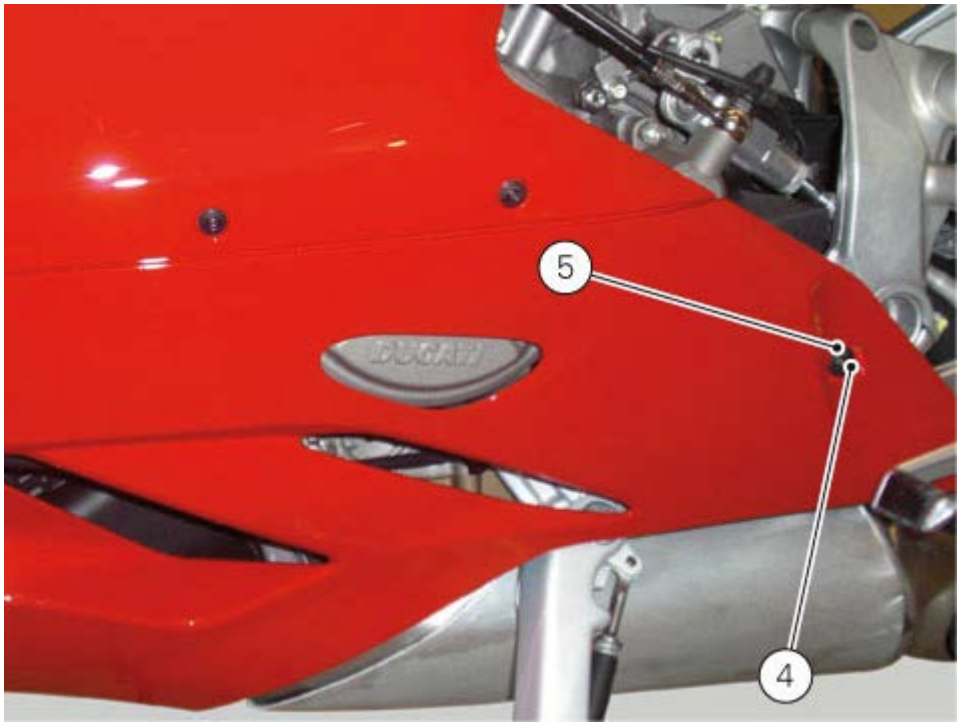


Loosen screw (3) retaining the left-hand side fairing at the front, inside.

http://www.ducati-manuals.com
no. 140312

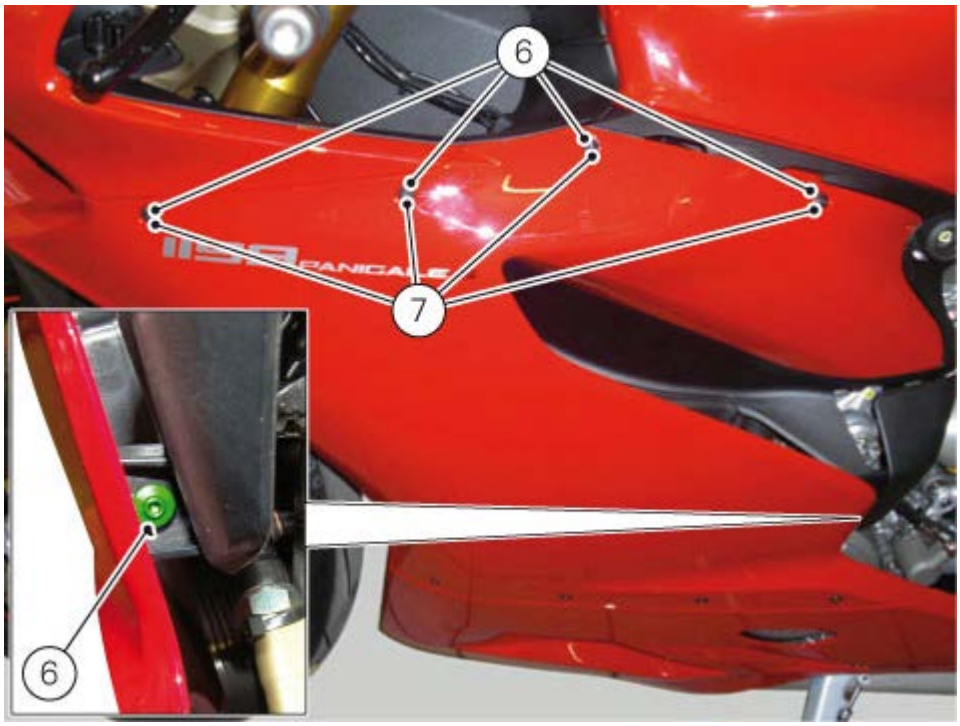


Loosen screw (4) retaining the left-hand side fairing at the rear and remove washer (5).

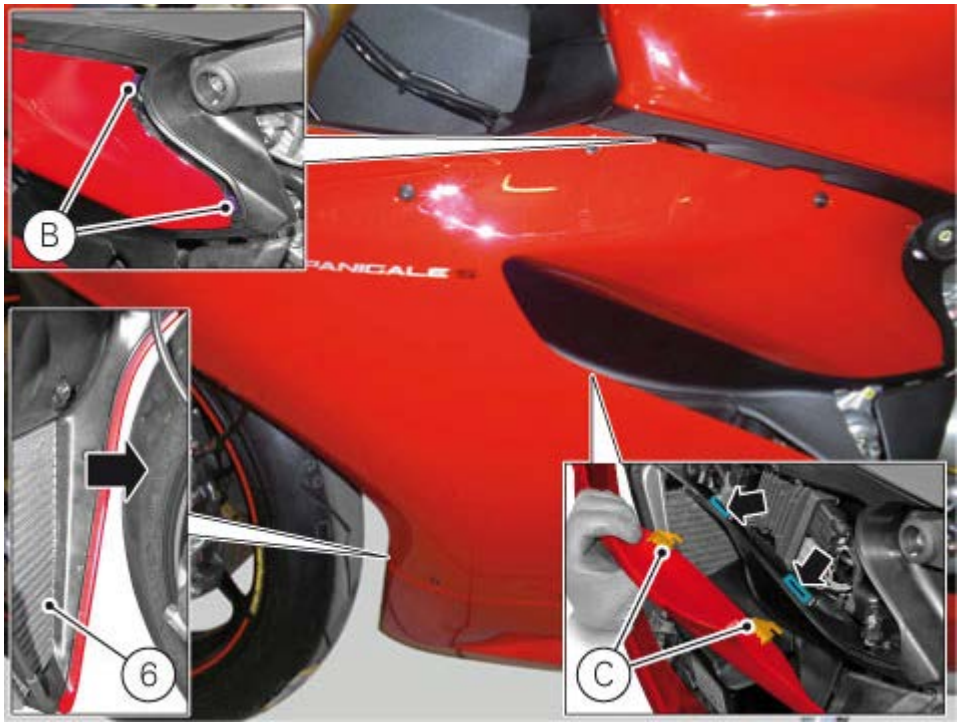


Loosen screws (6) retaining the left-hand side fairing to the vehicle, and remove washers (7).

http://www.ducati-manuals.com
no. 140312



Remove the left-hand side fairing by shifting it toward the front end of the vehicle, making sure that its front profile separates from the radiator support profile.
Disengage tabs (B) and tabs (C) from electric part mount.

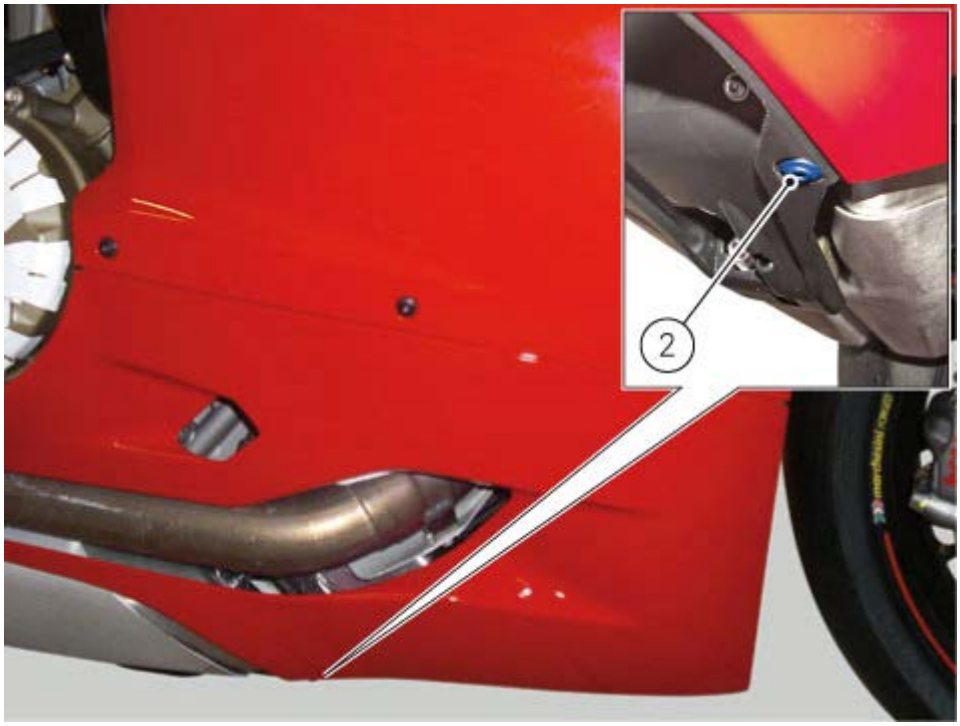


Warning
During this stage, make sure that fairing bottom side fits on the inside of the gearchange lever.

http://www.ducati-manuals.com
no. 140312



Loosen screw (2) fastening the right-hand side fairing at the bottom.



Remove the quick-fitting (A) retaining splashguard to right-hand side fairing.

http://www.ducati-manuals.com
no. 140312



Loosen screw (3) retaining the left-hand side fairing at the front, inside.

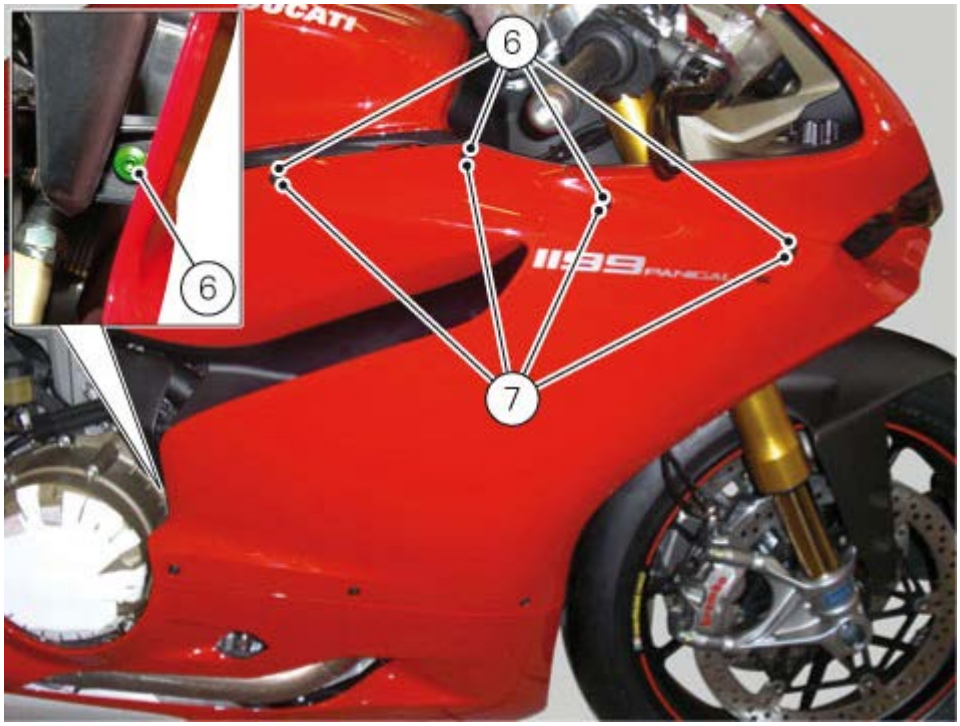


Loosen screw (4) retaining the right-hand side fairing at the rear and remove washer (5).

http://www.ducati-manuals.com
no. 140312

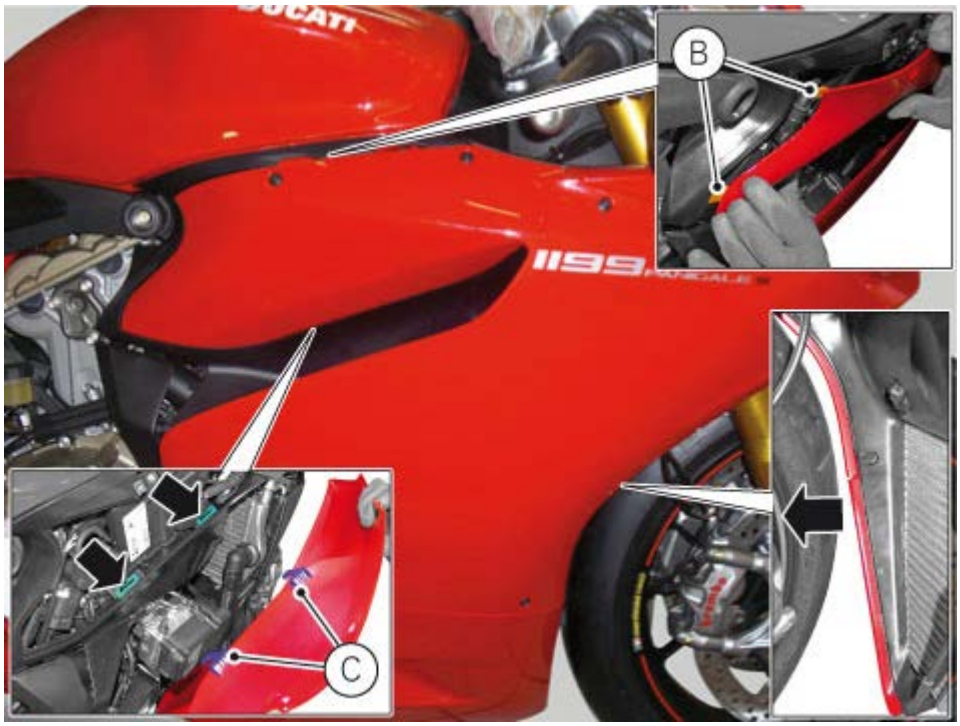


Loosen screws (6) retaining the right-hand side fairing to the vehicle, and remove washers (7).



Remove the right-hand side fairing by shifting it toward the front end of the vehicle, making sure that its front profile separates from the radiator support profile.
Disengage tabs (B) and tabs (C) from electric part mount.

http://www.ducati-manuals.com
no. 140312



Warning

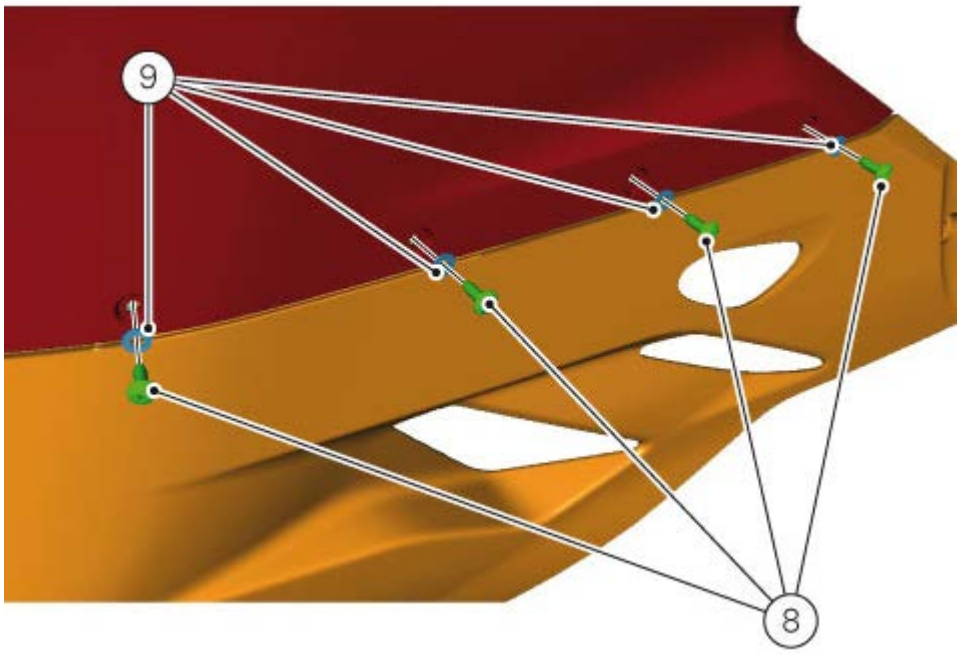
During this stage, make sure that fairing bottom side fits on the inside of the brake lever.



Disassembly of the fairing

To disassemble the left-hand side fairing, loosen the screws (8) retaining the upper half-fairing to the lower one, and remove washers (9).

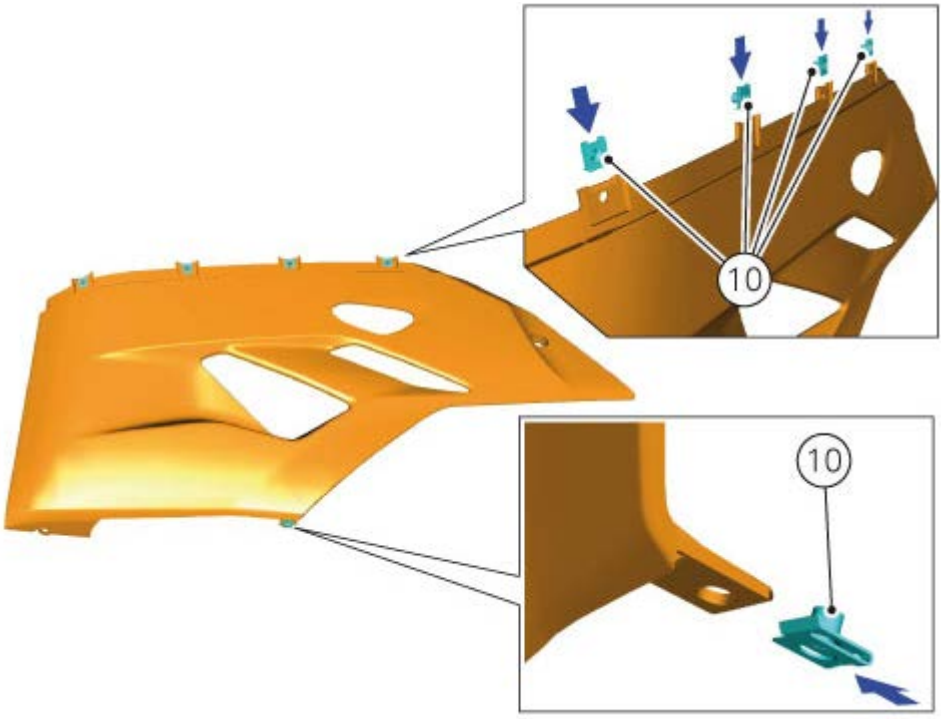
http://www.ducati-manuals.com
no. 140312



Carry out the same procedure to disassemble the right-hand side fairing.

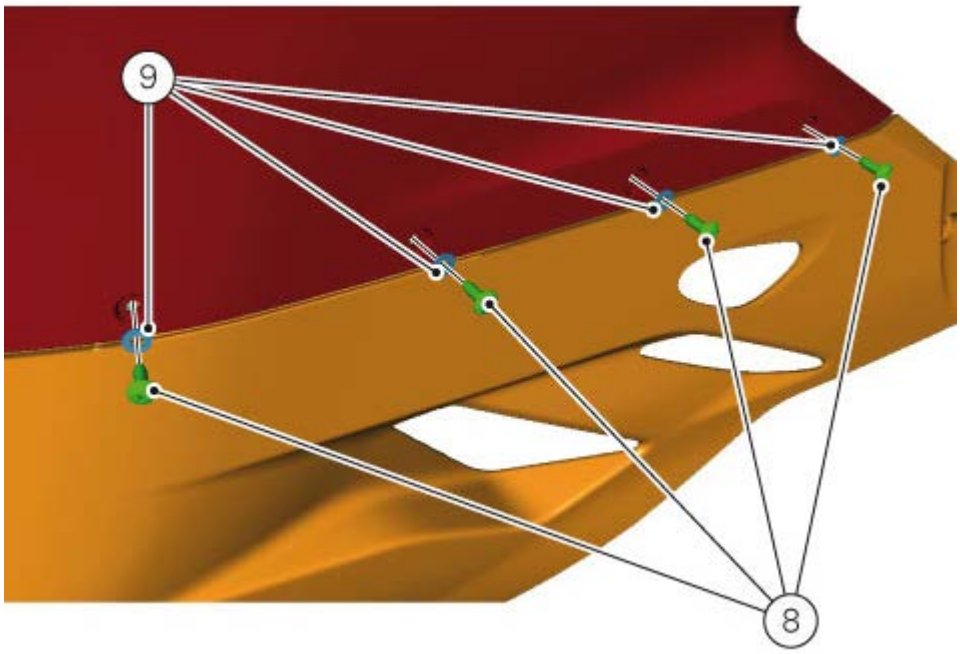
Reassembly of the fairing

Install clips (10) to lower half-fairing.

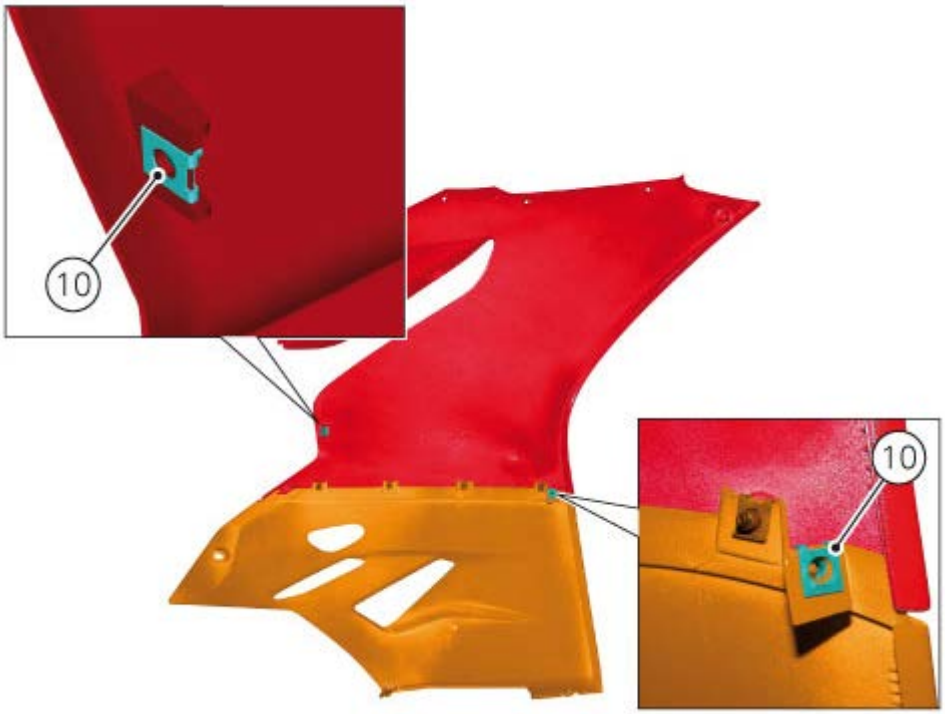


Install the nylon washers (9) and screws (4).
Match the lower half-fairing to the upper one as shown and fasten them together by starting screws (8).
Tighten screws (5) to 2.5 Nm.

http://www.ducati-manuals.com
no. 140312



Install clips (10) to upper half-fairing.



Carry out the same procedure to reassemble the right-hand side fairing.

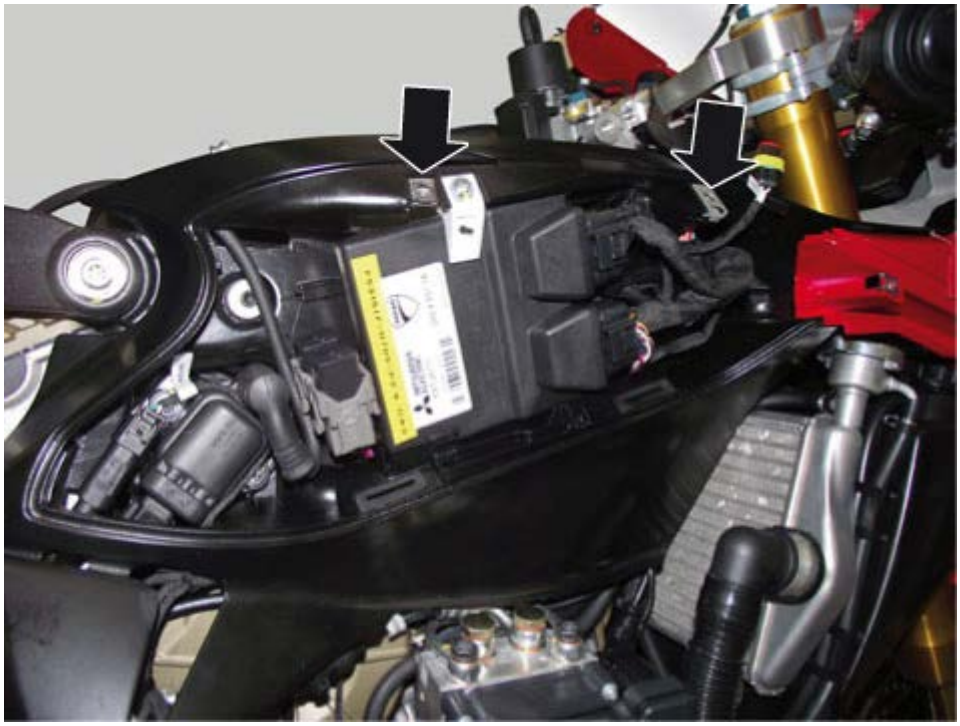
http://www.ducati-manuals.com
no. 140312

Installation of the side fairings

Warning

If parts that have been removed are not refitted correctly they may suddenly become loose while riding and cause you to lose control of your motorcycle.

Install clips at the points indicated on the right and left-hand side of the electric part mount, positioning them as shown.



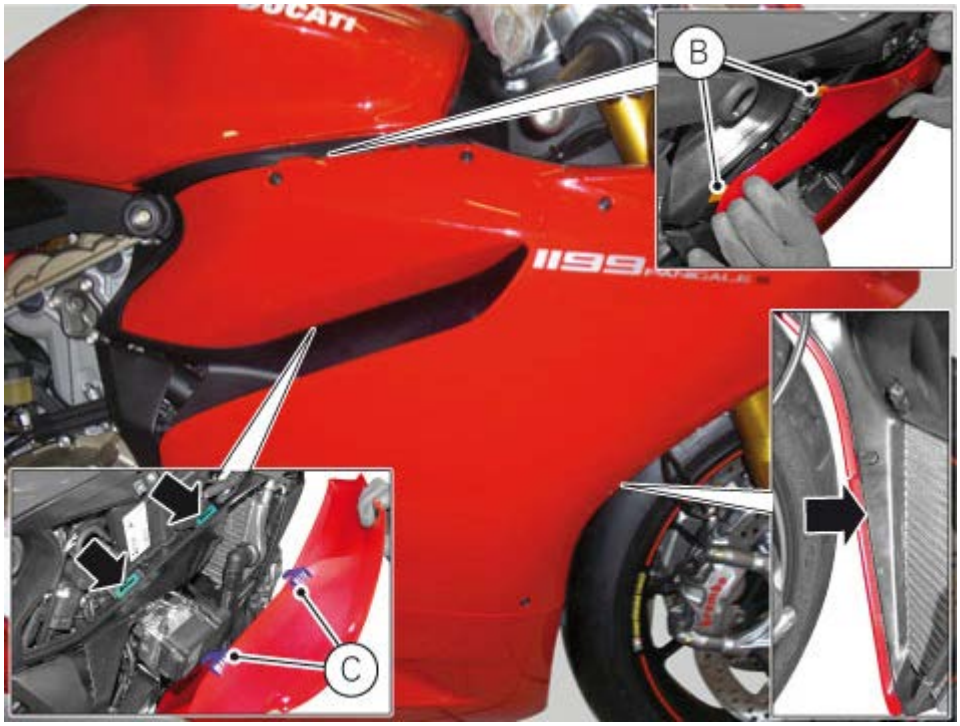


Position the right-hand side fairing and fit its lower end on the inside of the rear brake lever, as shown.

http://www.ducati-manuals.com
no. 140312



Engage tabs (B) behind the electric part mount profile and tabs (C) inside the vibration dampers. Move the right-hand side fairing toward the rear end of the vehicle, making sure that the fairing front profile fits to the front profile of the radiator mounts, as indicated by the arrows.

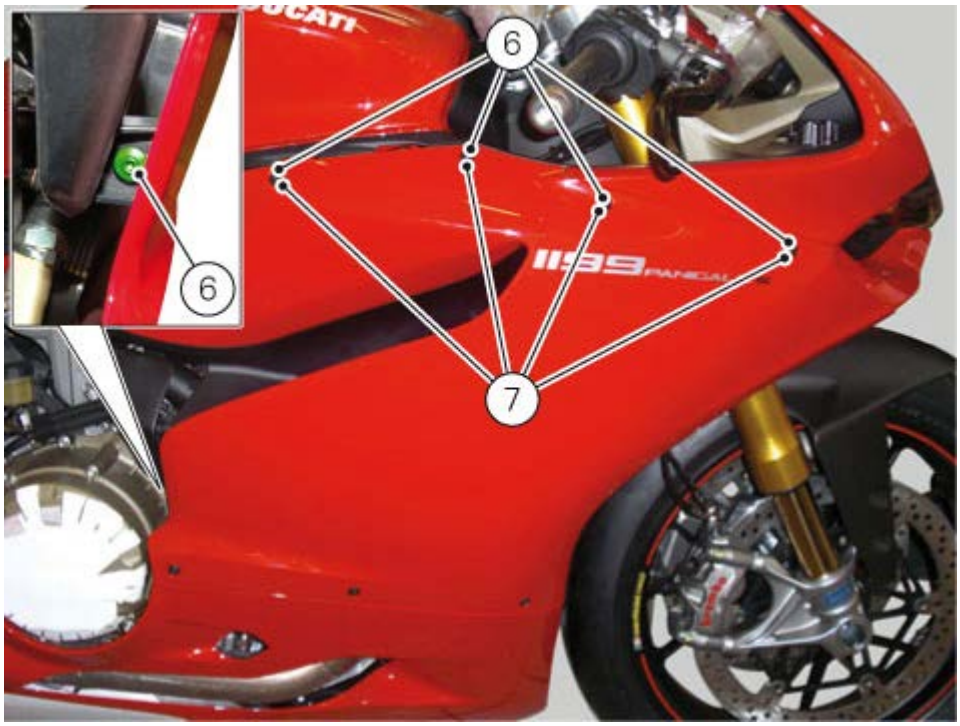


Fasten the right-hand side fairing as follows:

- start top screws (6) with washers (7);
- start the internal screw (6);
- start rear screw (4) with washer (5) which are outside.
- Start front screw (3) on the inside;
- start bottom screw (2).

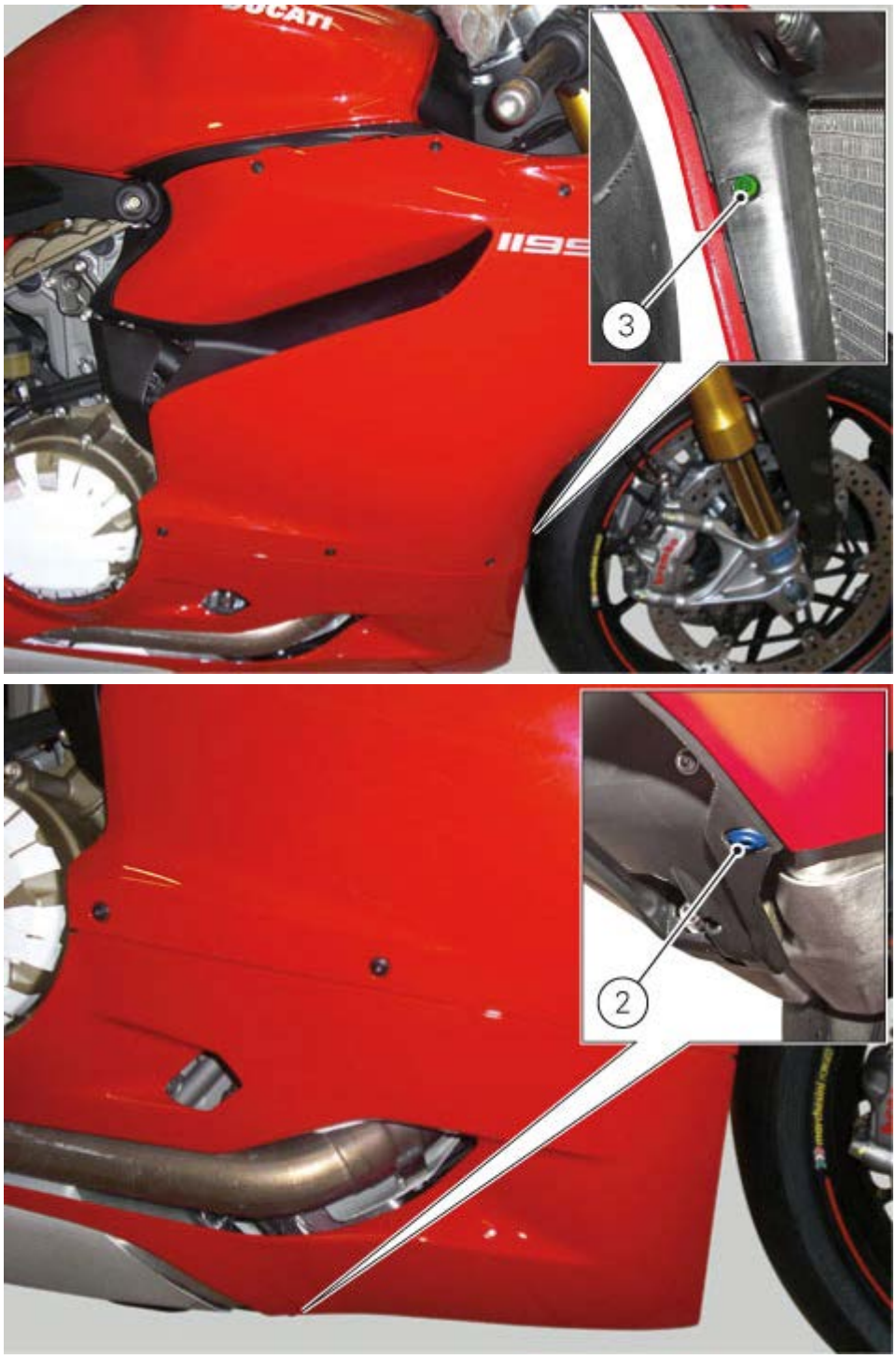
Tighten screws (2), (3) and (6) to 2.5 Nm ± 10% and screw (4) to 5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Fasten the right-hand side fairing at the front, on the inside, using quick-fitting (A), and pressing pin fully home.

http://www.ducati-manuals.com
no. 140312

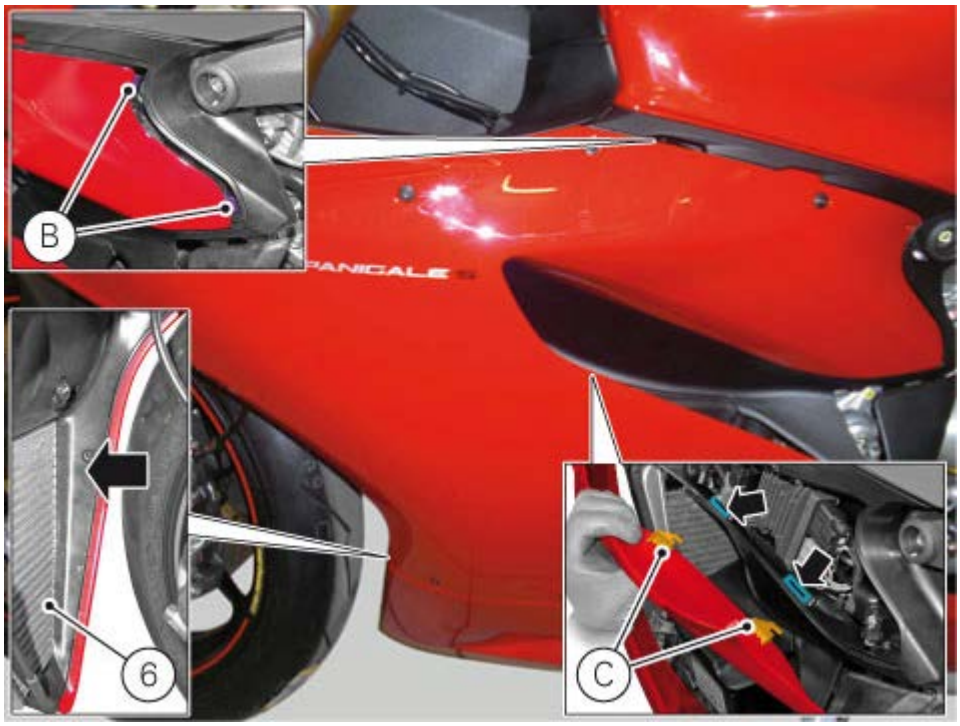


Position the left-hand side fairing and fit its lower end on the inside of the gearchange lever, as shown.



Engage tabs (B) behind the electric part mount profile and tabs (C) inside the vibration dampers.
Move the right-hand side fairing toward the rear end of the vehicle, making sure that the fairing front profile fits to the front profile of the radiator mounts, as indicated by the arrows.

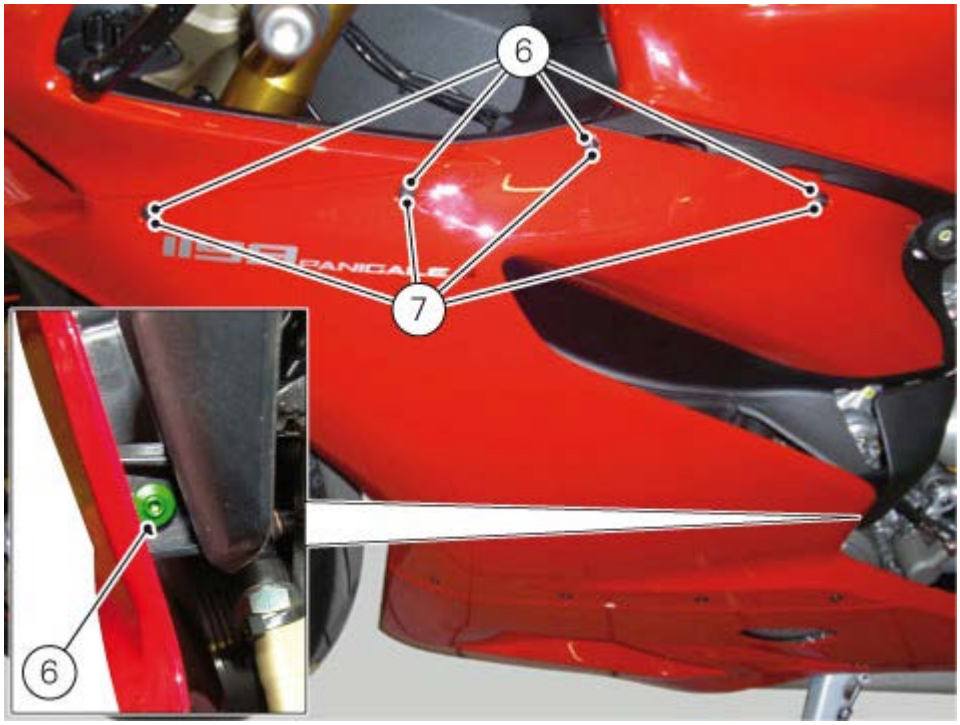
http://www.ducati-manuals.com
no. 140312



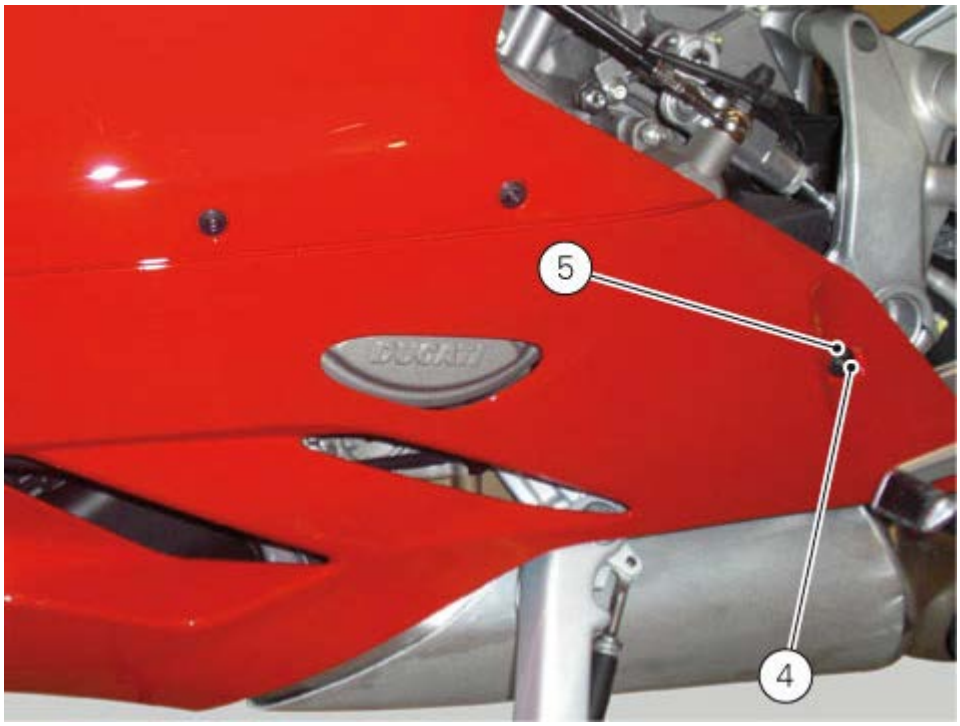
Fasten the left-hand side fairing as follows:

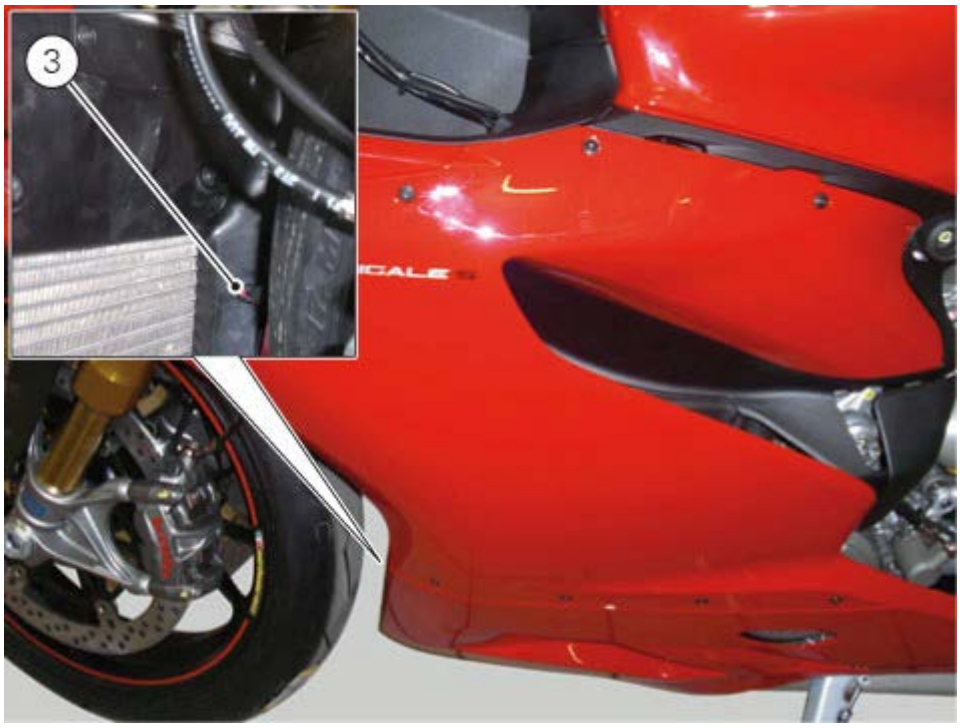
- start top screws (6) with washers (7);
- start the internal screw (6);
- start rear screw (4) with washer (5) which are outside.
- Start front screw (3) on the inside;
- start bottom screw (1).

Tighten screws (1), (3) and (6) to 2.5 Nm ± 10% and screw (4) to 5 Nm ± 10%.

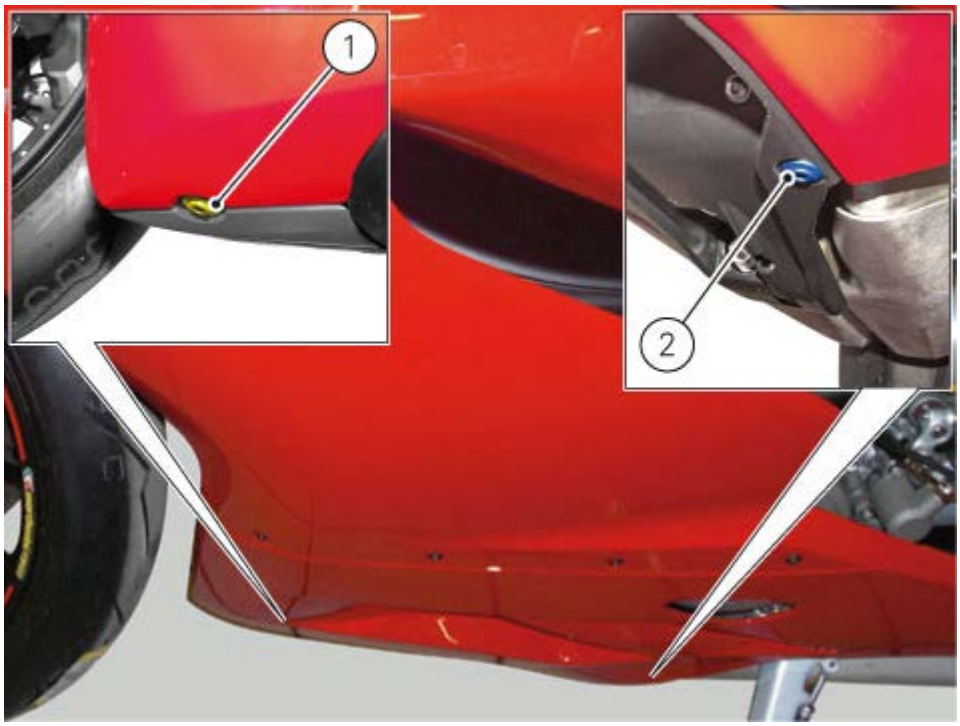


http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



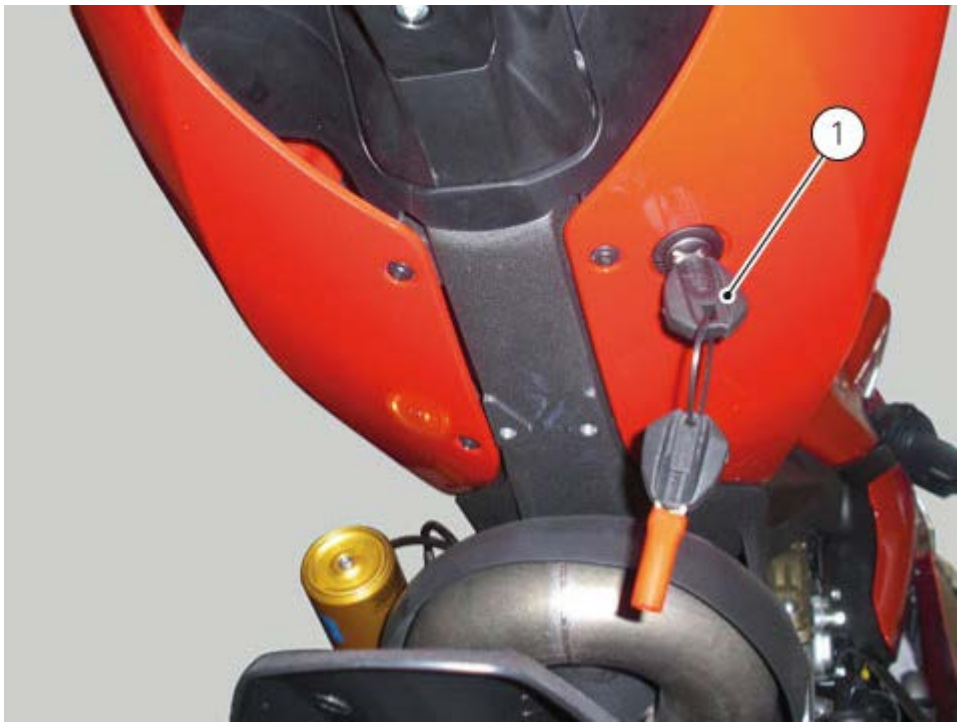
Fasten the right-hand side fairing at the front, on the inside, using quick-fitting (A), and pressing pin fully home.



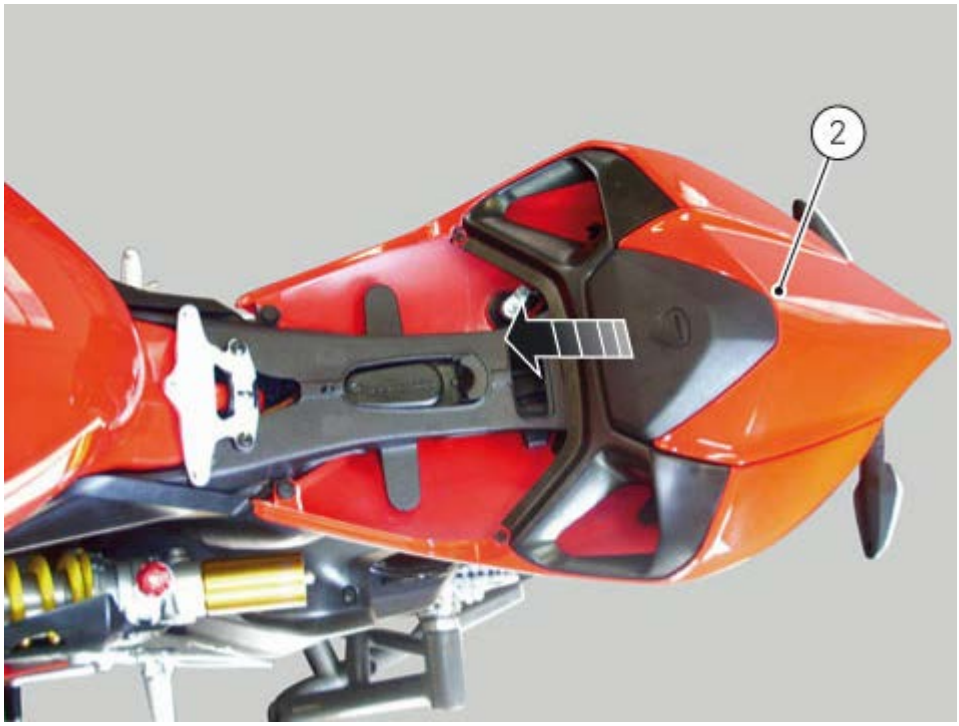
http://www.ducati-manuals.com
no. 140312

Removal of the passenger seat

Insert the key into the seat lock (1) and turn it until the seat catch disengages with an audible click.



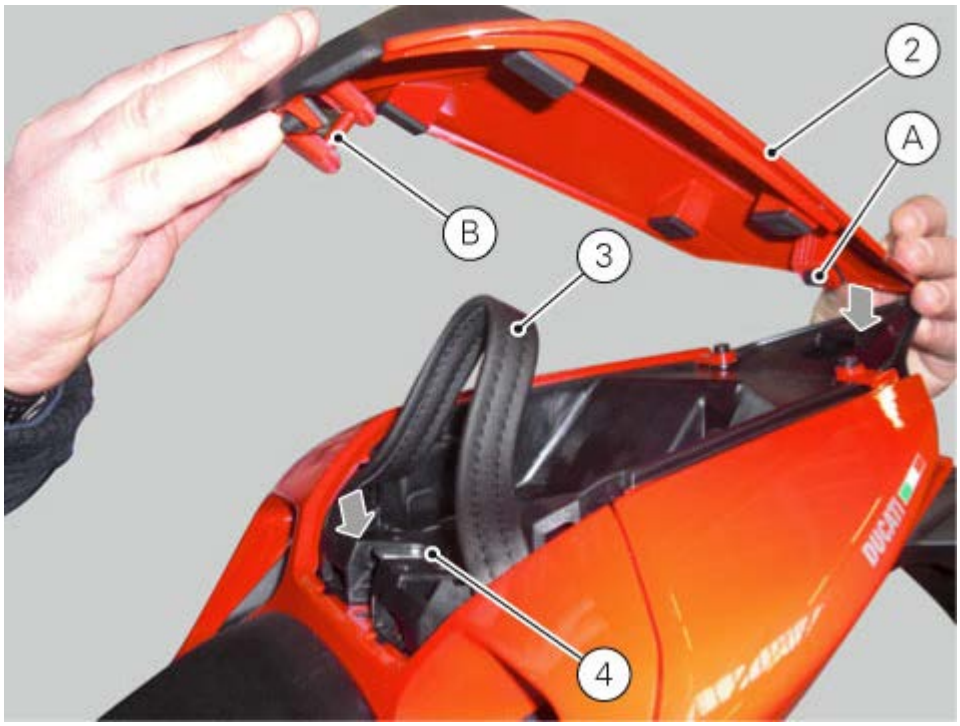
Slide out cover (2) or the seat to the front until releasing it.



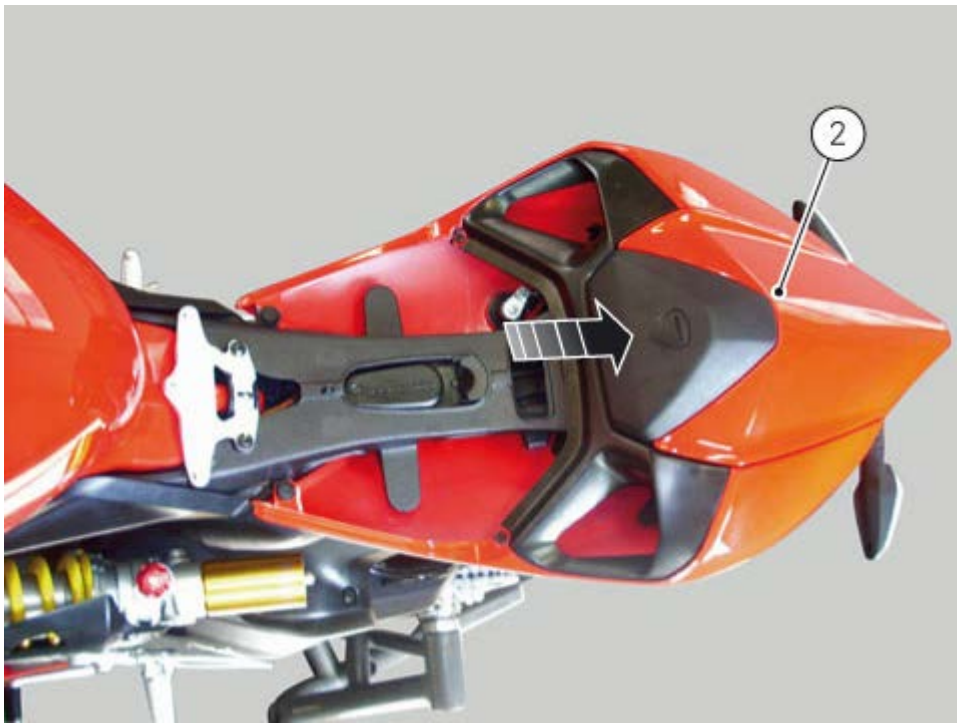
http://www.ducati-manuals.com
no. 140312

Installation of the passenger seat

Route the passenger strap (3) behind the tabs of glove compartment.
Install cover (2) or passenger seat by fitting hook (A) inside the recess of glove compartment and take pin (B) onto the recess of latch (4).



Slide cover (2) or passenger seat to the rear end of the motorcycle until the latch clicks in place and locks the pin.



Passenger grab strap

Remove the passenger seat (Removal of the passenger seat).

To use strap (3), lift it from its seat and release it from tabs (A) of glove compartment.

http://www.ducati-manuals.com
no. 140312





Insert the front end of passenger seat (4) under strap (3), as shown.
Moderately pull strap (3) from the sides to settle it onto passenger seat.
Close passenger seat as indicated in the procedure "Installation of the passenger seat" under this paragraph.

http://www.ducati-manuals.com
no. 140312

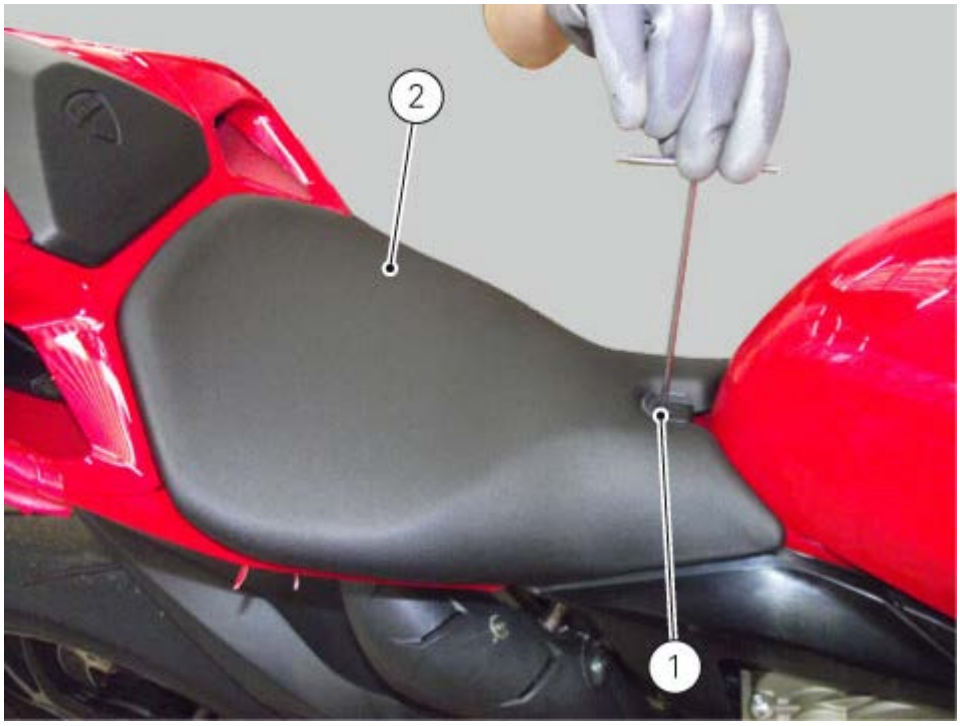




http://www.ducati-manuals.com
no. 140312

Removal of the rider seat

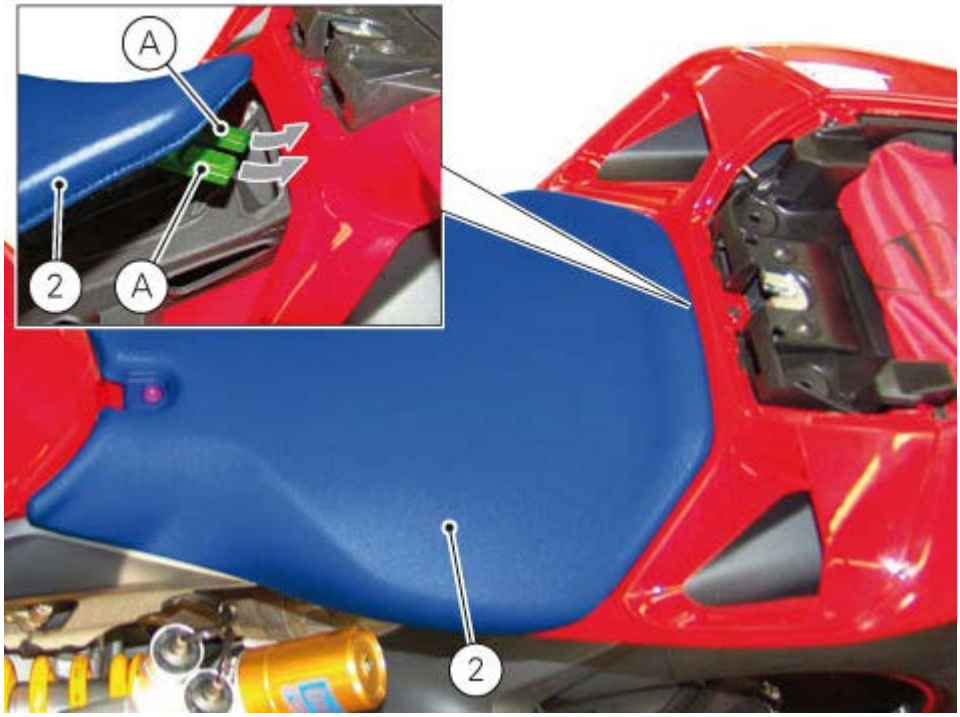
Loosen screw (1) retaining seat to subframe.
Remove the rider seat (2) from the vehicle by slightly pulling it toward the tank and lifting it.



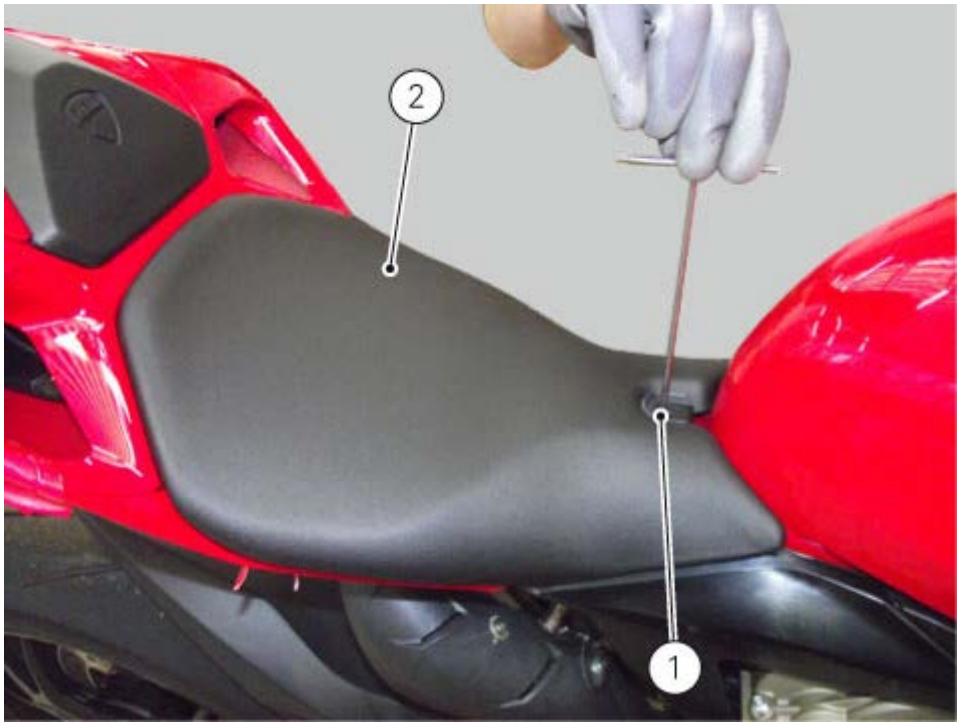
http://www.ducati-manuals.com
no. 140312

Installation of the rider seat

Set seat (2) on the vehicle and fit retainers (A) in the recess on rear subframe.



Start the screw (1) and tighten it to a torque of 5 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

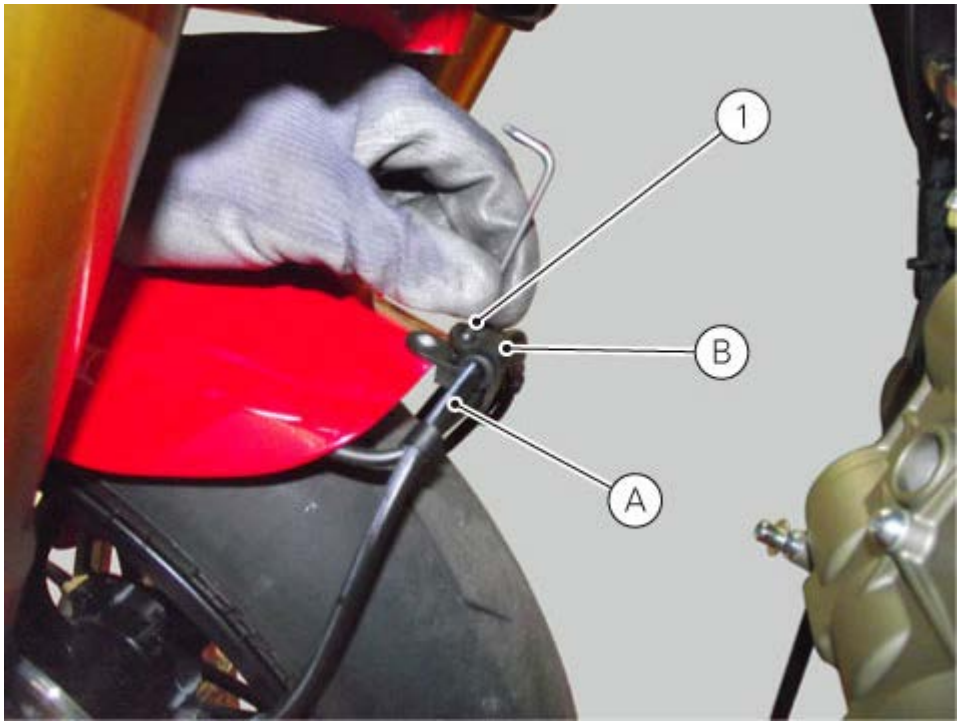
http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

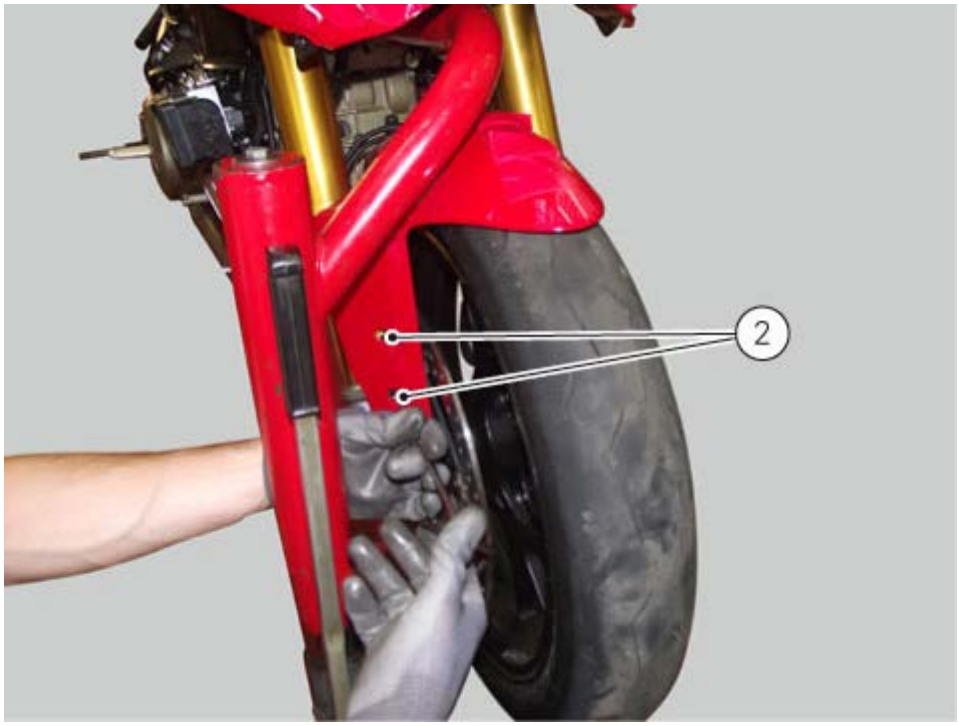
http://www.ducati-manuals.com
no. 140312

Removal of the front mudguard

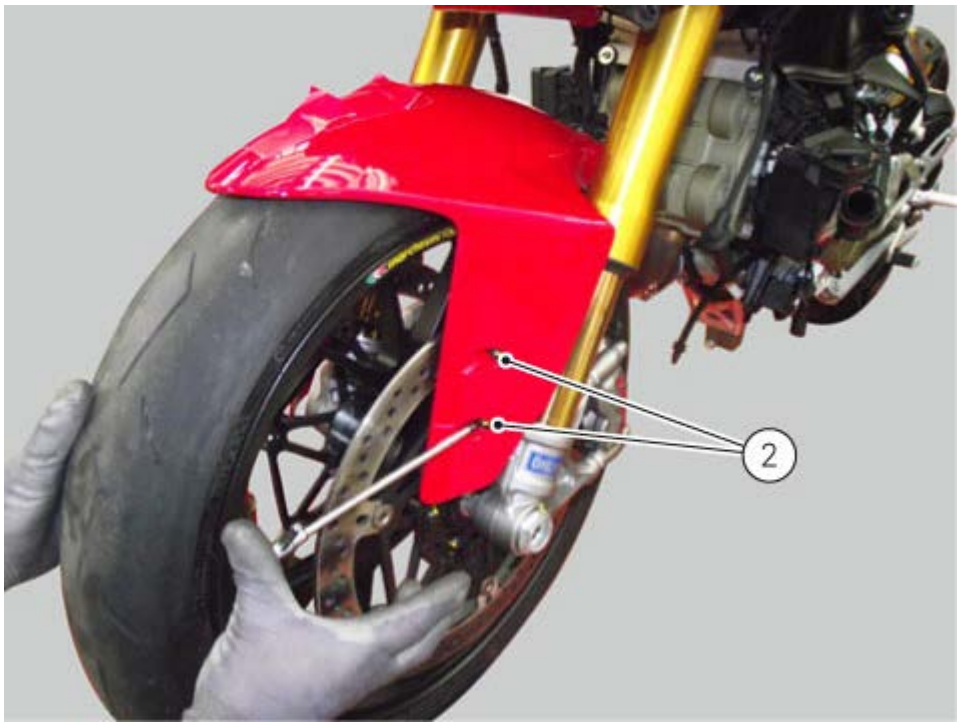
Disconnect the front brake hose (A) from grommet (B) and loosen screw (1).
Grommet (B) is fastened onto front mudguard by means of a blind rivet with two washers in-between.



Loosen and remove the special screws (2).
Remove the front mudguard (1).



http://www.ducati-manuals.com
no. 140312



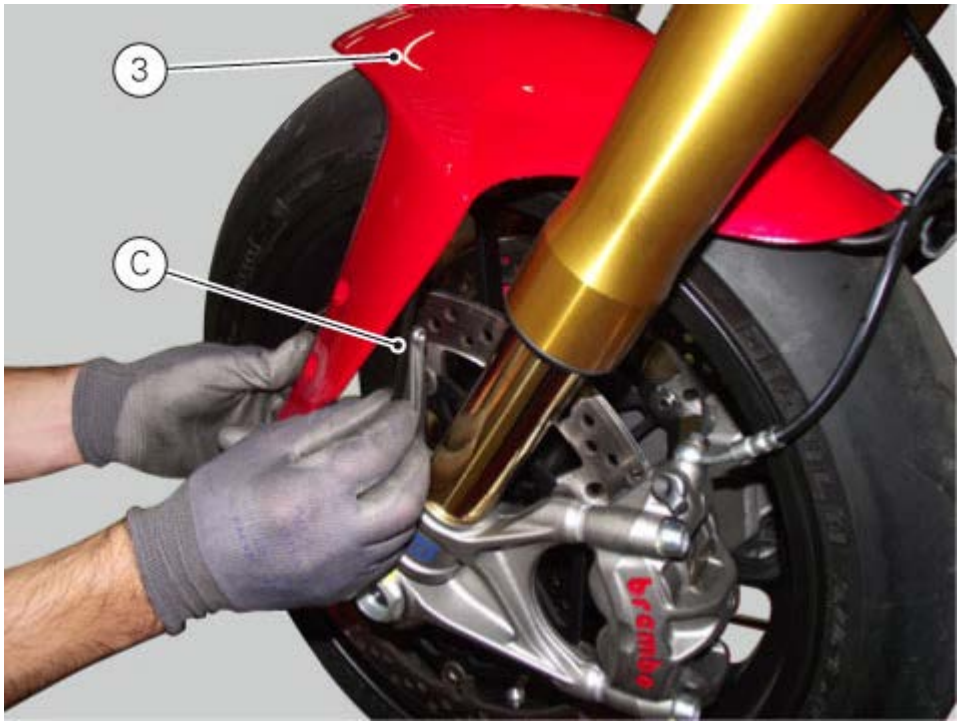
Warning

The ABS sensor mounting bracket is located on the left fork leg. Pay utmost attention when removing the front mudguard.

Remove the front mudguard (3) after disconnecting front speed sensor cable (C) from the top.

Note

The US versions are equipped with a cat's eye on the front mudguard.



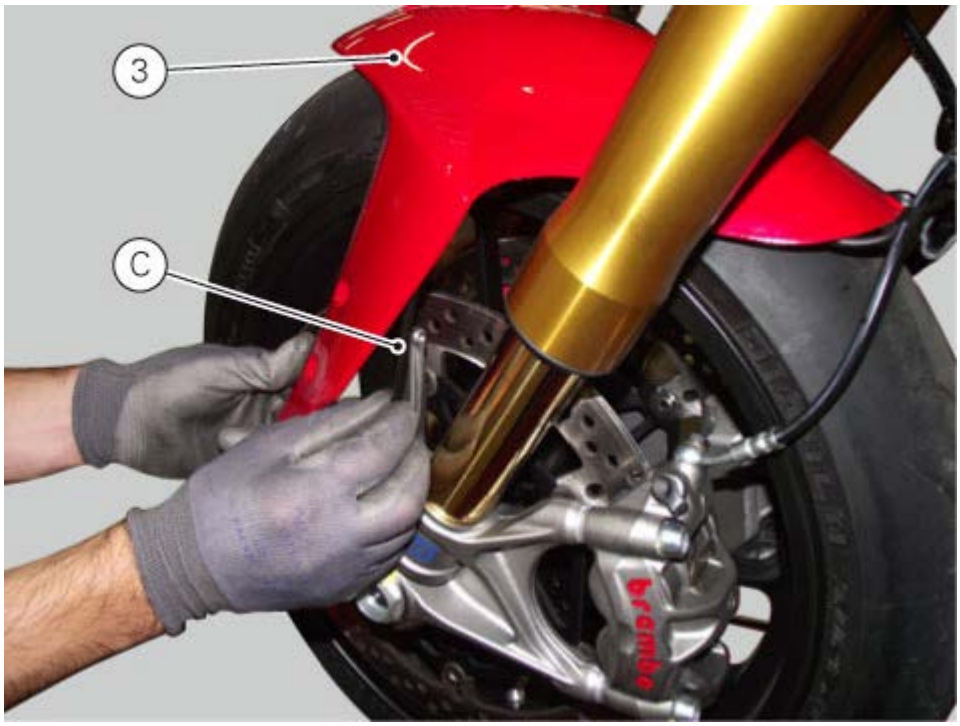
http://www.ducati-manuals.com
no. 140312

Installation of the front mudguard

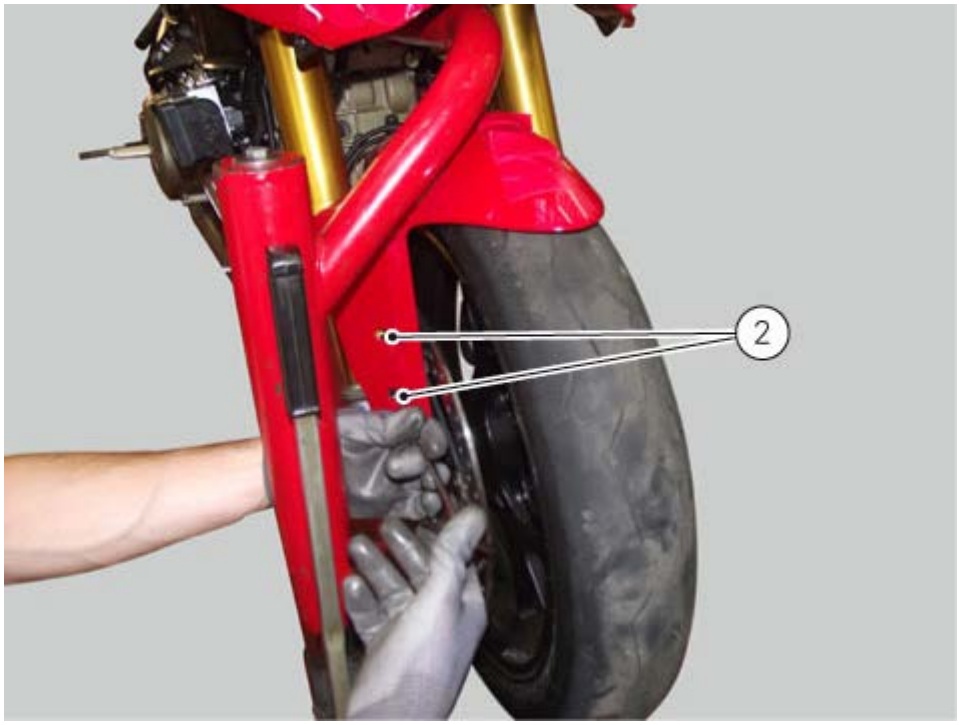
Warning

Do not ride the motorcycle if the front mudguard is not in place, or the brake line could interfere with the wheel under braking.

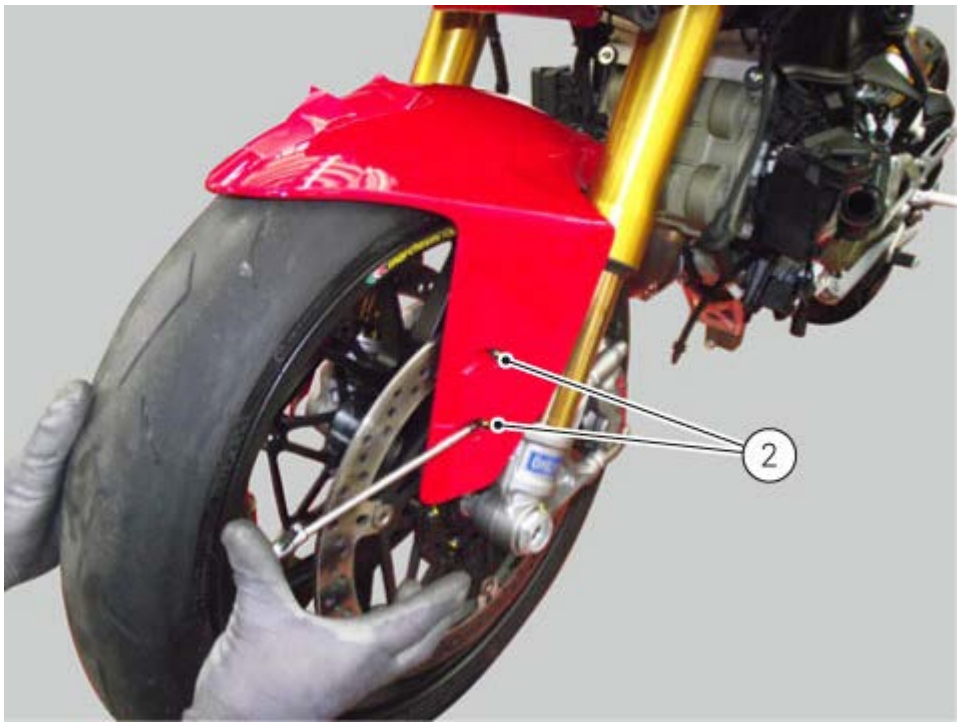
Fit the front mudguard (3) and fasten front speed sensor cable (C).



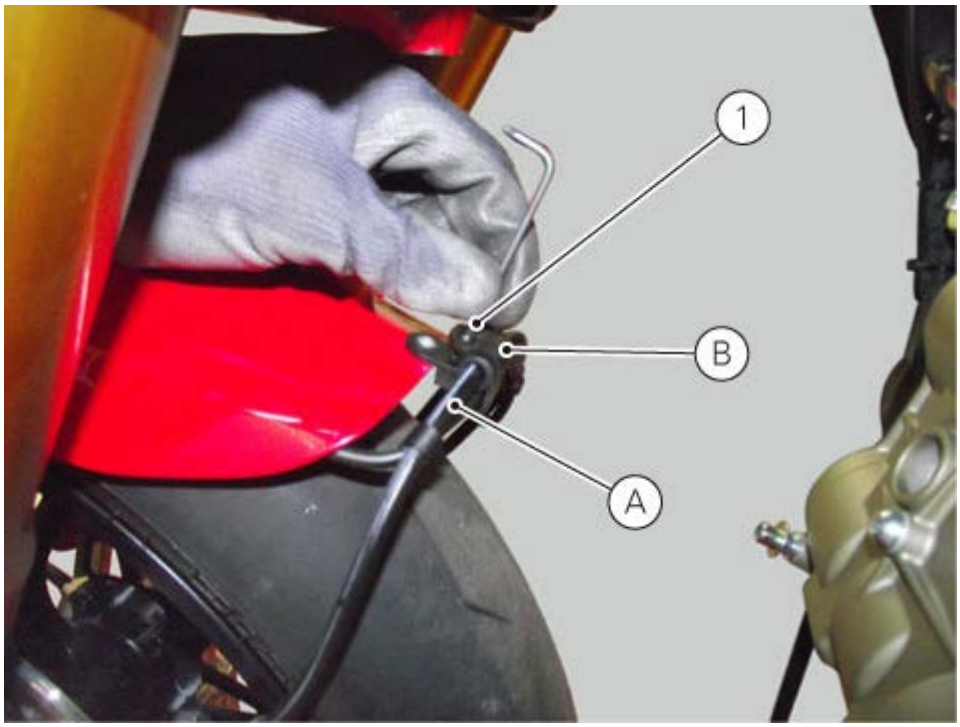
Fit the front mudguard (3) and start the special screws (2), using specified threadlocker. Tighten screws (2) to 10 Nm ±10%.



http://www.ducati-manuals.com
no. 140312

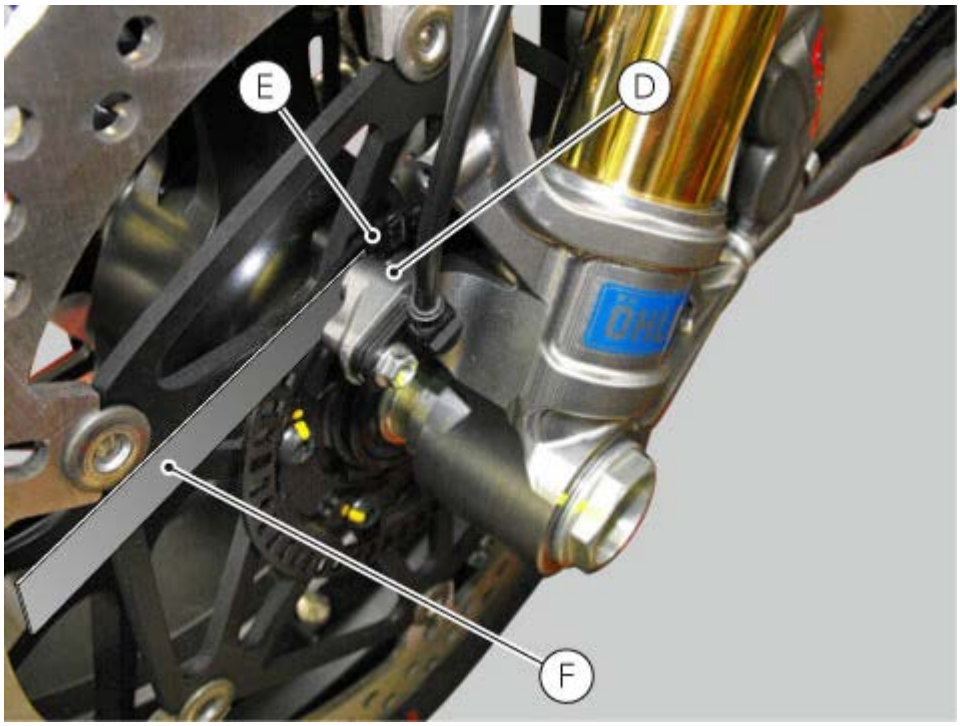


Fit and centre the front brake line (A) rubber block into grommet (B).
Bend grommet (B), and fasten it with screw (1). Tighten it to 0.4 Nm ±10%.



Check the air gap between speed sensor (D) and pick-up wheel (E).
Check the air gap using a feeler gauge (F). Measure the gap at 4 points, at 90° from one another.
The allowed range for sensor to wheel air-gap is **1.3** mm to **1.9** mm.

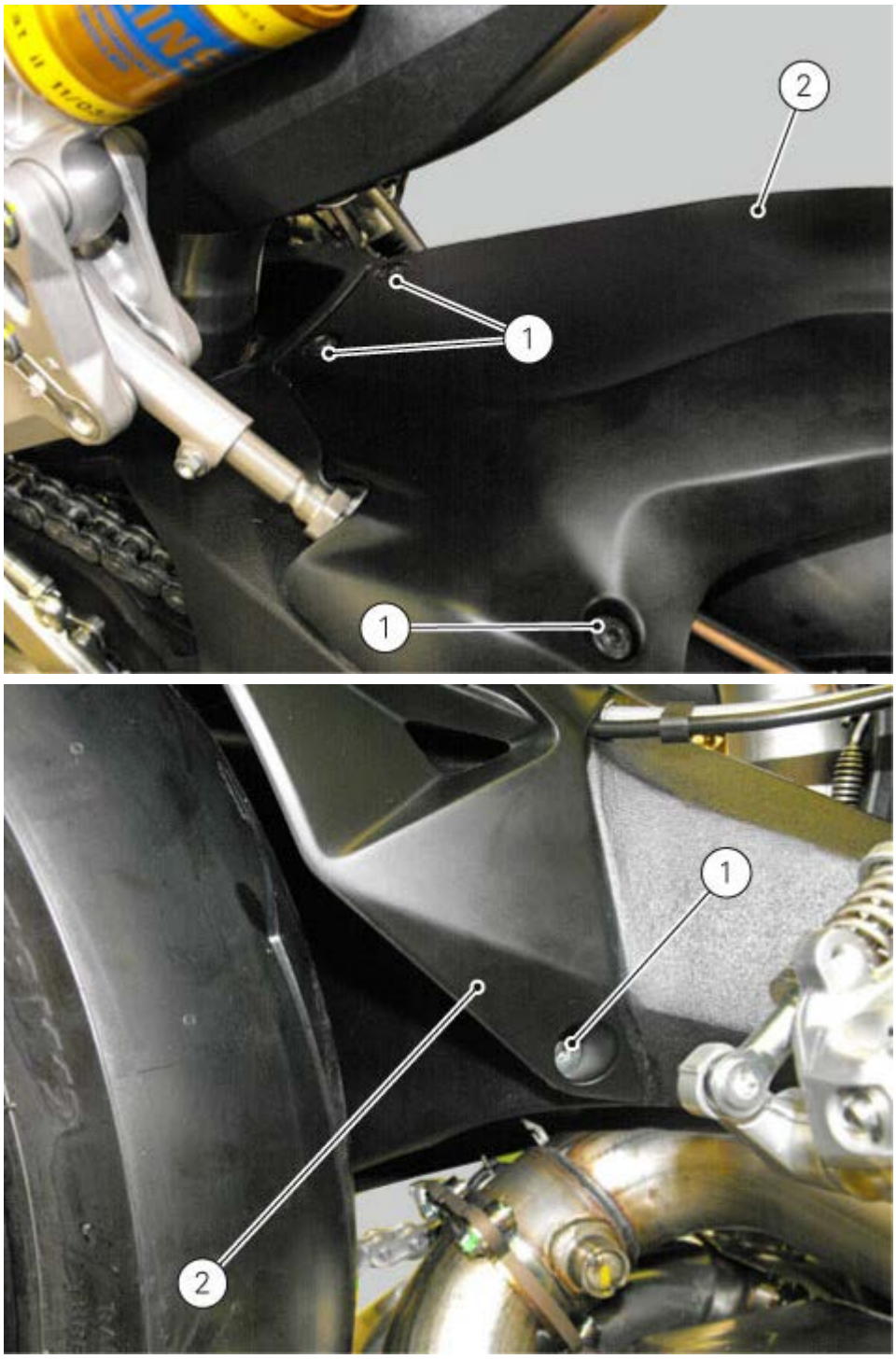
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Removal of the rear mudguard

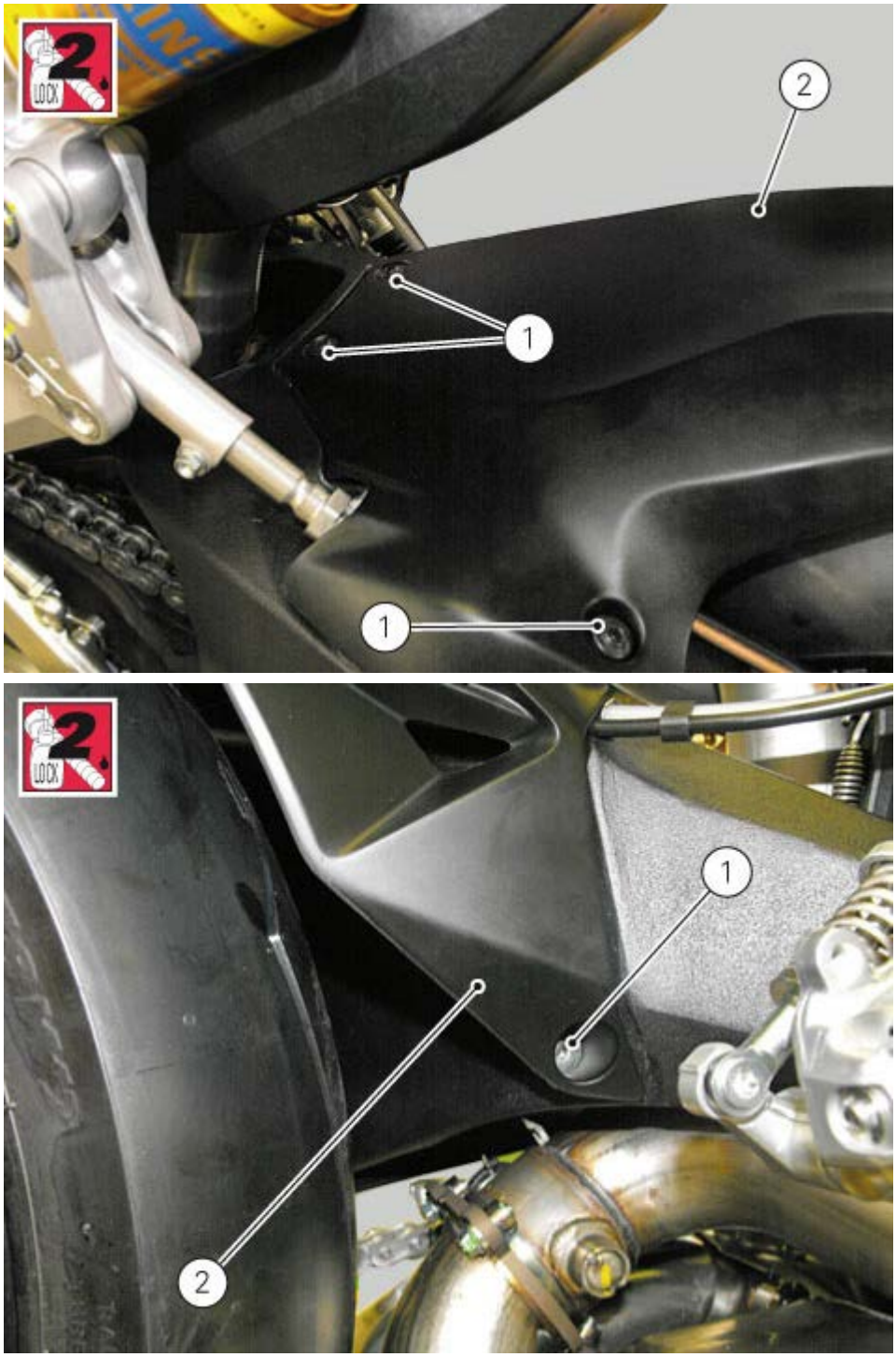
Unscrew the screws (1) and remove the rear mudguard (2) from swinging arm.



http://www.ducati-manuals.com
no. 140312

Installation of the rear mudguard

Fit the rear mudguard (2) on the swinging arm and start the screws (1), using specified threadlocker. Tighten screws (1) to 5 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

Wiring diagram key

1 RH switch
2 E-lock control unit
3 E-lock relay
4 Fuse box 1
5 Fuse box 2
6 ECU
7 APS
8 Starter motor
9 Fused solenoid
10 Battery
11 Engine ground
12 Regulator
13 Generator
14 Rear right turn indicator
15 Rear light
16 Rear left turn indicator
17 Number plate light
18 Diagnostics socket
19 Vehicle control unit (BBS)
20 Ex-up drive
21 Gear sensor
22 Rear speed sensor
23 Front speed sensor
24 Fuel pump
25 Fuel level
26 Vertical coil
27 Horizontal coil
28 Rpm/timing sensor
29 Vertical lambda sensor
30 Horizontal lambda sensor
31 Quick shifter
32 Sidestand switch
33 Oil pressure sensor
34 Rear stop switch
35 Clutch switch
36 Front stop switch
37 Fuel pump relay
38 Vertical ETV relay
39 Horizontal ETV relay
40 Vertical MAP sensor
41 Horizontal MAP sensor
42 Water temperature sensor
43 Air temperature sensor
44 Horizontal TPS
45 Vertical TPS
46 Main horizontal injector
47 Top horizontal injector
48 Main vertical injector
49 Top vertical injector
50 Horizontal ETV drive
51 Vertical ETV drive
52 Secondary air actuator
53 LH switch
54 Horn
55 GPS
56 Front left turn indicator
57 Instrument panel
58 Headlight
59 Front right turn indicator
60 Fan
61 Rear suspension - compression - Stepper C
62 Rear suspension - rebound - Stepper D
63 Front suspension - rebound - Stepper B
64 Front suspension - compression - Stepper A
65 -

http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

Disposizione dei cablaggi sul motociclo

Tavola	Posizione	Particolare	Riferimento
Tavola A	5	01	Cablaggio principale iniezione interno airbox
Tavola A	60	01	Iniettore superiore verticale
Tavola A	61	01	Iniettore principale verticale
Tavola A	62	01	TPS verticale
Tavola A	63	01	ETV verticale
Tavola A	64	01	ETV orizzontale
Tavola A	65	01	Iniettore principale orizzontale
Tavola A	66	01	TPS orizzontale
Tavola A	67	01	Iniettore superiore orizzontale
Tavola B	35	02 (A-B-C-D)	Cavo sensore velocità posteriore
Tavola B	23	03	Cavo sonda lambda orizzontale
Tavola B	37	04 (A-B-C)	Cavo switch stop freno posteriore
Tavola B	34	05	Cavo pressostato
Tavola B	10	06	Cavo motorino aria secondaria
Tavola B	5	07	Cavo connettore principale iniezione
Tavola B	33	08 (A-B)	Cavo sensore marce
Tavola B	36	09 (A-B)	Cavo bobina verticale
Tavola B	22	10 (A-B-C)	Cavo sonda lambda verticale
Tavola B	7	11	Cavo relè ETV orizzontale
Tavola B	6	11	Cavo relè ETV verticale
Tavola C	58	12	Cavo candela verticale
Tavola D	55	13	Cavo diagnosi centralina
Tavola D	8	13 / 14 (A-B)	Cavo acceleratore
Tavola D	4	15 (A-B)	Cavo switch freno anteriore
Tavola D	3	16 (A-B)	Cavo commutatore destro
Tavola E	48	17 (A-B)	Cavo regolazione stelo forcella destro (estensione)
Tavola F	1	18 (A-B)	Cavo centralina ECU
Tavola F	2	18 (A-B)	Cavo centralina ECU

http://www.ducati-manuals.com
no. 140312

Tavola G	42	19 (A-B)	Cavo centralina ABS
Tavola H	39	20	Massa generale
Tavola I	14	21 (A-B)	Cavo scatola fusibili 1
Tavola I	15	21 (A-B)	Cavo scatola fusibili 2
Tavola I	44	21 (A-B)	Positivo ABS
Tavola J	40	22	Cavo massa cablaggio
Tavola J	16	23	Cavo blocco accensione
Tavola J	27	24	Cavo bobina orizzontale
Tavola J	52	25	Cavo map sensor verticale
Tavola J	17	26	Cavo relè iniezione
Tavola J	18	26	Cavo relè e-lock
Tavola J	24	27 / 20	Cavo regolatore di tensione
Tavola J	53	28	Cavo map sensor orizzontale
Tavola K	57	29	Cavo regolatore - alternatore
Tavola L	20	30	Cavo stampella laterale
Tavola L	19	31 (A-B)	Cavo pick-up
Tavola L	21	32	Cavo ventola estrattore aria
Tavola L	25	33	Cavo motorino valvola scarico
Tavola L	13	34	Cavo teleruttore
Tavola L	41	35 (A-B)	Cavo quick shift
Tavola L	32	36	Cavo sensore temperatura acqua
Tavola M	49	37 (A-B)	Cavo regolazione stelo forcella sinistro (compressione)
Tavola N	26	38 (A-B-C)	Cavo switch frizione
Tavola N	28	39 (A-B) / 40	Cavo commutatore sinistro
Tavola N	50	40 / 20	Cavo predisposizione GPS
Tavola O	59	41 (A-B)	Cavo candela orizzontale
Tavola P	38	42 (A-B-C-D)	Cavo sensore velocità anteriore
Tavola Q	31	43	Cavo cruscotto
Tavola Q	43	43	Cavo proiettore
Tavola Q	51	43	Cavo sensore temperatura aria
Tavola Q	29	43	Cavo freccia destra

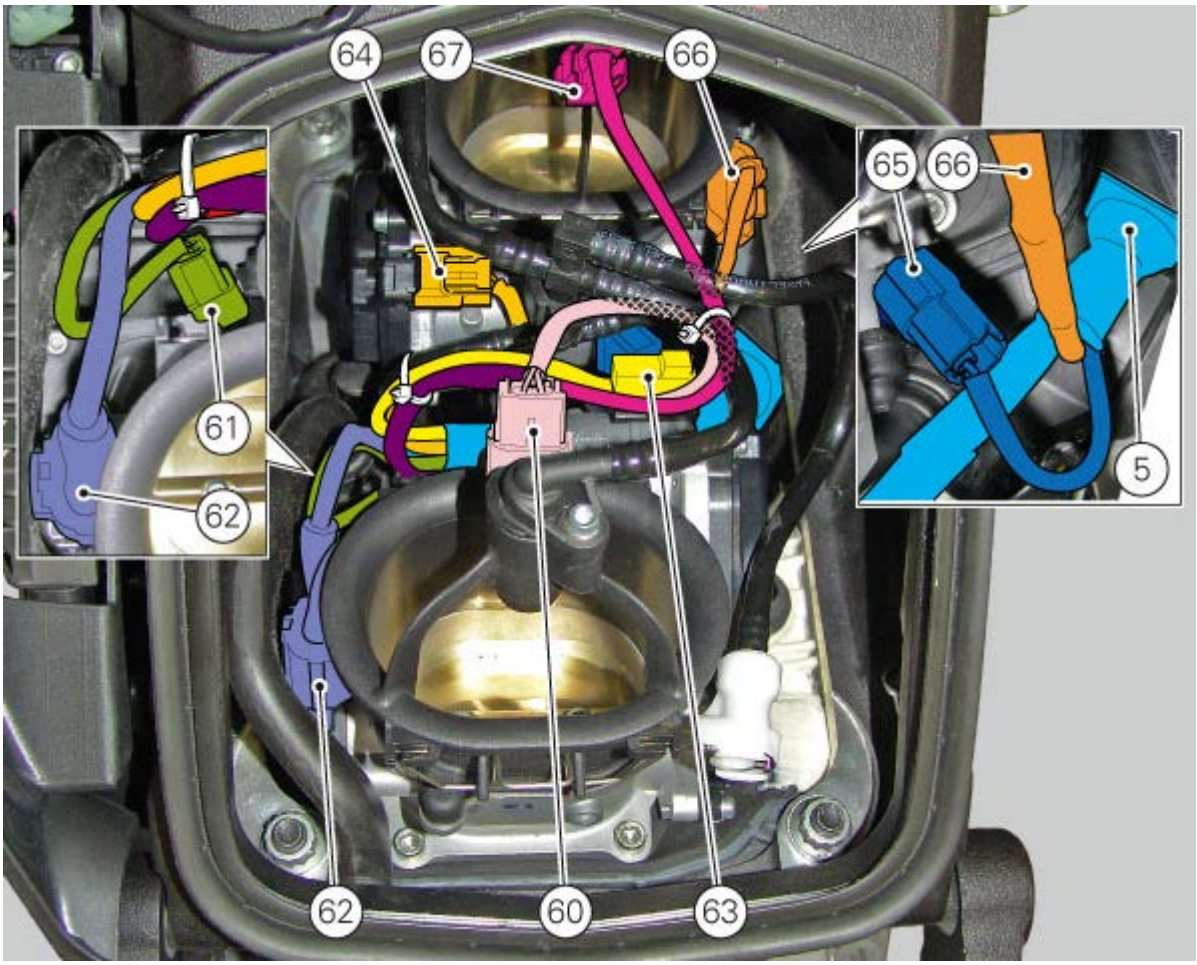
http://www.ducati-manuals.com
no. 140312

Tavola Q	30	43	Cavo freccia sinistra
Tavola R	54	44 (A-B)	Cavo claxon
Tavola S	12	45 (A-B)	Cavo luci posteriori
Tavola T	11	45- 46 - 47	Cavo BBS
Tavola U	45	47	Cavo regolazione ammortizzatore posteriore (estensione)
Tavola U	46	47	Cavo regolazione ammortizzatore posteriore (compressione)
Tavola V	9	48	Cavo pompa serbatoio
Tavola V	56	48	Cavo massa pompa serbatoio

http://www.ducati-manuals.com
no. 140312

Tavola A

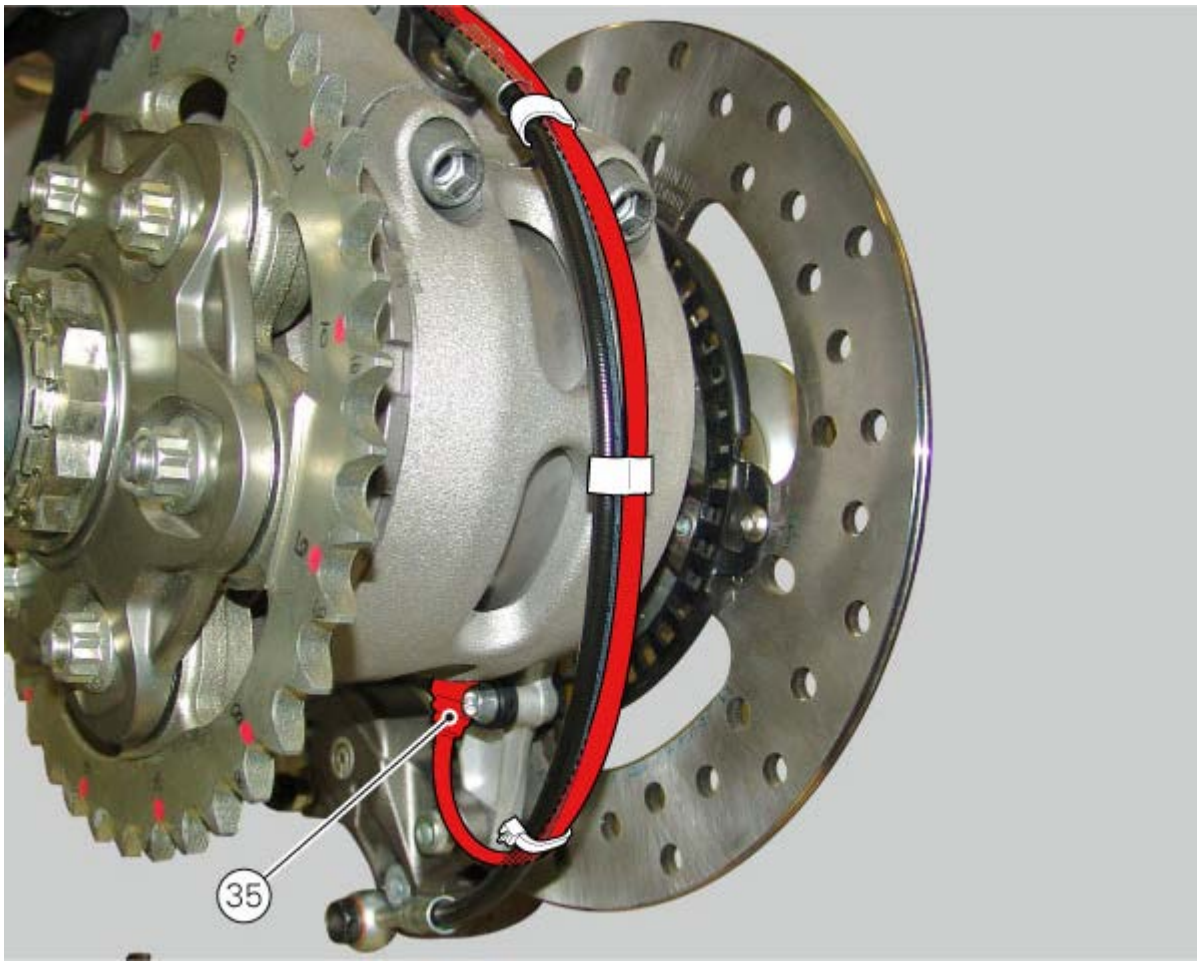
Tavola A - 01



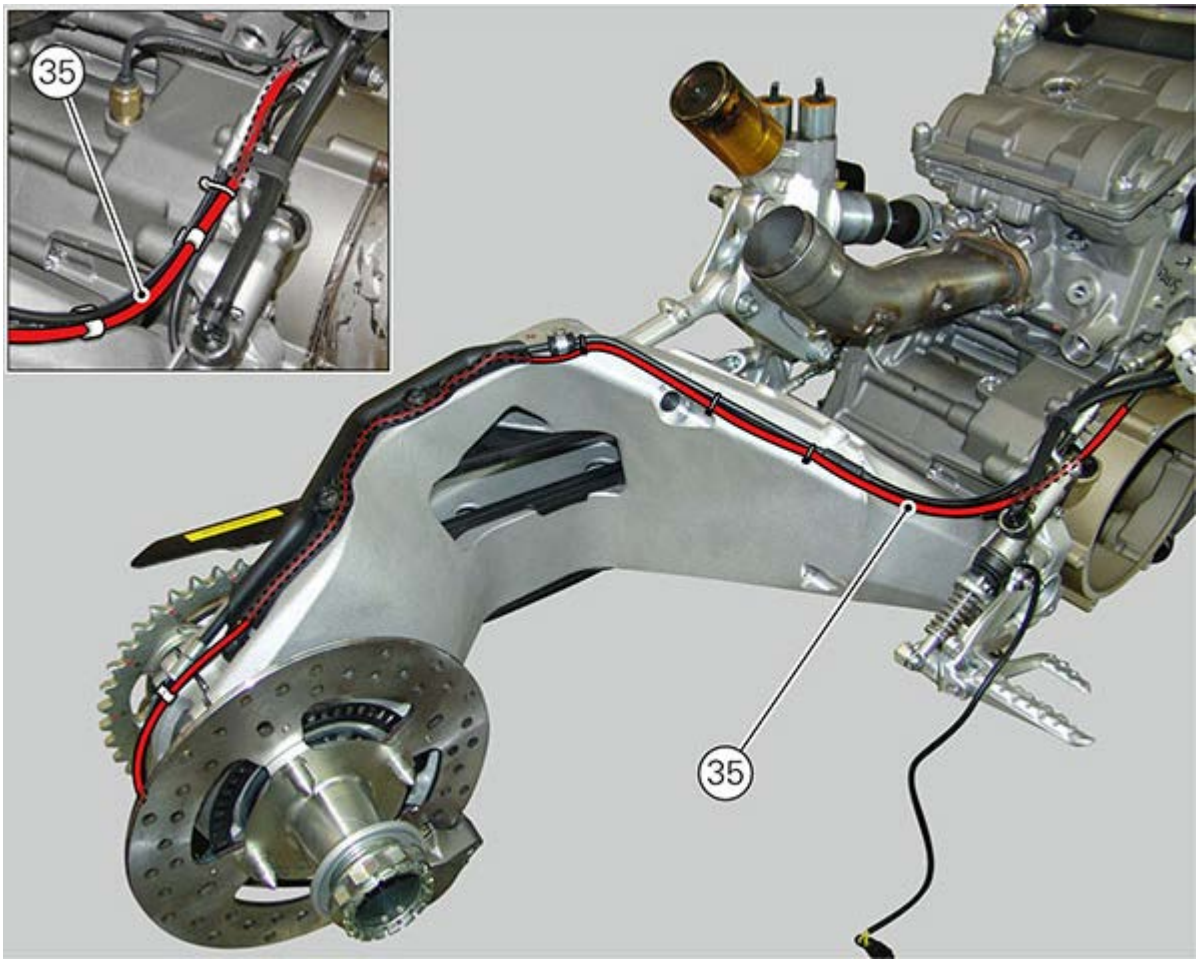
http://www.ducati-manuals.com
no. 140312

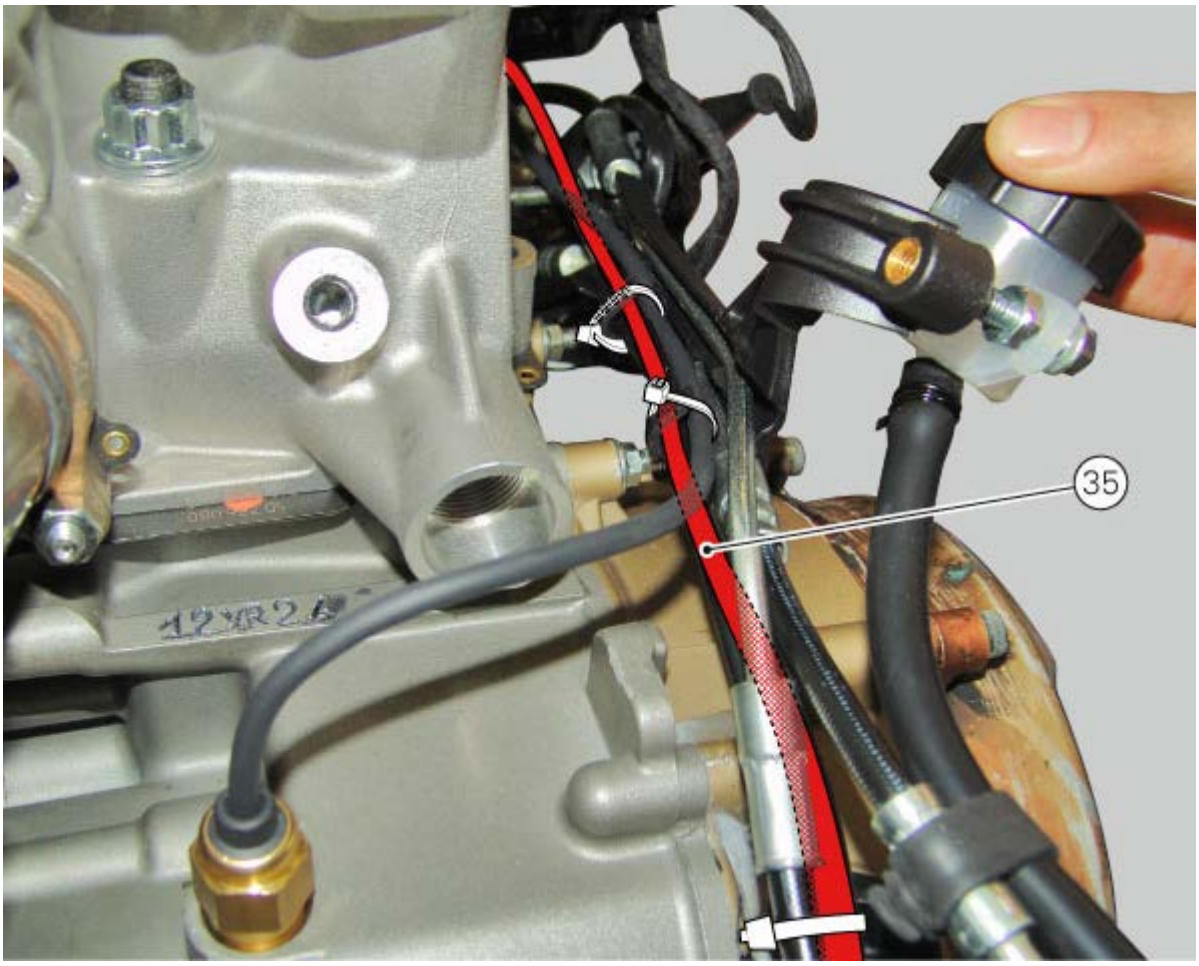
Tavola B

Tavola B – 02



http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

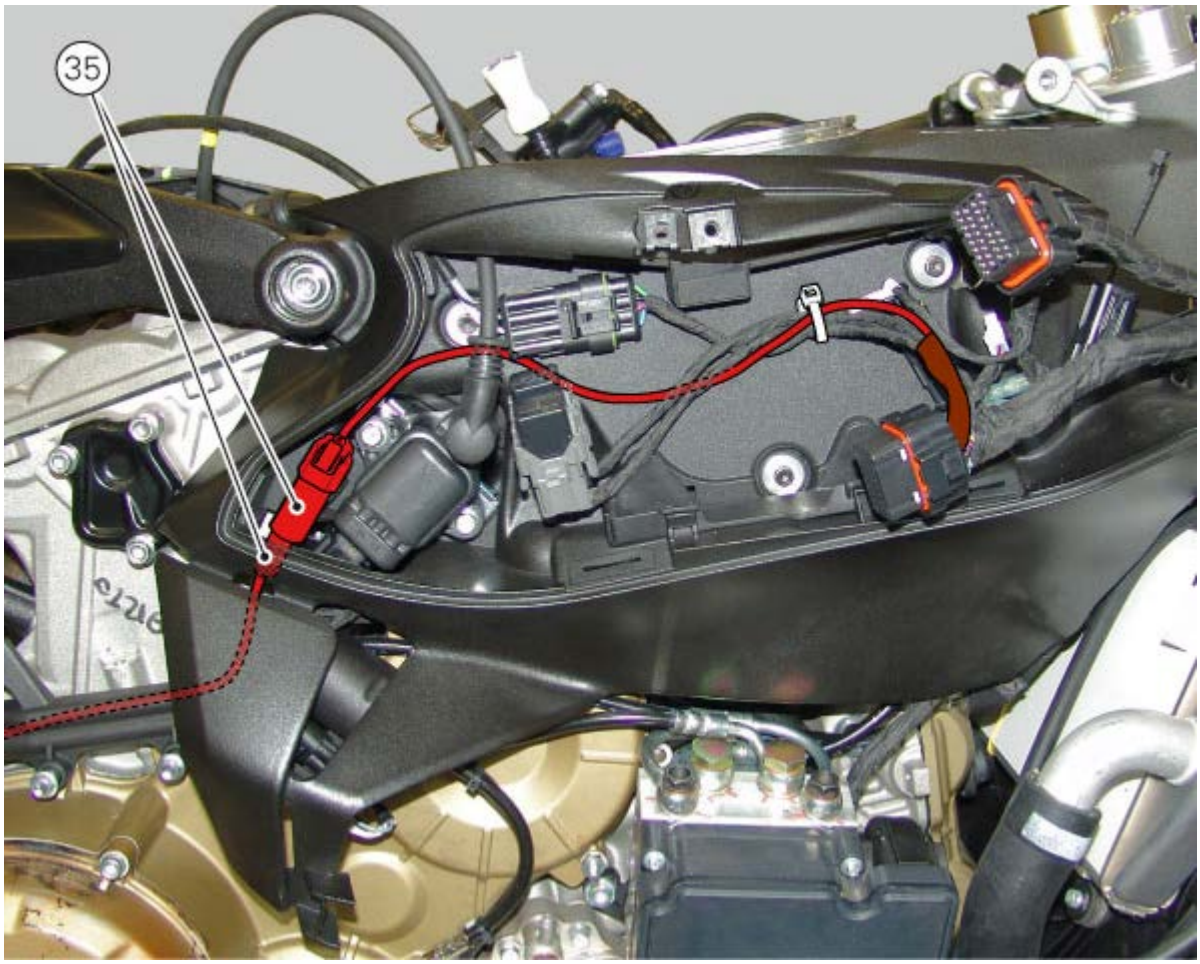
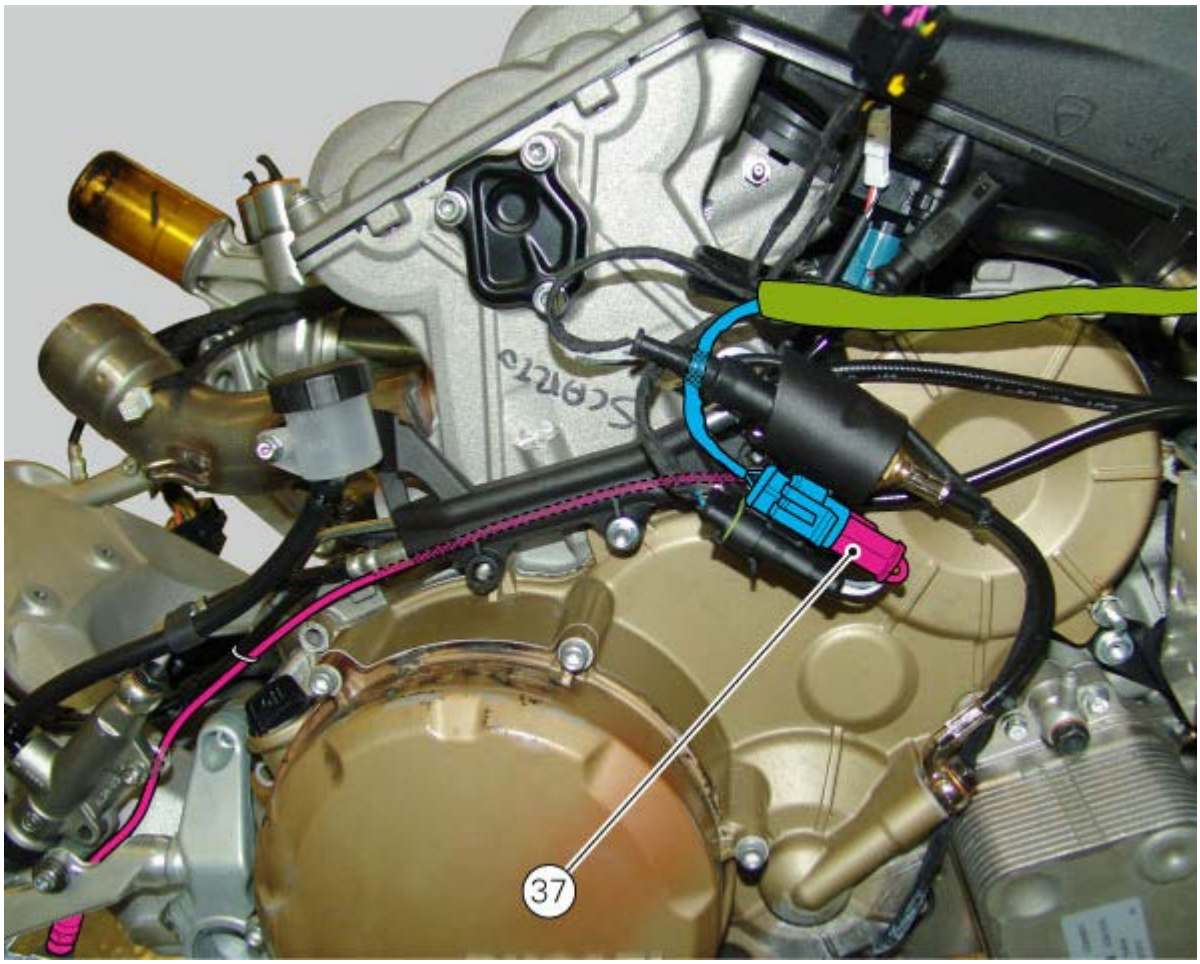


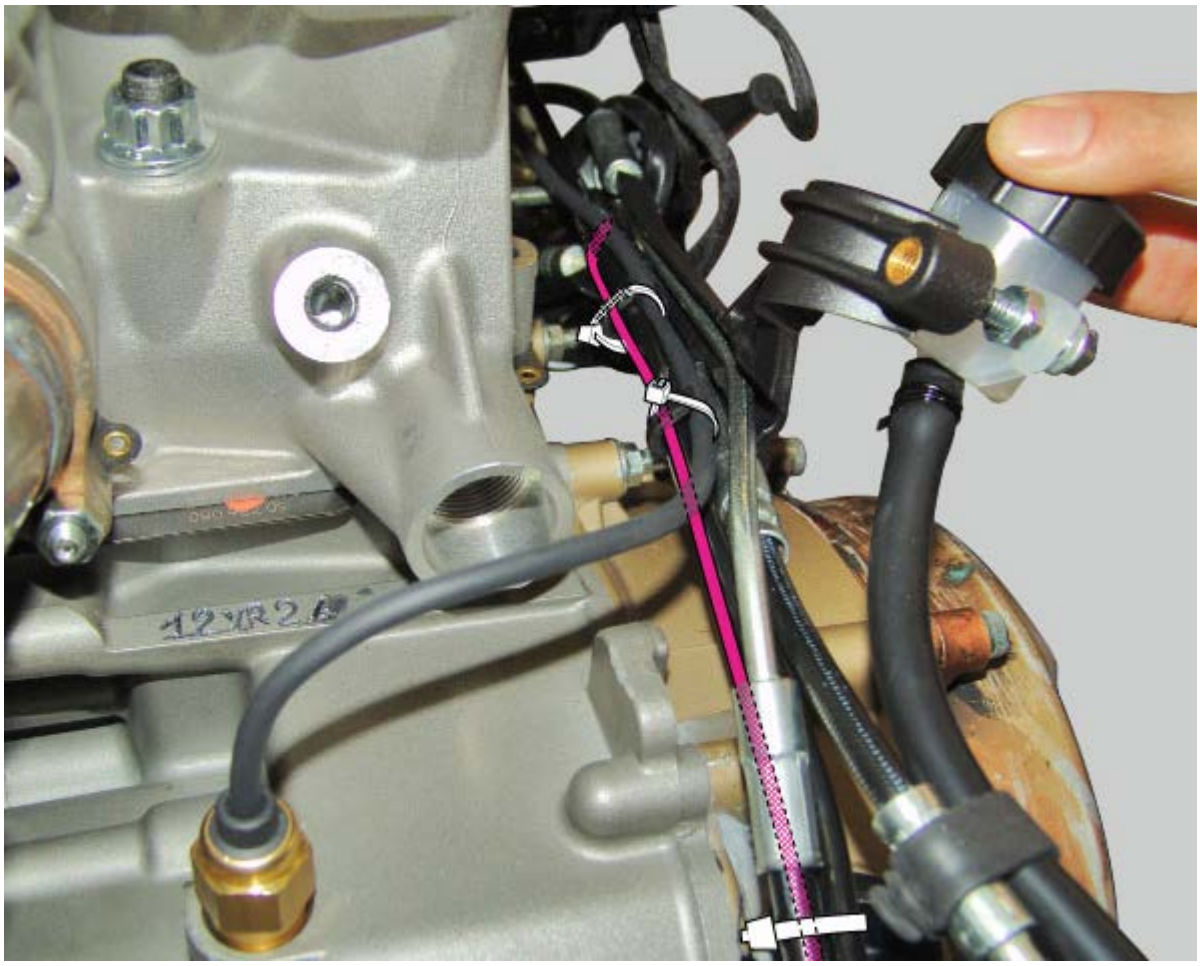
Tavola B – 03



Tavola B – 04

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

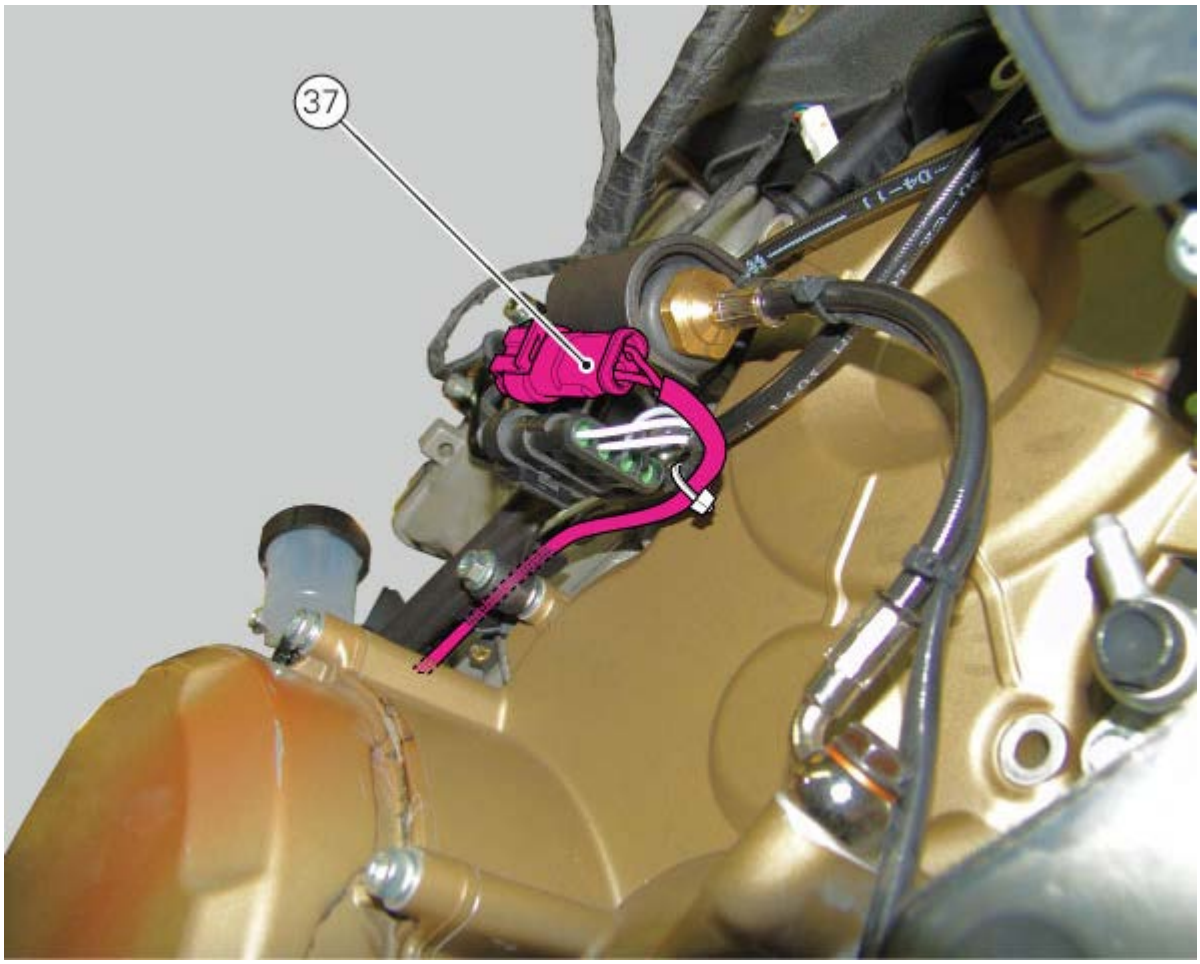


Tavola B – 05

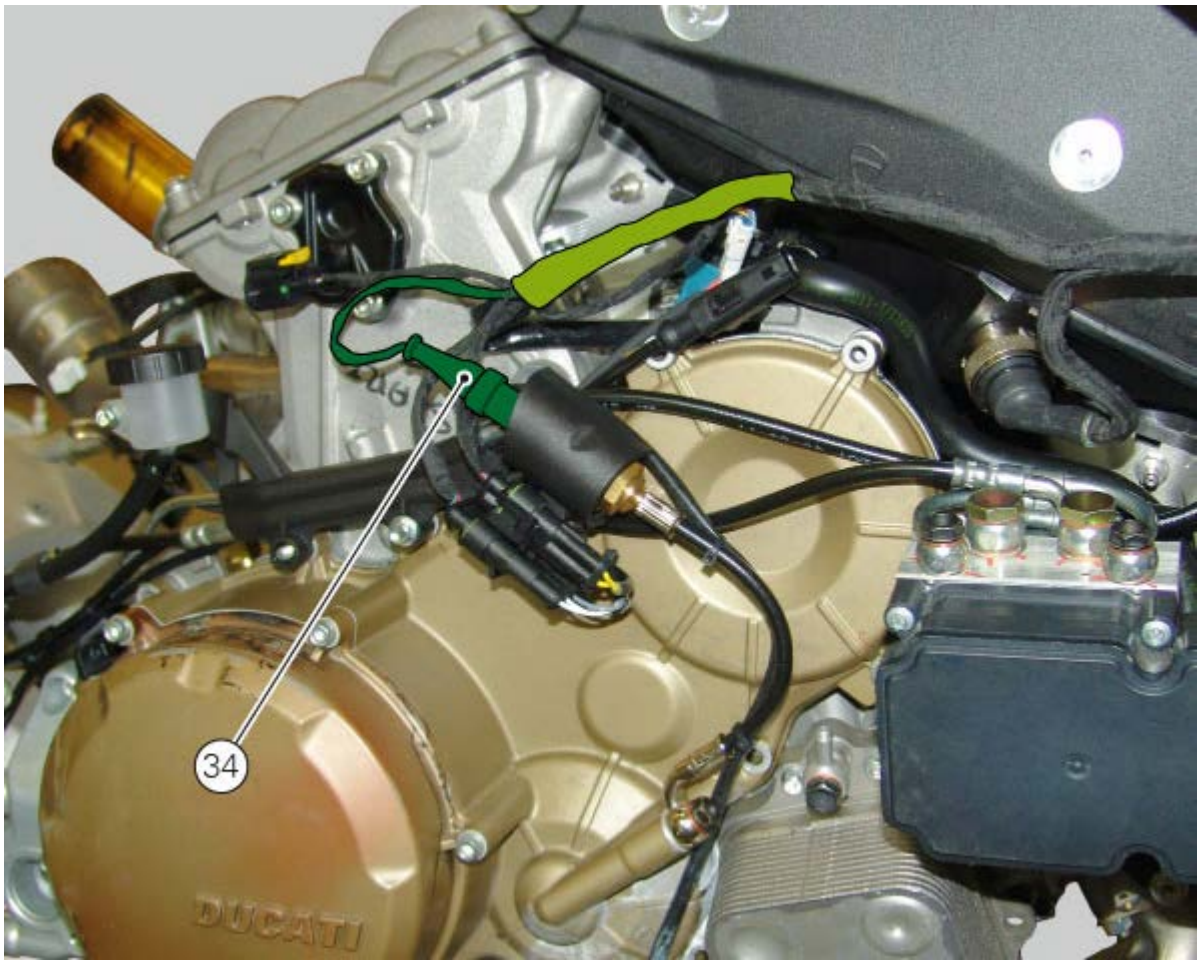


Tavola B – 06

http://www.ducati-manuals.com
no. 140312



Tavola B – 07

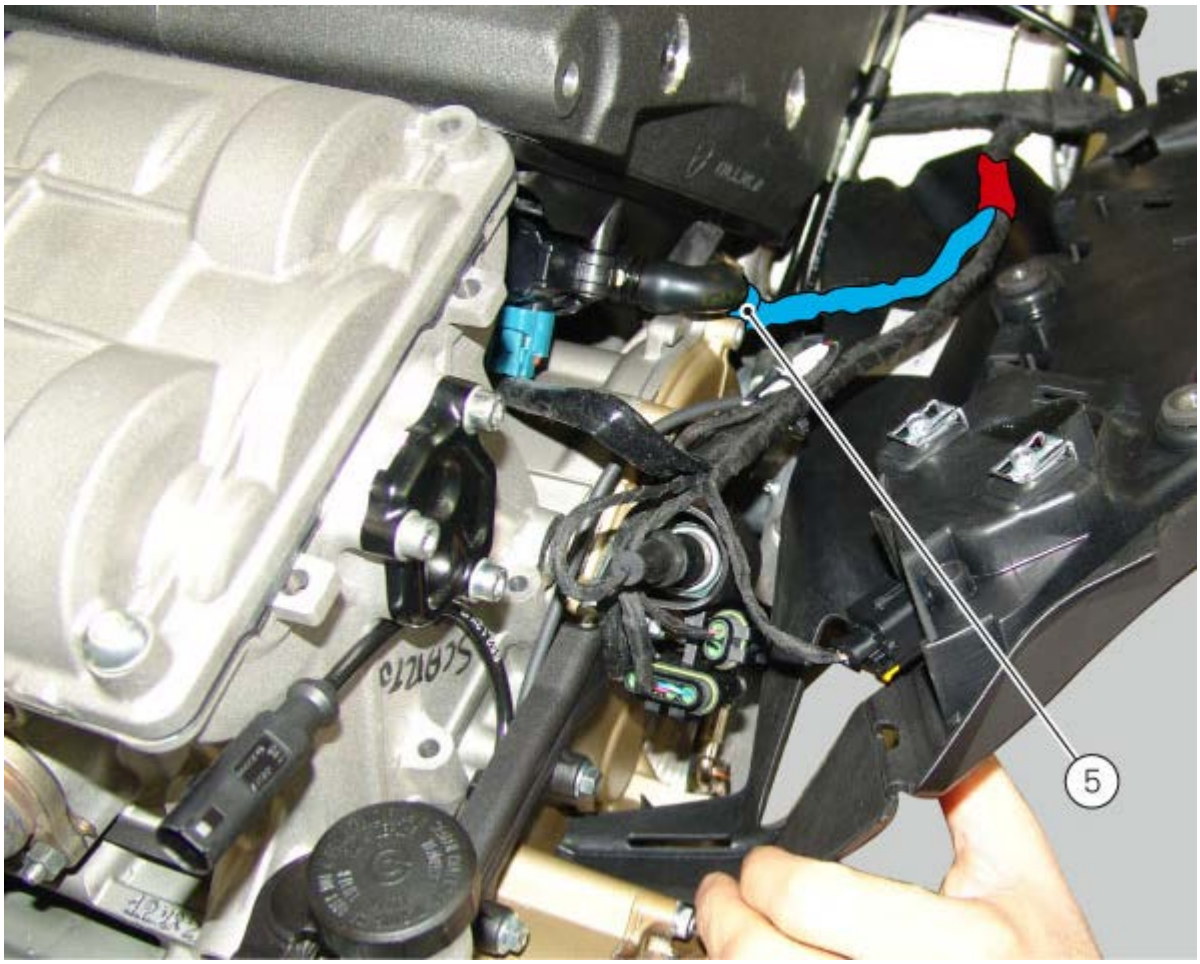
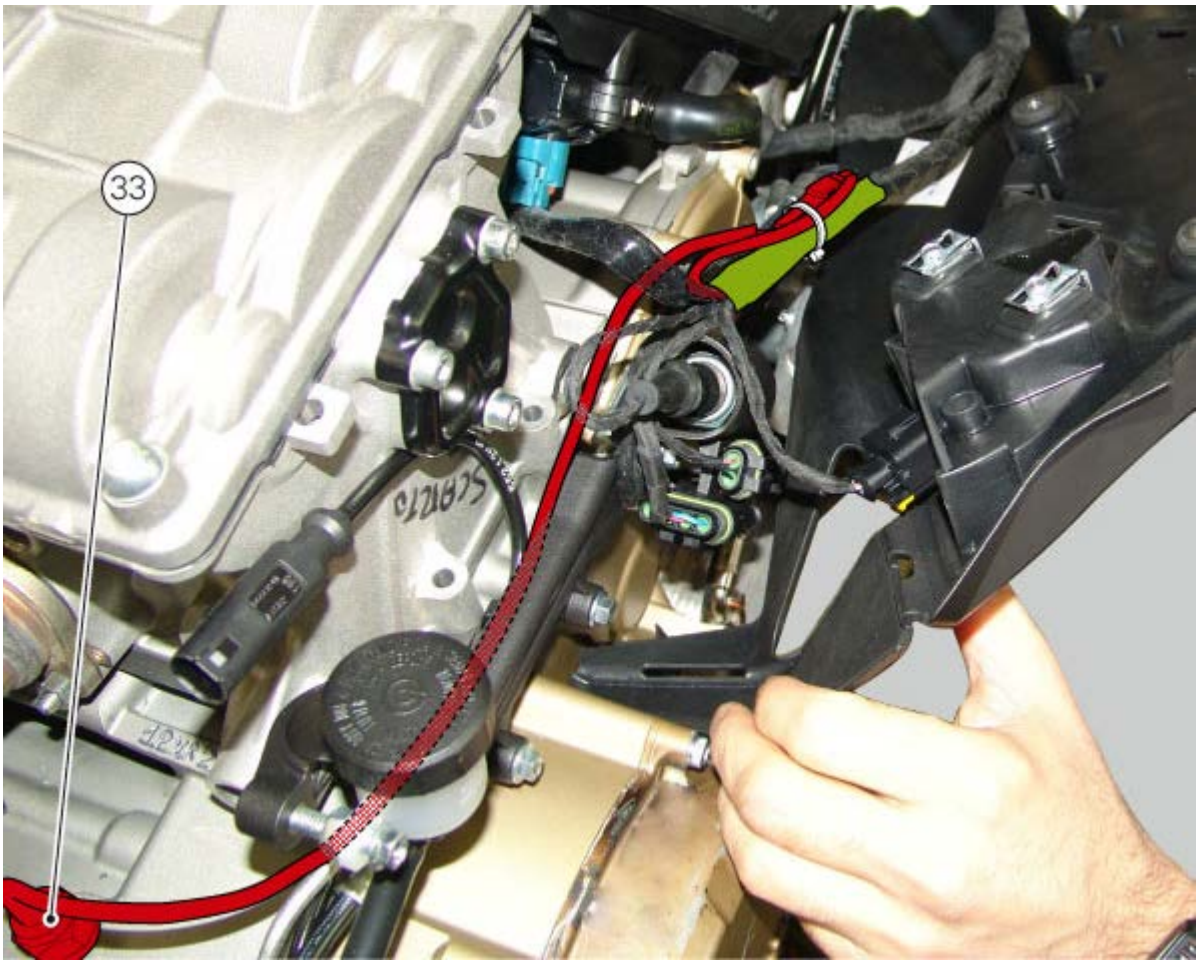


Tavola B – 08

http://www.ducati-manuals.com
no. 140312



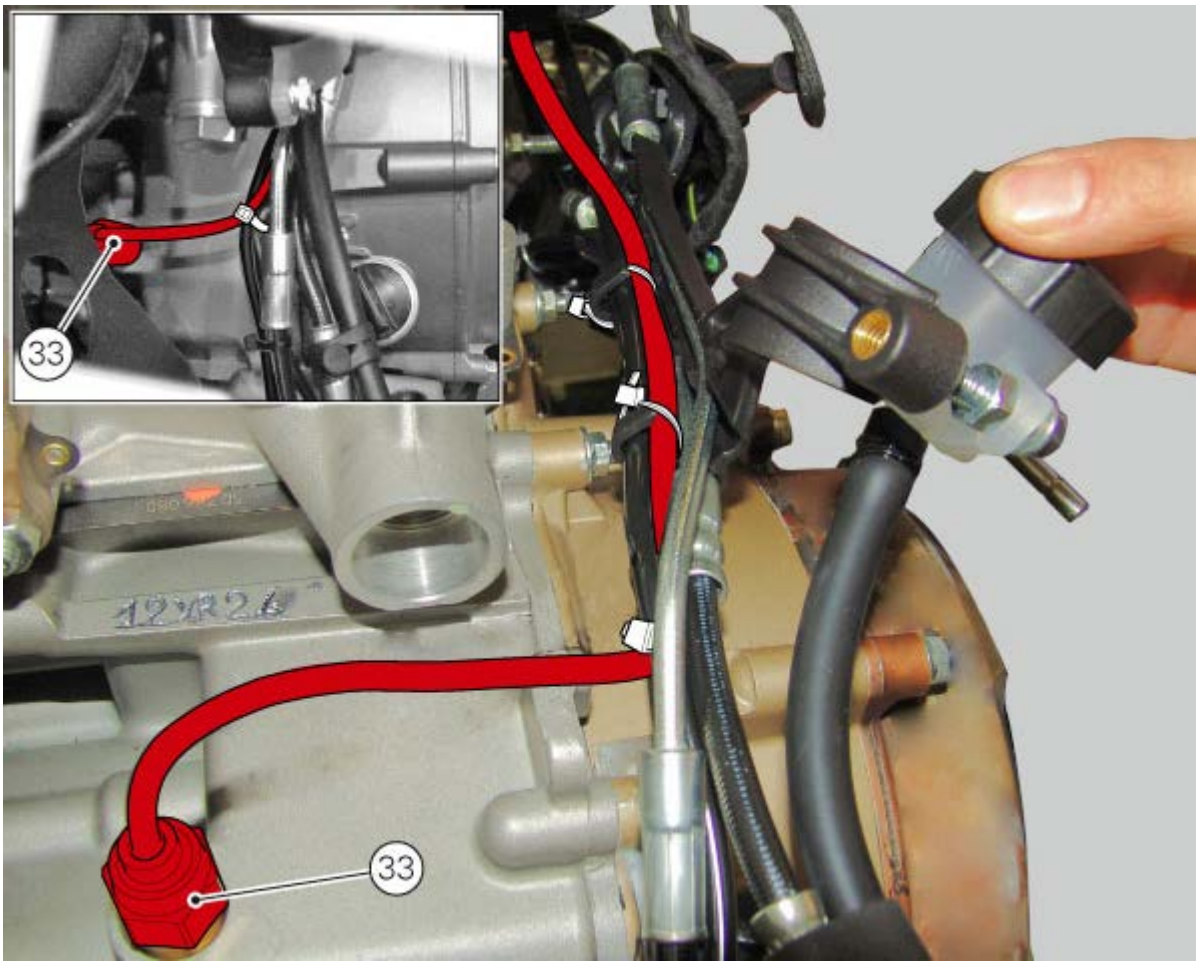


Tavola B – 09

http://www.ducati-manuals.com
no. 140312

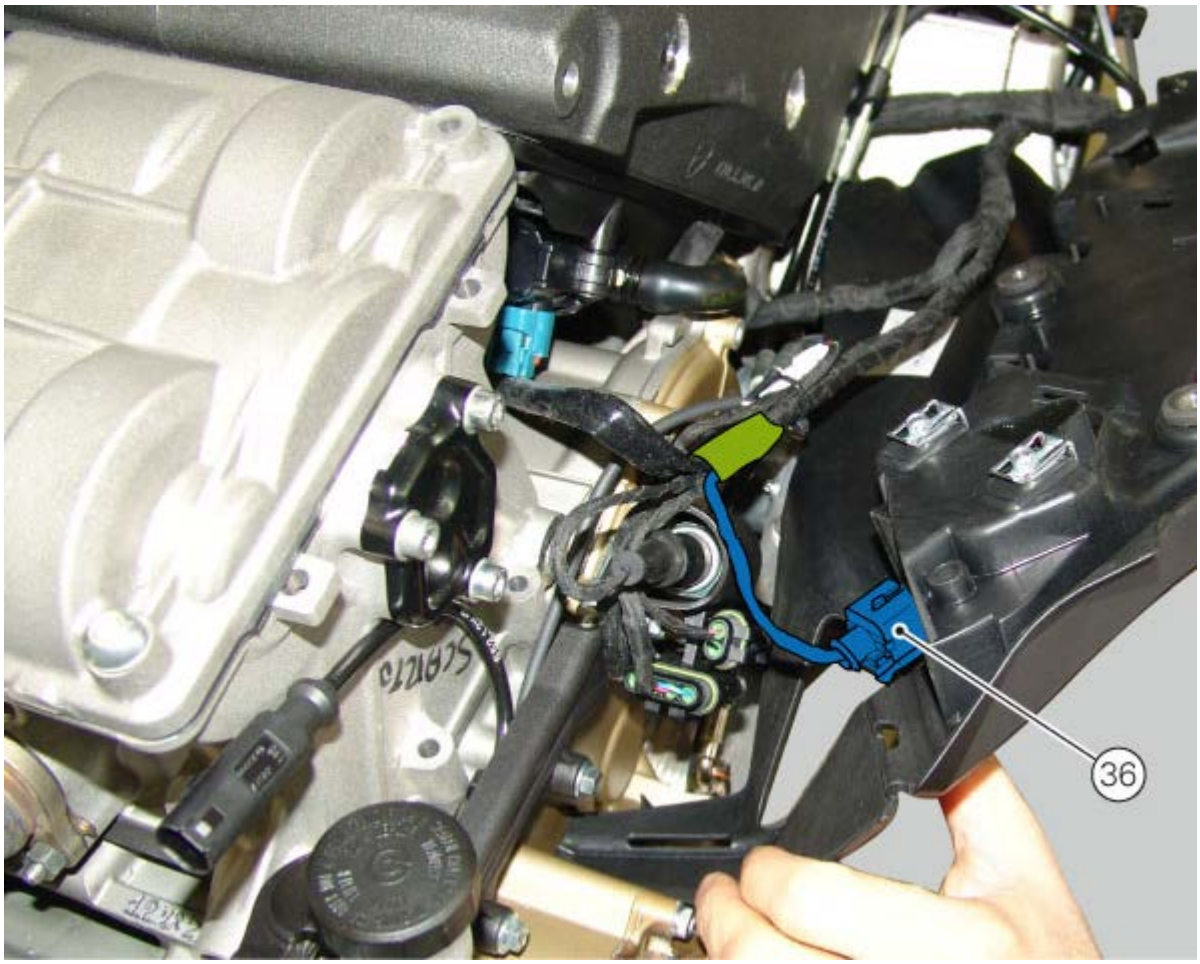
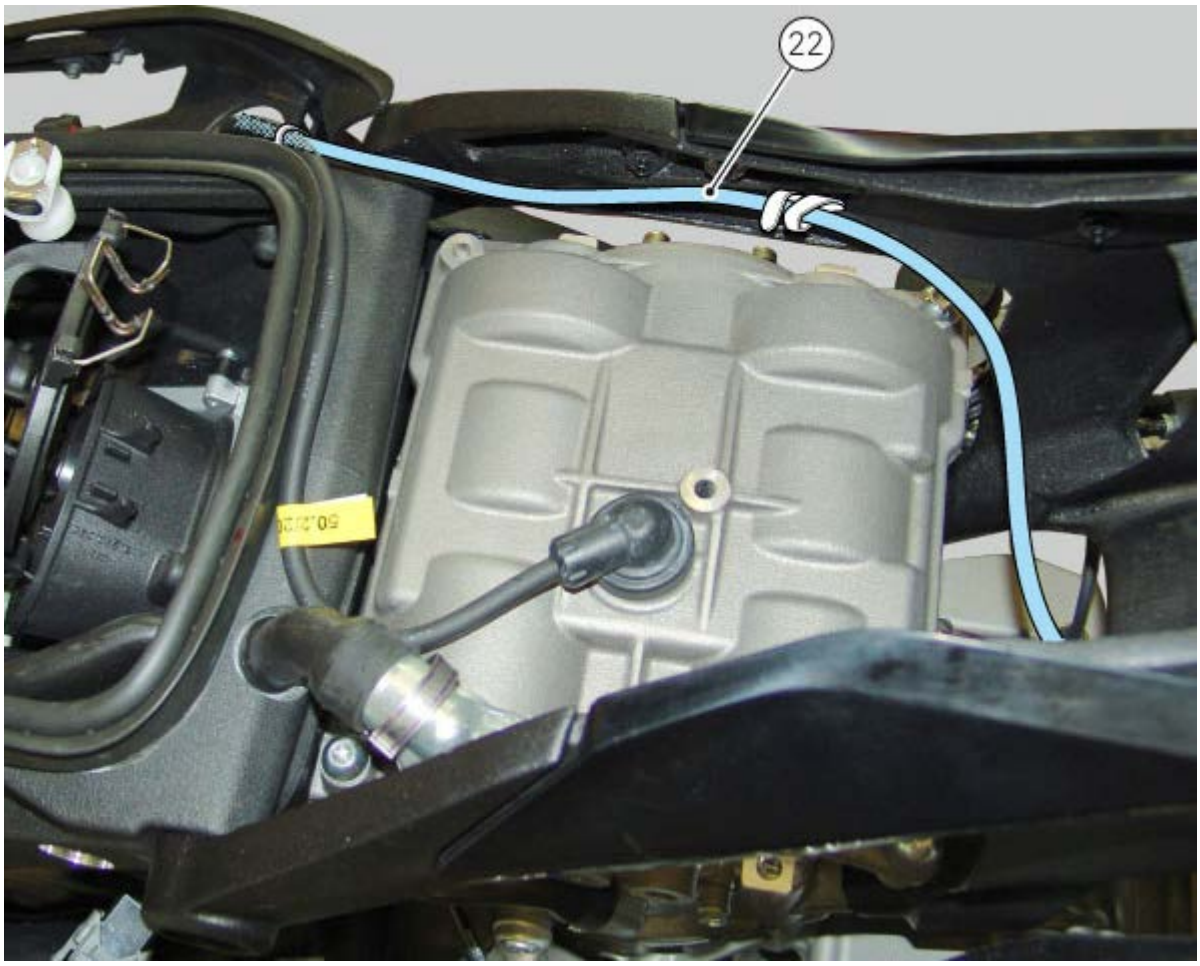




Tavola B – 10

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

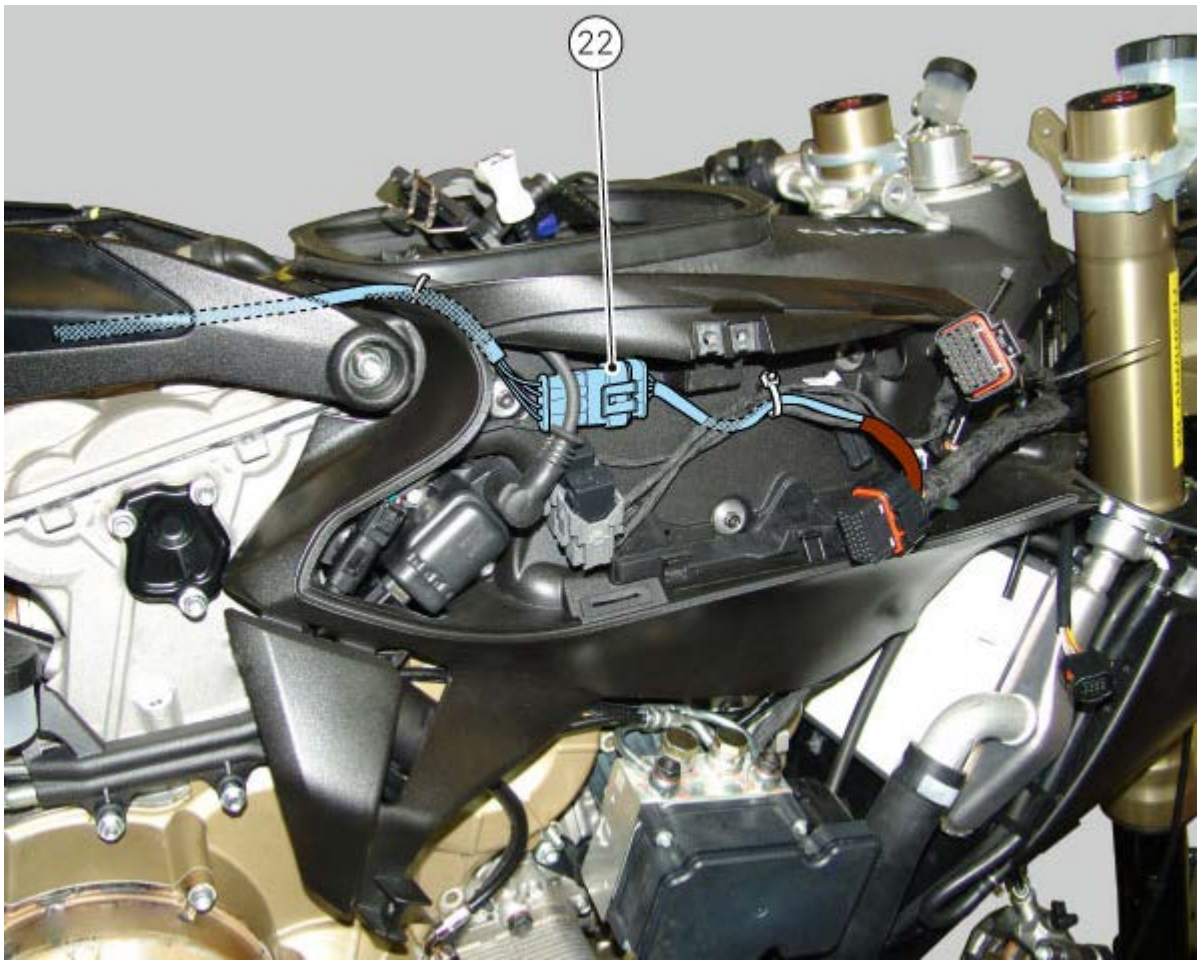
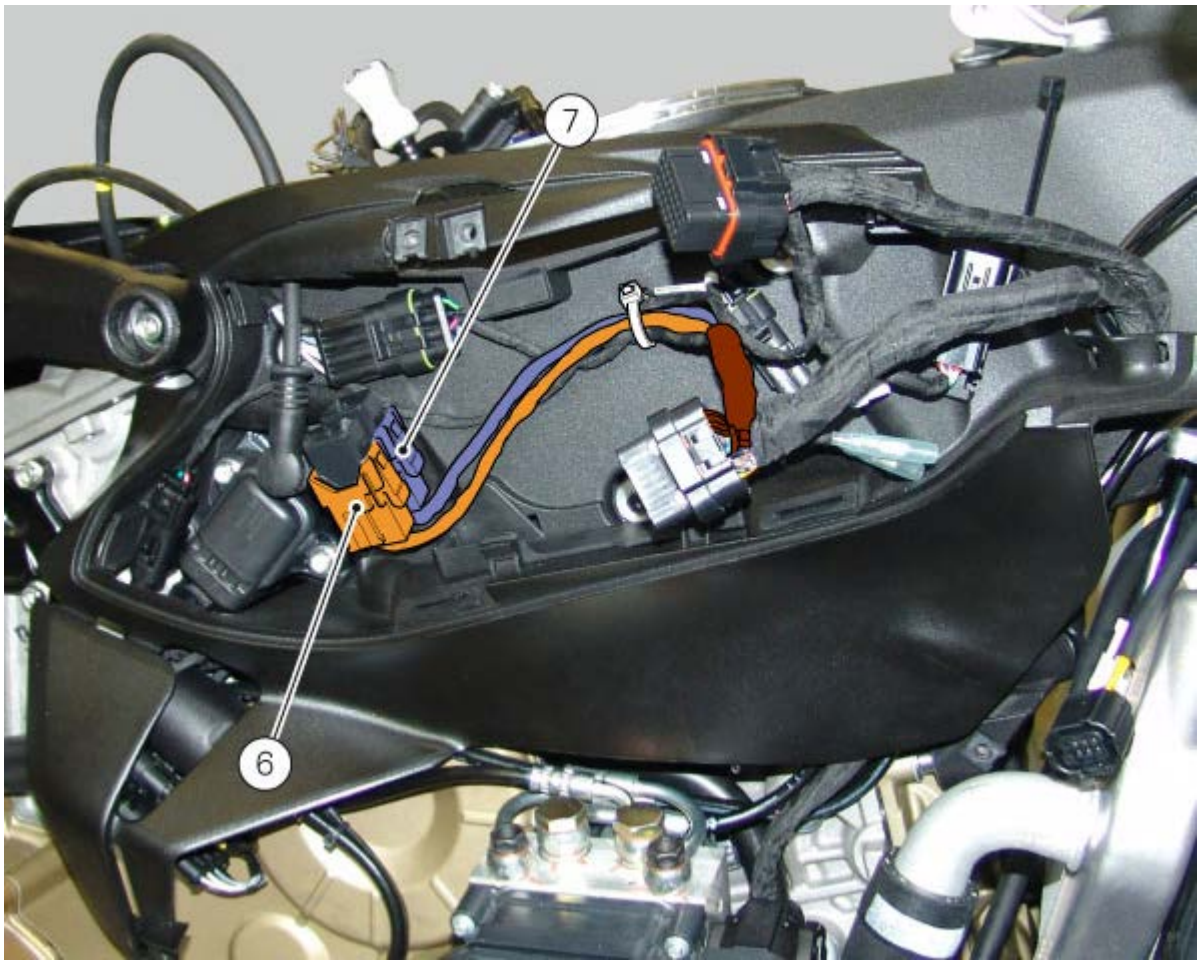


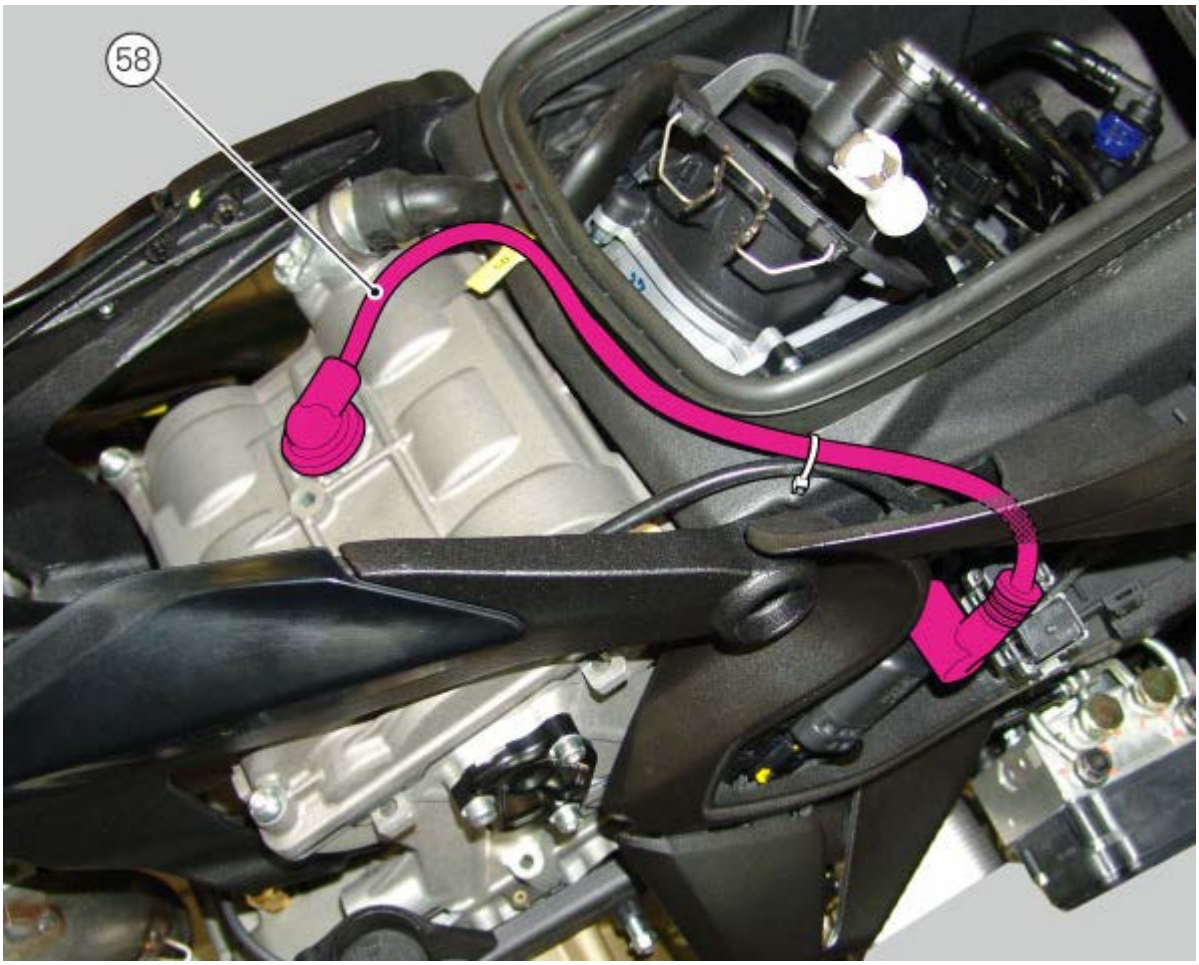
Tavola B – 11



http://www.ducati-manuals.com
no. 140312

Tavola C

Tavola C – 12



http://www.ducati-manuals.com
no. 140312

Tavola D

Tavola D – 13

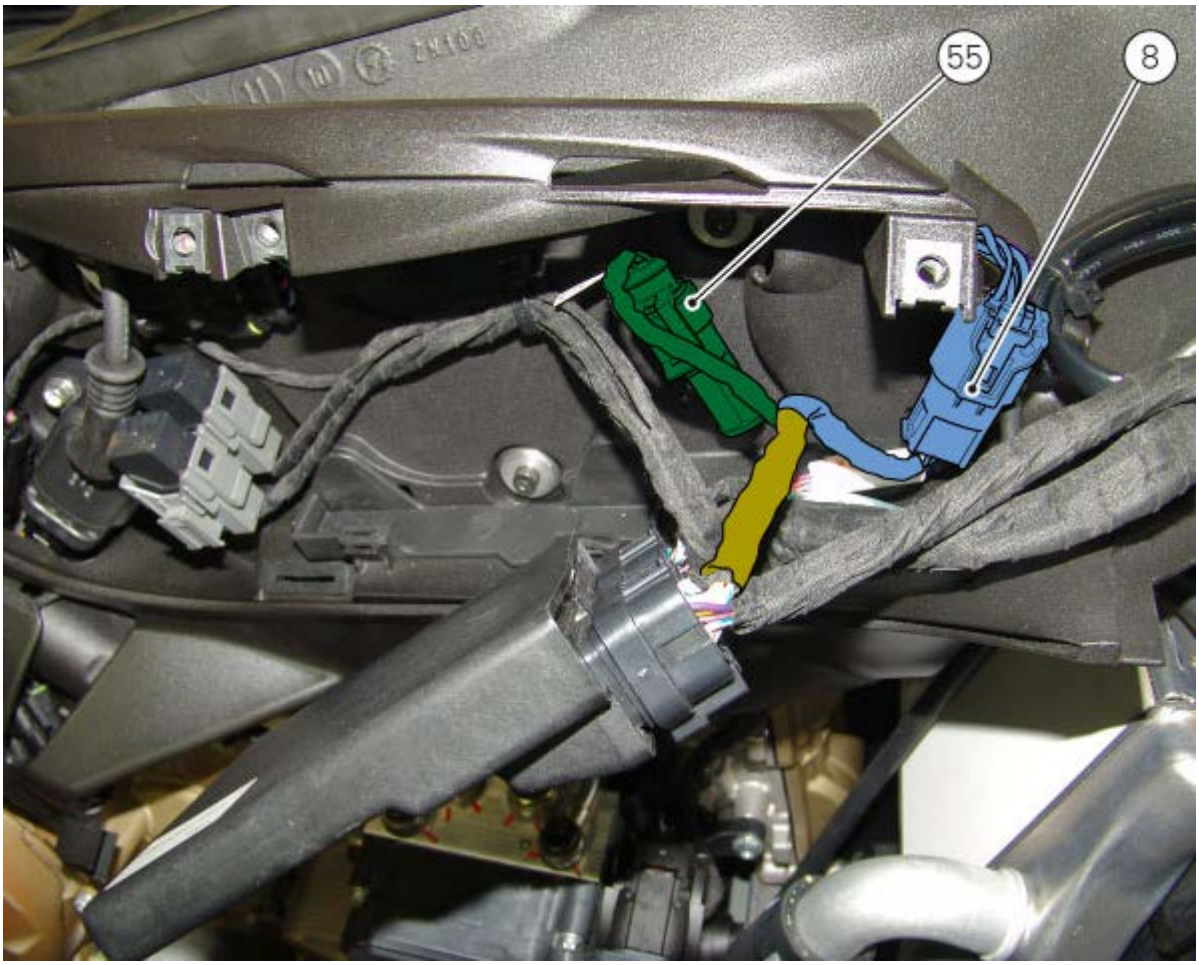


Tavola D – 14

http://www.ducati-manuals.com
no. 140312





Tavola D – 15

http://www.ducati-manuals.com
no. 140312

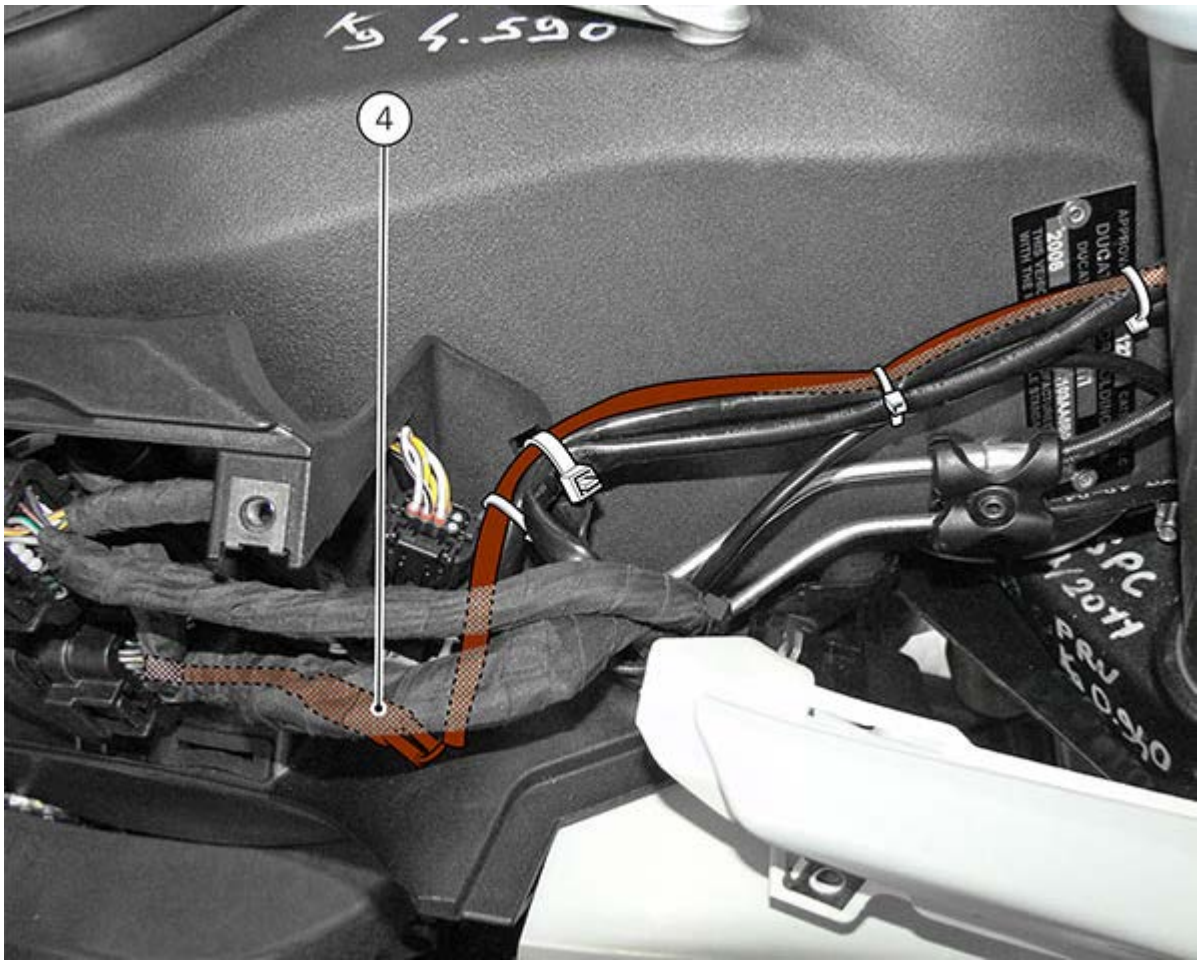




Tavola D – 16

http://www.ducati-manuals.com
no. 140312





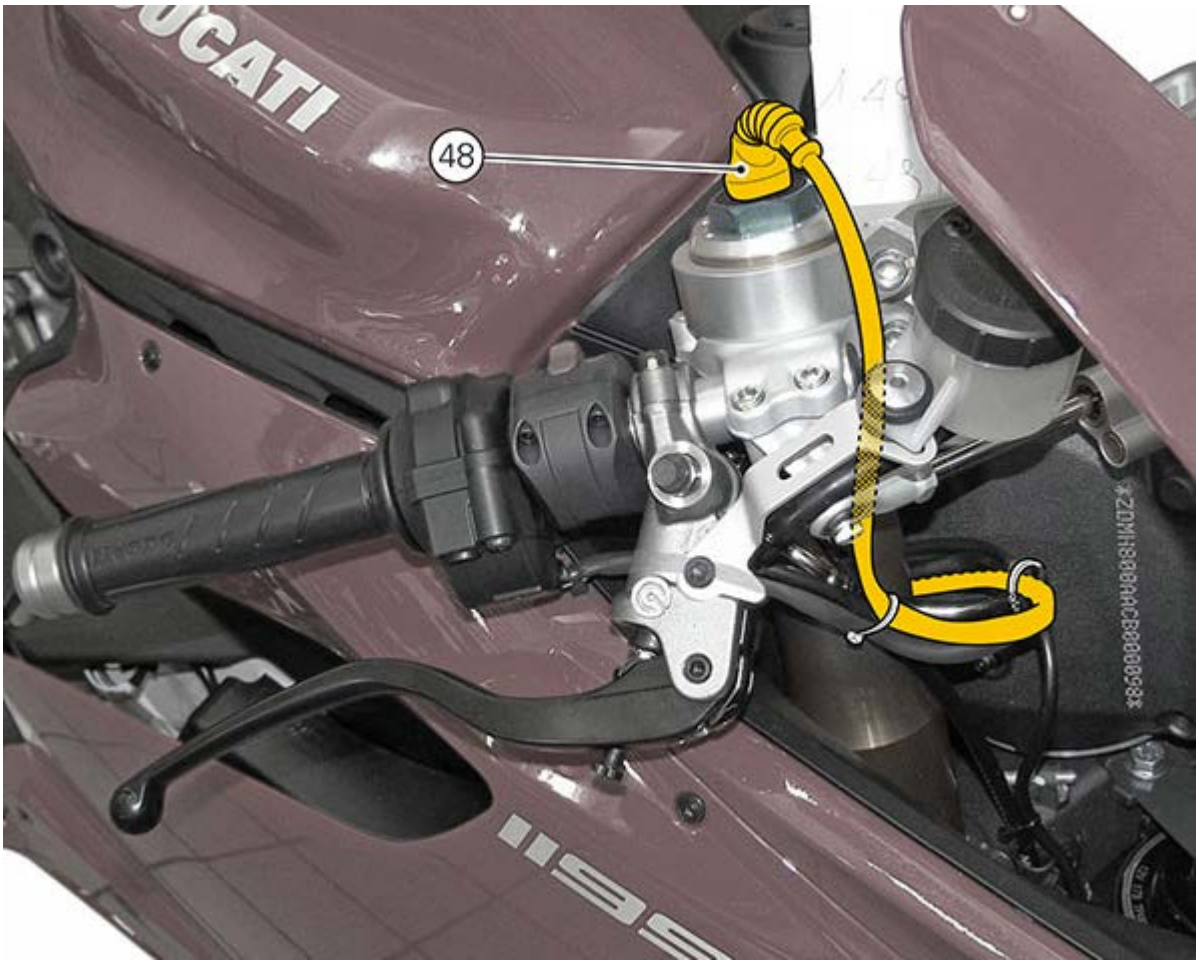
http://www.ducati-manuals.com
no. 140312

Tavola E

Tavola E – 17



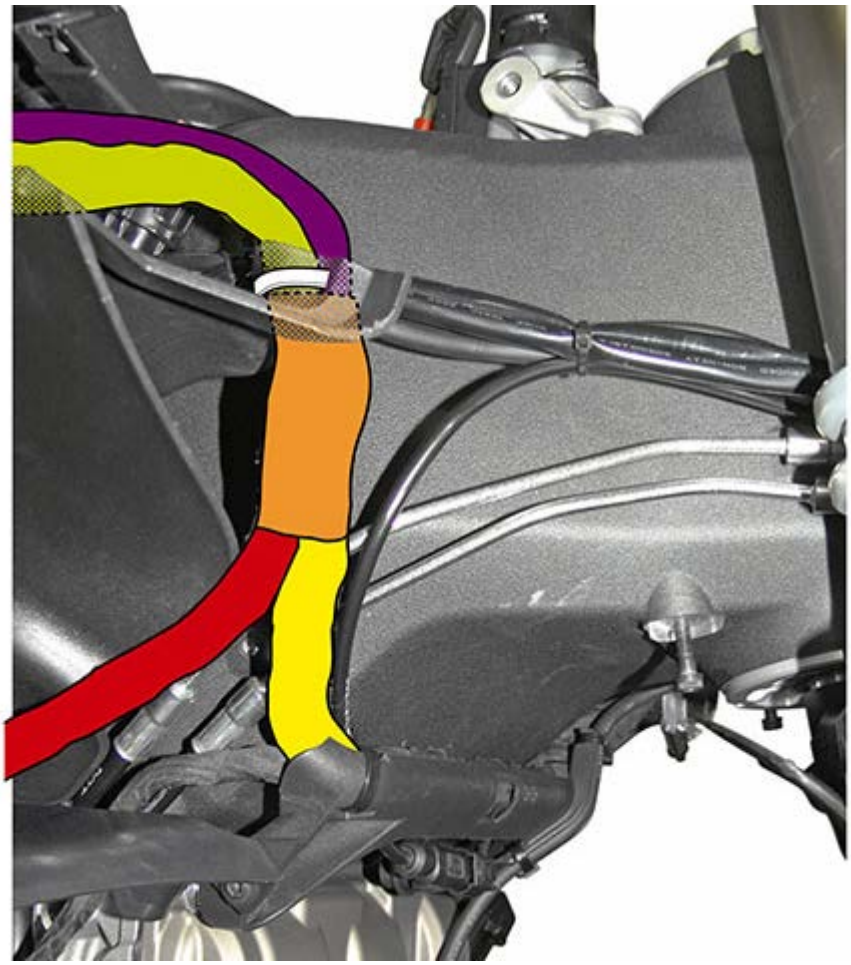
http://www.ducati-manuals.com
no. 140312



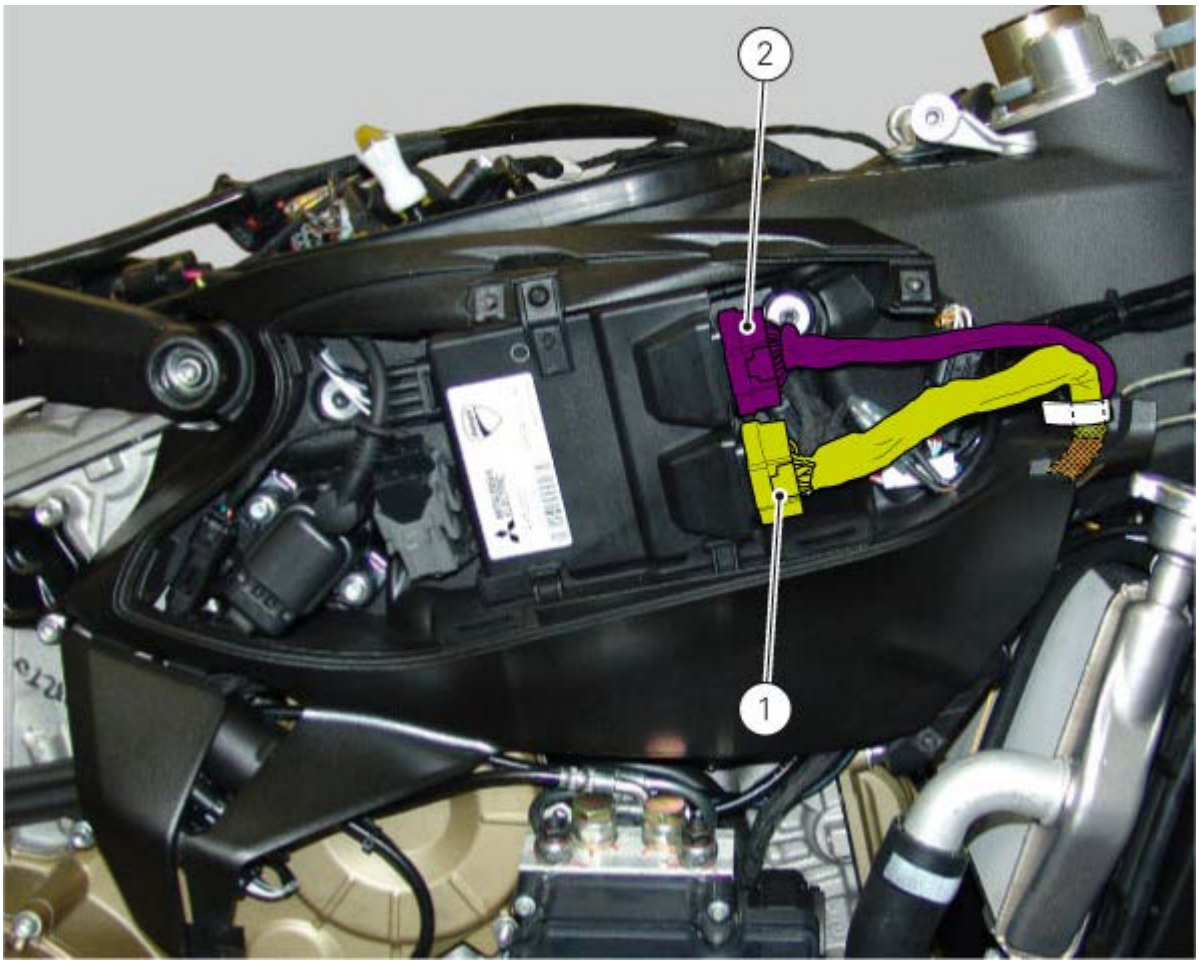
http://www.ducati-manuals.com
no. 140312

Tavola F

Tavola F – 18



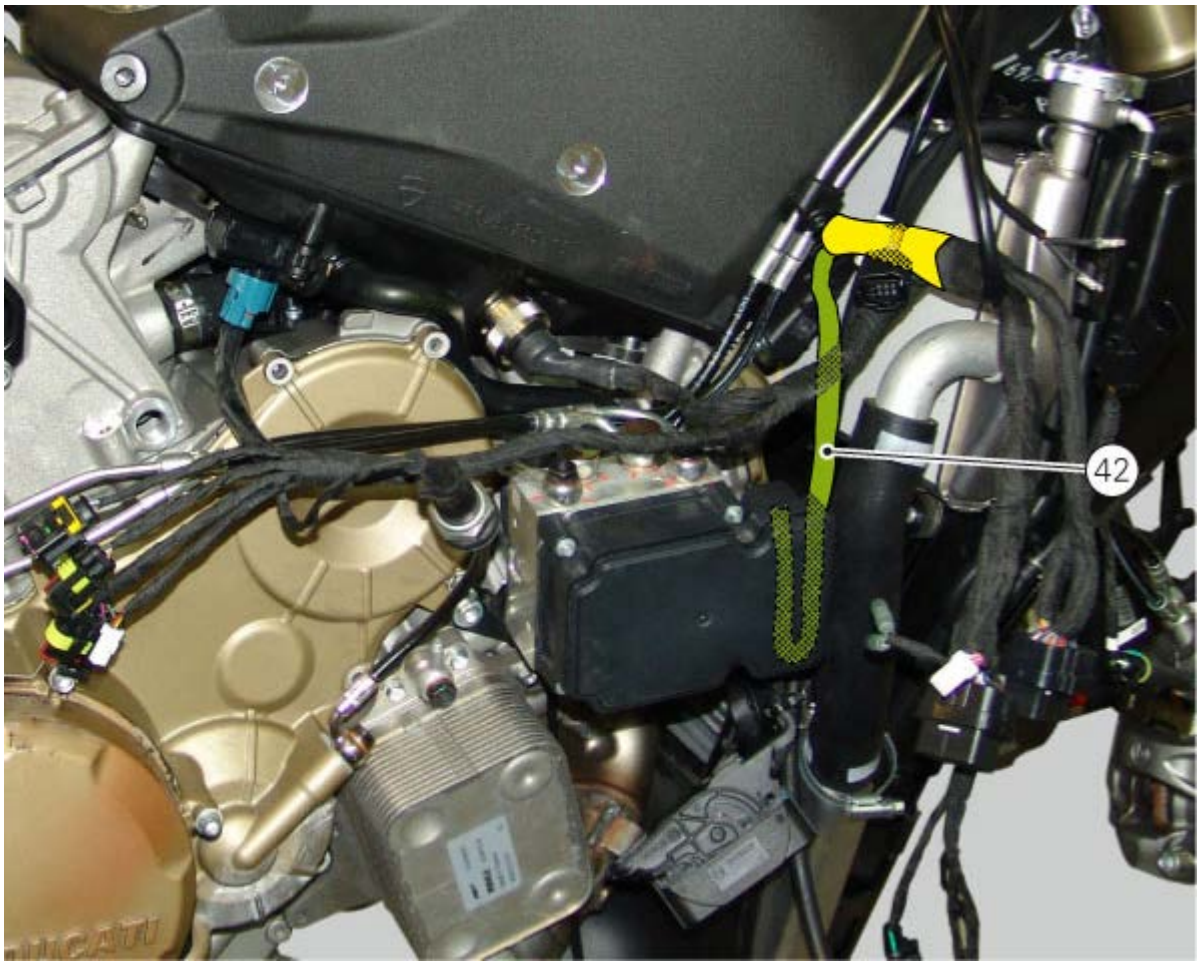
http://www.ducati-manuals.com
no. 140312



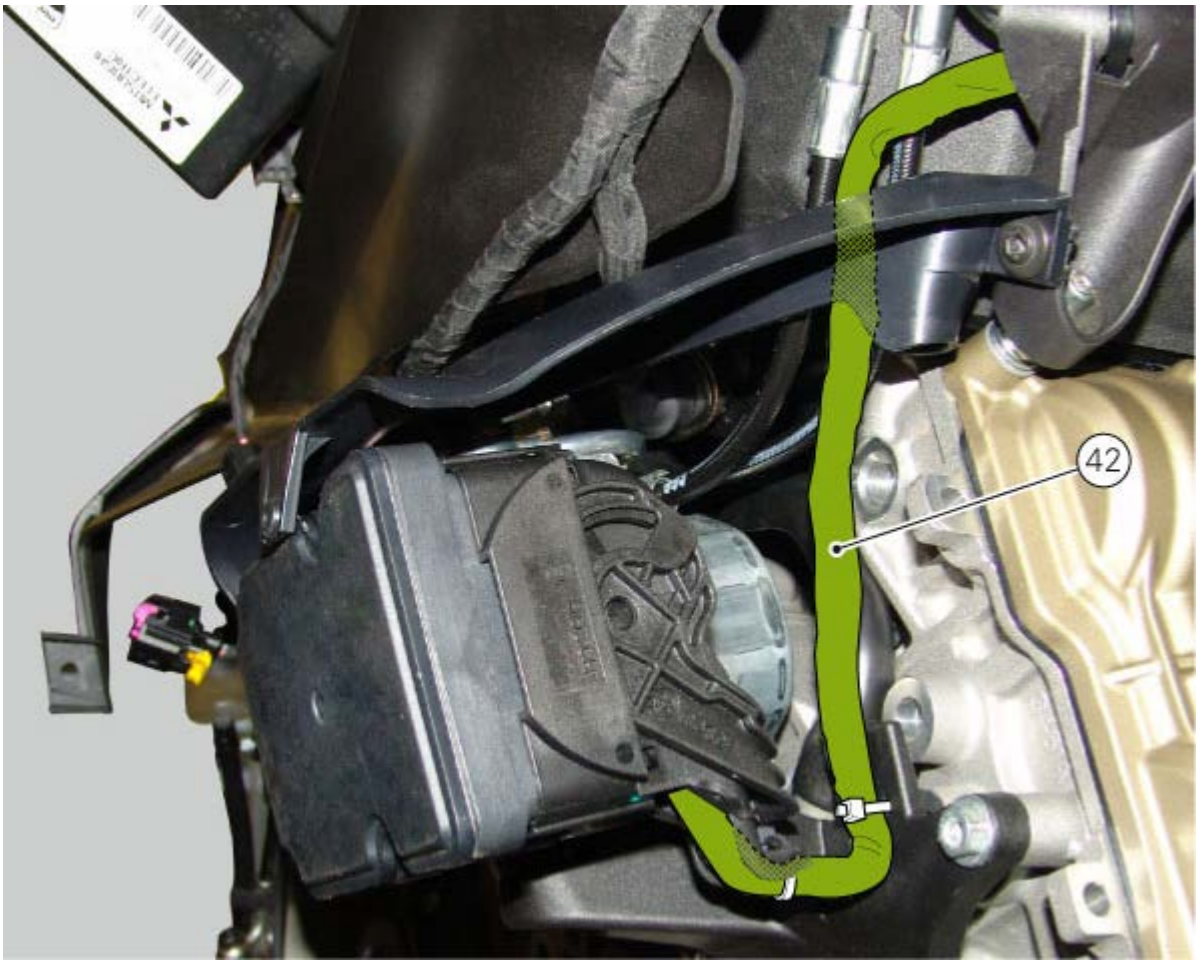
http://www.ducati-manuals.com
no. 140312

Tavola G

Tavola G – 19



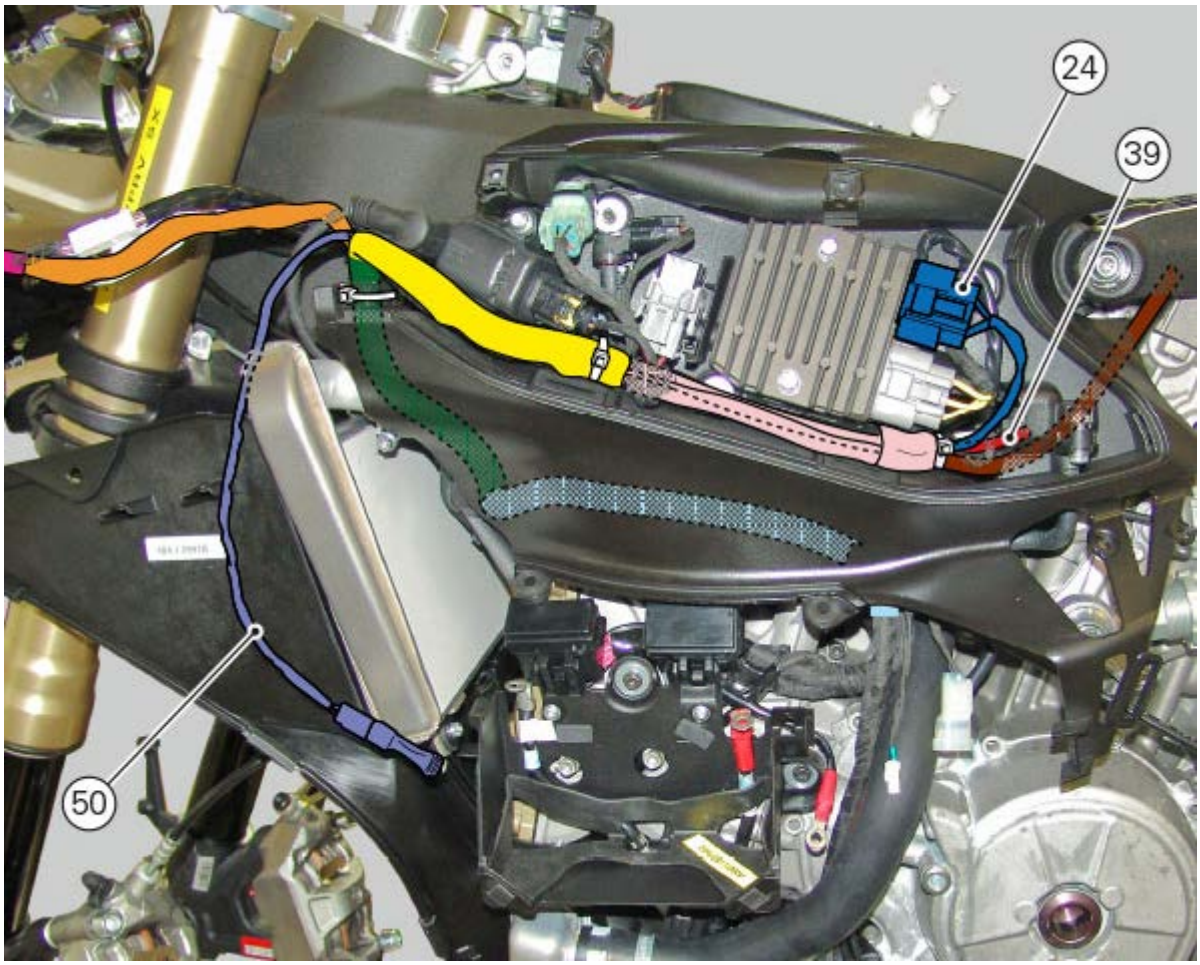
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Tavola H

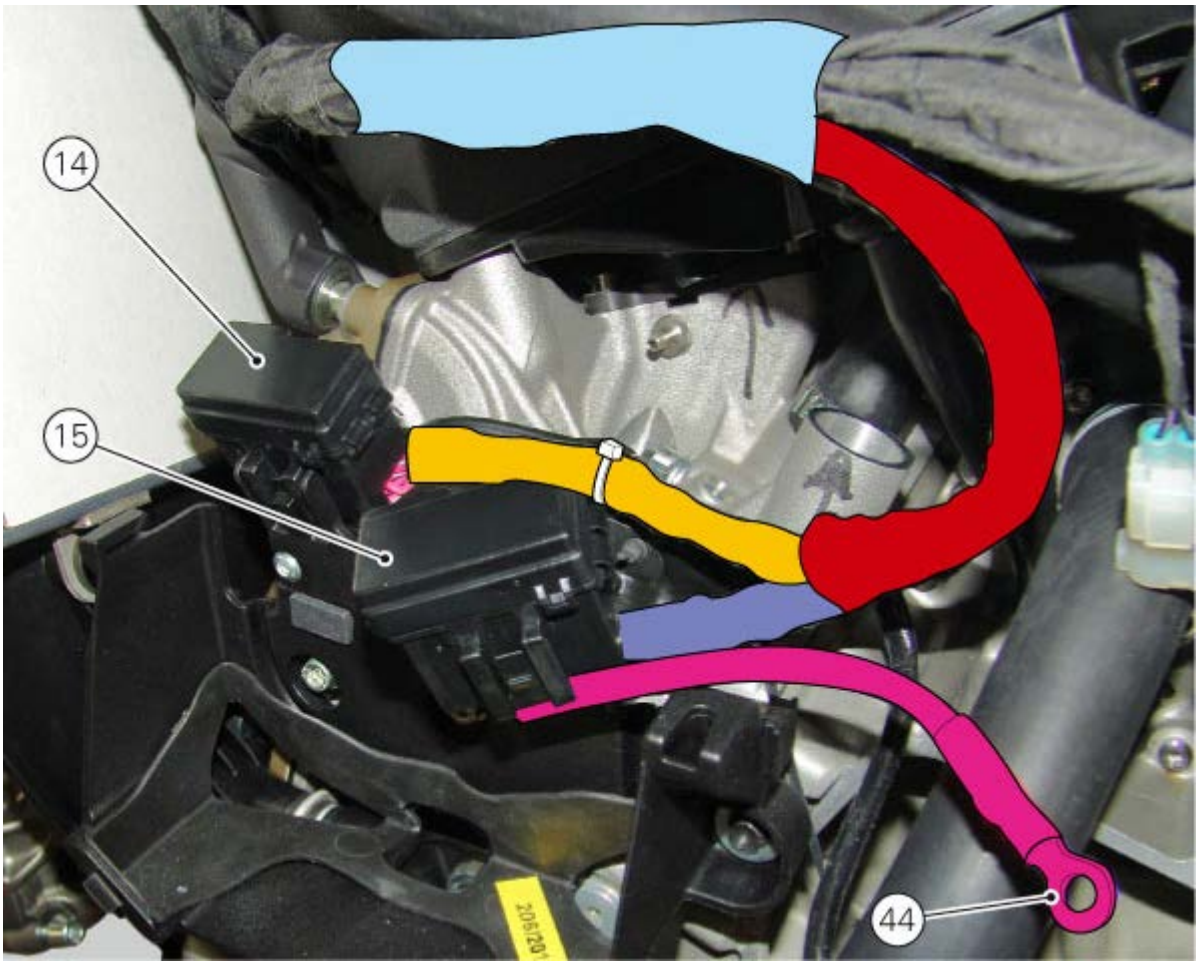
Tavola H – 20



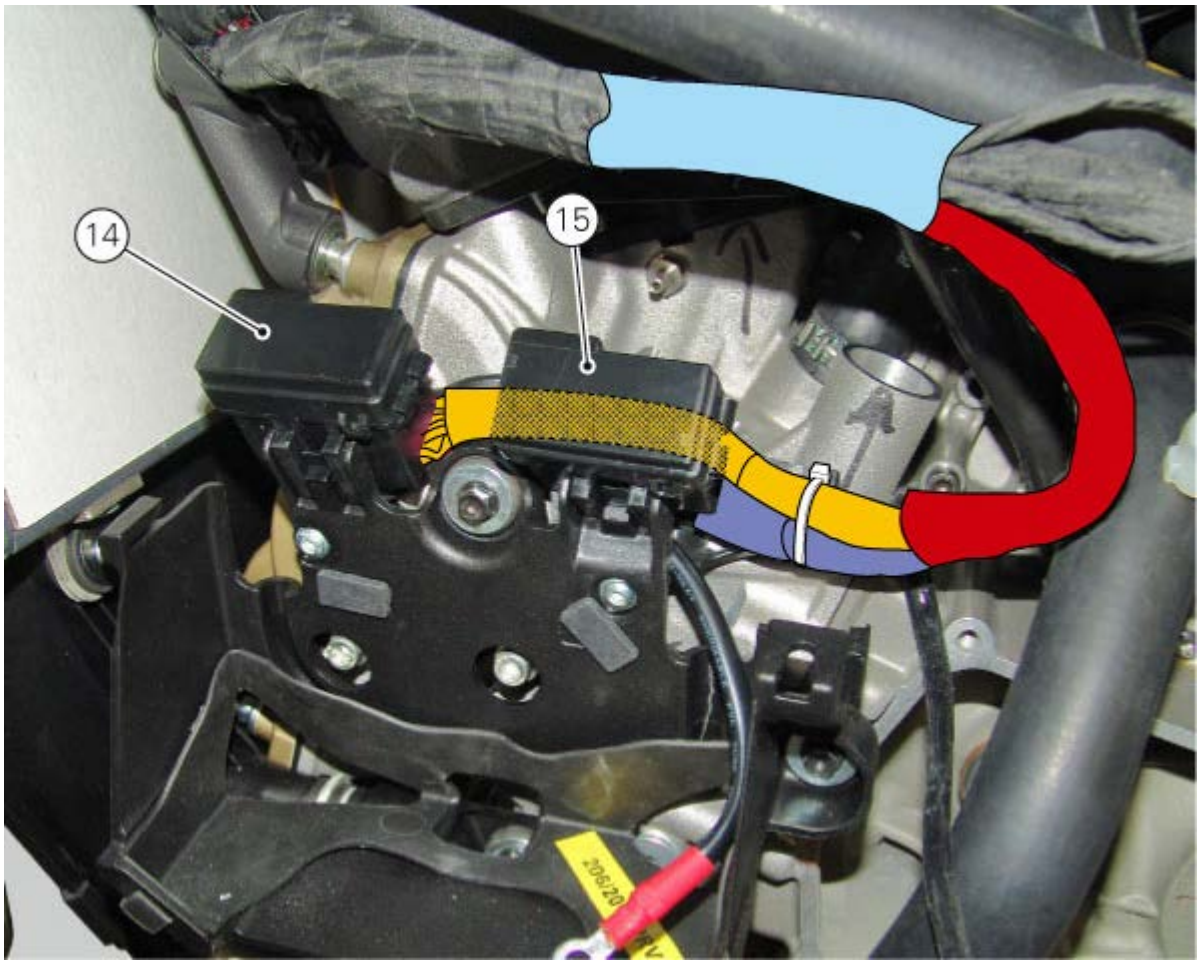
http://www.ducati-manuals.com
no. 140312

Tavola I

Tavola I – 21



http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Table J

Table J - 22

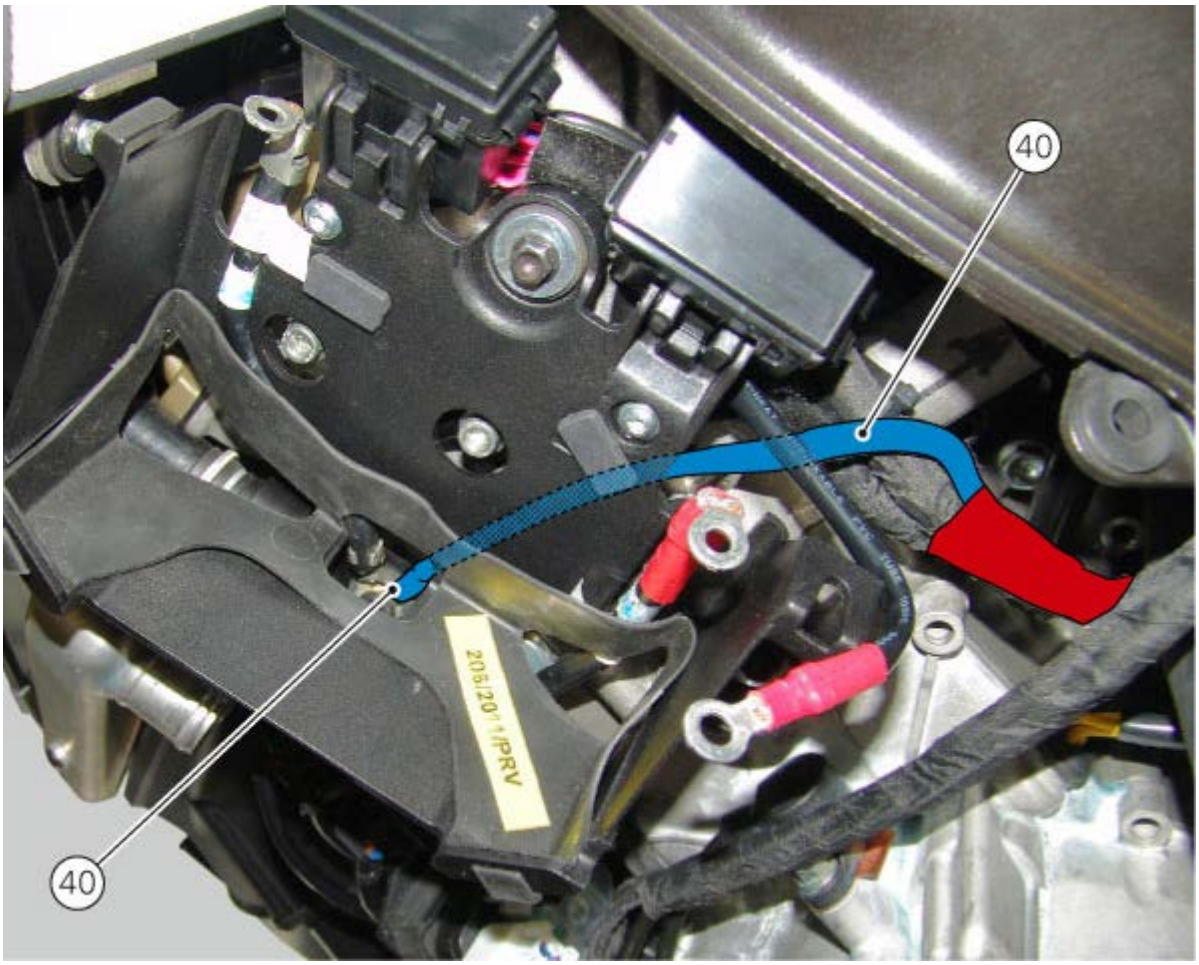


Table J - 23

http://www.ducati-manuals.com
no. 140312



Table J - 24

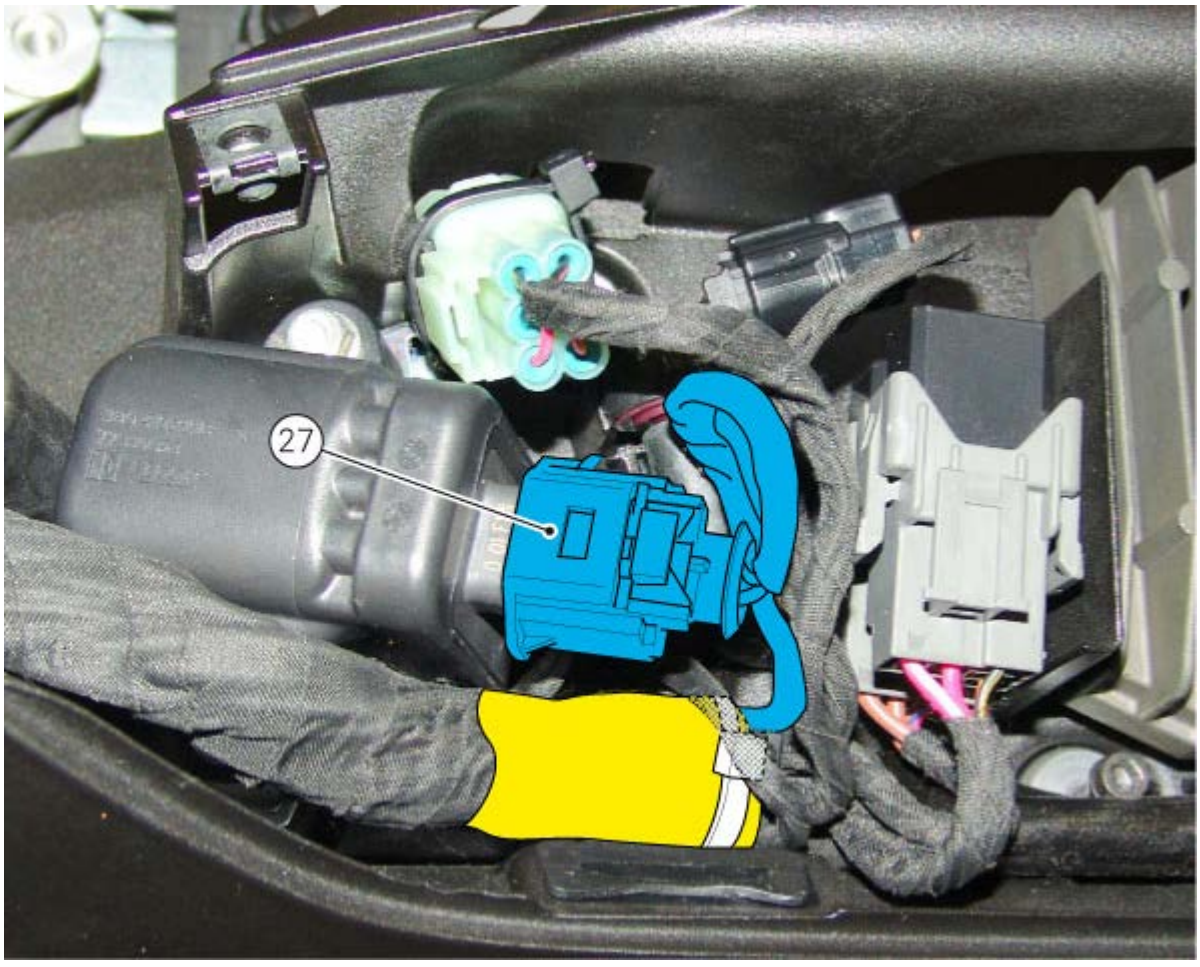


Table J - 25

http://www.ducati-manuals.com
no. 140312

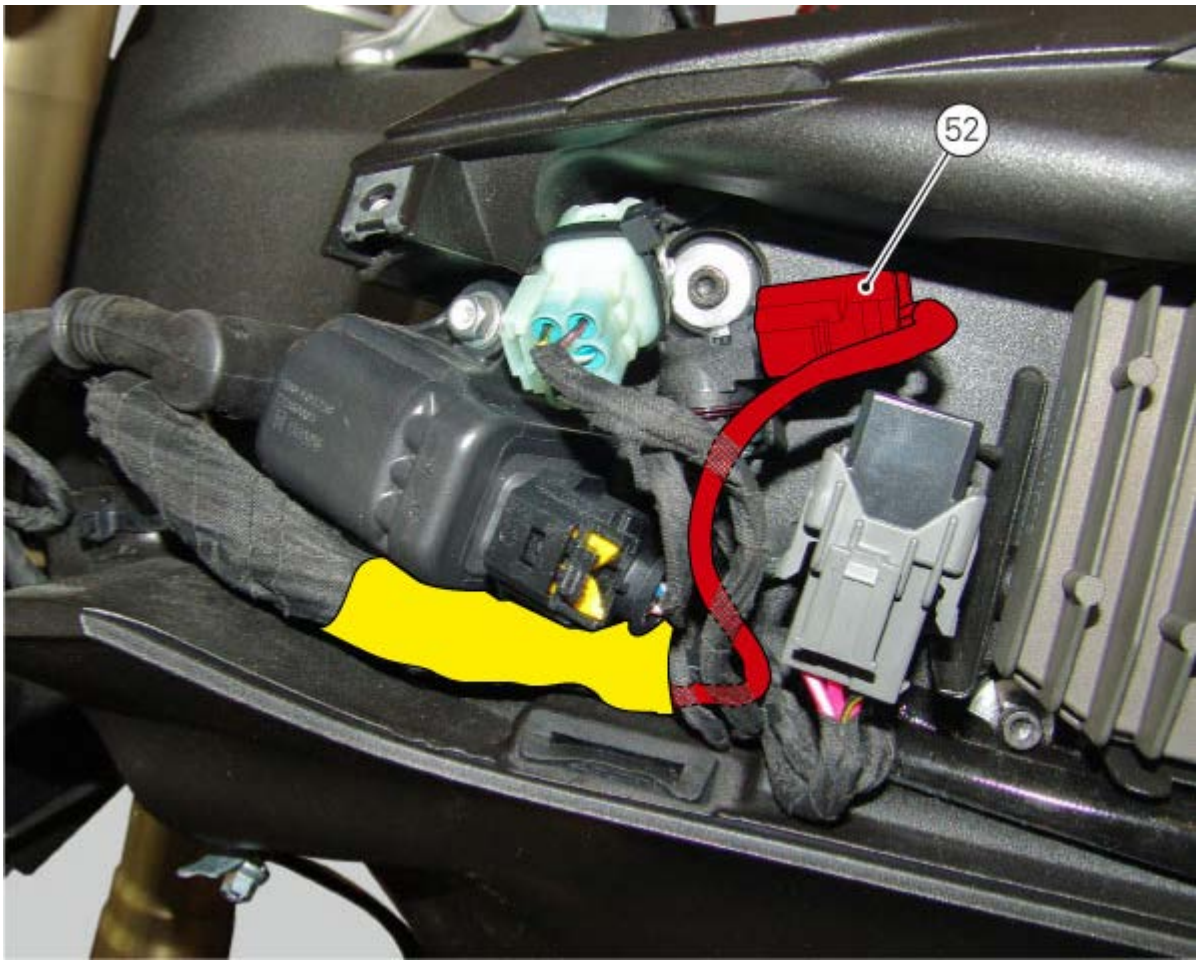


Table J - 26

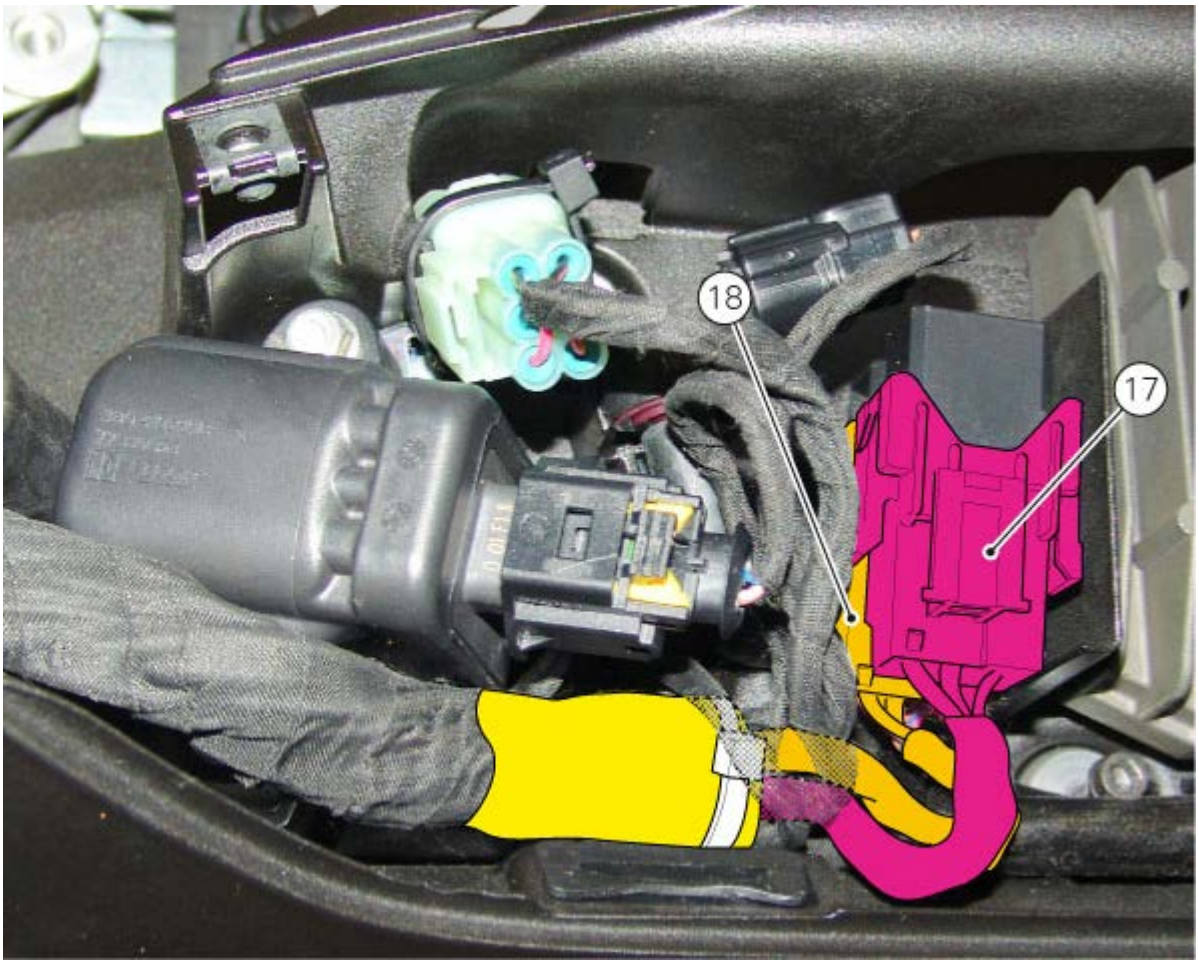


Table J - 27

http://www.ducati-manuals.com
no. 140312

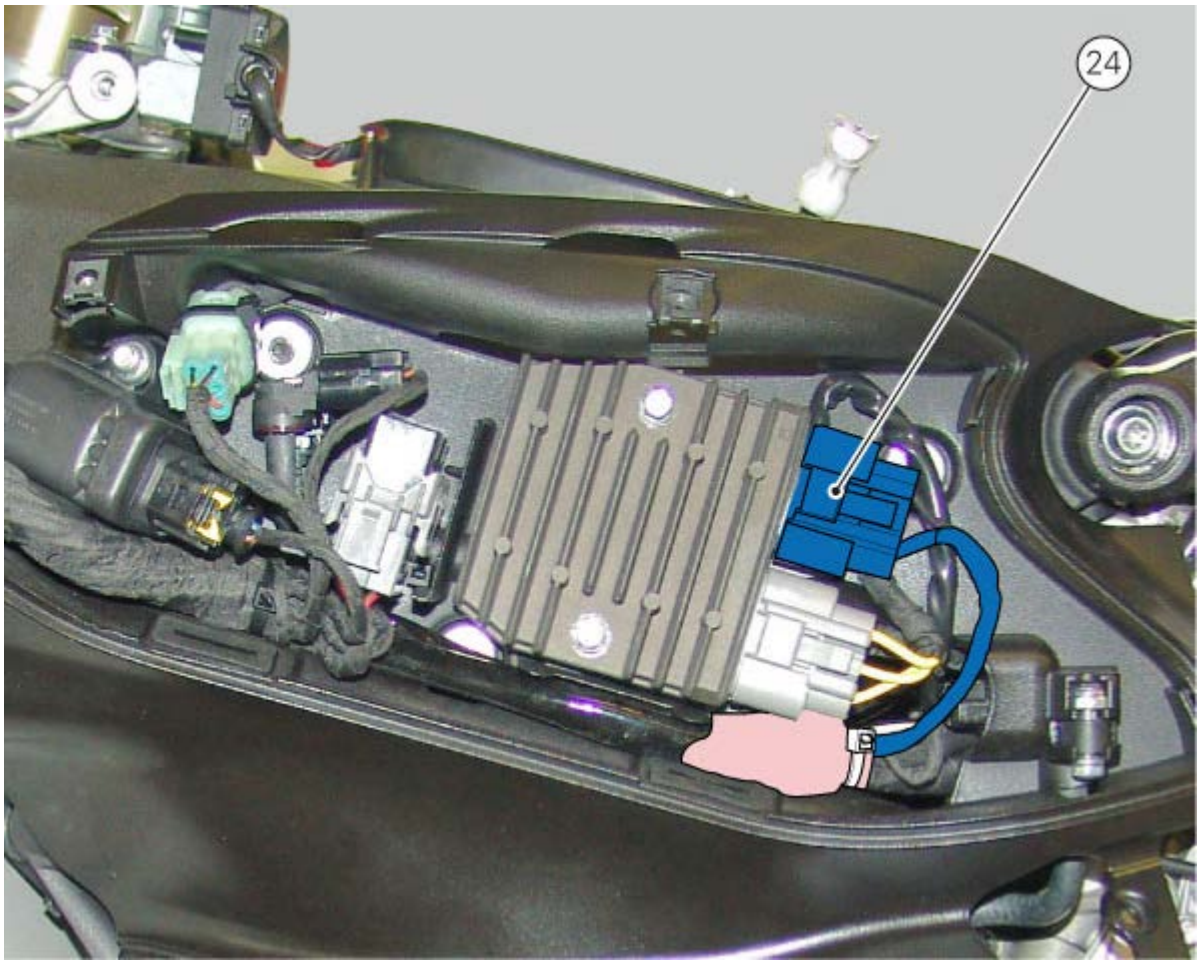
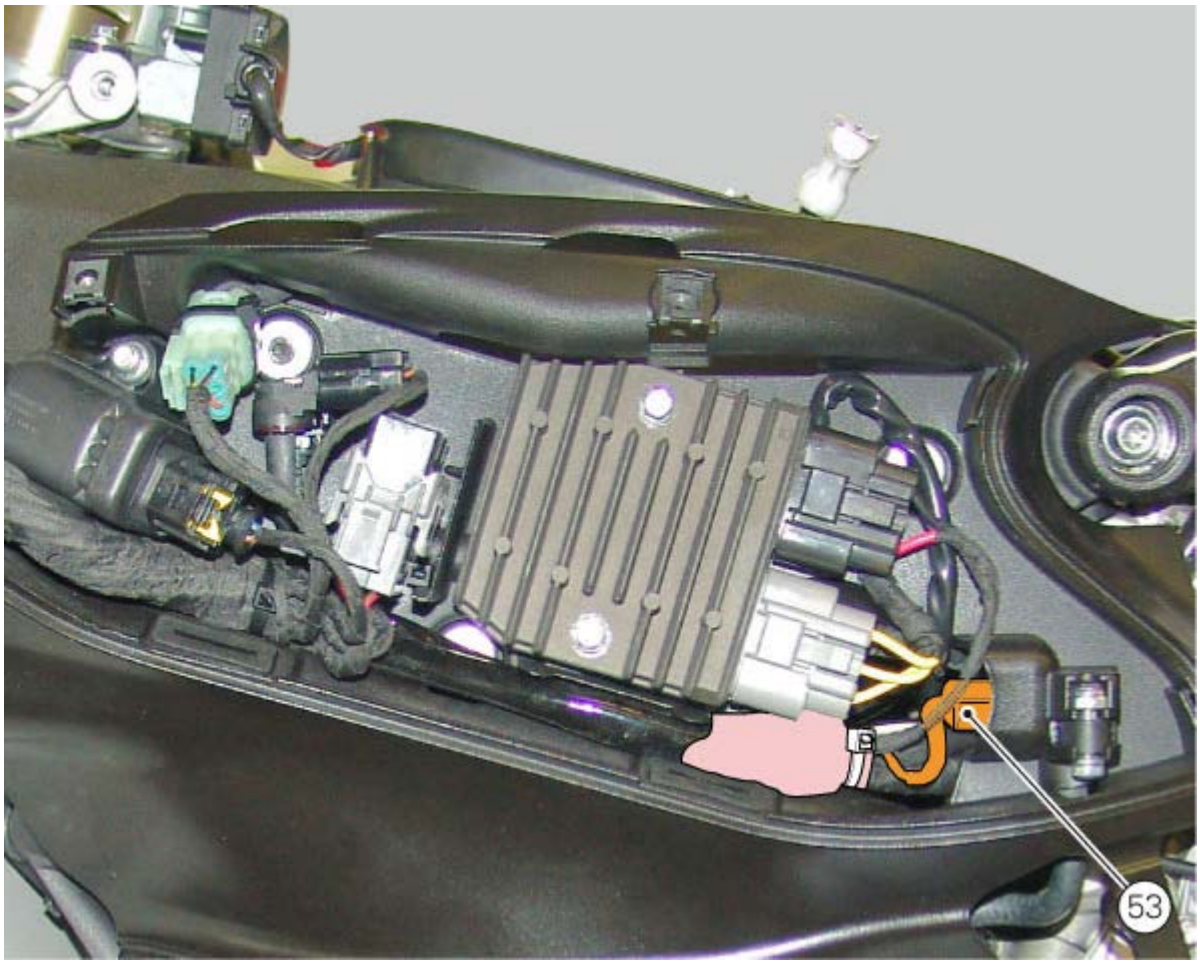


Table J - 28



http://www.ducati-manuals.com
no. 140312

Tavola K

Tavola K – 29



http://www.ducati-manuals.com
no. 140312

Tavola L

Tavola L – 30

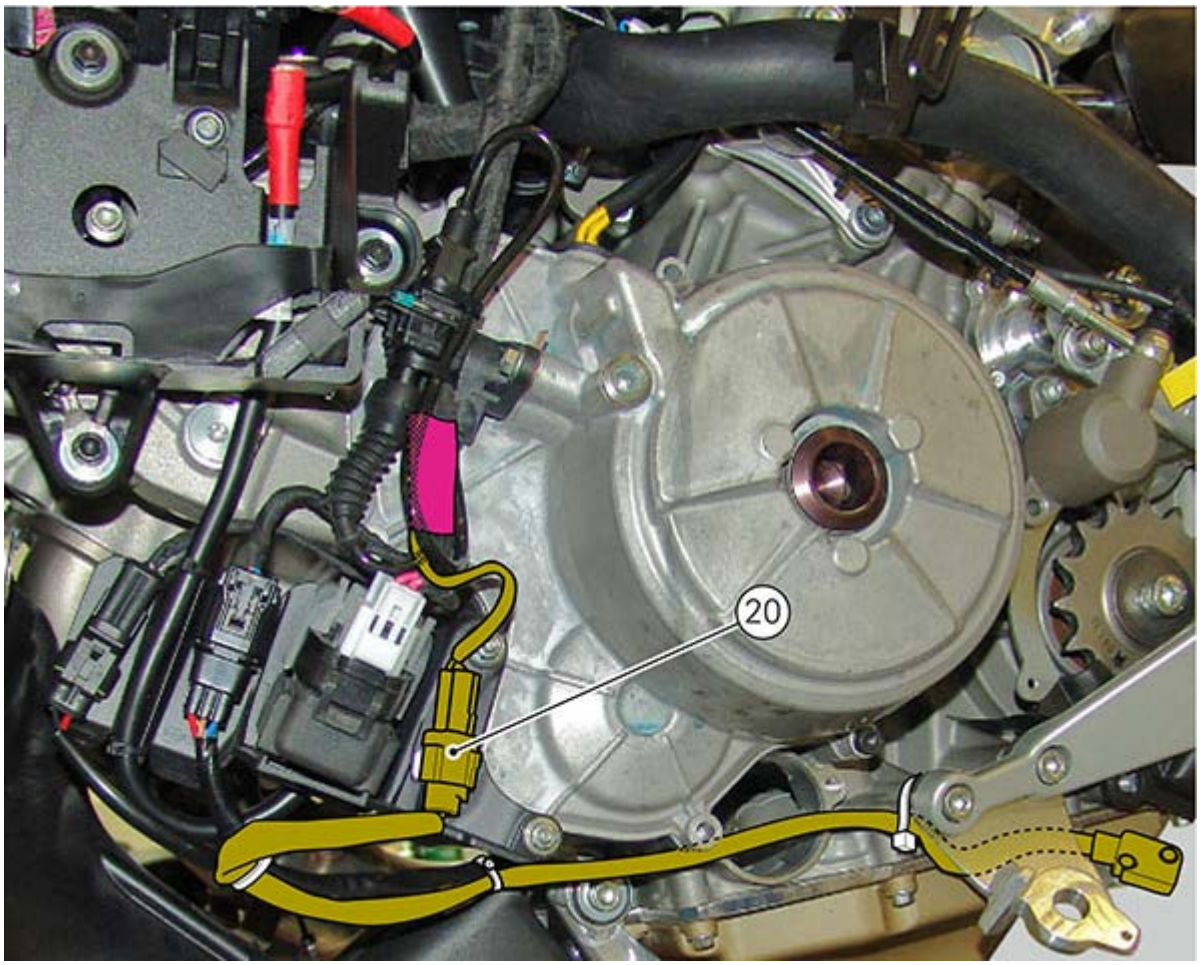
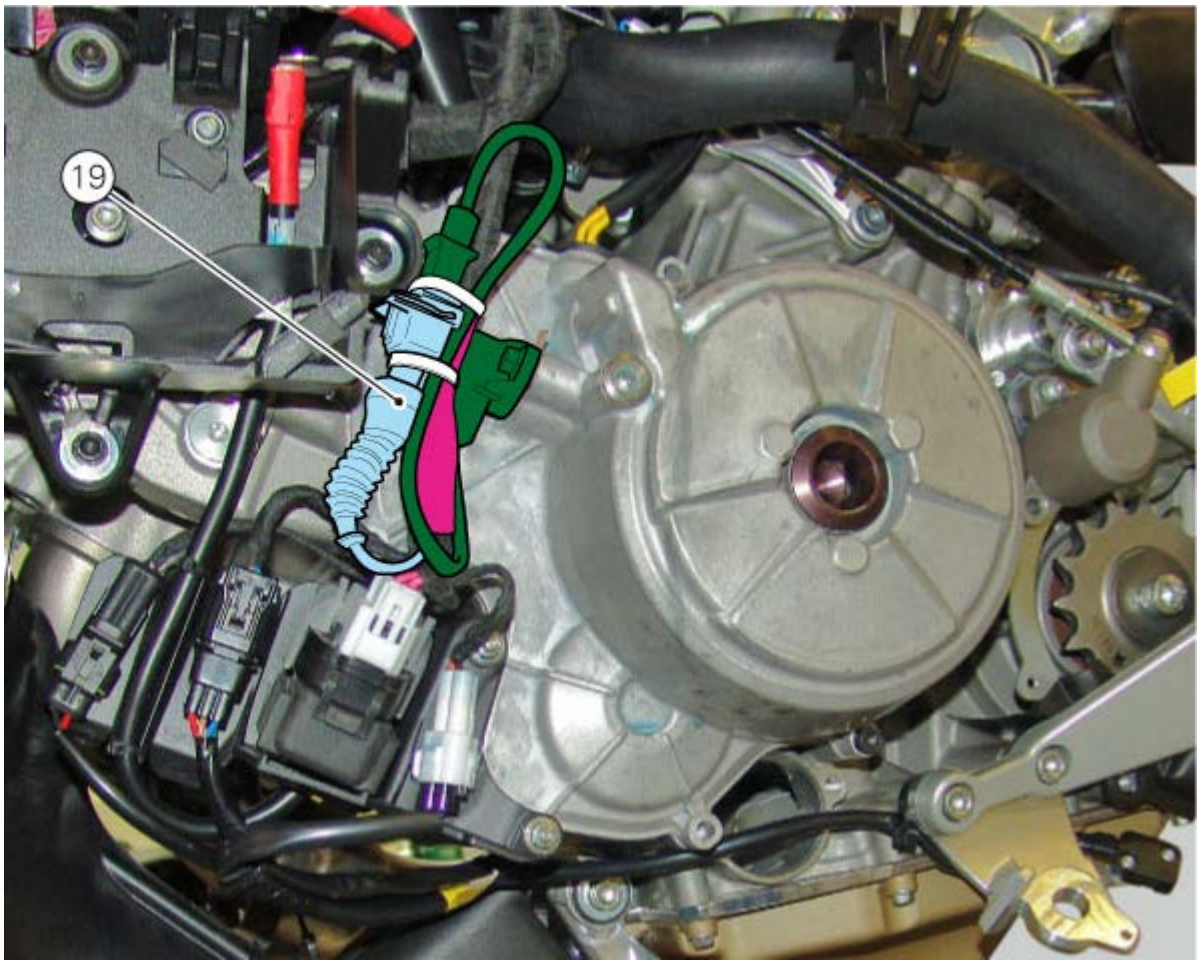


Tavola L – 31

http://www.ducati-manuals.com
no. 140312



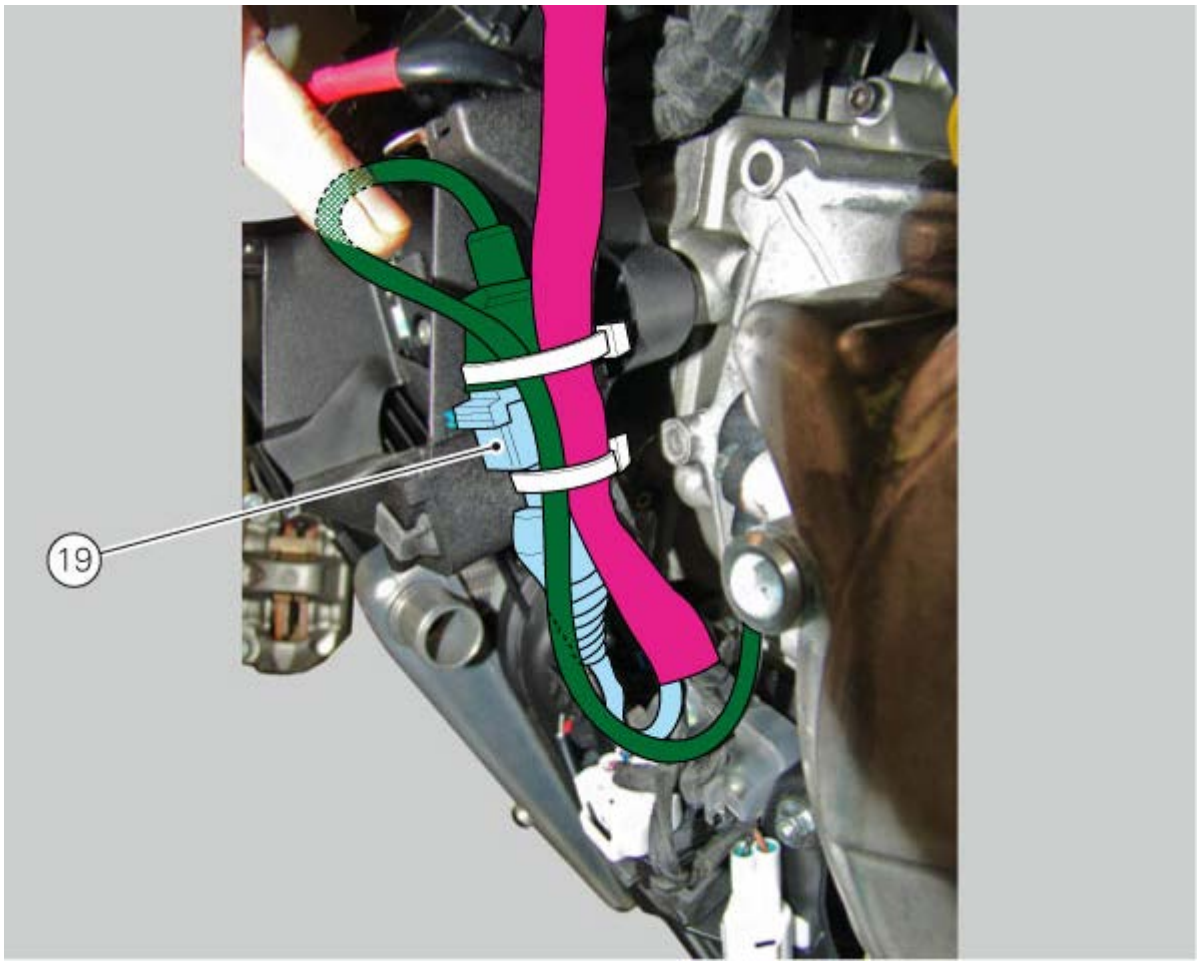


Tavola L – 32

http://www.ducati-manuals.com
no. 140312

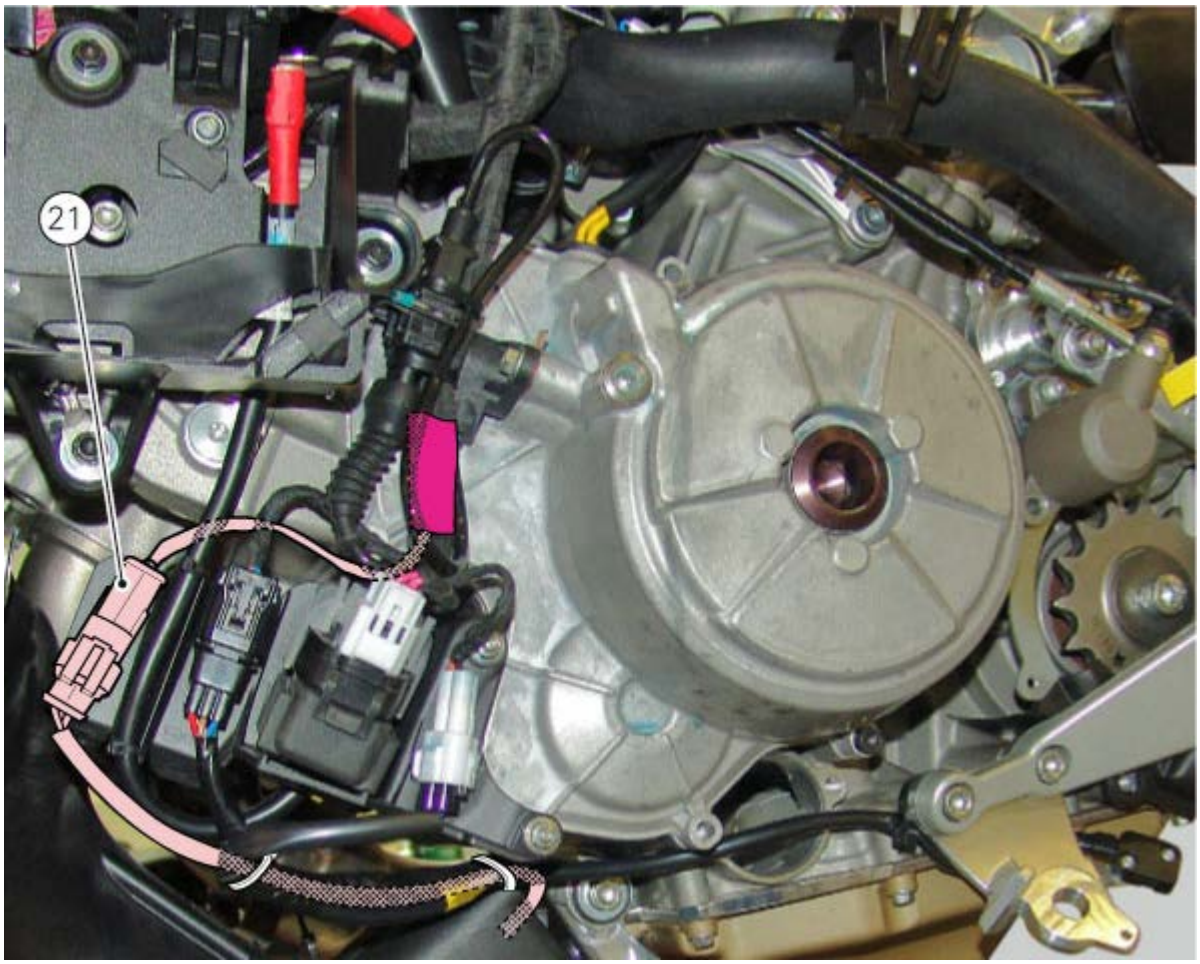


Tavola L – 33

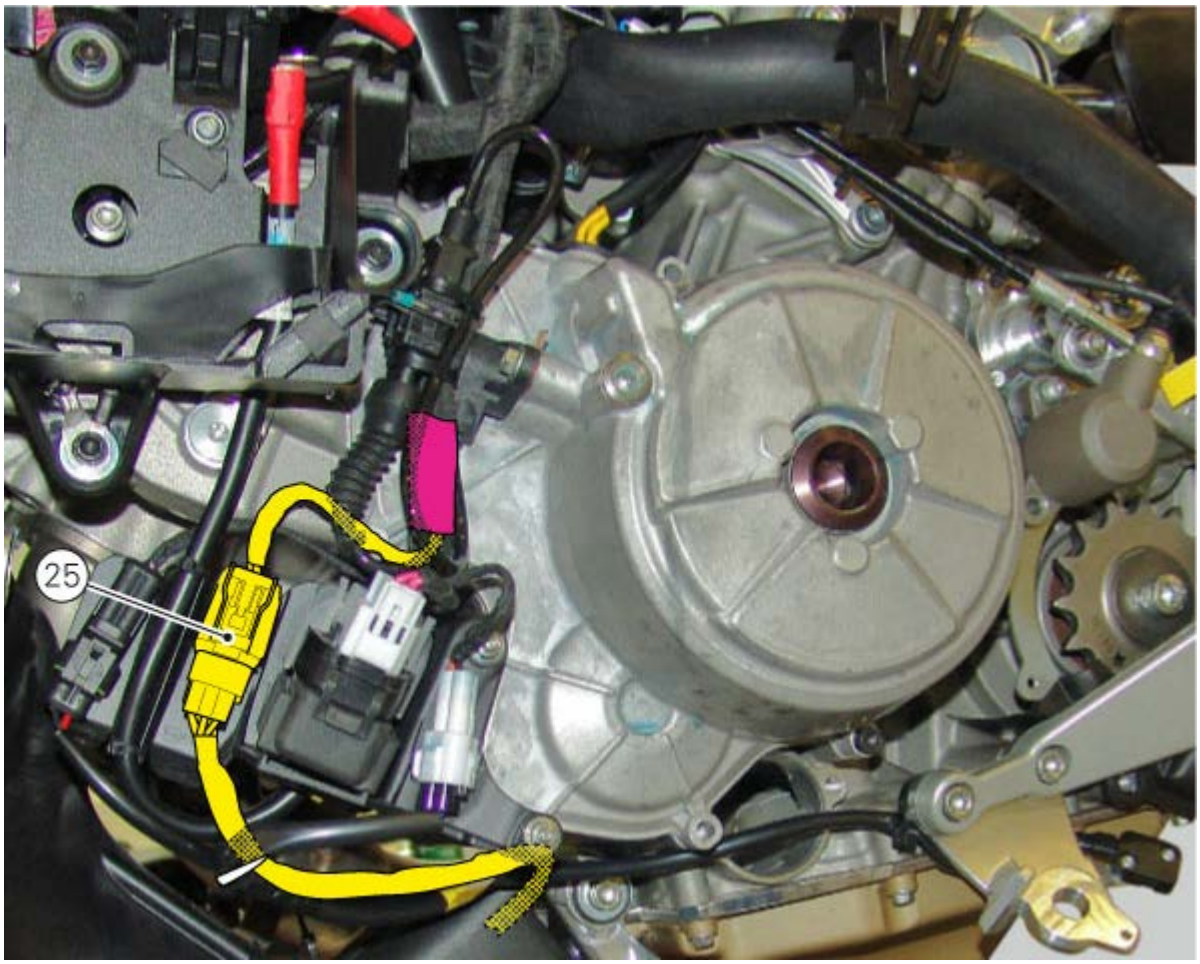


Tavola L – 34

http://www.ducati-manuals.com
no. 140312

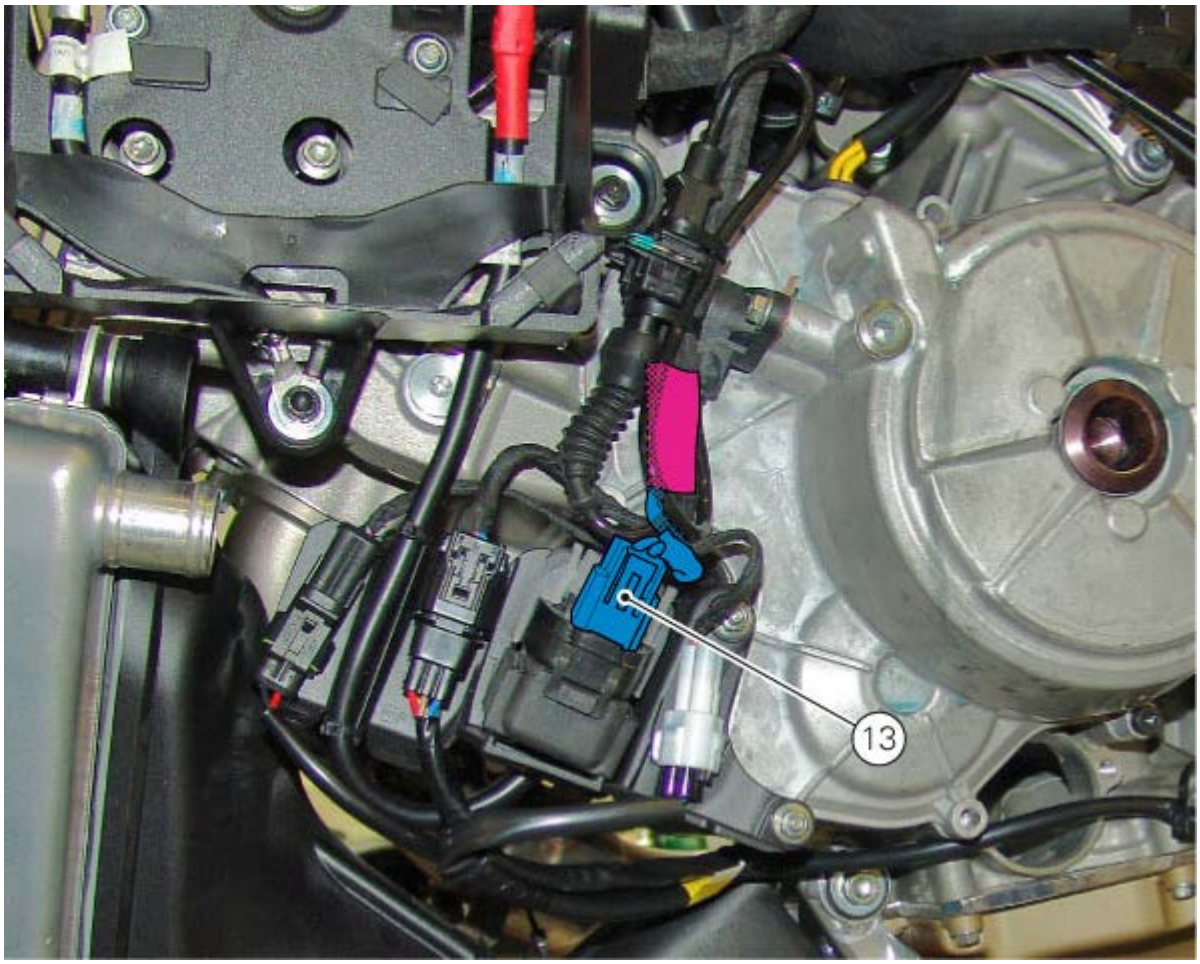


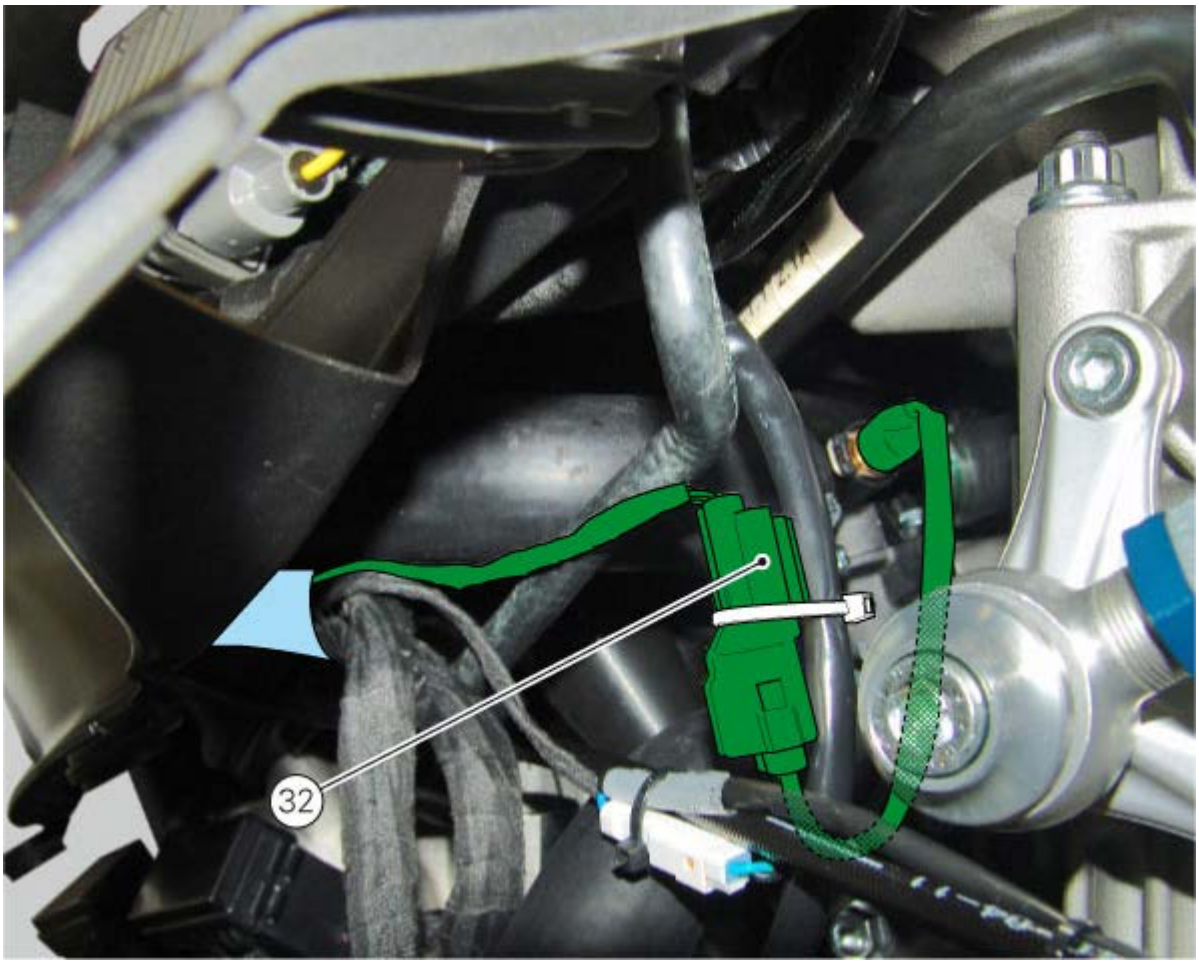
Tavola L – 35



http://www.ducati-manuals.com
no. 140312



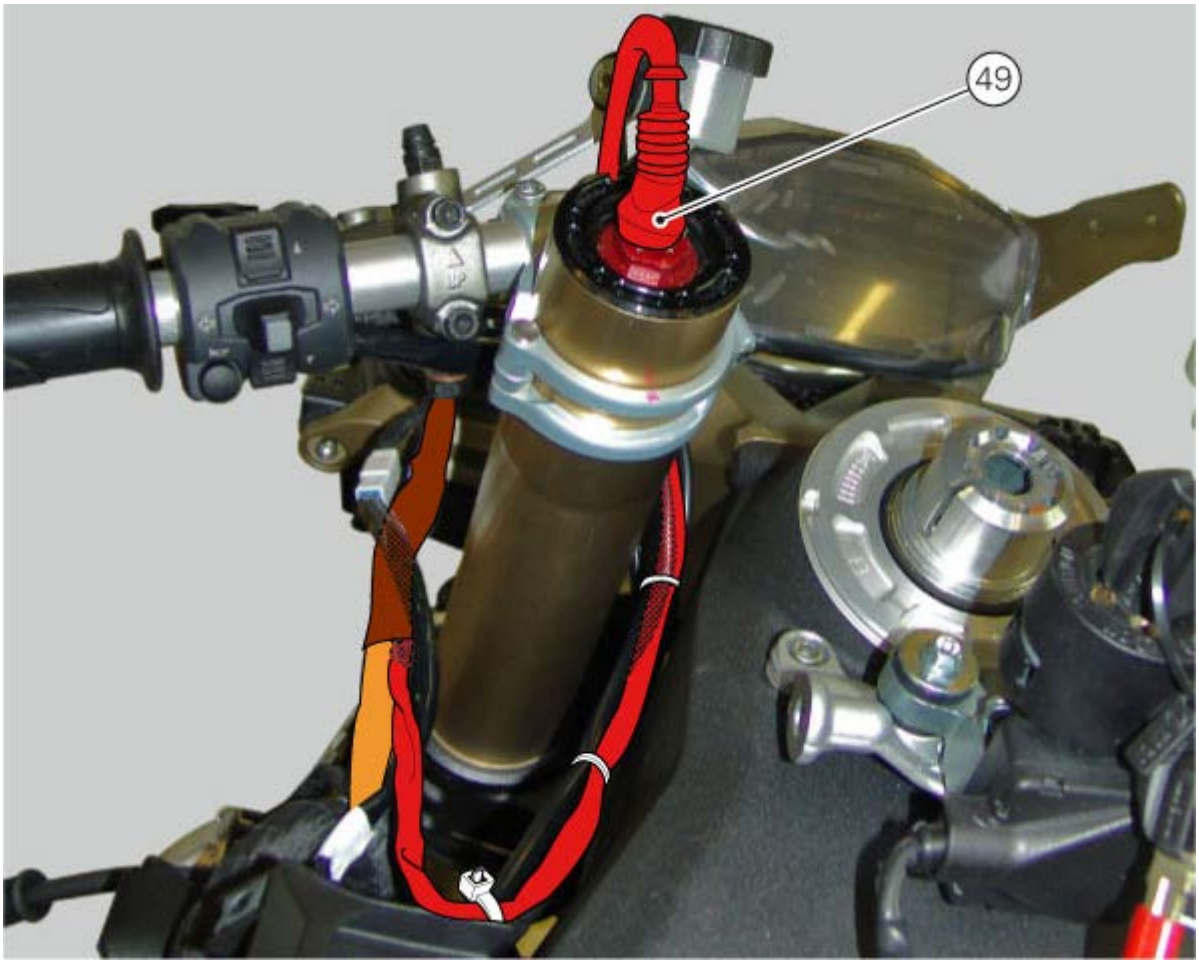
Tavola L – 36



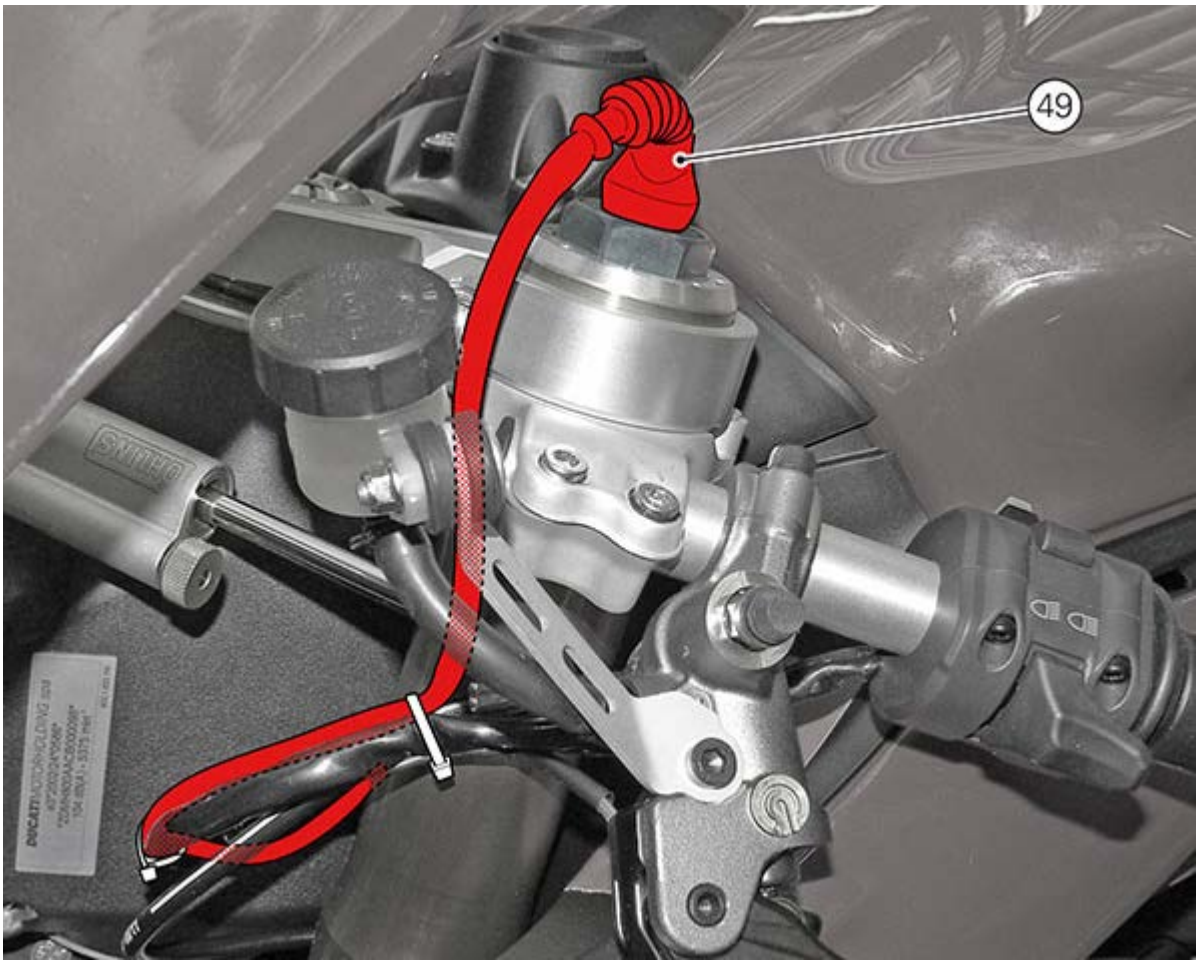
http://www.ducati-manuals.com
no. 140312

Tavola M

Tavola M – 37



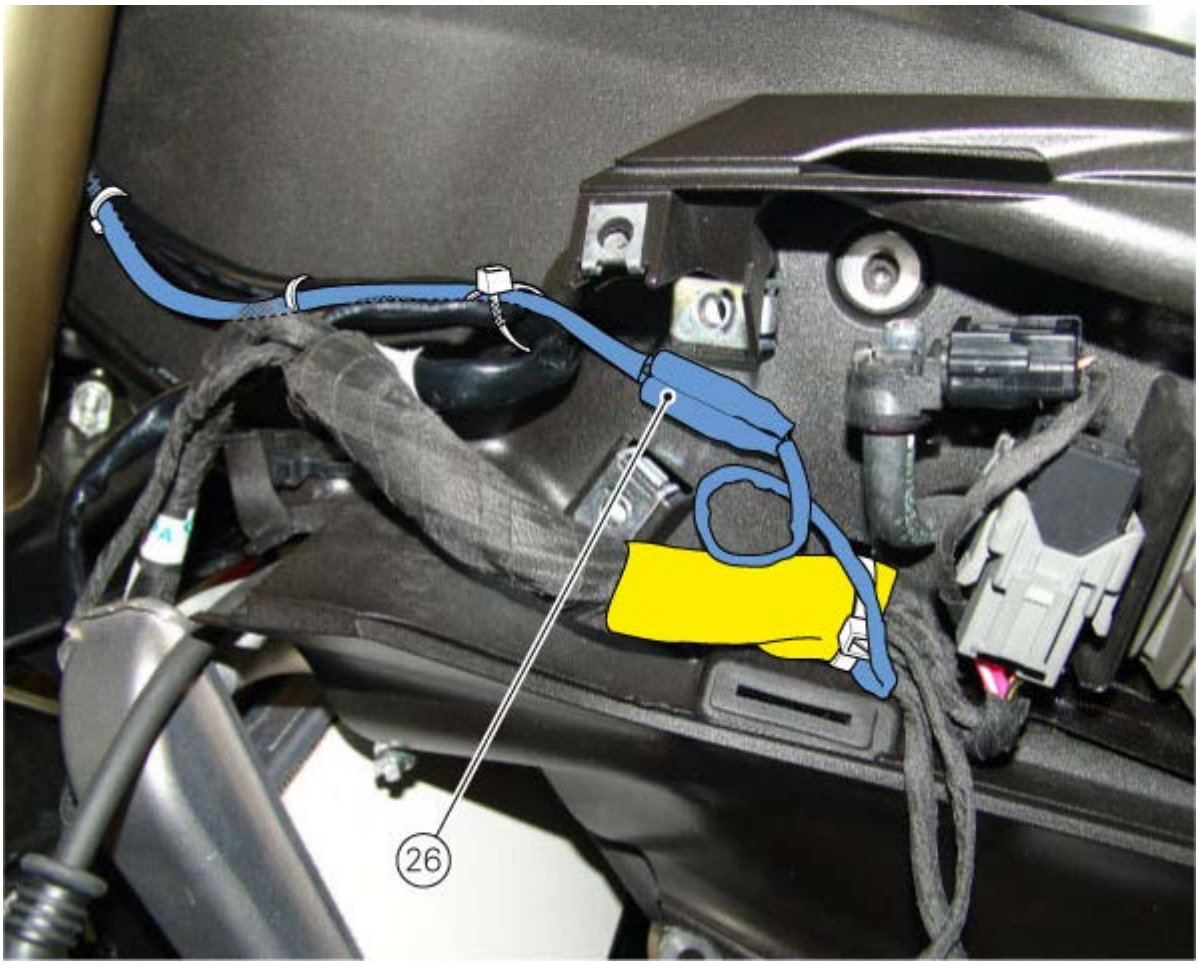
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Tavola N

Tavola N – 38



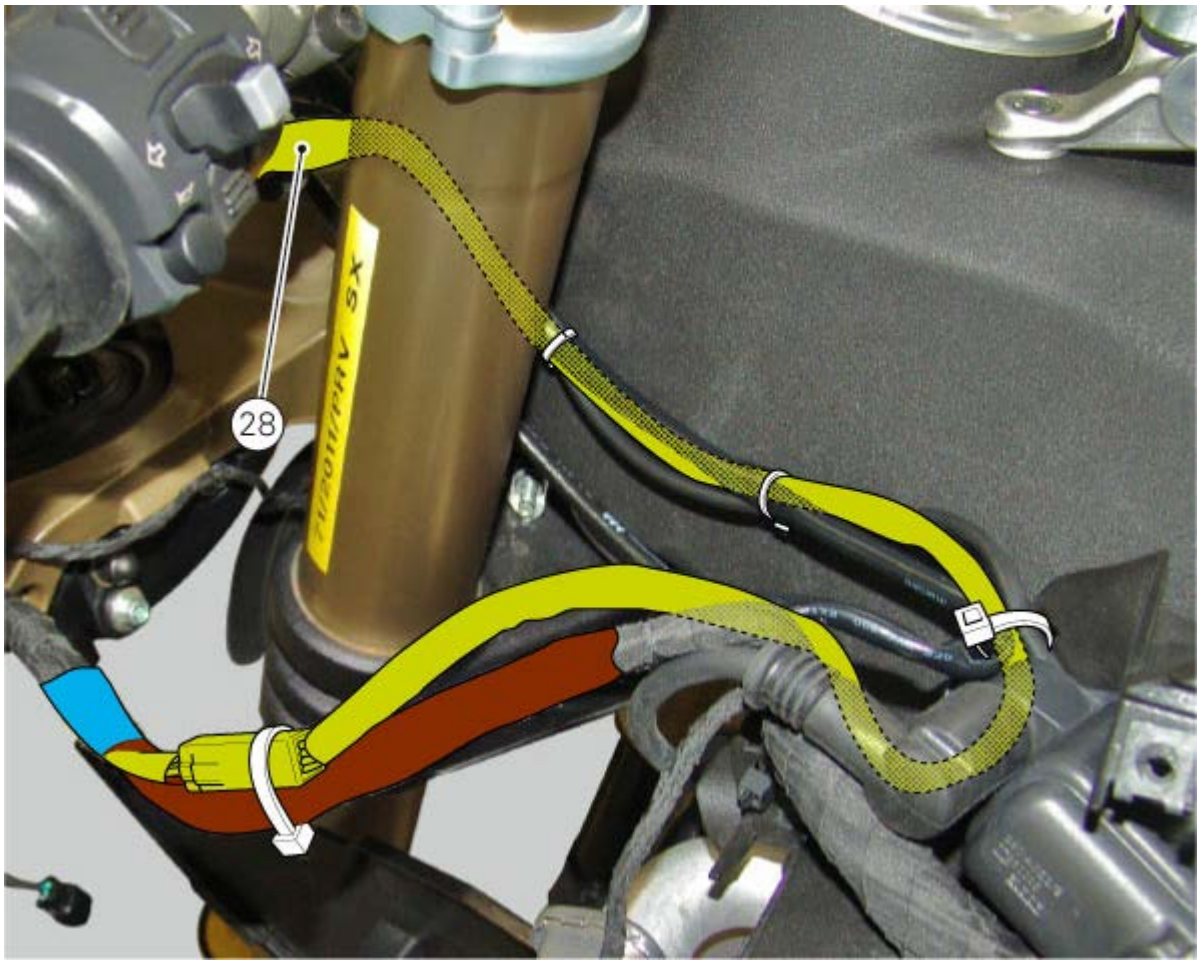
http://www.ducati-manuals.com
no. 140312





Tavola N – 39

http://www.ducati-manuals.com
no. 140312



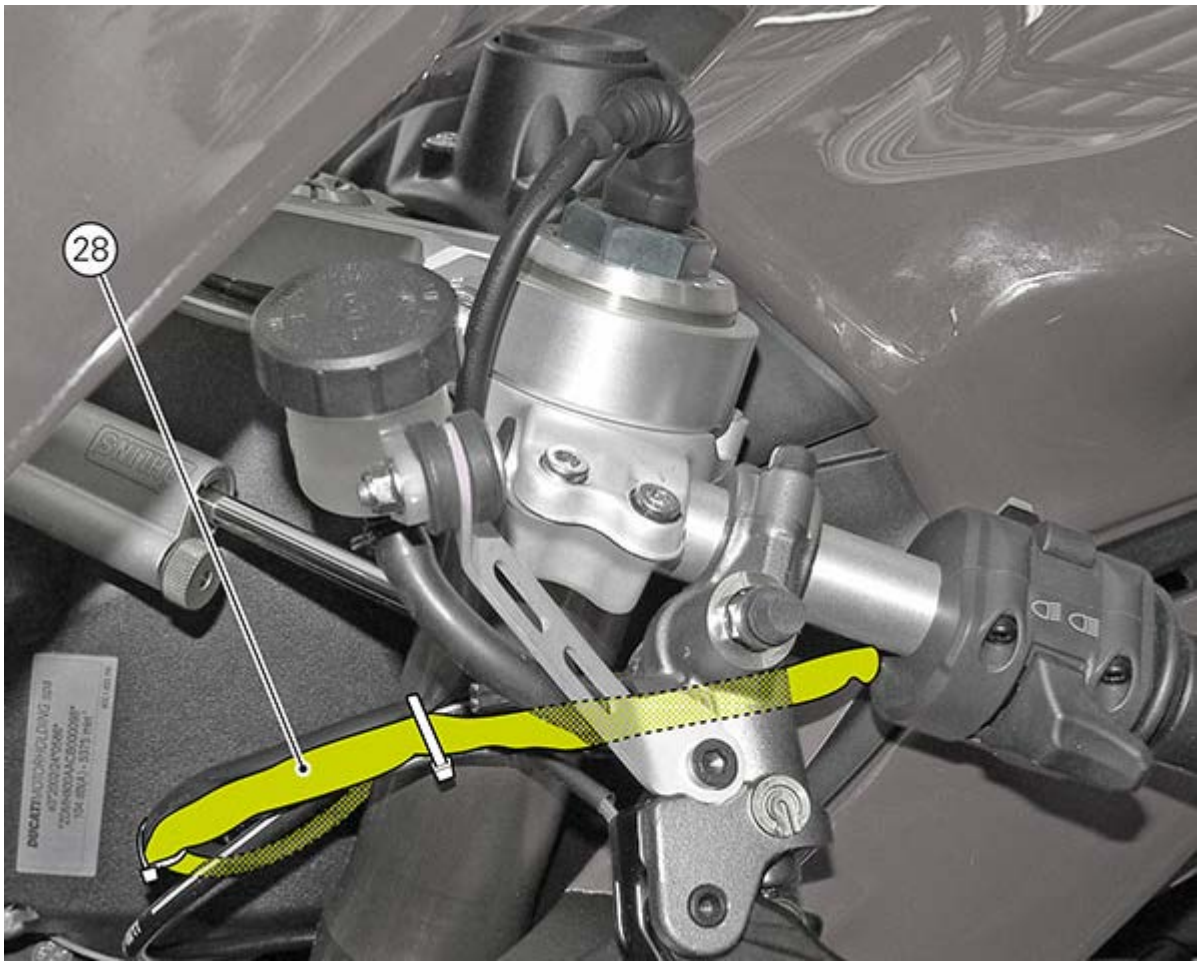
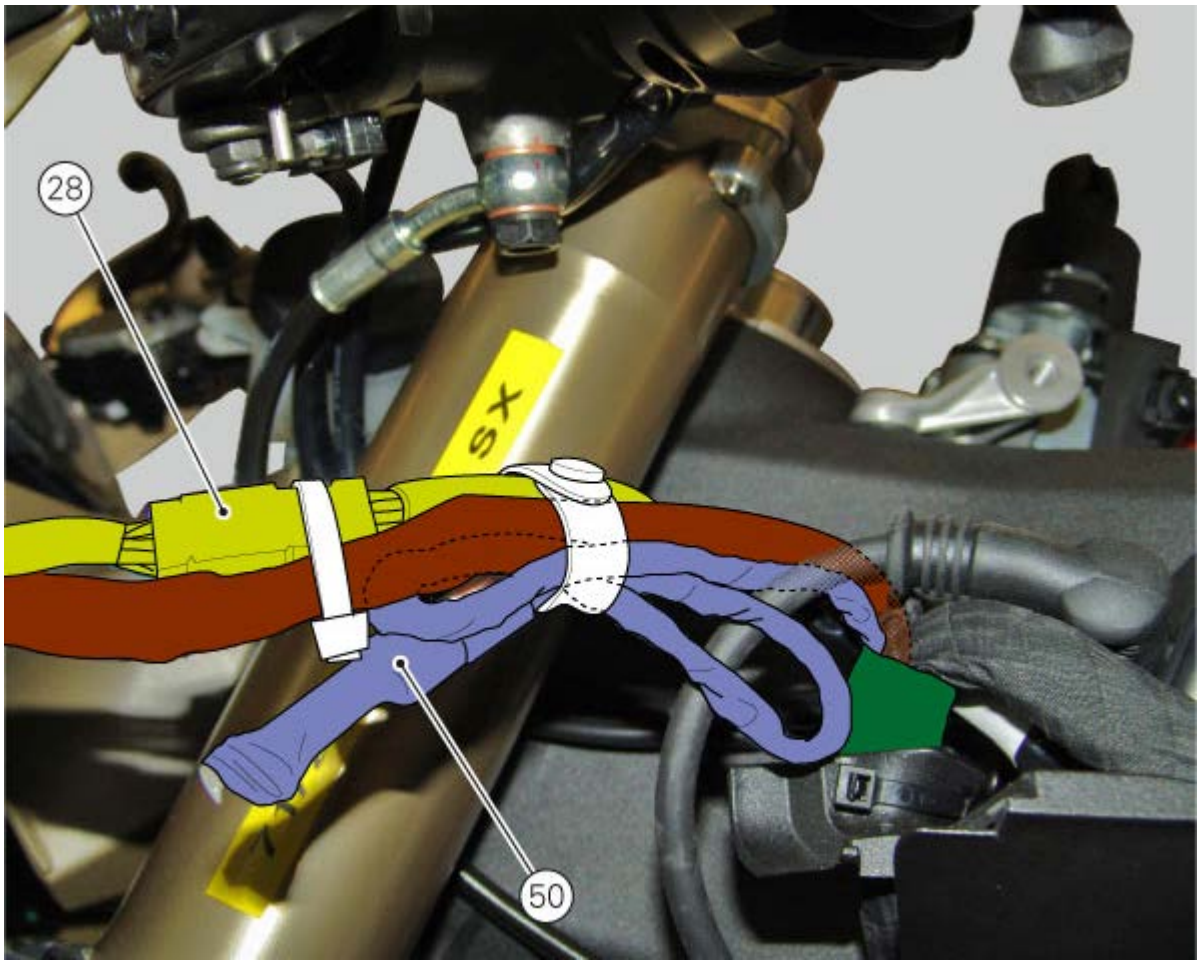


Tavola N – 40

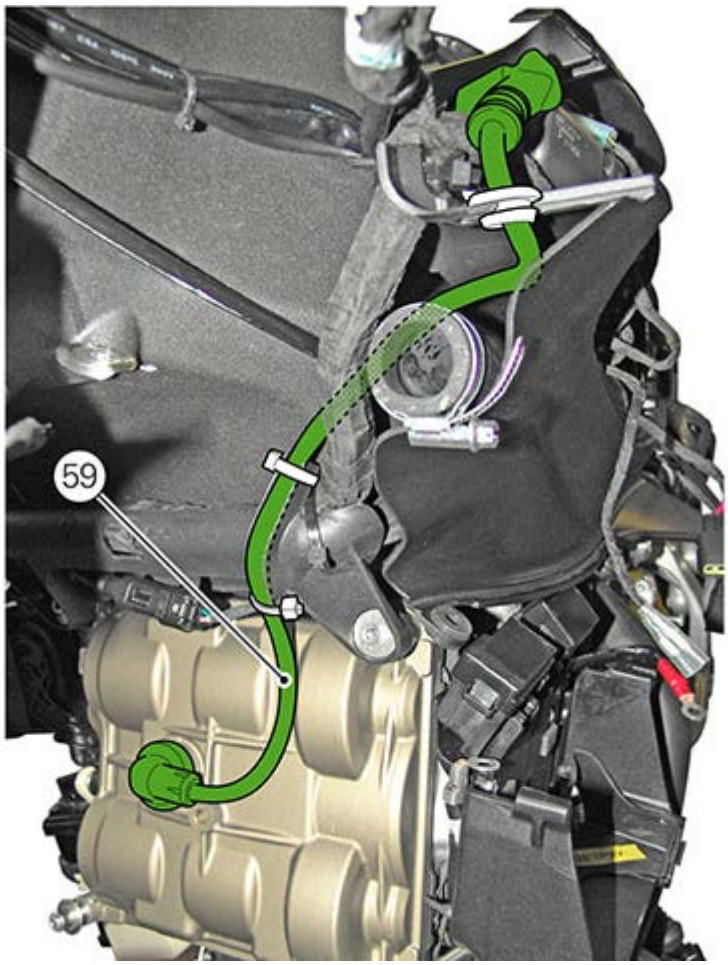
http://www.ducati-manuals.com
no. 140312



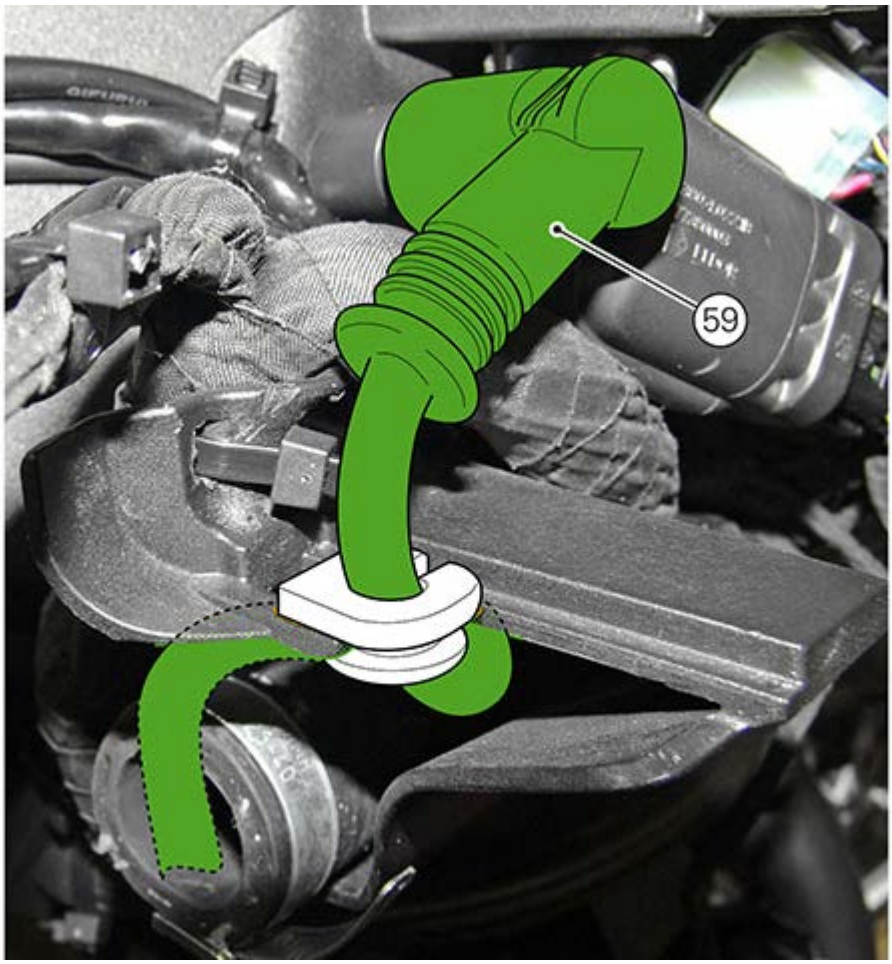
http://www.ducati-manuals.com
no. 140312

Tavola O

Tavola O – 41



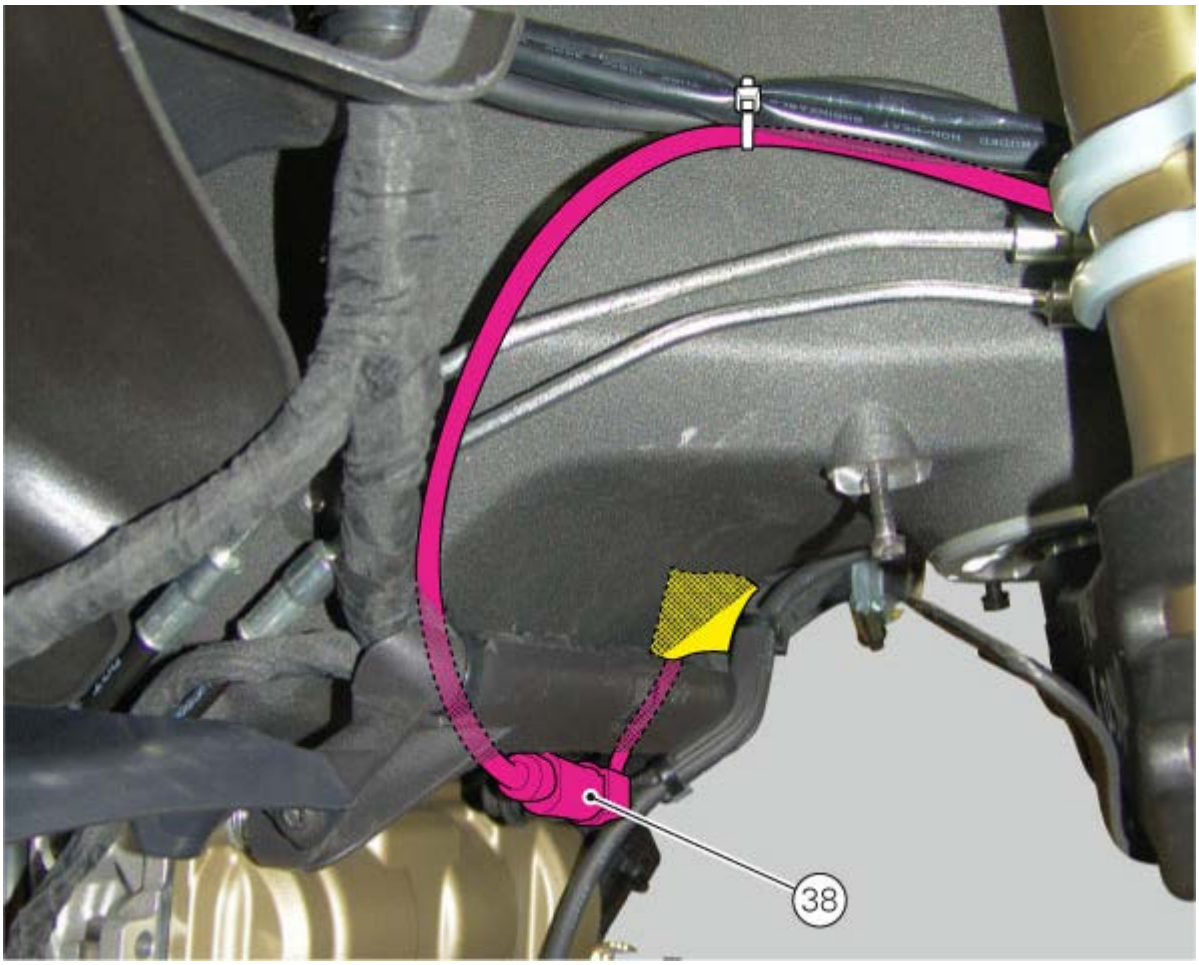
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

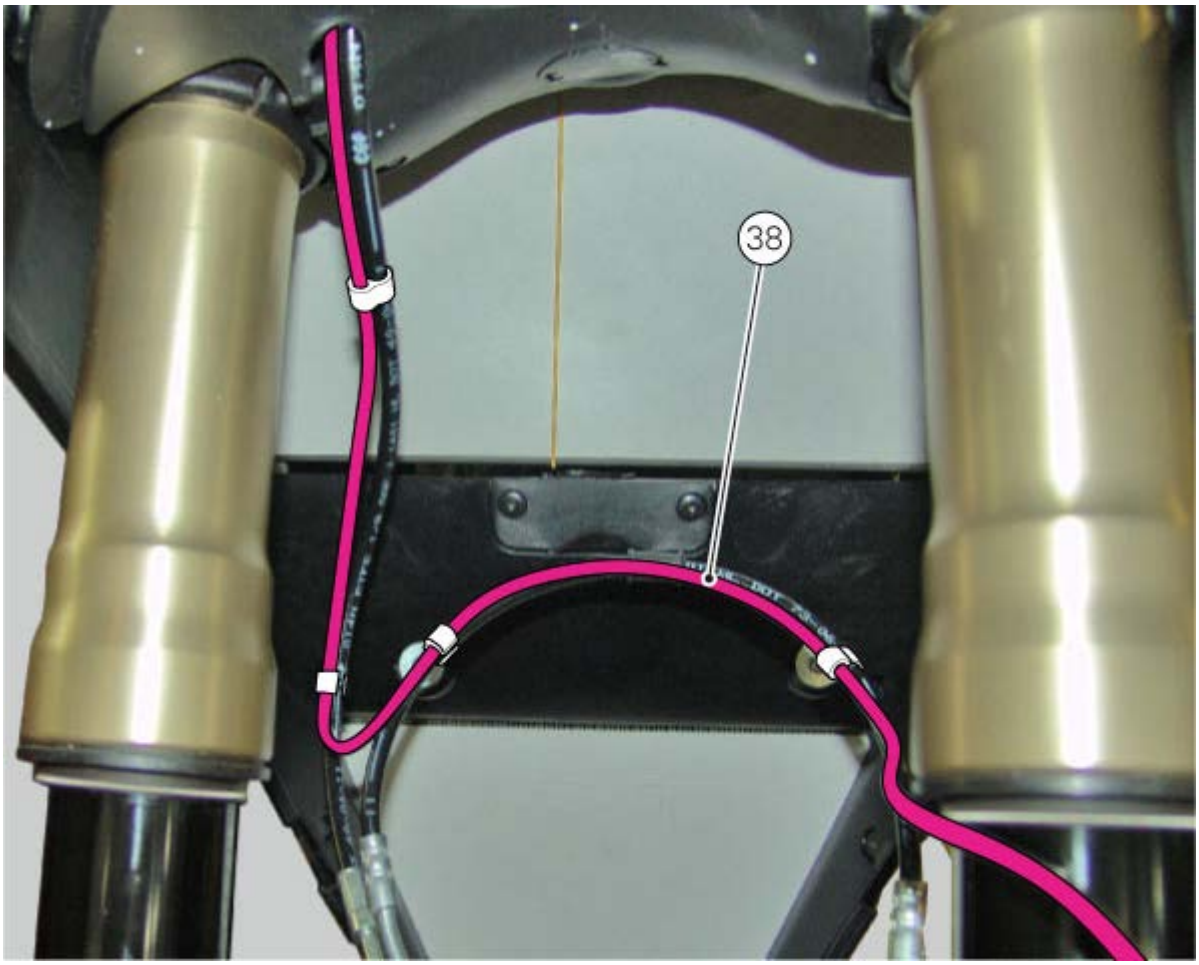
Tavola P

Tavola P – 42

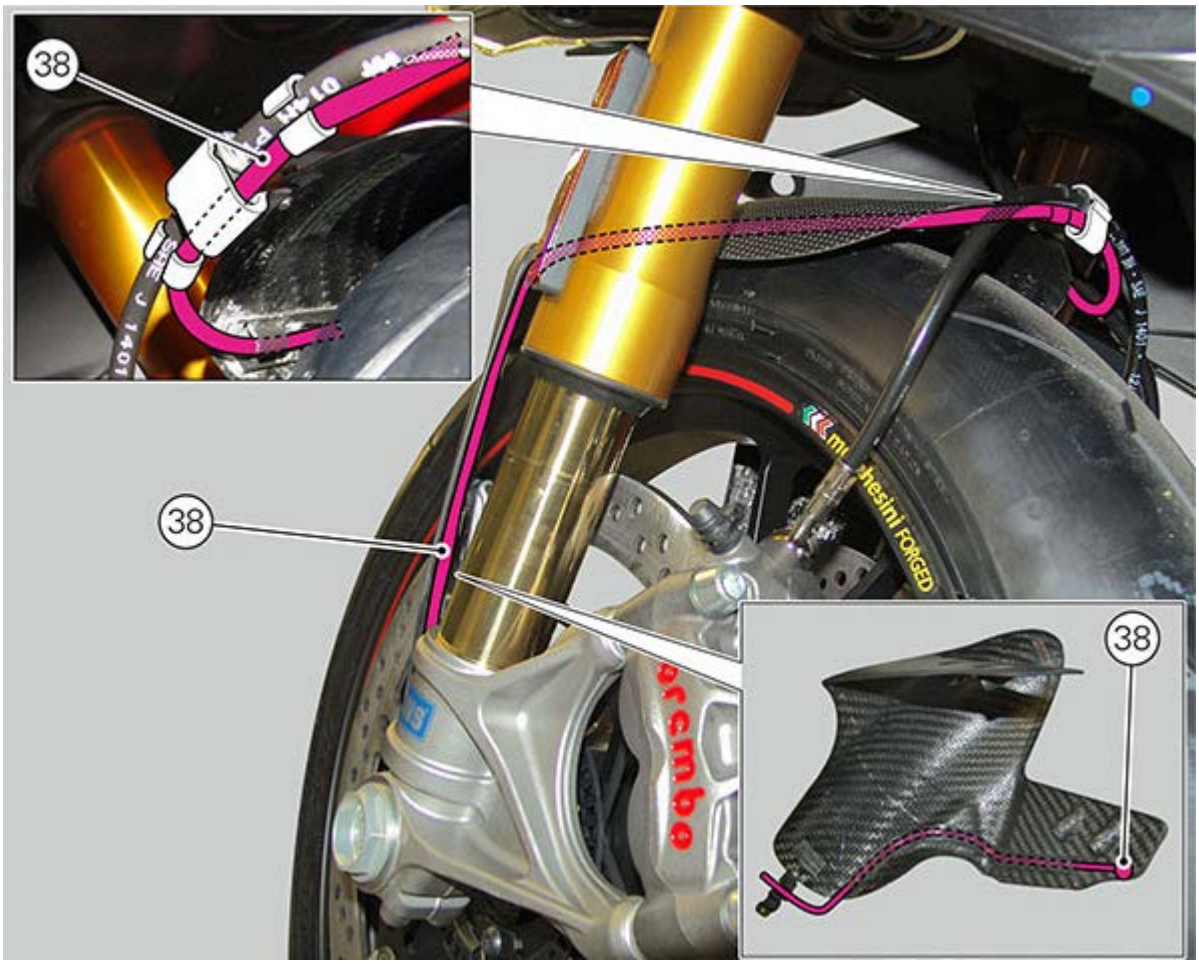


http://www.ducati-manuals.com
no. 140312





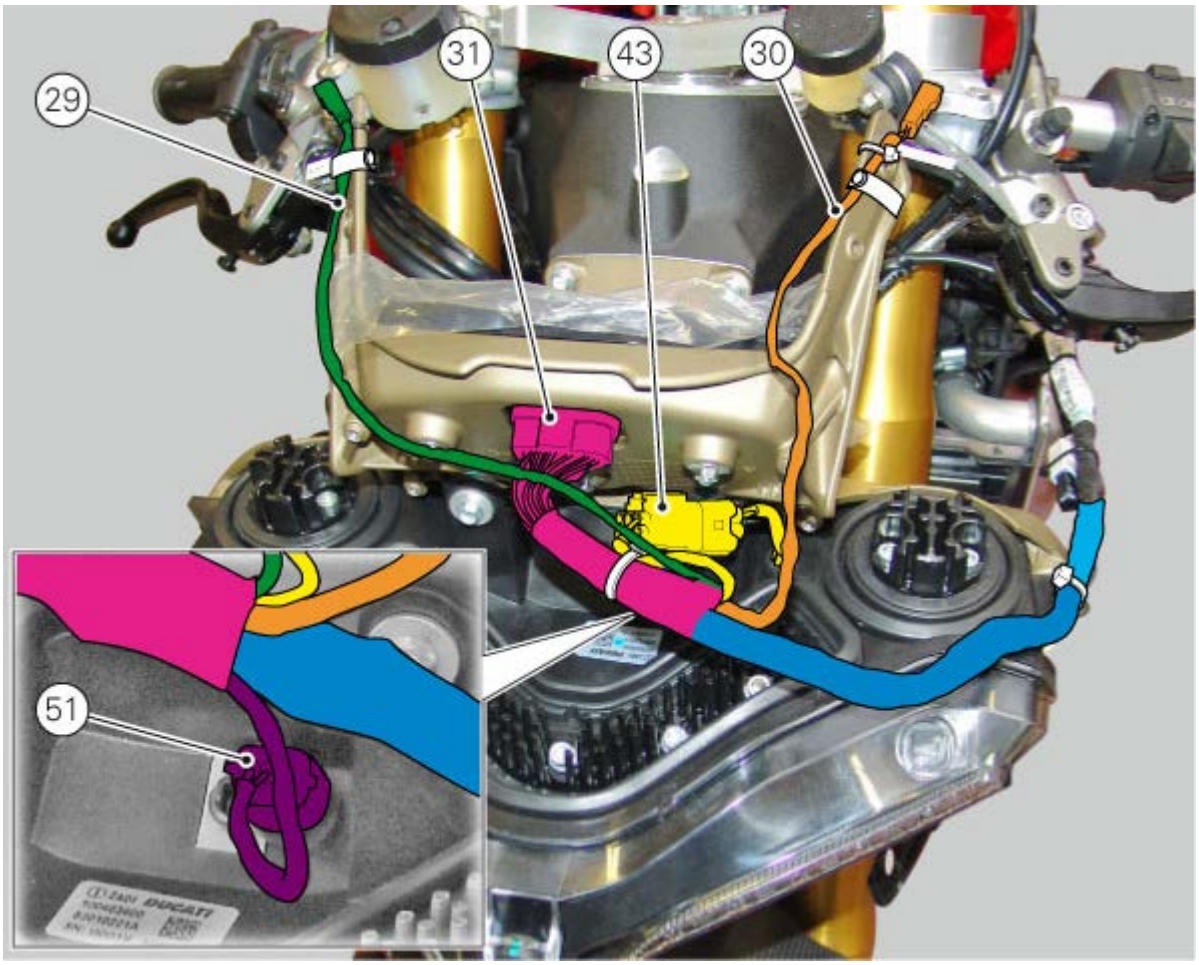
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Tavola Q

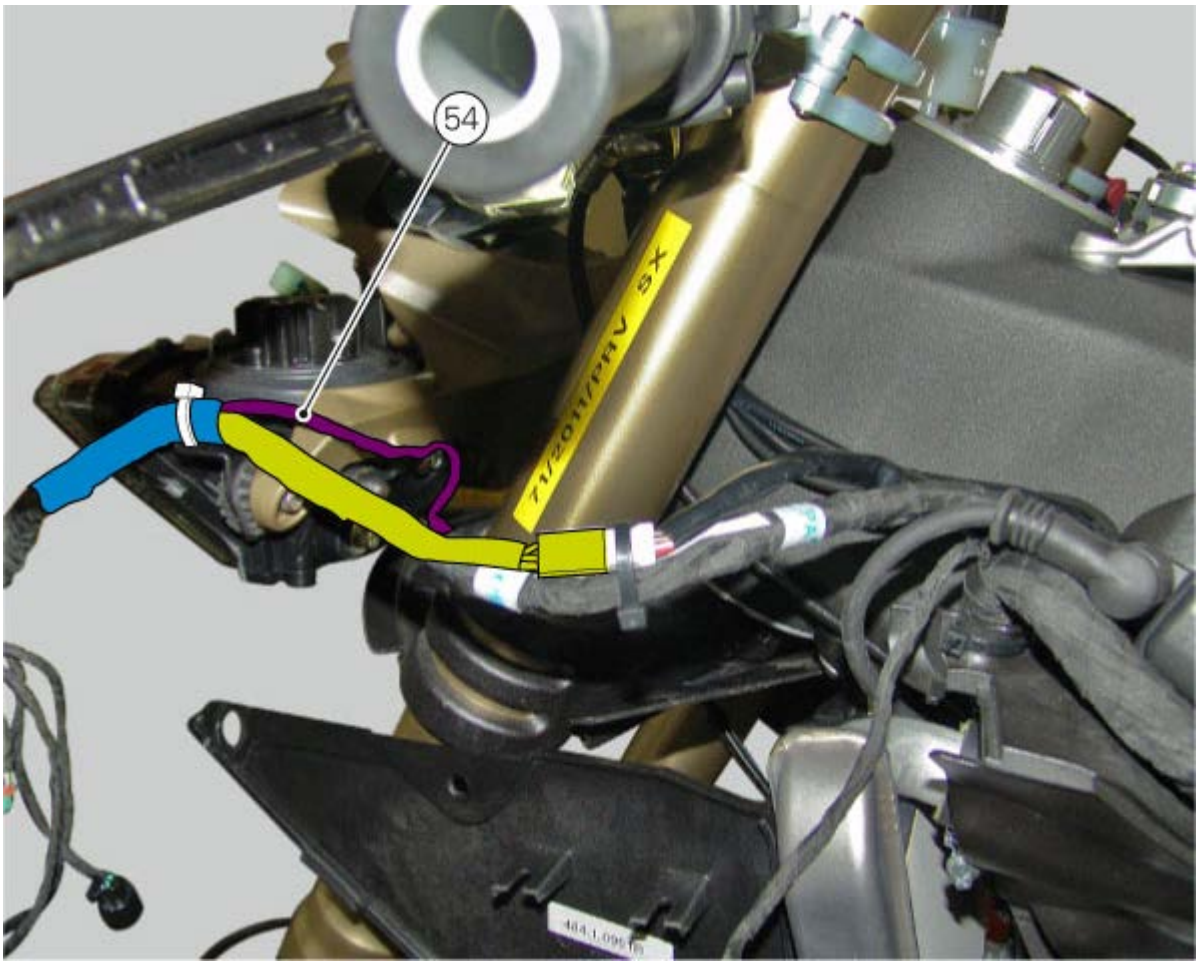
Tavola Q – 43



http://www.ducati-manuals.com
no. 140312

Tavola R

Tavola R – 44



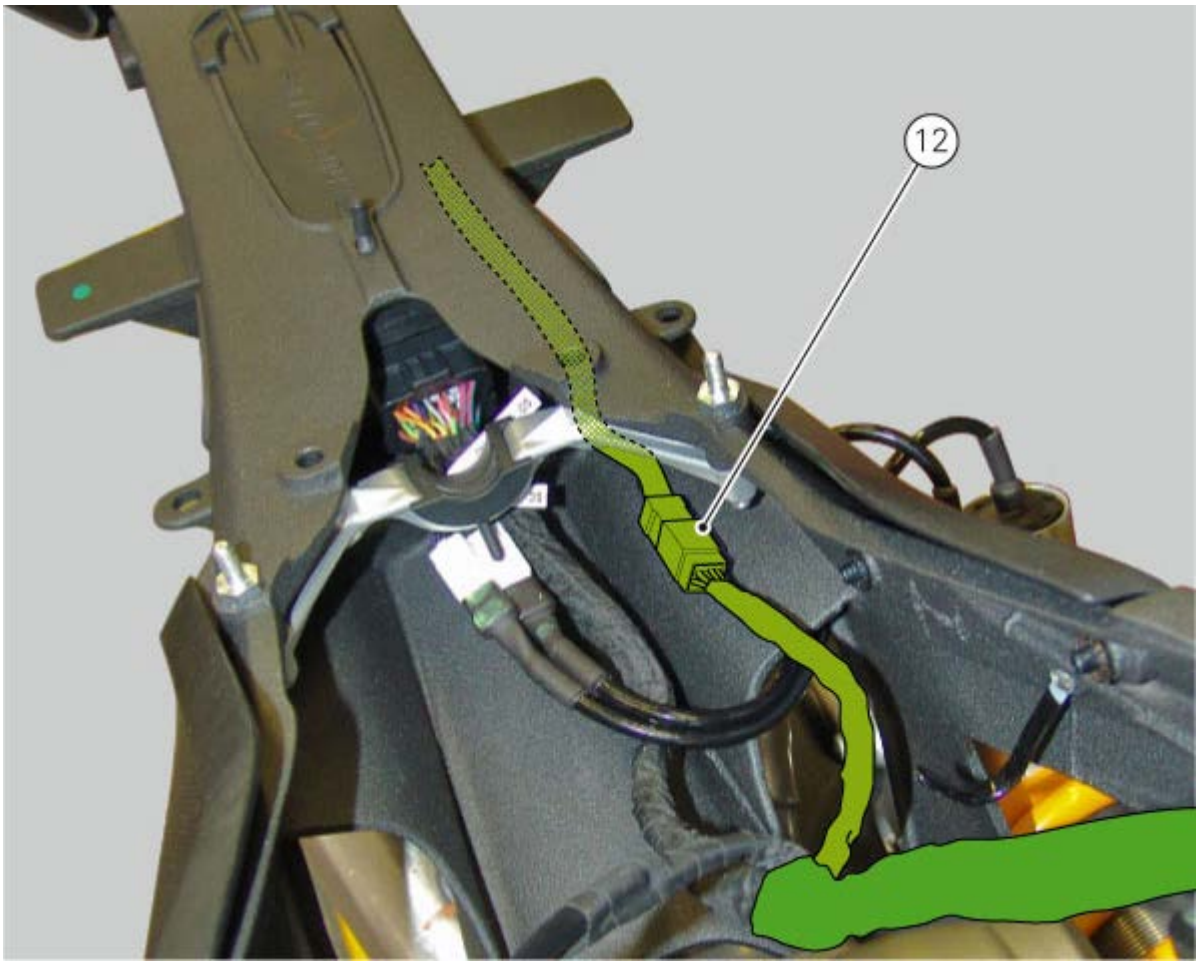
http://www.ducati-manuals.com
no. 140312



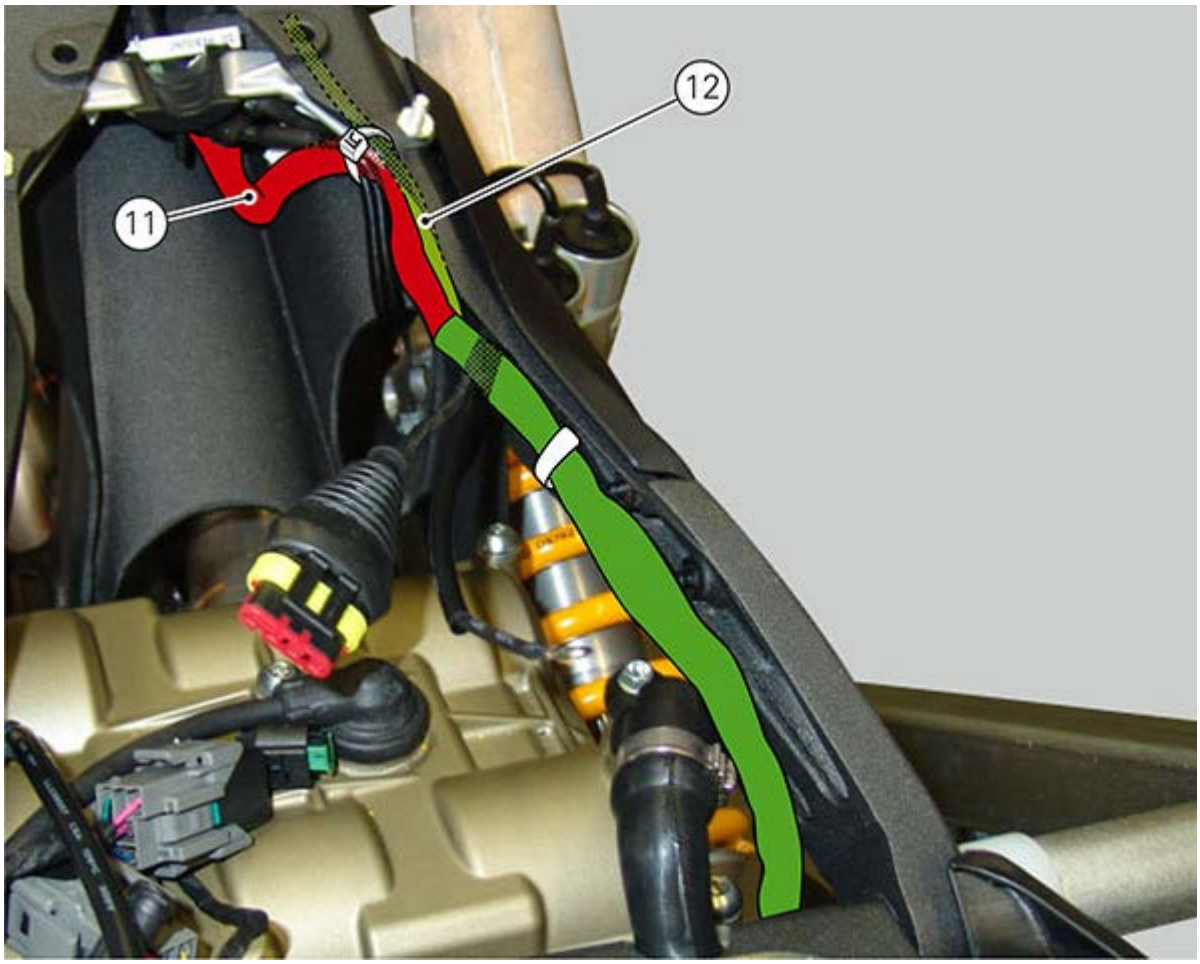
http://www.ducati-manuals.com
no. 140312

Tavola S

Tavola S – 45



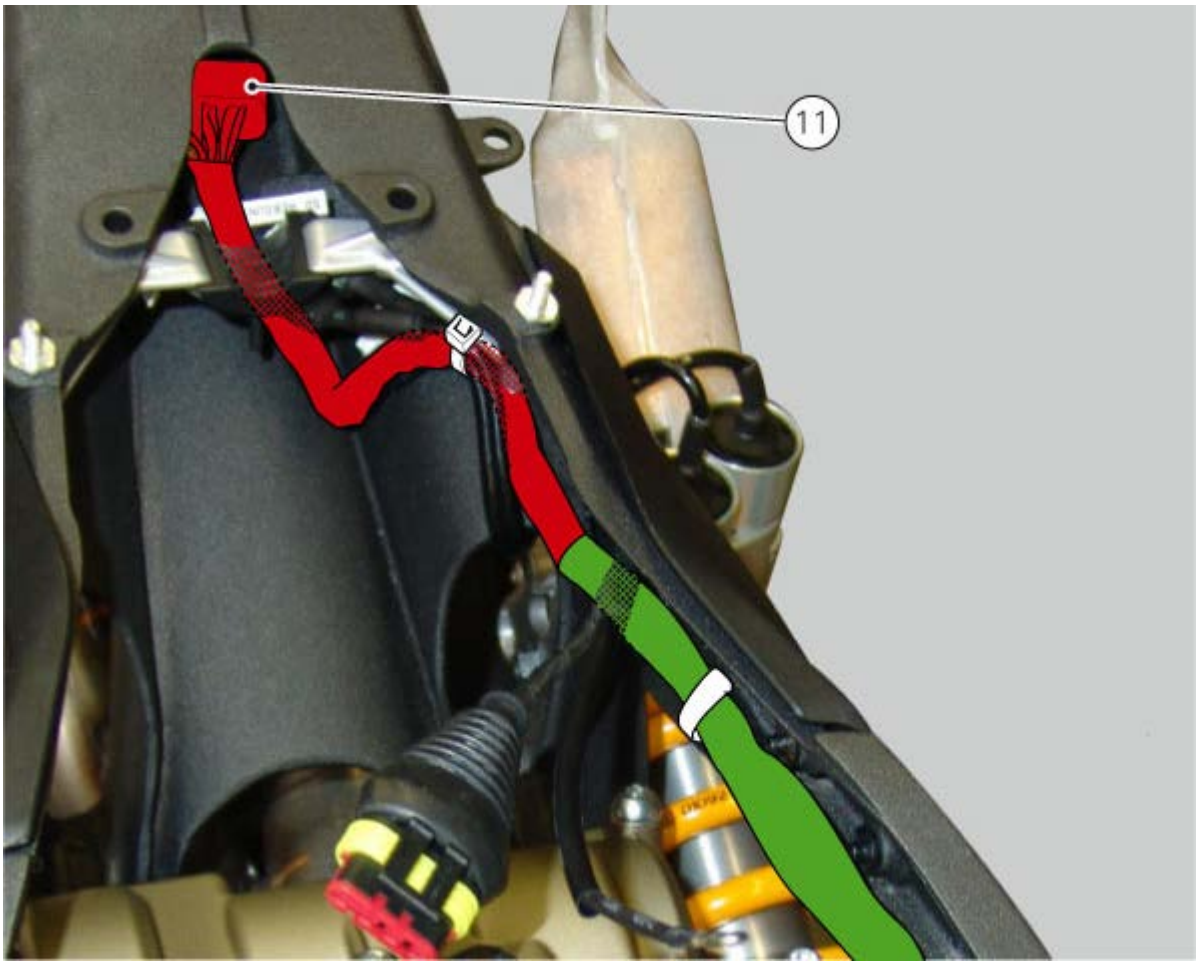
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Tavola T

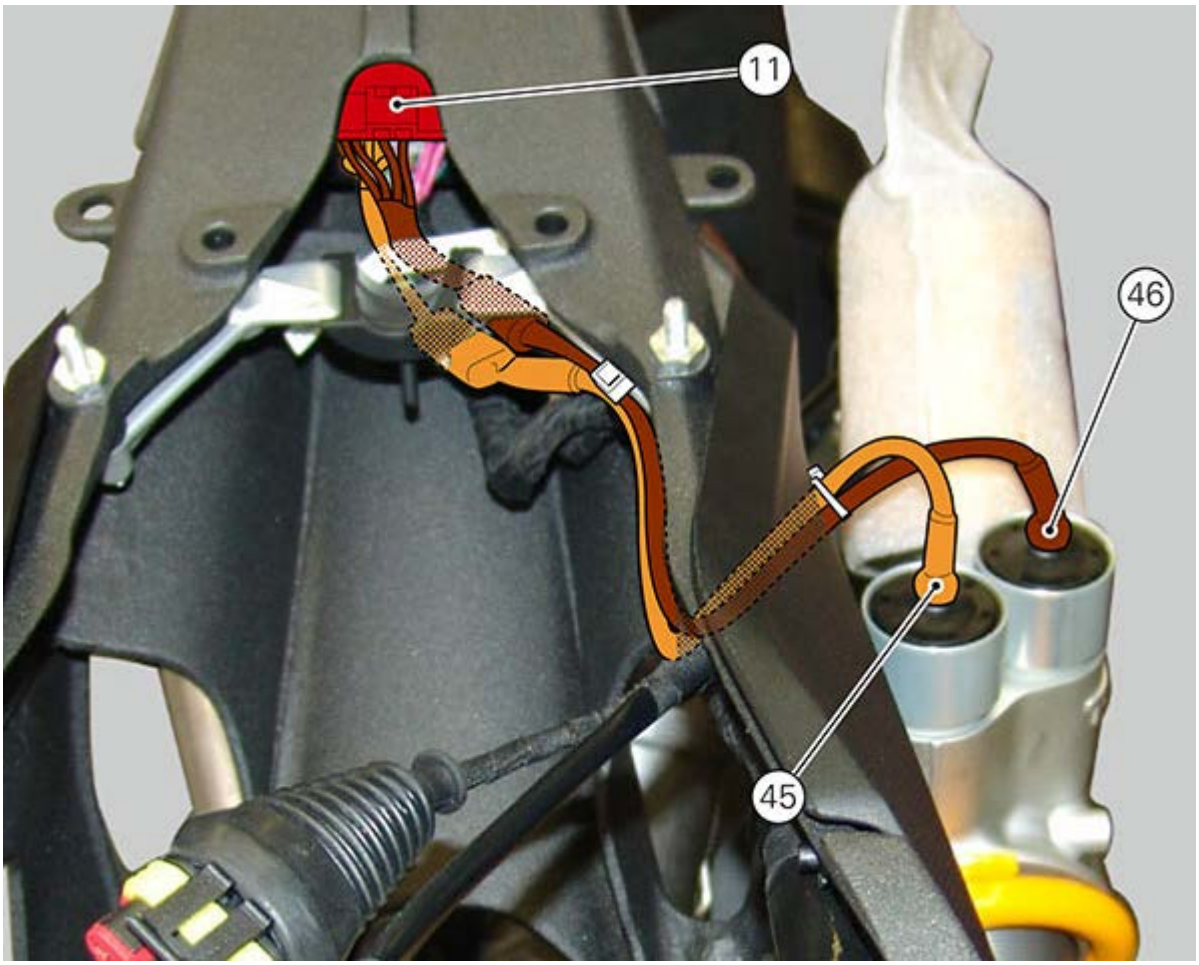
Tavola T – 46



http://www.ducati-manuals.com
no. 140312

Tavola U

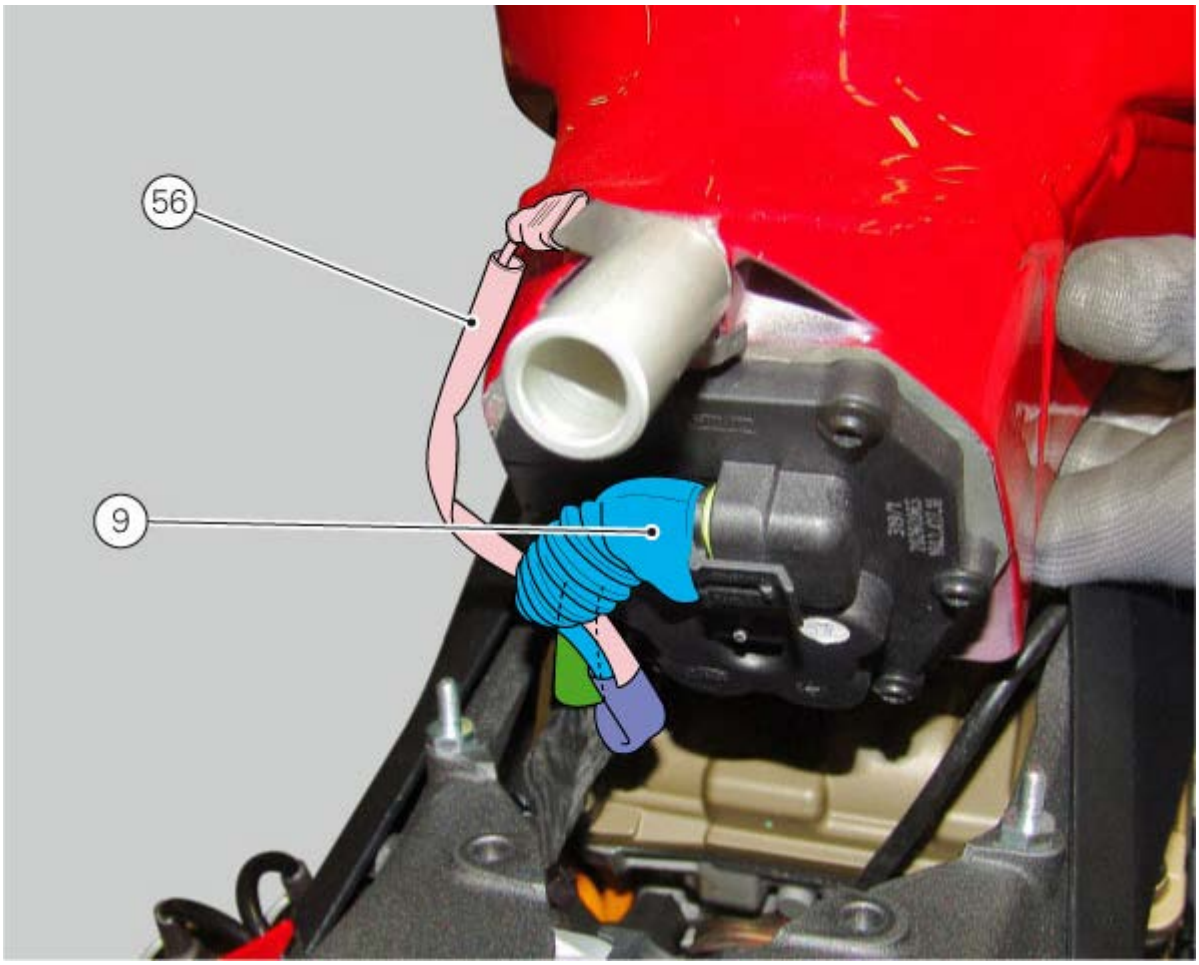
Tavola U – 47



http://www.ducati-manuals.com
no. 140312

Tavola V

Tavola V – 48



http://www.ducati-manuals.com
no. 140312

Testing the battery charging system

Check the recharging system current using the “DDS 2 (Ducati Diagnosis System 2.0)” instrument which includes a clamp-type amperemeter.
You can determine the engine rpm required for generator to produce just enough current to charge battery, feed the injection ignition system and all electric items fitted to motorcycle. When applied to a cable, the clamp-type amperemeter detects the magnetic field generated by the current passing through that cable.

Warning

The clamp-type ammeter must not be connected to wires through which electrical current is flowing.

Insert the clamp-type amperemeter into the battery positive terminal lead with the arrow on the clamp pointing towards the battery positive terminal (+).
If the measured current is a positive quantity, it means that generator is feeding all electric items and charging battery at the same time. If the current has a negative sign, this means that the charging system is not able to power the electrical loads and a significant amount of the current required must be supplied by the battery, which is therefore discharging.

Important

If polarity is reversed when clamping the ammeter onto the cable, the sign of the readings will also be reversed, giving rise to incorrect diagnosis.

http://www.ducati-manuals.com
no. 140312

Charging the battery

Look at the inspection interval printed on the battery label to determine when to check voltage.

Charge battery when open-circuit voltage is below **12.8 V**. A battery will fail if left discharged for over a month. Measure voltage using a voltmeter to determine battery charge.
Always check battery condition before charging and 1-2 hours after charging is complete.

Warning

Pay careful attention to recharging times. Stop charging immediately if the battery becomes too hot to the touch. Leave to cool before resuming charging.

Use only constant-voltage chargers.
Make sure battery terminals are properly connected to battery charger.
Follow the instructions below to charge the battery.

Charge method	Volt.	Ampere (A)	Time (hours)
Normal	12	0,7	5-10
Fast	12	3,0	1



Fast-charge should only be used in an emergency situation.

After long inactivity periods

If battery voltage is **11.5 V** or lower, charge the battery.
Connect battery charger to battery.
Apply **16-17 V**.
If no change is detected with an ammeter, increase voltage up to **25 V** maximum.
Charge for 5 min.
If the ammeter detects a change of state, set battery back to **16-17 V**, otherwise replace the battery

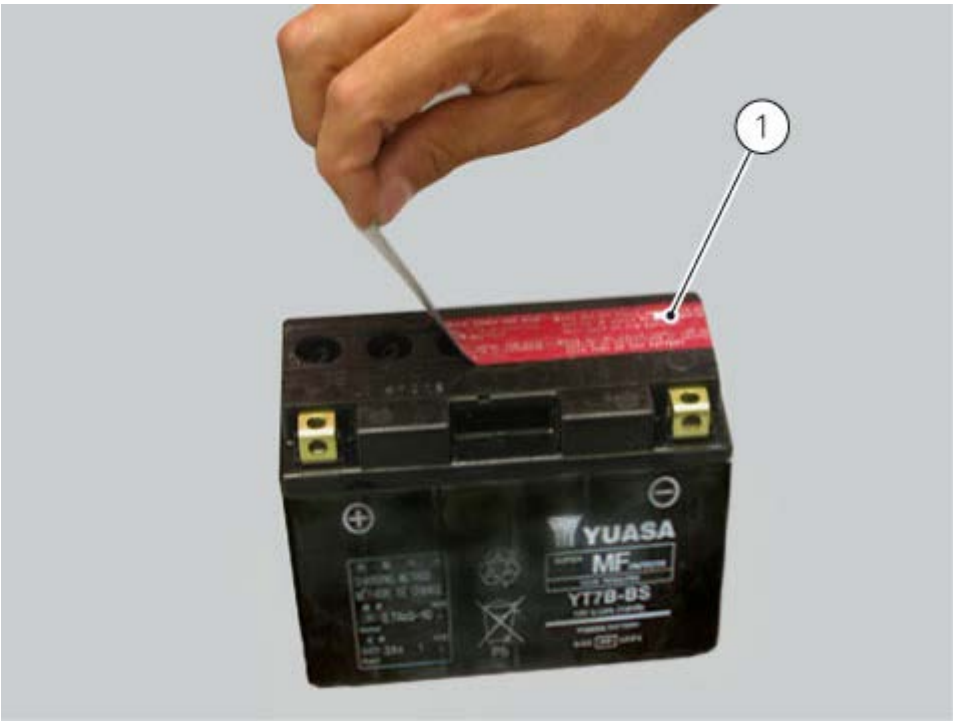
http://www.ducati-manuals.com
no. 140312

Electrolyte top-up

Remove battery from vehicle (Removal of the battery).

Warning
Before carrying out any operations on the battery, keep in mind the safety standards (General safety rules). The electrolyte in the battery is toxic and can cause burns if it comes into contact with the skin because it contains sulphuric acid. Wear protective clothing, a face-mask and goggles when adding electrolyte. If the liquid comes into contact with the skin, wash thoroughly with fresh water. If it comes into contact with the eyes, wash thoroughly with water for 15 minutes and consult an ophthalmologist. In the event of accidental ingestion, drink large quantities of water or milk, and continue with milk of magnesia, beaten egg or vegetable oil. Do not allow sparks, flames, cigarettes or any other heat source to get near the battery, as it produces explosive gases. When recharging or using the battery indoors, make sure that the room is adequately ventilated. Do not inhale the gases produced during recharging. KEEP OUT OF REACH OF CHILDREN.

Place battery on a level surface. Remove protective film (1).

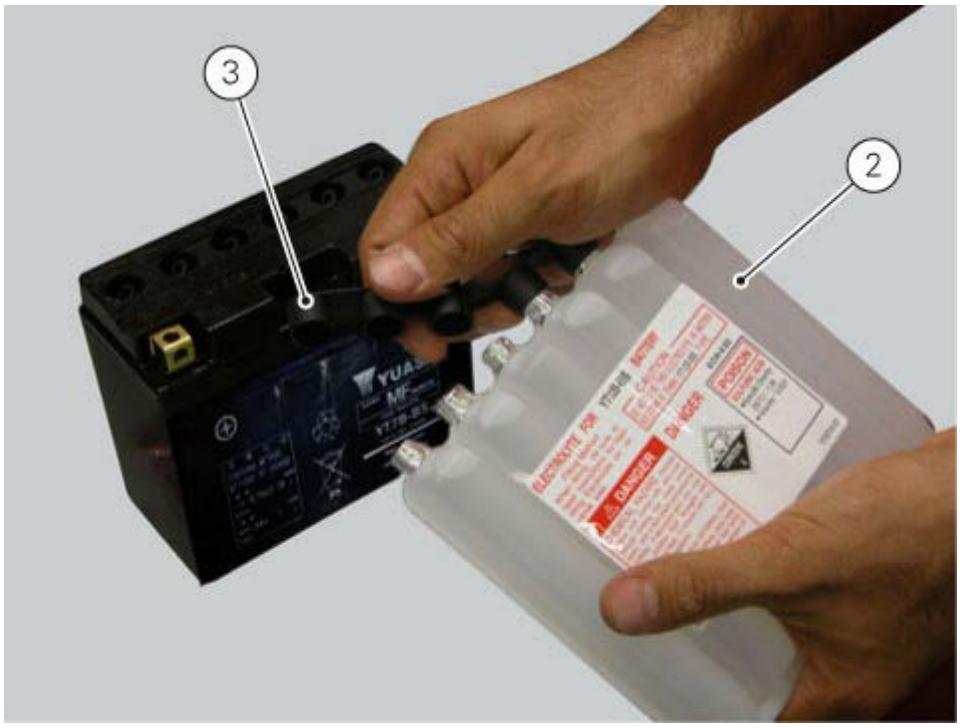


Warning
Make sure that the electrolyte is of the specific type for your battery.

Take electrolyte container out of vinyl bag. Remove the strip of caps (3) from the container (2).

http://www.ducati-manuals.com
no. 140312





Important

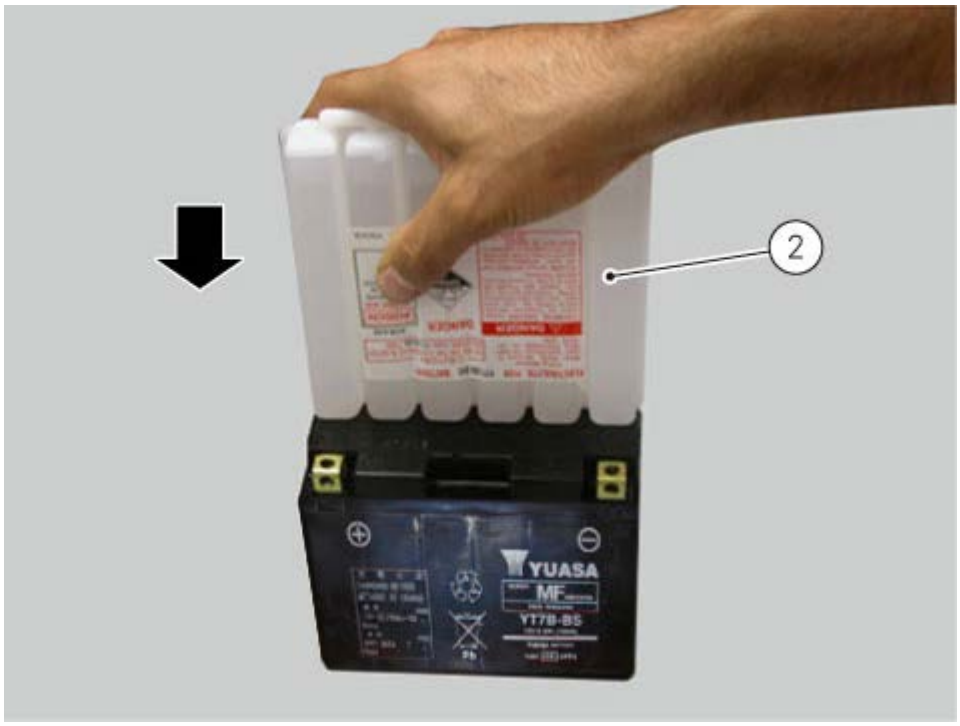
Keep the cap strip (3) to hand because it will be used later to plug the battery cells.

Warning

Do not peel or perforate the sealed areas.

Place electrolyte container (2) upside down. Match the six sealed cells to the six filler holes of the battery. Push down on container (2) strongly enough to break the seals so the fluid can flow out.

http://www.ducati-manuals.com
no. 140312



Note

Do not tilt the electrolyte container as this could interrupt the flow temporarily or even permanently.

Check to see there are air bubbles coming out of all fix filler holes. Leave container in this position for over twenty minutes.
If no air bubbles are coming out of any one hole, tap lightly on the bottom of the corresponding container cell.

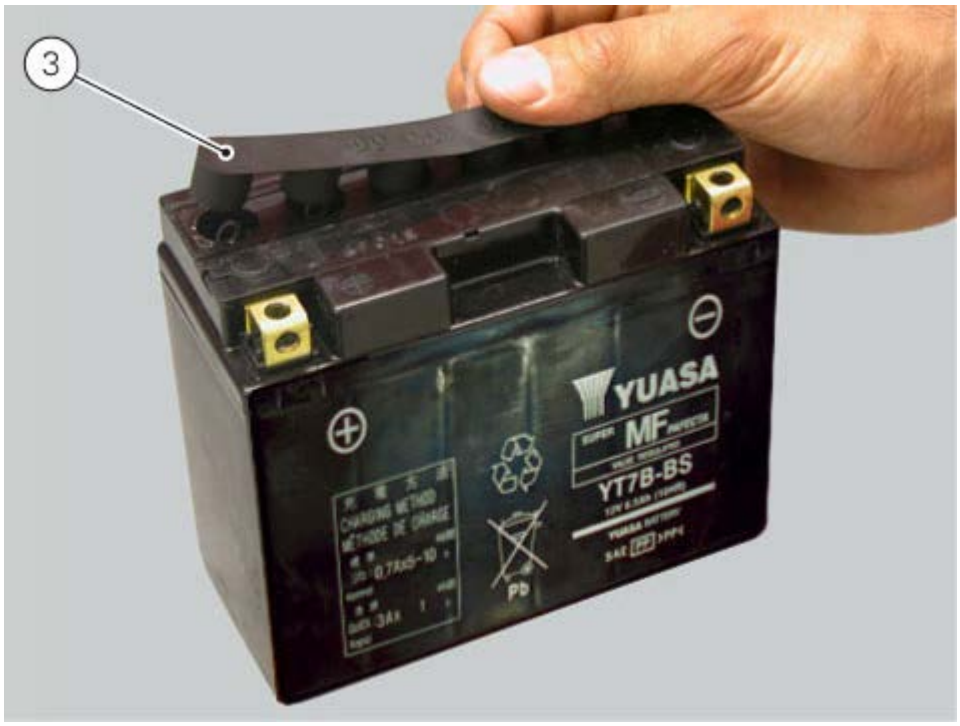


Important

Never move the container away from the battery. Do not cut or puncture the container.

Make sure all electrolyte has come out. Carefully remove container (2) from battery.
Fit the strip with caps (3) you had detached from the electrolyte container (2) to the battery, making sure to seal all filler holes properly.

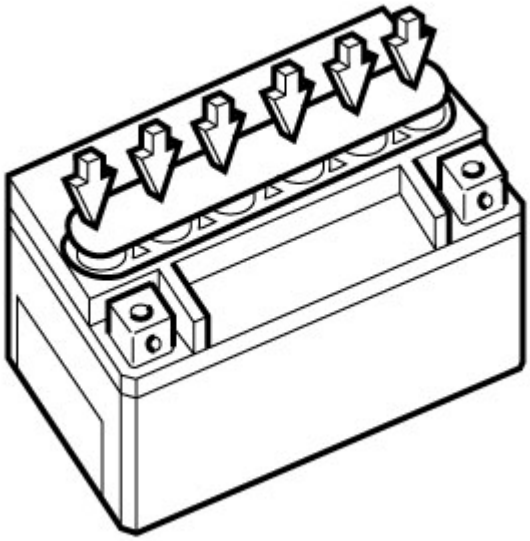
http://www.ducati-manuals.com
no. 140312



3 -12 Ah battery should be allowed to rest for at least 30 min.
For batteries rated 12 Ah and over, allow at least 1 hour.
Place the strip with caps on the filler holes but do not secure it. Charge battery as explained under "Charging the battery".

Note
When using an automatic reduction battery charger, ensure that the charger current (ampere) is equal or higher than the value of the standard charging system (STD) indicated on the battery itself.

Press down firmly with both hands to ensure the caps become fully seated (do not tap with a hammer).



http://www.ducati-manuals.com
no. 140312

Battery

Before servicing the battery, make sure to follow the appropriate safety rules (General safety rules).

Warning
When under charge, batteries produce explosive gases. Keep batteries away from heat sources, sparks or open flames.

The battery is of the sealed, maintenance-free type and no particular operations are required before installing it on the vehicle.

Note
Always keep the battery clean. Apply grease around the battery terminals to prevent corrosion.

Warning
Never remove the valve cover located on top of the cover. If the block, cover or terminals are broken or if the valve cover has been tampered with, IT IS ABSOLUTELY NECESSARY TO REPLACE THE BATTERY.

Important
If the motorcycle is left unused for more than 30 days, remove the battery and store it in a safe, cool place.

Always charge the battery before first use, and especially after long storage periods (before vehicle is sold).

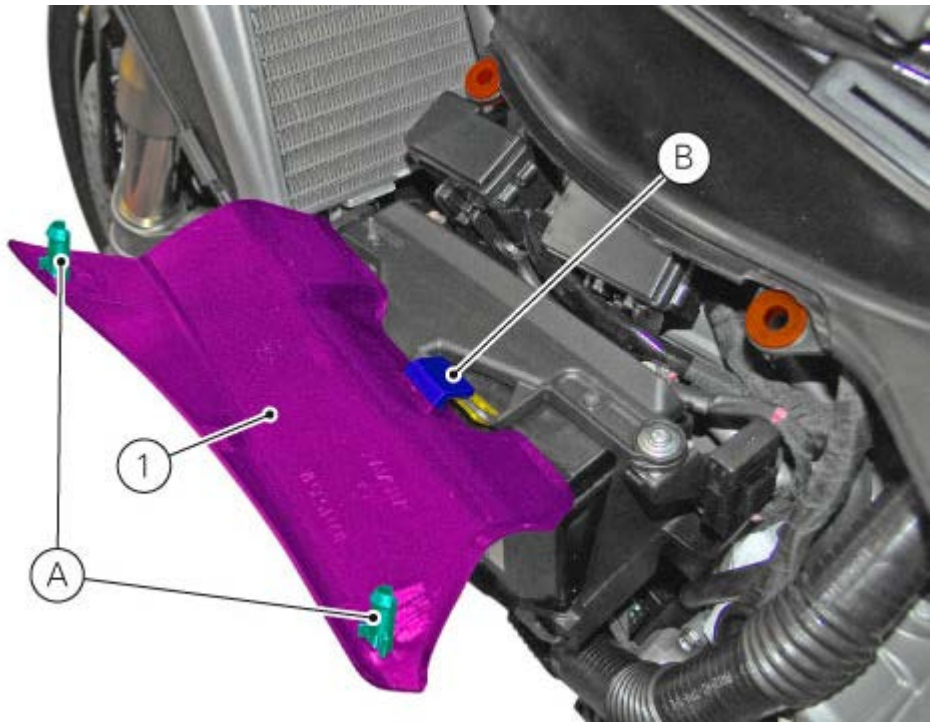
Removal of the battery

Remove the left-hand side fairing (Removal of the side fairings).

Remove fuse cover (1) releasing pins (A) first and then tab (B).



http://www.ducati-manuals.com
no. 140312

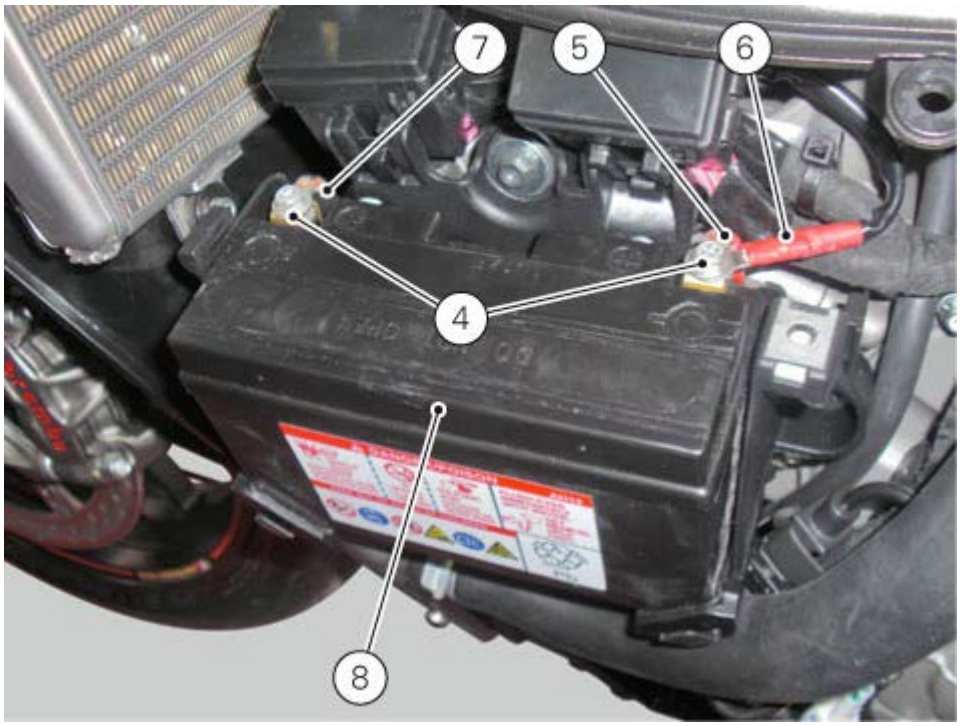


Loosen screw (2) and remove battery mounting bracket (3).



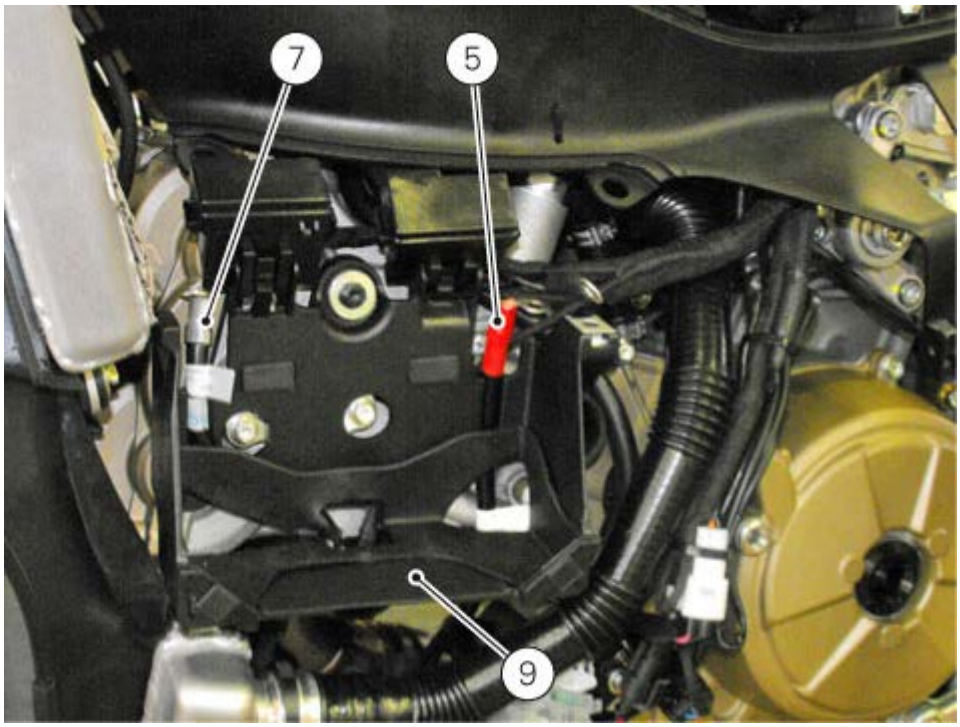
Loosen screws (4), remove positive cable (5) and ABS positive cable (6) from positive terminal and negative cable (7) from negative terminal – always detach negative cable (-) first – and remove battery (8) pulling from above.

http://www.ducati-manuals.com
no. 140312



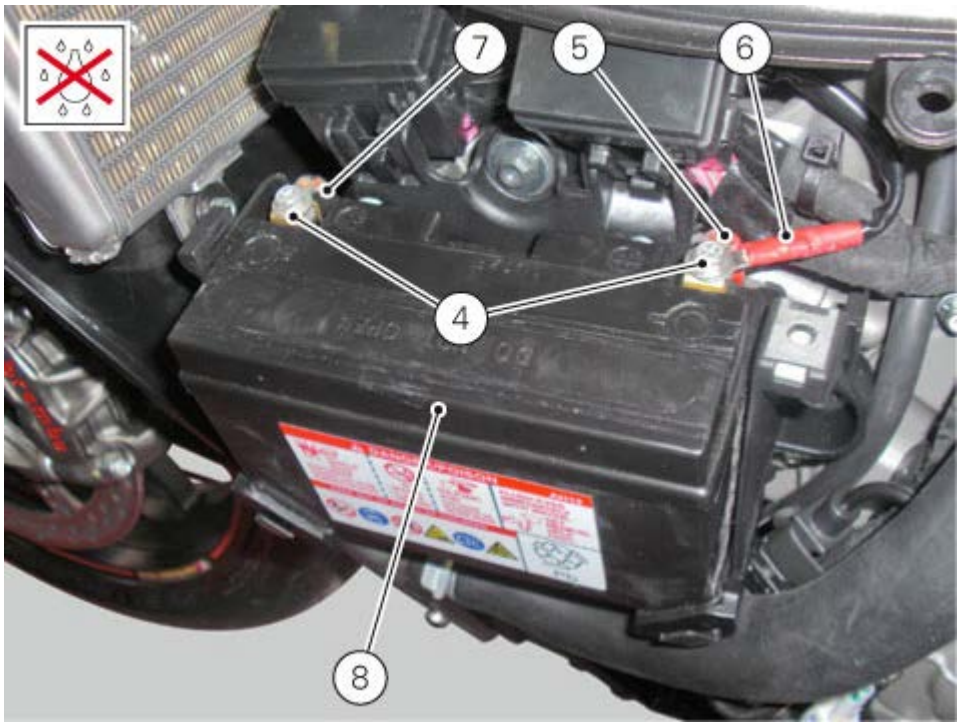
Installation of the battery

Before inserting battery in its mount, check that positive cable (5) and negative cable (7) are fully inserted in their seats and mat (9) is in place on battery mount.

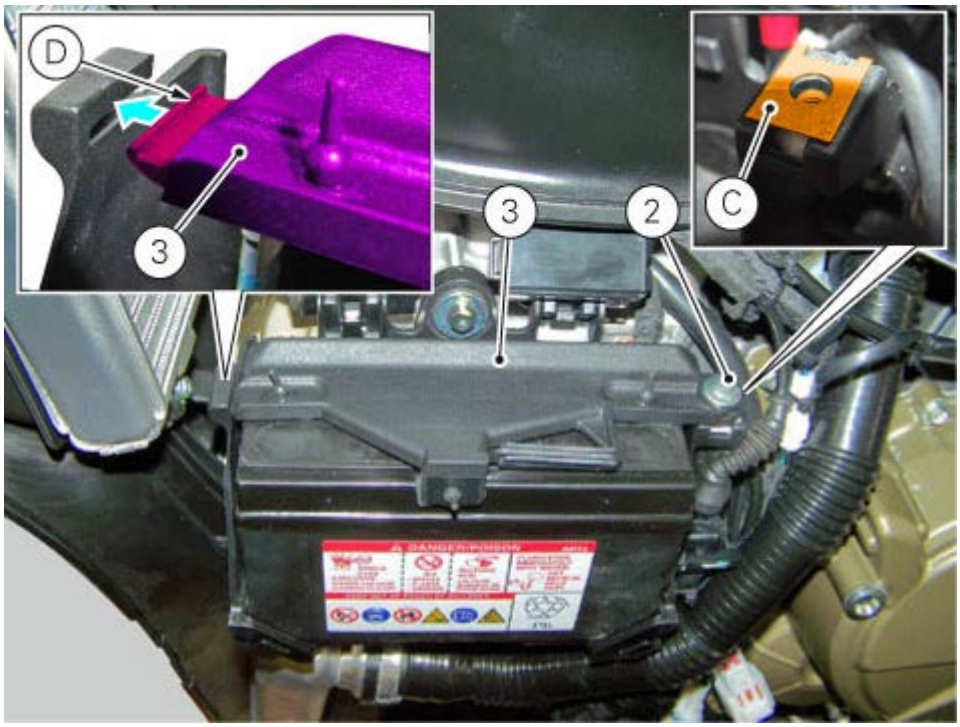


Install battery (8) on its mount, connect positive cable (5) and ABS positive cable (6) to positive terminal and negative cable (7) to negative terminal of battery – always connect positive cable (+) first – and start screws (4) in their holes.
Arrange cables (5), (6) and (7) as shown.
Check battery contacts for oxidisation and tighten terminal screws (3) to 5 Nm ±10%.
Spray battery terminals with a water-repellant product to prevent oxidisation.

http://www.ducati-manuals.com
no. 140312

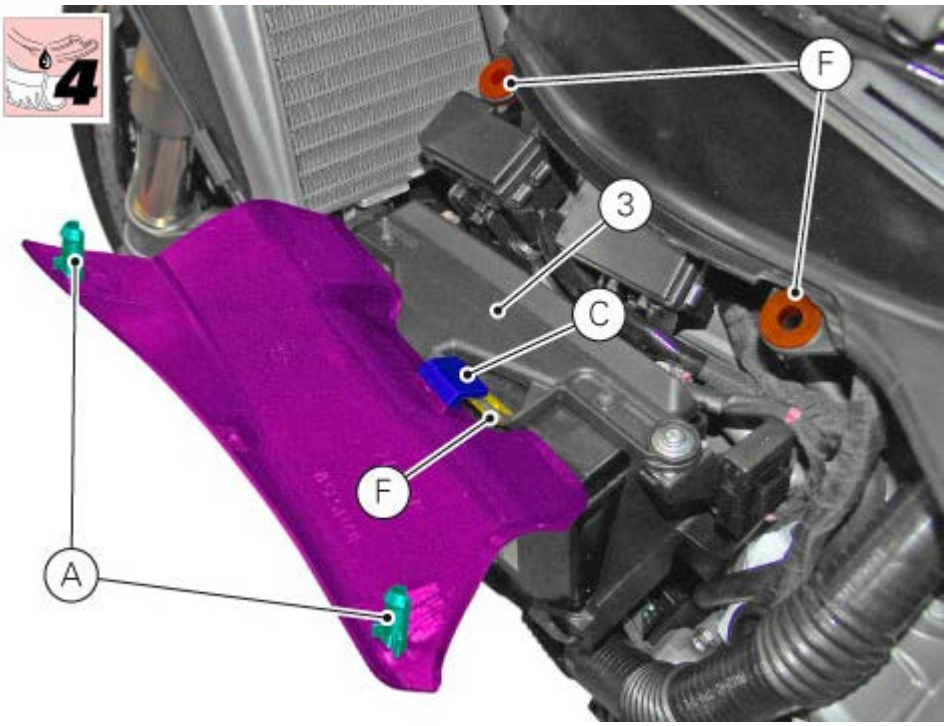


Make sure clip (C) is installed on battery mount.
Set battery mounting bracket (3) in position with tab (D) in the slot in battery mount and start screw (2) in its hole to hold bracket in place.
Tighten screw (2) to 2 Nm ±10%.



Smear KLÜBERPLUS S 06/100 lubricant on pins (A).
Install fuse cover (1) making sure tab (C) fits into vibration damper (E) on battery mounting bracket (3) and pins (A) fit into vibration dampers (F) of electric component left-hand support .

http://www.ducati-manuals.com
no. 140312

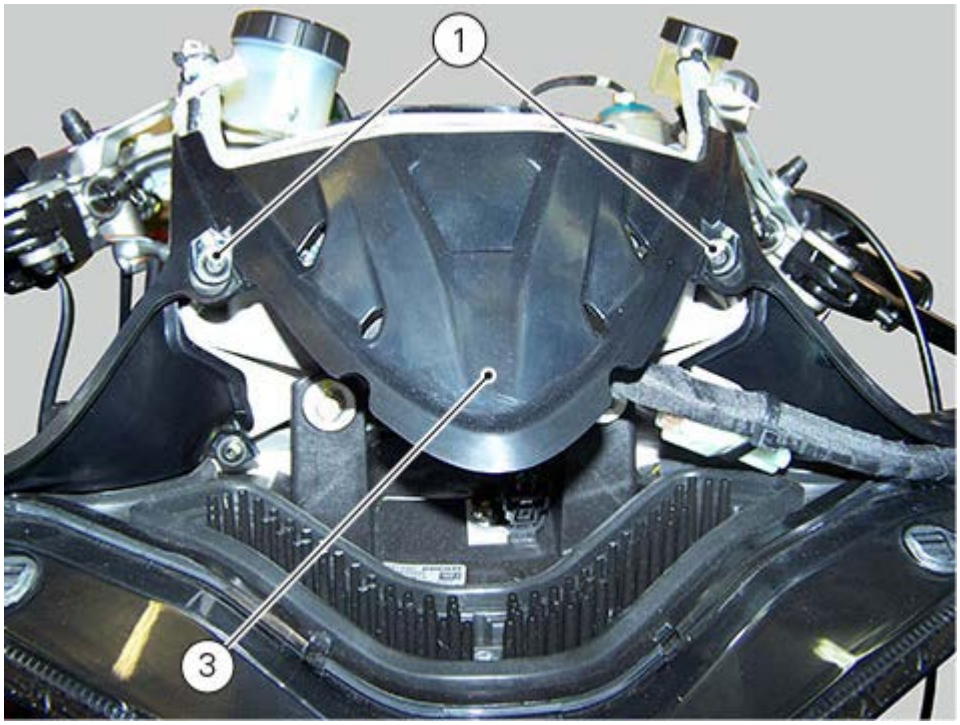


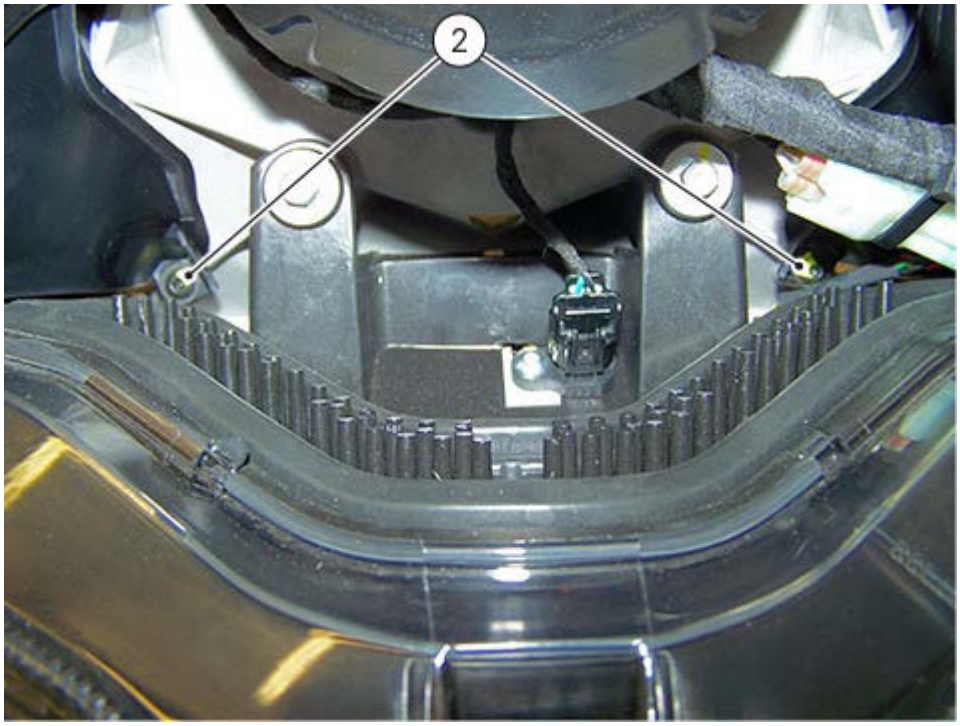
http://www.ducati-manuals.com
no. 140312

Replacement of the headlight

Removal of the headlight

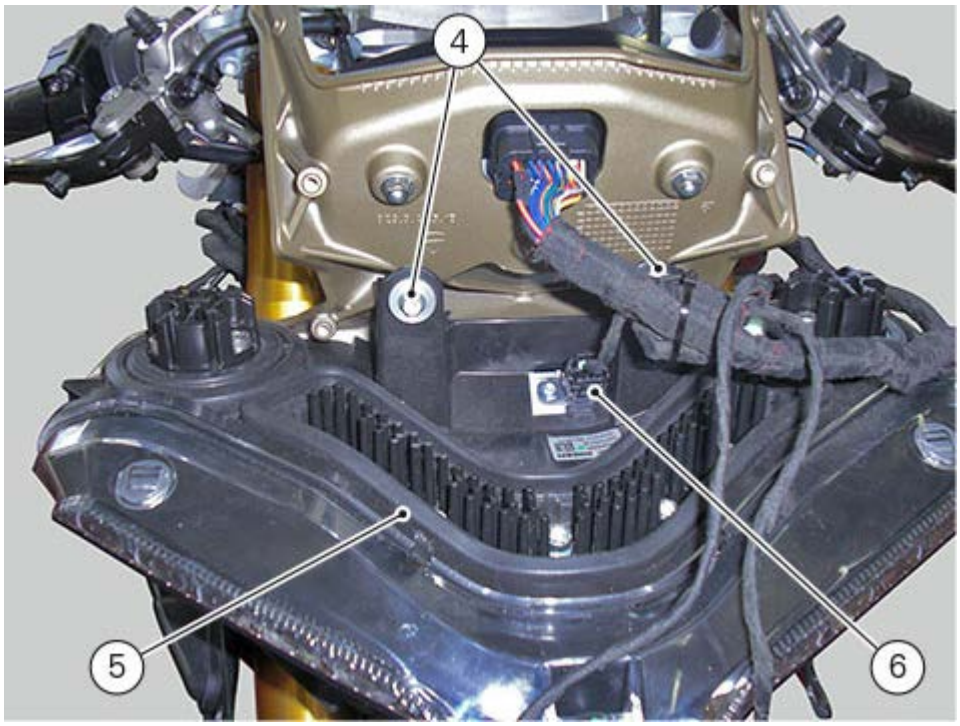
Remove the headlight fairing.
Loosen the four screws (1) and (2) securing instrument panel cover (3) to front subframe, and remove instrument panel cover (3).





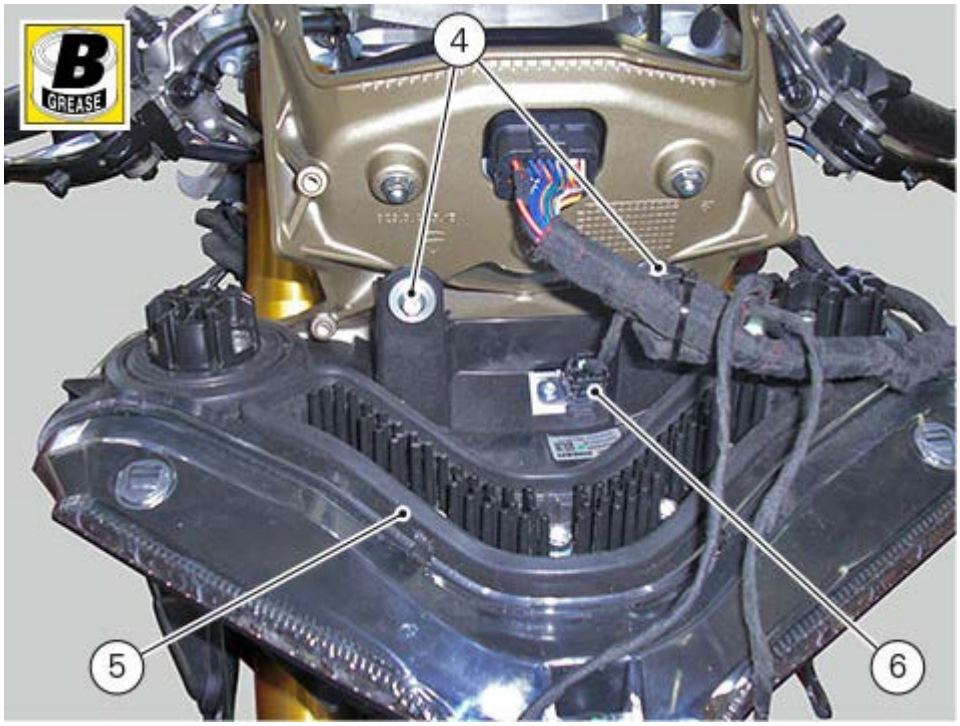
Loosen the two screws (4) securing headlight (5) to front subframe.
Disconnect connector(6) between headlight and main wiring.
Remove headlight.

http://www.ducati-manuals.com
no. 140312



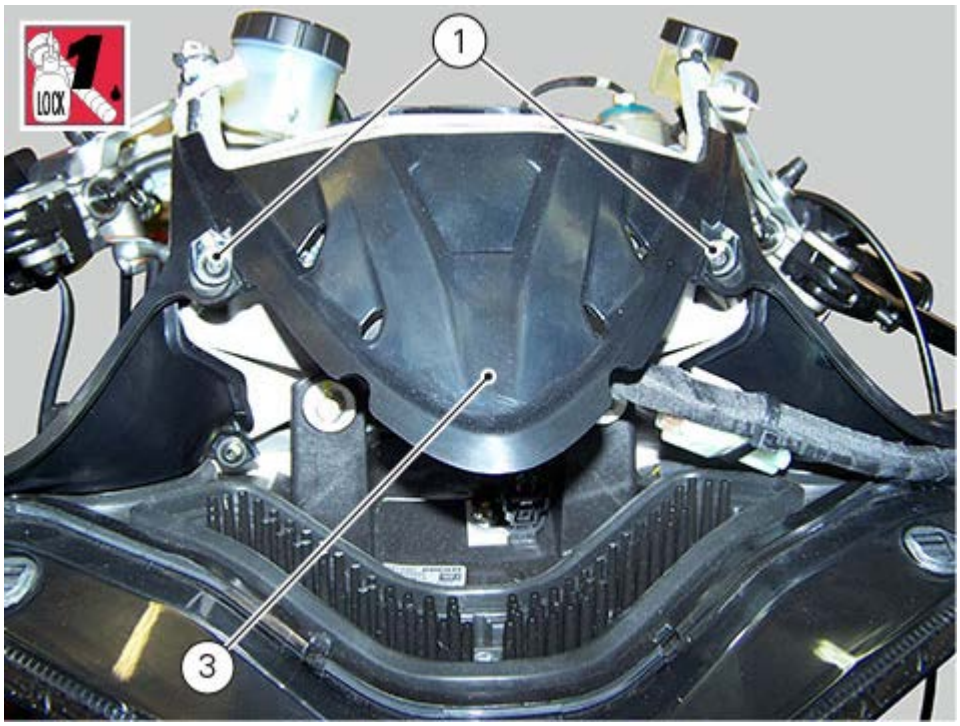
Installation of the headlight

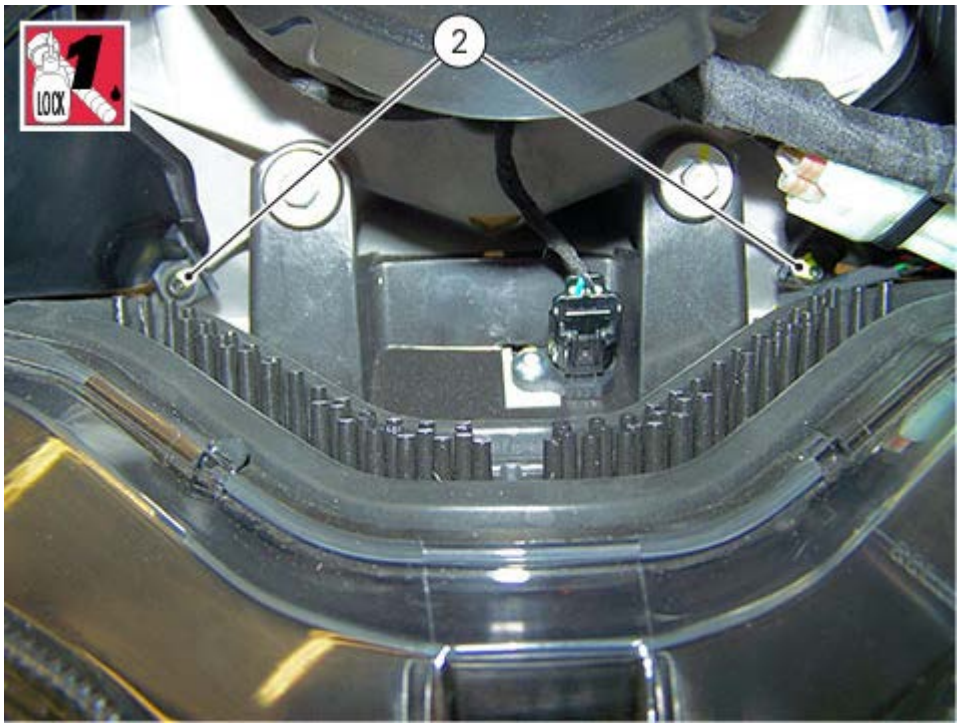
Refit headlight onto front subframe.
Connect connector(6) between headlight and main wiring.
Apply recommended grease to the screws (4).
Tighten the two screws (4) securing headlight (5) to front subframe to a torque of 5 Nm ± 10%.



Position instrument panel cover (3) onto headlight.
Smear screws (1) and (2) with recommended threadlocker.
Tighten the screws (1) and (2) to a torque of 3 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312





Refit the headlight fairing.

http://www.ducati-manuals.com
no. 140312

Instrument panel

1) Display.
2) NEUTRAL LIGHT N (GREEN).
Comes on when in neutral position.
3) HIGH BEAM LIGHT (BLUE).
It turns on to indicate that the high beam lights are on and when the flasher is activated.
4) ENGINE OIL PRESSURE LIGHT (RED).
Comes on when engine oil pressure is too low. It must turn on at Key-On, but must turn off a few seconds after the engine has started. It may shortly come on when the engine is hot, however, it should go out as the engine revs up.

Important
If the ENGINE OIL light stays on, stop the engine or it may suffer severe damage.

5) FUEL WARNING LIGHT (AMBER YELLOW).
Comes on when fuel is low and there are about 5 litres of fuel left in the tank.
6) TURN INDICATOR LIGHTS (GREEN).
Illuminates and flashes when the turn indicator is in operation.
7) “ENGINE/VEHICLE DIAGNOSIS - EOBD” LIGHT (AMBER YELLOW).
It turns on in the case of “engine” and/or “vehicle” errors and in some cases will lock the engine.
8) GENERAL WARNING LIGHTS (RED).
the lights (8a) turn on when RPM value reaches the first threshold before the rpm limiter kicks in;
the lights (8b) turn on when RPM value reaches the second threshold before the rpm limiter kicks in;
the lights (8c) turn on when RPM value reaches the third threshold before the rpm limiter kicks in.
9) ABS LIGHTS (AMBER YELLOW).
This turns on to indicate that ABS is disabled or not functioning.

Engine off / speed below 5 km/h		
Light off	**Light flashing**	**Light steady**
-	ABS disabled with the menu function “ABS”	ABS enabled, but not functioning yet
Engine on / speed below 5 km/h		
Light off	**Light flashing**	**Light steady**
-	ABS disabled with the menu function “ABS”	ABS enabled, but not functioning yet
Engine on / speed above 5 km/h		
Light off	**Light flashing**	**Light steady**
ABS enabled and functioning	ABS disabled with the menu function “ABS”	ABS disabled and not functioning due to a problem

10) DTC INTERVENTION (AMBER YELLOW).

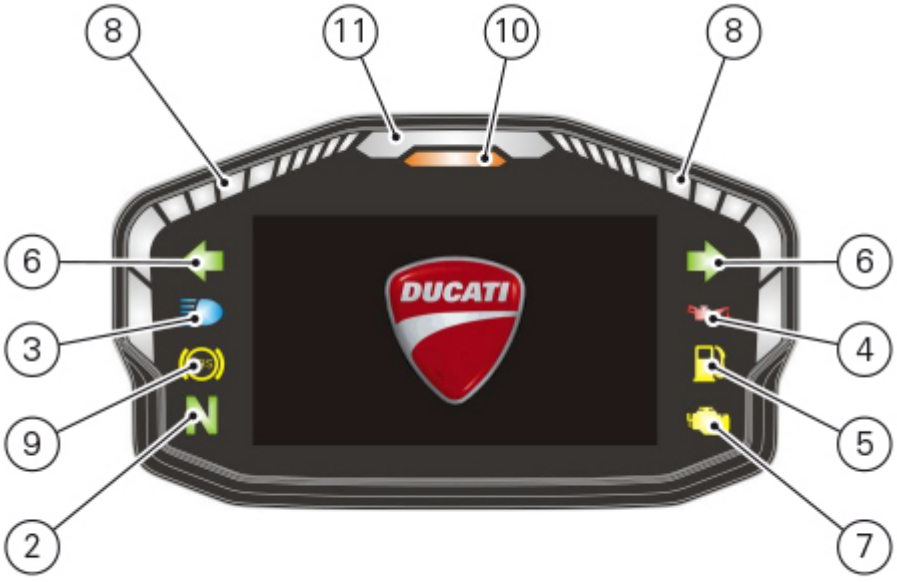
	DTC
No intervention	Light OFF
Spark advance cut	Light steady ON
Injection cut	Light steady ON

Note
Each calibration of the Engine Control Unit may have a different setting for the thresholds that precede the rev limiter and the rev limiter itself.

http://www.ducati-manuals.com
no. 140312

	Immobilizer
Key-on status	Light OFF
Key-off status	Light ON flashing
Key-off status for over 12 hours	Light OFF





http://www.ducati-manuals.com
no. 140312

Acronyms and abbreviations used in the Manual

ABS
Antilock Braking System
BBS
Black Box System
CAN
Controller Area Network
DDA
DUCATI Data Acquisition
DES
DUCATI Electronic Suspension
DSB
Dashboard
DTC
DUCATI Traction Control
DQS
DUCATI Quick Shift
EBC
DUCATI Engine Brake Control
ECU
Engine Control Unit
E-Lock
Electronic Main Switch Set
GPS
Global Positioning System
UP-MAP
Updater Map/Calibration

http://www.ducati-manuals.com
no. 140312

Technological Dictionary

Engine Brake Control (EBC)
The engine brake control system (EBC) works together with the slipper clutch to avoid and control the rear wheel lockup during aggressive downshifting. If the system detects wheel slipping, it sends a signal to the engine control unit to slightly increase engine rpm until the rear wheel speed is again consistent with vehicle speed. EBC features a three-tiered operating system and is integrated in the three Riding Modes.

Riding Mode
The rider of a 1199 Panigale can choose from 3 different preset bike configurations (Riding Modes) and pick the one that best suits his/her riding style or ground conditions. The Riding Modes allow user to instantly change the engine power delivery (Power Mode), ABS, DTC, DQS and EBC settings, instrument panel graphics and the suspension settings (DES). The Riding modes available for the 1199 Panigale are: Race, Sport and Wet. Within every Riding Mode, the rider can customise any settings.

Power Mode
The Power Modes are the different engine maps the rider can select to change power level and delivery to suit his/her own riding style and surface conditions. For the 1199 Panigale there are three Power Modes, one for each Riding Mode:

- 120 HP with "smooth" delivery;
- 195 HP with "smooth" delivery;
- 195 HP with "instant" delivery.

Ride by Wire (RbW)
The Ride by Wire system is the electronic device that controls throttle opening and closing. Since there is no mechanical connection between the throttle twistgrip and the throttle bodies, the ECU can adjust power delivery by directly affecting throttle opening angle. The Ride by Wire system allows you to obtain different power level and delivery according to the selected Riding Mode (Power Mode), but even to accurately control the engine brake (EBC), thereby helping to control the rear wheel slipping (DTC).

Ducati Electronic Suspension (DES)
The Ducati Electronic Suspension system by Öhlins automatically adjusts the rebound and compression damping. This allows the rider to set the suspensions in a different way according to the selected Riding Mode or to customise any setting according to his/her own riding style.

Ducati Traction Control (DTC)
The Ducati Traction Control system (DTC) supervises the rear wheel slipping control and settings vary through eight different levels that are programmed to offer a different tolerance level to rear wheel slipping. Each Riding Mode features a preset intervention level. Level eight indicates system intervention whenever a slight slipping is detected, while level one is for very expert riders because it is less sensitive to slipping and intervention is hence more rare.

Anti-lock Braking System (ABS) 9ME
ABS 9ME system fitted to 1199 Panigale is a two-channel latest-generation system that actuates combined braking with anti lift-up function for the rear wheel so as to guarantee not only a reduced stopping distance, but also a higher stability under braking. ABS 9ME system is specifically calibrated for sport use, and features 3 different levels of intervention, one per Riding Mode. In RACE mode the system only works on the front discs to ensure top performance for track use.

Engine Brake Control (EBC)
The engine brake control system (EBC) works together with the slipper clutch to avoid and control the rear wheel lockup during aggressive downshifting. If the system detects wheel slipping, it sends a signal to the engine control unit to slightly increase engine rpm until the rear wheel speed is again consistent with vehicle speed. EBC features a three-tiered operating system and is integrated in the three Riding Modes.

Ducati Quick Shift (DQS)
The Ducati Quick Shift (DQS) is the electronic shifter control system used for racing purposes that allows the rider to shift up under acceleration without using the clutch and keeping the throttle open: this results in lower shifting time and hence faster lap time.

Ducati Data Analyzer+ (DDA+)
DDA+ is the latest generation of the Ducati Data Analyzer, with built-in GPS signal to create a "virtual finish line". The system automatically detects lap end and stops the lap timer, without the rider needing

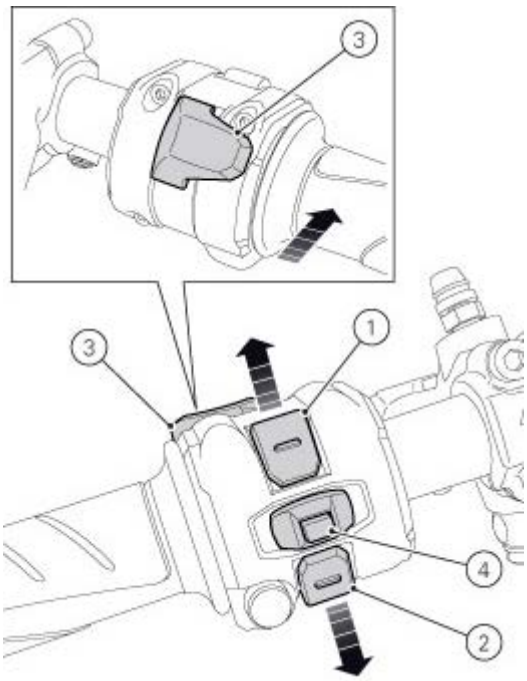
http://www.ducati-manuals.com
no. 140312

to do anything. Thanks to the built-in GPS signal, it also shows the trajectories on track map and the key vehicle parameters: throttle opening, speed, rpm, gear engaged, engine temperature, DTC intervention.

http://www.ducati-manuals.com
no. 140312

Functional buttons

1) UP CONTROL SWITCH "
"
Button used to display and set instrument panel parameters with the position "
".
2) DOWN CONTROL SWITCH "
"
Button used to display and set instrument panel parameters with the position "
".
3) HIGH-BEAM FLASH BUTTON (FLASH)
The high-beam flash button may also be used for LAP functions.
4) TURN INDICATORS CANCEL BUTTON
The turn indicators cancel button may also be used for the CONFIRM MENU function, for selecting the riding style.

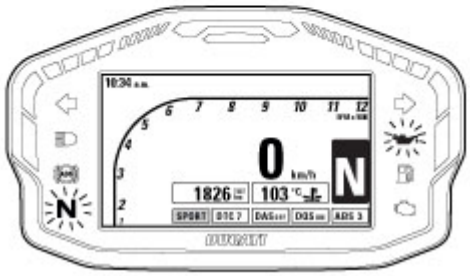


http://www.ducati-manuals.com
no. 140312

Parameter setting / displaying

When it is switched on, the instrument panel displays the DUCATI Logo and turns on the LED warning lights in two steps ("initial check").
At the end of the check, the instrument panel displays the main Screen in ROAD or TRACK mode (it depends on the last configuration in use before the key-off).





If the bike is equipped with the Performance exhaust system kit (part no. 96450211B) or the Performance silencer kit (part no. 96450311B), when the instrument panel is switched on, after the Ducati logo, it displays the text "RACING" or "RACING EVO":

- RACING when the vehicle is equipped with the Performance silencer kit;
- RACING EVO when the vehicle is equipped with the Performance complete exhaust system kit.





During this check stage, if the vehicle speed exceeds 10 km/h (actual speed), the instrument panel will stop:

- the display check routine and display the Standard Screen containing updated information;
- the warning light check routine and leave on only the warning lights that are actually active at the moment.

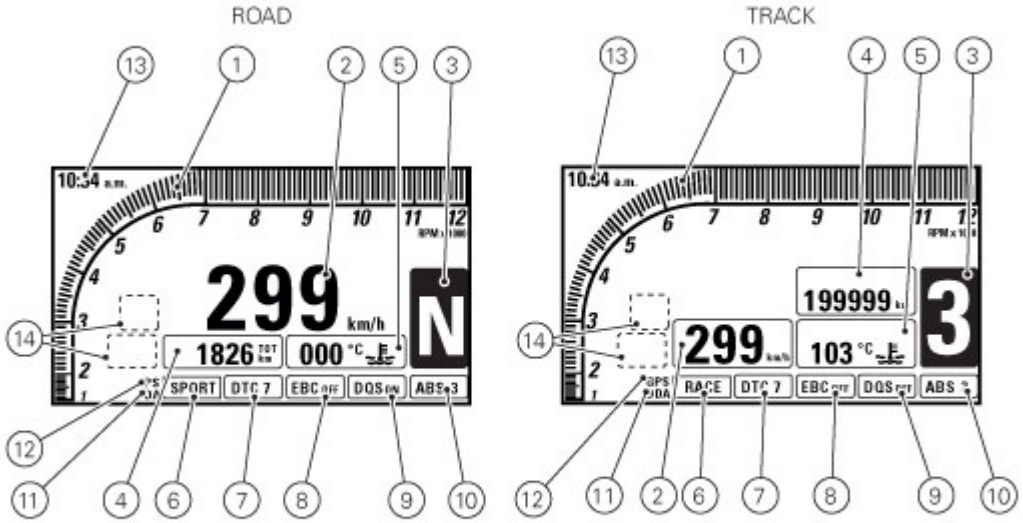
Note
When turning the key to OFF, vehicle power is cut only after 70 seconds and not immediately.

Two different main page layouts are available: ROAD and TRACK.
Data displayed on the main screen are as follows:

1 Rpm bargraph.
2 Vehicle speed.
3 Gear engaged.
4 Menu 1 (Odometer, Trip 1, Trip 2, Trip Fuel, Lap time - only if active).

http://www.ducati-manuals.com
no. 140312

5 Menu 2 (Engine coolant temperature, Instantaneous fuel consumption, Average fuel consumption, Average speed, Trip time, Ambient air temperature).
6 Set Riding Mode.
7 DTC level indication (ON) or DTC OFF indication.
8 EBC level indication (ON) or EBC OFF indication.
9 DQS ON indication or DQS OFF indication.
10 ABS ON/OFF indication.
11 DDA ON indication.
12 GPS receiving indication (only if available).
13 Clock.
14 SERVICE indication (only if active) - Alarm / Warning indication (only if present) - Error indication (only if present).



Press button (1) to display MENU 1 information.
The data displayed in a sequence, both in ROAD and TRACK modes, are:

- Odometer (TOT);
- TRIP 1;
- TRIP 2;
- TRIP FUEL (when function is active);
- Lap time (LAP) - only for TRACK mode.

Press button (2) to display MENU 2 information.
The data displayed in a sequence, both in ROAD and TRACK modes, are:

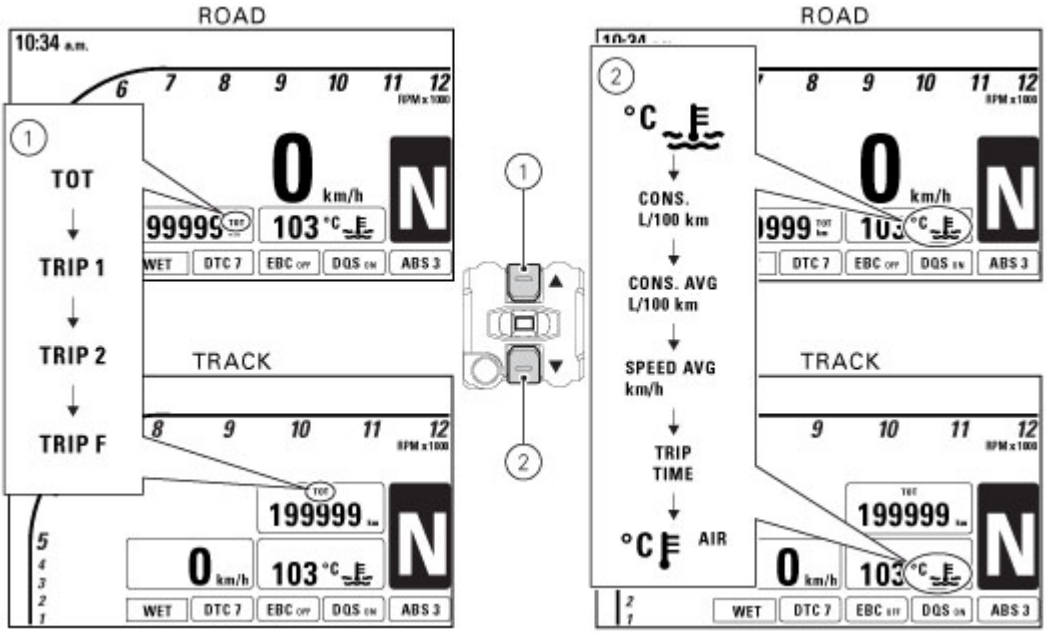
- Coolant temperature;
- Instantaneous fuel consumption (CONS.);
- Average Fuel Consumption (CONS. AVG);
- Average speed (SPEED AVG);
- Trip time (TRIP TIME);
- Air temperature.

Upon the Key-ON, the data displayed for MENU 1 and MENU 2 are the ones displayed upon the previous Key-OFF.

Note
In both ROAD and TRACK modes, the factory set default parameter (Odometer - TOT) is displayed for 10 seconds upon Key-ON for MENU 1 and then the parameter from last Key-OFF is displayed.

Note
In case of sudden and unexpected power off, the instrument panel displays the default settings upon the following Key-ON;
in particular:
- for MENU 1 - Odometer (TOT);
- for MENU 2 - Coolant temperature.

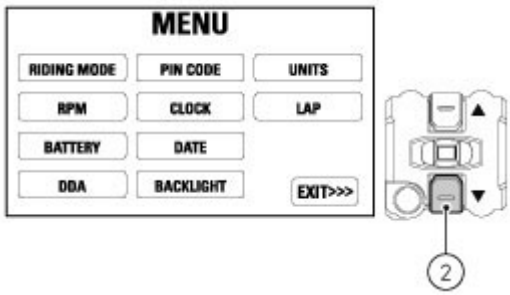
http://www.ducati-manuals.com
no. 140312



When the Standard Screen is displayed, hold the button (2) for 3 seconds, when actual vehicle speed is lower than or equal to 20 km/h, to enter the Setting MENU, where you can set any function.

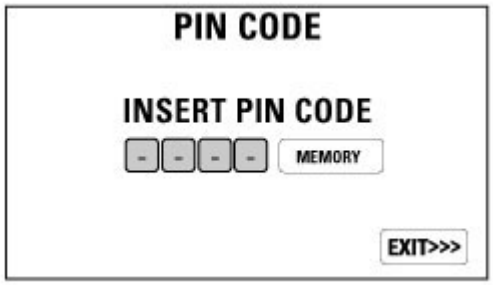
Important

The Setting MENU can only be opened if vehicle actual speed is lower than or equal to 20 km/h. When the Setting MENU is open and vehicle actual speed exceeds 20 km/h, the instrument panel automatically closes it and displays the Standard Screen.



If the key is not acknowledged upon Key-ON and once the check routine is over, the following will happen:

- if the PIN CODE function is not active, the initial lights check routine is skipped, the Standard Screen is displayed with an E-LOCK error warning and access to the Setting MENU is not allowed;
- if the PIN CODE function is active, the PIN CODE function page is displayed, allowing rider to enter the release code.



http://www.ducati-manuals.com
no. 140312

Main functions

The functions displayed in the Standard Screen are the following:

Main functions

- Engine rpm indication (RPM)
- Vehicle speed
- Gear
- Riding Mode
- DTC
- EBS
- DQS
- ABS
- MENU 1 displays the following functions:
  - Odometer (TOT)
  - Trip meter 1 (TRIP1)
  - Trip meter 2 (TRIP2)
  - Partial fuel reserve counter (TRIP FUEL)
  - LAP time - only if active and in TRACK mode
- MENU 2 displays the following functions:
  - Coolant temperature
  - Instantaneous fuel consumption (CONS.)
  - Average Fuel Consumption (CONS. AVG)
  - Average speed (SPEED AVG)
  - Trip time (TRIP TIME)
  - Ambient air temperature

Auxiliary functions

- DDA
- GPS (only if present)
- CLOCK
- Service warning (SERVICE)
- Warning/Alarm indication (Warning)
- ERROR indication

The functions within the Setting MENU that can be modified by the user are the following:

- RIDING MODE customisation: within this menu, rider can customise the following:
  - ABS setting (ABS)
  - Electronic suspension setting (DES)
  - Display settings (DISPLAY)
  - DQS ON/OFF (DQS)
  - DTC level setting (DTC)
  - Engine setting (ENGINE)
  - EBC level setting (EBC)
  - Reset to default settings (DEFAULT)
  - Engine rpm digital indication (RPM)
- Battery voltage (BATTERY)
- DDA (on/off - view - delete)
- PIN CODE (enter/change)
- Clock settings (CLOCK SETTING)
- Date settings (DATE)
- Display backlighting (BACK LIGHT)
- Units of measurement (Speed - Temperature - Fuel consumption) UNIT
- LAP (view/delete/reset automatic settings)

The area for the range from 10500 to 11500 rpm (pre-warning area) is indicated on the display in orange both with the bargraph filling and with the indication of the corresponding figure 11 ("orange area").
The area for the range from 11500 to 12000 rpm (warning area) is indicated on the display in red both with the bargraph filling and with the indication of the corresponding figure 12 ("red area").

Important

During the first 1000 km (Running-in), i.e. as long as the Odometer displays a value lower than or equal to 1000 km, the "orange area" (pre-warning area - indicated on the display in orange both with the

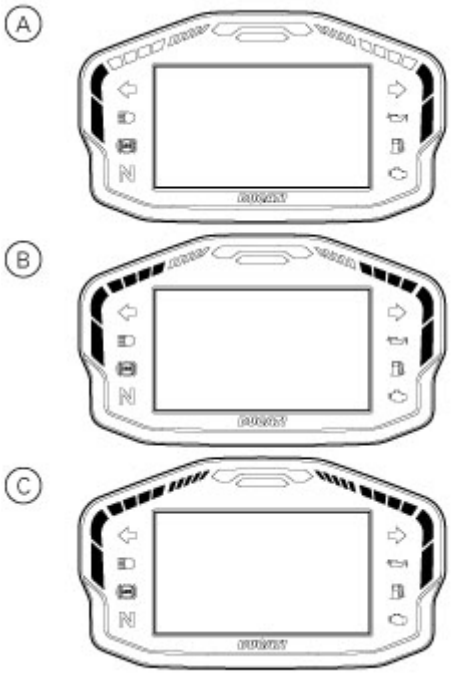
http://www.ducati-manuals.com
no. 140312

bargraph filling and with the indication of the corresponding figure) is displayed when engine reaches 6000 rpm. During this running-in period, it is recommended not to exceed 6000 rpm so make sure the instrument panel does not display the "orange area" of the bargraph.

After Running-in, the "orange area" indicates to and advises the rider to ride at lower revs when engine is cold; the "orange area" position changes according to engine temperature as follows:

- from 8000 rpm with engine temperature lower than or equal to 40 °C (104 °F)
- from 9000 rpm with engine temperature lower than or equal to 50 °C (122 °F)
- from 11000 rpm with engine temperature upper than 50 °C (122 °F)

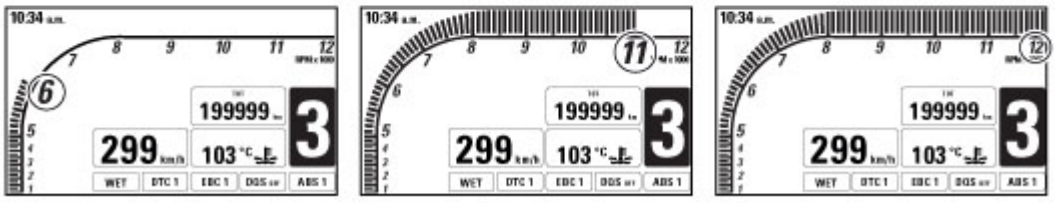
the rev limiter thresholds are divided in three groups according to the following thresholds:
1st threshold 11500 rpm (A)
2nd threshold 10700 rpm (B)
3rd threshold 10900 rpm (C)



ROAD



TRACK



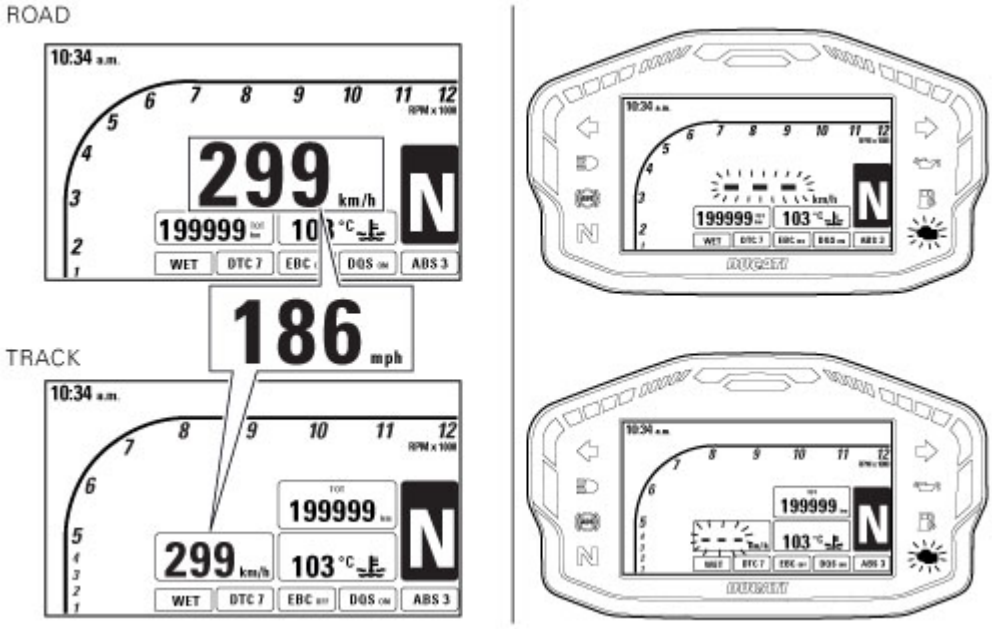
Vehicle speed

The instrument panel receives information about the actual vehicle speed (calculated in km/h) and displays the value increased by 5% and converted in the set unit of measurement (km/h or mph).

A string of dashes "---" is displayed with the set unit of measurement if:

http://www.ducati-manuals.com
no. 140312

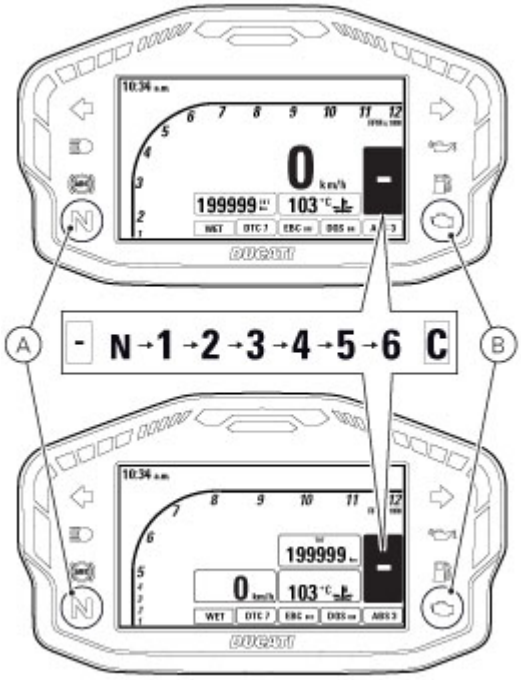
- speed is equal to 299 km/h or 186 mph or if instrument panel is not receiving the speed value ("---" steady on);
- the rear speed sensor is in fault ("---" flashing, EOBD light on and SPEED SENSOR error displayed).



Gear

The instrument panel receives information about the gear engaged and displays the corresponding value.
If a gear is engaged, the displayed value may range from 1 to 6, while if in neutral N is displayed.
Letter C is displayed when system requires you to shift gear.
A string of dashes "--" is displayed if:

- gear teach-in has not been carried out yet ("--" flashing and Neutral light (A) blinking);
- the gear sensor is in fault ("--" flashing, EOBD light (B) on and GEAR SENSOR error displayed);
- the instrument panel is not receiving the gear data ("--" steady on).

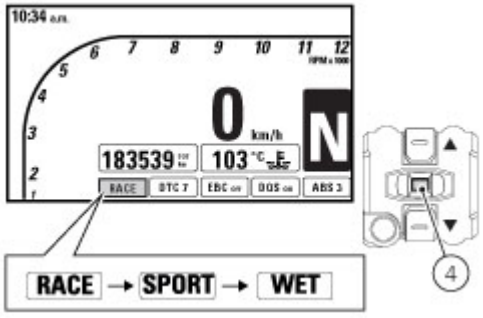


http://www.ducati-manuals.com
no. 140312

Riding Mode

The Riding Mode can be selected from the instrument panel. Preset riding modes are three: RACE, SPORT, WET.
The selected active Riding Mode is indicated at the bottom of the display, inside a box with green background if the Riding Mode settings are the default ones, or with orange background if the Riding Mode settings have been customised by the rider.
Every Riding Mode contains the following parameters, set by Ducati or customised by the user through the setting function pages:

- a specific level of intervention for the DTC traction control (1, 2, 3, 4, 5, 6, 7, 8, off);
- a specific engine power that will change throttle behaviour (195Hi, 195Lo, 120);
- a specific rebound damping setting and a specific compression damping setting for the front fork;
- a specific rebound damping setting and a specific compression damping setting for the rear shock absorber;
- a specific ABS calibration (1, 2, 3, off);
- a specific level of intervention of the EBC engine brake control system (1, 2, 3, off);
- the activation or deactivation of the quick shifter DQS (DQS on or DQS off).



Every Riding Mode also features a different standard screen layout (ROAD, TRACK), set by Ducati or customised by the rider through the setting function pages.

Warning
Ducati recommends changing the Riding mode when the vehicle is stopped. If the riding mode is changed while riding, be very careful (it is recommended to change the Riding mode at a low speed).

Selecting the Riding Mode
Press CONFIRM MENU button (4) to enter the menu for selecting the Riding Mode (A). The instrument panel displays the speed indication (on the right) and riding mode name (on the left):

- RACE
- SPORT
- WET

one of these will be highlighted to indicate that it was the last stored setting and is currently in use.

Warning
It is not possible to open the menu for selecting the riding mode, if button (4) is in the position for activating the turn indicators (to the left or right)

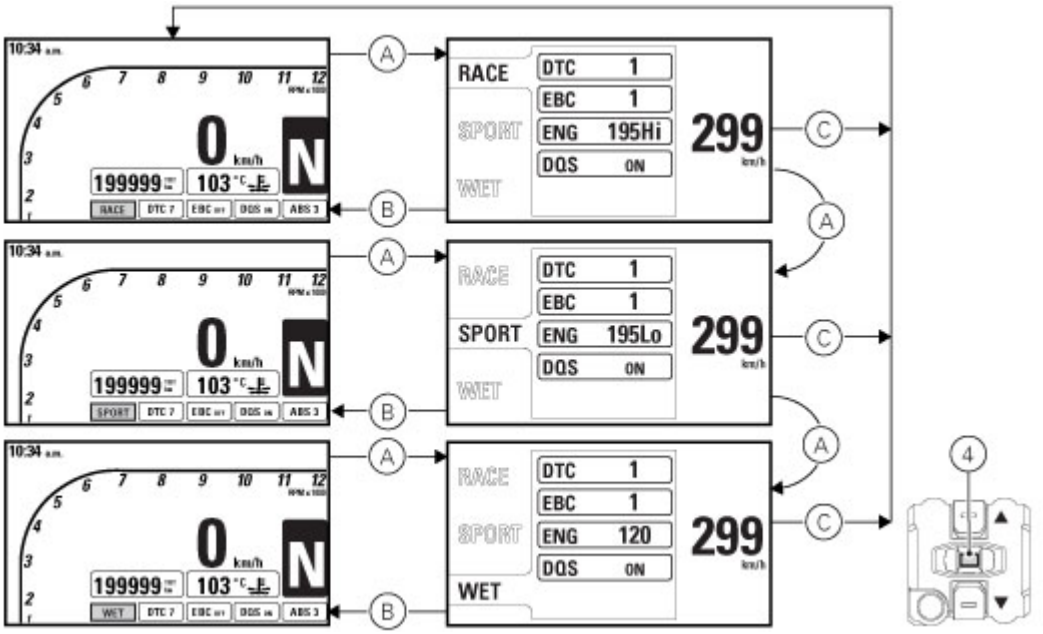
For the highlighted Riding Mode some of the parameter settings are displayed:

- DTC: the DTC text followed by the level of intervention set (1, 2, 3, 4, 5, 6, 7, 8) in case the DTC is active or by OFF in case the DTC is disabled;
- EBC: the EBC text followed by the level of intervention set (1, 2, 3) in case the EBC is active or by OFF in case the EBC is disabled;
- engine power (ENGINE): the ENG text followed by the set engine power; power indication may be 195Hi, 195Lo or 120; in some countries (such as France and Japan) HIGH, MED and LOW are used;
- DQS: the DQS text followed by ON in case the DQS is active or by OFF in case the DQS is disabled;
- ABS: the ABS text followed by the level of calibration set (1, 2, 3) in case the ABS is active or by OFF in case the ABS is disabled.

The displayed information is the settings stored in every single Riding Mode. The stored settings may be

http://www.ducati-manuals.com
no. 140312

the factory ones (Ducati default settings) or the ones customised by the owner. Any time the CONFIRM MENU button (4) is pressed, you highlight a riding mode and the associated parameters are displayed (A).
Once the desired riding mode is highlighted, confirm the selection by holding down the CONFIRM MENU button (4) for 2 seconds: the new riding mode selection is stored and the Standard Screen is displayed (B). Once the desired riding mode is highlighted, if the CONFIRM MENU button (4) is not pressed within 10 seconds, the new riding mode selection is not stored and the Standard Screen is displayed (C).



When system requests rider to confirm the riding mode change, the procedure will output an error if:

- the throttle twistgrip is open, brakes are activated and the vehicle is not still; in this case CLOSE THROTTLE AND RELEASE BRAKES error is displayed and the procedure for changing riding mode will not be completed unless the rider closes the throttle and releases the brakes or the vehicle is stopped (zero speed) within 5 seconds. When procedure is not successful the Standard Screen is displayed.

Note
If the change of riding mode is associated with the ABS change of state from ON to OFF or vice-versa, the instrument panel also starts the procedure for disabling or activating the ABS, respectively, upon confirmation of the selected riding mode.

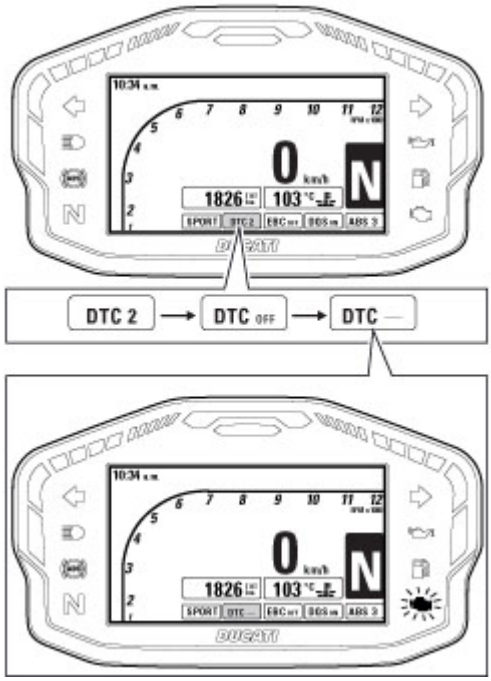


http://www.ducati-manuals.com
no. 140312

DTC

The instrument panel displays DTC status as follows:

- if DTC is active, DTC indication and intervention level number (1 to 8);
- if DTC is disabled, DTC OFF indication;
- if DTC is in fault or the Black Box is in fault, DTC --- indication; the EOBD light turns on as well and the corresponding error is displayed.



Warning

DTC is a rider aid that can be used both on the track and the road. The system is designed to make riding easier and to enhance safety, but in no way relieves the rider of the obligation to ride responsibly and maintain a high standard of conduct in accordance with traffic laws so as to avoid accident or force emergency maneuvers, whether caused by his own errors or those of other road users.

The rider must always be aware that active safety systems have a preventive function. The active elements help the rider control the motorcycle, making it as easy and safe to ride as possible. The presence of an active safety system should not encourage the rider to ride at speeds beyond the reasonable limits, not in accordance with the road conditions, the laws of physics, good riding standards and the requirements of the road traffic code.
The following table indicates the most suitable level of DTC intervention for the various riding modes as well as the default settings in the "Riding Mode" that can be selected by the rider.

DTC	RIDING MODE	USE	DEFAULT
1	RACE	Track use, for very expert riders, optimised for Pirelli tyres with SC2 compound. System permits sliding sideways.	NO
2	RACE	Track use, for very expert riders, optimised for OEM tyres (Original Equipment Manufacturer). Permits sliding sideways.	It is the default level for the "RACE" Riding Mode
3	RACE	Track use for expert riders. Permits sliding sideways.	NO
4	RACE	Track use (and road use for expert riders).	NO
5	SPORT	Sport style on the road or on the track, consistent with ENGINE 195cv LOW setting (maximum power 195HP, with Smooth delivery).	It is the default level for the "SPORT" Riding Mode
		"Very safe" style on dry surface, on the road or on the track,	

http://www.ducati-manuals.com
no. 140312

6	SPORT	consistent with ENGINE 195cv LOW setting (maximum power 195HP, with Smooth delivery).	NO
7	WET (RAIN)	Track use, with rain tyres, in particular it was optimised for Pirelli Diablo Rain tyres (rear tyre 190/55 ZR17).	NO
8	WET (HEAVY RAIN)	Wet road and slippery asphalt with OEM tyres; it must be associated with ENGINE 120 setting.	It is the default level for the "WET" Riding Mode

Tips on how to select the sensitivity level

Warning
The DTC level 1 setting has been calibrated using tires with SC2 compound (Pirelli Diablo Supercorsa SC2), which are not originally supplied with your motorcycle. The use of this level with tires having different characteristics may alter the operating characteristics of the system.

Warning
The DTC level 7 setting has been calibrated using Rain tyres (Pirelli Diablo Rain with size 190/55 ZR17 at the rear) that are not those originally supplied with your motorcycle. The use of this level with tyres having different characteristics may alter the operating characteristics of the system.

Warning
The DTC levels 2-3-4-5-6-8 settings have been calibrated using the tyres originally supplied with your motorcycle (Pirelli Diablo Supercorsa SP 120/70ZR17 at the front and 200/55ZR17 at the rear). The use of tyres of different size and characteristics to the original tyres may alter the operating characteristics of the system.

In the case of minor differences, such as for example, tyres of a different make and/or model than the OE ones, but with the same size (rear = 200/55 ZR17; front = 120/70 ZR17), it may be sufficient to simply select the suitable level setting from those available in order to restore optimal system operation.
If tyres of a different size class are used or if the tyre dimensions differ significantly from the original tyres, it may be that the system operation is affected to the point where none of the 8 available level settings will give satisfactory results. In this case is it is advisable to deactivate the traction control system.
If level 8 is selected, the DTC system will kick in at the slightest hint that the rear wheel is starting to spin.
Between level 8 and level 1 there are further intermediate levels of intervention for the DTC. Levels 1, 2 and 3 allow the rear wheel to spin and slide: these levels are recommended on the track only and exclusively for expert riders: in particular, level 1 is designed to work at best only with tyres having SC2 compound.
The choice of the correct level mainly depends on the following parameters: the tyre/asphalt grip (type of tyre, amount of tyre wear, the road/track surface, weather conditions, etc.).
The characteristics of the path/circuit (bends all taken at similar speeds or at very different speeds).
The riding mode (whether the rider has a "smooth" or a "rough" style).
Level depends on grip conditions: the choice of level setting depends greatly on the grip conditions of the track/circuit (see below, tips for use on the track and on the road).
Level depends on type of track: if the track/path features bends all taken at similar speeds, it will be easier to find a level suitable for all bends; while a track/path with bends all requiring different speeds will require a DTC level setting that is the best compromise for all bends.
The relation of the DTC intervention level to riding mode: the DTC will tend to kick in more with a "smooth" riding mode, where the bike is leaned over further, rather than with a "rough" style, where the bike is straightened up as quickly as possible when exiting a turn.

Tips for use on the track
We recommend that level 8 is used for a couple of full laps (to allow the tyres to warm up) in order to get used to the system. Then try levels 7, 6, etc., in succession until you identify the DTC sensitivity level that suits you best (always try each level for at least two laps to allow the tyres to warm up).
Once you have found a satisfactory setting for all the corners except one or two slow ones, where the system tends to kick in and control too much, you can try to modify your riding style slightly to a more "rough" approach to cornering i.e. straighten up more rapidly on exiting the corner, instead of immediately trying a different level setting.

Tips for use on the road
Activate the DTC, select level 8 and ride the motorcycle in your usual style; if the level of DTC sensitivity seems excessive, try reducing the setting to level 7, 6, etc., until you find the level that suits you best.
If changes occur in the grip conditions and/or circuit characteristics and/or your riding style, and the

http://www.ducati-manuals.com
no. 140312

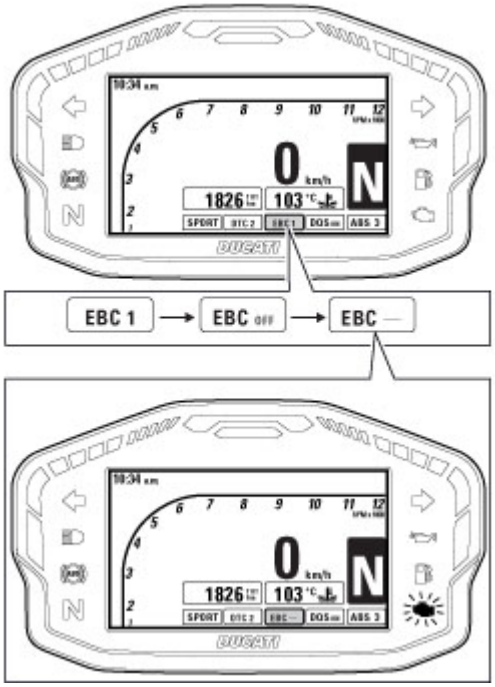
level setting is no longer suitable, switch to the next level up or down and proceed to determine the best setting (e.g. if with level 7 the DTC intervention seems excessive, switch to level 6; alternatively, if on level 7 you cannot perceive any DTC intervention, switch to level 8).

http://www.ducati-manuals.com
no. 140312

EBC

The instrument panel displays EBC status as follows:

- if EBC is active, EBC indication and intervention level number (1 to 3);
- if EBC is disabled, EBC OFF indication;
- if EBC is in fault or the control unit is in fault, EBC --- indication; the EOBD light turns on as well and the corresponding error is displayed.



The EBC is a system controlling the engine brake while riding with throttle fully closed (both when downshifting and when simply releasing throttle with the same gear engaged, and both under braking or not), this system independently sets the throttles in order to make the torque transmitted backward from wheel to engine during these stages constant.
The system allows the rider to select among various settings, from a maximum engine brake with system set to OFF to a decreasing level of engine brake at increasing level number.
System intervention is quite important at high engine rpm and decreases as the engine rpm decreases.

Warning

EBC is a rider aid that can be used both on the track and the road. The system is designed to make riding easier and to enhance safety, but in no way relieves the rider of the obligation to ride responsibly and maintain a high standard of conduct in accordance with traffic laws so as to avoid accidents or force emergency maneuvers, whether caused by his own errors or those of other road users.

The following table indicates the most suitable level of EBC intervention for the various riding types as well as the default settings in the "Riding Mode" that can be selected by the rider:

EBC	CHARACTERISTIC	DEFAULT
OFF	Maximum engine brake 1	NO
1	Quite important engine brake, but less than that obtained with EBC OFF	It is the default level for all Riding Modes
2	Very low engine brake, recommended only for track use and for riders requiring a low engine brake when decelerating	NO
3	Minimum engine brake, recommended only for track use and for riders preferring a very low engine brake when decelerating	NO

Tips on how to select the sensitivity level

http://www.ducati-manuals.com
no. 140312

Warning

The EBC levels 1-2-3 settings have been calibrated using the tyres originally supplied with your motorcycle (Pirelli Diablo Supercorsa SP 120/70ZR17 at the front and 200/55ZR17 at the rear). The use of tyres of different size and characteristics to the original tyres (in particular at the rear) may alter the operating characteristics of the system.

In the case of minor differences, such as for example, tyres of a different make and/or model than the OE ones, but with the same size (rear = 200/55 ZR17; front = 120/70 ZR17), it may be sufficient to simply select the suitable level setting from those available in order to restore optimal system operation. If tyres of a different size class are used or if the tyre dimensions differ significantly from the original tyres, it may be that the system operation is affected to the point where none of the 3 available level settings will give satisfactory results. In this case is it is advisable to deactivate the traction control system.
Selecting level 3, the EBC will kick in to ensure the minimum engine brake possible. Between level 3 and level 1 the engine brake is increasing progressively; with EBC OFF you set the maximum engine brake possible.
The choice of the correct level mainly depends on the following parameters:
The tyre/asphalt grip (type of tyre, amount of tyre wear, the road/track surface, weather conditions, etc.).
The characteristics of the path/circuit (bends all taken at similar speeds or at very different speeds).

The Riding Mode

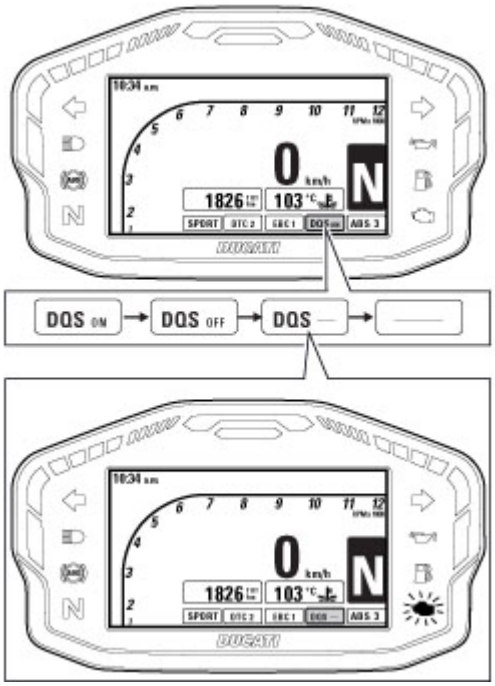
Level depends on grip conditions: the choice of level setting depends greatly on the grip conditions of the track/circuit (see below, tips for use on the track and on the road).
Level depends on type of track: if the track/path requires consistent braking (always aggressive or always smooth), it will be easier to find a level suitable for all braking instances; while a track/path requiring different braking power will require an EBC level setting that is the best compromise for all instances.

http://www.ducati-manuals.com
no. 140312

DQS

The instrument panel displays DQS status as follows:

- if DQS is enabled, DQS ON indication;
- if DQS is disabled, DQS OFF indication;
- if DQS is in fault or the control unit is in fault, DQS --- indication; the EOBD light turns on as well and the corresponding error is displayed;
- if the DQS is not present on the motorcycle, the symbol ----- is shown.



http://www.ducati-manuals.com
no. 140312

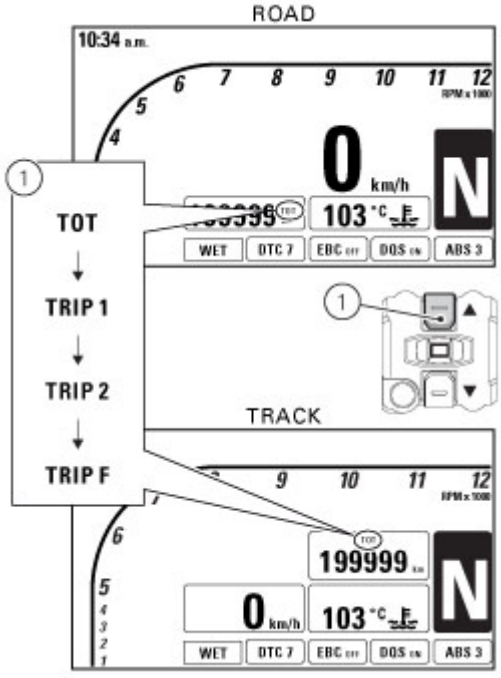
Menu 1 functions

MENU 1 functions, for every riding mode (Race, Sport and Wet), can be displayed in one of the two following modes:

- ROAD;
- TRACK.

The functions are:

- Odometer (TOT);
- Trip meter 1 (TRIP1);
- Trip meter 2 (TRIP2);
- Partial fuel reserve counter (TRIP FUEL);
- LAP time (if active) - only for TRACK mode.

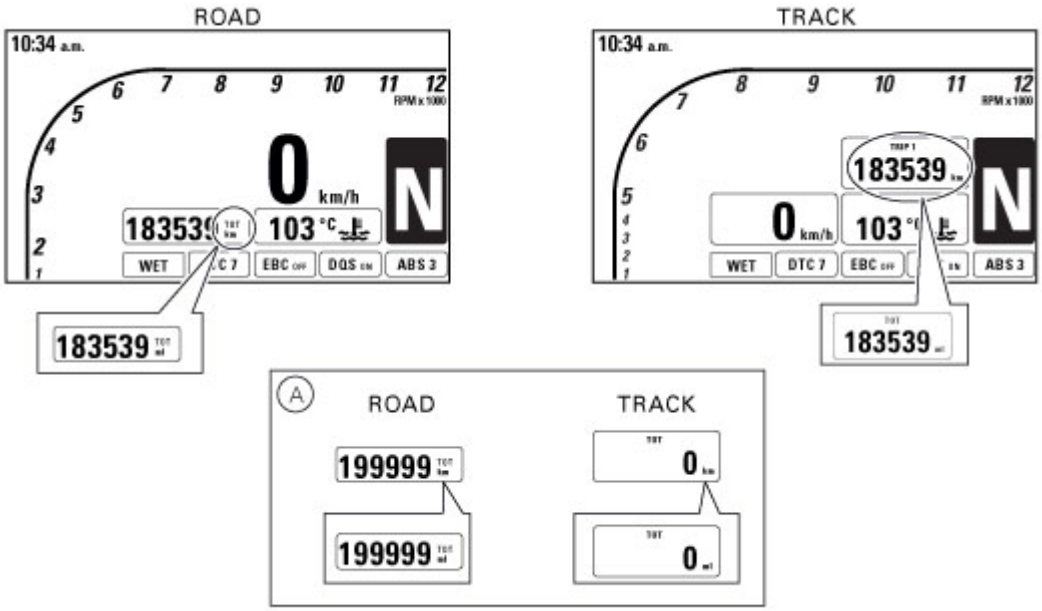


http://www.ducati-manuals.com
no. 140312

Menu 1: Odometer (TOT)

The odometer counts and displays the total distance covered by the vehicle with the set unit of measurement (km or mi).
The odometer number of km or miles is displayed with the TOT indication and unit of measurement.
When the maximum value is reached (199999 km or 199999 mi) the instrument panel will permanently display said value.
The odometer value is saved permanently and cannot be reset under any circumstances.
The reading is not lost in case of a power off (Battery Off).

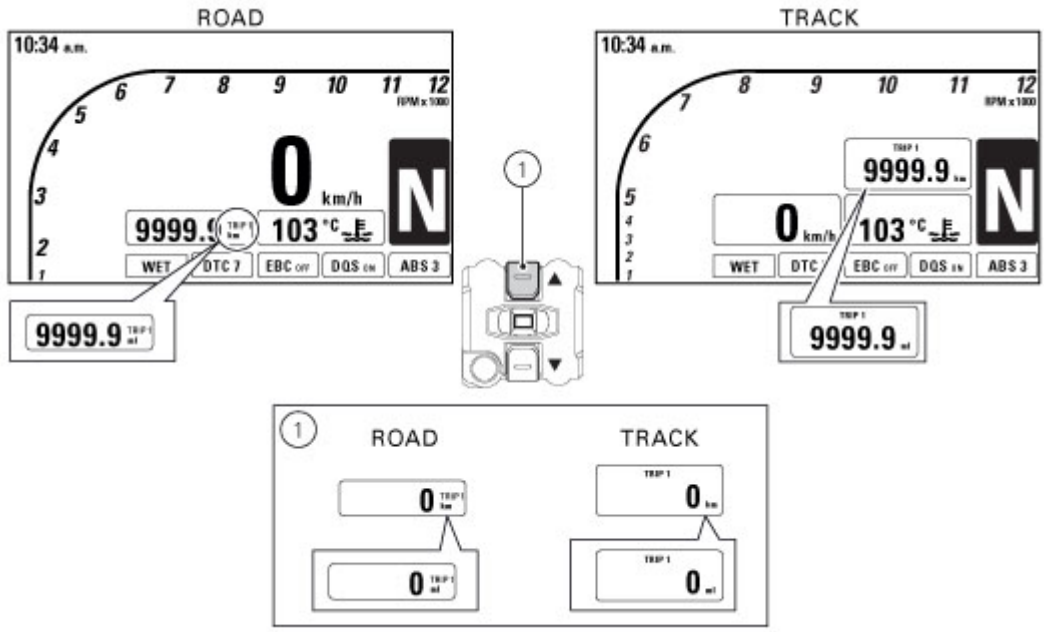
Note
Upon Key-On, the instrument panel always shows the Odometer indication for 10 seconds, then shows the user's settings page.



http://www.ducati-manuals.com
no. 140312

Menu 1: Trip meter 1 (TRIP 1)

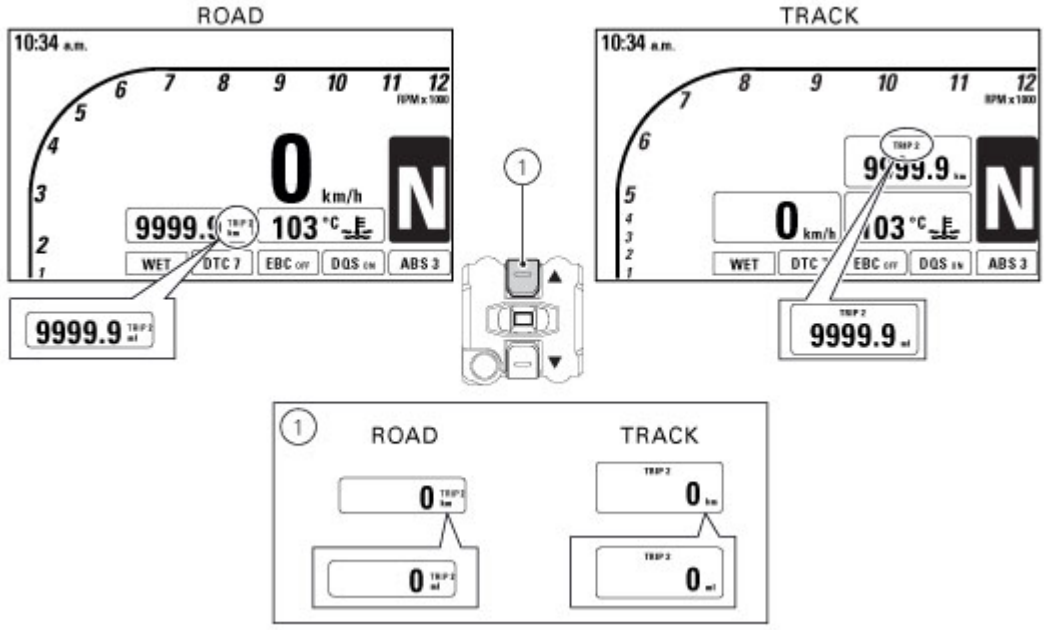
The trip meter counts and displays the partial distance covered by the vehicle with the set unit of measurement (km or mi) and is used as a basis to calculate average fuel consumption, average speed and trip time.
The TRIP1 number of km or miles is displayed with the TRIP1 indication and unit of measurement.
When the reading exceeds the maximum value of 9999.9 km or 9999.9 mi, distance travelled is reset and the meter automatically starts counting from 0 again.
While the trip meter is displayed, press button (1) for 3 seconds to reset TRIP 1. When TRIP1 is reset, the average fuel consumption, average speed and trip time data are reset as well.
TRIP1 counter is automatically reset in case the system unit of measurement is changed manually: the counter will then start back from zero, considering the new units of measurement.



http://www.ducati-manuals.com
no. 140312

Menu 1: Trip meter 2 (TRIP 2)

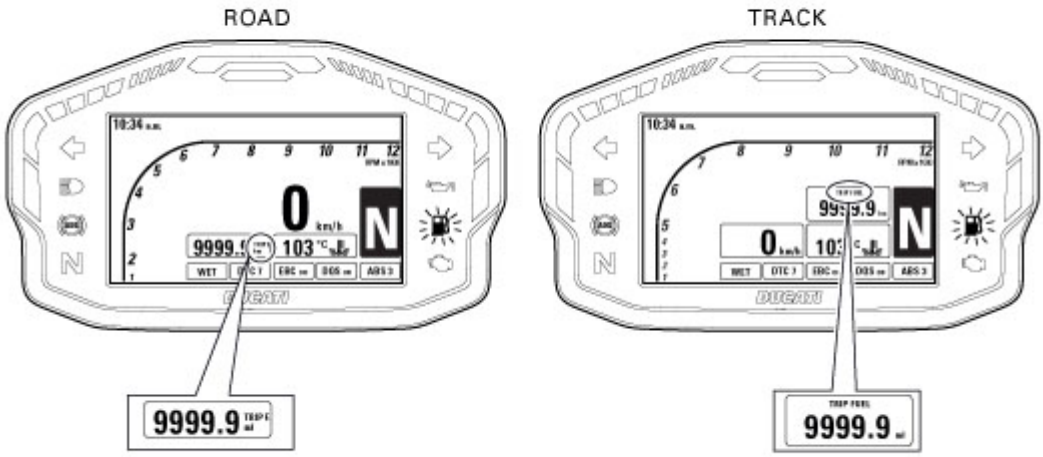
The trip meter counts and displays the partial distance covered by the vehicle with the set unit of measurement (km or mi).
The TRIP2 number of km or miles is displayed with the TRIP2 indication and unit of measurement. When the reading exceeds the maximum value of 9999.9 km or 9999.9 mi, distance travelled is reset and the meter automatically starts counting from 0 again. While the trip meter is displayed, press button (1) for 3 seconds to reset TRIP 2.
TRIP2 counter is automatically reset in case the system unit of measurement is changed manually: the counter will then start back from zero, considering the new units of measurement.



http://www.ducati-manuals.com
no. 140312

Menu 1: Partial fuel reserve counter (TRIP FUEL)

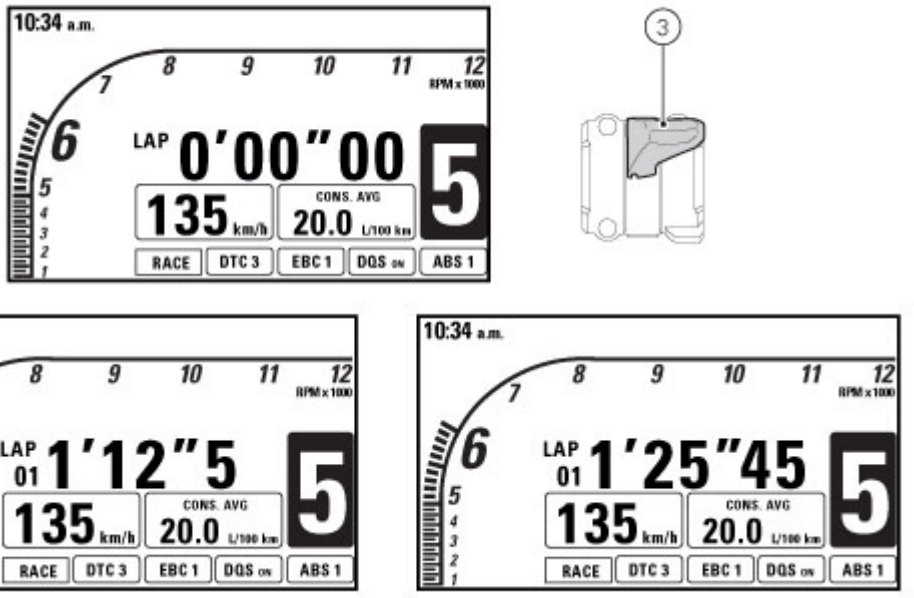
The fuel trip meter counts and displays the distance covered by the vehicle on reserve (since the low fuel light turns on) with the set unit of measurement (km or mi).
When the Low fuel light turns on, the display automatically shows the TRIP FUEL function, regardless of the currently displayed function; then, it is possible to toggle through the other Menu functions.
Trip fuel reading remains stored even after Key-Off until the vehicle is refuelled. Count is interrupted automatically as soon as fuel is topped up to above minimum level.
The number of km or miles is displayed with the TRIP FUEL indication and unit of measurement.
When the reading exceeds the maximum value of 9999.9 km or 9999.9 mi, distance travelled is reset and the meter automatically starts counting from 0 again.
When the TRIP FUEL function is not active, the corresponding value will not be displayed in the Menu.



http://www.ducati-manuals.com
no. 140312

Menu 1: LAP time

The LAP function is only available for the display layout with standard screen in TRACK mode. LAP function information is available when the function is active. When the LAP function is activated, the timer is displayed indicating "0'00''00" as well as the LAP number with first indication "LAP – – ".
When the FLASH button (3) is pressed for the first time, timer starts with resolution of a tenth of a second ("0'00''0") and current LAP number is indicated on the screen. Any time user further presses the FLASH button (3), the display temporarily shows the number and time of the just-ended lap, then it will show the timer and number of the new current lap. If lap timer is active but vehicle is at standstill, lap timer is temporarily stopped after 5 seconds and it is displayed with the initial indication "0'00''00" and lap number "LAP – –".
One further press on the FLASH button (3) activates lap timer again.



Note
When the LAP function is active, the FLASH button takes on the dual function of high beam "FLASH" and LAP timer start / stop (new lap start indication).

Note
The TRIP FUEL function always has top priority over the LAP function: in case of activation of the TRIP FUEL function with active LAP function, the LAP timer view is automatically removed and TRIP FUEL information is displayed instead.

LAP recording

If the LAP function is active, it is possible to record the lap time, for a total of 30 consecutive laps.

Operation:

- when the FLASH button (3) is pressed for the first time, the display shows the timer with resolution of a tenth of a second (0' 00'' 0);
- any time user further presses the FLASH button (3), the instrument panel display shows the number and time of the just-ended lap with resolution of a hundredth of a second for 5 seconds;
- after these 5 seconds, the instrument panel goes back to lap timer page referred to the new current lap.
- if motorcycle remains at standstill for over 5 seconds, lap timer is temporarily stopped and it is displayed with the initial indication "0'00''00" and lap number "LAP – –";
- one further press on the FLASH button (3) or equivalent control activates lap timer again.

If the time is never stopped, it will roll over upon reaching 9 minutes, 59 seconds and 99 hundredths; the lap timer starts counting from zero and will keep running until the lap is stopped or the recording function is disabled.
Laps are numbered from 01 to 30 and are in a loop: after the first 30 laps the instrument panel will overwrite information starting from Lap 01.
If the LAP function is interrupted (change to ROAD layout or temporary disabling or key-off) and then

http://www.ducati-manuals.com
no. 140312

reactivated (back to TRACK layout or reactivation or key-on) but memorised laps are not deleted, lap information will be recorded by overwriting data of the oldest Lap.
Example: if you rode 34 laps without deleting data, the instrument panel stores the first 30 laps and then overwrites the first 4 laps. Upon the following key-on or reactivation of the LAP function, if no data were deleted, the instrument panel will continue storing data from Lap 05.

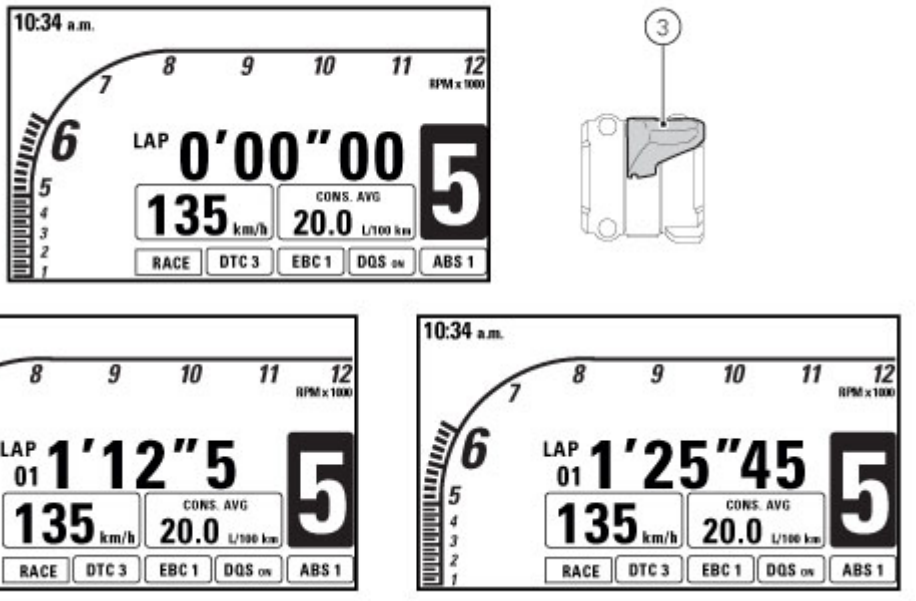
During every lap, the following data are stored:

- no. 30 lap times (time between consecutive start and stop);
- no. 30 values for max. RPM (maximum RPM value reached in every lap);
- no. 30 values for max. speed (maximum speed value reached in every lap).

http://www.ducati-manuals.com
no. 140312

Menu 1: LAP time

The LAP function is only available for the display layout with standard screen in TRACK mode. LAP function information is available when the function is active. When the LAP function is activated, the timer is displayed indicating "0'00''00" as well as the LAP number with first indication "LAP – – ". As the motorcycle is equipped with GPS, the lap "Start/Stop" command is sent by the GPS. In order for the GPS to identify each lap's "Start/Stop" automatically, finish line coordinates need to be stored by pressing the FLASH button (3) when passing the finish line for the first time. The timer starts with resolution of a tenth of a second (0'00''00) and current LAP number is indicated on the screen; each time the finish line is passed, the display temporarily shows the number and time of the just-ended lap, then it will show the timer and number of the new current lap. If a stored GPS finish line is present within a range of 15 km from current position, the word LAP is replaced with the chequered flag symbol to indicate that finish line coordinates are stored. Stored finish line coordinates are retained after key-off, and are updated each time the FLASH button (3) is pressed while the TRACK screen is active. If a stored finish line is stored anew, the word LAP appears first and then the chequered flag symbol is shown again. If lap timer is active but vehicle is at standstill, lap timer is temporarily stopped after 5 seconds and it is displayed with the initial indication "0'00''00" and lap number "LAP – –". Upon the next "Start" command sent by the GPS (finish line pass), the lap timer is activated again.



Note

When the LAP function is active, the FLASH button takes on the dual function of high beam command and finish line memorization for GPS of the LAP timer (new lap start indication).

Note

The TRIP FUEL function always has top priority over the LAP function: in case of activation of the TRIP FUEL function with active LAP function, the LAP timer view is automatically removed and TRIP FUEL information is displayed instead.

LAP recording

If the LAP function is active, it is possible to record the lap time, for a total of 30 consecutive laps.

Operation:

- In order for the GPS to identify each lap's "Start/Stop" automatically, finish line coordinates need to be stored by pressing the FLASH button (3) when passing the finish line for the first time. The timer starts with resolution of a tenth of a second (0'00''00);
- each time the finish line is passed, the display shows the number and time of the just-ended lap with resolution of a hundredth of a second for 5 seconds;
- after these 5 seconds, the instrument panel goes back to lap timer page referred to the new current lap.
- if motorcycle remains at standstill for over 5 seconds, lap timer is temporarily stopped and it is displayed with the initial indication "0'00''00" and lap number "LAP – –";
- upon the next "Start" command sent by the GPS (finish line pass), the lap timer is activated again.

http://www.ducati-manuals.com
no. 140312

If the time is never stopped, it will roll over upon reaching 9 minutes, 59 seconds and 99 hundredths; the lap timer starts counting from zero and will keep running until the lap is stopped or the recording function is disabled.
Laps are numbered from 01 to 30 and are in a loop: after the first 30 laps the instrument panel will overwrite information starting from Lap 01.
If the LAP function is interrupted (change to ROAD layout or temporary disabling or key-off) and then reactivated (back to TRACK layout or reactivation or key-on) but memorised laps are not deleted, lap information will be recorded by overwriting data of the oldest Lap.
Example: if you rode 34 laps without deleting data, the instrument panel stores the first 30 laps and then overwrites the first 4 laps. Upon the following key-on or reactivation of the LAP function, if no data were deleted, the instrument panel will continue storing data from Lap 05.

During every lap, the following data are stored:

- no. 30 lap times (time between consecutive start and stop);
- no. 30 values for max. RPM (maximum RPM value reached in every lap);
- no. 30 values for max. speed (maximum speed value reached in every lap).

http://www.ducati-manuals.com
no. 140312

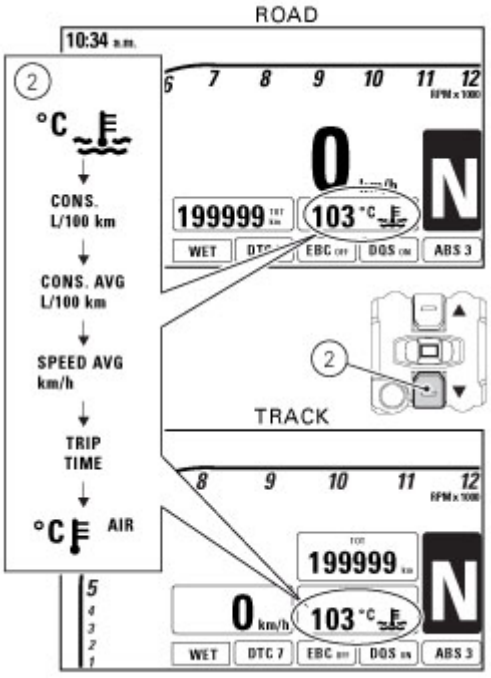
MENU 2 functions

MENU 2 functions, for every riding mode (Race, Sport and Wet), can be displayed in one of the two following modes:

- ROAD
- TRACK

The functions are:

- Coolant temperature
- Instantaneous fuel consumption (CONS.)
- Average Fuel Consumption (CONS. AVG)
- Average speed (SPEED AVG)
- Trip time (TRIP TIME)
- External air temperature

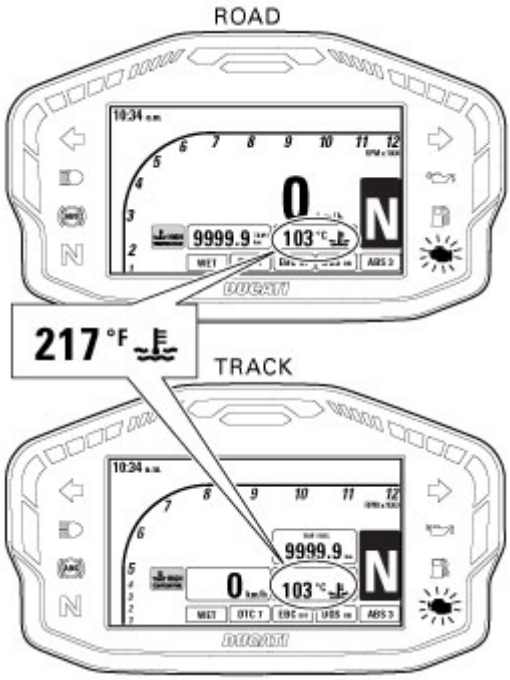


http://www.ducati-manuals.com
no. 140312

MENU 2: Coolant temperature

The instrument panel receives information about the engine temperature (already calculated in °C) and displays the value in the set unit of measurement (°C or °F), followed by the unit of measurement and the engine temperature symbol.
The temperature display range goes from 40 °C to +120 °C (+104 °F ÷ +248 °F).
If reading is:

- <= (lower or equal to) -40 °C, a string of flashing dashes " - - - " is displayed;
- within the range -39 °C to +39 °C, "LOW" is displayed steadily;
- within the range +40 °C to +120 °C, the value is displayed steadily;
- >= (higher than or equal to) +121 °C, "HIGH" is displayed flashing.



If coolant temperature exceeds:

- 100 °C, the temperature reading is immediately displayed in MENU 2, regardless of any other function displayed in MENU 2; the other MENU 2 functions can still be displayed;
- 121 °C, the temperature reading is immediately displayed in MENU 2, regardless of any other function displayed in MENU 2; the other MENU 2 functions can not be displayed. The alarm icon is also displayed.

If the coolant temperature sensor is in fault, a string of flashing dashes "- - -" is displayed, followed by the set unit of measurement; the EOBD light turns on as well and the ENGINE TEMP. SENSOR error is displayed.
If the instrument panel is not receiving coolant temperature value, a string of steady dashes "- - -" is displayed, followed by the unit of measurement.

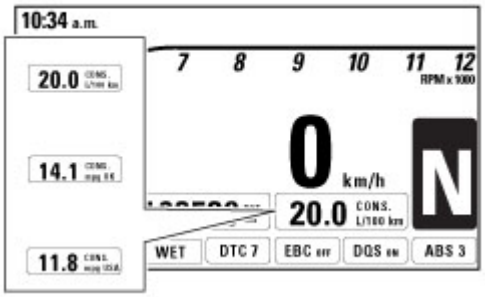
http://www.ducati-manuals.com
no. 140312

MENU 2: Instantaneous fuel consumption

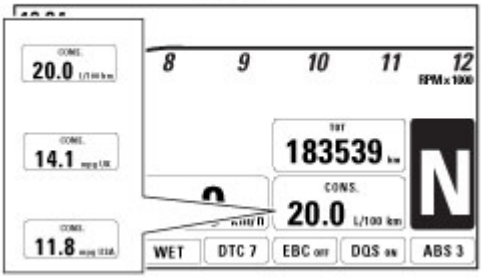
The instrument panel calculates and displays the vehicle instantaneous fuel consumption, the set unit of measurement and CONS. text.
The calculation is made considering the quantity of fuel used and the distance travelled during the last second. Value is expressed in the set unit of measurement: litres / 100 km or mpg UK or mpg USA.
The active calculation phase only occurs when the engine is running and the vehicle is moving (moments when the vehicle is not moving when speed is equal to 0 and/or when the engine is off are not considered).
When the calculation is not made, a string of three dashes is displayed " - - . - " steadily as instantaneous fuel consumption.

Note
It is possible to change the units of measurement for “Consumption” (both average and instantaneous together) from L/100 to km/L through the Setting MENU using the UNITS function.

ROAD



TRACK



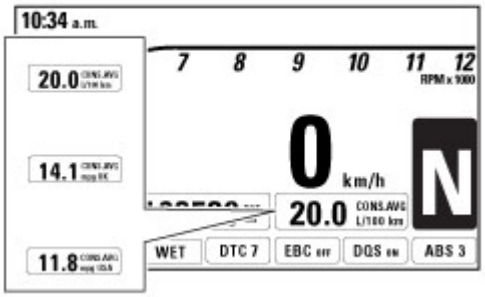
http://www.ducati-manuals.com
no. 140312

MENU 2: Average fuel consumption

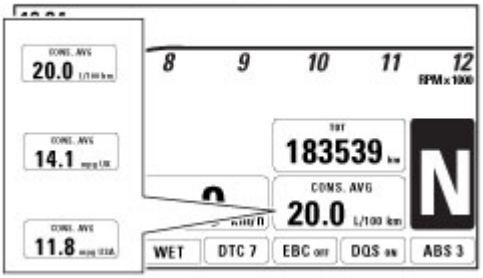
The instrument panel calculates and displays the vehicle average fuel consumption, the set unit of measurement and CONS. AVG text.
The calculation is made considering the quantity of fuel used and the distance travelled since TRIP1 was last reset.
When TRIP1 is reset, the value is reset and the first value available is displayed 10 seconds after the reset.
During the first 10 seconds, when the value is not yet available, the display will show a string of three dashes "- - . - " steadily as average fuel consumption. Value is expressed in the set unit of measurement (litres / 100 km or mpg UK or mpg USA).
The active calculation phase occurs when the engine is running and the vehicle is stopped (moments when the vehicle is not moving and the engine is off are not considered).

Note
It is possible to change the units of measurement for “Consumption” (both average and instantaneous together) from L/100 to km/L through the Setting MENU using the UNITS function.

ROAD



TRACK



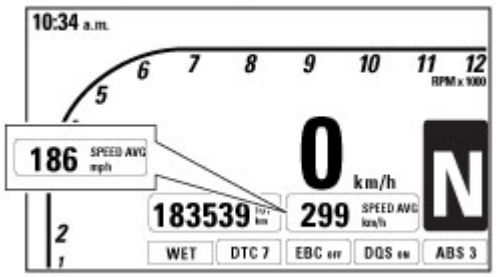
http://www.ducati-manuals.com
no. 140312

MENU 2: Average speed

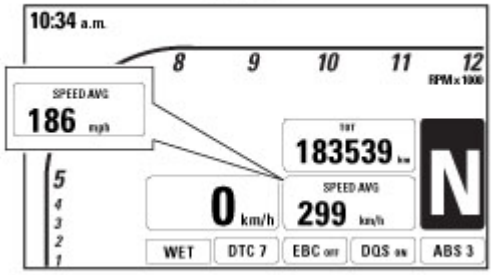
The instrument panel calculates and displays the vehicle average speed, the set unit of measurement and SPEED AVG text.
The calculation considers the distance and time since TRIP1 was last reset.
When TRIP1 is reset, the value is reset and the first value available is displayed 10 seconds after the reset.
During the first 10 seconds, when the value is not yet available, the display will show a string of three dashes " - - - " steadily as average speed. The active calculation phase occurs when the engine is running and the vehicle is stopped (moments when the vehicle is not moving and the engine is off are not considered).
The average speed value displayed is calculated by adding 5% so as to be consistent with vehicle speed indication.

Note
It is possible to change the units of measurement of Speed (and distance travelled as well) from km/h (and km) to mph (and mi) through the Setting Menu, using the UNITS SETTING function.

ROAD



TRACK



http://www.ducati-manuals.com
no. 140312

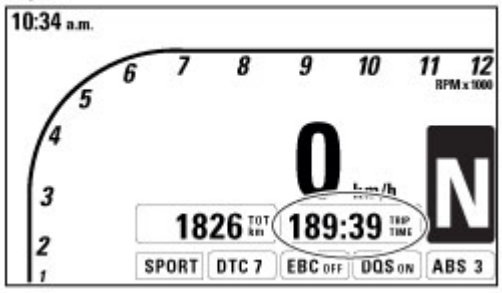
MENU 2: Trip time

The instrument panel calculates and displays the trip time as hhh:mm followed by TRIP TIME. The calculation considers the time since TRIP1 was last reset. When TRIP1 is reset, this value is reset as well. The time count active phase occurs when the engine is running and the vehicle is stopped (the time is automatically stopped when the vehicle is not moving and the engine is off and restarts when the counting active phase starts again). When the reading exceeds 720:00 (720 hours and 00 minutes), the meter is reset and automatically starts counting from 0 again.

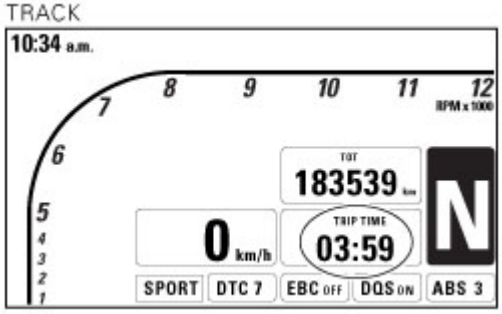
Note

If you change the unit of measurement for an item connected to Speed (and distance) or Consumption, the trip time value will be automatically reset.

ROAD



TRACK



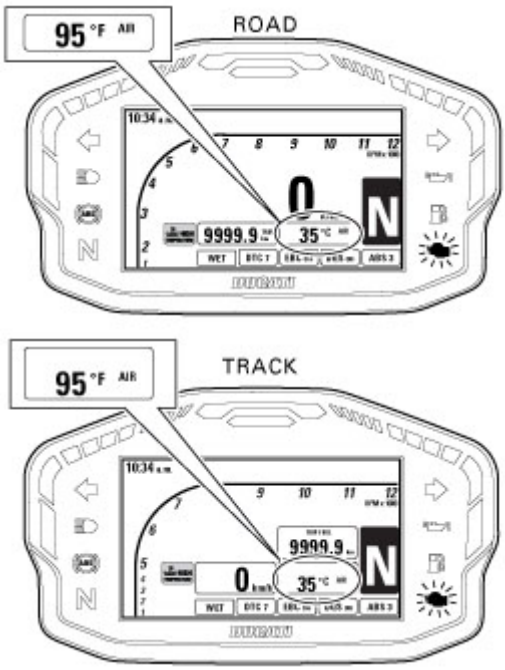
http://www.ducati-manuals.com
no. 140312

MENU 2: External air temperature

The instrument panel displays the ambient temperature in the set unit of measurement (°C or °F), followed by the set unit of measurement, AIR text and the thermometer symbol. The temperature value is displayed when ranging from -39 °C to +124 °C (or -38 °F ÷ +255 °F). For any different temperature (below -39 °C or above +124 °C) a string of three dashes " - - - " is steadily displayed, followed by the unit of measurement. If the air temperature sensor is in fault, the instrument panel will show three flashing dashes " - - - " as air temperature value, followed by the unit of measurement, the EOBD light will turn on as well and the corresponding error T AIR SENSOR is displayed. If the instrument panel is not receiving air temperature value, a string of three steady dashes "- - -" is displayed, followed by the unit of measurement.

Note

When the vehicle is stopped, the engine heat may influence the displayed temperature.

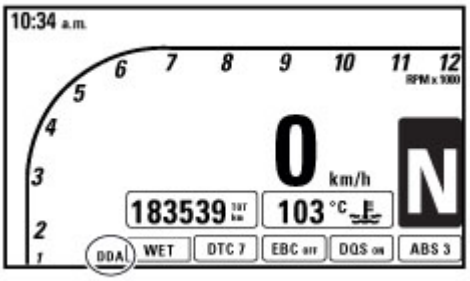


http://www.ducati-manuals.com
no. 140312

Auxiliary functions

DDA

The instrument panel indicates DDA status only if the vehicle fits the DDA.
If the DDA indication is displayed it means that the DDA is active and recording.
If the DDA indication is not displayed it means that the DDA is not active.

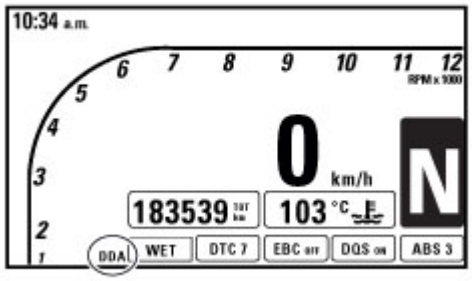


http://www.ducati-manuals.com
no. 140312

Auxiliary functions

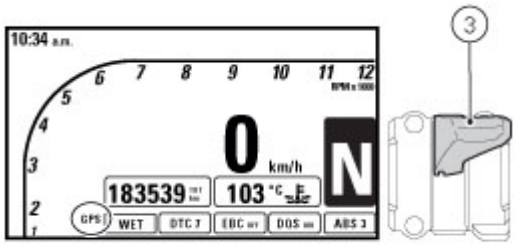
DDA

The instrument panel indicates DDA status only if the vehicle fits the DDA.
If the DDA indication is displayed it means that the DDA is active and recording.
If the DDA indication is not displayed it means that the DDA is not active.



GPS

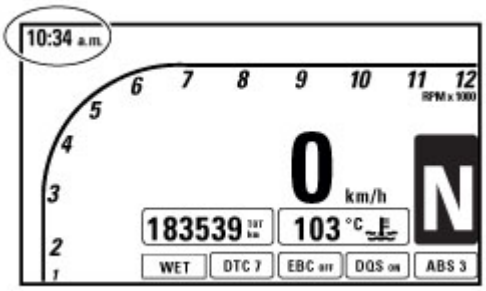
The instrument panel provides GPS indication only when the GPS fitted to the vehicle is present. The instrument panel displays the status of the GPS receiver if it is installed on the motorcycle. If the GPS indication is displayed it means that GPS location has been found and GPS reception is active. If the GPS indication is not displayed it means that no GPS location has been found, or GPS reception is not active or a GPS error has occurred. The GPS may also be used to determine finish line location for the LAP function.
When this is the case, the new lap start command is sent by the GPS. In order for the GPS to identify each lap's "Start/Stop" automatically, finish line coordinates need to be stored in the GPS. Coordinates must be stored when the finish line is passed for the first time by pressing the FLASH (3) button.



http://www.ducati-manuals.com
no. 140312

CLOCK

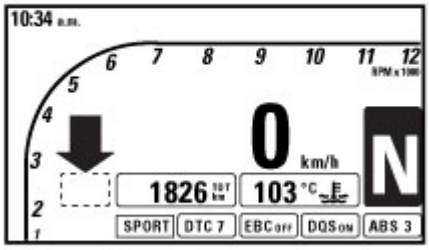
The instrument panel receives information about the time to be displayed.
This indication is displayed at the top left side of the display.
The instrument panel shows the time in the following format: mm (minutes) with "a.m." indication (for values ranging between 0:00 and 11:59), or with "p.m." indication (for values ranging between 12:00 and 12:59 and between 1:00 and 11:59).
If the instrument panel does not receive current time information, it displays "- - : - - a.m." steadily.



http://www.ducati-manuals.com
no. 140312

Service warning (SERVICE)

This indication shows the user that the bike is due for service and must be taken to a Ducati Authorised Service Centre.
The service warning indication can be reset only by the Authorised Ducati Service Centre during servicing.
Icons are displayed according to the Warnings/Alarms displaying rules.



http://www.ducati-manuals.com
no. 140312

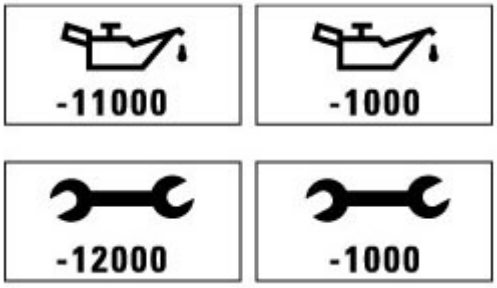
OIL SERVICE zero indication

The first maintenance indication is OIL SERVICE zero, enabled when the odometer counter reaches the first 1000 km: it is displayed in the "large" format, and then is always visible in the small format, until the Ducati Authorised Service Centre "resets" it during servicing.
Icons are displayed according to the Warnings/Alarms displaying rules.



OIL SERVICE or DESMO SERVICE countdown indication

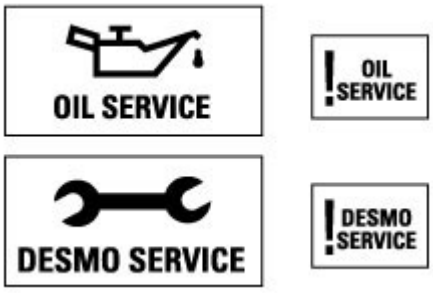
After OIL SERVICE zero reset (at 1000 km), the dashboard activates the countdown of the kilometres (or miles) left before the following service operation (OIL SERVICE or DESMO SERVICE).
The green indication is shown upon Key-On for 2 seconds in the "large" format; when there are 1000 km left before the next service operation, the indication turns yellow and is enabled upon every Key-On for 5 seconds.
Icons are displayed according to the Warnings/Alarms displaying rules.



http://www.ducati-manuals.com
no. 140312

OIL SERVICE or DESMO SERVICE indication

When the service threshold is reached, the warning for the type of service required is triggered (OIL SERVICE or DESMO SERVICE).
The indication of the service type is enabled upon every Key-On for 5 seconds in the "large" format, and then is always visible in the small format, until the Ducati Authorised Service Centre "resets" it during servicing.
Icons are displayed according to the Warnings/Alarms displaying rules.



http://www.ducati-manuals.com
no. 140312

Warning/Alarm (Warning)

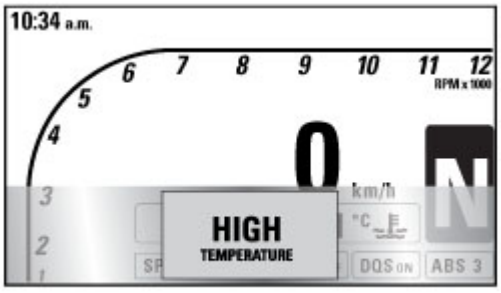
The instrument panel manages several warnings / alarms (warnings), in order to give useful information to the rider when he/she is using the vehicle.
Upon Key-On, if there are active warnings the instrument panel displays the indication of the present warnings.
During normal vehicle operation, when a warning is triggered the instrument panel automatically displays the warning. When a warning is triggered, the indication remains well visible for 5 seconds ("large" icon) then becomes smaller ("small" icon).
If several live warnings are present, the corresponding icons will be displayed one after the other and every one will stay on for 3 seconds. No special signal light turns on if any warning is activated.

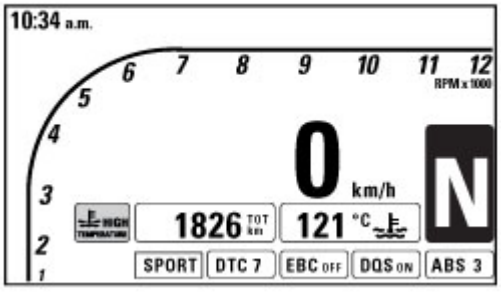
High coolant temperature (High temperature)

This function warns the rider when the engine coolant temperature reaches 121°C (250°F).

Note

In this case, Ducati recommends stopping and shutting off the engine immediately; ensure that fans are on.

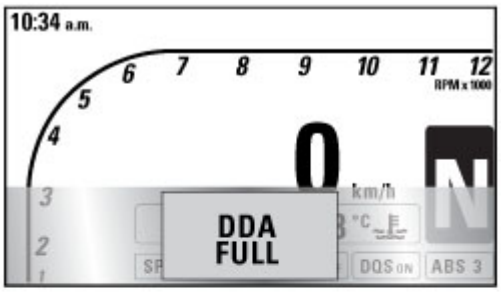


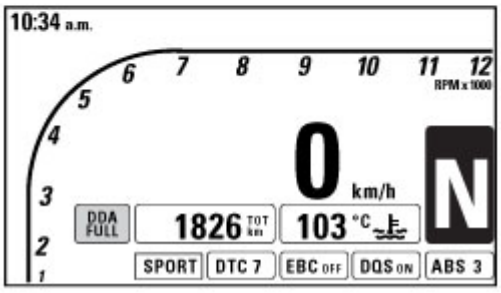


DDA memory full (DDA full)

This function warns the rider when the DDA memory is full, and thus no other trip data can be stored.

http://www.ducati-manuals.com
no. 140312



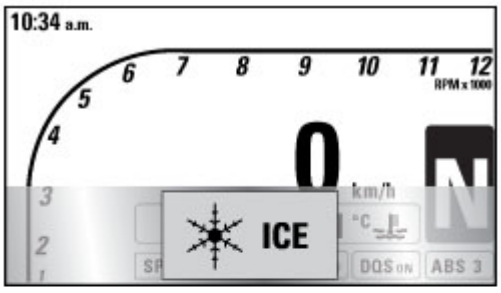


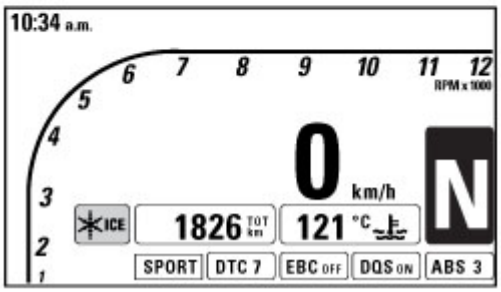
Ice

This function warns the rider about the possible presence of ice on the road, due to a low external temperature.
The message is displayed when the temperature decreases down to 4°C (39°F), and is disabled when temperature increases up to 6°C (43°F).

Warning

This warning does not exclude the possibility of icy road sections even at temperatures above 39°F (4°C); when external temperatures are "low" it is always recommended to ride carefully, particularly on sections that are not exposed to the sun and/or on bridges.

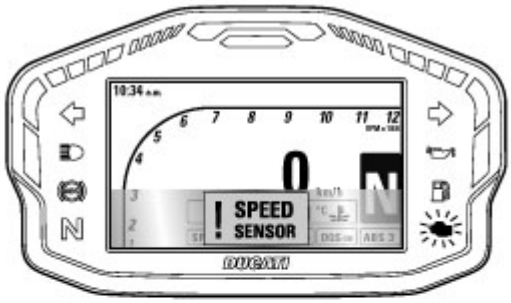


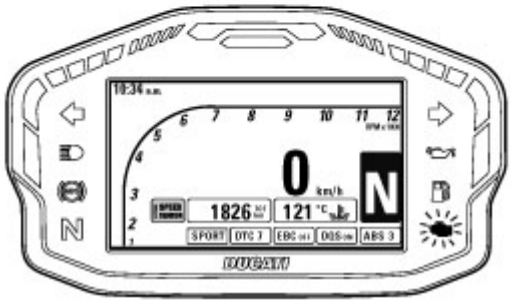


http://www.ducati-manuals.com
no. 140312

ERROR indication

The instrument panel manages error warnings in order to allow the rider to identify any abnormal vehicle behaviour in real time.
Upon Key-On, if there are errors the instrument panel displays the indication of the present errors and turns on the EOBD light.
During vehicle normal operation, any time an error warning is activated, the instrument panel automatically displays the error indication and turns on the EOBD light.
When an error is triggered, the indication remains well visible for 5 seconds ("large" icon) then becomes smaller ("small" icon).



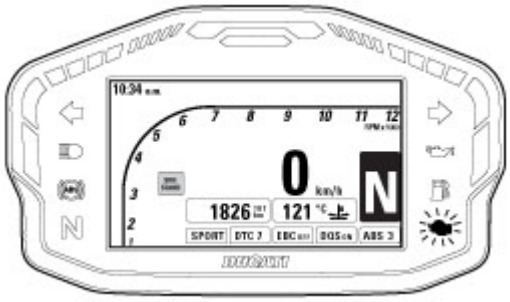


If several errors are present, the corresponding icons will be displayed one after the other and every one will stay on for 3 seconds.
When an error is triggered the EOBD light turns on as well.

http://www.ducati-manuals.com
no. 140312

Side stand status displaying

The instrument panel receives data about stand status and, if side stand is open, it displays "SIDE STAND" on a red background. If the Side stand sensor error is live, the instrument panel displays the open side stand warning, turns on the EOBD light and displays the corresponding "Side stand sensor" error.
If the instrument panel does not receive the side stand status, the "SIDE STAND" indication (open side stand) will flash to indicate an indefinite status.

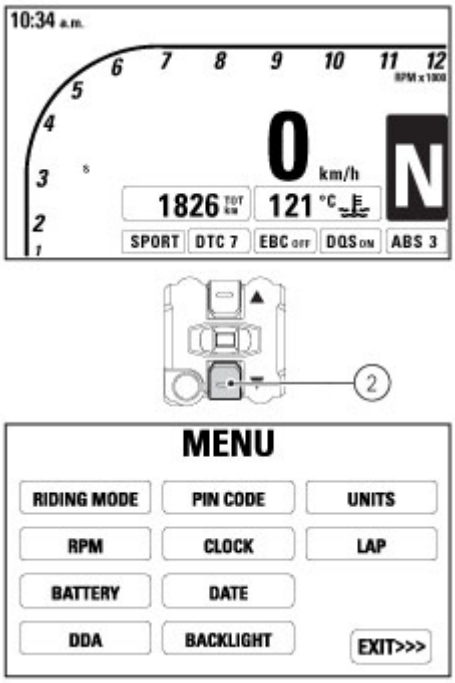


http://www.ducati-manuals.com
no. 140312

Setting MENU

This menu allows enabling, disabling and setting some vehicle functions.
To enter the Setting MENU it is necessary to hold button (2) for 3 seconds, with Key-On and vehicle actual speed ≤ (lower than or equal to) 20 km/h: within this menu, it is no longer possible to view any other function).
The Setting MENU displays the following functions:

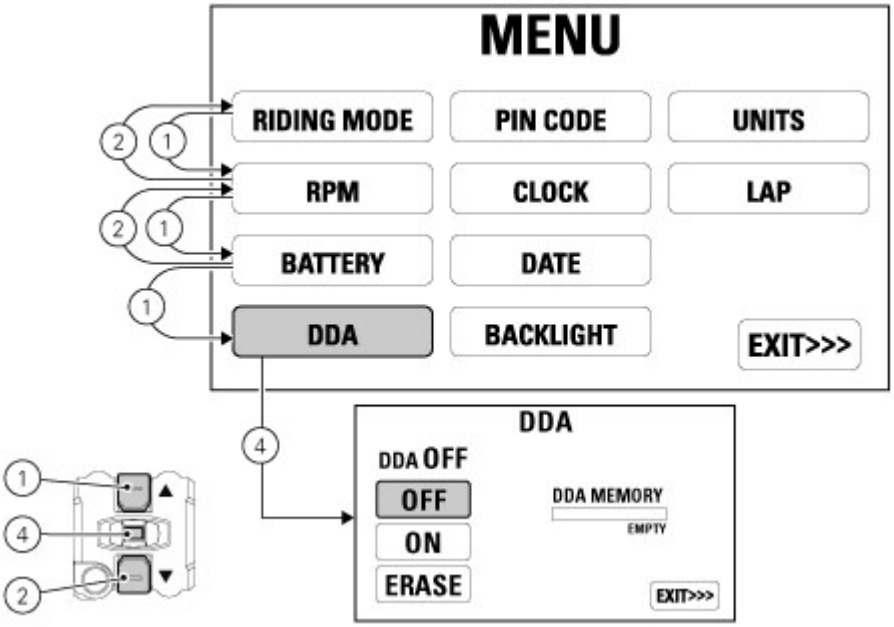
- RIDING MODE
- RPM
- BATTERY
- DDA
- PIN CODE
- CLOCK
- DATE
- BACK LIGHT
- UNITS
- LAP (active only for display "TRACK" layout)



Important
For safety reasons, you are recommended to use this Menu with the bike at a standstill.

Press buttons (1) and (2) to highlight the customisable parameters one by one: in particular, use button (1) to highlight the following item and button (2) to highlight the previous item.
After highlighting the required parameter, press button (4) to open the corresponding Menu page.
If function is not available or temporarily disabled, the MENU page can not be opened.
To quit the Setting MENU you shall highlight "EXIT" and press CONFIRM MENU button 4.

http://www.ducati-manuals.com
no. 140312

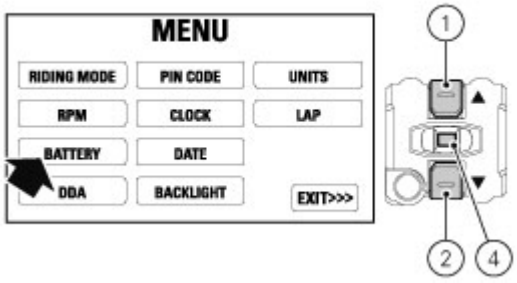


http://www.ducati-manuals.com
no. 140312

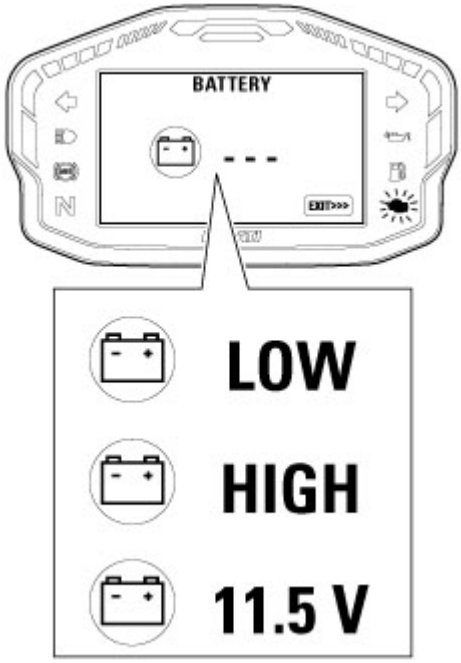
Battery voltage

This function allows you to check the vehicle battery voltage. Enter the Setting MENU. Select “BATTERY” option, by pressing button (1) or (2). Once function is highlighted, press CONFIRM MENU button (4). You open the “BATTERY” menu.
The information will be displayed as follows:

- if battery voltage is below 11.0 V, a flashing LOW warning is displayed with the battery icon on a red background;
- if battery voltage is between 11.0 V and 11.7 V the reading will be displayed flashing with the battery icon on a red background;
- if battery voltage is between 11.8 V and 14.9 V the reading will be displayed as a steady value with the battery icon on the standard background;
- if battery voltage is between 15.0 V and 16.0 V the reading will be displayed flashing with the battery icon on a red background;
- if battery voltage is over 15.0 V, a flashing HIGH warning is displayed with the battery icon on a red background.



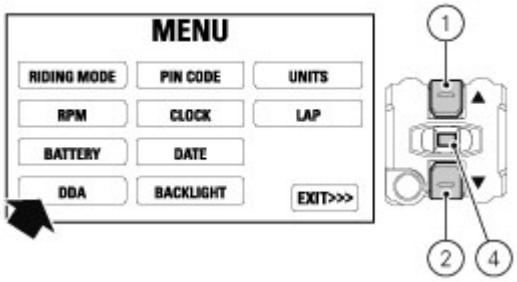
If the battery voltage error is present, the instrument panel will show three flashing dashes “ - - - ” as voltage value, followed by the unit of measurement, the EOBD light will turn on as well and the corresponding error BATTERY is displayed.
If the instrument panel is not receiving battery voltage value, a string of three steady dashes “- - -” is displayed, followed by the unit of measurement.
To exit the menu and go back to Setting MENU main page, select EXIT and press button (4).



http://www.ducati-manuals.com
no. 140312

DDA

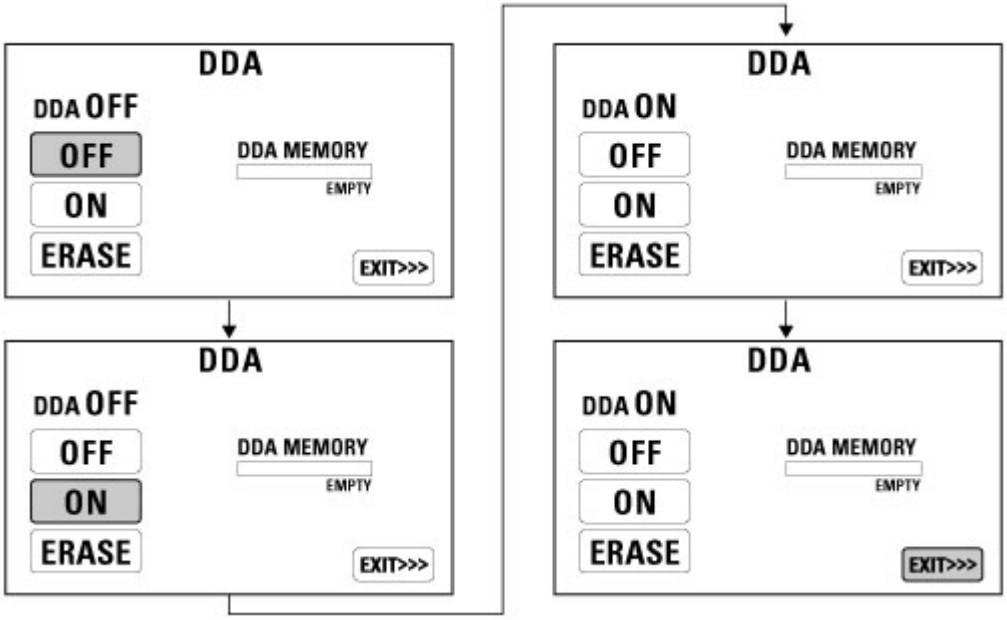
This function allows you to enable and disable the DDA, view the percentage of memory used and to delete data stored in the DDA memory.
The page for the DDA is only available when the device is fitted to the bike.
Enter the Setting MENU. Select “DDA” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4). You open the “DDA” menu.



DDA enable/disable

When opening this function, DDA currently set status is shown on the left (e..g.: DDA ON).
Customisation options are listed below these indications: status ON and OFF.
Press buttons (1) and (2) to highlight the statuses one by one: in particular, use button (1) to highlight the following item and button (2) to highlight the previous item.
Once desired status is selected, press CONFIRM MENU button (4) to confirm.
The new set status will be refreshed (refresh is indicated with the green colour). To exit the menu and go back to previous page, select EXIT and press button (4).

Note
The DDA is automatically disabled by the instrument panel upon every key-off.



Viewing/deleting the DDA memory

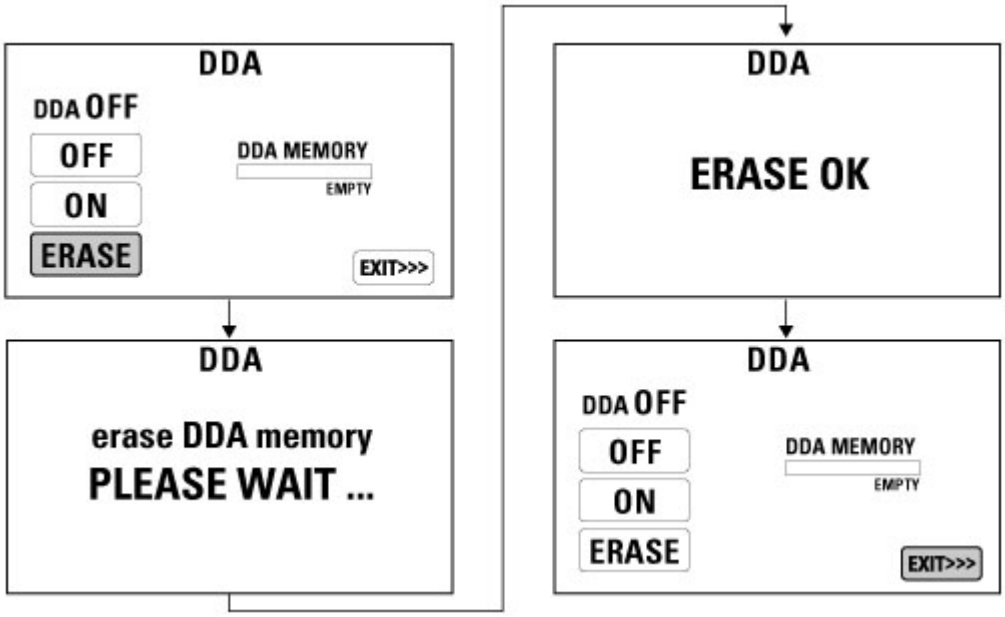
When accessing the function, the DDA memory status is shown on the right as a percentage:

- when bar is empty and text EMPTY is shown, it means that the DDA memory is empty;
- when bar is partially coloured and a percent is indicated, it means that the DDA memory is used for the specified percentage;
- when bar is full and text FULL is shown, it means that the DDA memory is full.

With DDA OFF, you can delete the memory. Select “ERASE” option, by pressing button (1) or (2).
Press CONFIRM MENU (4) for at least 3 seconds to confirm.
After 3 seconds, the instrument panel will read “PLEASE WAIT..." for as long as the deletion is completed, and this time depends on the quantity of data to be deleted.
If deletion is successful, the instrument panel will read ERASE OK for 2 seconds and refresh the memory status displayed. If deletion is not successful, the instrument panel will still show memory used status.

http://www.ducati-manuals.com
no. 140312

To exit the menu and go back to previous page, select EXIT and press button (4).



http://www.ducati-manuals.com
no. 140312

Pin Code

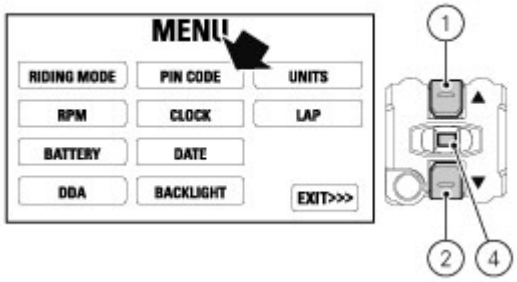
This function makes it possible to "temporarily" turn on the motorcycle if the E-Lock system is not working (if the steering unlock is disabled and there are problems to the E-Lock system).
The PIN CODE is initially not present in the vehicle, it must be activated by the user by entering his/her 4-digit PIN in the instrument panel, otherwise the vehicle cannot be started temporarily in the case of a malfunction. To activate this function, refer to “Entering the PIN CODE” procedure.
To change the PIN refer to “Changing the PIN CODE“ procedure.
In order to temporarily start the vehicle in case of malfunction of the E-Lock system, please refer to the Vehicle Release procedure.

Warning

The motorcycle owner must activate (store) the PIN code; if there is already a stored PIN, contact an Authorized Ducati Dealer to have the function "reset". To perform this procedure, the Authorized Ducati Dealer may ask you to demonstrate that you are the owner of the motorcycle.

Entering the PIN CODE

To activate the PIN CODE function and enter your own PIN CODE you must open the Setting MENU.
Select “PIN CODE” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
You open the “PIN CODE” menu.

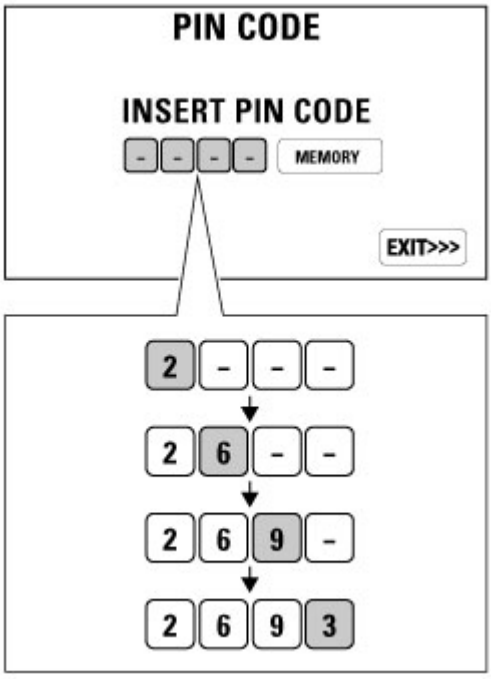


When accessing the function, “INSERT PIN CODE” with four dashes "- - - -" in the bottom line will appear on the display highlighted in green. Entering the code:

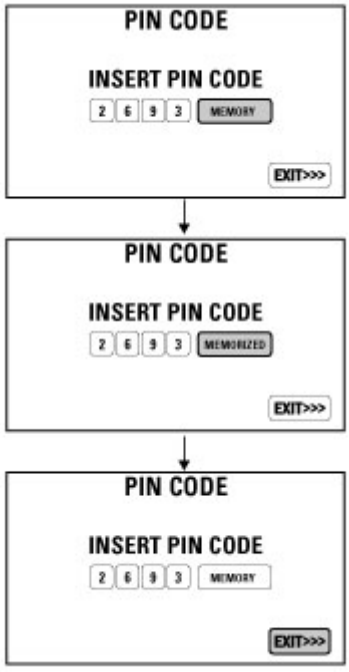
1 Press button (4), one digit is highlighted in green, indicating “0”;
2 Each time you press the button (2) the displayed number increases by one (+ 1) up to "9" and then starts back from “0”;
3 Each time you press the button (1) the displayed number decreases by one (- 1) up to "1" and then starts back from “0”;
4 To confirm the number, press the button (4).

Repeat the procedures until you confirm all the 4 digits of the PIN CODE.

http://www.ducati-manuals.com
no. 140312



When you press button (4) to confirm the fourth and last digit, the instrument panel highlights MEMORY item.
To save the new setting, hold button (4) for 3 seconds while the MEMORY item is highlighted in orange. If settings have been saved, MEMORIZED will be shown in green for 1 second, and then the EXIT item will be highlighted in green.
Once the first PIN CODE is stored, this menu page is no longer available and is replaced by the page for changing the PIN CODE. The page for entering the very first PIN CODE is active and available again only in case the PIN CODE function is reset (but this is only possible at a DUCATI Authorised Service Centre).



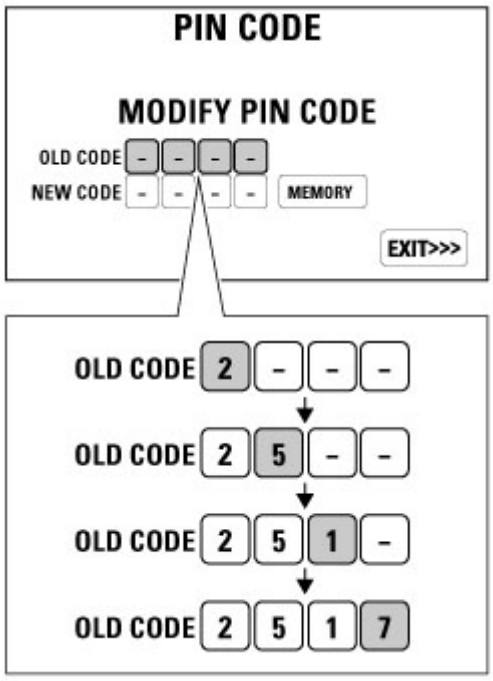
http://www.ducati-manuals.com
no. 140312

Changing the PIN CODE

To change the existing PIN CODE and activate a new one, you must open the Setting MENU. Select “PIN CODE” option, by pressing button (1) or (2). Once function is highlighted, press CONFIRM MENU button (4). You open the “PIN CODE” menu. When accessing the function, OLD CODE with four dashes "- - - -" will appear on the display highlighted in green with NEW CODE in the line below. Entering the "old" code:

1 Press button (4), one digit is highlighted in green, indicating “0”;
2 Each time you press the button (2) the displayed number increases by one (+ 1) up to "9" and then starts back from “0”;
3 Each time you press the button (1) the displayed number decreases by one (- 1) up to "1" and then starts back from “0”;
4 To confirm the number, press the button (4).

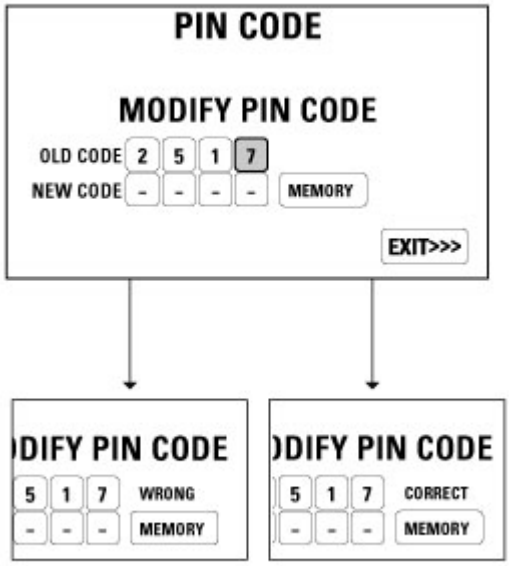
Repeat the procedures until you confirm all the 4 digits of the PIN CODE.



When you press button (4) to confirm the fourth and last digit:

- if the PIN is not correct, the instrument panel displays WRONG for 3 seconds and then highlights the string of four dashes “- - - -” for the OLD PIN to allow you to try again;
- if there is a problem during the PIN check, the instrument panel displays ERROR for 3 seconds and then highlights the EXIT item;
- if the PIN code is correct, the instrument panel displays CORRECT for 3 seconds and then highlights the string of four dashes “- - - -” of the NEW PIN.

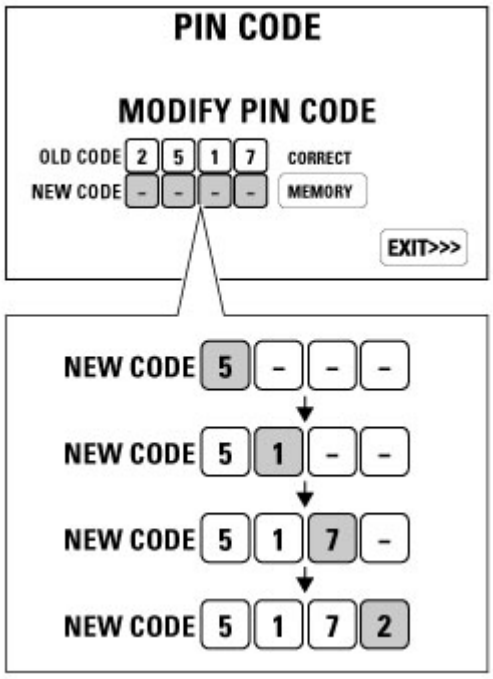
http://www.ducati-manuals.com
no. 140312



Entering the "new" code:

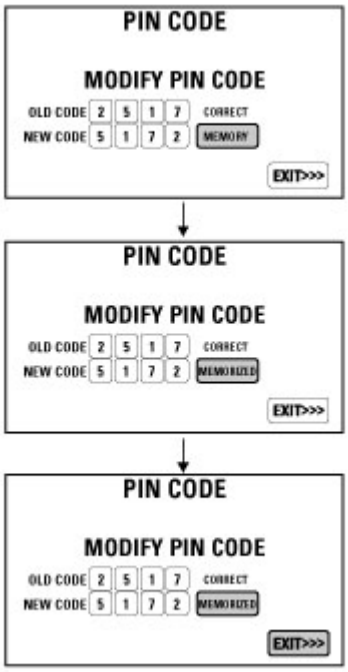
1 Press button (4), one digit is highlighted in green, indicating “0”;
2 Each time you press the button (2) the displayed number increases by one (+ 1) up to "9" and then starts back from “0”;
3 Each time you press the button (1) the displayed number decreases by one (- 1) up to "1" and then starts back from “0”;
4 To confirm the number, press the button (4).

Repeat the procedures until you confirm all the 4 digits of the PIN CODE.



When you press button (4) to confirm the fourth and last digit, the instrument panel highlights MEMORY item.
To save the new setting, hold button (4) for 3 seconds while the MEMORY item is highlighted in orange.
If settings have been saved, MEMORIZED will be shown in green for 1 second, and then the EXIT item will be highlighted in green.
If settings have not been saved, the instrument panel highlights again the string of four dashes “- - - -” of the NEW PIN to allow the rider to try again and enter a new code.

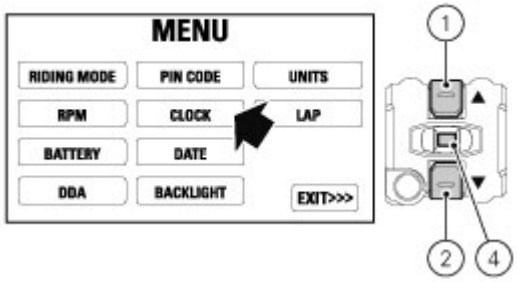
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

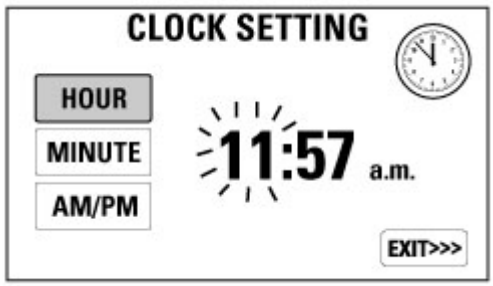
Clock settings

This function allows user to set or adjust the time.
Enter the Setting MENU. Select “CLOCK” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4). You open the “CLOCK SETTING” menu.
The first screen shows, on the left side, the available time setting: HOUR, MINUTE, AM/PM, while the current time is displayed on the right side (e.g.: 10:30 a.m.).



Setting the hours

Select “HOUR” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4). The hour value starts flashing.
Press the button (1) to decrease hour by 1: 0, 11, ... 1, 0 for AM - 12, 11, ... 1, 12 for PM.
Press the button (2) to increase hour by 1: 11, 0, 1.... 11 for AM - 12, 1, ... 12 for PM.
Once you reach the value to be set, press CONFIRM MENU button (4) and the set hour will stop flashing.



Setting the minutes

Select “MINUTE” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4). The minute value starts flashing.
Press button (1) to decrease minutes by 1: 59, 58, ... 00, 59.
Press button (2) to increase minutes by 1: 00, 01, ... 59, 00.
Once you reach the value to be set, press CONFIRM MENU button (4) and the set minutes will stop flashing.



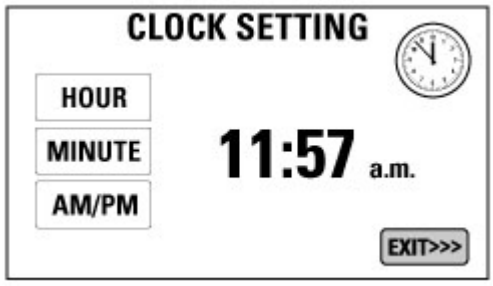
Setting am/pm

Select “AM/PM” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
The indication starts flashing.
Select AM or PM, by pressing button (1) or (2), respectively.
Once you reach the value to be set, press CONFIRM MENU button (4) and the setting will stop flashing.
To exit the menu and go back to previous page, select EXIT and press button (4).

Note
Every time the battery is disconnected, the clock is reset and must be set again by the user.

http://www.ducati-manuals.com
no. 140312

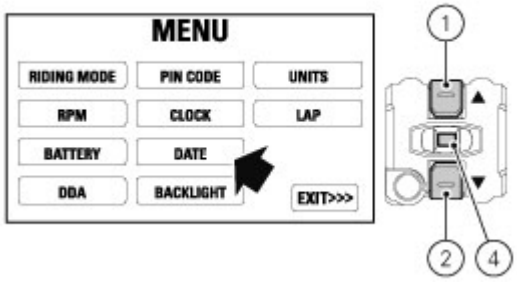




http://www.ducati-manuals.com
no. 140312

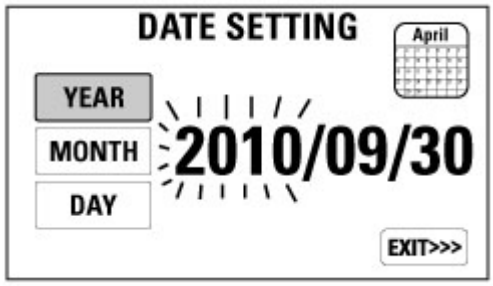
Date setting

This function allows use to view and set/adjust the date.
Enter the Setting MENU.
Select “DATE” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
You open the “DATE SETTING” menu.
The first screen shows, on the left side, the available date setting: YEAR, MONTH, DAY, while the current date is displayed on the right side (e.g.: 2012/01/27).



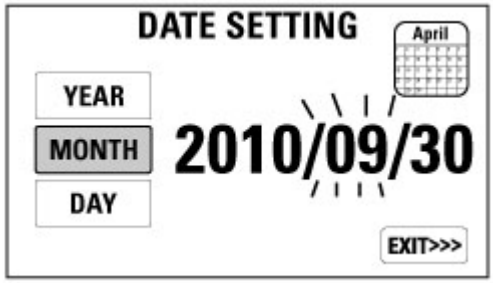
Setting the year

Select “YEAR” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
The year value starts flashing.
Press button (1) to decrease year value by 1: 2250, 2249, ... 2000, 2250.
Press button (2) to increase year value by 1: 2000, 2001, ... 2250, 2000.
Once you reach the value to be set, press CONFIRM MENU button (4) and the set year will stop flashing.



Setting the month

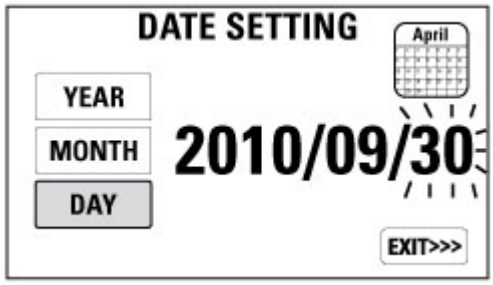
Select “MONTH” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
The month value starts flashing.
Press button (1) to decrease month by 1: 12, 11, ... 01, 12.
Press button (2) to increase month by 1: 01, 02, ... 12, 01.
Once you reach the value to be set, press CONFIRM MENU button (4) and the set month will stop flashing.



Setting the day

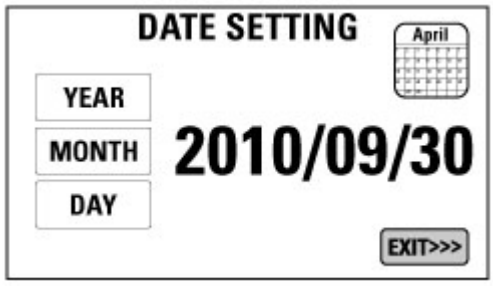
Select “DAY” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
The day value starts flashing.
Press button (1) to decrease day by 1: 31, 30, ... 01, 31.
Press button (2) to increase day by 1: 01, 02, ... 31, 01.
Once you reach the value to be set, press CONFIRM MENU button (4) and the set day will stop flashing.

http://www.ducati-manuals.com
no. 140312



To exit the menu and go back to previous page, select EXIT and press button (4).

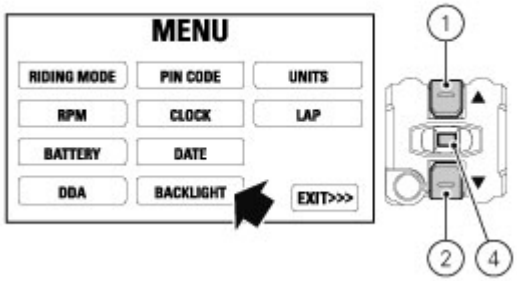
Note
Every time the battery is disconnected, the calendar is reset and must be set again by the user



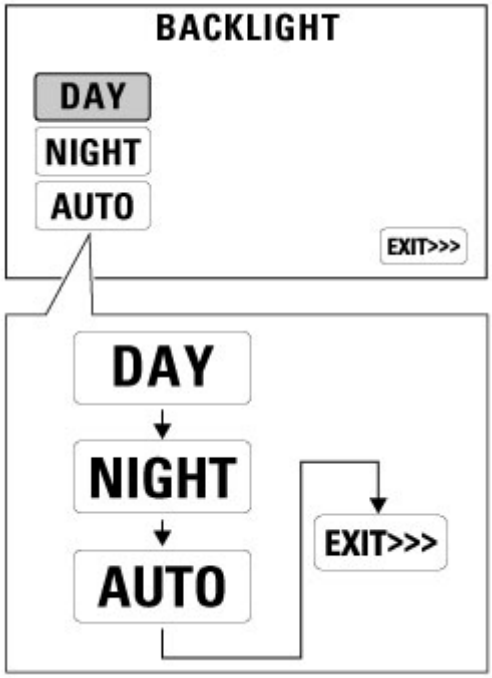
http://www.ducati-manuals.com
no. 140312

Display background settings

This function allows the user to choose the background of the instrument panel.
Enter the Setting MENU. Select “BACKLIGHT” option, by pressing button (1) or (2). Once function is highlighted, press CONFIRM MENU button (4).
You open the “BACKLIGHT” menu. When entering the function, the possible settings are shown on the left: DAY, NIGHT, AUTO, and the mode in use is highlighted.
Press buttons (1) and (2) to highlight the instrument panel backlighting options one by one: in particular, use button (1) to highlight the following item and button (2) to highlight the previous item. Once desired backlighting option is selected, press CONFIRM MENU button (4) to confirm. The instrument panel immediately activates the selected backlighting and highlights the corresponding option.



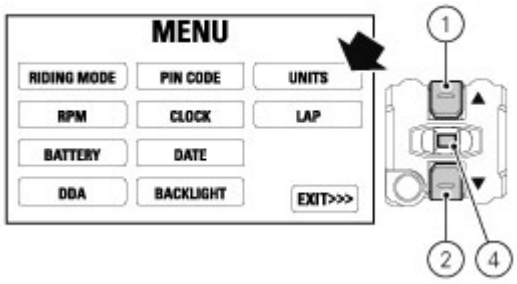
Selecting the DAY option you permanently activate the display “white” background to improve the readout view: recommended with strong external light.
Selecting the NIGHT option you permanently activate the display black background for a dimmed readout view: recommended with poor external light and/or darkness. Selecting the AUTO option (automatic mode) the colour of the background is automatically adjusted according to the external lighting conditions (as detected by a sensor).
If the external lighting is strong, the display will switch to white background; if the external lighting is poor, the display will switch to black background.
To exit the menu and go back to previous page, select EXIT and press button (4).



http://www.ducati-manuals.com
no. 140312

Unit of measurement setting

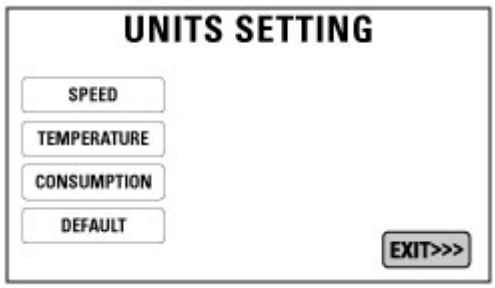
This function allows you to change the units of measurement of the displayed values, regardless of the Country configuration.
To manually set the units of measurement, you must enter the Setting MENU.
Select “UNITS” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
You open the “UNITS SETTING” menu.



When you enter the function, the list of items for which unit of measurement can be set is shown on the left:

- SPEED;
- TEMPERATURE;
- fuel CONSUMPTION;
- reset to automatic settings (DEFAULT).

To exit the menu and go back to previous page, select EXIT and press button (4).



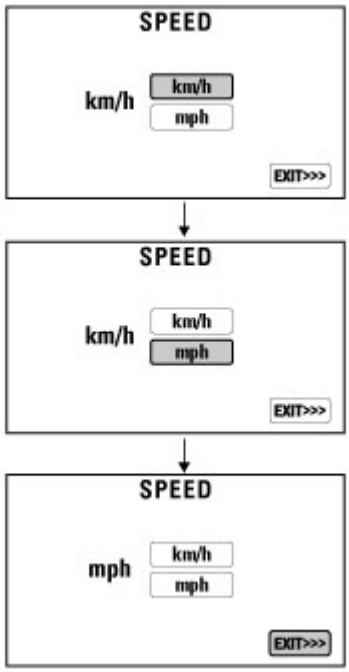
Setting the unit of measurement: Speed

This function allows to change the units of measurement of speed (and hence even the ones of distance travelled).
Open the “UNITS SETTING” menu, as described in the previous pages.
Select “SPEED” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4). You open the “SPEED” menu.
When you enter the function, the current unit of measurement is displayed, followed by the list of the possible units: km/h, mph.
Press buttons (1) and (2) to highlight the units of measurement one by one: in particular, use button (1) to highlight the following item and button (2) to highlight the previous item. Select the required unit of measurement and then press the CONFIRM MENU button (4) to confirm: the selected unit is stored and the EXIT option is highlighted.

The selected unit of measurement will be used by the instrument panel for the following indications:

- Vehicle speed and Average speed (km/h or mph);
- Odometer, Trip1, Trip2 and Trip Fuel (km or mi).

http://www.ducati-manuals.com
no. 140312

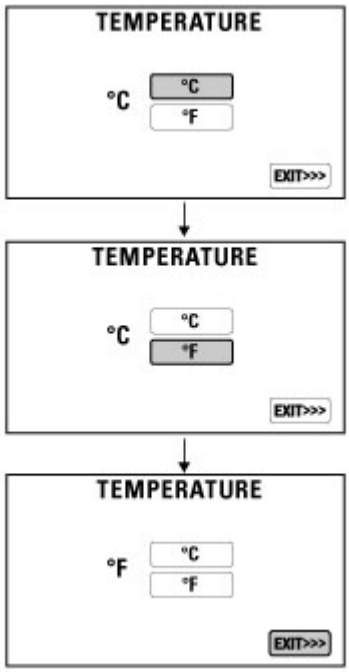


Setting the unit of measurement: Temperature

This function allows you to change the units of measurement of the temperature.
Open the “UNITS SETTING” menu, as described in the previous pages.
Select “TEMPERATURE” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4).
You open the “TEMPERATURE” menu. When you enter the function, the current unit of measurement is displayed, followed by the list of the possible units: °C , °F.
Press buttons (1) and (2) to highlight the units of measurement one by one: in particular, use button (1) to highlight the following item and button (2) to highlight the previous item. Select the required unit of measurement and then press the CONFIRM MENU button (4) to confirm: the selected unit is stored and the EXIT option is highlighted.

The selected unit of measurement will be used by the instrument panel for the following indications:

- Engine coolant temperature and Ambient air temperature.



Setting the unit of measurement: Fuel consumption

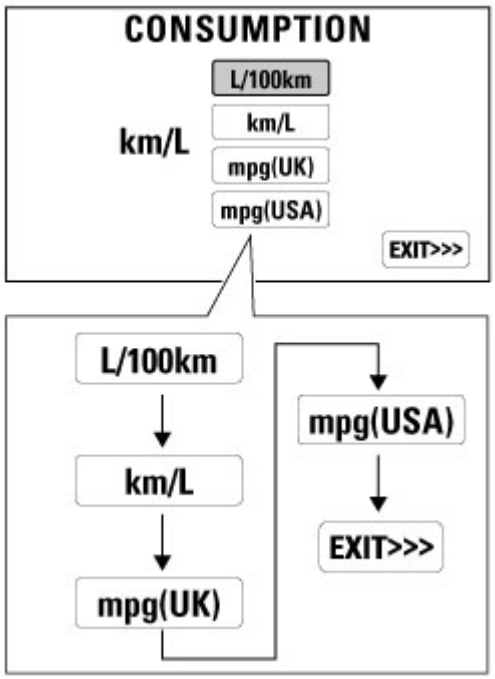
This function allows you to change the units of measurement of the fuel consumption.
Open the “UNITS SETTING” menu, as described in the previous pages.
Select “CONSUMPTION” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4). You open the “CONSUMPTION” menu.

http://www.ducati-manuals.com
no. 140312

When you enter the function, the current unit of measurement is displayed, followed by the list of the possible units: L / 100km, km / L, mpg (UK), mpg (USA).
Press buttons (1) and (2) to highlight the units of measurement one by one: in particular, use button (1) to highlight the following item and button (2) to highlight the previous item.
Select the required unit of measurement and then press the CONFIRM MENU button (4) to confirm: the selected unit is stored and the EXIT option is highlighted.

The selected unit of measurement will be used by the instrument panel for the following indications:

- Instantaneous fuel consumption and Average fuel consumption.



Setting the unit of measurement: Restore automatic settings

This function allows you to restore the automatic settings for the units of measurement of all indications displayed on the instrument panel.
Open the “UNITS SETTING” menu, as described in the previous pages. Select “DEFAULT” option, by pressing button (1) or (2).
Once function is highlighted, press CONFIRM MENU button (4) for 3 seconds. The display will read PLEASE WAIT... for 3 seconds, and then DEFAULT OK for 2 seconds, and at last the page of the UNITS SETTING menu will be displayed with the EXIT option highlighted.
To exit the menu and go back to previous page, select EXIT and press button (4).

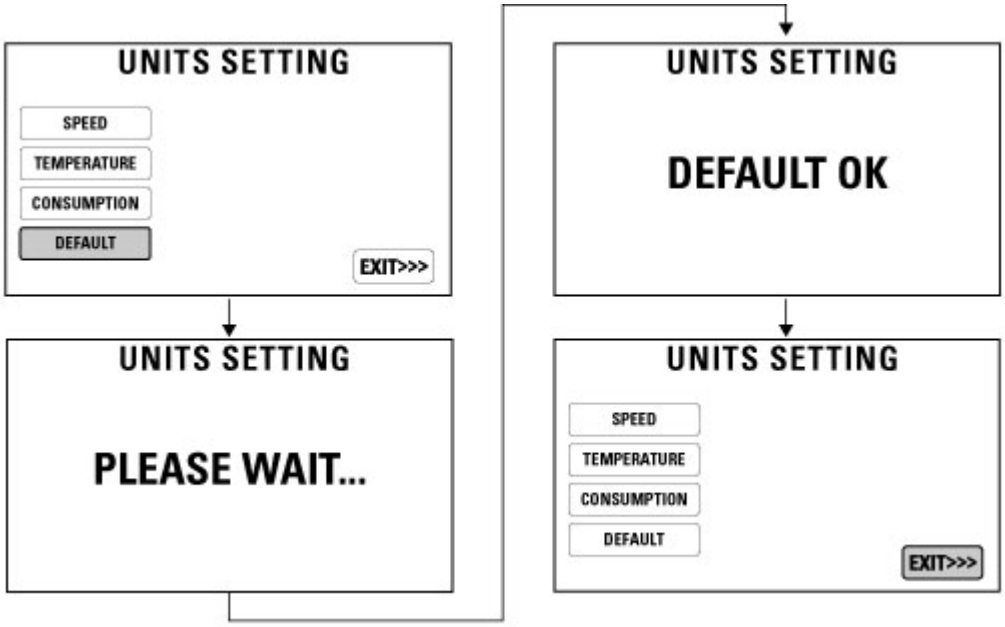
Chart of the units of measurement

km °C l/100km mph °C mpg mi (miles) km km °C km km °C l/100km km km °C l/100km km km °C l/100km km km °C l/100km km km °C l/100km

	TOT TRIP1 TRIP2 TRIP FUEL	SPEED AVERAGE SPEED	T_ENGINE T_AIR	INSTANTANEOUS FUEL CONSUMPTION AVERAGE FUEL CONSUMPTION
Europe	km	km	°C	l/100km
UK	mi (miles)	mph	°C	mgp UK
USA	mi (miles)	mph	°F	mpg USA
Canada	km	km	°C	l/100km
France	km	km	°C	l/100km
Japan	km	km	°C	l/100km

http://www.ducati-manuals.com
no. 140312

Brazil	km	km	°C	l/100km
Taiwan	km	km	°C	l/100km
China	km	km	°C	l/100km



http://www.ducati-manuals.com
no. 140312

Other functions

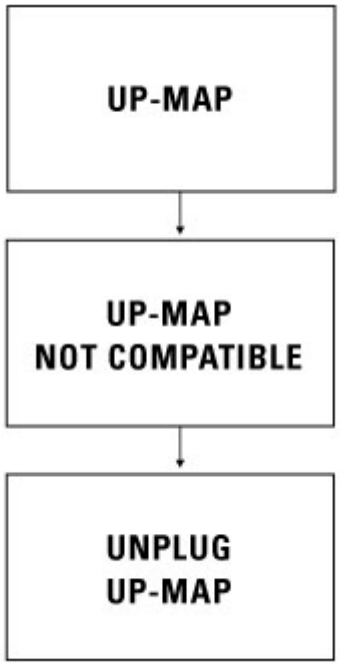
UP-MAP

This function is used as an interface for uploading the Performance settings from the UP-MAP device (pen drive) to the engine control unit, after installing the Performance exhaust kit (part no. 96450211B) - Performance silencer kit (part no. 96450311B).

Warning

The "Performance silencer" kit and the "Performance exhaust" kit are designed for track use ONLY. Road use is forbidden.

The device can be used with key ON but engine stopped. When the UP-MAP device is connected to the vehicle, these conditions are checked and, if they are all verified, the UP-MAP, engine control unit and instrument panel will start communicating. The presence of the UPMAP is notified by the "UPMAP" indication displayed on the instrument panel. If the device authentication is not successful, the indication UP-MAP NOT COMPATIBLE is displayed for 3 seconds, and then display will read UNPLUG UP-MAP to urge the user to remove the device from the vehicle.



If the download is possible, the instrument panel will show the indication RACING EVO (if installing the Performance silencer kit); or the indication RACING PRO (if installing the Performance complete exhaust system kit);

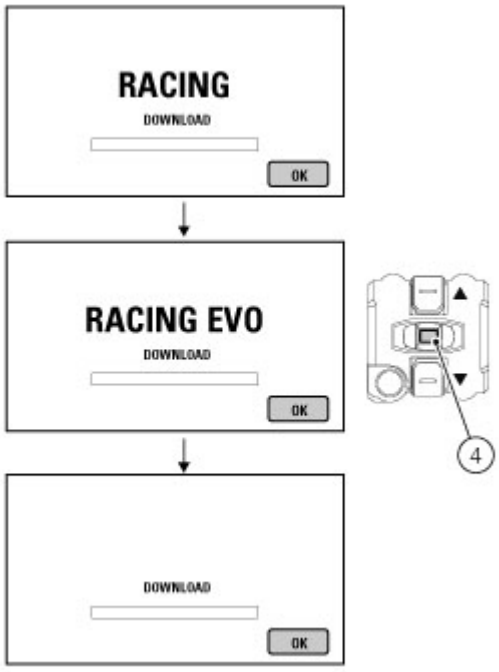
- the indication DOWNLOAD;
- button OK.

Press button (4) to allow the download of the specified settings.

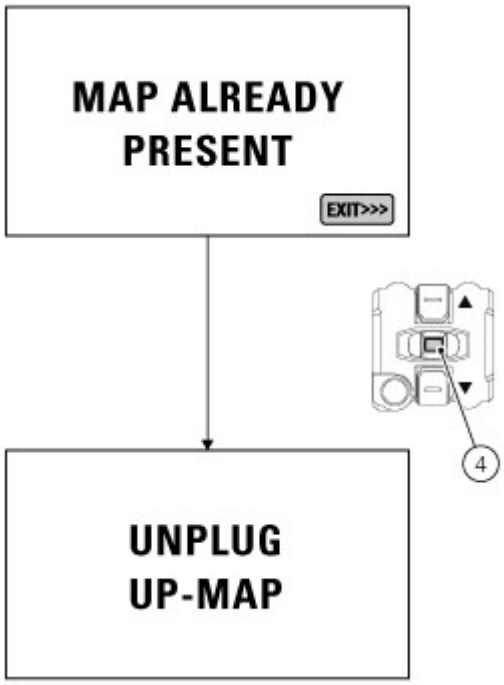
Warning

The "Performance silencer" kit and the "Performance exhaust" kit are designed for track use ONLY. Road use is forbidden.

http://www.ducati-manuals.com
no. 140312

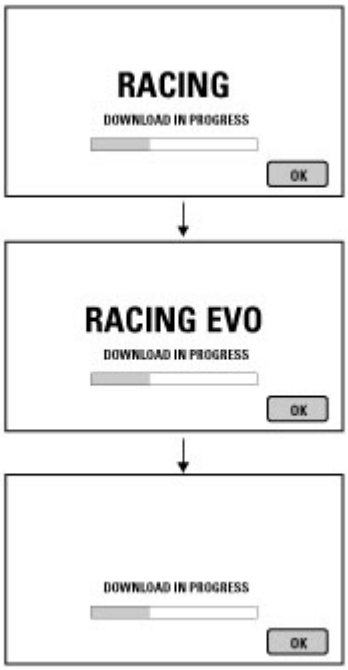


If the download is not possible and the setting to be downloaded is already present in the control unit, the instrument panel will read MAP ALREADY PRESENT and display the EXIT button.
Press button (4) to quit. After pressing button (4) or after 10 seconds without pressing button (4), the instrument panel will read UNPLUG UP-MAP to urge the user to remove the device from the vehicle.

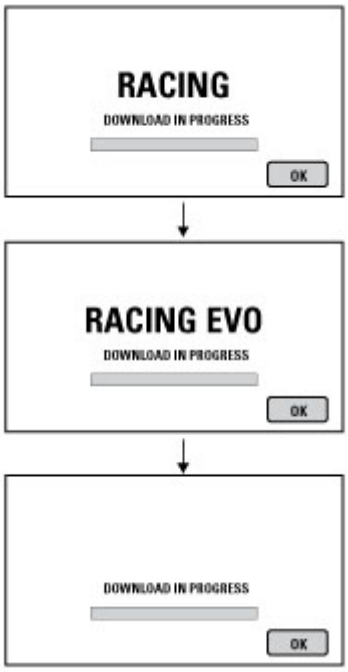


During the download, the display shows the indication RACING EVO (setting for the Performance silencer kit) or the indication RACING PRO (setting for the Performance complete exhaust system kit), the indication DOWNLOAD IN PROGRESS and the download progress bar that progressively fills up (for approximately 5 seconds).

http://www.ducati-manuals.com
no. 140312

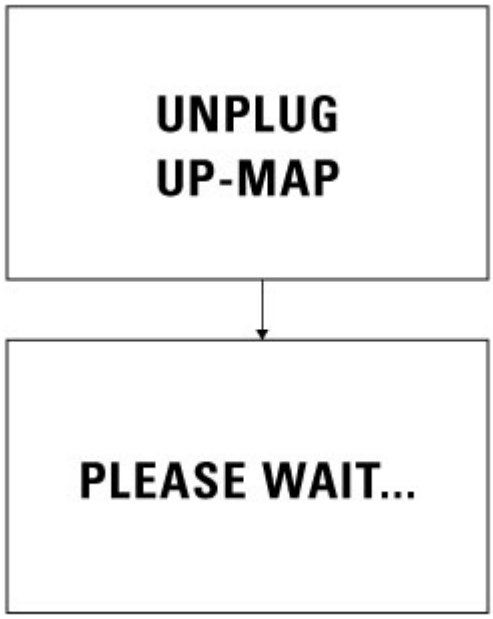


Once the download is completed, the display will show the indication RACING EVO (setting for the Performance silencer kit) or the indication RACING PRO (setting for the Performance complete exhaust system kit), the indication DOWNLOAD IN PROGRESS and the full download progress bar.



After 3 seconds, if the whole process was successful, the display will read UNPLUG UP-MAP to urge the user to remove the device from the vehicle.
The indication UNPLUG UP-MAP is displayed until the UP-MAP is physically disconnected from the vehicle.
When the UP-MAP is disconnected, the display reads PLEASE WAIT... for 3 seconds and then shows the "standard screen".

http://www.ducati-manuals.com
no. 140312

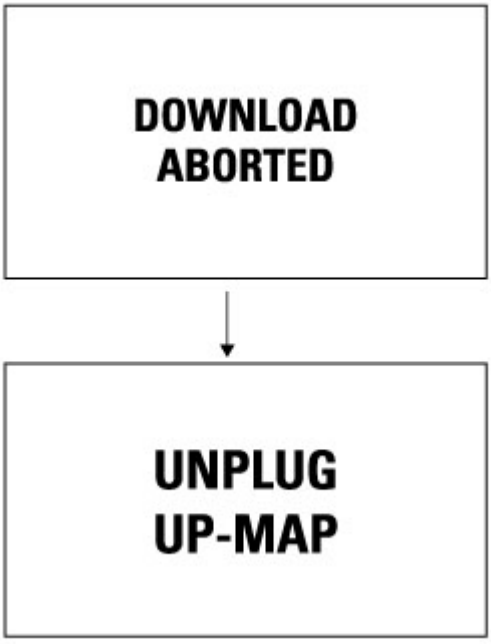


Any time a malfunction of the UP-MAP is found or the download procedure is not successful, the instrument panel displays DOWNLOAD ABORTED for 3 seconds, and then the indication UNPLUG UP-MAP.

Warning
The "Complete exhaust system" kit and the "Long exhaust pipe" kit are designed for track use ONLY. Road use is forbidden.

Note
In case of accidental key-off or disconnection of the UP-MAP before the download is completed, the procedure is considered not valid.

Note
When the UP-MAP is connected to the vehicle, engine starting is inhibited. It is not possible to ride the vehicle with the UP-MAP device connected.



http://www.ducati-manuals.com
no. 140312

Display background colour

Display background colour can be set automatically according to exterior lighting conditions. When the BACKLIGHT – AUTO function is active, if the sensor detects "poor lighting" (night) the instrument panel switches to black background (NIGHT mode); vice-versa if a strong light is detected (day) the instrument panel switches to white background (DAY mode).
This function can be customised through the Setting MENU: select the "BACKLIGHT" function and open the "BACKLIGHT" menu:

- set either NIGHT or DAY permanently, or
- set the AUTO mode.

Please refer to paragraph (Setting the display background).

Note
If power supply is over 16 V, the backlighting is disabled, while if it is below 8 V the backlighting is turned off.





http://www.ducati-manuals.com
no. 140312

The immobilizer system

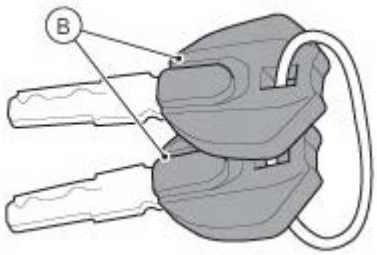
For improved antitheft protection, the motorcycle is equipped with an IMMOBILIZER, an electronic system that inhibits engine operation whenever the ignition switch is turned off.
Accommodated in the handgrip of each ignition key is an electronic device that modulates an output signal. When the ignition is turned on this signal is generated by a special antenna incorporated in the switch and changes every time.
The modulated signal represents the “password” (which is changed at each start-up) by which the ECU recognizes the ignition key. The ECU will only allow the engine to start if it recognises this password.

http://www.ducati-manuals.com
no. 140312

Keys

The owner receives 2 keys with the vehicle.
These keys contain the "immobilizer system code".
The keys (B) are regular ignition keys and are used to:

- start up the engine;
- open the fuel tank filler plug;
- open the seat lock.



http://www.ducati-manuals.com
no. 140312

Operation

When the ignition key is turned to OFF, the immobilizer inhibits engine operation.
If the other key does not work out either, contact the Ducati Service network.

Warning

Any important shock might damage the electronic components fitted into the key. Use only one key during the procedure. Failure to do so might prevent the system from recognizing the code of the key in use.

http://www.ducati-manuals.com
no. 140312

Key duplication

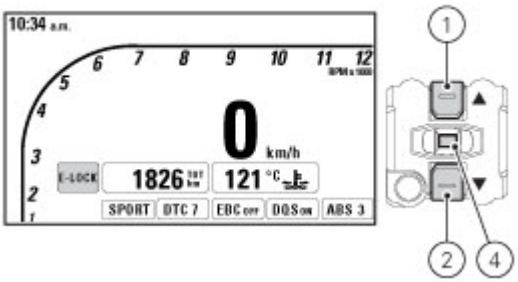
If you need any duplicate keys, contact the Ducati Service network with all the keys you have left. The Ducati Service Centre will program all the new keys as well as any keys you already have.
You may be asked to provide proof that you are the legitimate owner of the motorcycle. The codes of any keys not submitted will be wiped off from the memory to make those keys unserviceable in case they have been lost.

 Note
If you sell your motorcycle, do not forget to give all keys to the new owner.

http://www.ducati-manuals.com
no. 140312

Vehicle release through PIN CODE

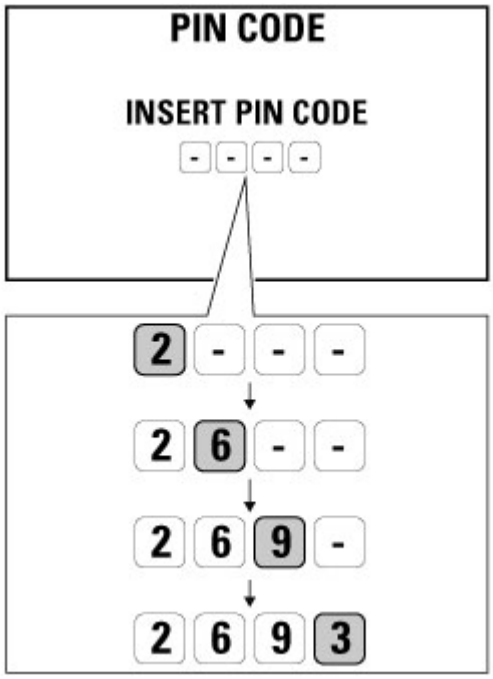
In case of key acknowledgement system or key malfunction, the instrument panel allows the user to enter his/her own PIN code to temporarily restore vehicle operation. If the PIN CODE function is not active, the instrument panel does not activate the page for entering the code, but shows the Standard Screen instead, triggers the E-Lock error to inform the user that there is a problem with key reading/acknowledgement and disables the opportunity to enter the Setting MENU. The E-Lock error warning must be active until key-off.
If the PIN CODE function is active, the instrument panel activates the page for entering the code and displays the request INSERT PIN CODE with a string of four dashes below it " - - - - " highlighted in green.



Entering the code:

1 Press button (4), one digit is highlighted in green, indicating "0";
2 Each time you press the button (2) the displayed number increases by one (+ 1) up to "9" and then starts back from "0";
3 Each time you press the button A (1) the displayed number decreases by one (- 1) up to "1" and then starts back from "0";
4 To confirm the number, press the button (4).

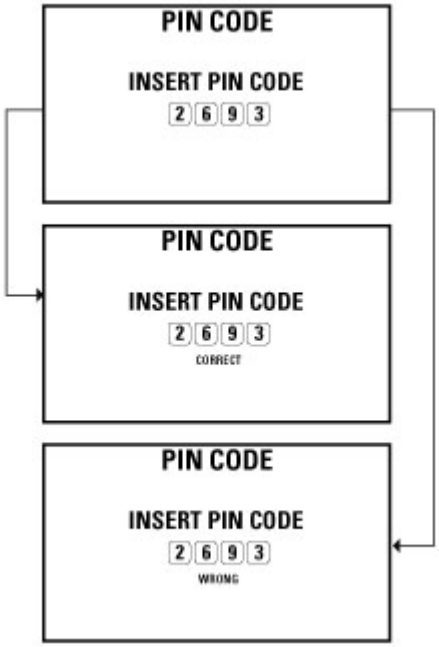
Repeat the procedures until you confirm all the 4 digits of the PIN CODE.



When you press button (4) to confirm the fourth and last digit

- if the PIN is not correct, the instrument panel displays WRONG for 3 seconds and then highlights the string of four dashes "- - - -" to allow you to try again. The number of possible attempts is determined by a preset time-out of 2 minutes. After this time, the instrument panel shows the Standard Screen, triggers the E-Lock error and disables the opportunity to enter the Setting Menu.
- if there is a problem during the PIN CODE check, the instrument panel displays ERROR for 3 seconds and then responds in the same way as for the WRONG error.
- if the PIN code is correct, the instrument panel displays CORRECT for 3 seconds and then shows the "standard screen" and triggers the E-Lock error to still show the user that there is a problem with key reading/acknowledgement.

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

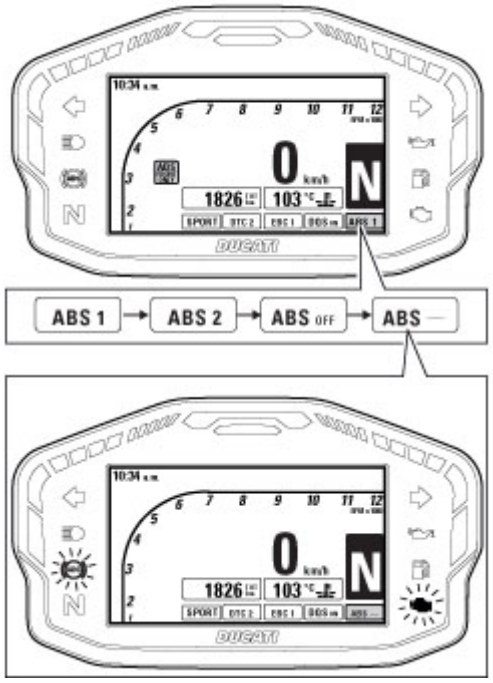
ABS

The vehicle is equipped with ABS, the instrument panel displays the box with ABS status.
The instrument panel displays:

- if ABS is active, ABS indication and intervention level number (1 to 3);
- if ABS is disabled, ABS OFF indication;
- if ABS is in fault, ABS --- indication; the ABS and EOBD lights turn on as well and the corresponding error is displayed.

Note

ABS 1 indication is always associated with the icon ABS FRONT ONLY displayed on amber background. This indication is displayed in the area where side stand status is, and the side stand status information has higher priority.



ABS	RIDING MODE	CHARACTERISTIC	DEFAULT
OFF		The ABS is disabled	NO
1	RACE	Exclusively for track use, for expert riders (not recommended for road use). The ABS in this mode only works on the front wheel (preventing it from locking), while there is no control on the rear wheel; the system does NOT control lift-up and there is NO combined braking (front and rear)	It is the default level for the "RACE" Riding Mode
2	ROAD	For road use in good grip conditions, both wheels are controlled by the system; the system combines braking power generating pressure even on the rear calliper, anti lift-up control is active but this setting mostly focuses on braking power and allows a few uncontrolled lift-ups	It is the default level for the "SPORT" Riding Mode
3	WET CONDITION ROAD/TRACK	For use under any wet condition, system controls both wheels and combines braking power generating pressure even on the rear calliper; the system controls most of the lift-ups	It is the default level for the "WET" Riding Mode

Tips on how to select the sensitivity level

Warning

http://www.ducati-manuals.com
no. 140312

The ABS levels 1-2-3 settings have been calibrated using the tires originally supplied with your motorcycle (Pirelli Diablo Supercorsa SP 120/70ZR17 at the front and 200/55ZR17 at the rear). The use of tires of different size and characteristics from the original tires (in particular at the rear) may alter the operating characteristics of the system.

In the case of minor differences, such as for example, tyres of a different make and/or model than the OE ones, but with the same size (rear = 200/55 ZR17; front = 120/70 ZR17), it may be sufficient to simply select the suitable level setting from those available in order to restore optimal system operation. If tyres of a different size class are used or if the tyre dimensions differ significantly from the original tyres, it may be that the system operation is affected to the point where none of the 3 available level settings will give satisfactory results. In this case is it is advisable to deactivate the traction control system.
Selecting level 3, the ABS will intervene to ensure a very stable braking, good lift-up control, the vehicle keeps a good alignment during the whole braking. Settings between level 3 and level 1 privilege more and more the braking power rather than stability and lift-up control; level 1 provides no lift-up control, the rear brake is not controlled by the ABS and there is no combined (front/rear) braking power.
The choice of the correct level mainly depends on the following parameters:

1 The tyre/asphalt grip (type of tyre, amount of tyre wear, the road/track surface, weather conditions, etc.).
2 The rider's experience and sensitivity: expert riders can tackle a lift-up in trying to reduce the stopping distance to a minimum, while less expert riders are recommended to use settings 2 and 3, that will help them keeping the vehicle more stable even in emergency braking.

http://www.ducati-manuals.com
no. 140312

Removal of the front wheel

Support the bike so that the front wheel is raised from the ground.
Loosen the two retaining screws (1) securing the front brake callipers (2) to the fork legs, without disconnecting them from hoses, and then remove front brake callipers from the front wheel (3).





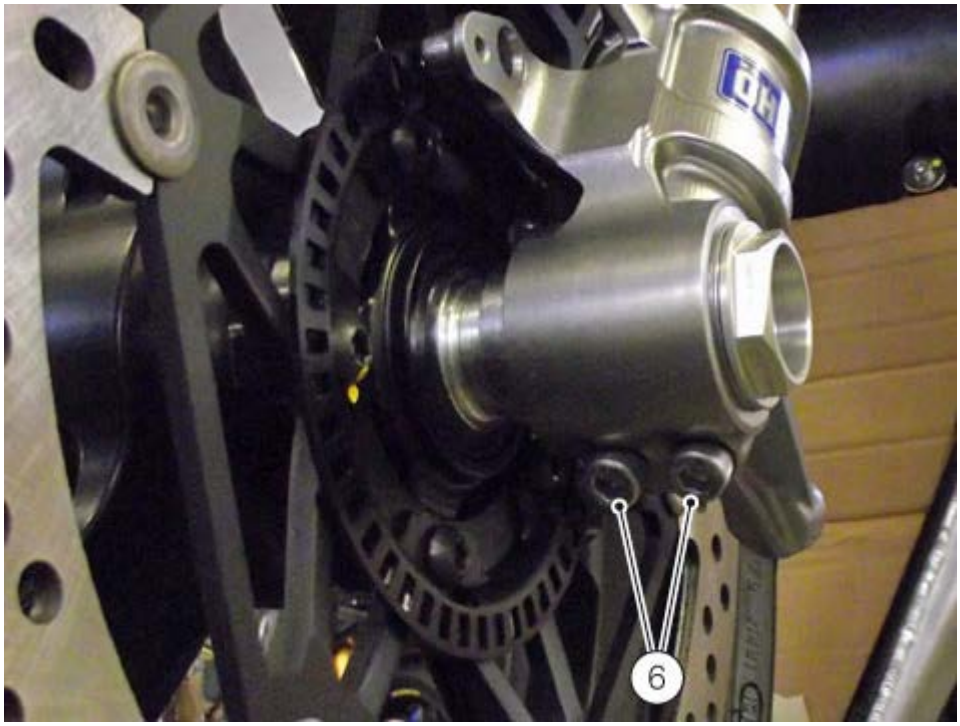
Warning
Do not operate the brake lever when the callipers are removed. This can cause the brake pistons to be expelled.

Loosen and remove the nut (4) on left side of the axle. Recover the washer (5).

http://www.ducati-manuals.com
no. 140312



Loosen the wheel shaft screws (6) under the fork legs.



http://www.ducati-manuals.com
no. 140312



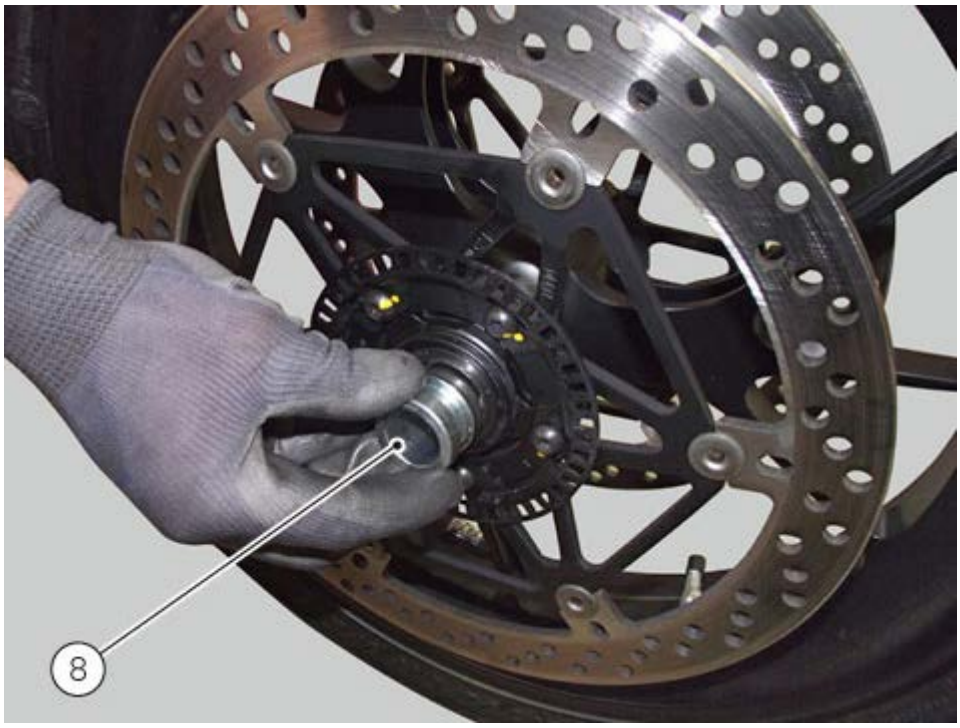
Remove the wheel shaft (7) from wheel.



Remove the wheel and recover the two spacers (8).

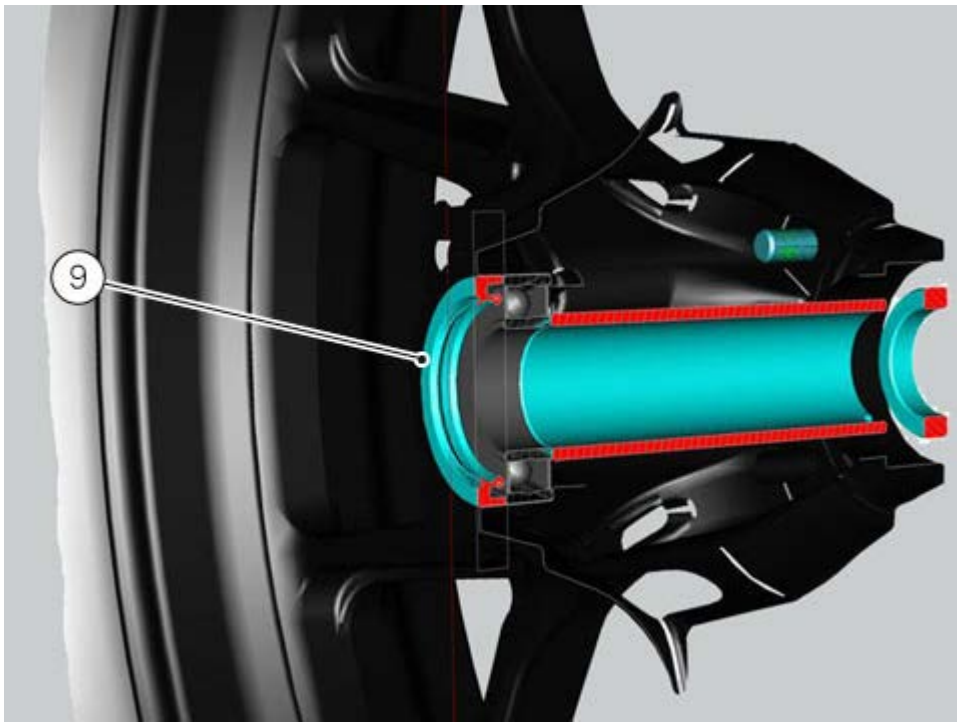
http://www.ducati-manuals.com
no. 140312





Working from both sides, remove the oil sealing ring (9).

http://www.ducati-manuals.com
no. 140312

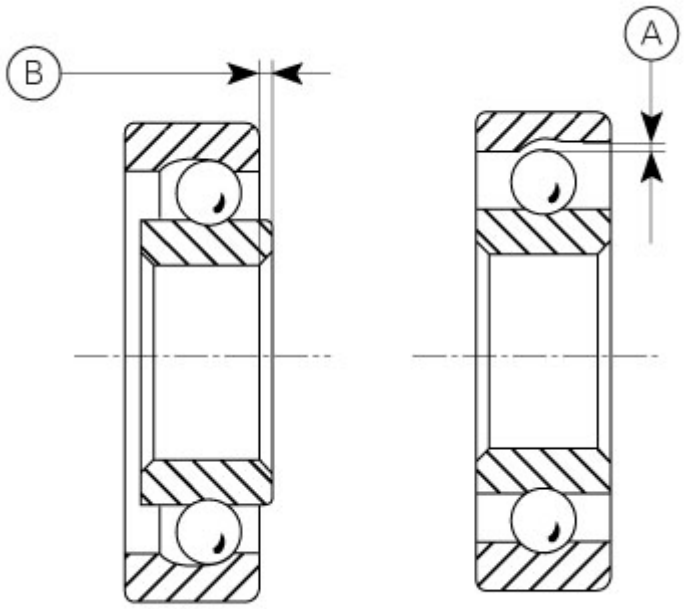


http://www.ducati-manuals.com
no. 140312

Overhauling the front wheel

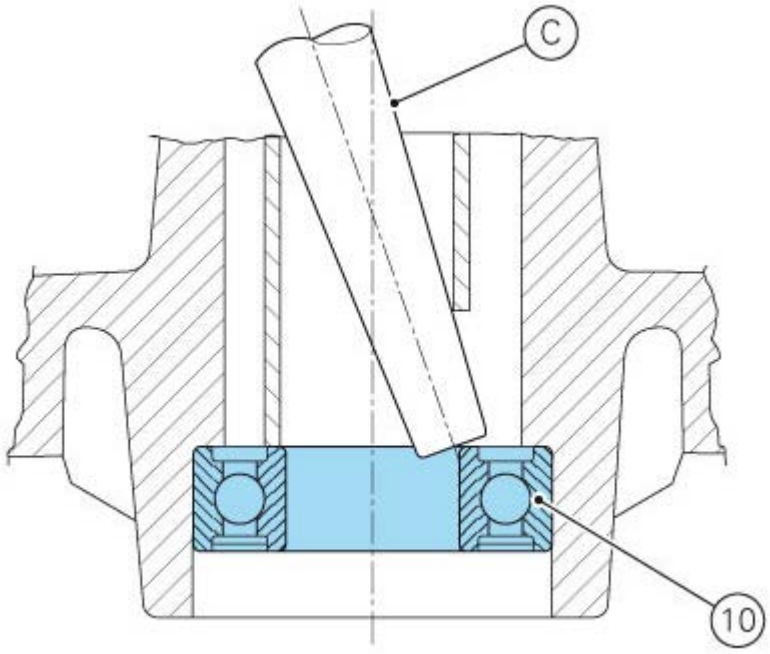
Wheel bearings

Before checking the dimensions, check the wear on wheel hub bearings. Check for wear by hand after cleaning and degreasing the bearings in their seats.
Turn the inner race.
Check the amount of radial (A) and axial (B) play; excessive play will cause vibration and make the bike unstable and require part replacement.



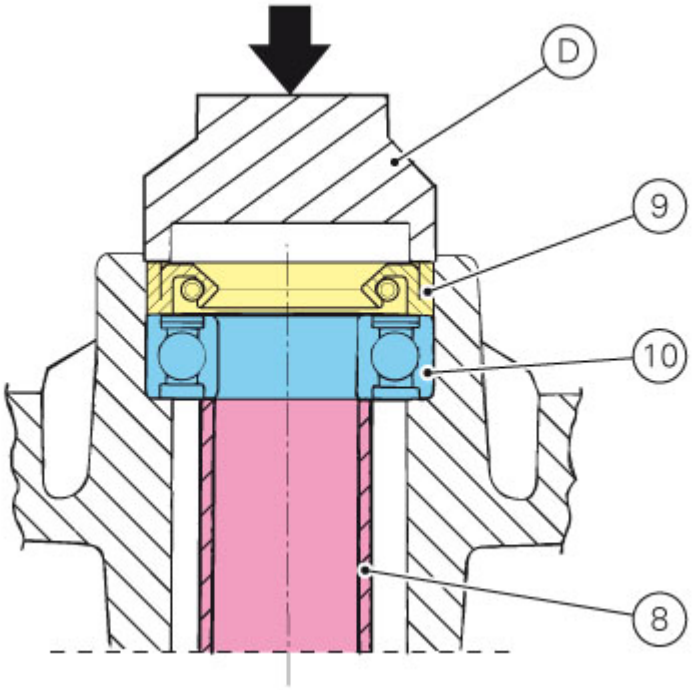
To remove the bearings and the seal rings from the wheel hub follow the instructions below.
Position a drift (C) against the inner race of the bearing (10).
Tap with a hammer until knocking out the bearing (10).
Apply the drift at different points to keep the bearing square during removal.

Important
Once removed, the used bearings and sealing rings must not be refitted.

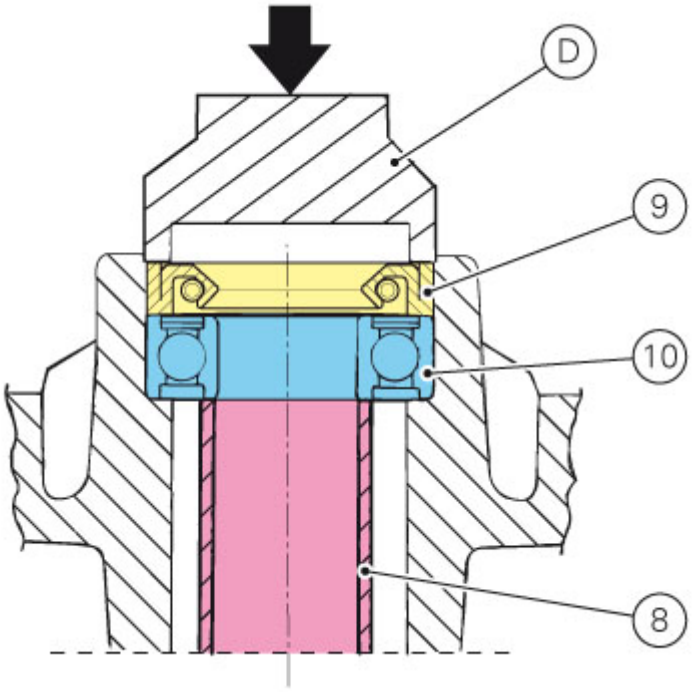


http://www.ducati-manuals.com
no. 140312

Before fitting new bearings, check that the housing is clean and free from scoring and damage.
Grease the bearing seat and then push the new bearing into its seat.
Using a tubular drift (D) that only bears on the outer race of the bearing (10), drive the bearing fully into its seat.



Use the same method to install the sealing rings (9).
Ensure that spacer (8) is fitted between the two wheel bearings.

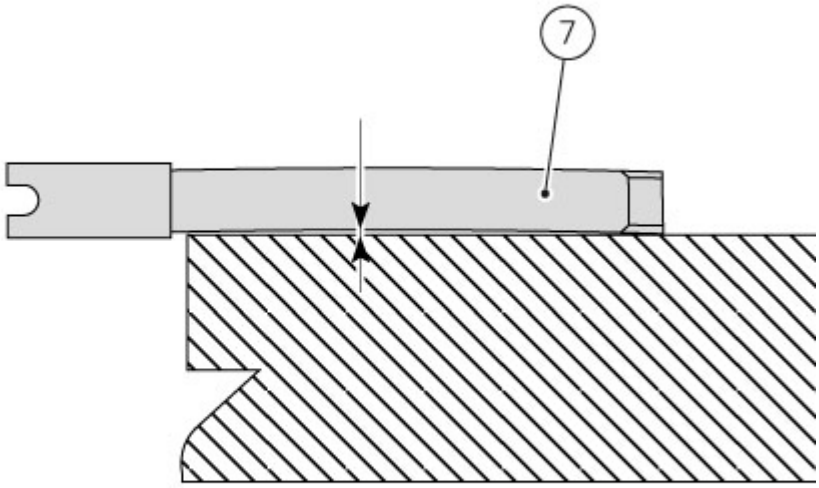


Note
Wheels must be rebalanced after repair, maintenance and overhaul operations.

Inspecting the wheel axle

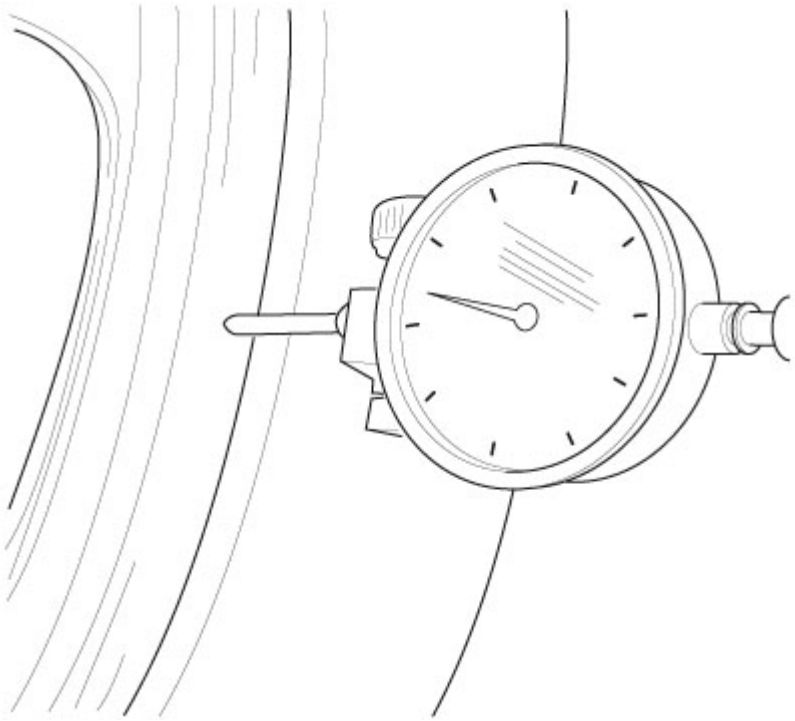
Check the wheel shaft (7) for straightness. Turn the shaft on a reference surface and measure maximum distortion using a feeler gauge .

http://www.ducati-manuals.com
no. 140312

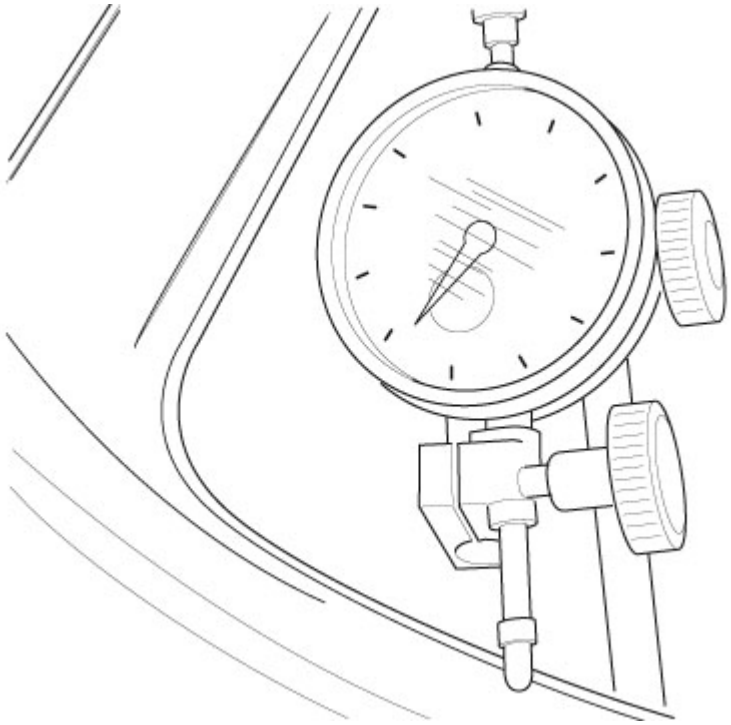


Overhauling the wheel

After you have checked the bearings, check the rim as follows.
Visually inspect the rim for cracks, scoring and deformation: change the rim if damaged.
Insert the axle in the wheel and mount it on two fixed reference blocks.
Using a dial gauge, measure rim runout and out-of-round relative to the shaft axle .



http://www.ducati-manuals.com
no. 140312

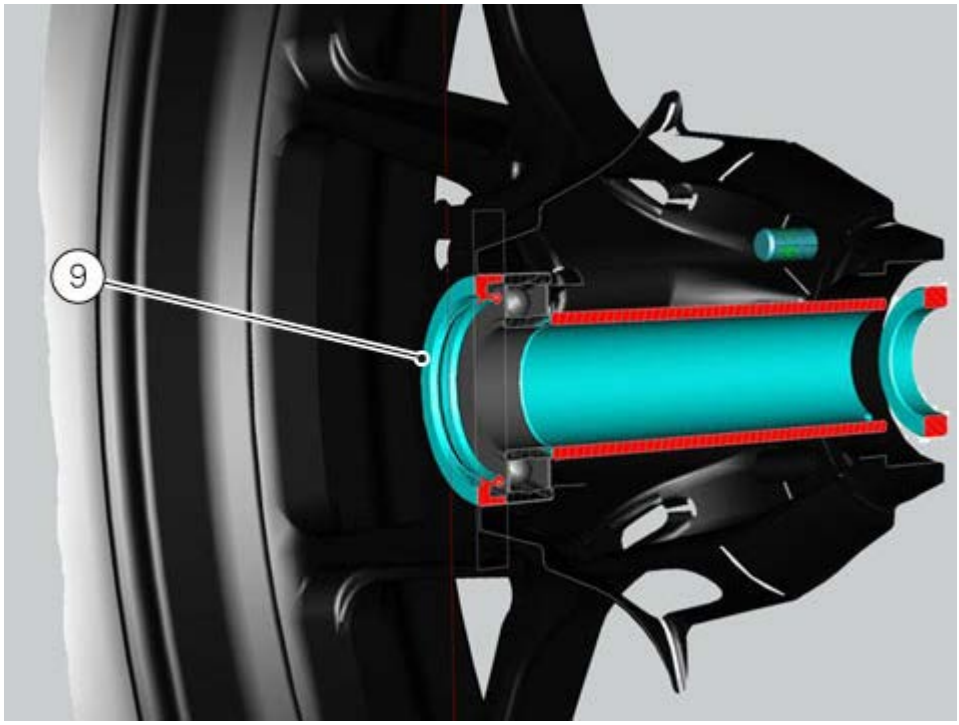


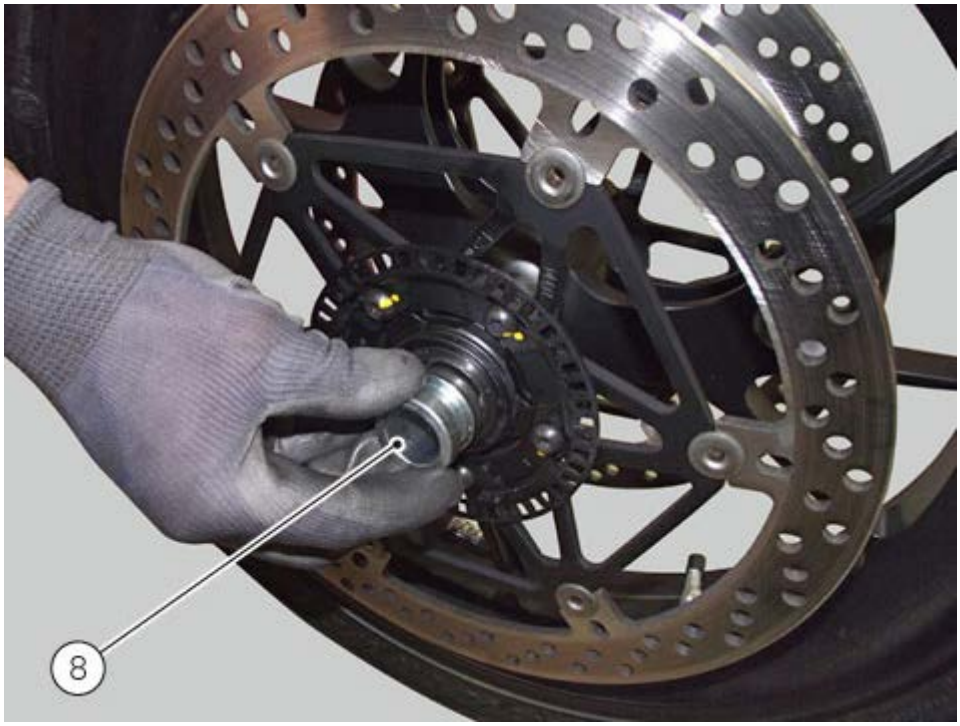
If the values measured are not within the tolerance limits, renew the wheel.

http://www.ducati-manuals.com
no. 140312

Installation of the front wheel

When all the necessary inspections have been completed, refit the wheel as follows.
Fit the spacers (8) to the seal rings (9) on the sides of the wheel hub.





http://www.ducati-manuals.com
no. 140312

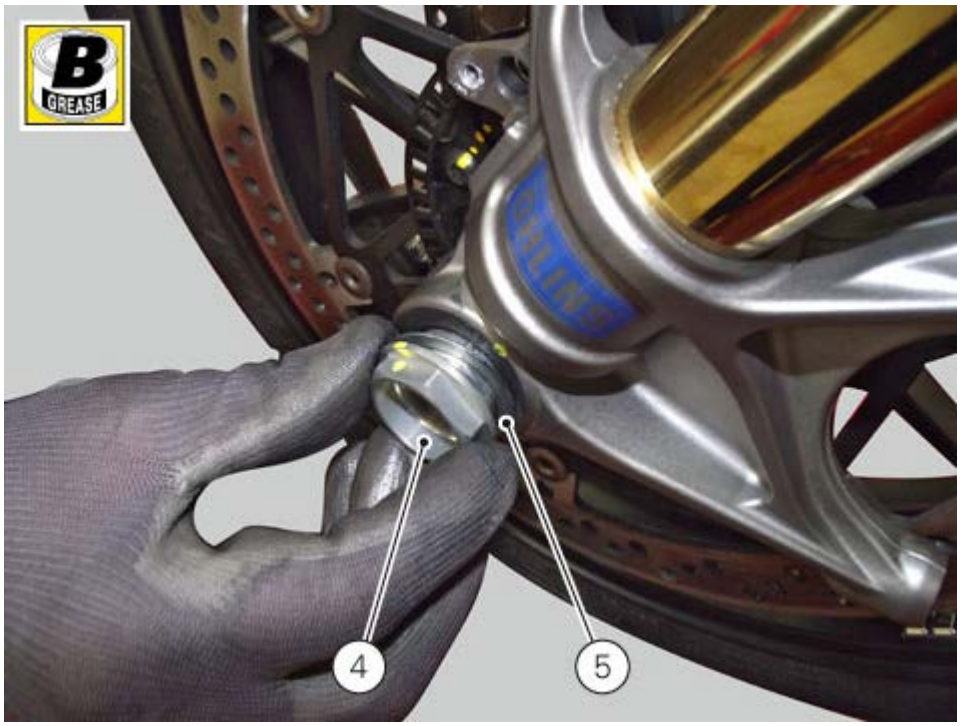


Install the complete wheel between the fork legs.
Apply the recommended grease on wheel shaft (7), thread included.
Take the pin (7) fully into the wheel hub.



Fit the washer (5) on the end of the axle.
Apply the recommended grease on the thread and underside of the locking nut (4), then screw it.
Tighten the nut (4) to a torque of 63 Nm ± 5% (Sect.

http://www.ducati-manuals.com
no. 140312



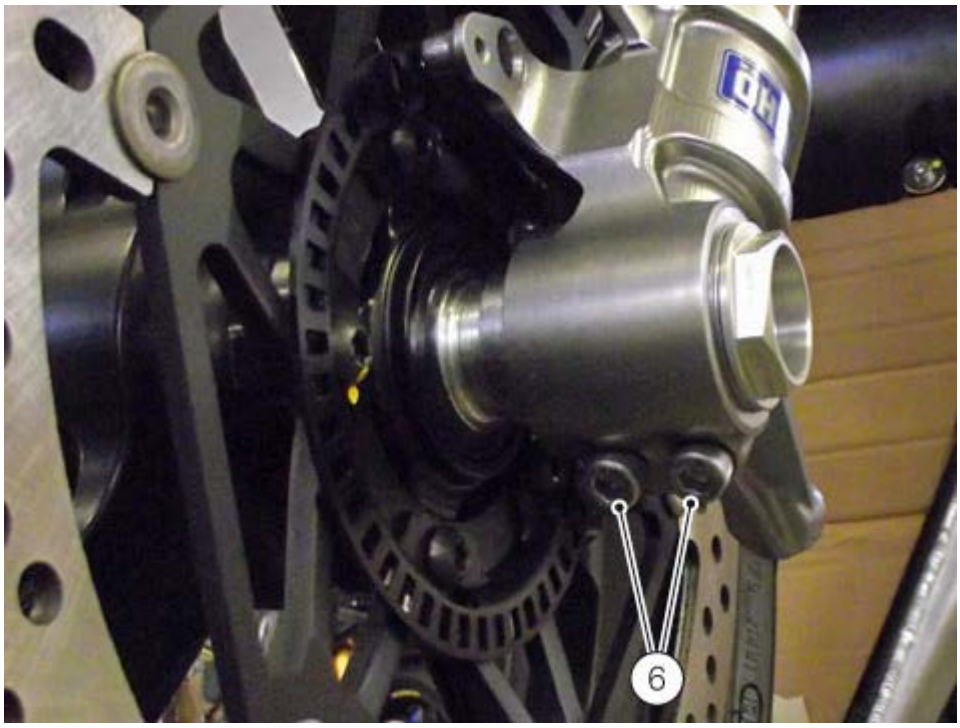
Apply the recommended grease to the thread and underside of calliper retaining screws (1).
Pre-tighten the two retaining screws (1) of the brake callipers to a torque of 2 Nm ±10%.
Operate the front brake lever two or three times.
Hold the lever pulled towards the handgrip and simultaneously tighten the screws (1) to a torque of 45 Nm ± 5%.



http://www.ducati-manuals.com
no. 140312



Before tightening the screws (6) under the fork legs, lower the motorcycle to the ground and push up and down the handlebars to load the suspension; so the fork legs will become properly seated onto the wheel shaft.
Tighten the screws (6) to a torque of 19 Nm ± 5%, following a 1-2-1 sequence.



http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Removal of the rear wheel

Place the motorcycle on the rear service stand and engage the 1st gear.
Remove the circlip (1).
Using a suitable socket, loosen the wheel nut (2).
Fully loosen nut (2).



Remove washer (3) and spacer (4).



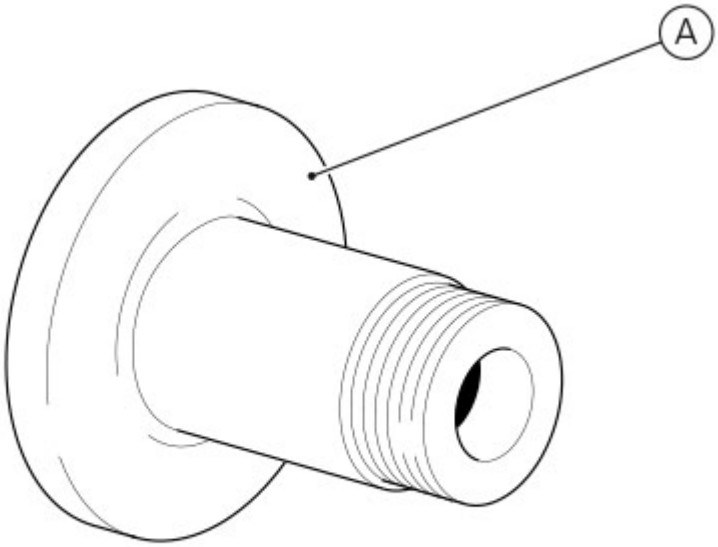
Remove the rear wheel from the motorcycle.

http://www.ducati-manuals.com
no. 140312

Overhaul of the rear wheel

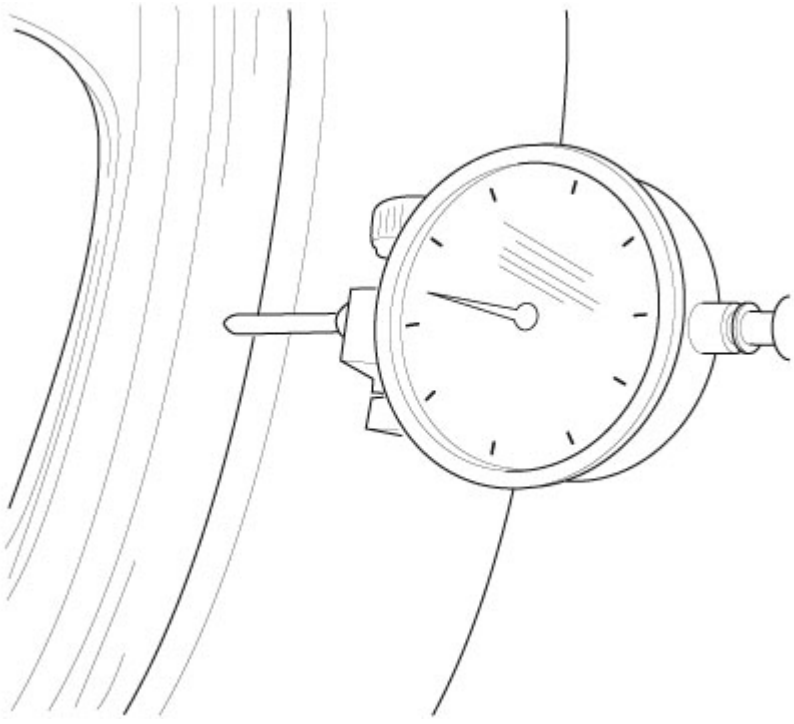
Check wheel rim conditions.
As wheel rim has no bearings, duly support it with special service shaft no. **88713.2951**.

Note
This service shaft can be also used to assemble the wheel on the balancing machine.

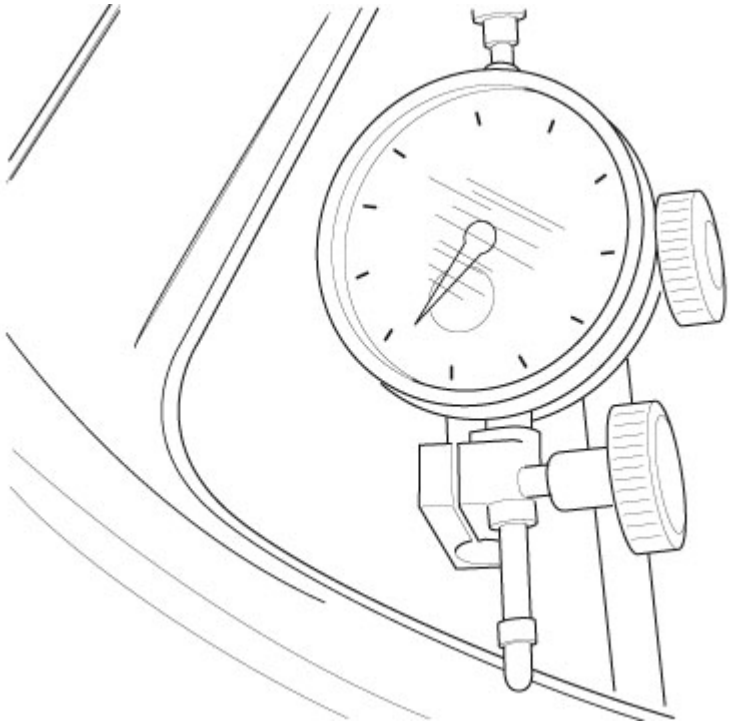


Overhauling the wheel

Inspect the wheel rim as follows.
Visually inspect the rim for cracks, scoring and deformation: change the rim if damaged.
Fit the wheel rim on the service shaft **88713.2951** using the original fasteners.
Using a dial gauge, duly supported, measure rim runout and out-of-round relative to the shaft axle.
If the values measured are not within the tolerance limits, renew the wheel.



http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Installation of the rear wheel

Lubricate the wheel shaft threaded end with recommended grease.
Fit wheel on the shaft, matching wheel seats (5) with pins (6).



Fit the spacer (4), with the tapered side facing the wheel, and the washer (3).

http://www.ducati-manuals.com
no. 140312



Apply the recommended grease to the nut (2).
Screw nut (2) by hand.
Tighten the nut (2) to a torque of 230 Nm ± 5%, checking that the hole on the nut is aligned with one of those on the wheel shaft.
Install clip (1) on nut, with the bent end toward the wheel.
Insert clip (1) bent end into nut hole (2) and wheel shaft hole. Then push circlip (1) inside nut groove (2).



Remove the rear service stand.

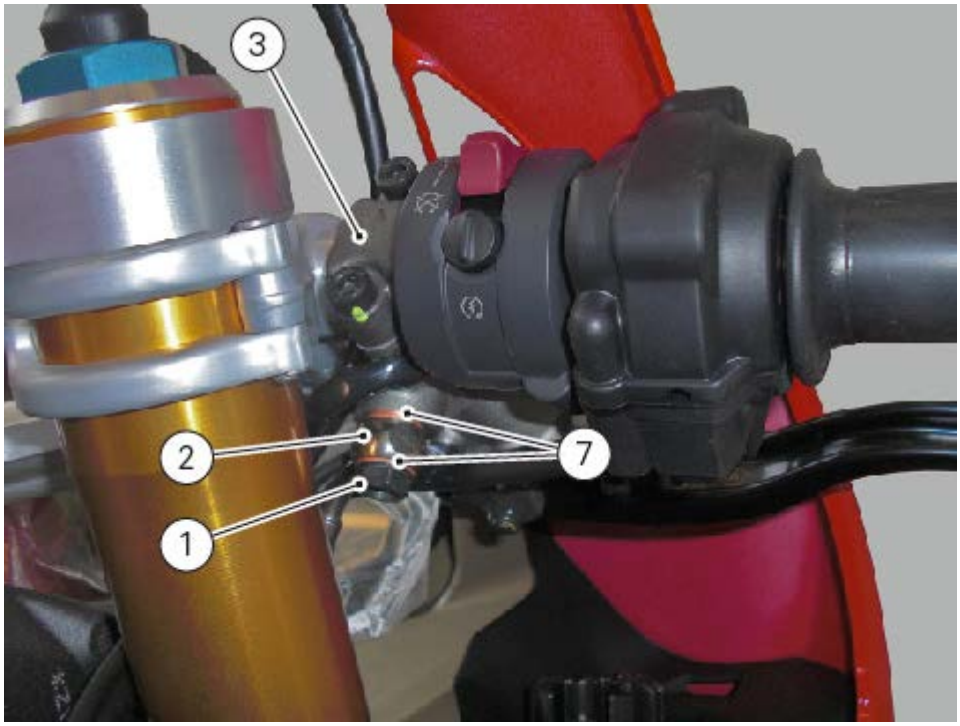
http://www.ducati-manuals.com
no. 140312

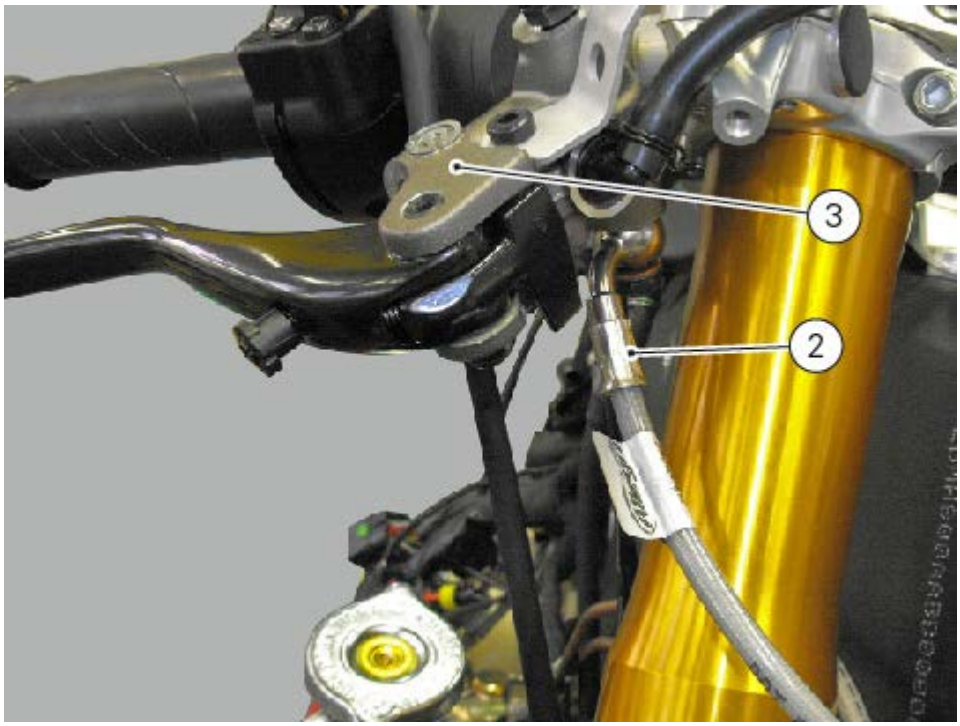
Smontaggio pompa freno idraulico anteriore

Warning
The brake master cylinder manufacturer advises against servicing the brake master cylinder due to the safety critical nature of this component. Incorrect overhaul can endanger rider and passenger safety. Maintenance operations on these units are limited to replacement of the following parts: control lever, fluid reservoir assembly and relative fasteners and master cylinder fasteners.

Svuotare l'impianto frenante (Sostituzione liquido impianto frenante anteriore).
Rimuovere la carena destra (Smontaggio carene laterali).

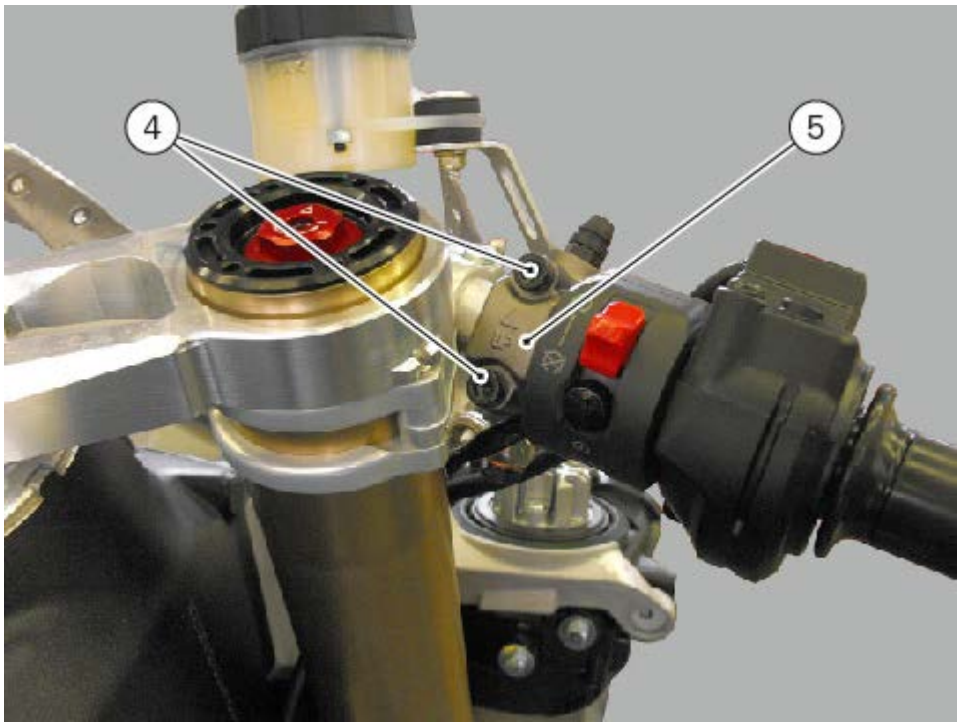
Svitare la vite speciale (1) di fissaggio del tubo (2) freno pompa anteriore alla pompa freno anteriore (3).
Recuperare le due guarnizioni (7).



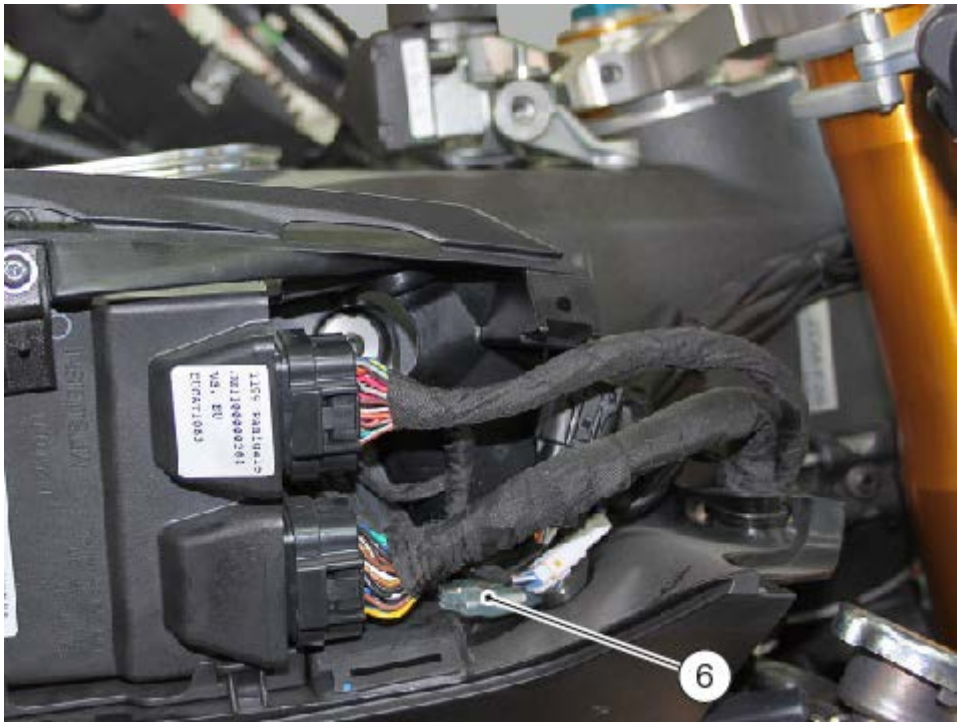


Svitare le viti (4) di fissaggio del cavallotto (5) della pompa freno anteriore.

http://www.ducati-manuals.com
no. 140312



Scollegare la connessione (6) dello switch freno anteriore dal cablaggio principale.

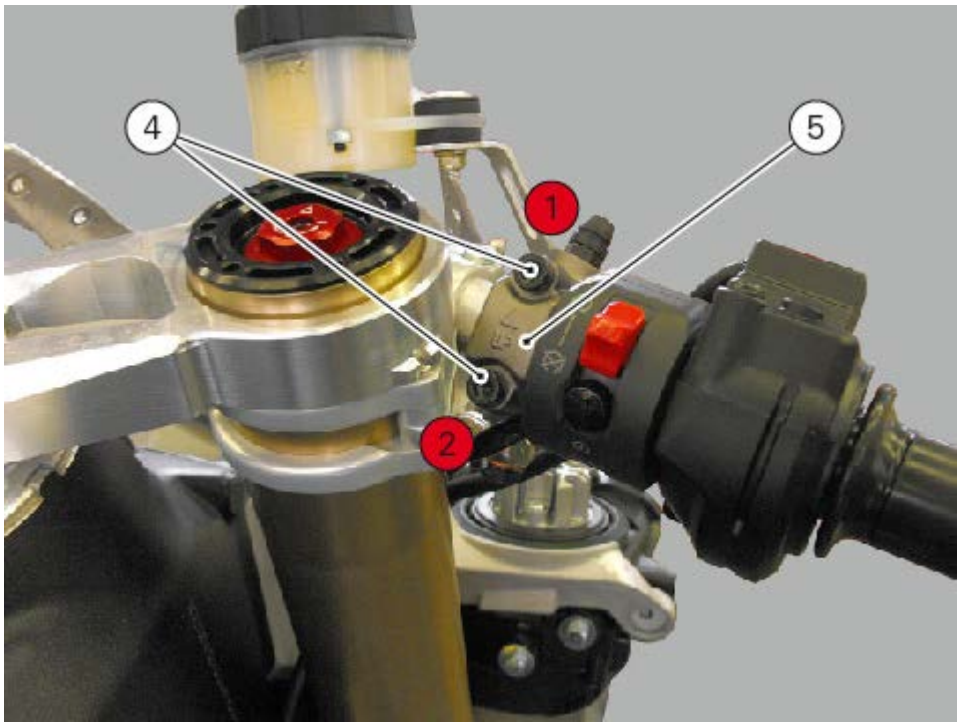


Rimuovere il gruppo pompa freno anteriore dal semimanubrio.

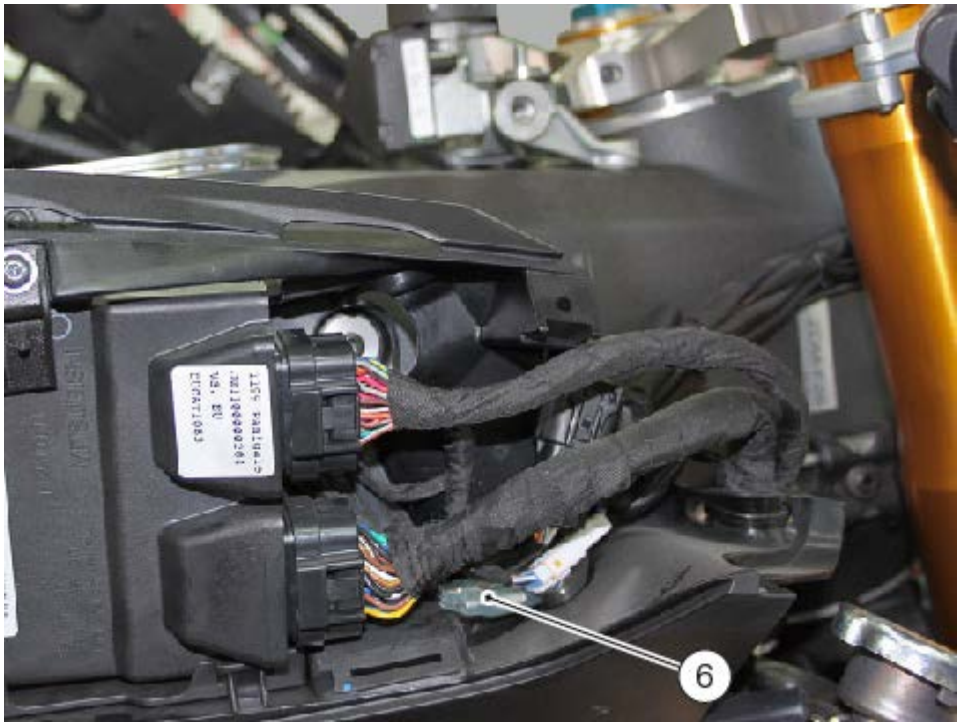
http://www.ducati-manuals.com
no. 140312

Rimontaggio pompa freno idraulico anteriore

Riposizionare il gruppo pompa freno anteriore sul semimanubrio.
Impuntare le viti (4) di fissaggio del cavallotto (5) della pompa freno anteriore.
Serrare le viti (4) alla coppia di 10 Nm ± 10%, rispettando la sequenza 1-2-1.

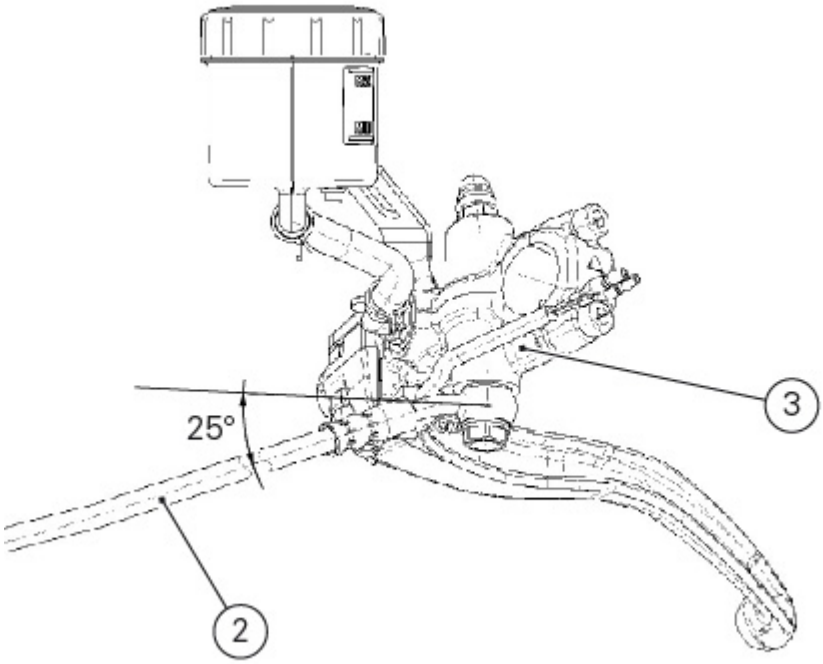


Collegare la connessione (6) dello switch freno anteriore al cablaggio principale.

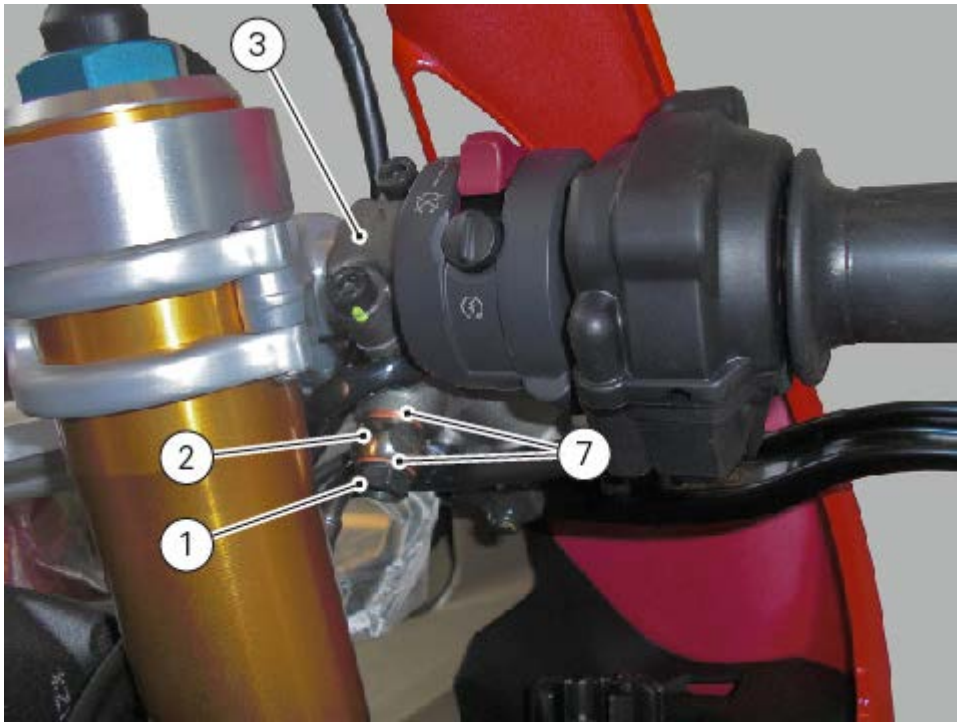


Posizionare il tubo (2) sulla pompa (3) rispettando la quota indicata.

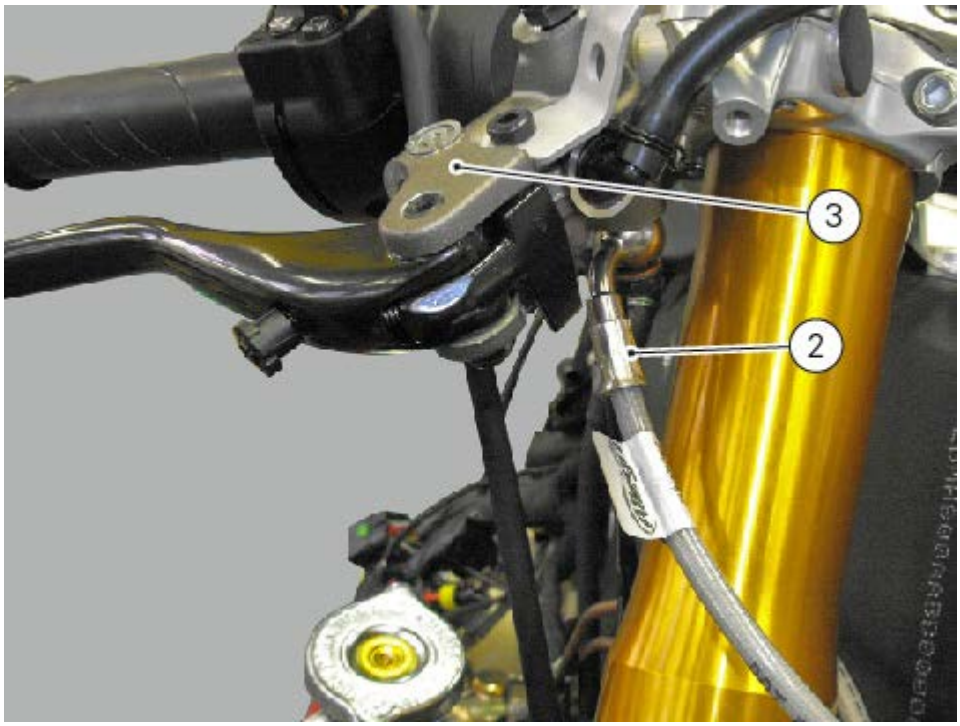
http://www.ducati-manuals.com
no. 140312



Impuntare la vite speciale (1) di fissaggio del tubo (2) freno pompa anteriore alla pompa freno anteriore (3), con le guarnizioni (7).
Serrare la vite (1) alla coppia di 23 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



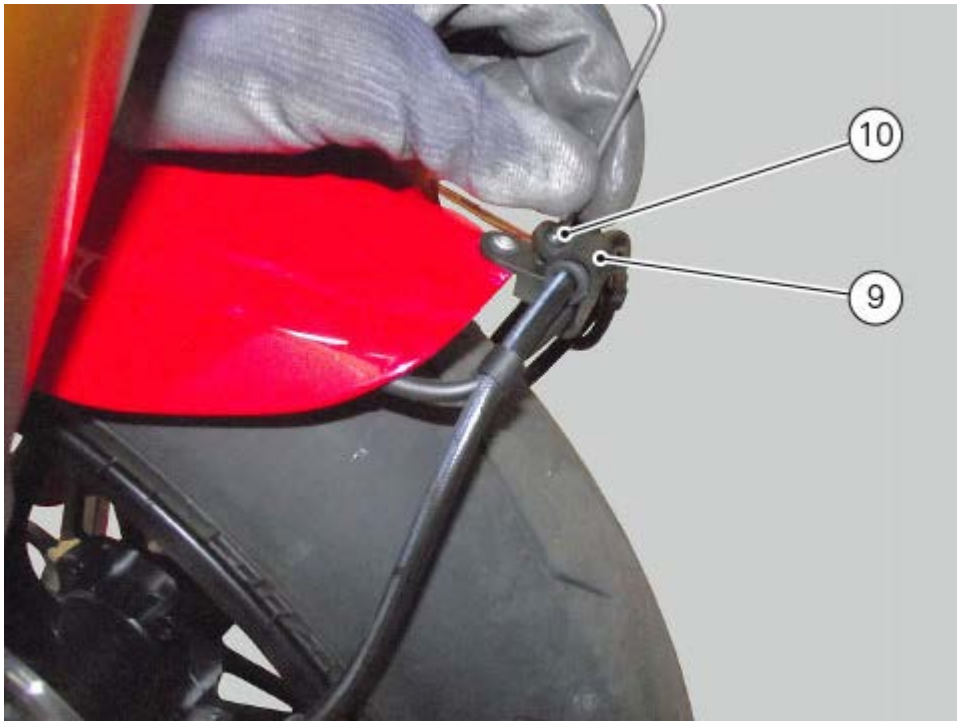
Rimontare la carena destra (Rimontaggio carene laterali).
Riempire l'impianto frenante (Sostituzione liquido impianto frenante anteriore).

http://www.ducati-manuals.com
no. 140312

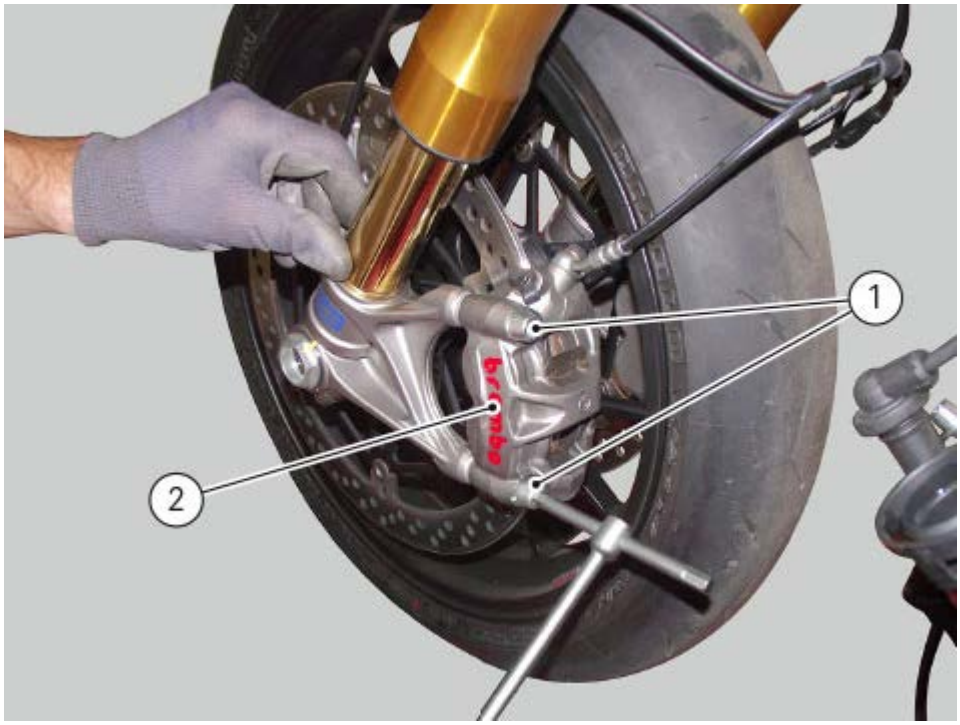
Smontaggio Impianto freno idraulico anteriore

Svuotare l'impianto frenante (Sostituzione liquido impianto frenante anteriore).

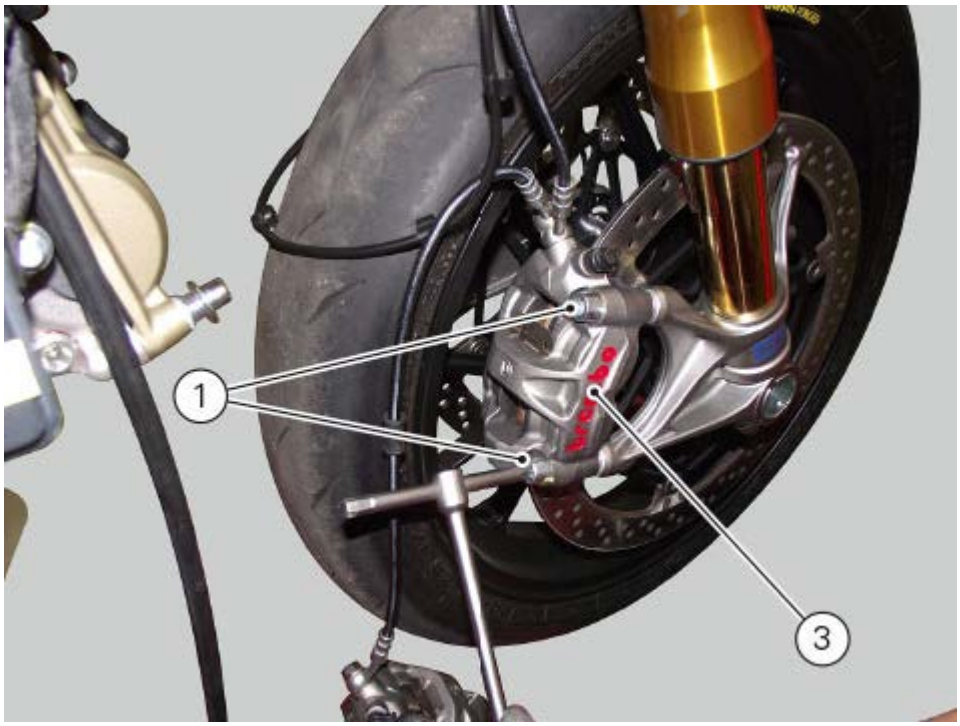
Svitare la vite (10) di fissaggio del passacavo (9) dei tubi freno anteriore.



Svitare le viti (1) di fissaggio delle pinze (2) e (3) freno anteriori ai piedi degli steli forcella e rimuovere le pinze dalla ruota anteriore.



http://www.ducati-manuals.com
no. 140312



Svitare la vite speciale (4) di fissaggio del tubo (5) freno pinza destra - pinza sinistra e del tubo (6) freno alla pinza freno anteriore (3). Recuperare le guarnizioni (7).



Rimuovere il gruppo tubazioni e pinze freno anteriore dal motociclo.

http://www.ducati-manuals.com
no. 140312



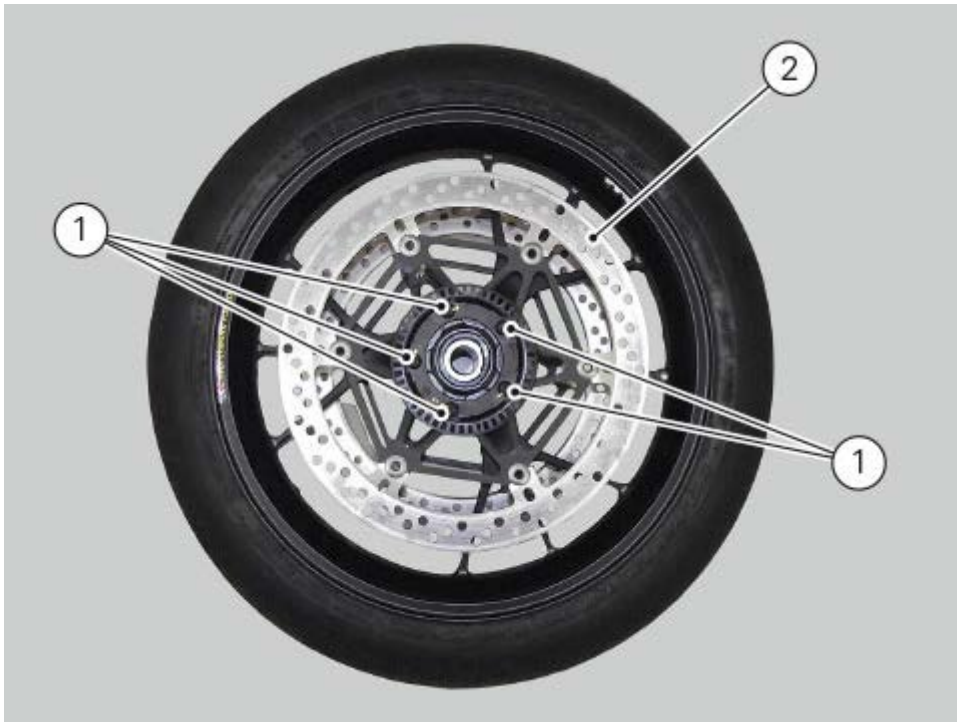
http://www.ducati-manuals.com
no. 140312

Smontaggio dischi freno

I dischi anteriori sono composti da una parte solidale al cerchio ruota e da una fascia frenante. Dovendo sostituire il disco è necessario sostituire entrambi i componenti.

Svitare le viti (1) di fissaggio disco alla ruota e rimuovere il disco (2) recuperando, sul lato sinistro, la ruota fonica (3).





http://www.ducati-manuals.com
no. 140312

Revisione componenti freno anteriore

Important

Critical safety components. The brake calliper manufacturer recommends you not to attempt to service the internal components of the brake callipers. Incorrect overhaul of this component could endanger rider safety.

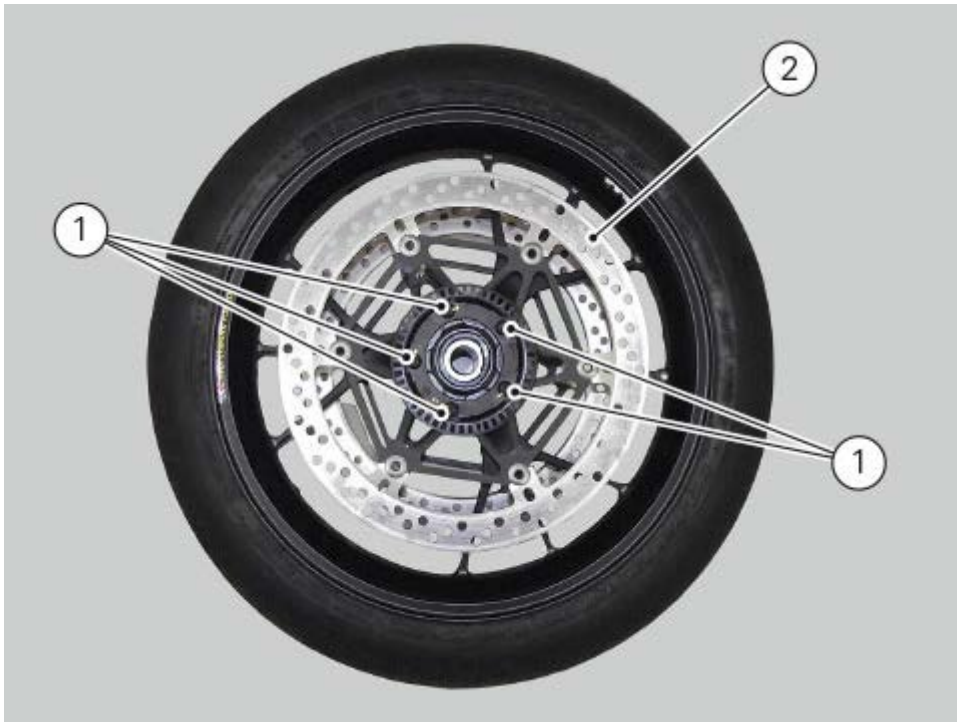
Le operazioni di sostituzione si devono limitare alle pastiglie, ai componenti di fissaggio e al gruppo di spurgo.
Il disco freno deve essere perfettamente pulito, cioè senza ruggine, olio, grasso od altra sporcizia e non deve presentare profonde rigature.
Per il controllo dello stato di usura dei dischi freno attenersi ai dati riportati nella tabella Freni idraulici.

http://www.ducati-manuals.com
no. 140312

Rimontaggio dischi freno

Quando si procede al rimontaggio del disco sul cerchio pulire perfettamente le superfici di appoggio.
Operando sul lato sinistro, posizionare la ruota fonica (3).
Avvitare le viti (1) di fissaggio disco (2) freno alla ruota.
Serrare le viti (1) alla coppia di 30 Nm ±5%.

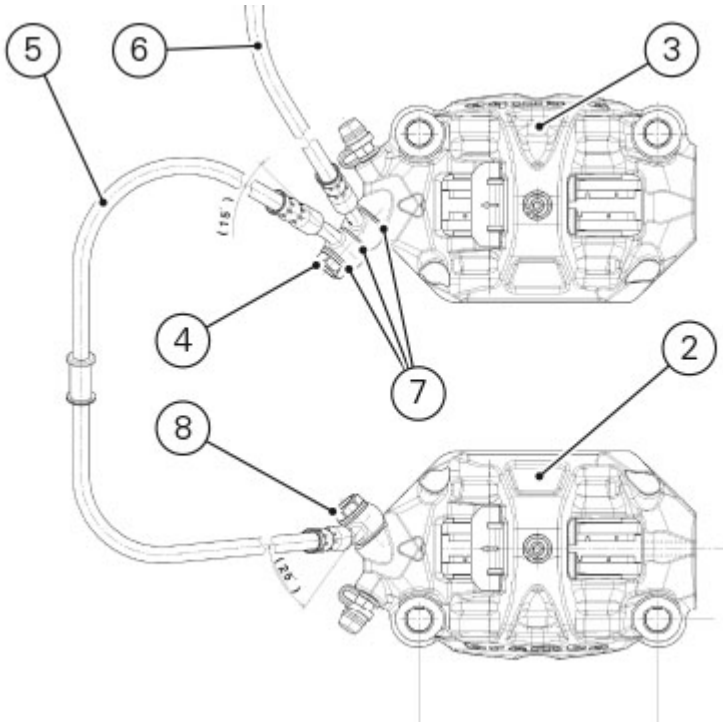




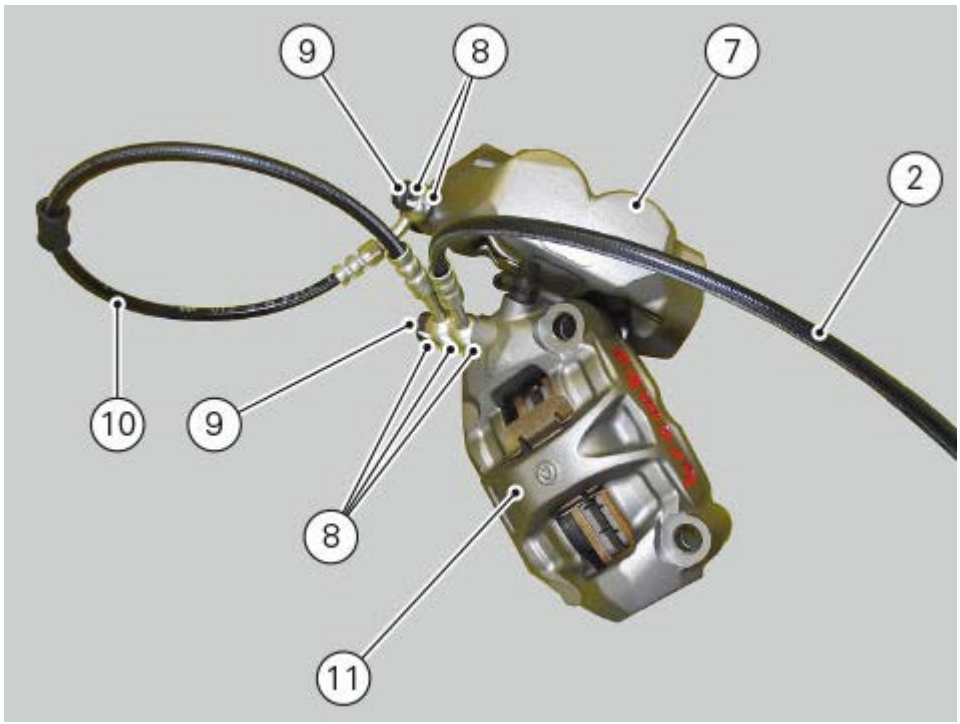
http://www.ducati-manuals.com
no. 140312

Rimontaggio Impianto freno idraulico anteriore

Se rimosso, riposizionare il tubo (5) sulla pinza freno (2).
Posizionare il tubo (5) ed il tubo (6) sulla pinza freno (3) e sulla pinza freno (2) rispettando le quote indicate.



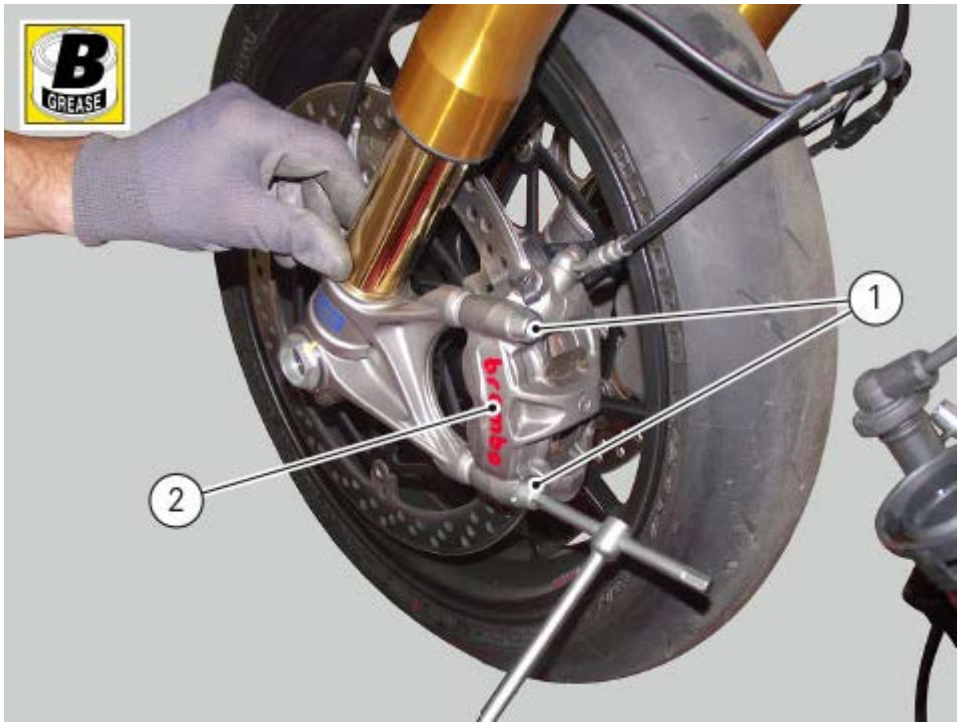
Posizionare le guarnizioni (7).
Serrare le viti (8) e (4) alla coppia di 23 Nm ± 10%.
Riposizionare il gruppo tubazioni e pinze freno anteriore sul motociclo.



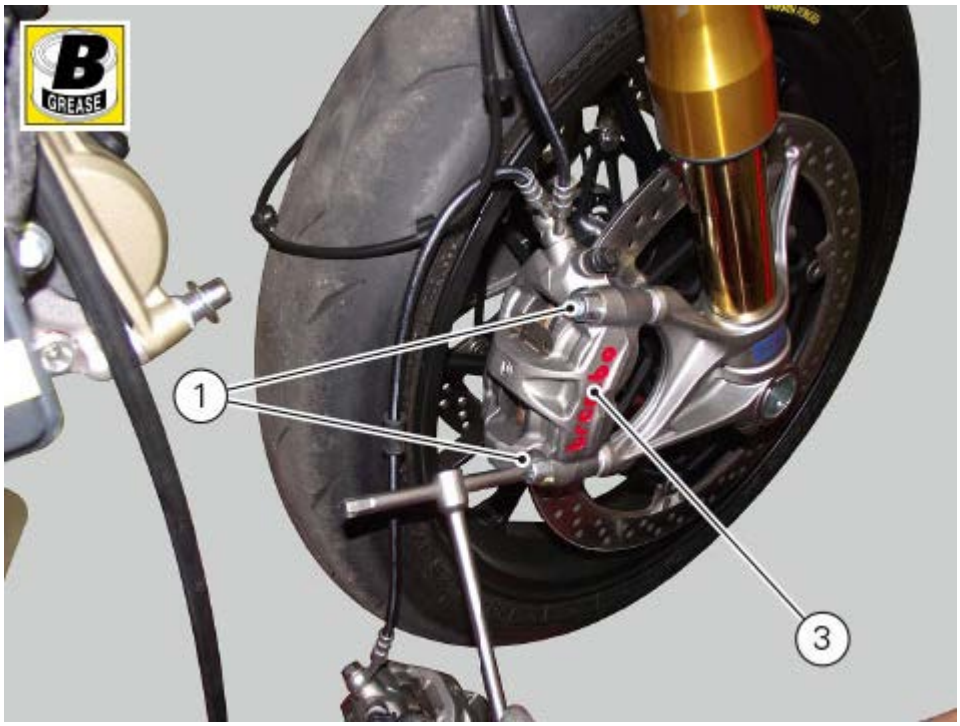
http://www.ducati-manuals.com
no. 140312



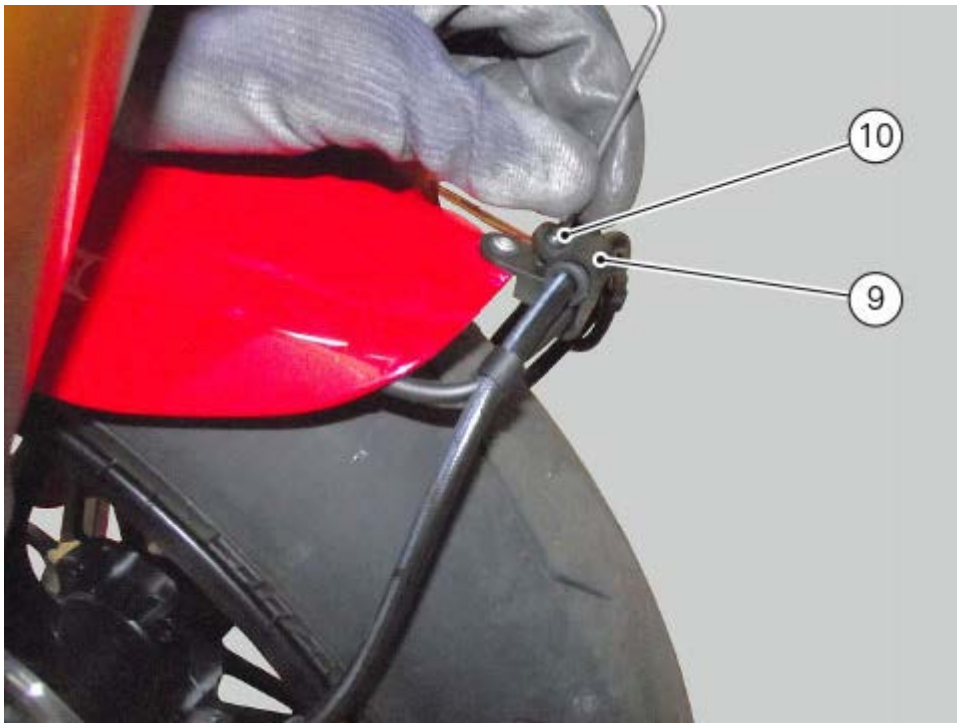
Inserire la pinza freno sinistra (2) sul disco.
Applicare grasso prescritto sulle viti (1).
Preserrare le viti (1) alla coppia di 2 Nm ± 5 %, per fissare le pinze agli steli forcella.
Azionare la leva freno due o tre volte in modo tale da permettere al circuito di andare in pressione e di portare quindi le pastiglie a contatto con il disco freno.
Eseguire la stessa operazione per il montaggio della pinza freno destra (3).
Mantenere tirata la leva verso la manopola e contemporaneamente serrare le viti (1) della pinza alla coppia di 45 Nm ±5%.



http://www.ducati-manuals.com
no. 140312



Posizionare le tubazioni freno nel passacavo (9). Serrare la vite (10) di fissaggio del passacavo (9) dei tubi freno anteriore alla coppia 0,35 Nm ± 10%.



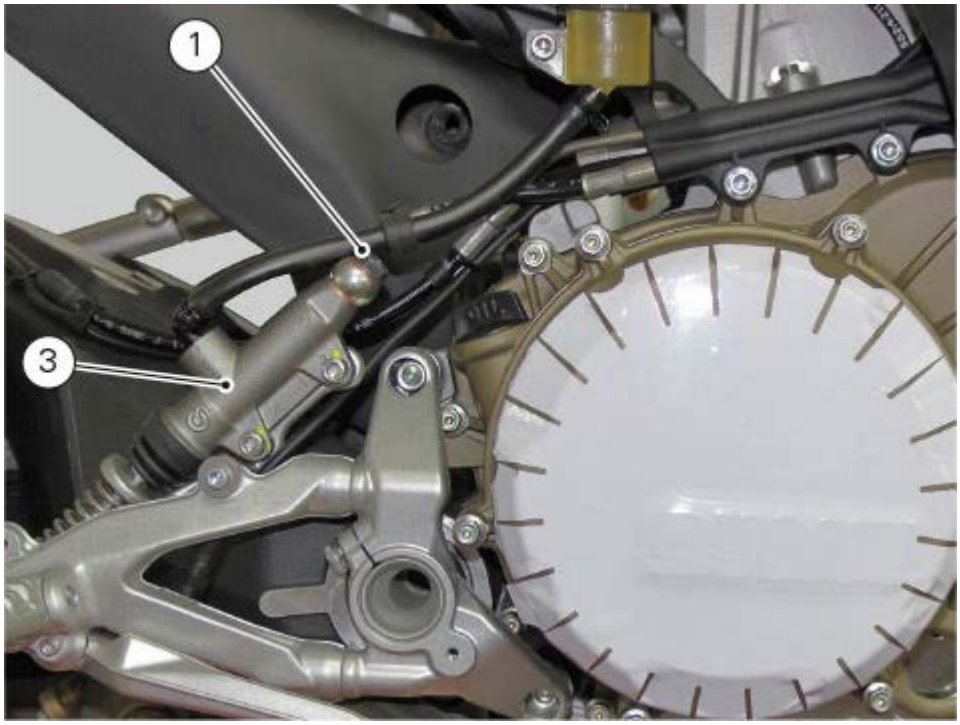
Riempire l'impianto frenante (Sostituzione liquido impianto frenante anteriore).

http://www.ducati-manuals.com
no. 140312

Smontaggio comando freno posteriore completo

Svuotare l'impianto frenante (Sostituzione liquido impianto frenante posteriore).

Svitare la vite speciale (1) di fissaggio del tubo (2) freno pompa posteriore alla pompa freno posteriore (3).
Recuperare le due guarnizioni (4).



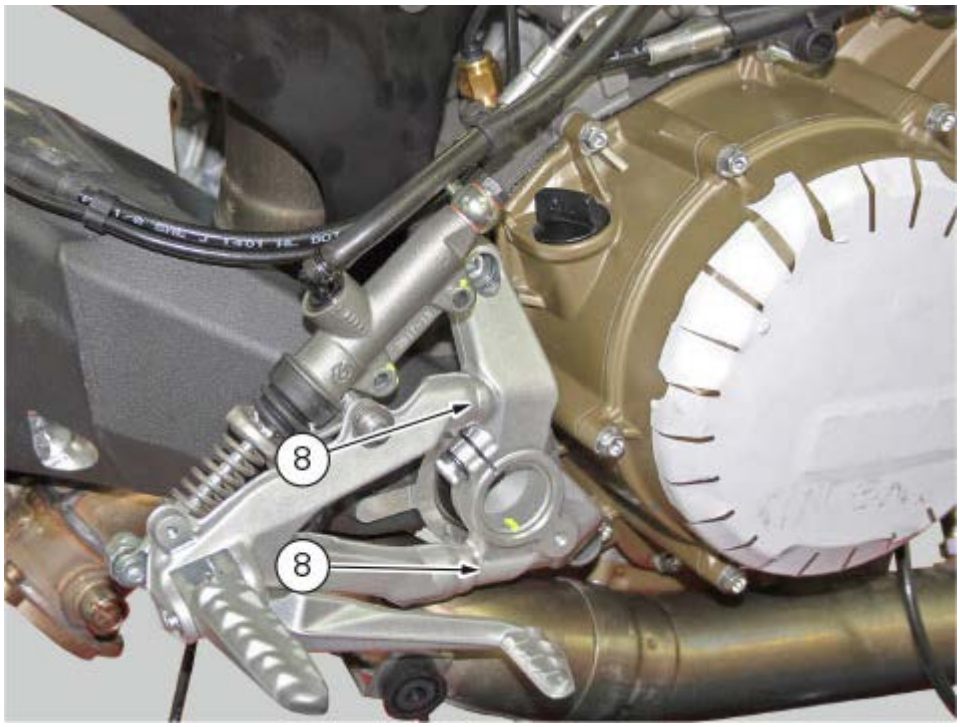


Svitare la vite (5) di fissaggio del serbatoio olio (6) al passacavi (7).

http://www.ducati-manuals.com
no. 140312



Scollegare il cavo del sensore stop posteriore (19) dal cablaggio principale.
Rimuovere la pedana destra, svitando le viti (8).



Le operazioni di sostituzione, per quanto riguarda la pompa, sono limitate a:

- pedale di comando;
- gruppo di spurgo;
- serbatoio e componenti.

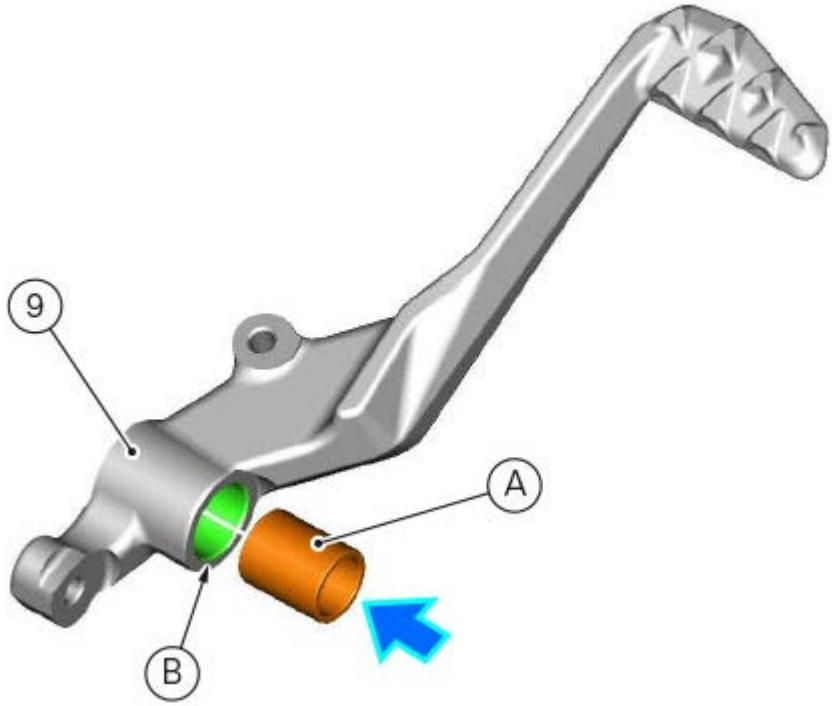
http://www.ducati-manuals.com
no. 140312

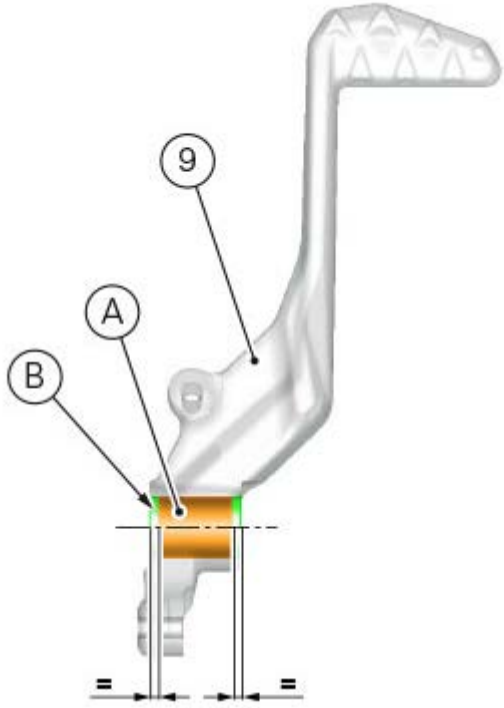
Rimontaggio comando freno posteriore completo

Verificare che la boccola (A) sia posizionata nell'apposita sede (B) della leva freno posteriore (9).

Important

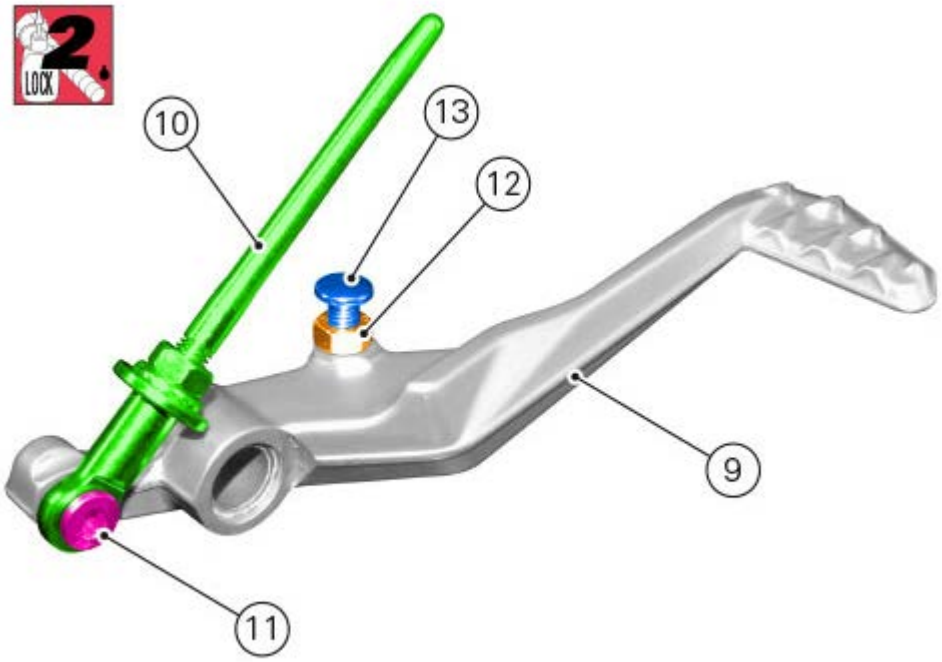
La boccola (A) deve risultare equidistante rispetto ai profili esterni della sede (B), come indicato.

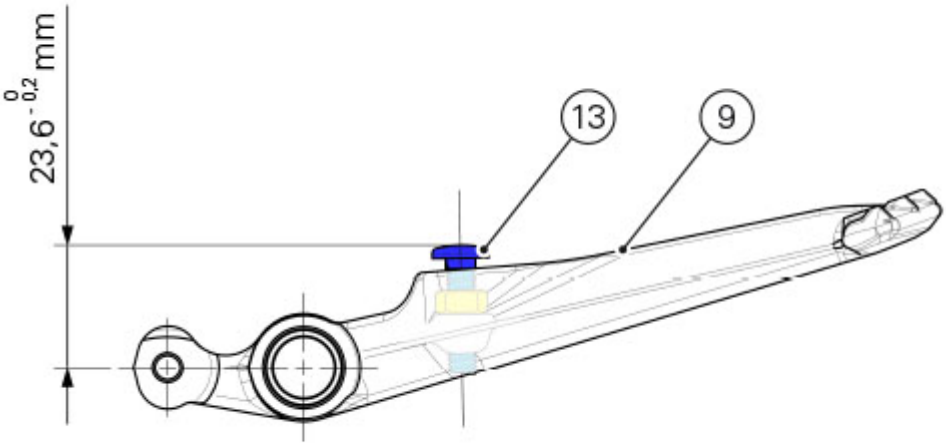




Inserire l'astina comando pompa freno posteriore (10) sulla vite (11).
Applicare frenafiletti prescritto sulla sporgenza filettata della vite (11).
Montare l'astina comando pompa freno posteriore (10) sulla leva freno (9) impuntando la vite (11).
Serrare la vite (11) alla coppia di 10 Nm ± 10%.
Avvitare il dado (12) sul grano di registro (13).
Avvitare il grano di registro (13) sulla sporgenza della leva freno, sino ad ottenere la misura indicata.
Contrastando il grano di registro (13), avvitare e serrare il dado (12) alla coppia di 8 Nm ± 10 % sul piano della leva freno (9).

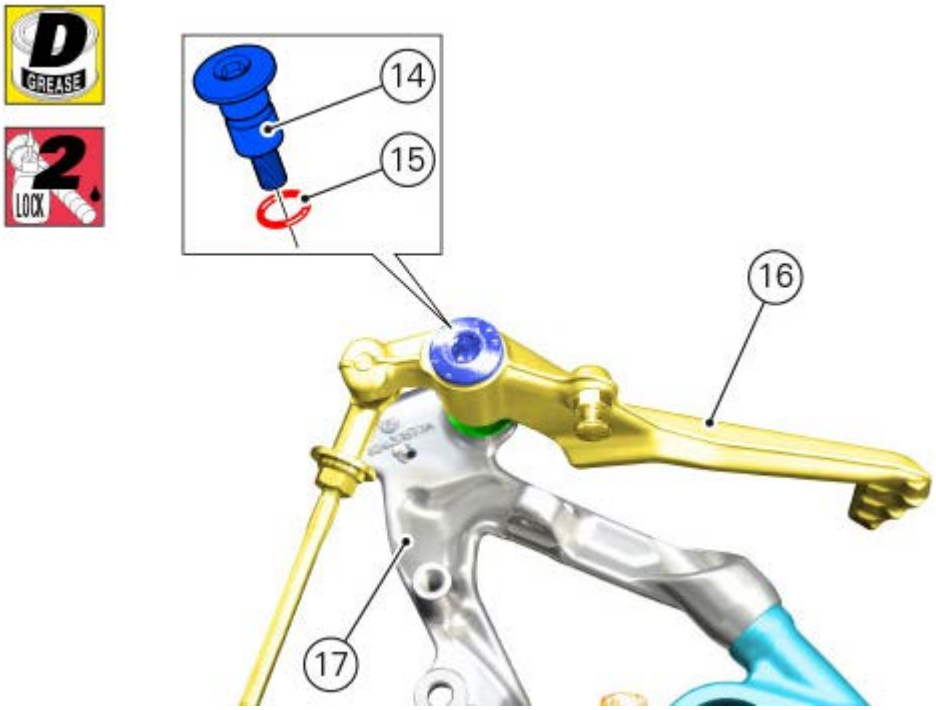
http://www.ducati-manuals.com
no. 140312

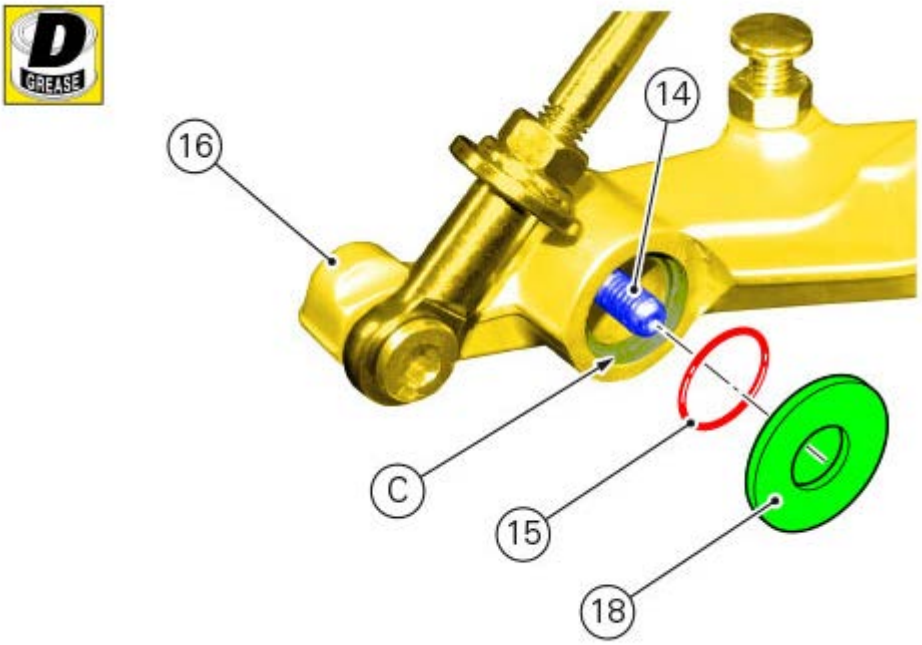




Applicare grasso prescritto nella sede dell'OR della vite (14), inserire il primo anello OR (15) sulla vite (14).
Applicare frenafiletti prescritto alla filettatura della vite (14).
Introdurre la vite (14) nel foro indicato del gruppo leva freno (16).
Applicare grasso prescritto alla sede (C) dell'OR del gruppo leva freno (16) ed inserire il secondo anello OR (15) sulla vite (14).
Inserire la rosetta (17) sulla vite (14).
Montare il gruppo leva freno (16), orientandolo come indicato, sulla piastra portapedana anteriore destra (17) impuntando la vite (14).
Serrare la vite (14) alla coppia di 25 Nm ± 10%.

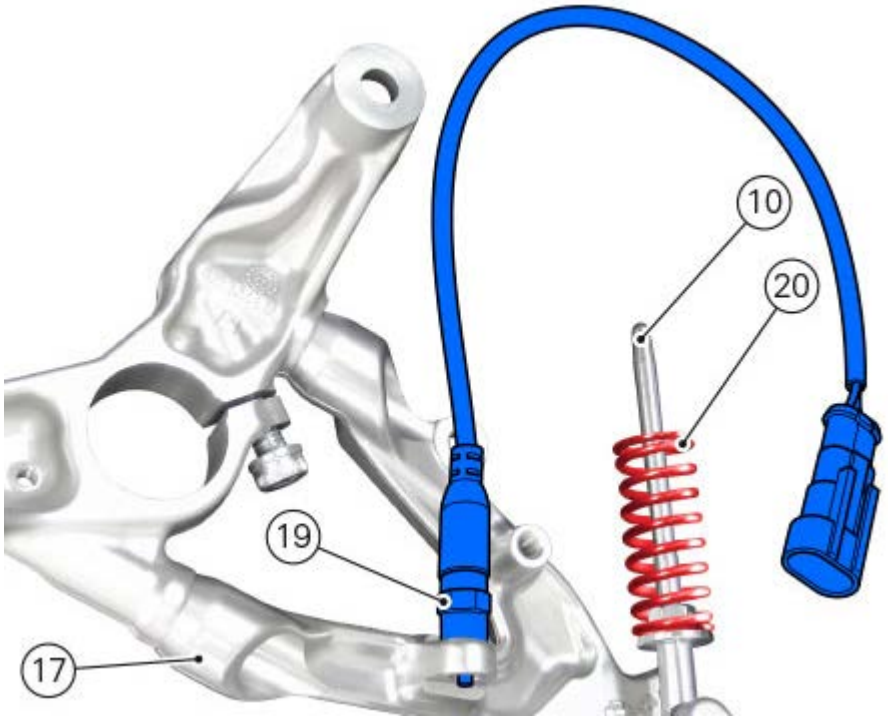
http://www.ducati-manuals.com
no. 140312



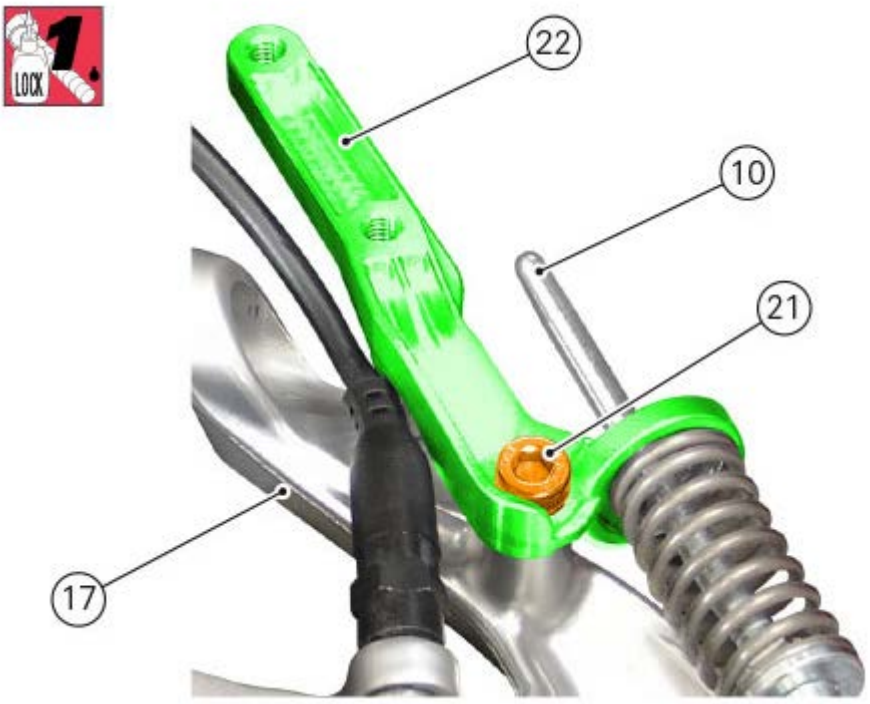


Se rimosso, montare il cavo sensore stop posteriore (19), avvitandolo manualmente nella piastra portapedana anteriore destra (17).
Serrare il cavo sensore stop posteriore (19) alla coppia di 5 Nm ± 10%.
Inserire la molla (20) sull'astina comando pompa freno posteriore (10).

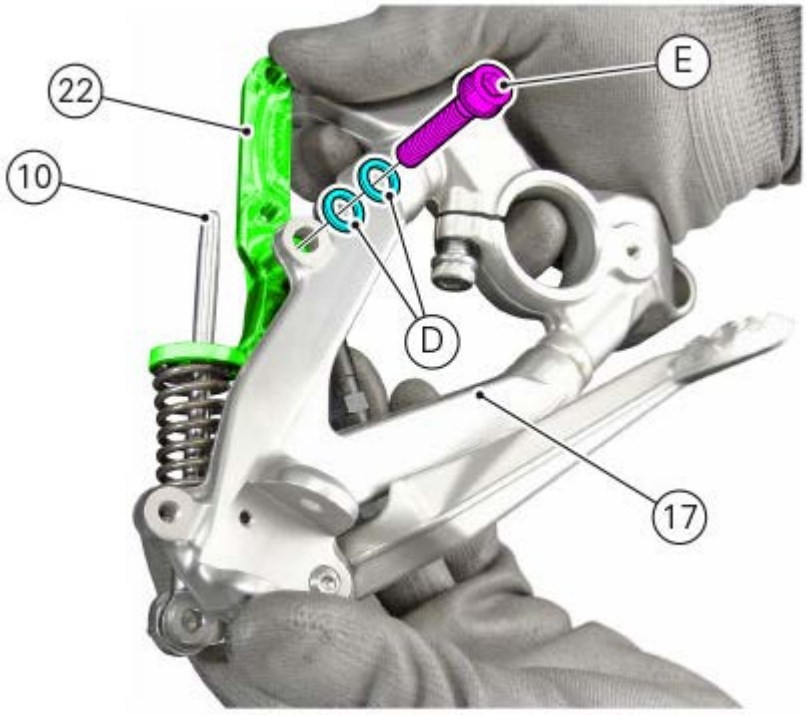
http://www.ducati-manuals.com
no. 140312



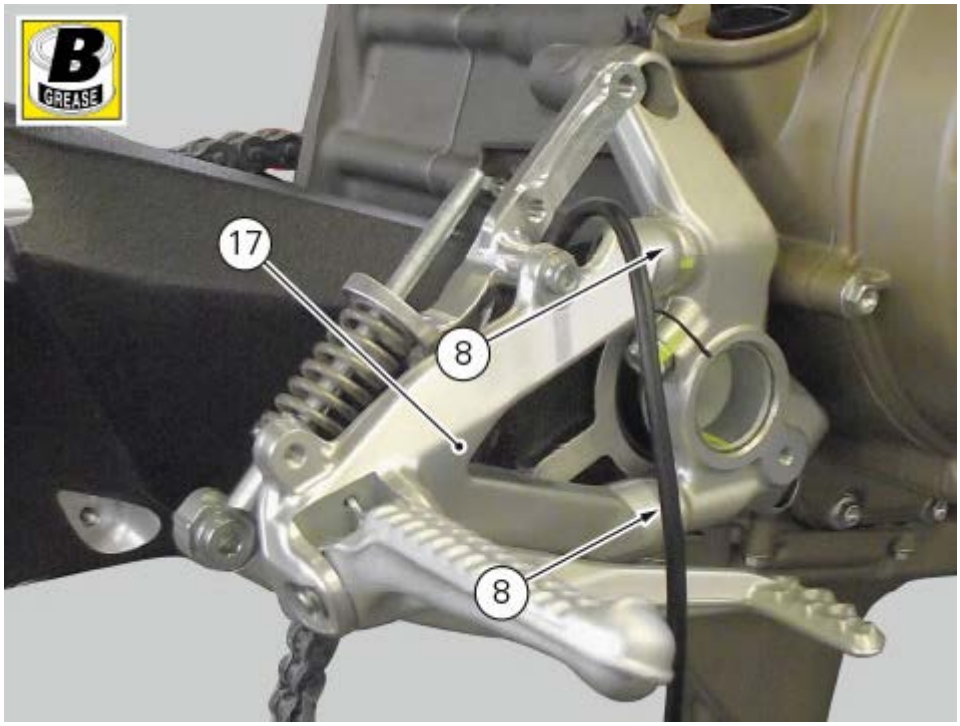
Applicare frenafiletti prescritto sul filetto della vite (21).
Montare la piastra spingimolla (22) inserendola sull'astina comando pompa freno posteriore (10) e fissarla sul lato interno del gruppo piastra portapedana anteriore destra (17) impuntando la vite (21).
Inserire due rosette di servizio (D) sulla vite (E): la vite (E) verrà utilizzata in seguito per il fissaggio del paratacco destro.
Ogni rosetta di servizio (D) deve essere da 5 mm x 15 mm (diametro) x 1,5 mm (spessore).
Sul lato esterno, impuntare la vite (E) con le rosette (D).
Serrare la vite (21) alla coppia di 10 Nm ± 10%.
Serrare la vite (E) alla coppia di 6 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

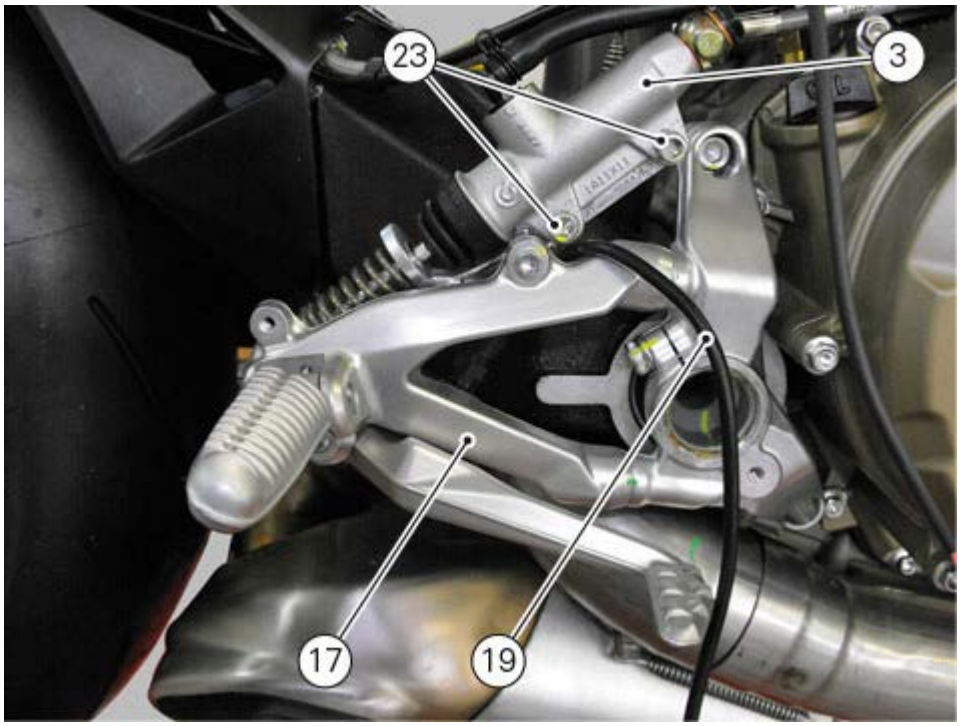


Rimontare la pedana destra completa (17) del comando freno posteriore.
Applicare grasso prescritto alle viti (8).
Impuntare le viti (8) di fissaggio e serrarle alla coppia di 25 Nm ± 5%.



Posizionare la pompa freno posteriore (3) sulla piastra porta pedana destra (17) e serrare le viti (23) alla coppia di 8 Nm ± 10%.
Collegare il cavo del sensore stop posteriore (19) al cablaggio principale.

http://www.ducati-manuals.com
no. 140312

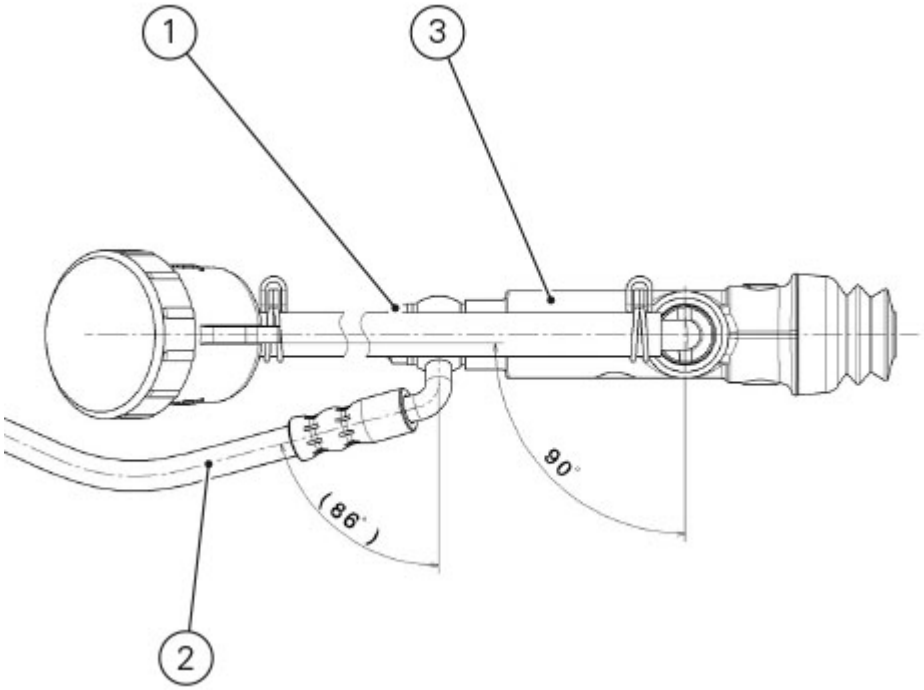


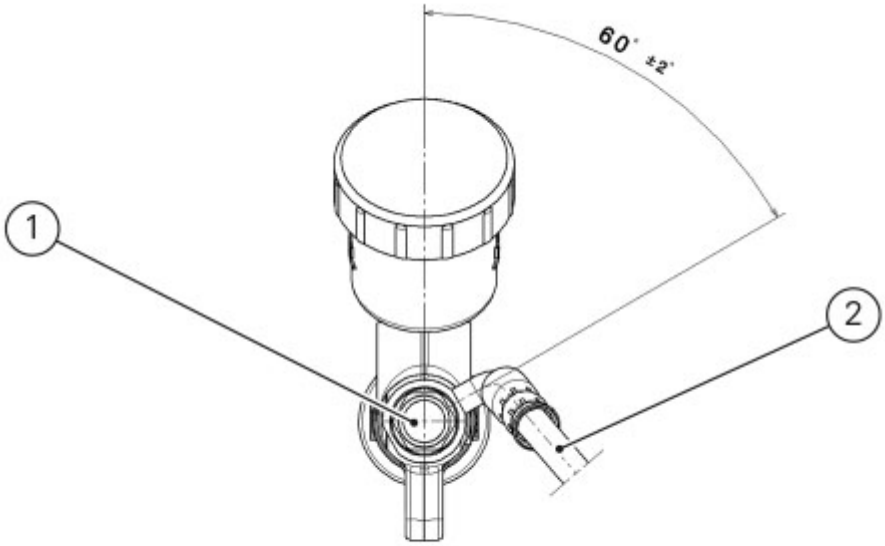
Posizionare il serbatoio olio (6) sul passacavi (7). Impuntare la vite (5) di fissaggio. Serrarla alla coppia di 2 Nm ± 10%.



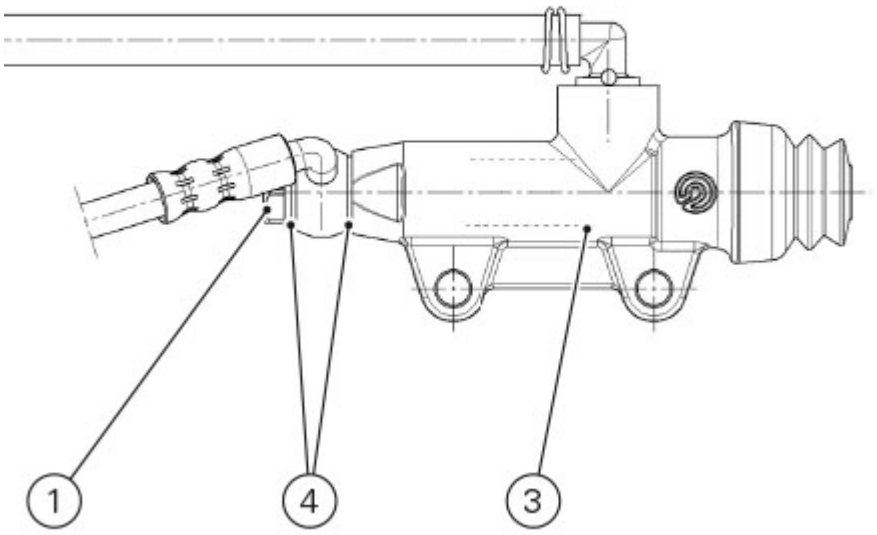
Posizionare il tubo (2) sulla pompa freno posteriore (3) rispettando la quota indicata. Impuntare la vite (1) con le guarnizioni (4).

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

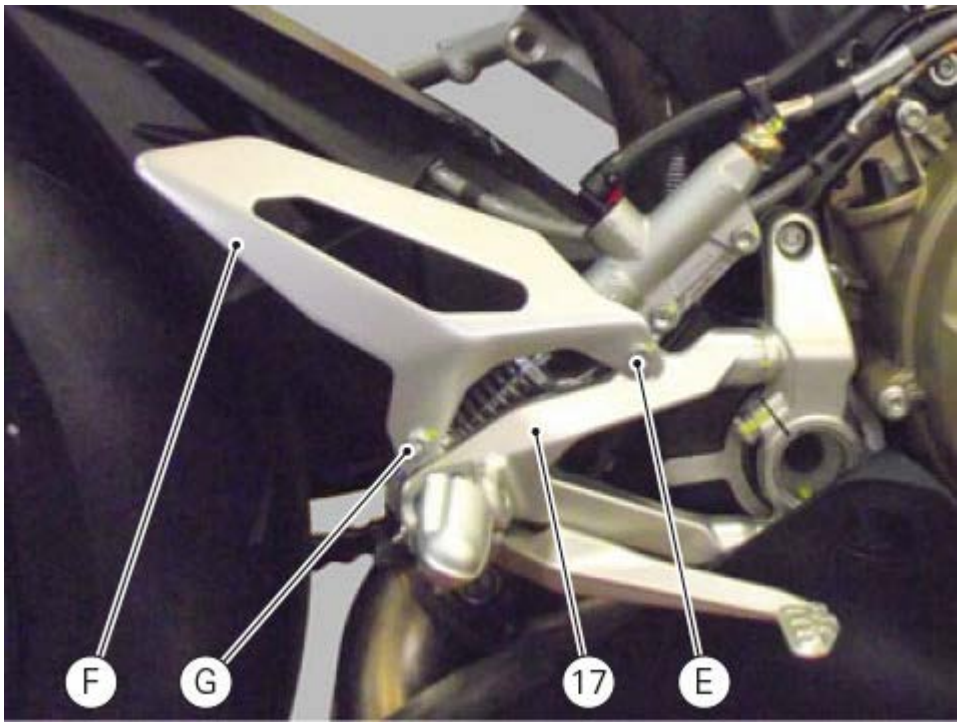


Serrare la vite (1) alla coppia di 23 Nm ± 10%.



Rimontare il paratacco destro (F) sulla piastra portapedana destra (17).
Svitare la vite (E) del paratacco (F) utilizzata in precedenza e rimuoverla insieme alle rosette di servizio utilizzate.
Impuntare le viti (E) e (G), con frenafiletti prescritto.
La vite (E) del paratacco (F) fissa anche il supporto della pompa freno posteriore alla piastra portapedana.
Serrare le viti (E) e (G) alla coppia di 6 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



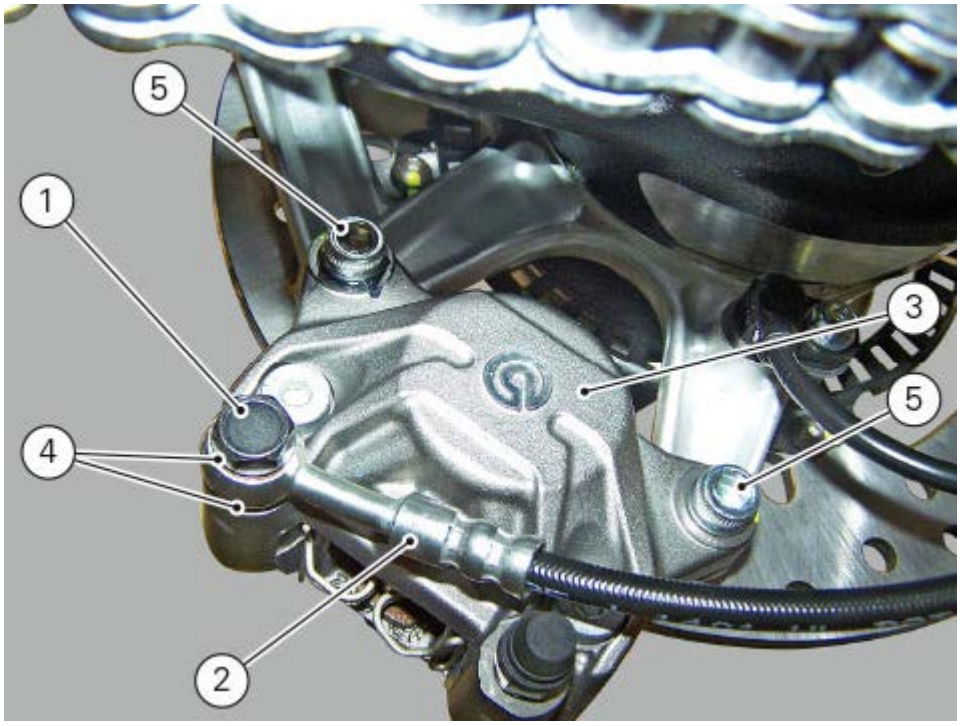
Riempire l'impianto frenante (Sostituzione liquido impianto frenante posteriore).

http://www.ducati-manuals.com
no. 140312

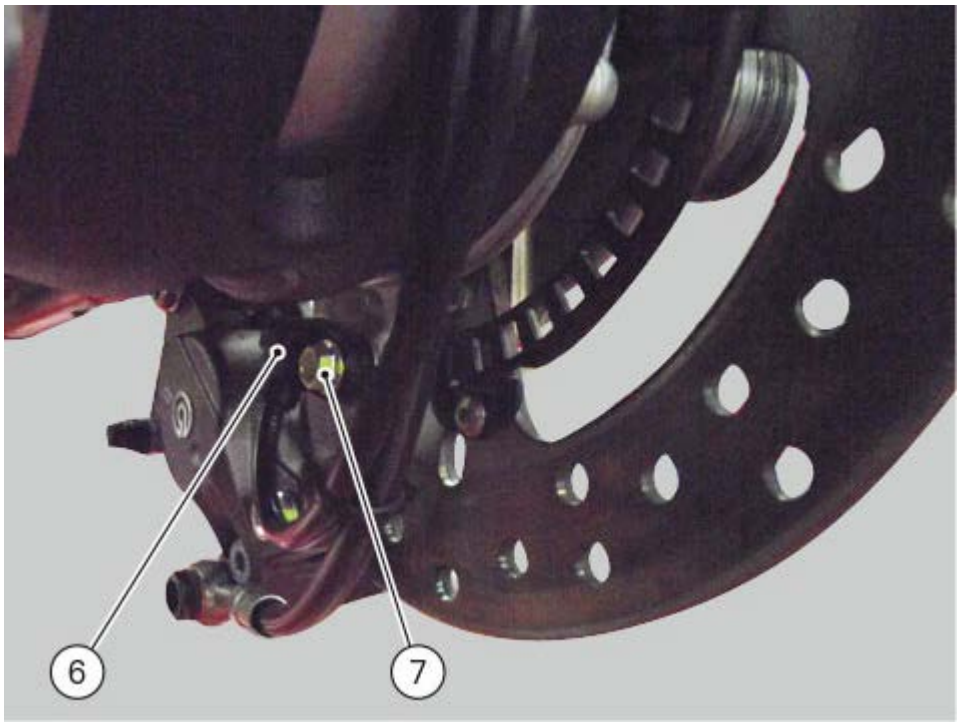
Smontaggio pinza freno posteriore

Svuotare l'impianto frenante (Sostituzione liquido impianto frenante posteriore).

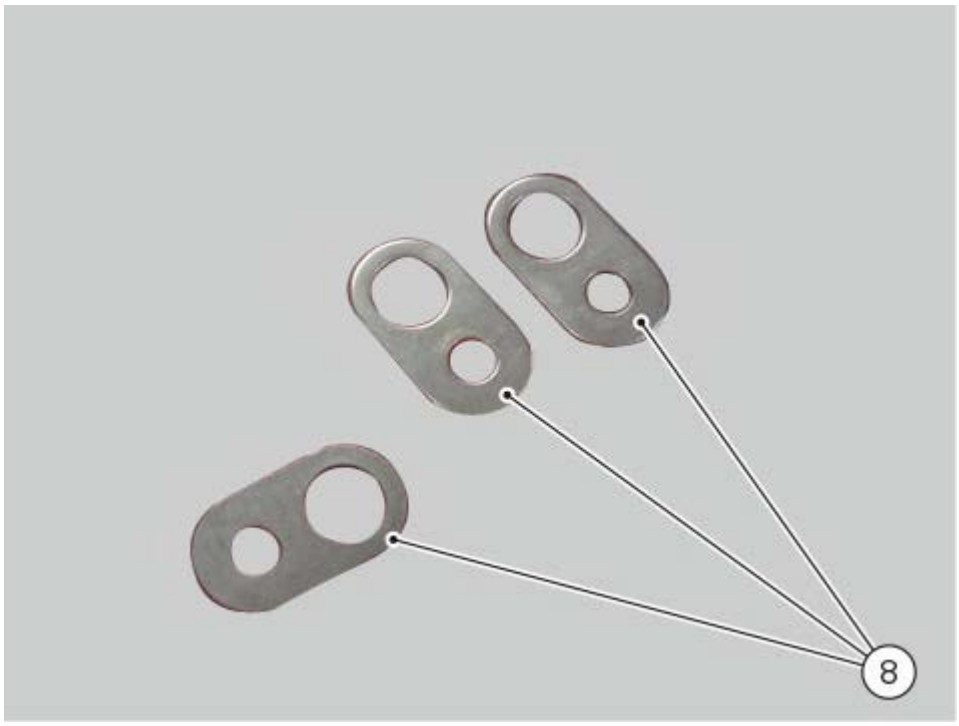
Svitare la vite speciale (1) di fissaggio del tubo (2) freno pinza posteriore alla pinza freno posteriore (3). Recuperare le due guarnizioni (4).
Svitare le due viti (5) di fissaggio pinza freno posteriore (3) alla piastra portapinza e rimuovere la pinza freno (3).



Per rimuovere il sensore velocità (6) svitare la vite (7) di fissaggio facendo attenzione ai tre distanziali airgap (8).



http://www.ducati-manuals.com
no. 140312



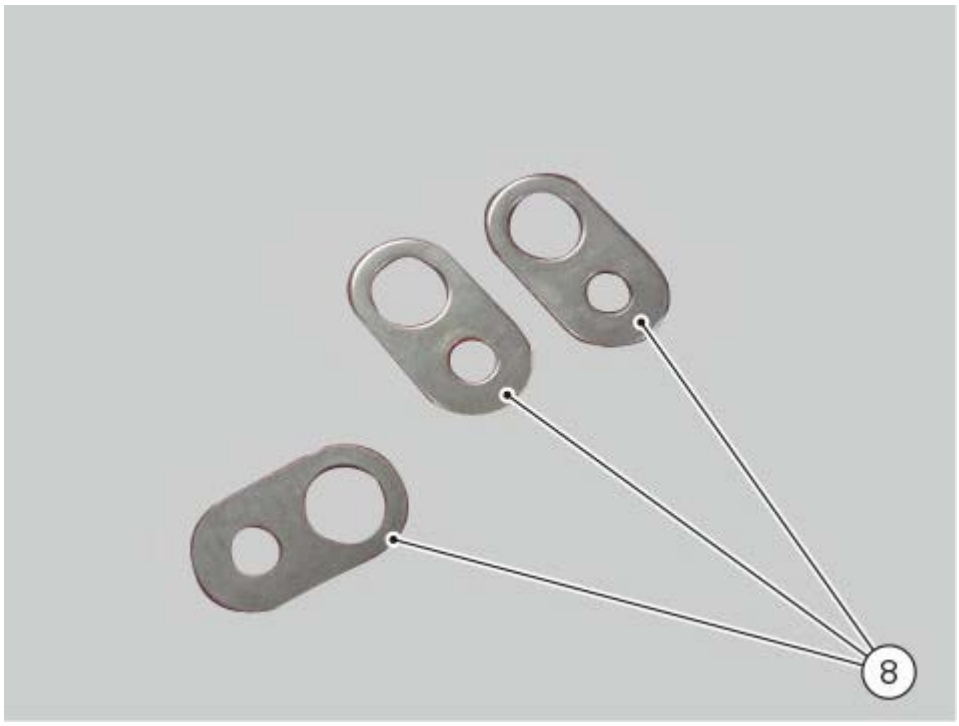
Le operazioni di sostituzione sono limitate, per quanto riguarda la pinza, a:

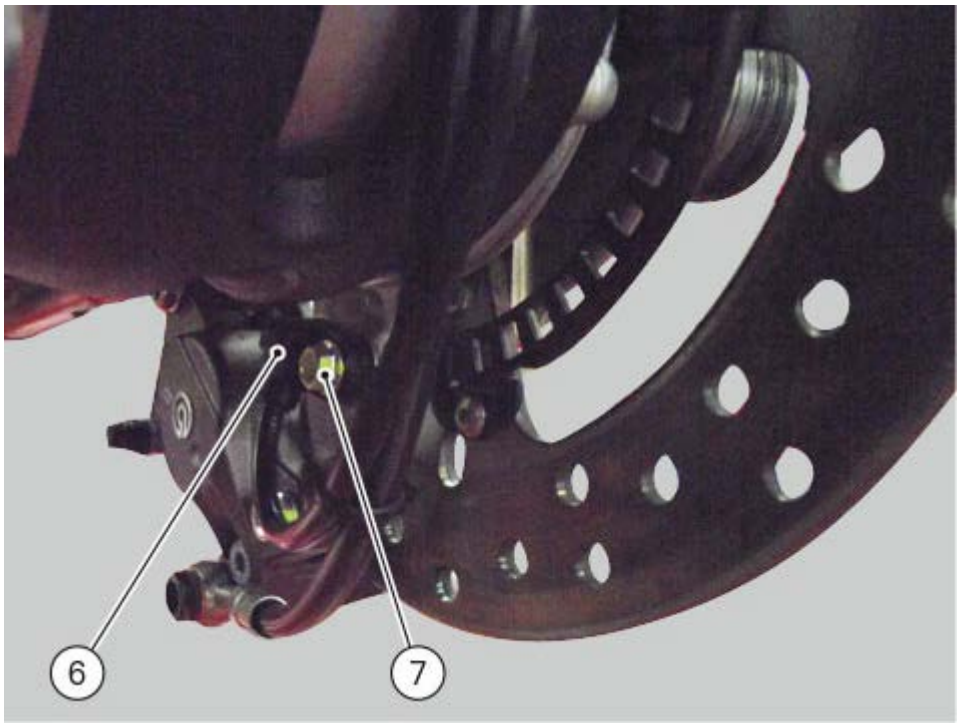
- pastiglie;
- componenti di fissaggio;
- gruppo di spurgo.

http://www.ducati-manuals.com
no. 140312

Rimontaggio pinza freno posteriore

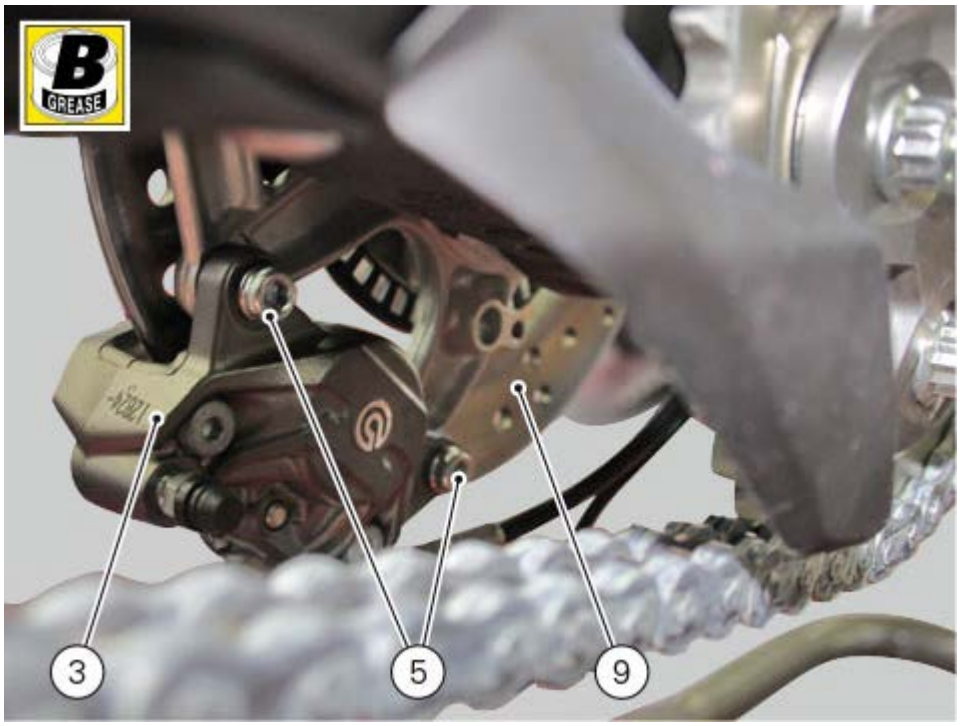
Posizionare il sensore velocità (6) con i tre distanziali airgap (8).
Impuntare la vite (7) di fissaggio.
Serrare la vite (7) alla coppia di 10 Nm ± 10%.



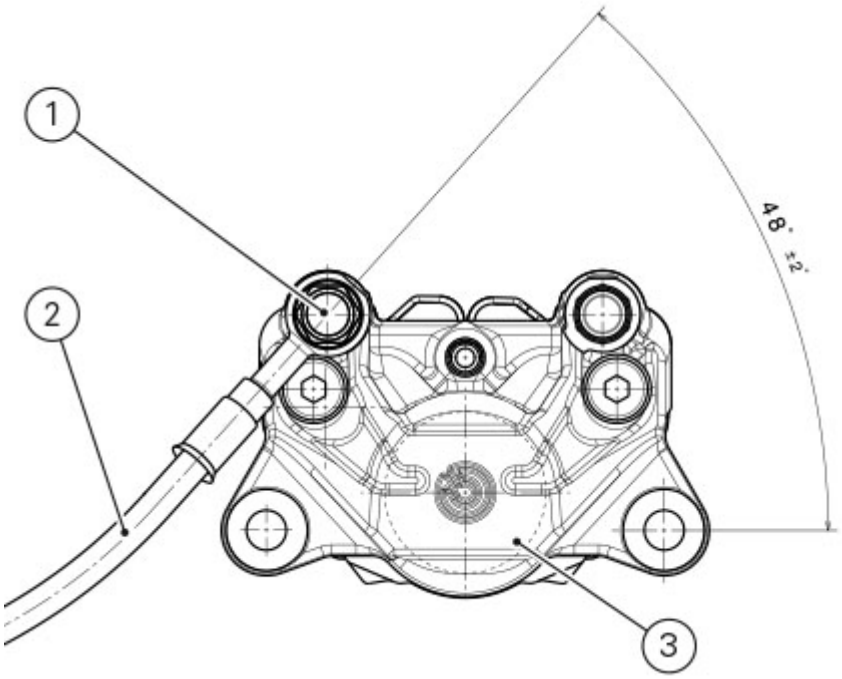


Applicare grasso prescritto alle viti (5).
Impuntare le viti (5) di fissaggio della pinza freno posteriore (3) al disco freno (9).
Serrare le viti (5) alla coppia di 25 Nm ± 5%.

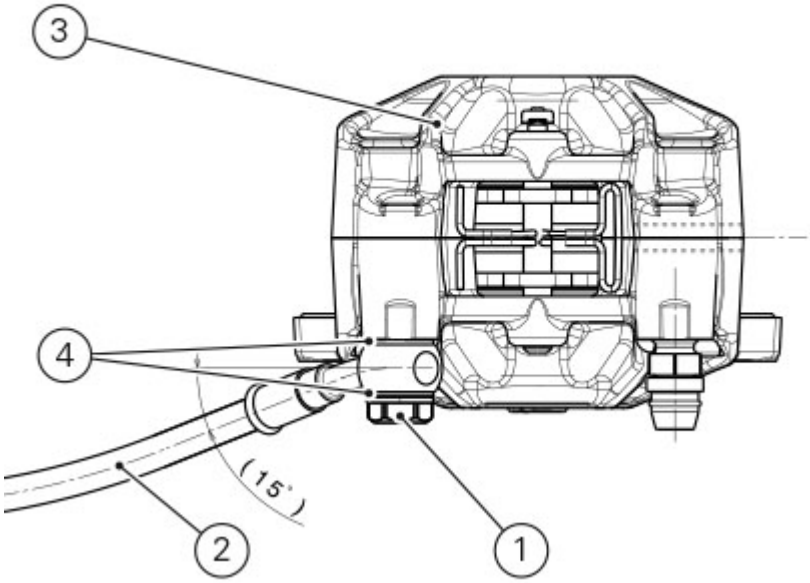
http://www.ducati-manuals.com
no. 140312



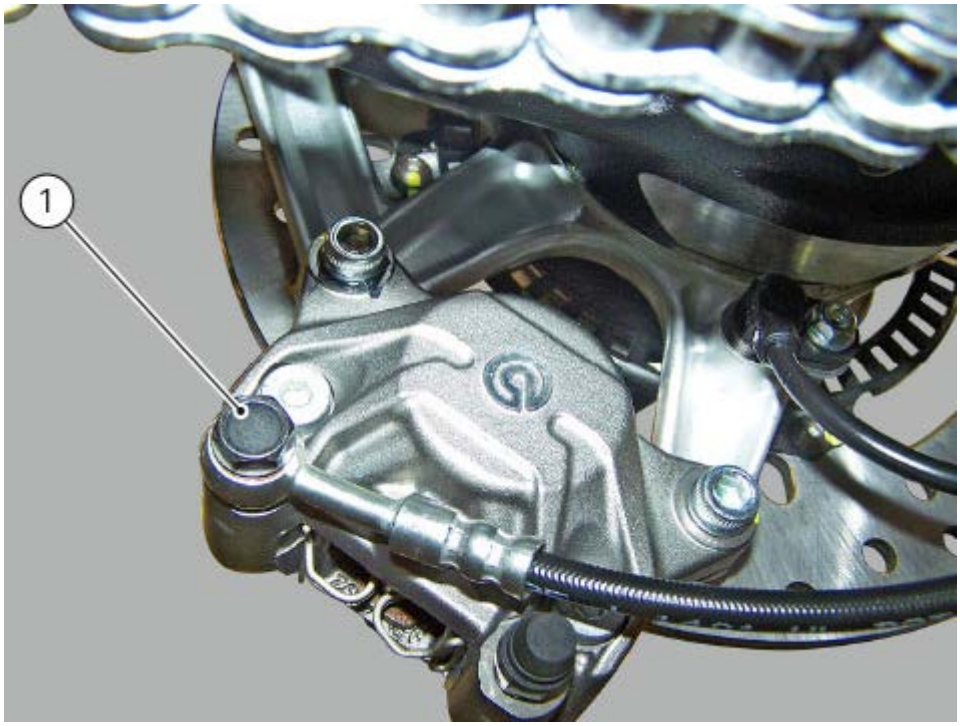
Posizionare il tubo (2) alla pinza freno posteriore (3) rispettando le quote indicate.
Impuntare la vite (1) con le due guarnizioni (4).



http://www.ducati-manuals.com
no. 140312



Serrare la vite speciale (1) alla coppia di 23 Nm ± 10%.

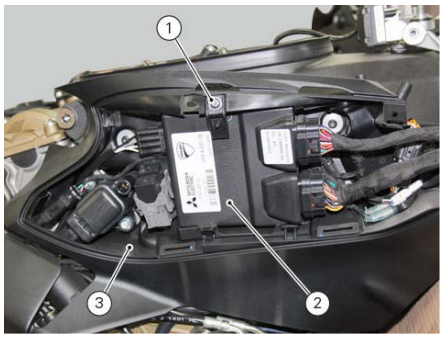


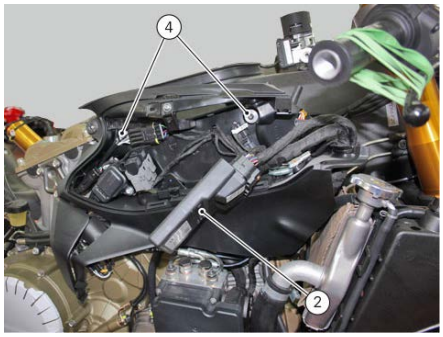
Riempire l'impianto frenante (Sostituzione liquido impianto frenante posteriore).

http://www.ducati-manuals.com
no. 140312

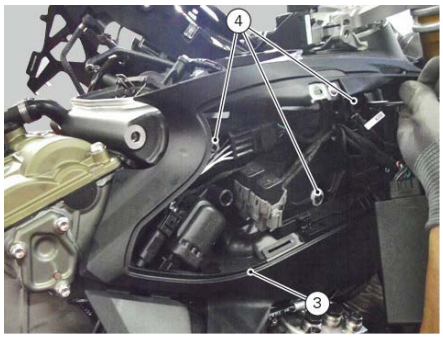
Removal of the ABS control unit

Drain off the hydraulic fluid from front and brake system hoses.
Remove the RH fairing.
Remove the rear mudguard.
Loosen the retaining screw (1) between ECU (2) and RH electric system support (3).
Remove ECU (2) from support, without disconnecting ECU wirings.

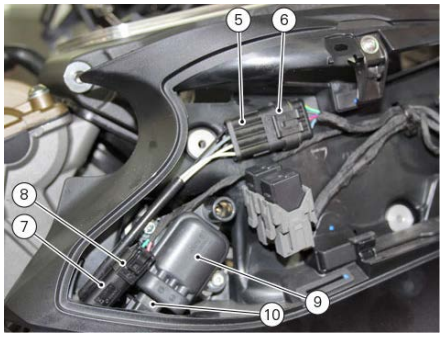




Loosen the three retaining screws (4) on the RH support (3).



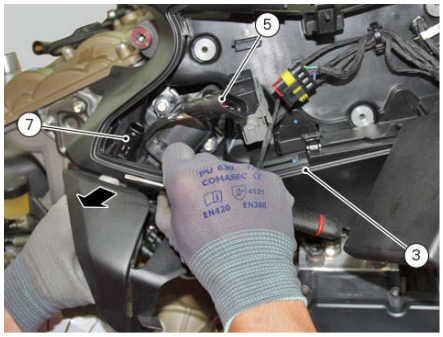
Disconnect vertical sensor connector (5) from main wiring connector (6).
Disconnect rear speed sensor connector (7) from main wiring connector (8).
Disconnect vertical cylinder coil (9) from main wiring connector (10).





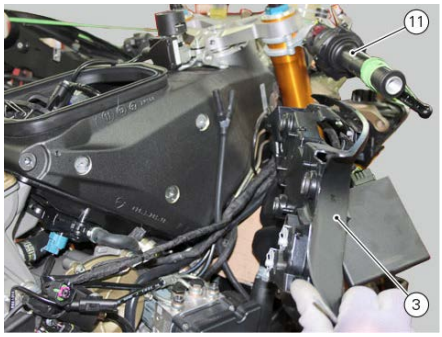
Slide connector cable (5) out of the support opening (3), on frame side. Remove connector pin (7) from the support seat.

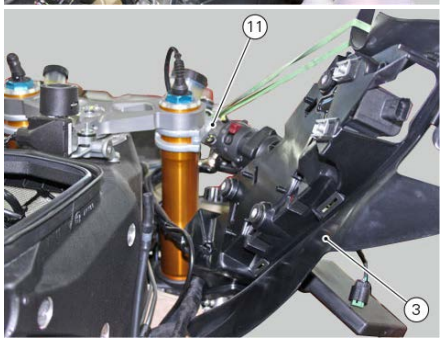
http://www.ducati-manuals.com
no. 140312



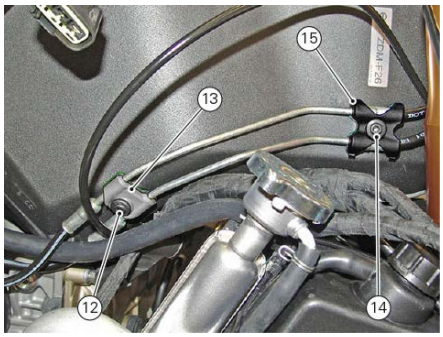
Move support (3) towards the RH handlebar (11), taking special care to the still-connected wiring. Secure support (3) to RH handlebar (11).

Warning
Duly protect support (3) so as not to damage the handlebar.

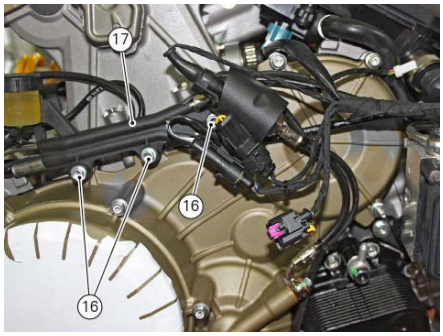




Loosen screw (12) to remove grommet (13) and loosen screw (14) to remove grommet (15).

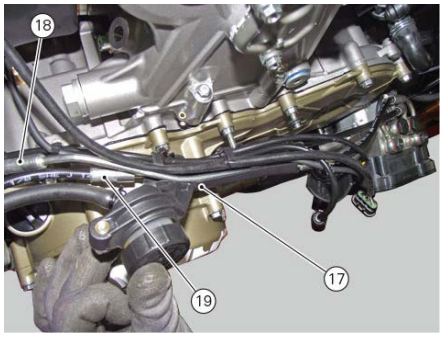


Loosen cable support (17) retaining nuts (16).



Move support (17) outwards and release the ABS control unit - rear brake callipers hose (18) and the ABS control unit - rear brake master cylinder hose (19) from support (17).

http://www.ducati-manuals.com
no. 140312

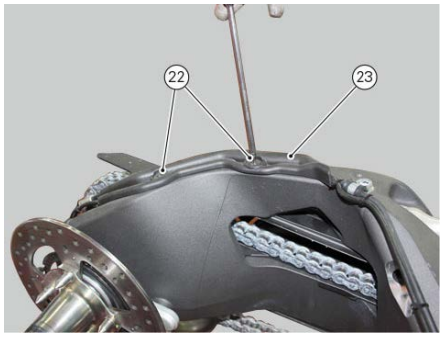


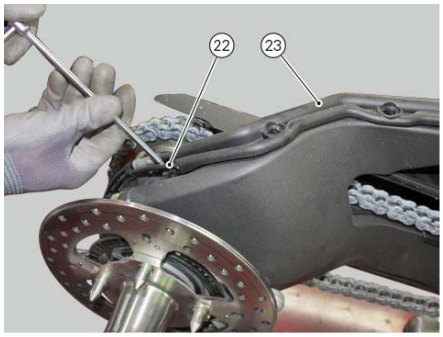
Note
Pictures show the motorcycle with the rear wheel disassembled, but the following operations can be carried out also with the wheel assembled on vehicle.

Undo cable grommet (21) screw (20).

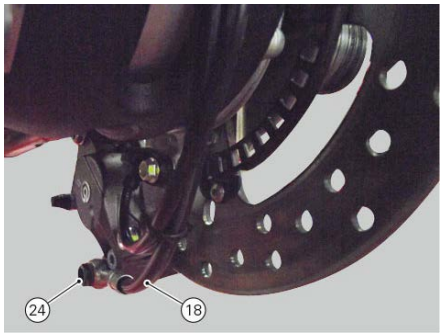


Undo cable grommet (23) screws (22).





Undo the special screw (24) securing the ABS control unit - rear brake calliper hose (18) to the rear brake calliper.



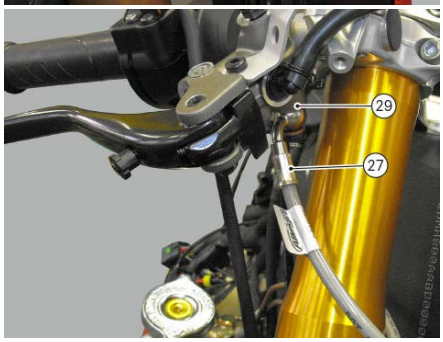
Undo the special screw (25) securing the ABS control unit - rear brake master cylinder hose (19) to the rear brake master cylinder.

http://www.ducati-manuals.com
no. 140312



Undo the special screw (26) securing the front brake master cylinder - ABS control unit hose (27) to the front brake master cylinder (29).
Keep the two seals (28).



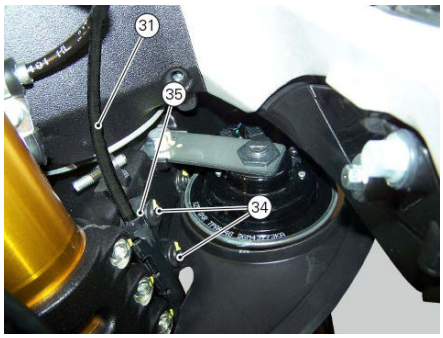


Undo the special screw (30) securing the front brake calliper - ABS control unit hose (31) to the front brake master cylinder (32).
Keep the seals (33).

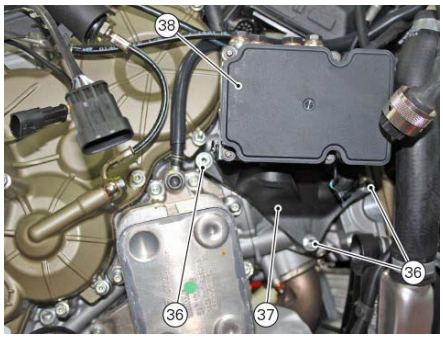
http://www.ducati-manuals.com
no. 140312



Loosen screws (34) securing cable grommet (35) to hose (31).

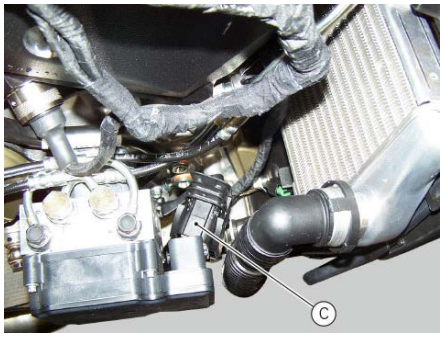


Loosen screws (36) securing ABS control unit (38) support (37) to horizontal head.



Disconnect wiring (C) from ABS control unit.

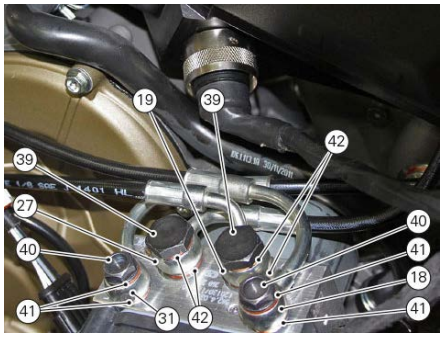
http://www.ducati-manuals.com
no. 140312



Loosen the screws (39) and (40) securing the following hoses to the ABS control unit:
ABS control unit - rear brake calliper hose (18);
ABS control unit - rear brake master cylinder hose (19);
front brake master cylinder - ABS control unit hose (27);
front brake calliper - ABS control unit hose (31);

Keep the seals (41) and (42).

Warning
Whenever removed, seals must be renewed on reassembly.



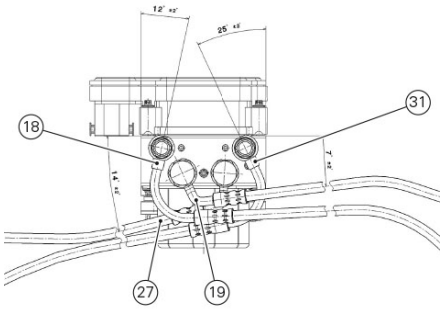
Important
Do not open the ABS control unit: if faulty, replace it.

http://www.ducati-manuals.com
no. 140312

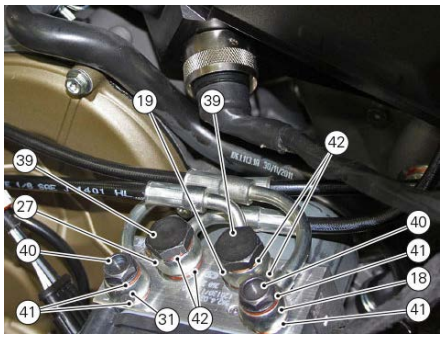
Installation of the ABS control unit

Whenever brake hoses (18), (19), (27) and (31) are replaced or disassembled from the ABS control unit, special care must be taken to the correct aiming of control unit unions.

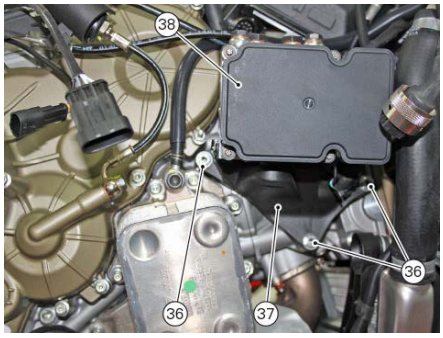
Warning
A wrongly routed hose may lead to brake system failure and hinder motorcycle moving parts correct operation. Comply with the aiming shown in the figure.



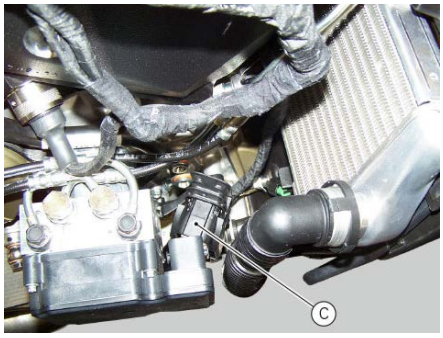
Hoses (18), (19), (27) and (31) must be secured in place using new seals (41) between unions.
Tighten screws (39) and (40) securing the ABS control unit to the following hoses to a torque of 23 Nm ± 10% :
ABS control unit - rear brake calliper hose (18);
ABS control unit - rear brake master cylinder hose (19);
front brake master cylinder - ABS control unit hose (27);
front brake calliper - ABS control unit hose (31);



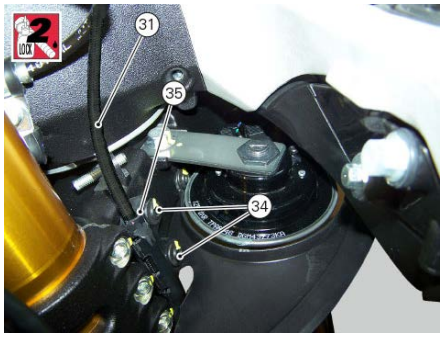
Position ABS control unit (38) support (37) on horizontal head.
Tighten support (37) retaining screws (36) to a torque of 10 Nm ± 10%.



Connect wiring (C) to ABS control unit.

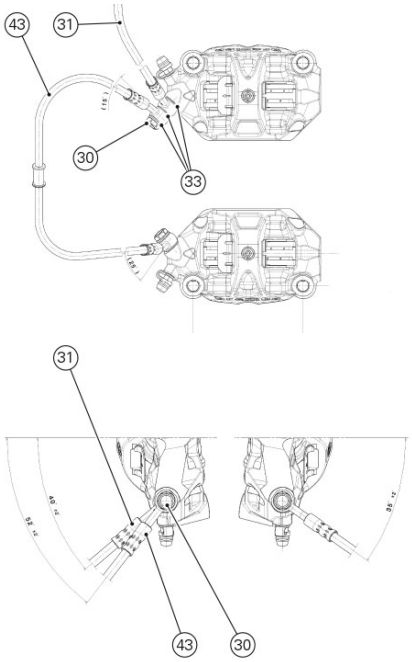


Fit hose (31) inside grommet (35). Smear the screws (34) with specified grease. Tighten the screws (34) to a torque of 5 Nm ± 10%.



Fit new seals (33).
Position front bake calliper - ABS control unit hose (31) and RH calliper - LH calliper hose (43) onto brake calliper, complying with the indicated values. Start the screw (30) in its thread.

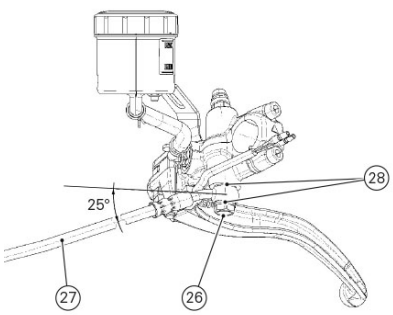
http://www.ducati-manuals.com
no. 140312



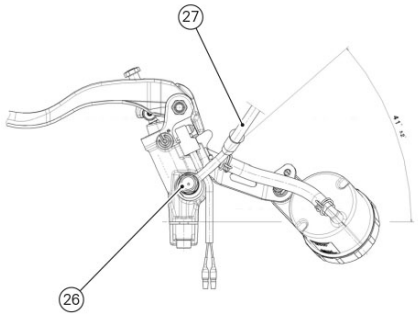
Tighten the special screw (30) securing the front brake calliper - ABS control unit (31) hose to brake calliper to a torque of 23 Nm ± 10% .



Fit new seals (28).
Position front bake master cylinder - ABS control unit hose (27) on brake master cylinder, complying with the indicated values. Start the screw (26) in its thread.

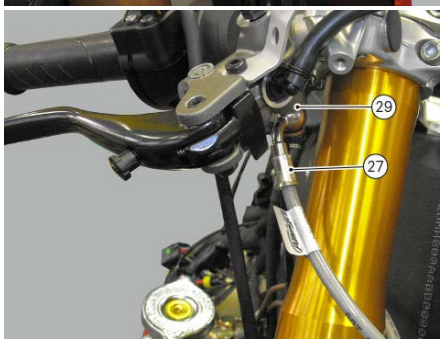


http://www.ducati-manuals.com
no. 140312

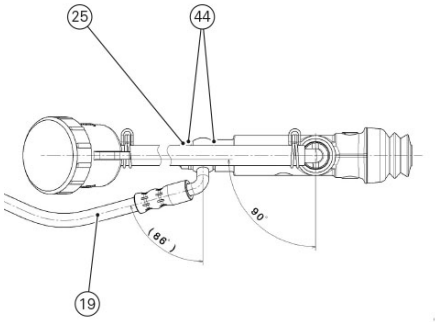


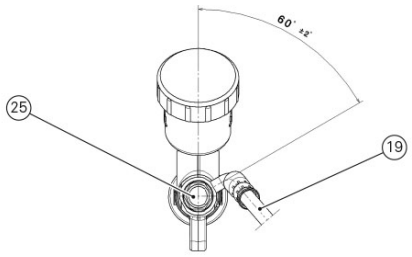
Tighten the special screw (26) securing the front brake master cylinder - ABS control unit (27) hose to brake master cylinder (29) to a torque of 23 Nm ± 10% .





Fit new seals (44).
Position ABS control unit - rear brake master cylinder hose (19) onto rear brake master cylinder, complying with the indicated values. Start the screw (25) in its thread.



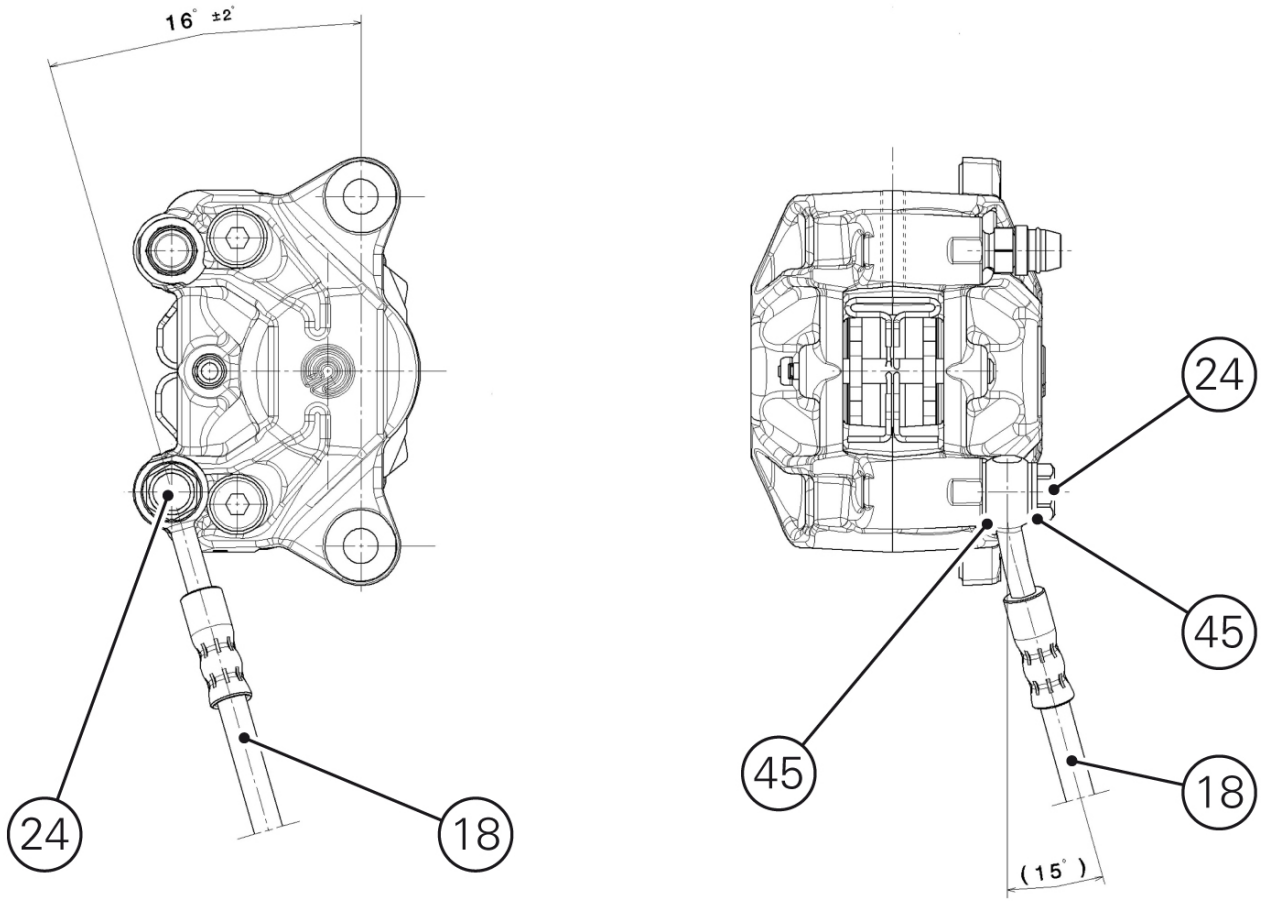


Tighten the special screw (25) securing the ABS control unit - rear brake master cylinder hose (19) to brake master cylinder to a torque of 23 Nm ± 10%.

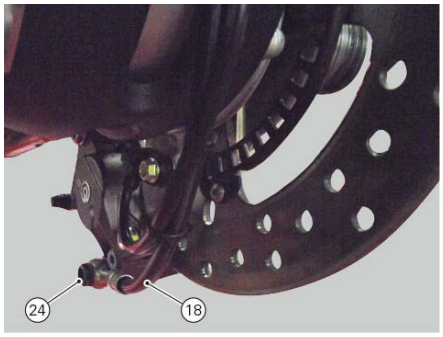
http://www.ducati-manuals.com
no. 140312



Fit new seals (45).
Position ABS control unit - rear brake calliper hose (18) onto rear brake calliper. Start the screw (24) in its thread.

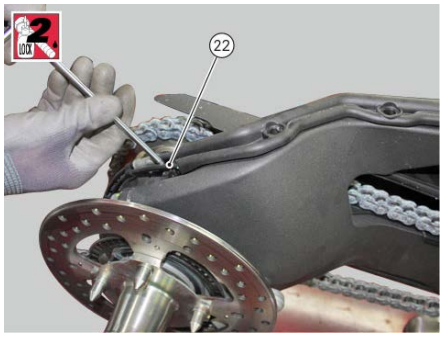


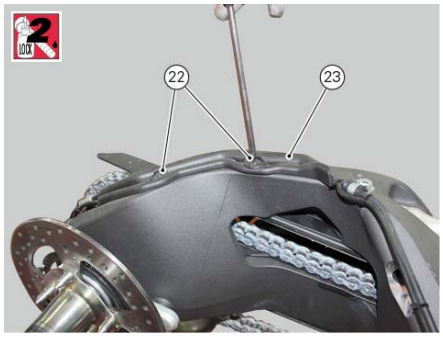
Tighten the special screw (24) securing the ABS control unit - rear brake calliper hose (18) to brake calliper to a torque of 23 Nm ± 10%.



Smear the screws (22) with specified grease.
Start grommet (23) assembling screws (22). Tighten the screws to a torque of 3.5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

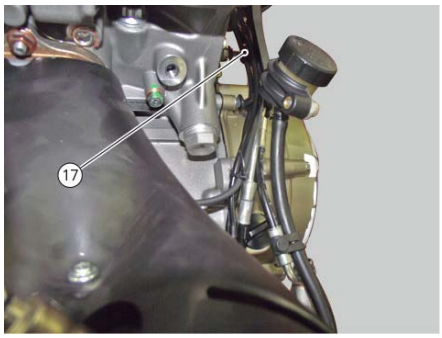


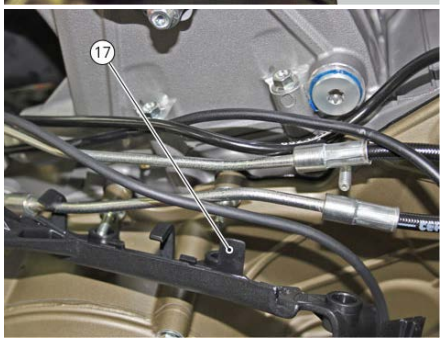


Smear the screw (20) with specified threadlocker.
Start grommet (21) assembling screw (20). Tighten the screw to a torque of 3.5 Nm ± 10%.

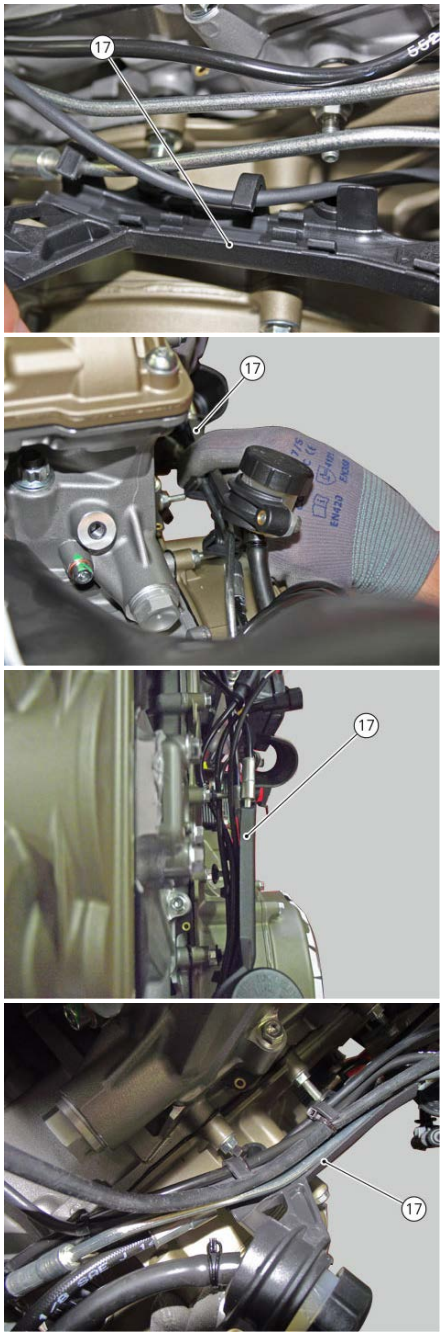


Position ABS system cables inside support seats (17).



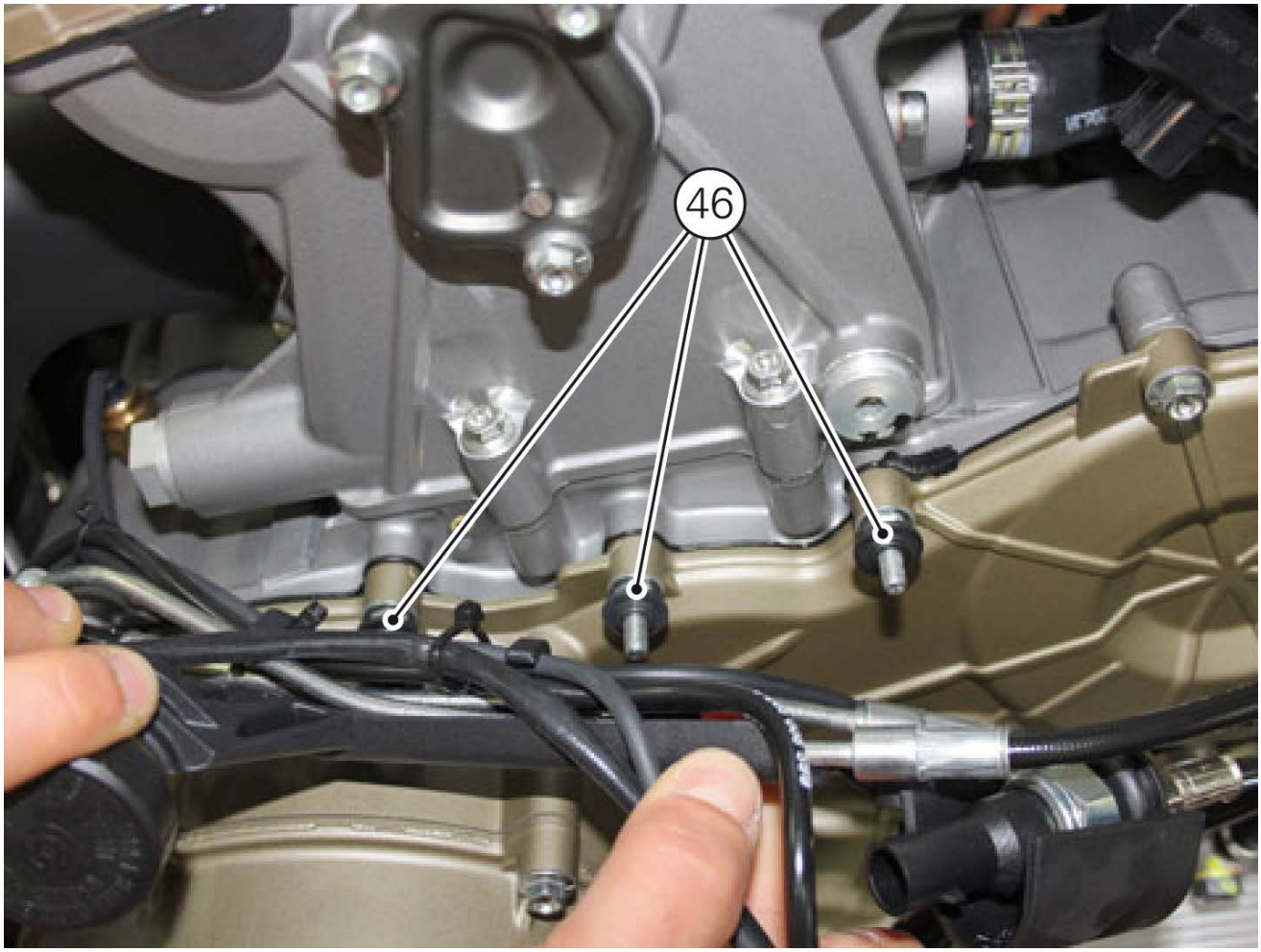


http://www.ducati-manuals.com
no. 140312

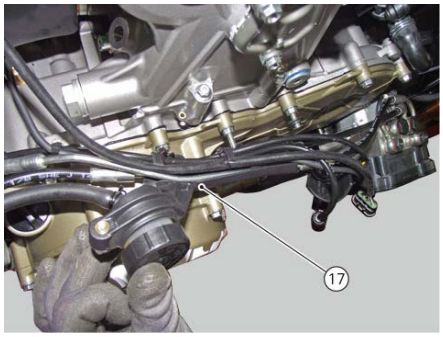


Refit the three rubber seals (46).

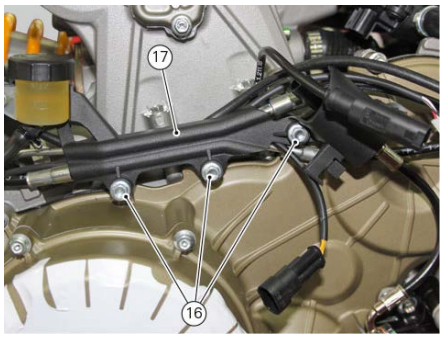
http://www.ducati-manuals.com
no. 140312



Draw support (17) with ABS control unit - rear brake calliper hose (18) and ABS control unit - rear brake master cylinder hose (19) near engine crankcase.



Start the special retaining nuts (16) on support (17).
Tighten nuts (16) to a torque of 5 Nm ± 10%.

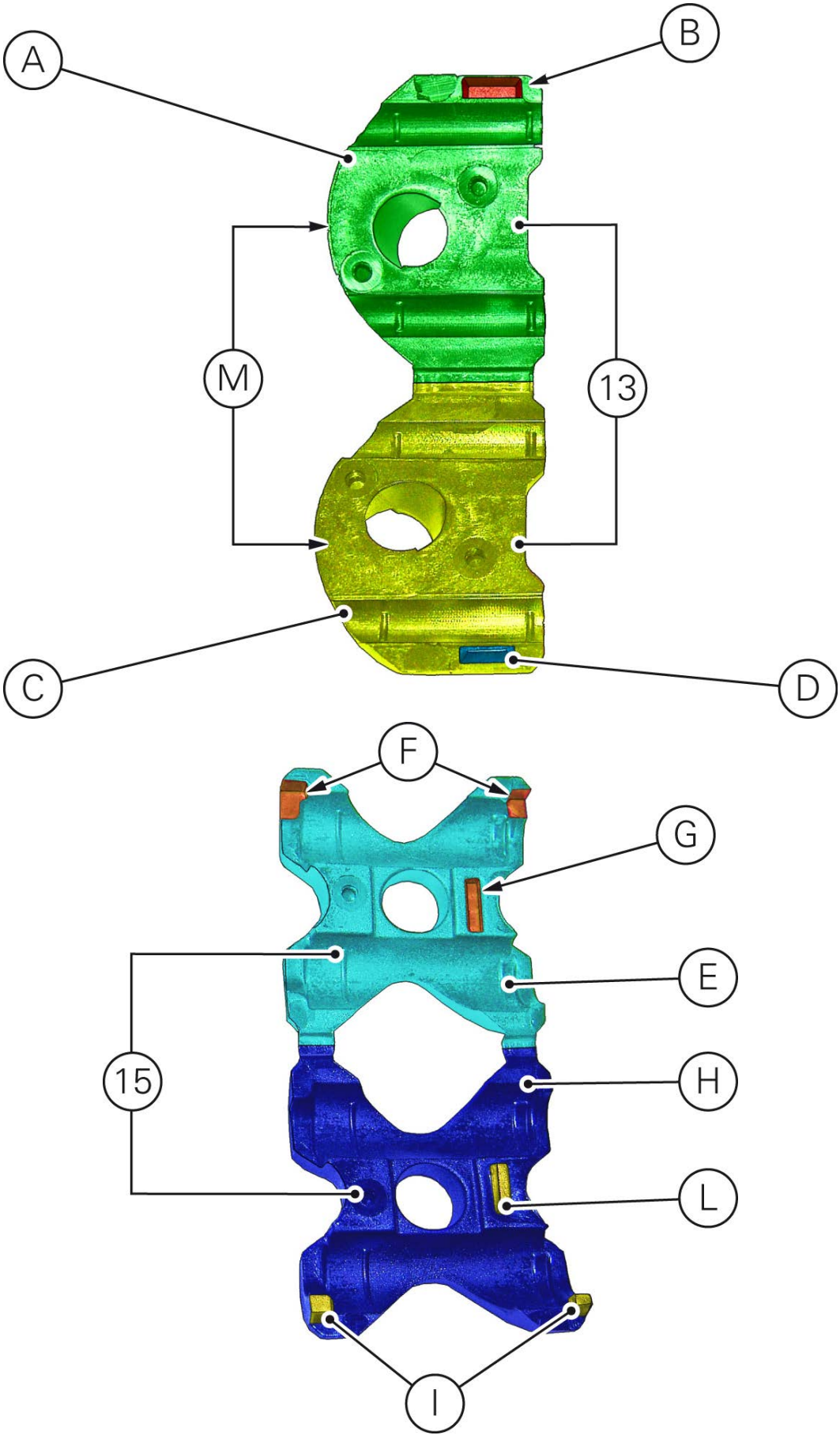


Aim rear ABS grommet (13) as follows:
Rounded side must be facing vehicle rear end;
half shell (A) with recess (B) must be facing vehicle frame, while half shell (C) with tooth (D) must be facing outwards (rounded side (M));
once grommet is assembled, half shell (A) and (C) mating surface must be pointing down.

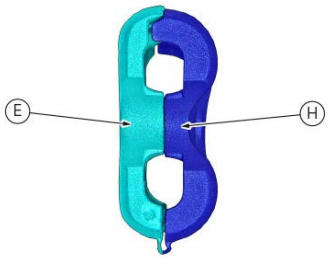
Aim front ABS grommet (15) as follows:
half shell (E) with recesses (F) and (G) must be facing vehicle frame, while half shell (H) with teeth (I) and (L) must be facing outwards;
once grommet is assembled, half shell (E) and (H) mating surface must be pointing down.

Note
Half shell (E) outer surface is "flat", while half shell (H) outer surface is "corrugated", as shown.

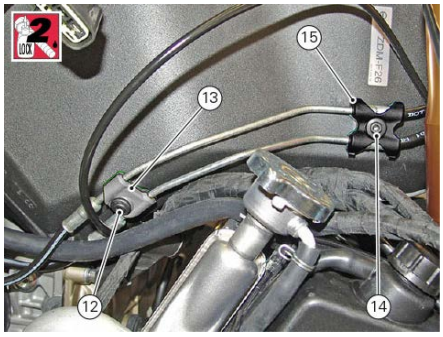
http://www.ducati-manuals.com
no. 140312



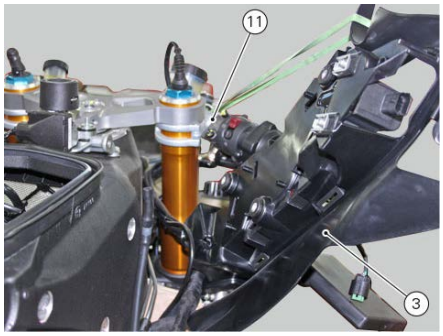
http://www.ducati-manuals.com
no. 140312

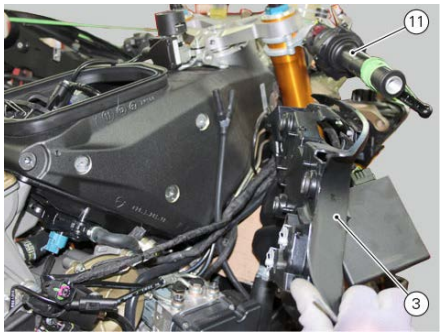


Smear screws (12) and (14) with recommended threadlocker.
Start screws (12) and (14) securing grommets (13) and (15), respectively.
Tighten the screws to a torque of 5 Nm ± 10%.

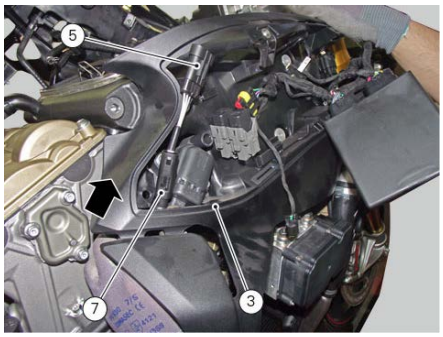


Remove the temporary fastener between support (3) and RH handlebar (11).
Move support (3) close to frame, taking care not to damage the connected wiring.

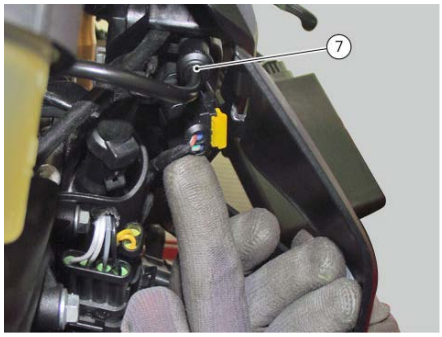




Install connector pin (7) inside the support seat (3).
Insert connector cable (5) inside the support opening (3), on frame side.

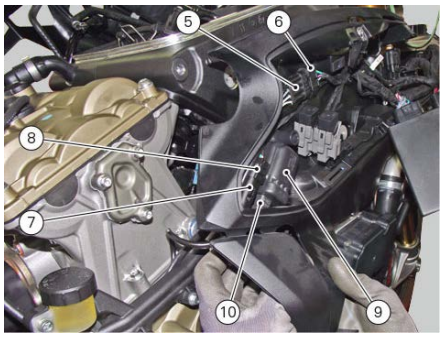


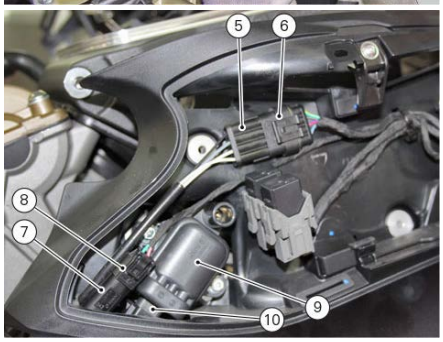
http://www.ducati-manuals.com
no. 140312



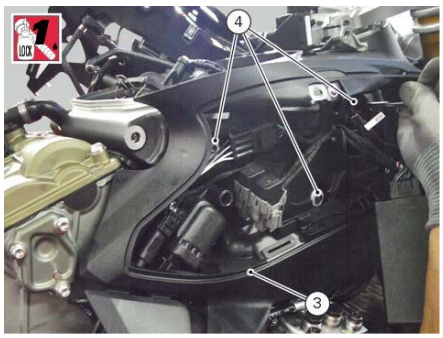
Connect vertical cylinder coil (9) to main wiring connector (10).
Connect rear speed sensor connector (7) to main wiring connector (8).
Connect vertical sensor connector (5) to main wiring connector (6).





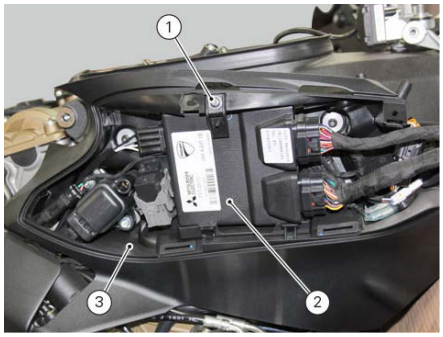


Smear the screws (4) with specified grease.
Start the three retaining screws (4) on the RH support (3).
Tighten the screws (4) to a torque of 5 Nm ± 10%.



Refit the ECU (2), connected to the wirings, on the support (3).
Start the retaining screw (1) between ECU (2) and RH electric system support (3).
Tighten the screw (1) to a torque of 3 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



Install the rear mudguard.
Refit the RH fairing.
Filling the front and rear brake systems.
To fill brake system, follow the instructions given for changing the fluid of the front or rear brake system master cylinder or calliper hose is connected to (Changing the front brake system fluid - Changing the rear brake system fluid).

Important
If the ABS hydraulic control unit has been replaced, it will be supplied with the secondary circuit already filled with fluid. Control unit must thus be assembled and the system filled and drained as a traditional system.

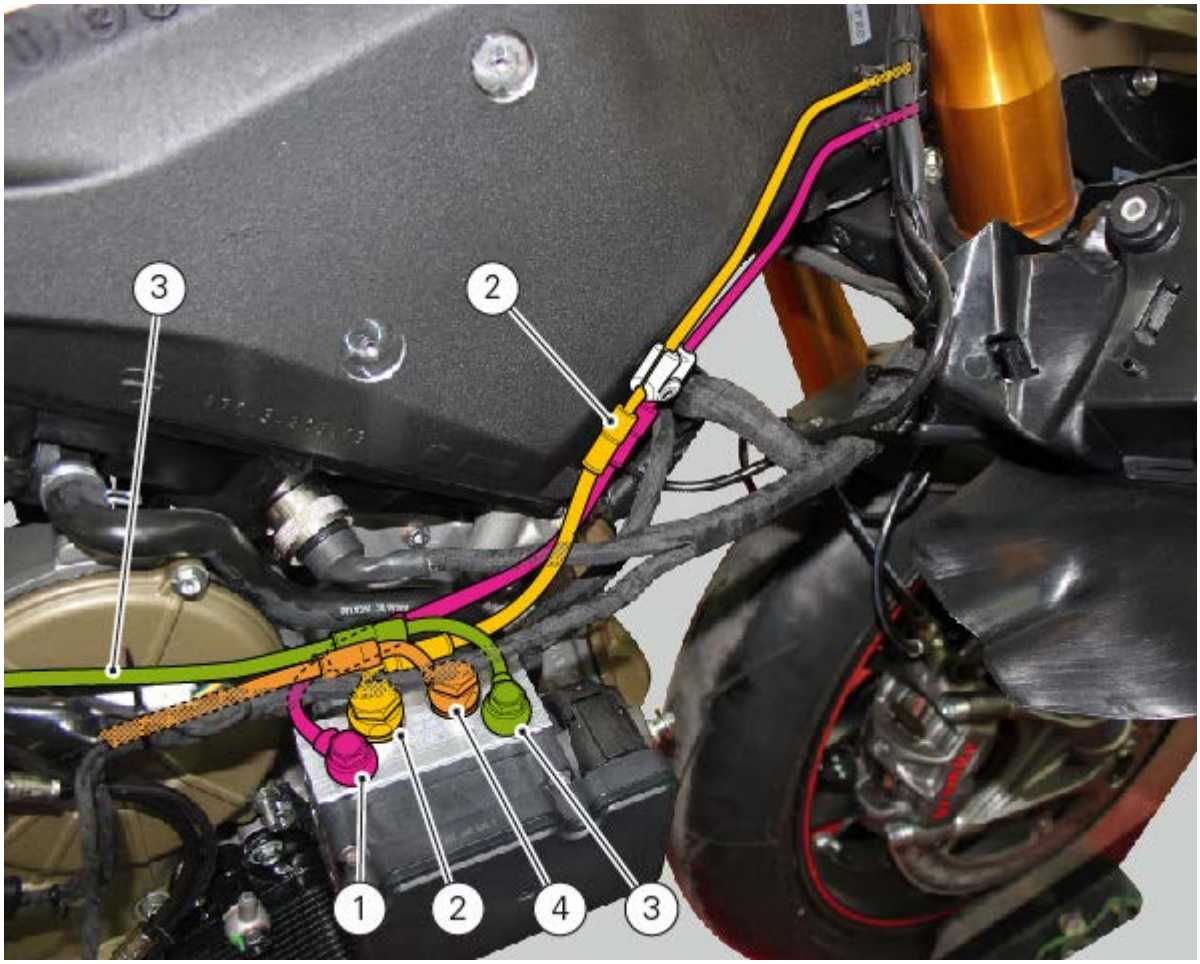
http://www.ducati-manuals.com
no. 140312

Routing ABS wiring harnesses / hoses

The routing of the ABS system wiring has been optimised to ensure the minimum obstruction.
Each section is designed to prevent interference with parts that might damage wires or cause operating failures when riding.

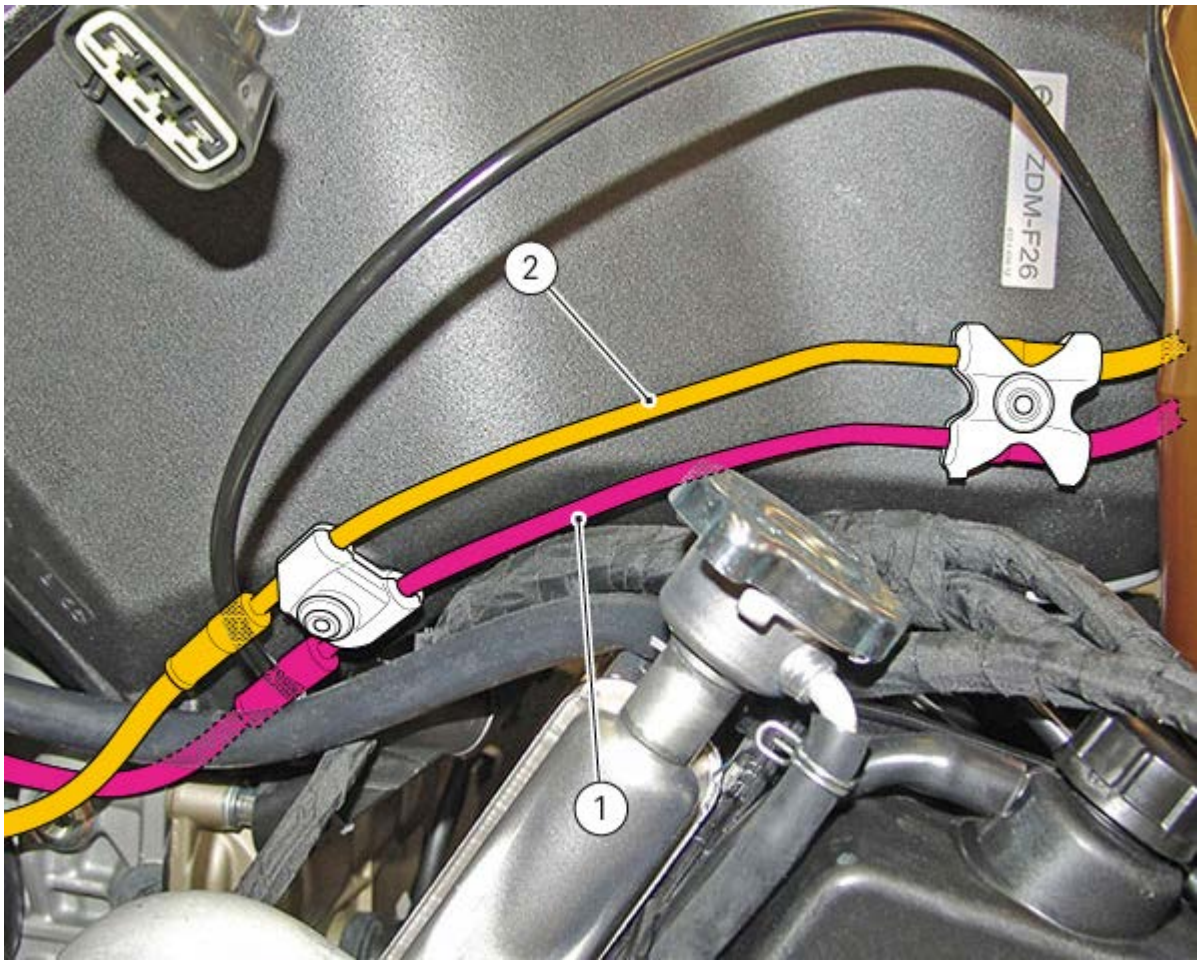
Table	Position	Description
Table A - Table B - Table C	1	ABS control unit - front brake calliper hose
Table A - Table B	2	ABS control unit - front brake master cylinder hose
Table A - Table D - Table E	3	ABS control unit - rear brake calliper hose
Table A - Table D	4	ABS control unit - rear brake master cylinder hose
Table C	5	LH front brake calliper hose - RH front brake calliper hose

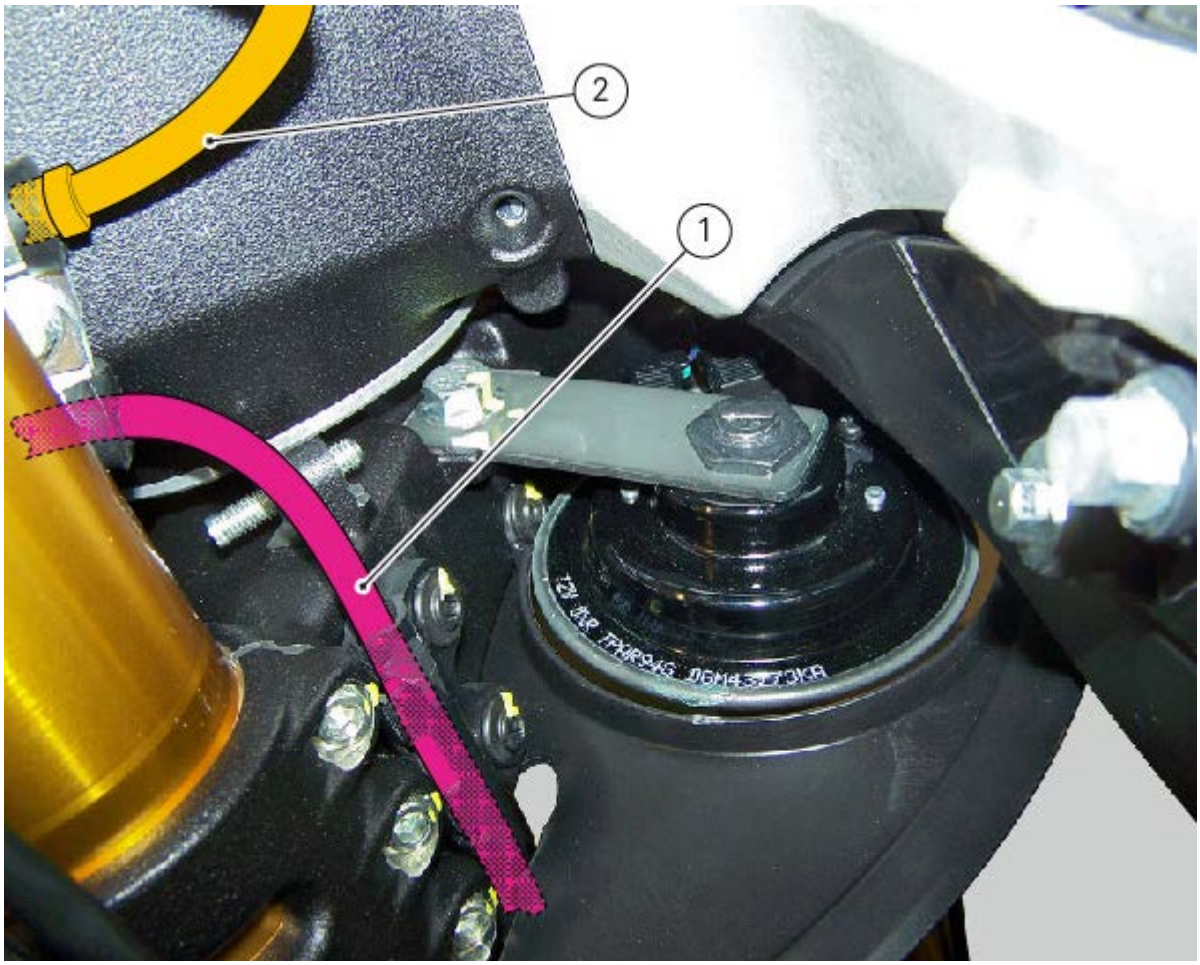
Table A



TableB

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



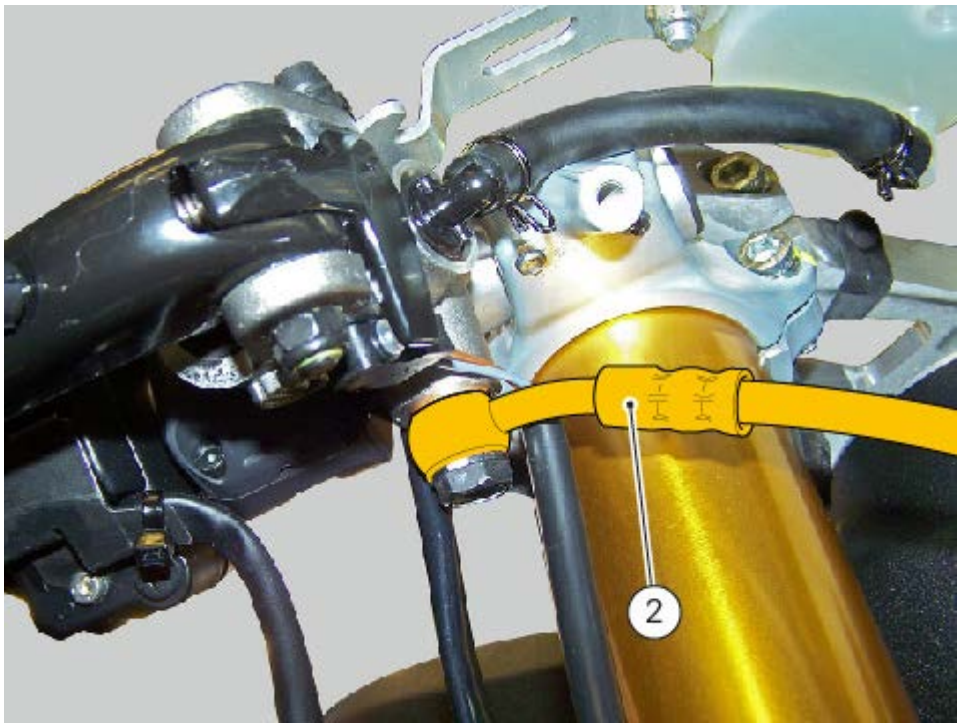
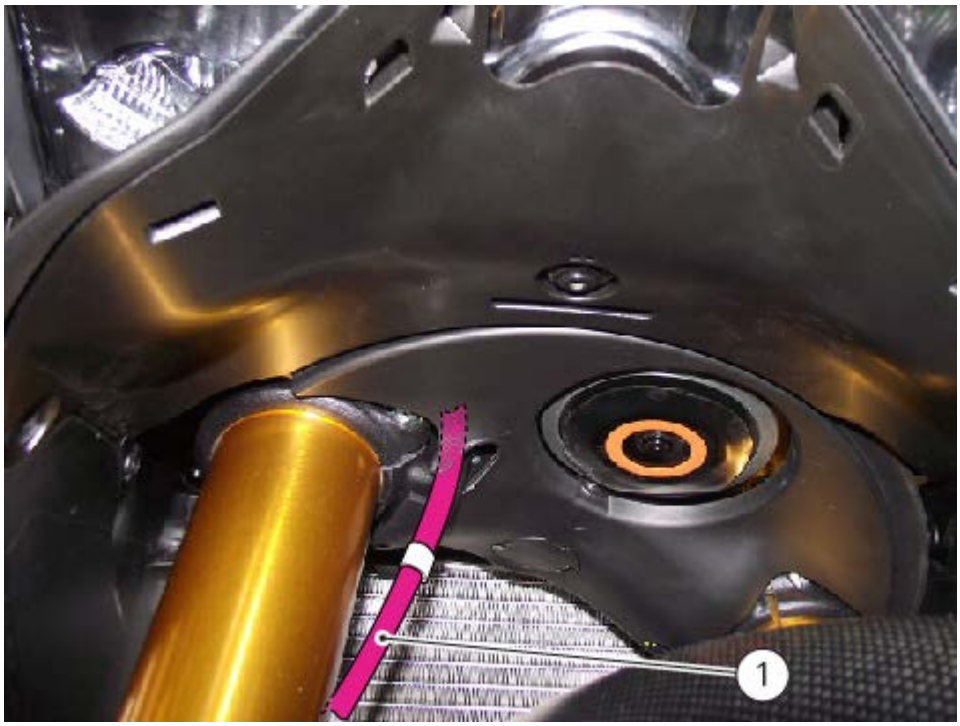
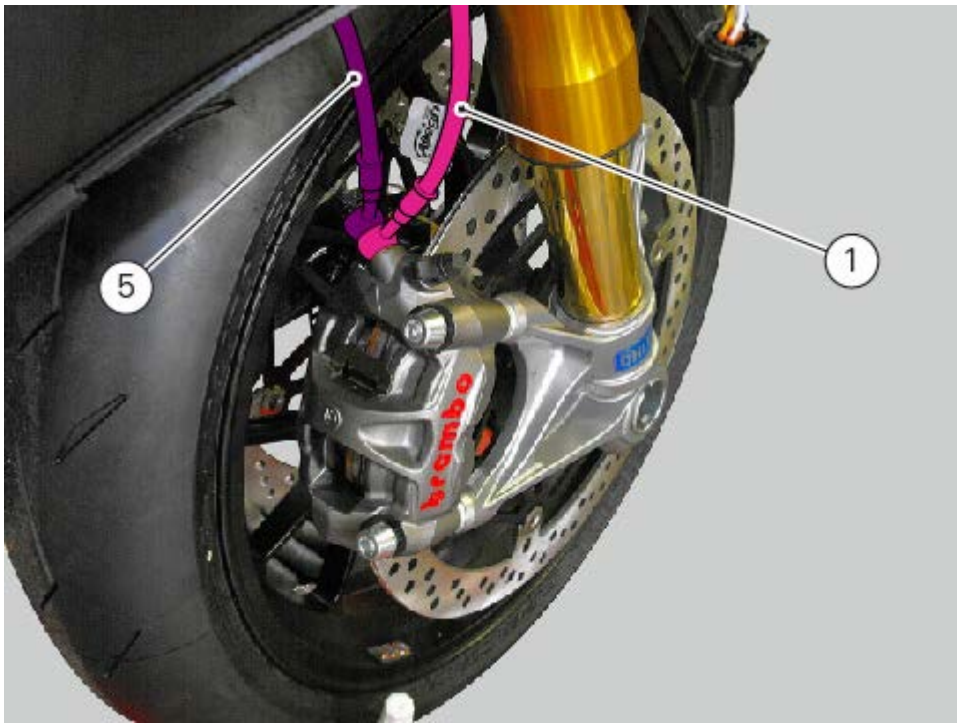


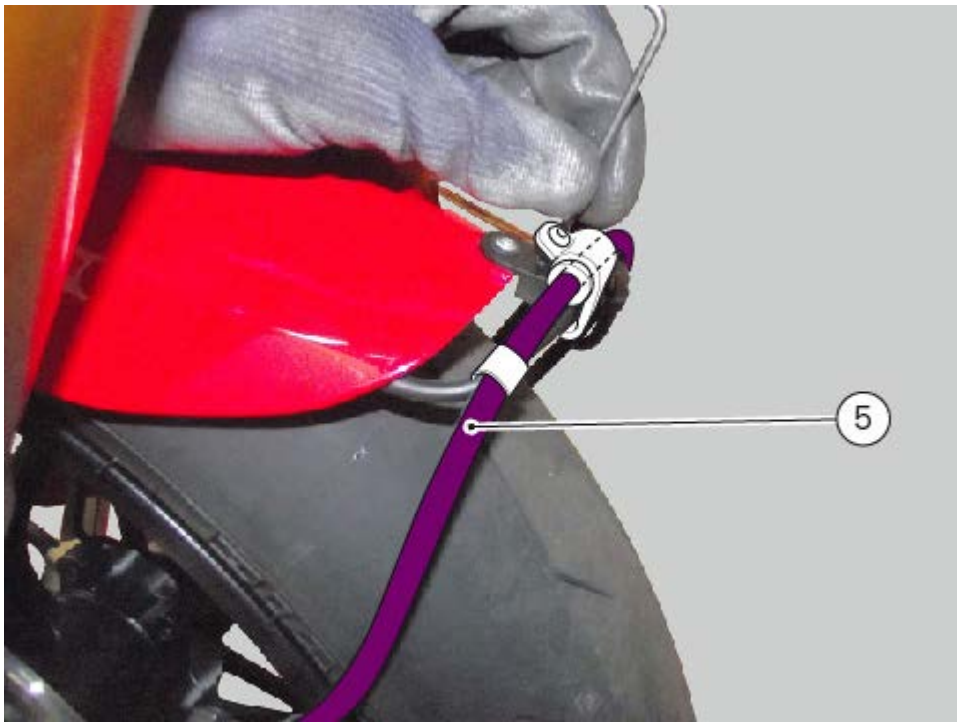
Table C

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



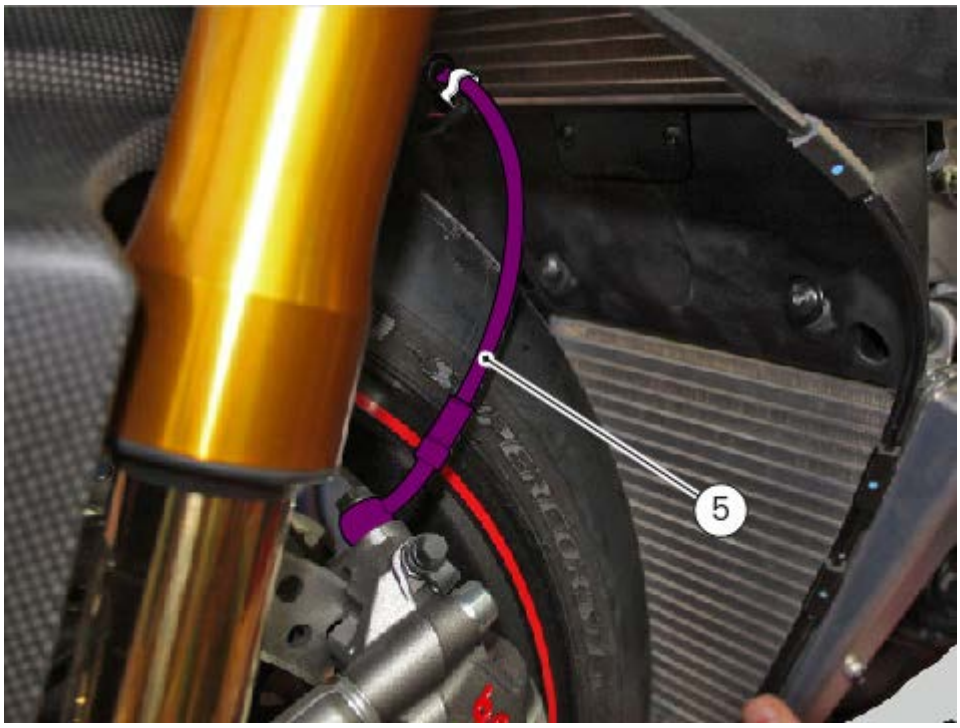
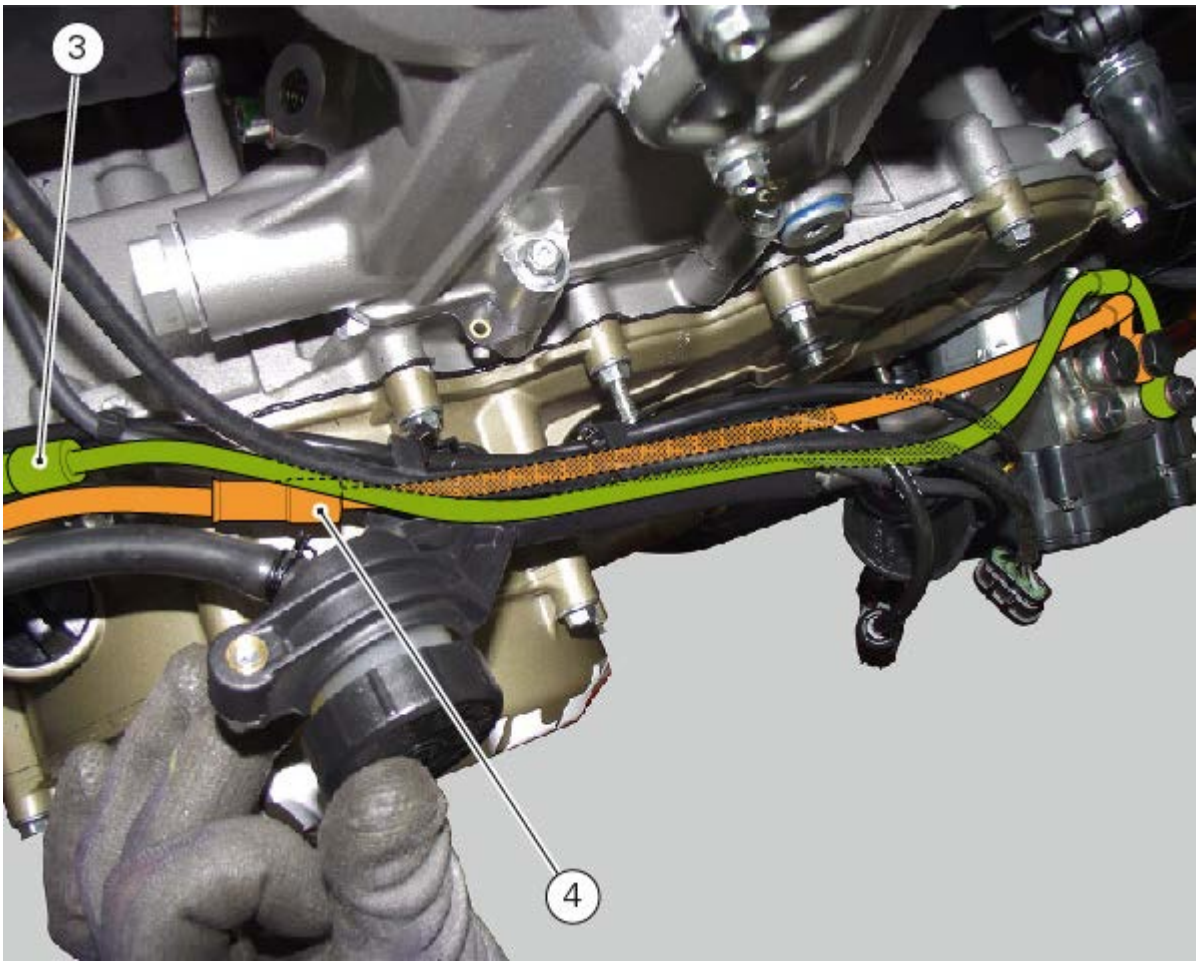


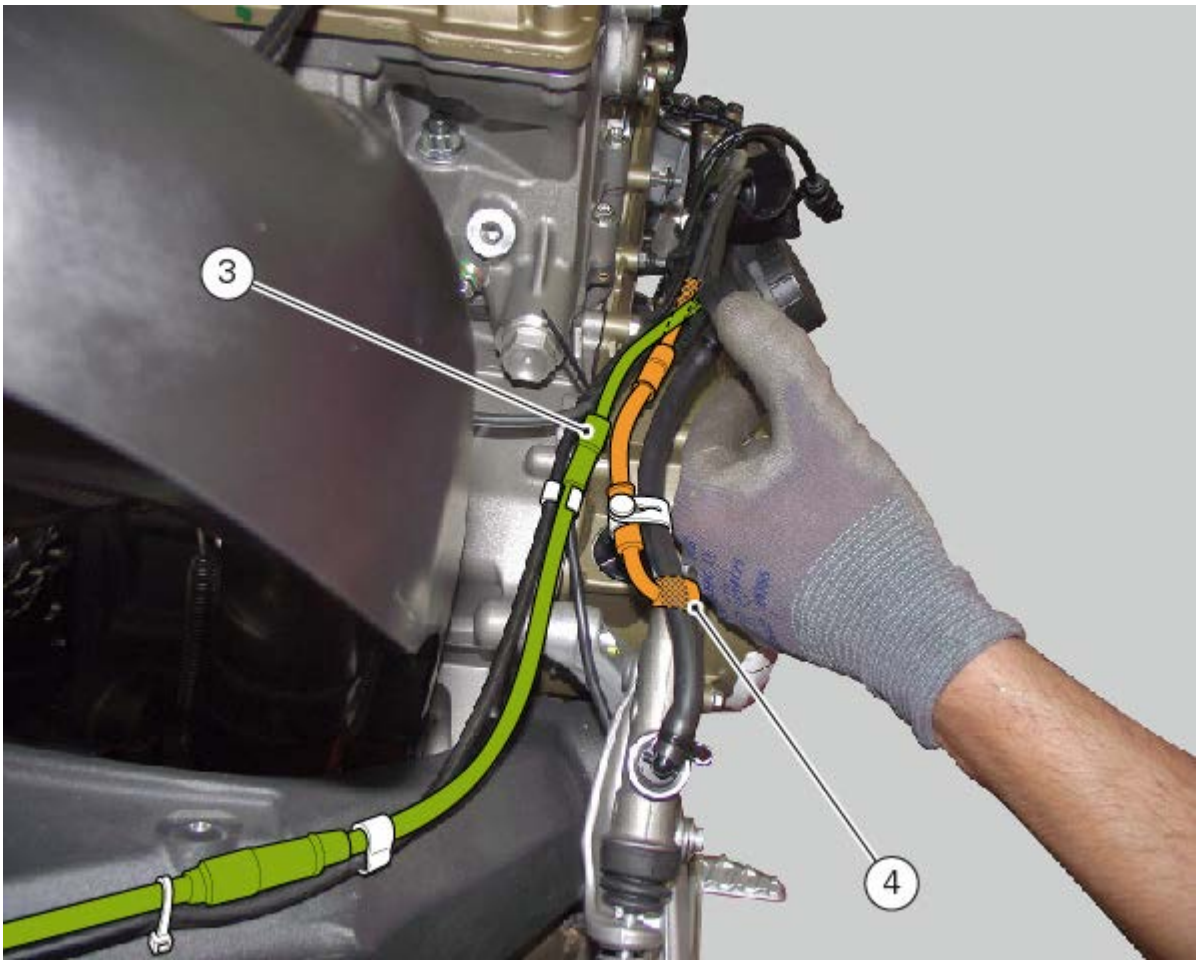
Table D

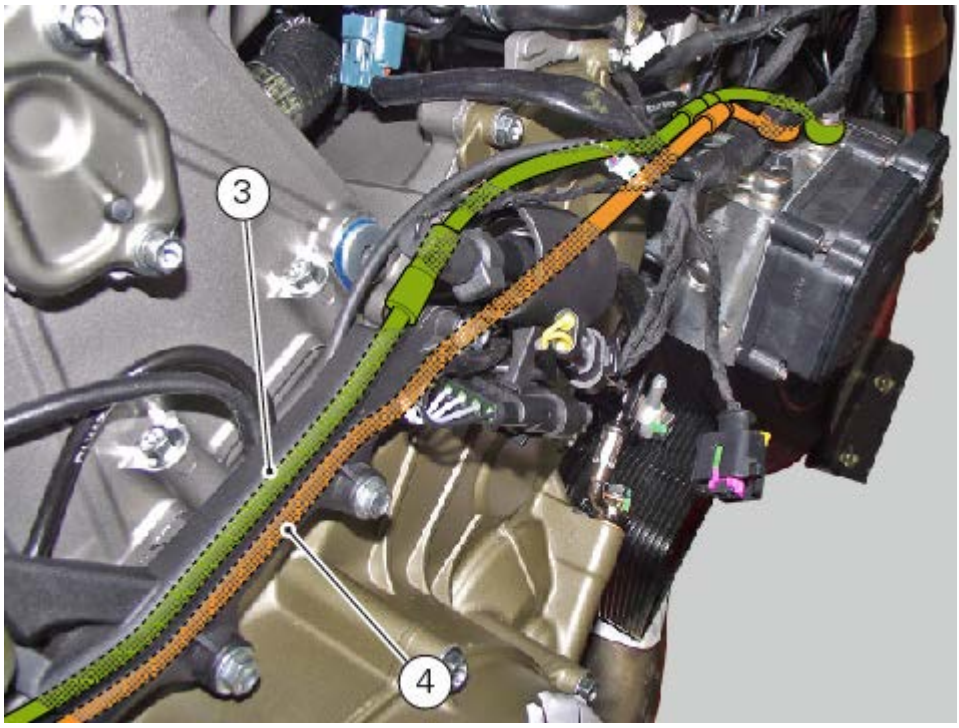
http://www.ducati-manuals.com
no. 140312



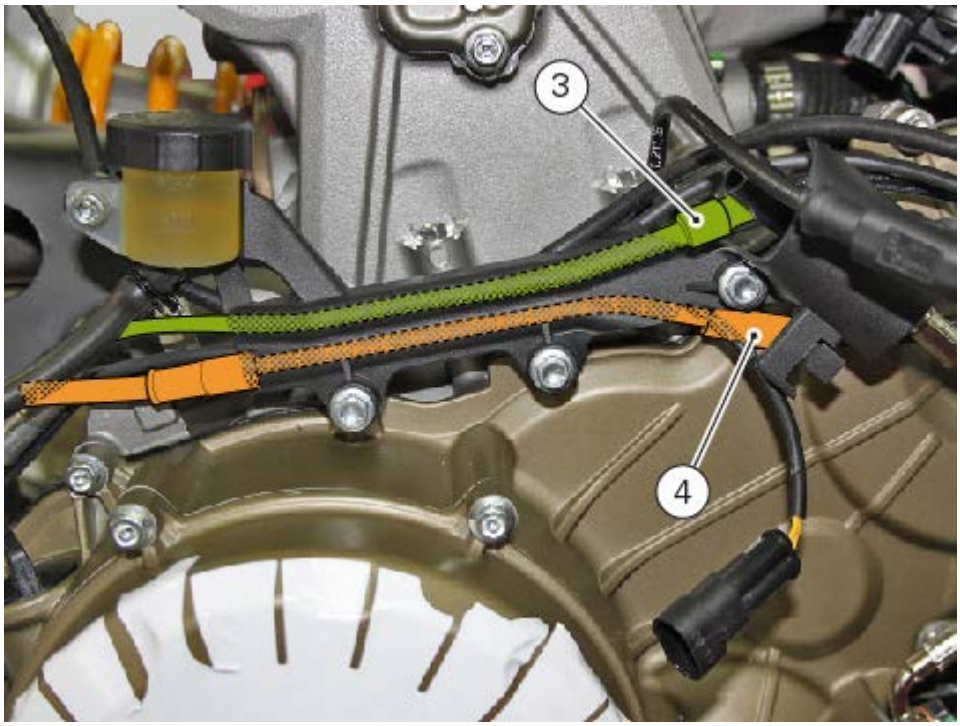


http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



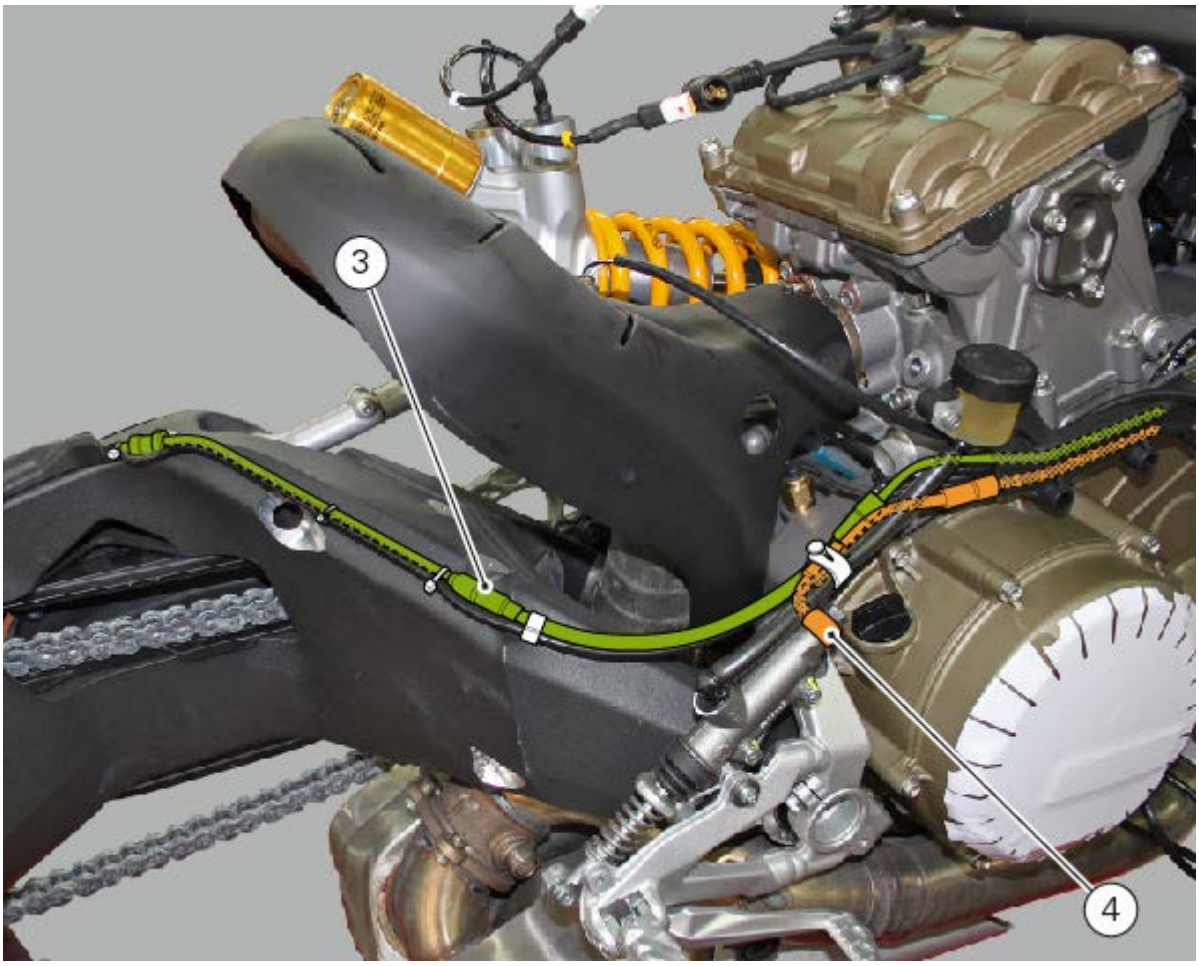
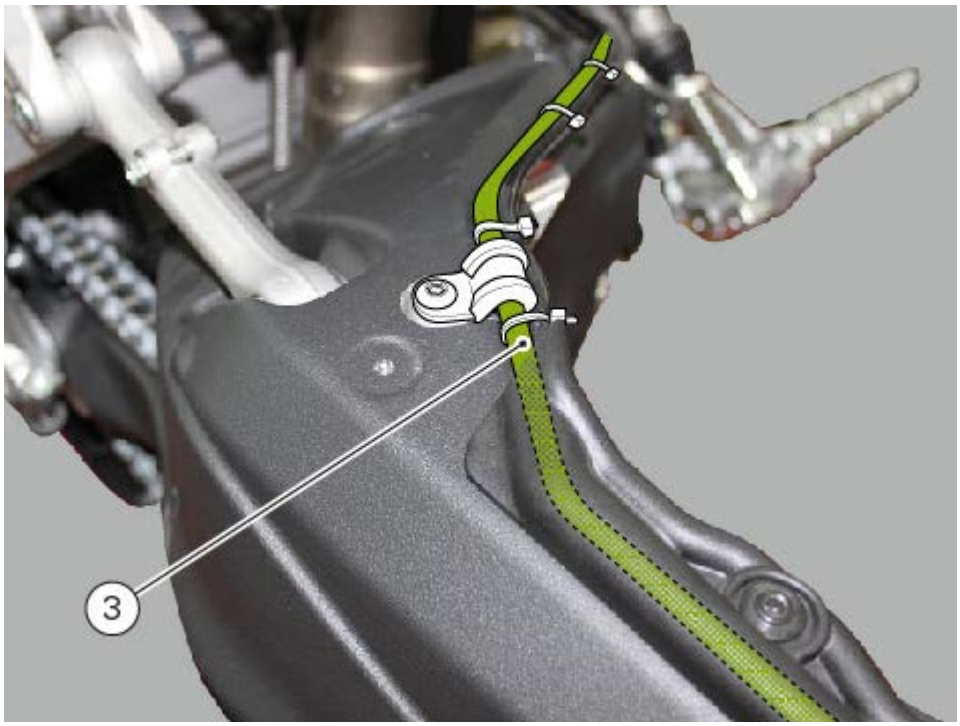
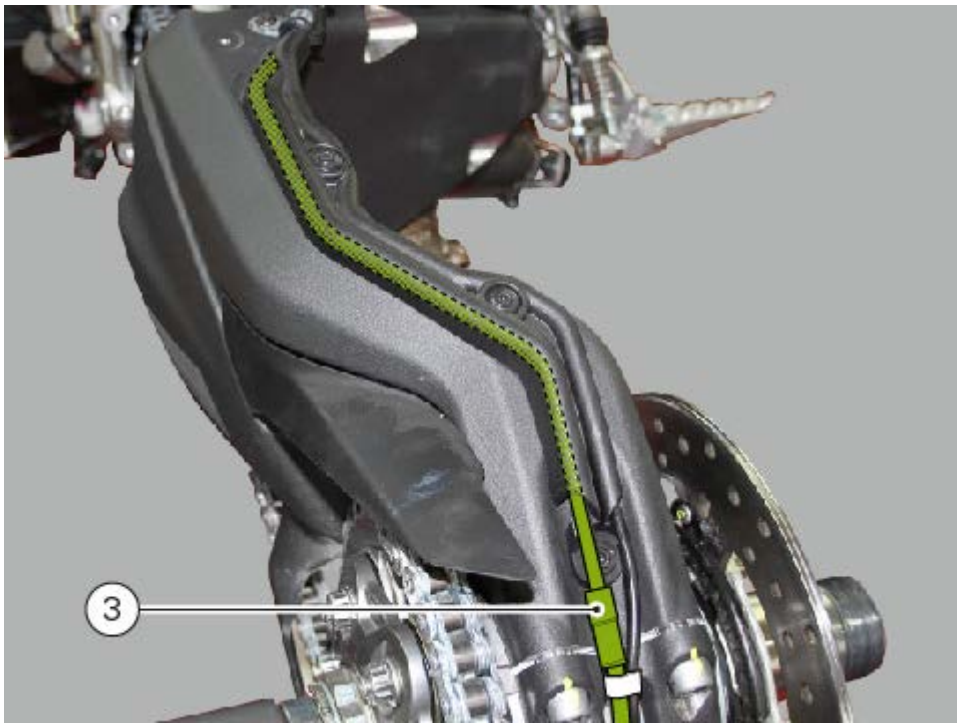


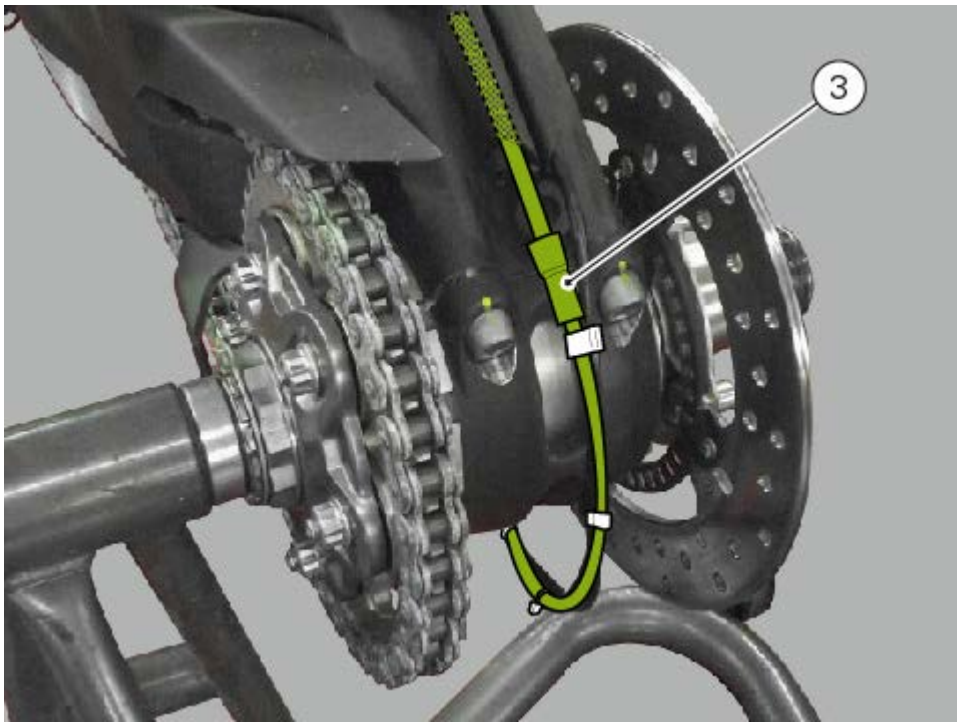
Table E

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Removal of the throttle twistgrip

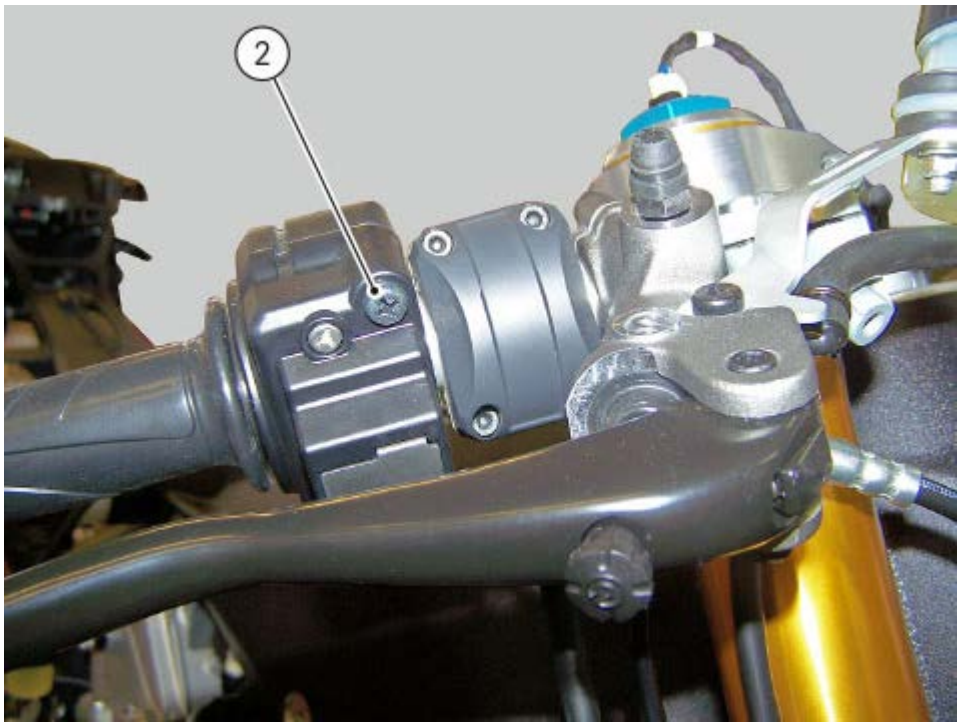
Remove the ignition switch cover.
Remove the RH conveyor cover.
Remove the complete RH fairing.
Disconnect the throttle twistgrip cable (1) from the main wiring harness.

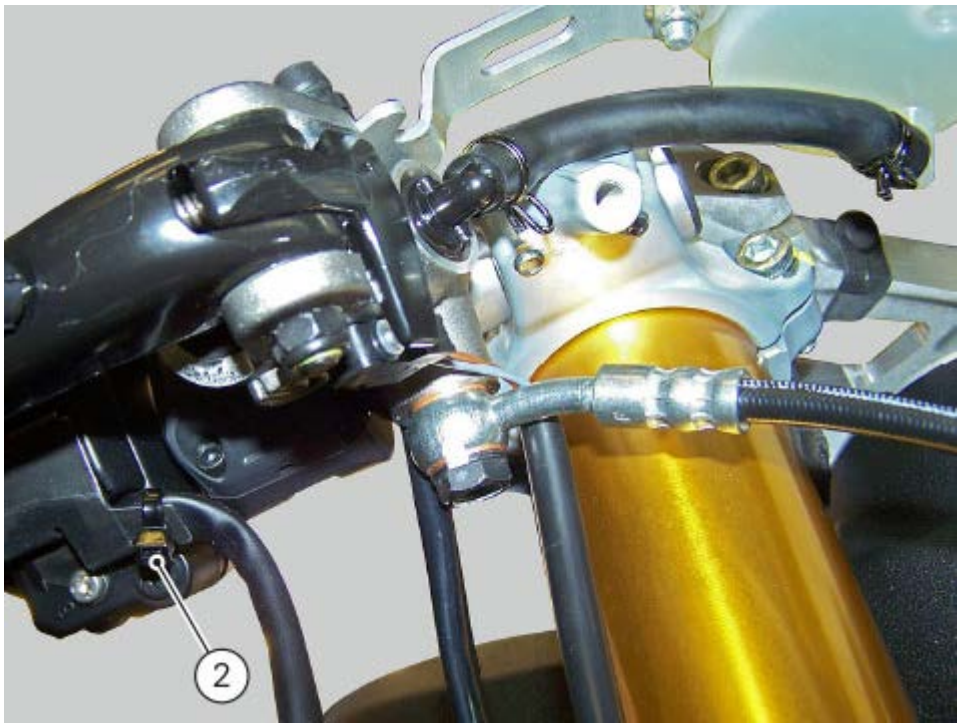




Loosen screws (2), separate the two throttle twistgrip parts, and slide them out of the handlebar.

http://www.ducati-manuals.com
no. 140312

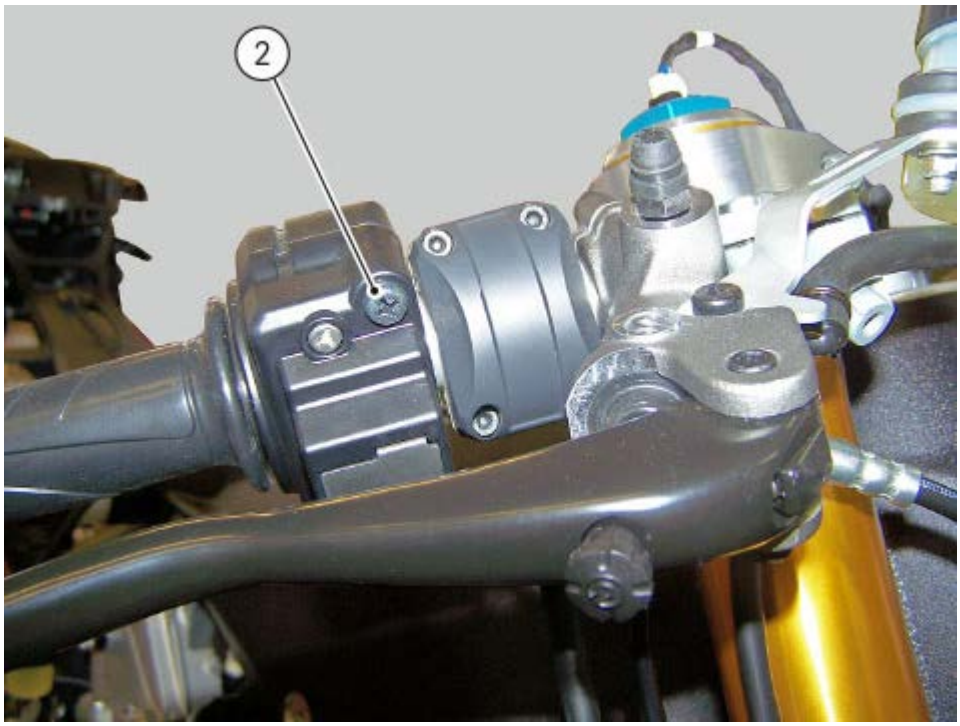


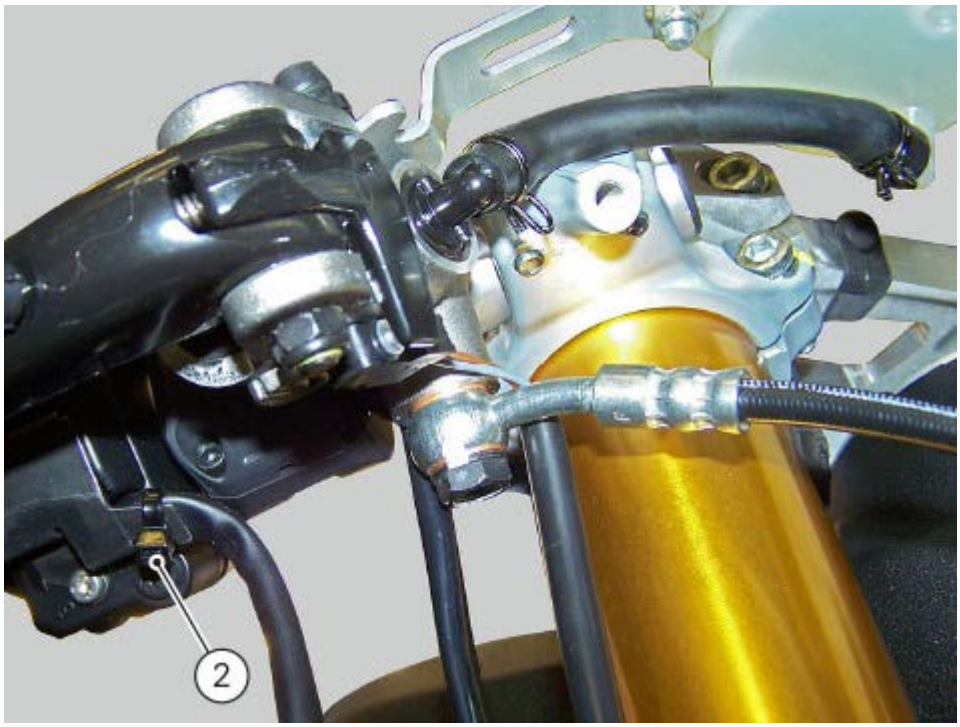


http://www.ducati-manuals.com
no. 140312

Installation of the throttle twistgrip

Position throttle twistgrip parts on the handlebar, inserting the reference pin inside the special seat.
Draw the two parts near to each other.
Tighten screws (2) to a torque of 1.5 Nm ± 10%.





Connect throttle twistgrip cable (1) to main wiring harness.

http://www.ducati-manuals.com
no. 140312





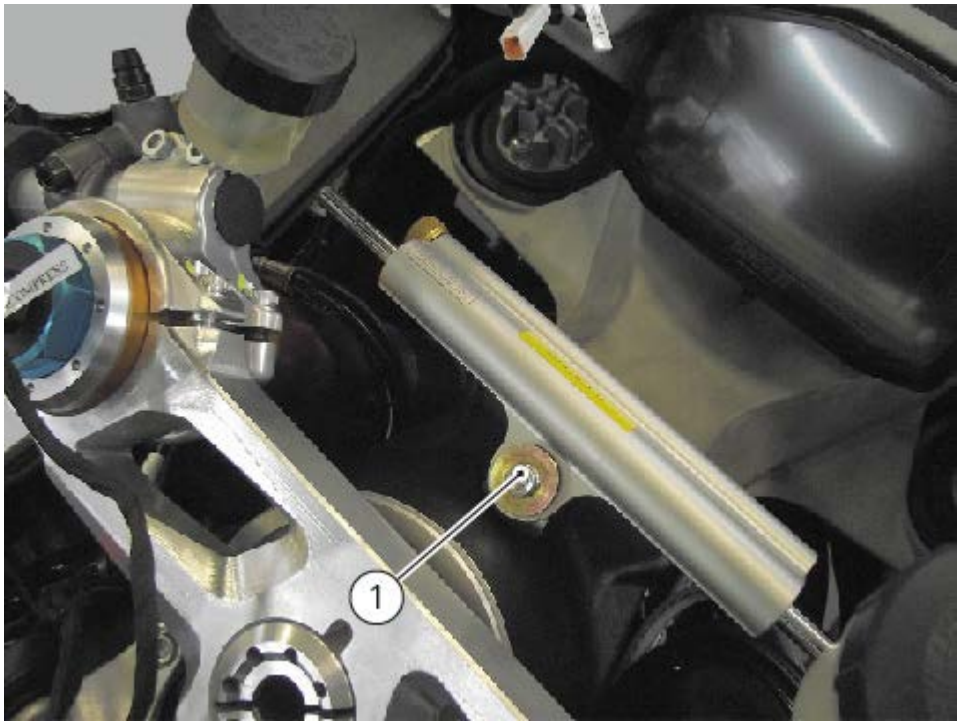
Refit the complete RH fairing.
Refit the RH conveyor cover.
Refit the ignition switch cover.

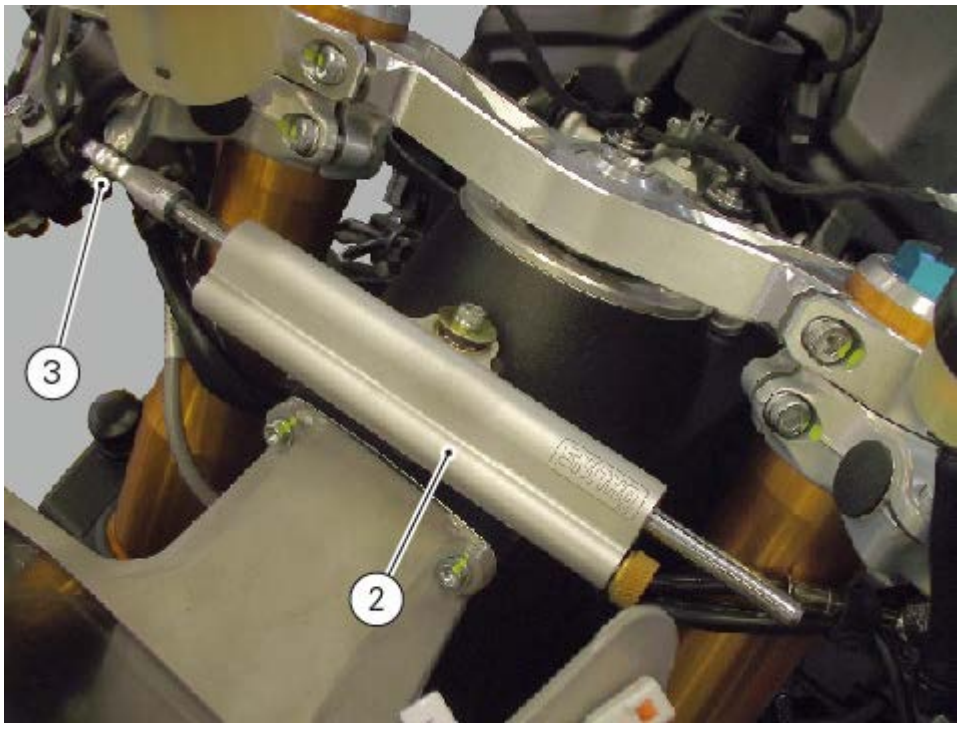
http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

Loosen the central retaining screw (1) on steering damper (2).
Loosen the side retaining screw (3) on steering damper (2).
Remove the steering damper.





http://www.ducati-manuals.com
no. 140312

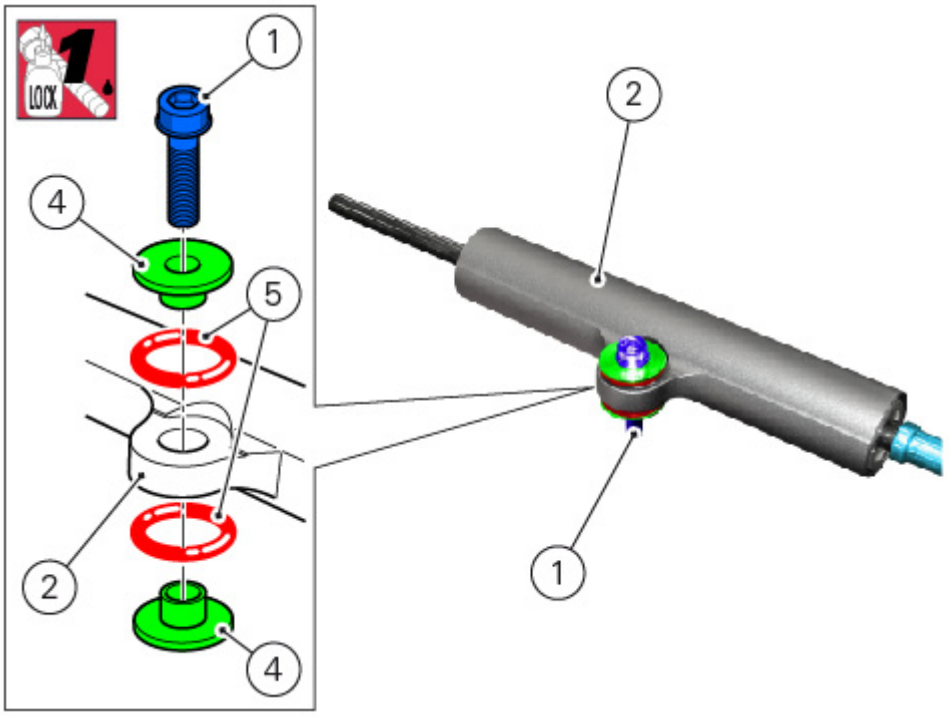
Installation of the steering damper

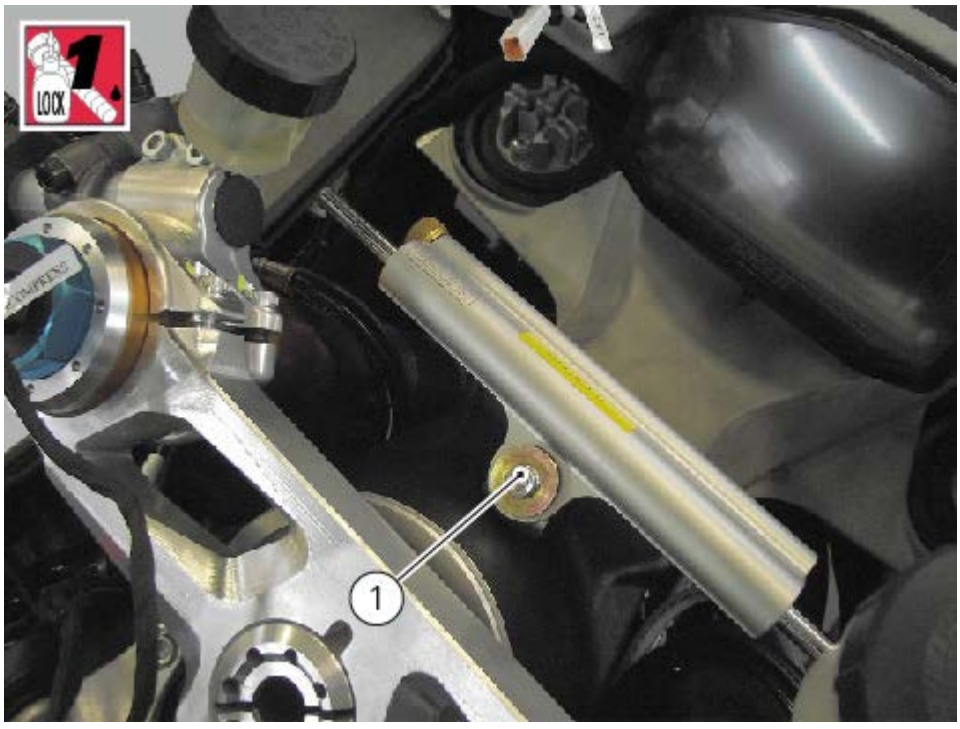
Smear the screw (1) with specified threadlocker.
Fit the spacer with collar (4), set as shown, and O-ring (5) on screw (1).
Insert screw (1) in the hole on steering damper body (2), from the side shown.
Fit the O-ring (5) and spacer with collar (4) on screw (1) bottom end, and set the spacer with collar as shown.
Apply specified threadlocker on screw (3) at the ball joint of steering damper rod (2).
Montare l'ammortizzatore di sterzo (2) impuntando la vite (3) sul semimanubrio (6) destro e la vite (1) sul telaio.

Warning

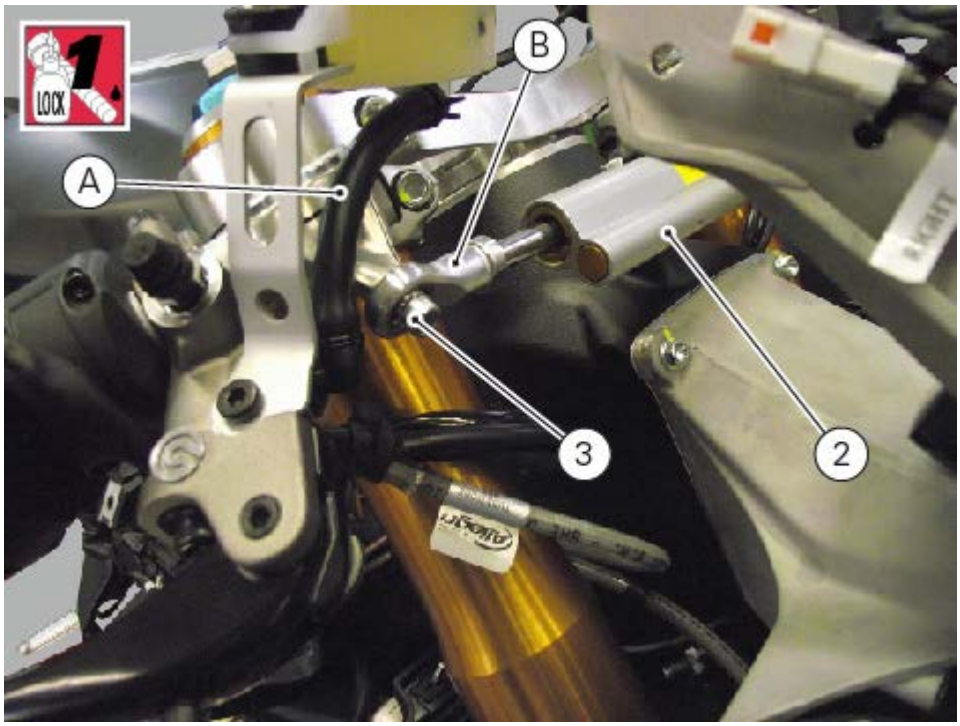
Make sure that the front brake fluid reservoir (A) is above the steering damper end (B).

Tighten the screws (1) and (3) to a torque of 10 Nm ± 10%.





http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Removal of the gearchange mechanism

Remove the full left-hand side fairing (Removal of the side fairings).

Disconnect the quick shift rod sensor (1) from the main wiring.



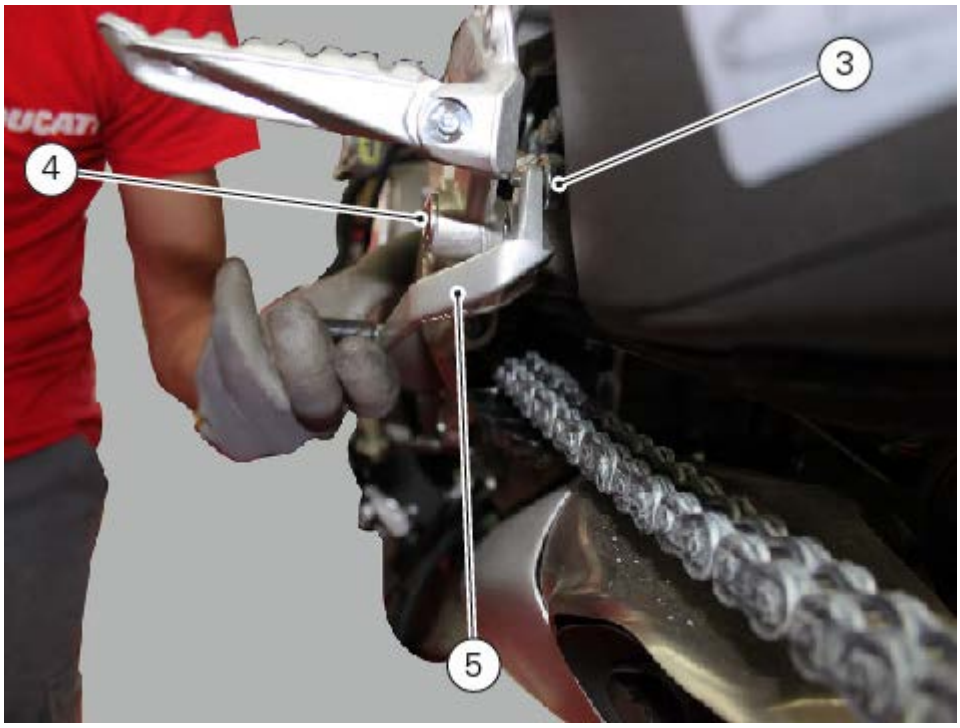
Loosen screw (2) retaining the gear shift assembly (3) to shaft.



Loosen screw (4) retaining the gearchange lever (5) to left-hand footpeg.
Remove the gearchange lever (5) with the gear shift assembly (3) installed.

http://www.ducati-manuals.com
no. 140312





Loosen screw (6) to separate the gear shift assembly (3) from gearchange lever (5).

http://www.ducati-manuals.com
no. 140312



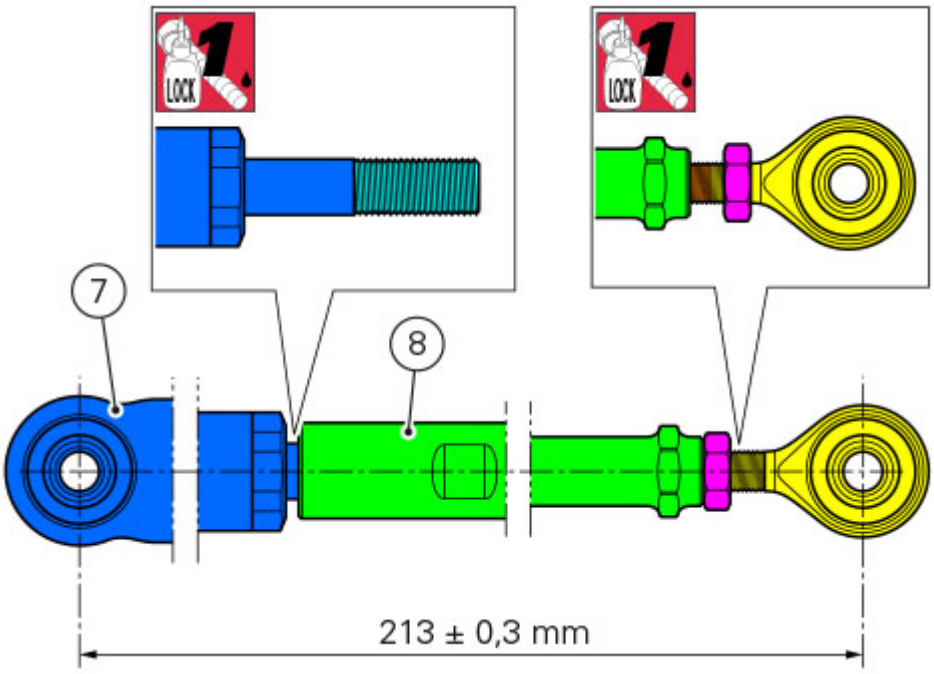
http://www.ducati-manuals.com
no. 140312

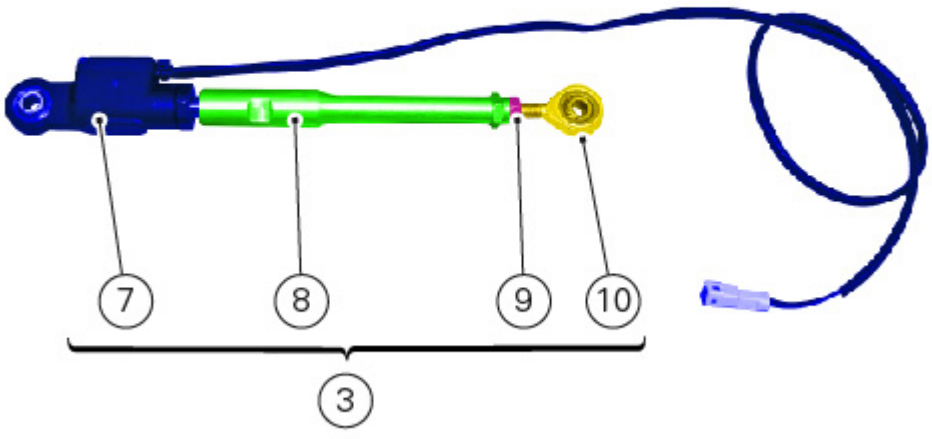
Installation of the gearchange mechanism

If the quick shift rod assembly (3) was disassembled, proceed as follows.
Apply specified threadlocker on threaded pin (A) of Quick Shifter (7). Screw the gearchange rod (8) on threaded pin (A) of Quick Shifter (7). Tighten the gearchange rod (8) to 15 Nm ± 10%, while holding the Quick Shifter (7).
Screw fully, without tightening, nut (9) on threaded pin of uniball (10).
Tighten uniball (10) on gearchange rod (8), until reaching the height specified in the figure.

Note
Quick Shifter and uniball must be on the same level, as indicated.

Apply recommended threadlocker on the part of uniball thread (10) close to gearchange rod (8), which is the position of nut (9) after tightening.
Tighten nut (9) fully home on gearchange rod (8). Tighten nut (9) to a torque of 5 Nm ± 10%.





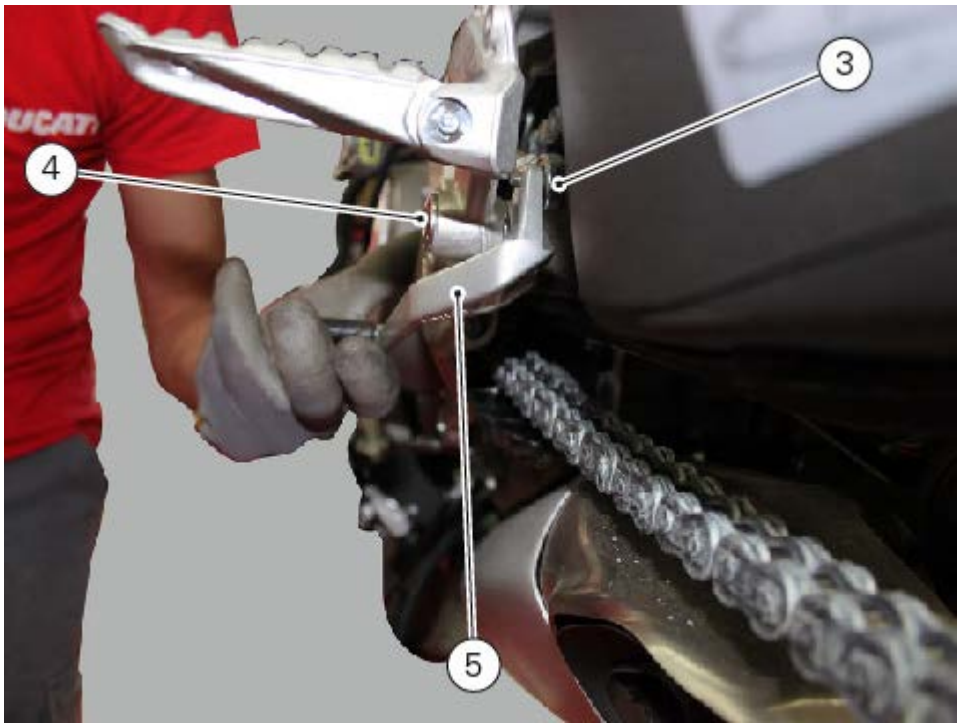
Smear the screw (6) with specified threadlocker.
Set gear shift assembly (3) on gearchange lever (5) and start screw (6) in its thread.

http://www.ducati-manuals.com
no. 140312

Tighten the screw (6) to a torque of 10 Nm ± 10%.



Reposition gearchange rod (5) with gear shift assembly (3) installed, and start screw (4) retaining gearchange lever (5) to left-hand footpeg.
Tighten the screw (4) to a torque of 10 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



Position lever (10) of gear shift assembly on shaft (11), ensuring that the lever mark matches with the one on the shaft.

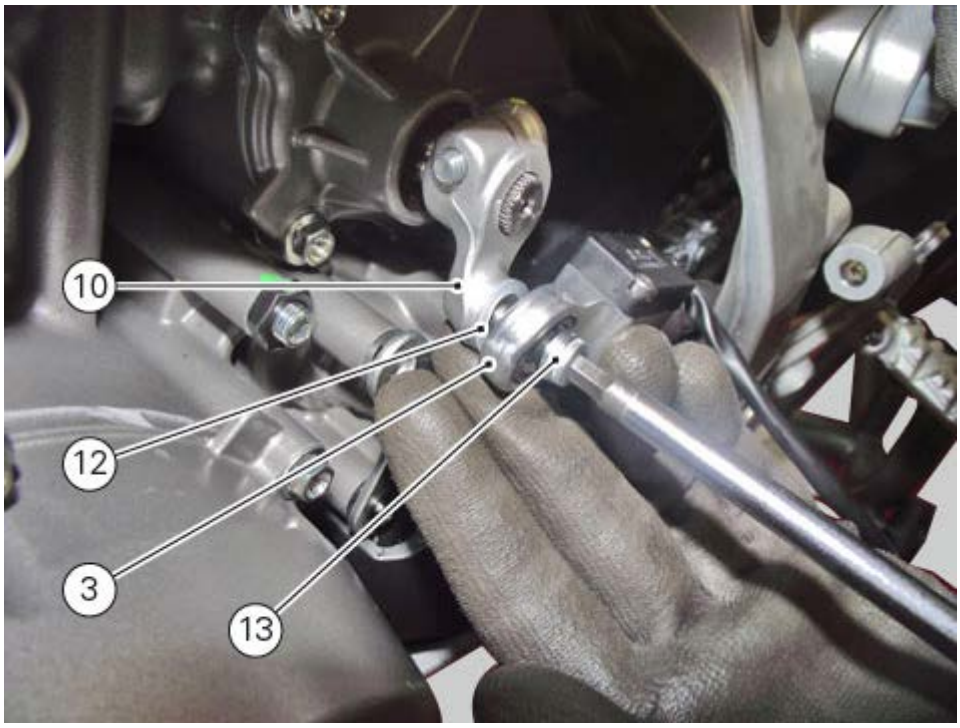


Start screw (2) retaining the gear shift assembly (3) to shaft.
Tighten the screw (2) to a torque of 10 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



If the complete gear shift assembly (3) was removed from lever (10), position a new teflon washer (12) in the indicated position and tighten screw (13) to a torque of 10 Nm ± 10%.



Connect the quick shift rod sensor (1) to the main wiring.

http://www.ducati-manuals.com
no. 140312



Install the full LH side fairing (Installation of the side fairings).

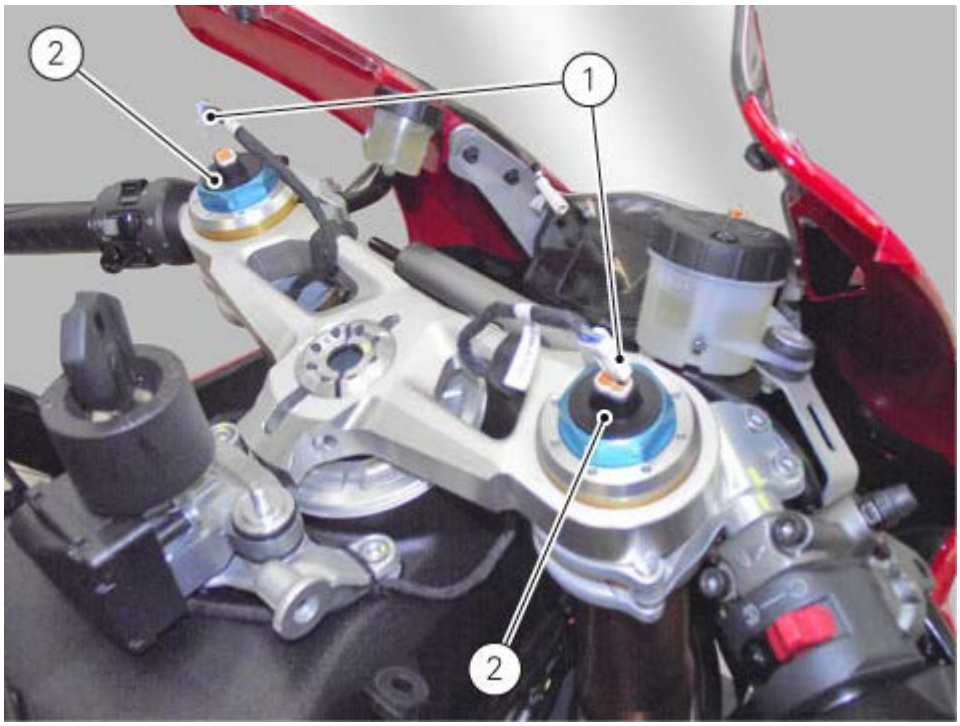
http://www.ducati-manuals.com
no. 140312

Removal of the front fork

Remove the front brake callipers (Removal of the front brake system).
Remove the front mudguard (Removal of the front mudguard).
Remove the front wheel (Removal of the front wheel).

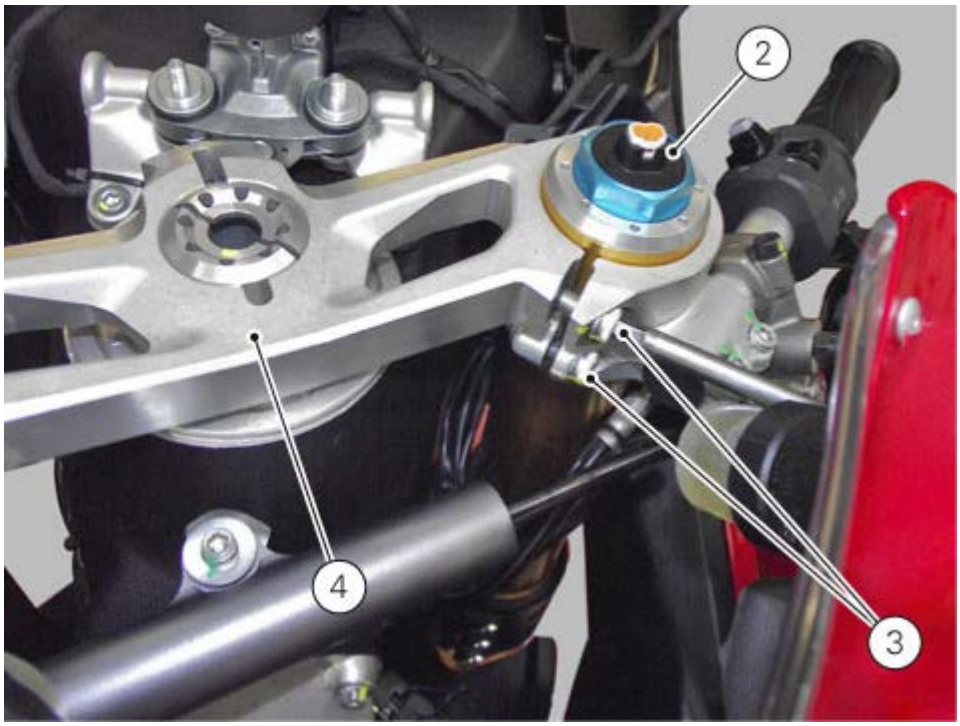
Disconnect smart suspension connectors (1), located at the top of fork legs (2), from the main wiring harness.

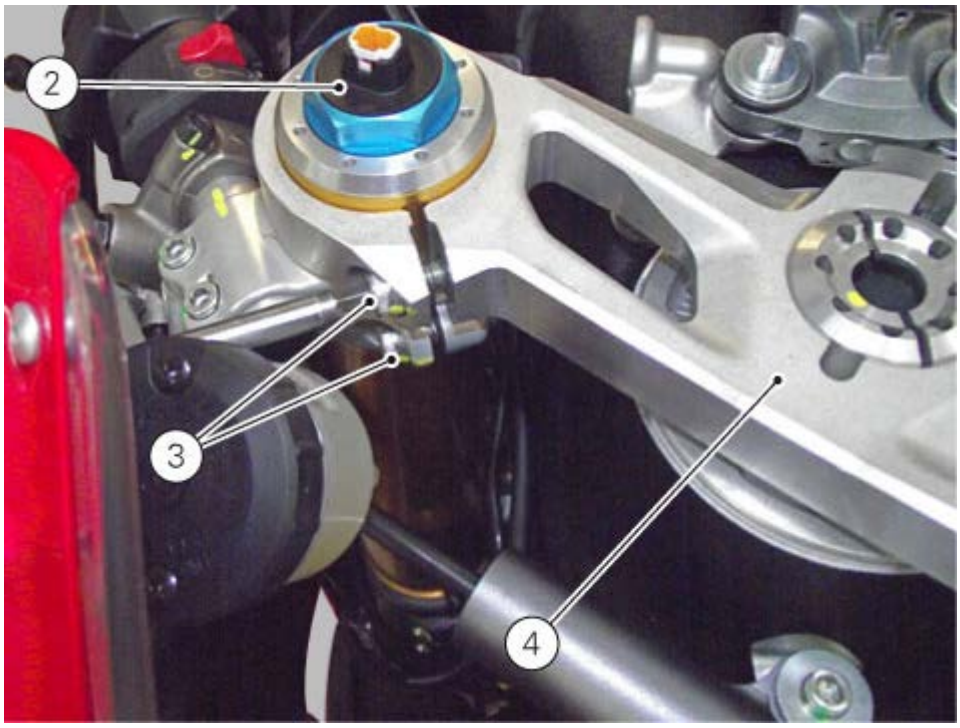




Loosen the screws (3) holding the fork legs (2) to the steering head (4).

http://www.ducati-manuals.com
no. 140312





Loosen screw (5) retaining the steering head (4) to the steering tube.

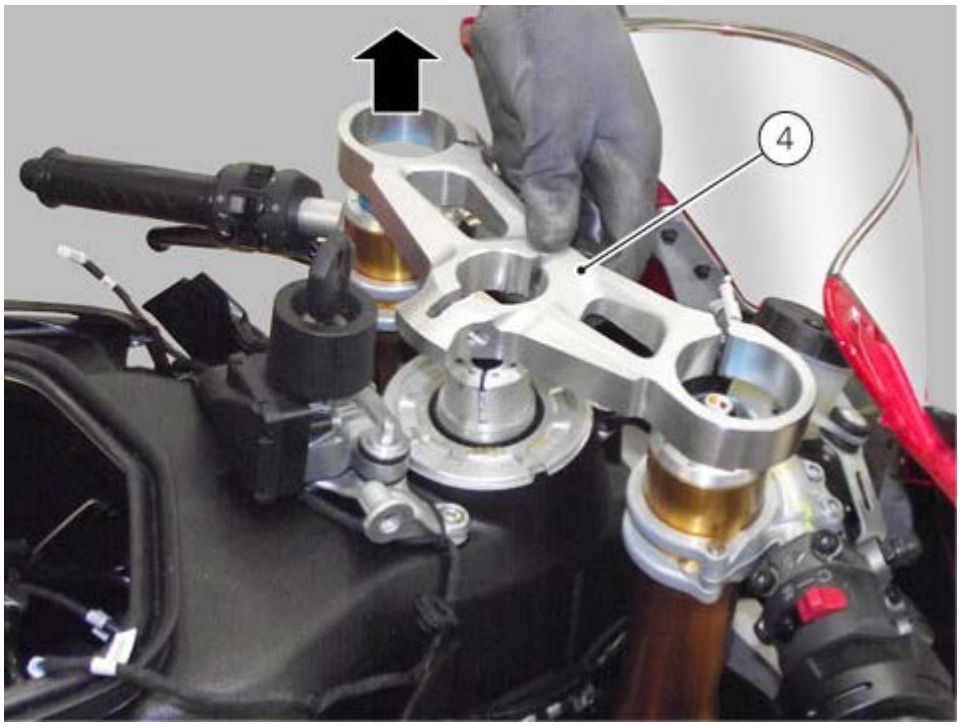
http://www.ducati-manuals.com
no. 140312



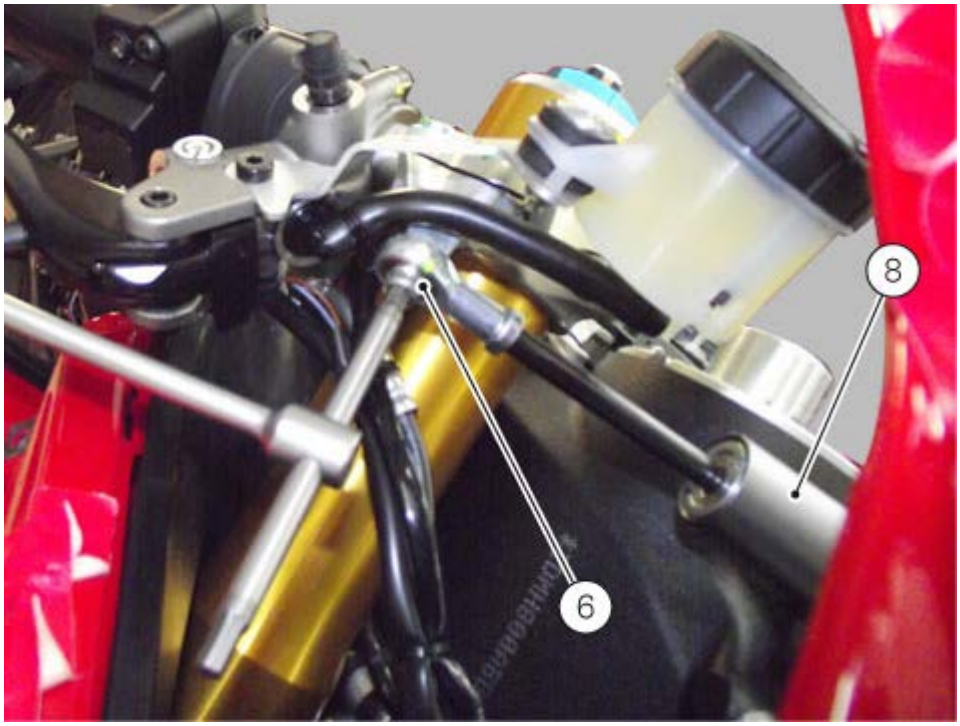
Remove the steering head (4) by pulling up.



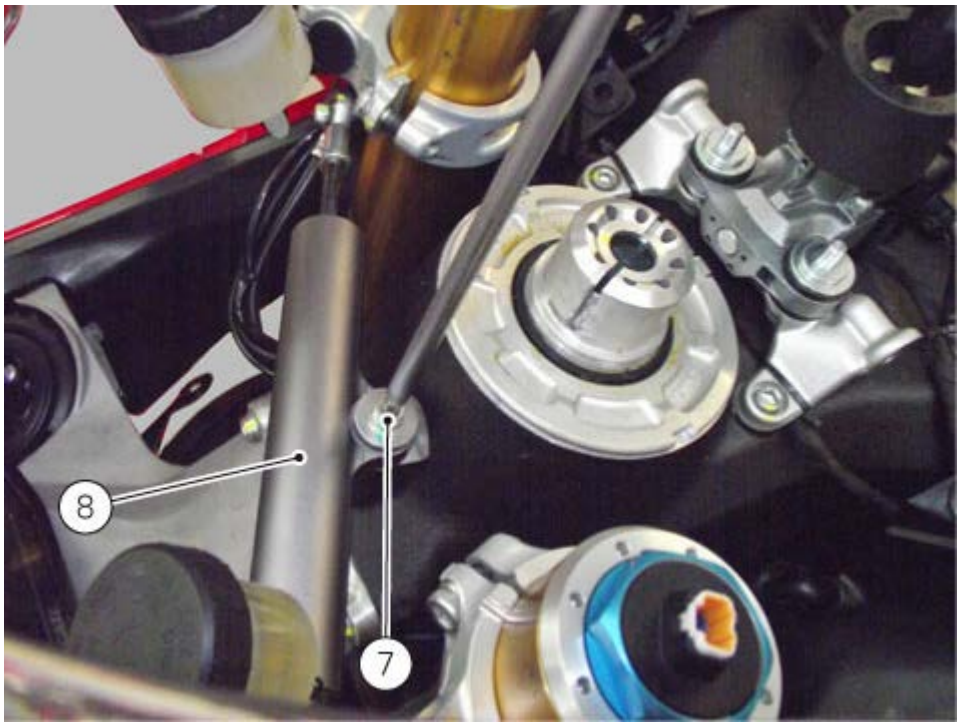
http://www.ducati-manuals.com
no. 140312



Unscrew the screws (6) and (7) securing the steering damper (8).



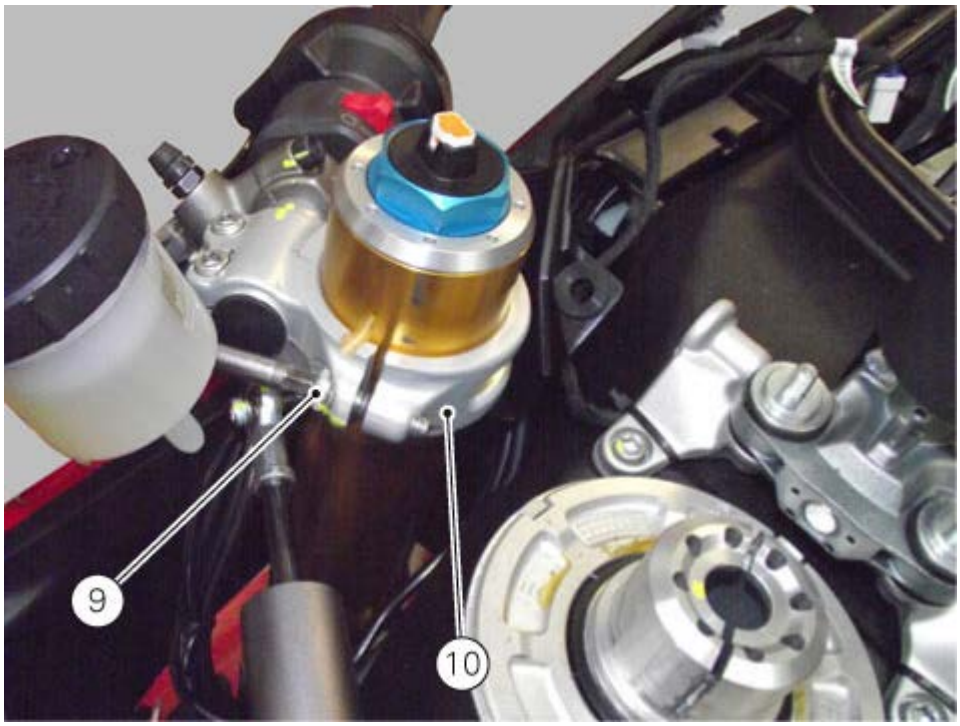
http://www.ducati-manuals.com
no. 140312



Remove the steering damper (8).
Loosen screws (9) retaining handlebars (10).



http://www.ducati-manuals.com
no. 140312

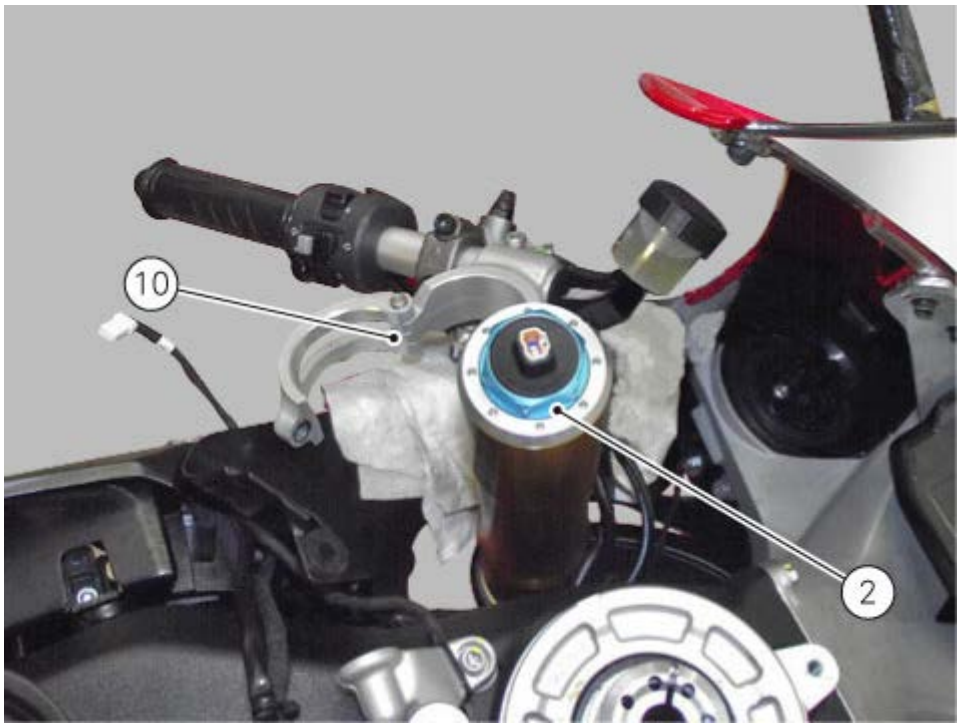




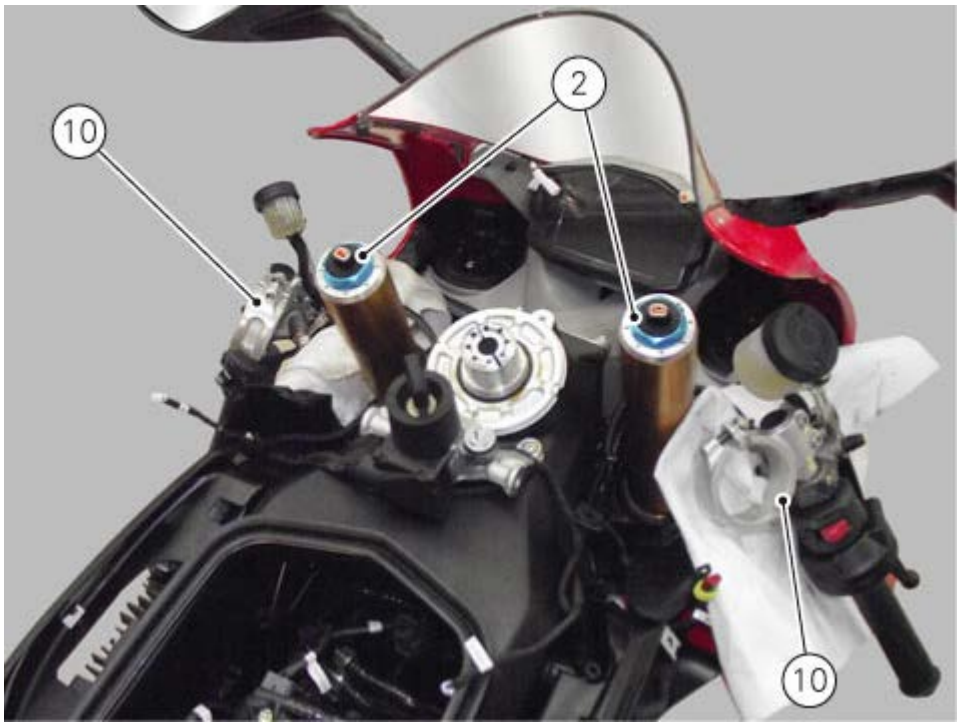
Remove handlebars (10) from fork (2), but leave handlebar components connected to the system.

http://www.ducati-manuals.com
no. 140312

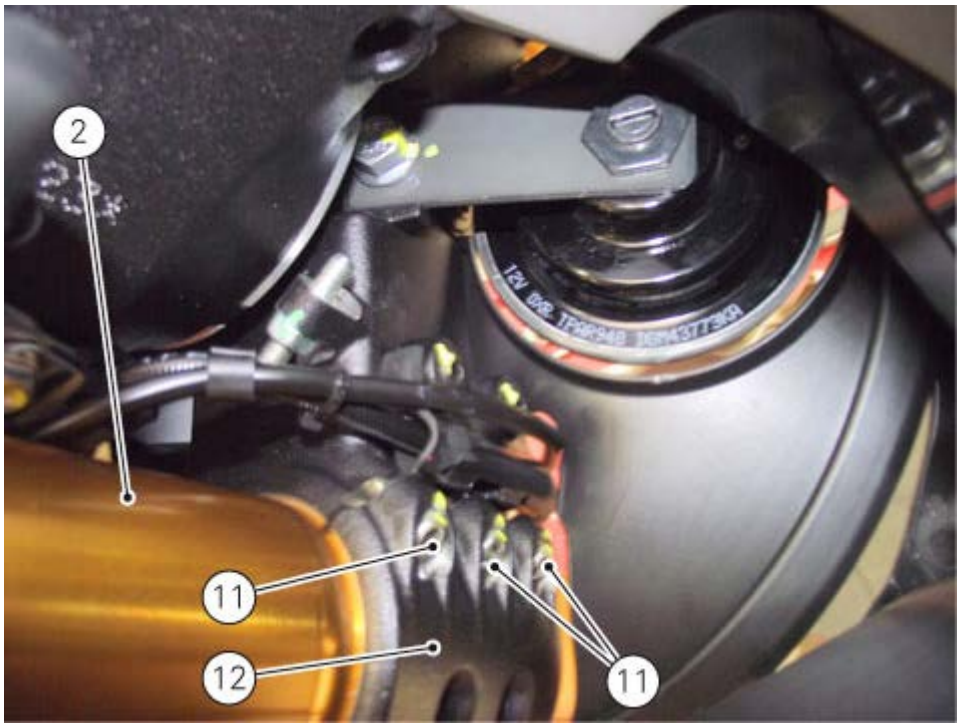




http://www.ducati-manuals.com
no. 140312



Loosen the six screws (11) retaining the fork legs (2) to bottom yoke (12): there are three screws (11) per leg.



Important

Be careful when loosening the lower screws since forks could fall down.

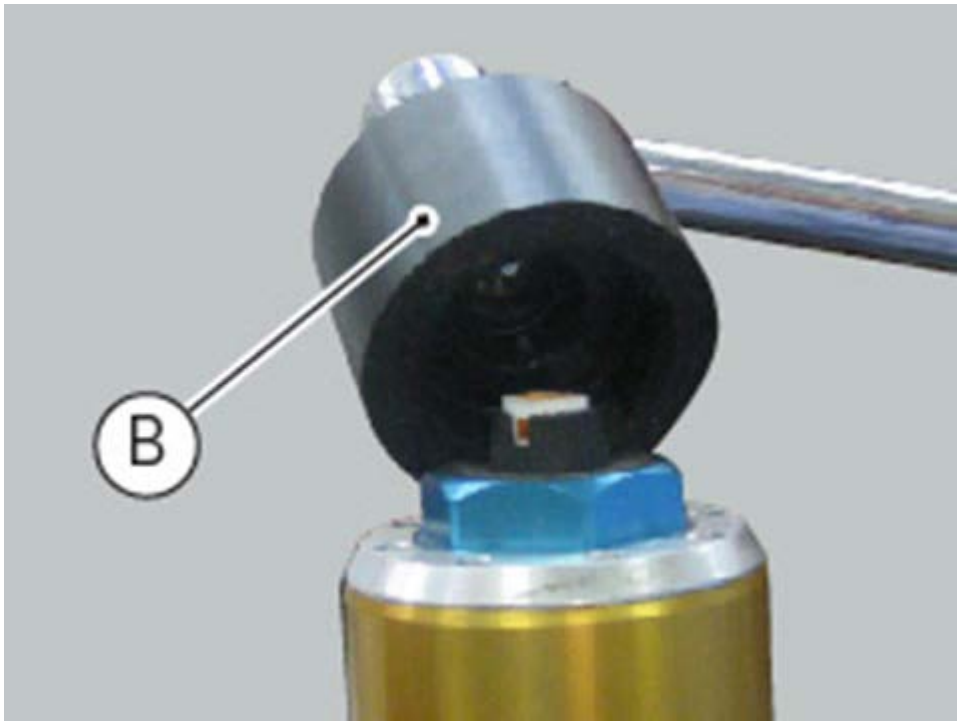
Slide the fork legs downwards in order to carry out to all the necessary overhaul operations.

http://www.ducati-manuals.com
no. 140312

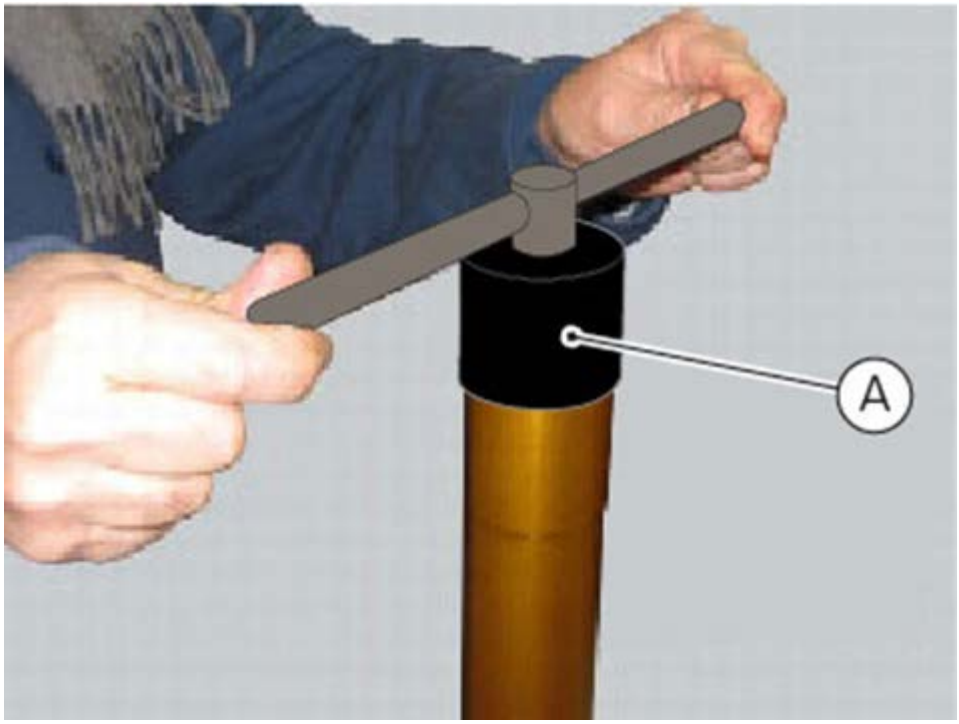
Overhauling the fork

Disassembling the fork

Release spring preload using tool (B) part no. **88713.4338**, and take note of the number of turns.



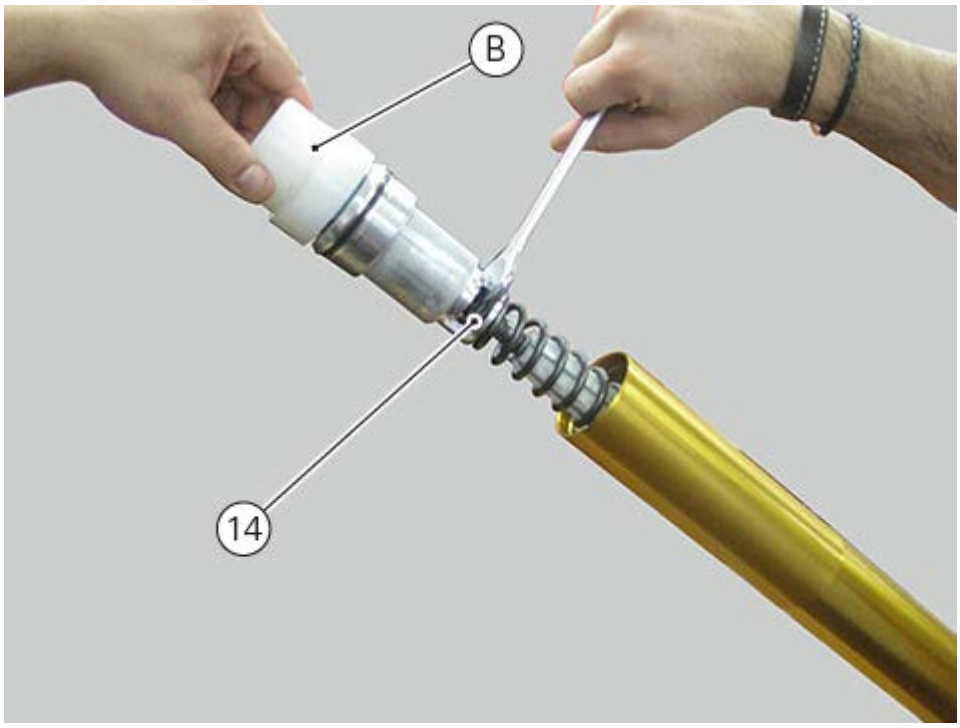
Loosen the top plug (13) using tool (A) part no. **88713.4337**.



http://www.ducati-manuals.com
no. 140312



Slacken lock nut (14) on top plug retaining the damper rod while holding the nut using tool (B) part no. **88713.4338**.



Slide out the spring preload tube.
Slide out the rebound hydraulic adjuster rod and then remove the lock nut.

http://www.ducati-manuals.com
no. 140312

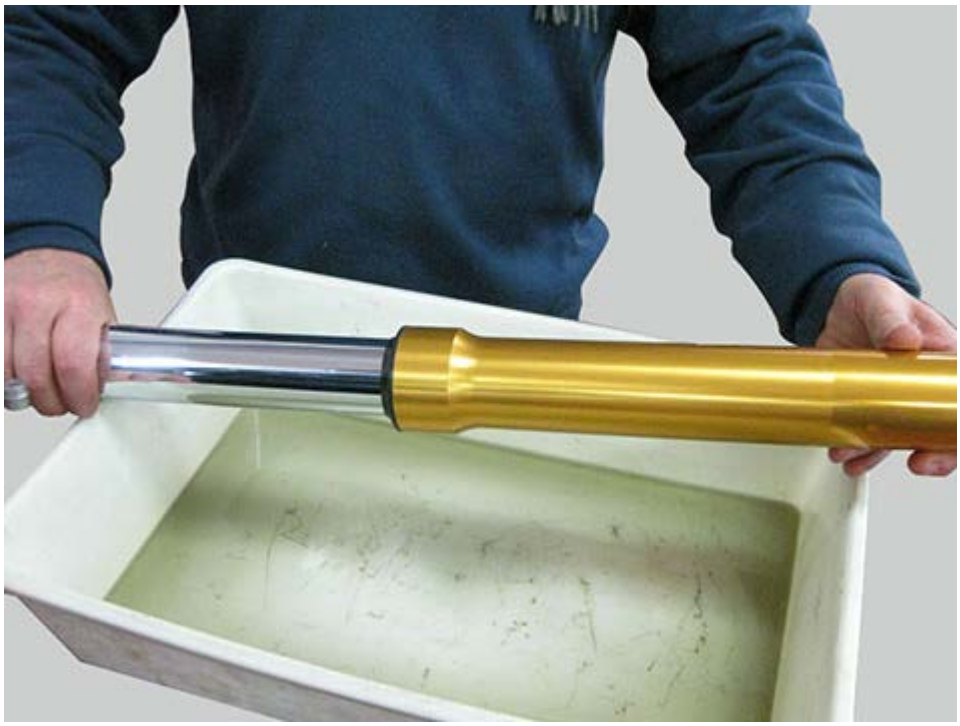


Turn sleeve upside-down to drain all fluid.



Separate leg from sleeve.

http://www.ducati-manuals.com
no. 140312





It is now possible to change the seals.

http://www.ducati-manuals.com
no. 140312



Remove the dust seal from sleeve.



Remove the snap ring (circlip).

http://www.ducati-manuals.com
no. 140312



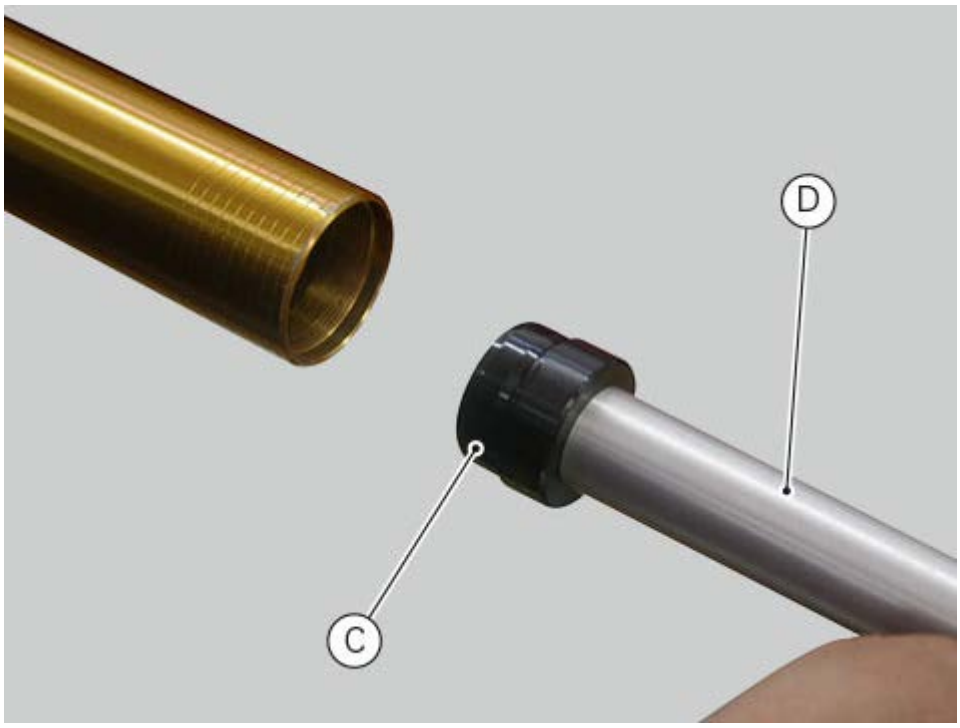
Remove the oil seal and the spacer.



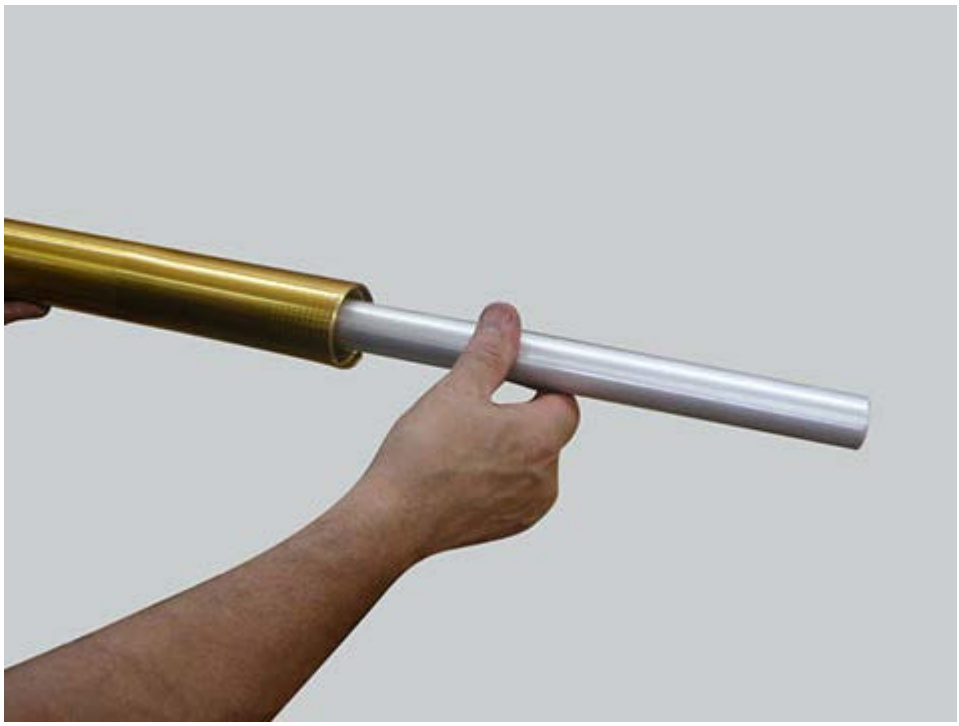
http://www.ducati-manuals.com
no. 140312



Remove, using tool (D) part no. **88713.3529** and bush (C) part no. **88713.2857**, the first sliding bushing.



http://www.ducati-manuals.com
no. 140312



Then remove the second sliding bushing, using a mallet.



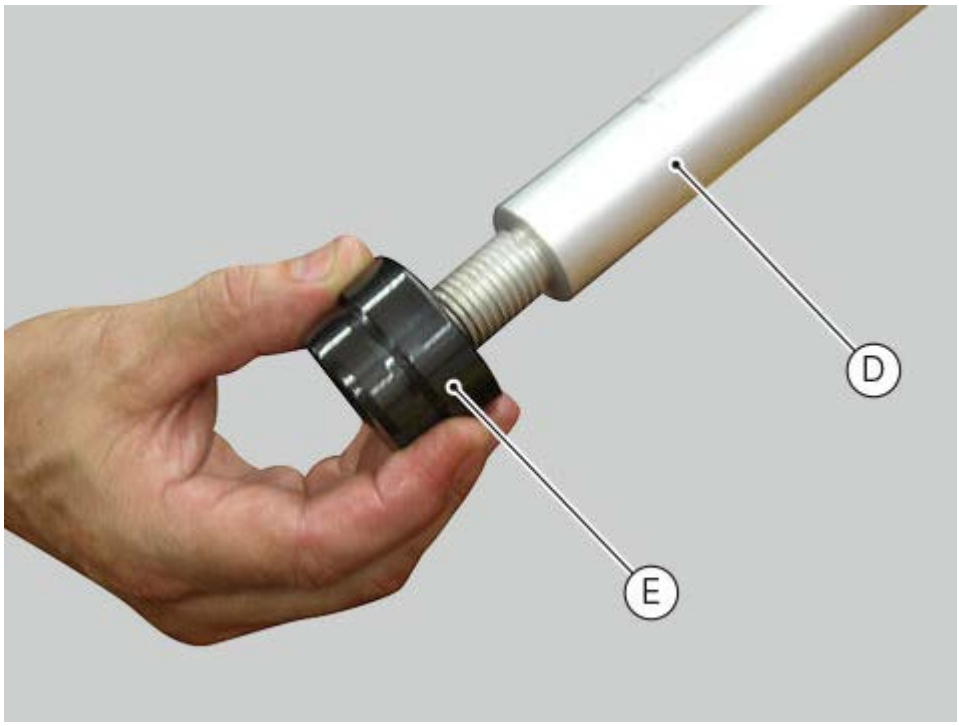
Reassembling the fork

To reassemble the sliding bushings, use bush (E) part no. **88173.2858** and fit it onto tool (D) part no. **88713.3529**, with the help of bar guide part no. **88173.2856** and a mallet.
Guide part no. **88173.2856** must be positioned at the outer sleeve opening, to ensure bushings are centred.

Warning

First refit the sliding bushing having a smaller outside diameter, then the one having a larger outside diameter.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Fit spacer and oil seal.



http://www.ducati-manuals.com
no. 140312



Fit snap ring (circlip).



Fit dust seal.

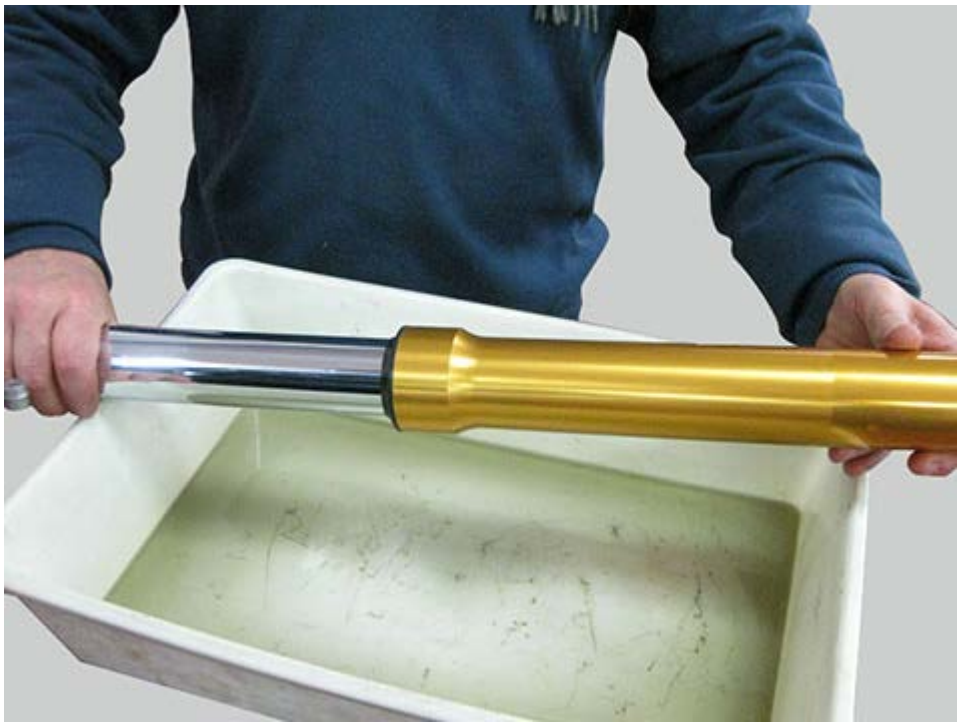
http://www.ducati-manuals.com
no. 140312



It is now possible to assemble the fork leg to the sleeve.



http://www.ducati-manuals.com
no. 140312



Fill the fork with fresh fluid to the required level.

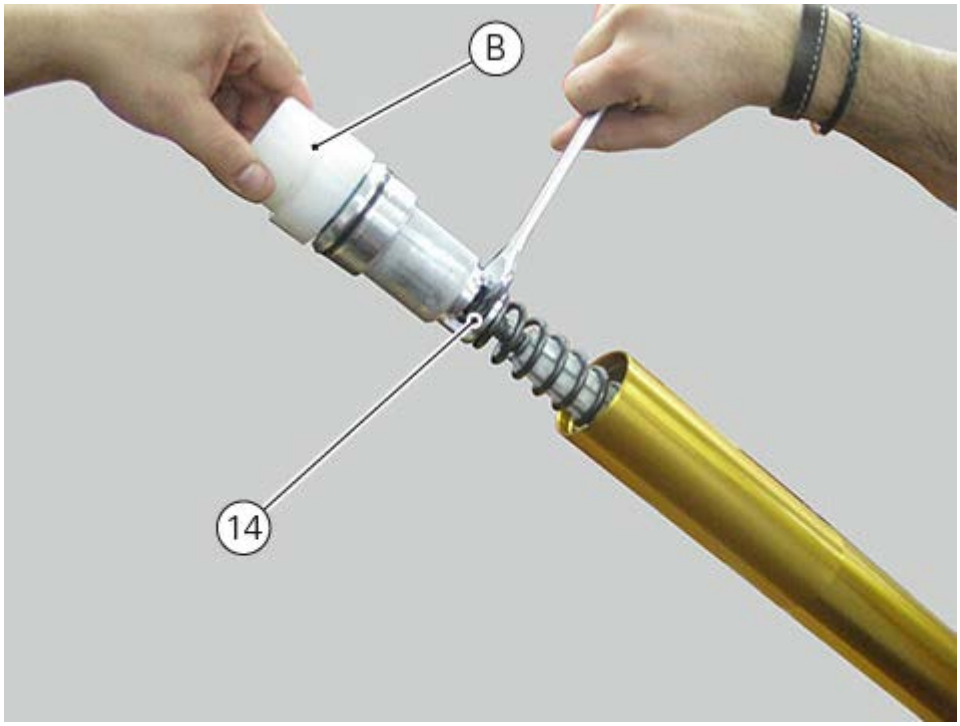


Move the damper rod up and down until some fluid flows out of the rod.

http://www.ducati-manuals.com
no. 140312



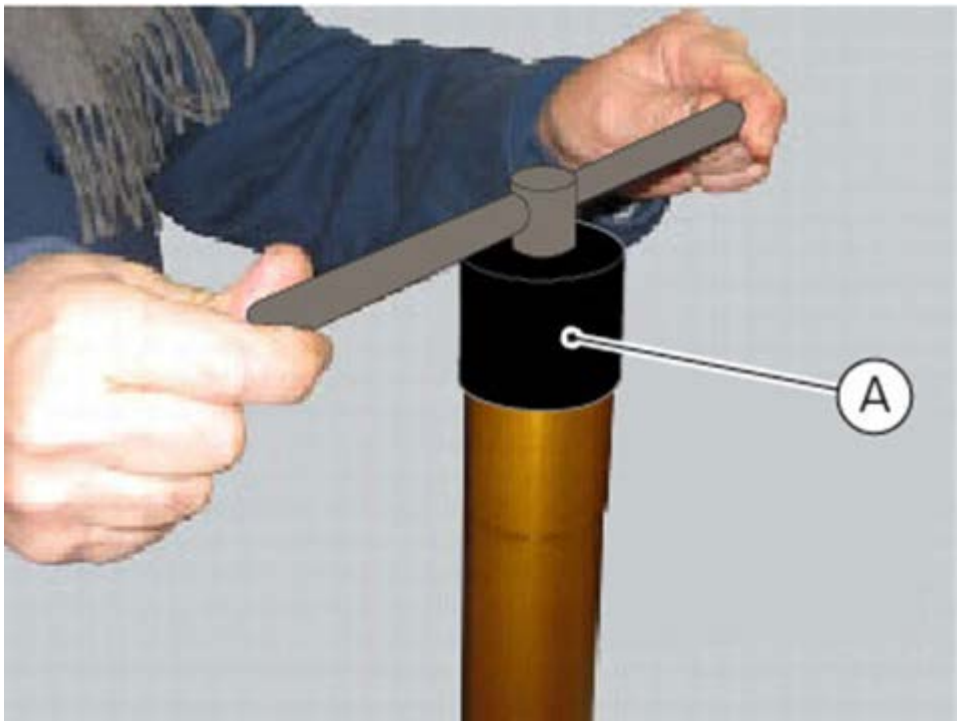
Fit lock nut and preload spacer.
Refit the top plug fully home and tighten the lock nut (14) to 15 Nm ±10%, using tool (B) part no. **88173.4338**.



Tighten top plug to a torque of 20 Nm ± 10%.

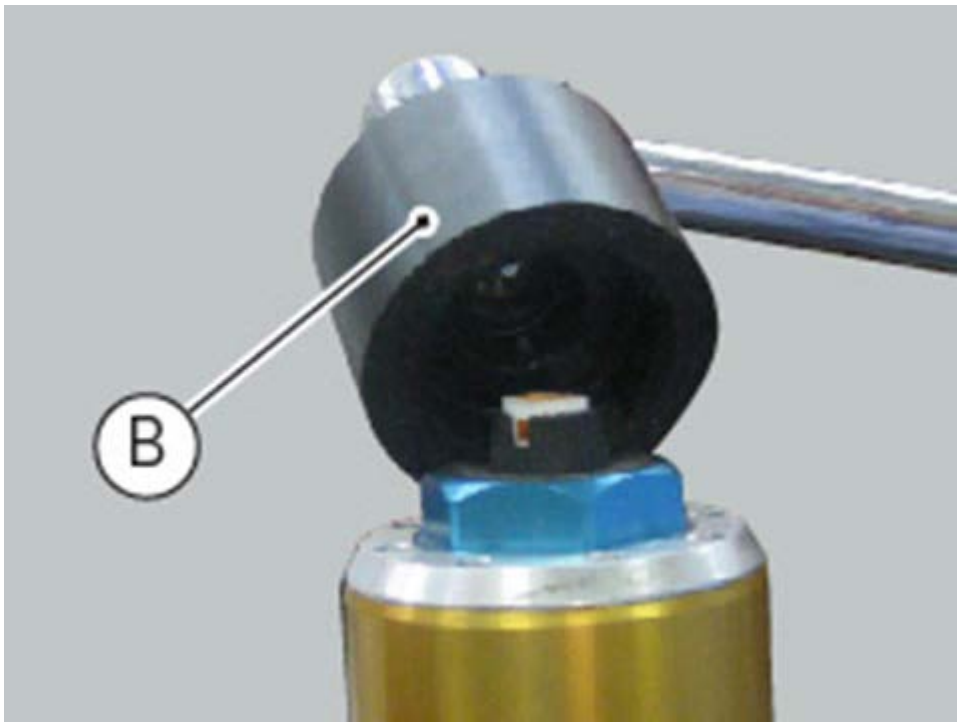
http://www.ducati-manuals.com
no. 140312





Restore spring preload using tool (B) part no. **88713.4338**.

http://www.ducati-manuals.com
no. 140312



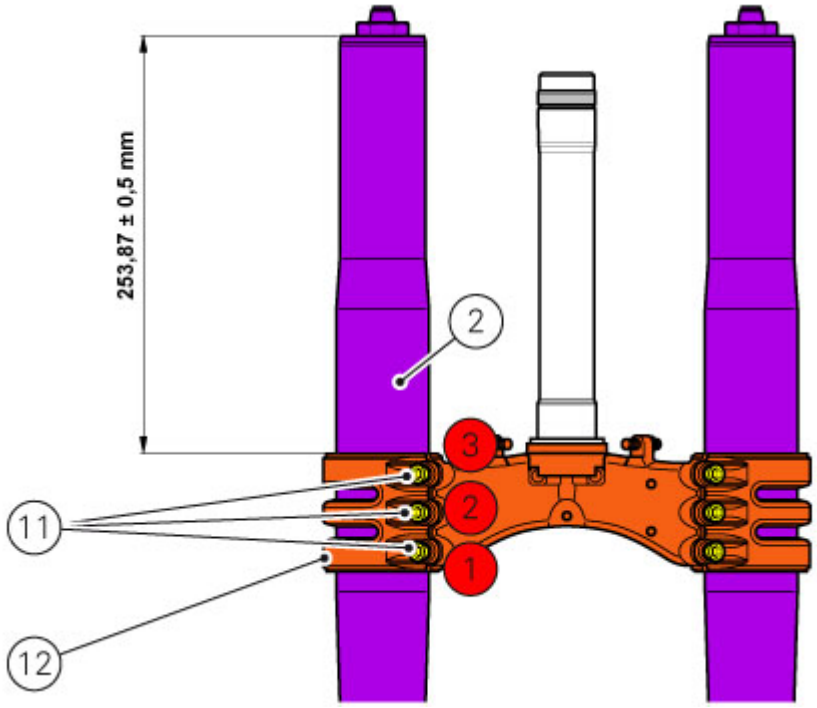
http://www.ducati-manuals.com
no. 140312

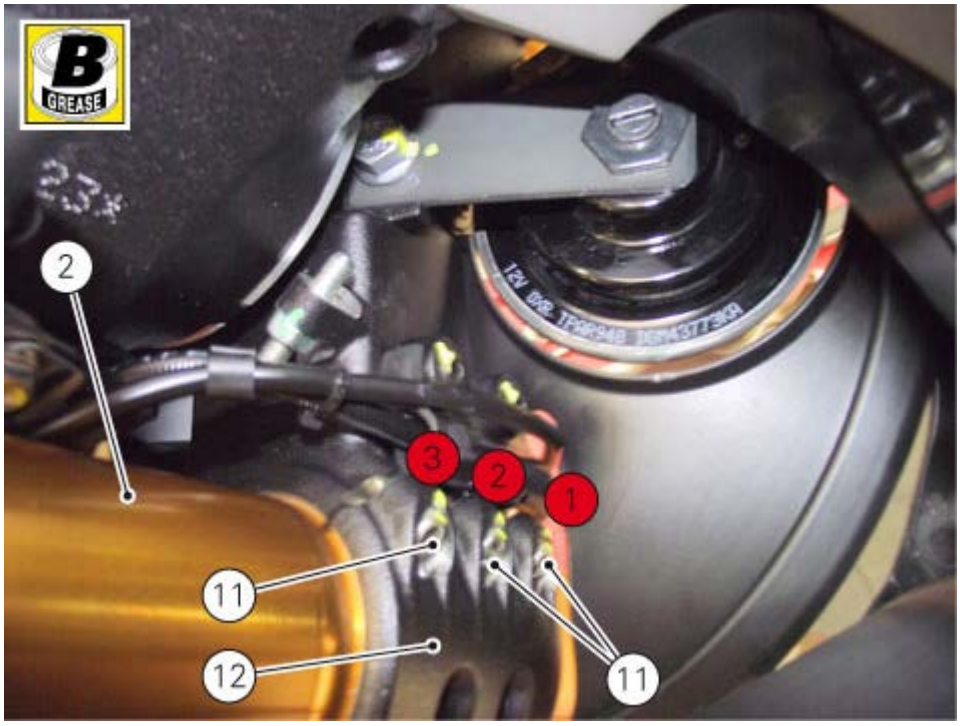
Installation of the front fork

Refit the fork legs (2), positioning them at the height shown in the figure relative to the surface of the bottom yoke (12).

Warning
The difference in height between the two fork legs must be no greater than 0.1 mm.

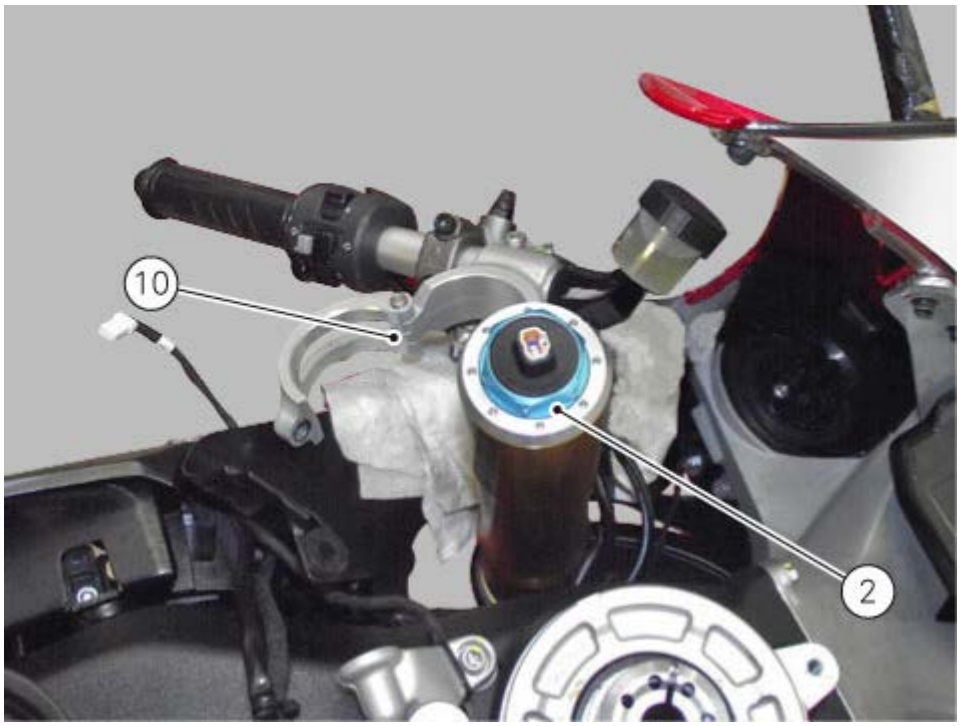
Apply recommended grease to the screws (11).
Fasten the fork legs (11) by tightening the screws to 8 Nm ± 5%, following a 1-2-3 sequence.





Set handlebars (10) onto fork legs (2).

http://www.ducati-manuals.com
no. 140312

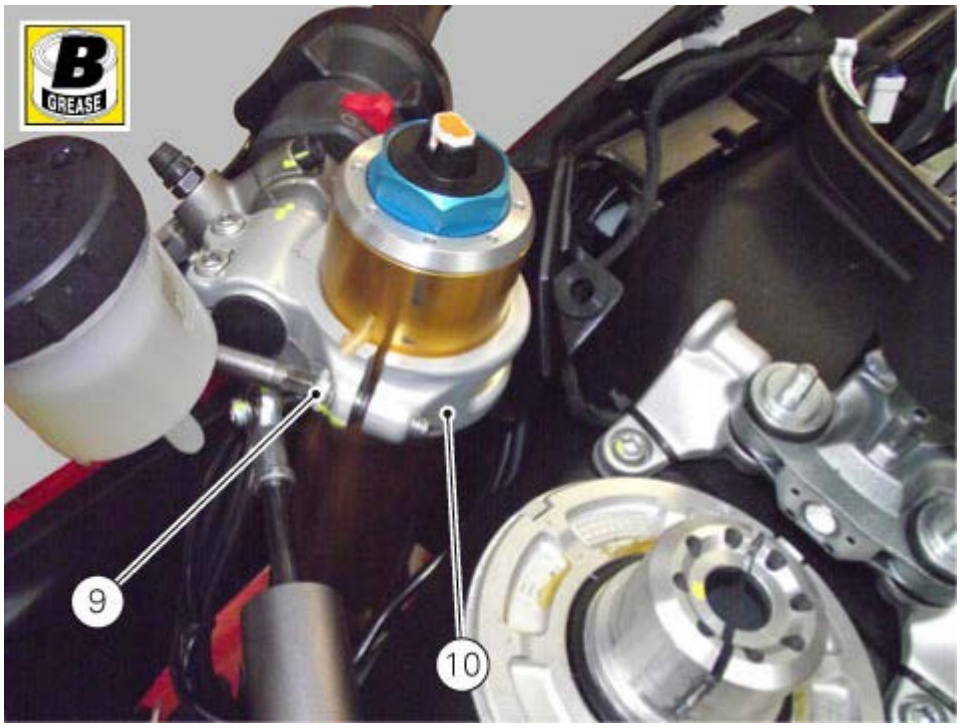




Apply recommended grease to the screws (9).
Tighten the screws (9) to a torque of 22 Nm ± 5% to fasten handlebars (10).
Refit the steering damper (8).

http://www.ducati-manuals.com
no. 140312





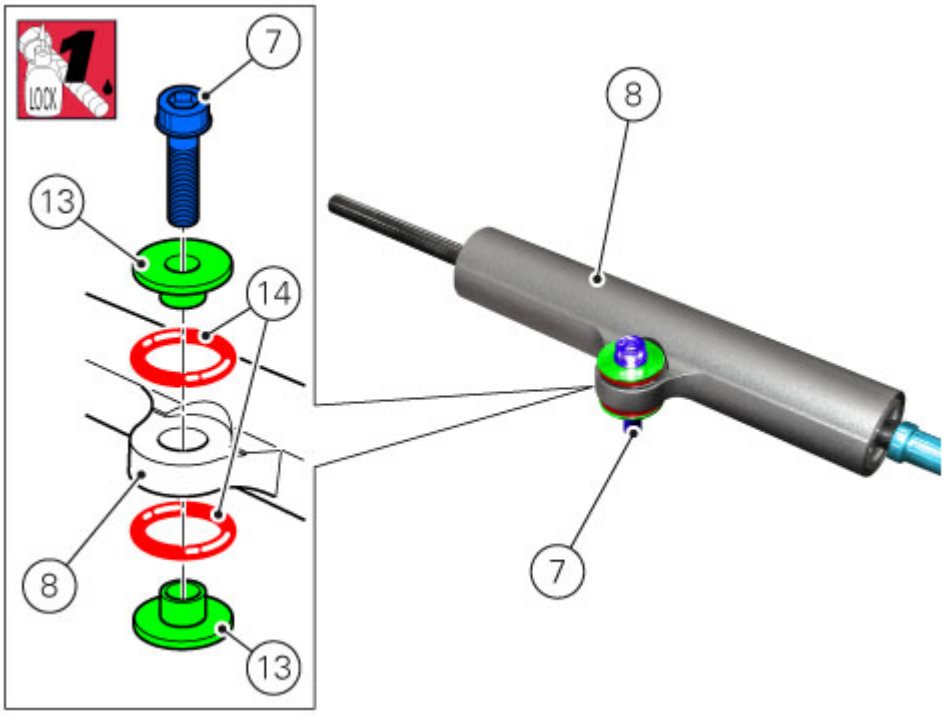
http://www.ducati-manuals.com
no. 140312



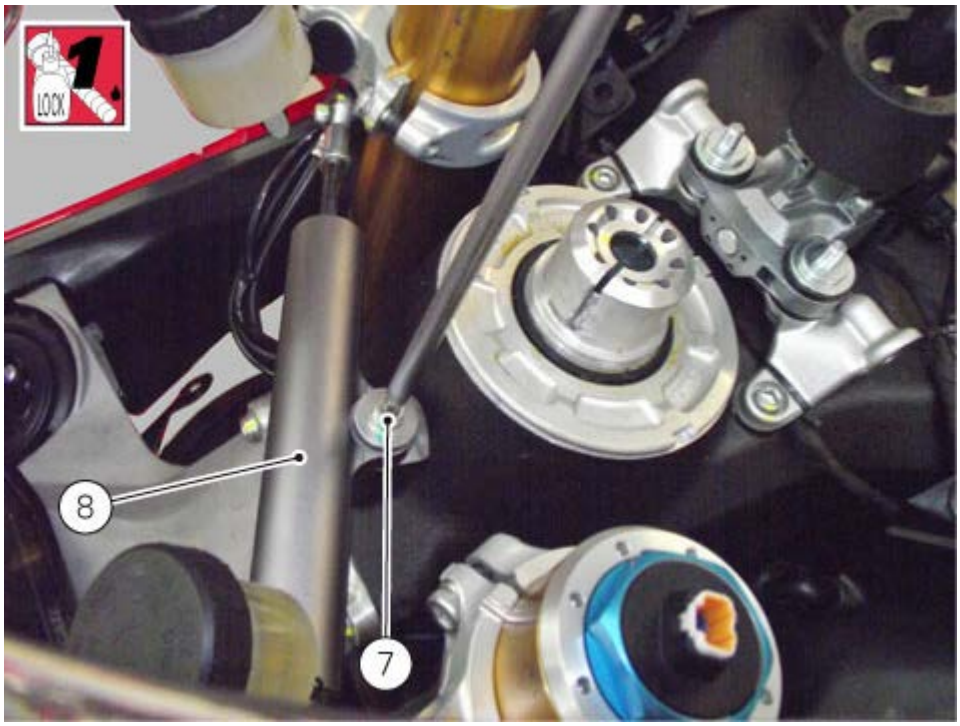
Apply the recommended threadlocker to the screw (7).
Fit the spacer with collar (13), set as shown, and O-ring (14) on screw (7).
Insert screw (7) in the hole on steering damper body (8), from the side shown.
Fit the O-ring (14) and spacer with collar (13) on screw (7) bottom end, and set the spacer with collar as shown.
Apply specified threadlocker on screw (6) at the ball joint of steering damper rod (8).
Install the steering damper (8) and start screw (6) on right-hand side handlebar (10) and screw (7) on frame.

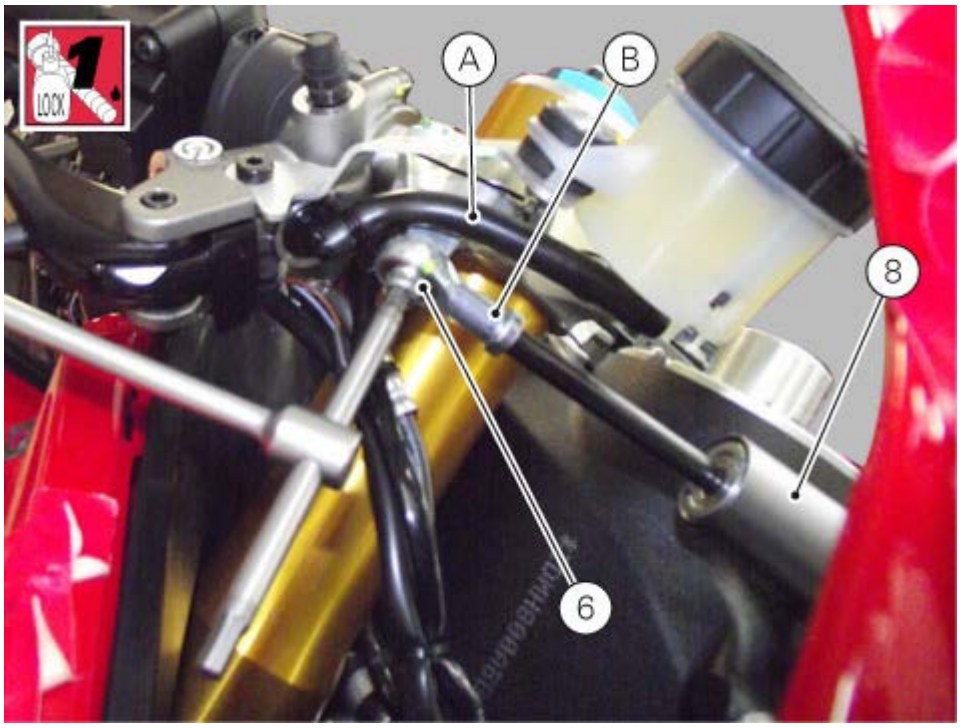
Warning
Make sure that the front brake fluid reservoir (A) is above the steering damper end (B).

Tighten the screws (6) and (7) to a torque of 10 Nm ± 10%.



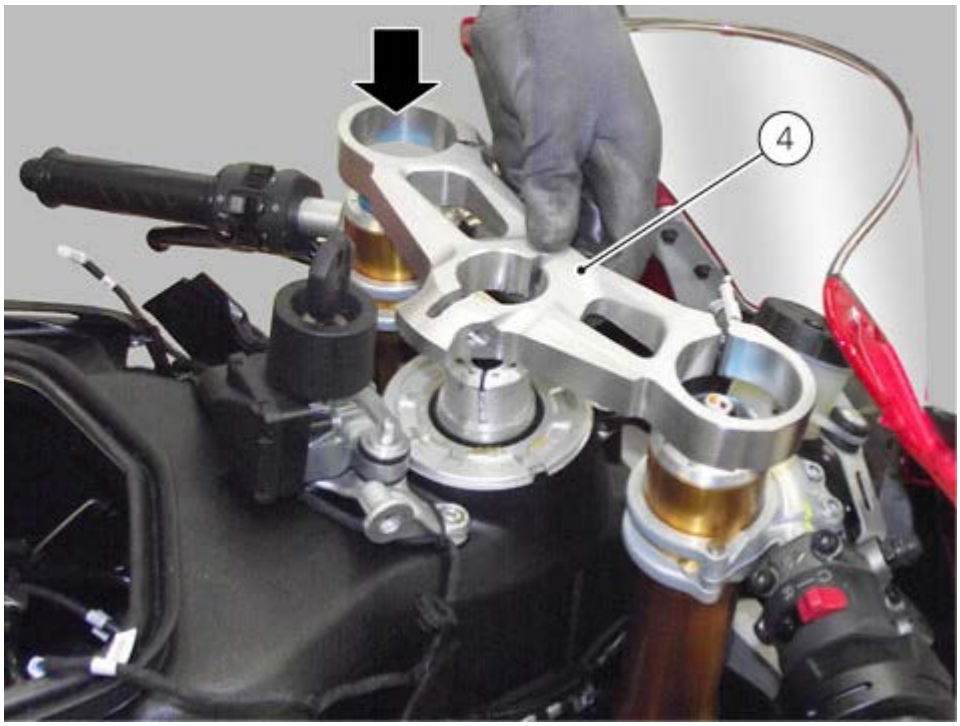
http://www.ducati-manuals.com
no. 140312





Fit the steering head (4) on the motorcycle.

http://www.ducati-manuals.com
no. 140312



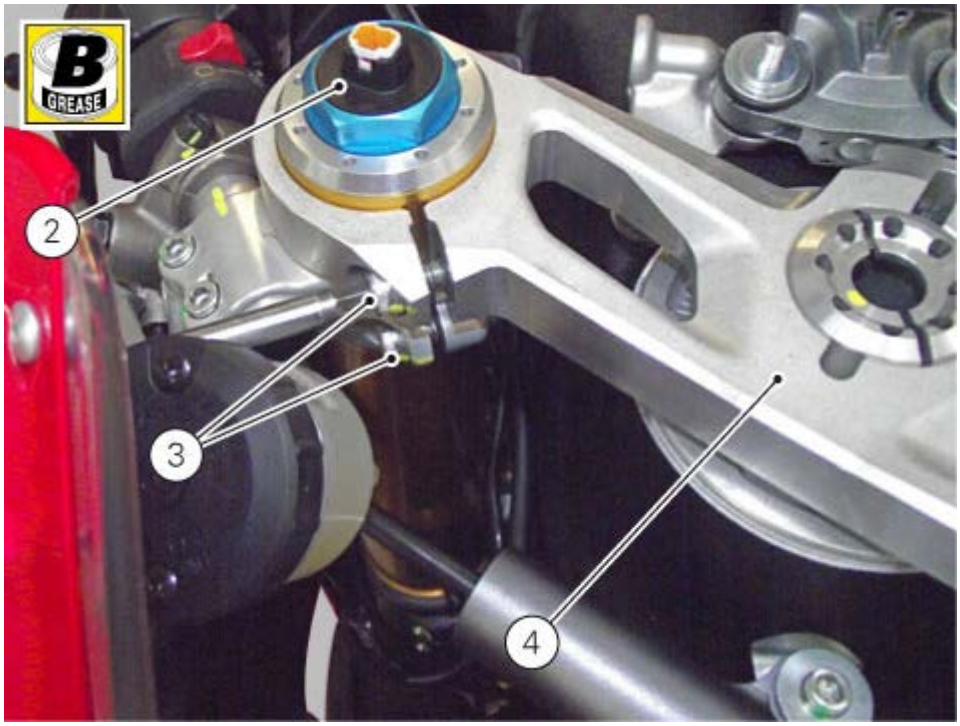


Apply recommended grease to the screw (5).
Start screw (5) fastening the steering head (4). Tighten screw (5) to a torque of 22 Nm ± 5%.

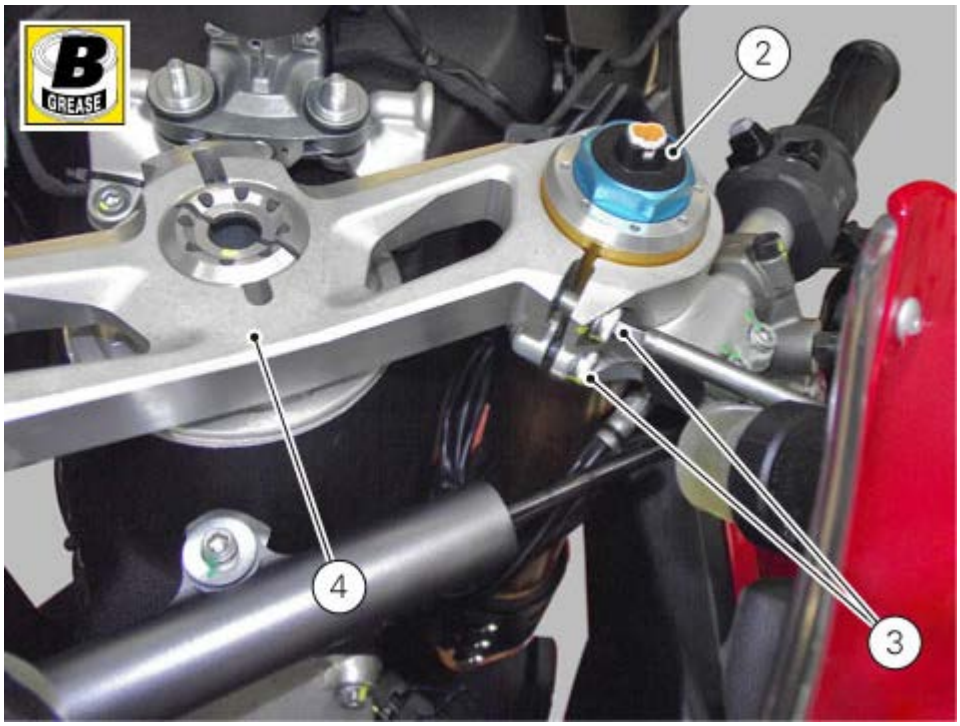
http://www.ducati-manuals.com
no. 140312



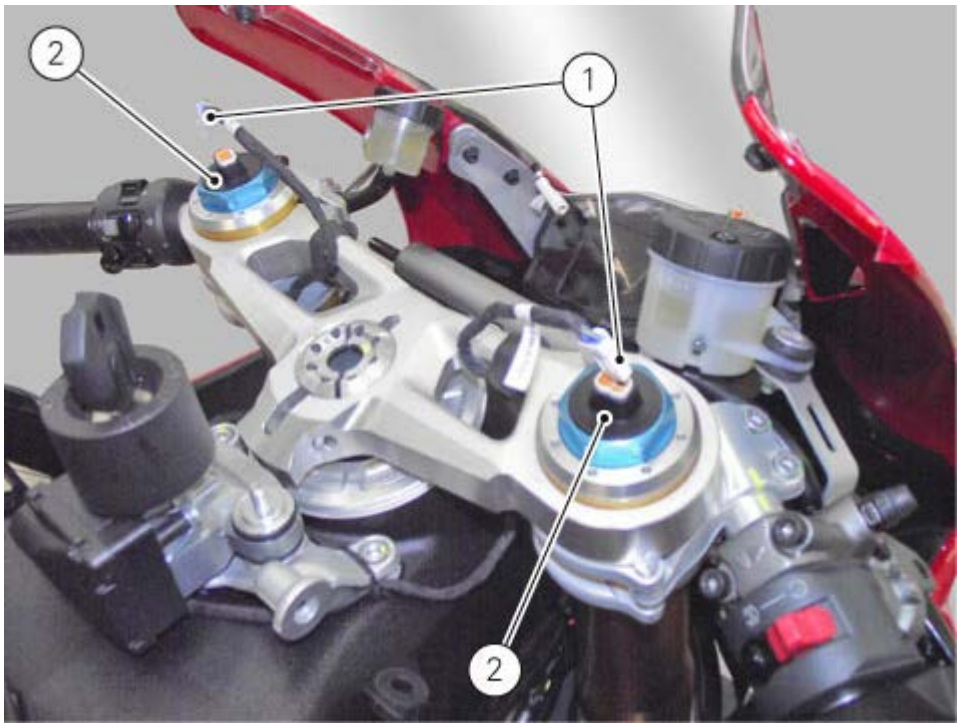
Apply recommended grease to the screws (3).
Start the screws (3) holding the steering head (4) to the fork legs (2). Tighten the screws (3) to a torque of 22 Nm ± 5%.



http://www.ducati-manuals.com
no. 140312



Connect smart suspension connectors (1), located at the top of fork legs (2), from the main wiring harness.



http://www.ducati-manuals.com
no. 140312



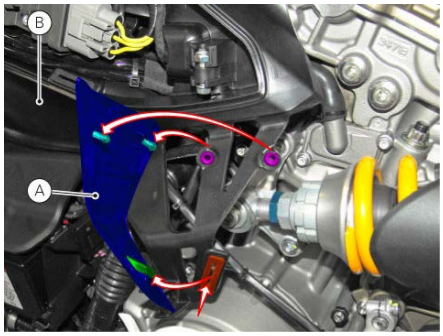
Refit the front mudguard (Installation of the front mudguard).
Refit the front wheel (Installation of the front wheel).
Refit the front brake callipers (Installation of the front brake system).

http://www.ducati-manuals.com
no. 140312

Removal of the rear shock absorber

Remove the fairings (Removal of the side fairings).

Duly support the rear subframe and the swinging arm.
The assembly made of shock absorber and linkage supports the whole rear end.
Remove cover (A) to reach the shock absorber, after releasing its top end from the electric component left-hand support (B) and sliding it down.



Remove the seat (Removal of the rider seat). Disconnect connectors (C) for rear shock absorber compression and rebound.



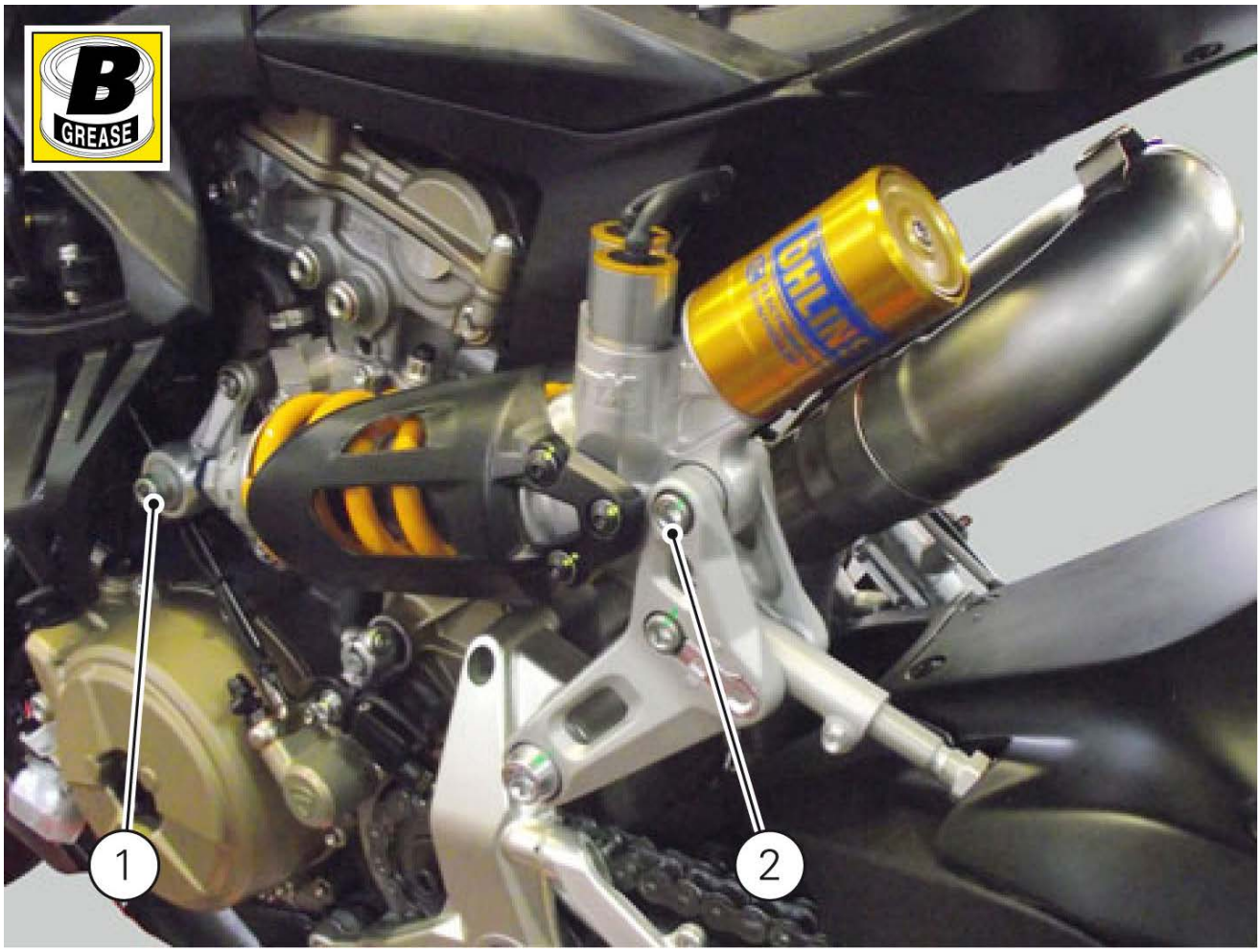
Loosen screw (1) retaining rear shock absorber to crankcase.
Loosen screw (2) retaining shock absorber to rocker arm.
Remove the rear shock absorber.



http://www.ducati-manuals.com
no. 140312

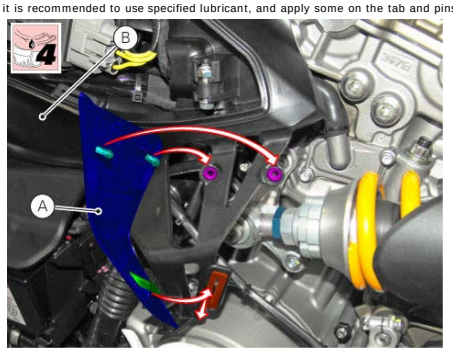
Installation of the rear shock absorber

Fit the rear shock absorber on the rocker arm.
Smear with recommended grease screws (1) and (2) retaining the shock absorber to the rocker arm and start screws (1) and (2).
Tighten the screws to a torque of 45 Nm ± 5%.

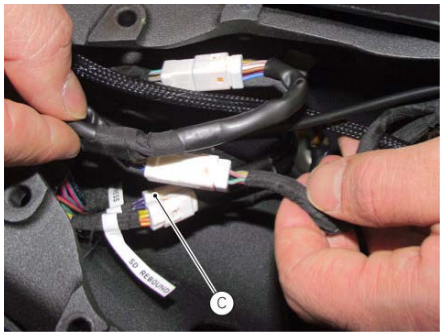


Fit the shock absorber cover (A) and first insert tab in vibration damper on electric component left-hand support (B). Then move cover down, fully home. Fit cover pins (A) in vibration dampers on electric component left-hand support (B).

Note
In case of problems when fitting the tab and pins on the vibration dampers, it is recommended to use specified lubricant, and apply some on the tab and pins.



Connect connectors (C) for rear shock absorber compression and rebound.

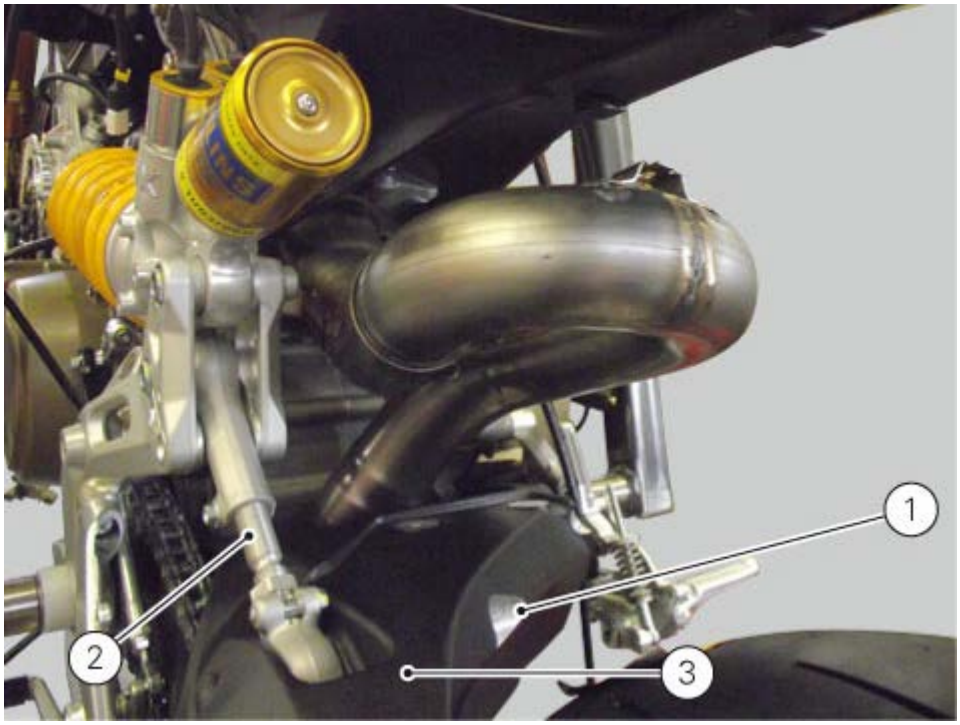


Refit the rear subframe and swinging arm supports.
Refit the rider seat (Installation of the rider seat).
Refit the fairings (Refitting the side fairings).

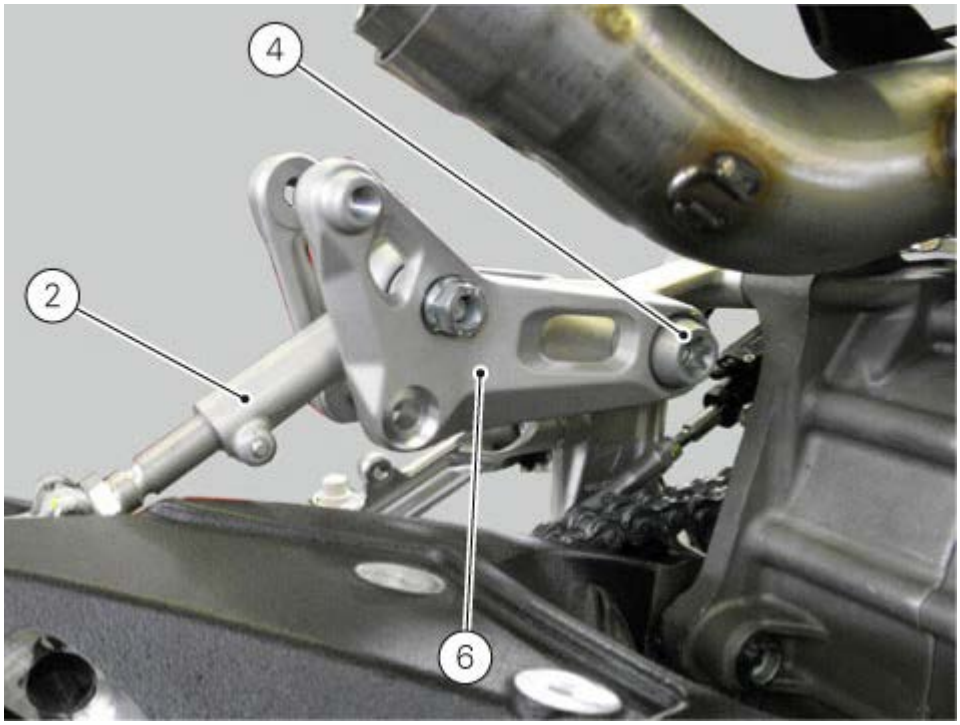
http://www.ducati-manuals.com
no. 140312

Removal of the rocker arms-linkage

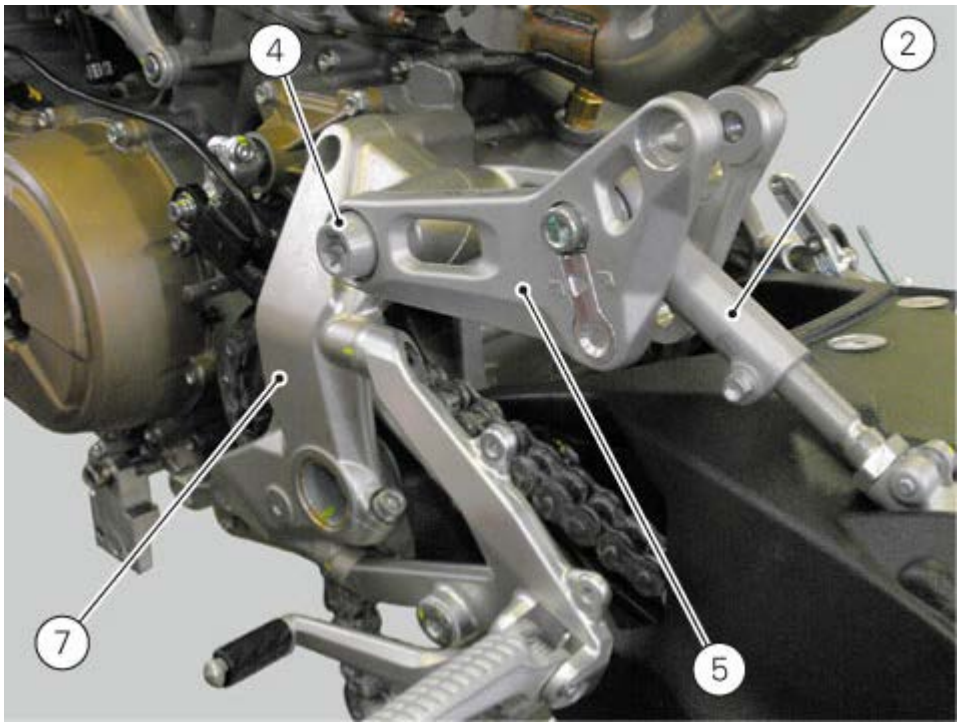
Remove the fairings (Removal of the side fairings).
Duly support the rear subframe and the swinging arm.
The assembly made of shock absorber-rocker arms-linkage supports the whole rear end.
Remove the rear shock absorber (Removal of the rear shock absorber).
Loosen the screw (1) securing linkage (2) to swinging arm (3).



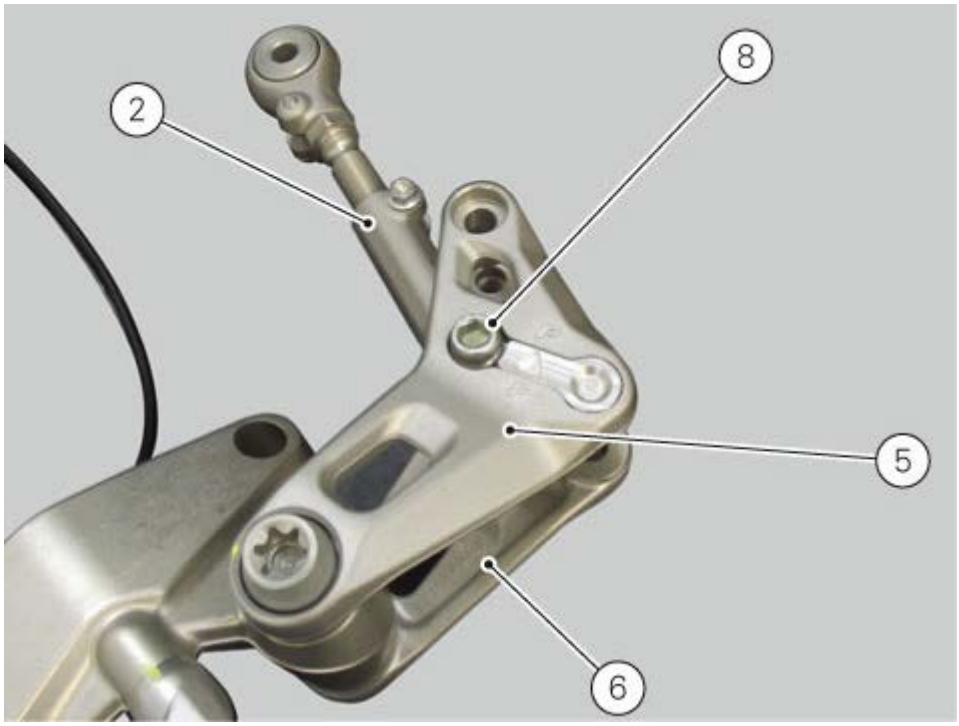
Loosen the screws (4) fastening the left (5) and right (6) rocker arm halves to the left-hand side footrest assembly (7).
Remove the rocker arm halves (5) and (6), and linkage (2).



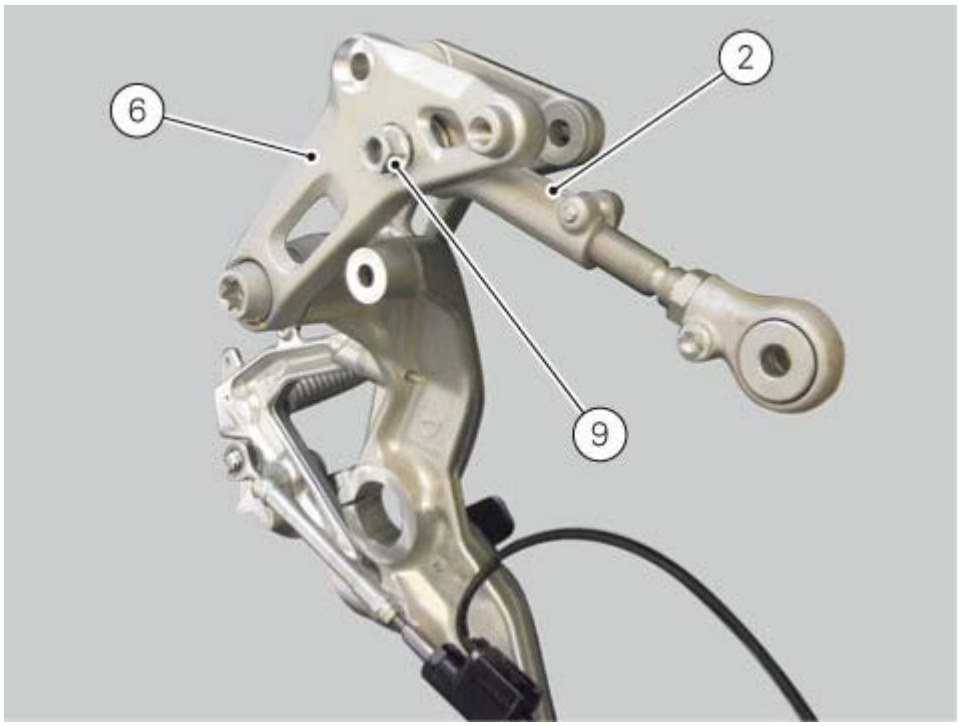
http://www.ducati-manuals.com
no. 140312



Loosen screw (8) and nut (9) to disassemble left (5) and right (6) rocker arm halves from linkage (2).



http://www.ducati-manuals.com
no. 140312

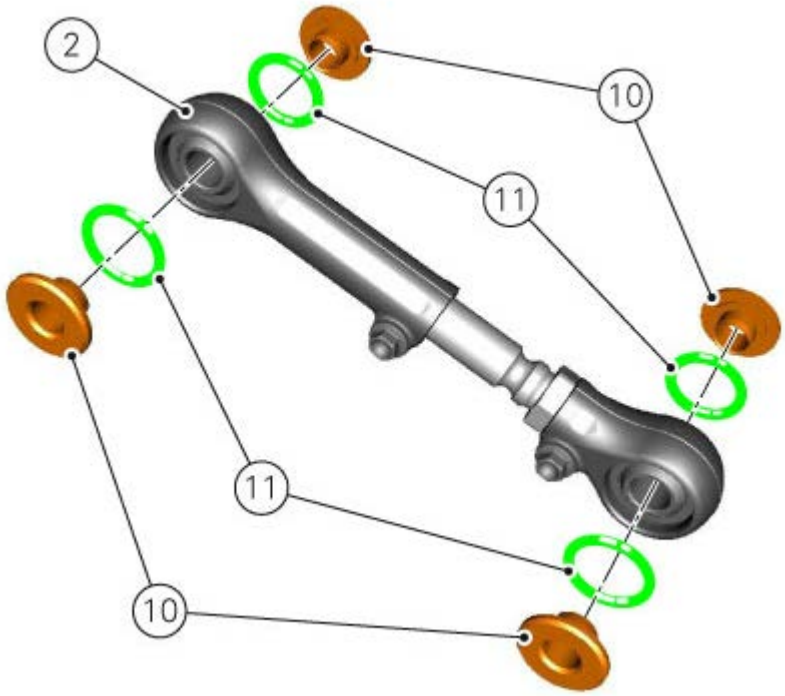


http://www.ducati-manuals.com
no. 140312

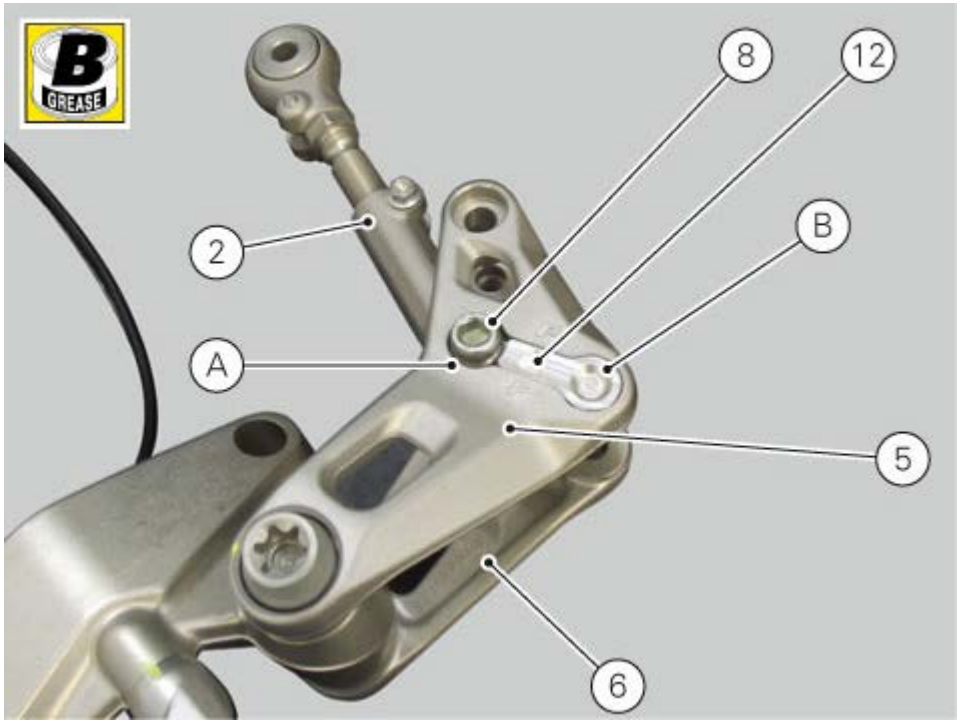
Refitting the rocker arms-linkage

If linkage (2) was disassembled, fit the spacers with collar (10) fully home, on linkage (2), setting O-rings (11) between spacers and linkage.

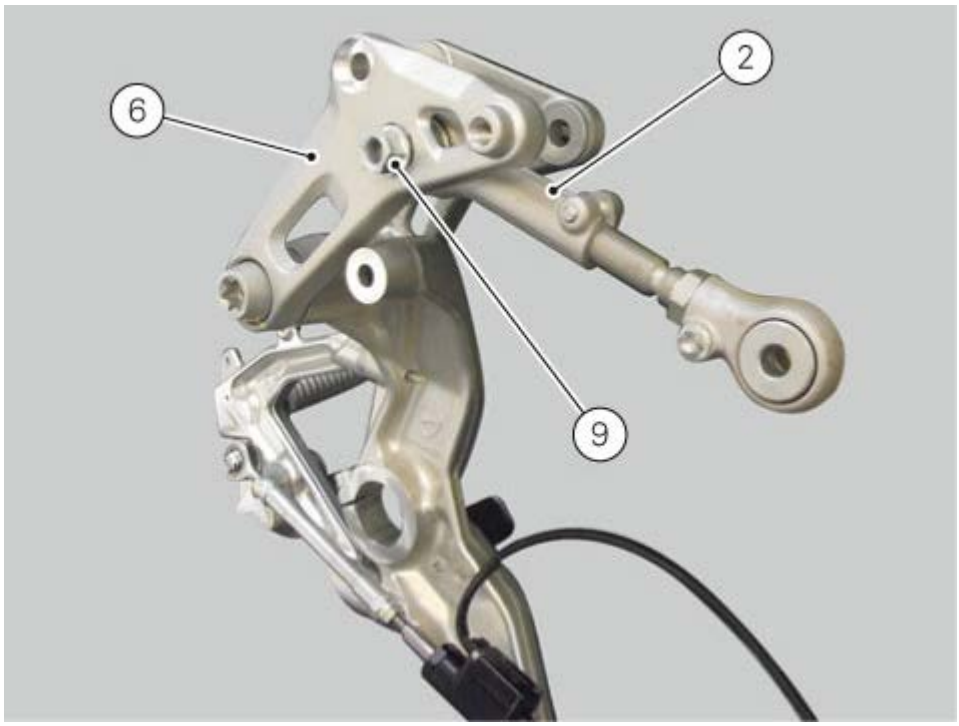
Warning
While driving the spacers (10), make sure that O-rings (11) are not pinched or damaged.



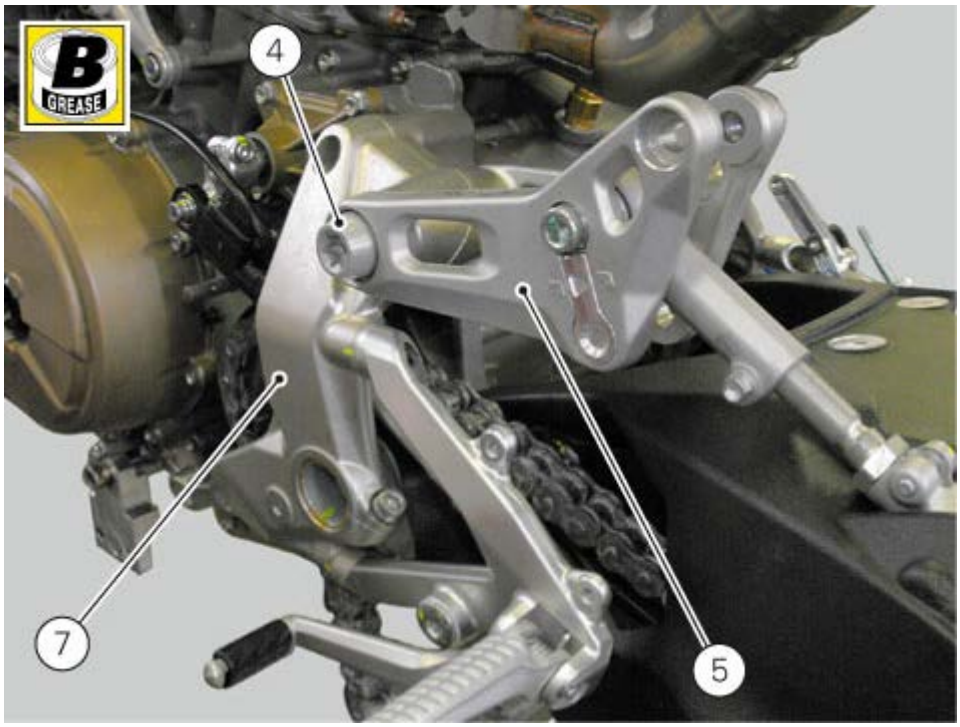
Fit linkage (2) to the rocker arm halves (5) and (6). Start screw (8). Apply recommended grease to the screw thread (8). Start nut (9) and tighten the screw (8) to a torque of 45 Nm ± 5%.
For further details on position (A) or (B) of plate (12), screw (8) and nut (9), refer to paragraph "Changing the motorcycle track alignment".



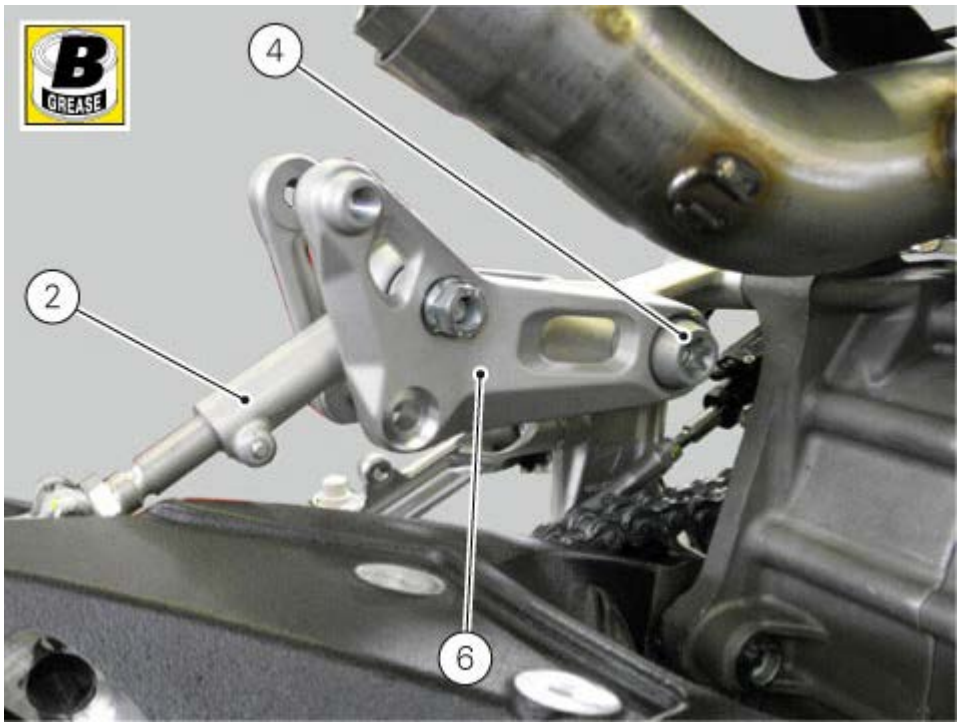
http://www.ducati-manuals.com
no. 140312



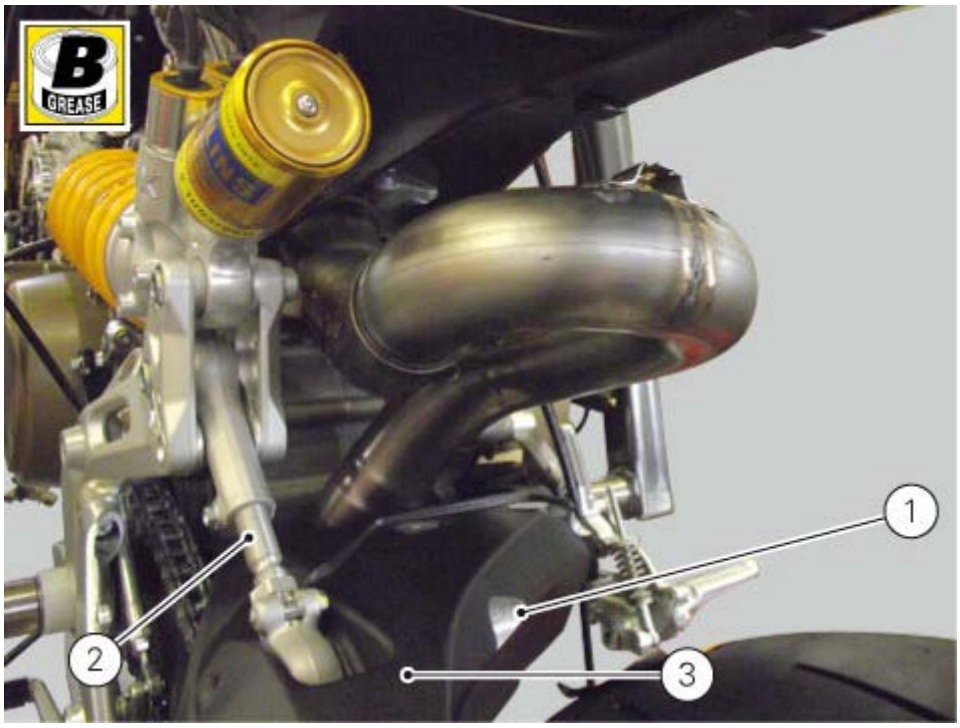
Set rocker arm halves (5) and (6) with linkage (2) on the LH footpeg assembly (7) and on swinging arm (3).
Apply the recommended grease to the screws (4). Start the screws (4) retaining the rocker arm to left-hand footpeg assembly (7).



http://www.ducati-manuals.com
no. 140312

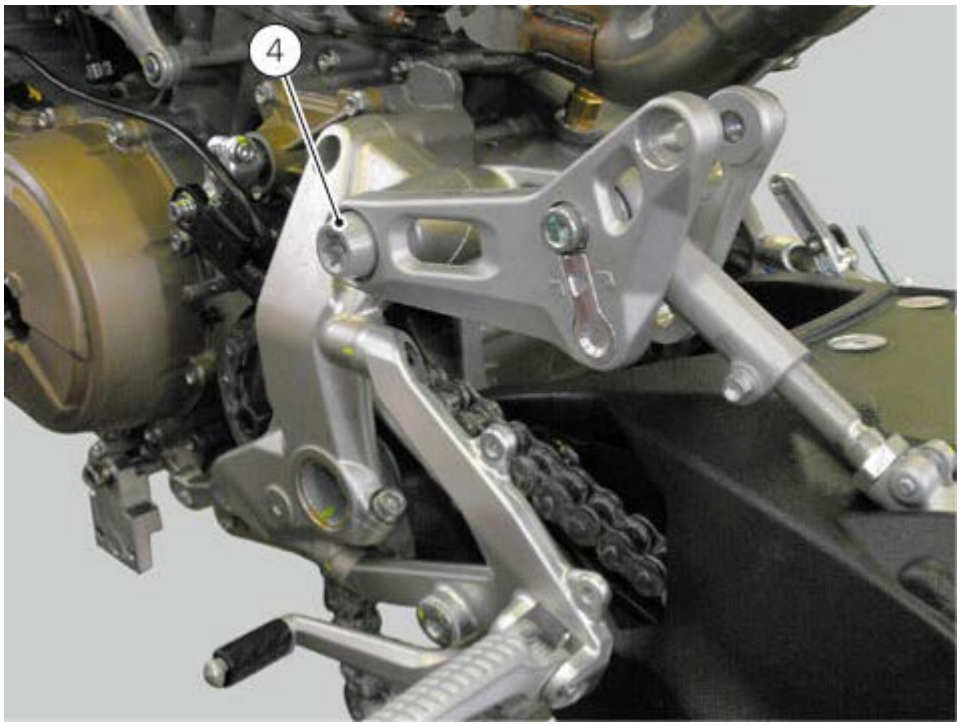


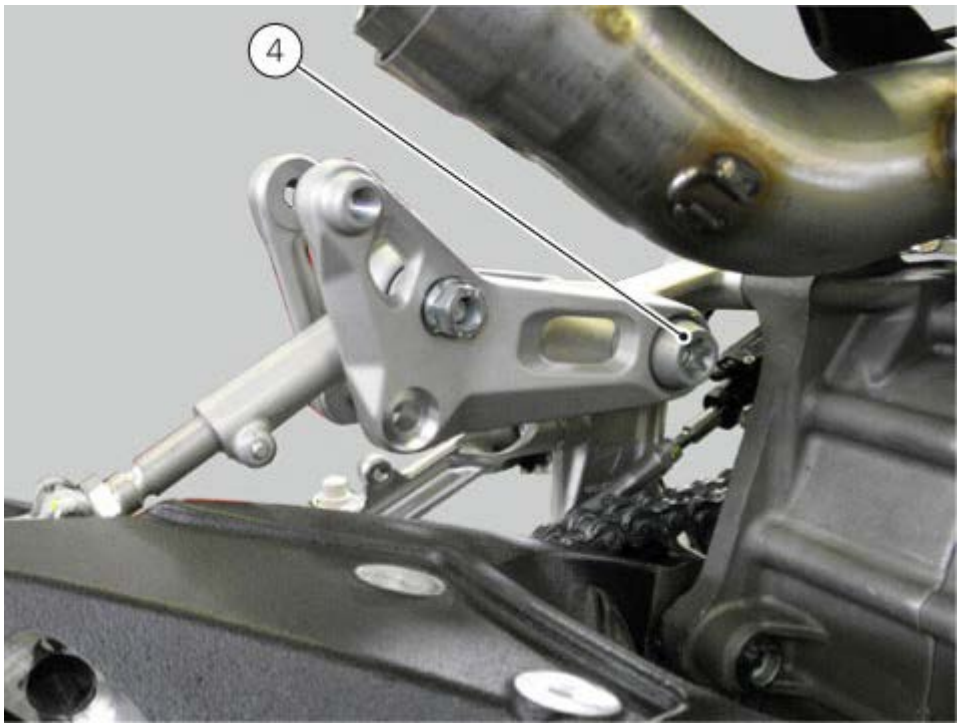
Apply recommended grease to the screw (1). Start the screw (1) securing linkage (2) to swinging arm (3).



Tighten screws (4) to a torque of 60 Nm ± 5%.
Tighten screw (1) to a torque of 45 Nm ± 5%.

http://www.ducati-manuals.com
no. 140312





Refit the rear shock absorber (Refitting the rear suspension (base)) and (Refitting the rear suspension (S)).
Refit the fairings (Refitting the side fairings).

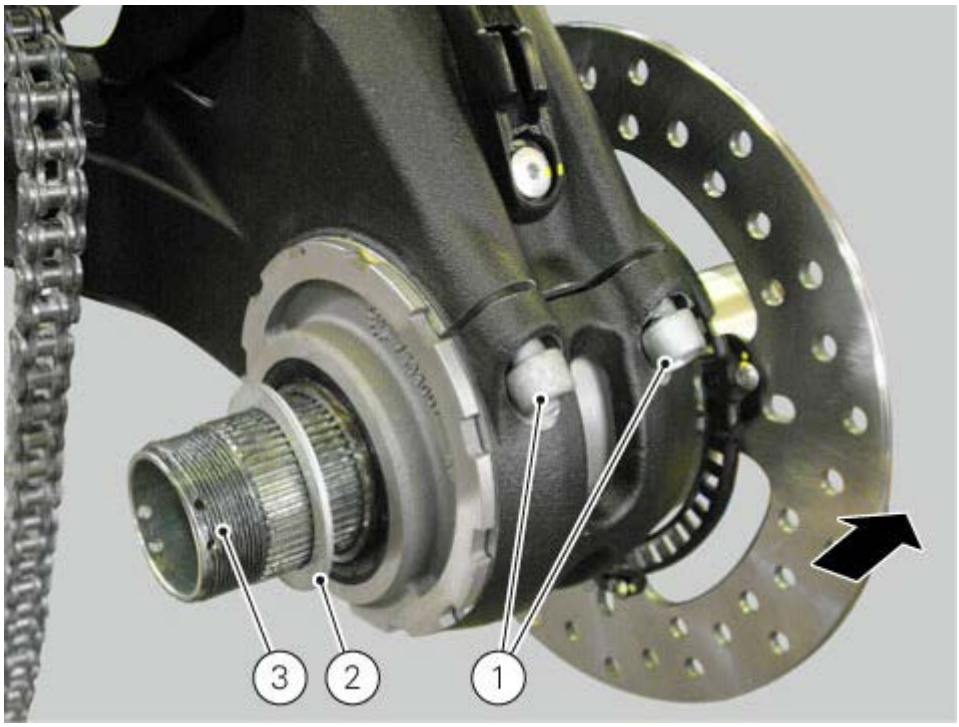
http://www.ducati-manuals.com
no. 140312

Removal of the rear wheel shaft and hub

Remove the rear wheel (Removal of the rear wheel).

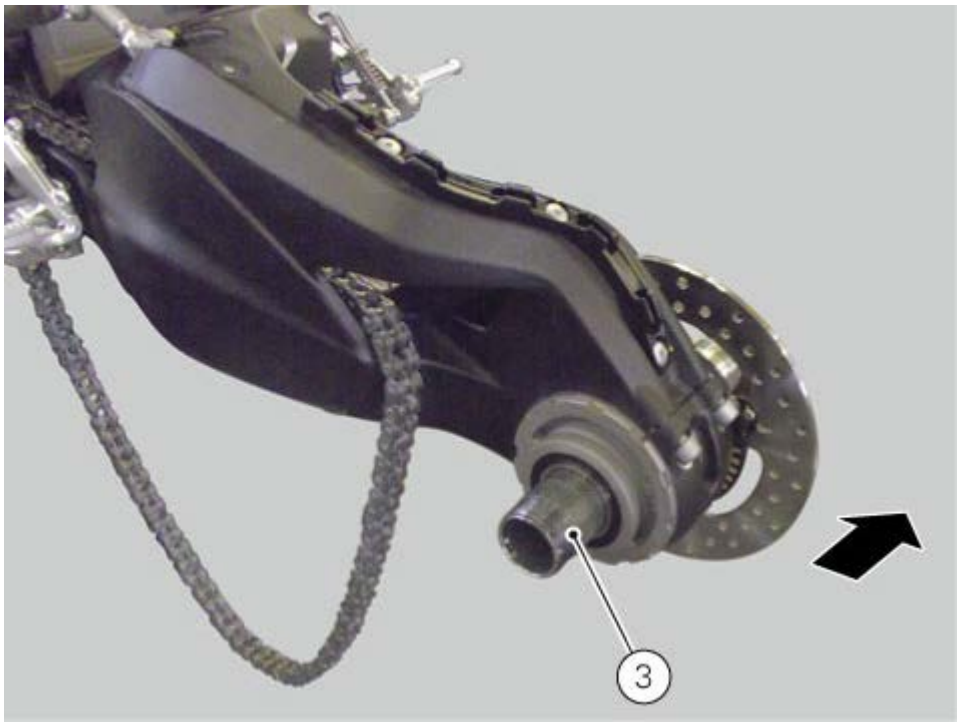


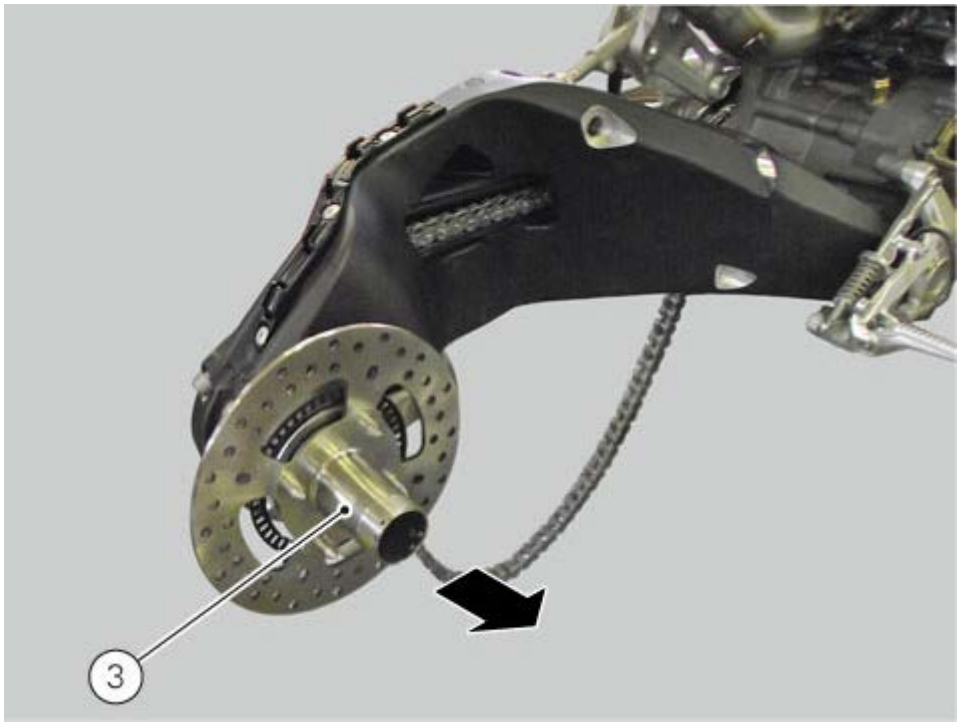
Remove rear sprocket and chain (Replacement of the rear sprocket).
Loosen the two screws (1).
Slide out the spacer (2) from wheel shaft (3).



Slide out wheel shaft (3) with brake disc.

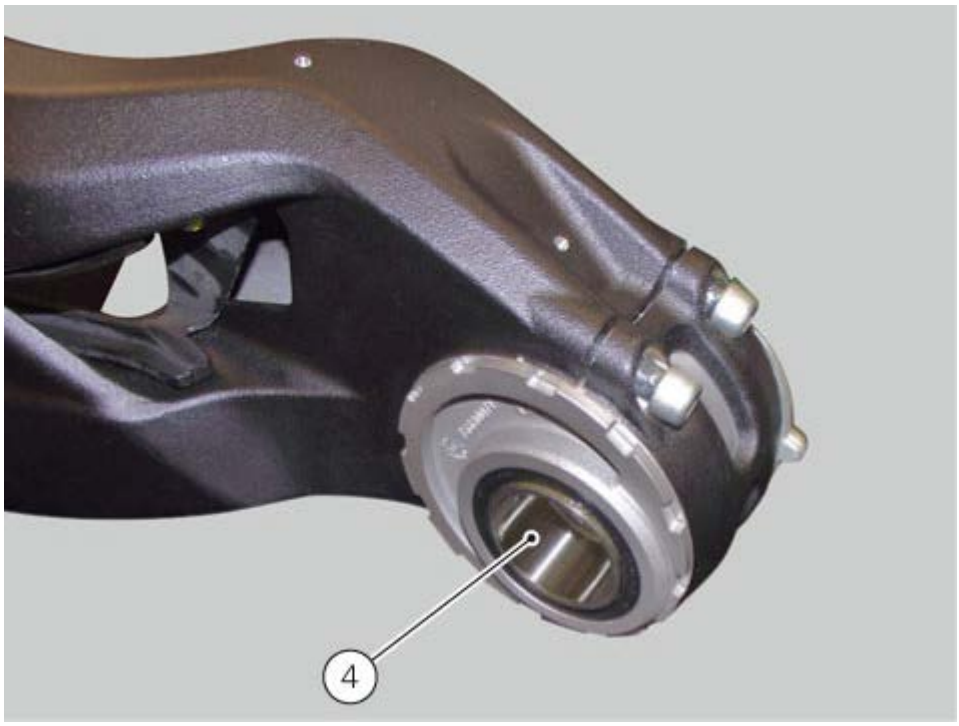
http://www.ducati-manuals.com
no. 140312



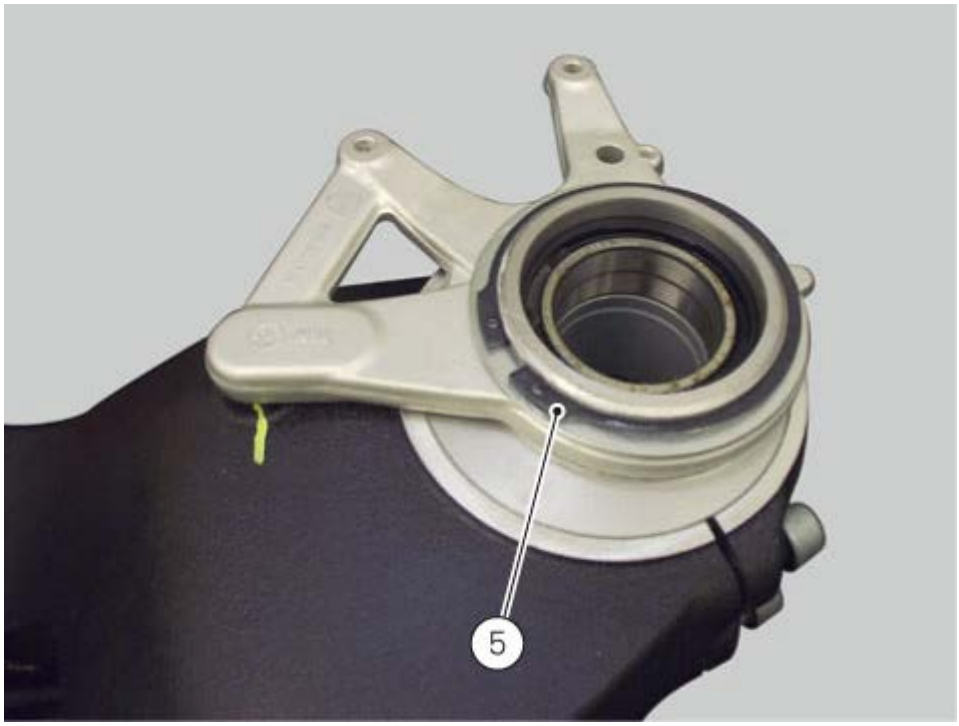


Remove the internal bush (4).

http://www.ducati-manuals.com
no. 140312



Remove the circlip (5).



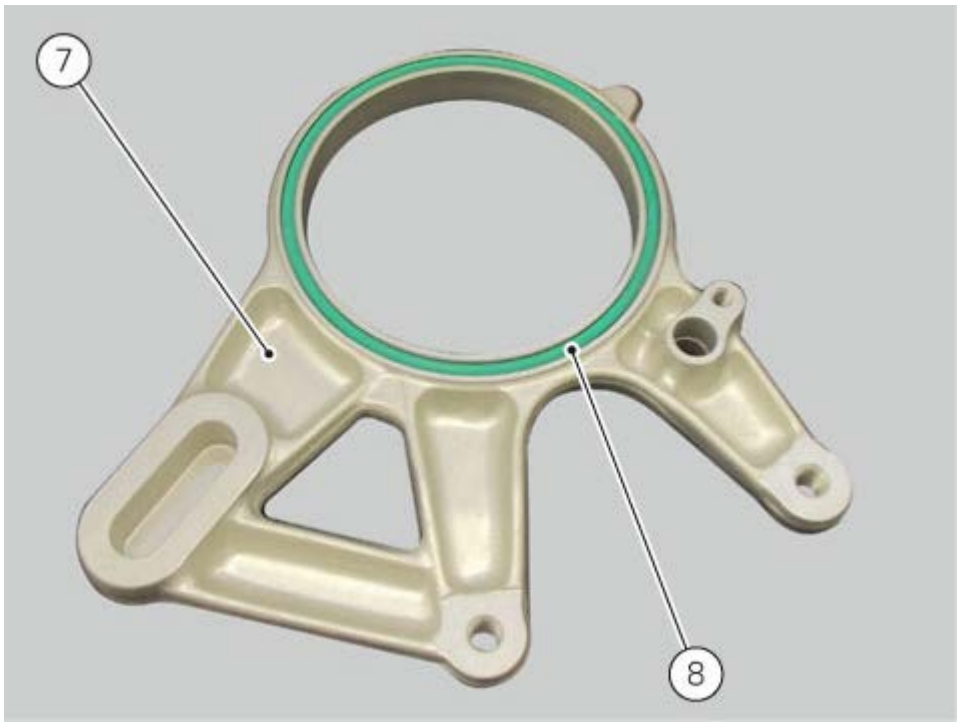
Remove washer (6), calliper holder plate (7) with O-rings (8) and the other washer (9).

http://www.ducati-manuals.com
no. 140312

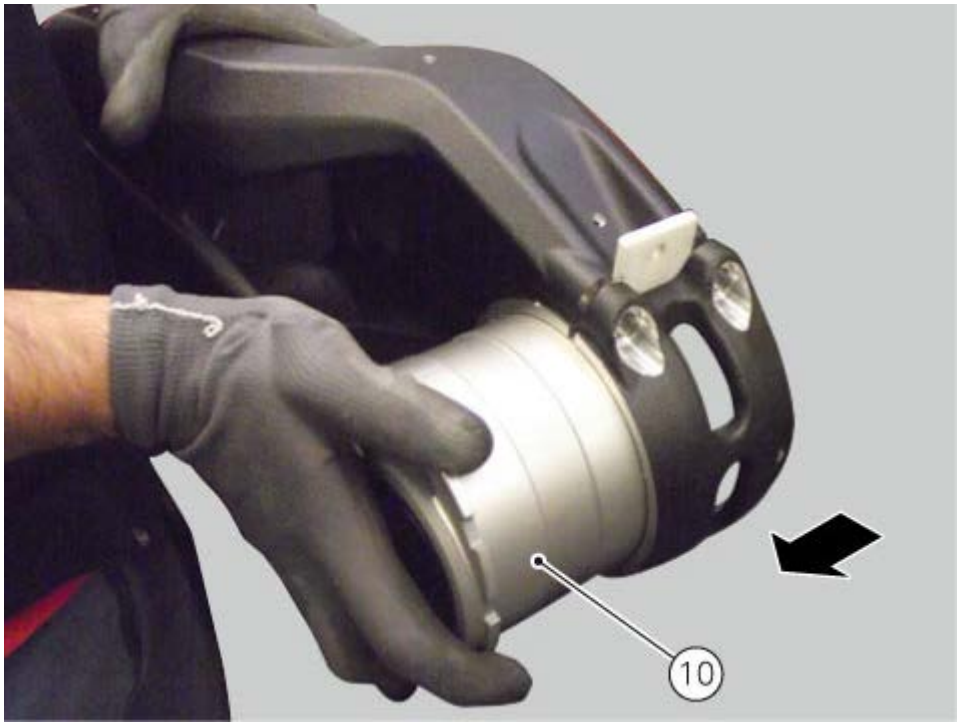




http://www.ducati-manuals.com
no. 140312



Slide out the eccentric hub (10) from swinging arm chain side.



Note

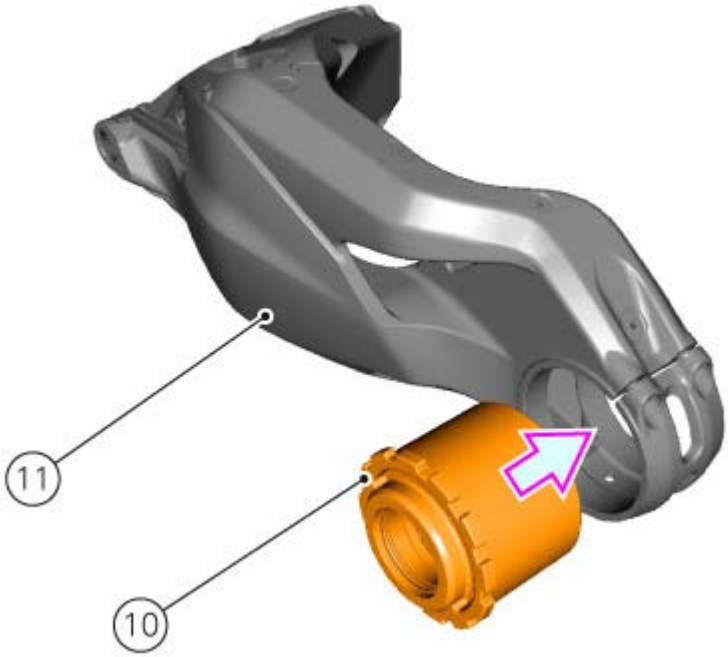
The rear hub is very important for vehicle dynamic safety; it is available as a single spare part since you must not service its internal parts.

http://www.ducati-manuals.com
no. 140312

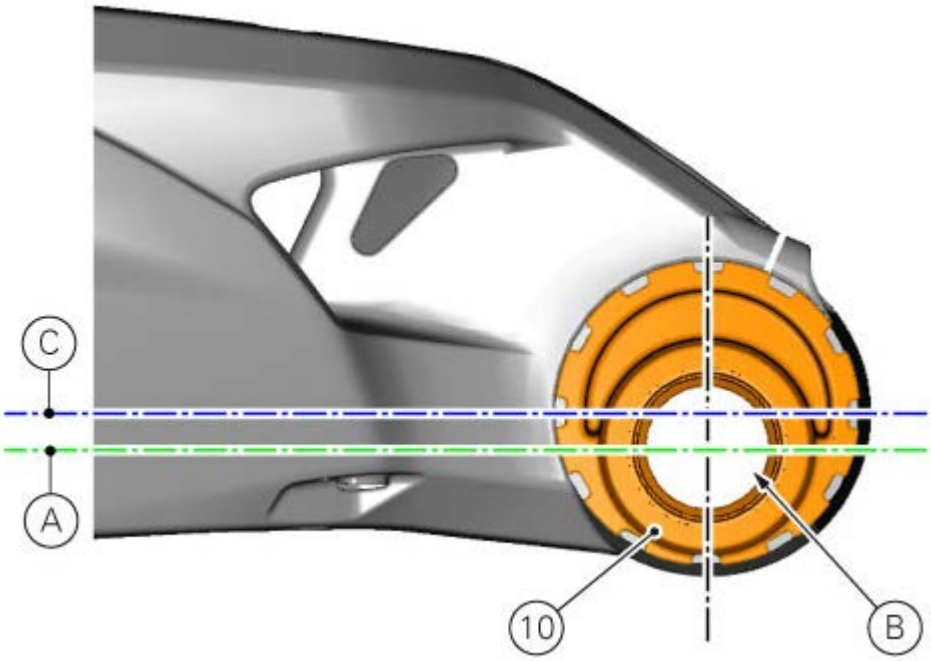
Installation of the rear wheel shaft and hub

Fit the eccentric hub (10) from swinging arm (11) chain side, and push it fully home.

Note
During the procedure it is necessary to open hub seat on swinging arm out just as much as necessary to allow hub (10) insertion.

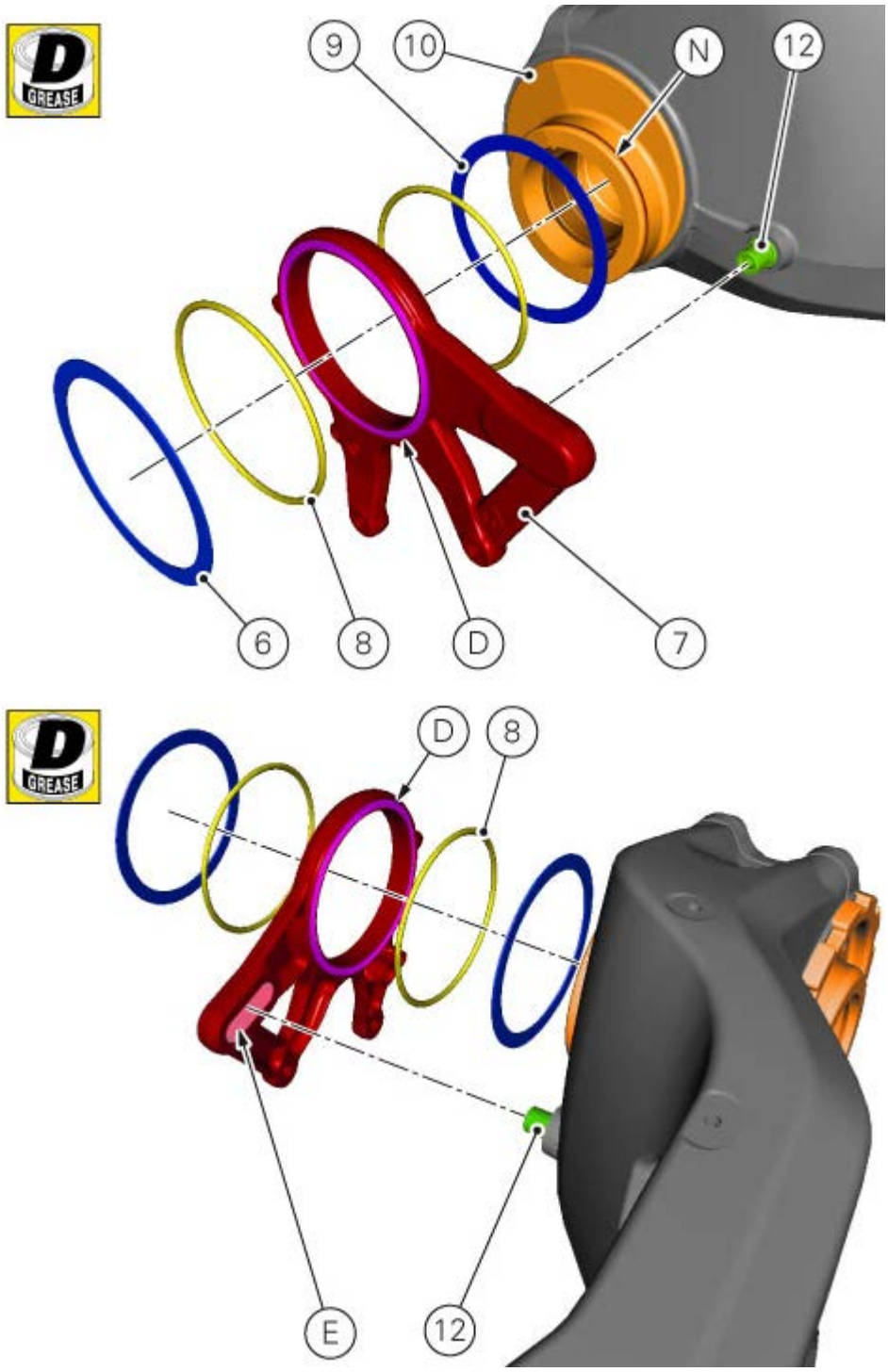


Turn eccentric hub (10) until taking the horizontal axis (A) of hub hole (B) below the horizontal axis (C) of hub seat, as indicated.



Smear specified grease on O-rings (8) and fit them in their seats (D) on calliper holder plate (7). Fit a washer (9) on eccentric hub (10). Fit calliper holder plate (7) on eccentric hub (10), making sure to align the pin preventing rotation of calliper holder plate (12) with the dead hole (E) on calliper holder plate (7), as indicated. Fit another washer (6) on eccentric hub (10).

http://www.ducati-manuals.com
no. 140312

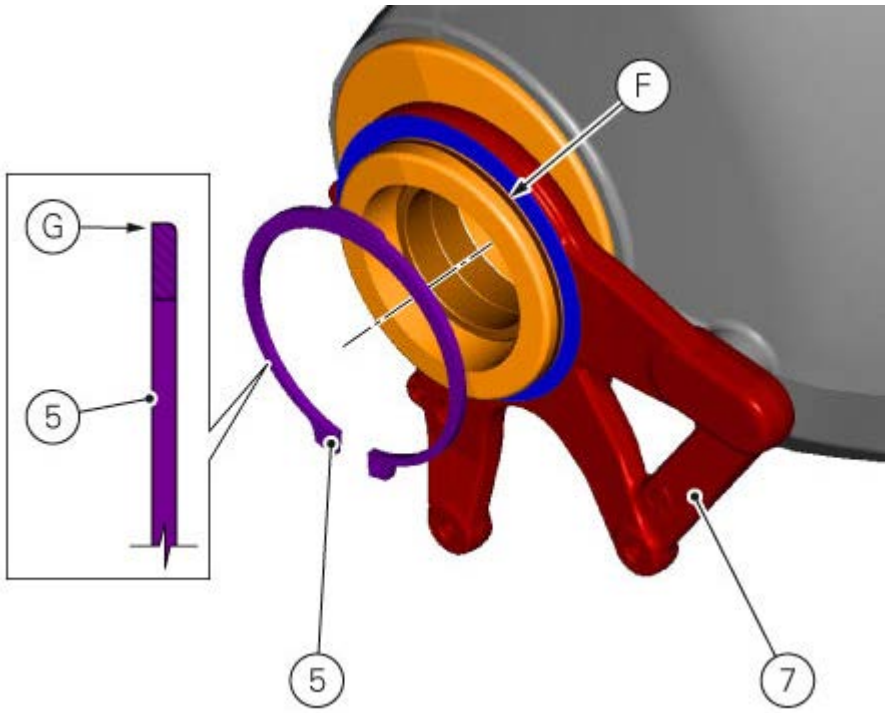


Fasten the calliper holder plate (7) by installing the circlip (5) in the relevant groove (F) on hub (10). Circlip (5) must be positioned with sharp edge (G) outward.

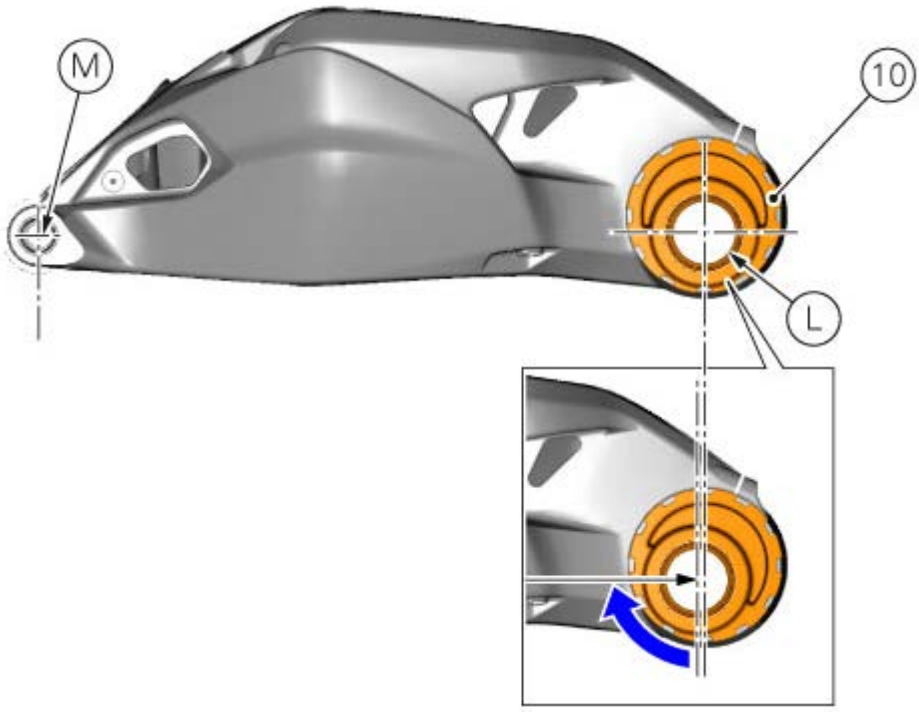
Note

Once this operation is completed, visually check that circlip is perfectly inserted in groove (F).

http://www.ducati-manuals.com
no. 140312

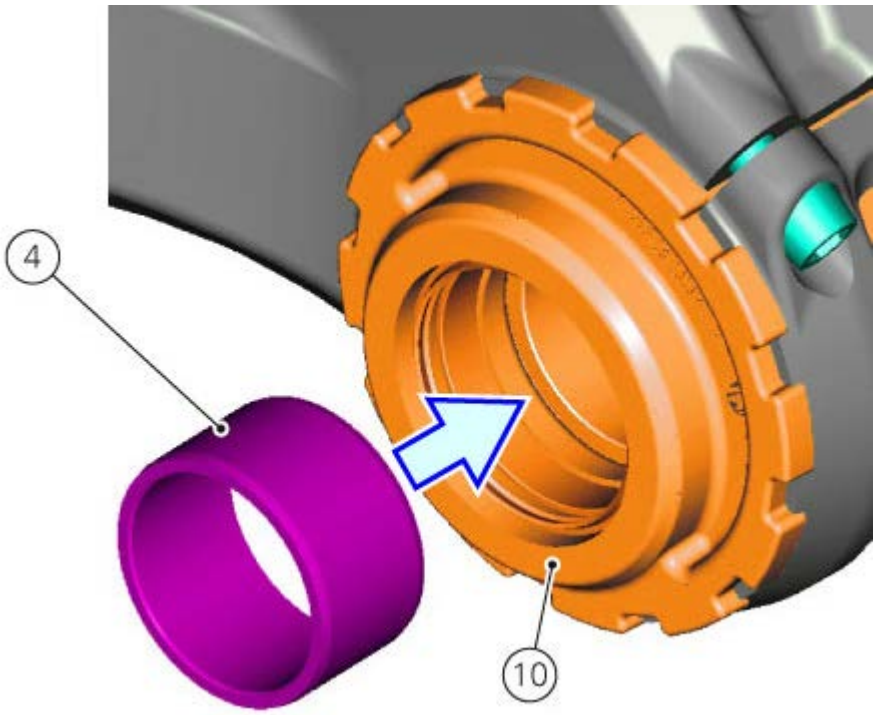


Turn eccentric hub (10) clockwise and fully home, thereby finding the minimum centre distance (H) between hub hole (L) and swingarm shaft hole (M).

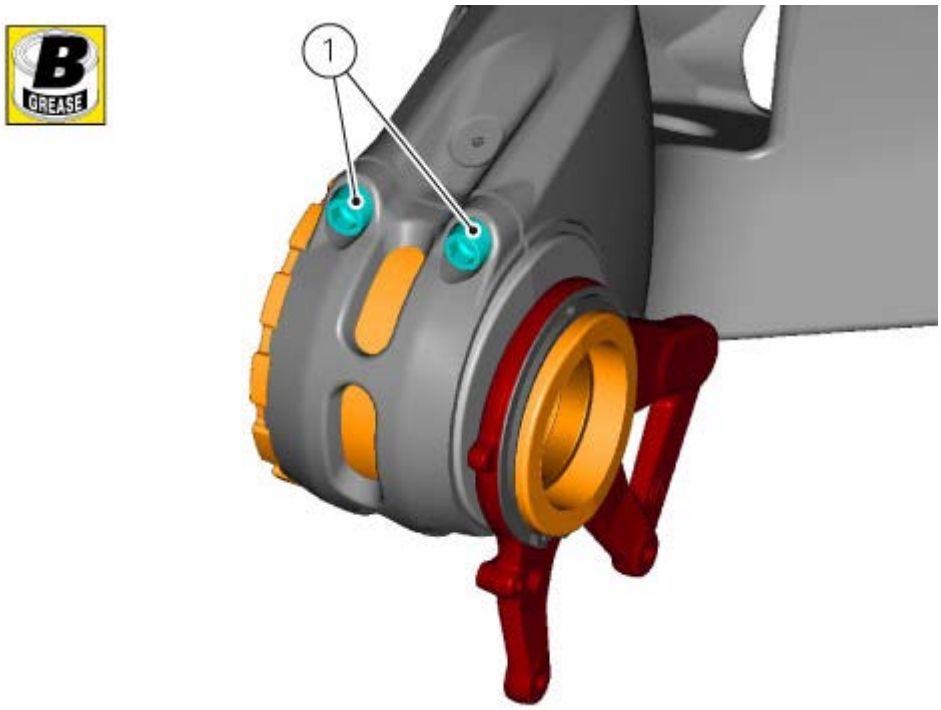


Fit bush (4) on eccentric hub (10).

http://www.ducati-manuals.com
no. 140312



Smear specified grease on thread and underside of screws (1); start and do them finger tight (do not fully tighten yet). Loosen screws (1) by approximately 120°.

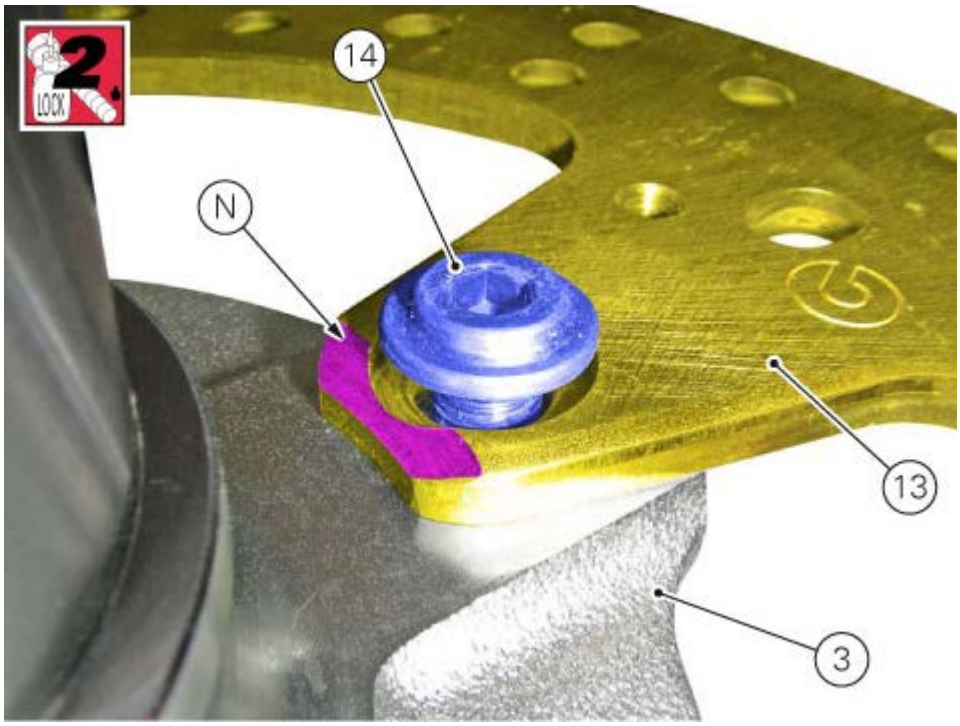


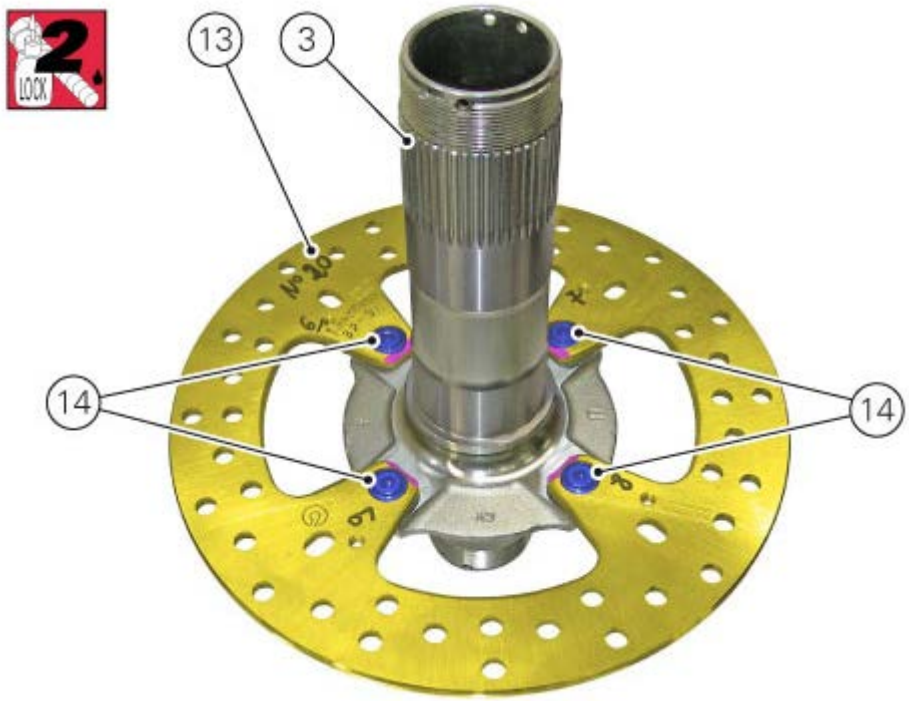
If the rear wheel shaft assembly has been disassembled, fit the brake disc (13) to rear wheel shaft (3), setting it with chamfer (N) face up.
Fasten brake disc (13), start screws (14) after applying recommended threadlocker.

Note
Pay attention to align screw heads to the corresponding seats on brake disc.

Tighten the screws (14) to a torque of 25 Nm ± 10%, in a cross pattern.

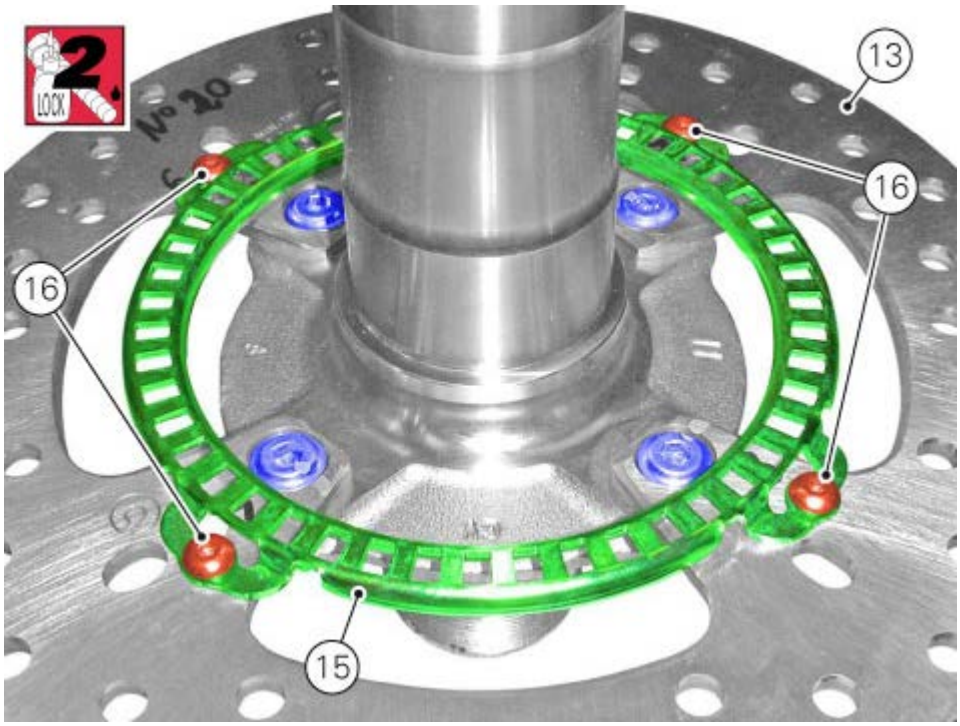
http://www.ducati-manuals.com
no. 140312



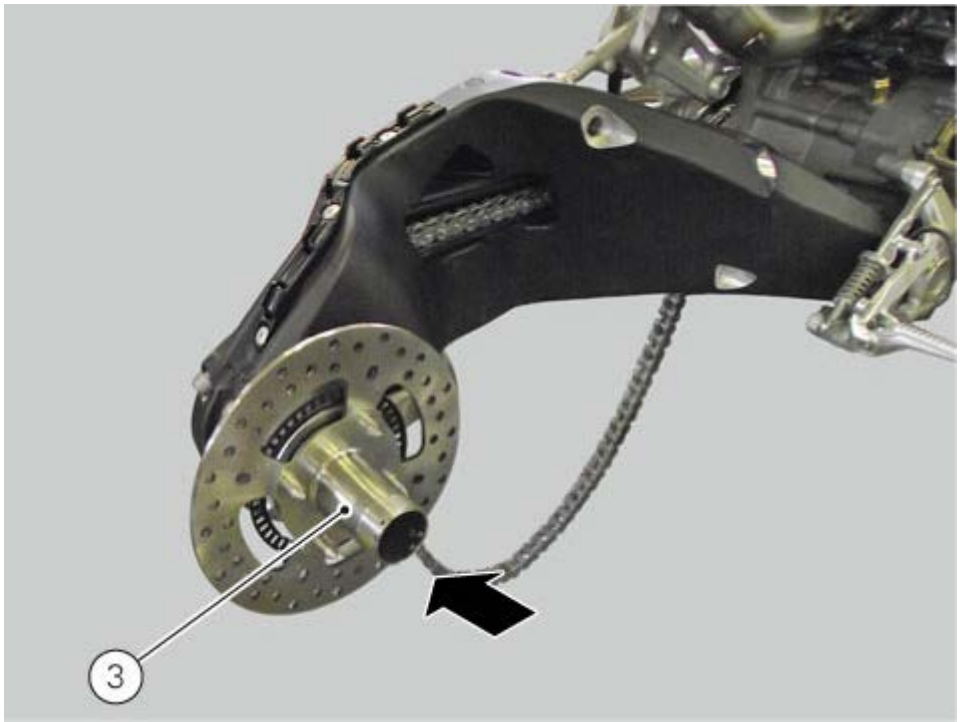


Fit the pick-up wheel (15) to brake disc (13). Fasten pick-up wheel (15), start screws (16) after applying recommended threadlocker.
Tighten the screws (16) to a torque of 5 Nm ± 5%, in a cross pattern.

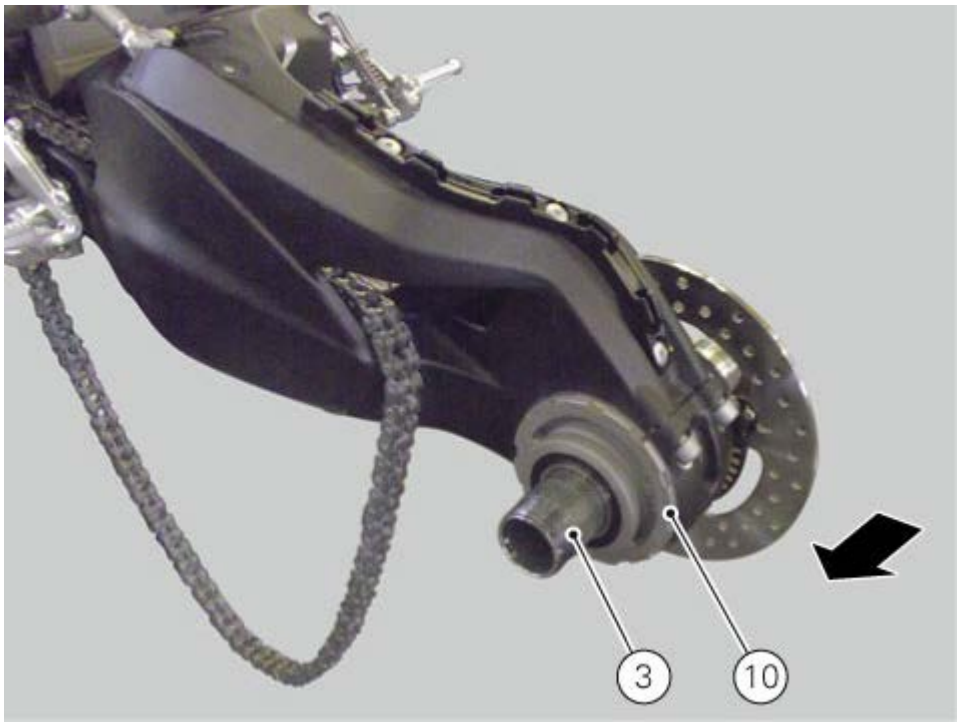
http://www.ducati-manuals.com
no. 140312



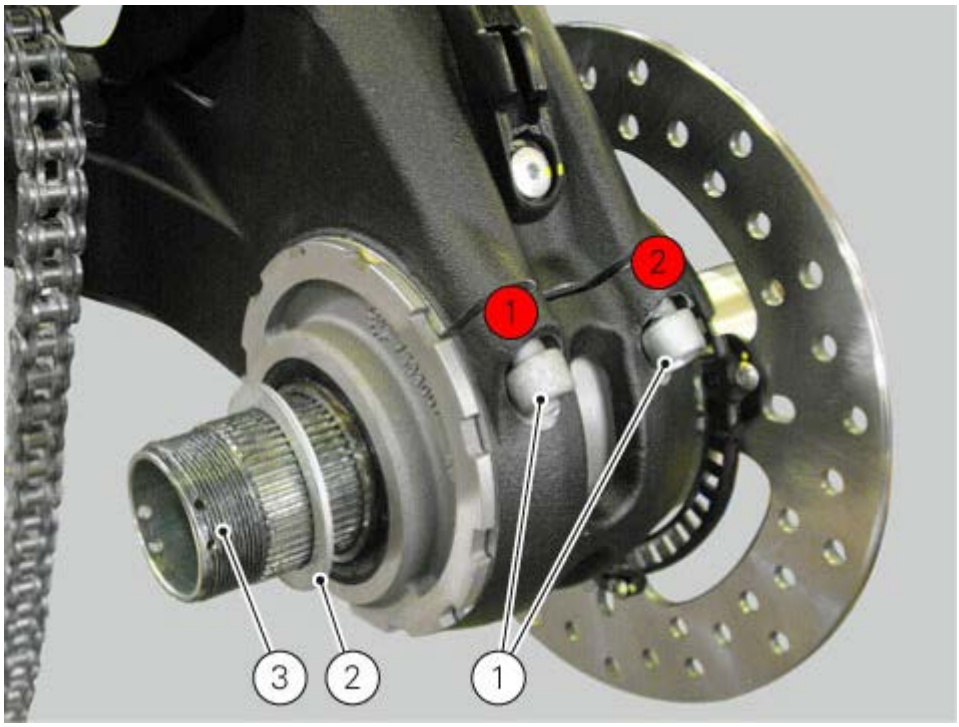
Fit the rear wheel shaft assembly (3) to hub and set shaft fully home into hub (10).



http://www.ducati-manuals.com
no. 140312



Fit the spacer (2) to wheel shaft (3).
Tighten the screws (1) to 25 Nm ± 5%, following a 1-2-1 sequence.



Refit the rear wheel (Installation of the rear wheel).
Refit rear sprocket and chain (Installation of the rear sprocket).
Tension the chain (Adjustment of chain tension).

http://www.ducati-manuals.com
no. 140312



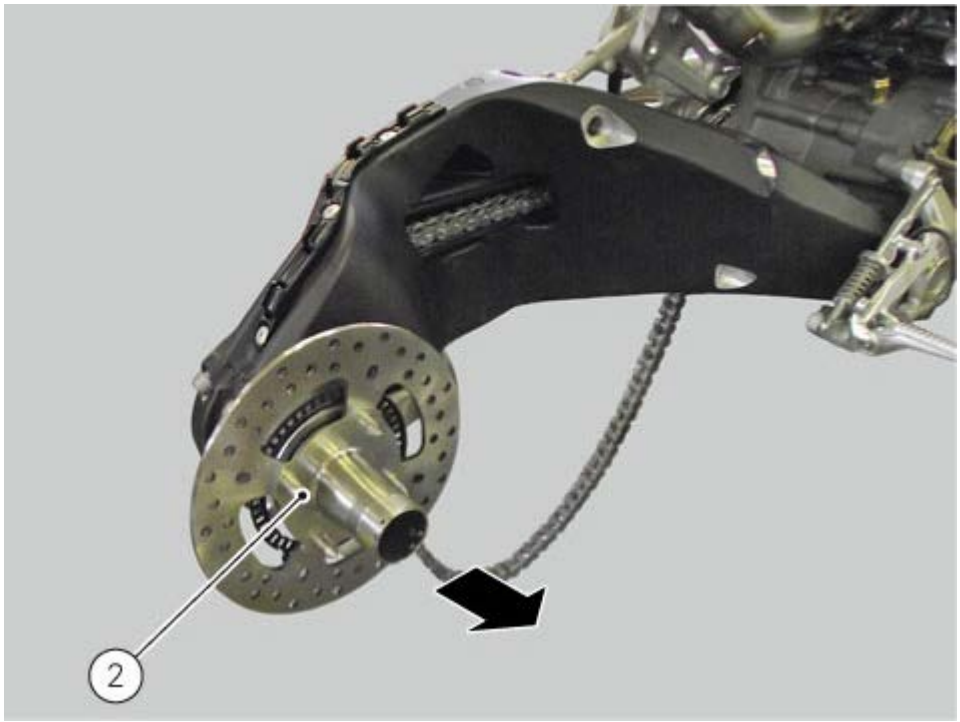
http://www.ducati-manuals.com
no. 140312

Removal of the swinging arm

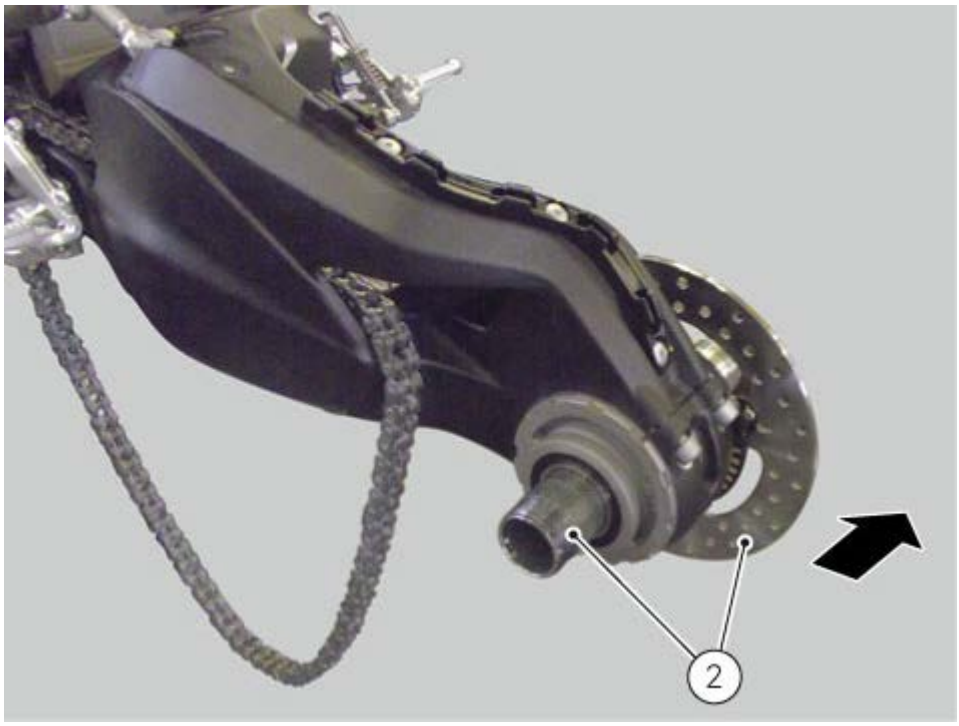
Remove the lower half-fairings (Removal of the side fairings).
Duly support the engine.
Remove the rear wheel (1) (Removal of the rear wheel).



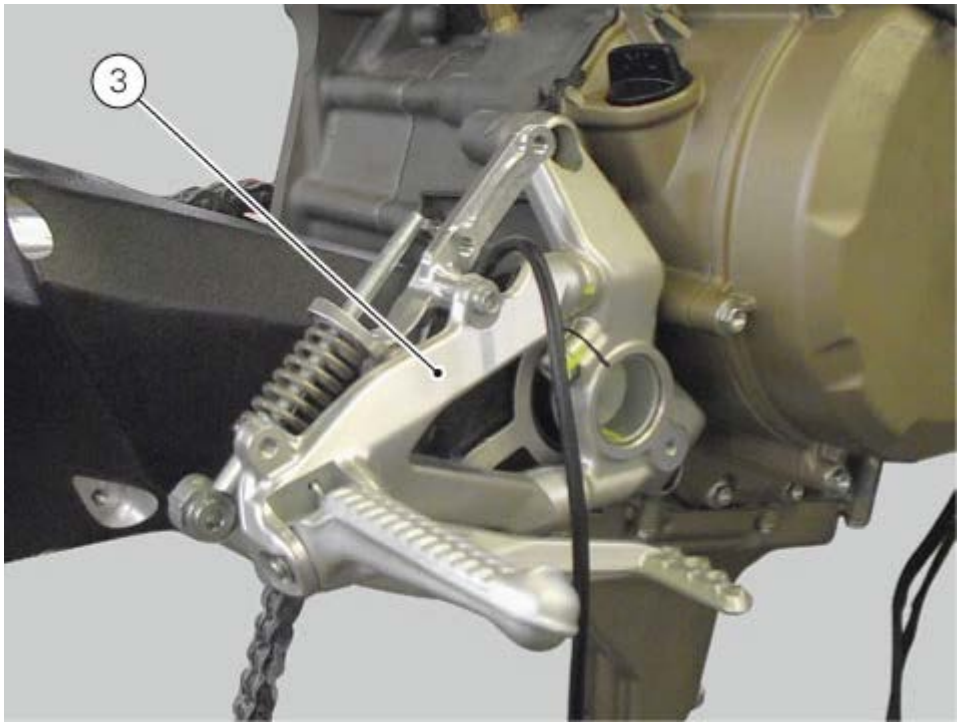
Remove rear sprocket and chain (Replacement of the rear sprocket).
Slide out and remove the rear wheel shaft assembly (2) (Removal of the rear wheel shaft and hub).



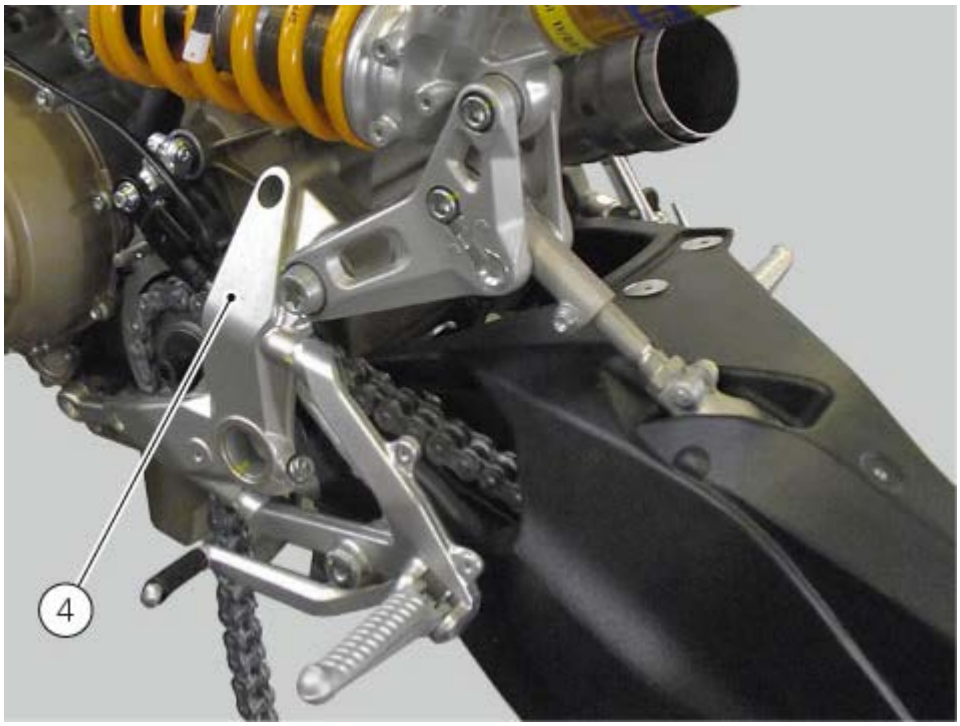
http://www.ducati-manuals.com
no. 140312



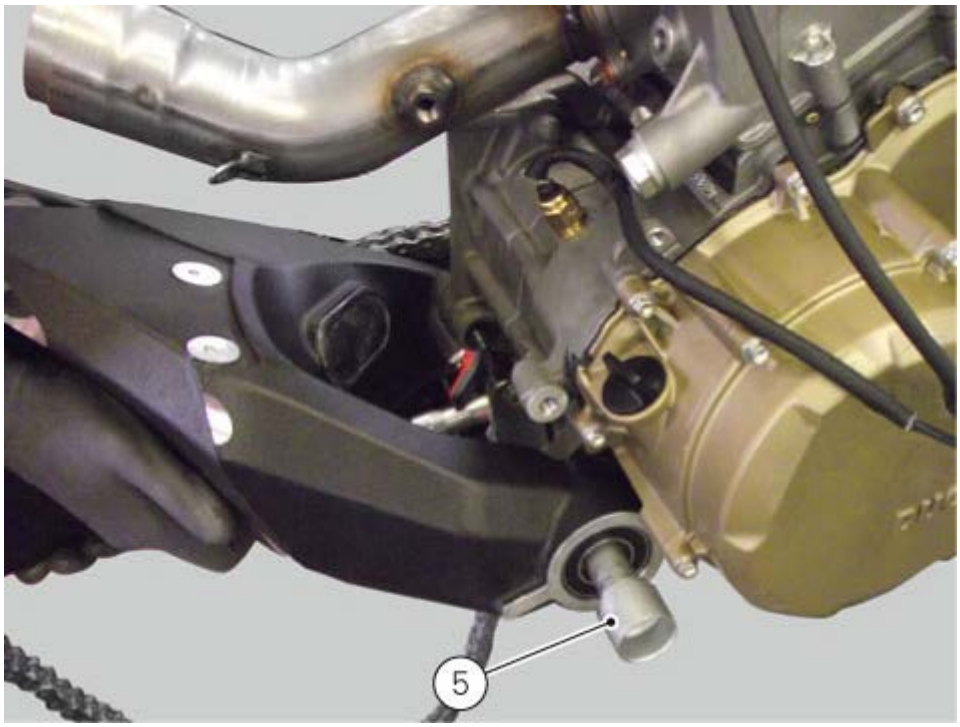
Remove right-hand footpeg holder plate (3) and left-hand footpeg holder plate (4) (Removal of the front footpeg plates).



http://www.ducati-manuals.com
no. 140312



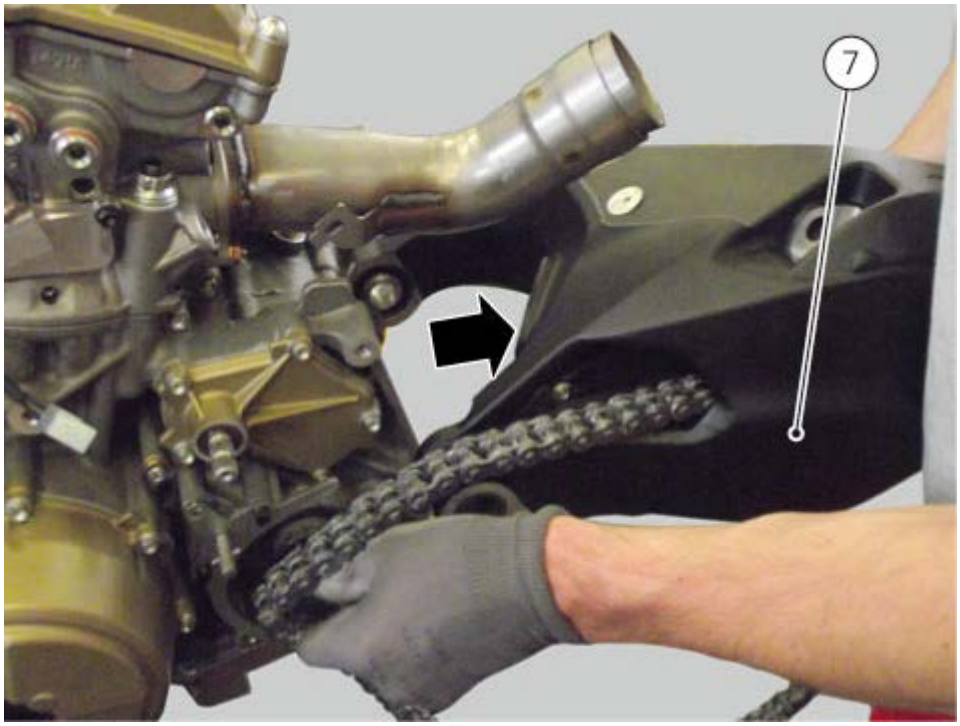
Loosen the right-hand swingarm shaft (5) on the right-hand side. Loosen the left-hand swingarm shaft (6) on the left-hand side. Slide out shafts from outside.



http://www.ducati-manuals.com
no. 140312



Remove swinging arm (7) from engine.



http://www.ducati-manuals.com
no. 140312



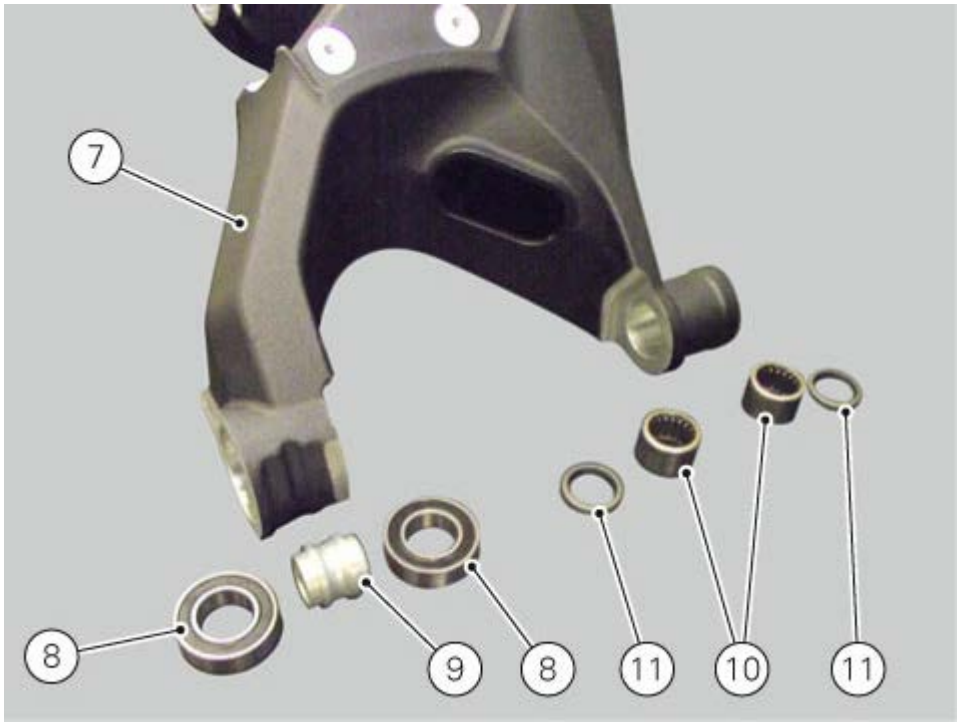
http://www.ducati-manuals.com
no. 140312

Overhaul of the swinging arm

Remove the swinging arm (7) (Removal of the swinging arm).



Two ball bearings (8) and an internal spacer (9) are present on the right-hand side and two needle roller bearings (10), with seals(11), are present on the left-hand side inside the swinging arm, at the pivot point on the frame.



Remove the ball bearings (8), seals (11) and needle roller bearings (10), using a suitable punch and a press. Duly support the swinging arm and pay utmost attention to avoid damaging the seats during removal of these parts.

Important

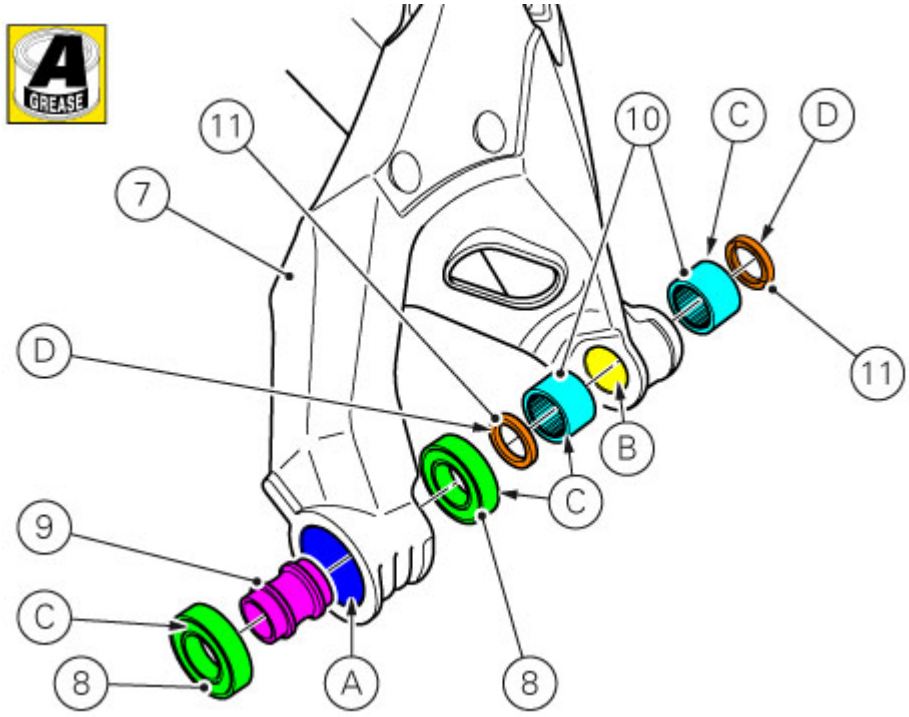
Once removed, the used bearings, seals and needle roller bearings must not be refitted.

To reassemble, evenly heat up the swinging arm at 150 °C and duly support it. Apply specified grease in seats (A) and (B) on the swinging arm (7). Install bearings (8) and internal spacer (9) into seat (A) and

http://www.ducati-manuals.com
no. 140312

install the roller bearings (10) and seals (11) in their seat (B).

Note
Bearings (8) and roller bearings (10) must be set in such a way that the side with "marks" (C) is facing out. Seals (11) must be set so that the flat side (D) is facing out.



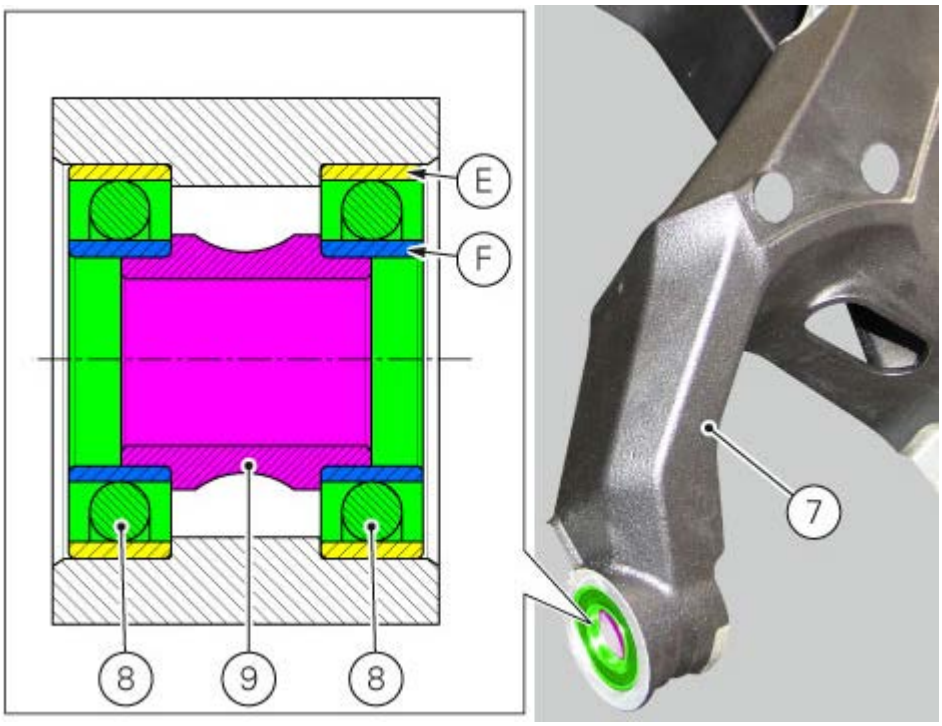
Fit the internal bearing (8), taking it fully home on swinging arm (7). Fit the spacer (9), taking it fully home on bearing inner ring (8). Fit the external bearing (8), taking it fully home on spacer (9).

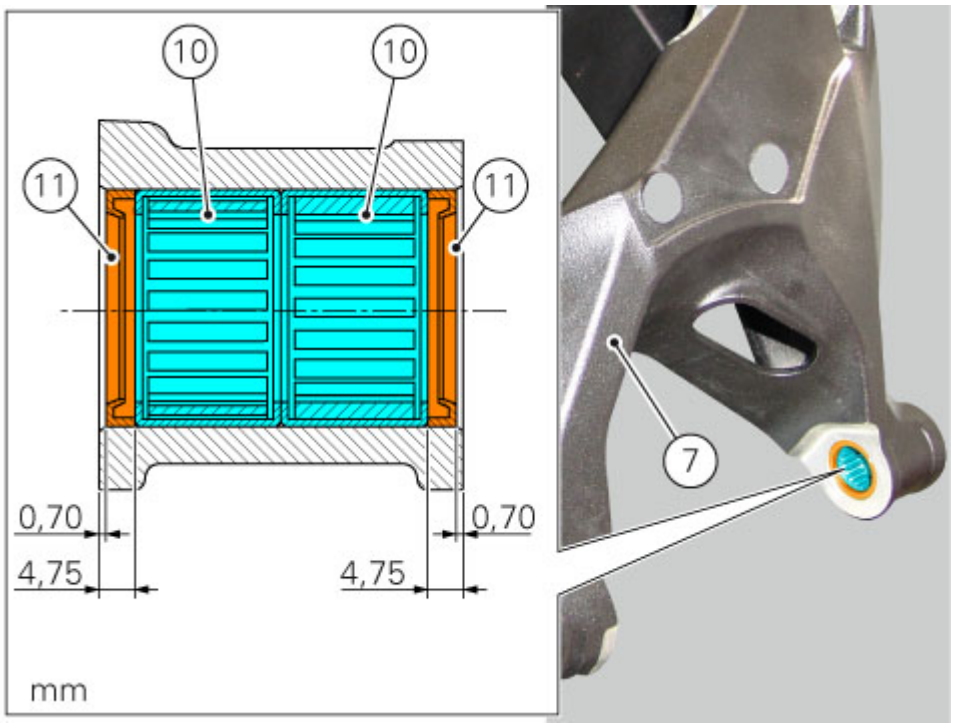
Note
Bearings (8) must be installed by applying pressure on the outer ring (E) rather than on the inner ring (F).

Important
After assembly, make sure that spacer (9) has no axial play.

Fit the roller bearings (10) onto swinging arm (7), complying with the indicated values.
Install seals (11), complying with the indicated values.

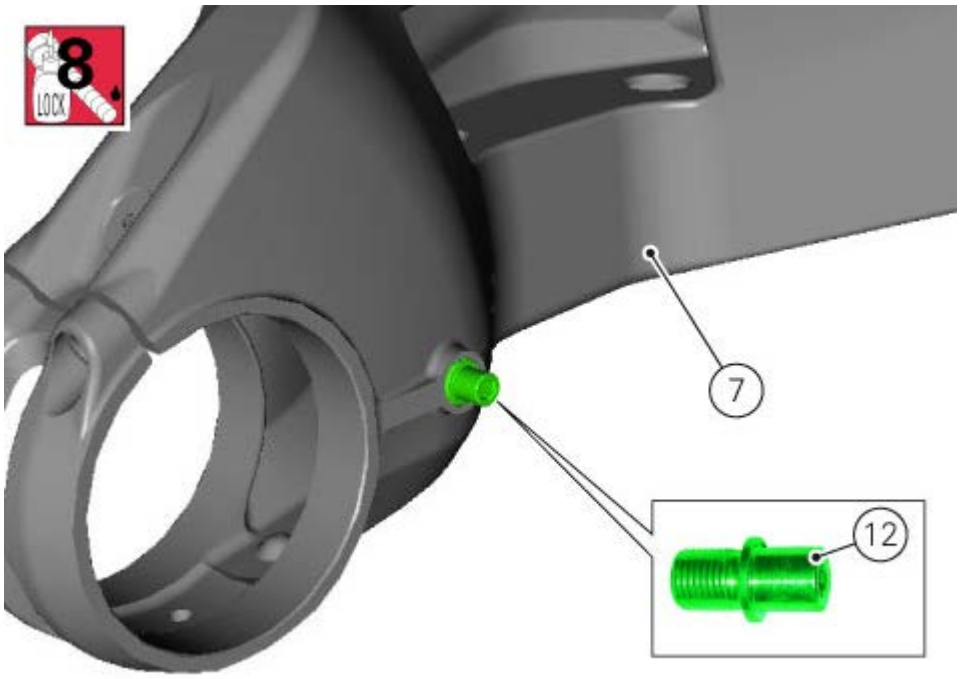
http://www.ducati-manuals.com
no. 140312



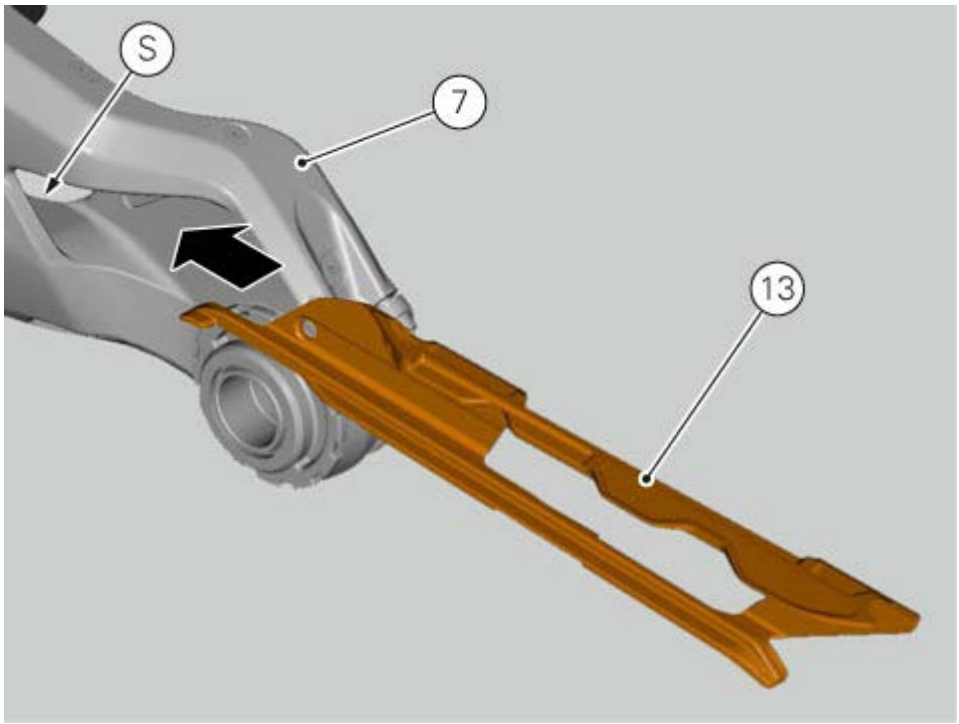


If the pin preventing rotation of calliper holder plate (12) was removed and will not be renewed, smear it with specified threadlocker. Start pin (12) onto swinging arm (7).
Tighten shaft (6) to a torque of 33 Nm ± 5%.

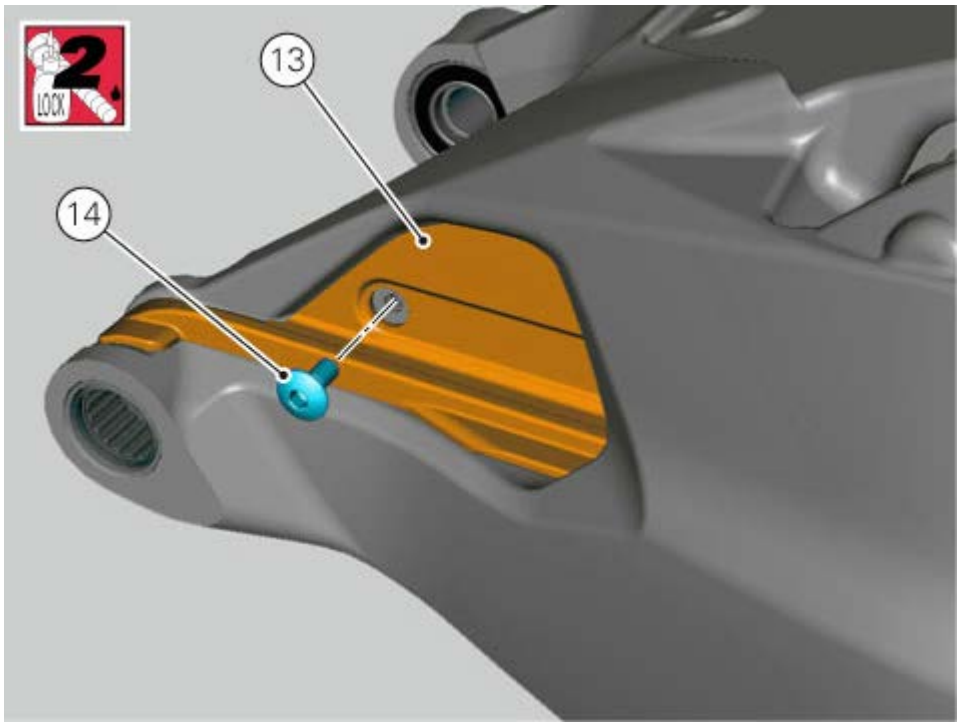
http://www.ducati-manuals.com
no. 140312



If it was removed, insert the top chain sliding shoe (13) in opening (S) on swinging arm (7) and take it in position.
Fasten top chain sliding show (13) at the front by starting screw (14). If this screw is not new, first smear thread with specified threadlocker.



http://www.ducati-manuals.com
no. 140312

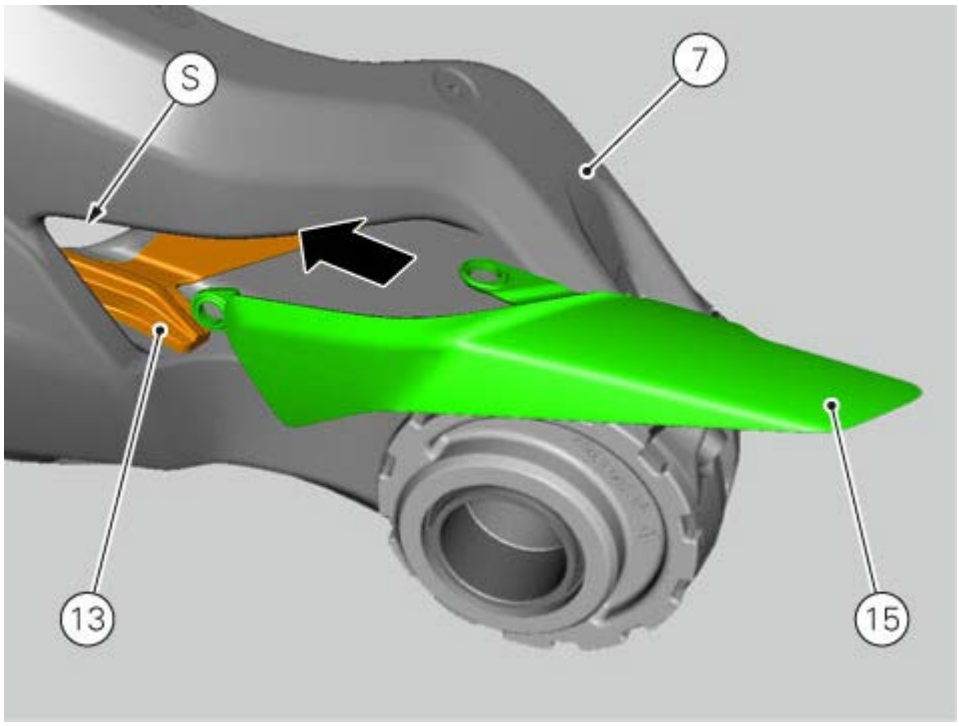


Insert the top chain splashguard (15) in opening (S) on swinging arm (7).
Fasten top chain splashguard (15), by starting screw (14) and screw (16). If these screws are not new, first smear thread with specified threadlocker.
Set top chain sliding show (13) fully home, pushing in the direction shown.

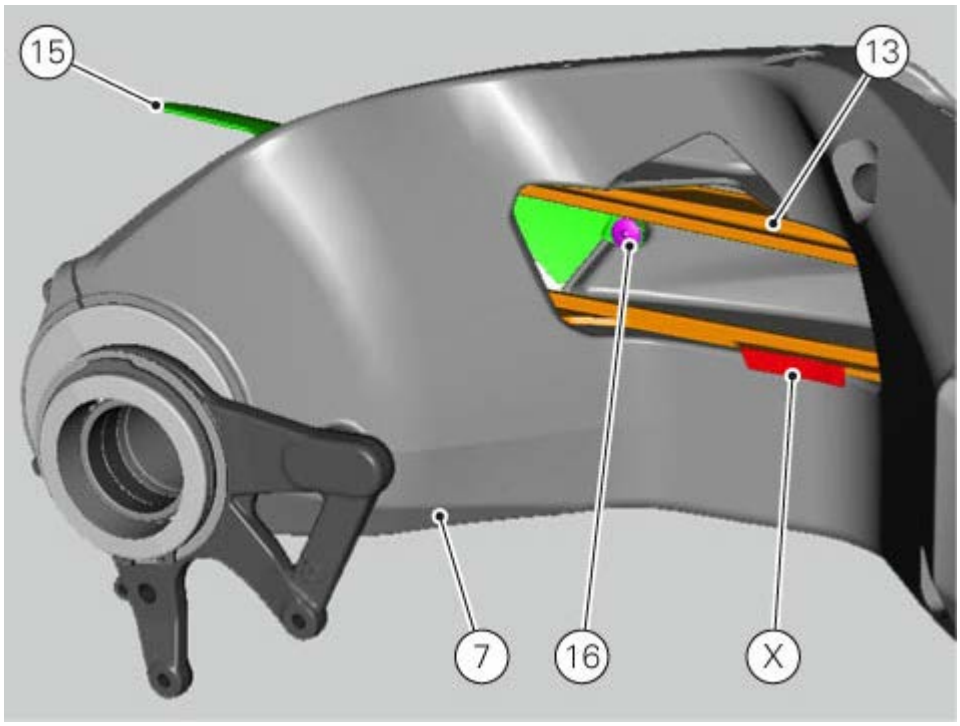
Note
Make sure that tab (X) of top chain sliding shoe (13) correctly engages on swinging arm (7) profile.

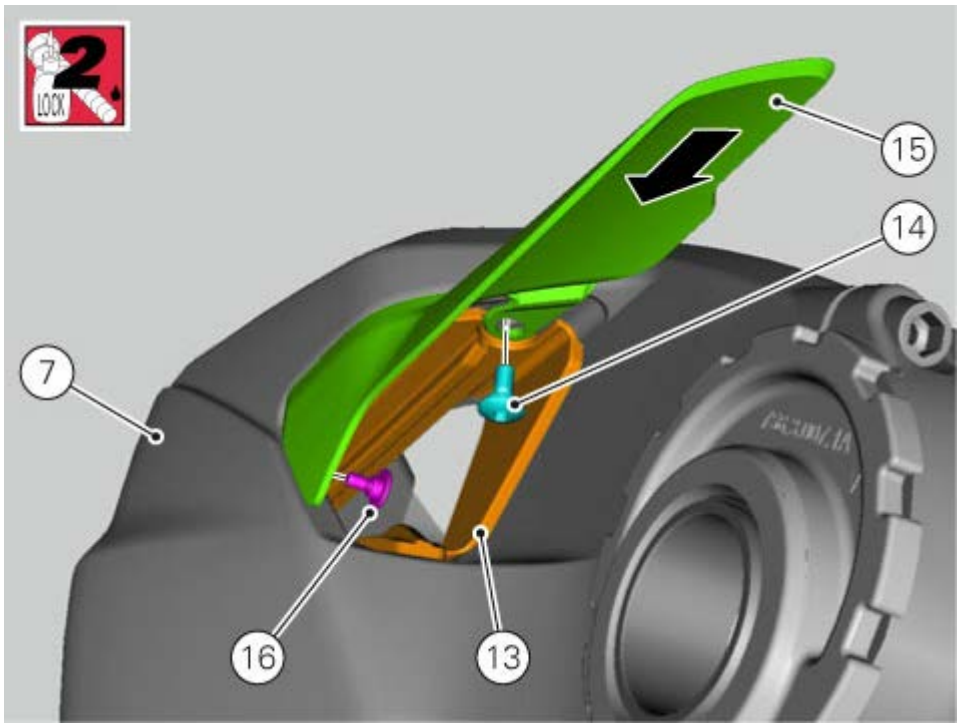
Tighten screw (14), retaining top chain sliding show (13), to 8 Nm ± 10%.
Set top chain splashguard (12) against top chain sliding shoe (16).
Tighten screw (14) and screw (16), retaining top chain splashguard (15), as follows:

- tighten screw (14) to a torque of 8 Nm ± 10%;
- tighten screw (16) to a torque of 5 Nm ± 10%.

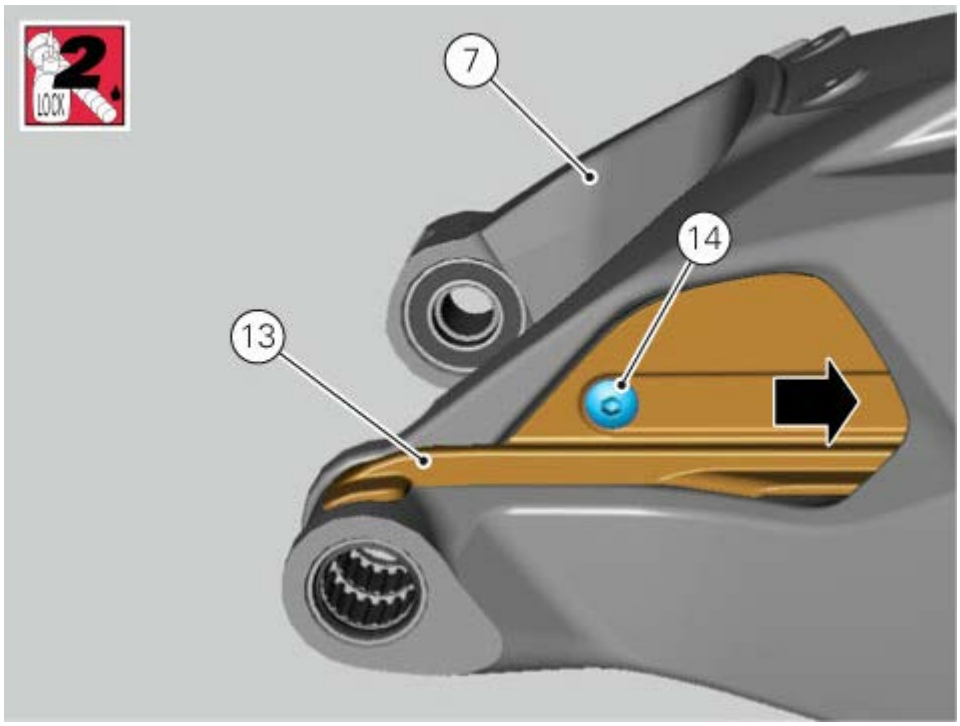


http://www.ducati-manuals.com
no. 140312

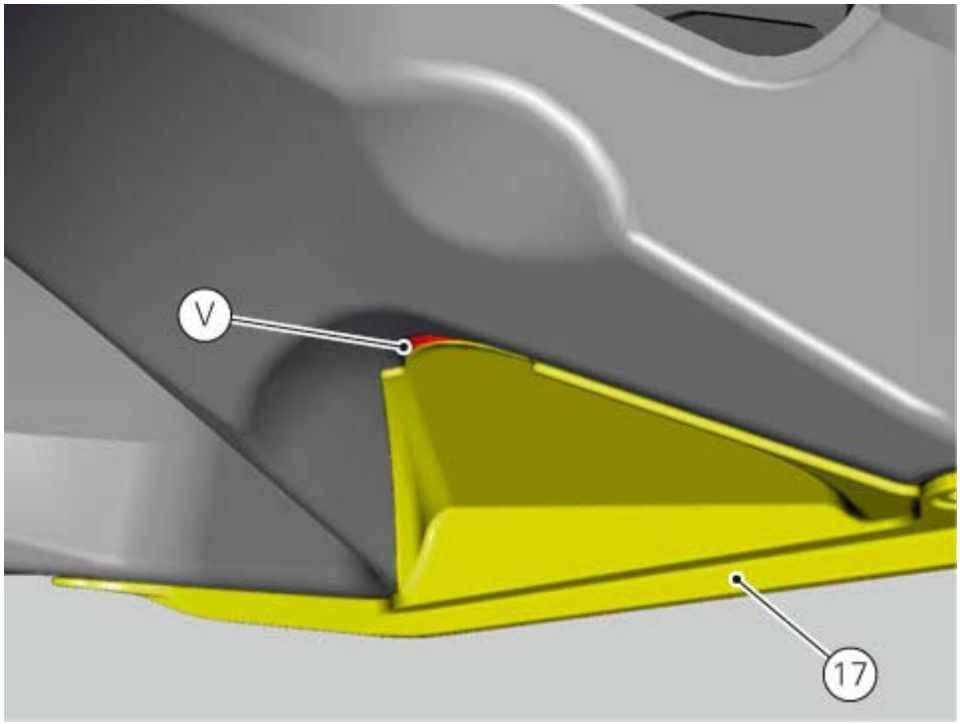




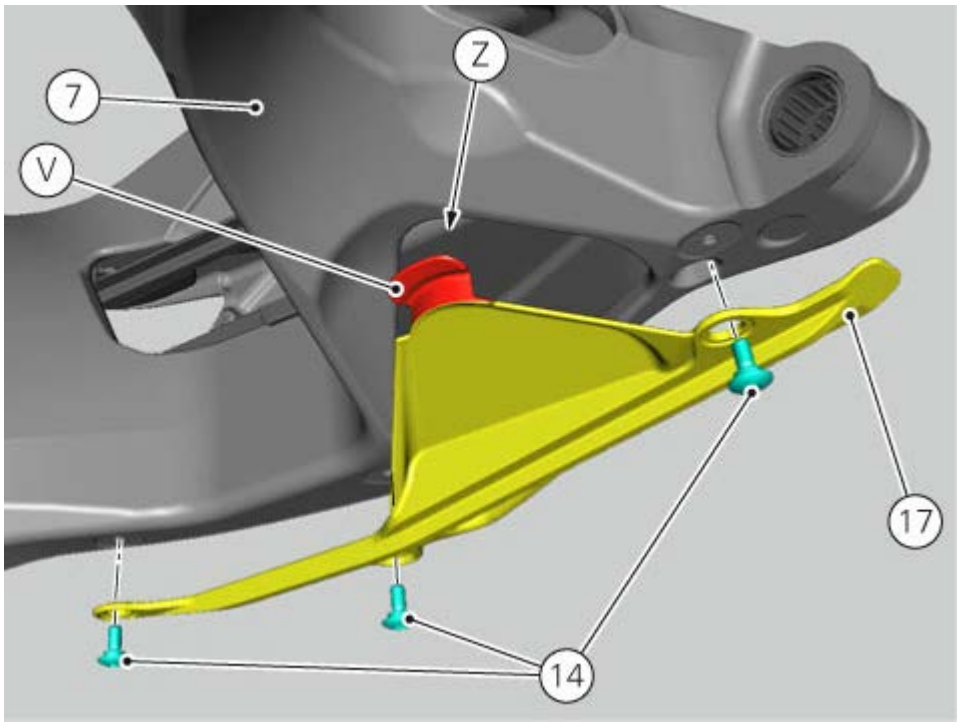
http://www.ducati-manuals.com
no. 140312



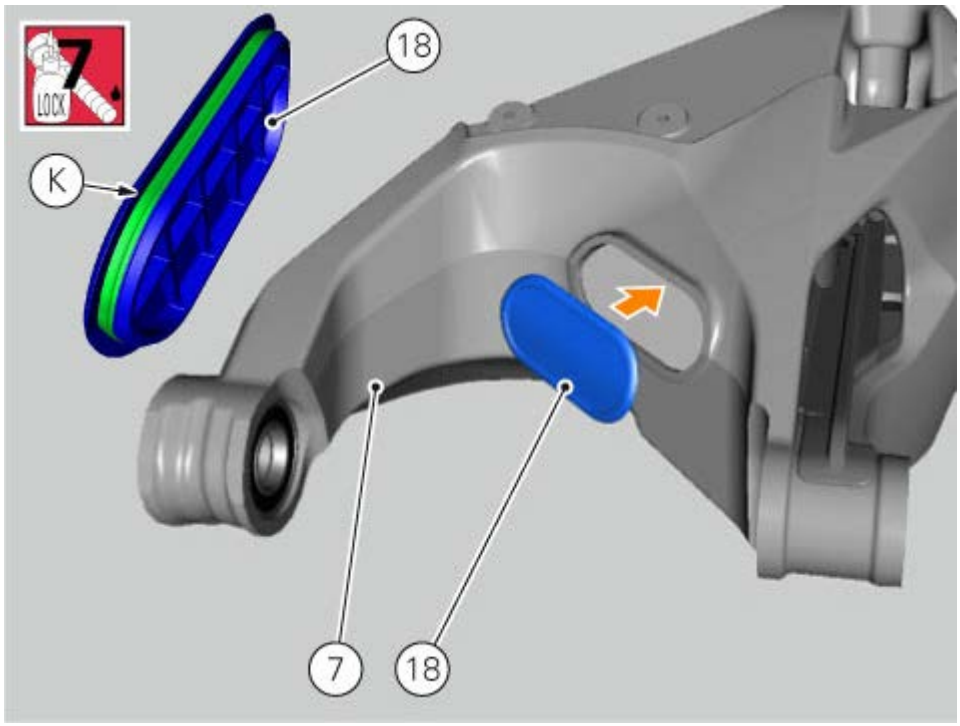
Install the bottom chain sliding shoe (17) onto swinging arm (7) and set it so that tab (V) of bottom chain sliding shoe (17) fits inside opening (Z) of swinging arm (7), as indicated.
Fasten bottom chain sliding shoe (17), by starting screws (14). If these screws are not new, first smear thread with specified threadlocker.
Tighten the screws (14) to a torque of 8 Nm ± 10%.



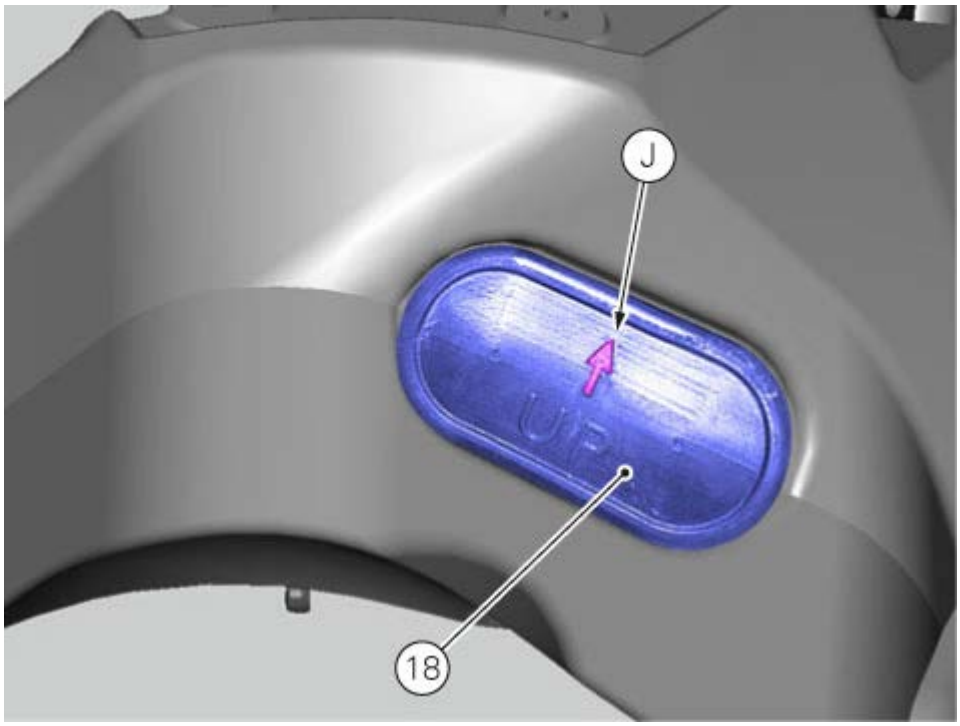
http://www.ducati-manuals.com
no. 140312



Smear specified sealant on surface (K) of rubber cap (18), all around the cap.
Install the rubber cap (18) onto swinging arm (7), and set it with arrow (J) pointing up, as indicated.



http://www.ducati-manuals.com
no. 140312



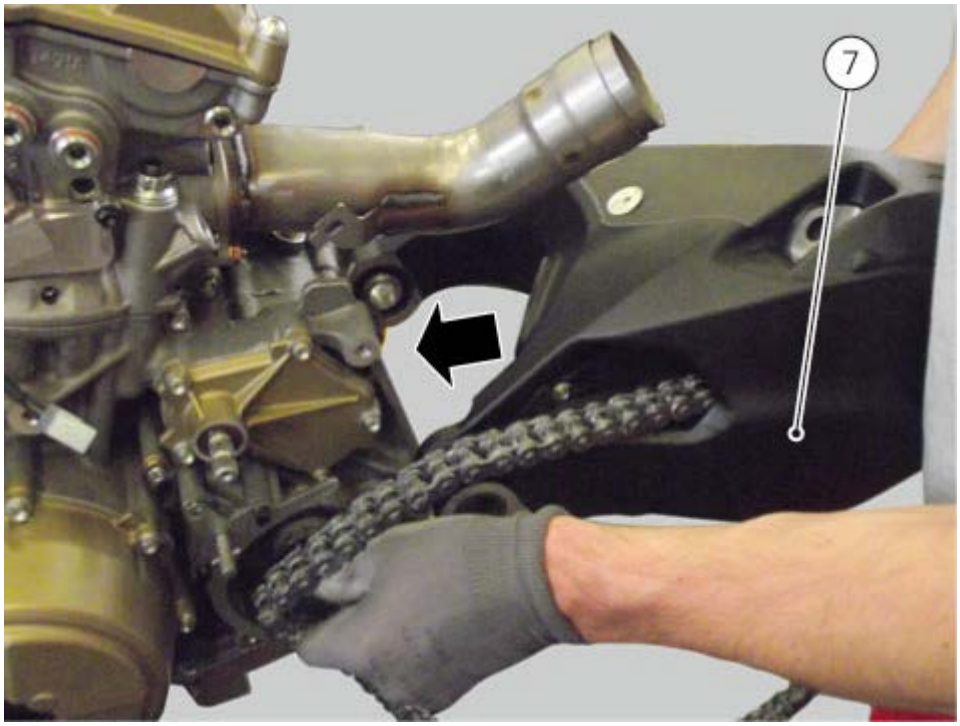
http://www.ducati-manuals.com
no. 140312

Installation of the swinging arm

Make sure that swinging arm (7) already fits the bearings and the rear wheel hub assembly.

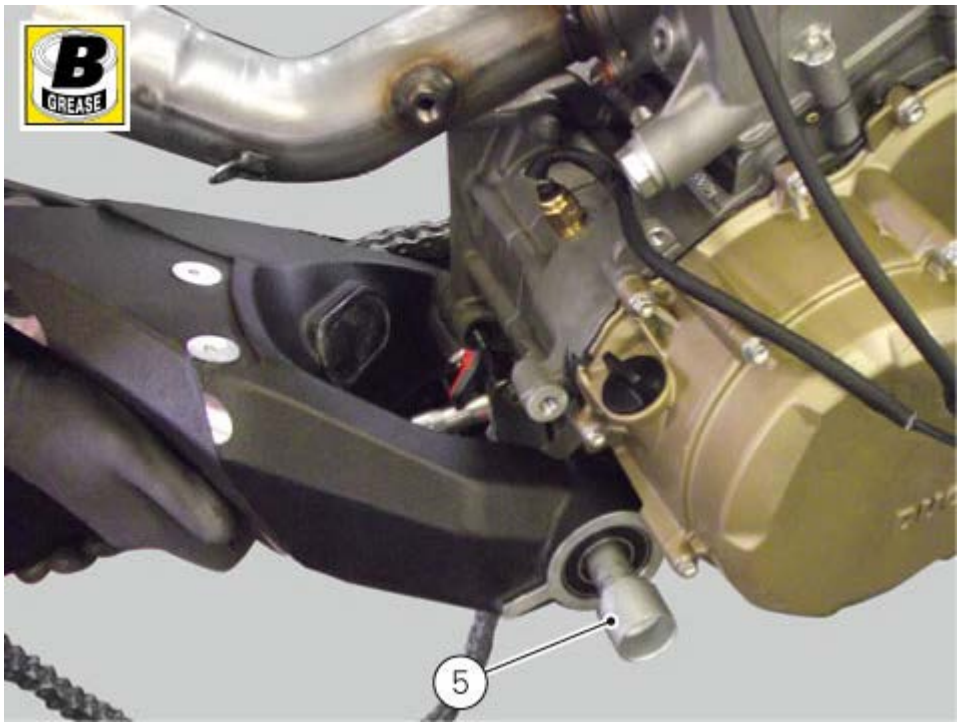


Set swinging arm (7) onto engine.



Smear recommended grease on right (5) and left (6) swinging arm shafts. Start the shafts on swinging arm sides and tighten them to 100 Nm ± 5%.

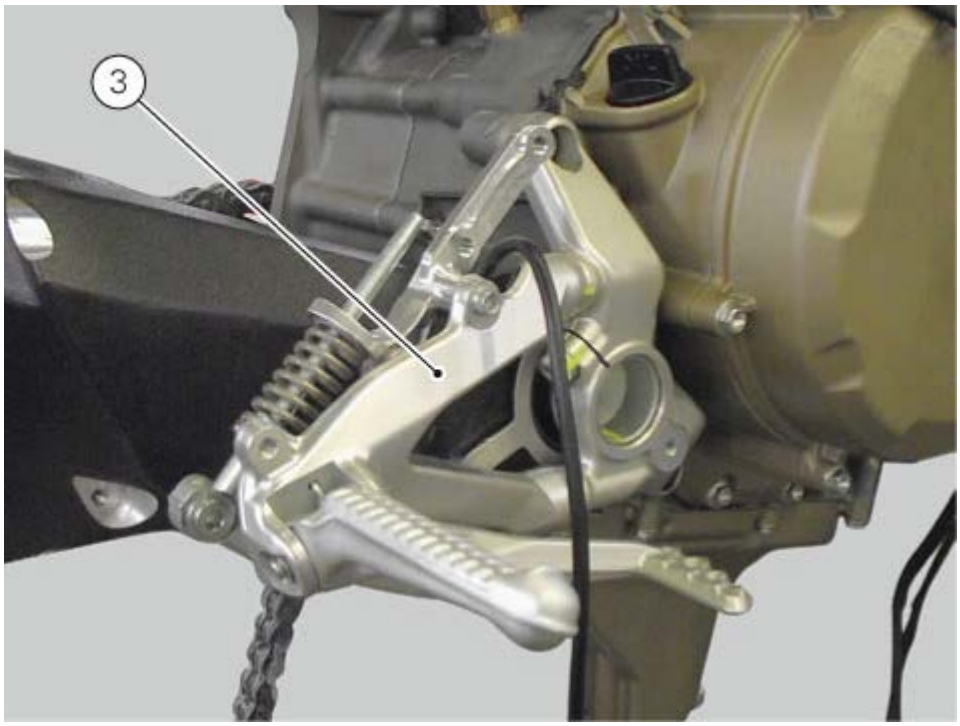
http://www.ducati-manuals.com
no. 140312





Refit right-hand footpeg holder plate (3) and left-hand footpeg holder plate (4) (Installation of the front footpeg plates).

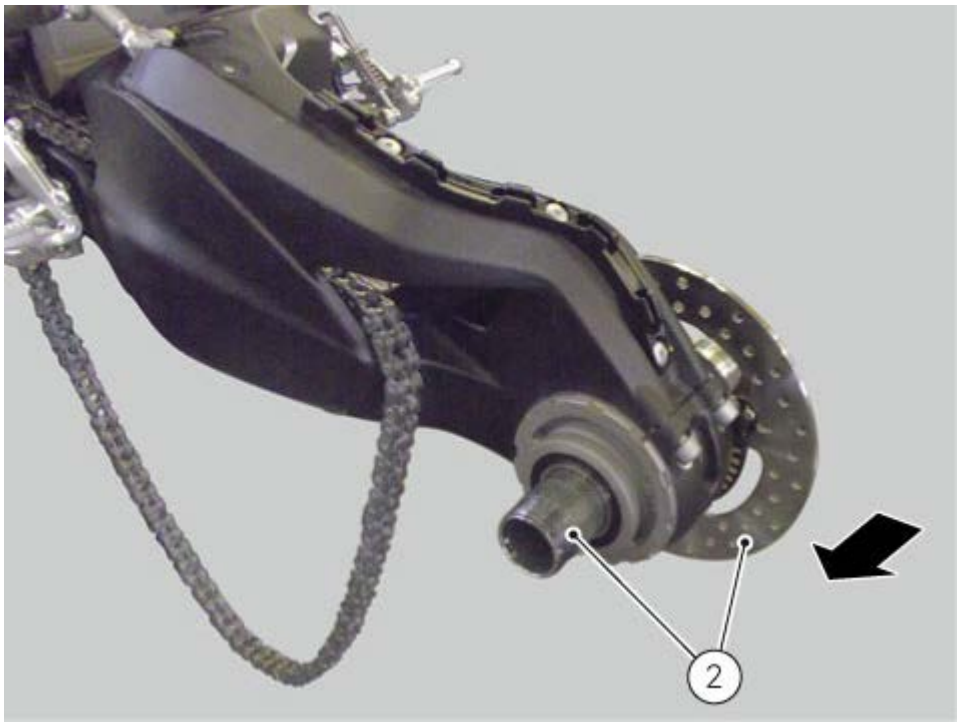
http://www.ducati-manuals.com
no. 140312

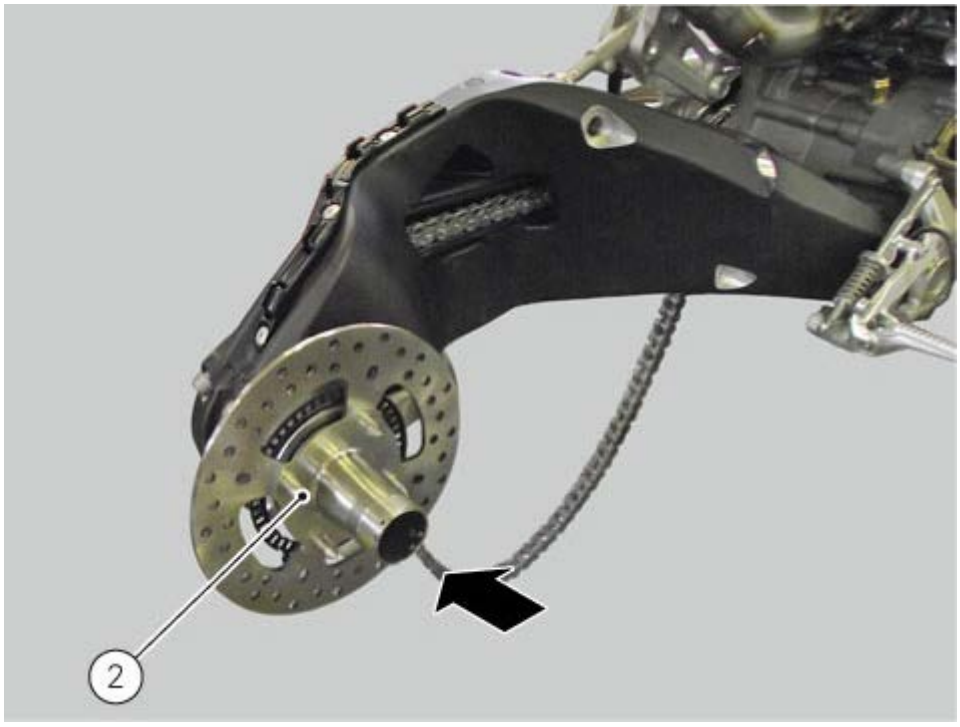




Refit the rear wheel shaft assembly (2) (Installation of the rear wheel shaft and hub).

http://www.ducati-manuals.com
no. 140312





Refit the rear wheel (1) (Installation of the rear wheel).
Refit rear sprocket and chain (Installation of the rear sprocket).

http://www.ducati-manuals.com
no. 140312

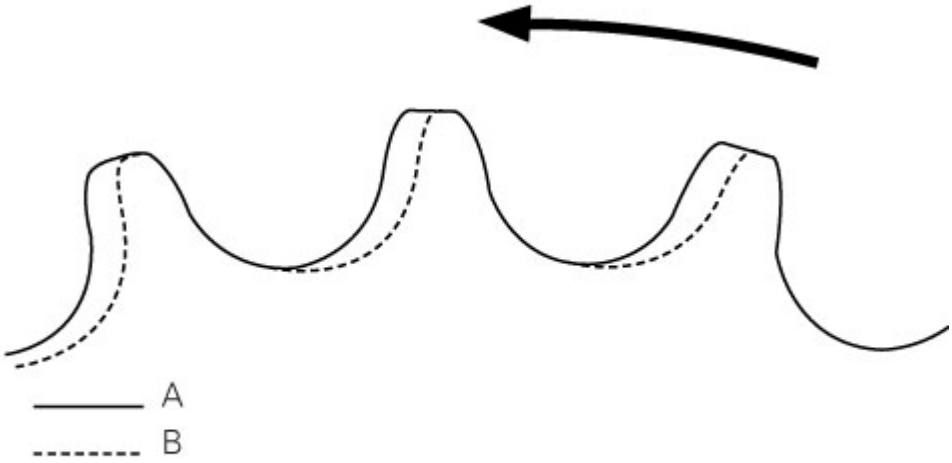


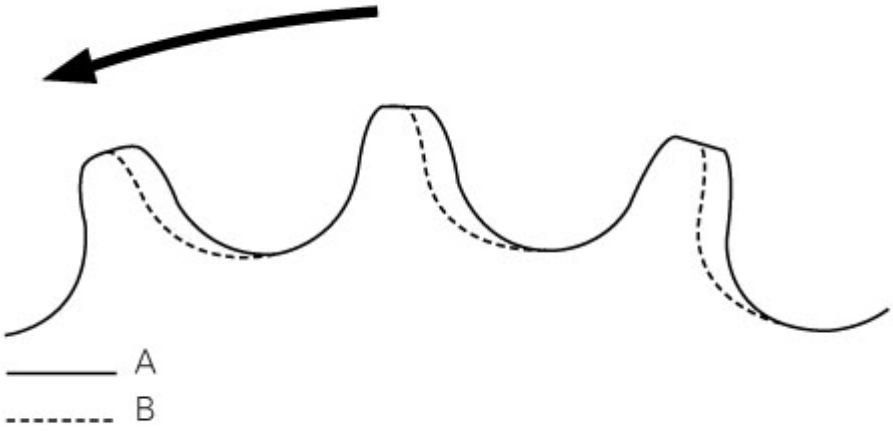
Refit the lower half-fairings (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

Inspection of the final drive

Check the final drive for wear by visually inspecting the front and rear sprockets.
The figure shows "Normal" sprocket profile with line (A) and "Worn" sprocket profile with broken line (B).
If the teeth are found to be worn as shown in the figure (broken line - B), the sprocket must be renewed.

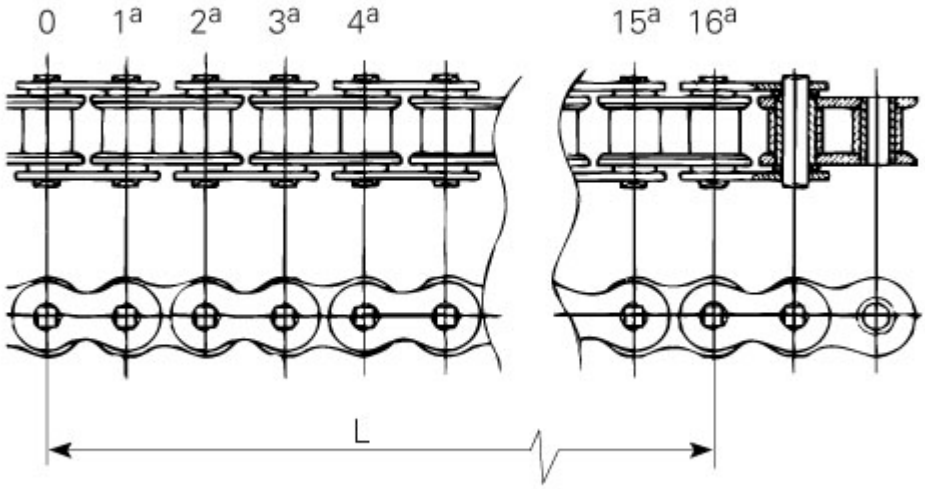




To check the chain, keep the chain taut and measure 16 links.
If the length (L) is greater than 256.5 mm, the chain should be replaced.

Important
The front and rear sprockets and chain must all be replaced together as a set.

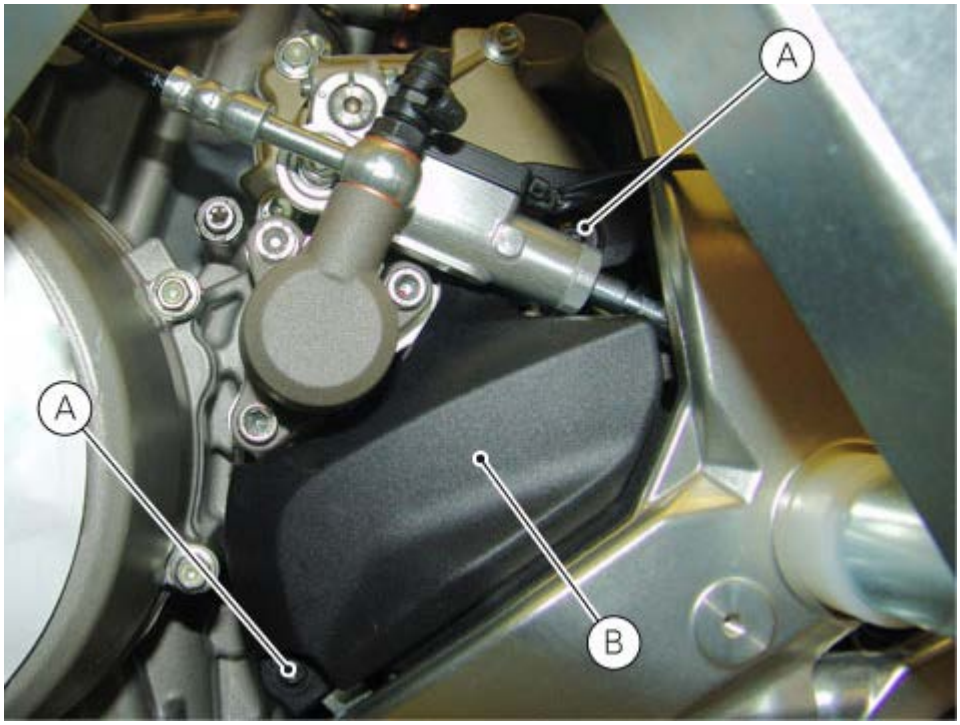
http://www.ducati-manuals.com
no. 140312



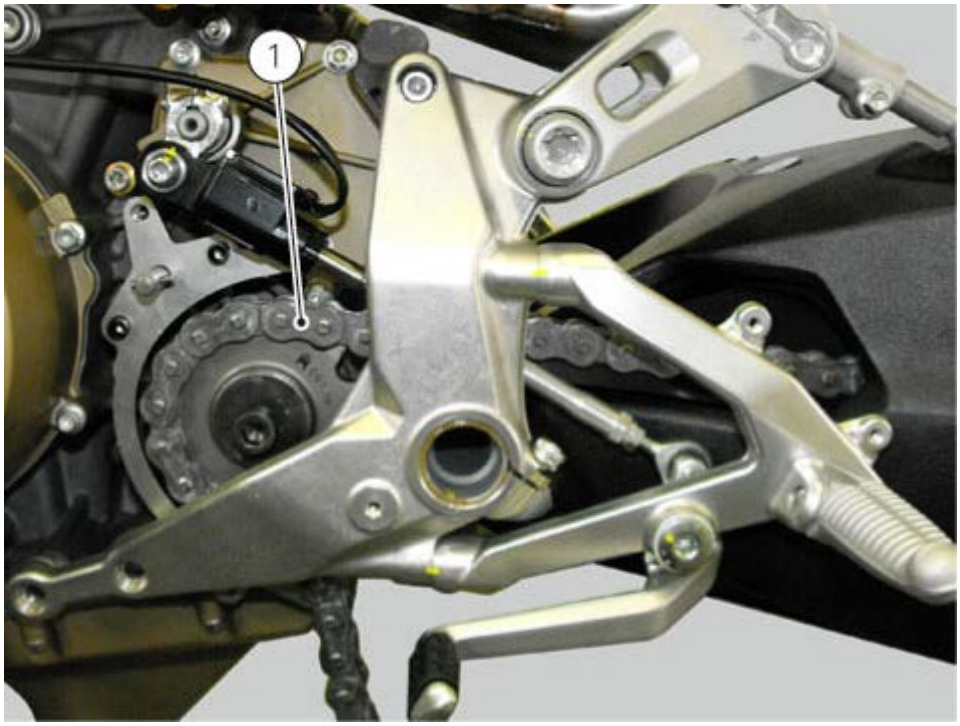
http://www.ducati-manuals.com
no. 140312

Removal of the front sprocket

Remove the left-hand side lower half-fairing (Removal of the side fairings).
Remove the left-hand footpeg holder plate unit (Removal of the front footpeg plates).
Unscrew the screws (A) and remove the sprocket cover (B).

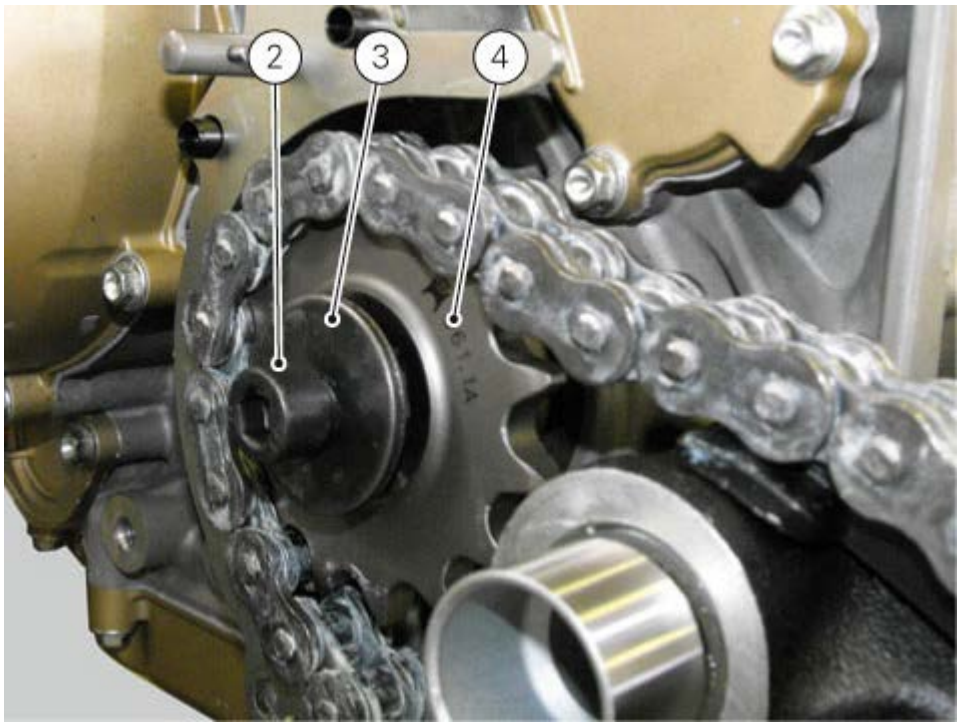


Slacken chain (1), as described under “Adjustment of chain tension”.

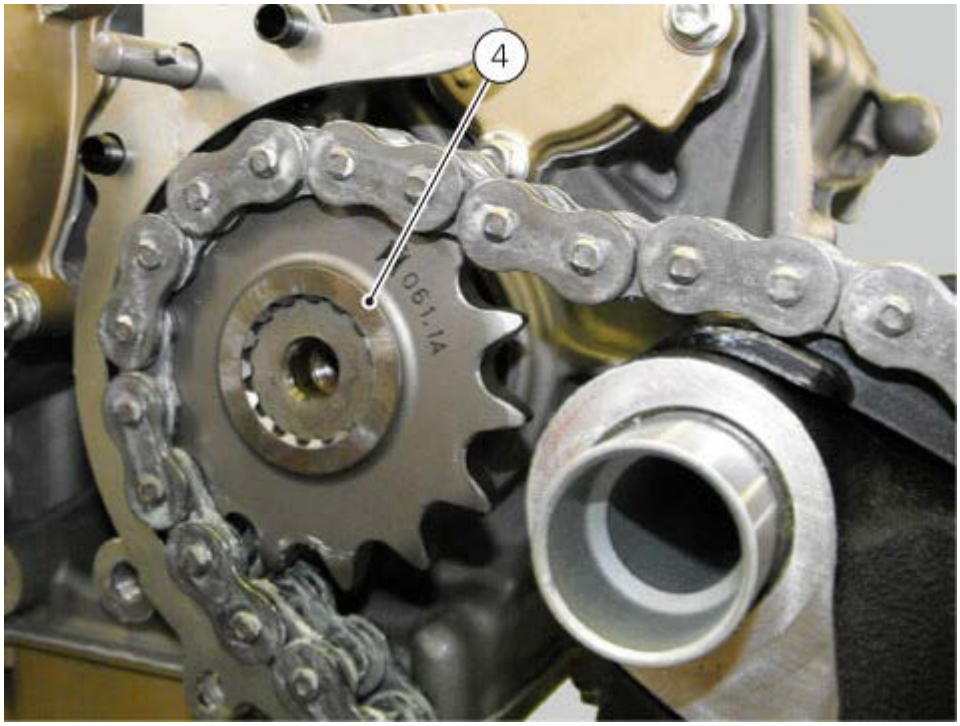


Engage a low gear and loosen screw (2).
Remove the lock washer (3) from front sprocket (4).

http://www.ducati-manuals.com
no. 140312



Remove the front sprocket (4) with chain from the gearbox secondary shaft.



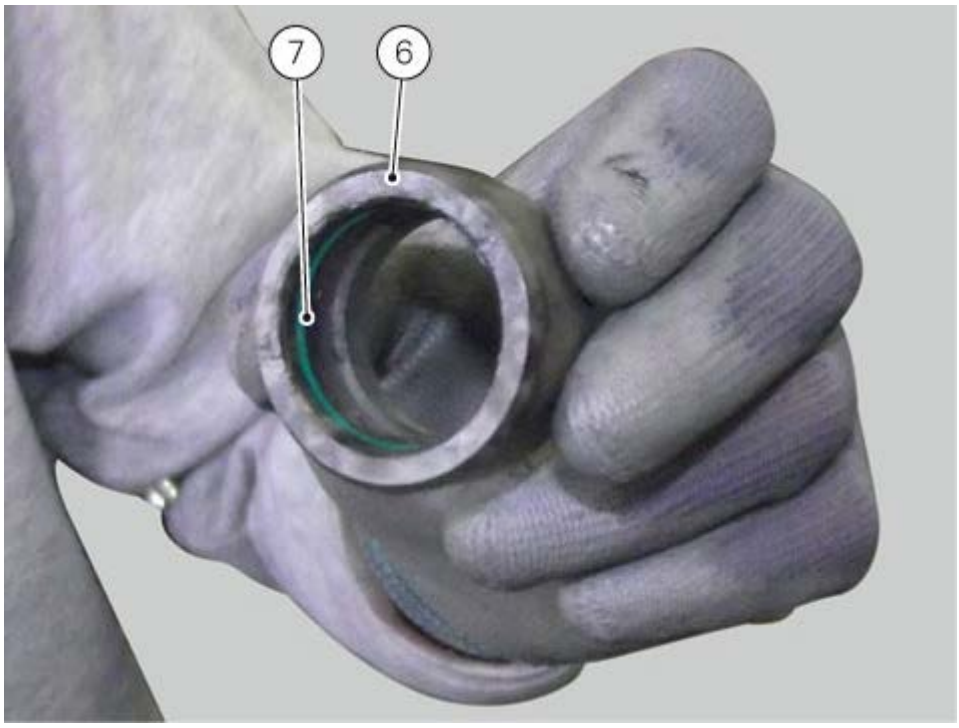
Remove the spacer (6) with O-ring (7) from the gearbox secondary shaft (5).

Important

The O-ring (7) must be renewed on reassembly.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



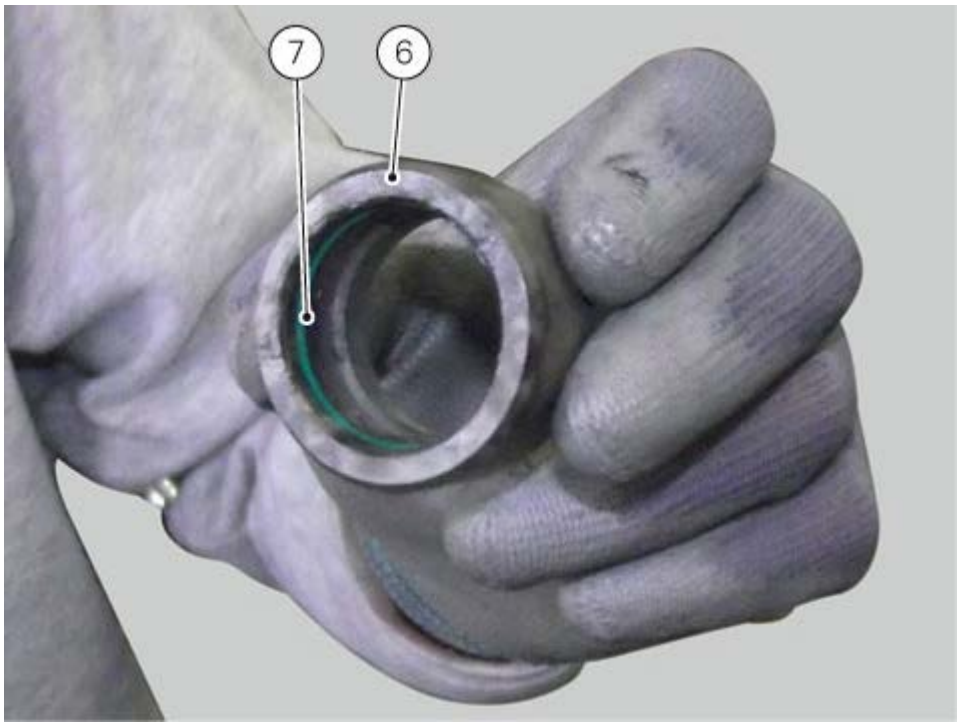
http://www.ducati-manuals.com
no. 140312

Installation of the front sprocket

If it was removed, install O-ring (7) onto spacer (6).
Fit the spacer (6), from the O-ring side, on the secondary shaft (5) and drive it fully home against the inner ring of the bearing.

Important
The O-ring (7) must be renewed on reassembly.

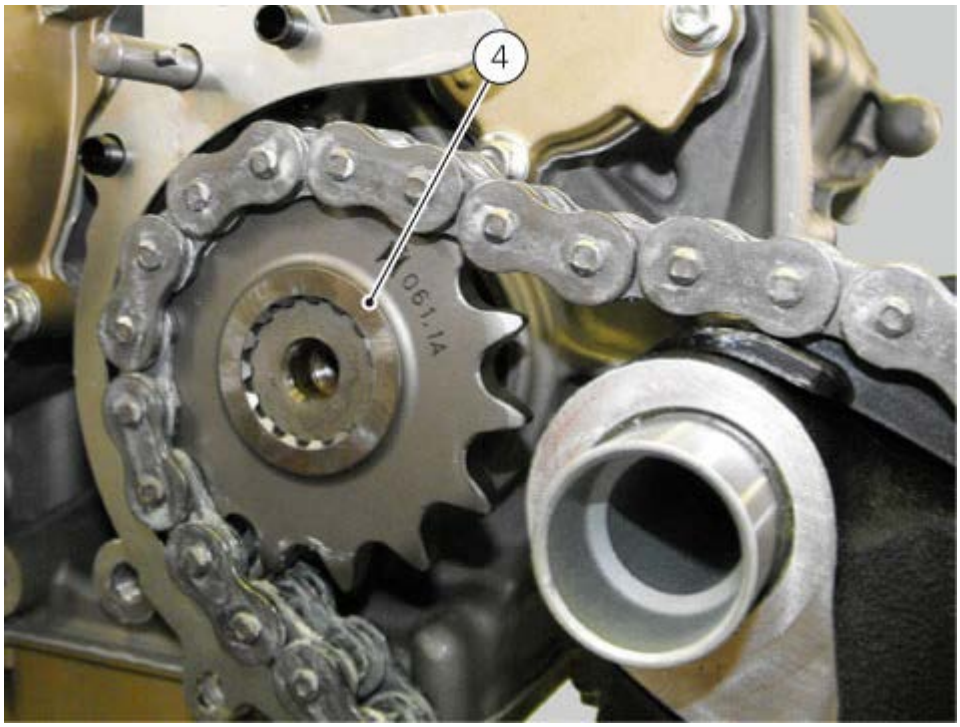




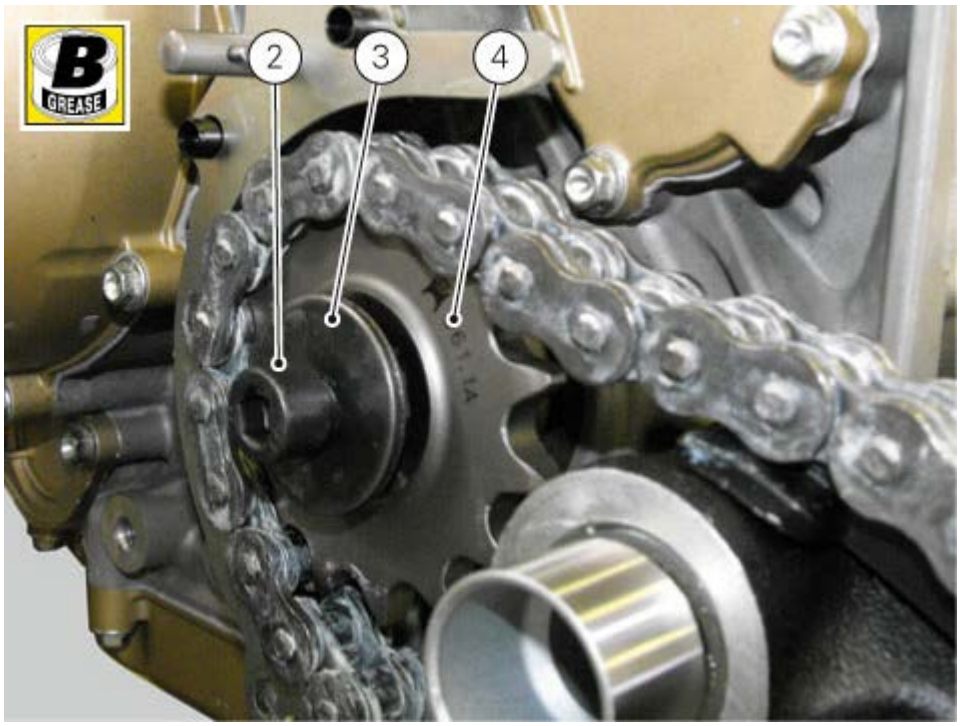
http://www.ducati-manuals.com
no. 140312



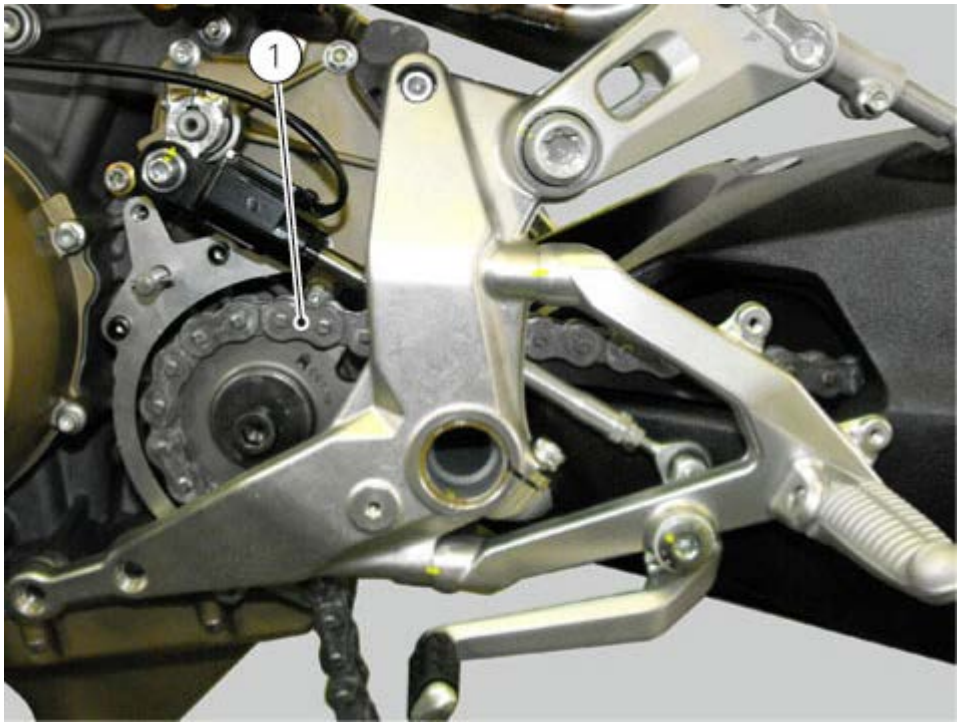
Make sure that the splines of the gearbox secondary shaft (5) and the sprocket (4) are in perfect condition.
Fit the front sprocket (4) with chain (1) and install the lock washer (3).
Smear screw (2) with recommended grease, start and tighten it to a torque of 55 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

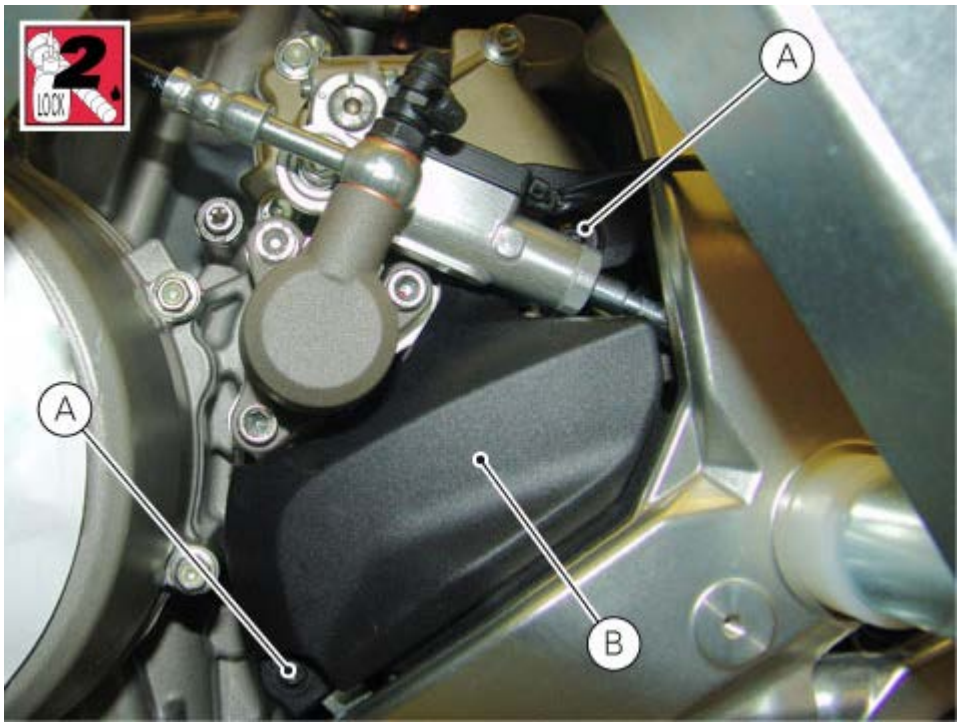


Tension chain (1), as described under “Adjustment of chain tension”.



Refit the sprocket cover (B). Apply specified threadlocker to screws (A). Start and tighten screws (A) to a torque of 4 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

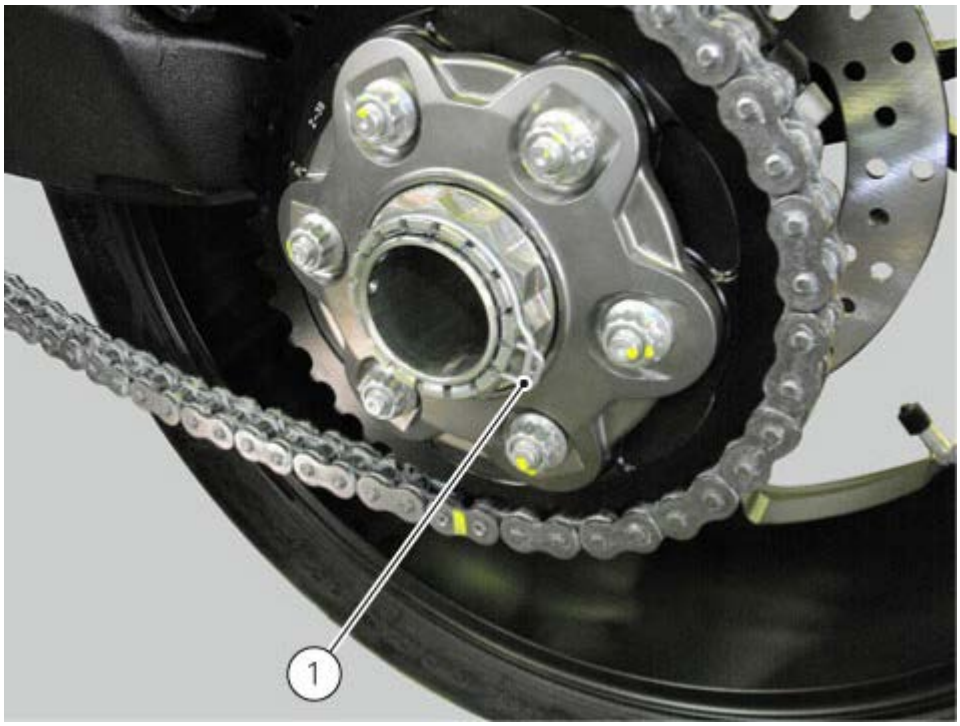


Refit the left-hand footpeg holder plate unit (Installation of the front footpeg plates).
Refit the left-hand side lower half-fairing (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

Removal of the rear sprocket

Slacken chain, as described under “Adjustment of chain tension”.
Remove the rear wheel (Removal of the rear wheel).
Lock out wheel shaft rotation.
Remove the retainer (1).

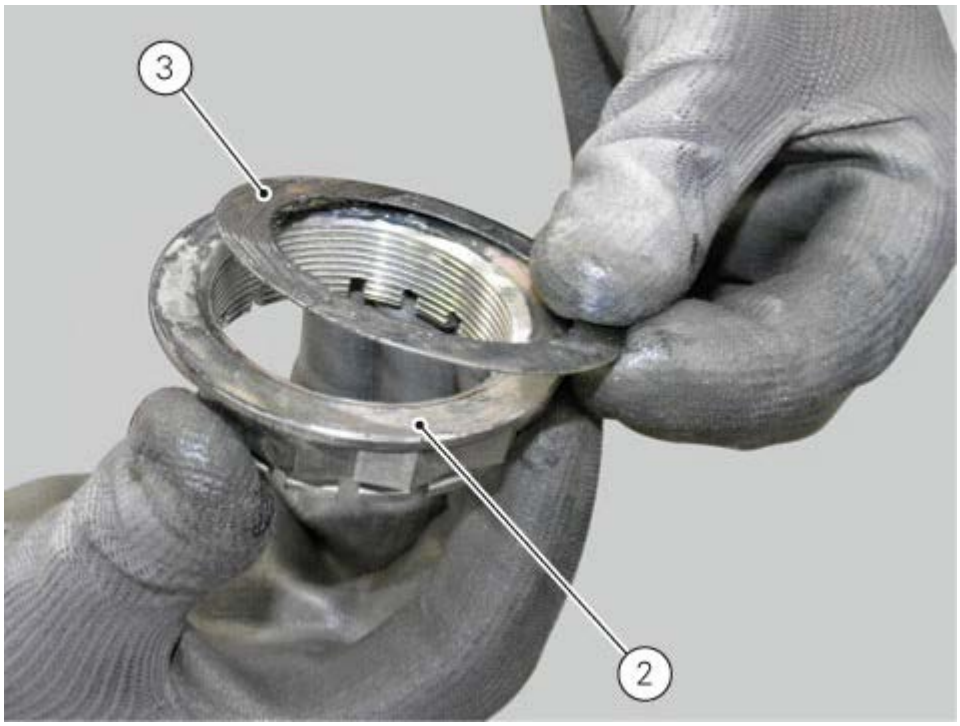


Using a suitable socket wrench, loosen nut (2).



Fully undo nut (2) and remove the washer (3).

http://www.ducati-manuals.com
no. 140312

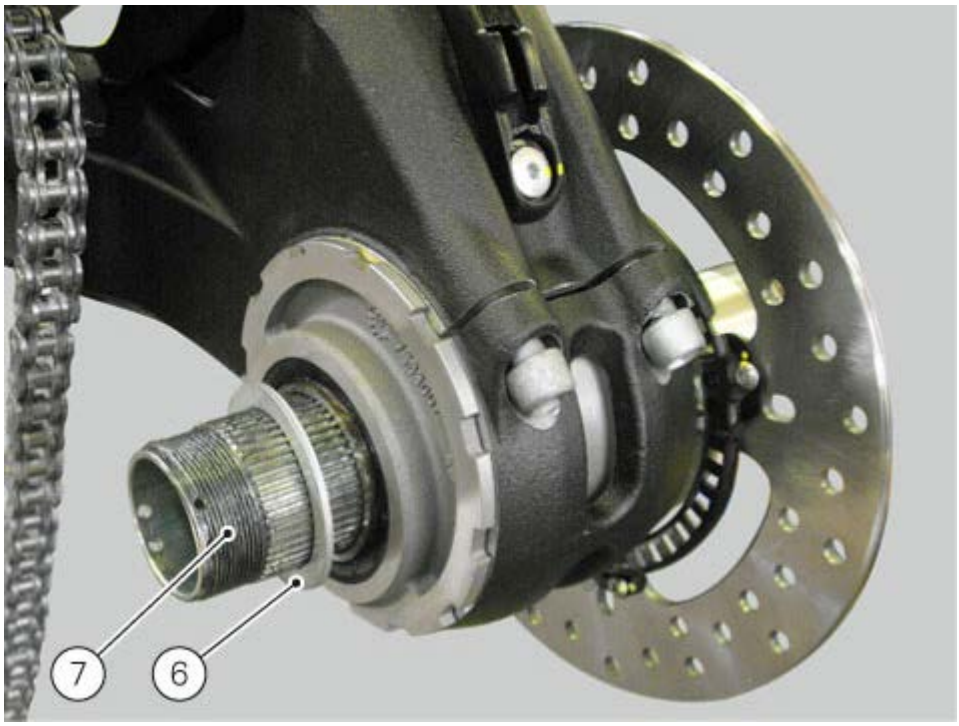


Remove flange (4) with sprocket (5).



Remove the spacer (6) from wheel shaft (7).

http://www.ducati-manuals.com
no. 140312



Separate the sprocket (5) from flange (4) as follows: using a mallet, tap the flange (4) with the cush drive dampers (8) off the sprocket (5).



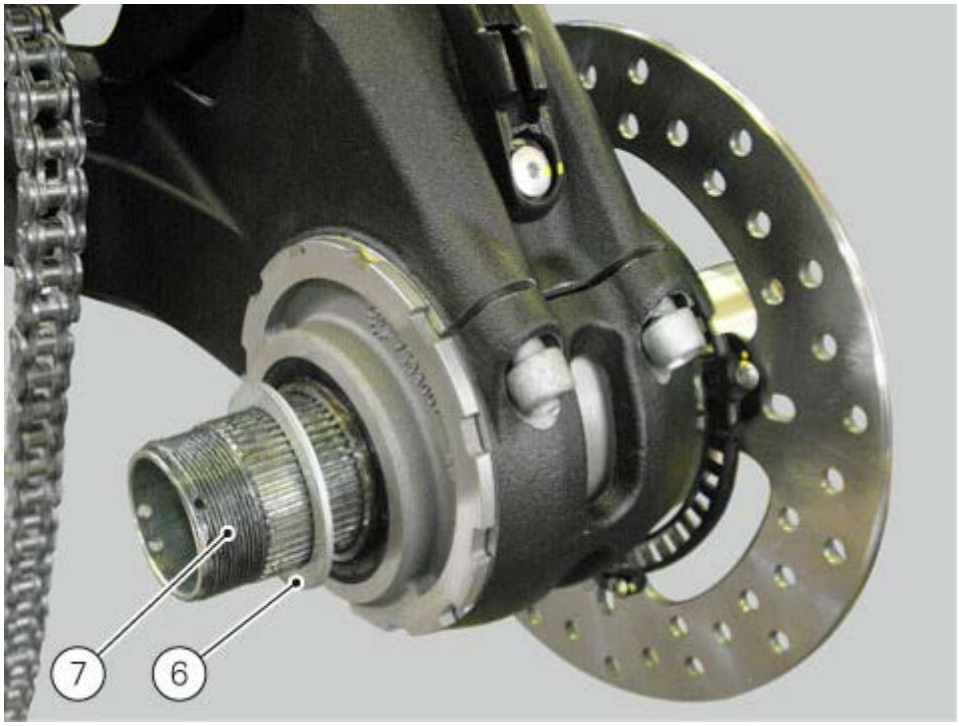
http://www.ducati-manuals.com
no. 140312

Installation of the rear sprocket

Check cush drive dampers (8) for wear.

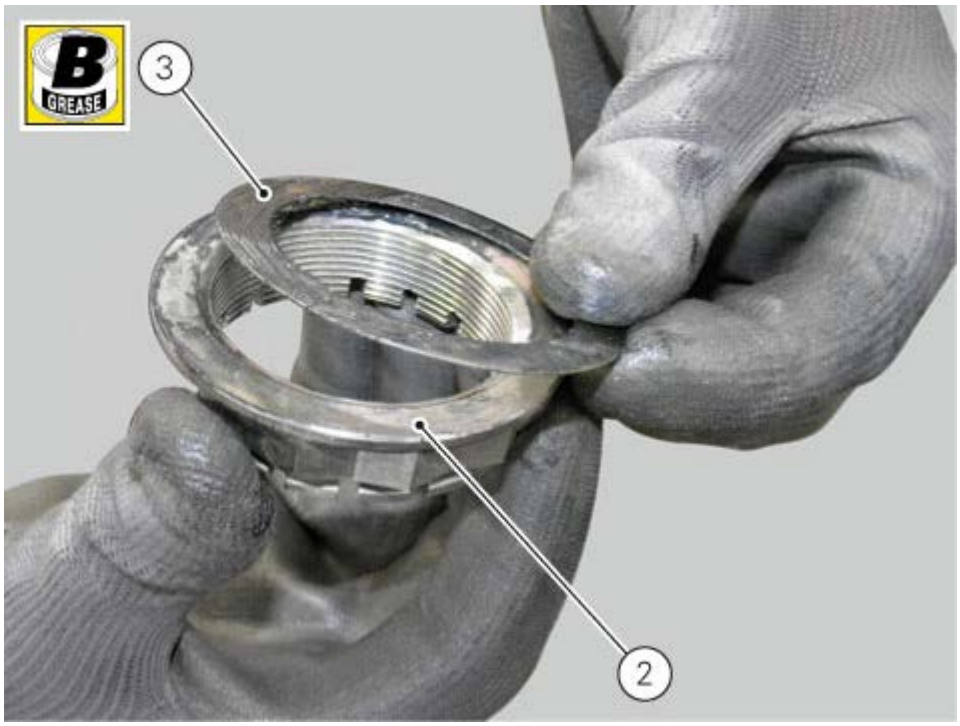


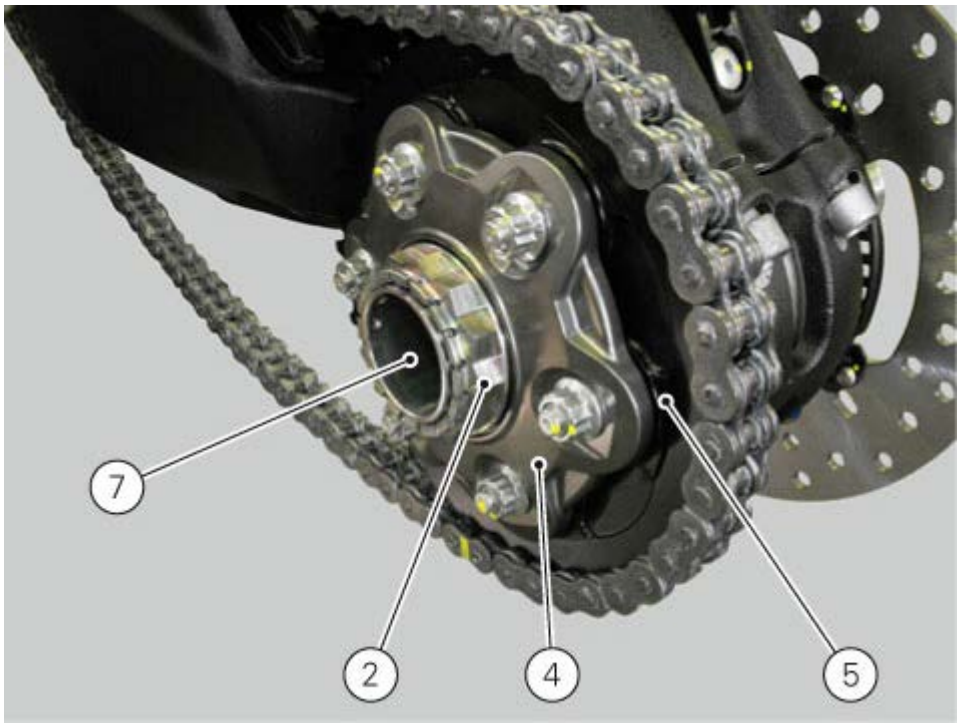
Fit the spacer (6) to wheel shaft (7).



Fit the assembly made of flange (4) and sprocket (5) to wheel shaft (7).
Smear recommended grease on thread and underside of nut (2), then start nut (2) with washer (3) to fasten flange unit.
Tighten nut (2) to a torque of 230 Nm ± 5%.

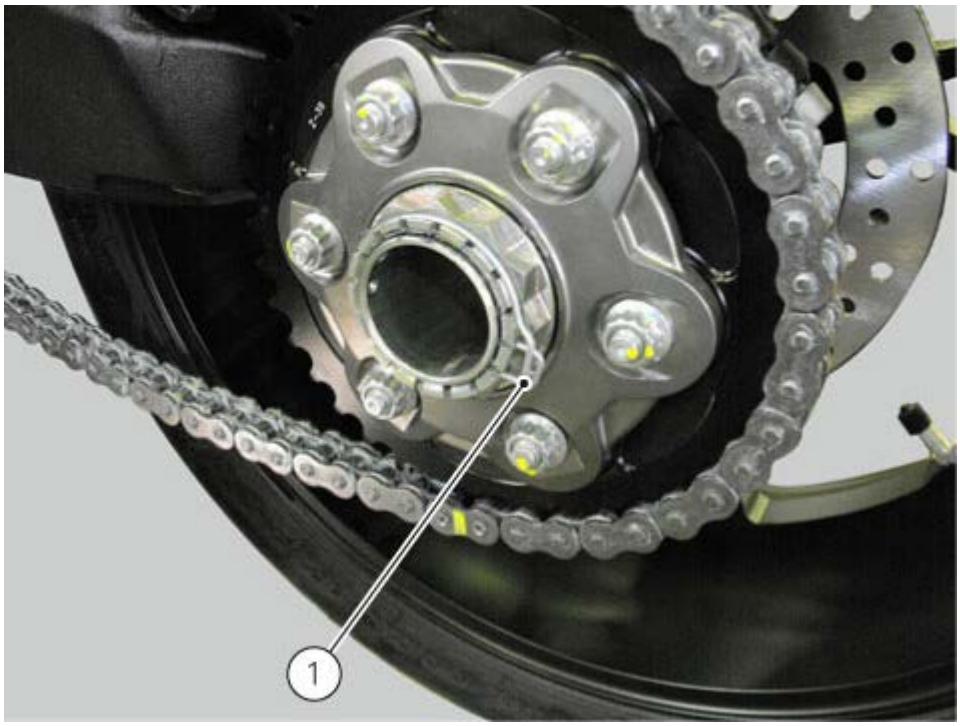
http://www.ducati-manuals.com
no. 140312





Fit the retainer (1).

http://www.ducati-manuals.com
no. 140312



Refit the rear wheel (Removal of the rear wheel).
tension chain, as described under “Adjustment of chain tension”.

http://www.ducati-manuals.com
no. 140312

Washing the chain

Chains with O-rings must be washed in oil, diesel fuel or paraffin (kerosene).
Do not use fuel, trichloroethylene or other solvents which will damage the rubber O-rings. For the same reason use only sprays specifically formulated for use with O-ring chains.

http://www.ducati-manuals.com
no. 140312

Lubrication of the chain

O-ring chains have sealed, life-lubed link studs and bushes. However, these chains need lubricating at regular intervals to protect metal parts of the chain and the O-rings.

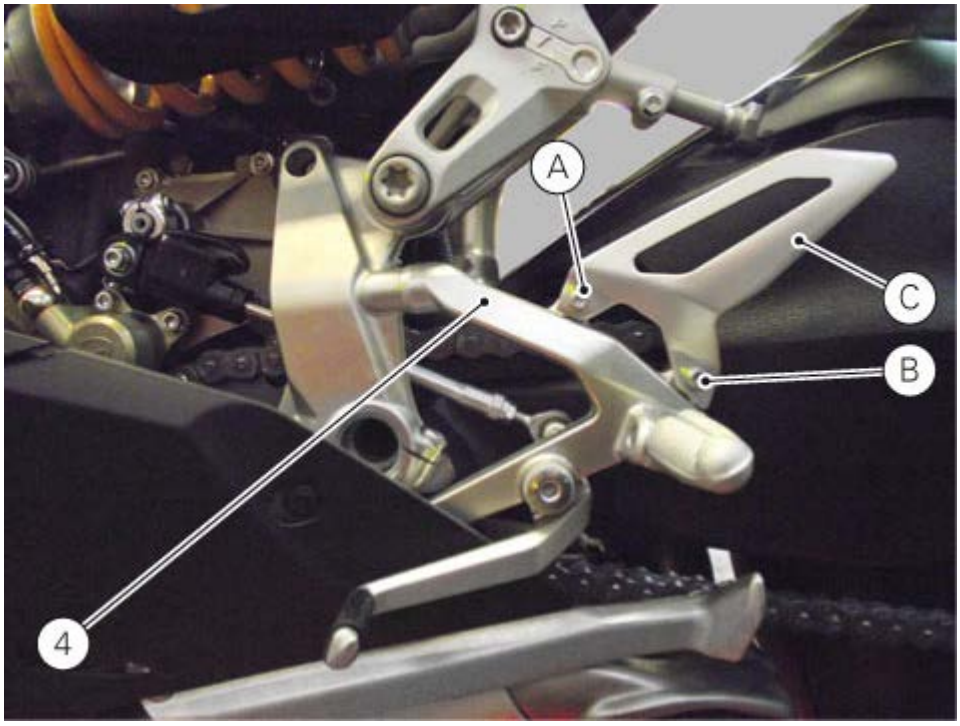
Lubrication also serves to keep the O-rings soft and pliable to ensure the maximum sealing efficiency.

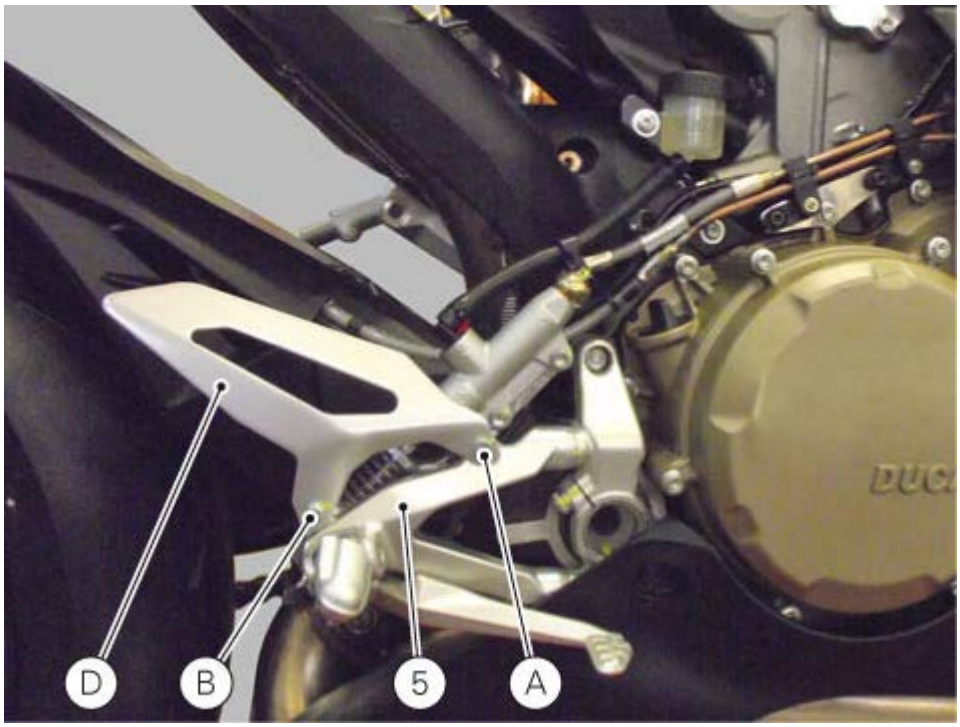
Using a brush, apply a thin protective layer of high-density gearbox oil along the entire length of the chain both inside and outside (Fluids and lubricants).

http://www.ducati-manuals.com
no. 140312

Removal of the footrest assembly

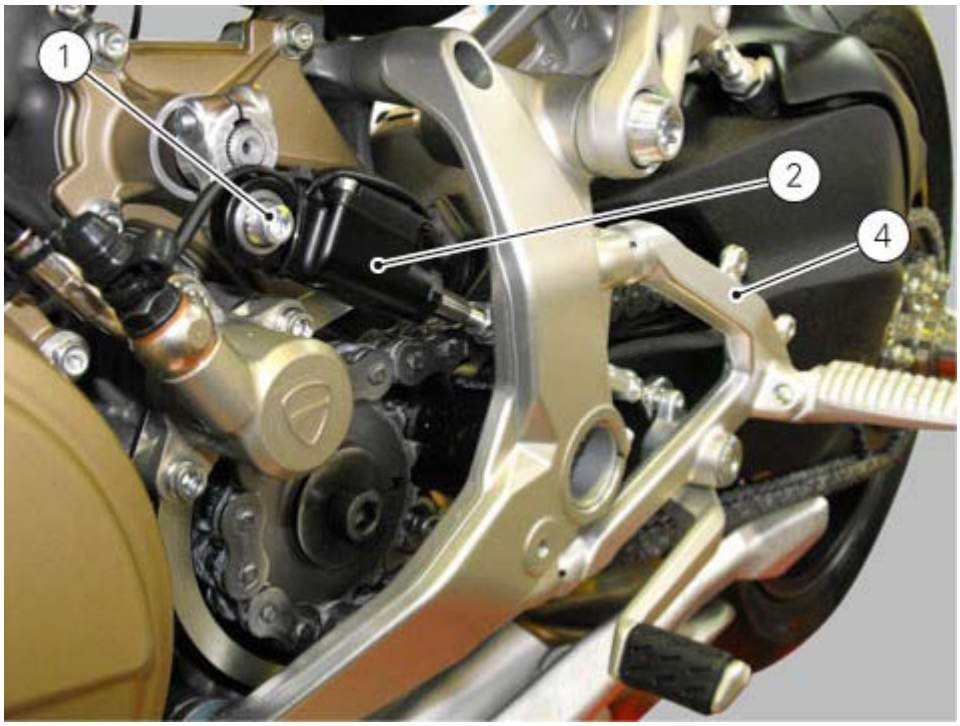
Remove the lower half-fairings (Removal of the side fairings).
Loosen screws (A) and (B) to remove the left heel guard (C) and right heel guard (D), respectively from the left (4) and right (6) footpeg holder plate.



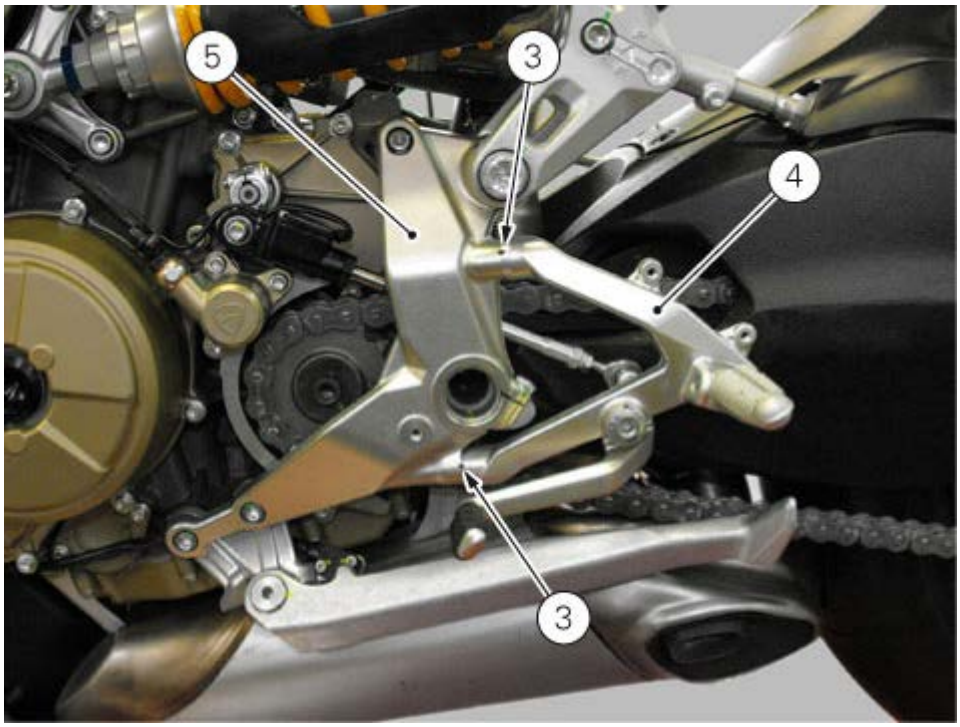


Loosen gearchange unit (2) screw (1).

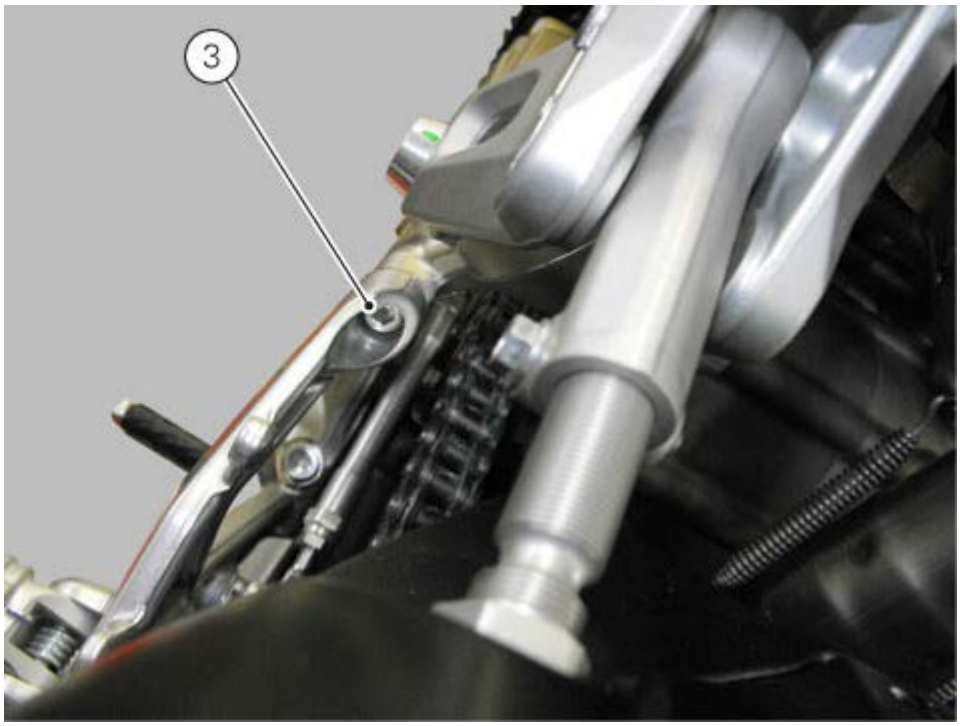
http://www.ducati-manuals.com
no. 140312



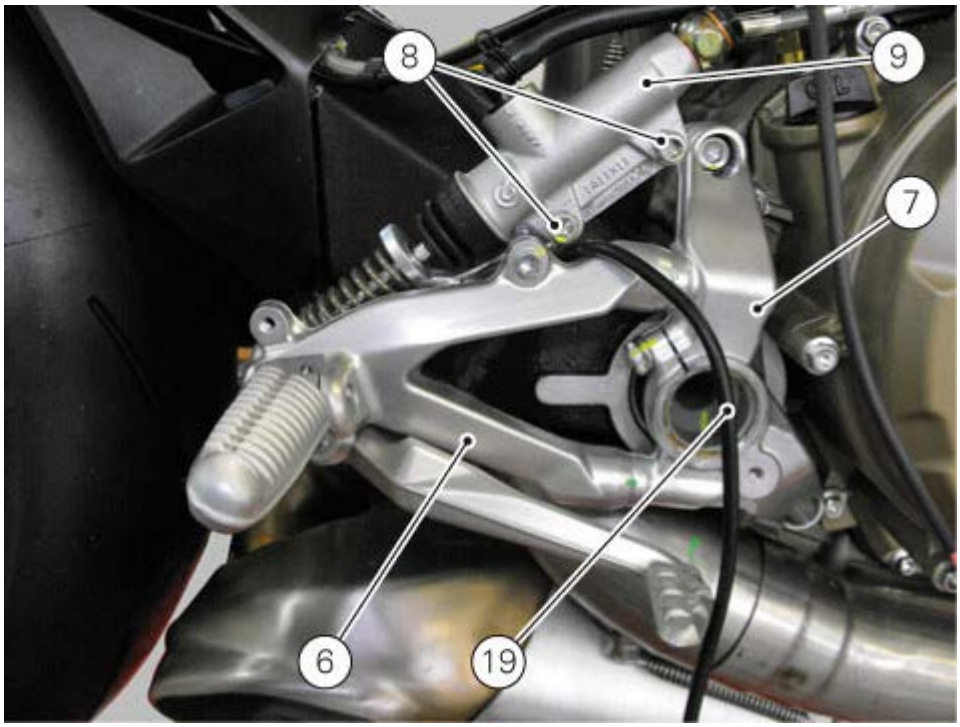
Loosen the two screws (3) retaining the left-hand footpeg holder plate (4) to the left-hand swinging arm shaft support (5).
It is now possible to remove the left-hand footpeg holder plate (4) from the left-hand swinging arm shaft support (5).



http://www.ducati-manuals.com
no. 140312



To remove the right-hand footpeg holder plate (6) from the right-hand swinging arm shaft support (7), loosen screws (8) retaining the rear brake master cylinder (9), disconnect the rear brake sensor (19) from the main wiring harness and proceed in the same way in order to remove the left-hand footpeg holder plate.



http://www.ducati-manuals.com
no. 140312

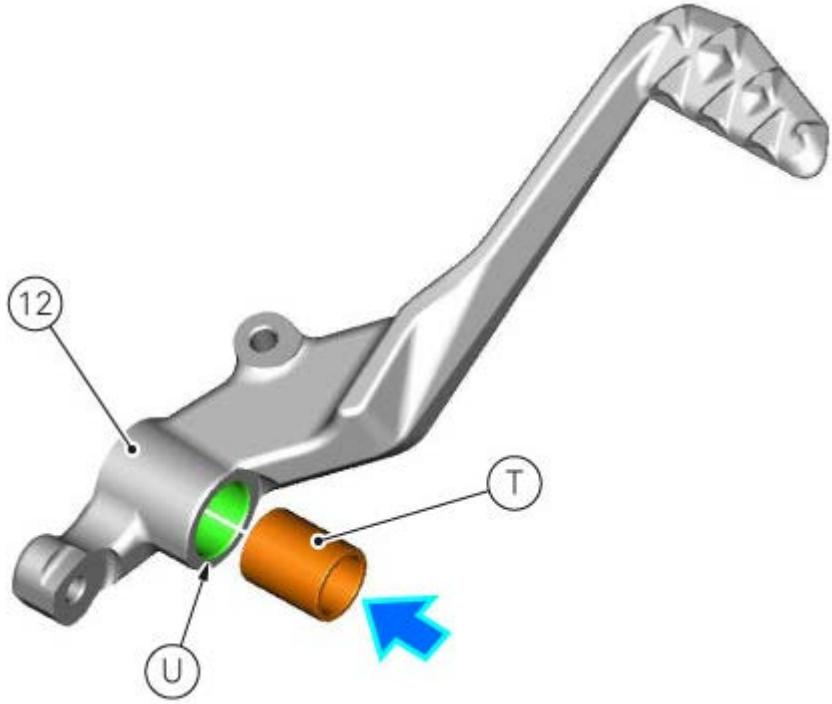
Installation of the footrest assembly

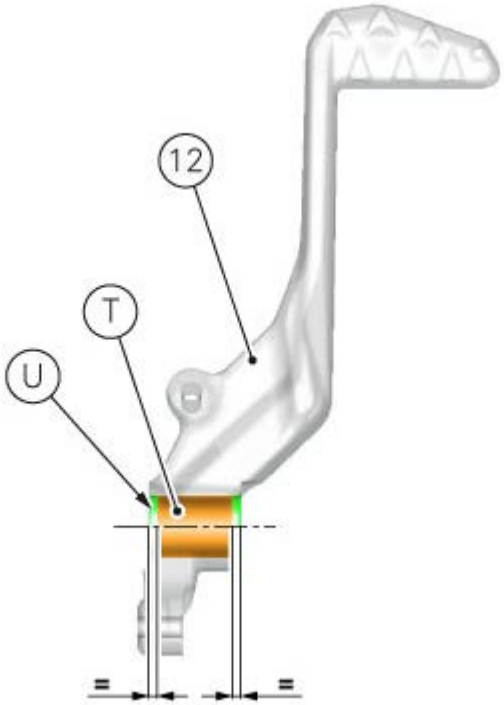
Reassembly of the right-hand footpeg holder plate unit

Make sure that bushing (T) is set in the relevant seat (U) on rear brake lever (12).

Important

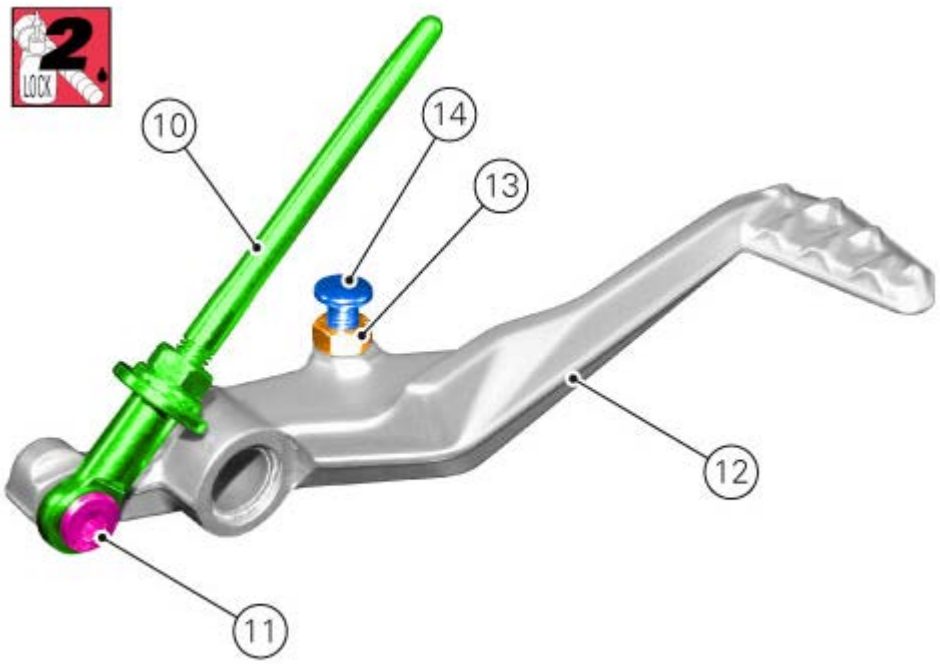
Bushing (T) must be at the same distance from the external edges of seat (A), as shown.

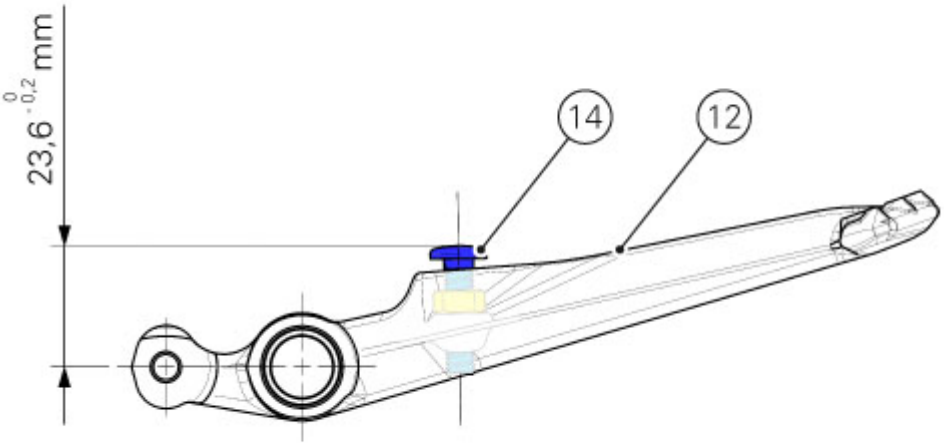




Fit the rear brake master cylinder rod (10) onto screw (11). Apply the recommended threadlocker on the thread in view of screw (11). Fit the rear brake master cylinder rod (10) onto brake lever (12) and start screw (11). Tighten screw (11) to a torque of 10 Nm ± 10%. Tighten nut (13) on adjuster (14). Tighten adjuster (14) on brake lever, until obtaining the indicated position. Hold adjuster (14) and tighten nut (13) to 8 Nm ± 10% onto the surface of brake lever (12).

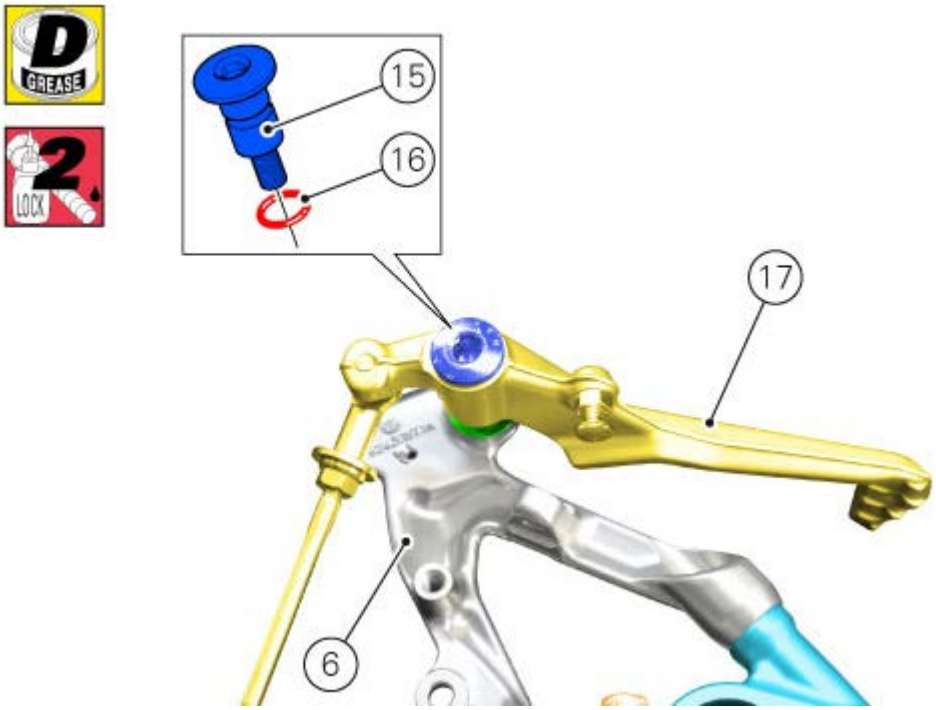
http://www.ducati-manuals.com
no. 140312

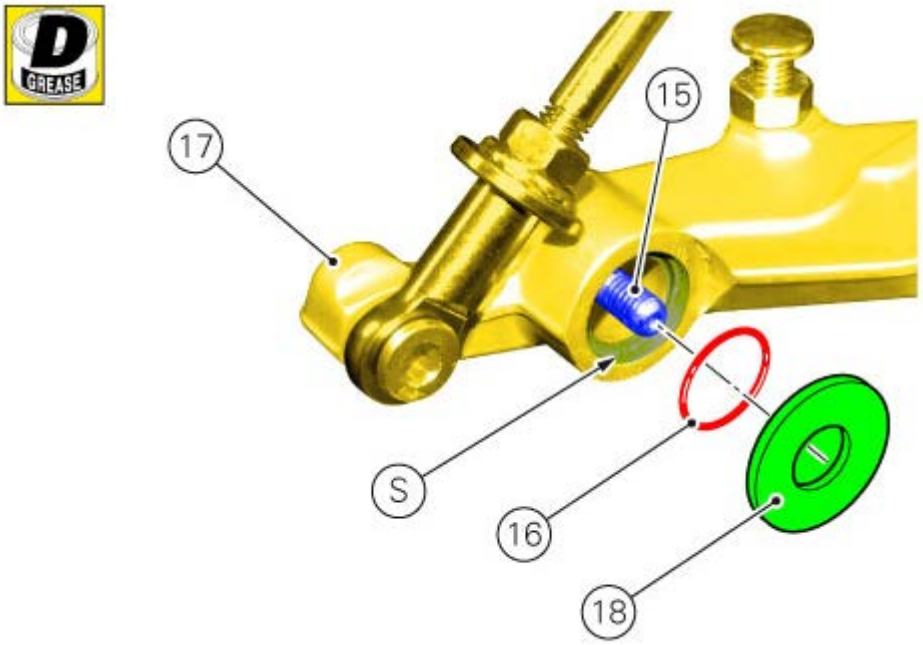




Apply recommended grease in the O-ring seat onto screw (15), insert the first O-ring (16) on screw (15). Apply the recommended threadlocker to the screw thread (15). Insert screw (15) in the indicated hole on brake lever assembly (17). Apply recommended grease in the O-ring seat (S) onto brake lever assembly (17), insert the second O-ring (16) on screw (15). Fit the washer (18) on screw (15). Install the brake lever assembly (17), positioning it as shown, on the front right-hand footpeg holder plate (6) and start screw (15). Tighten screw (15) to a torque of 25 Nm ± 10%.

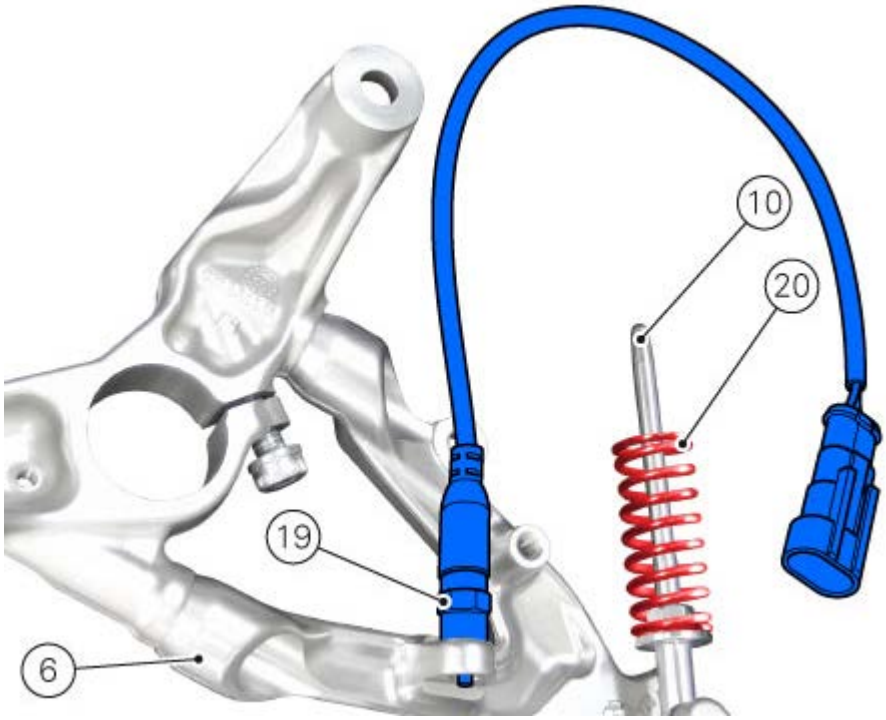
http://www.ducati-manuals.com
no. 140312



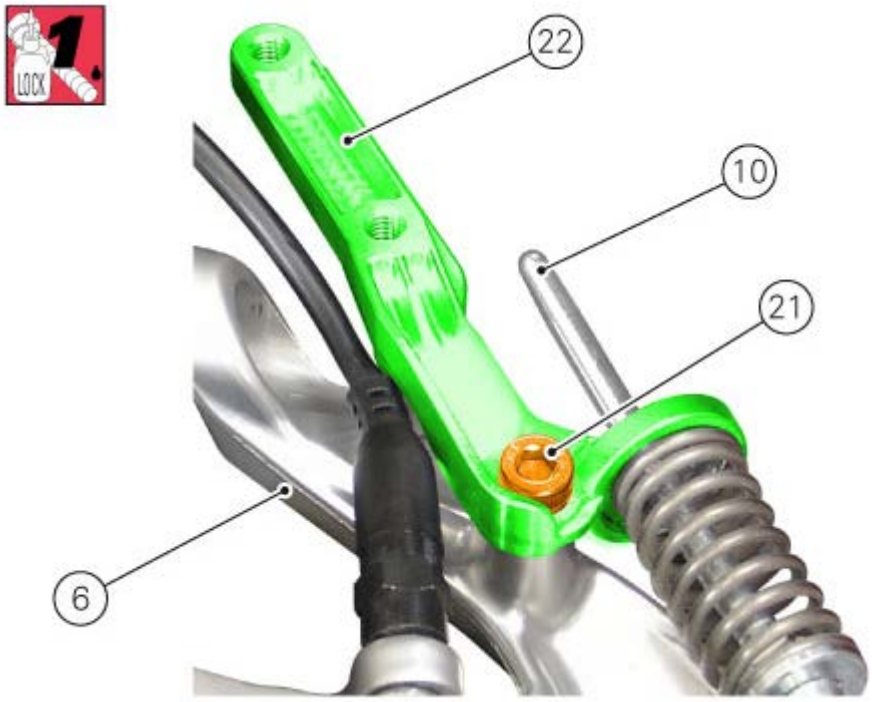


Install the rear brake sensor cable (19), do it finger tight onto front right-hand footpeg holder plate (6). Tighten rear brake sensor cable (19) to a torque of 5 Nm ± 10%. Fit the spring (20) onto rear brake master cylinder rod (10).

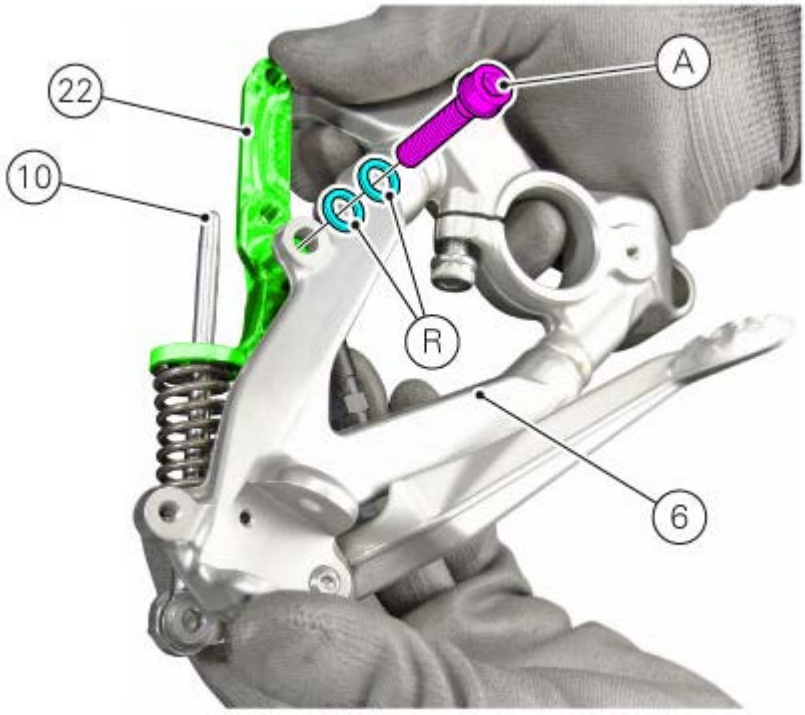
http://www.ducati-manuals.com
no. 140312



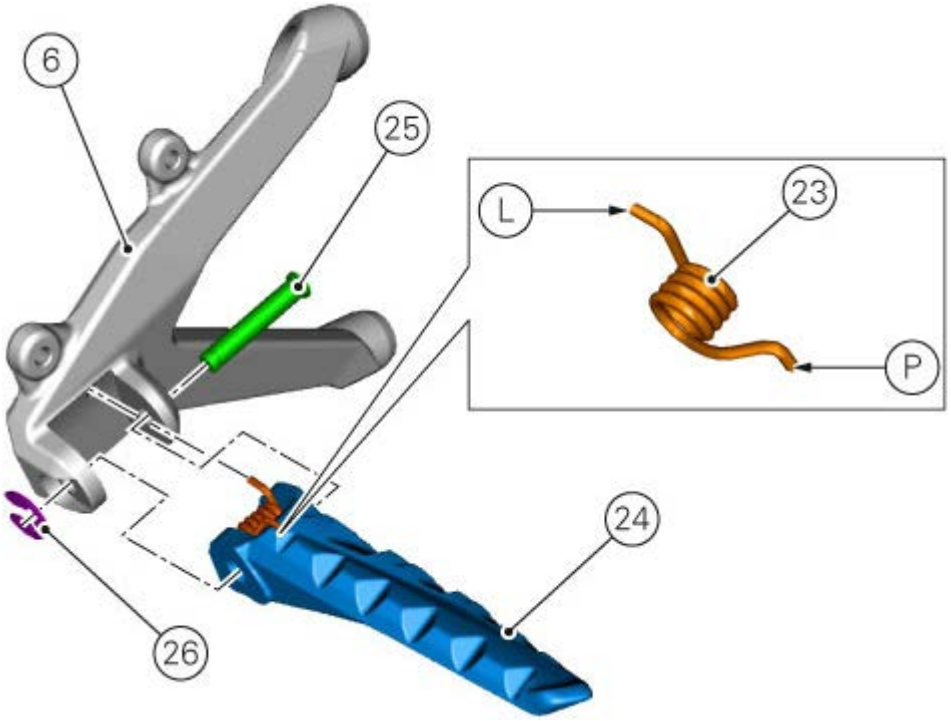
Apply specified threadlocker on the screw thread (21). Install spring compression plate (22) onto rear brake master cylinder rod (10) and fasten it inside front right-hand footpeg holder plate (15) by starting screw (21).
Fit two service washers (R) onto screw (A): screw (A) will be used later, to fasten the right-hand heel guard. Every service washer (R) must be 5 mm x 15 mm (diameter) x 1.5 mm (thickness). On the outside, start screw (A) with washers (R).
Tighten screw (21) to a torque of 10 Nm ± 10%.
Tighten screw (A) to a torque of 6 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



Position spring (23) as shown onto front right-hand footpeg (24): set the end (P) of spring (23) onto footpeg, while end (L), i.e. the one on footpeg holder plate side, must be inserted into the hole on front right-hand footpeg holder plate (6). Fit shaft (25) from the indicated side. Lock shaft using circlip (26).



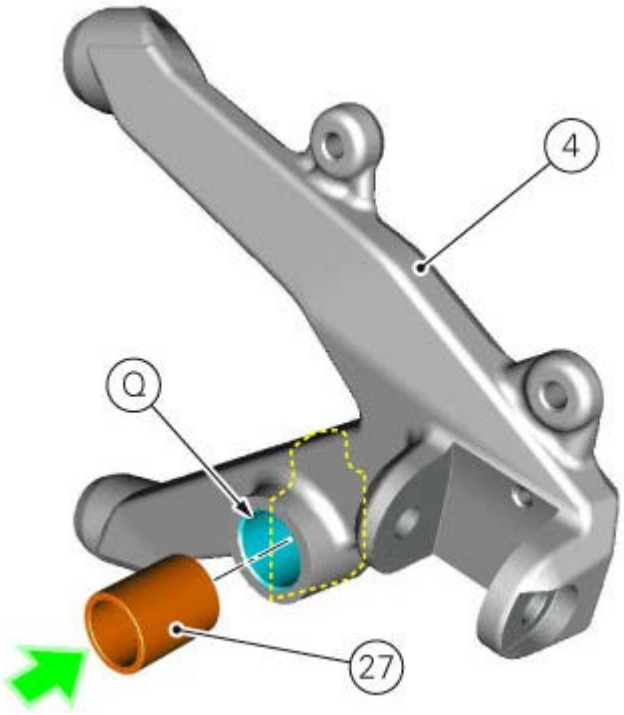
Reassembly of the left-hand footpeg holder plate unit

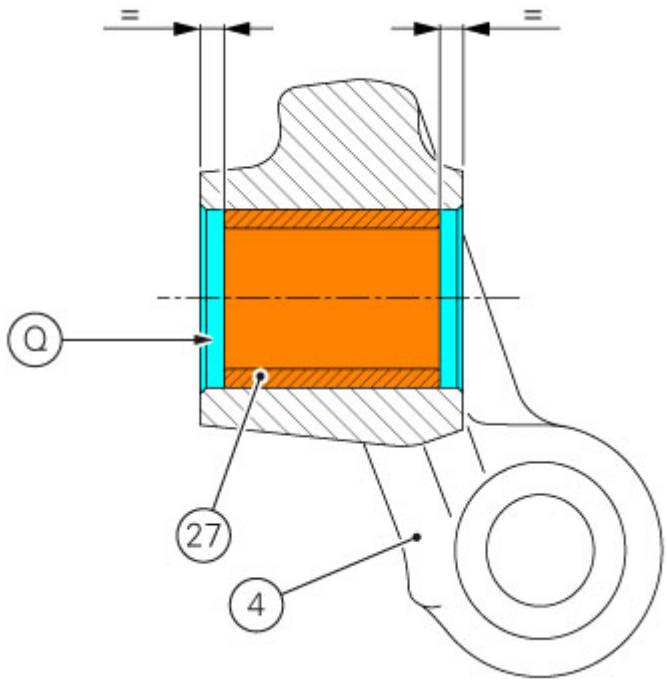
If removed, drive bushing (27) in the relevant seat (8) on front left-hand footpeg holder plate (4).

Important

After assembly, bushing (27) must be at the same distance from the external edges of seat (Q), as shown.

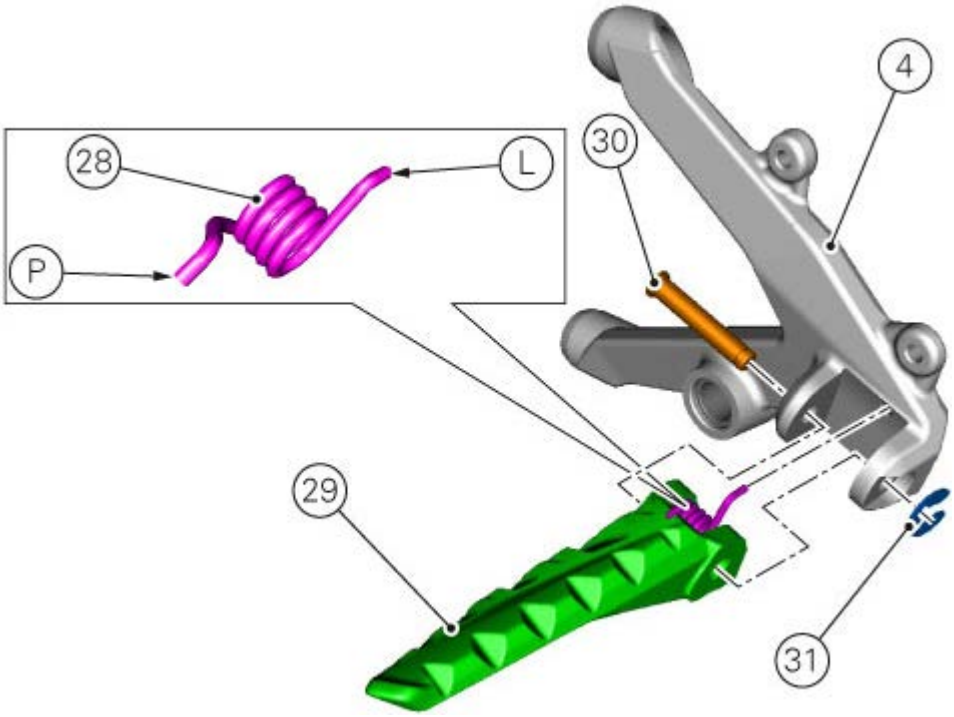
http://www.ducati-manuals.com
no. 140312



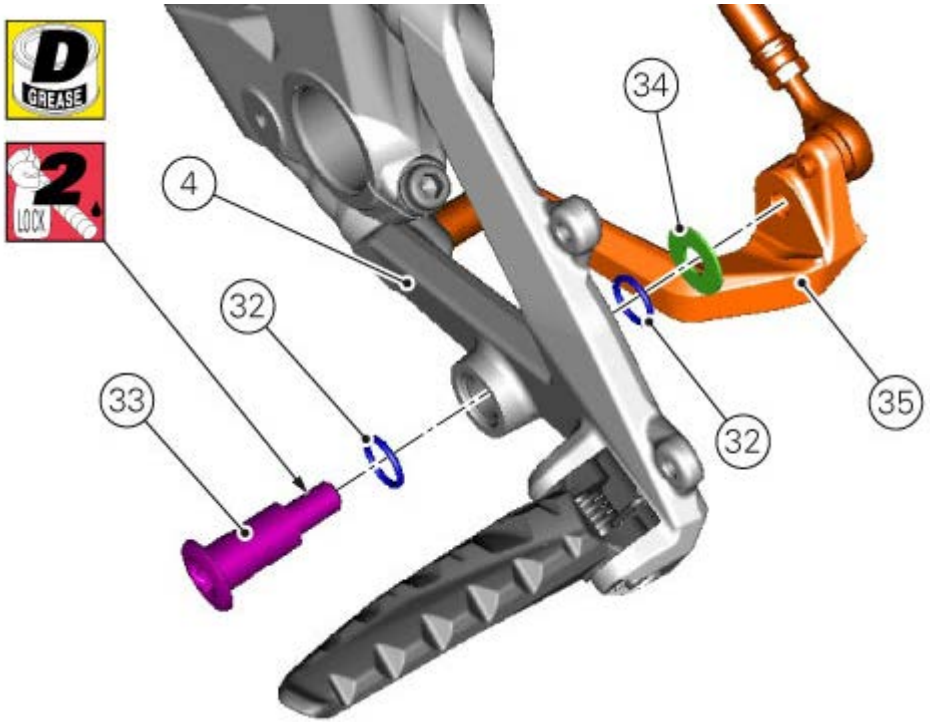


Position spring (28) as shown onto front left-hand footpeg (29): set the end (P) of spring (28) onto footpeg, while end (L), i.e. the one on footpeg holder plate side, must be inserted into the hole on front left-hand footpeg holder plate (4). Fit shaft (30) from the indicated side and lock it using circlip (31).

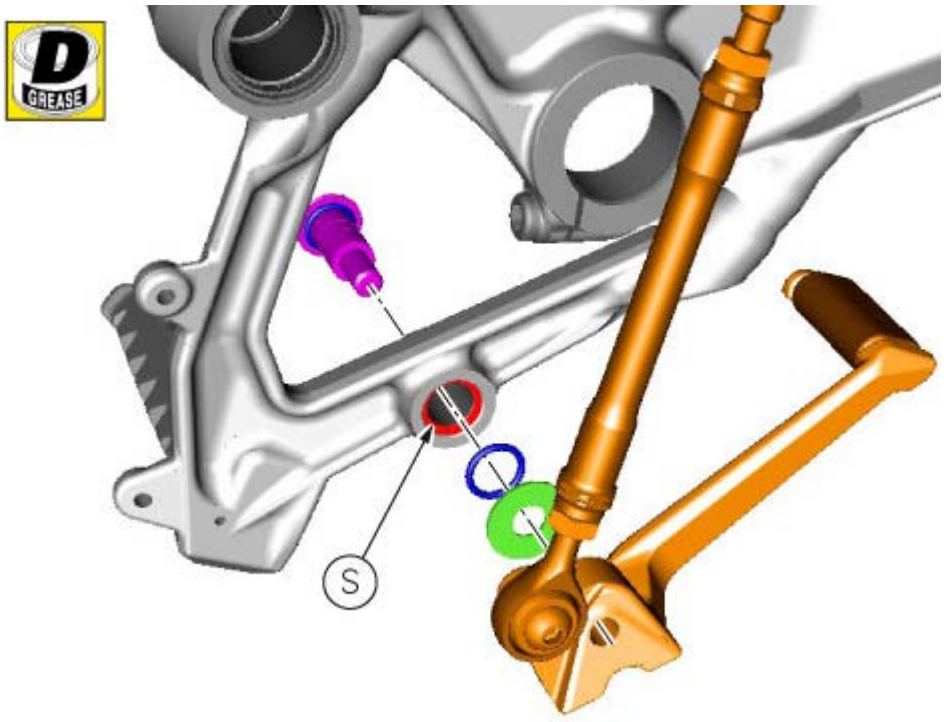
http://www.ducati-manuals.com
no. 140312



Fit the first O-ring (32) on screw (33) after applying recommended threadlocker on thread.
Apply recommended grease on the screw collar (33), avoiding to grease the thread.
Insert screw (33) in the indicated hole on front left-hand footpeg holder plate (4).
Apply recommended grease in the O-ring seat (S) onto front left-hand footpeg holder plate (4), insert the second O-ring (32) on screw (33). Fit the washer (34) on screw (33).
Install the gearchange lever assembly (35), in the position shown, onto front left-hand footpeg holder plate (4). Start screw (33); tighten screw (33) to 25 Nm ± 10%.

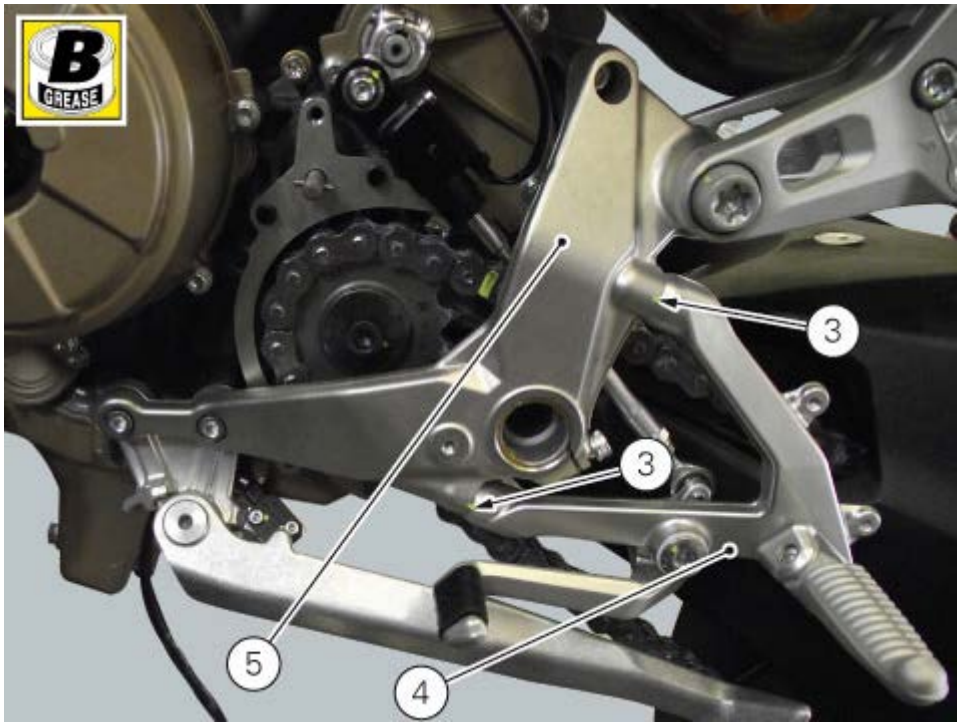


http://www.ducati-manuals.com
no. 140312

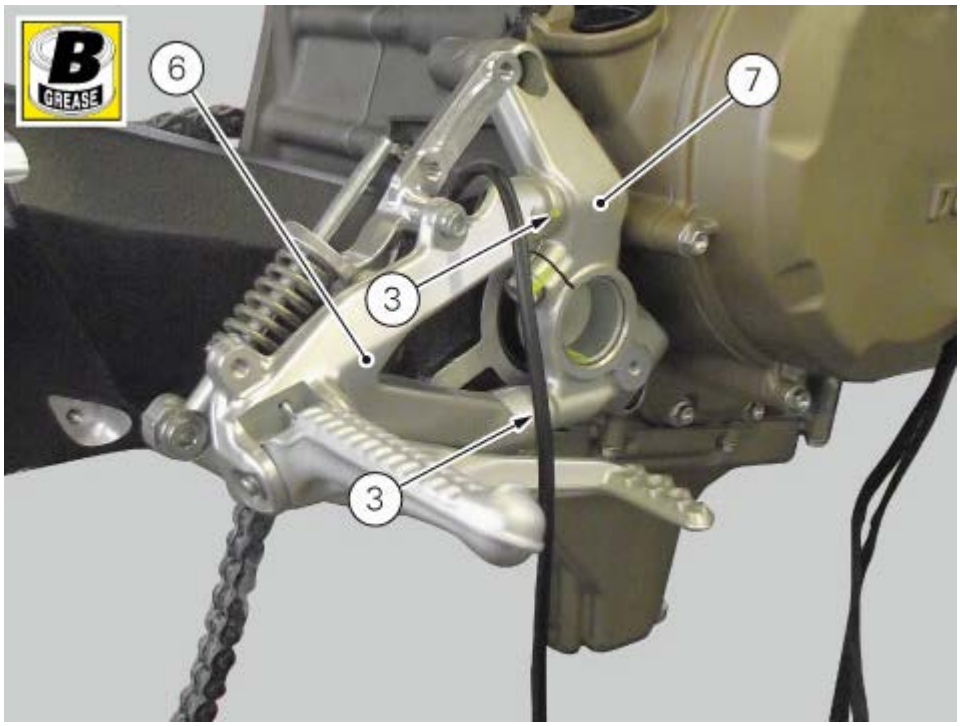


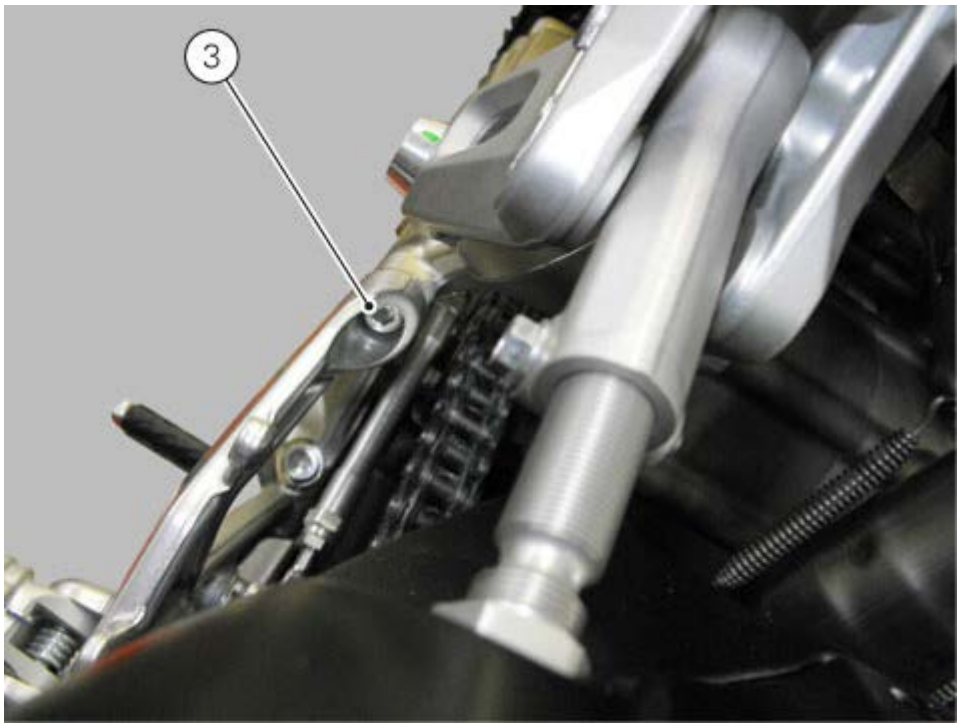
Installation of the footpeg holder plate assembly

Set the front left-hand footpeg holder plate (4) and right-hand one (6) on the relevant left (5) and right (7) swinging arm shaft supports.
Apply recommended grease to the screws (3). Start the screws (3) and tighten them to a torque of 25 Nm ± 5%.



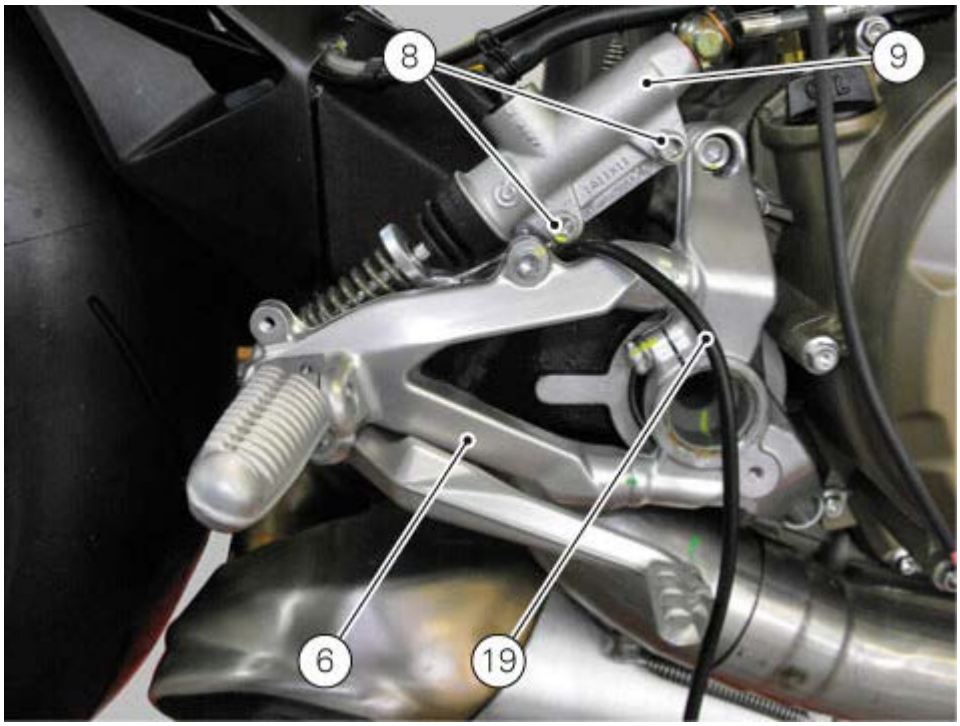
http://www.ducati-manuals.com
no. 140312



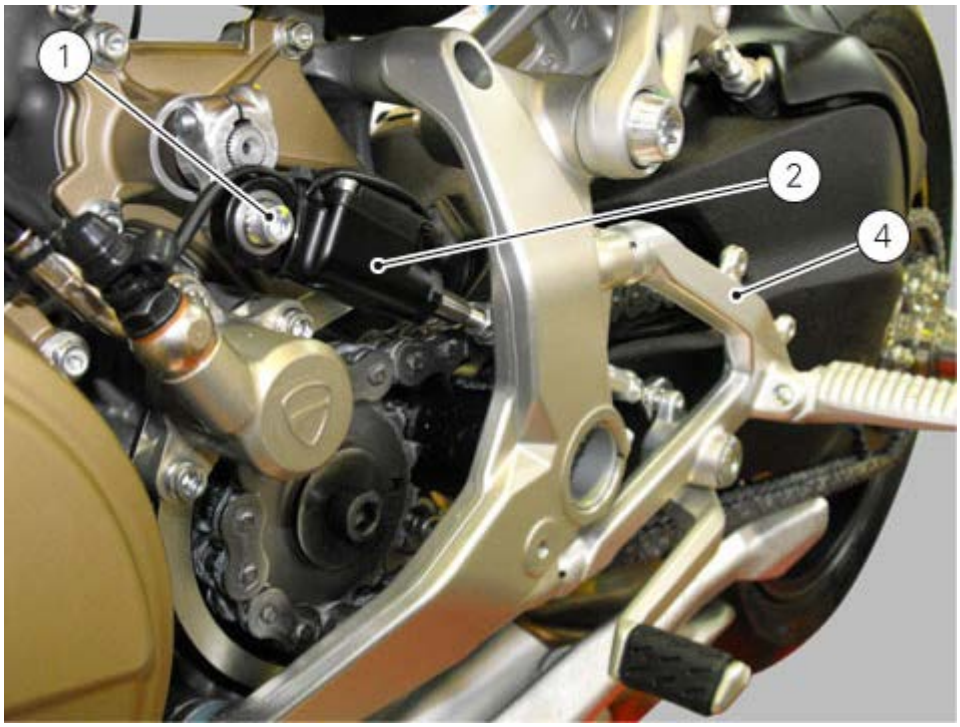


Position the rear brake master cylinder (9) onto the right-hand footpeg holder plate (6) and tighten screws (8) to 8 Nm ± 10%. Connect the rear brake sensor cable (19) to the main wiring harness.

http://www.ducati-manuals.com
no. 140312



For left-hand footpeg holder plate (4), set gearchange assembly (2) onto gearchange lever and start the screw (1). Tighten screw (1) to a torque of 10 Nm ± 10%.

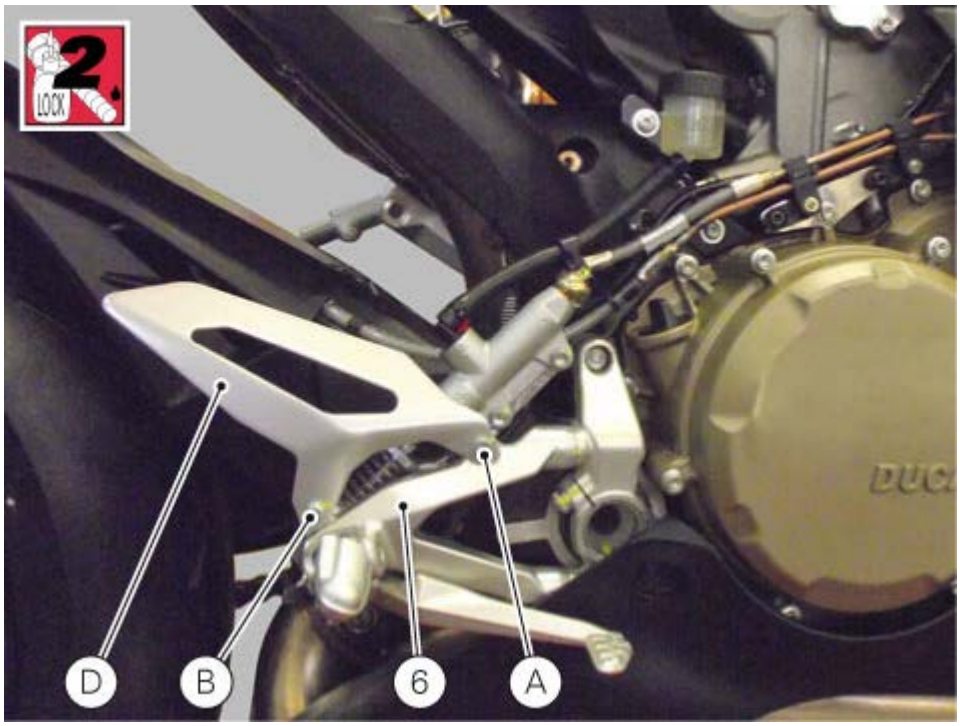


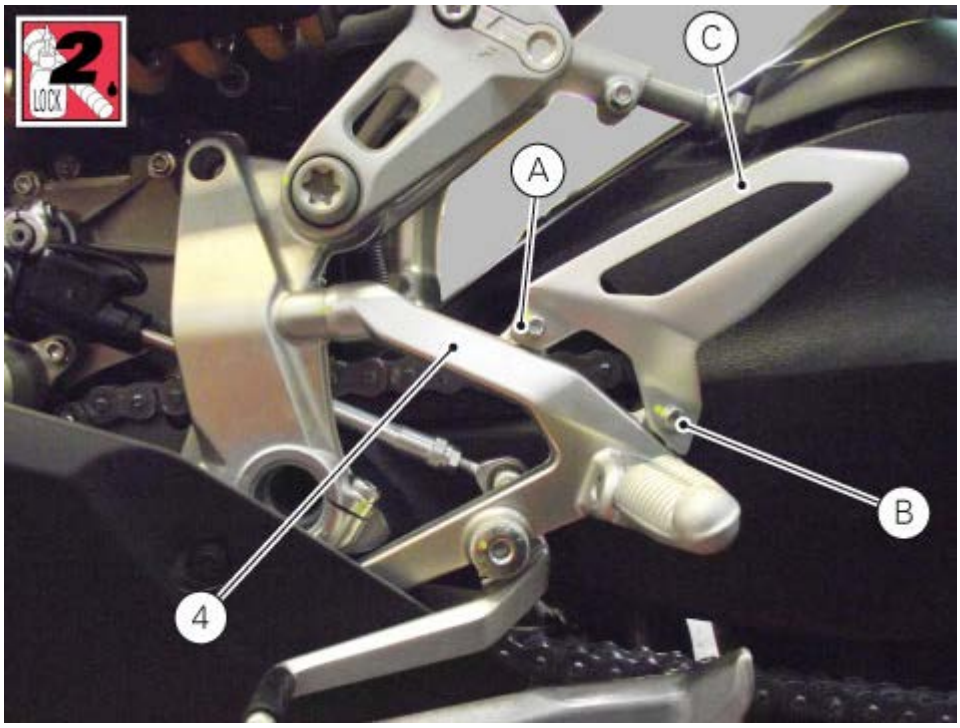
Refit the left (C) and right heel guards (D) respectively onto left-hand (4) and right-hand footpeg holder plates (6).
Loosen screw (A) from heel guard (D), which was previously used, and remove it together with the service washers used.
Smear screws (A) and (B) with recommended threadlocker, and start them.

Warning
Screw (A) on heel guard (D) also fastens rear brake master cylinder support onto footpeg holder plate.

Tighten the screws (A) and (B) to a torque of 6 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



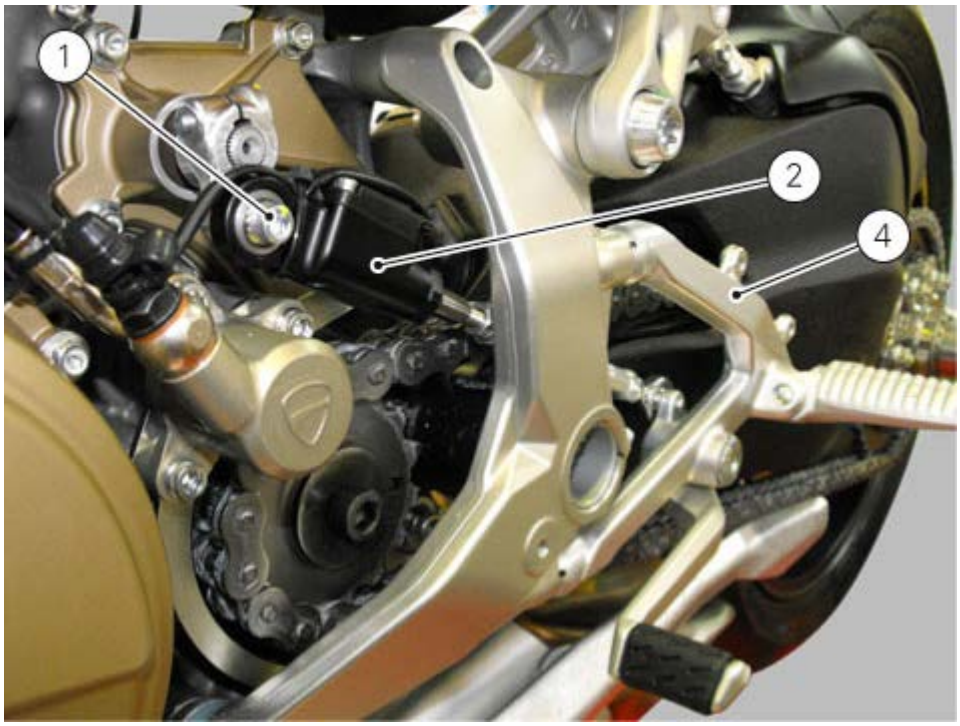


Refit the lower half-fairings (Installation of the side fairings).

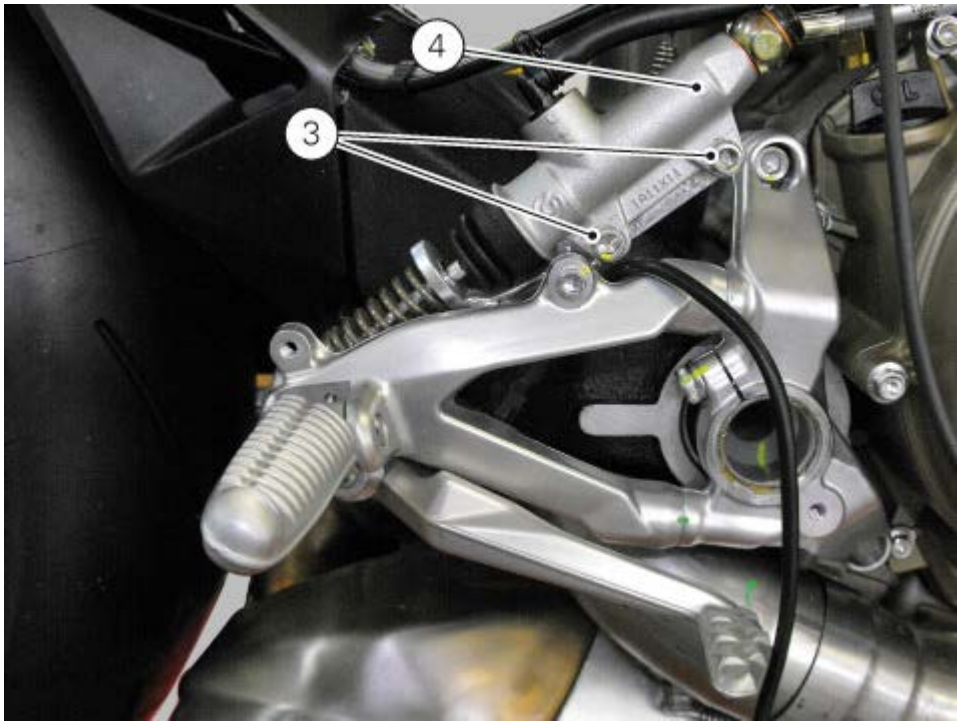
http://www.ducati-manuals.com
no. 140312

Removal of the front footpeg holder plates

Remove the lower half-fairings (Removal of the side fairings).
Remove the rocker arm-shock absorber assembly (Removal of the shock absorber support).
Remove the footpeg holder plate unit: it is possible to leave the footpeg holder plate unit assembled to the swinging arm shaft supports.
If these supports are removed with attached footpeg holder plate units, loosen screw (1) retaining the gearchange assembly (2).

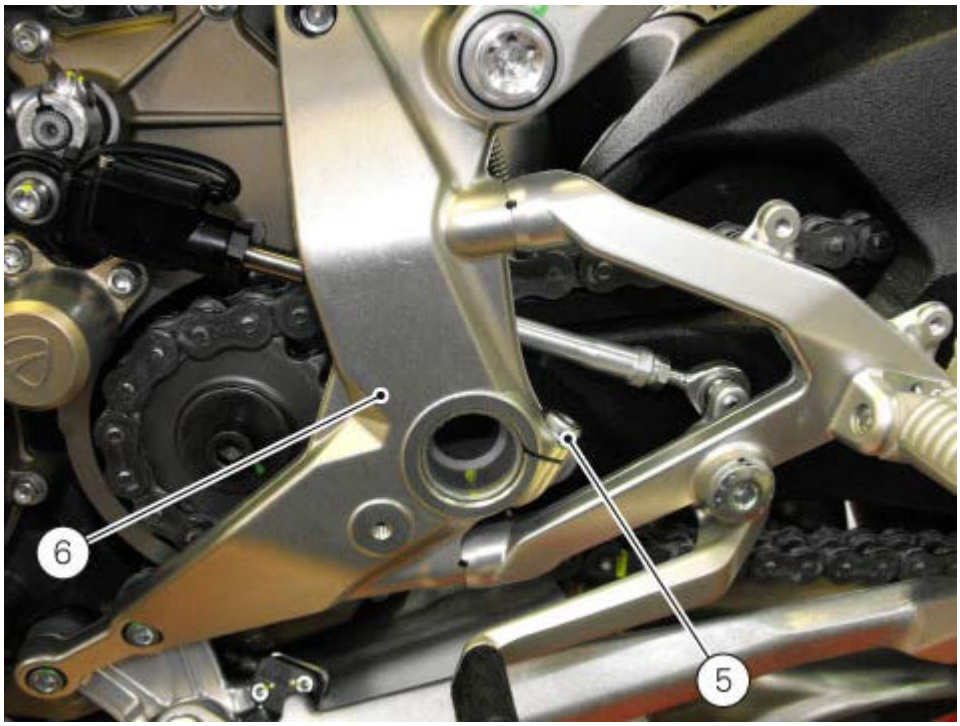


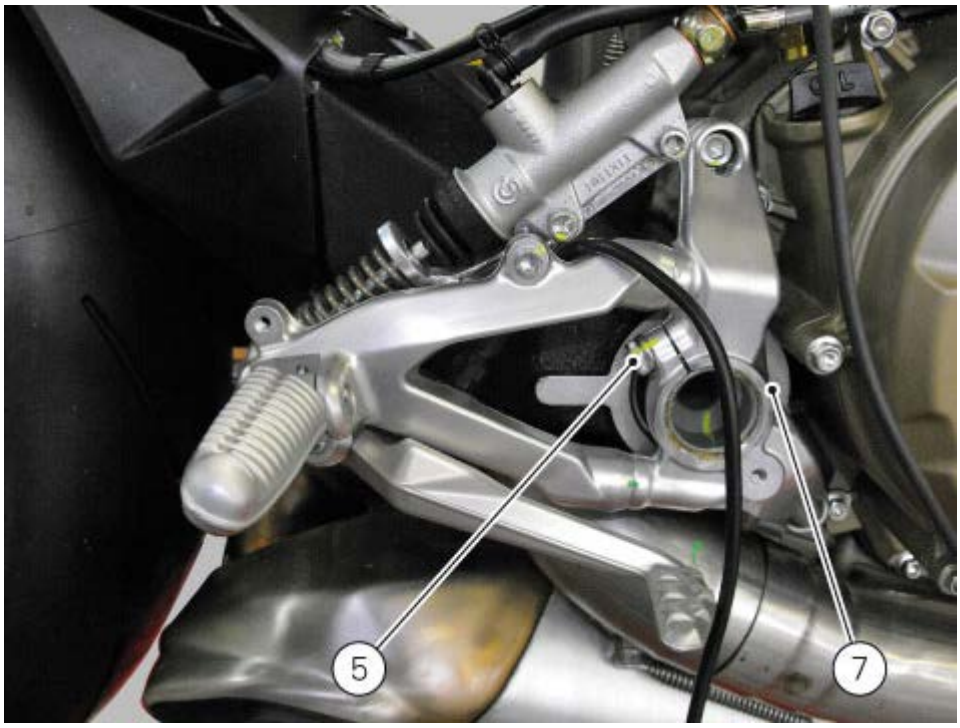
If these supports are removed with attached footpeg holder plate units, loosen screws (3) retaining the rear brake master cylinder (4) and disconnect the rear brake sensor cable from the main wiring harness.



Loosen screws (5) from swinging arm shaft clamps of left-hand support (6) and right-hand support (7).

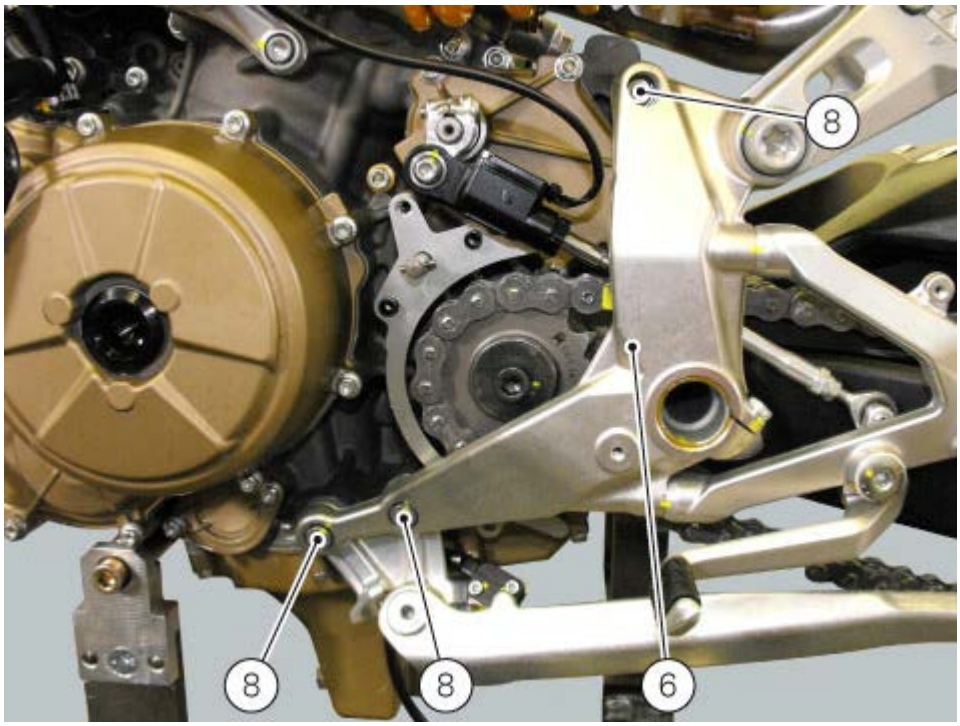
http://www.ducati-manuals.com
no. 140312

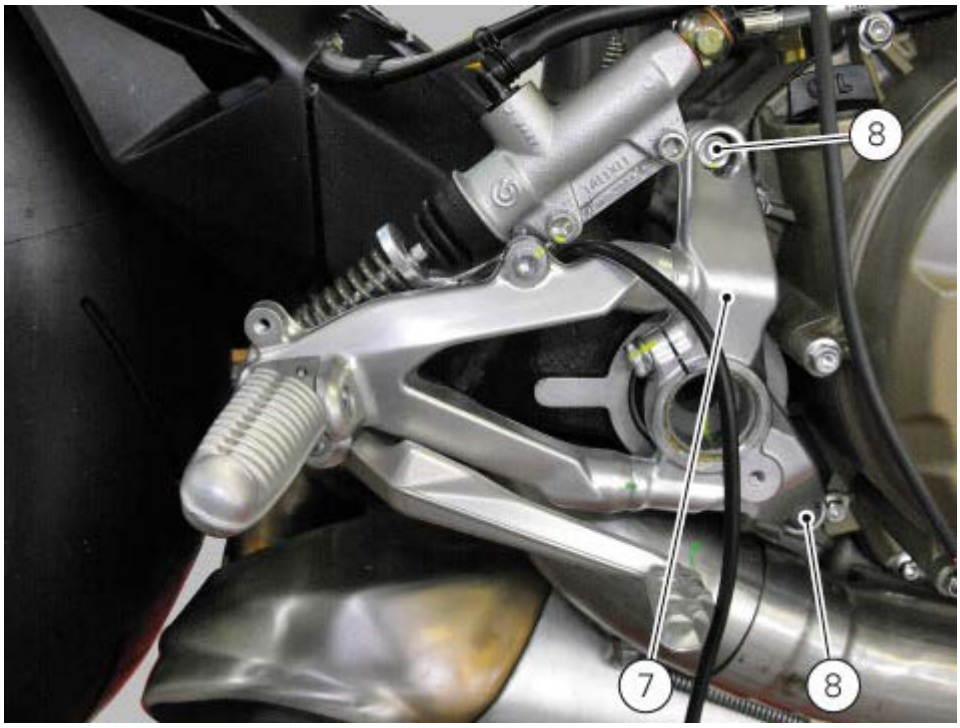




Unscrew the screws (8) securing the left-hand support (6) and right-hand support (7) to crankcase.

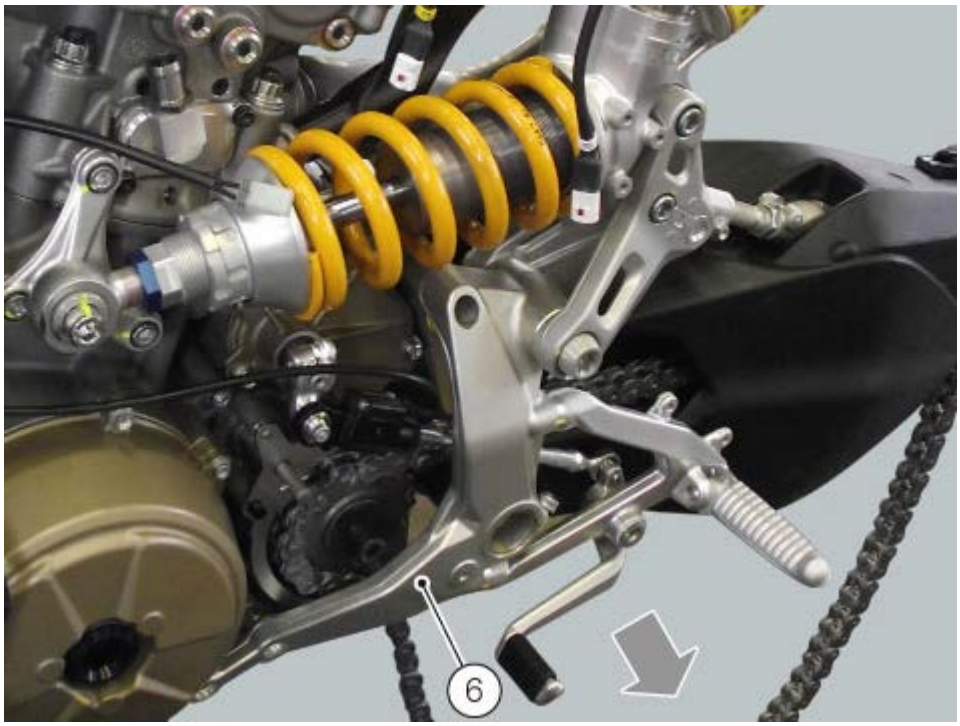
http://www.ducati-manuals.com
no. 140312

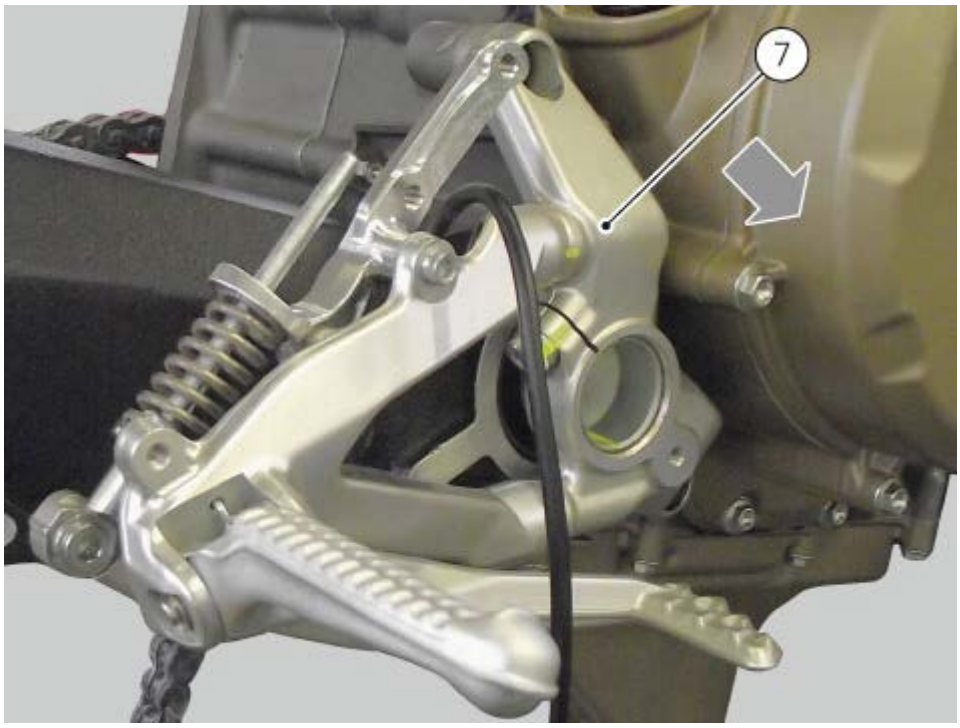




Slide out the left-hand support (6) and right-hand support (7) from swinging arm shafts.

http://www.ducati-manuals.com
no. 140312

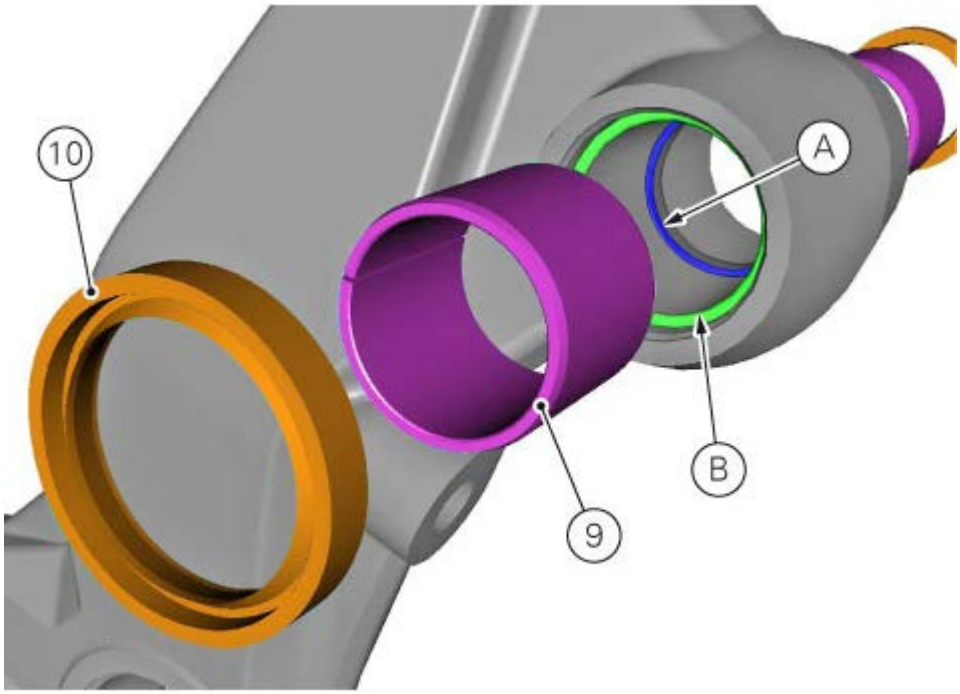


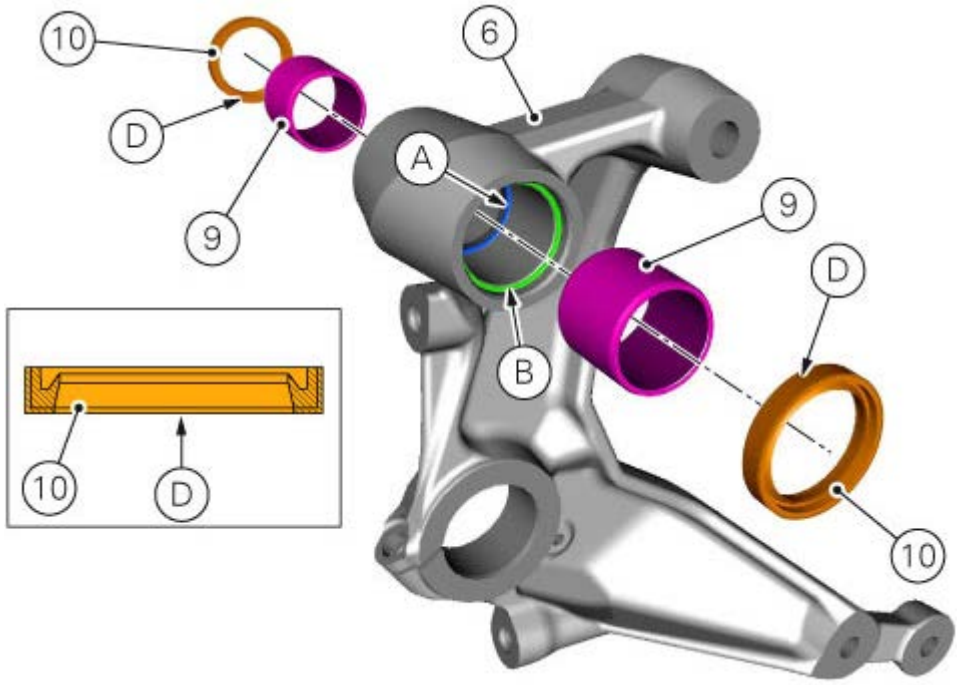


http://www.ducati-manuals.com
no. 140312

Installation of the front footpeg holder plates

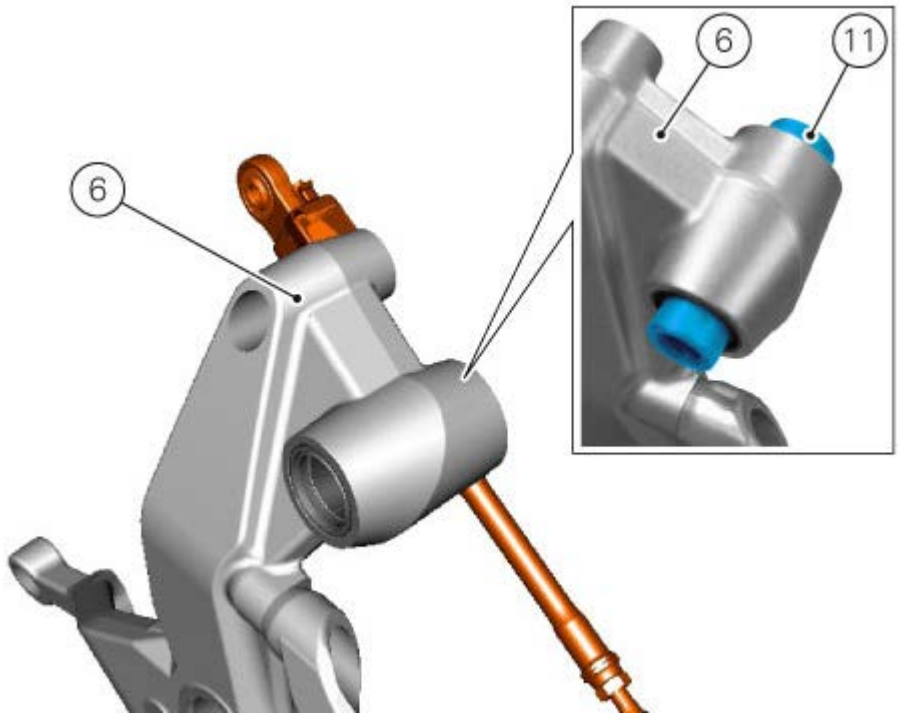
If removed, drive bushes (9) in the indicated hole on support attached to left-hand footpeg holder plate (6), and take them fully home onto step (A). Install dust seals (10) in their seats, fully home onto step (B) and positioned so that the flat side is facing inside.



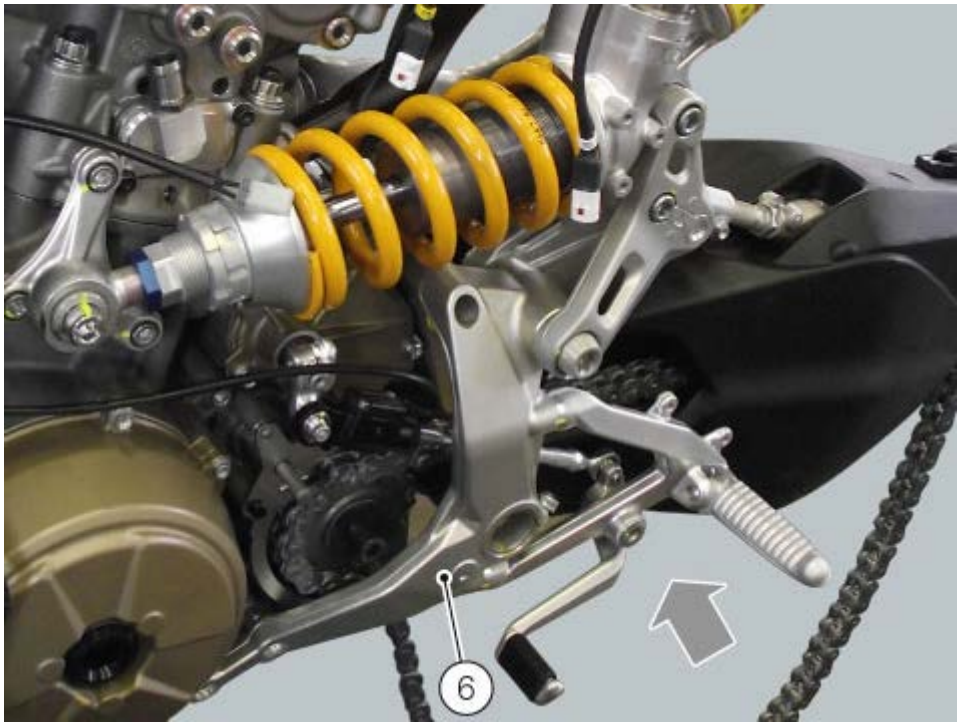


Make sure the bushing (11) is present inside the indicated hole on left-hand support (6).

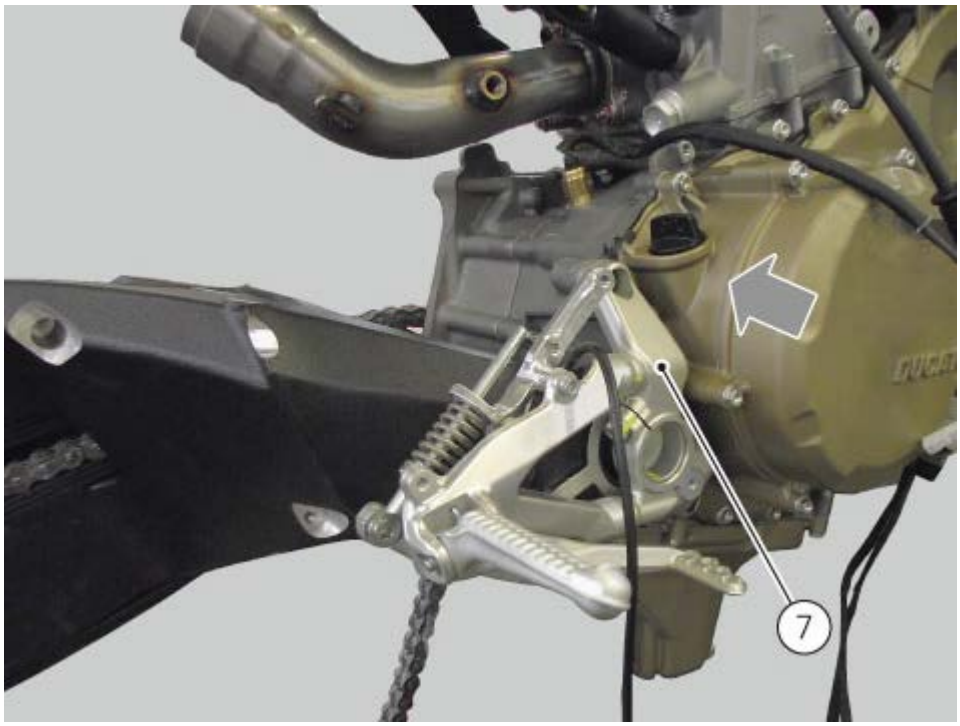
http://www.ducati-manuals.com
no. 140312



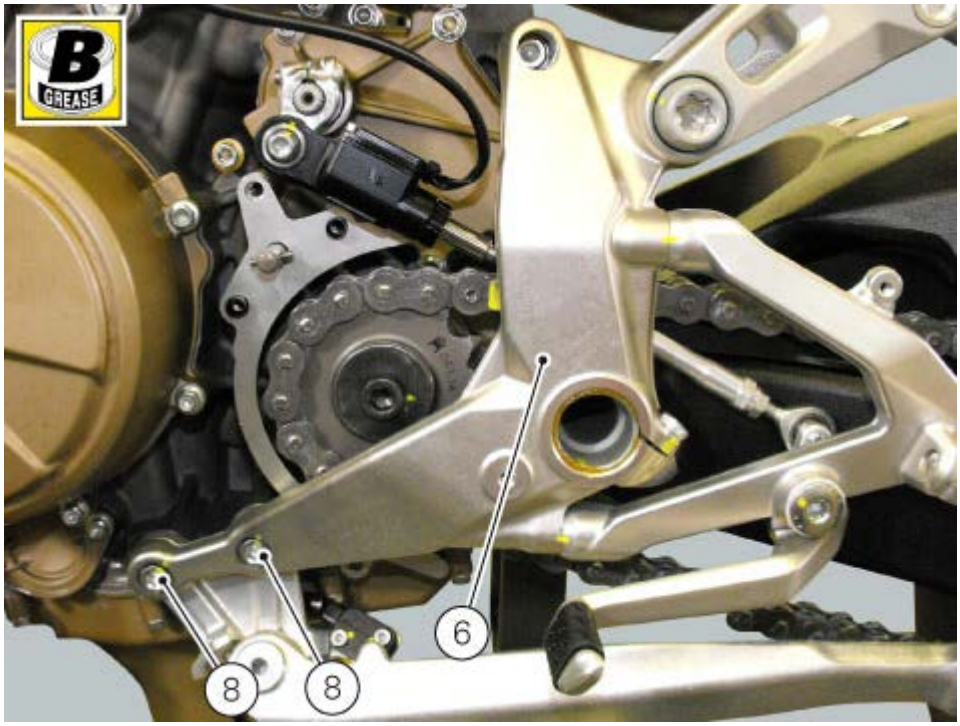
Set the left-hand support (6) and right-hand support (7) onto swinging arm shafts.



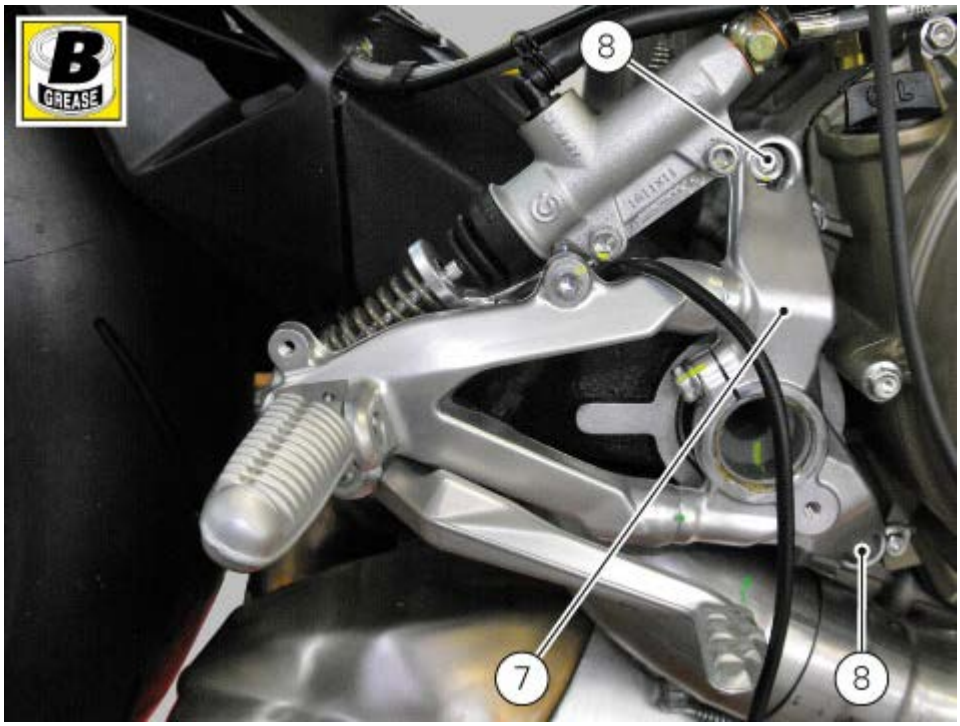
http://www.ducati-manuals.com
no. 140312



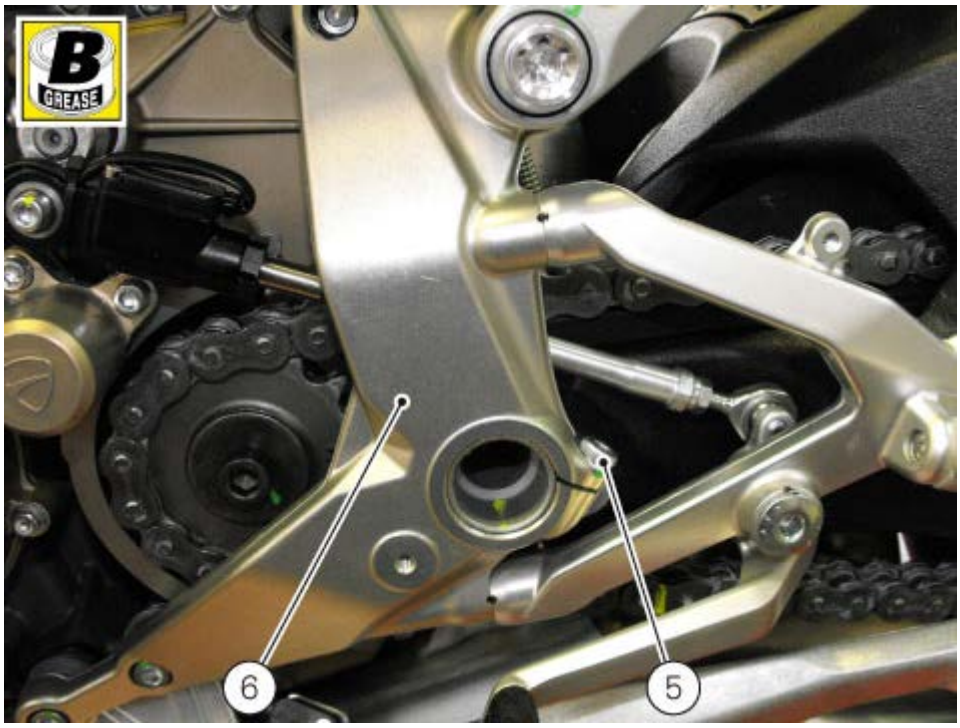
Apply recommended grease to the screws (8).
Start the screws (8) securing the left-hand support (6) and right-hand support (7) to crankcase.
Tighten the screws (8) to a torque of 25 Nm ± 5%.



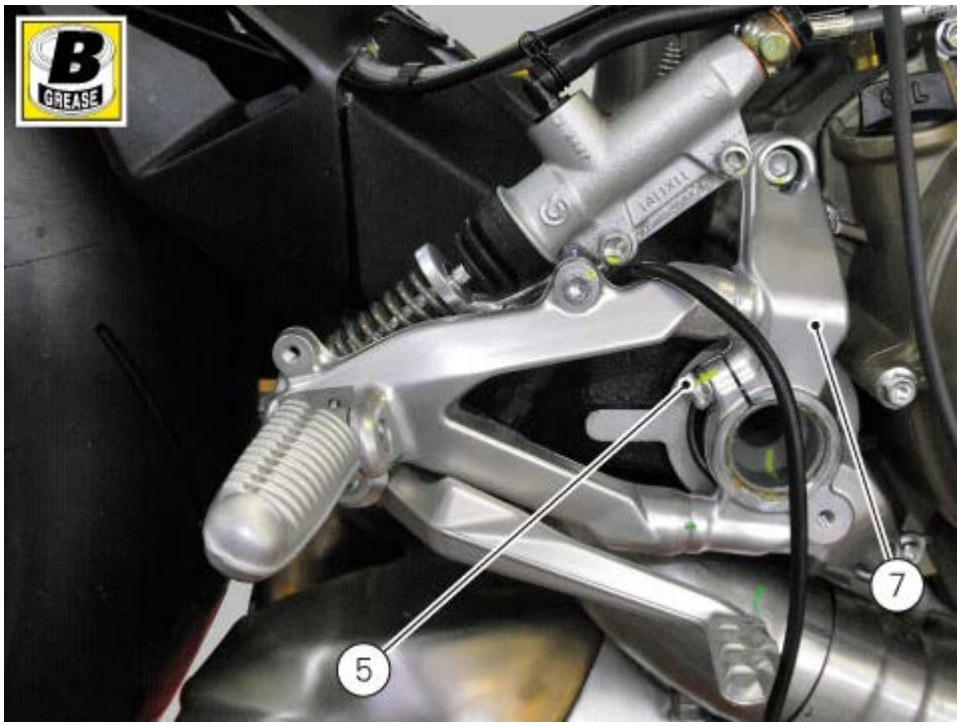
http://www.ducati-manuals.com
no. 140312



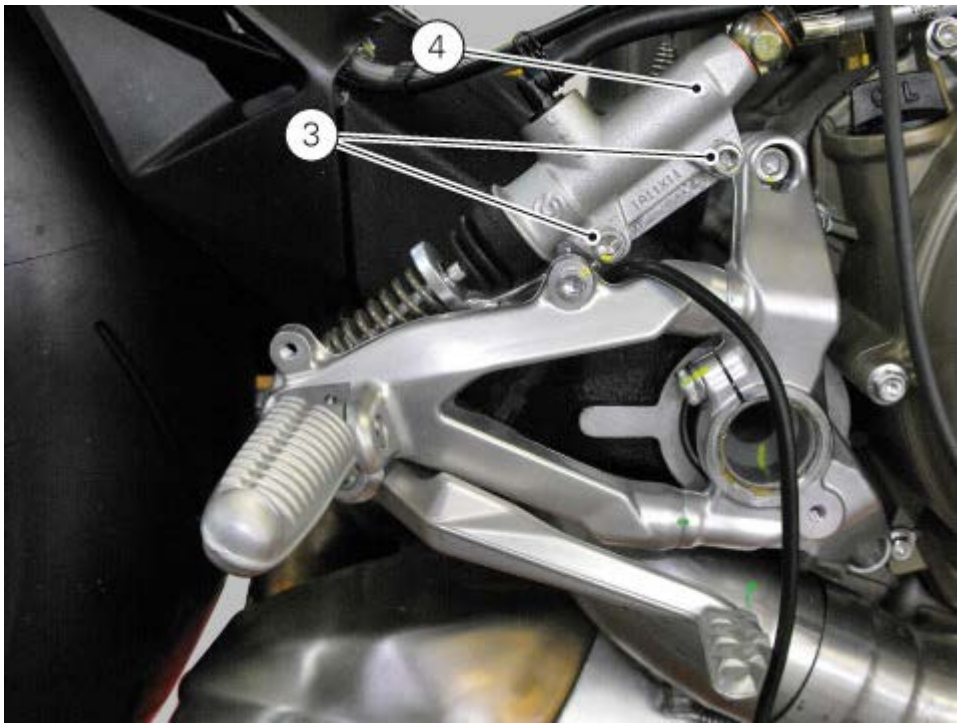
Apply recommended grease to the screws (5).
Do screws (5) on swinging arm shaft clamps of left-hand support (6) and right-hand support (7) finger tight.
Tighten the screws (5) to a torque of 8 Nm ± 5%.



http://www.ducati-manuals.com
no. 140312

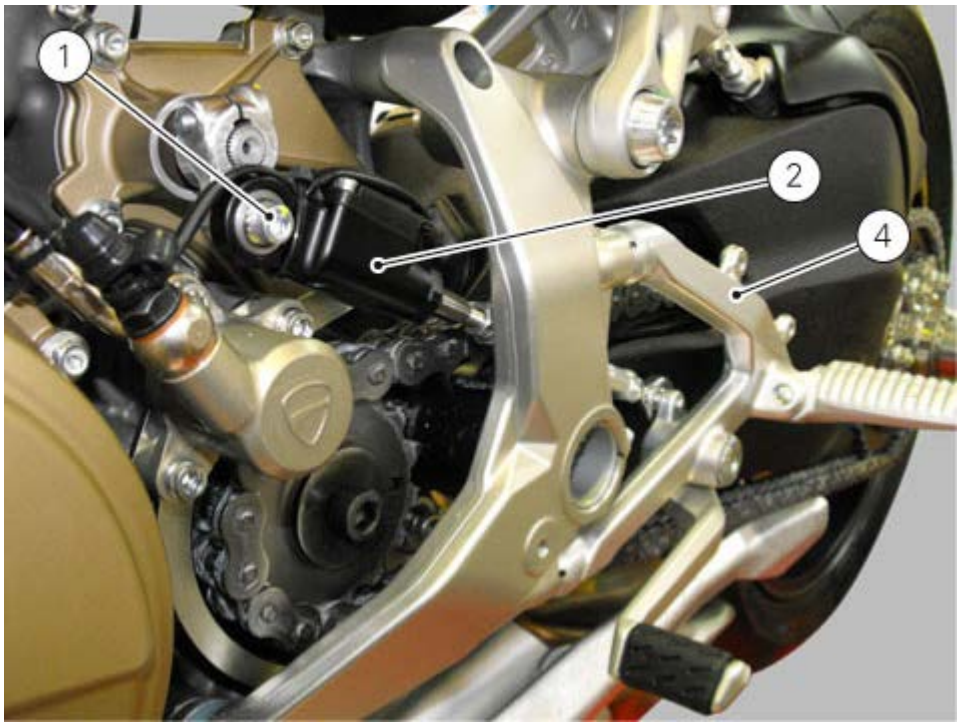


If footpeg holder plate units have already been installed to the supports, start screws (3) retaining the rear brake master cylinder (4) to right-hand support (7). Tighten the screws (3) to a torque of 8 Nm 10%.
Connect the rear brake sensor cable to the main wiring harness.



If footpeg holder plate units have already been installed to the supports, start screw (1) retaining the gearchange rod (2). Tighten screw (1) to a torque of 10 Nm 10%.

http://www.ducati-manuals.com
no. 140312



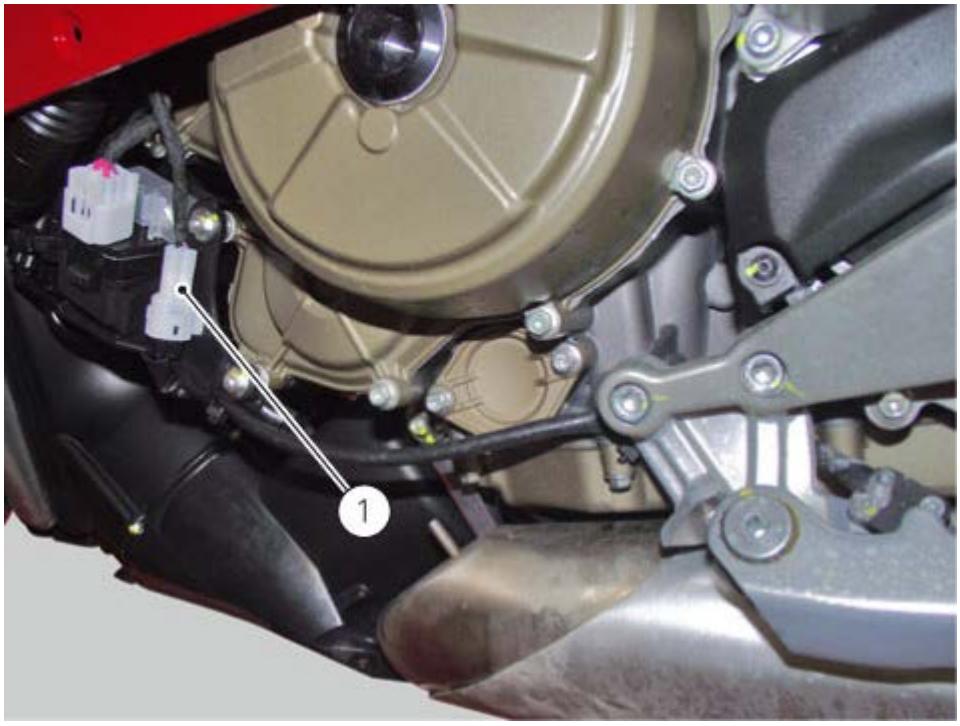
If necessary, refit the footpeg holder plate unit to supports (Installation of the front footpegs).
Refit the rocker arm-shock absorber assembly (Installation of the shock absorber support).
Refit the lower half-fairings (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

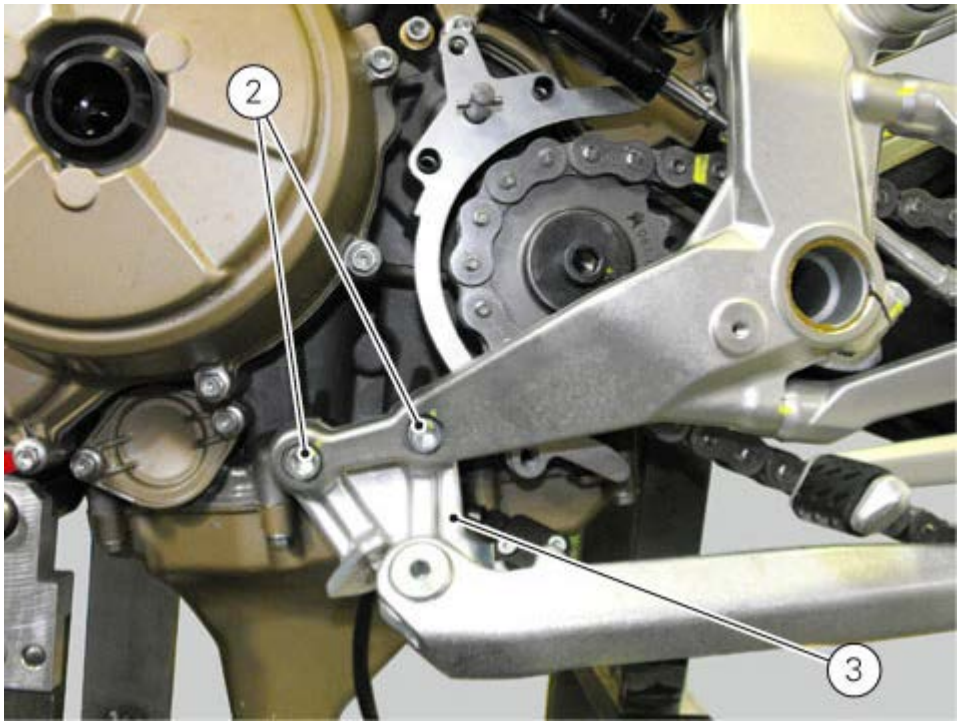
Disassembly of the side stand

Remove the rider seat (Removal of the rider seat).
Remove the LH side fairing (Removal of the side fairings).

Disconnect the side stand sensor (1) from main wiring.

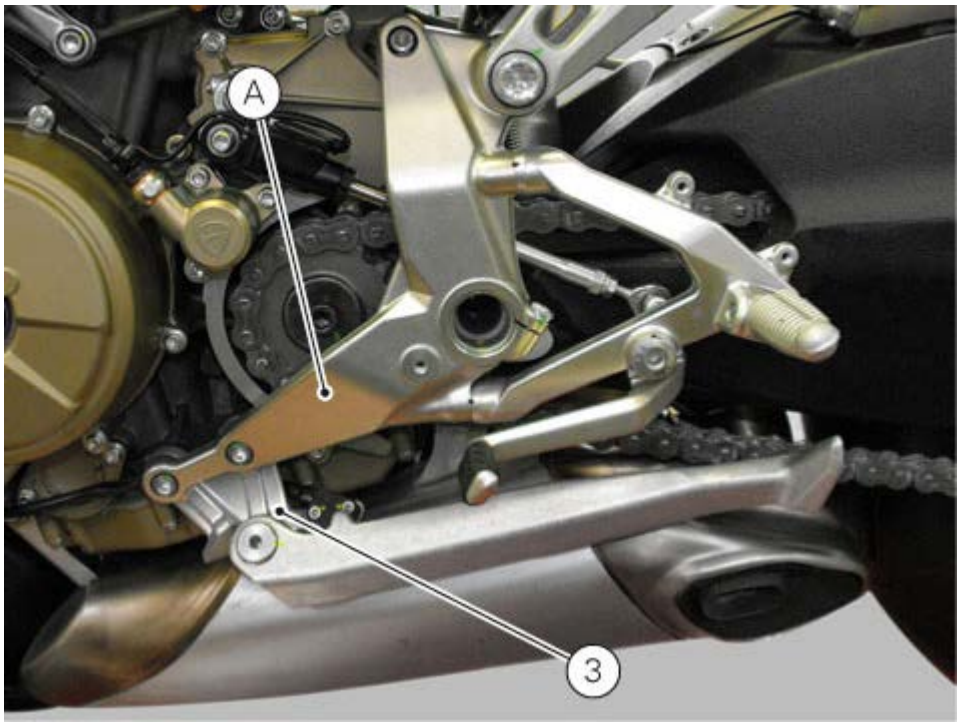


Loosen the two retaining screws (2) on the side stand assembly (3).



Remove the side stand assembly (3) from the LH swinging arm shaft support (4).

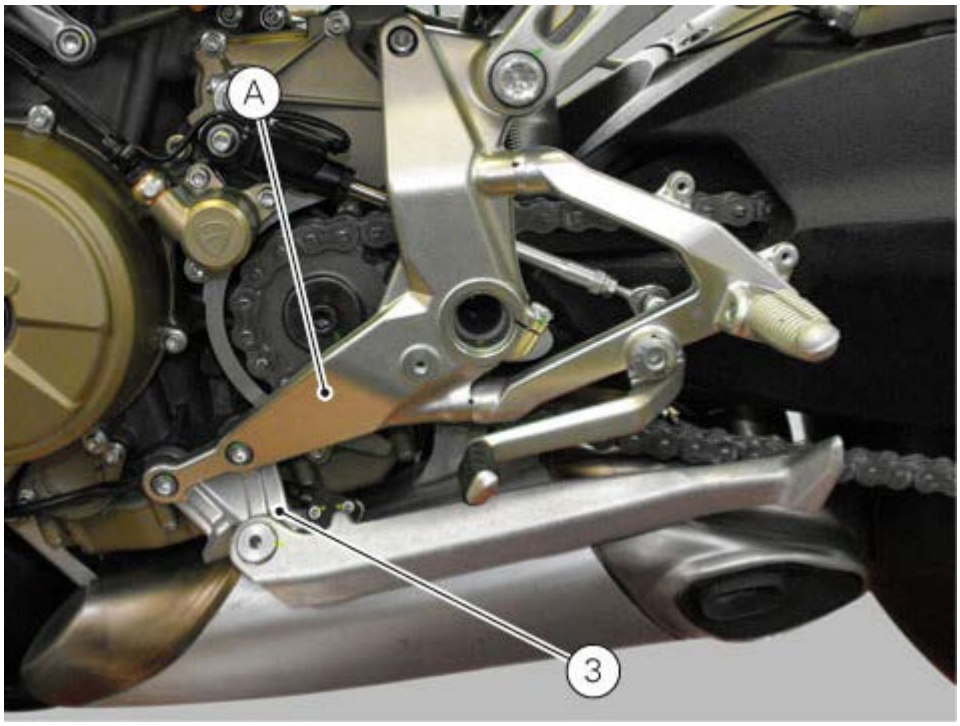
http://www.ducati-manuals.com
no. 140312



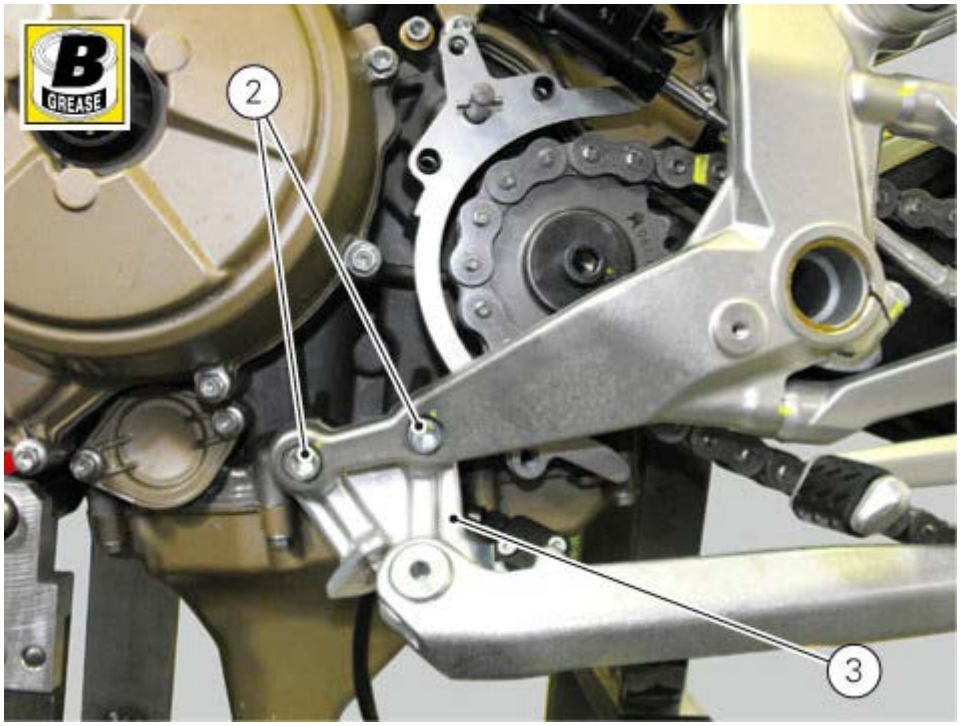
http://www.ducati-manuals.com
no. 140312

Installation of the side stand

Fit the side stand assembly (3) under the LH swinging arm shaft support (4).

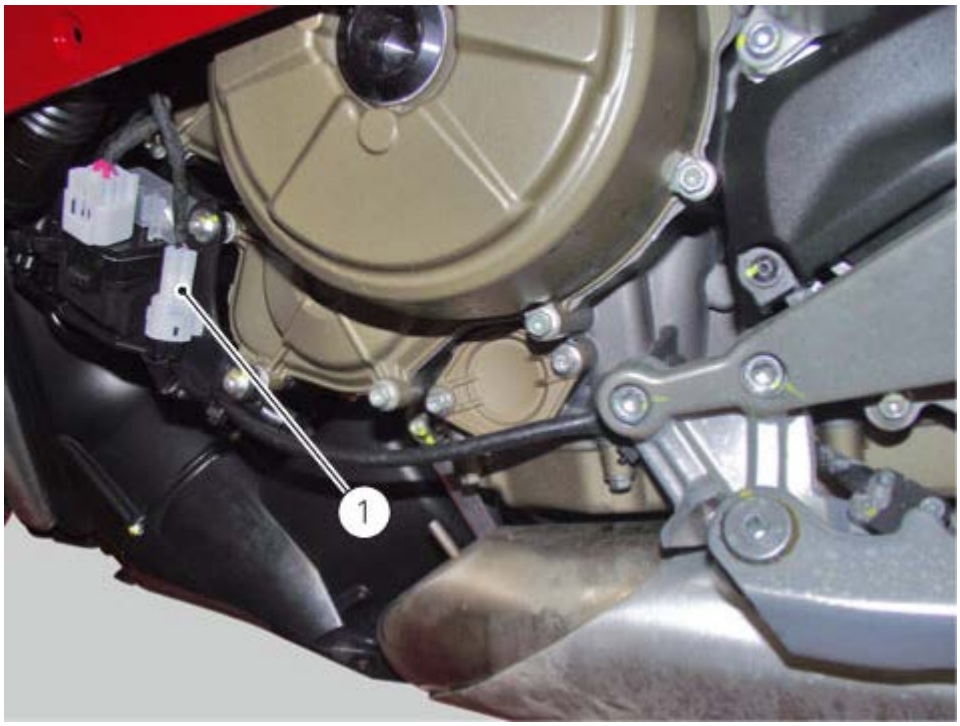


Smear the screws (2) with specified grease.
Start the side stand assembly (3) retaining screws (2).
Tighten the screws to a torque of 25 Nm ± 5%.



Connect the side stand sensor to main wiring.

http://www.ducati-manuals.com
no. 140312



Install the LH side fairing (Installation of the side fairings).
Install the rider seat (Installation of the rider seat).

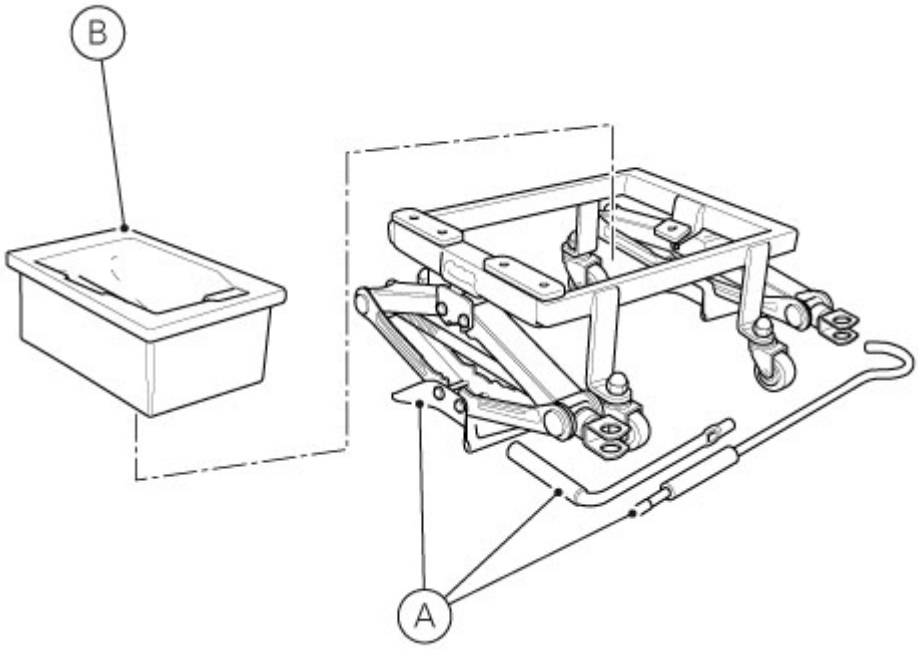
http://www.ducati-manuals.com
no. 140312

Removal of structural components and frame

Removal of frame and steering system components

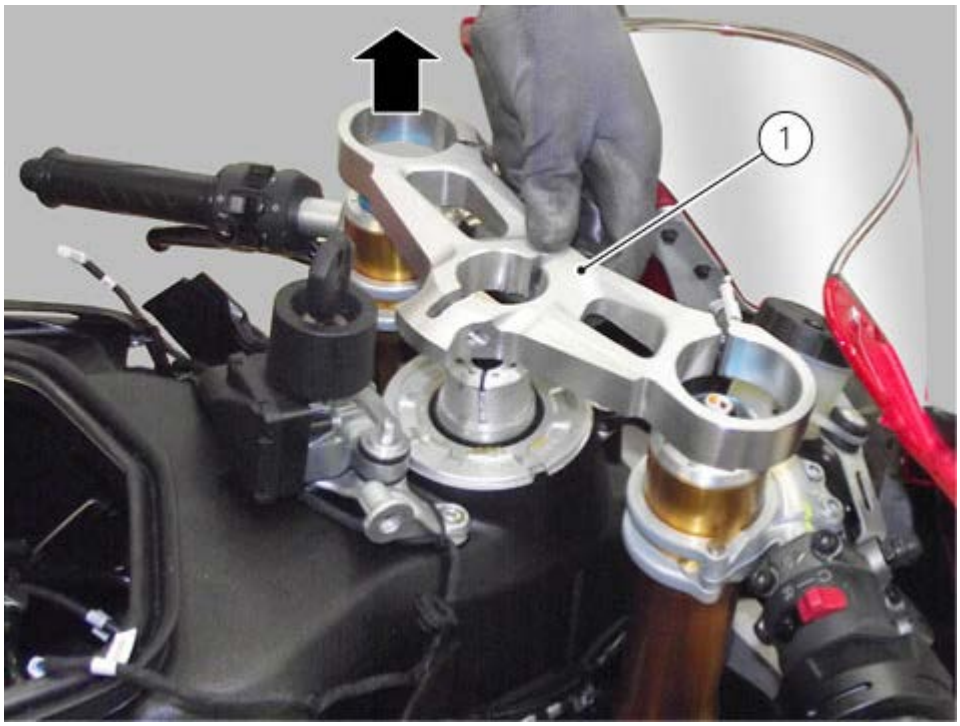
The engine of this vehicle is a load-bearing part. To work on the parts supported by the engine block, such as frame, the engine block shall be duly supported, as described herebelow.
Remove the side fairings (Removal of the side fairings).
Remove the seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).
Remove the front wheel (Removal of the front wheel).
Remove the radiator assembly support (Removal of the water radiator).
Remove the exhaust system (Removal of the exhaust system).

Position tools no. **88713.3092** - engine repair work bench (A) and **88713.3927** - engine support (B) under the engine block to duly support it.



Remove the rear subframe (Removal of the rear subframe).
Remove the LH and RH electric system supports (Removal of the electric system supports).
Remove the headlight assembly (Replacement of the headlight).
Remove the steering head (1) and the handlebars from forks (Removal of the front fork).

http://www.ducati-manuals.com
no. 140312





Loosen the ring nut (2).

http://www.ducati-manuals.com
no. 140312





Remove the seal ring (3).

http://www.ducati-manuals.com
no. 140312

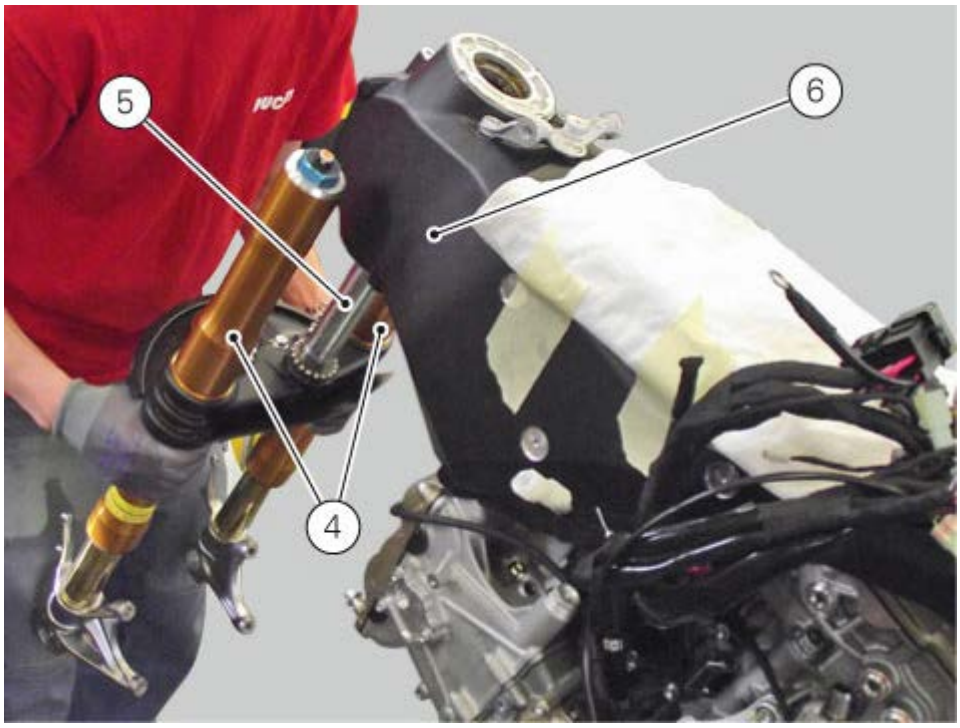


Remove the fork assembly (4) with steering shaft and bottom yoke (5) from frame (6).



http://www.ducati-manuals.com
no. 140312

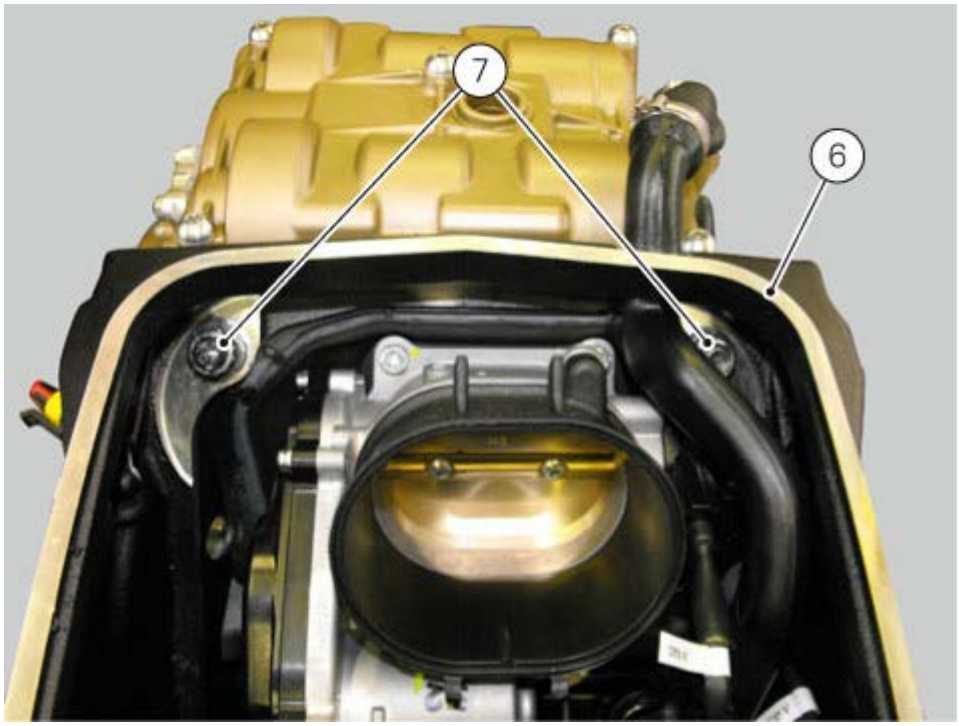




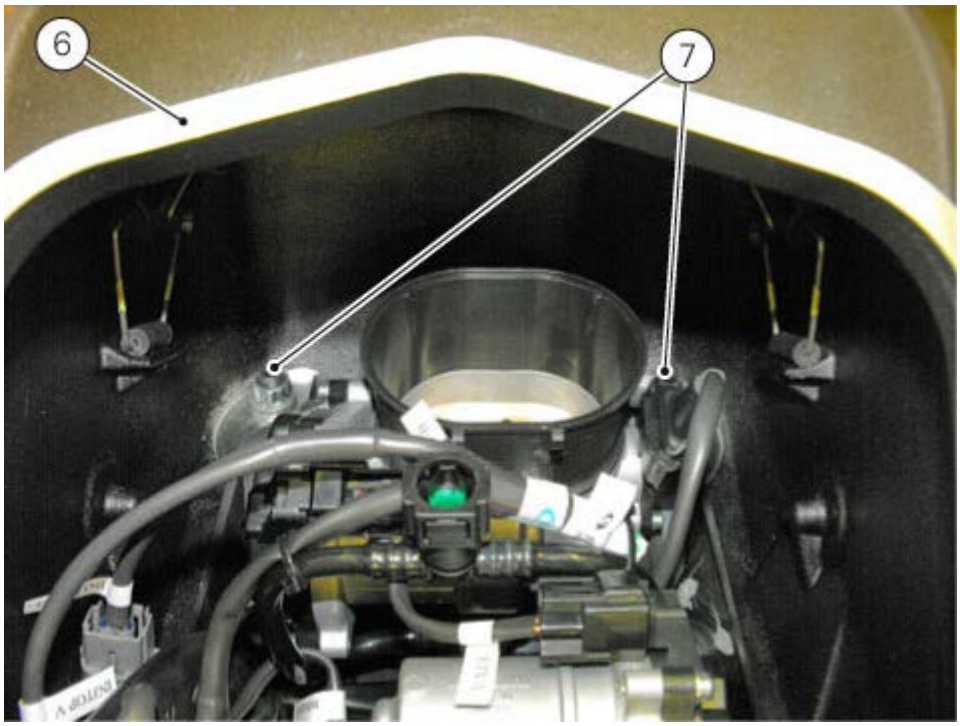
http://www.ducati-manuals.com
no. 140312



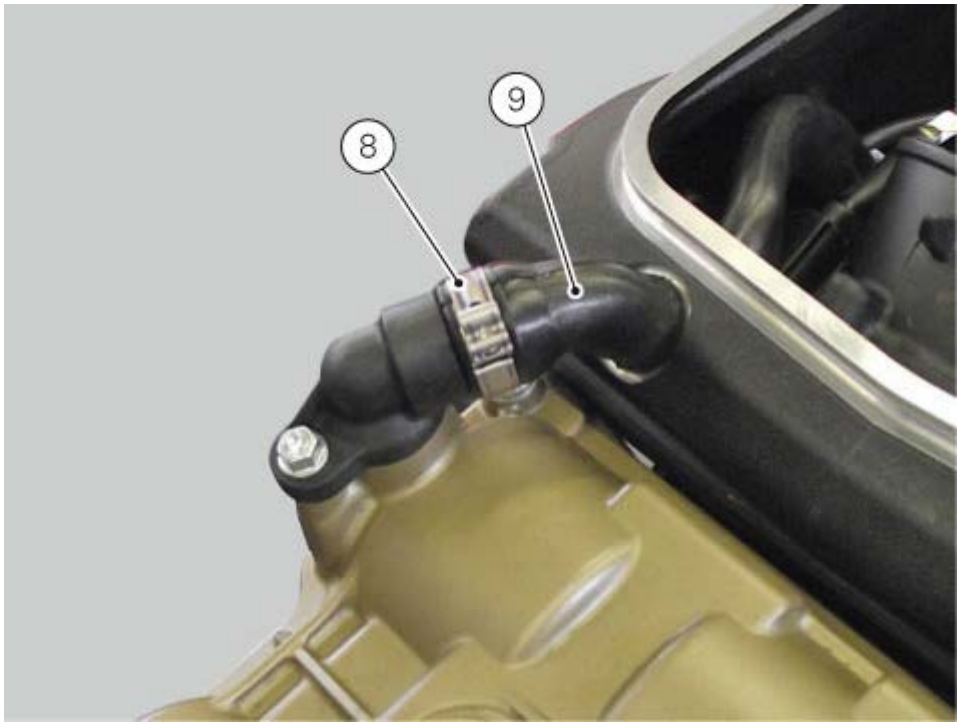
Loosen the retaining screws (7) securing the frame-airbox assembly (6) to the engine block.



http://www.ducati-manuals.com
no. 140312

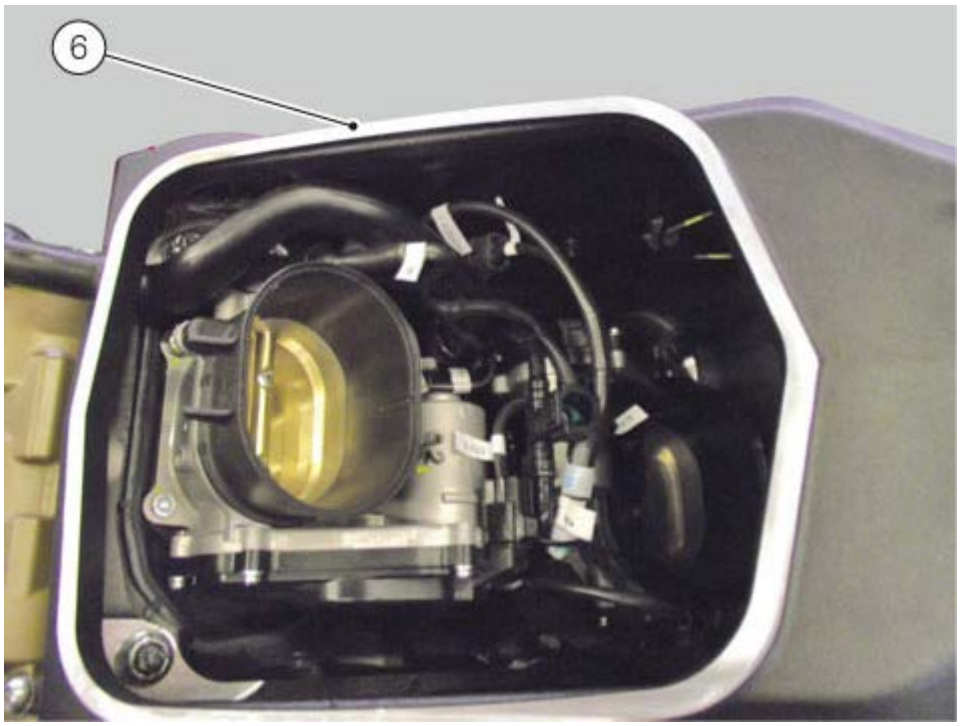


Loosen hose (9) clip (8).



Remove the frame assembly (6).

http://www.ducati-manuals.com
no. 140312

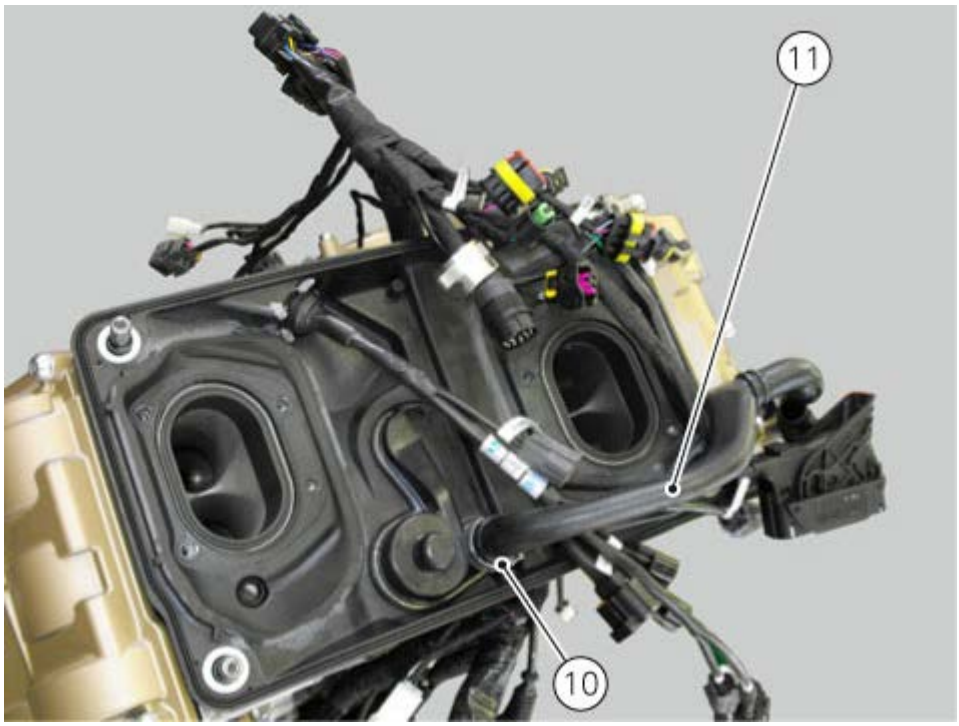




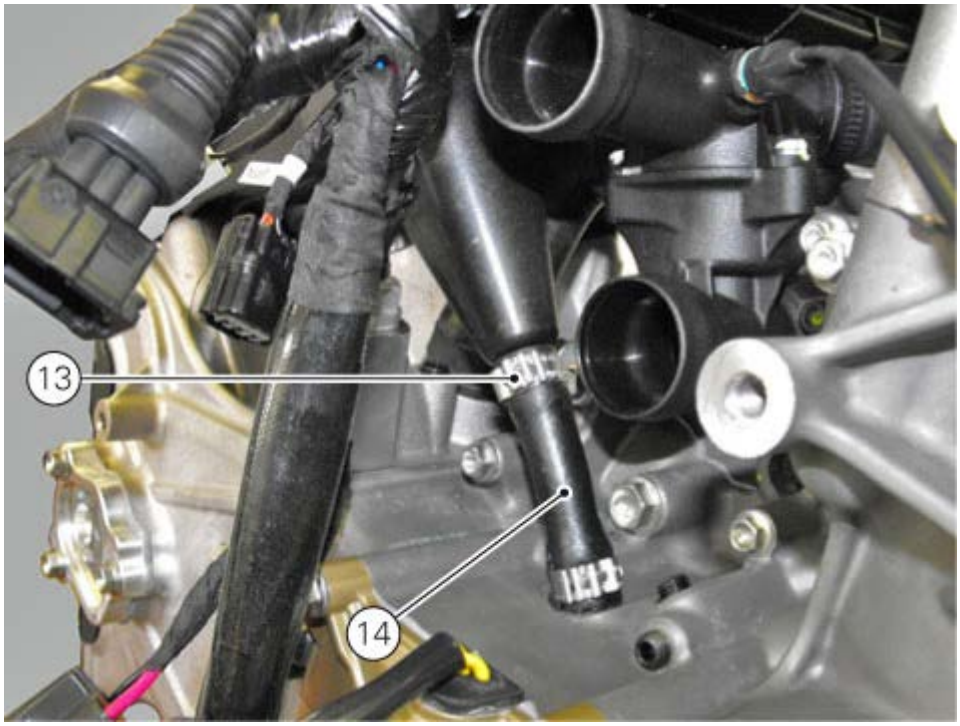
Removal of the airbox compartment

Remove the frame assembly, as described in the previous paragraph.
Remove the throttle bodies and the intake funnels (Removal of the airbox and of the throttle body).
Loosen clip (10) and remove the breather hose (11).

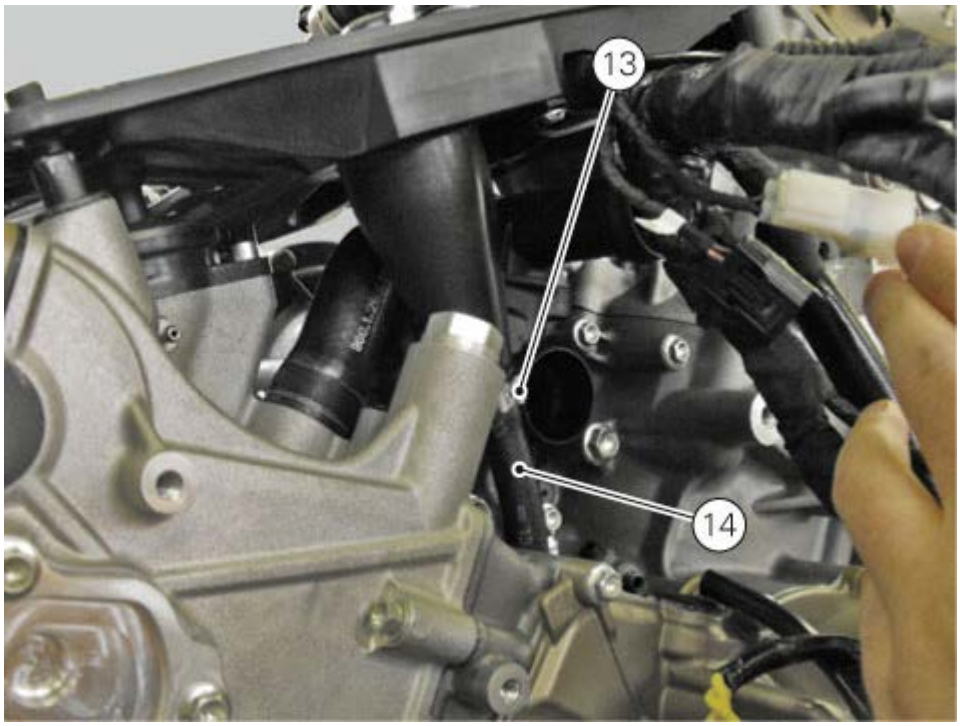
http://www.ducati-manuals.com
no. 140312



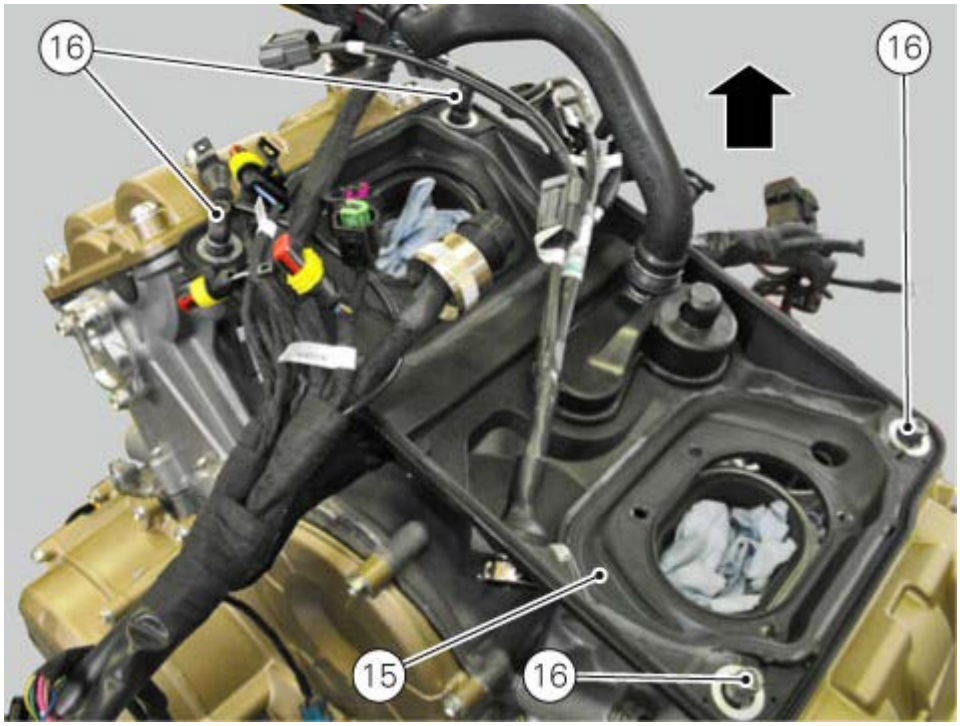
Loosen hose (14) clip (13).



http://www.ducati-manuals.com
no. 140312



Lift the airbox compartment (15) and remove it from the stud bolts (16).



http://www.ducati-manuals.com
no. 140312

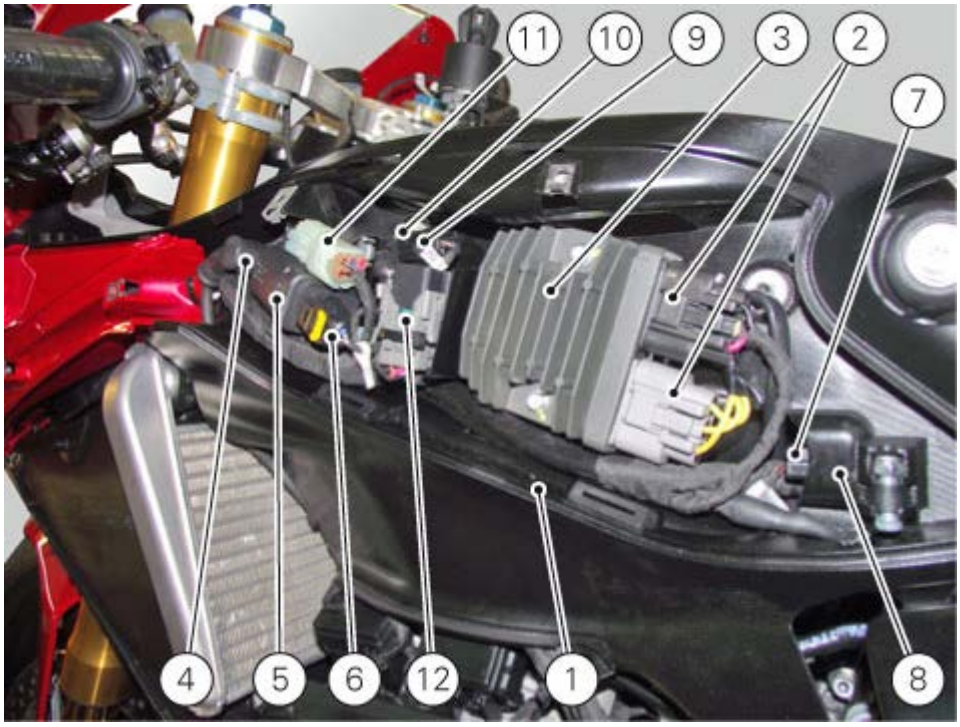
Removal of the electric system supports

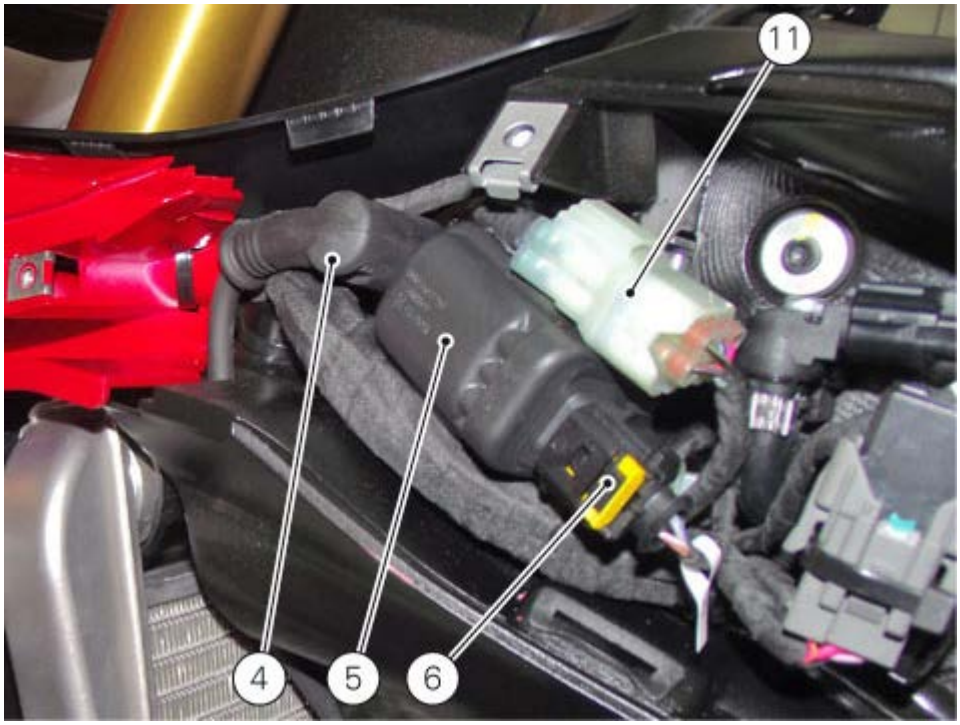
Removal of the LH electric system support

Remove the side fairings (Removal of the side fairings).
Remove the seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).
Disconnect the components positioned on the LH electric system support (1). In particular:

- the connectors (2) between the voltage rectifier (3) and the main wiring and the generator;
- the horizontal cylinder coil (5) cap (4);
- the connector (6) between the horizontal cylinder coil (5) and the main wiring;
- the connector (7) between the horizontal MAP sensor (8) and the main wiring;
- the connector (9) between the vertical MAP sensor (10) and the main wiring;
- the connector (11) between the ignition switch and the main wiring.

Remove the injection and e-lock relays (12) from their seats on the LH support.



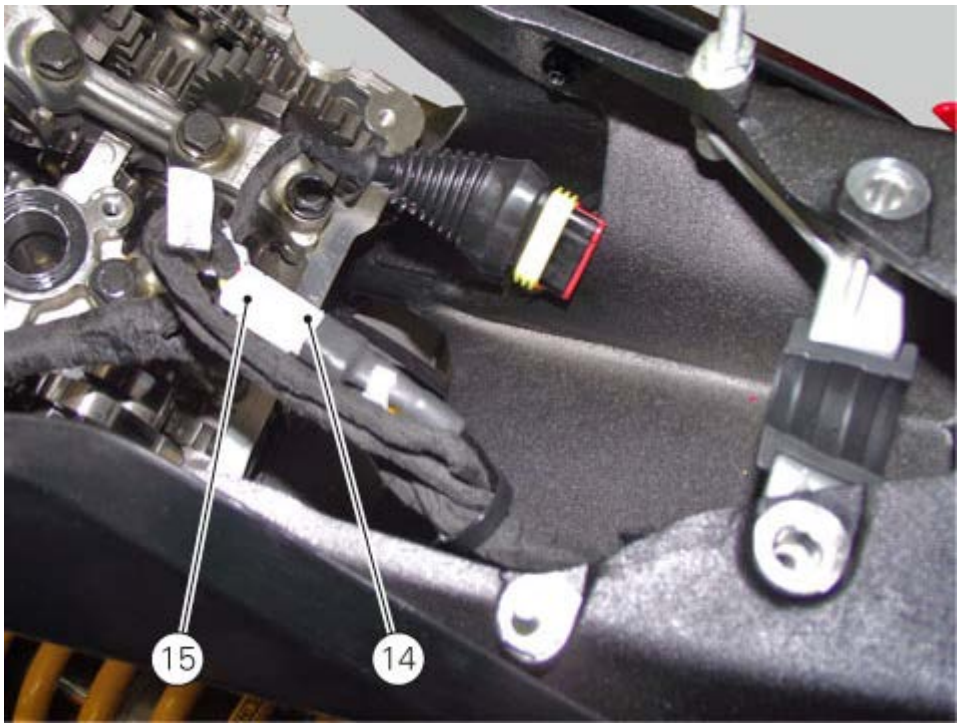


http://www.ducati-manuals.com
no. 140312

Remove the fuse box cover (13).



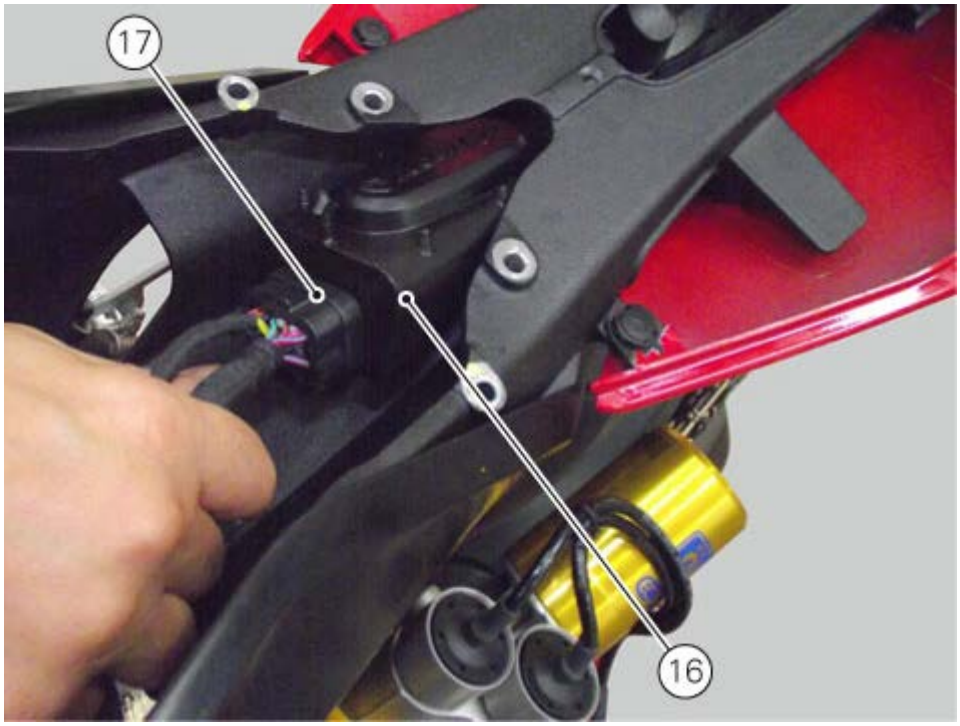
Disconnect the rear wiring (14) from the main wiring connector (15).



http://www.ducati-manuals.com
no. 140312

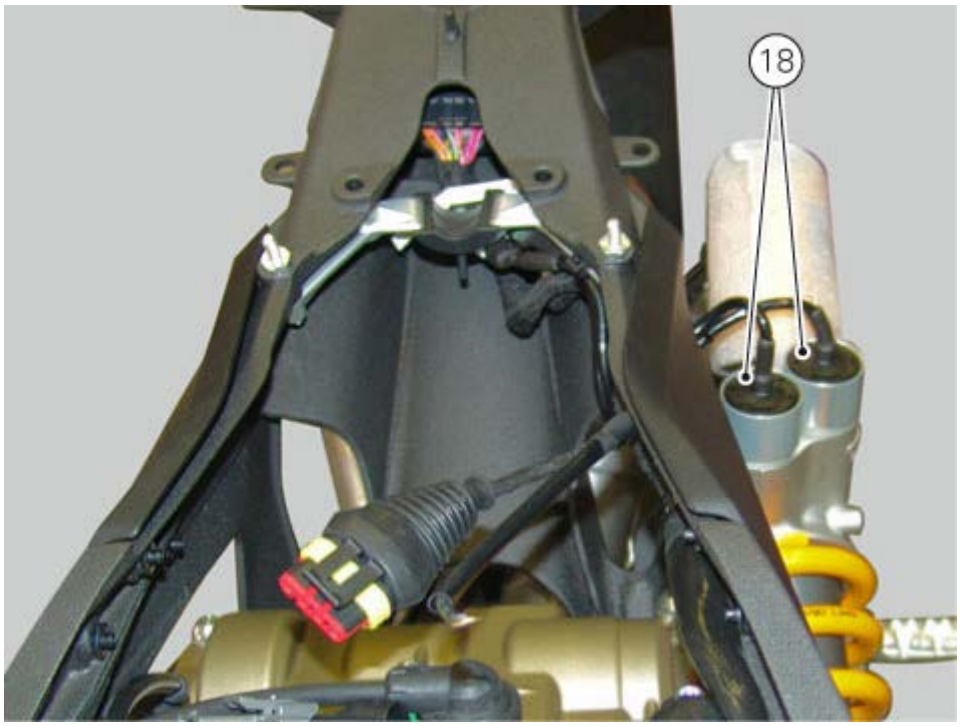


Disconnect the black box wiring (16) from the main wiring connector (17).

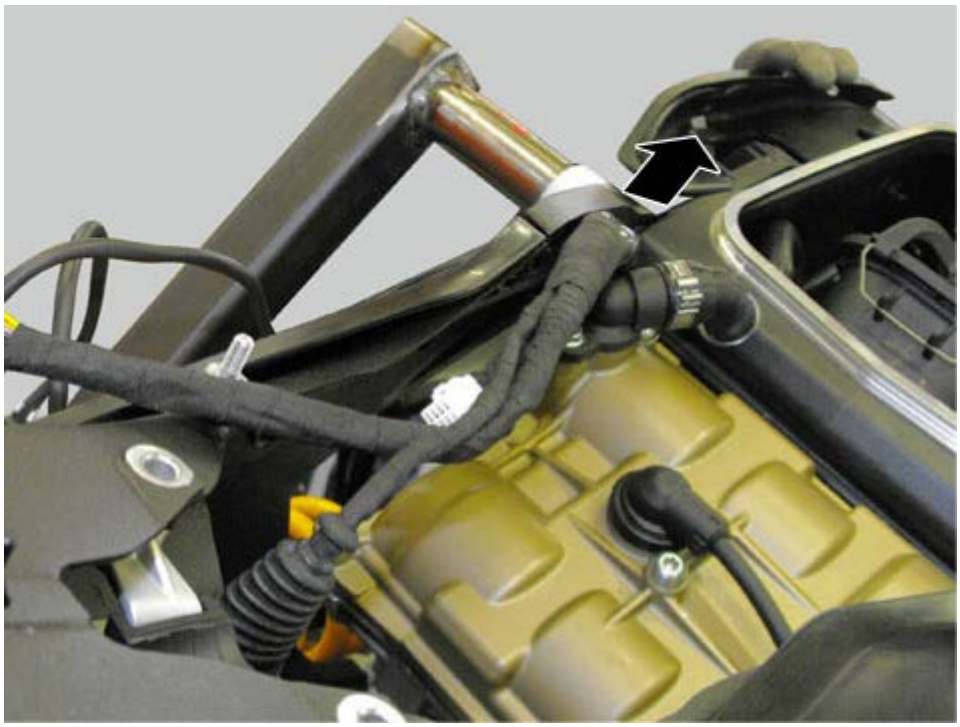


Disconnect the rear shock absorber adjustment cables (18) from the main wiring.

http://www.ducati-manuals.com
no. 140312

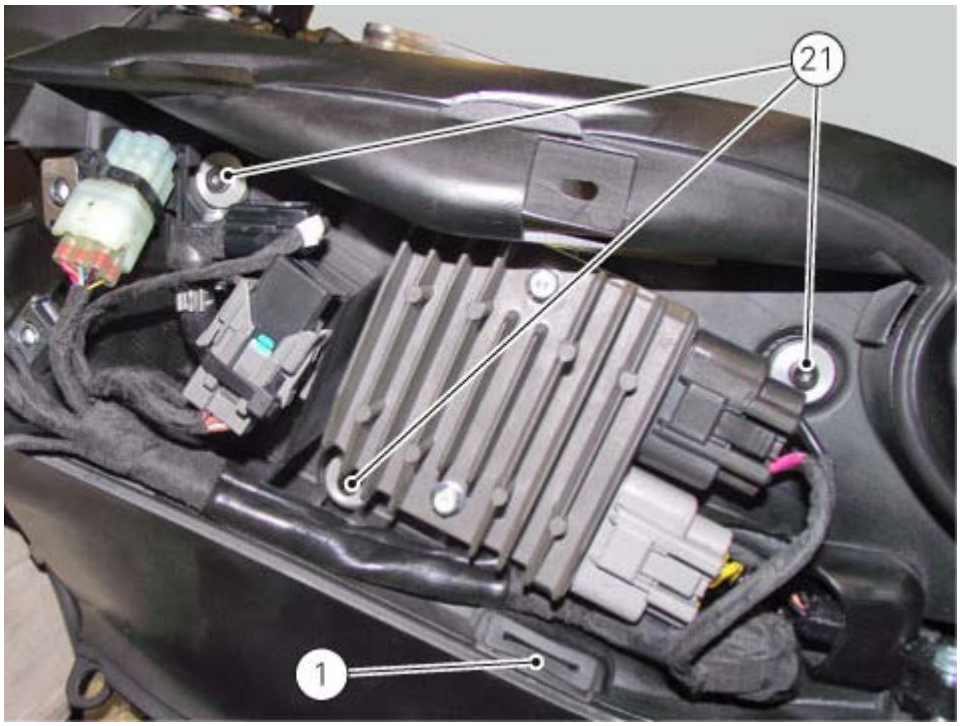


Remove main wiring cable, sliding it out towards bike front end, so as to release the LH support from the cable.

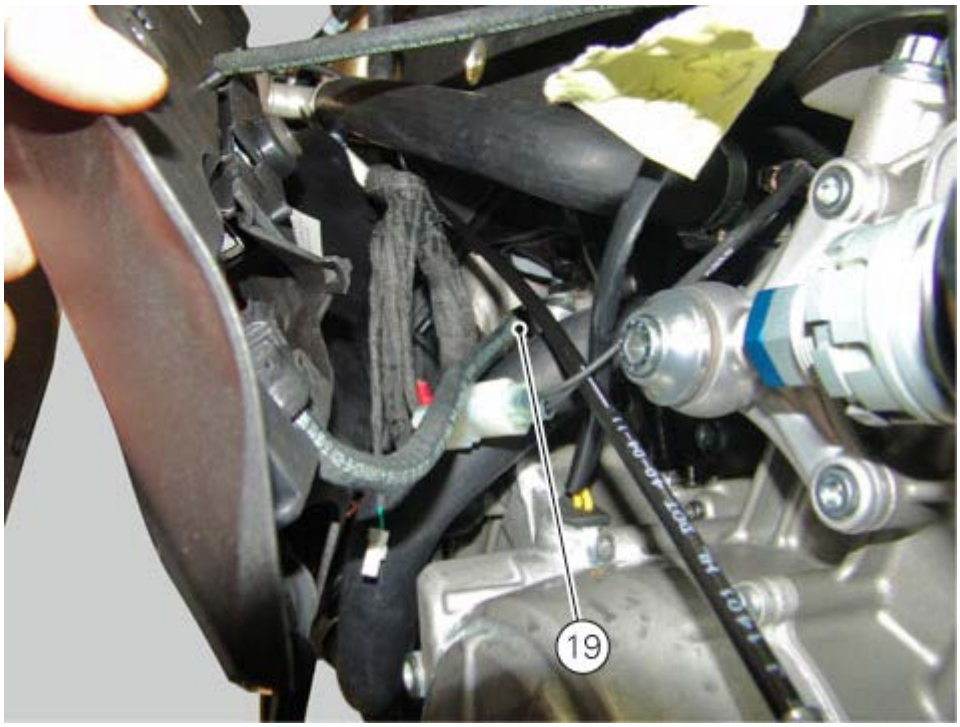


Loosen the three screws (21) securing support (1) to frame.

http://www.ducati-manuals.com
no. 140312



Slightly move the LH supports outwards, and disconnect the horizontal MAP sensor hose (19) from the horizontal head, and the vertical MAP sensor hose (20) from the vertical head.



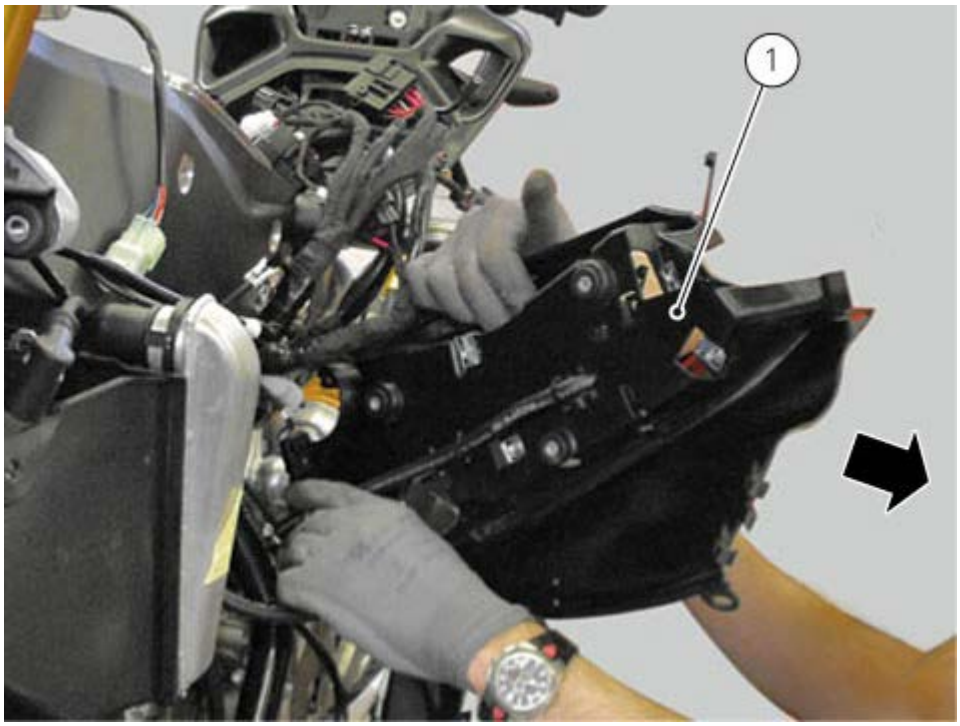
http://www.ducati-manuals.com
no. 140312

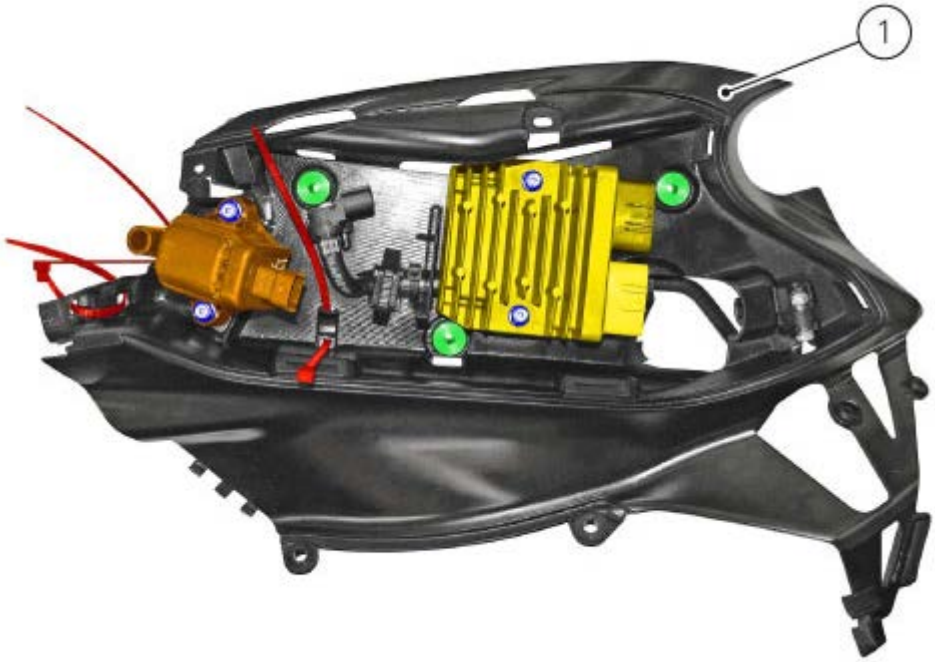


Remove the LH electrical system support (1).



http://www.ducati-manuals.com
no. 140312





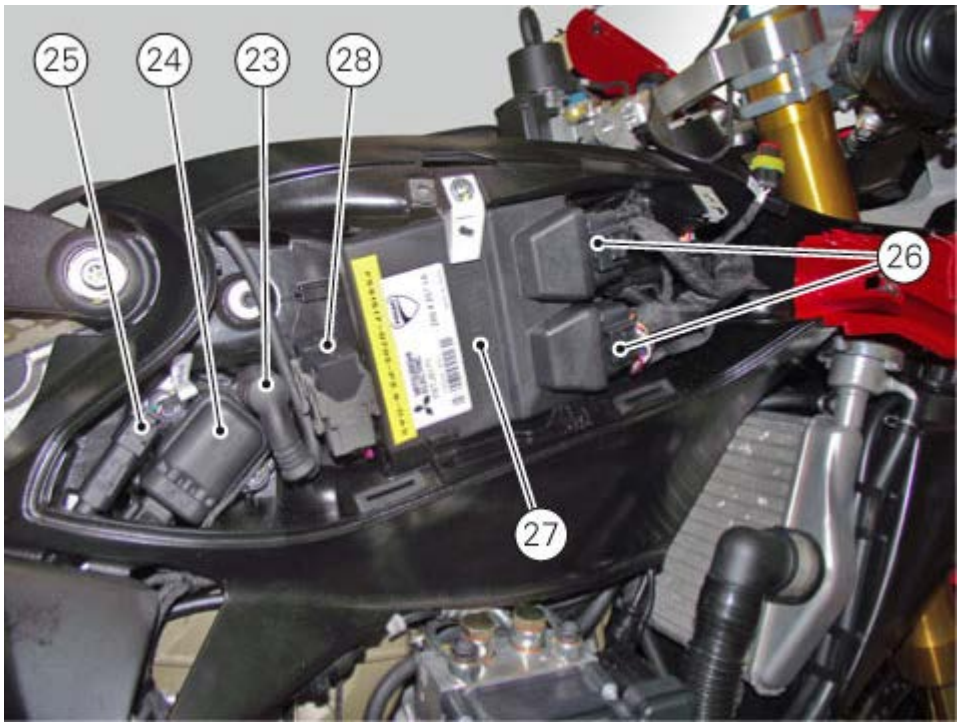
Removal of the RH electric system support

Remove the side fairings (Removal of the side fairings).
Remove the seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).
Disconnect the components positioned on RH electric system support (22). In particular:

- the vertical cylinder coil (24) cap (23);
- the connector (25) between the vertical cylinder coil (24) and the main wiring;
- the connectors (26) between the ECU (27) and the main wiring.

Remove the relays (28) from their seats on the LH support.

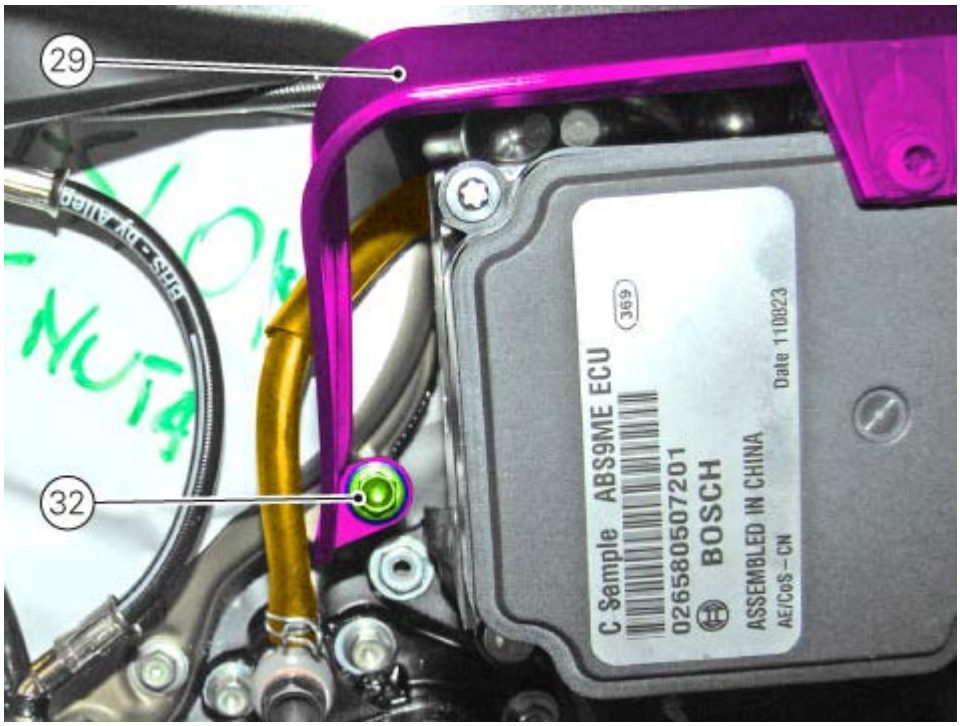
http://www.ducati-manuals.com
no. 140312



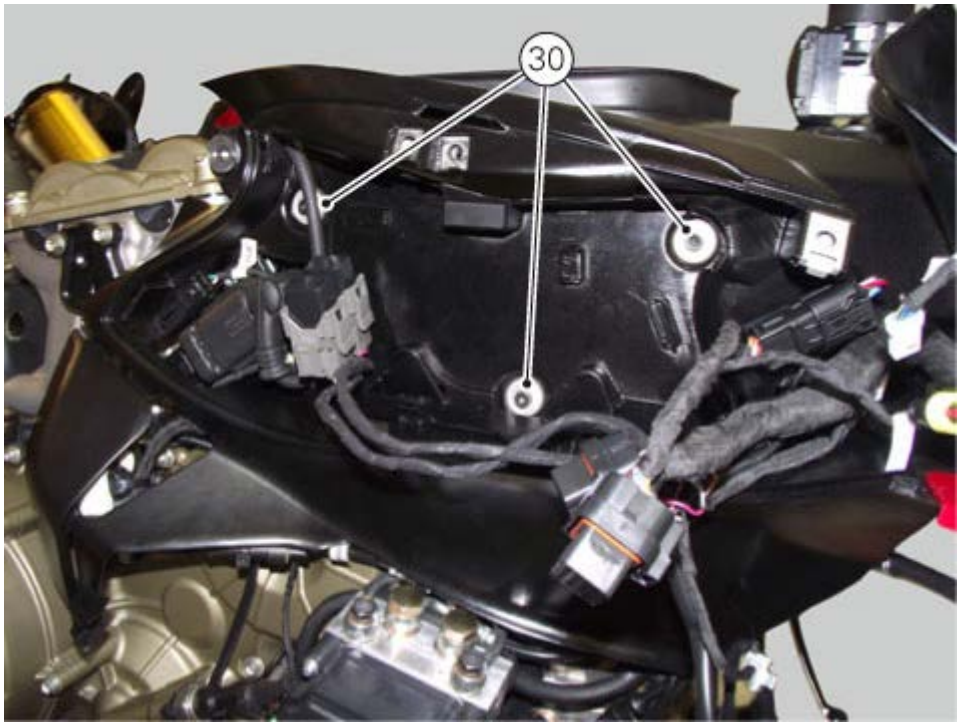
To remove the ABS control unit cover support (29), loosen screw (31) and nut (32).



http://www.ducati-manuals.com
no. 140312



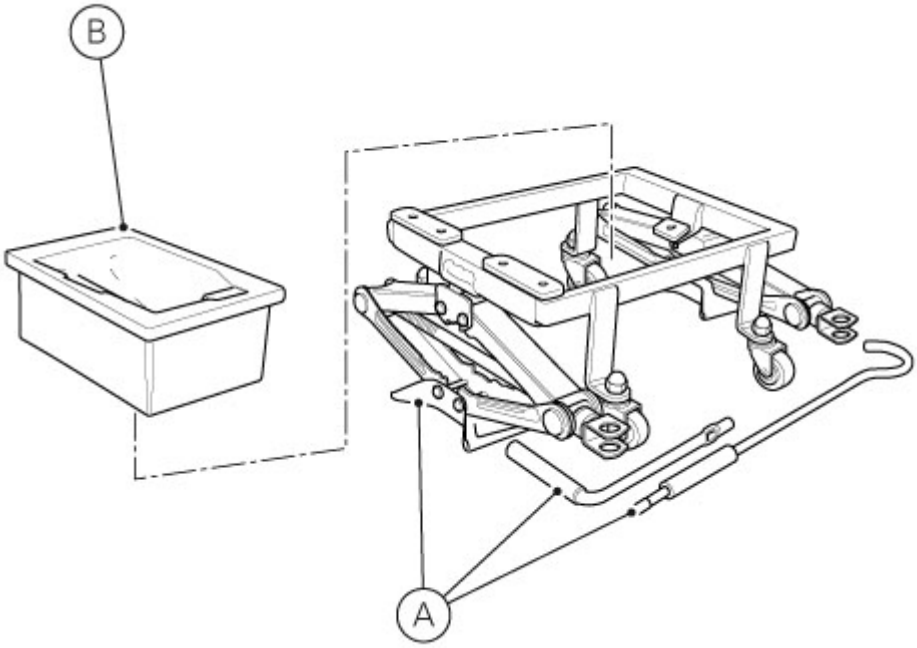
Loosen the three screws (30) securing the RH support (22) to the frame.



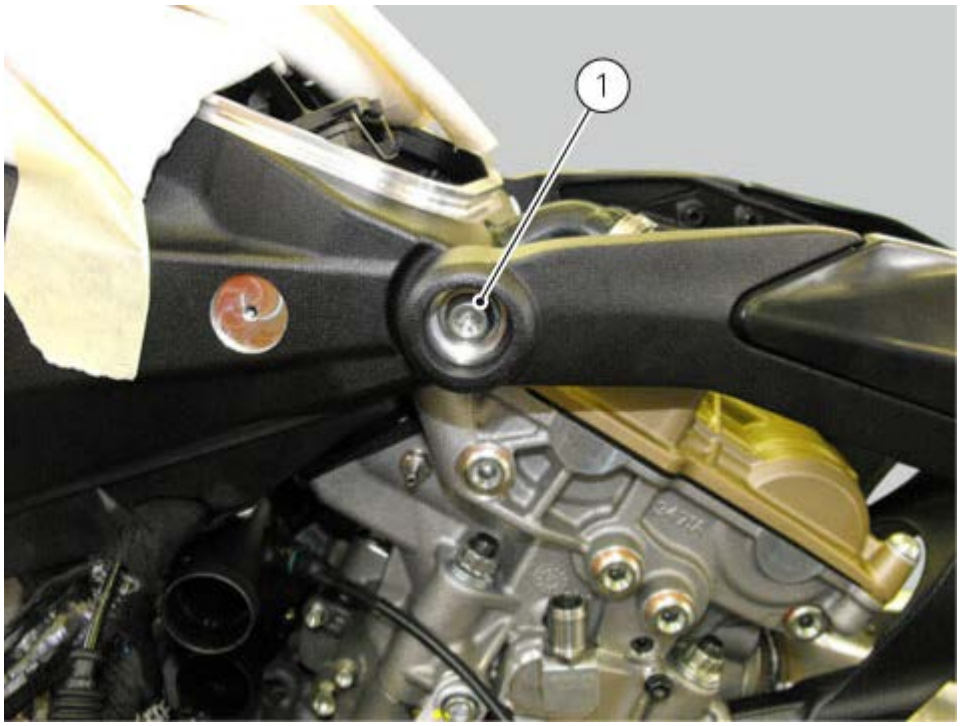
http://www.ducati-manuals.com
no. 140312

Removal of the rear subframe

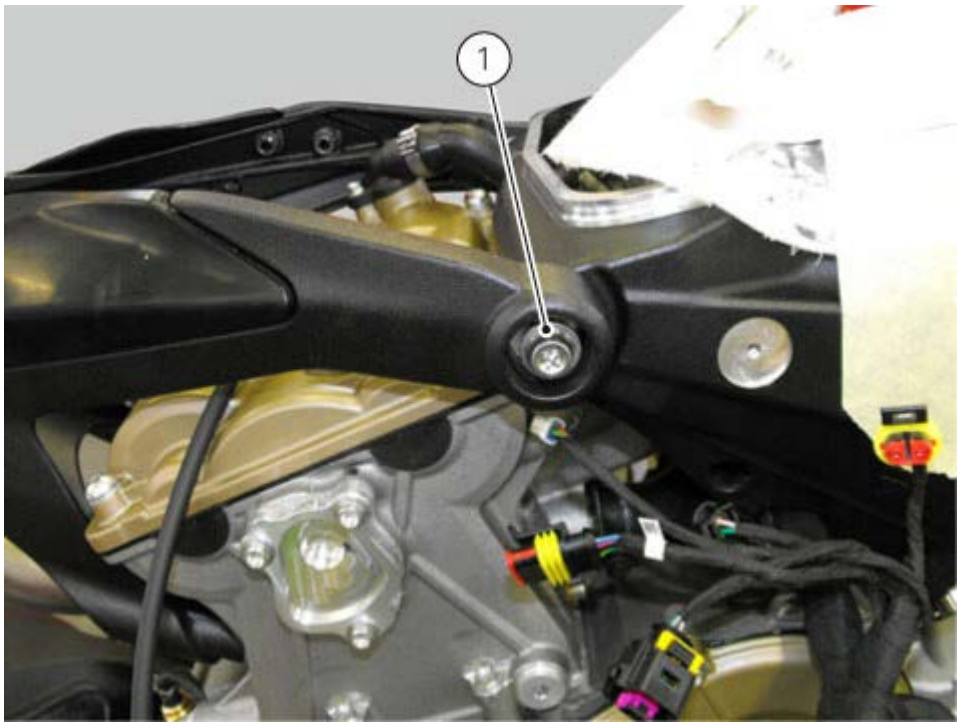
The engine of this vehicle is a load-bearing part. To work on the parts supported by the engine block, such as the rear subframe, engine block shall be duly supported, as described herebelow.
Remove the side fairings (Removal of the side fairings).
Remove the seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).
Position tools no. **88713.3092** - engine repair work bench (A) and **88713.3927** - engine support (B) under the engine block to duly support it.

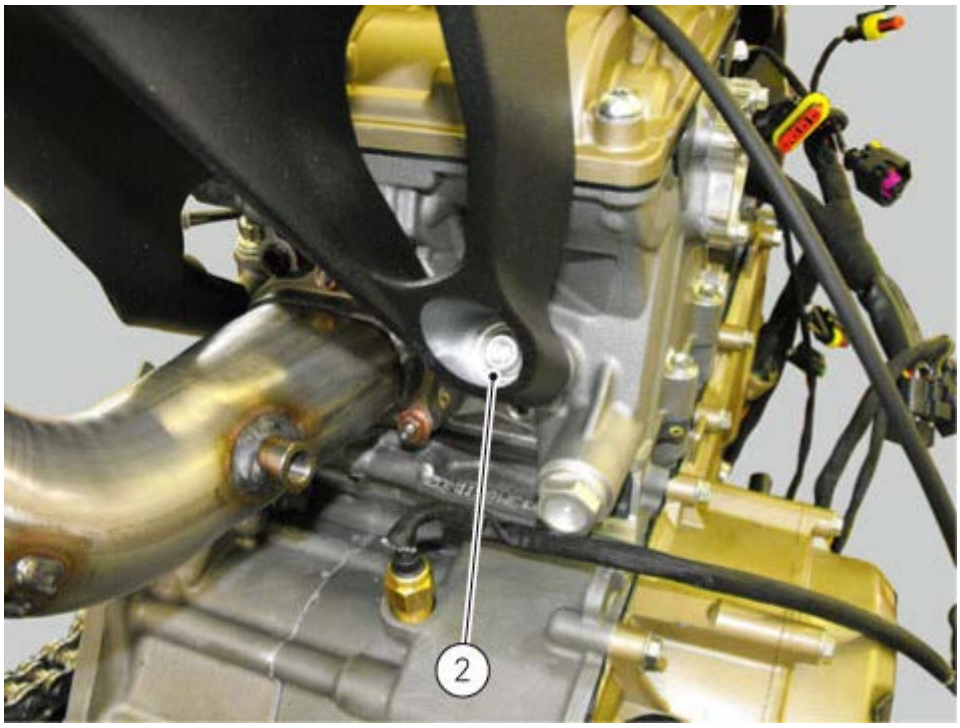


To remove the rear subframe, loosen the retaining screws (1) and (2).

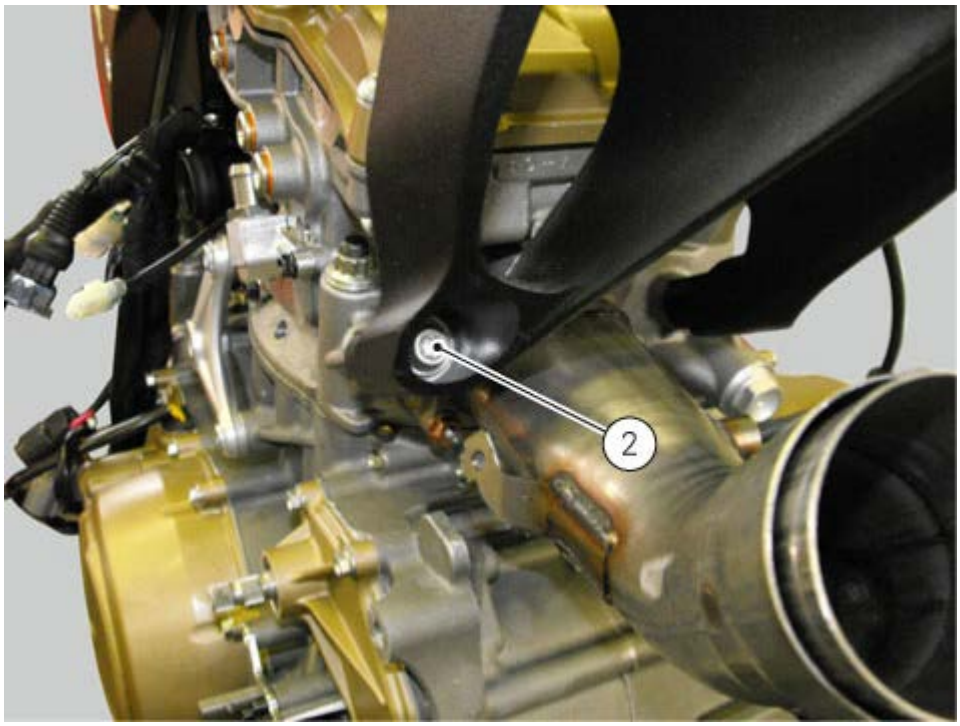


http://www.ducati-manuals.com
no. 140312

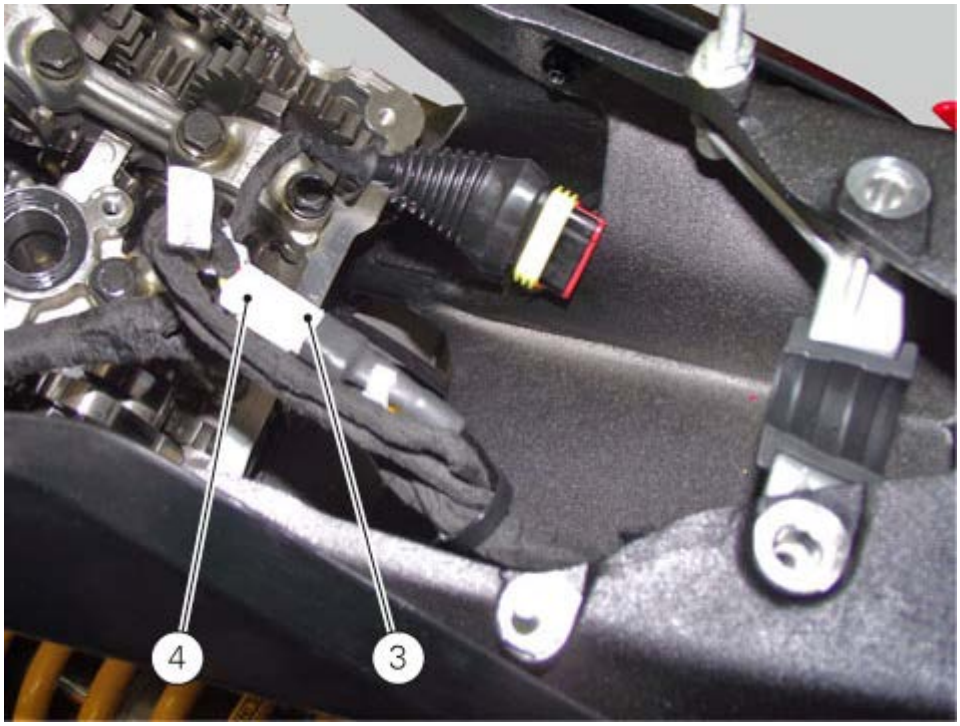




http://www.ducati-manuals.com
no. 140312



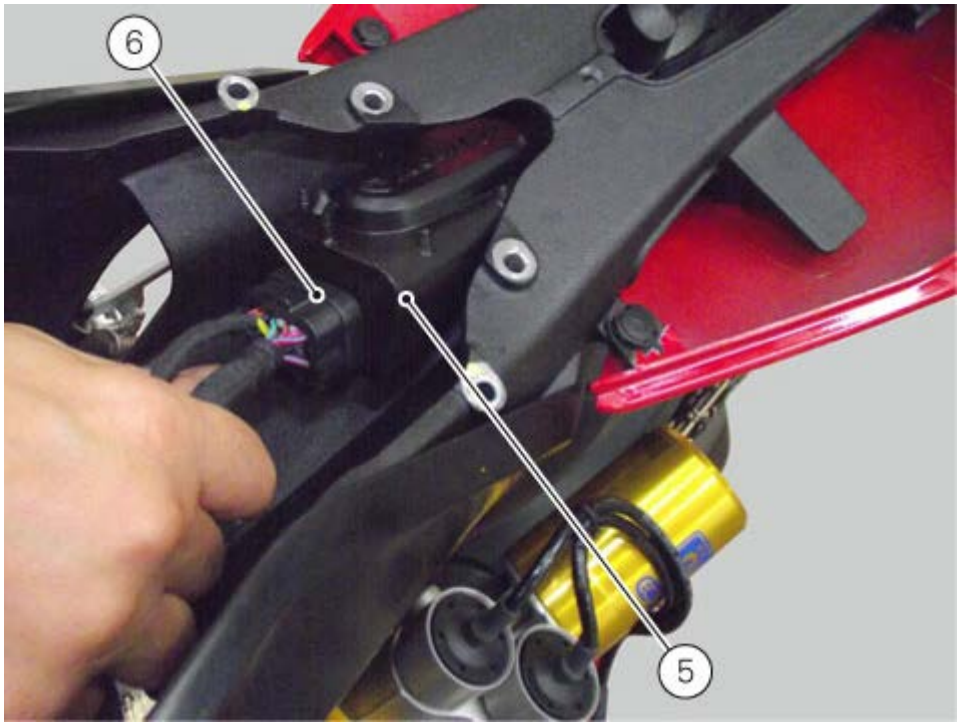
Disconnect the rear wiring (3) from the main wiring connector (4).



http://www.ducati-manuals.com
no. 140312

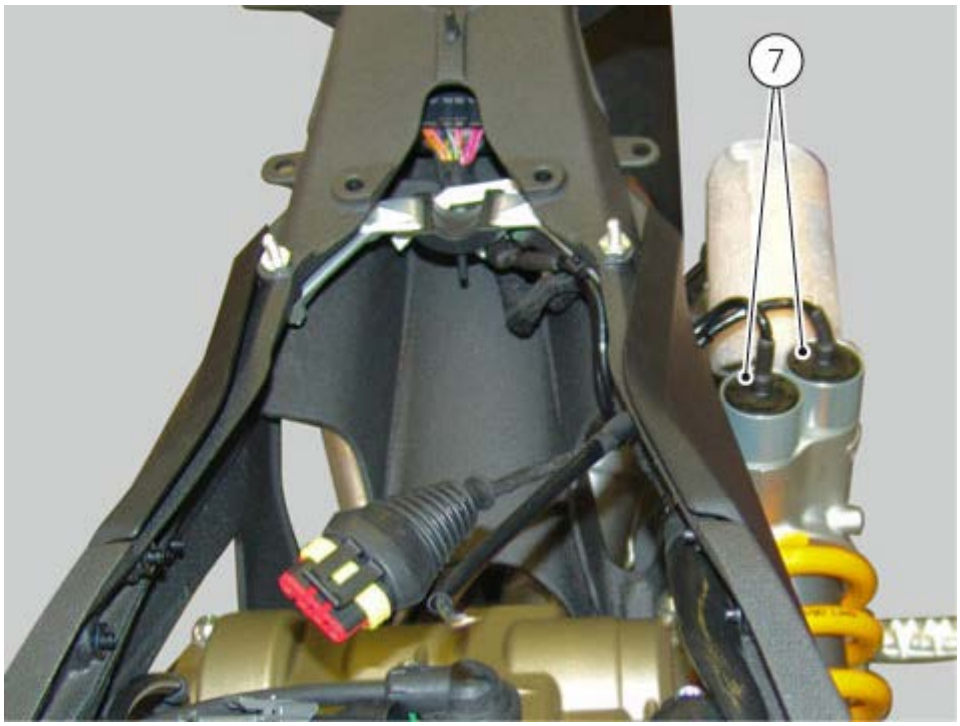


Disconnect the black box wiring (5) from the main wiring connector (6).



Disconnect the rear shock absorber adjustment cables (7) from the main wiring.

http://www.ducati-manuals.com
no. 140312



Remove the rear subframe (8) from the motorcycle.



http://www.ducati-manuals.com
no. 140312

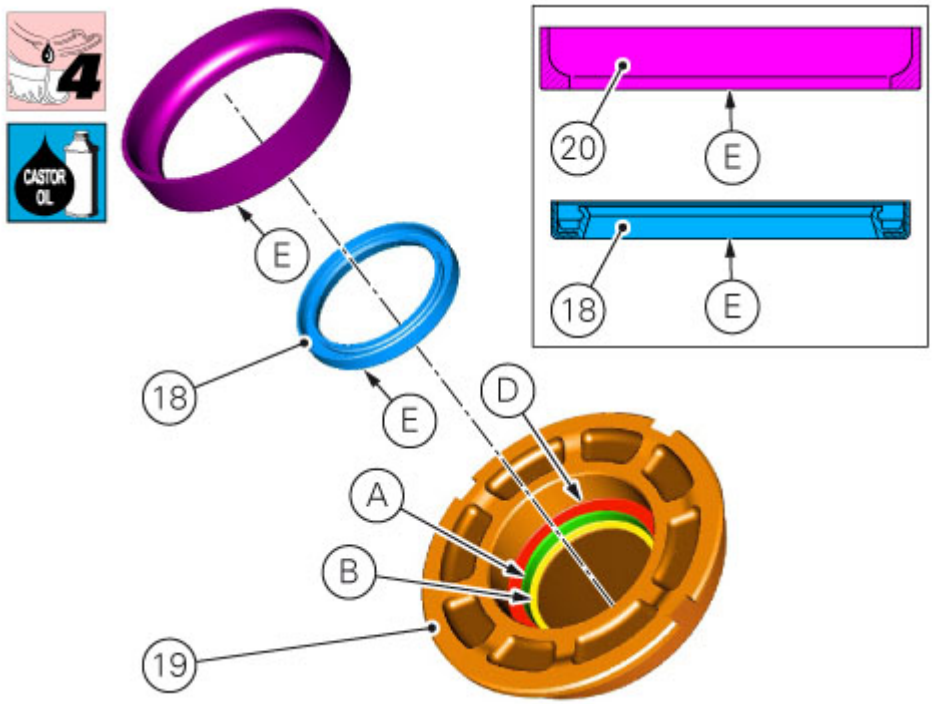
Reassembly of the frame

If flanges (19) and (21) were removed, before installing them apply a thin layer of recommended lubricant inside the dust seals (18) seats (A) on the flanges (19) and (21).
Insert the dust seals (18) inside seats (A), driving them fully home on the flange (19) and (21) surfaces (B).

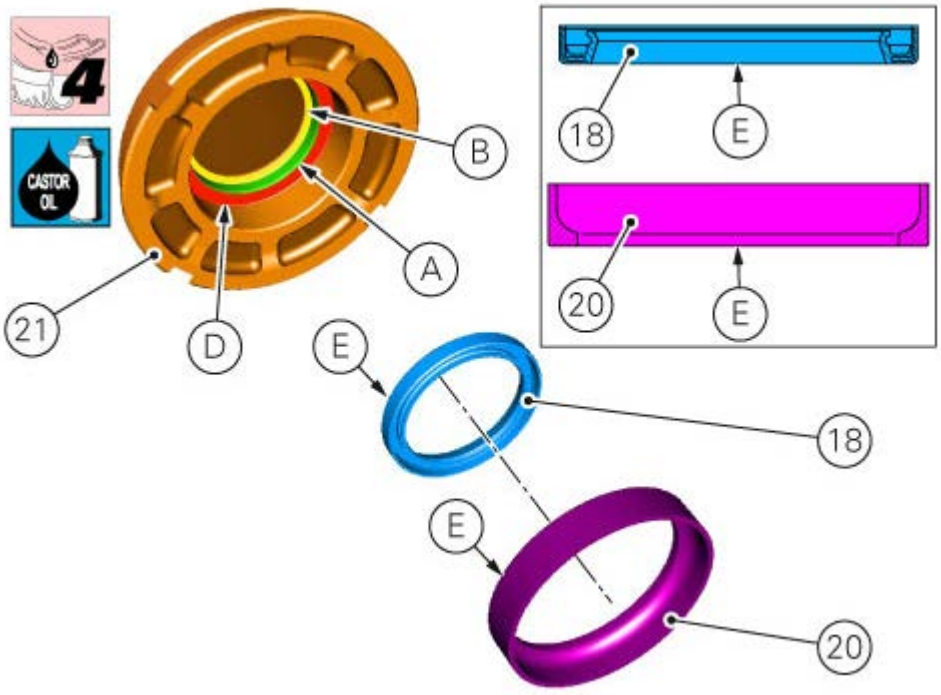
Note
Dust seals (18) shall be fitted with the "flat" side (E) facing inwards.

Apply a thin layer of recommended lubricant on the outer mating surfaces of the inner rings (20)
Install the inner rings (20), driving them fully home inside the special seats (D) of flanges (19) and (21).

Note
Inner rings (20) shall be fitted with the "flat" side (E) facing inwards.

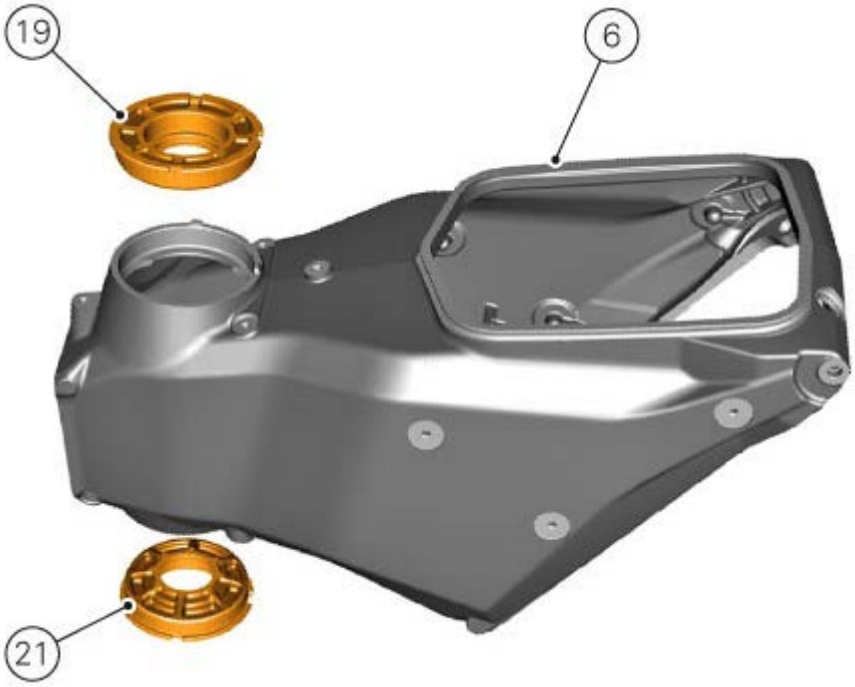


http://www.ducati-manuals.com
no. 140312

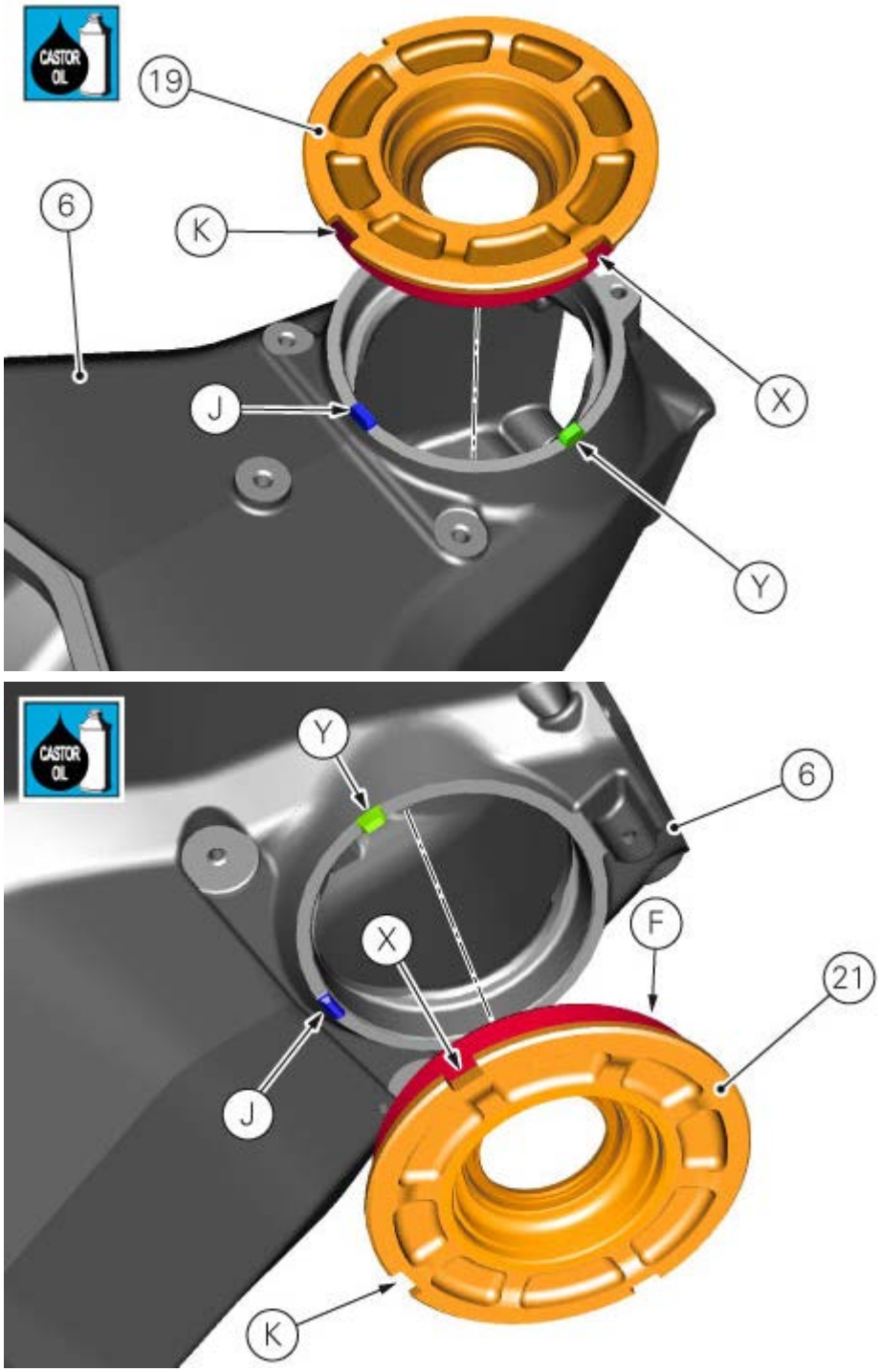


Apply a thin layer of recommended lubricant on the surface (F) of flanges (19) and (21).
Force flanges (19) and (21) inside frame seats (6), driving them fully home.

Note
Aim the flanges (19) and (21) so that the larger slots (K) match with the bigger teeth (J) on the frame and that the smaller slots (X) match with the smaller teeth (Y).

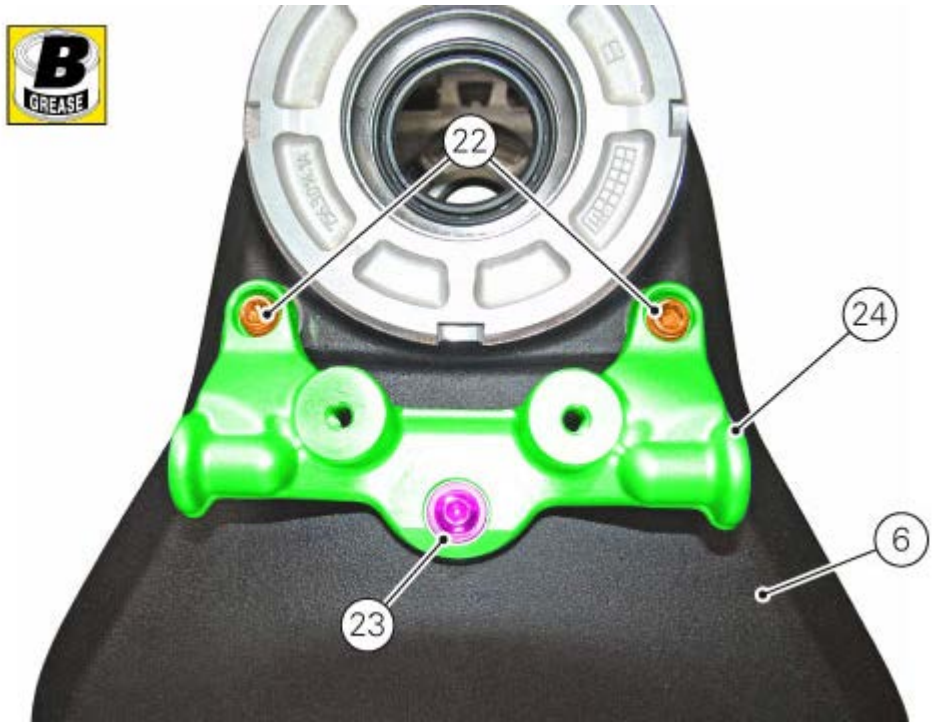


http://www.ducati-manuals.com
no. 140312



If the ignition switch support (24) was removed, before installing it, apply recommended grease on the thread and underside of the screws (22) and (23). Position the ignition switch support (24) onto frame (6), and secure it in place with the screws (22) and (23). Tighten the screws (22) and (23) to a torque of ± 10 Nm 10%.

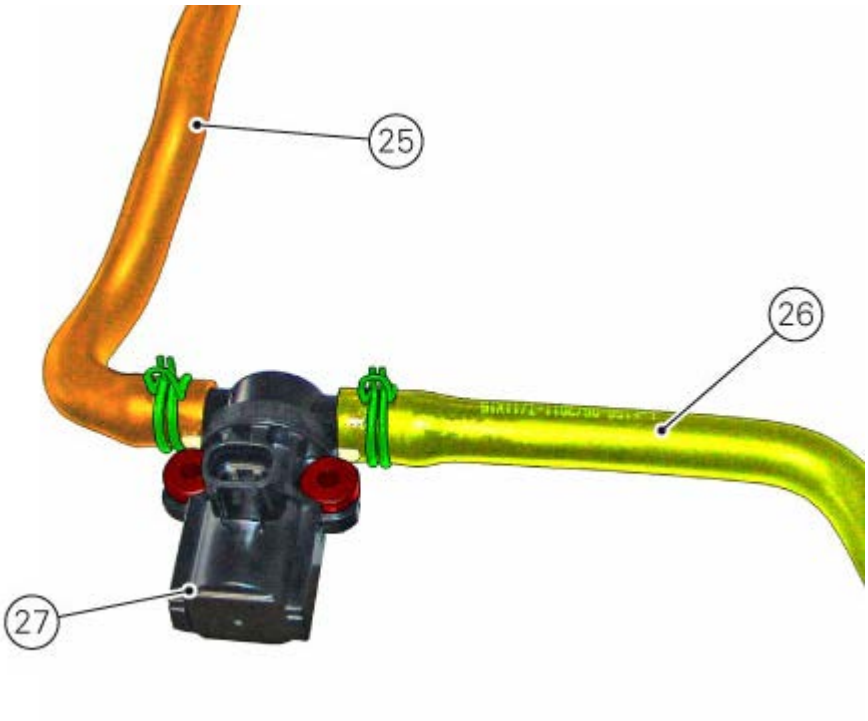
http://www.ducati-manuals.com
no. 140312



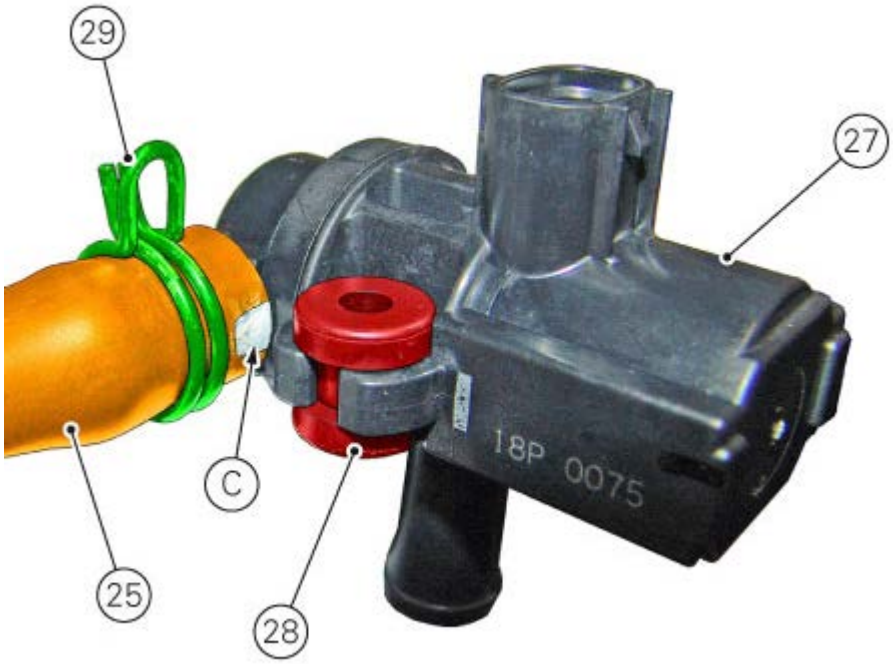
Reassembly of the airbox compartment

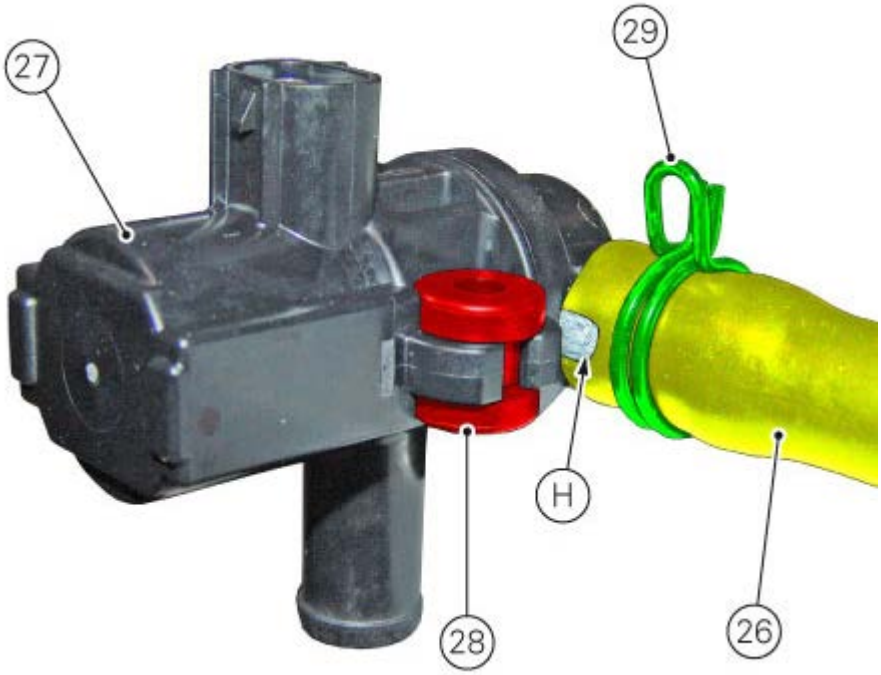
If the airbox compartment components were removed, refit them as indicated. Fit the horizontal head actuator secondary air hose (25) and the vertical head actuator secondary air hose (26) on the special secondary air actuator unions (27), aiming them so that the hose marks (C) and (H) are aligned with the actuator vibration dampers (28).
Secure hose (25) and hose (26) in place using the spring clips (29), in the positions shown in the figure.

Note
Aim spring clips (29) as shown in the figure.



http://www.ducati-manuals.com
no. 140312





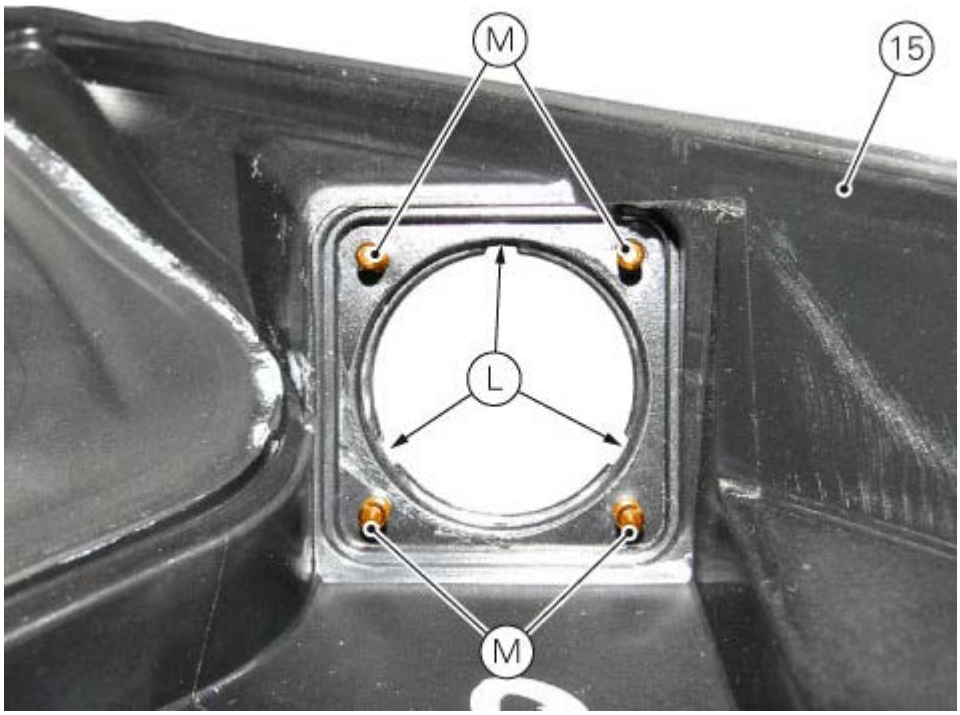
Fit the tongue (30), aiming it as shown in the figure, in the indicated airbox compartment area (15), then tighten the screw (31) to a torque of 1 Nm ± 10%.
Insert the O-ring (32) fully home on the wiring connector (33).
Apply recommended protective grease to the O-ring (32).

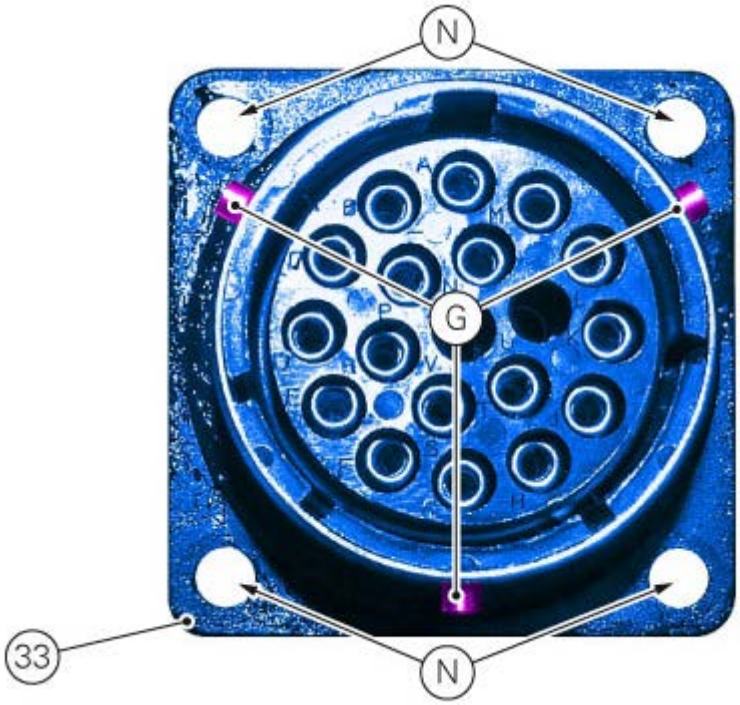
http://www.ducati-manuals.com
no. 140312



Insert the wiring connector (33) inside the special hole on the airbox compartment (15), so that connector pins (G) match with airbox compartment slots (L) and that airbox compartment pins (M) match with the connector holes (N).

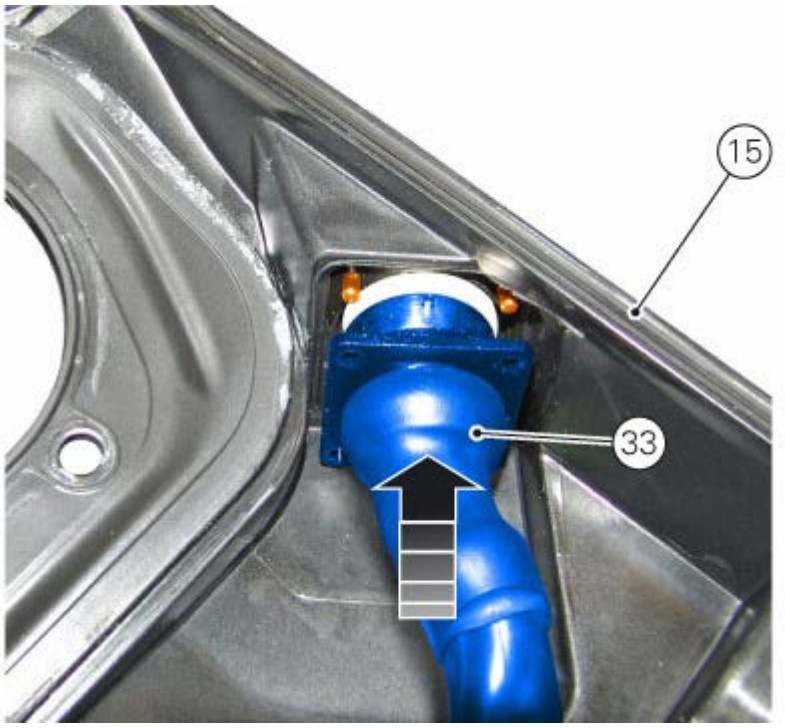
http://www.ducati-manuals.com
no. 140312





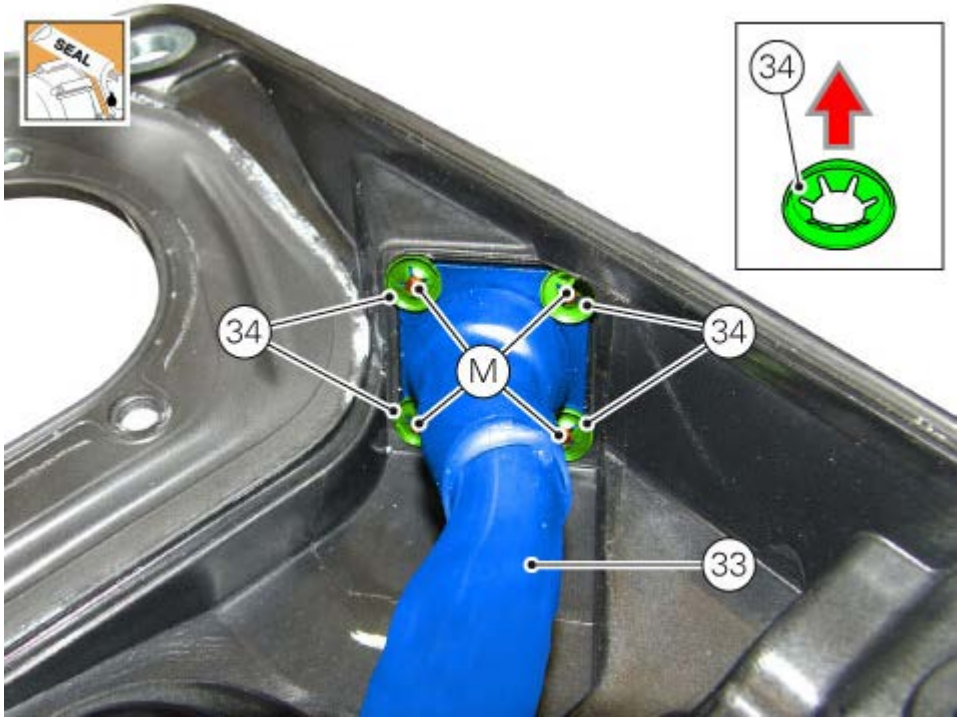
http://www.ducati-manuals.com
no. 140312

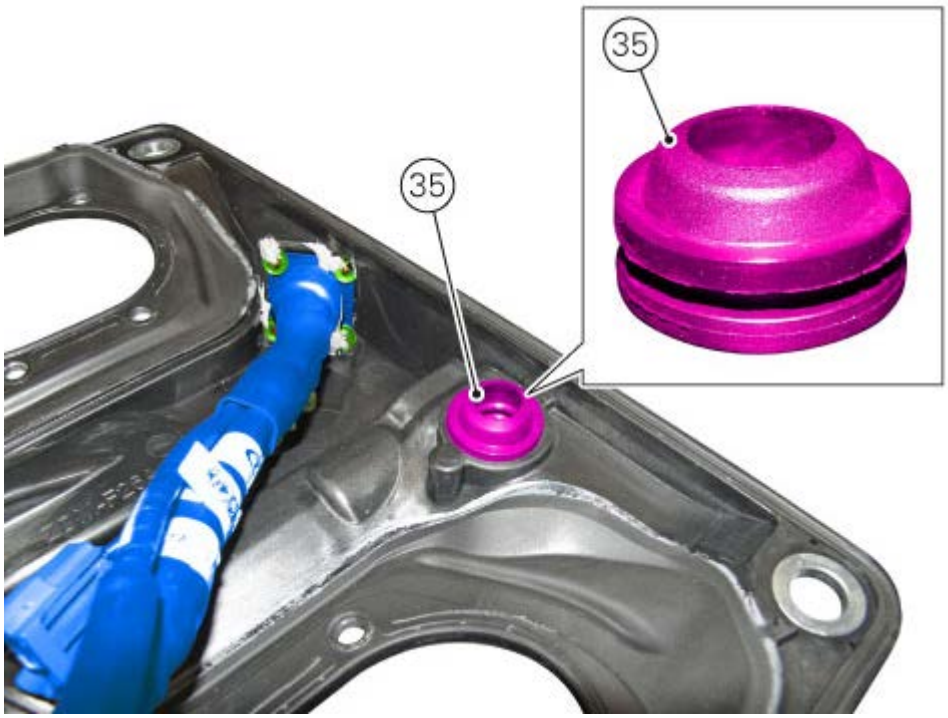




To secure the wiring connector (33), insert the fasteners (34) inside pins (M), aiming them as shown in the figure. Apply recommended threadlocker to the fasteners (34).
Fit the vibration damper (35), aiming it as shown.

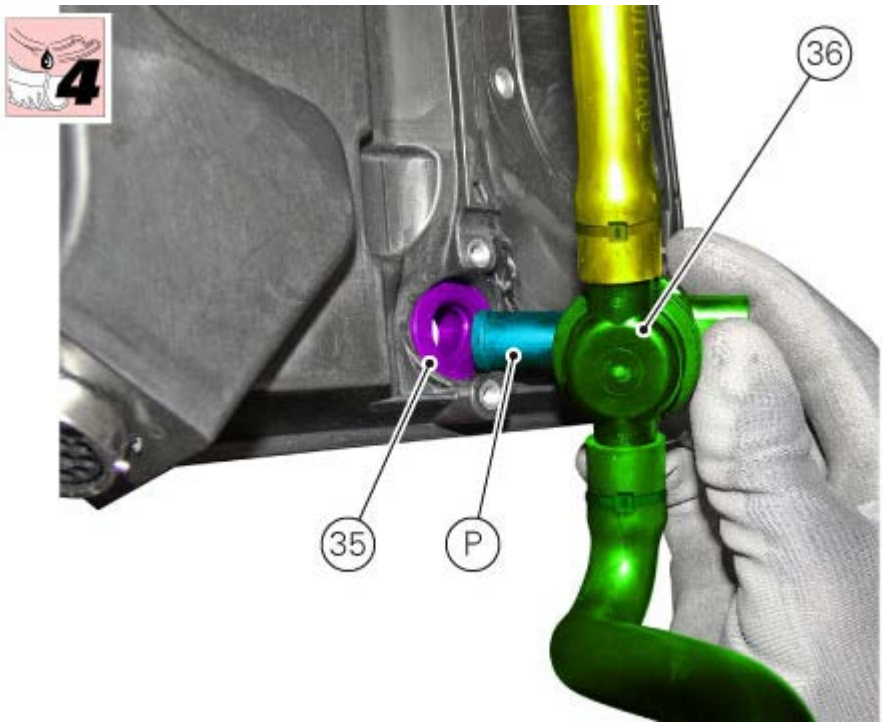
http://www.ducati-manuals.com
no. 140312

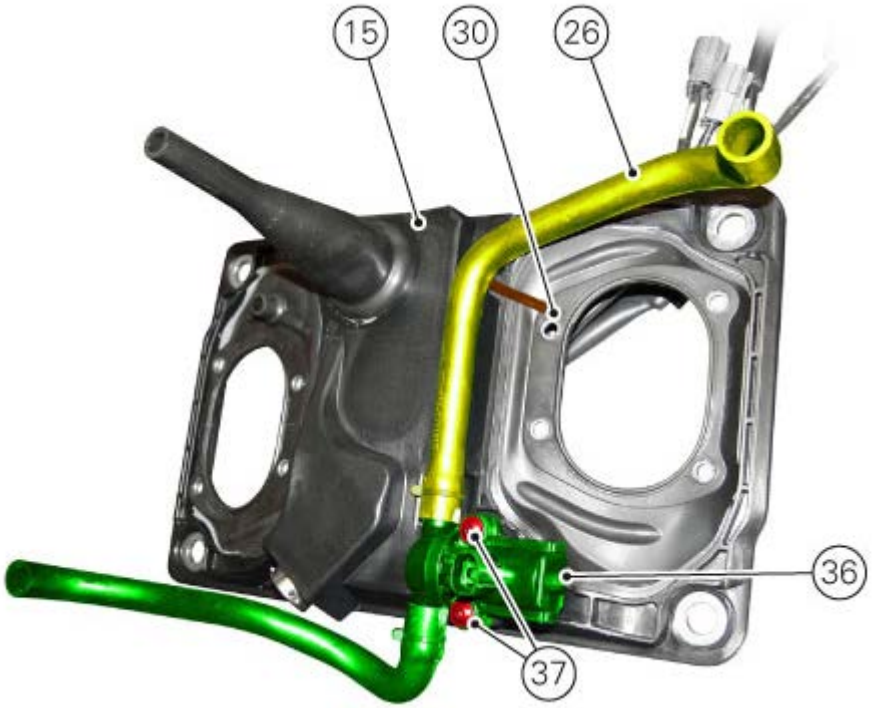




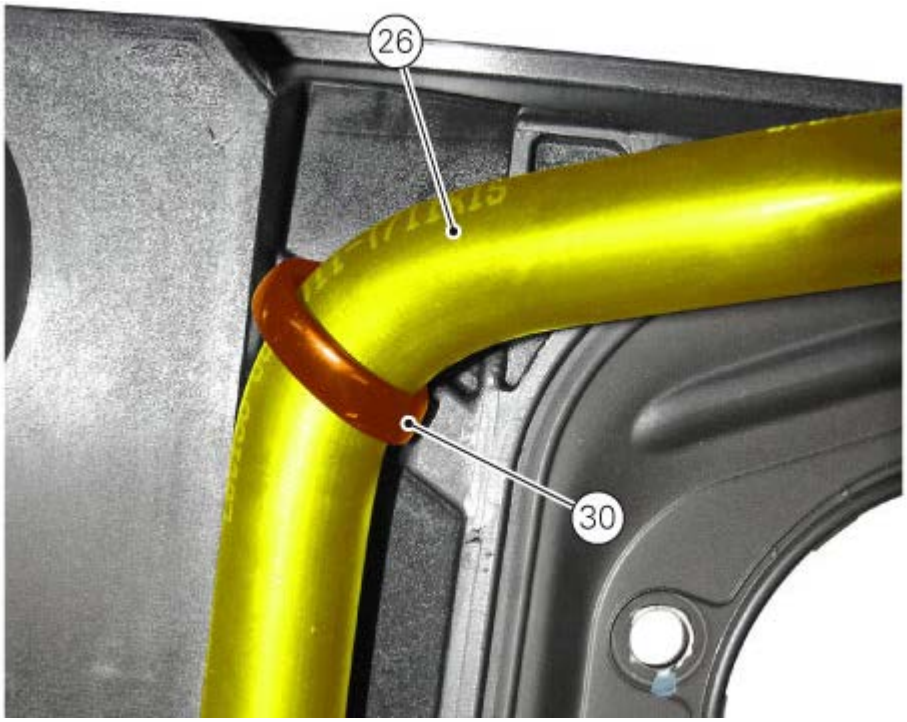
Turn the airbox compartment (15) upside down.
Apply a thin layer of lubricant on the vibration damper (35) you had previously assembled.
Insert union (P) inside seal (35), and position the secondary air actuator assembly (36), aiming it as shown in the figure. Fix the secondary air actuator assembly (36) by starting the screws (37).
Tighten the screws (34) to a torque of 4 Nm ± 10%.
To secure the vertical head actuator secondary air hose (26) in place, fold tongue (30), as shown. Take care not to kink the hose (26).

http://www.ducati-manuals.com
no. 140312

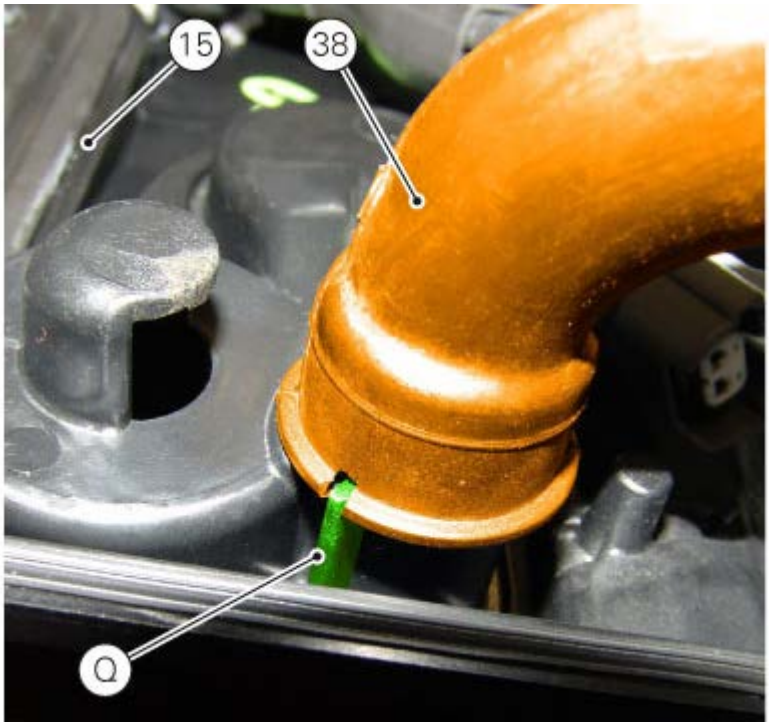




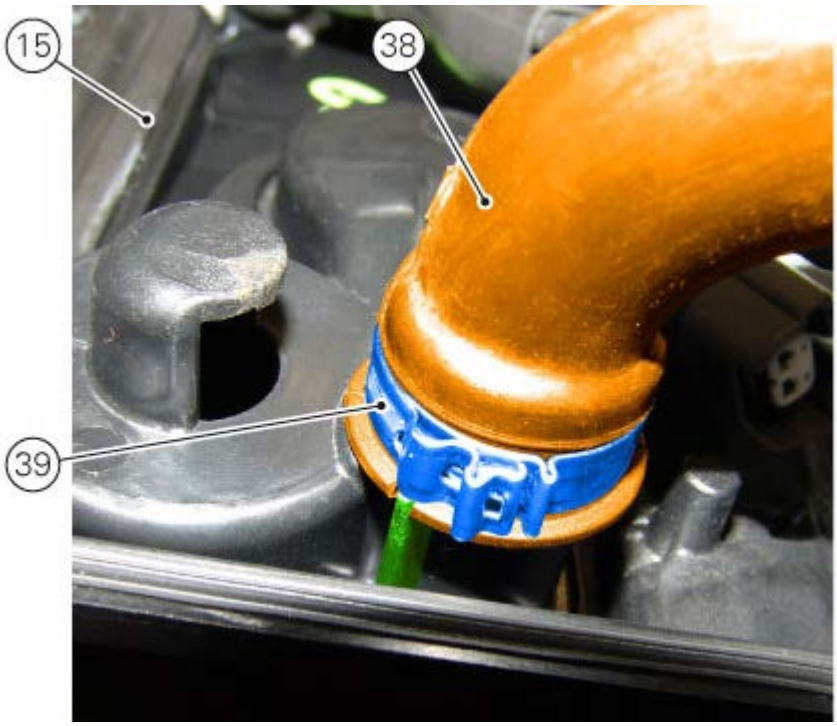
http://www.ducati-manuals.com
no. 140312



Fit the blow-by hose (38), aiming it so that the hose slot engages with the airbox compartment (15) tab (Q), as shown in the figure.
Insert clip (39) on the blow-by hose (38), aiming it as shown in the figure. Then tighten clip.



http://www.ducati-manuals.com
no. 140312

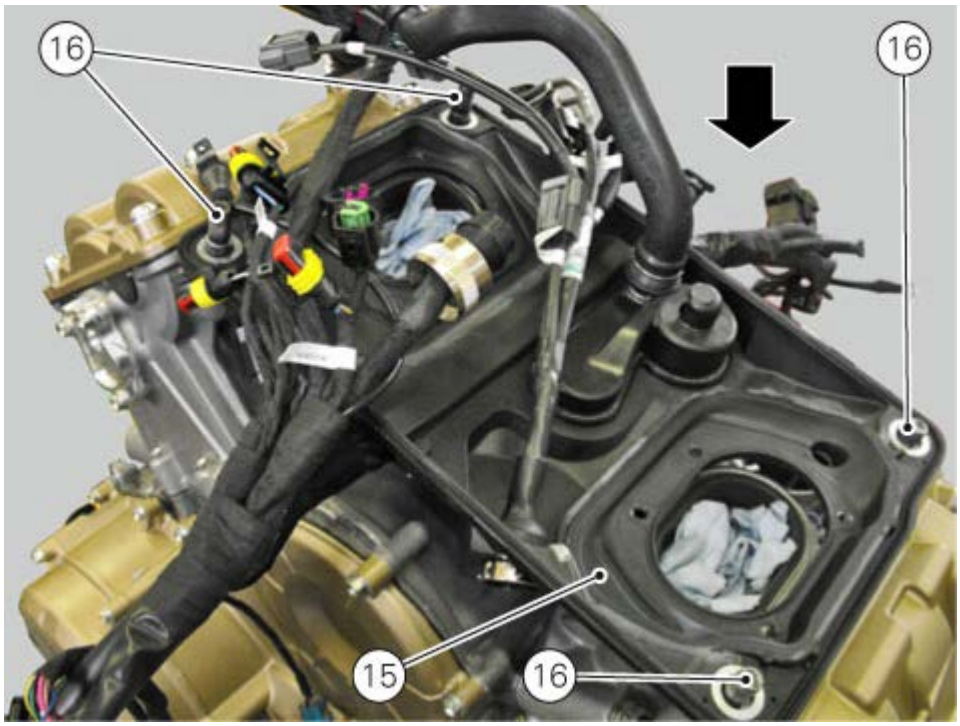


http://www.ducati-manuals.com
no. 140312

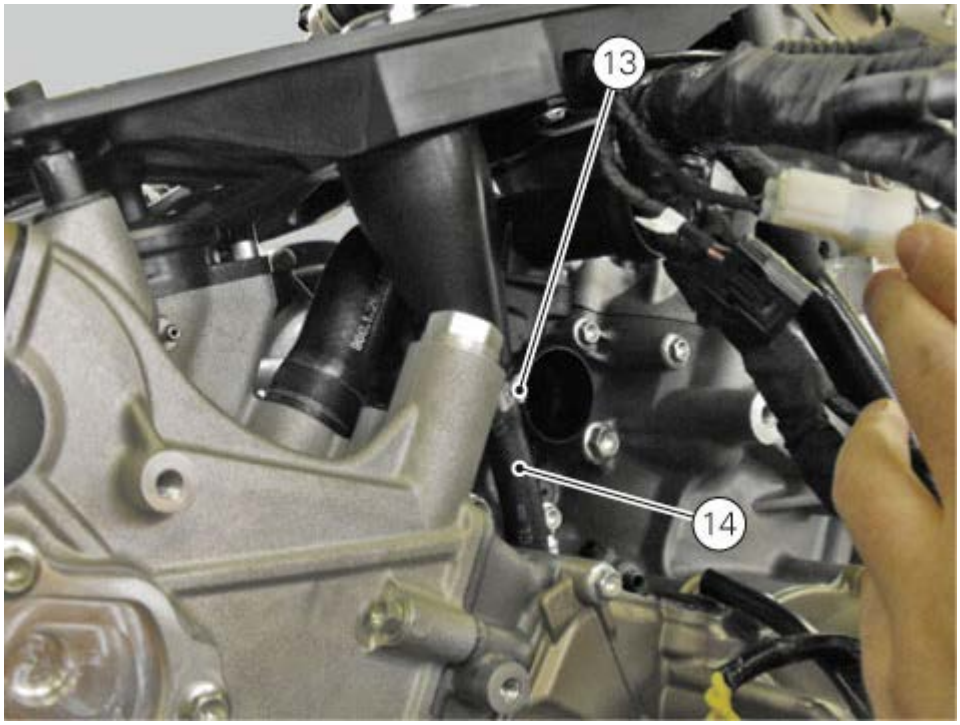
Installation of structural parts and frame

Installation of the airbox compartment

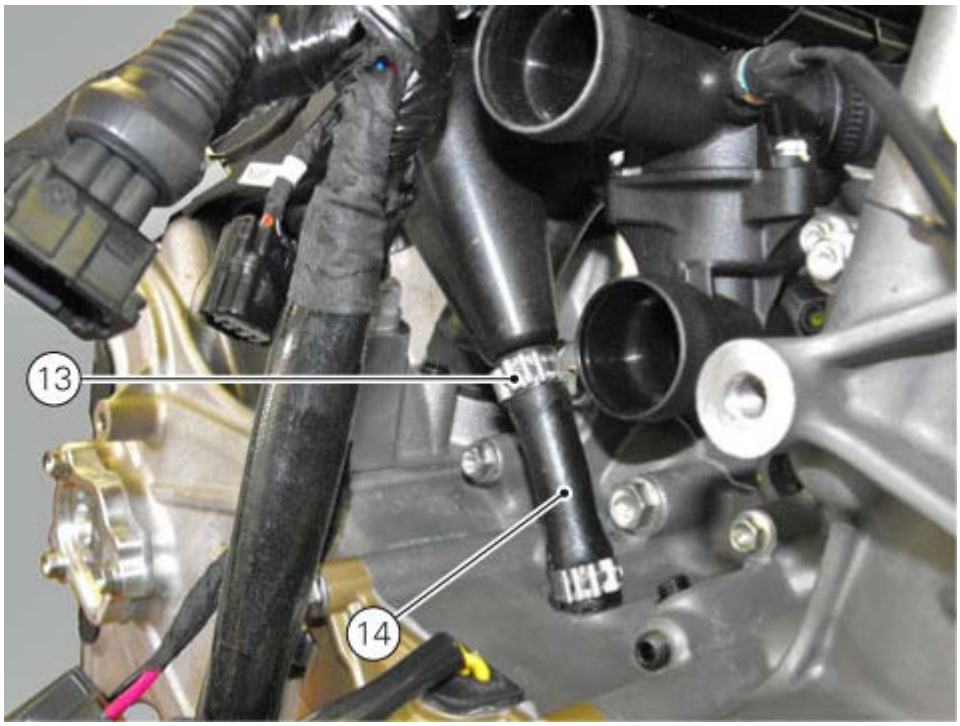
Position the complete airbox compartment (15) (Inspection of the frame) onto the engine head stud bolts (16).



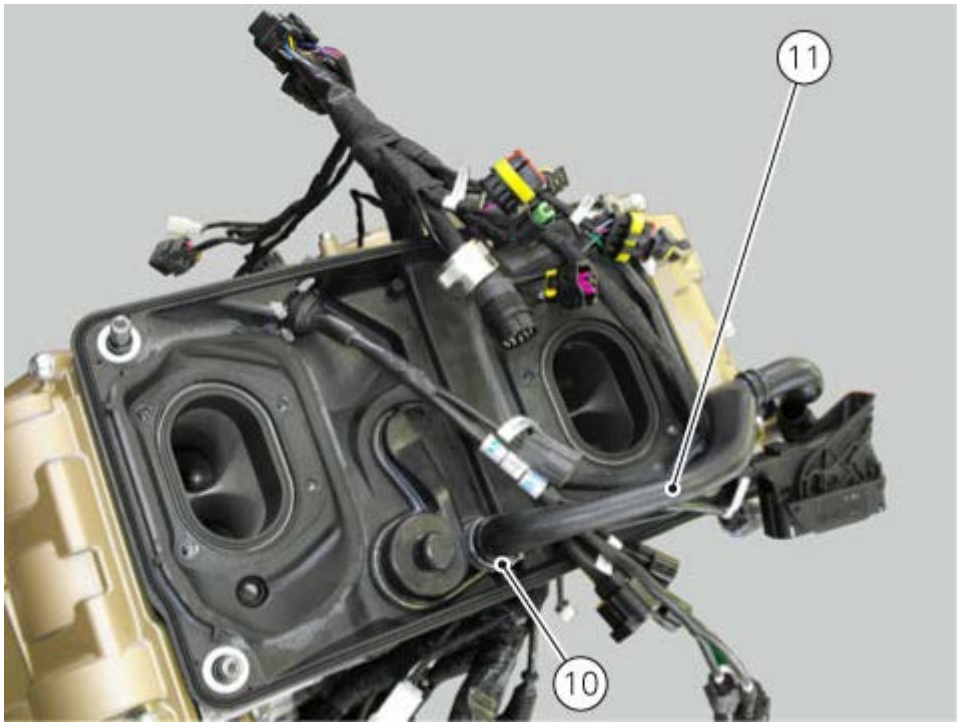
Secure hose (14) with clip (13).



http://www.ducati-manuals.com
no. 140312



Position the breather hose (11) and lock it with clip (10).



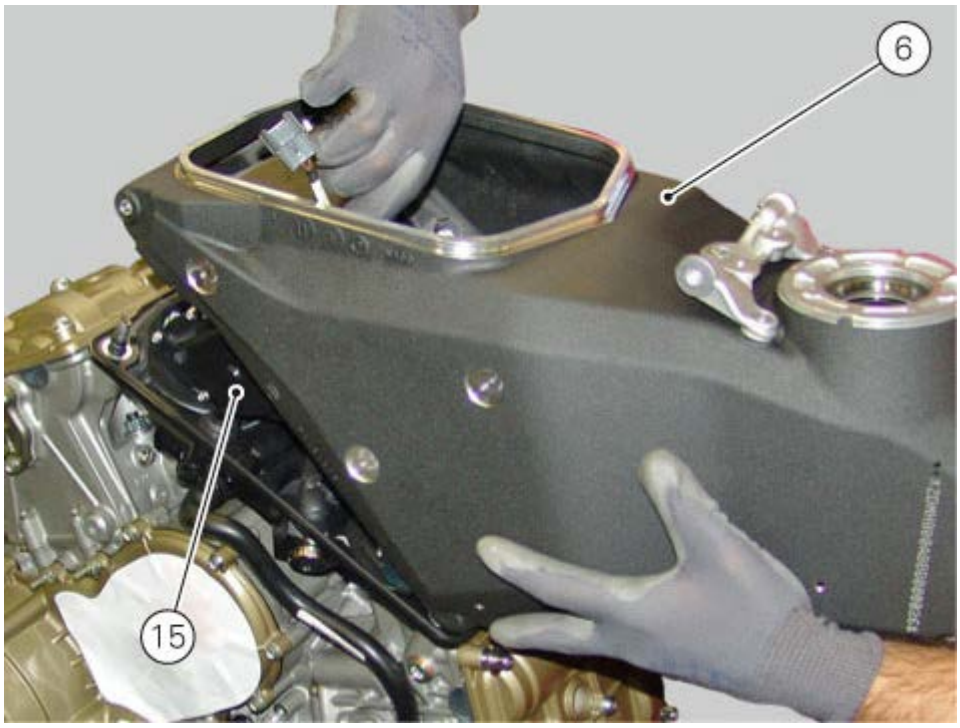
Install the intake funnels and the throttle bodies (Installation of airbox and throttle body).
Install the frame assembly as follows.

Installation of frame and steering system components

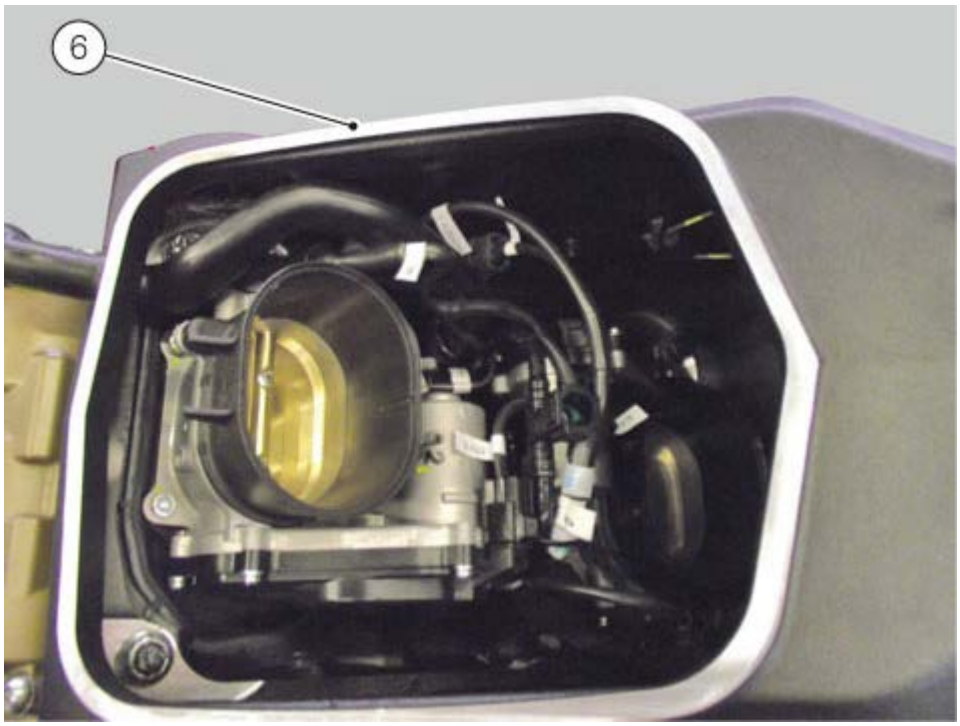
Position the complete frame (6) (Inspection of the frame) on the airbox compartment (15).

http://www.ducati-manuals.com
no. 140312

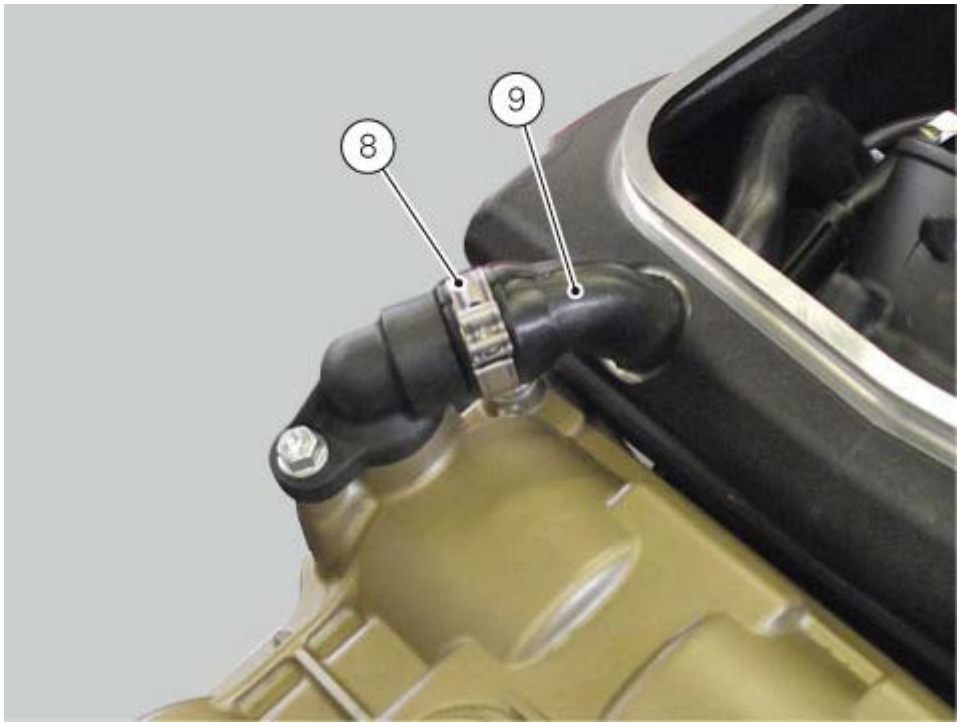




http://www.ducati-manuals.com
no. 140312

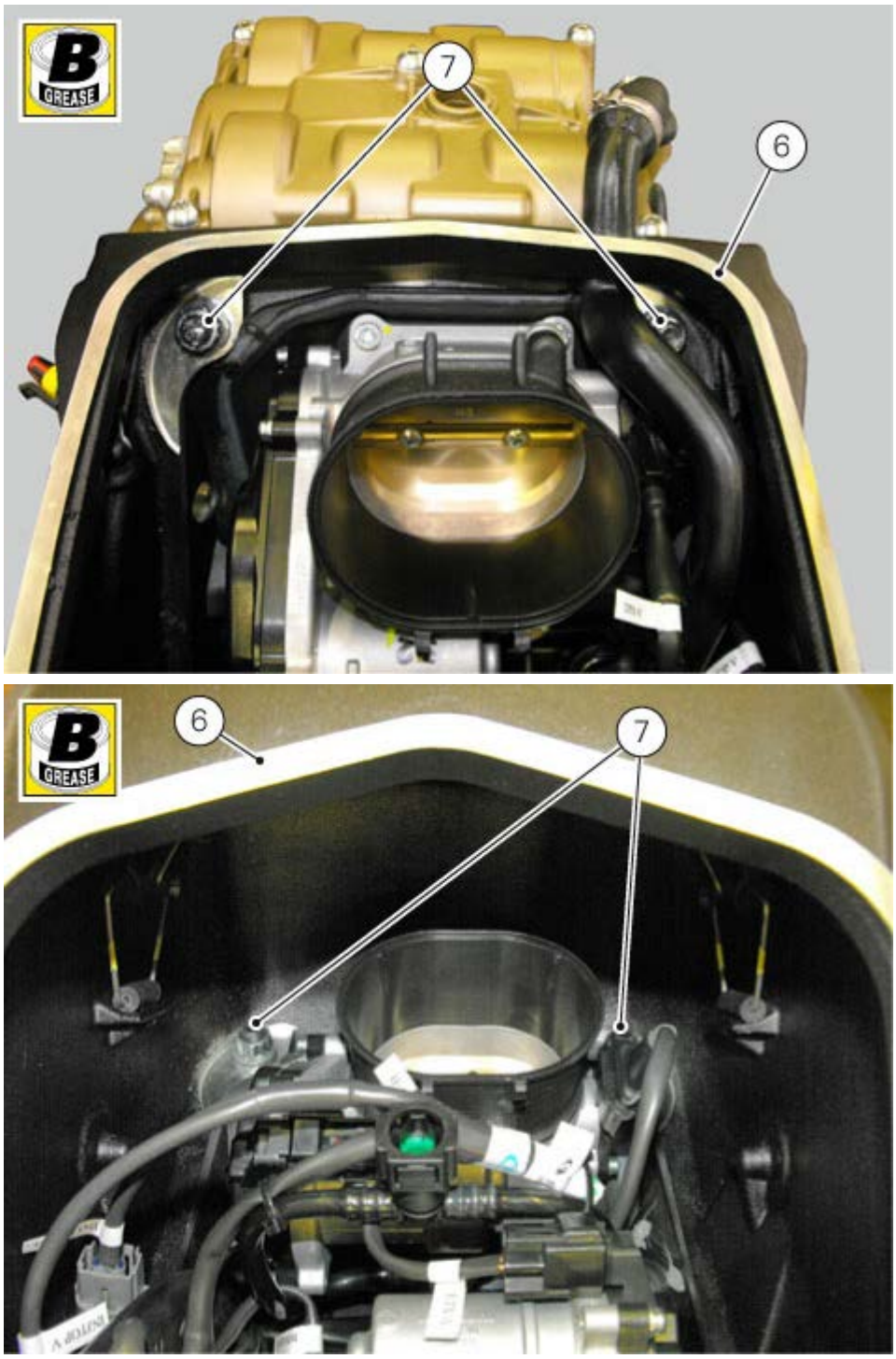


Position the hose (9) and lock it with clip (8).



Smear the screws (7) with specified grease.
Start the retaining screws (7) securing the frame-airbox assembly (6) to the engine block. Tighten the screws (7) to a torque of 45 Nm ± 5%.

http://www.ducati-manuals.com
no. 140312

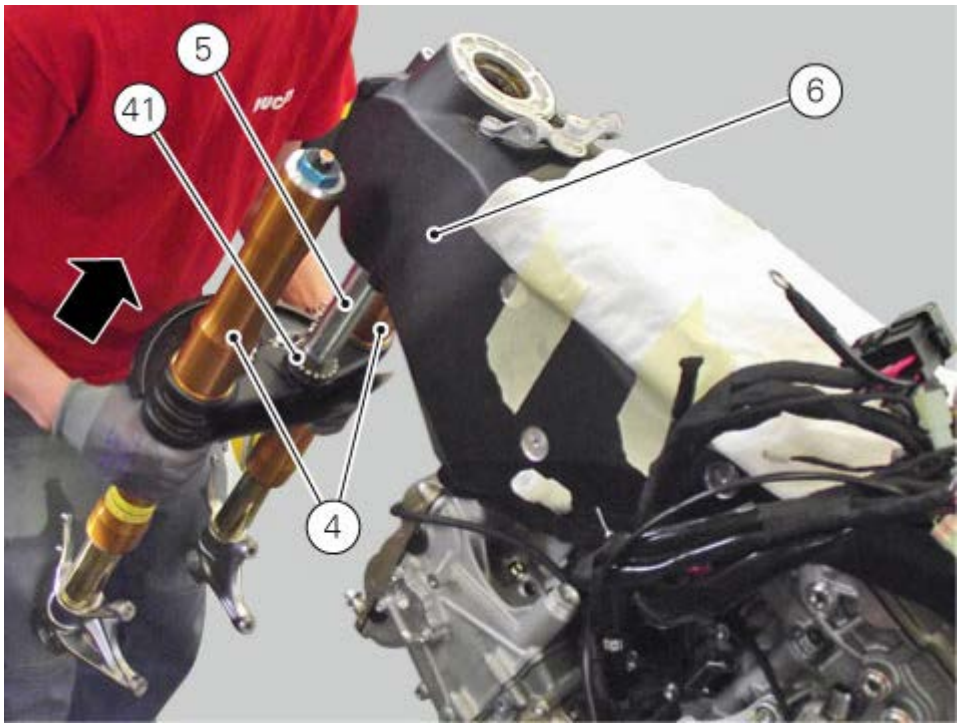


Make sure that the upper bearing (40) is fitted on the frame.

http://www.ducati-manuals.com
no. 140312



Insert the fork assembly (4) with steering shaft and bottom yoke (5) inside frame (6): shaft, with bearing (41), shall be installed into its seat on the frame, close to frame upper flange (19).



http://www.ducati-manuals.com
no. 140312



Fir the seal ring (3).



Smear the ring nut (2) with specified grease.
Start the ring nut (2) and tighten it to a torque of 25 Nm ± 5%.

http://www.ducati-manuals.com
no. 140312

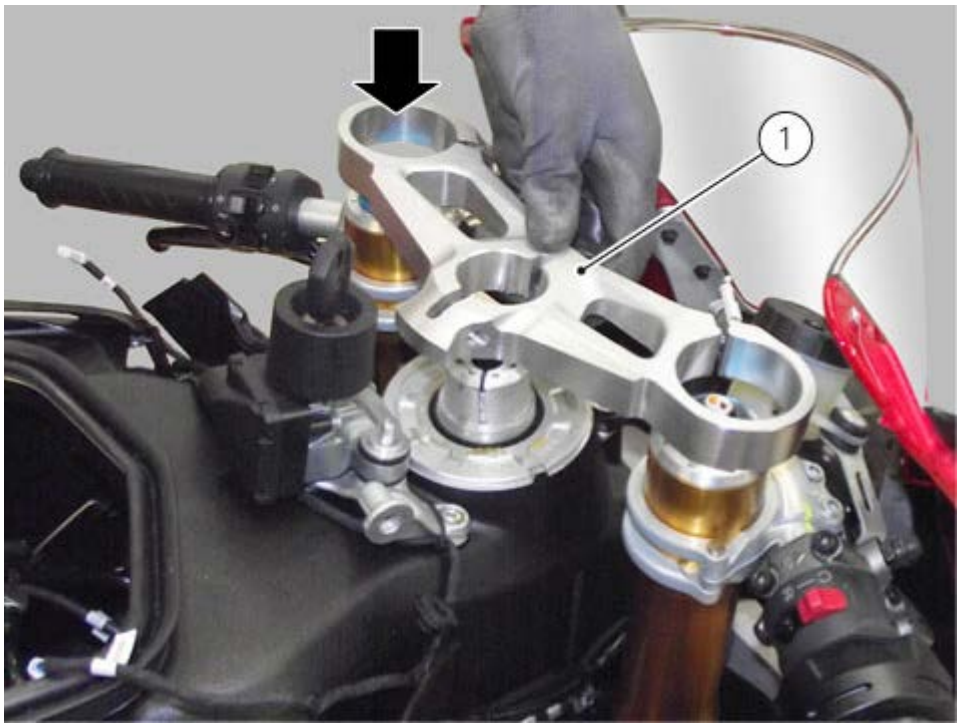




Fit handlebars onto forks and steering head (1).

http://www.ducati-manuals.com
no. 140312



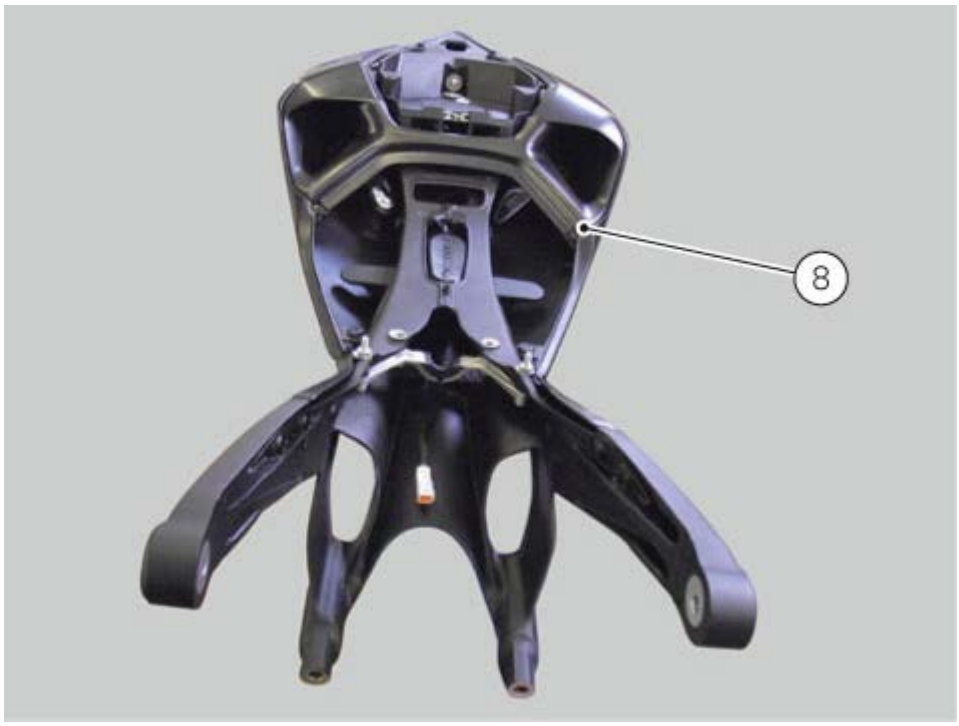


Install the headlight assembly (Replacement of the headlight).
Install the LH and RH electric system supports (Installation of the electric system supports).
Install the rear subframe(Installation of the rear subframe).
Remove the supporting tool.
Install the exhaust system(Installation of the exhaust system).
Install the radiator assembly support (Install the water radiator).
Install the front wheel (Installation of the front wheel).
Install the tank (Installation of the fuel tank).
Install the seat (Installation of the rider seat).
Install the fairings (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

Installation of the rear subframe

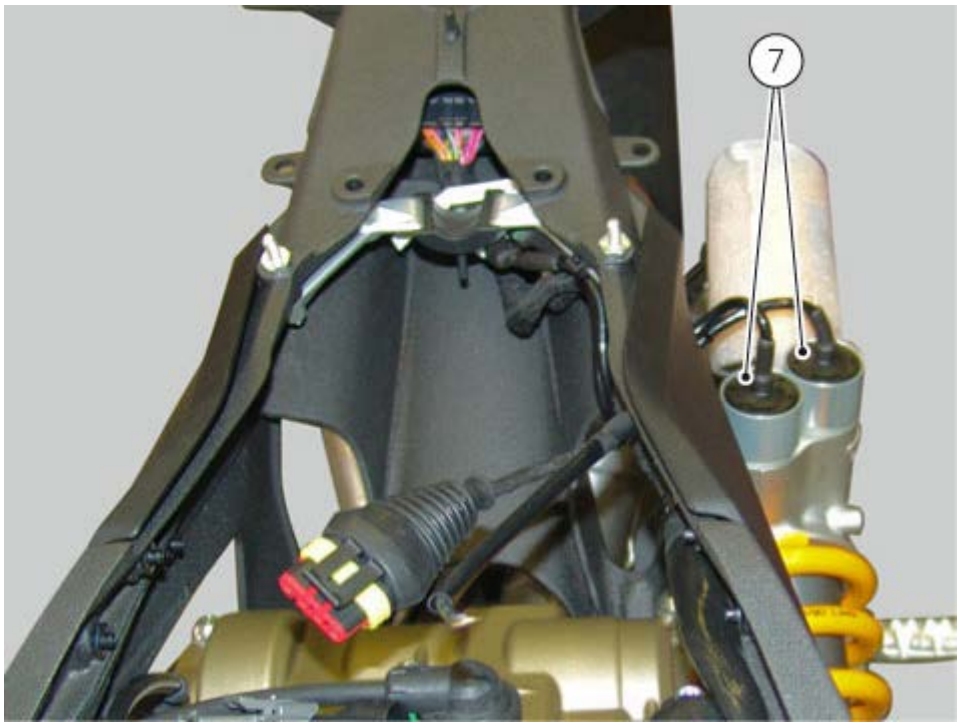
Install the complete rear subframe (8) on the motorcycle.



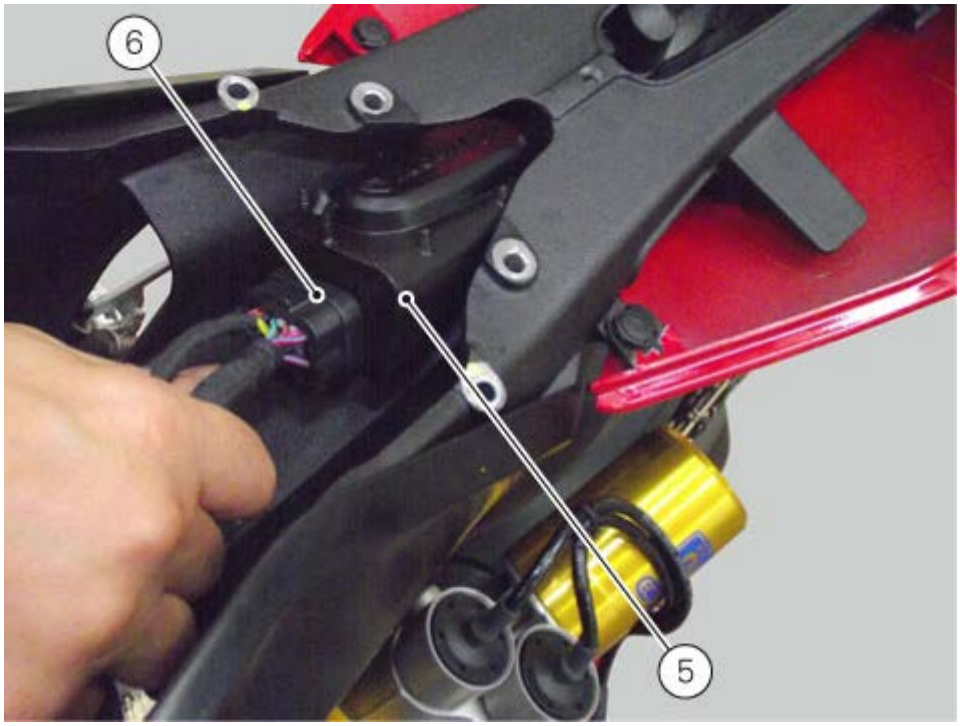


Connect the rear shock absorber adjustment cables (7) to the main wiring.

http://www.ducati-manuals.com
no. 140312



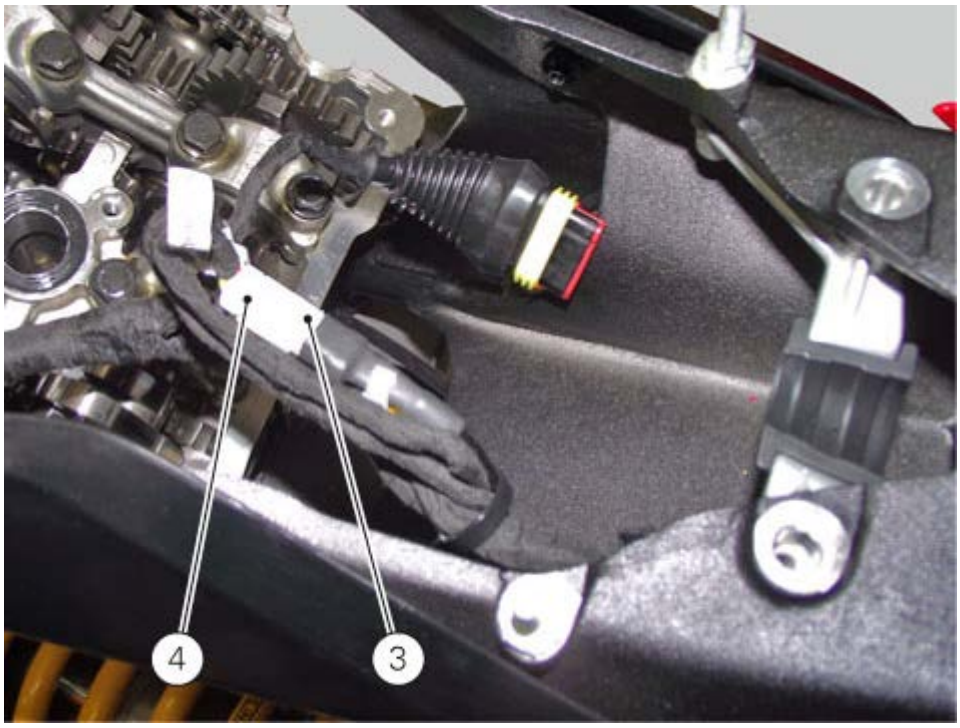
Connect the black box wiring (5) to the main wiring connector (6).



Connect the rear wiring (3) to the main wiring connector (4).

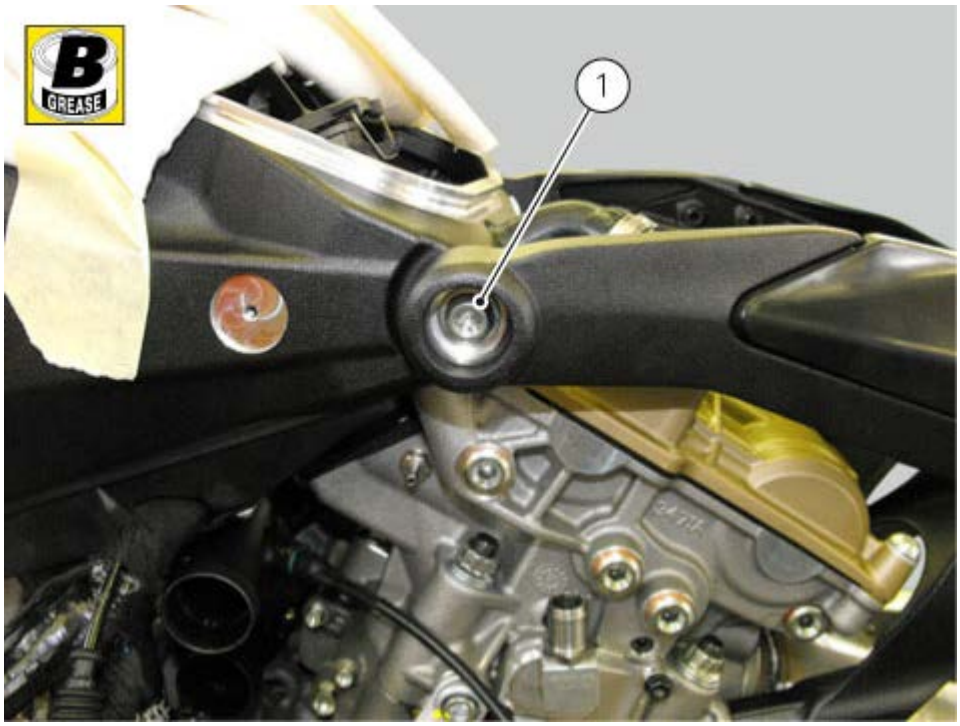
http://www.ducati-manuals.com
no. 140312

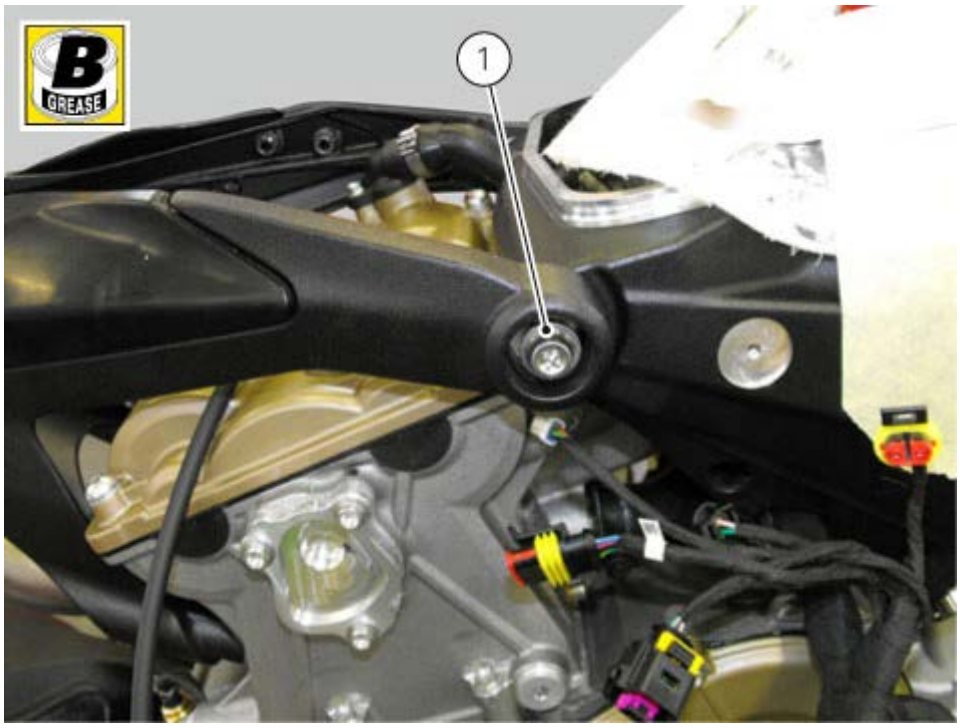




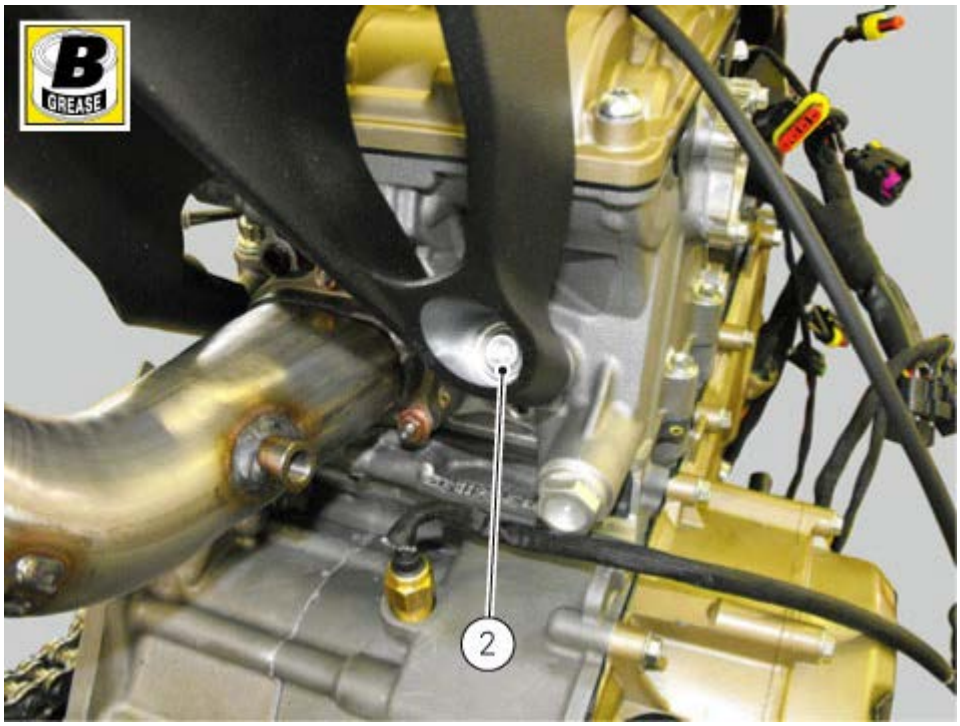
Apply the recommended grease to the screws (1) and (2).
Start the screws (1) and (2) to secure the rear subframe in place.
Tighten the screws (1) to a torque of 28 Nm ± 5%.
Tighten the screws (2) to a torque of 22 Nm ± 5%.

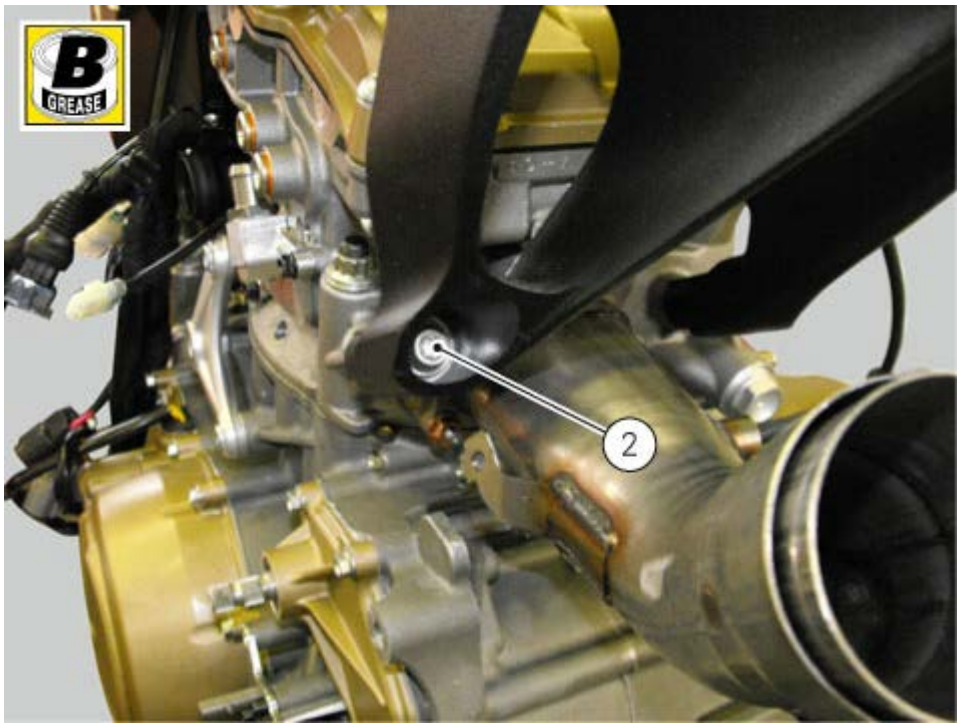
http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312





Remove the supporting tool.
Install the tank (Installation of the fuel tank).
Install the seat (Installation of the rider seat).
Install the fairings (Installation of the side fairings).

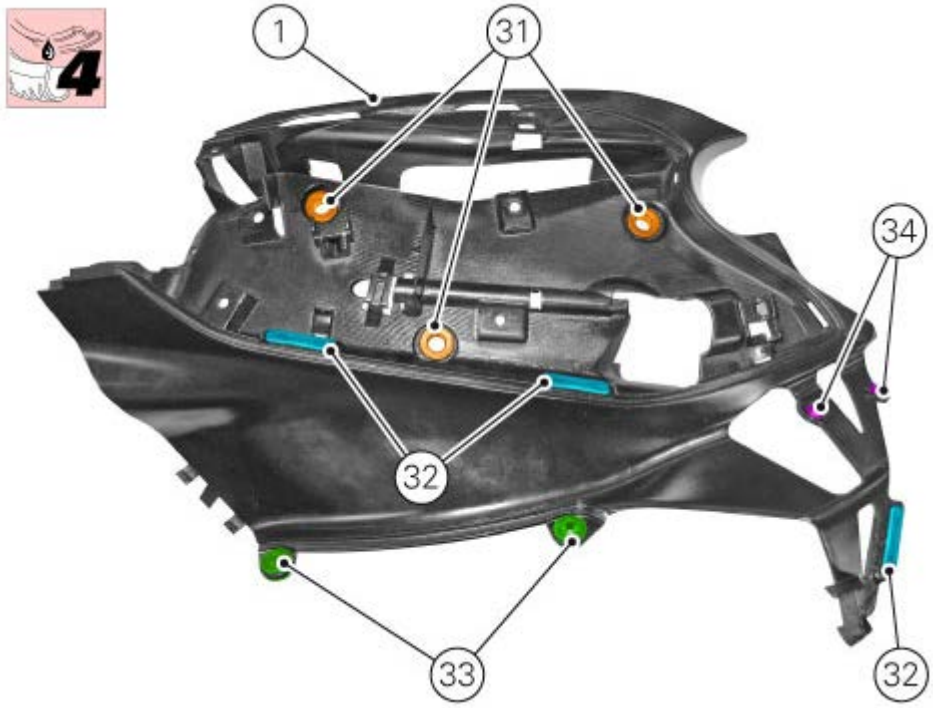
http://www.ducati-manuals.com
no. 140312

Installation of the electric system supports

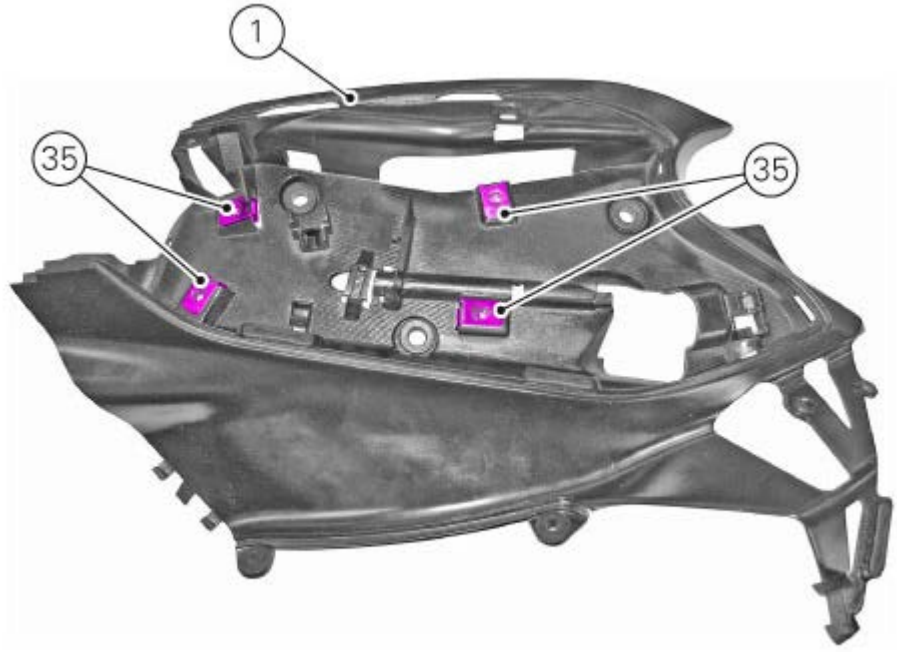
Installation of the LH electric system support

If the components assembled on the LH electric system support were removed, proceed as follows. Make sure that the vibration dampers (31), (32) (33) and (34) are present on the LH electric system support (1), in the positions shown in the figure.

Note
Should vibration dampers prove hard to assemble, smear them with recommended lubricant.



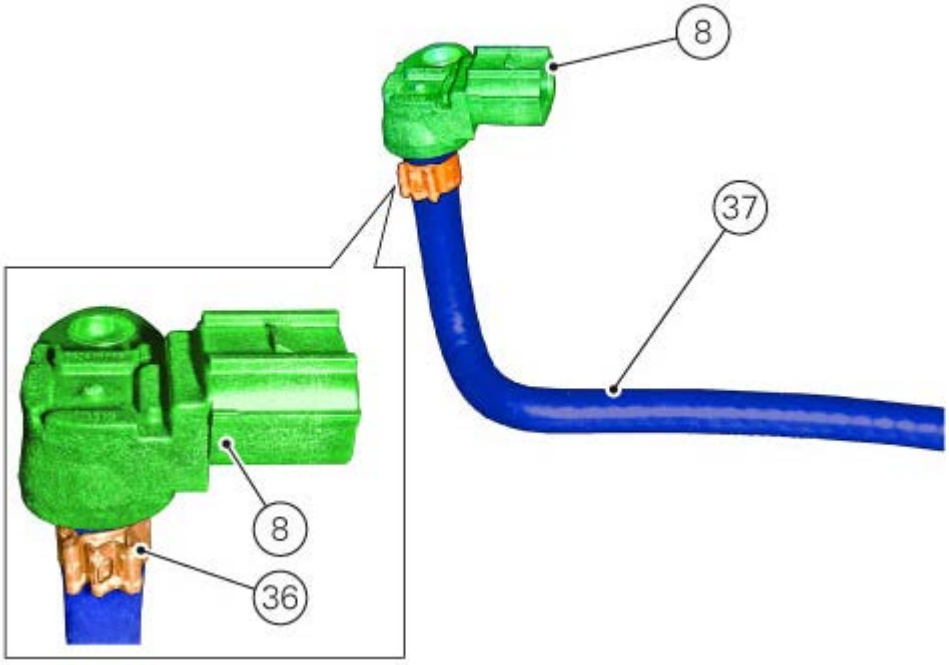
Make sure that the clips (35) are present in the indicated areas of the support (1).

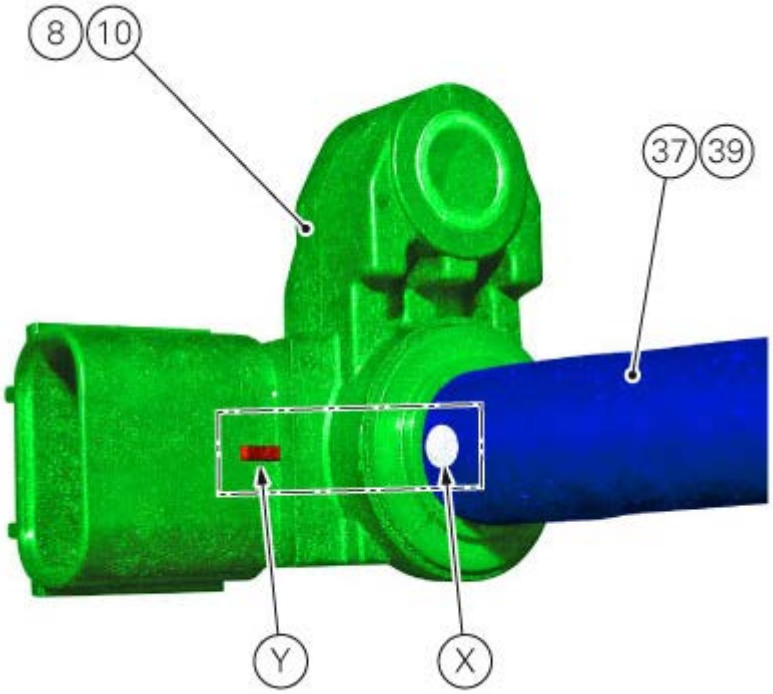


Fit the clamp (36) on the horizontal hose (37). Insert the horizontal hose (37) on the map sensor (8), aiming it so that the hose mark (X) is aligned with the map sensor notch (Y), as shown in the figure. Block the hose (37) by means of the clip (36), aiming it as shown. Fit the clamp (38) on the vertical hose (39). Insert the vertical hose (39) on the map sensor (10), aiming it so that the hose mark (X) is aligned with the map sensor notch (Y), as shown in the figure.

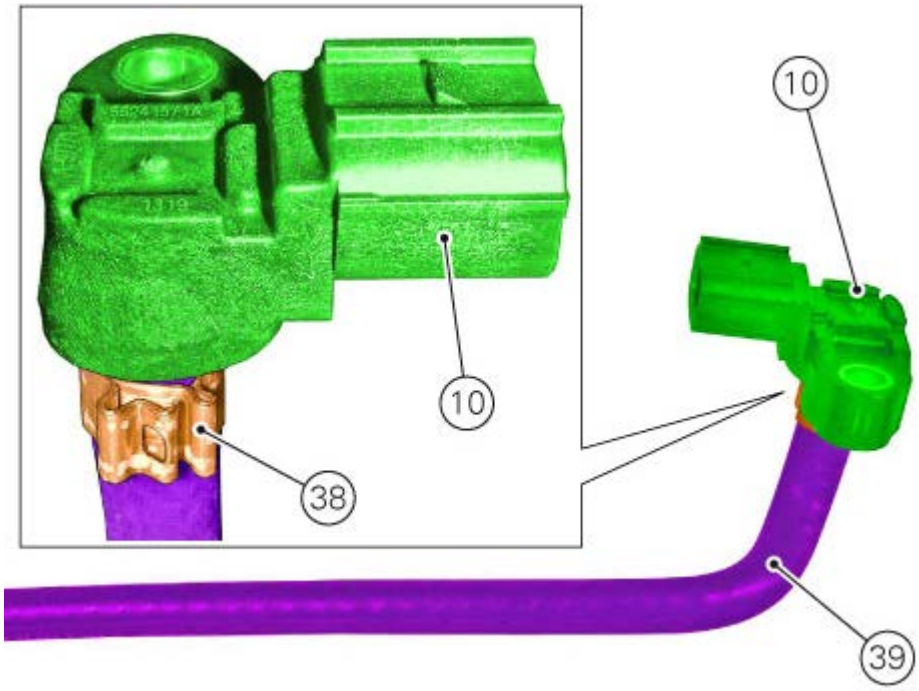
http://www.ducati-manuals.com
no. 140312

Block the hose (39) by means of the clip (38), aiming it as shown.

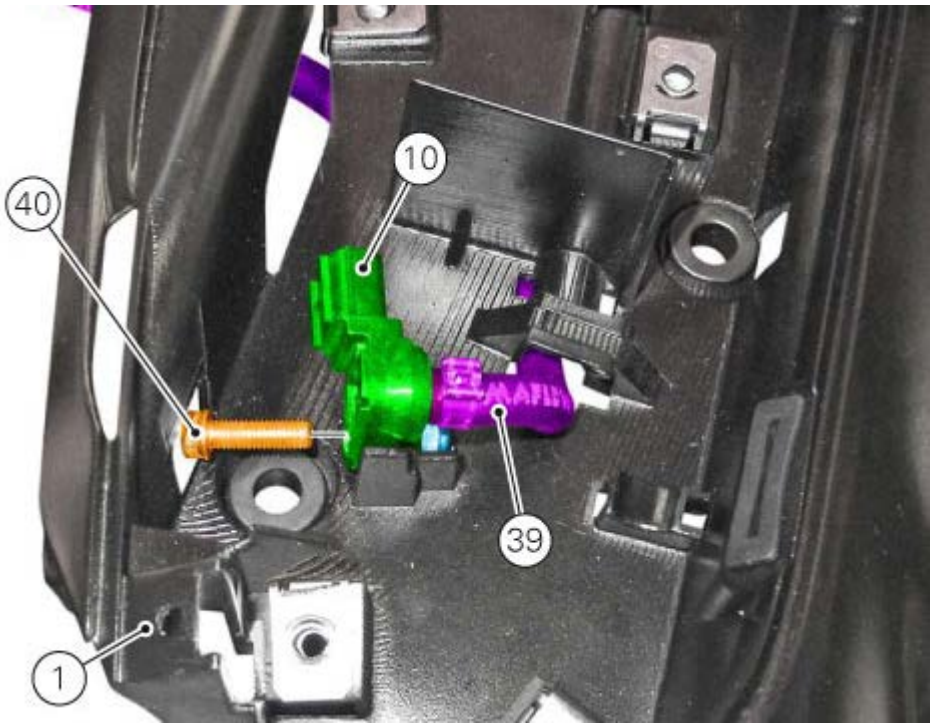




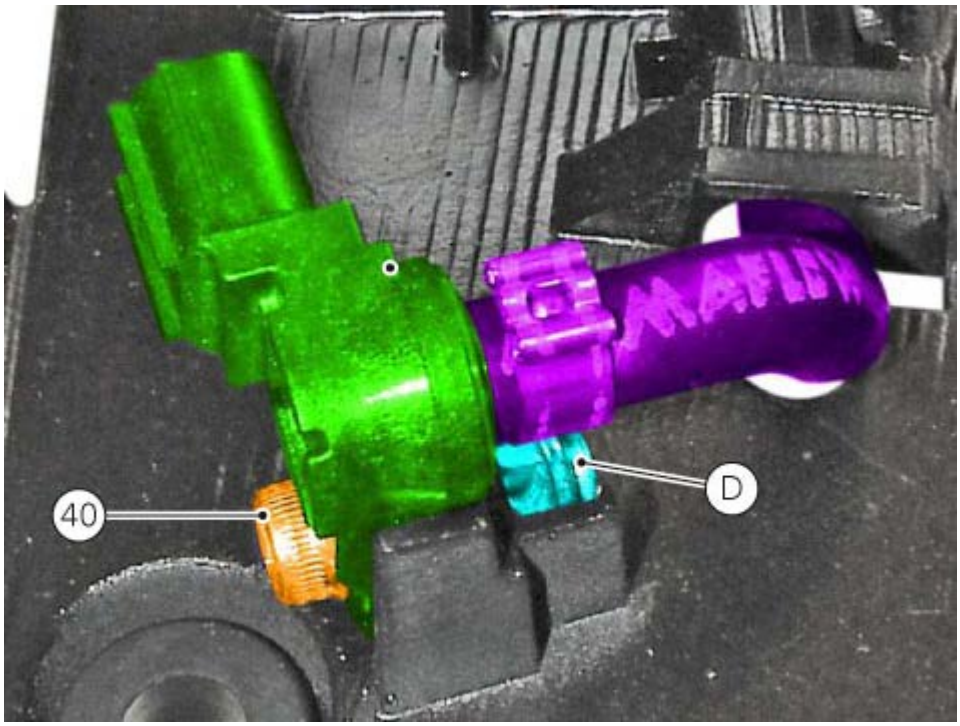
http://www.ducati-manuals.com
no. 140312

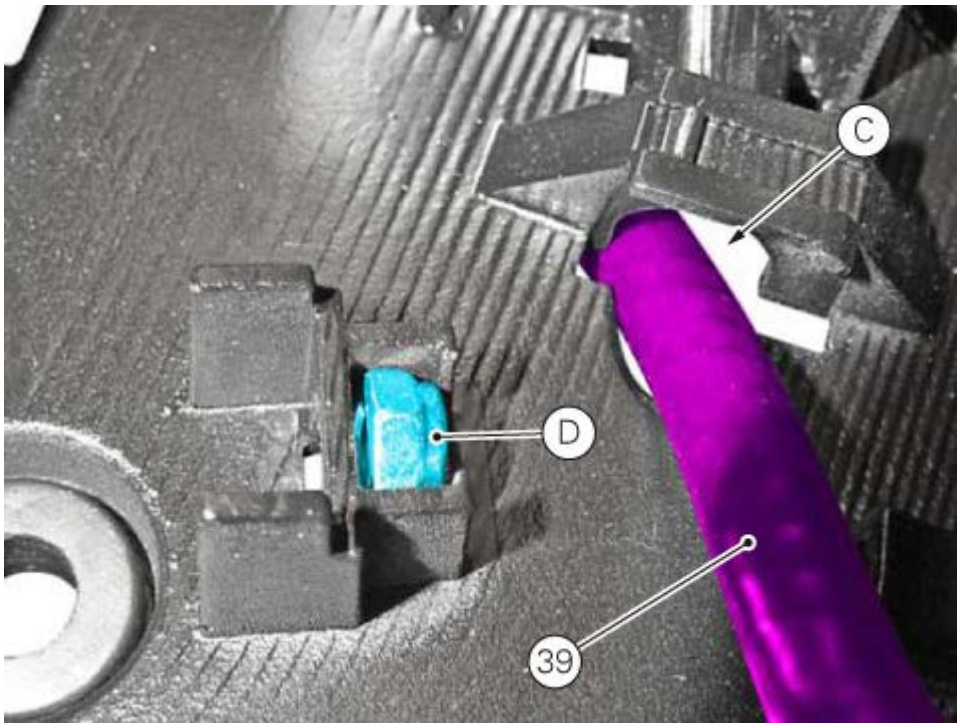


Insert the vertical hose (39) inside the LH electric system support (1) opening (C), and fit the map sensor (10) inside its seat, aiming it as shown in the figure.
To secure the map sensor (10) in place, start the screw (40) on support (1) nut (D).
Tighten the screw (40) to a torque of 2 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



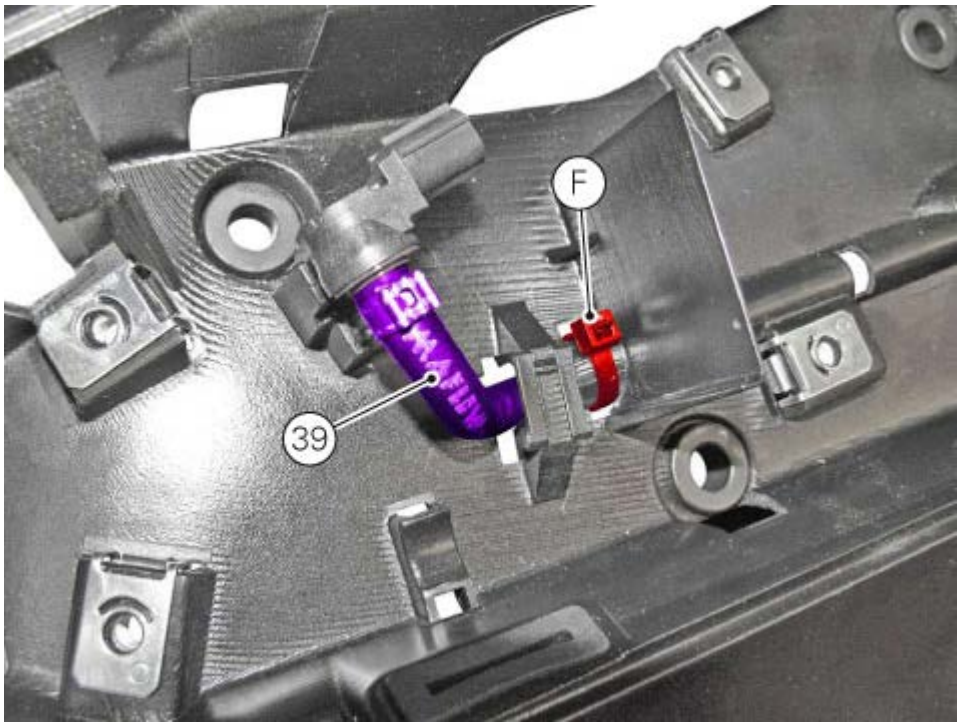


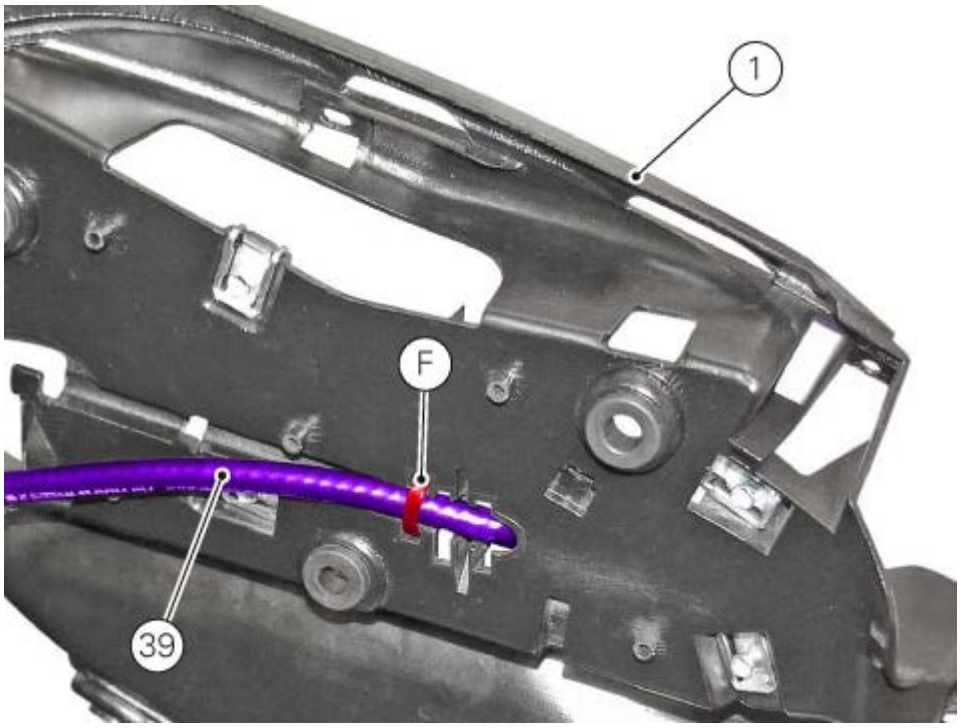
Secure the vertical hose (39) to the LH electric system support (1) using a large tie (F), as shown in the figure.

Note

Do not fasten tie (F) too much so as to prevent pipe (39) kinking.

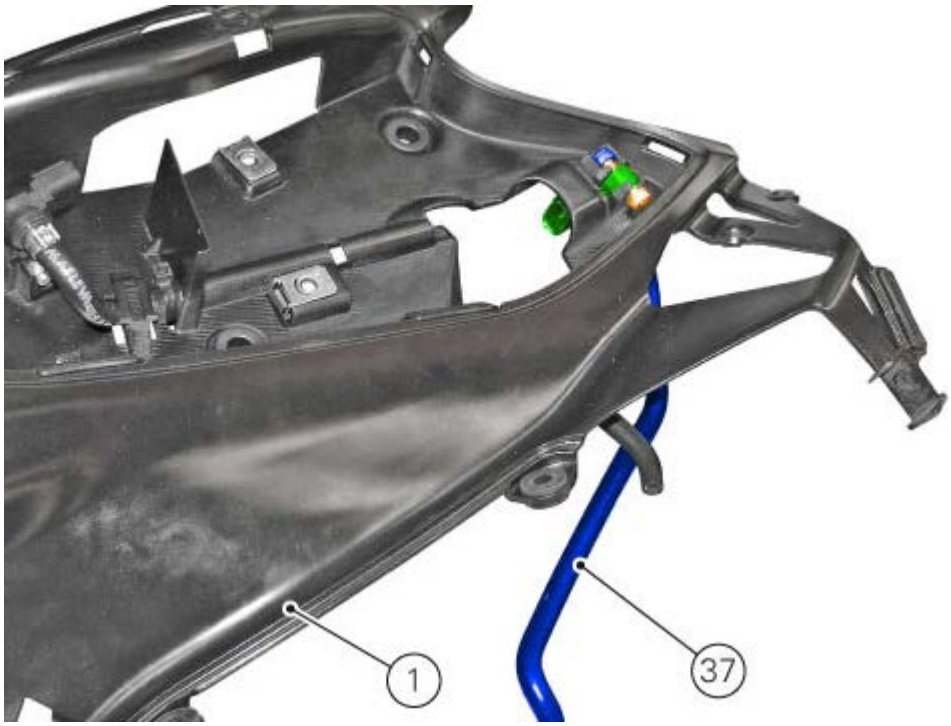
http://www.ducati-manuals.com
no. 140312

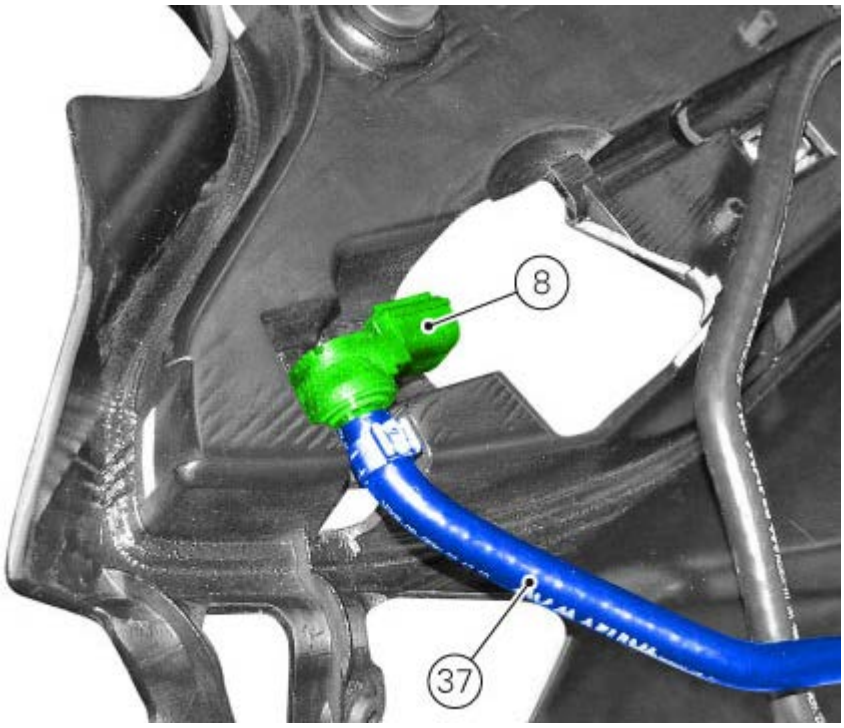




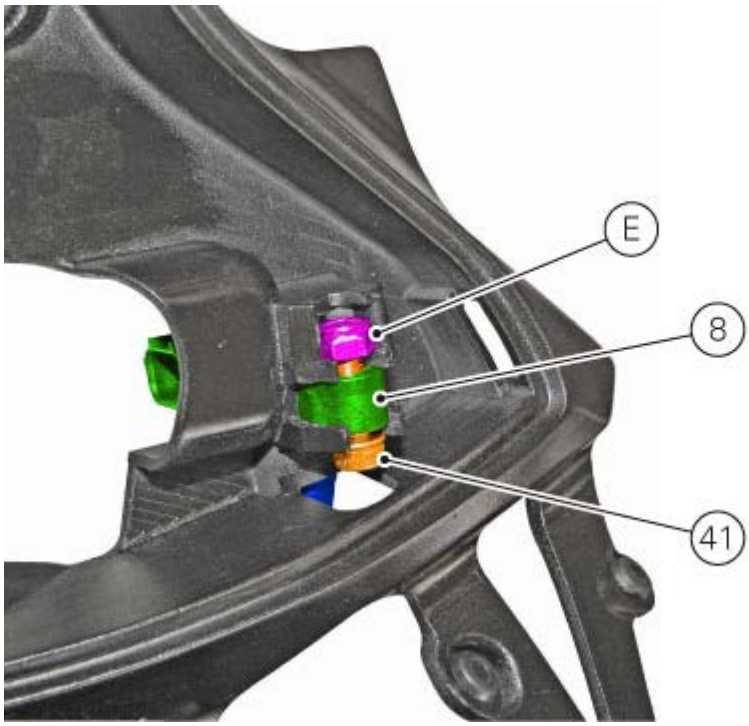
Position the map sensor (8), aiming it as shown in the figure, inside its housing on the LH electrical system support (1), and slide horizontal hose (37) out of the support.
To secure the map sensor (8) in place, start the screw (41) on support (1) nut (E).
Tighten the screw (41) to a torque of 2 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

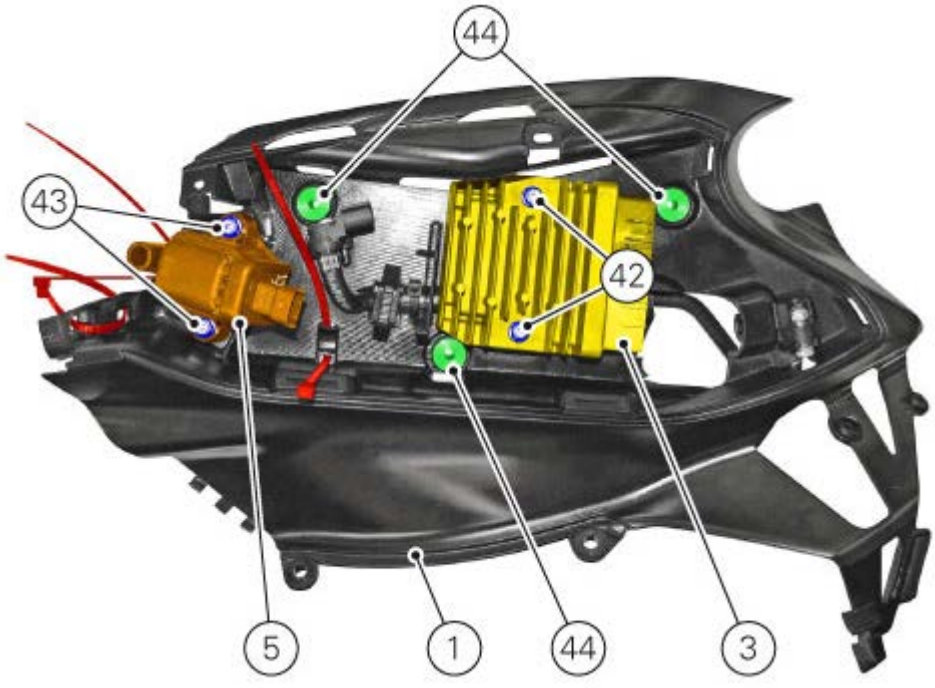




http://www.ducati-manuals.com
no. 140312

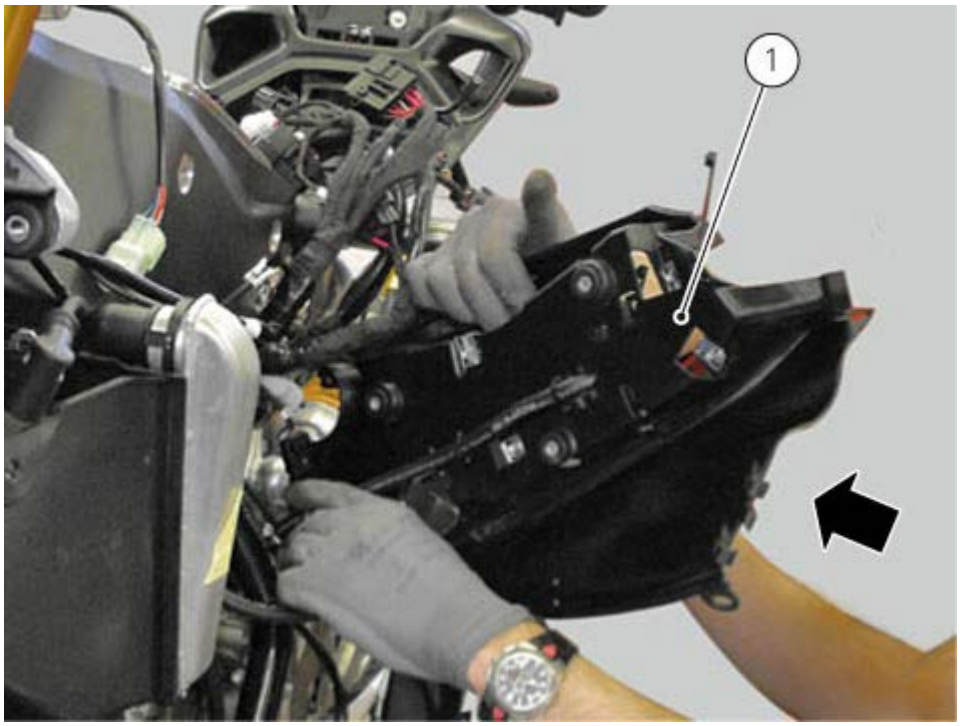


Fit the voltage rectifier (3), aiming it as shown in the figure, on the LH electric system support (1), and secure it in place with screws (42).
Tighten the screws (42) to a torque of 8 Nm ± 10%.
Fit the horizontal coil (5), aiming it as shown in the figure, on the LH electric system support (1), and secure it in place with screws (43).
Tighten the screws (43) to a torque of 8 Nm ± 10%.
Insert the spacers with collar (44) inside support vibration dampers (1), as shown in the figure.



Refit the LH electrical system support (1).

http://www.ducati-manuals.com
no. 140312

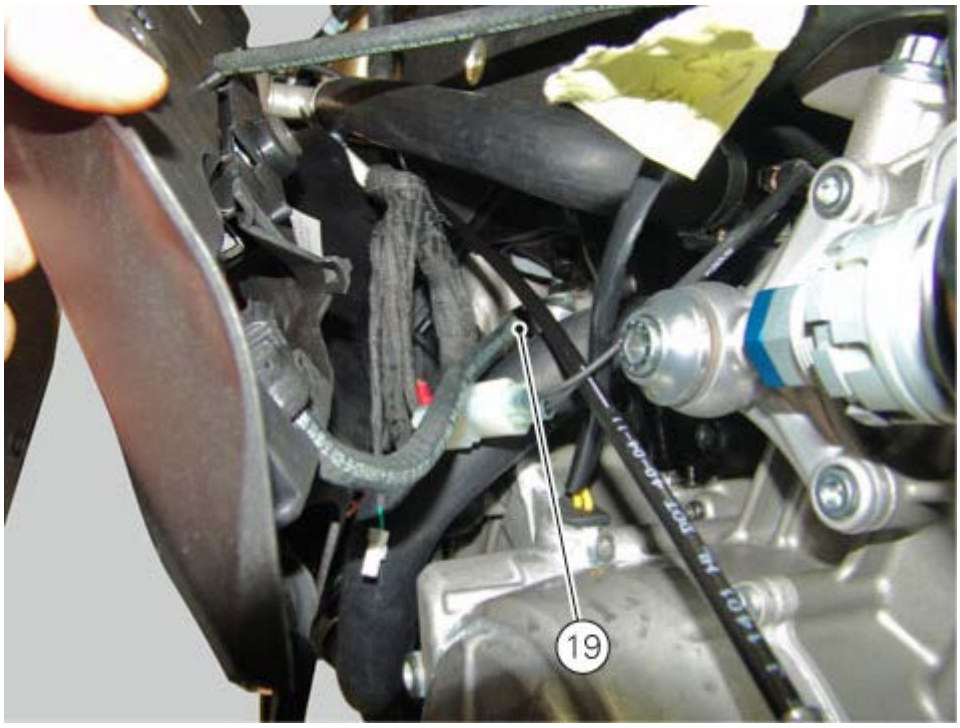




Connect the horizontal MAP sensor hose (19) to the horizontal head, and the vertical MAP sensor hose (20) to the vertical head.

http://www.ducati-manuals.com
no. 140312



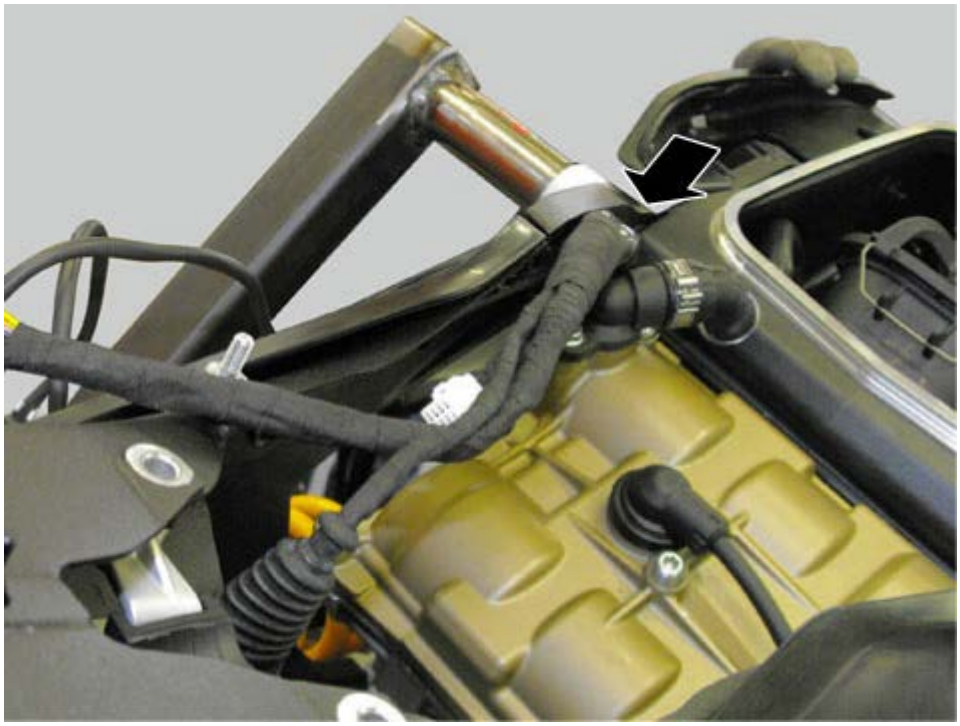


Bring the LH support (1) near the frame, laying wiring section (G) as shown in the figure.

http://www.ducati-manuals.com
no. 140312

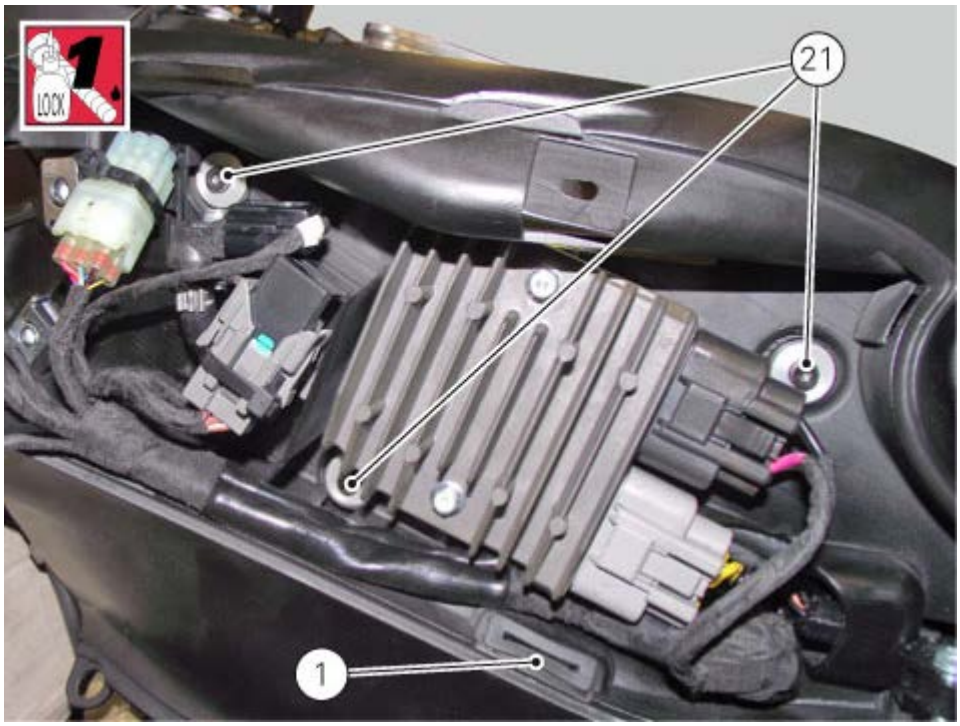


Slide the main wiring cable towards vehicle rear end so as to connect it to the rear wiring section.

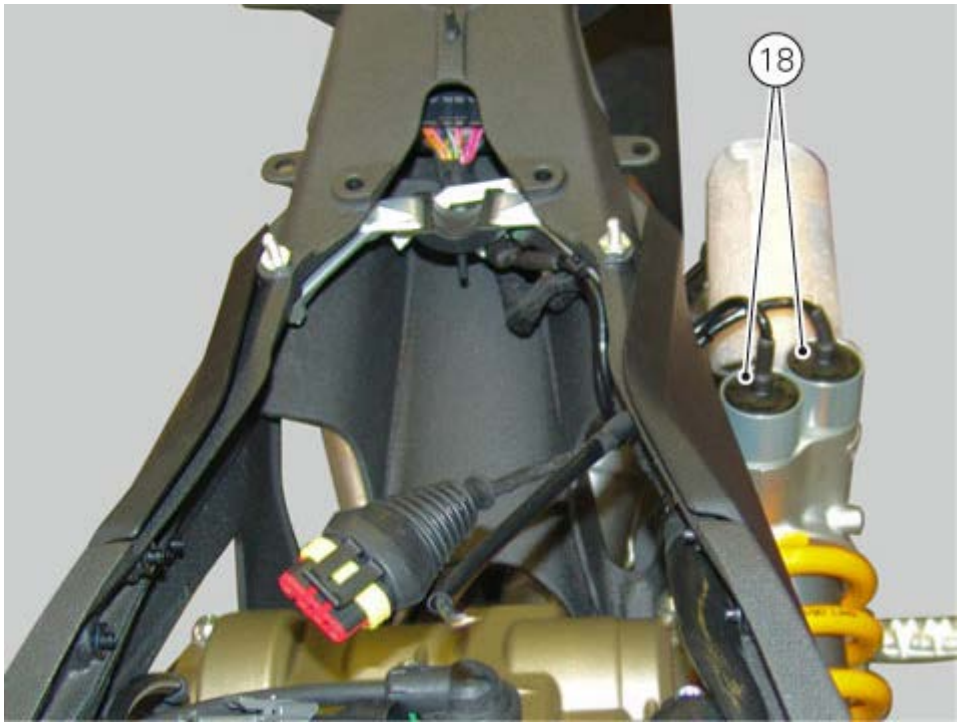


Smear the three screws (21) with recommended threadlocker, start the screws securing the support (1) to the frame, and tighten to a torque of 5 Nm ± 10 %.

http://www.ducati-manuals.com
no. 140312

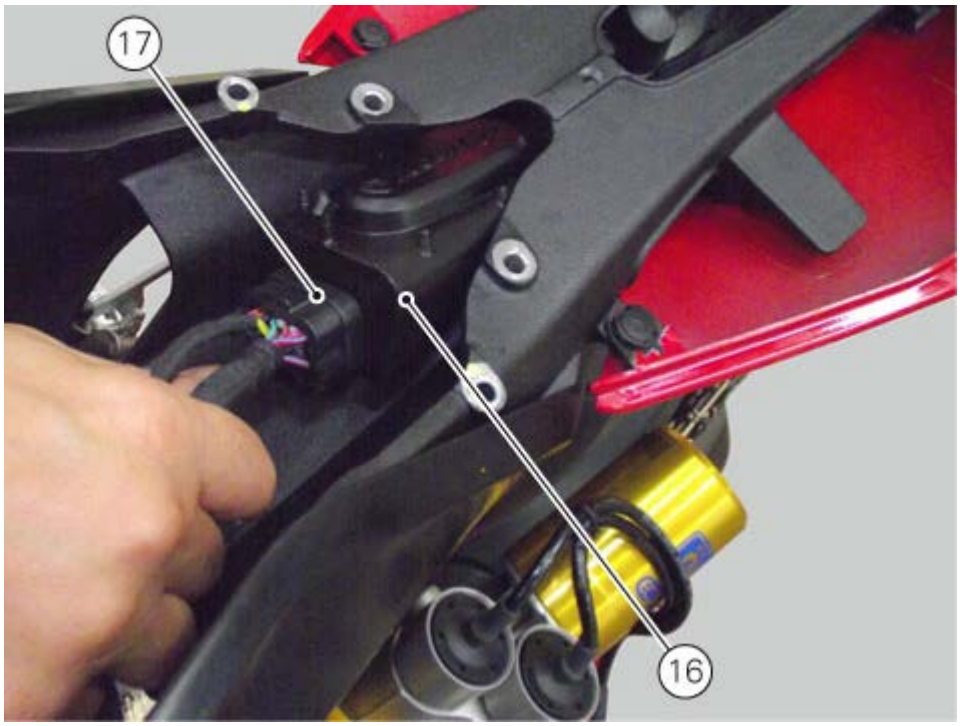


Connect the rear shock absorber adjustment cables (18) to the main wiring.

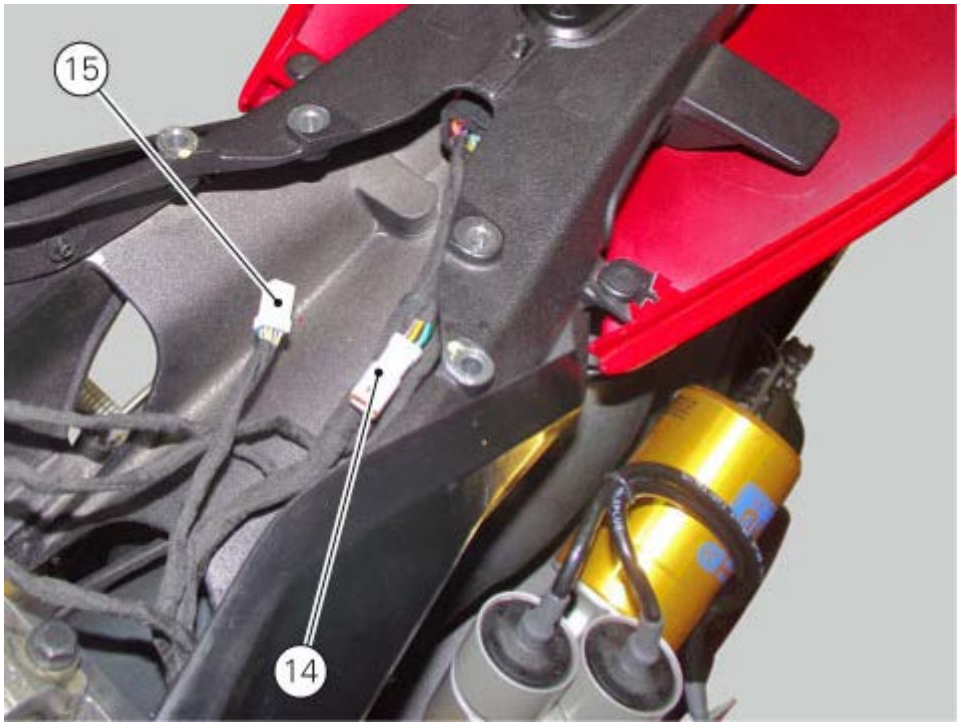


Connect the black box wiring (16) to the main wiring connector (17).

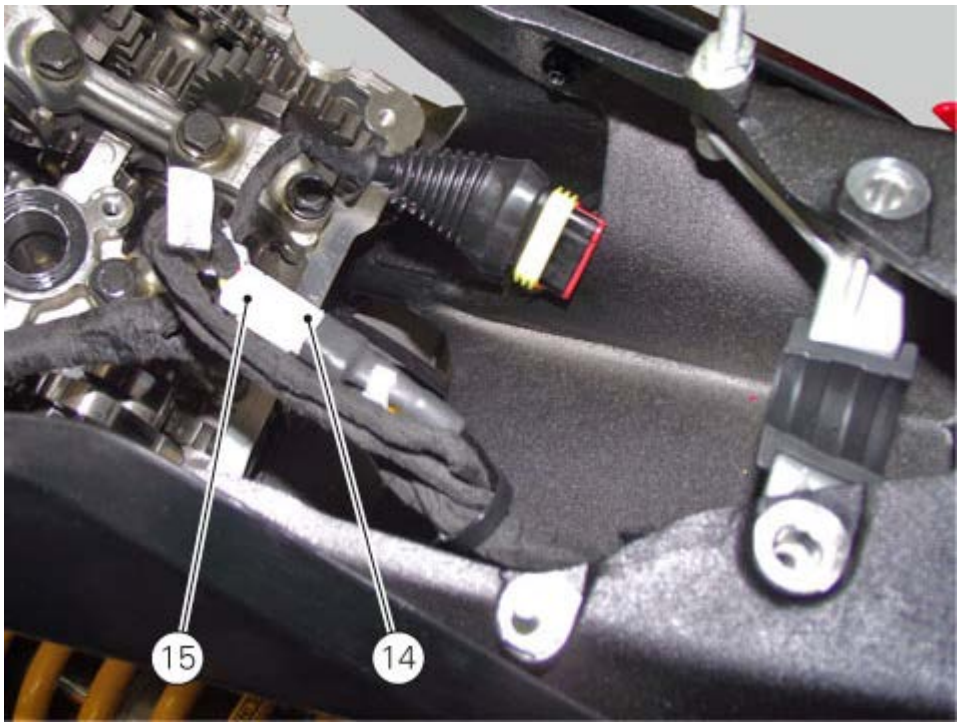
http://www.ducati-manuals.com
no. 140312



Connect the rear wiring (14) to the main wiring connector (15).



http://www.ducati-manuals.com
no. 140312



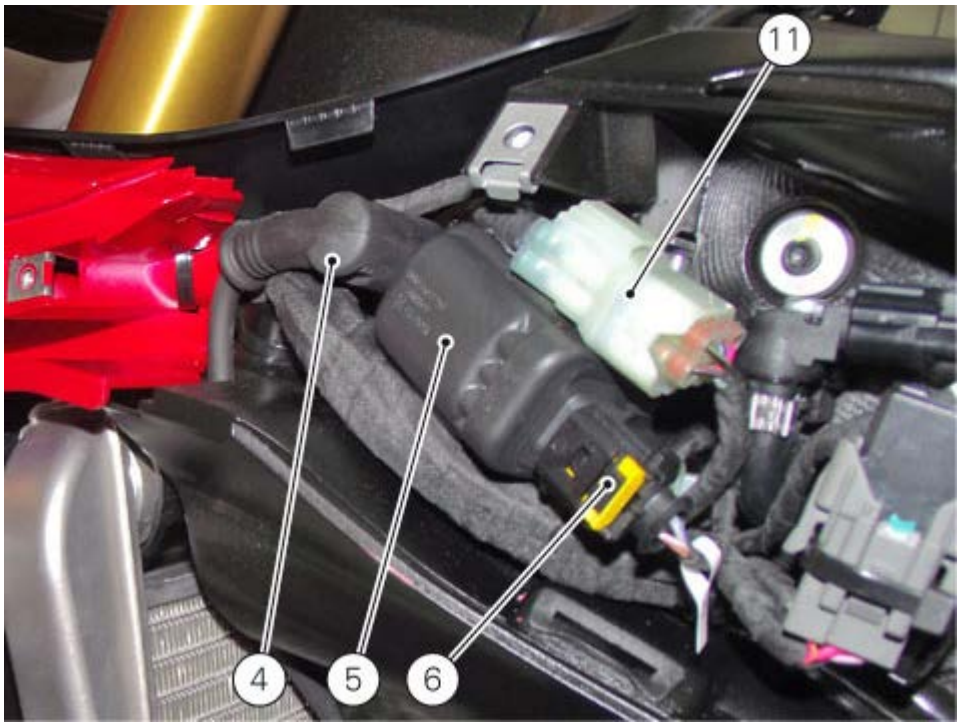
Position the fuse box cover (13).

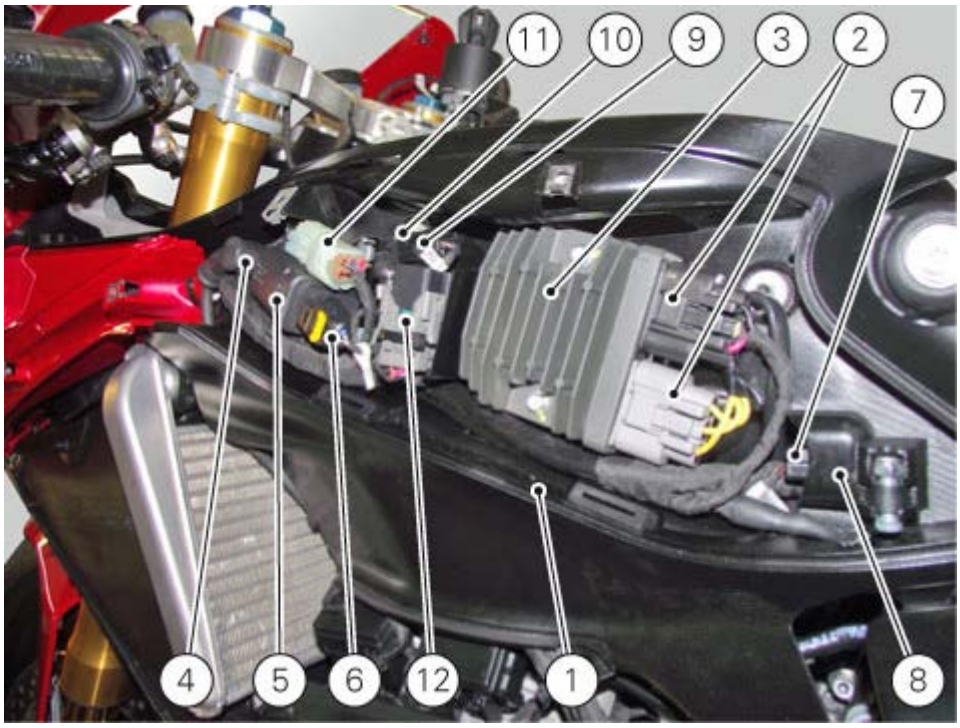


Position the injection and e-lock relays (12) inside their seats on the LH support.
Connect the components positioned on LH electric system support (1). In particular:

- the connectors (2) between the voltage rectifier (3) and the main wiring and the generator;
- the horizontal cylinder coil (5) cap (4);
- the connector (6) between the horizontal cylinder coil (5) and the main wiring;
- the connector (7) between the horizontal MAP sensor (8) and the main wiring;
- the connector (9) between the vertical MAP sensor (10) and the main wiring;
- the connector (11) between the ignition switch and the main wiring.

http://www.ducati-manuals.com
no. 140312





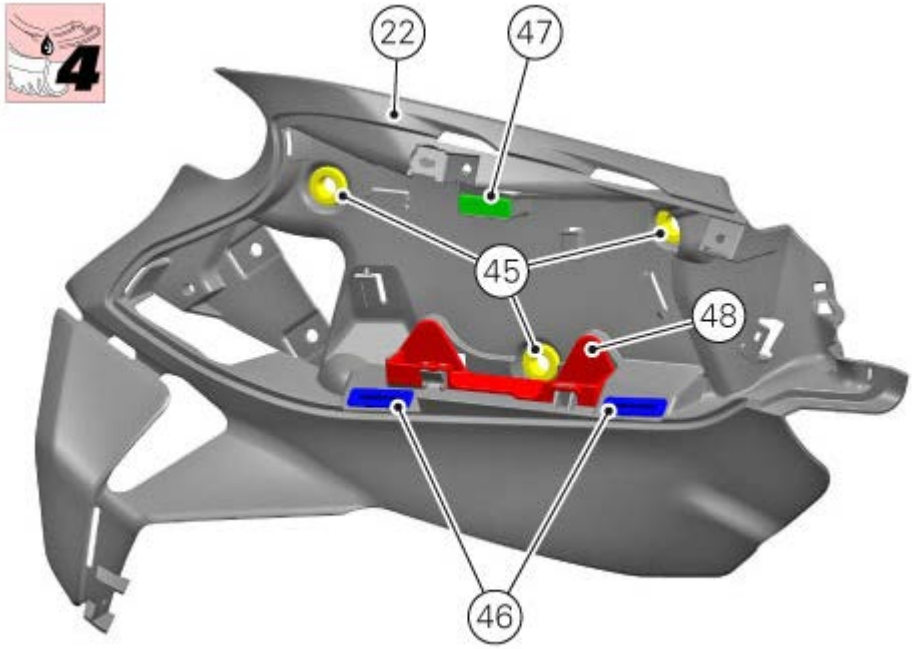
Install the tank (Installation of the fuel tank).
Install the seat (Installation of the rider seat).
Install the fairings (Installation of the side fairings).

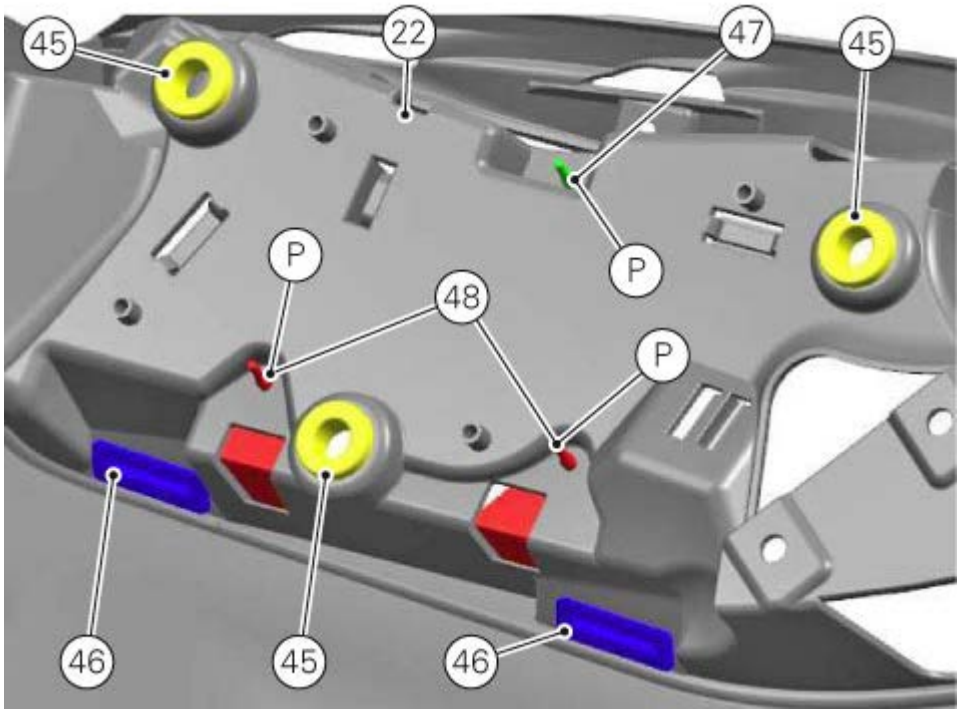
Installation of the RH electric system support

If the components assembled on the RH electric system support were removed, proceed as follows. Make sure that the rubber seals (45) and (46), the rubber drift (47) and the control unit vibration damper (48) are present on the electric system support (22). Drift (47) and vibration damper (48) pins (P) shall be positioned on the side opposite to the insertion one, as shown in the figure.

Note
Should the rubber parts prove hard to assemble, smear them with recommended lubricant.

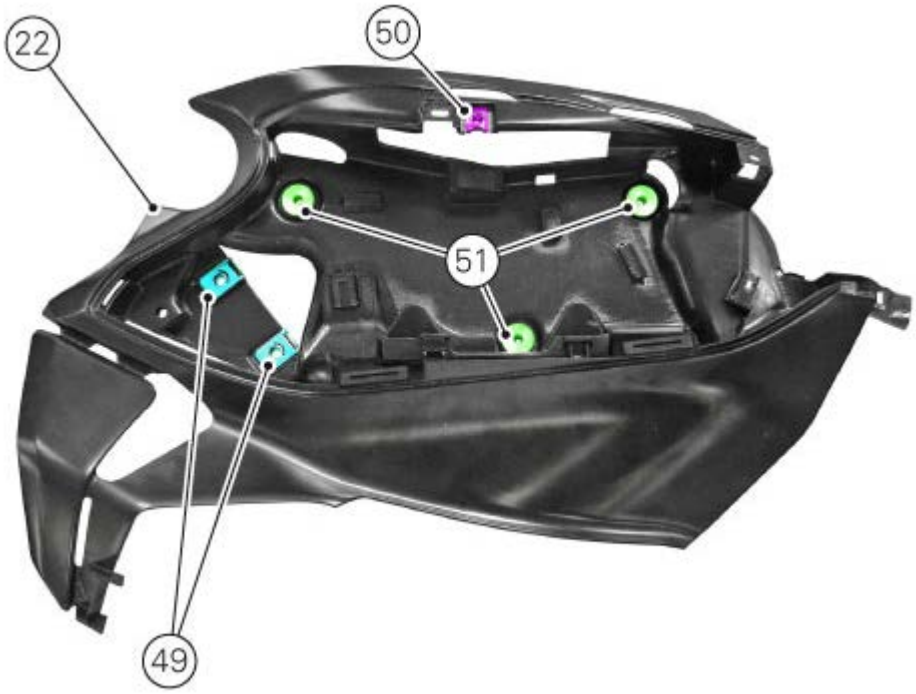
http://www.ducati-manuals.com
no. 140312

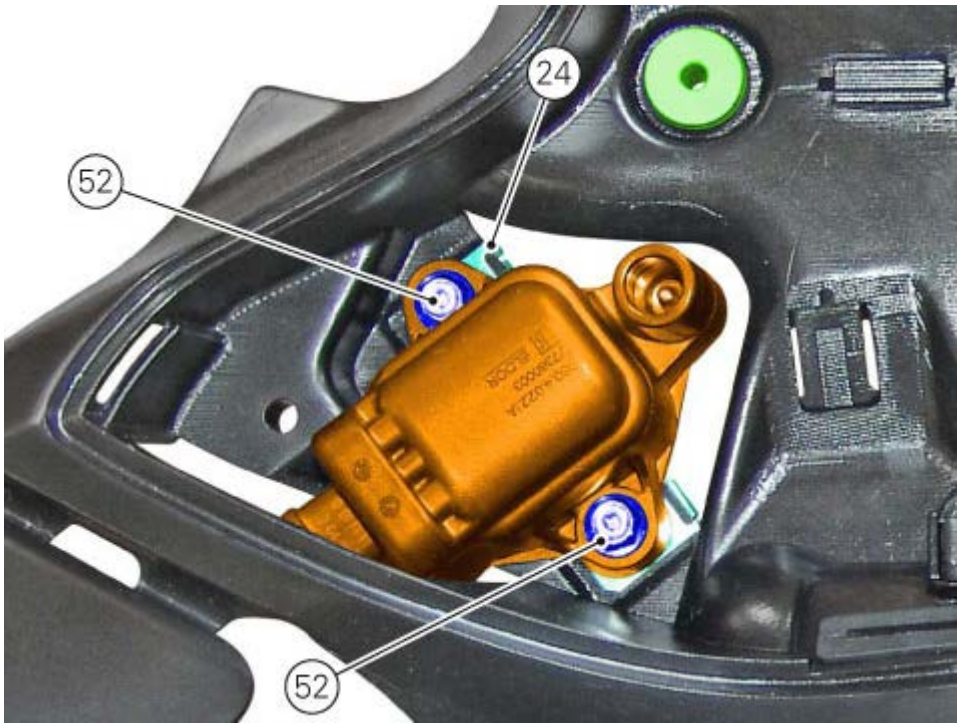




If removed, fit the clips (49) and (50) in the areas of the RH electric system support (22) indicated in the figure, and aiming them as shown. Insert the spacers with collar (51) inside support vibration dampers (22), as shown in the figure. Fit the vertical coil (24), aiming it as shown in the figure, on the support (22), and secure it in place with the screws (52), close to the clips (49).
Tighten the screws (52) to a torque of 8 Nm ± 10%.

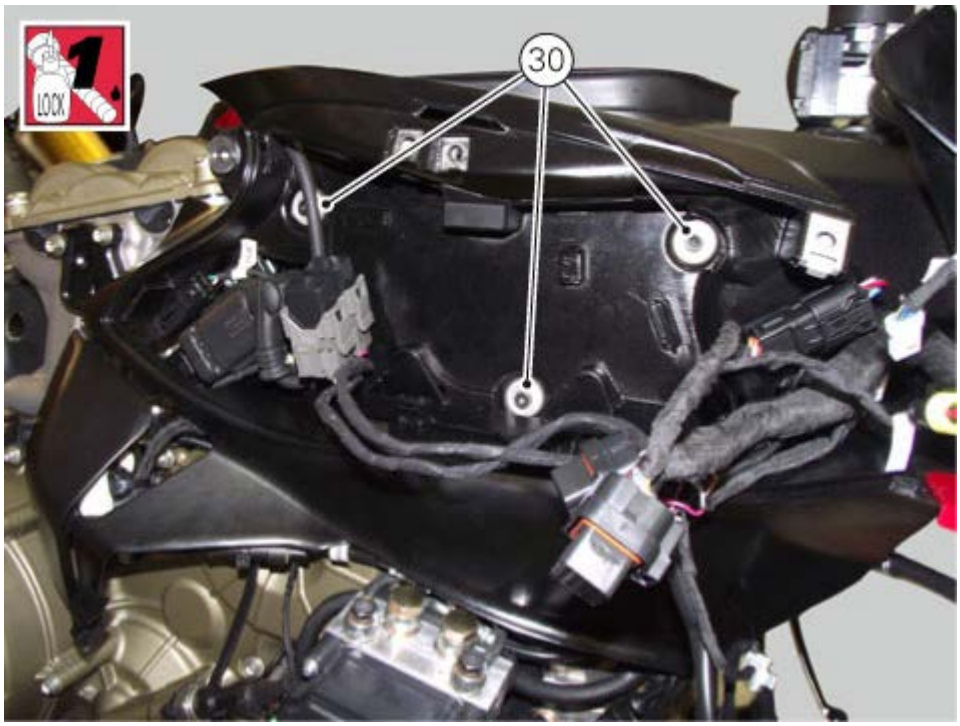
http://www.ducati-manuals.com
no. 140312





Refit the RH electric system support (22) on the frame.
Smear the three screws (30) with recommended threadlocker, start the screws securing the support (22) to the frame, and tighten to a torque of 5 Nm ± 10 %.

http://www.ducati-manuals.com
no. 140312



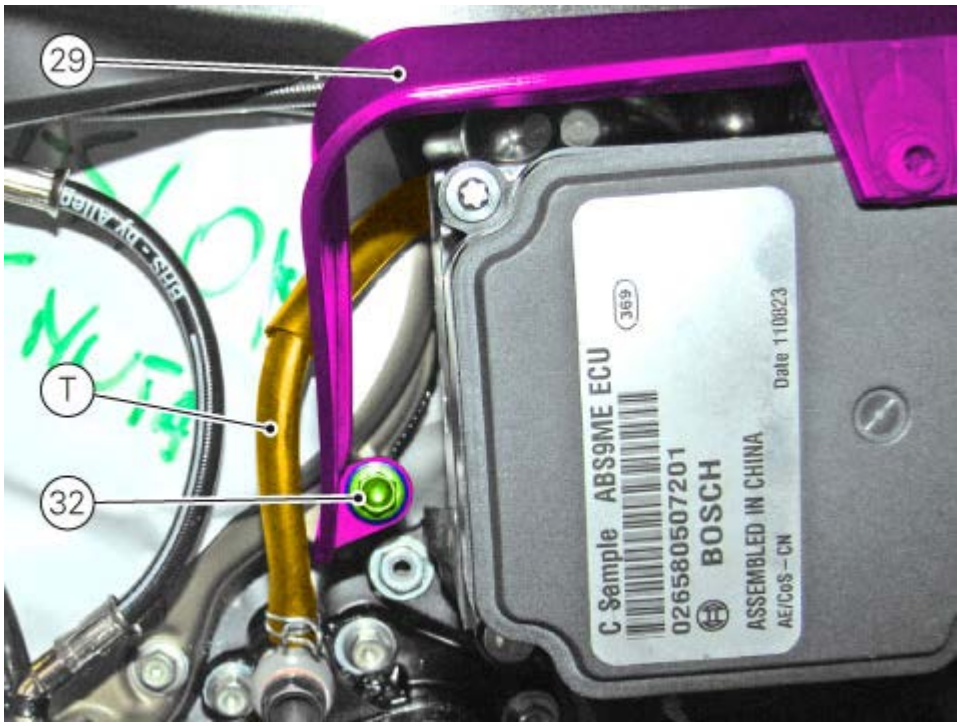
To reassemble the ABS control unit cover support (29), start screw (31) and nut (32).

Note
During this operation, take special care to position the hose (T) coming out of the heat exchanger as shown in the figure.

Tighten the screw (31) to a torque of 3 Nm ± 10% and the nut (32) to a torque of 5 Nm ± 10% (Sect.

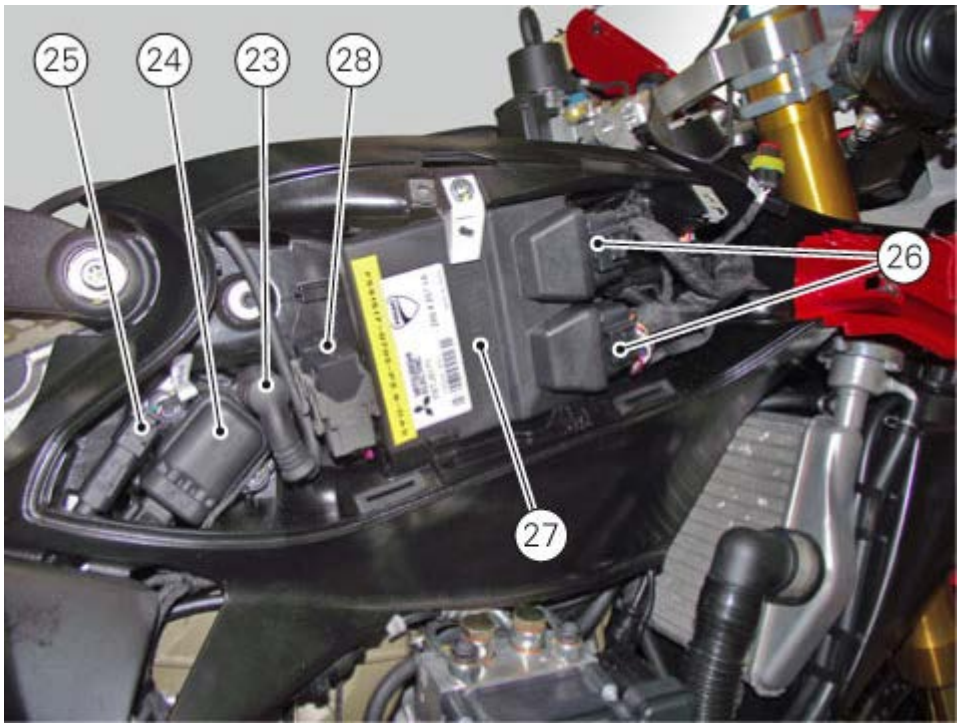


http://www.ducati-manuals.com
no. 140312



Refit the relays (28) into their seats on the LH support.
Connect the components positioned on RH electric system support (22). In particular:

- the vertical cylinder coil (24) cap (23);
- the connector (25) between the vertical cylinder coil (24) and the main wiring;
- the connectors (26) between the ECU (27) and the main wiring.



Install the tank (Installation of the fuel tank).
Install the seat (Installation of the rider seat).
Install the fairings (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

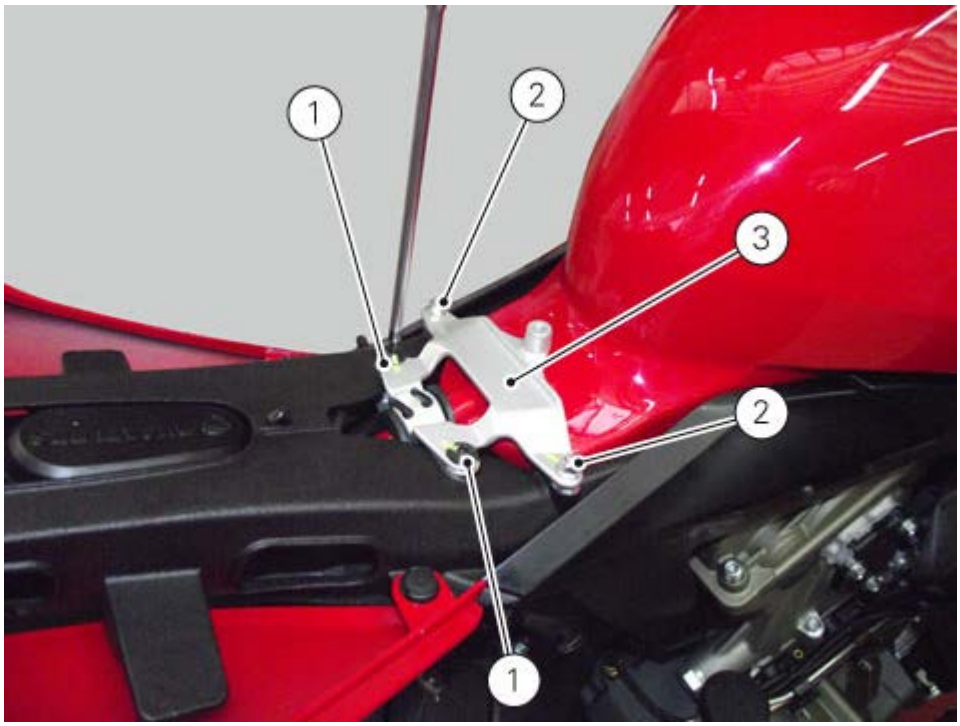
http://www.ducati-manuals.com
no. 140312

http://www.ducati-manuals.com
no. 140312

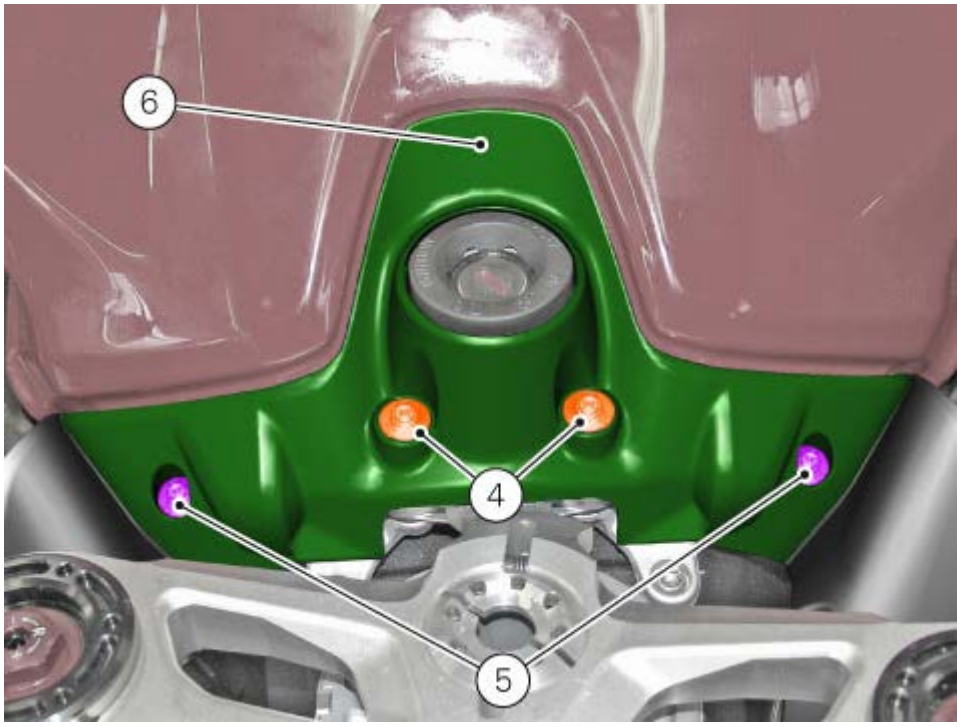
http://www.ducati-manuals.com
no. 140312

Removal of the fuel tank

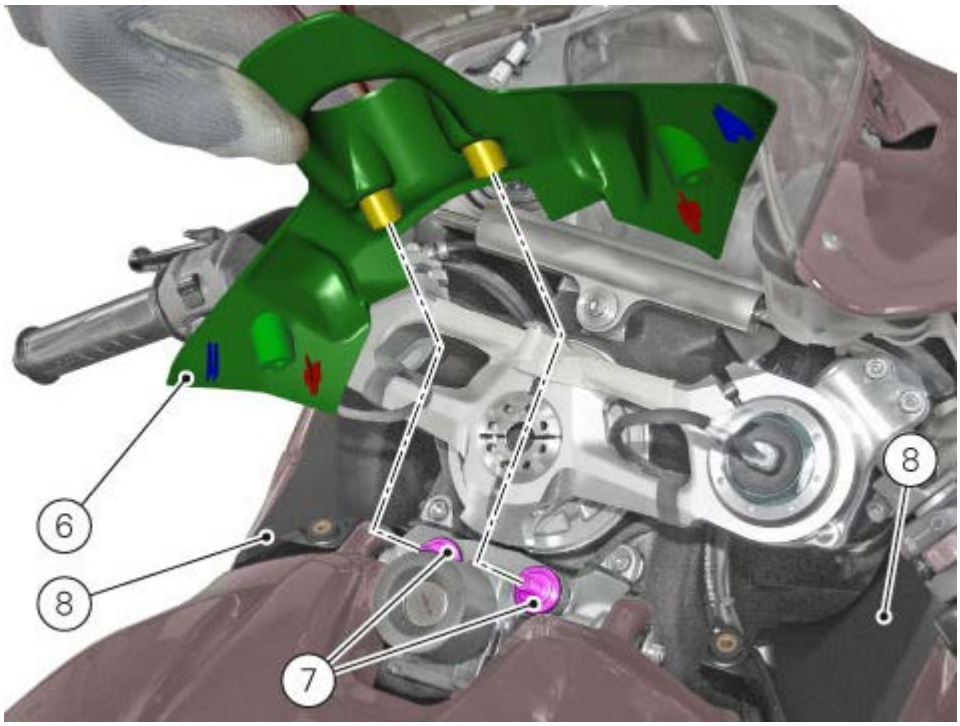
Remove the seat (Removal of the rider seat).
Loosen screws (1) and nuts (2) fastening bracket (3) to subframe.



Loosen the special nuts (4) and screws (5) from ignition switch cover (6) and remove the cover by sliding it up and out of stud bolts (7) and air conveyor covers (8).



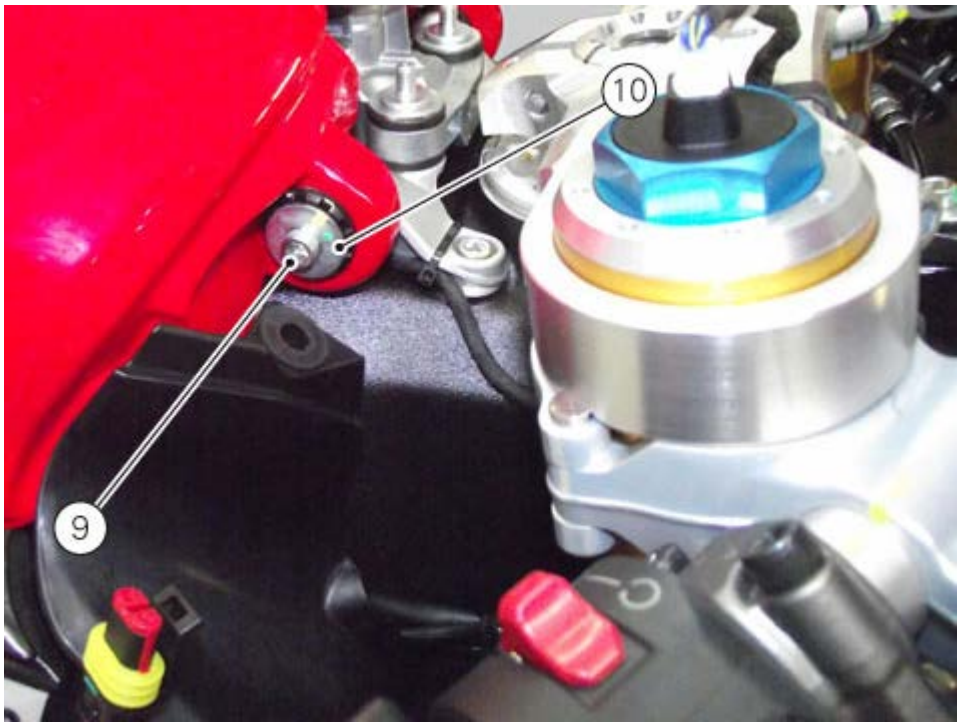
http://www.ducati-manuals.com
no. 140312



Undo the two front screws (9) of the tank and remove spacers (10).



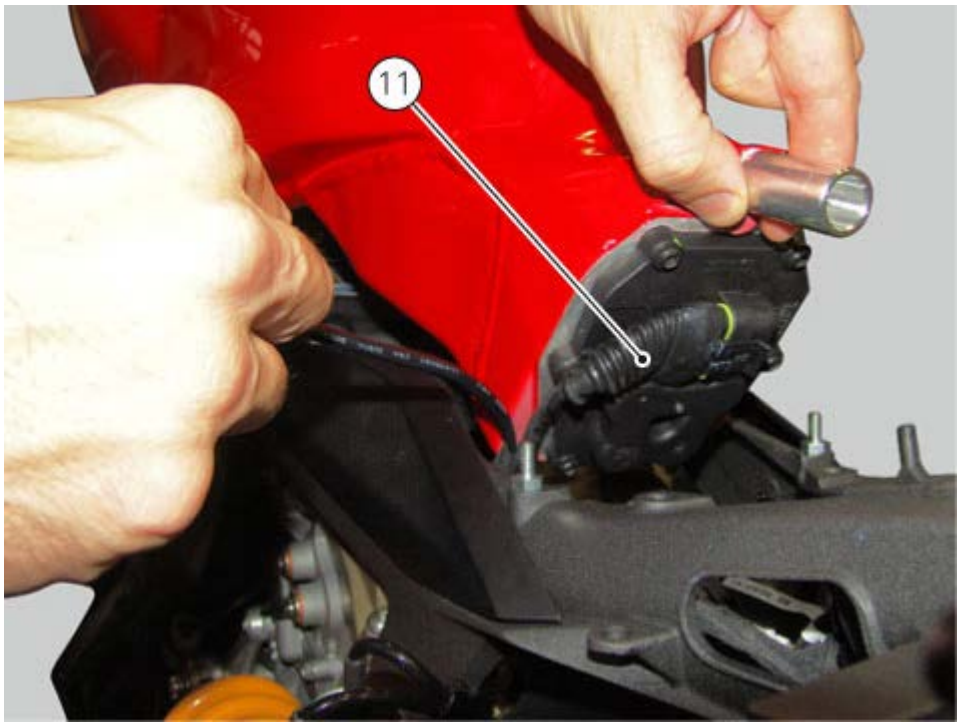
http://www.ducati-manuals.com
no. 140312

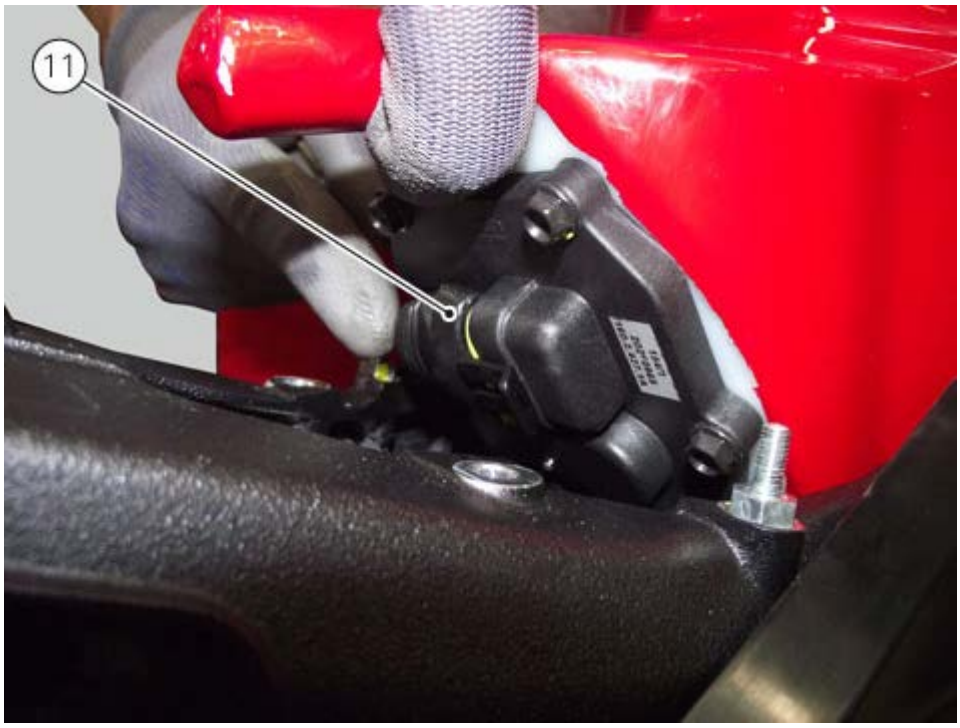




Disconnect the fuel pump wiring connector (11).

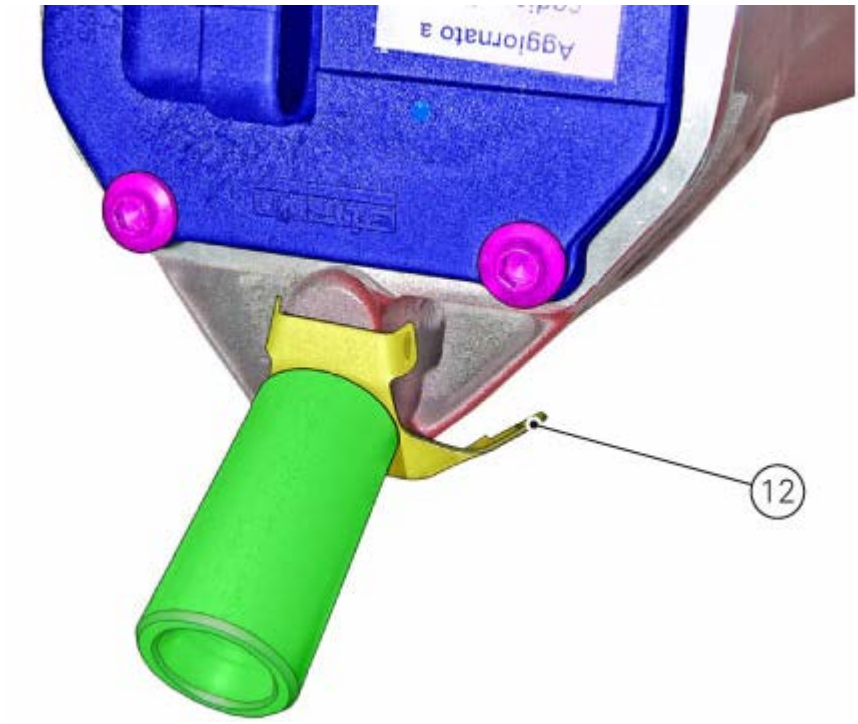
http://www.ducati-manuals.com
no. 140312





Disconnect tank ground wiring connector from fast-on connector (12).

http://www.ducati-manuals.com
no. 140312

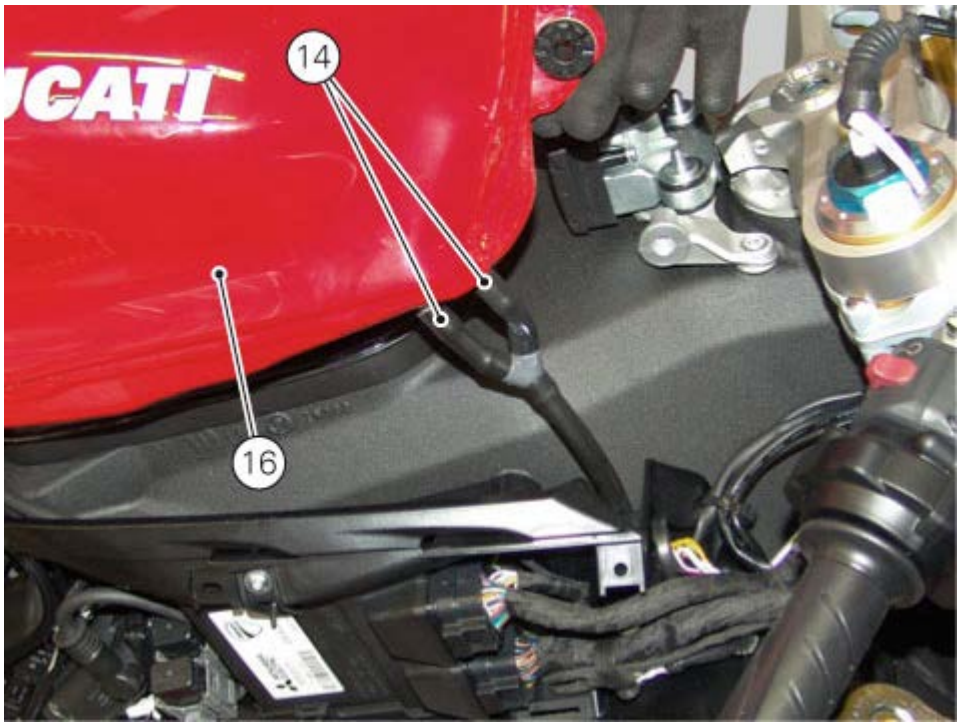


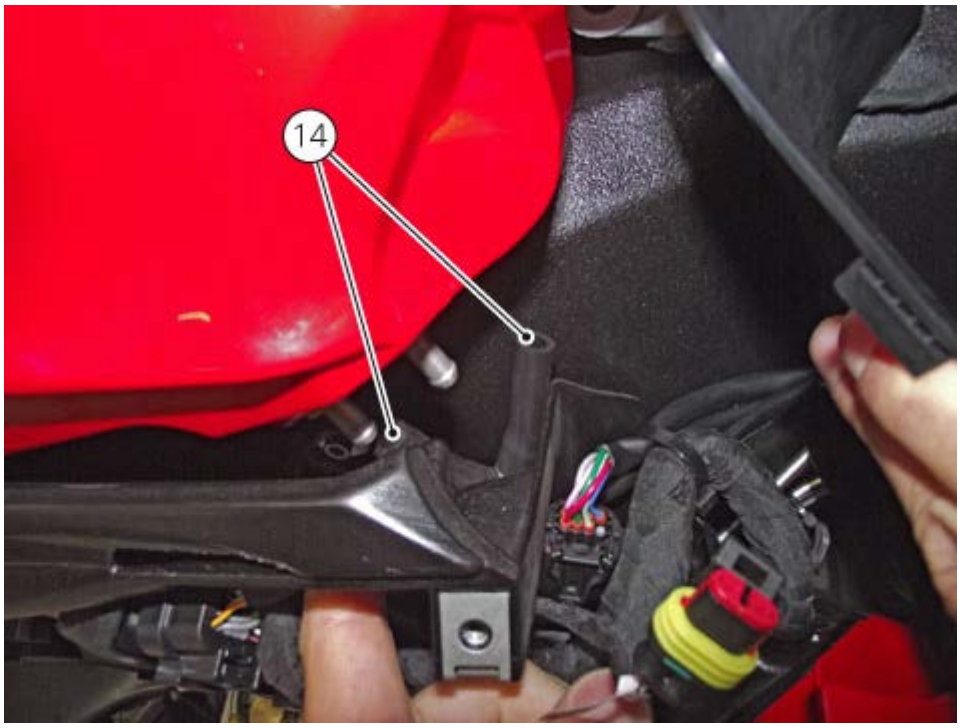
Disconnect fuel hose fitting from quick-coupling (13).



Slide out the breather hoses (14) and disconnect them from tank (16).

http://www.ducati-manuals.com
no. 140312



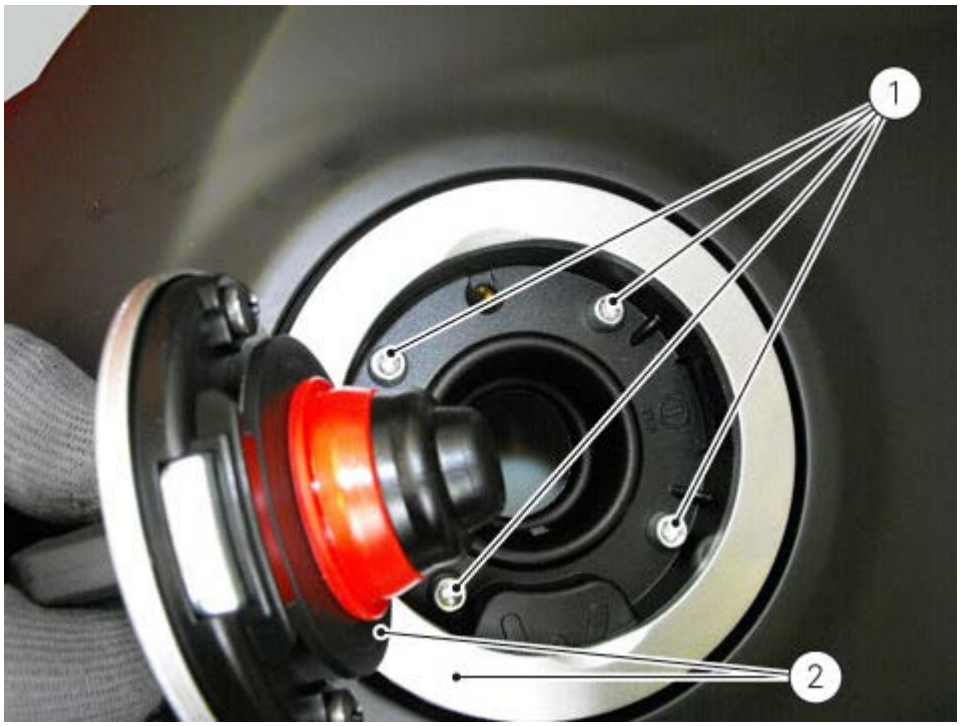


Remove the fuel tank from the vehicle.

http://www.ducati-manuals.com
no. 140312

Removal of the fuel filler plug

Open the filler plug.
Loosen the four outer screws (1) retaining the plug frame to the filler and remove the complete filler plug (2).

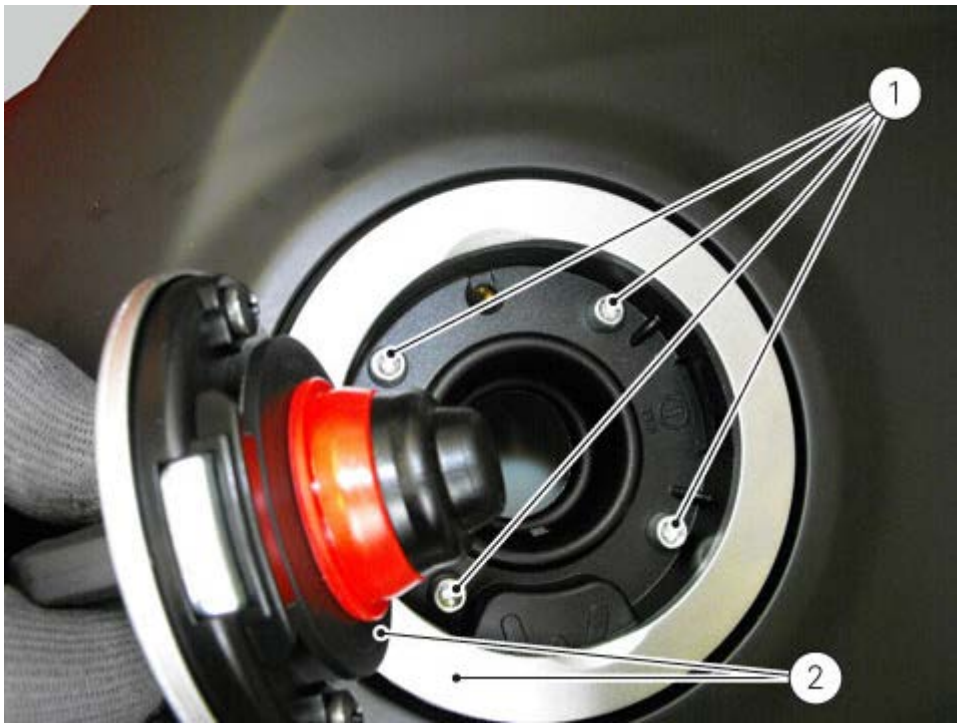


http://www.ducati-manuals.com
no. 140312

Installation of the fuel filler plug

If previously removed, fit the seal in fuel filler plug.
Fit the filler plug in seat (A) on tank.
Tighten the four outer screws (1) fastening the plug frame to the filler to a torque of 4 Nm ± 10%.

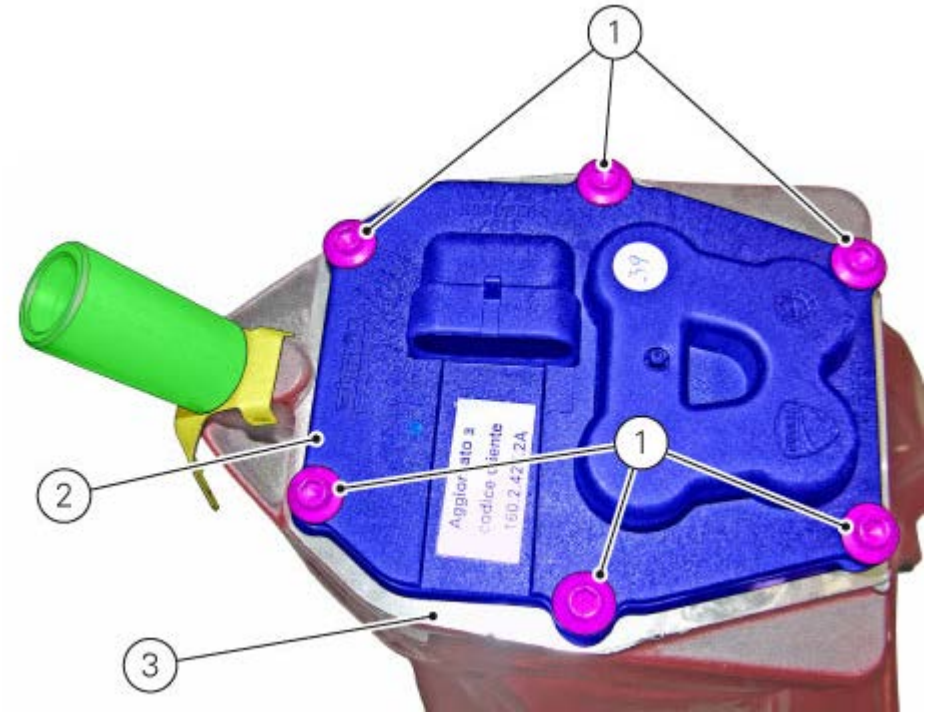




http://www.ducati-manuals.com
no. 140312

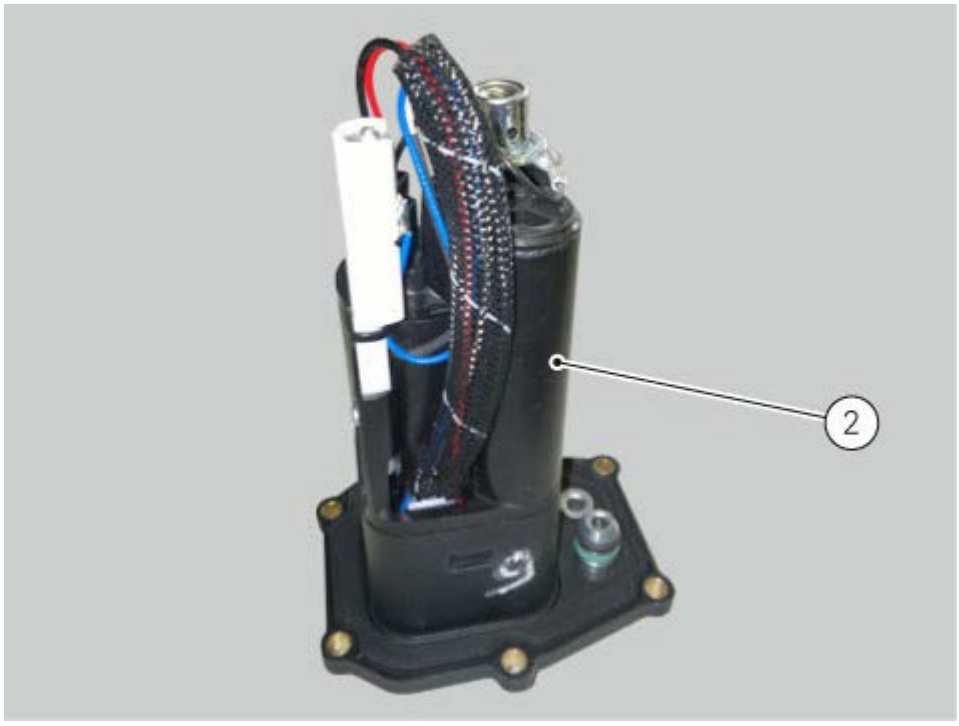
Removal of fuel tank flange and fuel sensor

Remove the fuel tank (Removal of the fuel tank).
Loosen screws (1) fastening flange (2) to fuel tank (3).

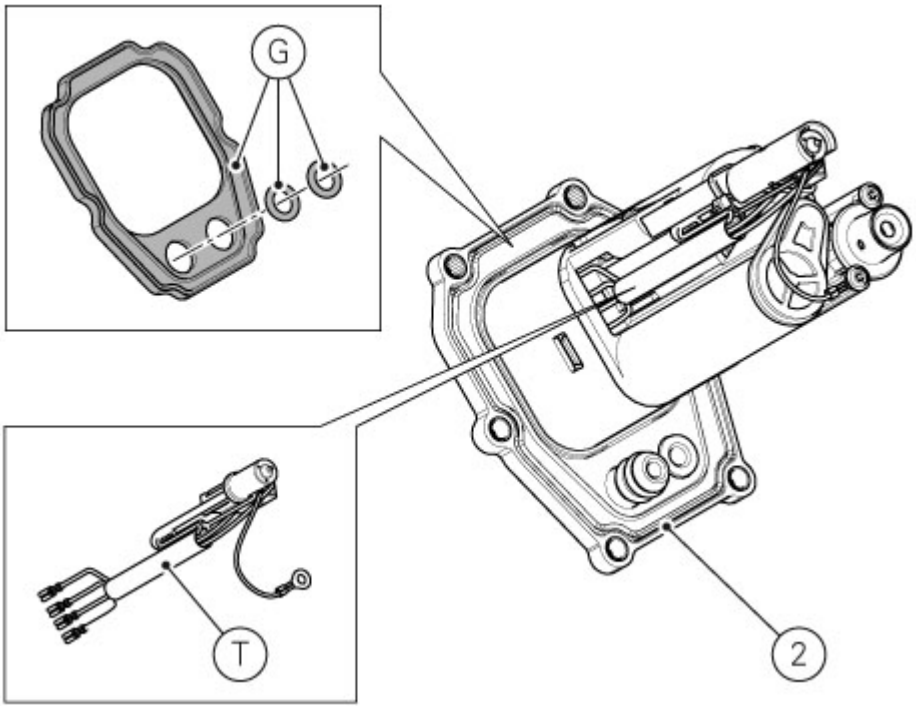


Remove the complete flange (2) from the fuel tank.

Note
The flange is supplied as a spare part complete with the fuel pump and pressure regulator: the entire flange assembly must be replaced in the event of malfunction. Seals (G) and thermistor (T) are provided as spare parts.



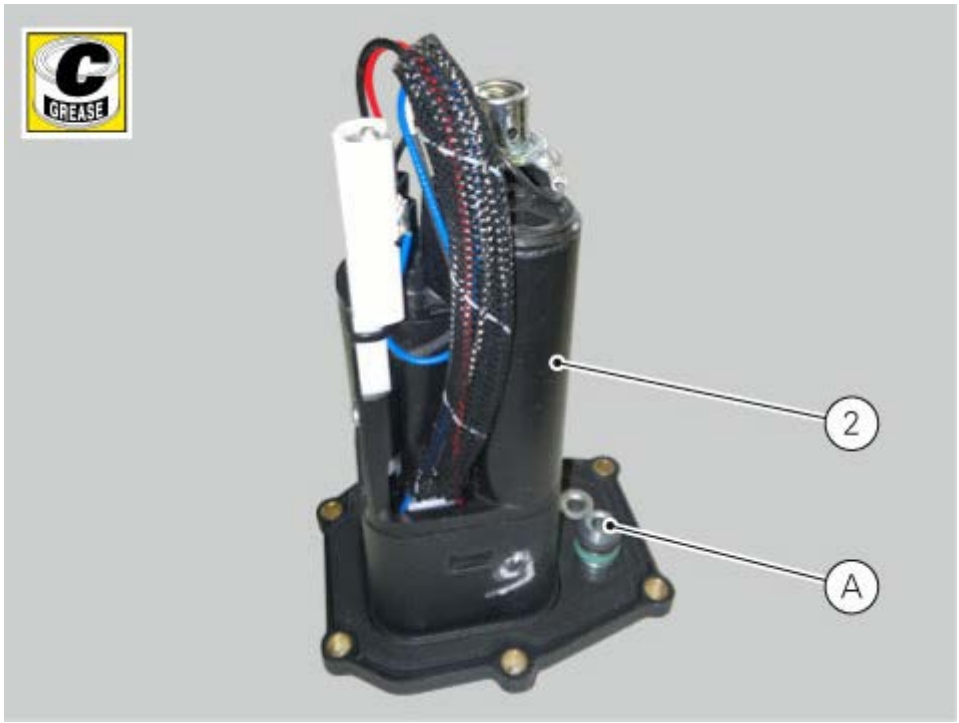
http://www.ducati-manuals.com
no. 140312



Installation of fuel tank flange and fuel sensor

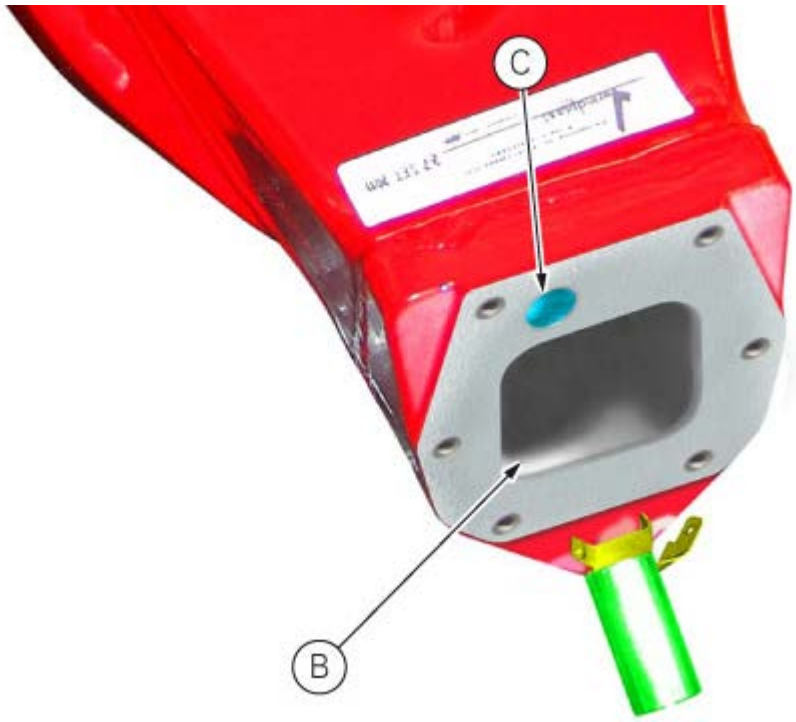
Smear specified grease on pin (A) of fuel pump flange (2).

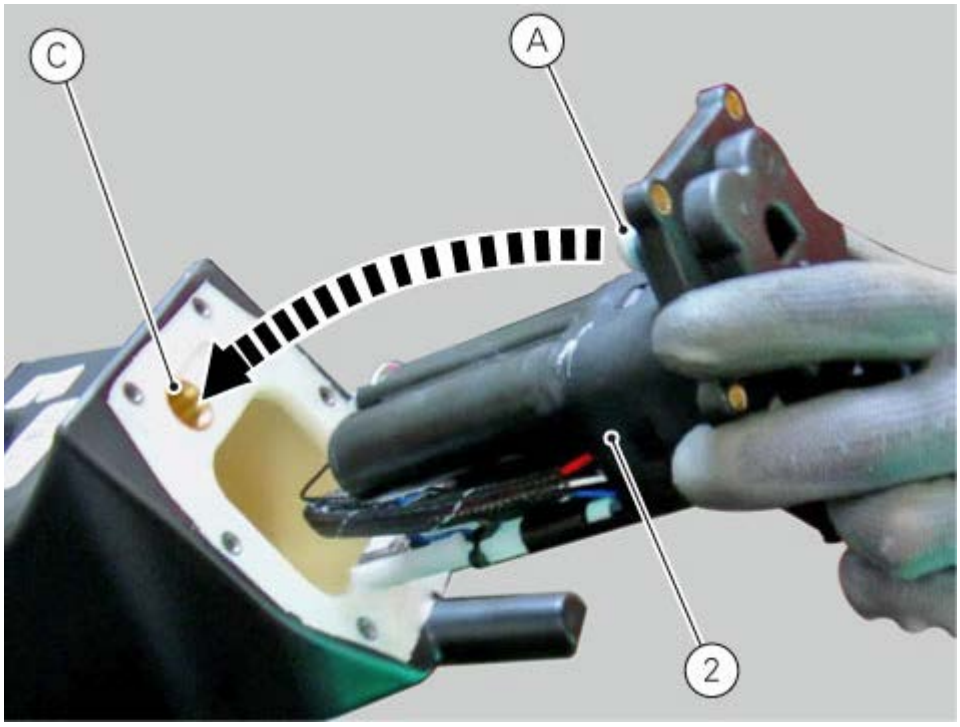
Note
The grease must be applied in a suitable quantity, i.e. not excessively to avoid friction upon next insertion of pin (A).



Insert fuel pump flange (2) in its seat (B) on fuel tank (3), fitting pin (A) on fuel pump flange into hole (C) of fuel tank.

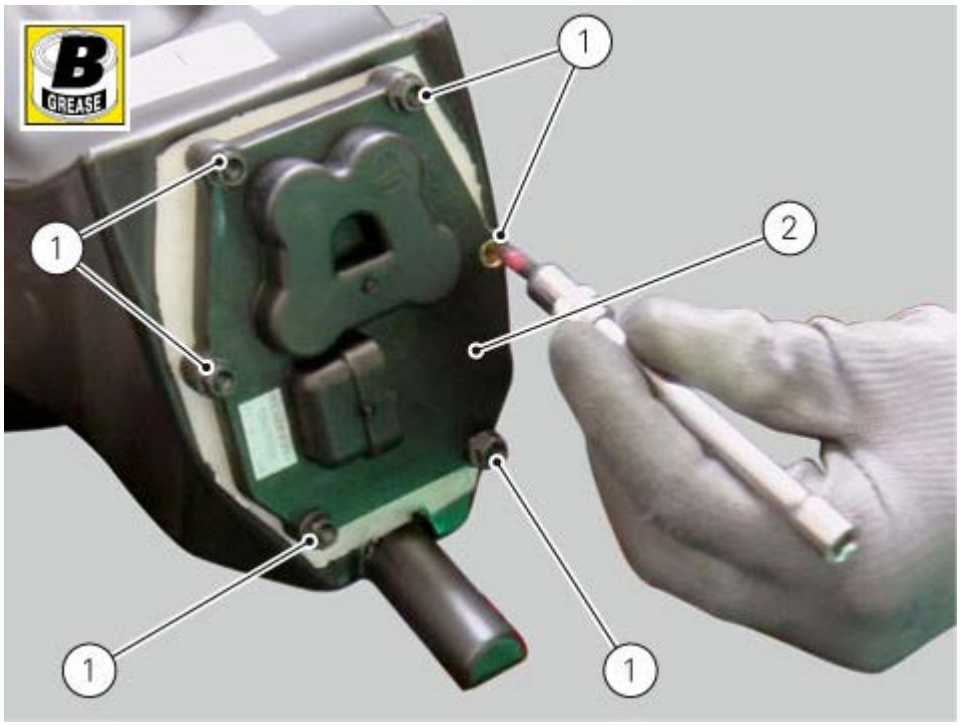
http://www.ducati-manuals.com
no. 140312

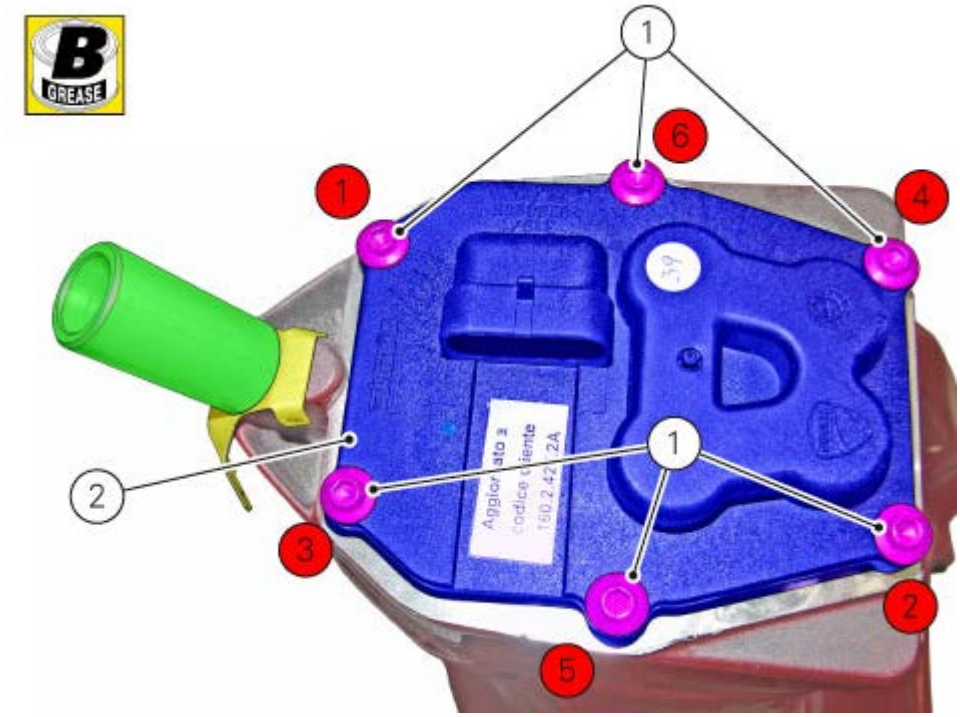




Smear specified grease on thread and underside of screws (1).
Fasten the fuel pump flange (2) starting screws (1), then tighten screws (1) to 6 Nm ± 10%, following a 1-2-3-4-5-6 sequence.

http://www.ducati-manuals.com
no. 140312



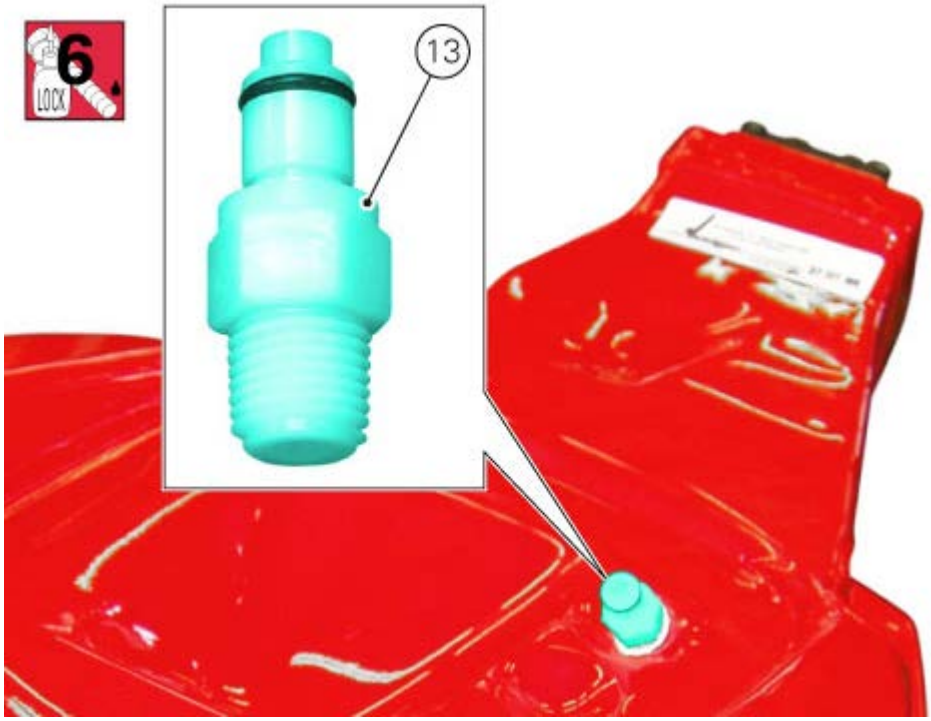


Refit the fuel tank (Installation of the fuel tank)

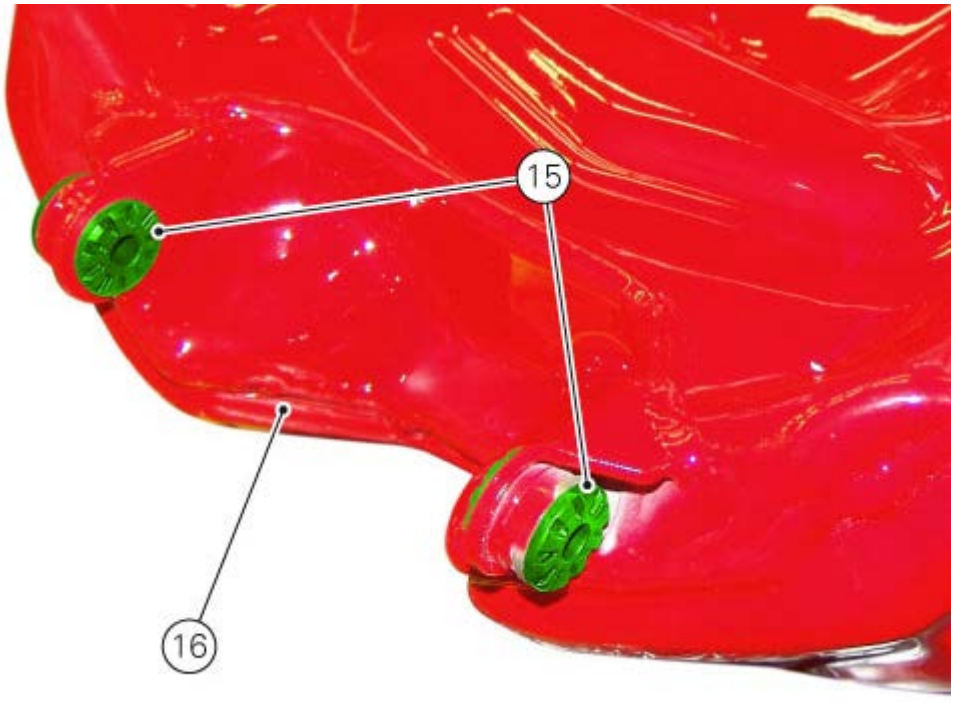
http://www.ducati-manuals.com
no. 140312

Installation of the fuel tank

If previously removed, apply specified threadlocker on the quick-coupling (13); tighten the quick-coupling fully home on tank, finger-tight; then tighten the quick-coupling by two full turns more (360° ÷ 360°).

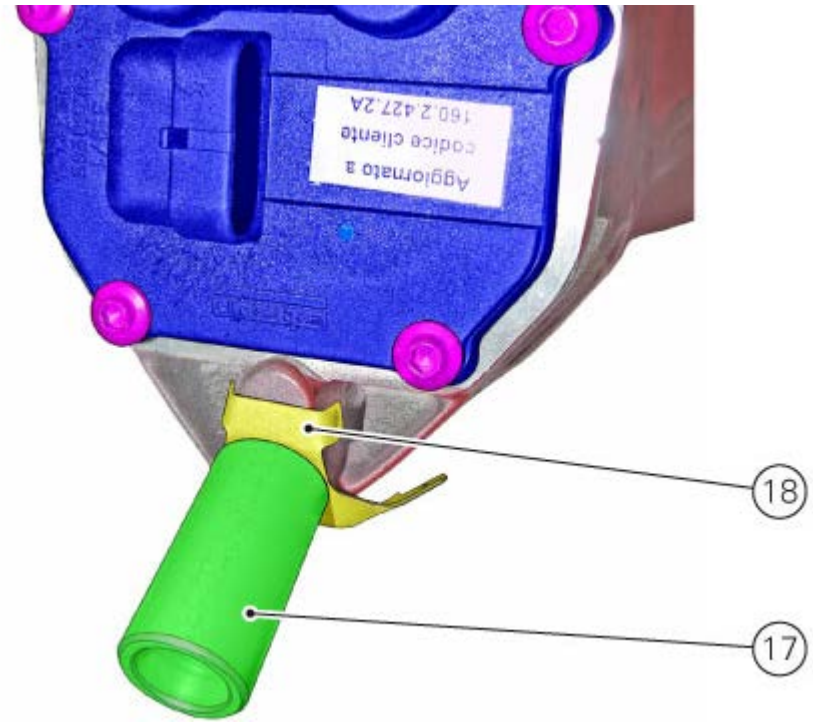


Ensure the rubber blocks (15) are in place on tank (16).

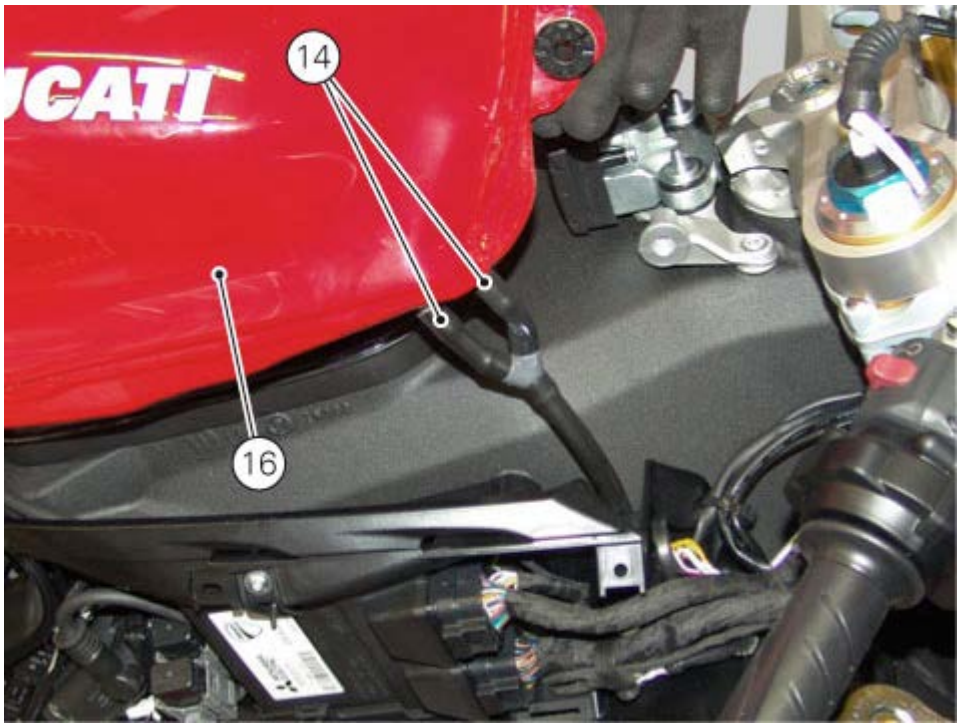


If removed, start pin (17) in the indicated area of tank. Set plate (18) between pin and tank. Tighten pin (17) to a torque of 18 Nm ± 10%.

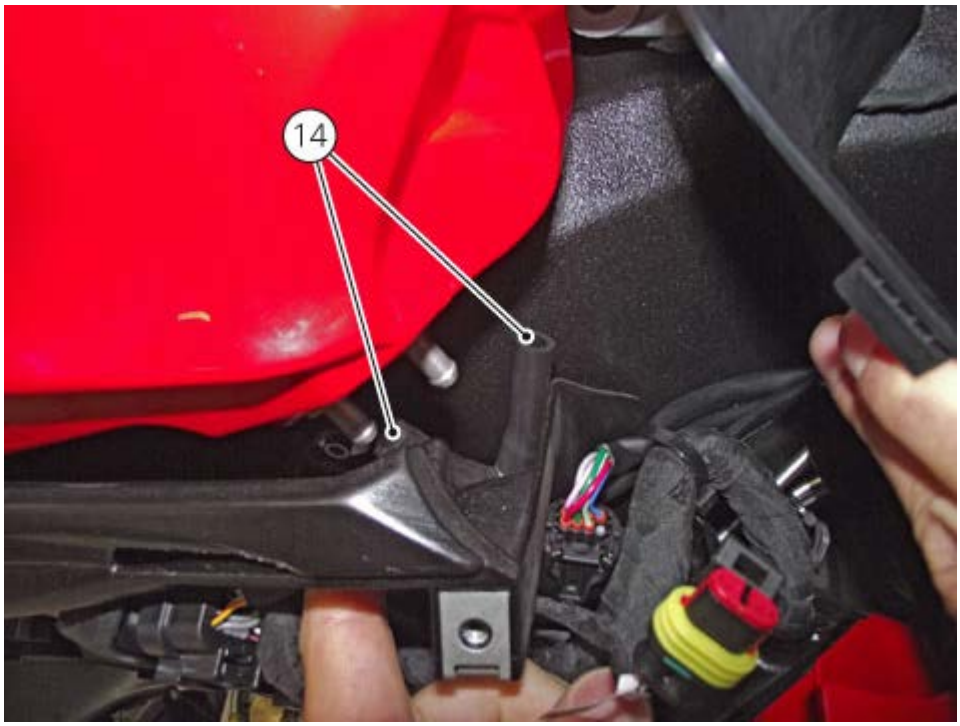
http://www.ducati-manuals.com
no. 140312



Reposition the fuel tank together with flange and filler plug.
Connect breather hoses (14) to fuel tank (16).



http://www.ducati-manuals.com
no. 140312

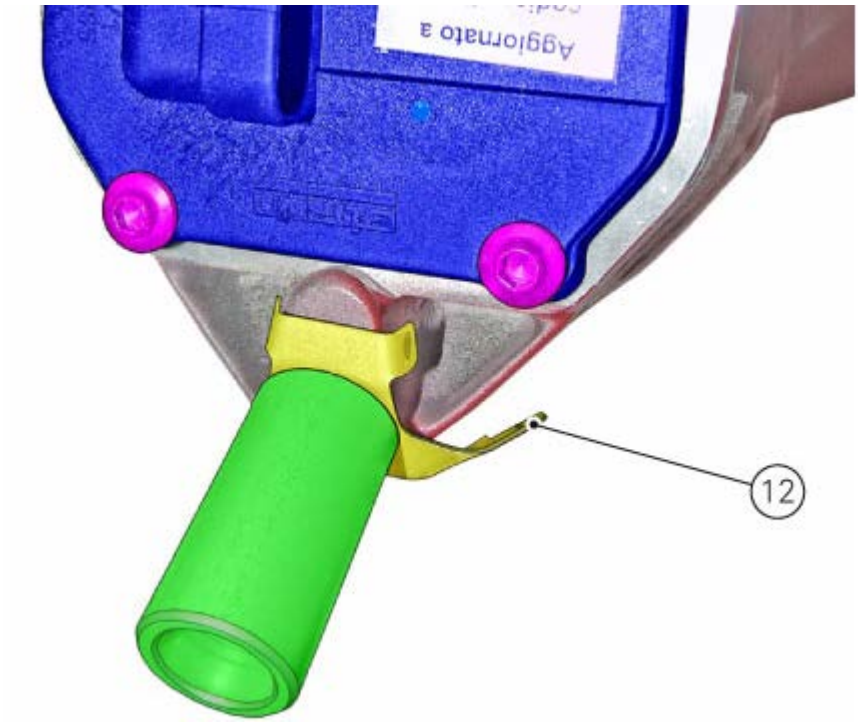


Connect fuel hose fitting to quick-coupling (13).

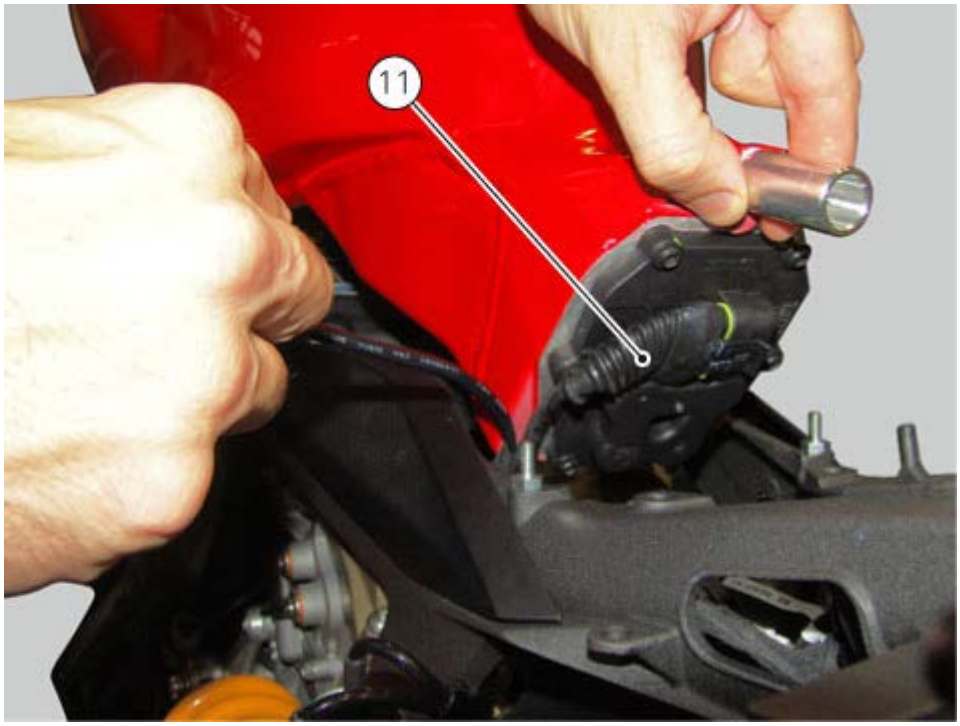


Connect tank ground wiring connector to fast-on connector (12).

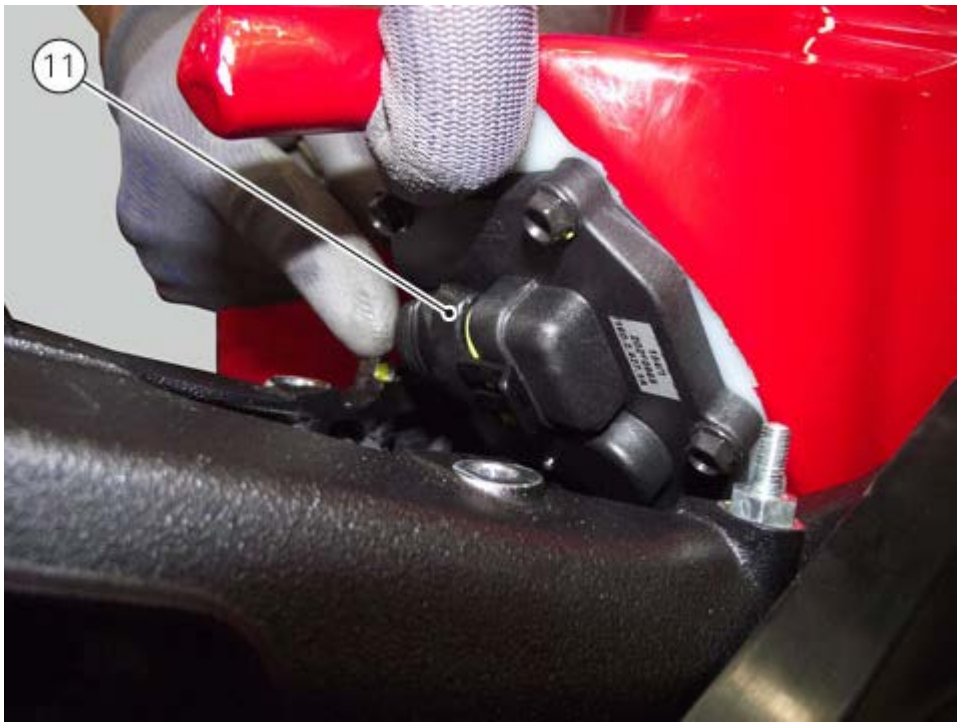
http://www.ducati-manuals.com
no. 140312



Connect the fuel pump wiring connector (11).



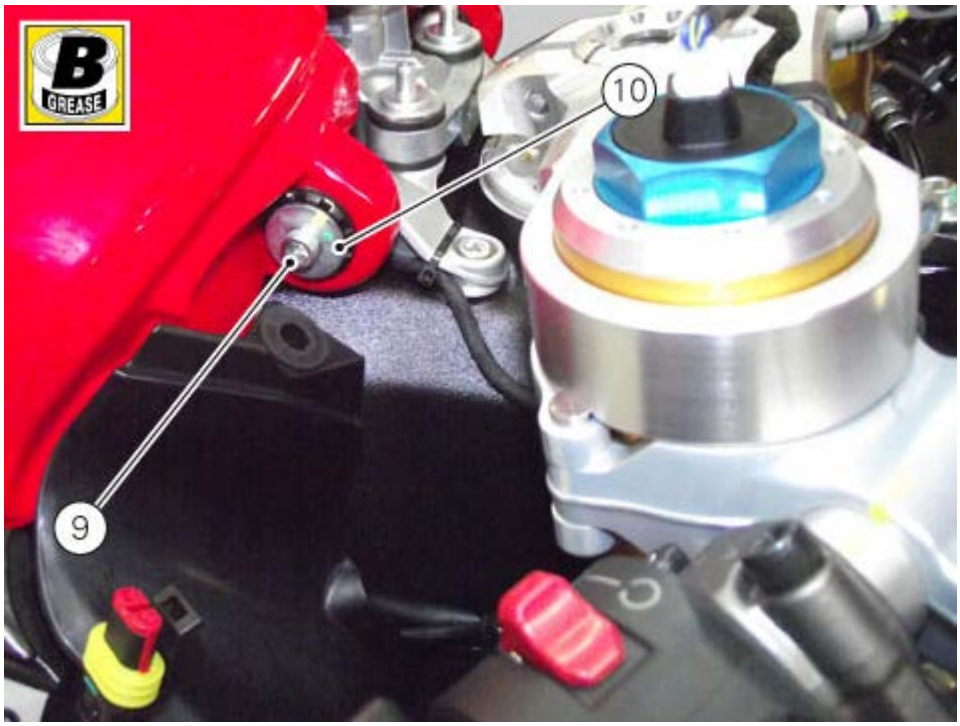
http://www.ducati-manuals.com
no. 140312

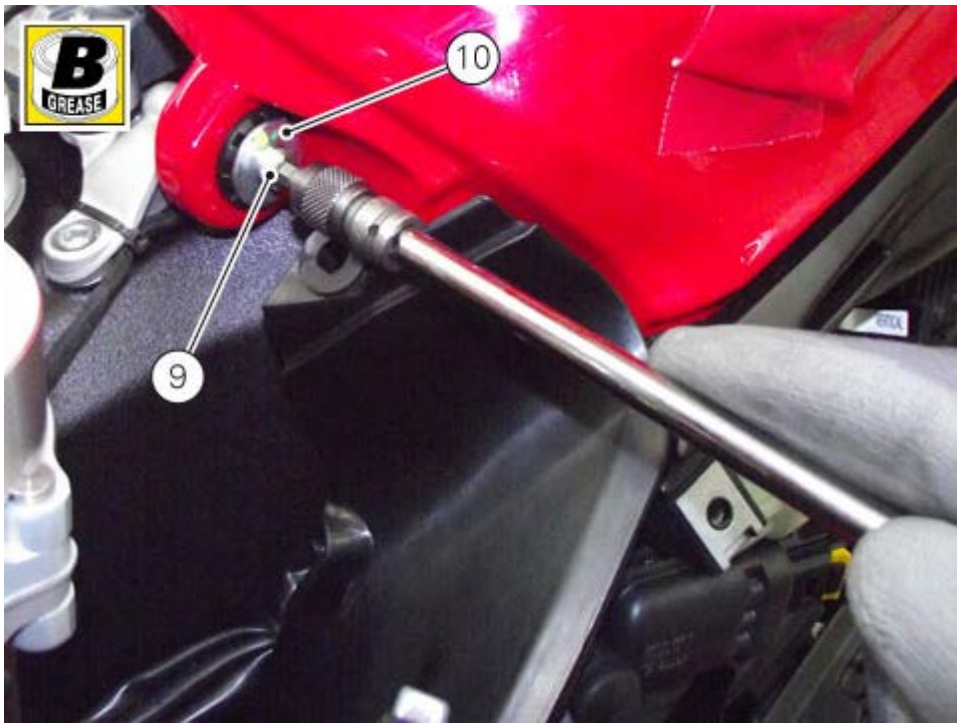


Smear specified grease on the thread of screws (9). Start screws with spacers (10) and tighten them to 10 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



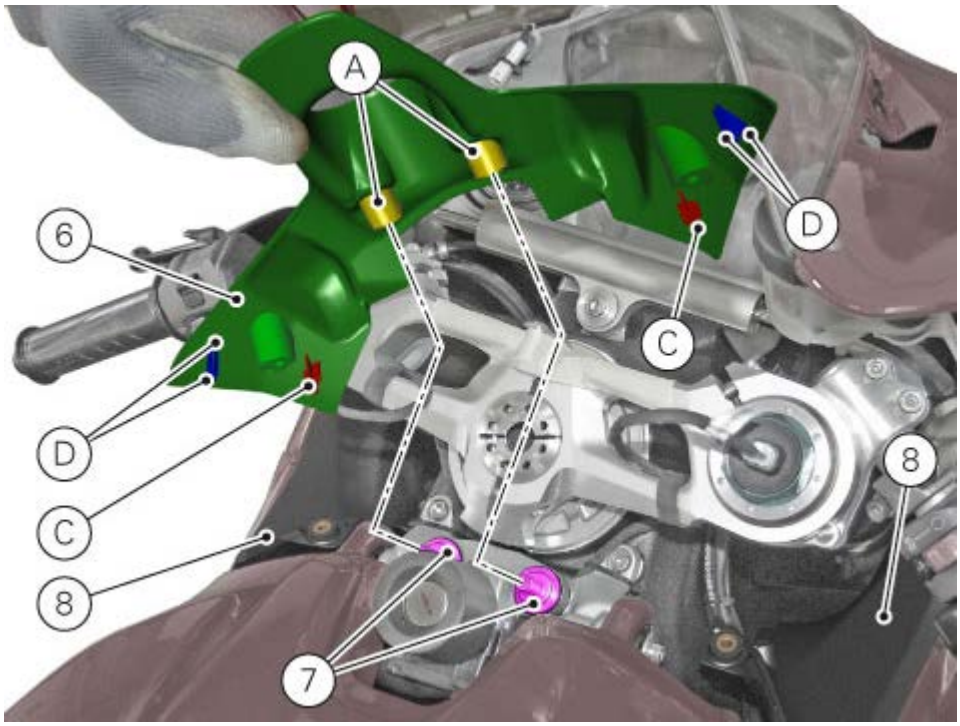


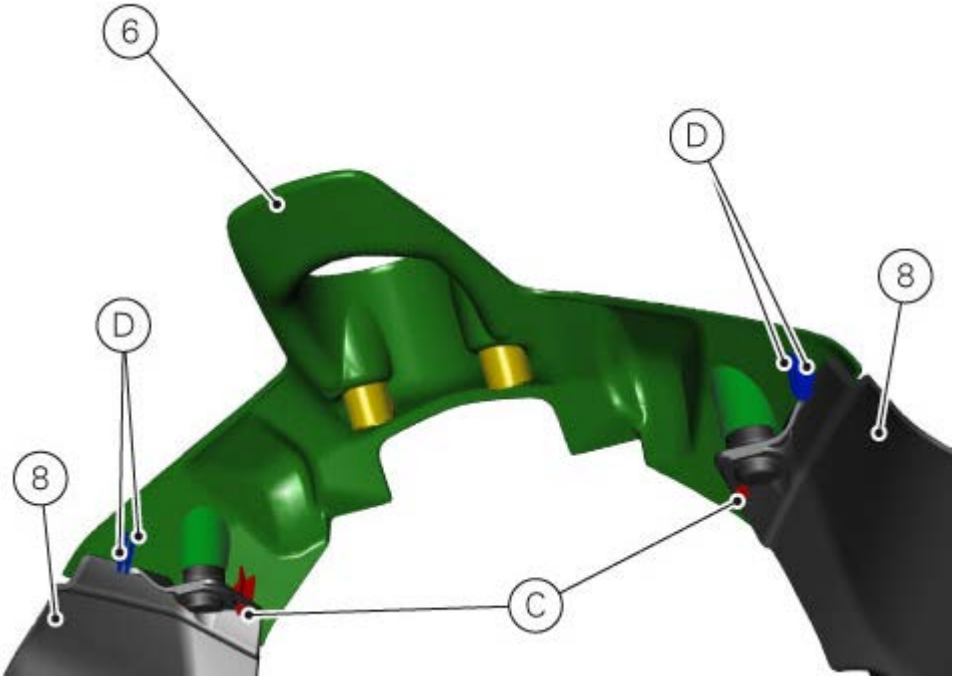
Fit the ignition switch cover (6) by inserting stud bolts (7) in the holes on poppets (A).

Note

For a correct fitting, pins (C) must be inserted in the holes on the air conveyor covers (8) and tabs (D) must be positioned on the upper profiles of the same air conveyor covers.

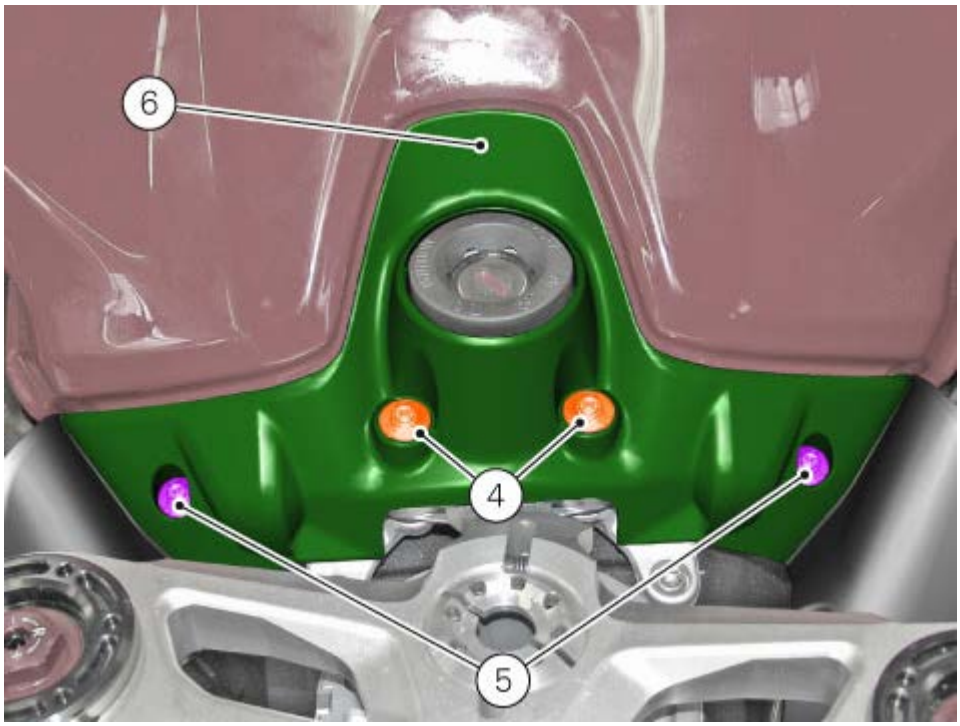
http://www.ducati-manuals.com
no. 140312



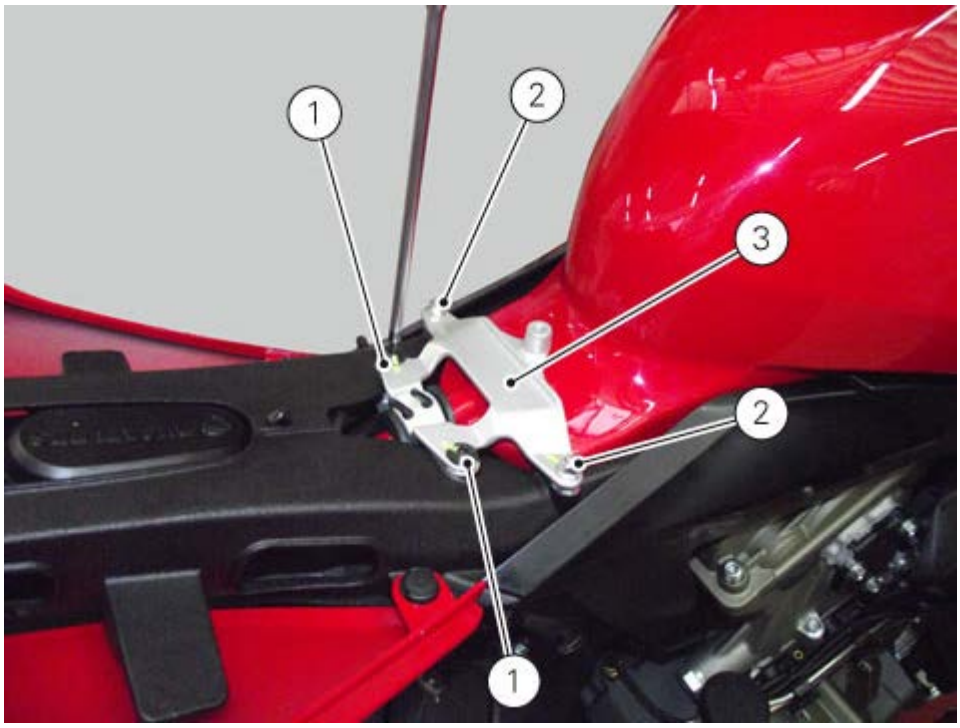


Fit ignition switch cover (6) by starting special nuts (4) and screws (5).
Tighten special nuts (4) to 8 Nm ± 10% and screws (5) to 2.5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



Fit the bracket (3) on subframe.
Smear recommended grease onto screws (1).
Start nuts (2) and screws (1).
Tighten nuts (2) to 6 Nm ± 10% and screws (1) to 10 Nm ± 10%.

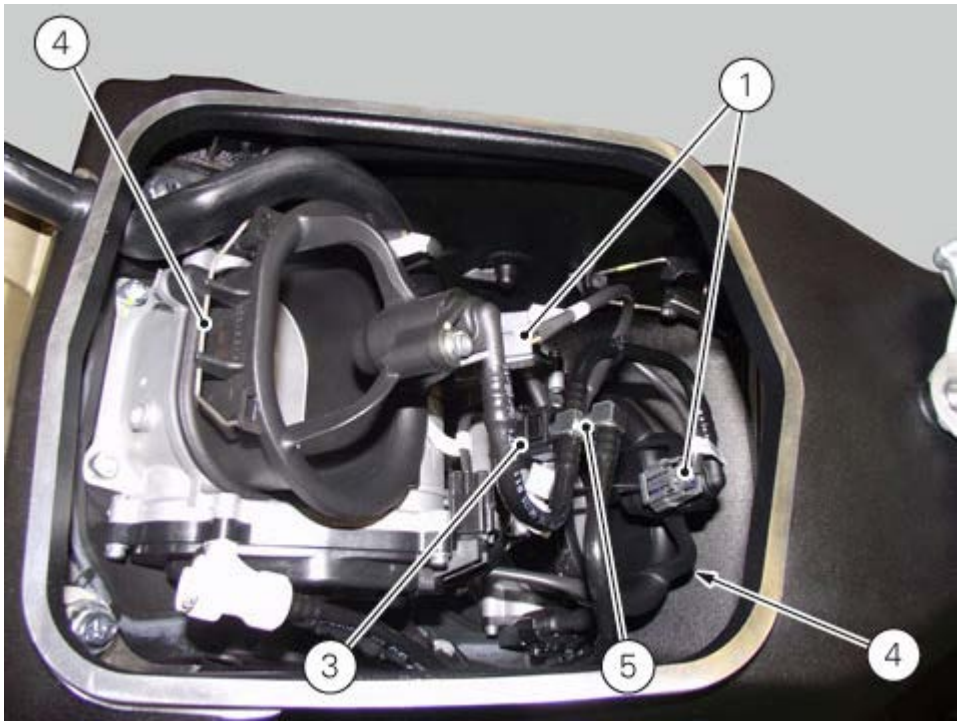


Refit the rider seat (Installation of the rider seat).

http://www.ducati-manuals.com
no. 140312

Removal of the throttle body

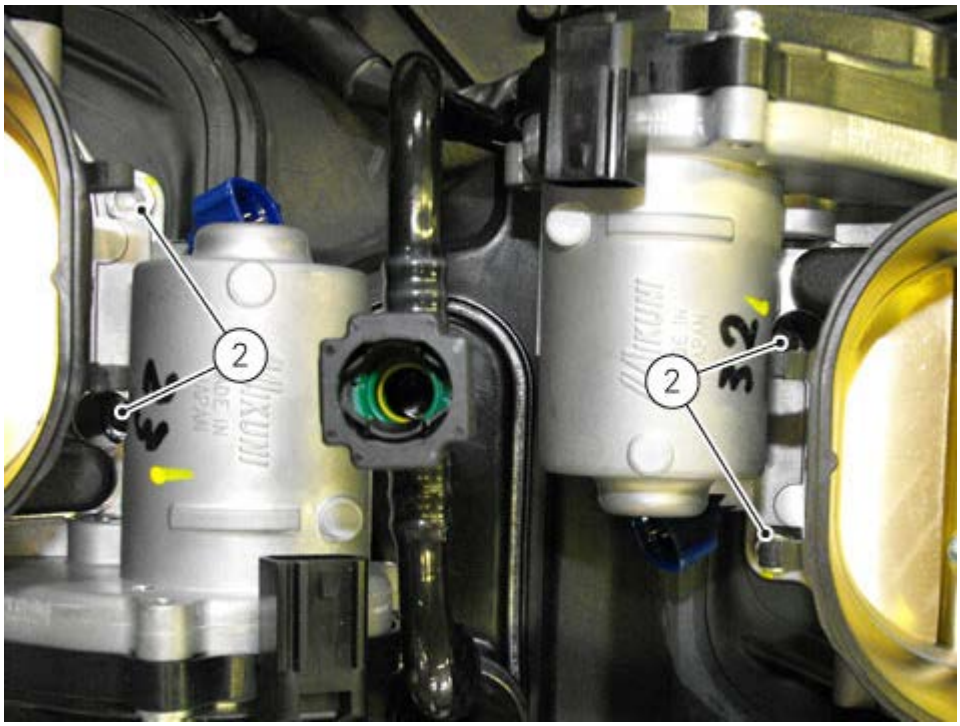
Remove the seat (Removal of the rider seat).
Remove the fuel tank (Removal of the fuel tank).
Disconnect the injector wiring (1) from the main wiring harness.
Disengage clips (4) fastening the shower assembly (5) to throttle body assembly (3) and slide out the shaft of shower assembly (5) from throttle body assembly.

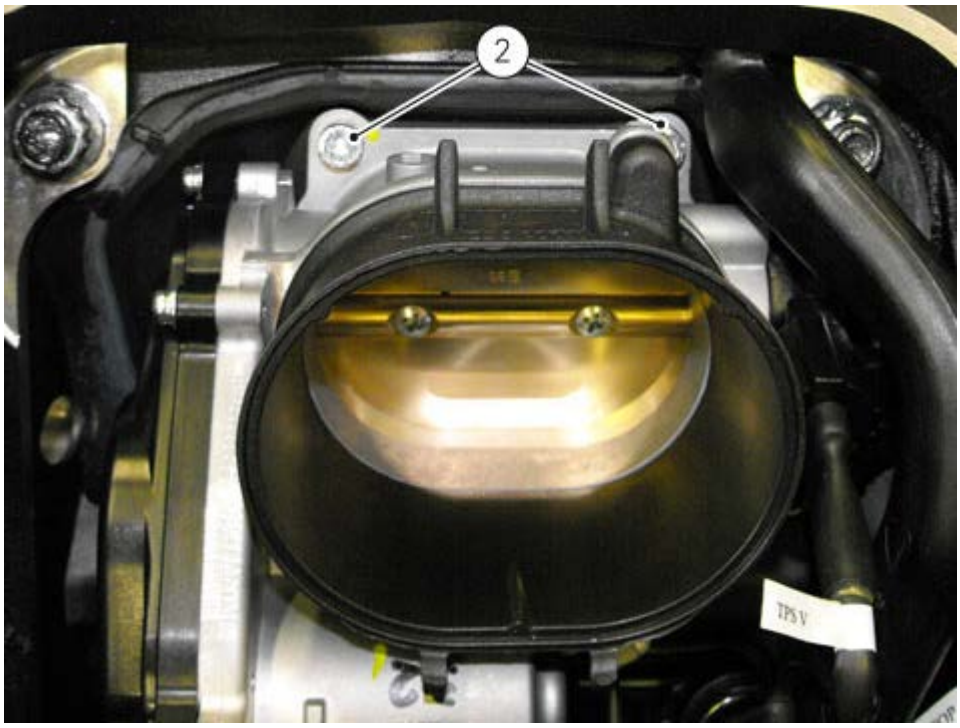




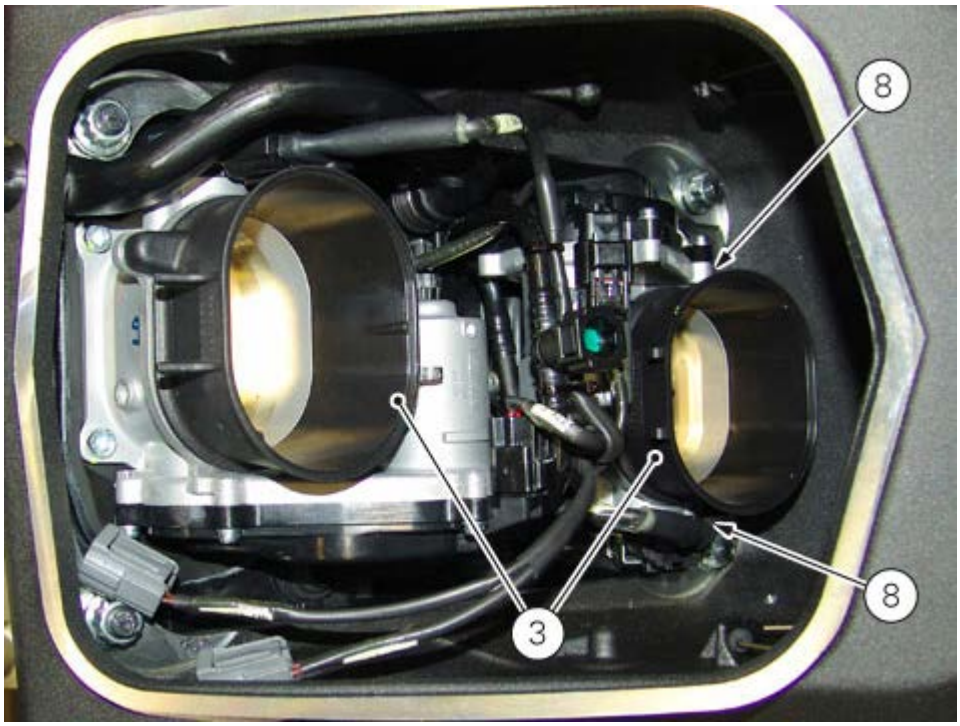
Loosen the eight screws (2) retaining the funnels of the throttle body assembly (3) to the bottom part of the airbox.

http://www.ducati-manuals.com
no. 140312

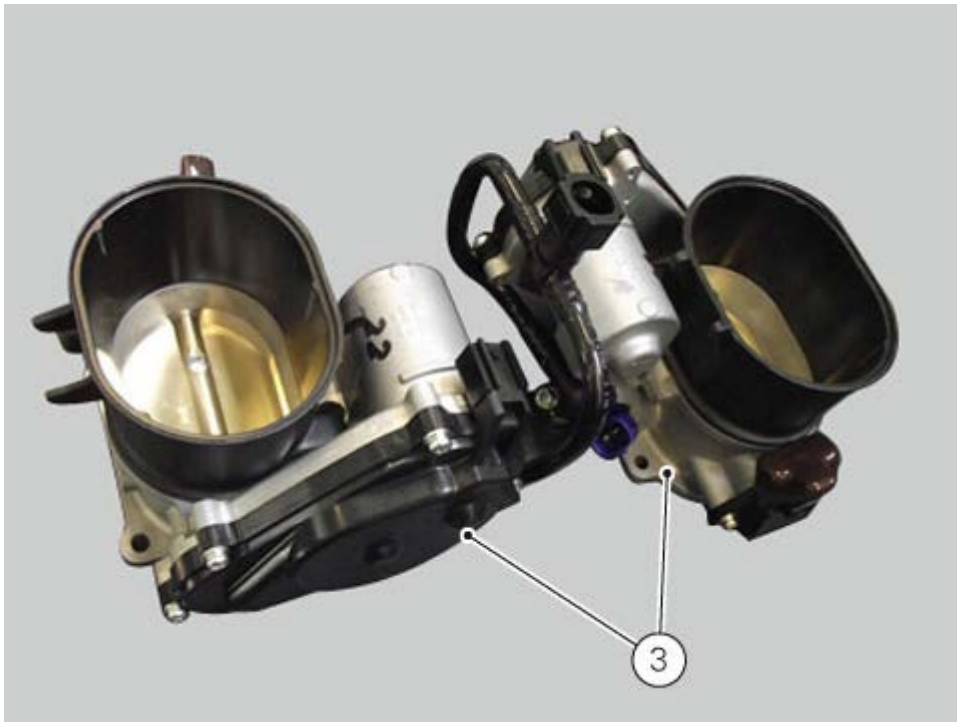




http://www.ducati-manuals.com
no. 140312



Remove the complete throttle body assembly (3).

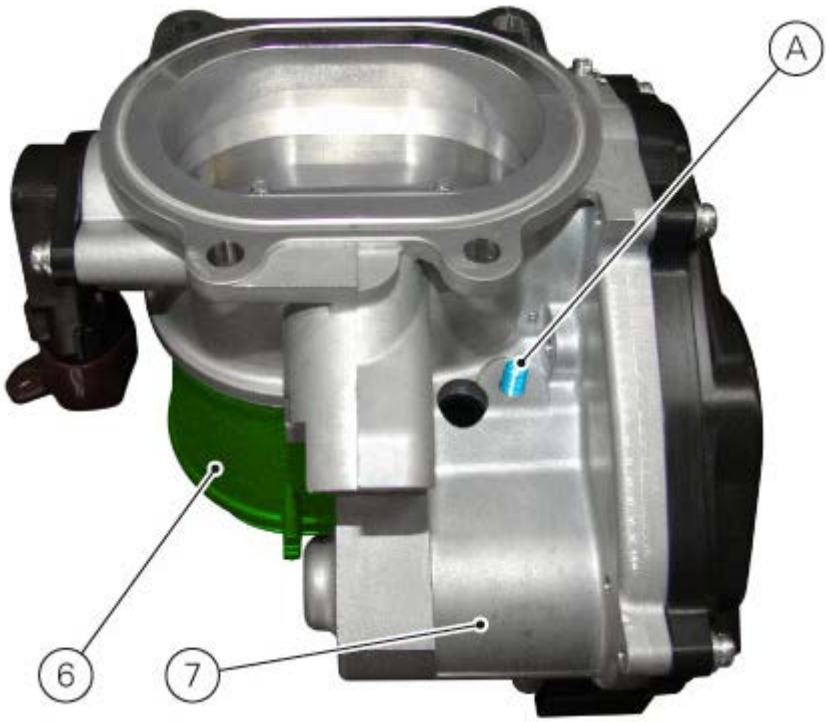


http://www.ducati-manuals.com
no. 140312

Overhaul of the throttle body

Fit the intake funnel (6) on the throttle body (2), positioning it as shown and fitting its threaded pins (A) in the relevant holes on throttle body.





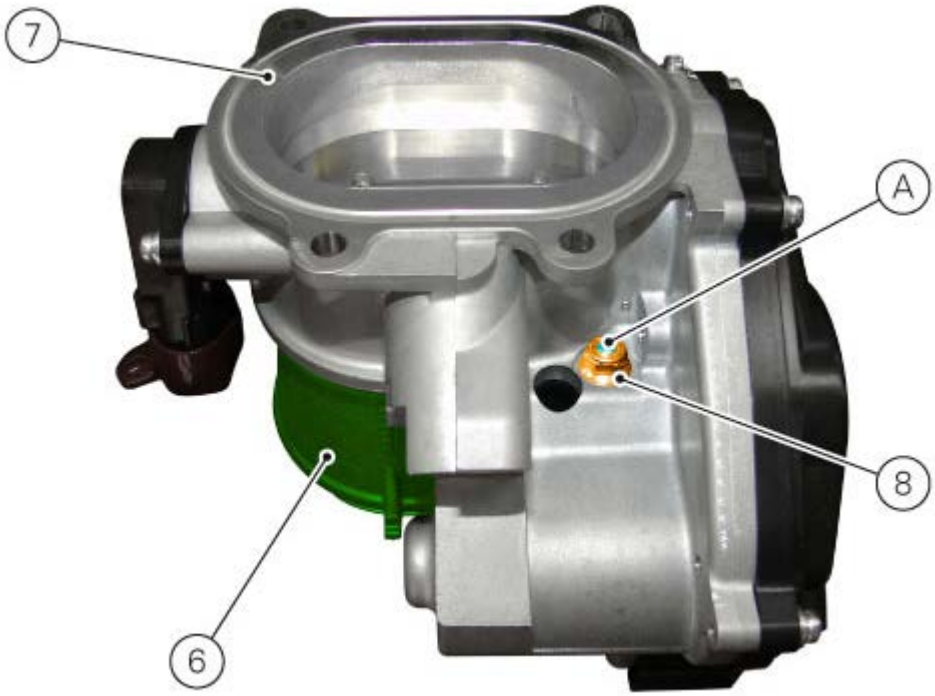
http://www.ducati-manuals.com
no. 140312



Fasten intake funnel (6) to throttle body (7), by starting nuts (8) on threaded pins (A). Tighten nuts (8) to a torque of 6 Nm ±10%.

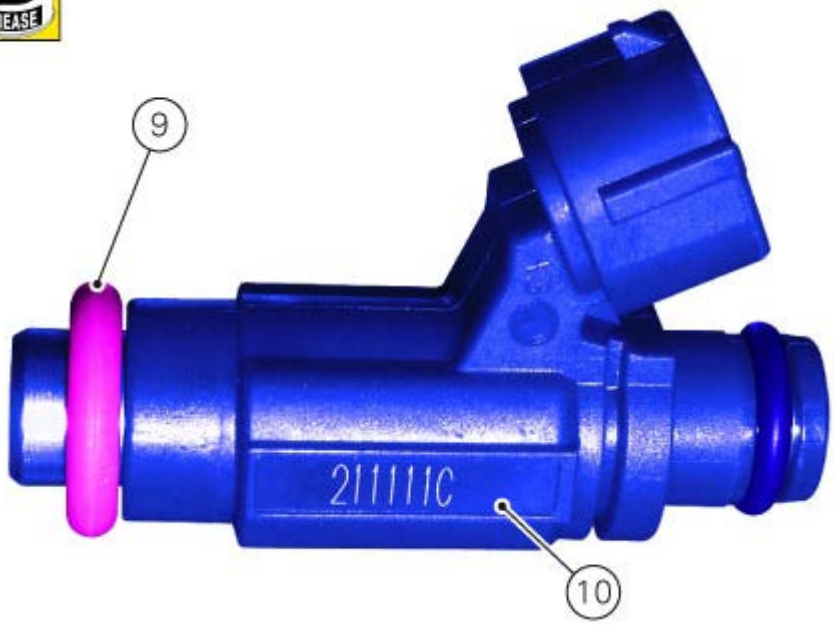


http://www.ducati-manuals.com
no. 140312



Fit the O-ring (9) onto injector (10).
Smear the specified grease onto O-ring (9).
Fit injector (10) in the relevant seat on throttle body (7).
Proceed in the same way also on the other throttle body.

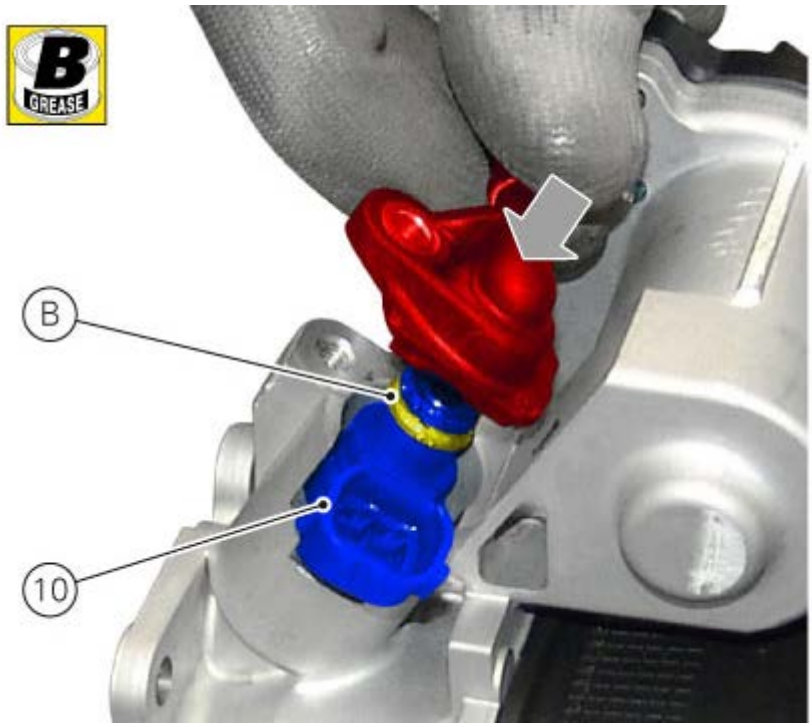




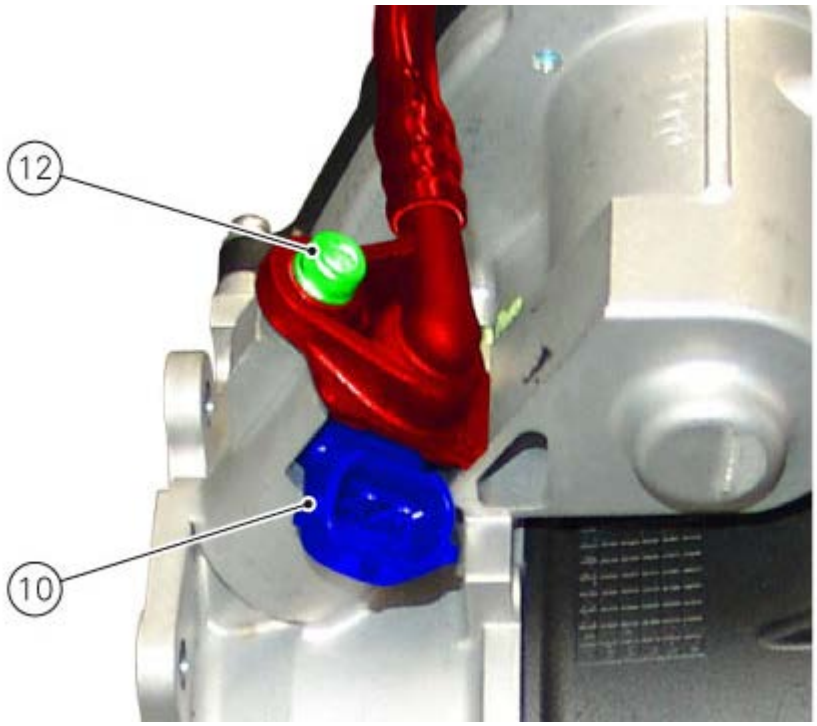
http://www.ducati-manuals.com
no. 140312

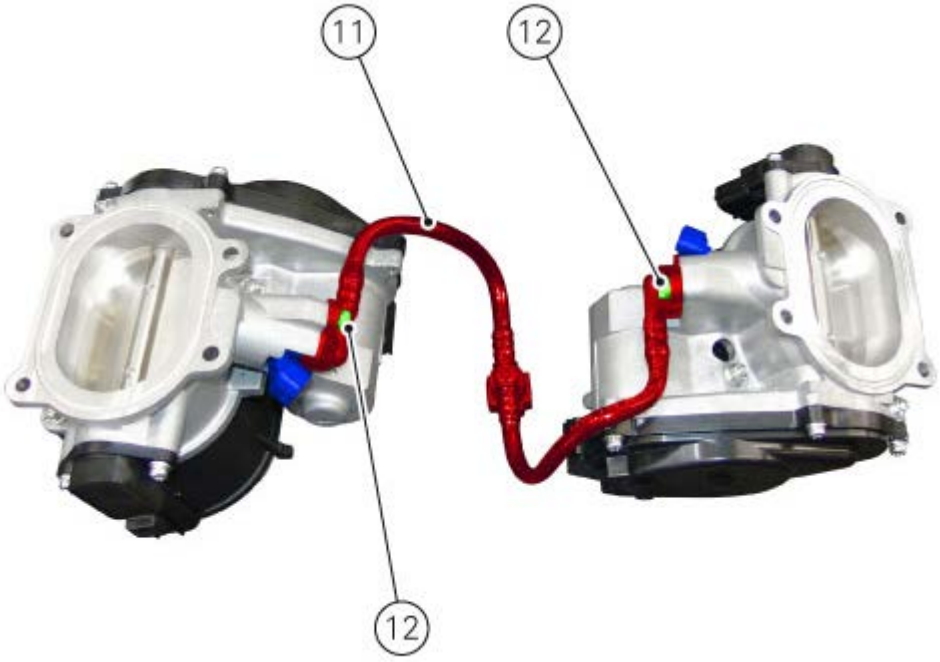


Smear specified grease on O-rings (B) present in both injectors (10).
Connect the fittings of the complete fuel pipe set of throttle bodies (11) to injectors (10) and fasten them by starting screws (12).
Tighten screws (12) to 5 Nm ±10%.



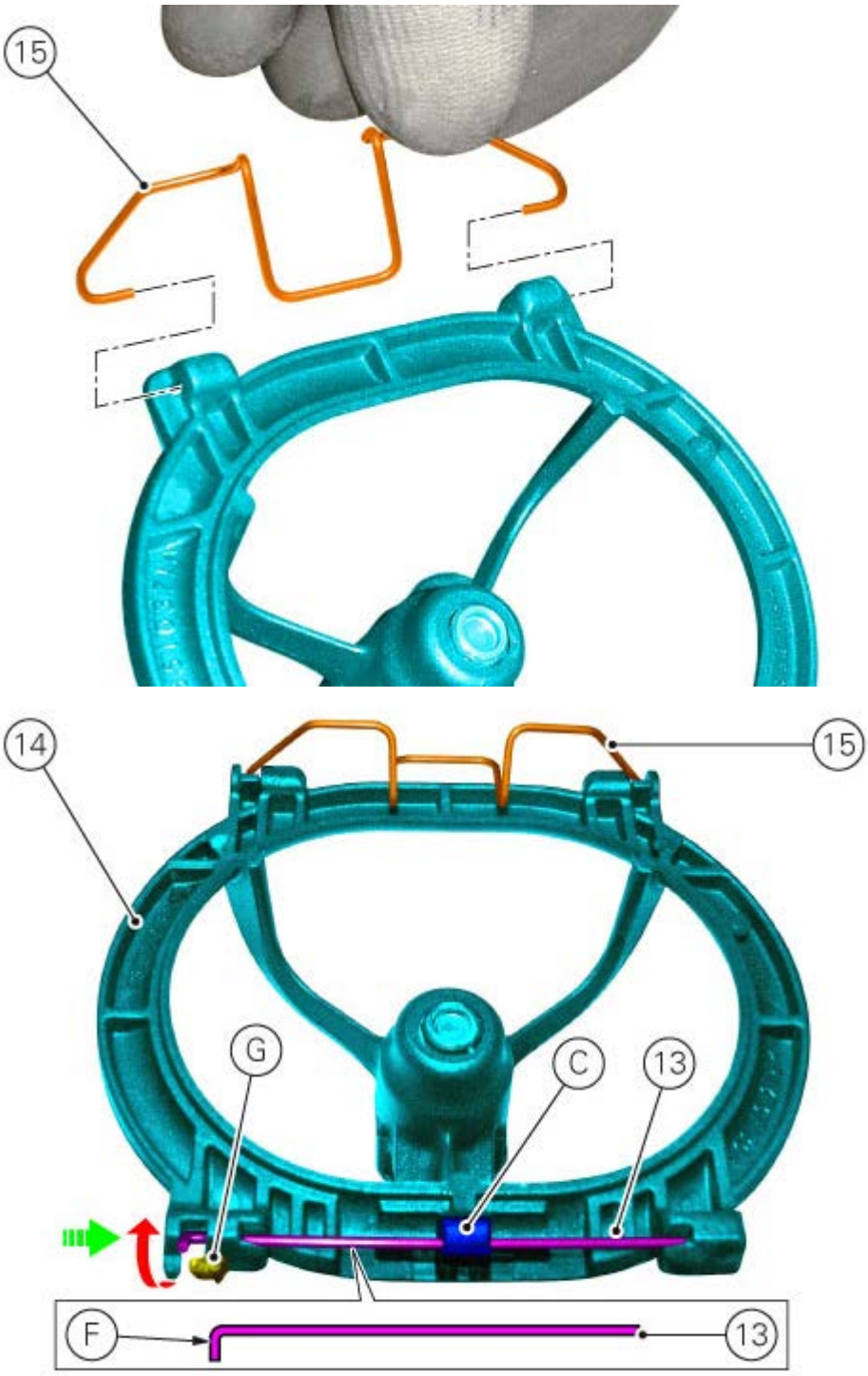
http://www.ducati-manuals.com
no. 140312





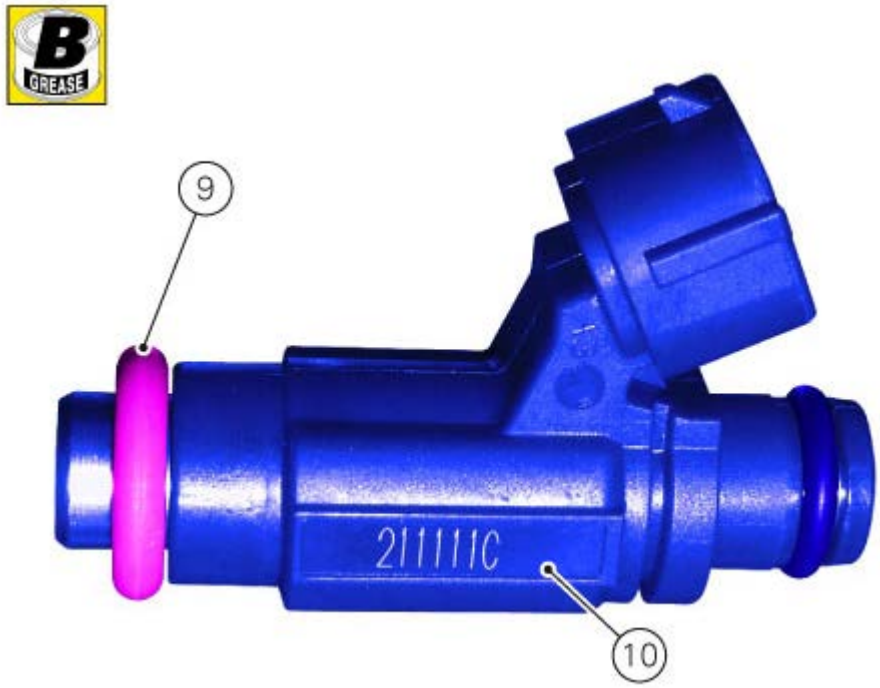
Install pin (13) from the side of injection shower (14) indicated by the green arrow and engage it under tab (C) on shower.
Turn pin (13) in the direction shown by the red arrow until the L-shaped end (F) goes beyond tab (G) on injection shower (14).
Fit the clip (15) onto injection shower (14) engaging its ends in the relevant holes on shower.

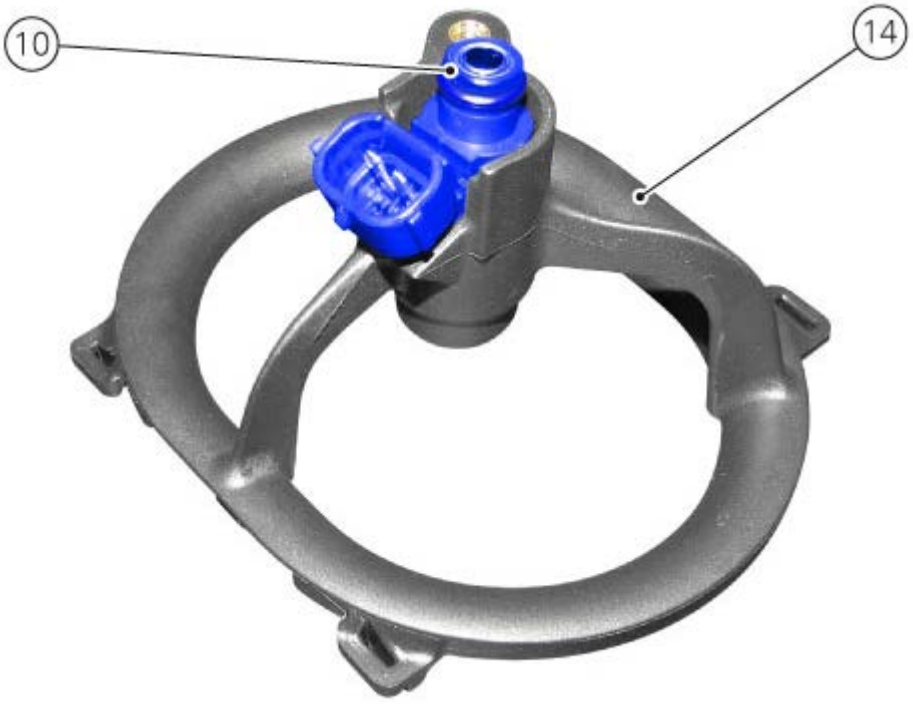
http://www.ducati-manuals.com
no. 140312



Fit the O-ring (9) onto injector (10).
Smear the specified grease onto O-ring (9).
Fit injector (10) in the relevant seat on injection shower (14).
Proceed in the same way also on the other shower.

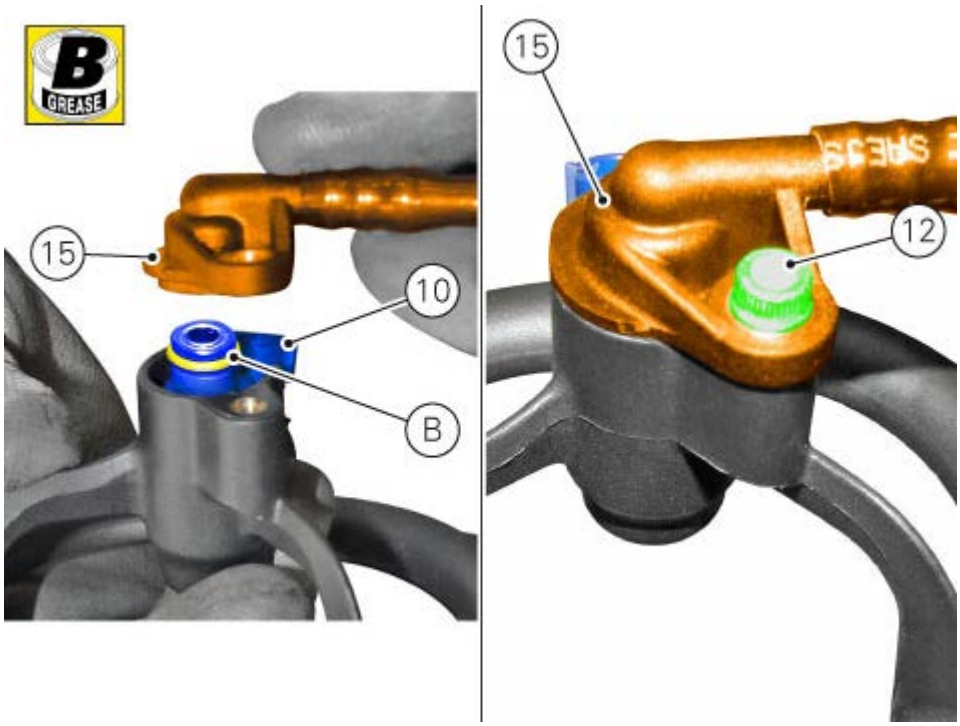
http://www.ducati-manuals.com
no. 140312

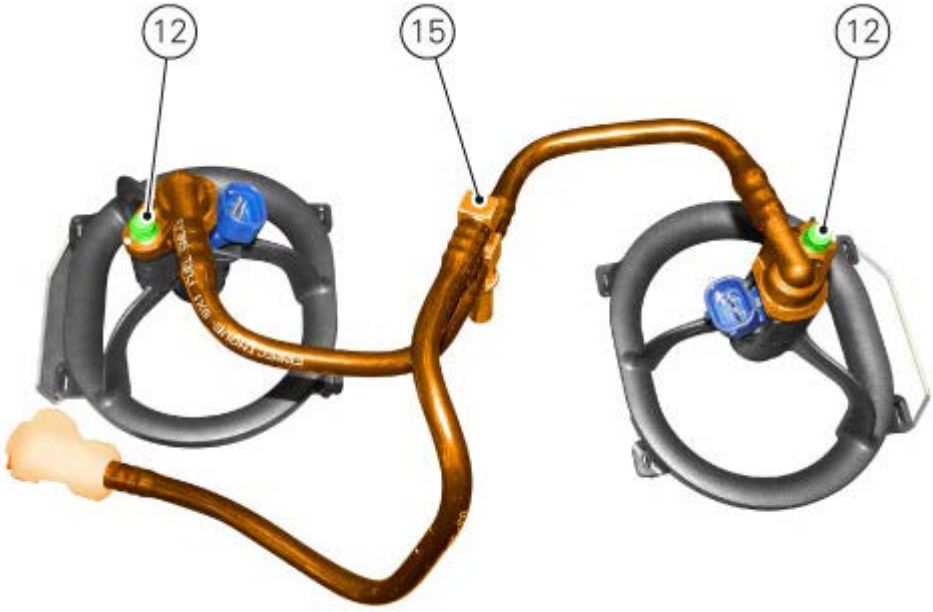




Smear specified grease on O-rings (B) present in both injectors (10).
Connect the fittings of the complete fuel pipe set of showers (15) to injectors (10) and fasten them by starting screws (12).
Tighten screws (12) to 5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

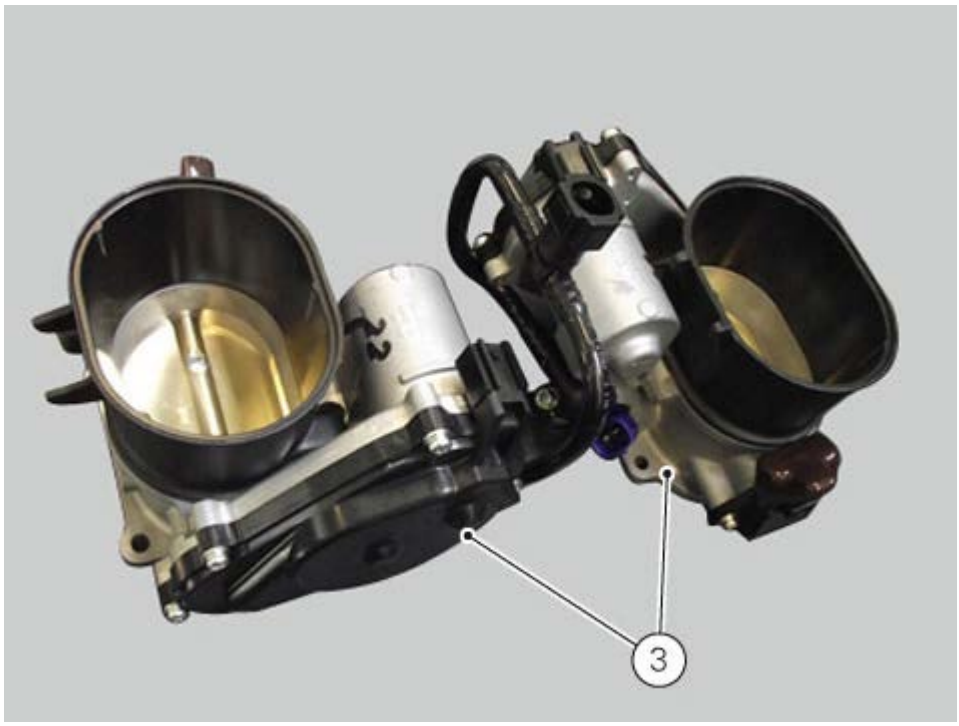


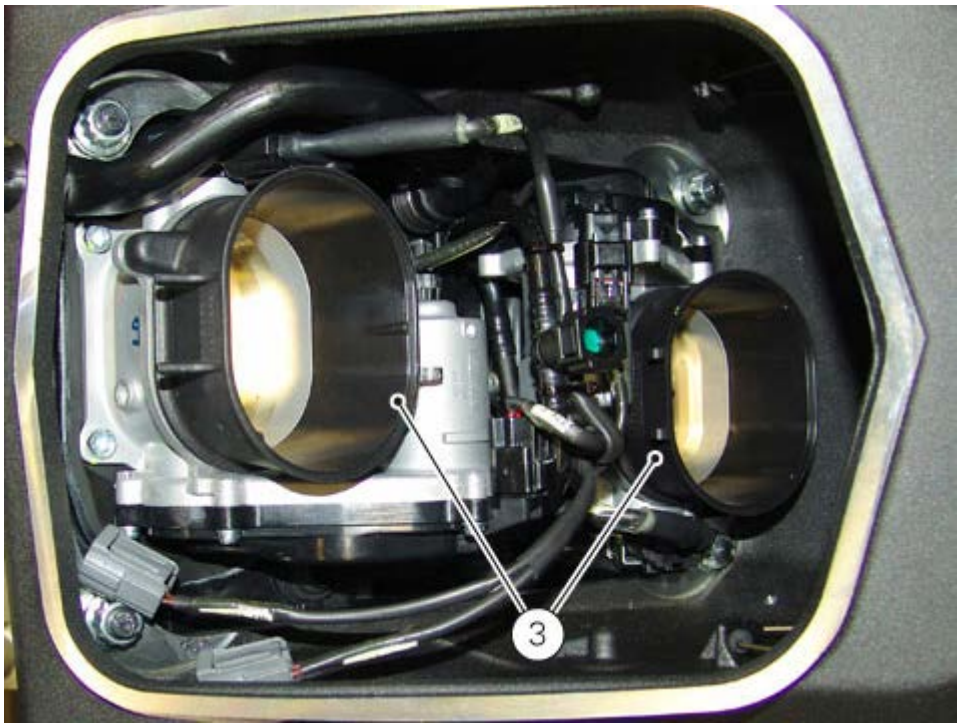


Installation of the throttle body

Refit the complete throttle body assembly (3) inside the frame-airbox bottom part.

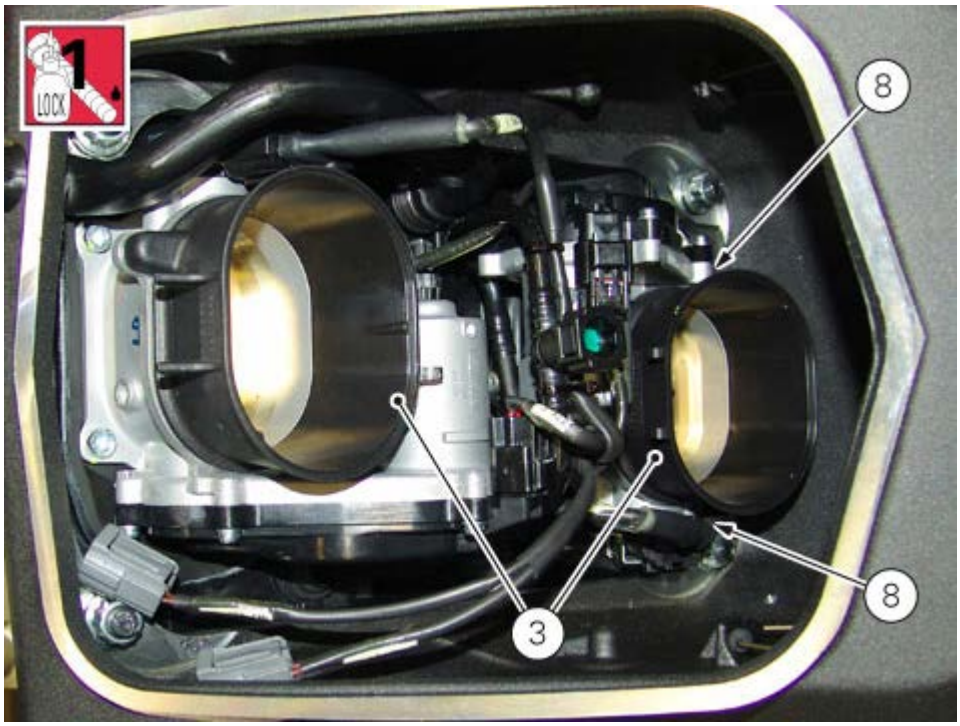
http://www.ducati-manuals.com
no. 140312

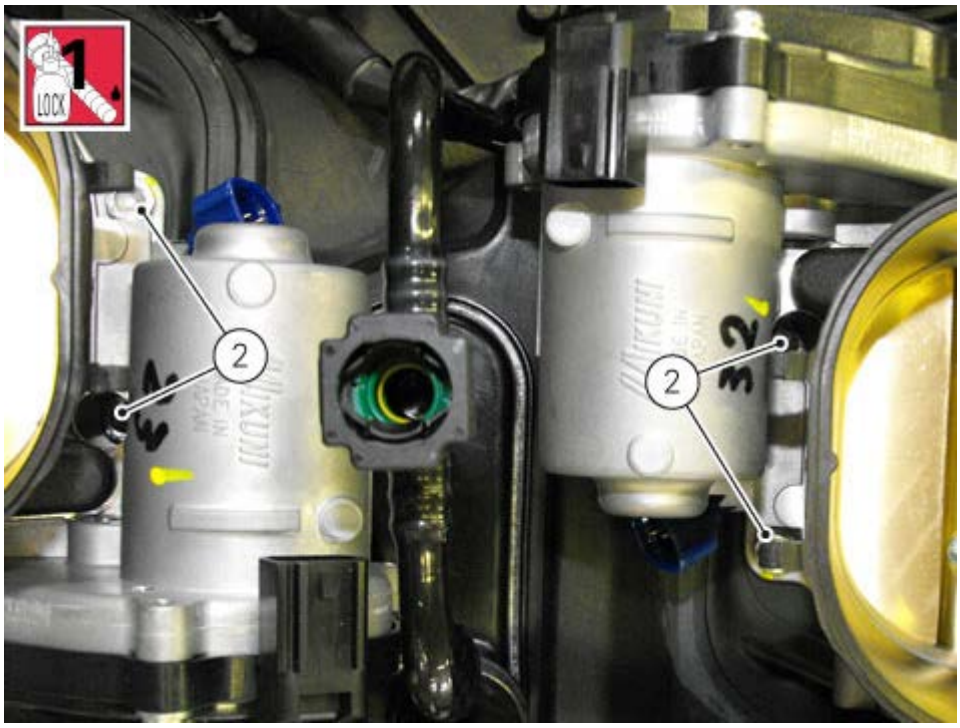




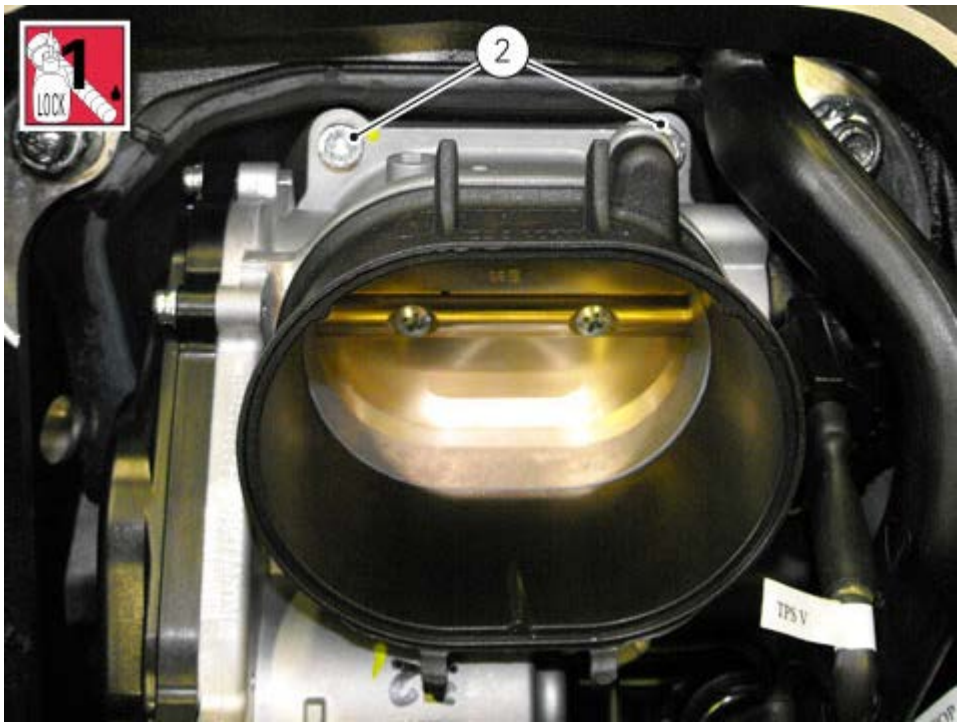
Smear specified threadlocker onto the eight screws (2) and start them to fasten throttle body to the airbox bottom part.
Tighten screws (2) to 10 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

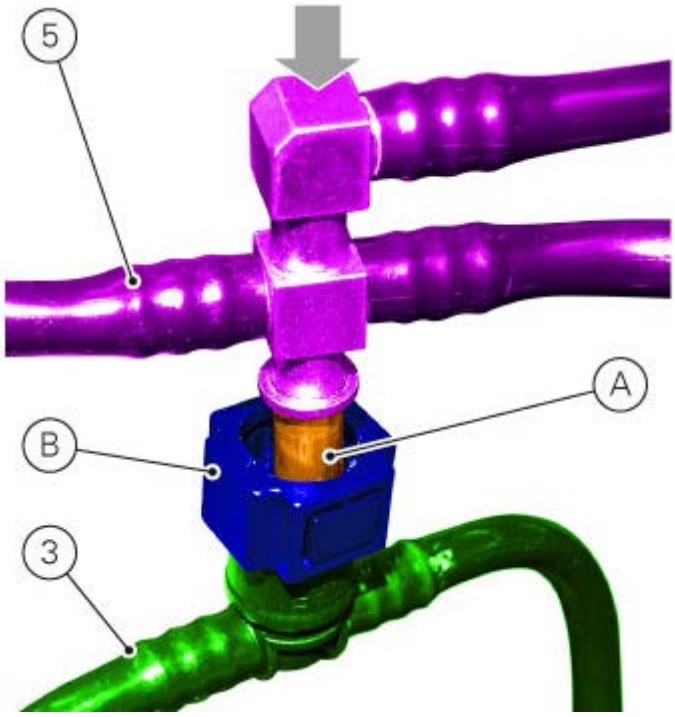




http://www.ducati-manuals.com
no. 140312

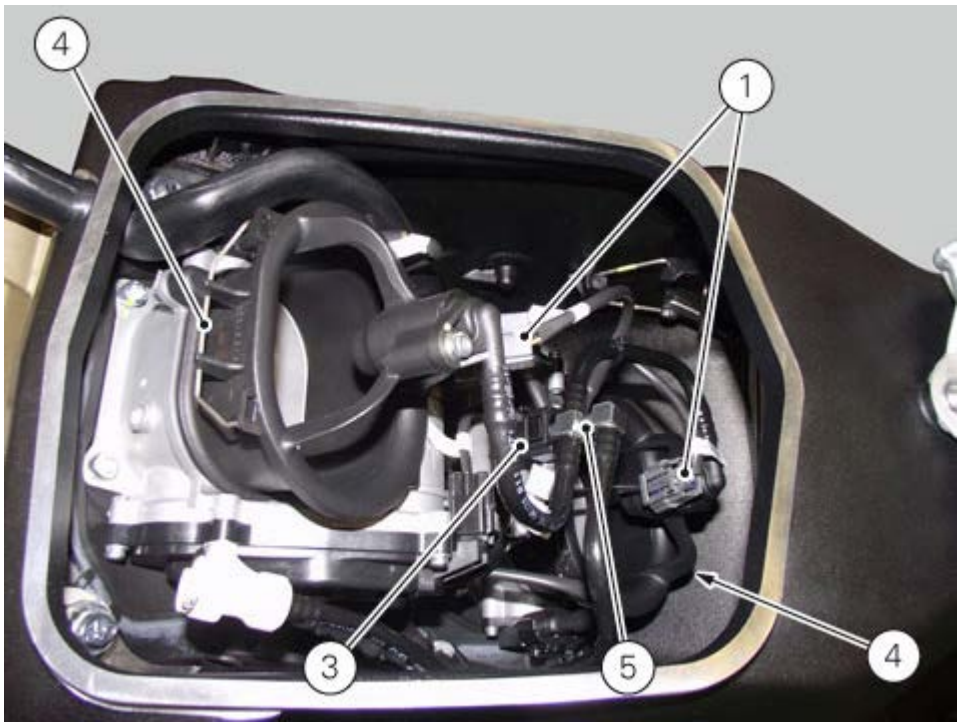


Join shower assembly (5) to throttle body assembly (3) by fitting shaft (A) of shower assembly (5) in the throttle body assembly (5).



Hook clips (4) on shower assembly (5) to throttle body assembly (3).
Connect injector wiring (1) to the main wiring harness.

http://www.ducati-manuals.com
no. 140312



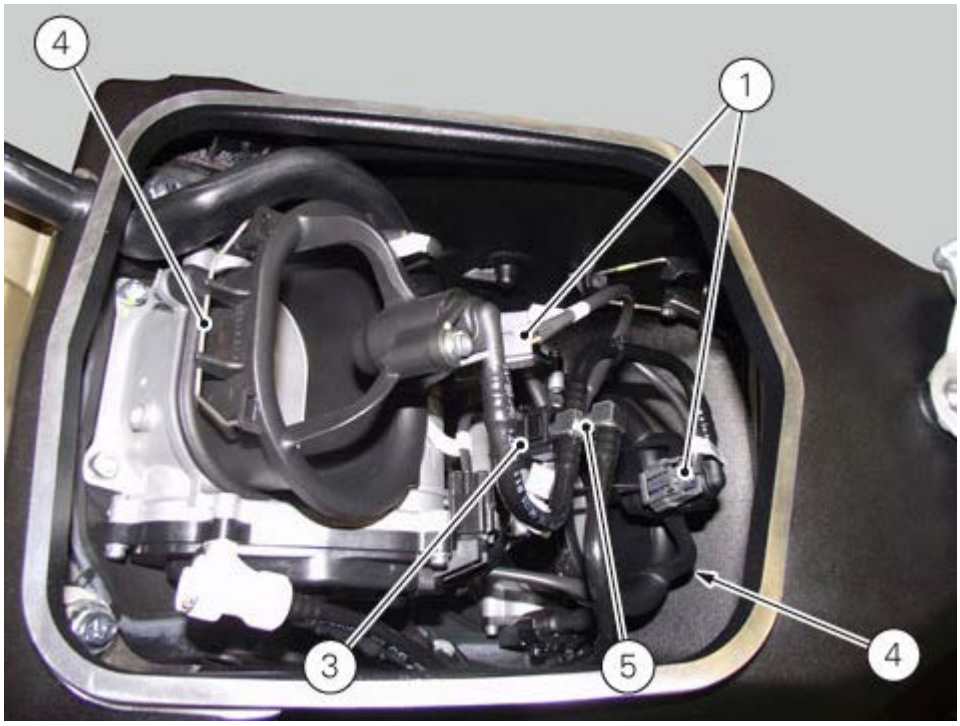
Refit the tank (Installation of the fuel tank)
Refit the rider seat (Installation of the rider seat).

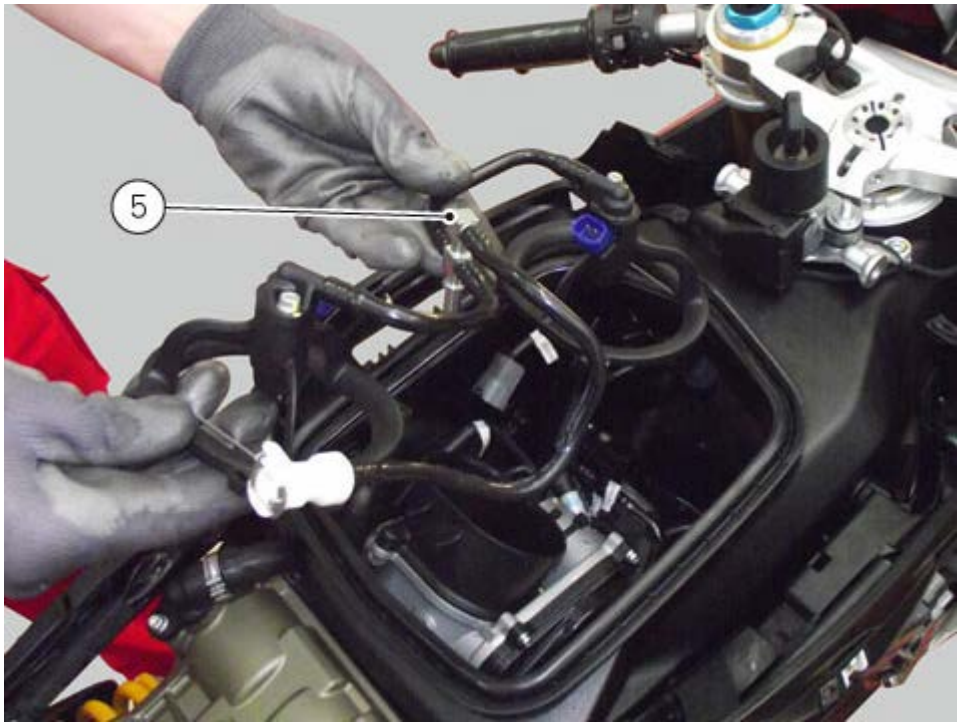
http://www.ducati-manuals.com
no. 140312

Removal of the air filter

Remove the rider seat (Removal of the rider seat).
Remove the tank (Removal of the fuel tank).

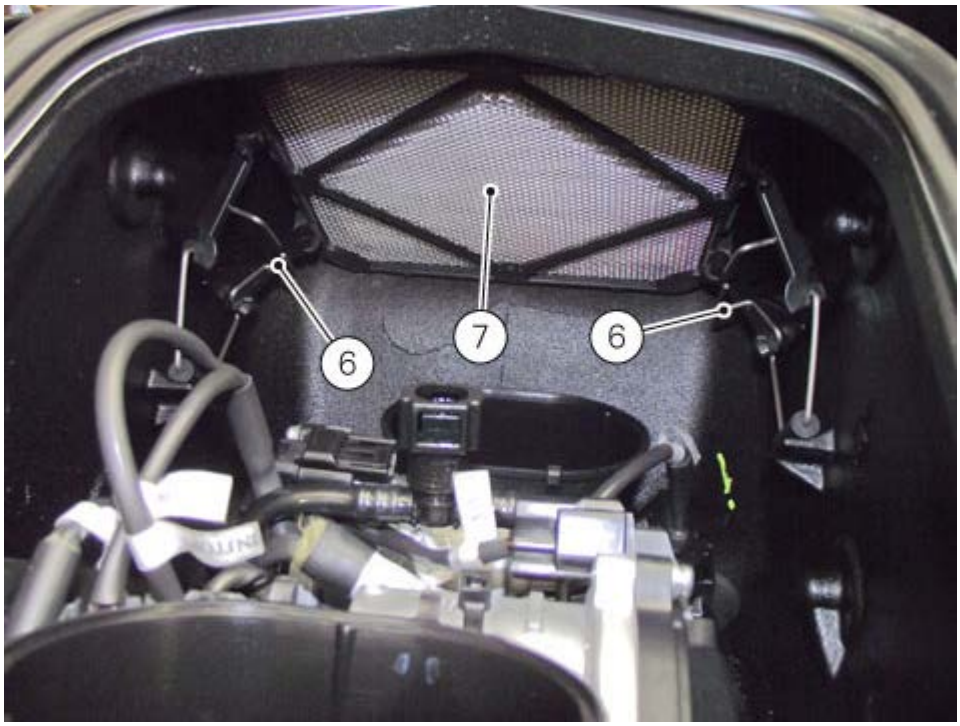
Disconnect injector wiring (1) from the main wiring harness.
Disengage clips (4) fastening shower assembly (5) to throttle body assembly (3) and slide out the shaft of shower assembly (5) from throttle body assembly.

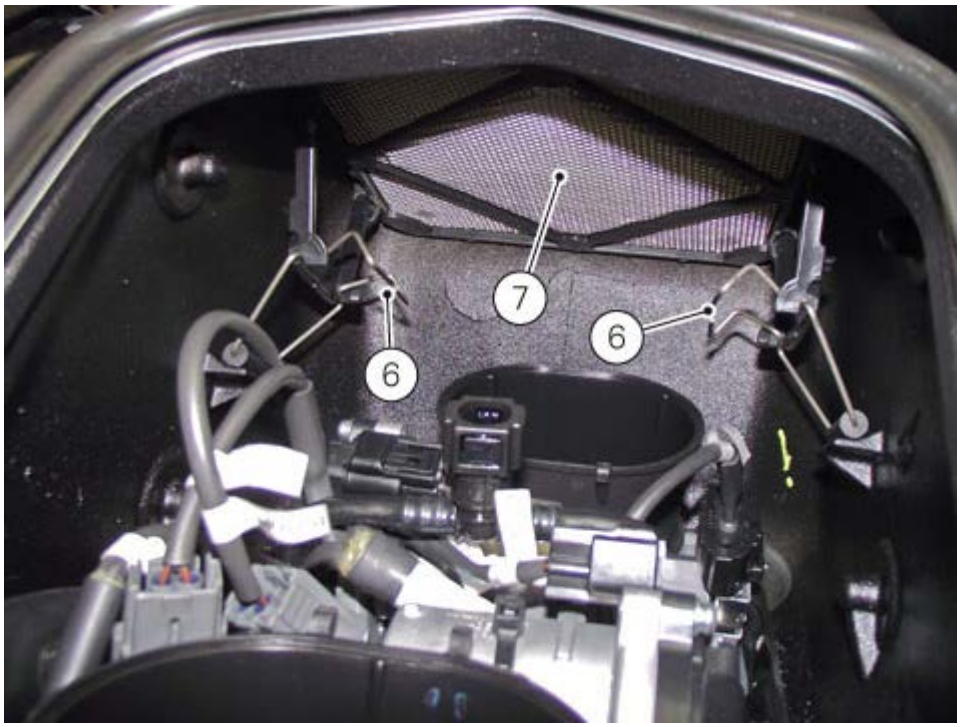




Release clips (6) retaining the filtering element assembly (7).

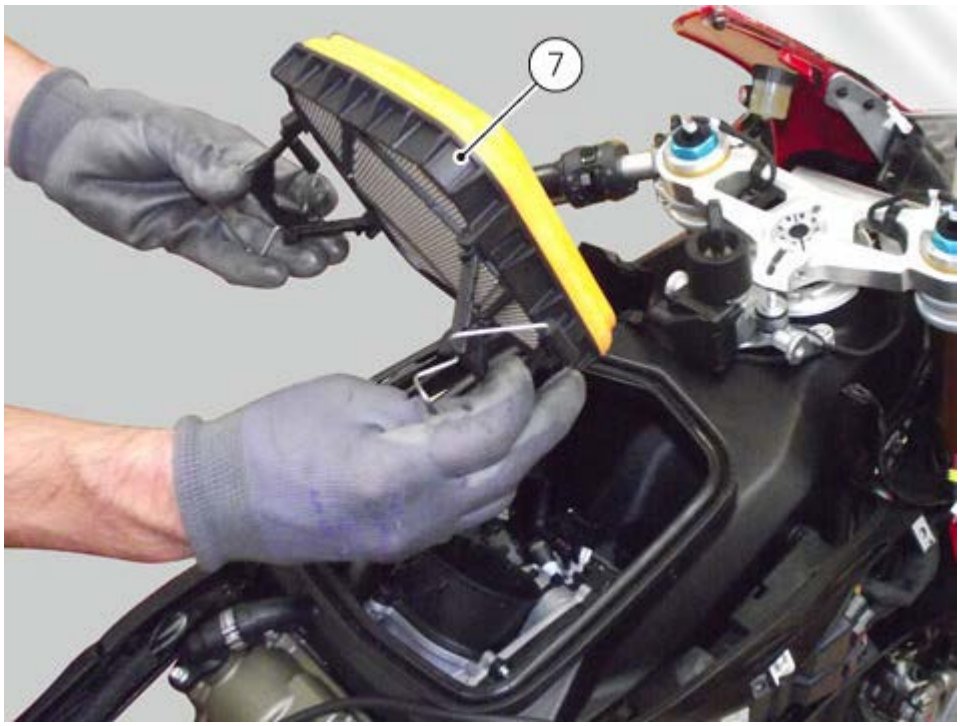
http://www.ducati-manuals.com
no. 140312





Slide out the filtering element assembly (7) from its seat in the frame.

http://www.ducati-manuals.com
no. 140312

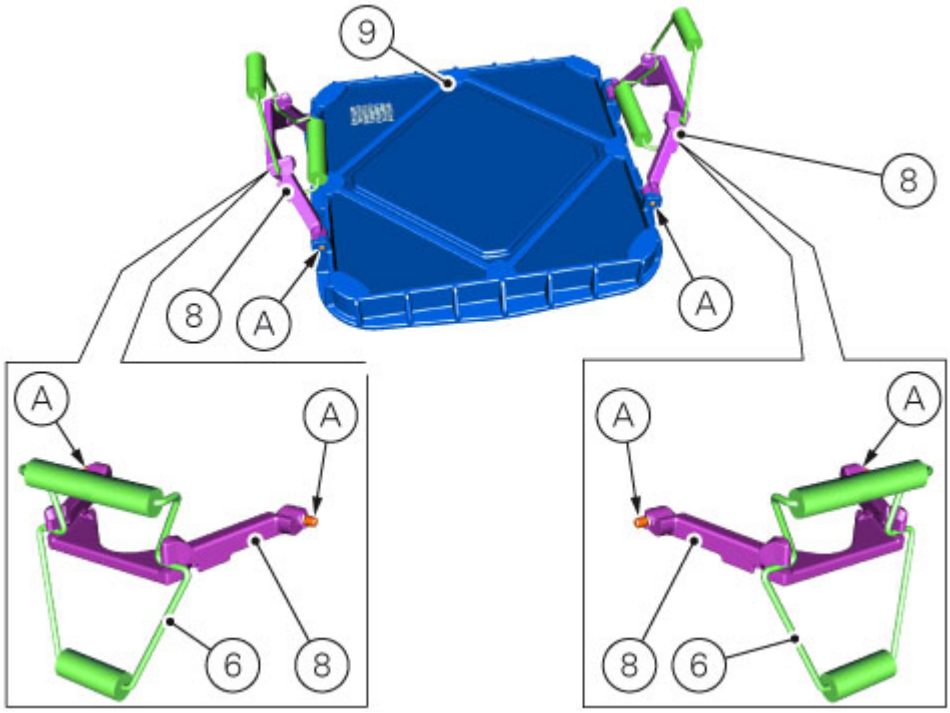




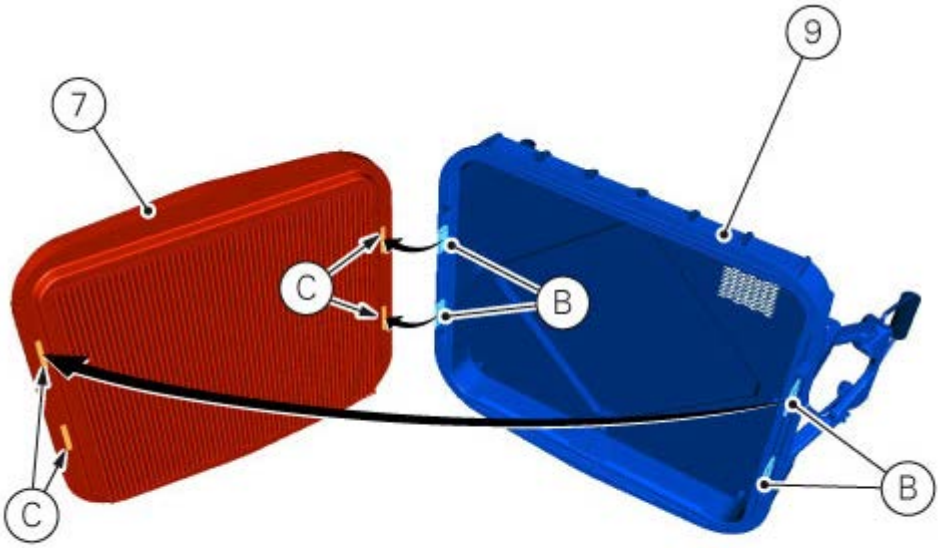
http://www.ducati-manuals.com
no. 140312

Installation of the air filter

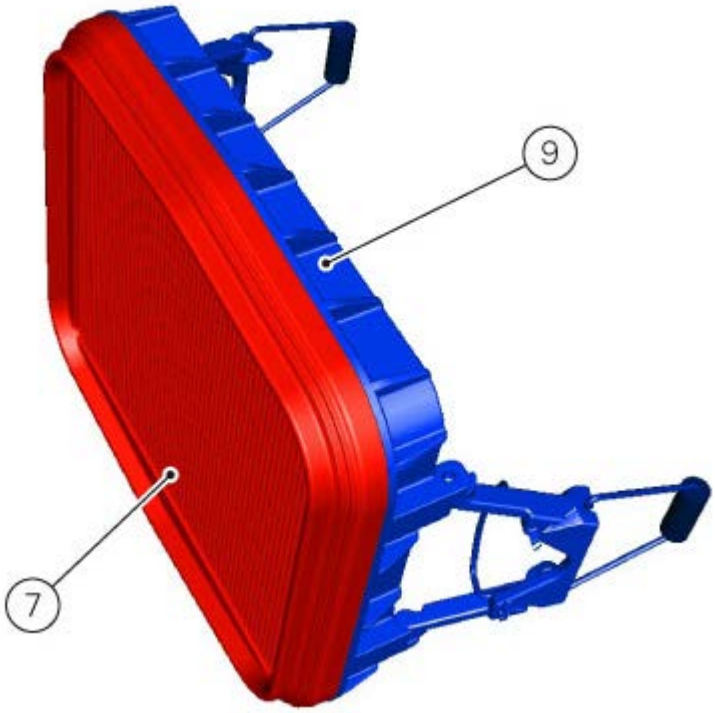
If the filtering element assembly (7) was disassembled, refit clips (6) setting them in the relevant seats on retainers (8). Fit the retainers (8) on air filter support (9), inserting pins (A) in the holes on air filter support.



Install the air filter (7) to its support (9), inserting tabs (B) of support (9) inside recesses (C) on air filter (7), fully home.



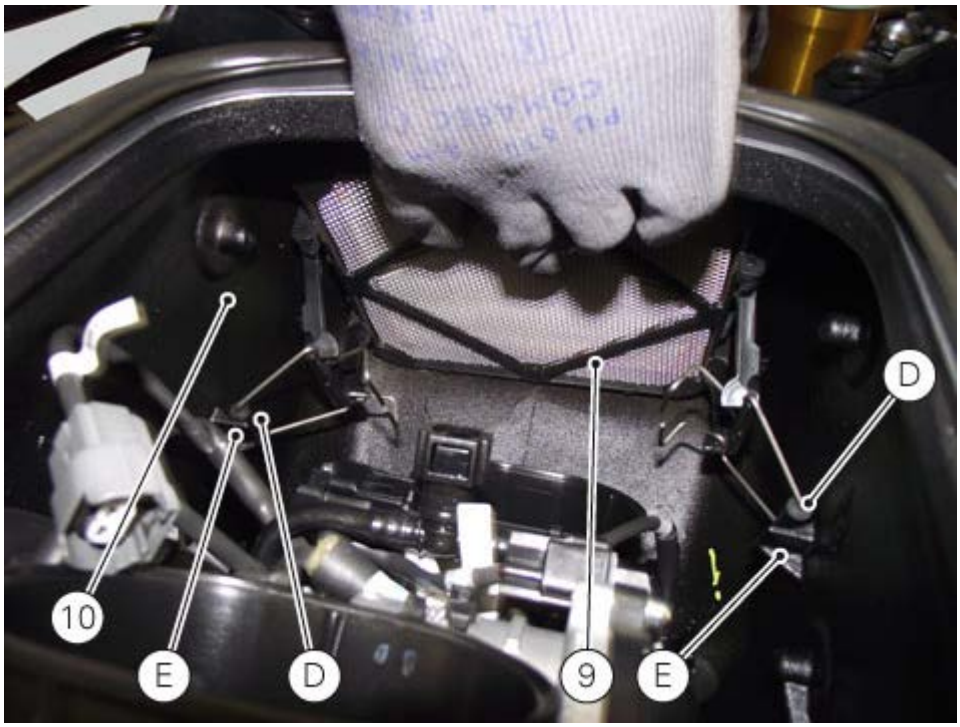
http://www.ducati-manuals.com
no. 140312



Fit the air filter support (9) in the relevant housing in the frame (10).

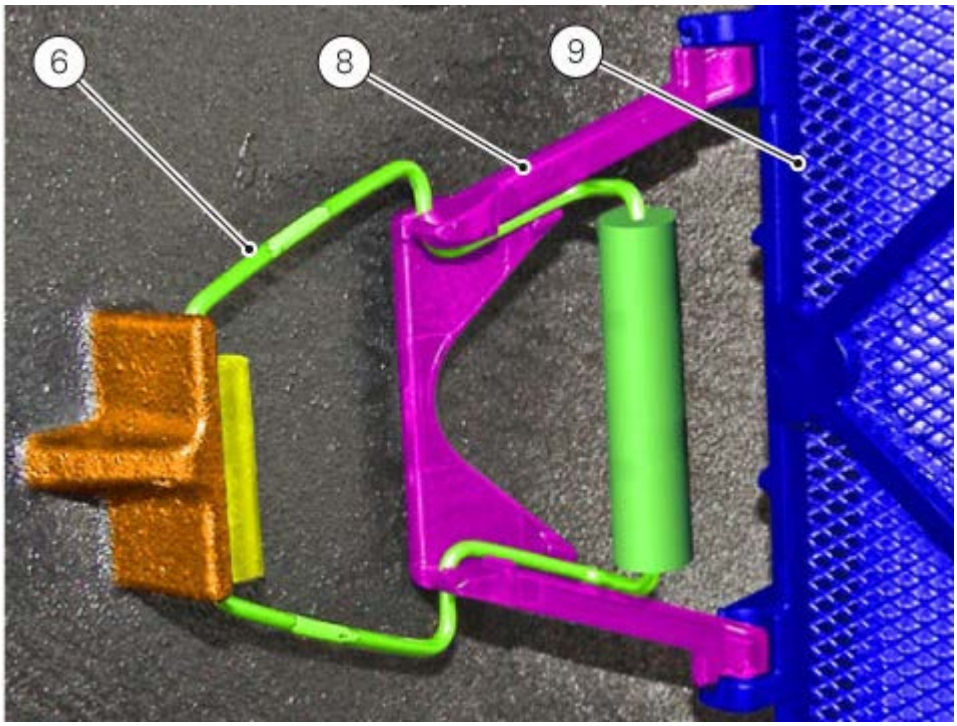
Note

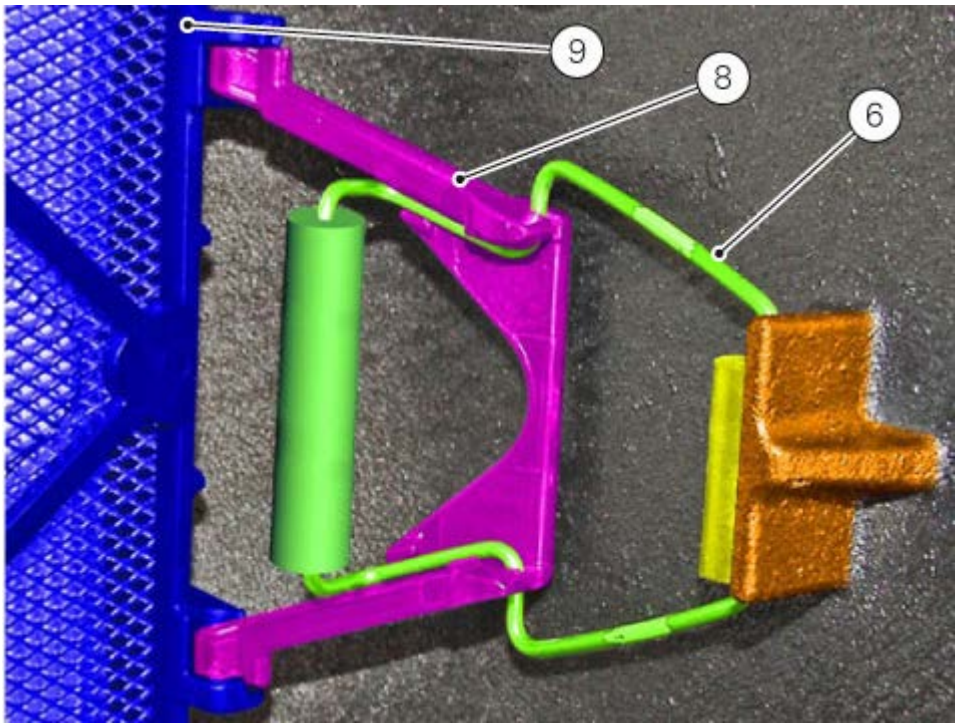
For a correct assembly, first take stoppers (D) of clips (6) against plates (E) on frame (10).



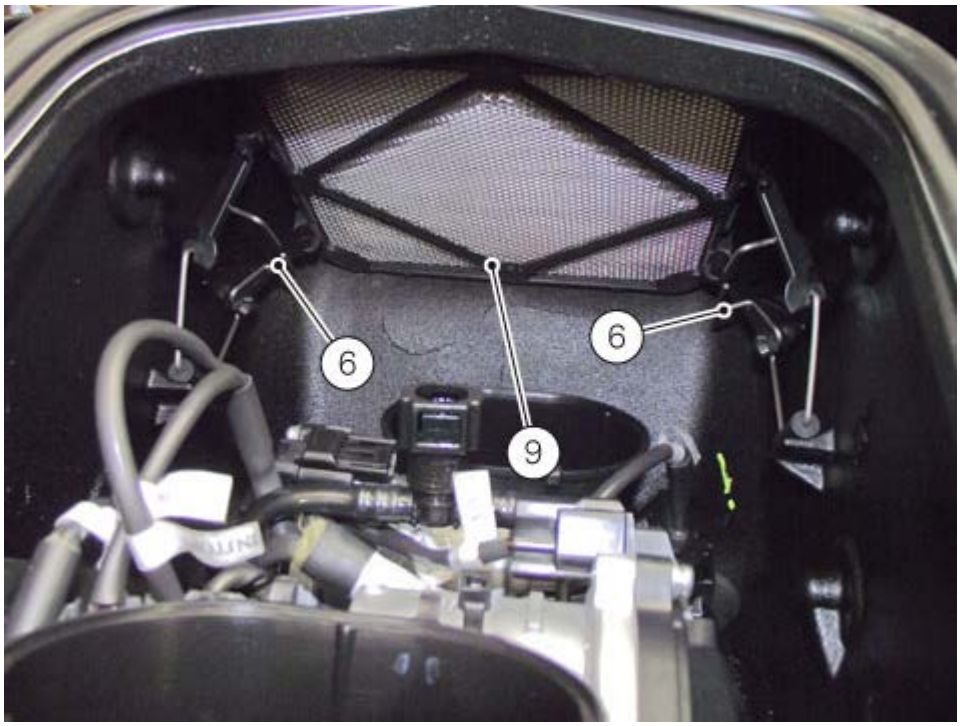
Fasten the air filter support (9) working clips (6), until they engage in the corresponding seats on retainers (8).

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

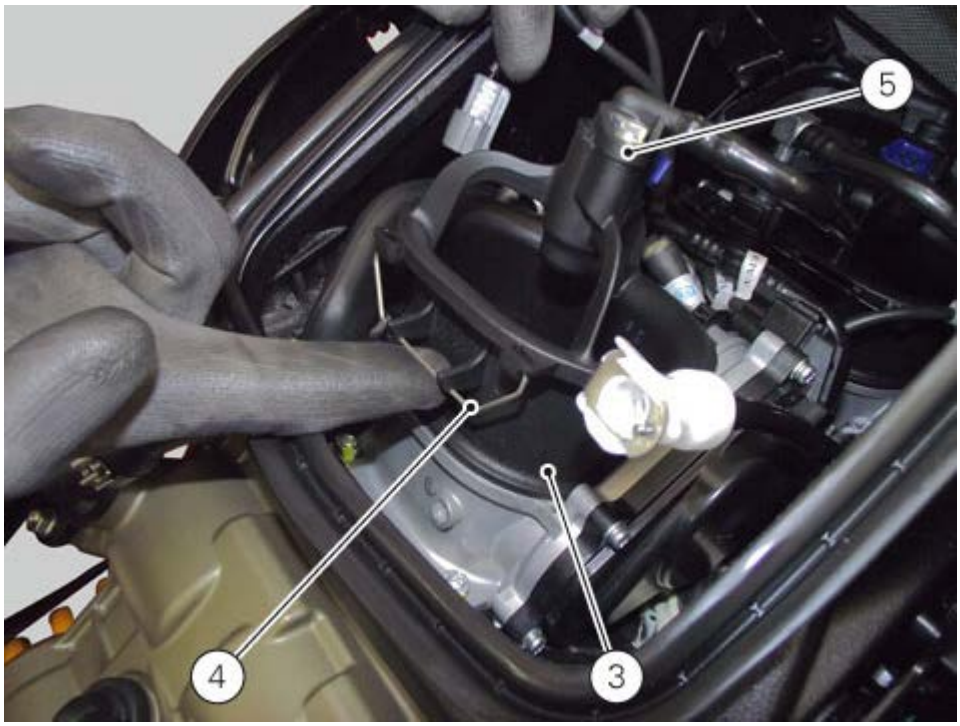


Join shower assembly (5) to throttle body assembly (3) by fitting shaft (A) of shower assembly (5) in the throttle body assembly (3).

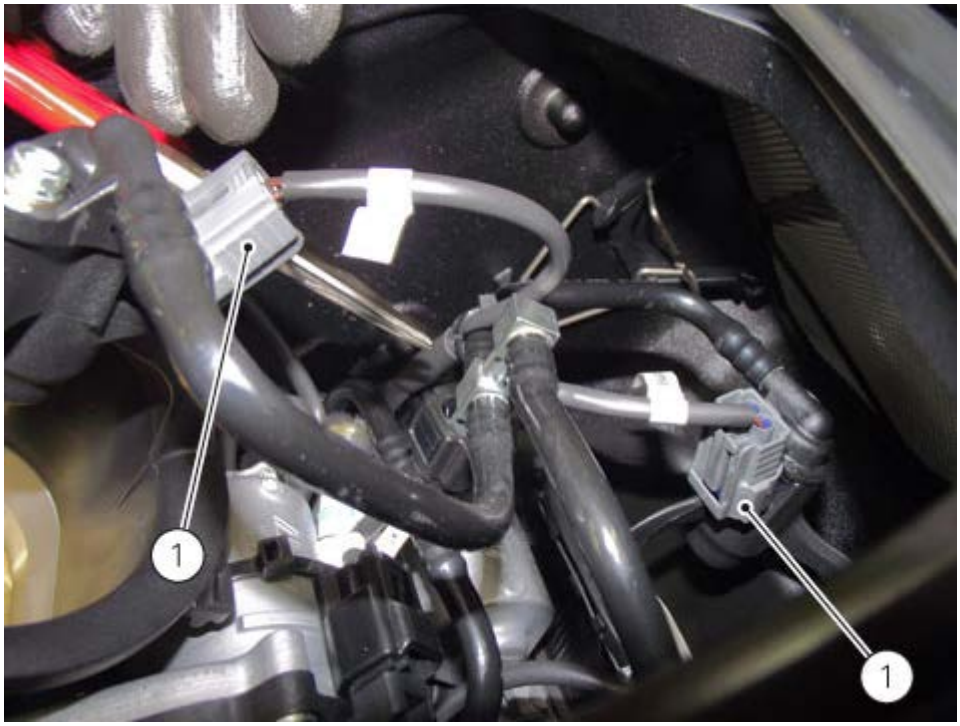


Hook clips (4) retaining the shower assembly (5) to throttle body assembly (3).

http://www.ducati-manuals.com
no. 140312



Connect injector wiring (1) to main wiring harness.

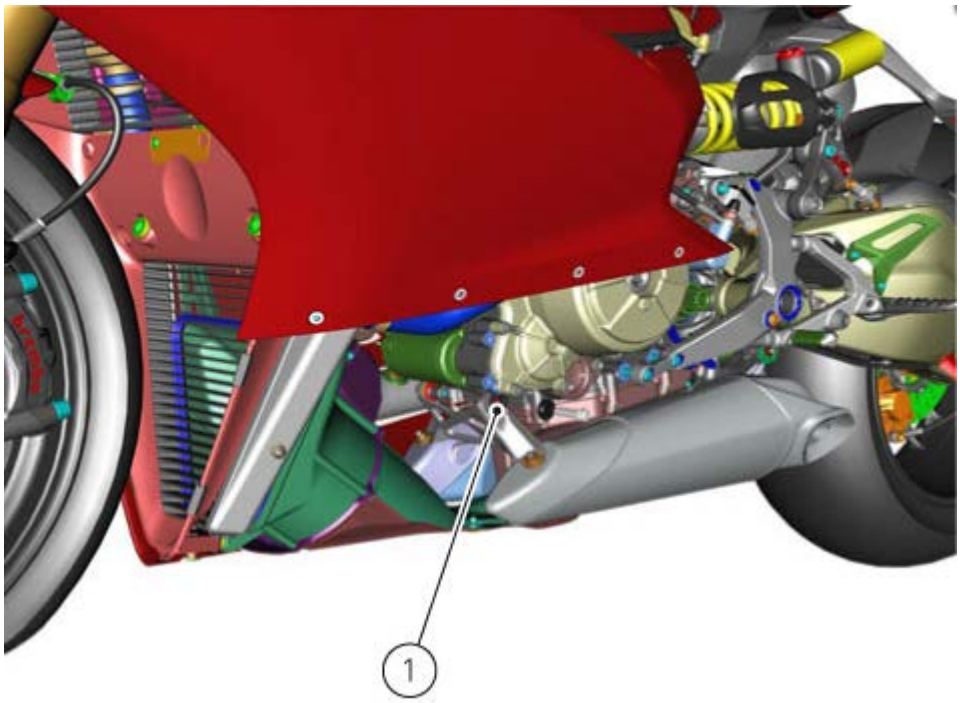


Refit the tank (Installation of the fuel tank)
Refit the rider seat (Installation of the rider seat).

http://www.ducati-manuals.com
no. 140312

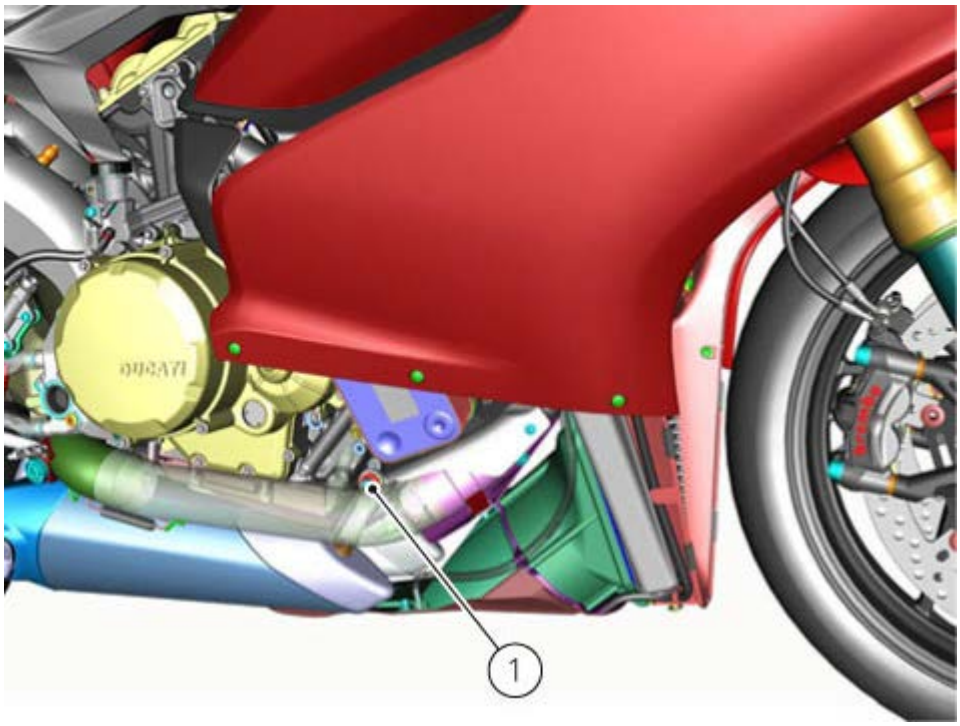
Removal of the silencer

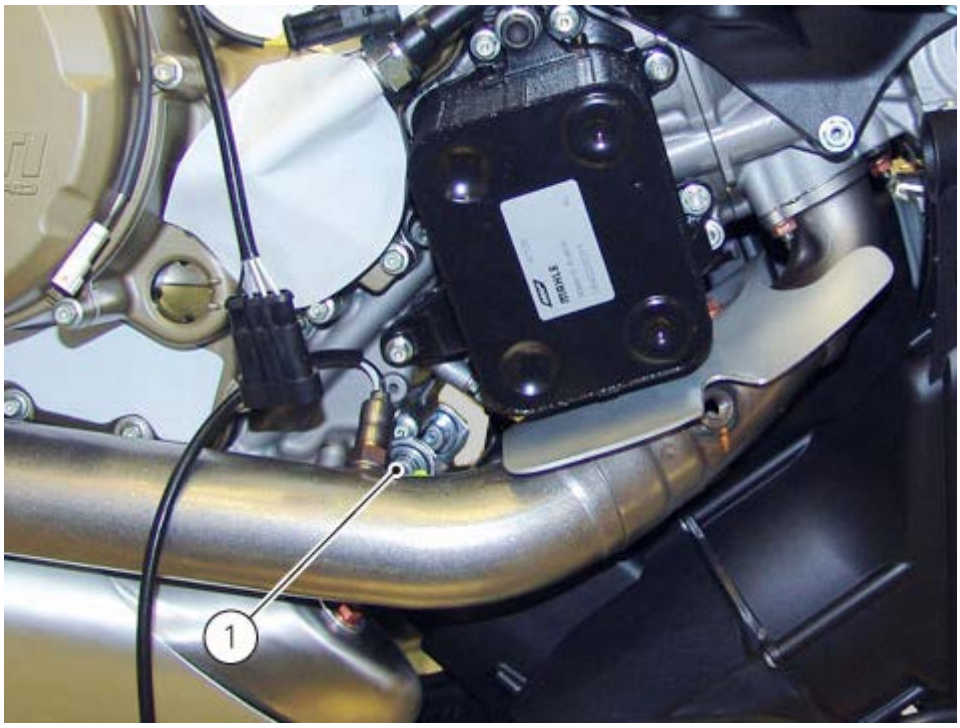
Remove the lower fairings (Removal of the side fairings).
Loosen the two front screws (1) retaining silencer to crankcase.





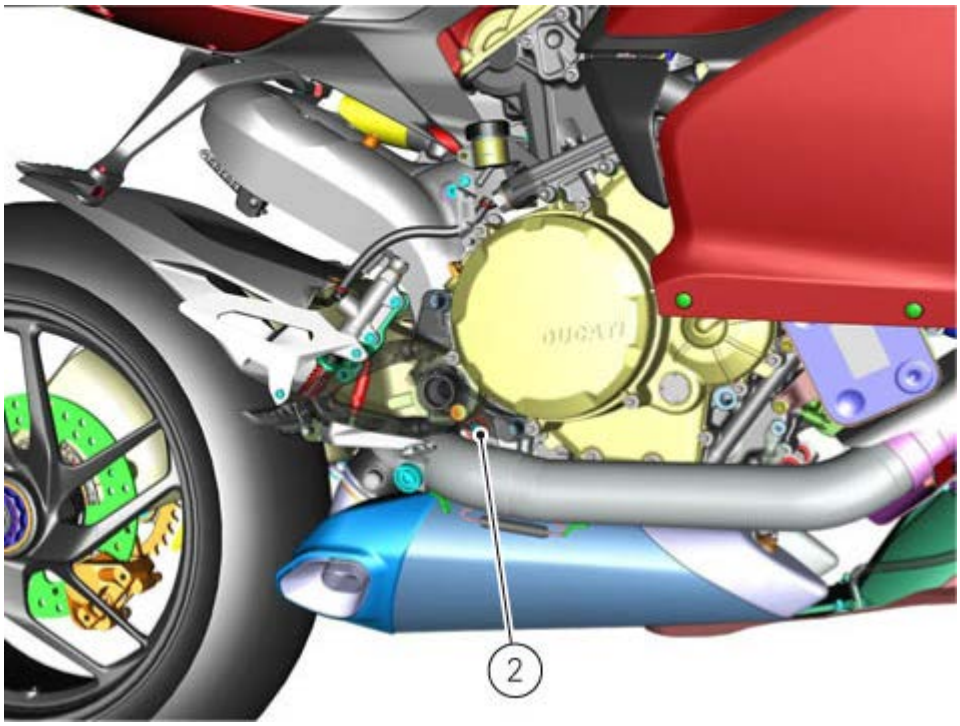
http://www.ducati-manuals.com
no. 140312

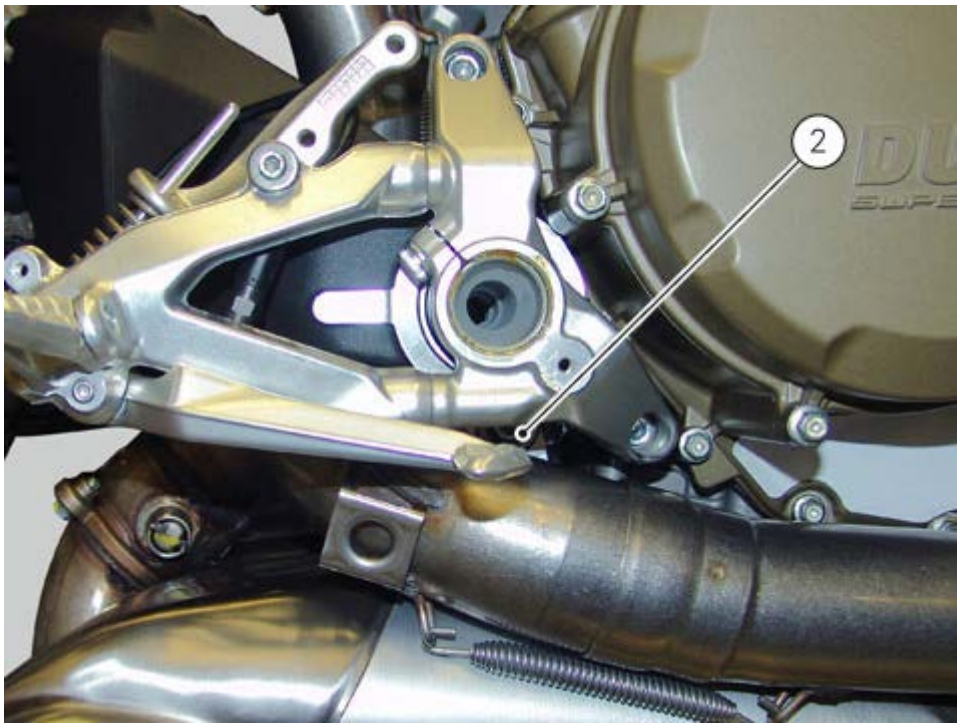




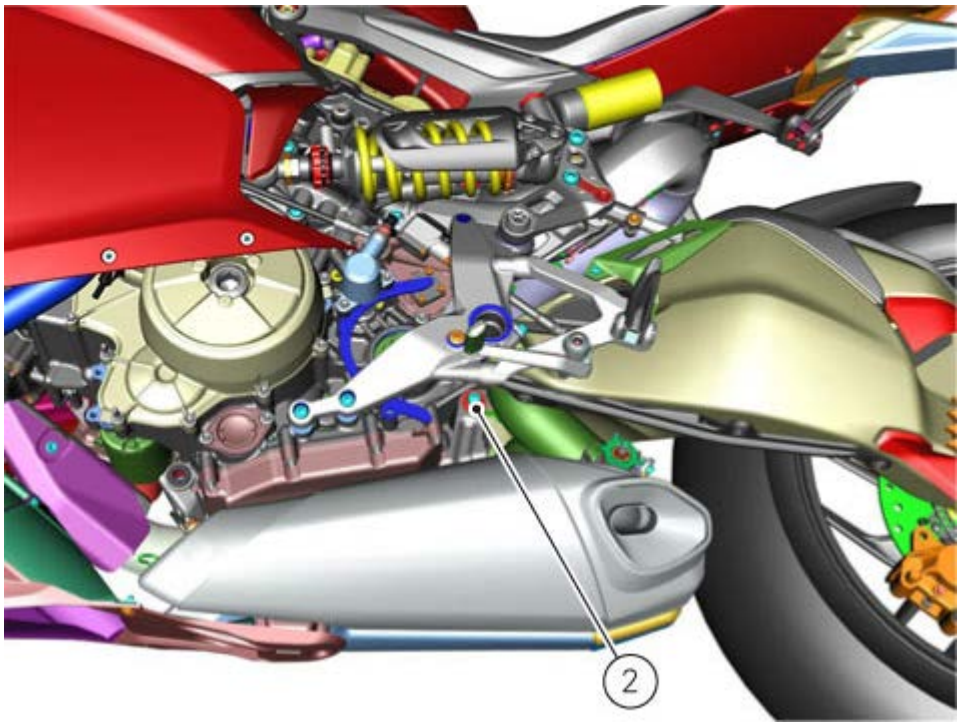
Loosen the two rear screws (2) securing silencer to crankcase.

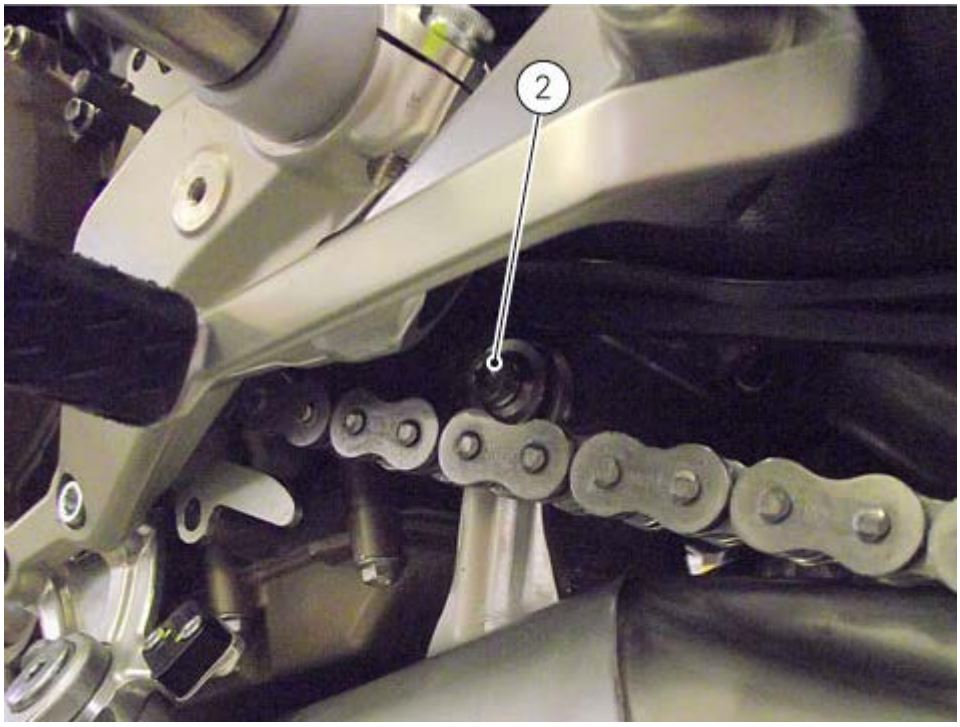
http://www.ducati-manuals.com
no. 140312





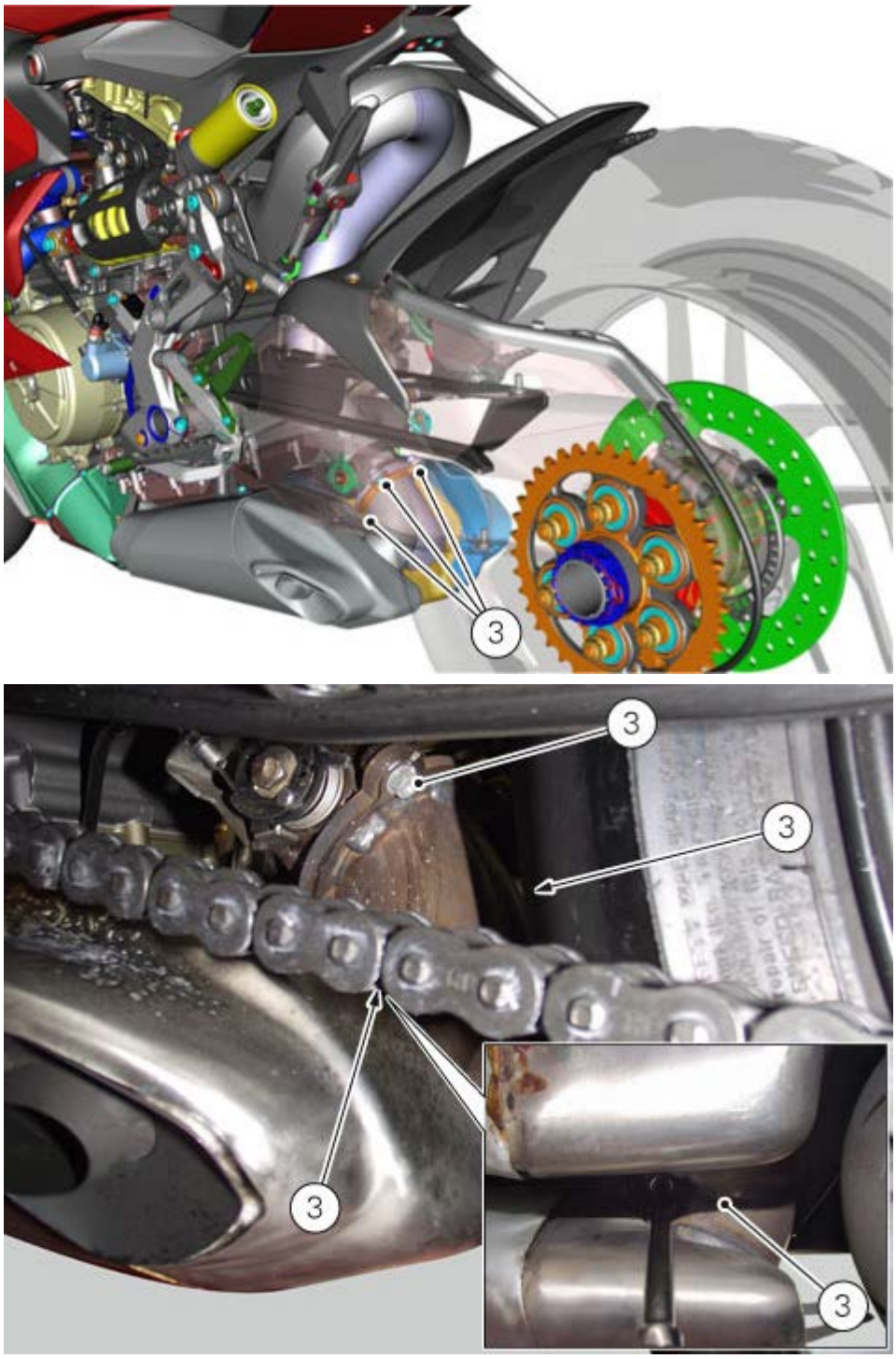
http://www.ducati-manuals.com
no. 140312





Loosen the three screws (3) fastening the silencer to the central exhaust pipe.

http://www.ducati-manuals.com
no. 140312



Separate silencer (4) from central exhaust pipe (A) and remove the gasket.

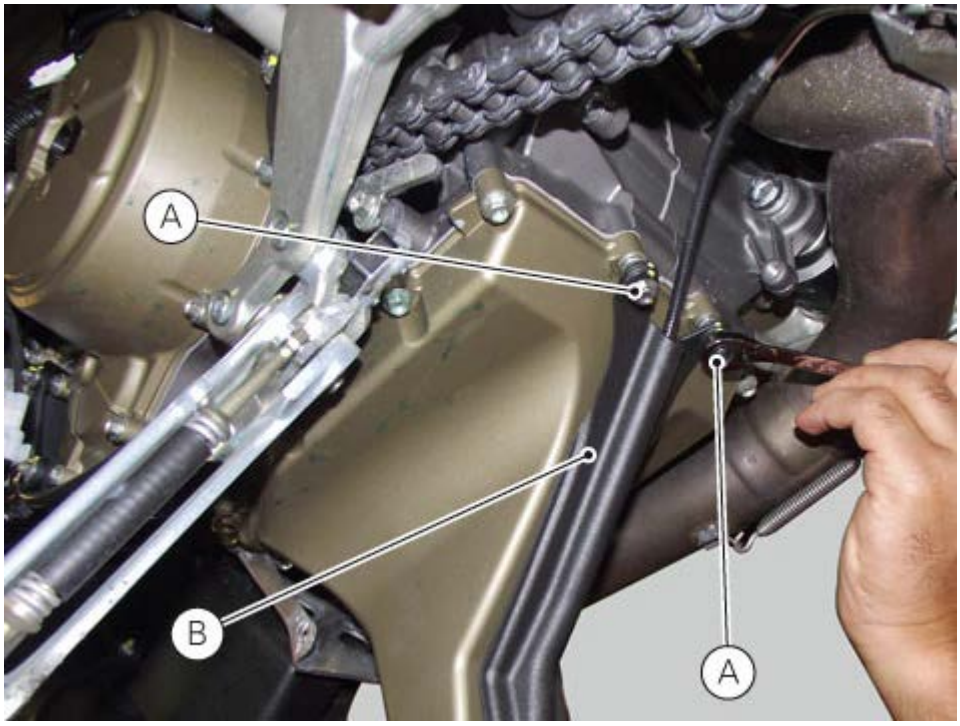
http://www.ducati-manuals.com
no. 140312



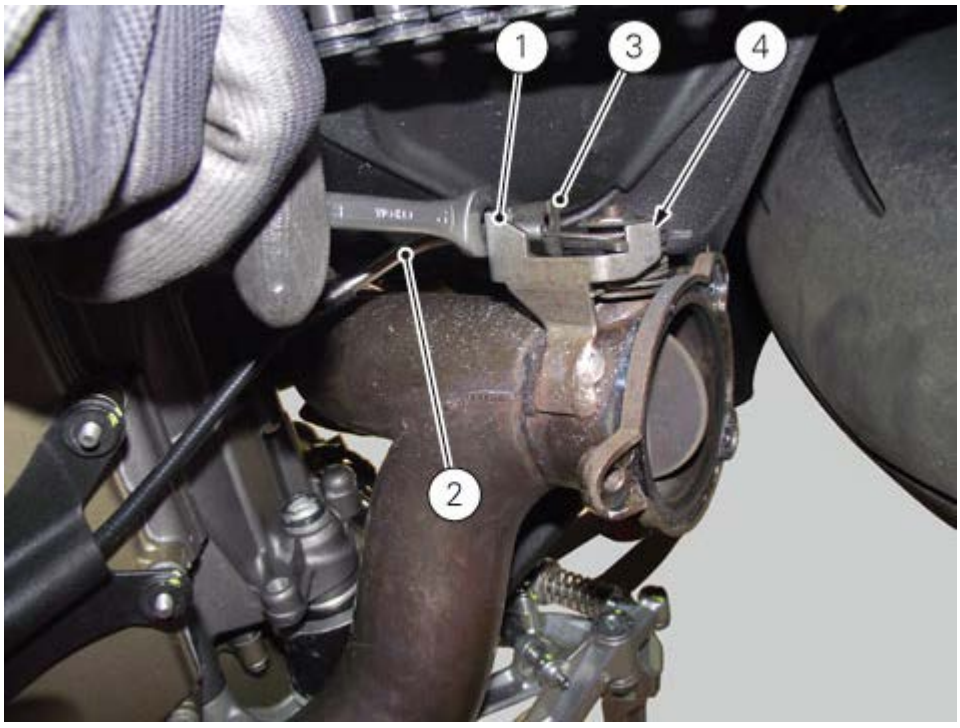
http://www.ducati-manuals.com
no. 140312

Removal of the exhaust system

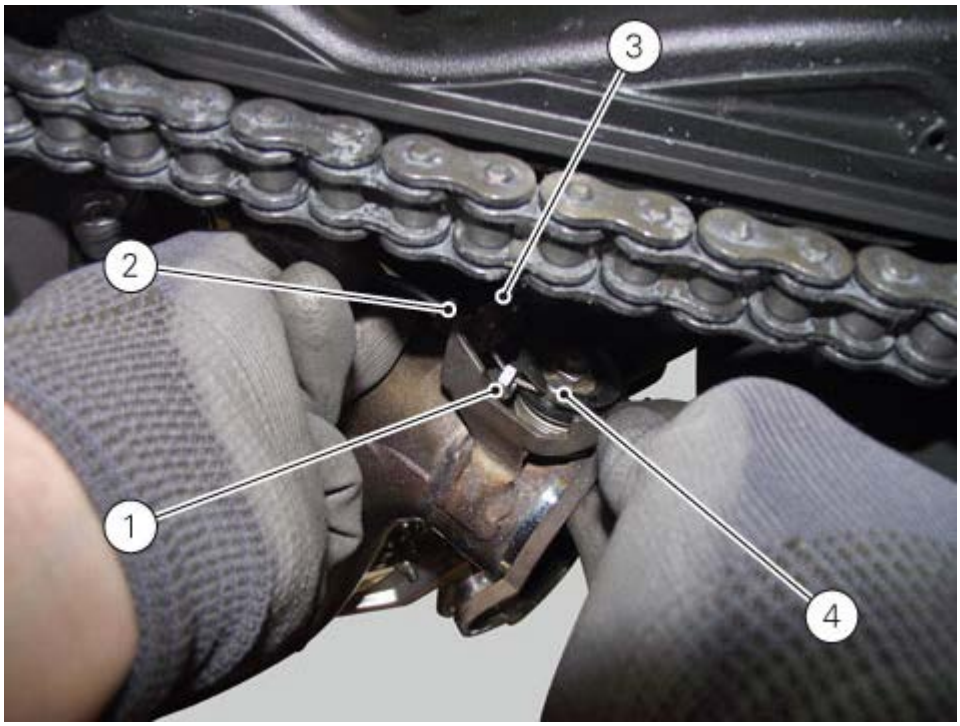
Remove the fairings (Removal of the side fairings).
Remove the silencer (Removal of the silencer).
Remove the radiator mounts (Removal of the water radiator).
Loosen nuts (A) fastening plate (B) in order to remove the exhaust valve cable heat shield.

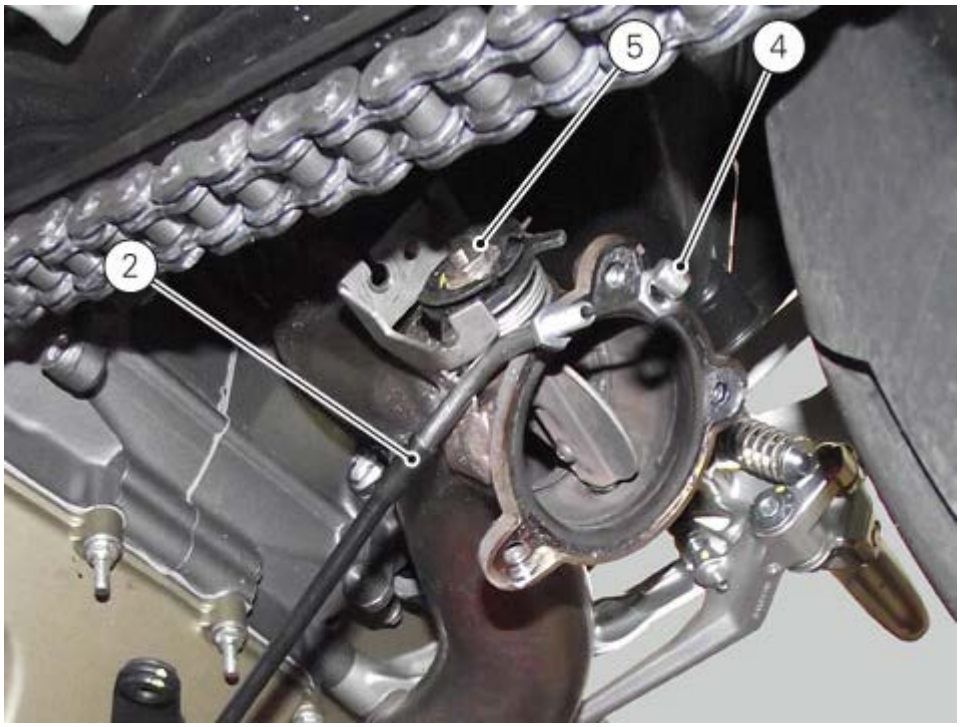


Loosen adjuster nut (1) and separate control cable (2) from plate (3).
Release pawl (4) of cable (2) from exhaust valve (5) and remove cable (2) from valve (5).



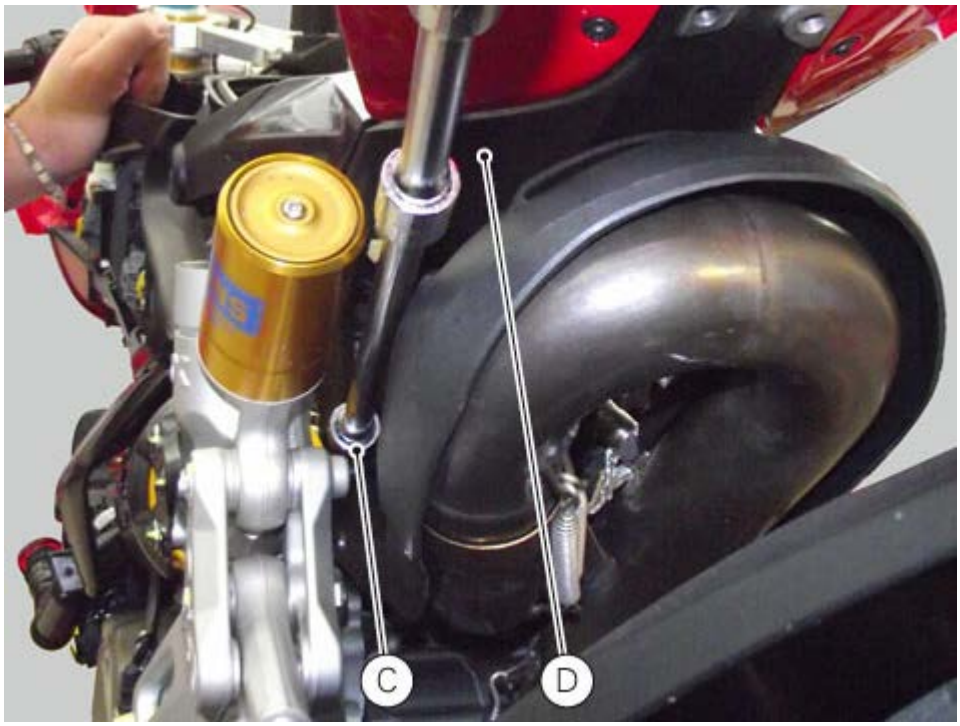
http://www.ducati-manuals.com
no. 140312

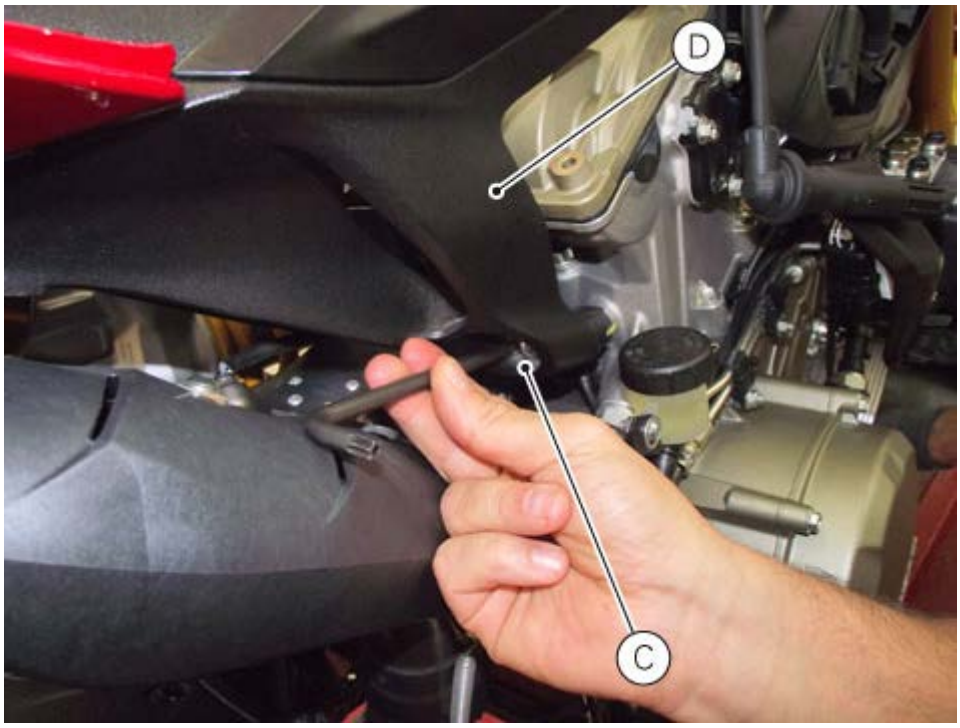




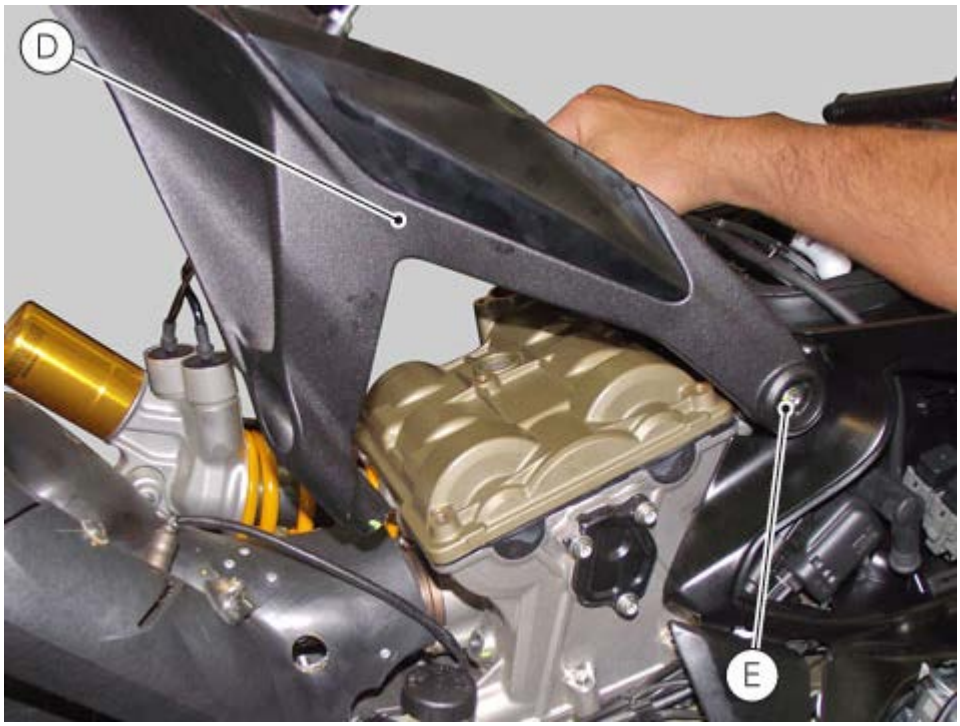
Loosen the two screws (C) from rear subframe (D) and slacken the two screws (E), then lift subframe.

http://www.ducati-manuals.com
no. 140312

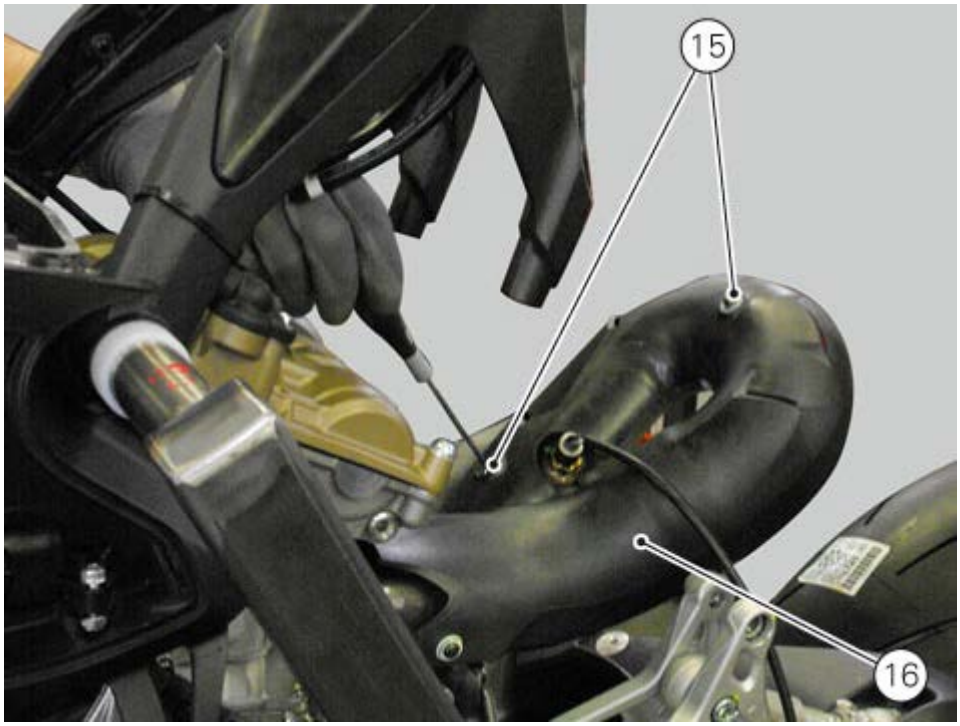




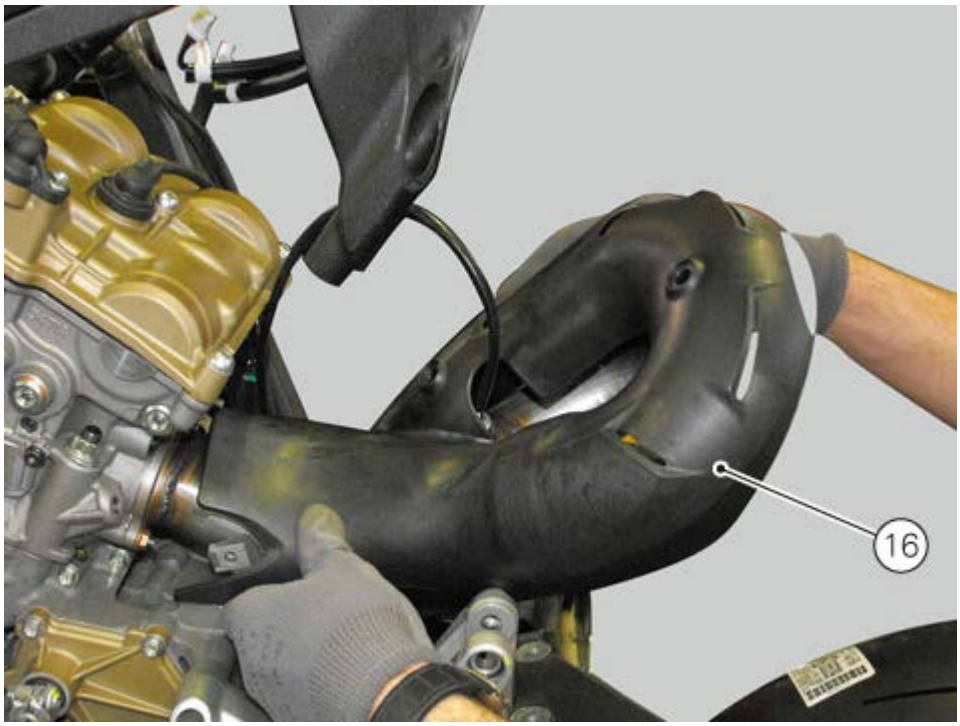
http://www.ducati-manuals.com
no. 140312



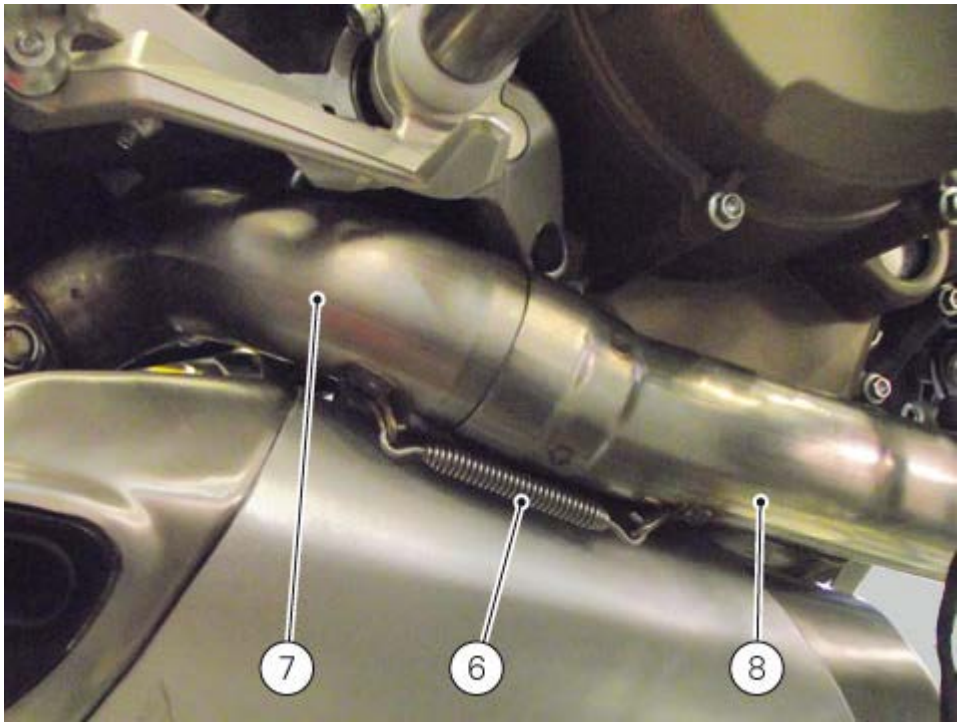
Unscrew the screws (15) and remove the heat shield (16).



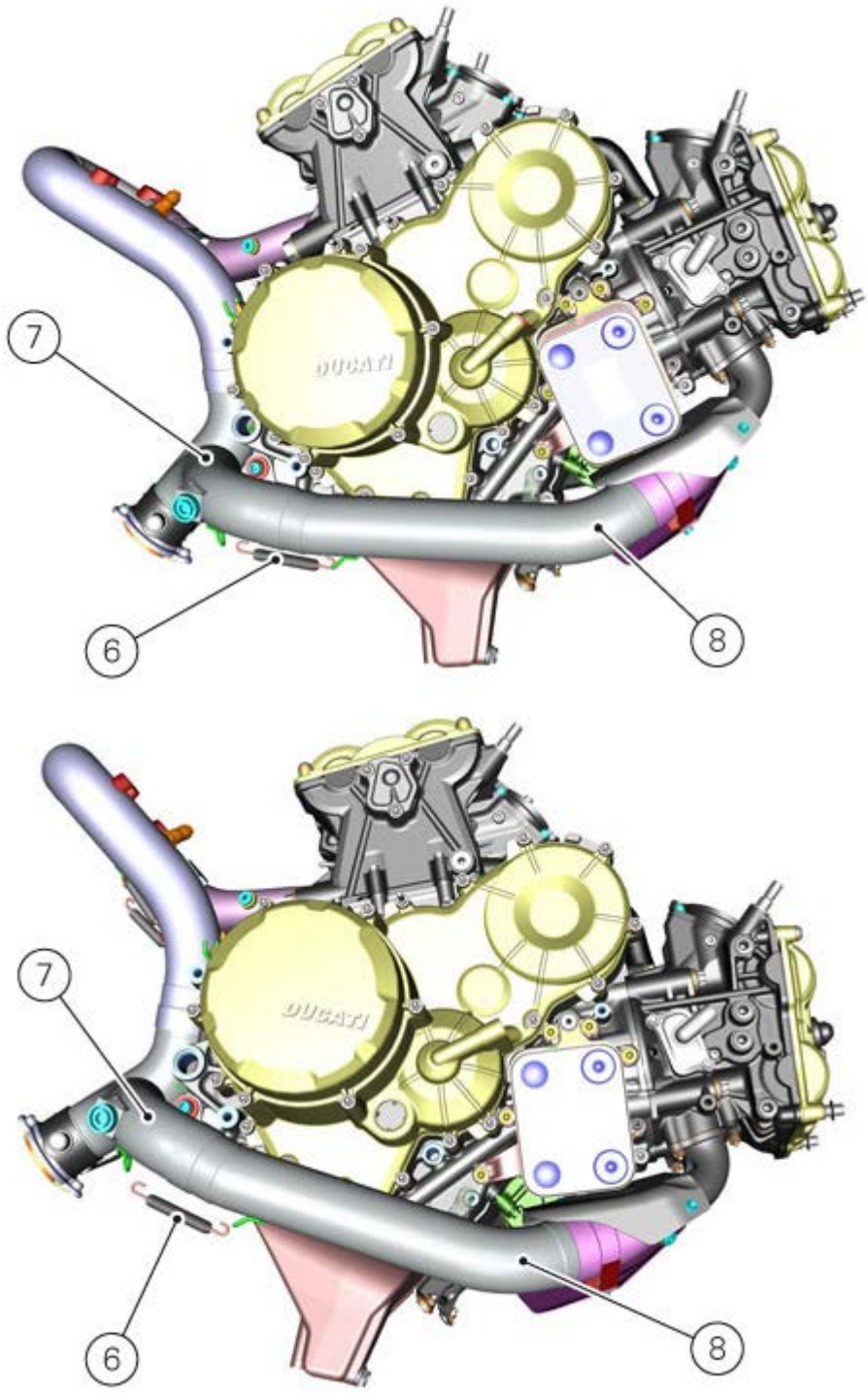
http://www.ducati-manuals.com
no. 140312



Remove spring (6) fastening central exhaust pipe (7) to horizontal cylinder exhaust pipe (8).

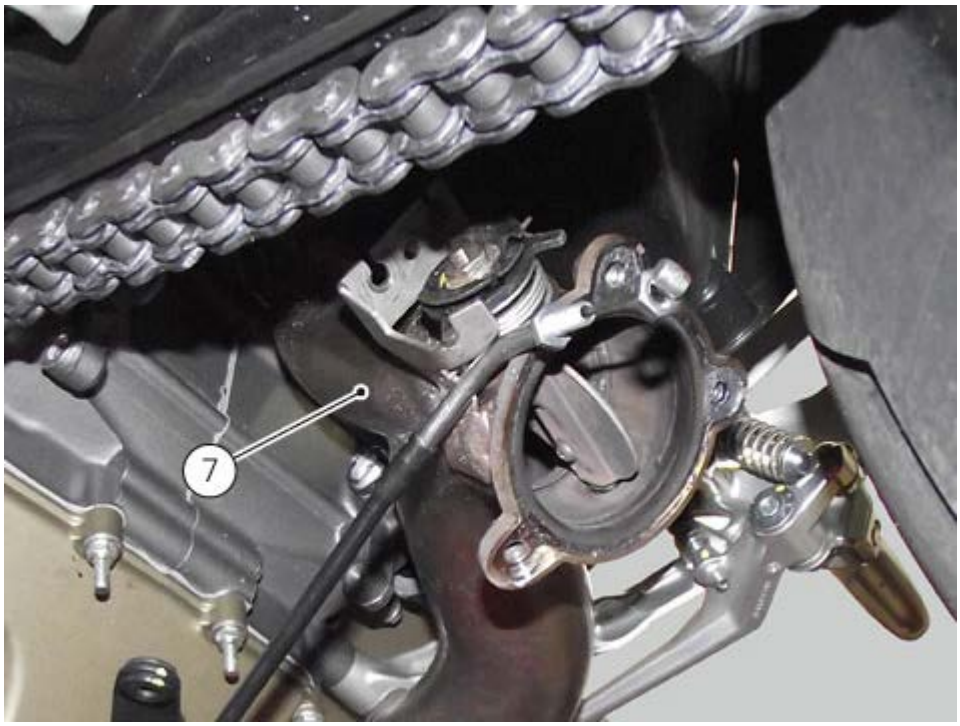


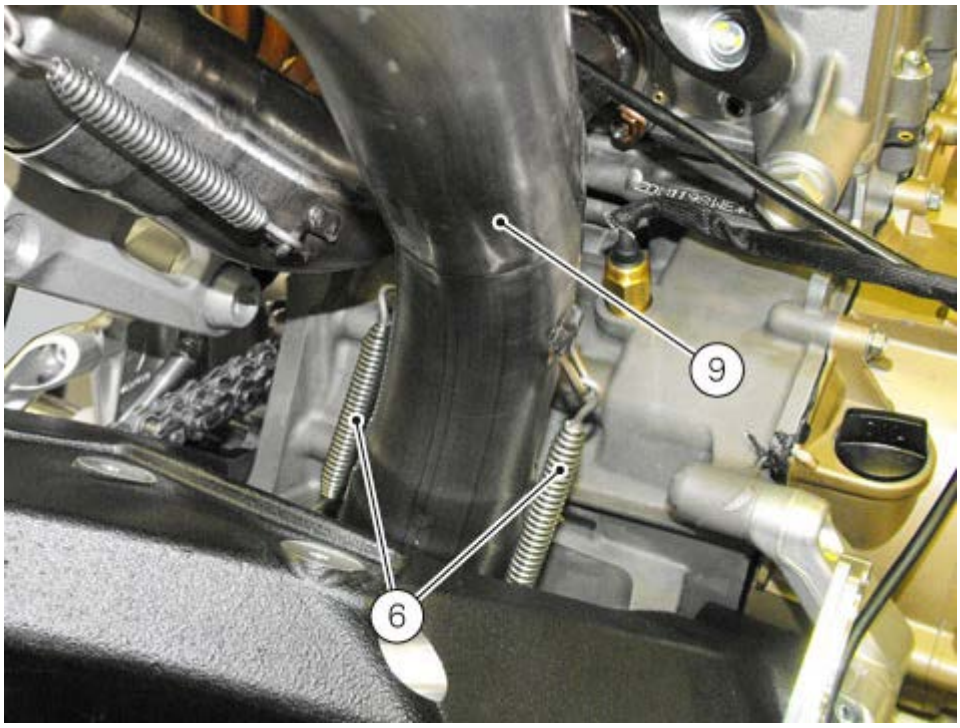
http://www.ducati-manuals.com
no. 140312



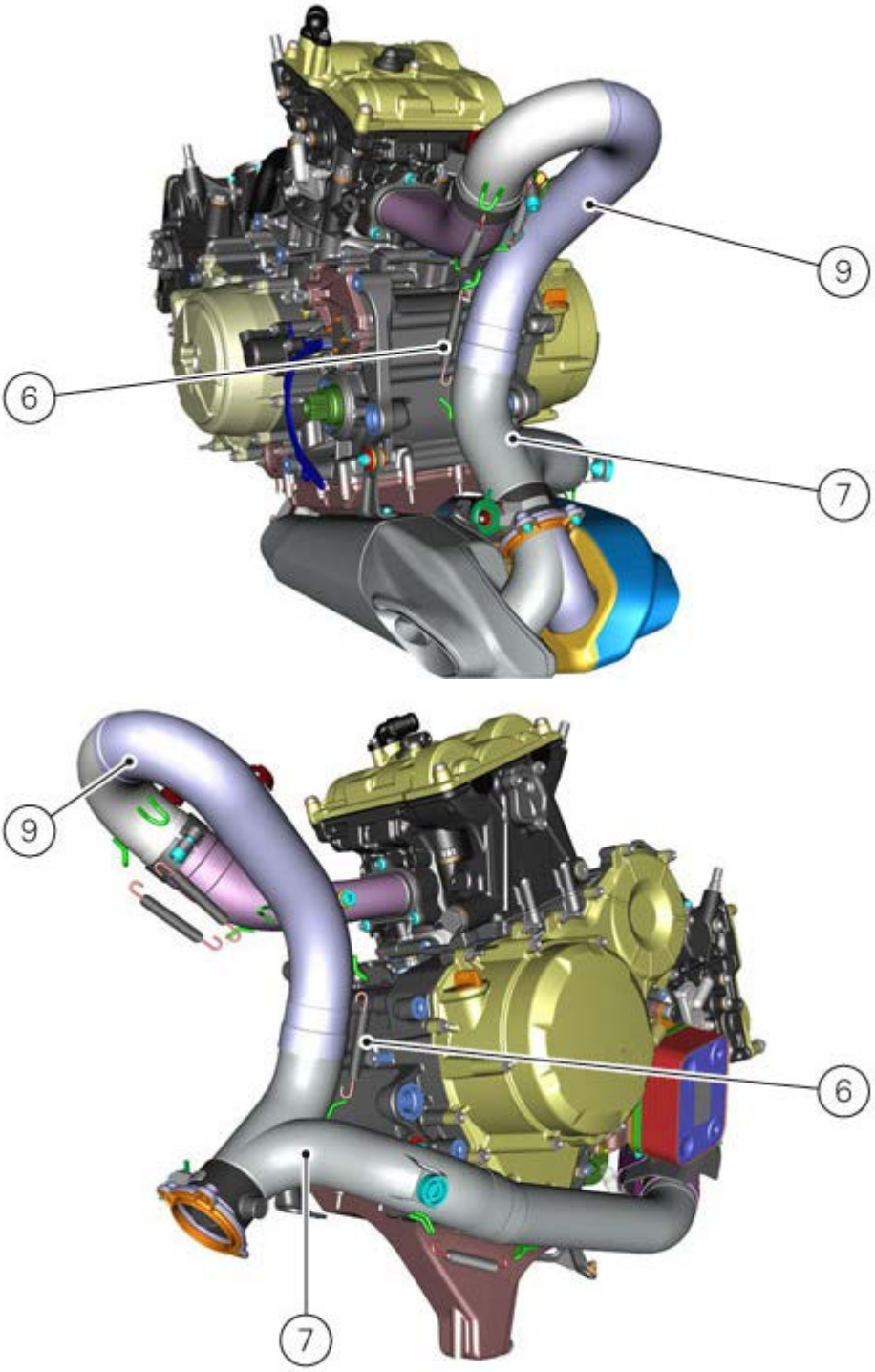
Remove springs (6) fastening central exhaust pipe (7) to vertical cylinder exhaust pipe (9).

http://www.ducati-manuals.com
no. 140312



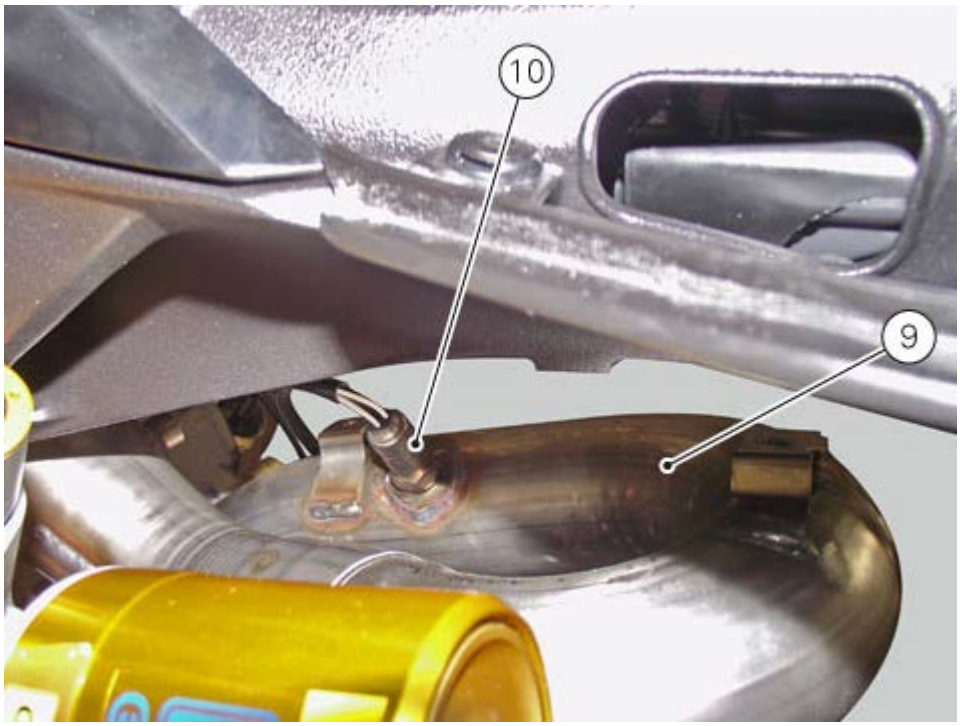


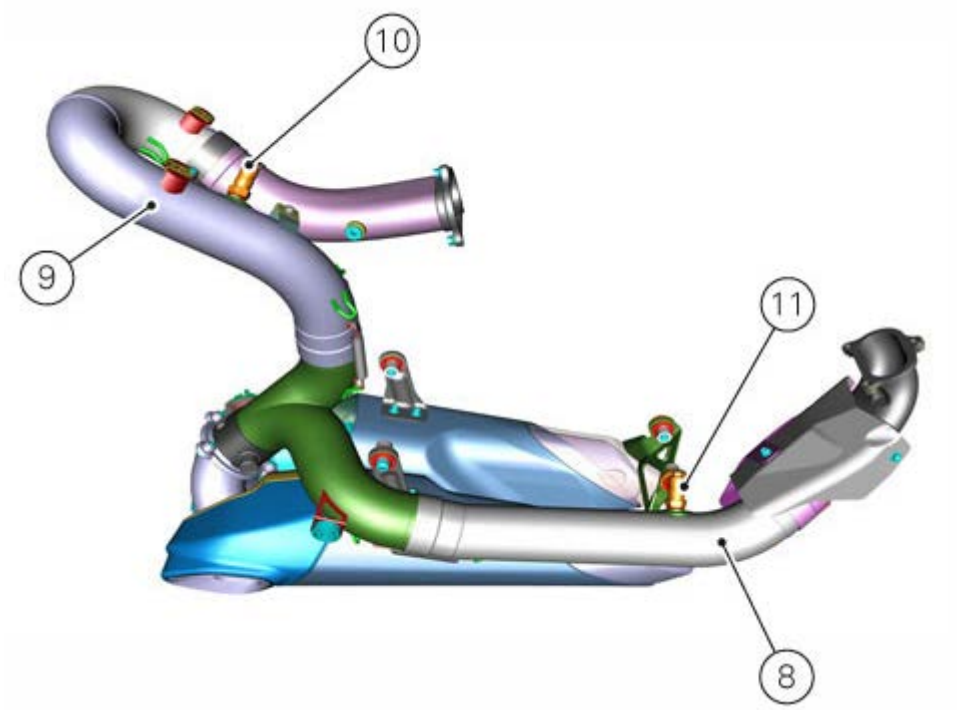
http://www.ducati-manuals.com
no. 140312



Loosen and remove the lambda sensor (10) of the vertical cylinder exhaust pipe (9).

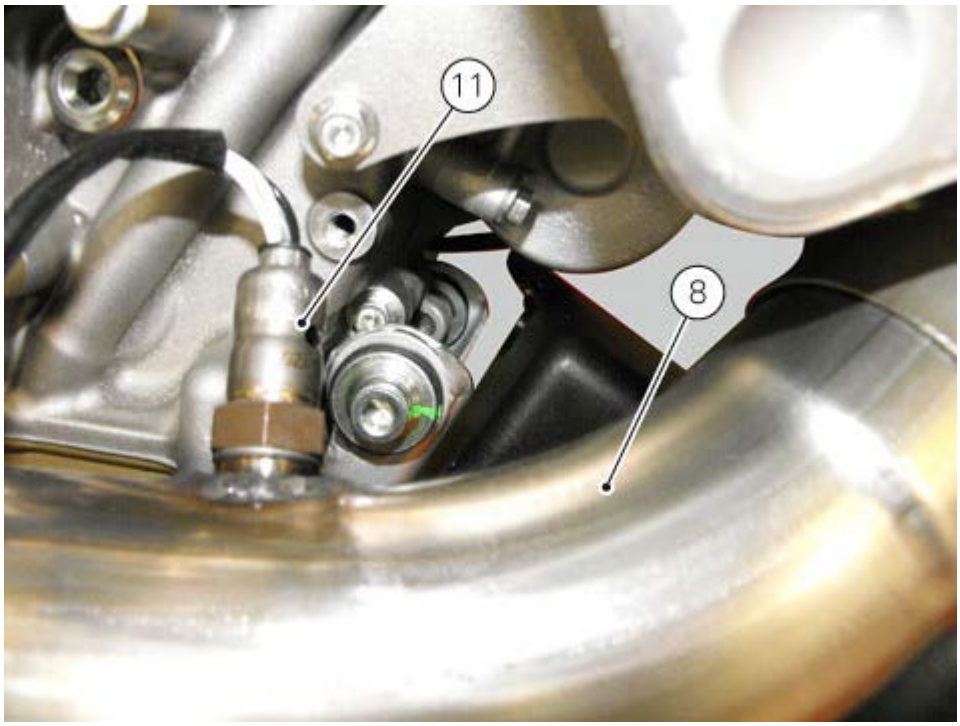
http://www.ducati-manuals.com
no. 140312



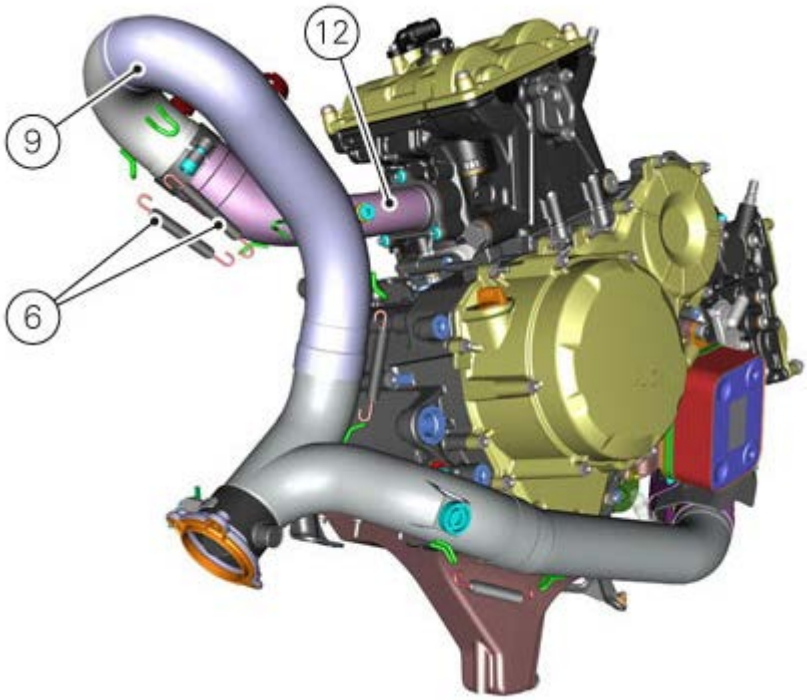


Loosen and remove the lambda sensor (11) of the horizontal cylinder exhaust pipe (8).

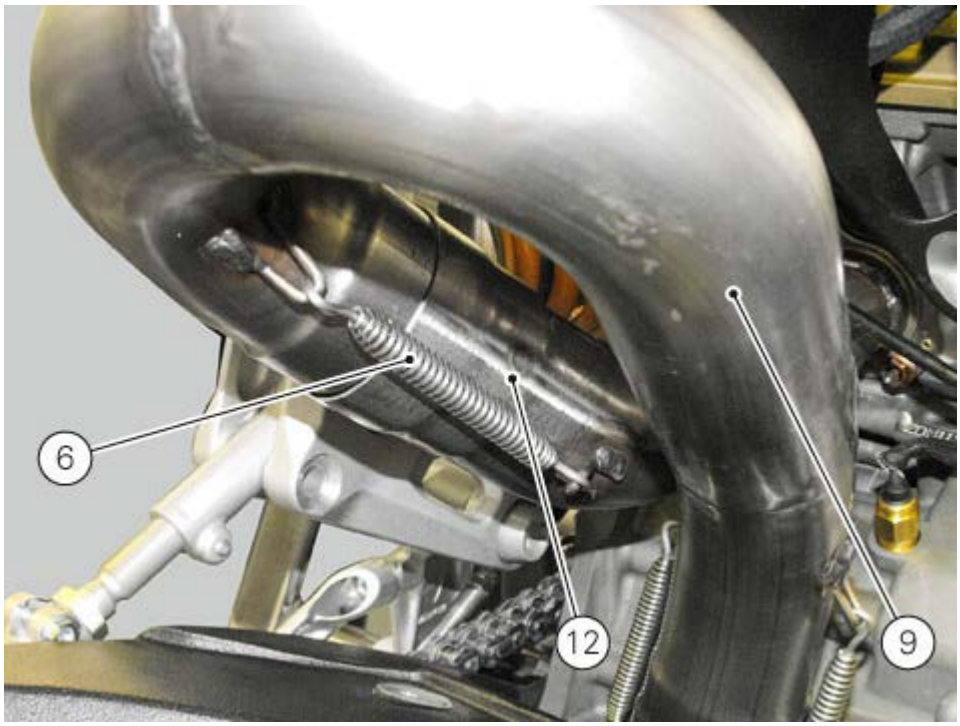
http://www.ducati-manuals.com
no. 140312



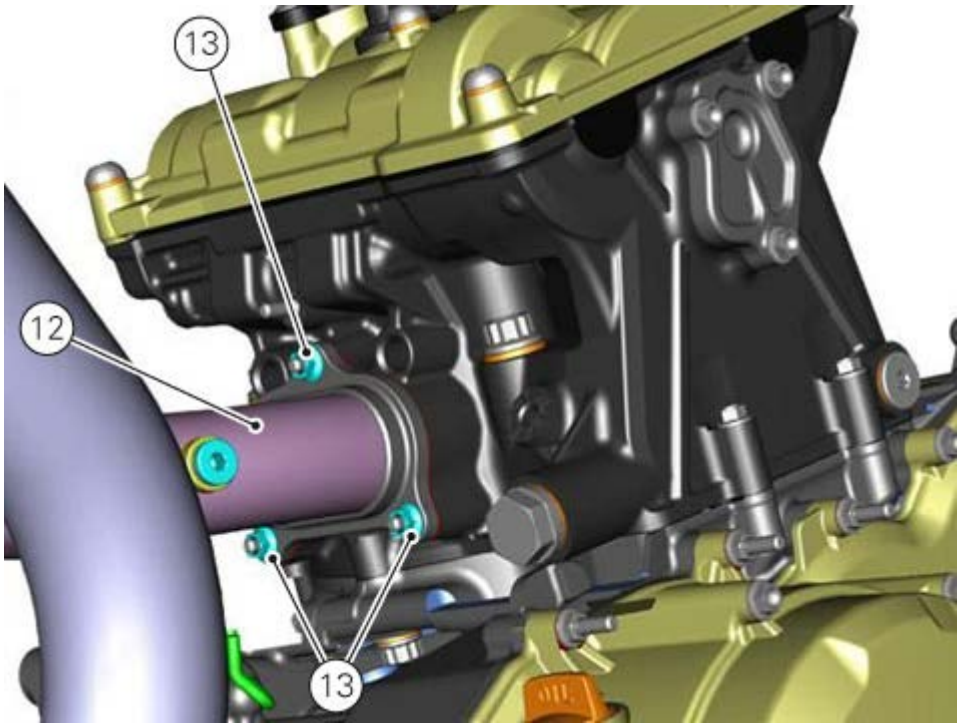
Remove springs (6) fastening vertical cylinder exhaust pipe (9) to vertical cylinder exhaust manifold (12).



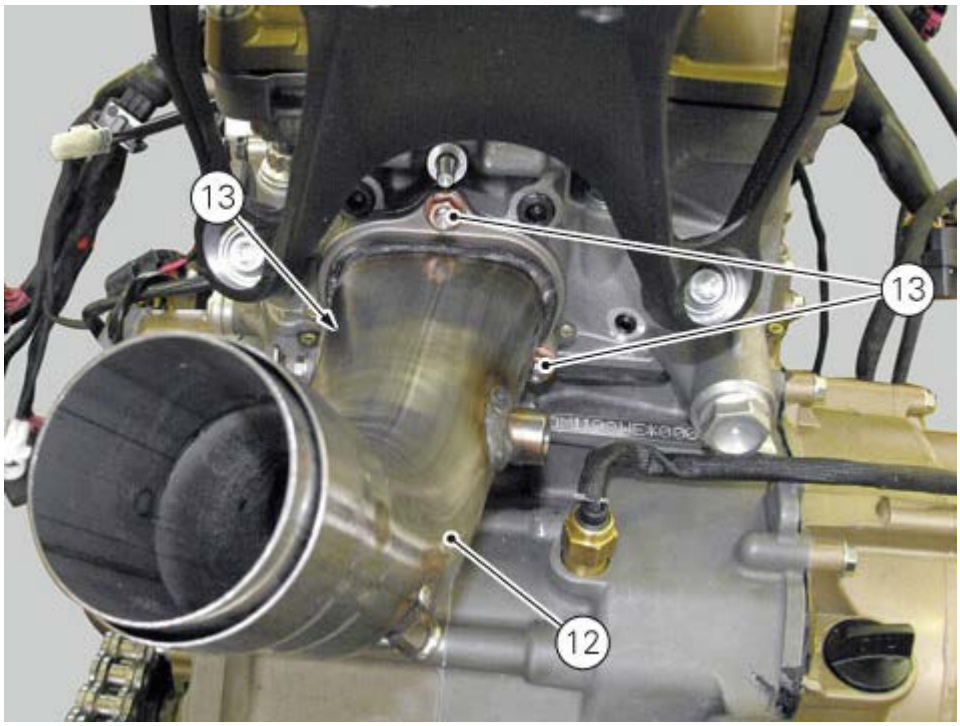
http://www.ducati-manuals.com
no. 140312



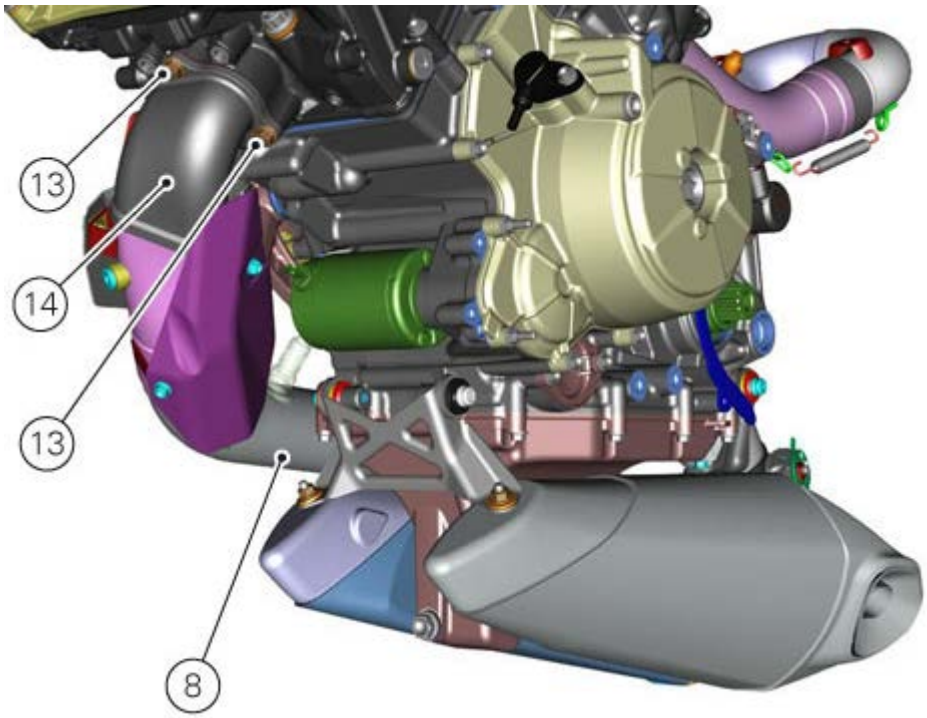
Loosen nuts (13) fastening vertical cylinder exhaust manifold (12) and remove the manifold together with gasket.



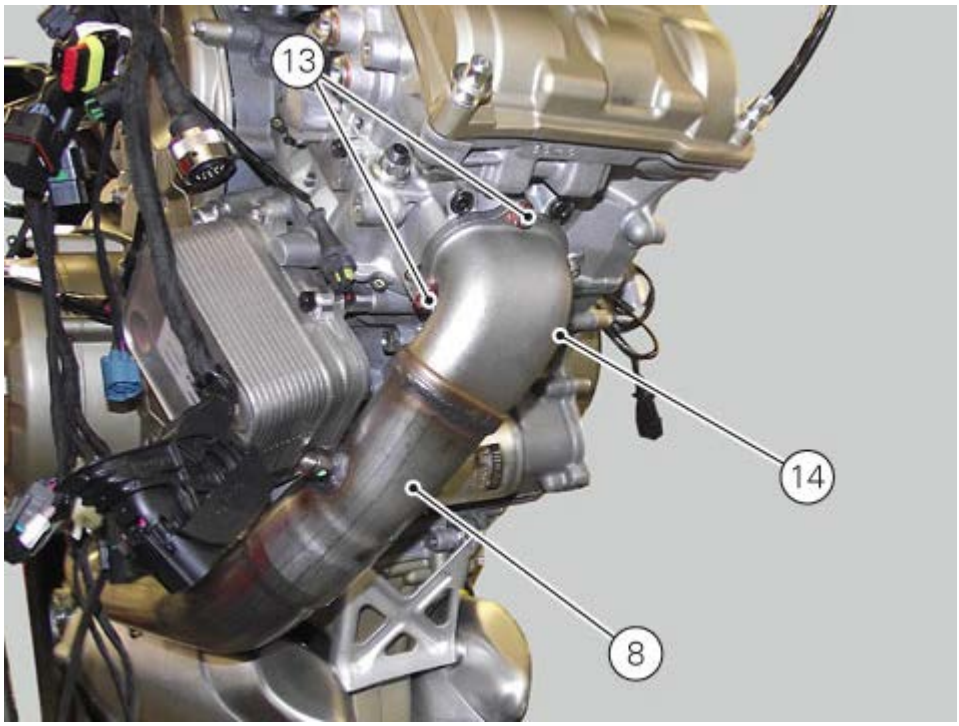
http://www.ducati-manuals.com
no. 140312

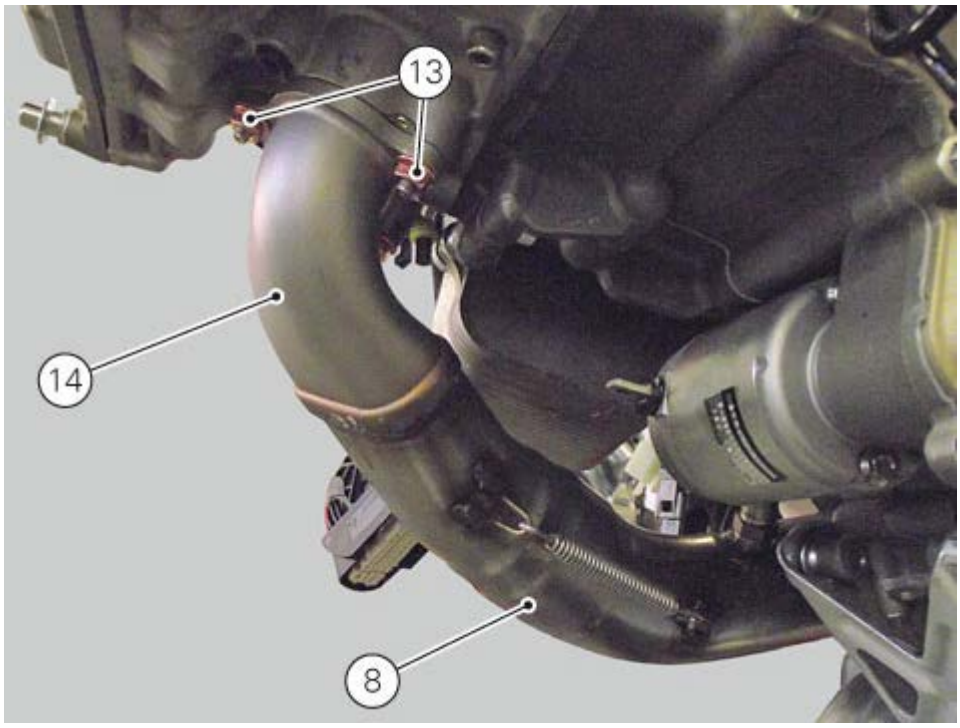


Loosen nuts (13) fastening horizontal cylinder exhaust manifold (14) and horizontal cylinder exhaust pipe (8), and remove the manifold together with gasket.

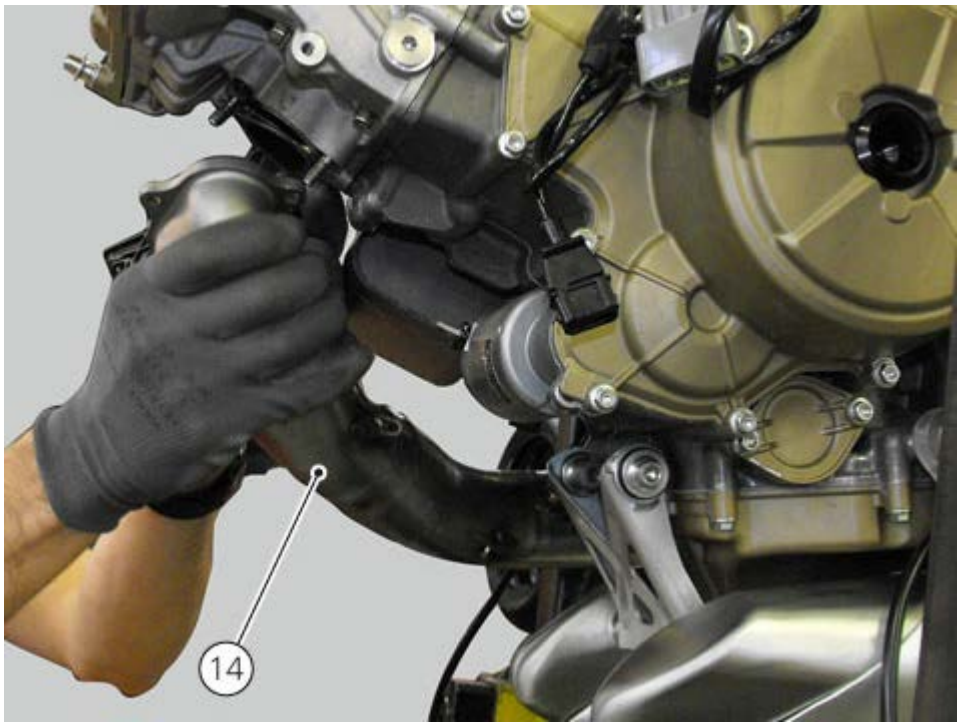


http://www.ducati-manuals.com
no. 140312





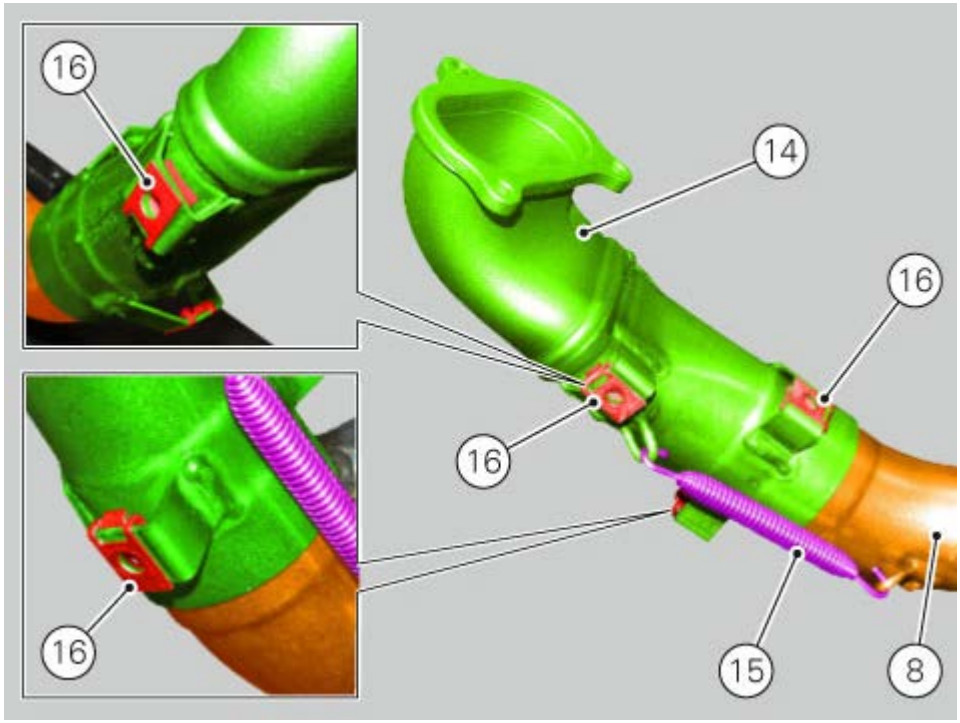
http://www.ducati-manuals.com
no. 140312



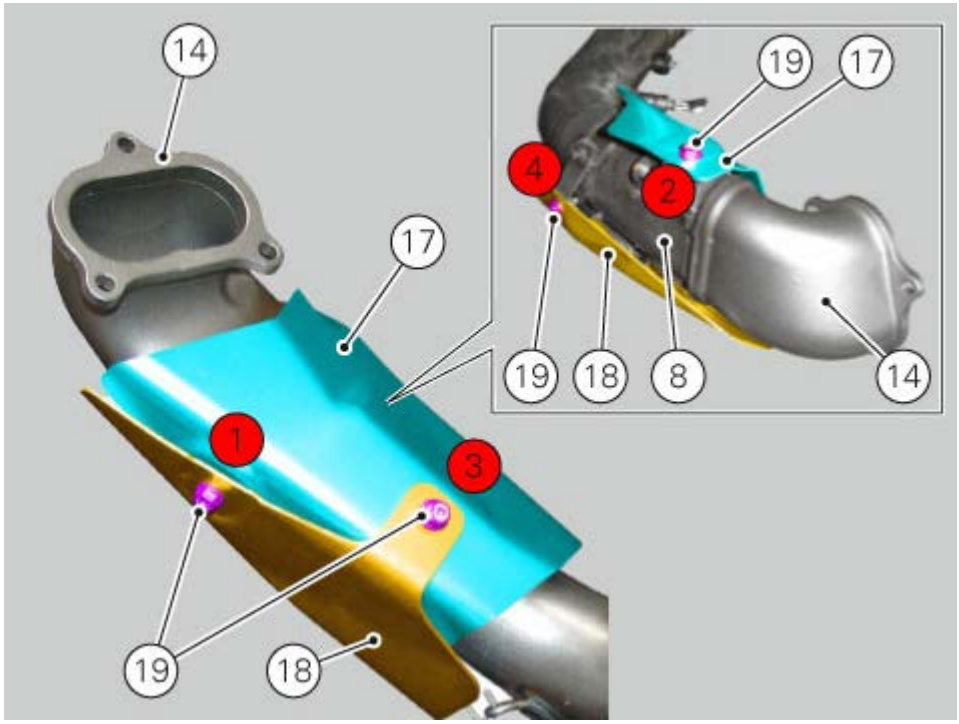
http://www.ducati-manuals.com
no. 140312

Installation of the exhaust system

If the assembly made up of horizontal cylinder exhaust manifold (14) and horizontal cylinder exhaust pipe (8) was disassembled.
Set the horizontal exhaust pipe (14) on horizontal cylinder exhaust pipe (8) and fasten them using spring (15), positioned as shown.
Ensure that the four clips (16) are in place in the indicated areas of central exhaust pipe (1) and horizontal cylinder exhaust pipe (8).

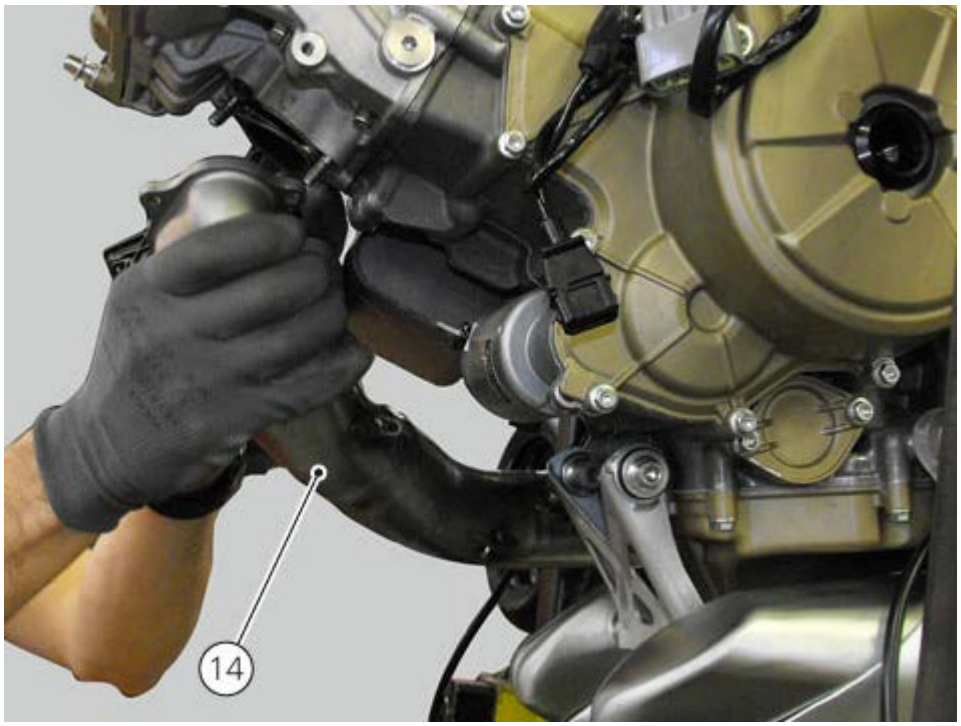


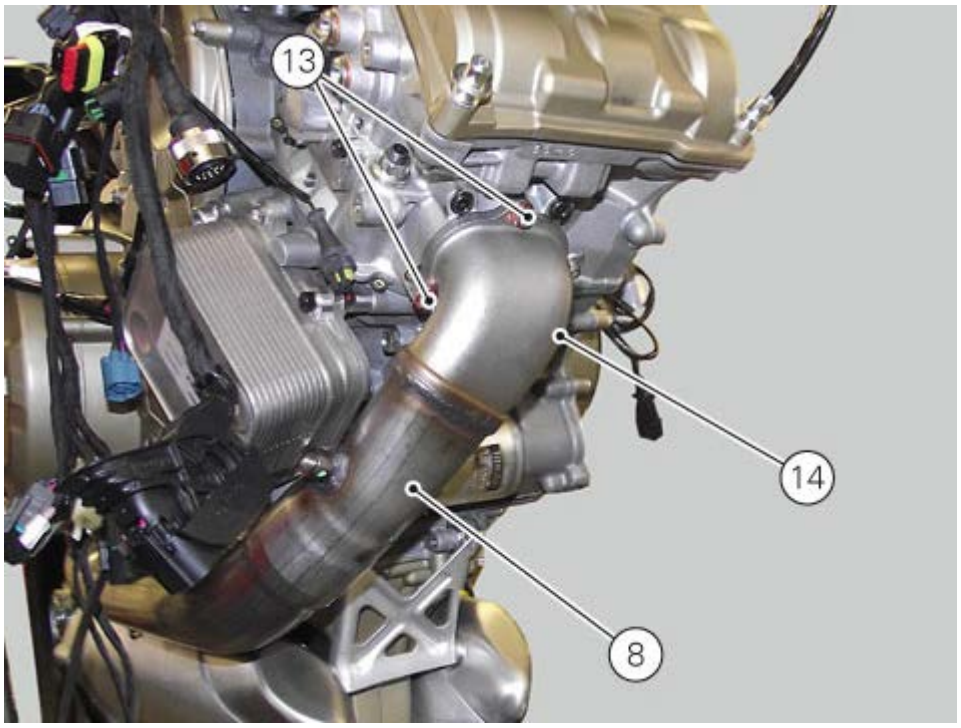
Fit the top heat shield (17) and then the bottom heat shield (18), setting them as shown.
Fasten heat shields (17) and (18), by starting screws (19). Tighten the four screws (19) to 5 Nm ± 10%, following a 1-2-3-4 sequence.



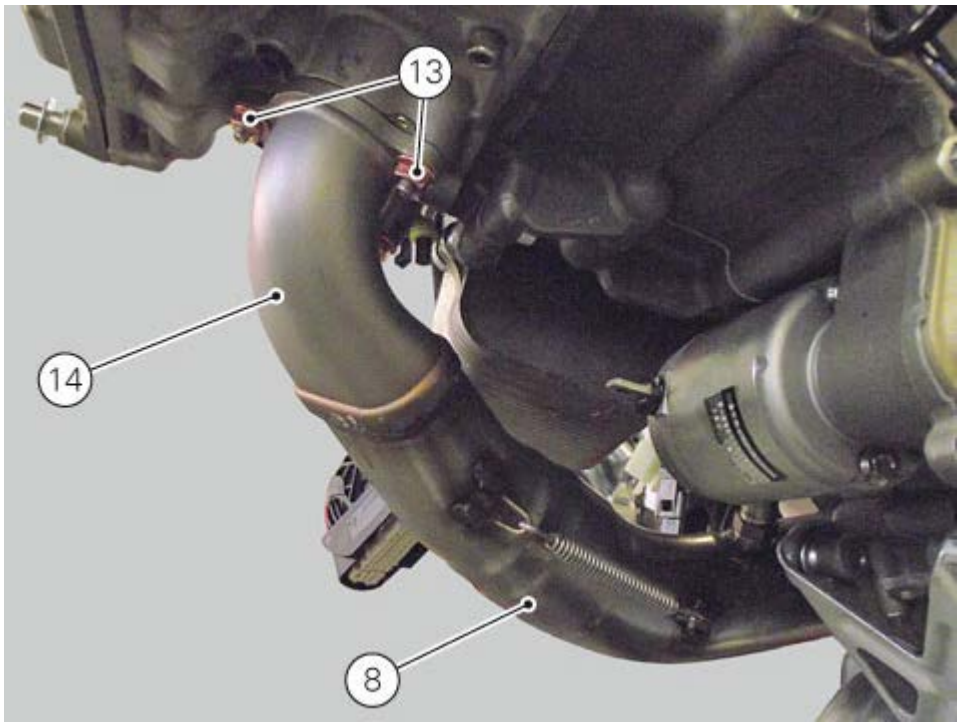
Fit the assembly made up of horizontal cylinder exhaust manifold (14) and horizontal cylinder exhaust pipe (8), with gasket on horizontal head. Start nuts (13) on horizontal head stud bolts.

http://www.ducati-manuals.com
no. 140312

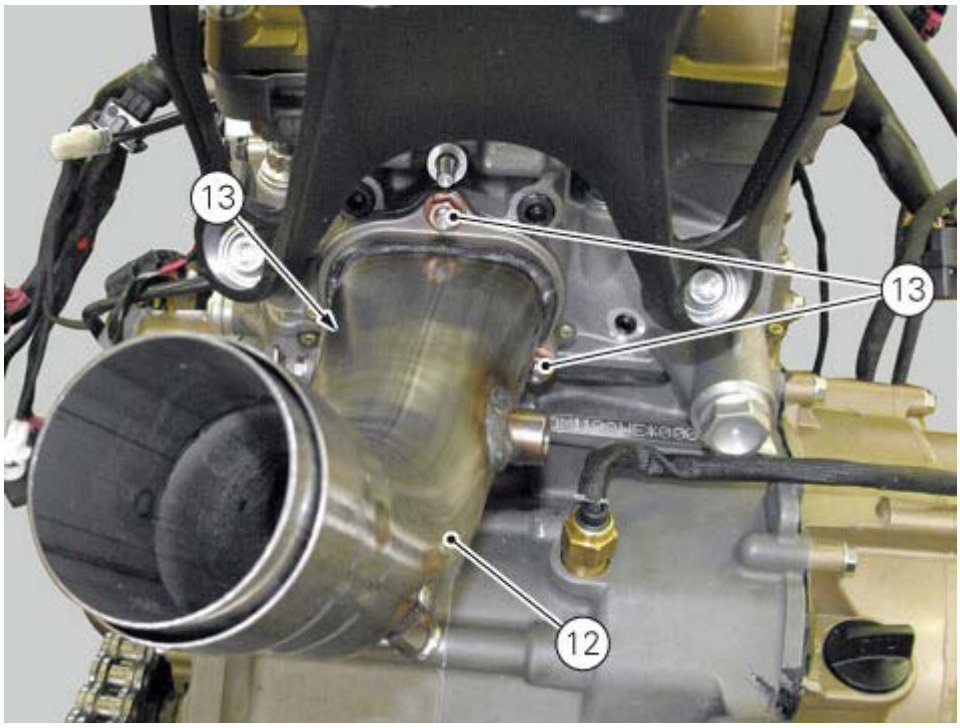




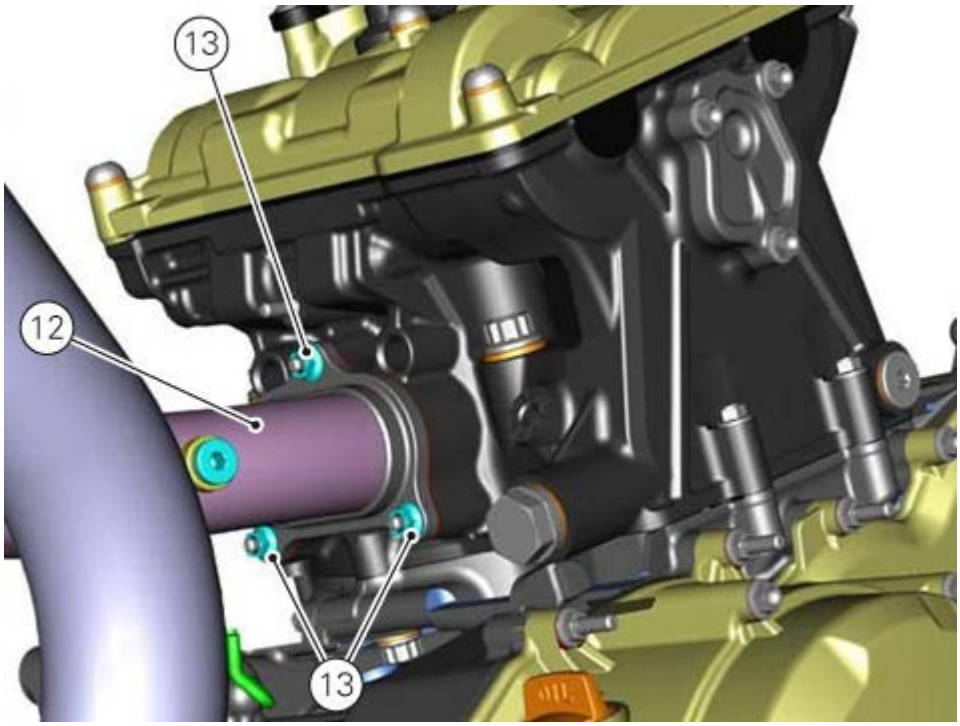
http://www.ducati-manuals.com
no. 140312



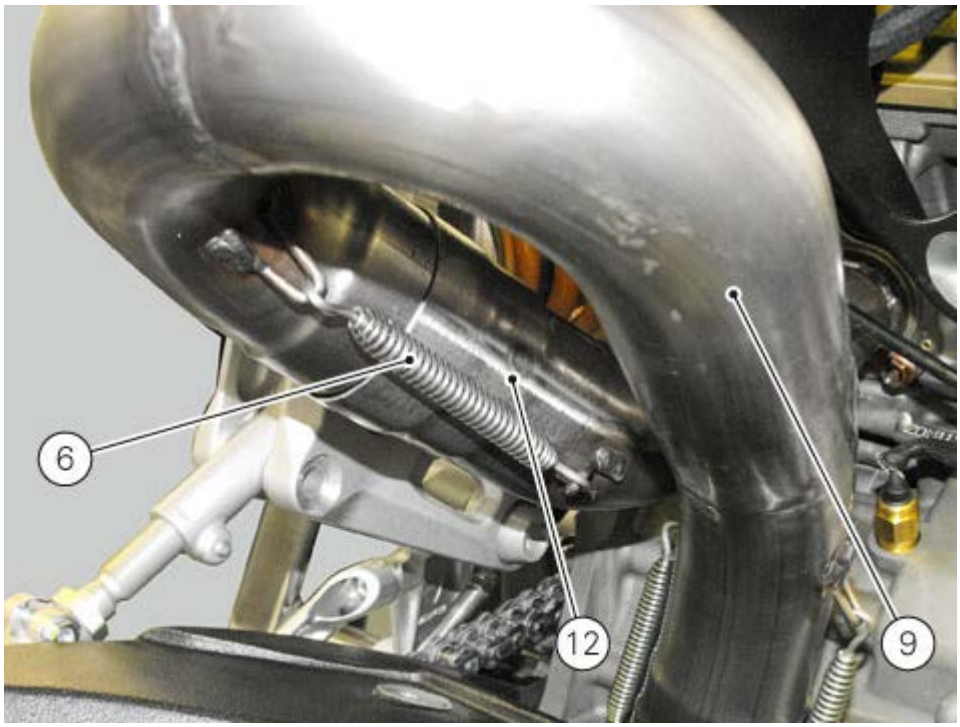
Fit the vertical cylinder exhaust manifold (12) with gasket on the vertical cylinder head and start nuts (13) on vertical head stud bolts.



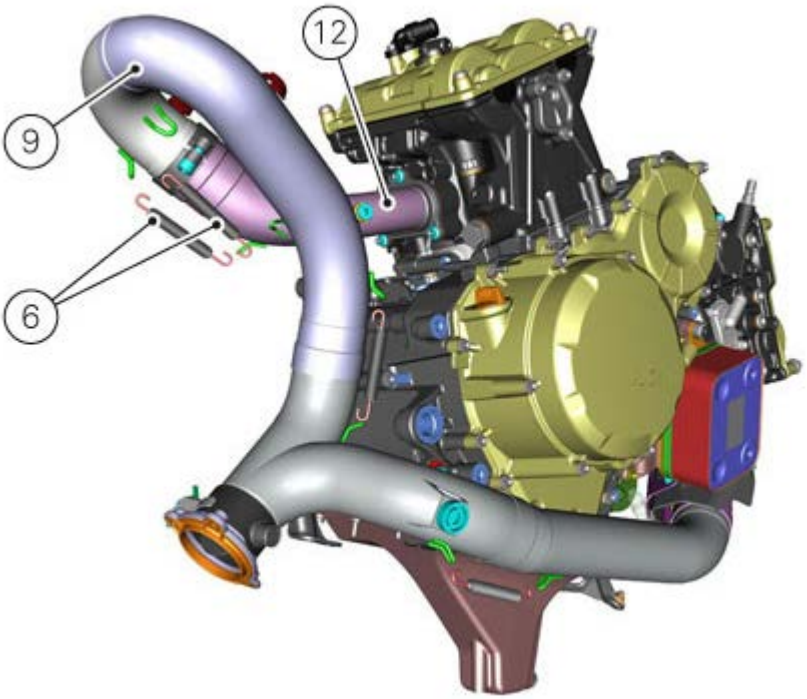
http://www.ducati-manuals.com
no. 140312



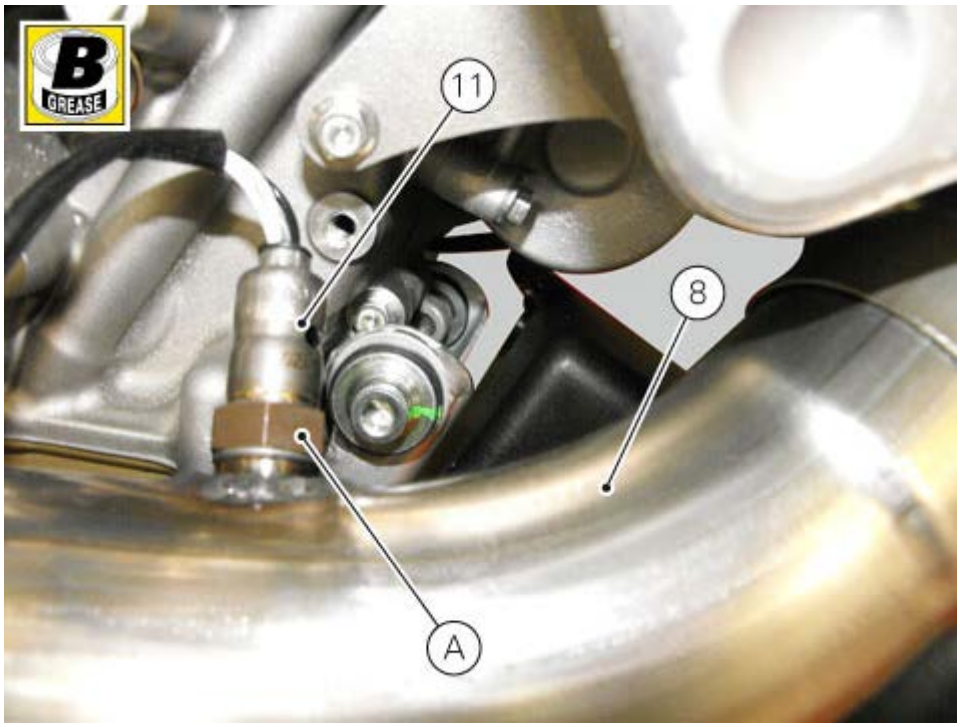
Fit the vertical cylinder exhaust pipe (9) onto vertical cylinder exhaust manifold (12).
Fit springs (6) fastening vertical cylinder exhaust pipe (9) to vertical cylinder exhaust manifold (12).



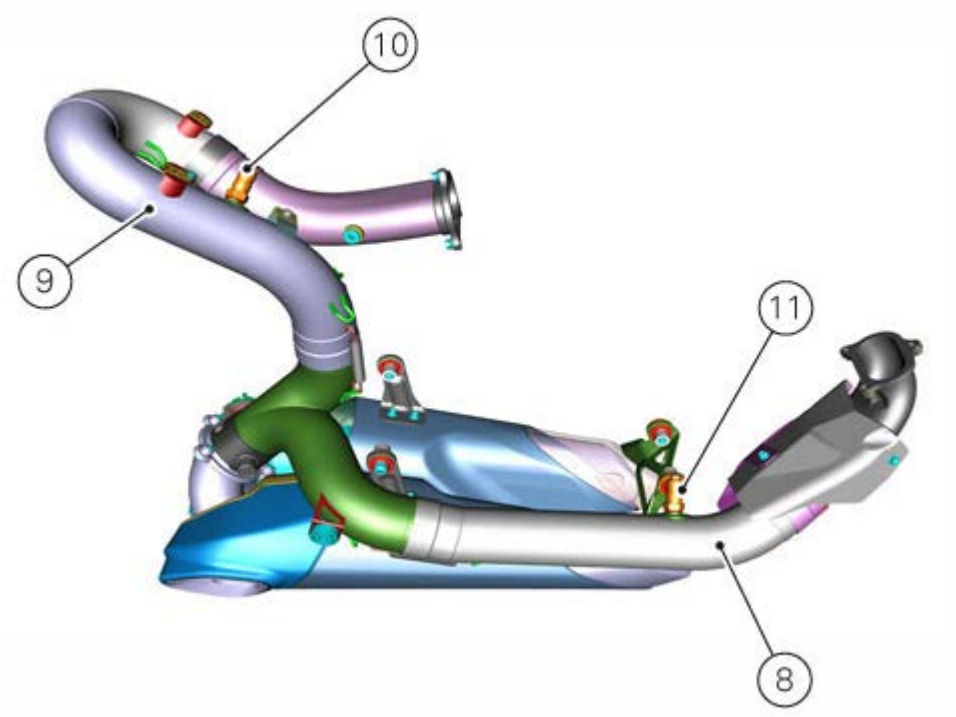
http://www.ducati-manuals.com
no. 140312



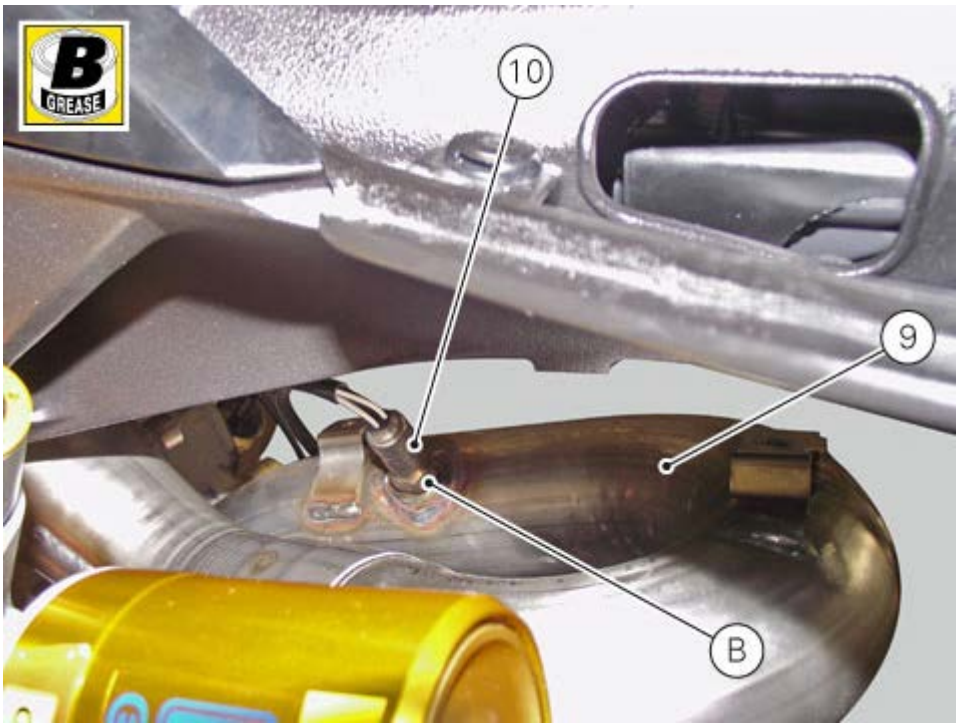
Smear specified grease on the thread of lambda sensor (11).
Start lambda sensor (11), tightening sensor ring nut (A), onto horizontal cylinder exhaust pipe (8).



http://www.ducati-manuals.com
no. 140312

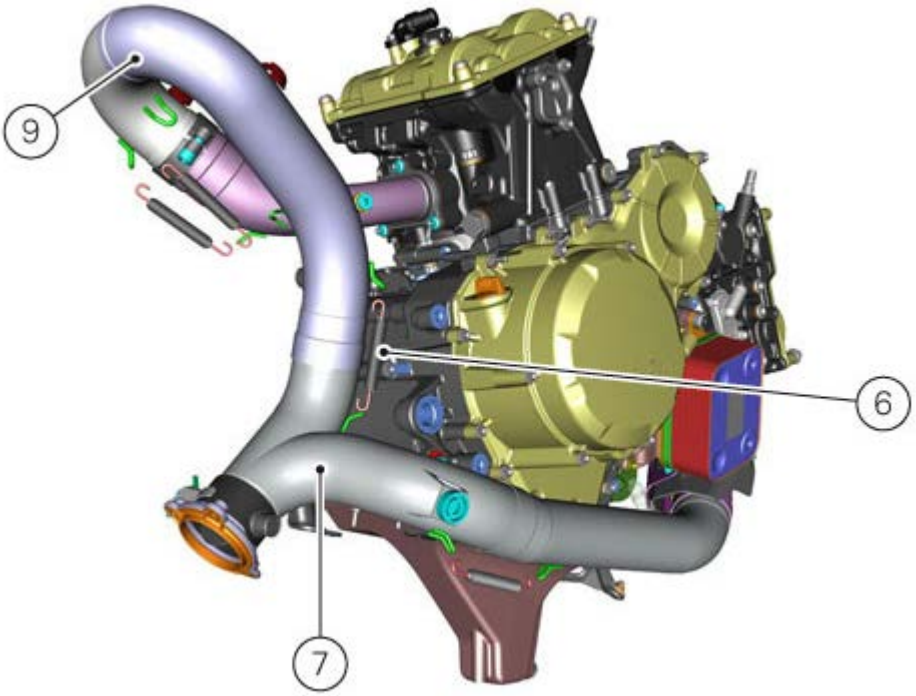


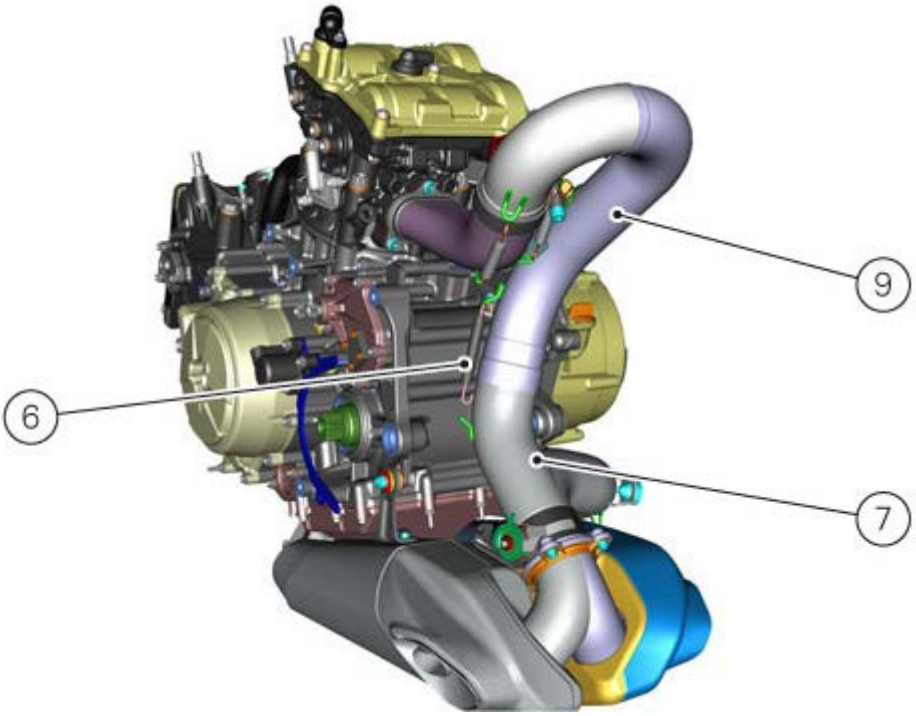
Smear specified grease on the thread of lambda sensor (10).
Start lambda sensor (10), tightening sensor ring nut (B), onto vertical cylinder exhaust pipe (9).



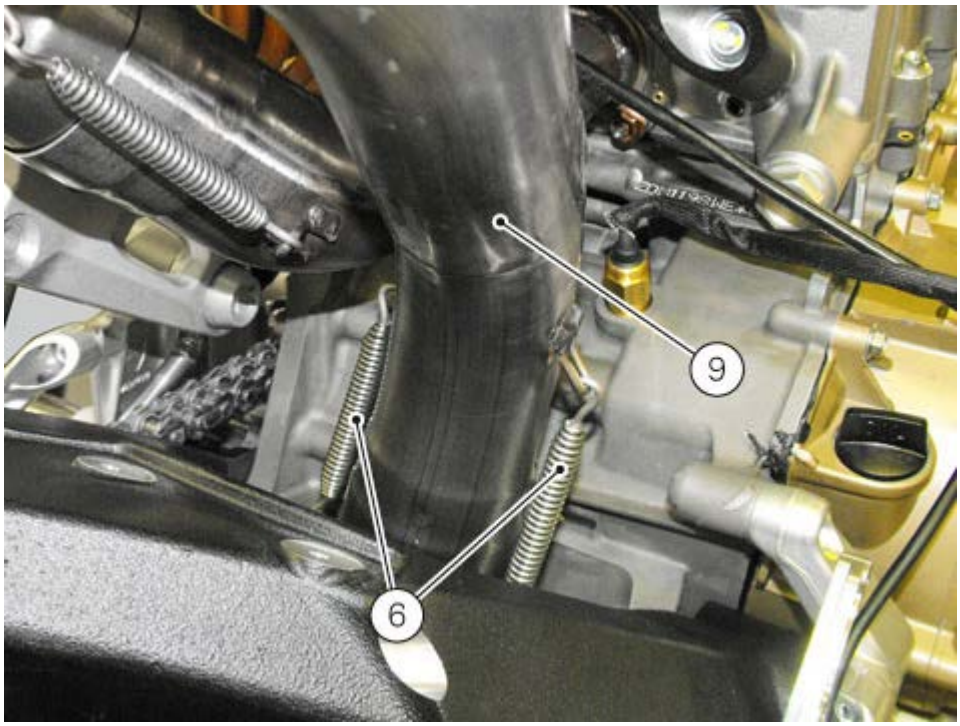
Fit the central exhaust pipe (7) onto vertical cylinder exhaust pipe (9).
Fit springs (6) fastening central exhaust pipe (7) to vertical cylinder exhaust pipe (9).

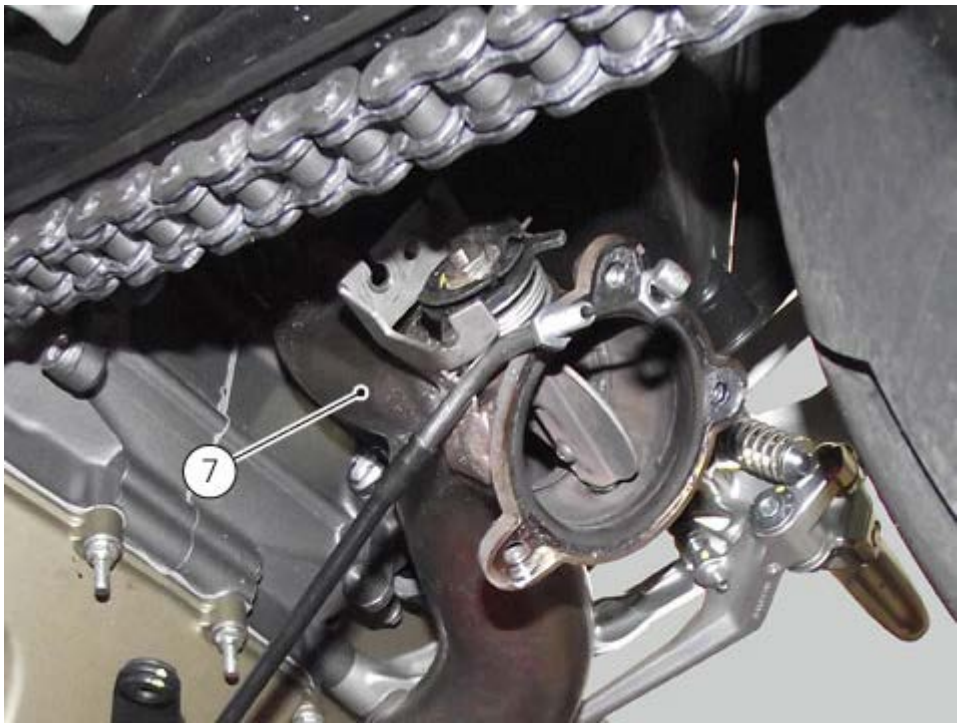
http://www.ducati-manuals.com
no. 140312





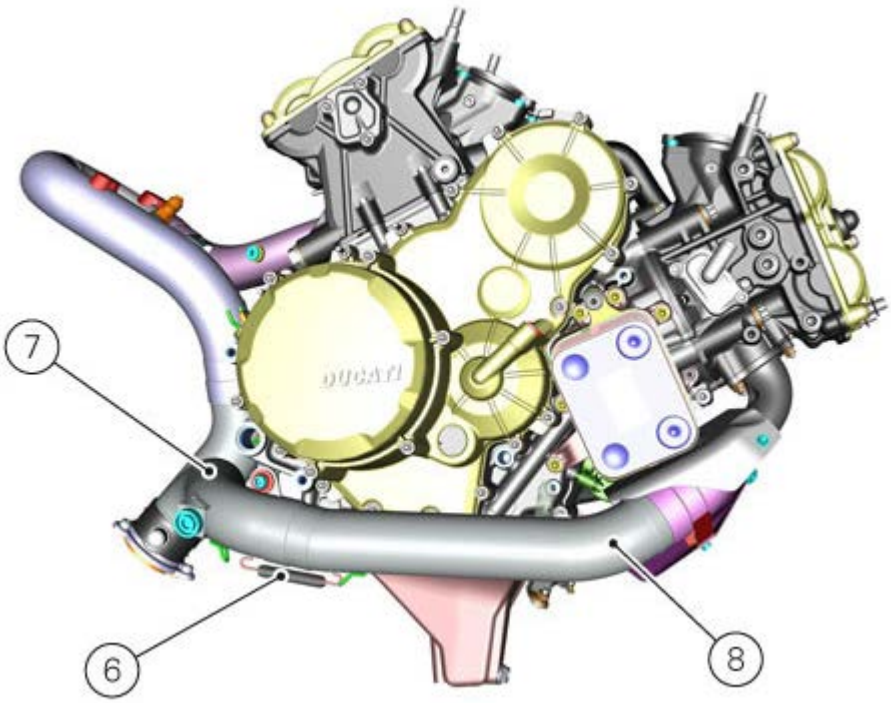
http://www.ducati-manuals.com
no. 140312

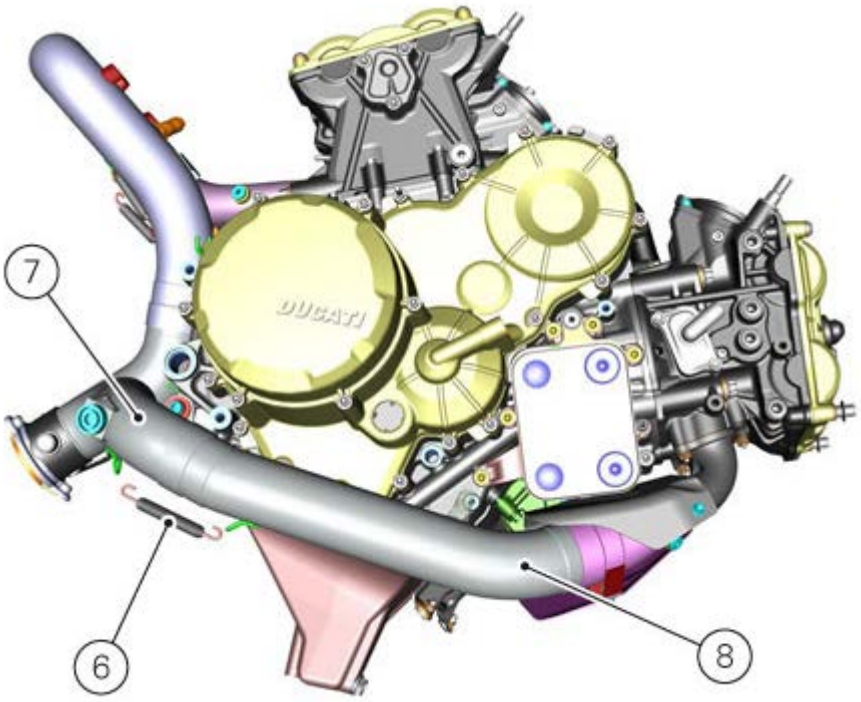




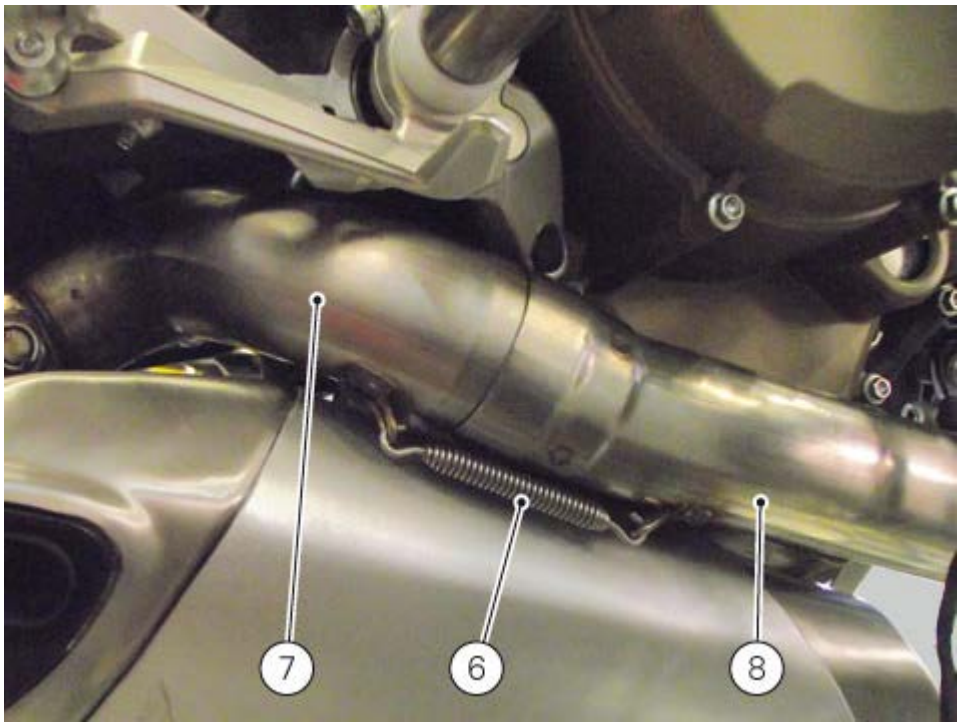
Fit the central exhaust pipe (7) onto horizontal cylinder exhaust pipe (8).
Fit spring (6) fastening central exhaust pipe (7) to horizontal cylinder exhaust pipe (8).

http://www.ducati-manuals.com
no. 140312

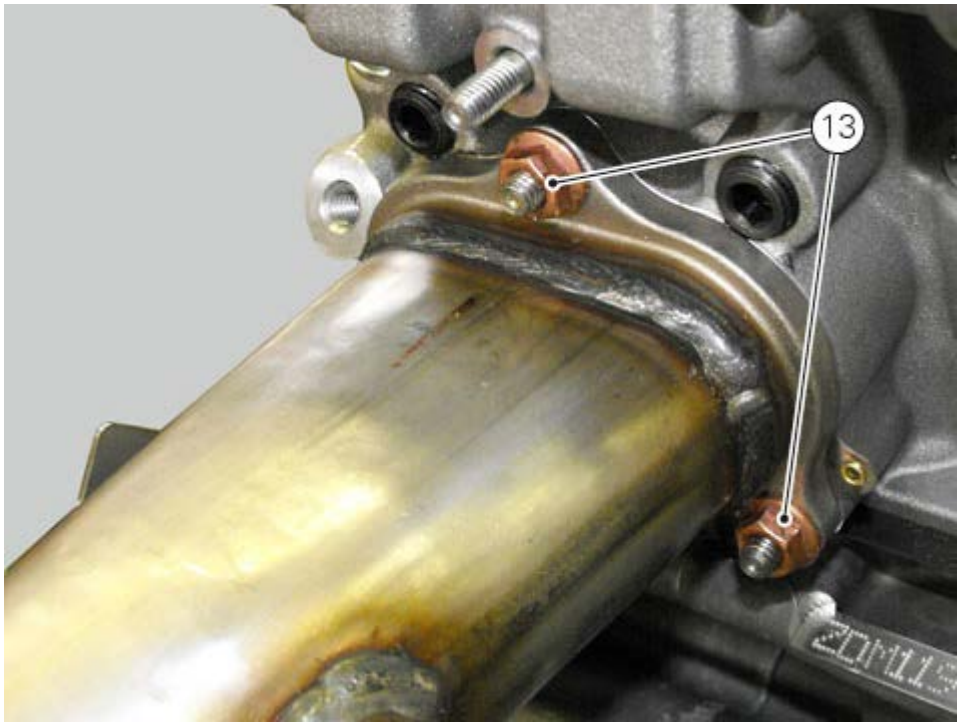




http://www.ducati-manuals.com
no. 140312

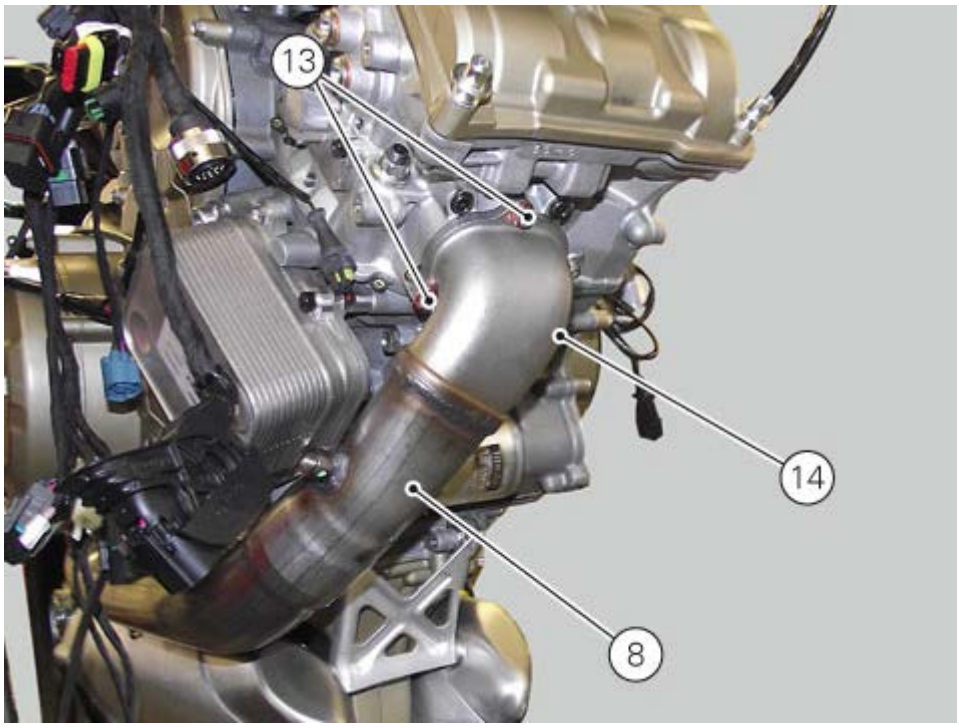


Tighten nuts (13), to fasten exhaust manifolds to cylinder heads, to a torque of 10 Nm ± 10%.

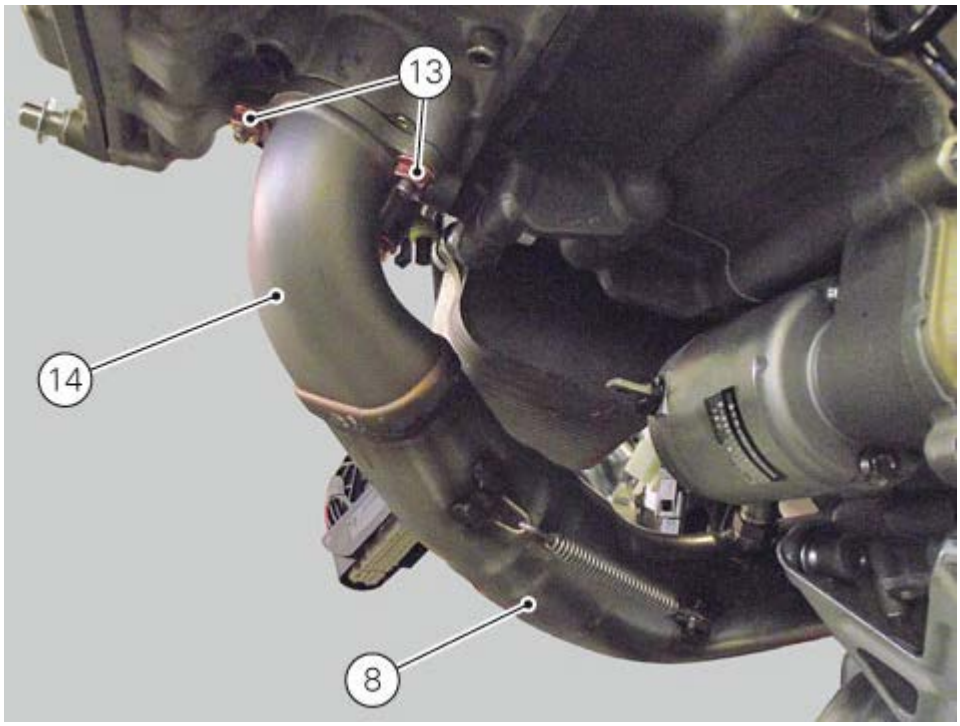


http://www.ducati-manuals.com
no. 140312

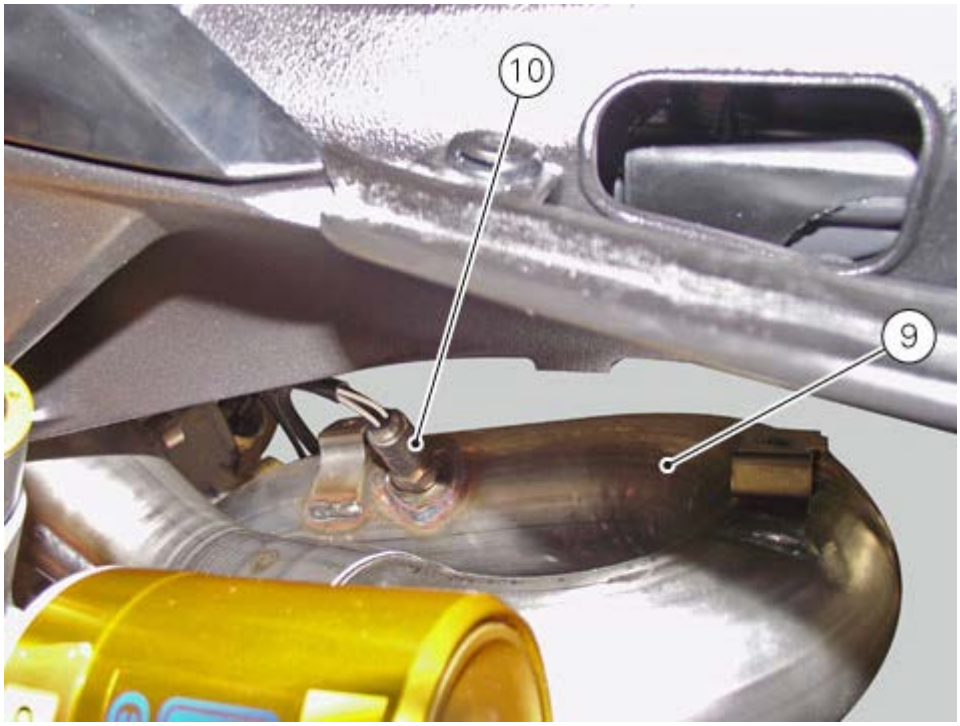




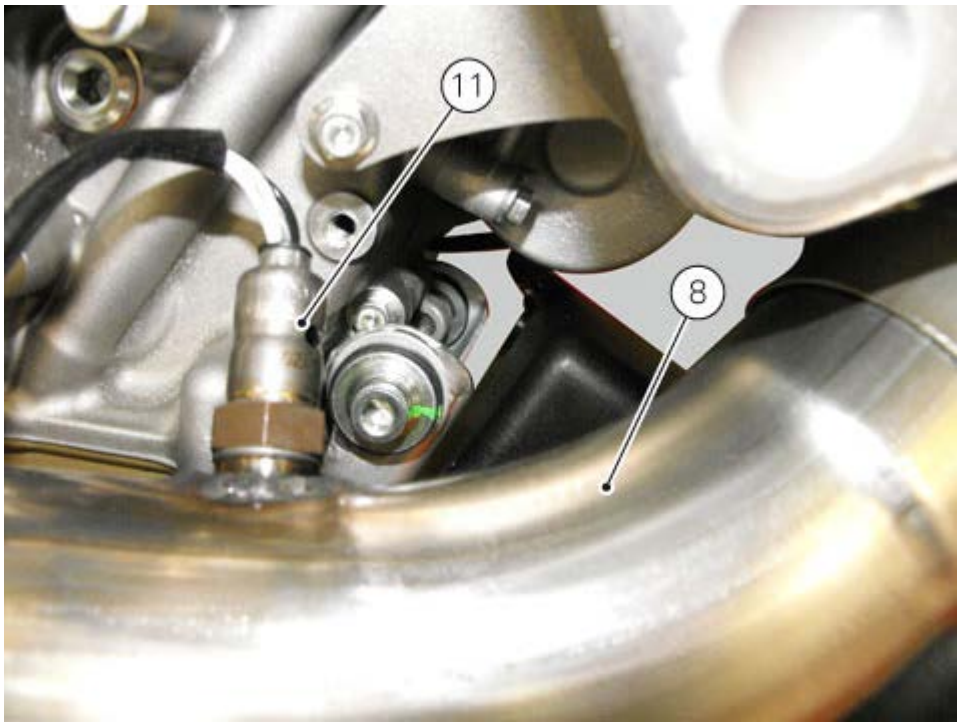
http://www.ducati-manuals.com
no. 140312



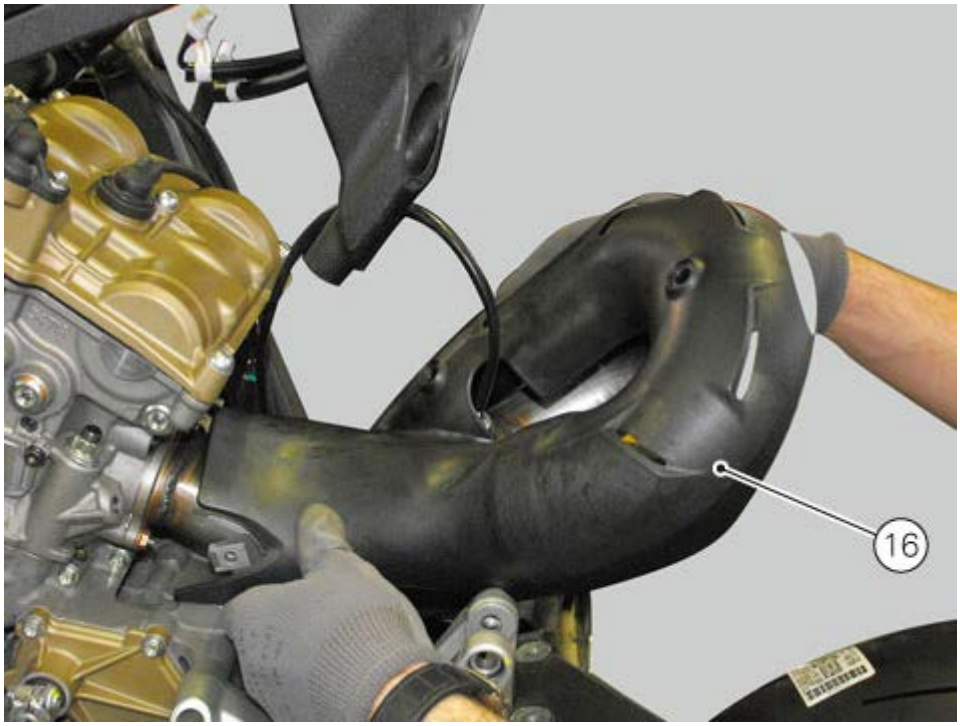
Tighten the lambda sensors (10) and (11) to a torque of 25 Nm ± 10%.



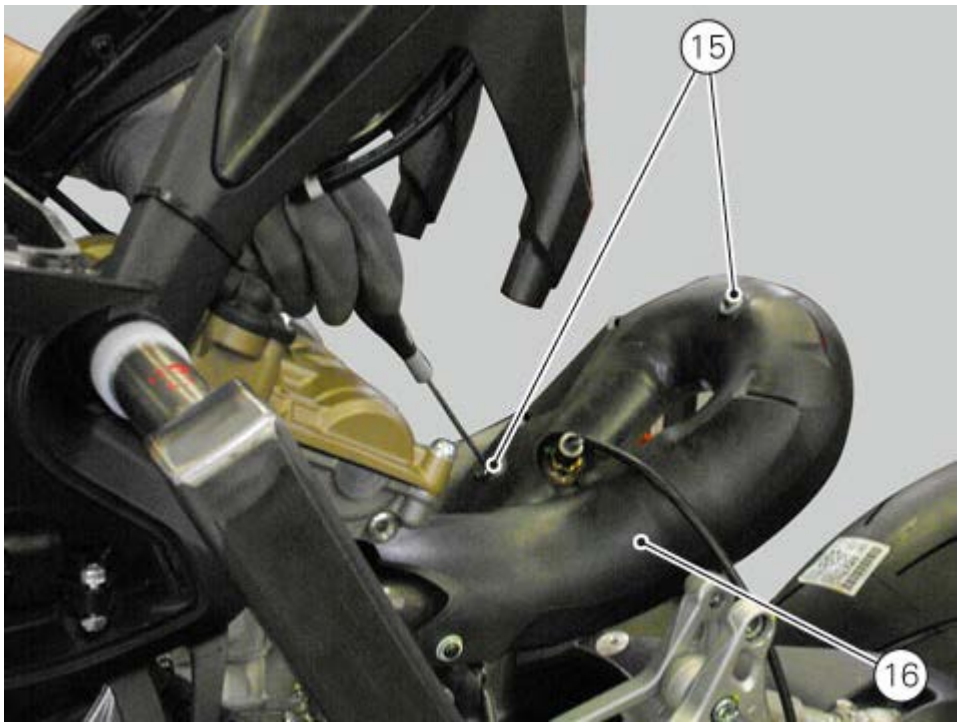
http://www.ducati-manuals.com
no. 140312



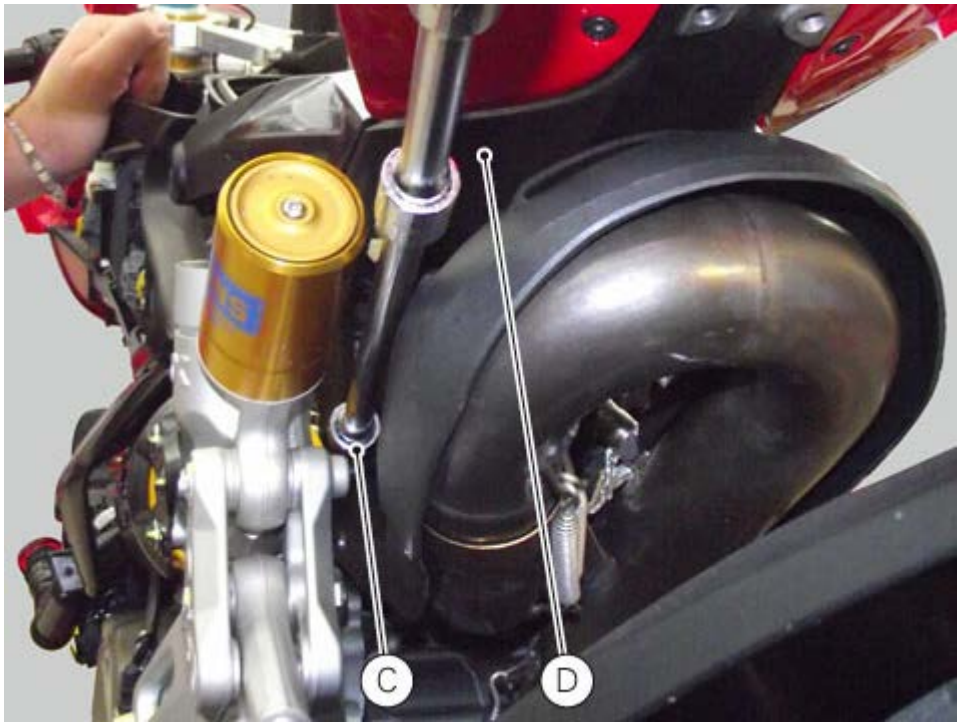
Fit heat shield (16) to pipe. Tighten the screws (15) to a torque of 5 Nm ± 10%.



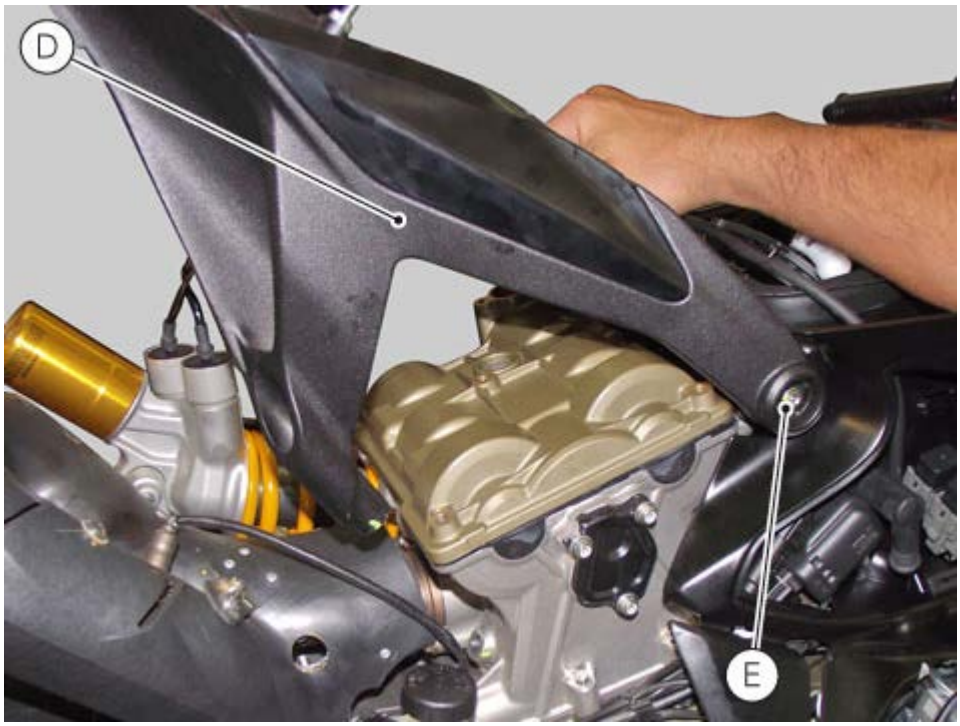
http://www.ducati-manuals.com
no. 140312



Shift rear subframe down and tighten screws (C) and (E) fastening the rear subframe (D), as shown in the procedure “Removal of the structural components and frame”.



http://www.ducati-manuals.com
no. 140312

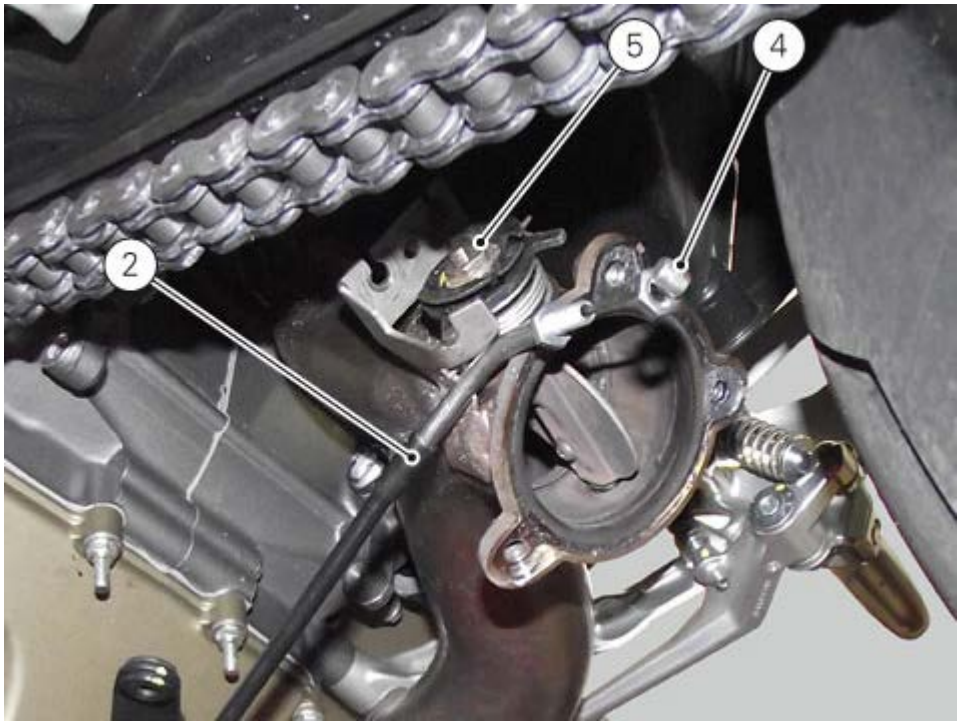


Lay control cable (2) in plate (3). Fit pawl (4) on exhaust valve (5) and lock it in place by tightening nut (1), fully home against plate (3).

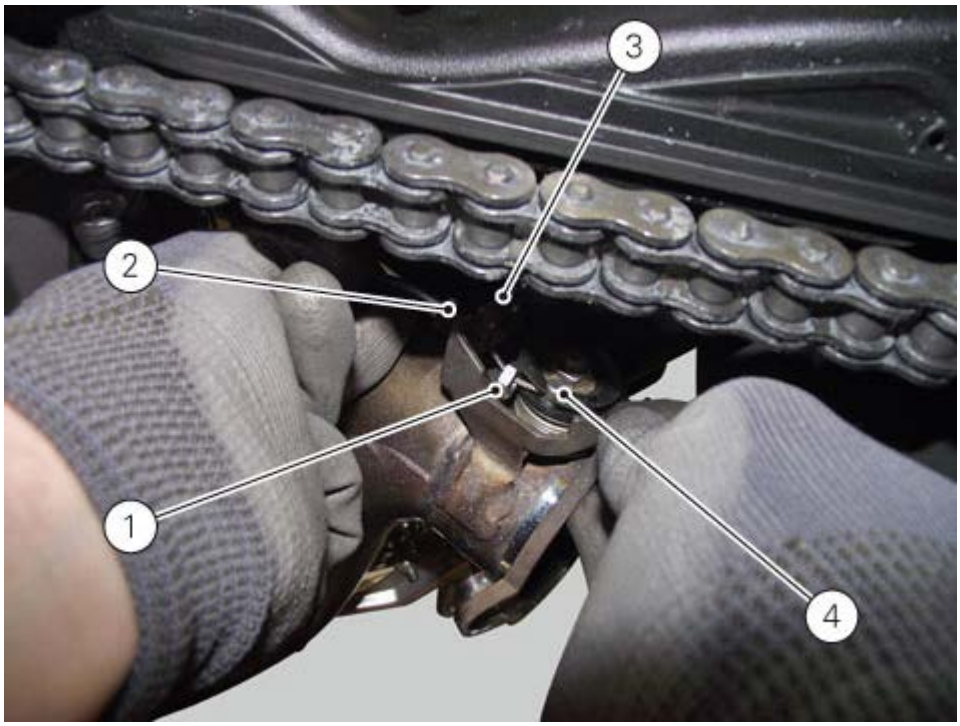
Warning

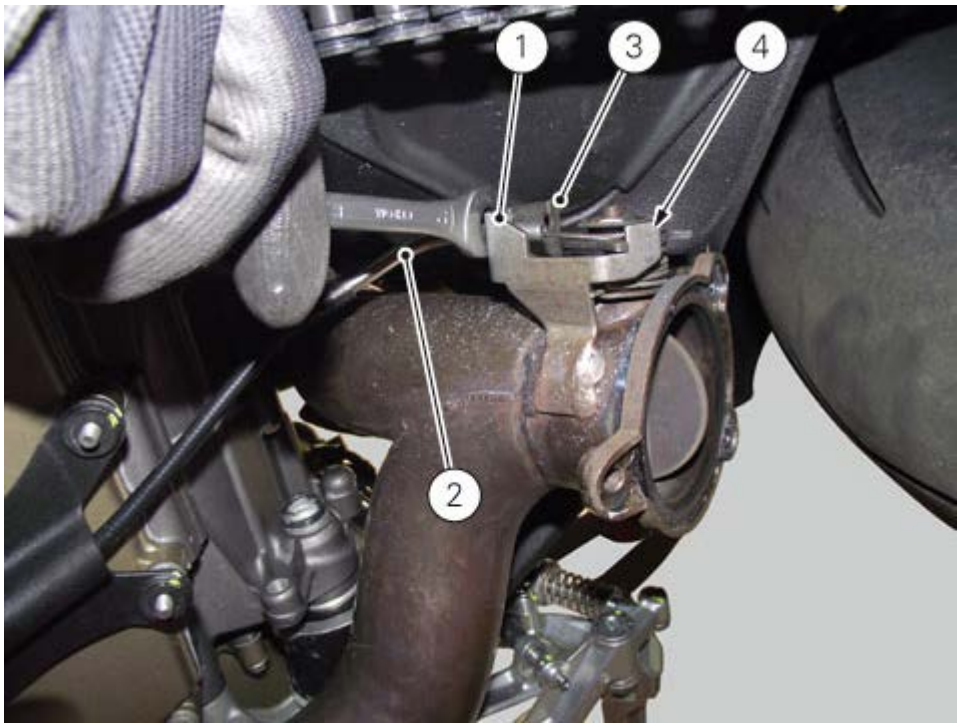
Ensure that pawl (4) at cable end is perfectly inserted onto exhaust valve pulley.

After installation, cable (22) on exhaust valve and exhaust valve drive motor is adjusted automatically by the instrument panel software which, upon first start-up, will fully open the valve and take it back to rest position with valve closed.



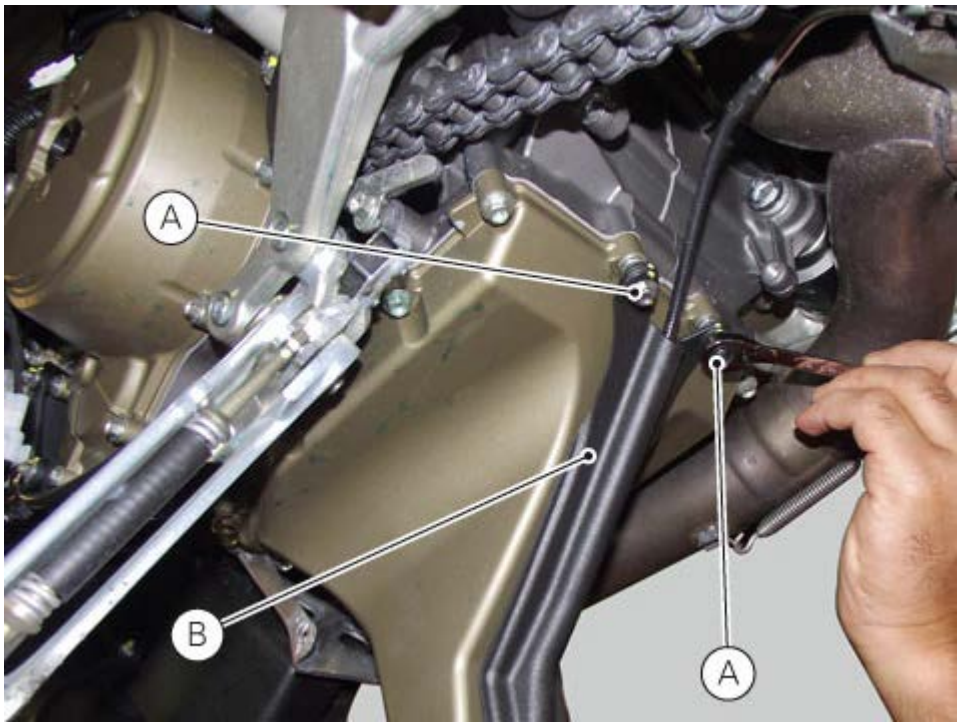
http://www.ducati-manuals.com
no. 140312





Reposition plate (B) and tighten nuts (A) to 6 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

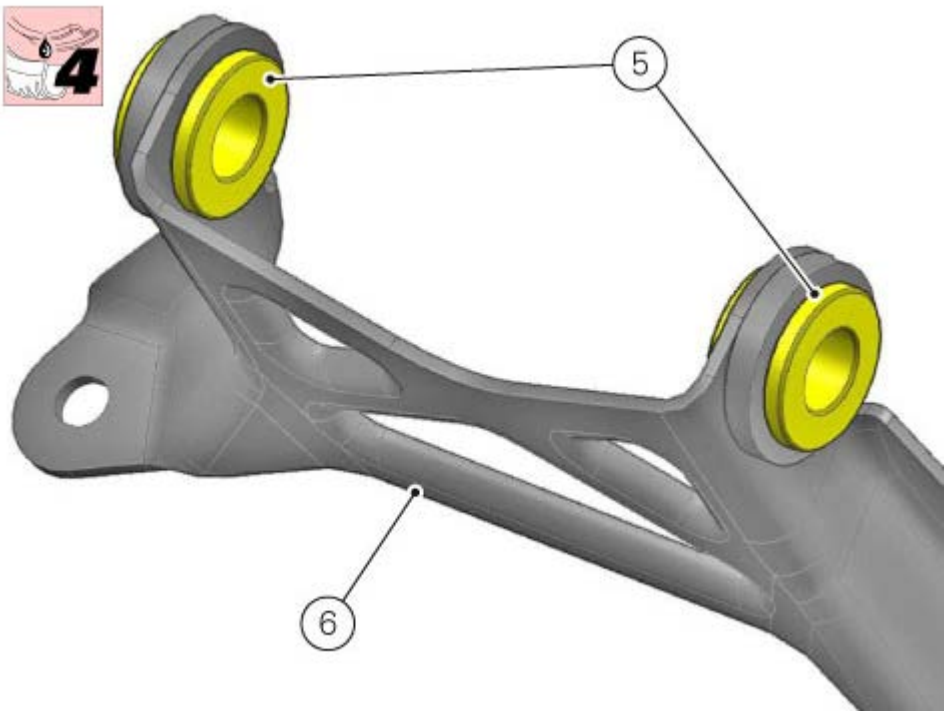


Refit the radiator mounts (Installation of the water radiators).
Refit the silencer (Installation of silencer).
Refit the fairings (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

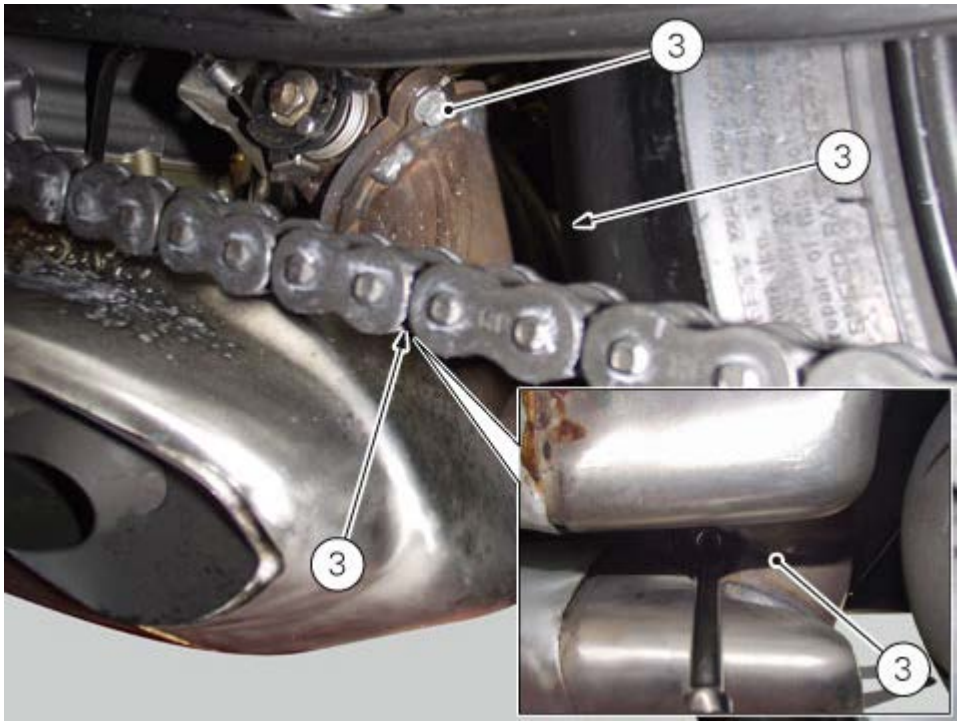
Installation of the silencer

Ensure that rubber blocks (5) are present on silencer front bracket (6).
If necessary, install them. If installation proves difficult, smear the rubber blocks with the recommended rubber-specific lubricant.

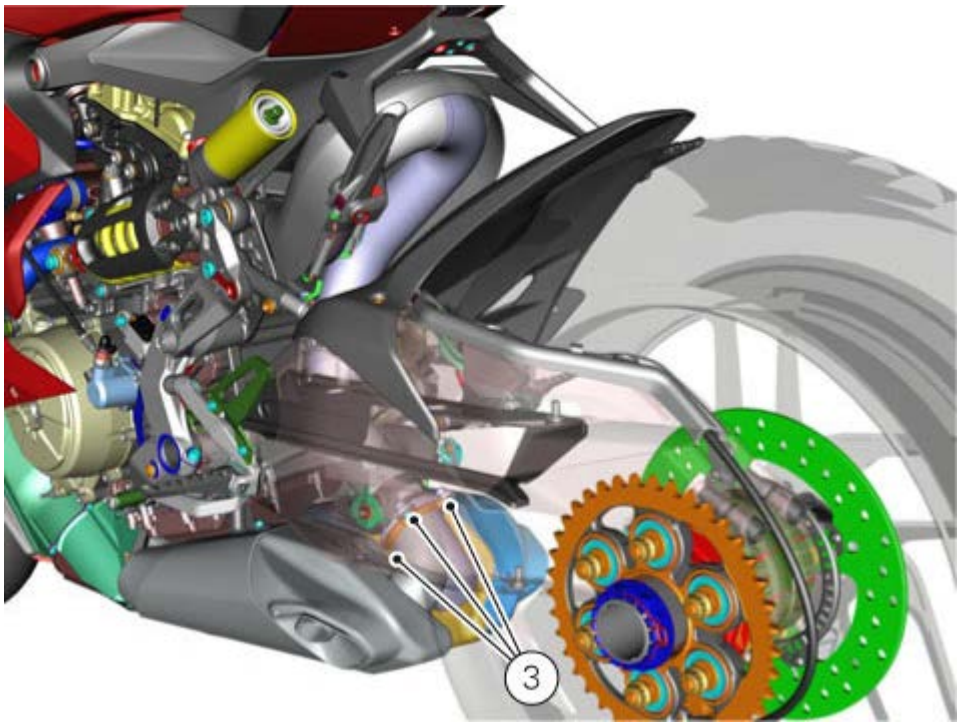


Fit silencer (4) to central exhaust pipe (A) with gasket.

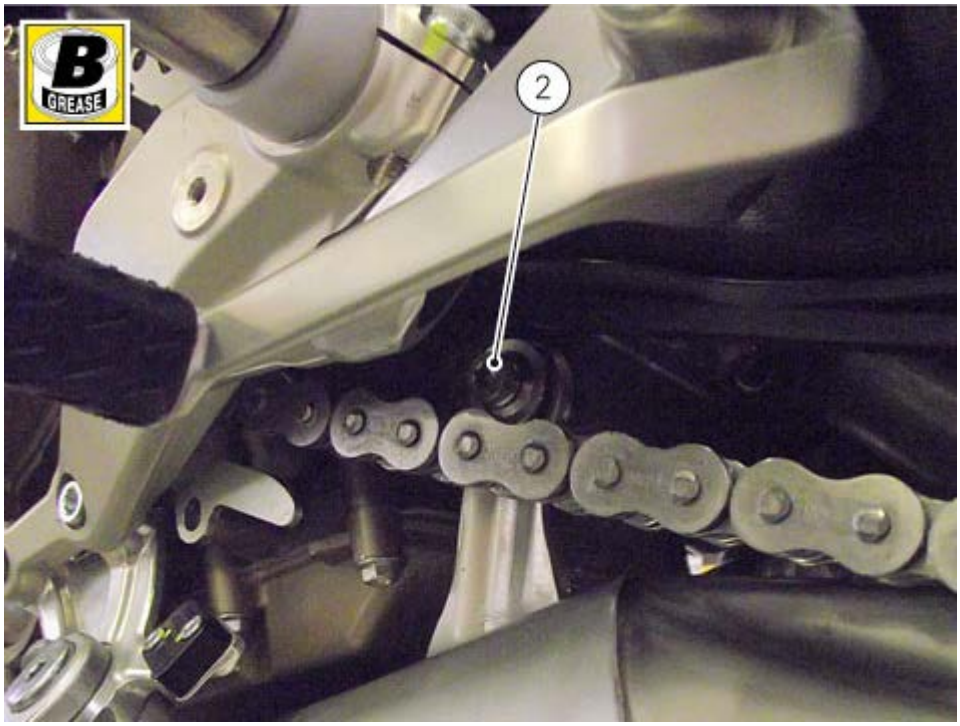
Start the three screws (3) fastening the silencer to the central exhaust pipe.



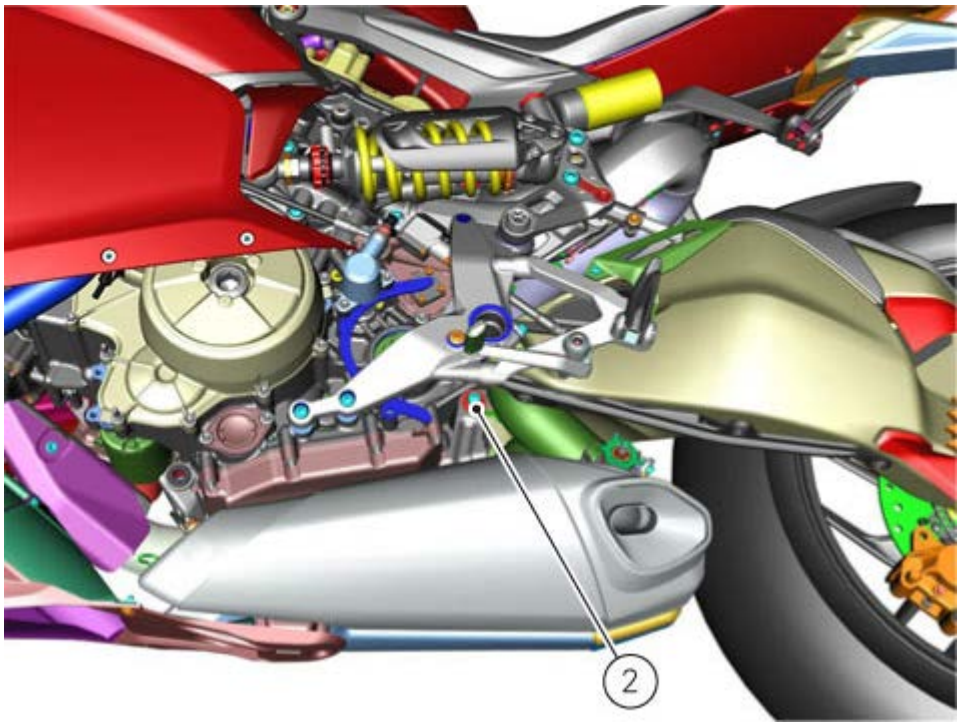
http://www.ducati-manuals.com
no. 140312

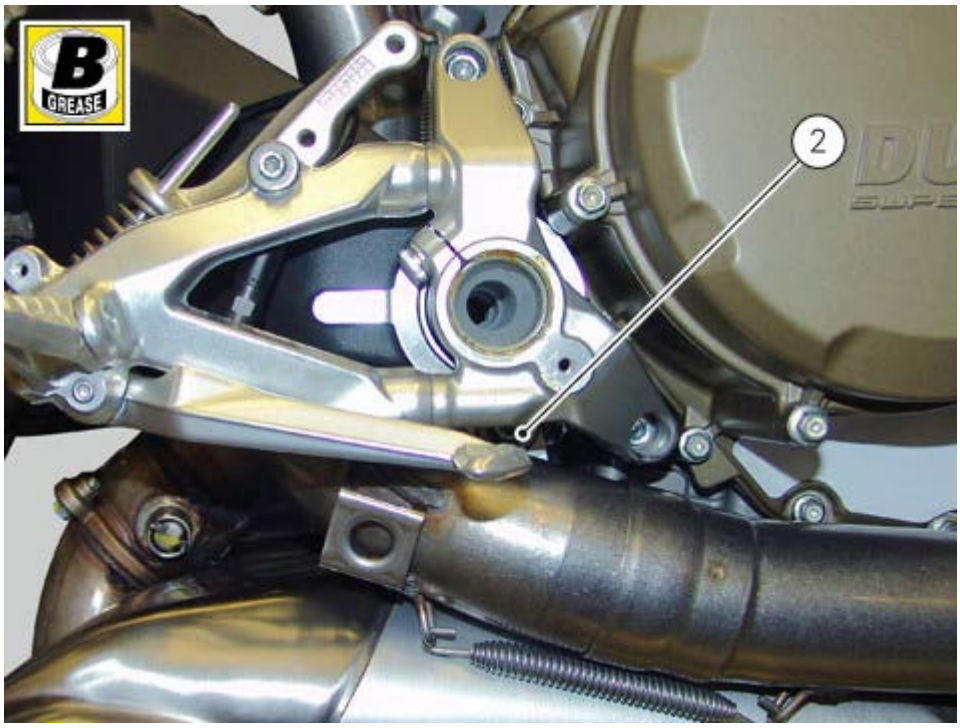


Smear specified grease on the two rear screws (2) securing silencer to crankcase.

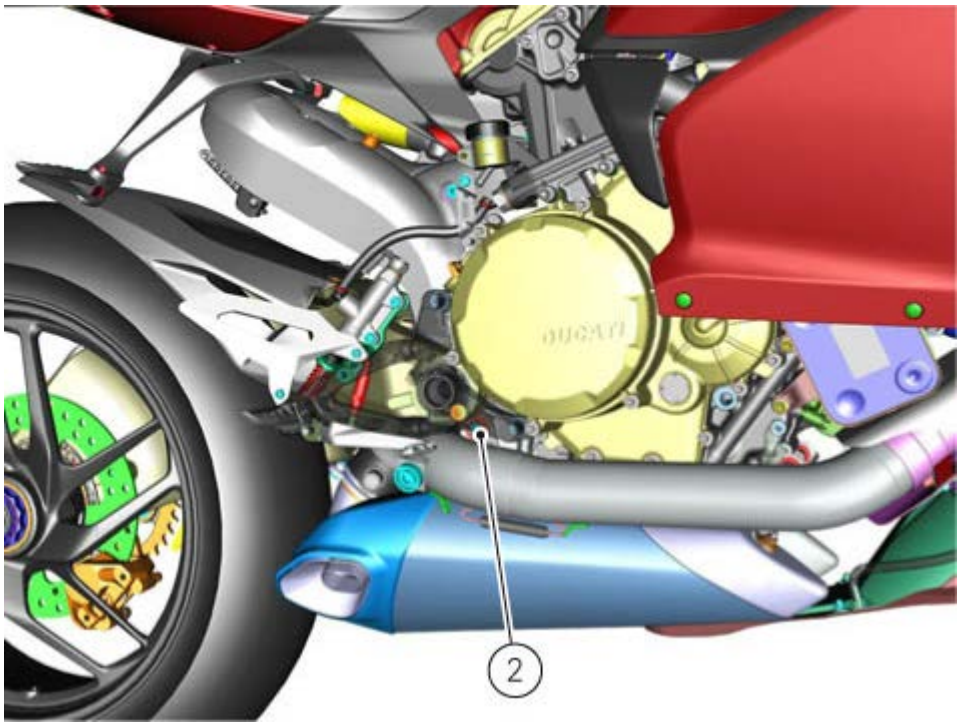


http://www.ducati-manuals.com
no. 140312

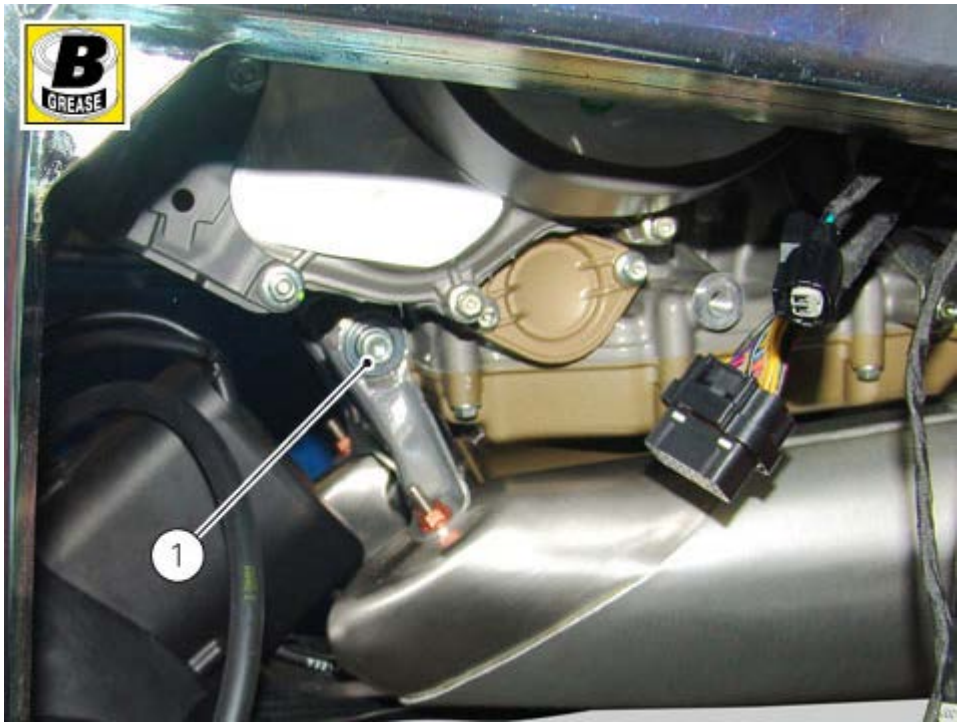




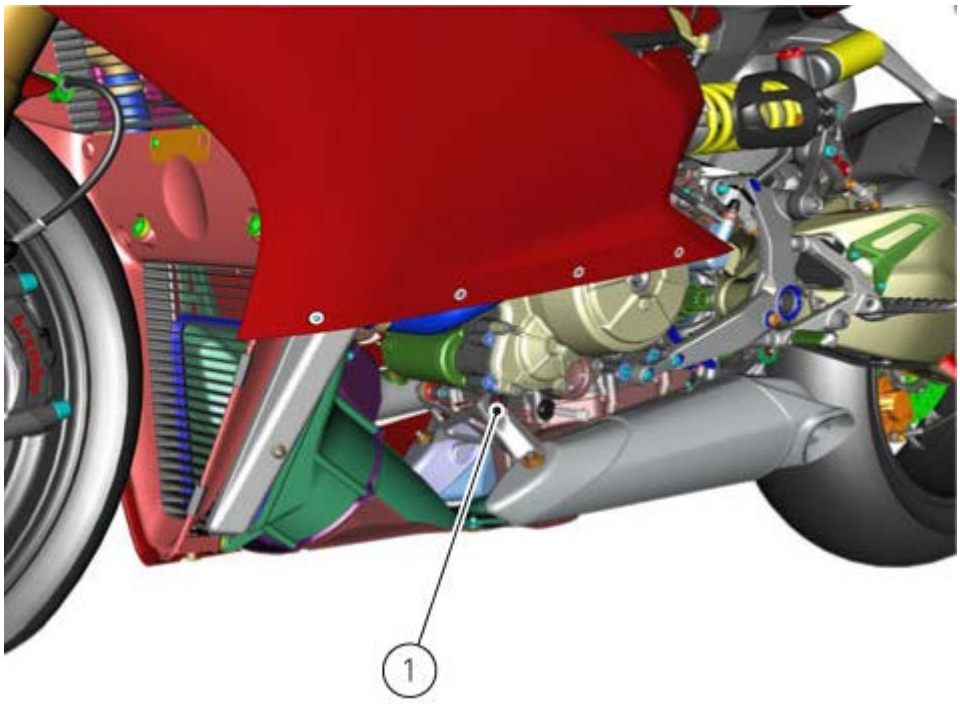
http://www.ducati-manuals.com
no. 140312

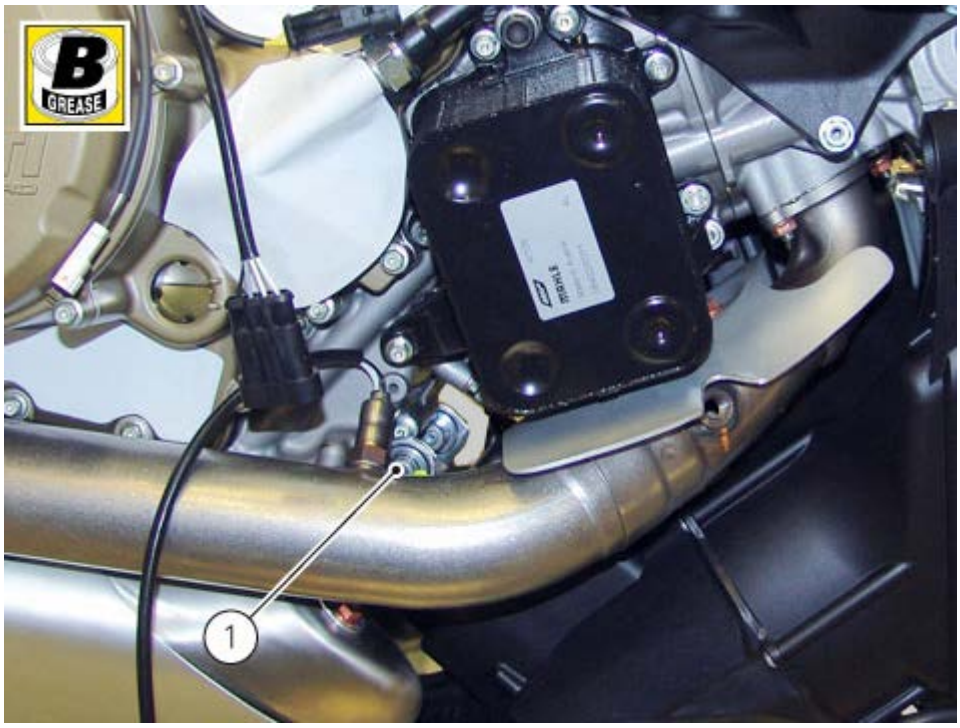


Smear specified grease on the two front screws (1) securing silencer to crankcase.

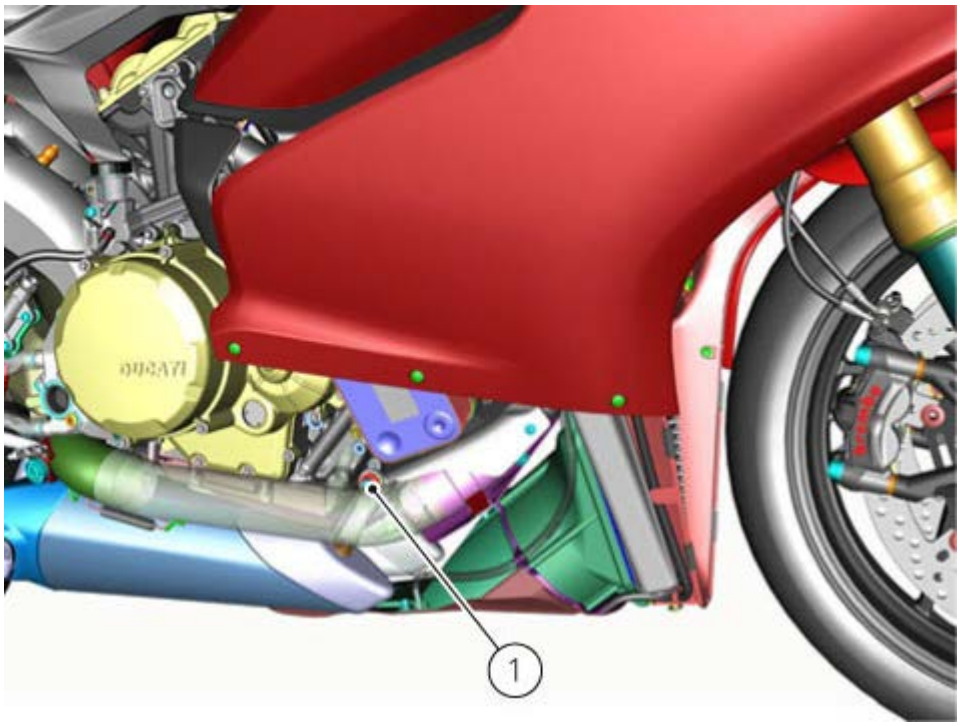


http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Then tighten the following, in this sequence:

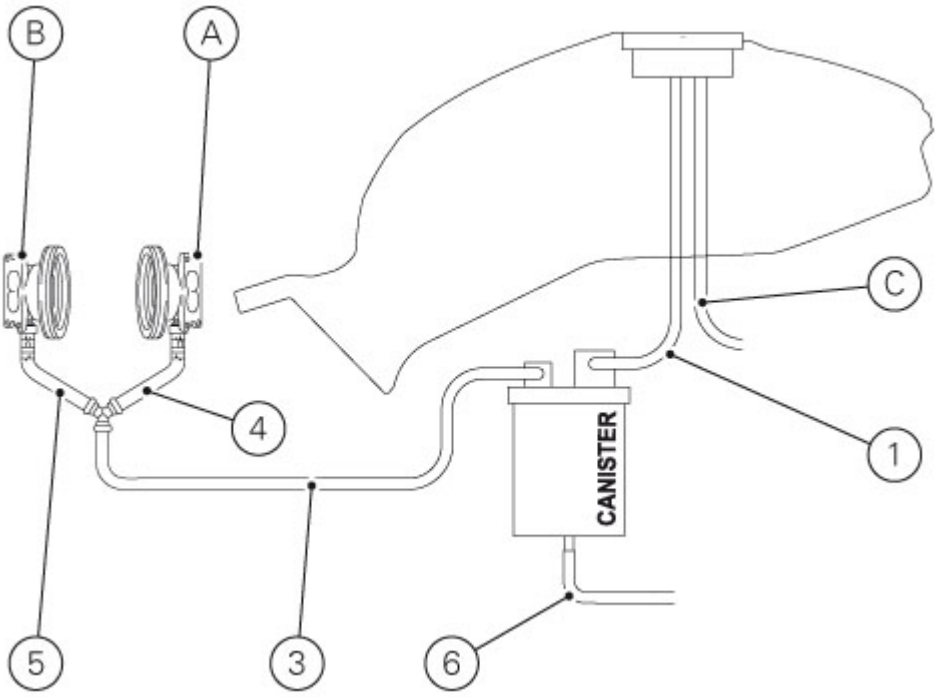
- screws (3) to 10 Nm ± 10%;
- screws (2) to 25 Nm ± 10%;
- screws (1) to 25 Nm ± 10%.

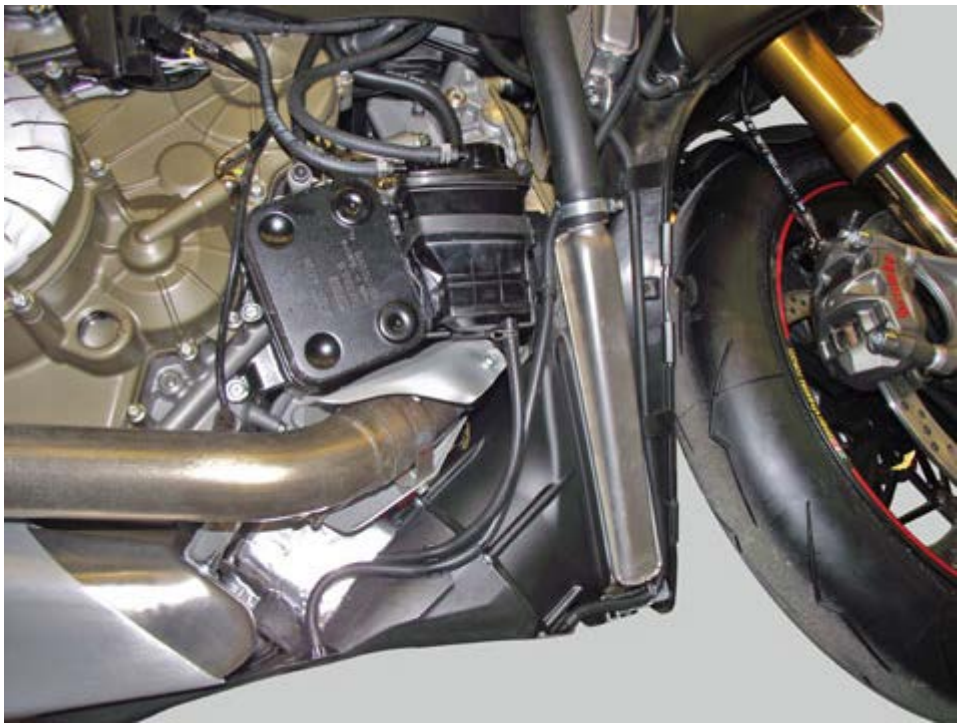
Refit the lower fairings (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

Canister filter system description

USA models are equipped with an additional system provided with Canister filter. This filter avoids the fuel vapour emission in the atmosphere.
Tank breather hose (1) is connected to Canister filter (2) which, after having filtered the fuel drain, sends it back directly to horizontal head (A), by means of hose (3), and to vertical head (B), by means of hoses (4) and (5). Tank draining hose (C) and Canister hose (6) discharge vapours to the ground.



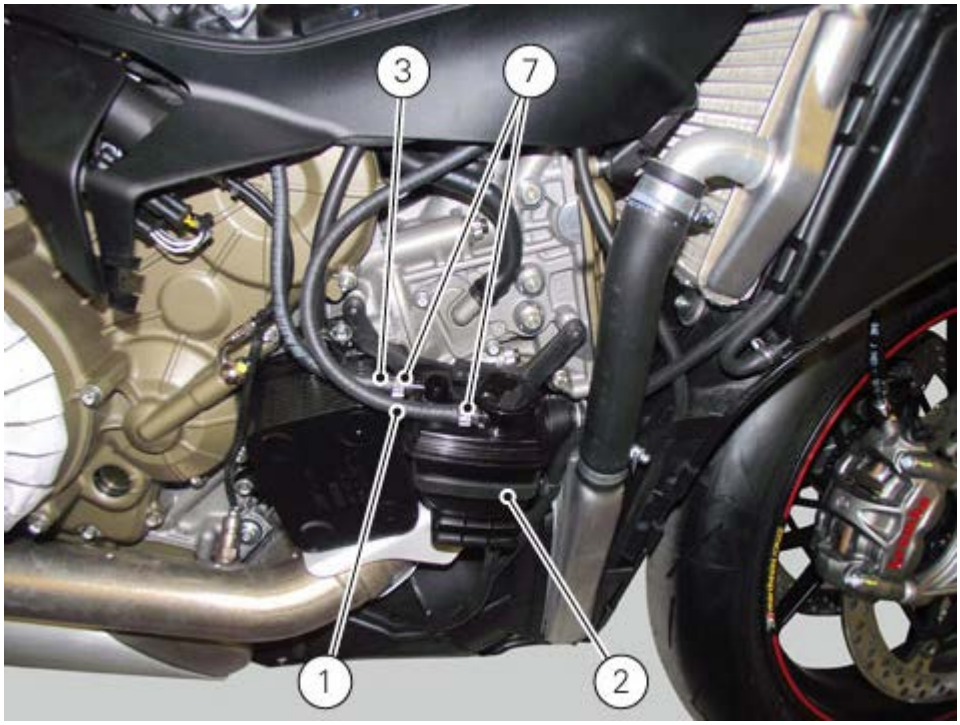


http://www.ducati-manuals.com
no. 140312

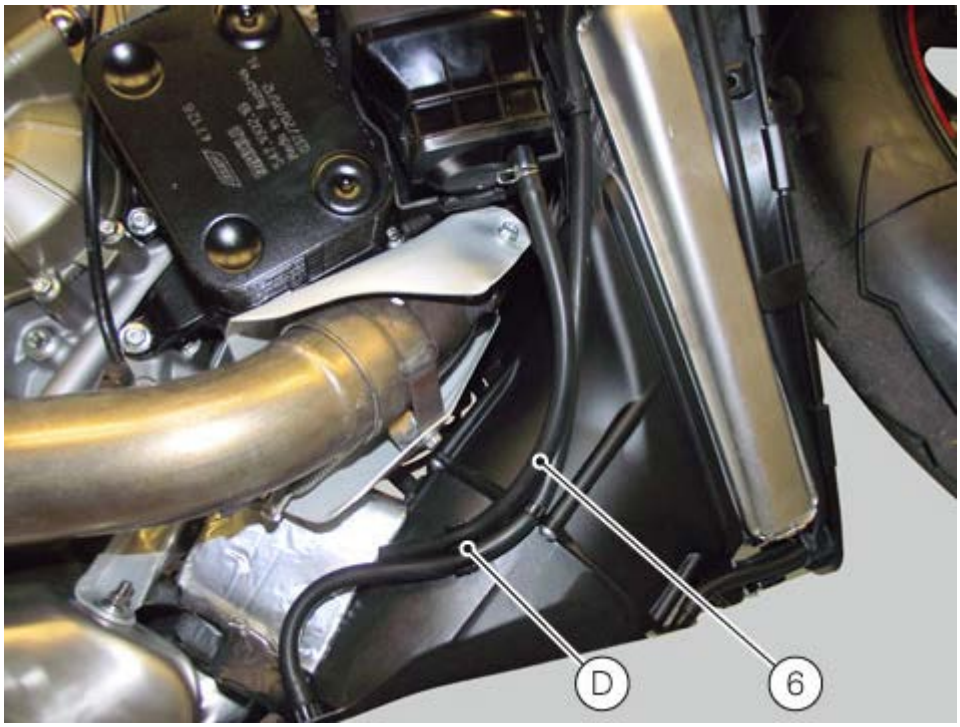
Removal of the Canister filter

Remove the right-hand side fairing (Removal of the side fairings).

Remove clamps (7) connecting hoses (1) and (3) to Canister (2).

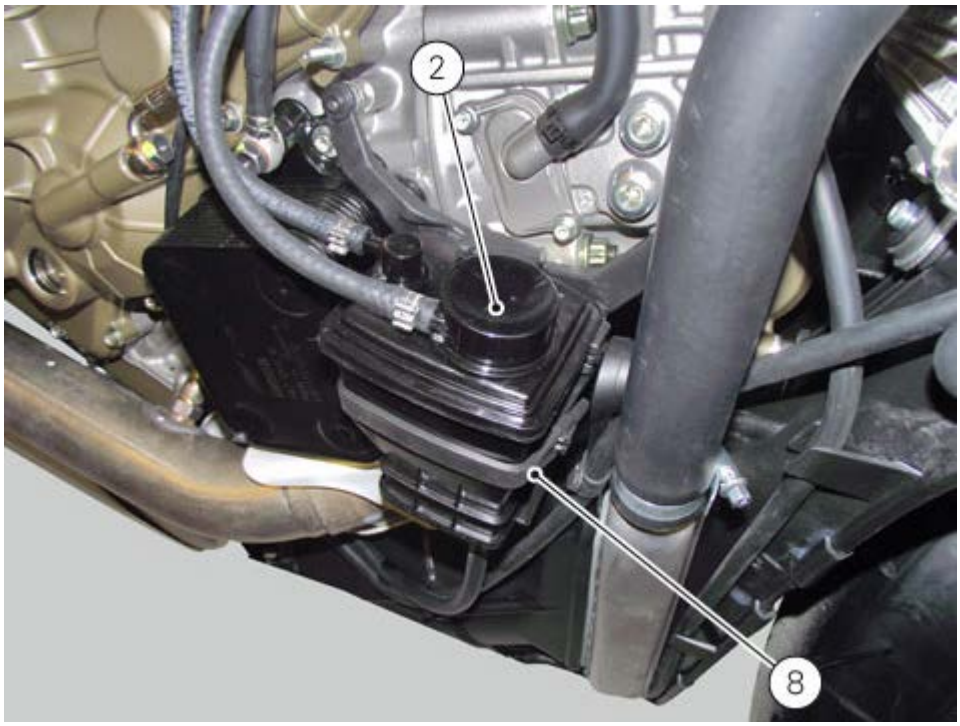


Release hose (6) from seat (D).



Remove fastening clamp (8) and release Canister filter (2).

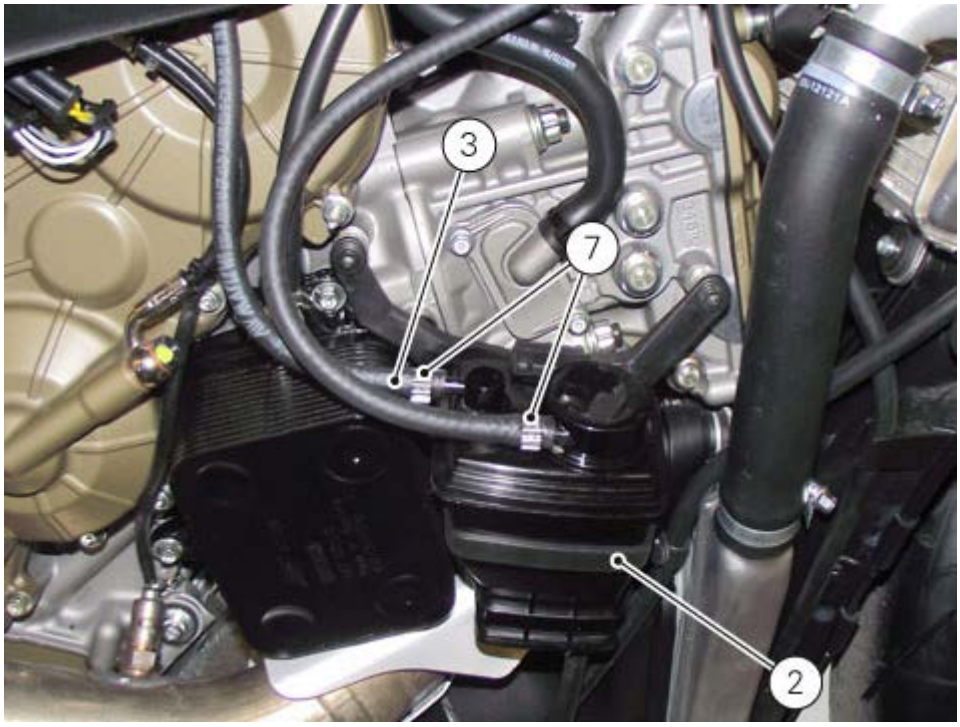
http://www.ducati-manuals.com
no. 140312



Removal of the Canister filter breather hoses

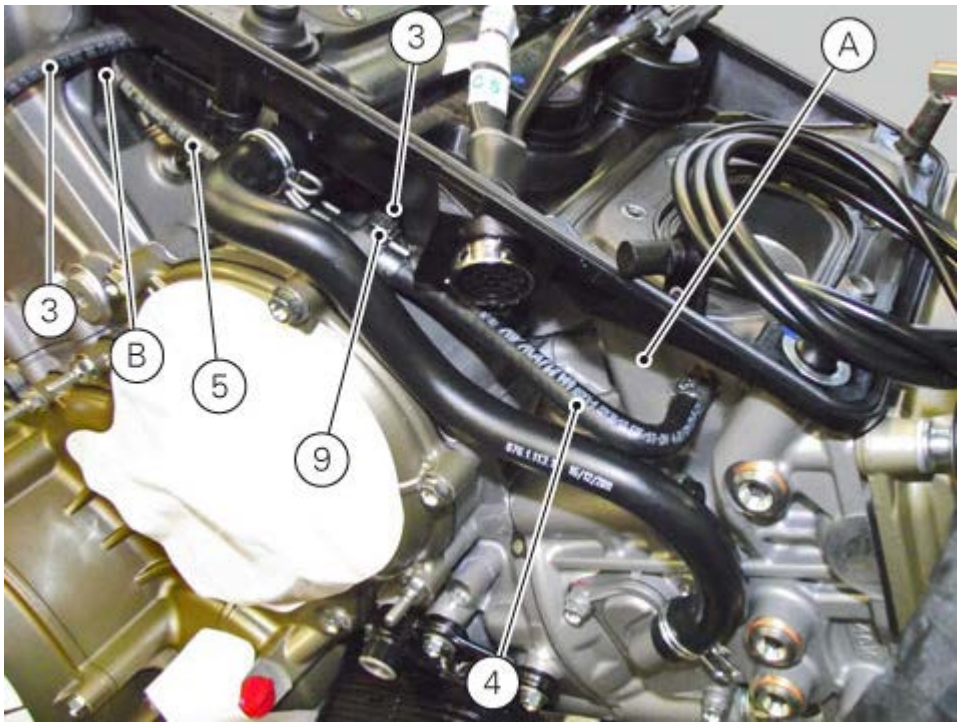
Remove the right-hand side fairing (Removal of the side fairings).
Remove the electric component right-hand support (Removal of the structural components and frame).

Remove clamp (7) connecting hose (3) to Canister (2).



Loosen clamp (9) connecting Canister hose (3) to hoses (4) and (5) of horizontal head (A) and vertical head (B) respectively.

http://www.ducati-manuals.com
no. 140312





Slide hose (3) outwards.

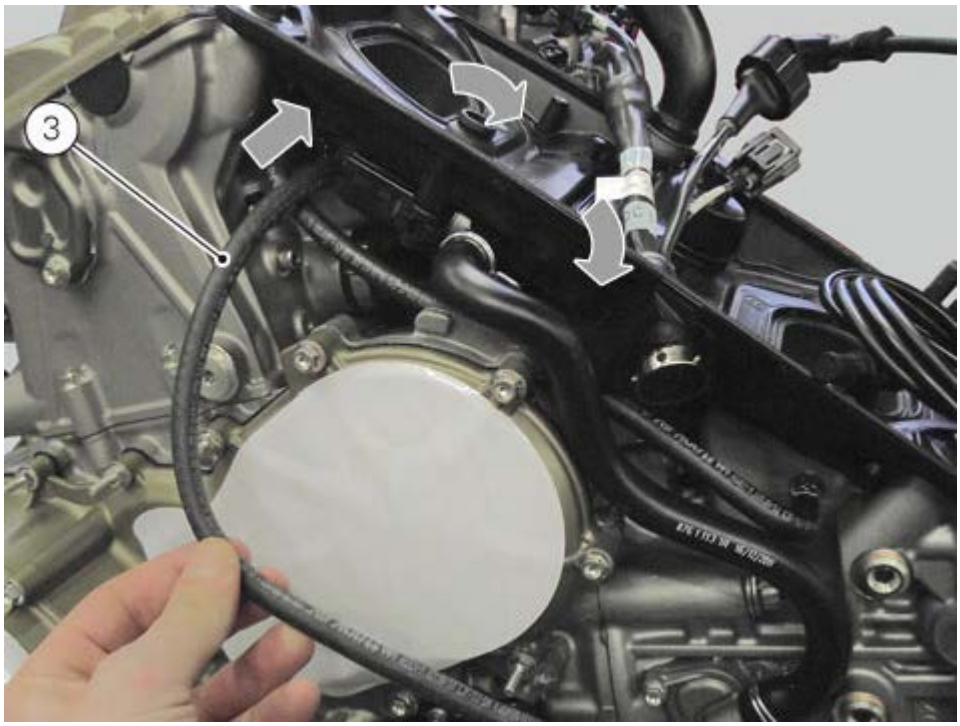
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Installation of the Canister filter breather hoses

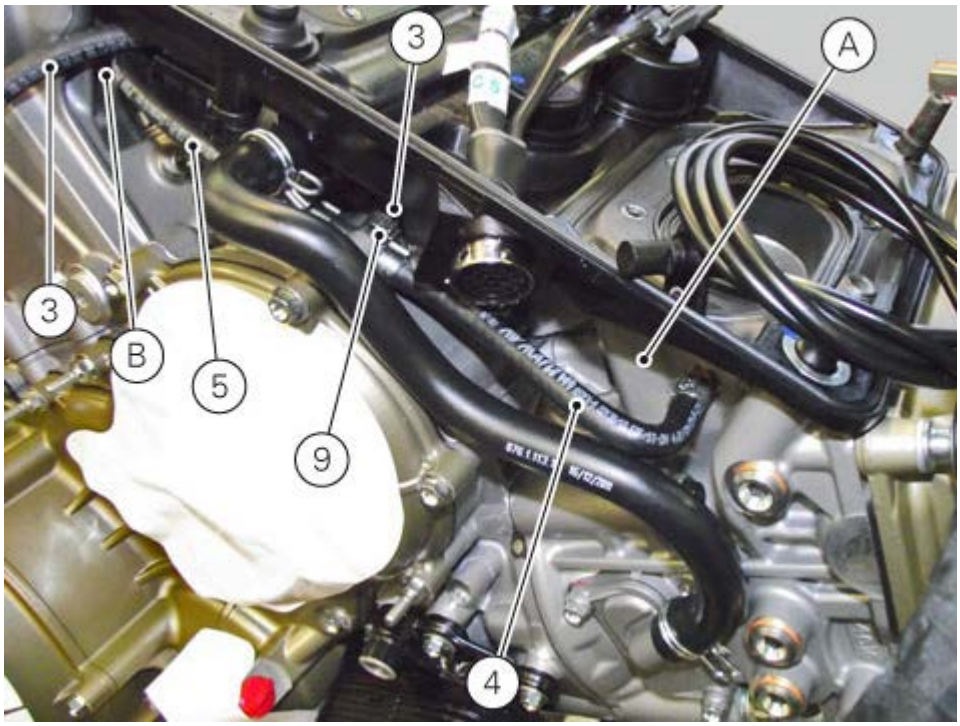
Fit hose (3) to vertical head side (B).



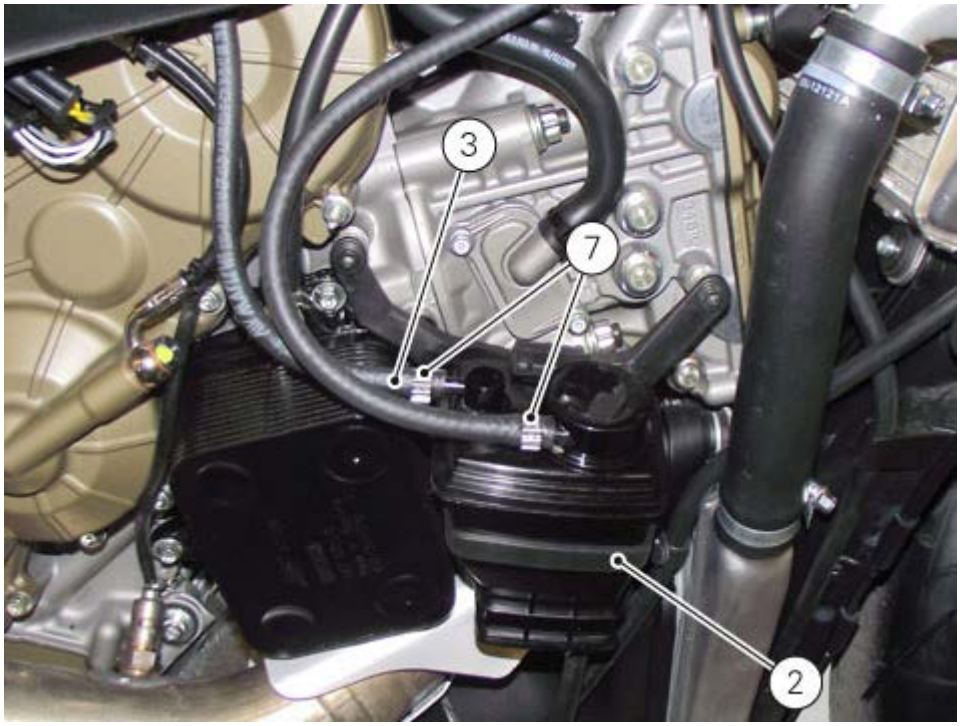
Connect hose (3) to hoses (4) and (5) of horizontal head (A) and vertical head (B) respectively, tightening clamp (9).



http://www.ducati-manuals.com
no. 140312



Connect hose (3) to Canister (2) by tightening clamp (7).

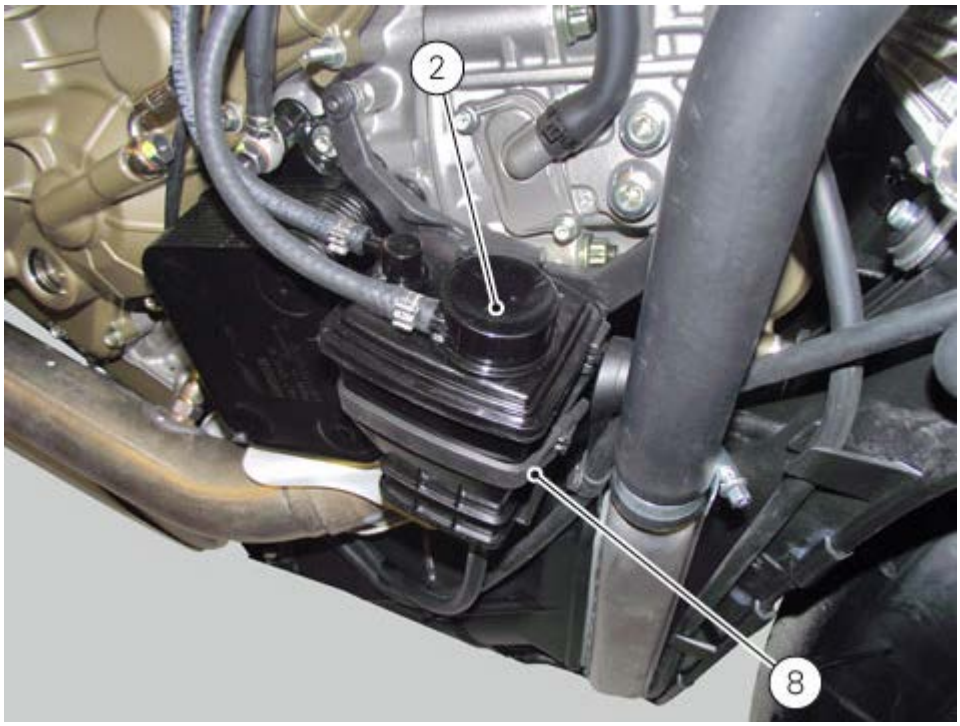


Install the electric component right-hand support (Installation of the structural components and frame).
Install the right-hand fairing (Installation of the side fairings).

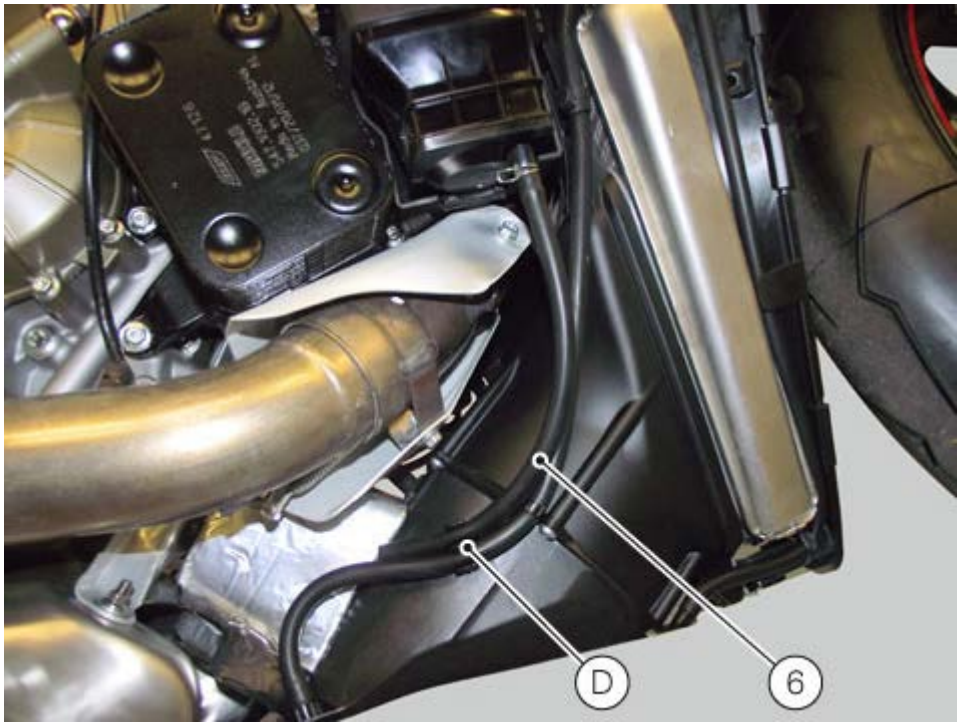
Installation of the Canister filter

Position Canister filter (2) on its support and secure it with clamp (8).

http://www.ducati-manuals.com
no. 140312

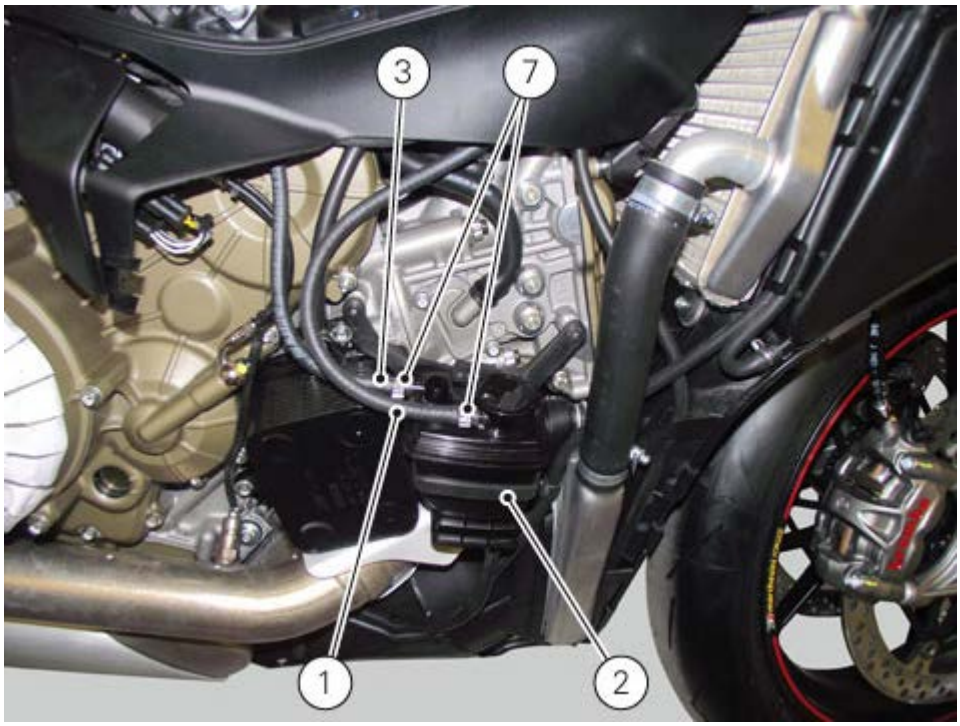


Position hose (6) in the suitable seat (D) on radiator mounts.



Connect hoses (1) and (3) to Canister (2) by tightening clamps (7).

http://www.ducati-manuals.com
no. 140312



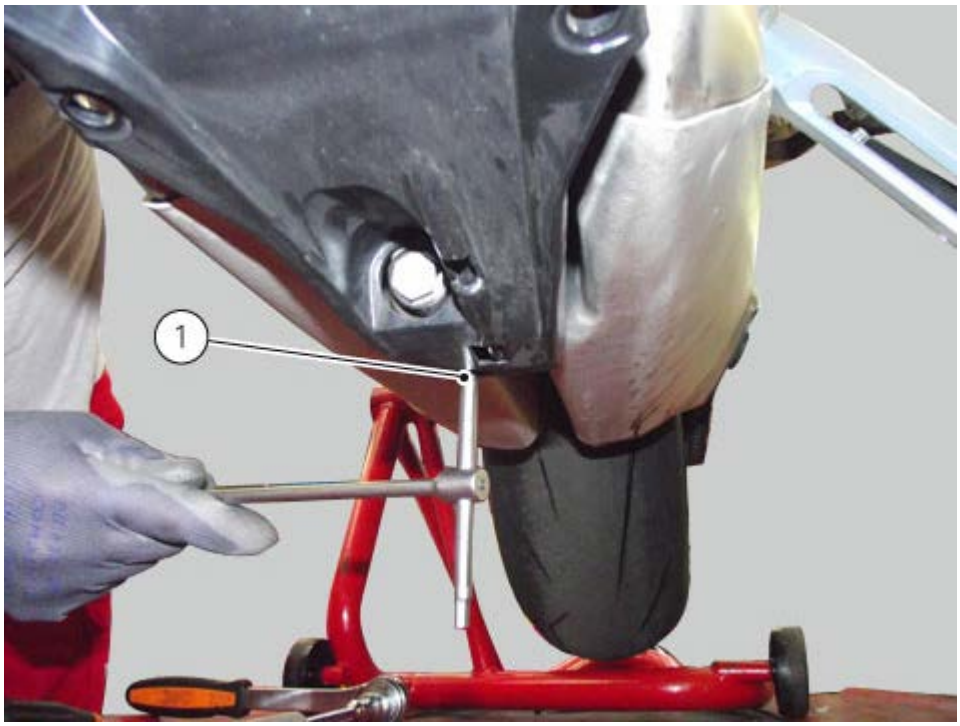
Refit the right-hand side fairing (Installation of the side fairings).

http://www.ducati-manuals.com
no. 140312

Removal of the radiator

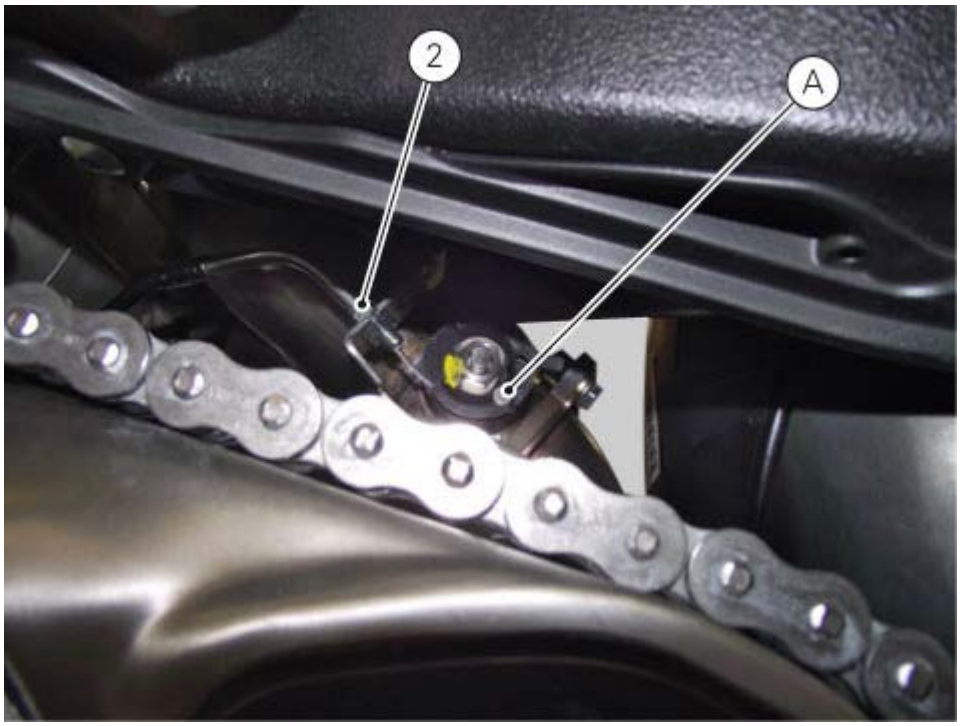
Remove the fairings (Removal of the side fairings).
Drain the coolant (Change coolant).
Remove the cooling system pipes (Removal of the cooling system hoses and unions).

Loosen radiator mount bottom screw (1).



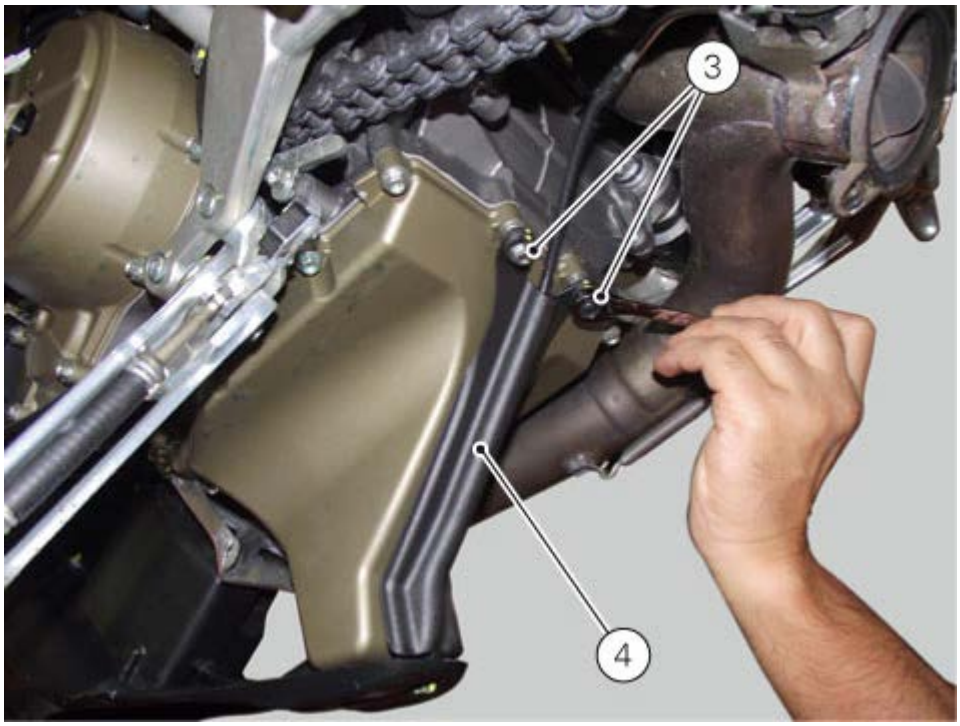
Remove the silencer (Removal of the silencer).

Loosen nut (2), release pawl (A) and remove cable from exhaust butterfly valve.



Loosen nuts (3) and remove sheath (4).

http://www.ducati-manuals.com
no. 140312

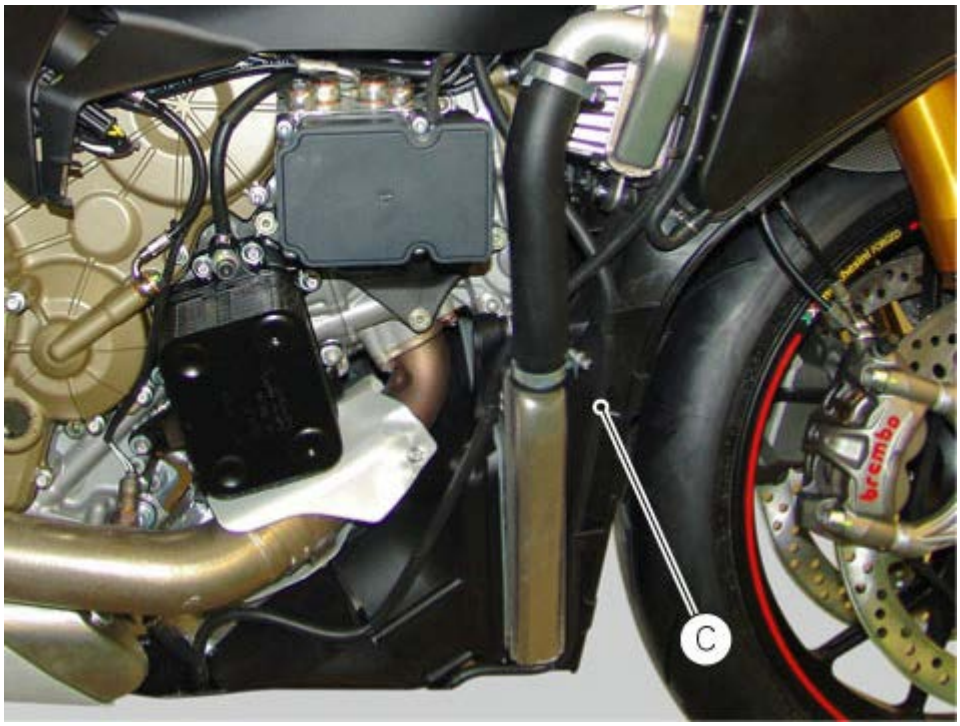


Loosen clip (B) and slide out the breather hose from the top radiator.



Detach breather hose (C) from radiator mounts.

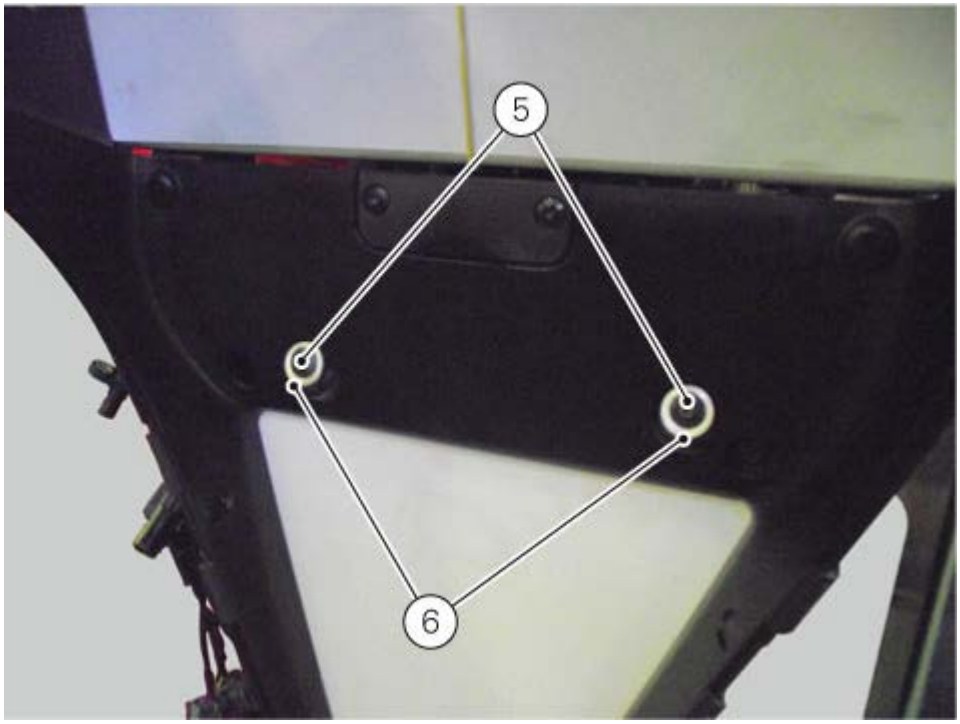
http://www.ducati-manuals.com
no. 140312



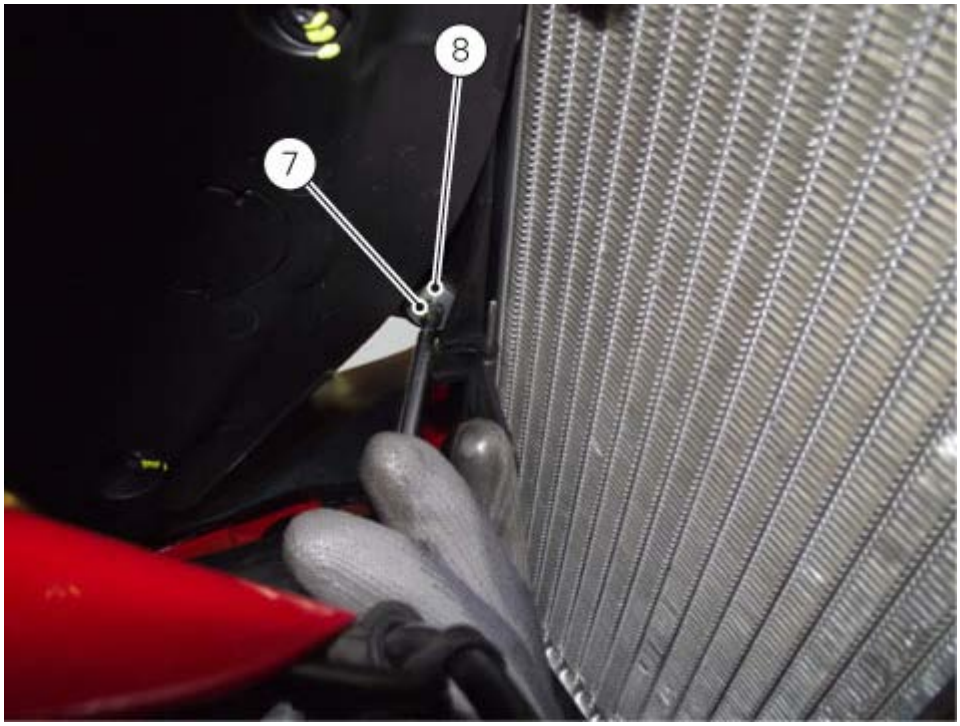


Loosen and remove central screw (5) from radiator mounts; keep spacers (6).

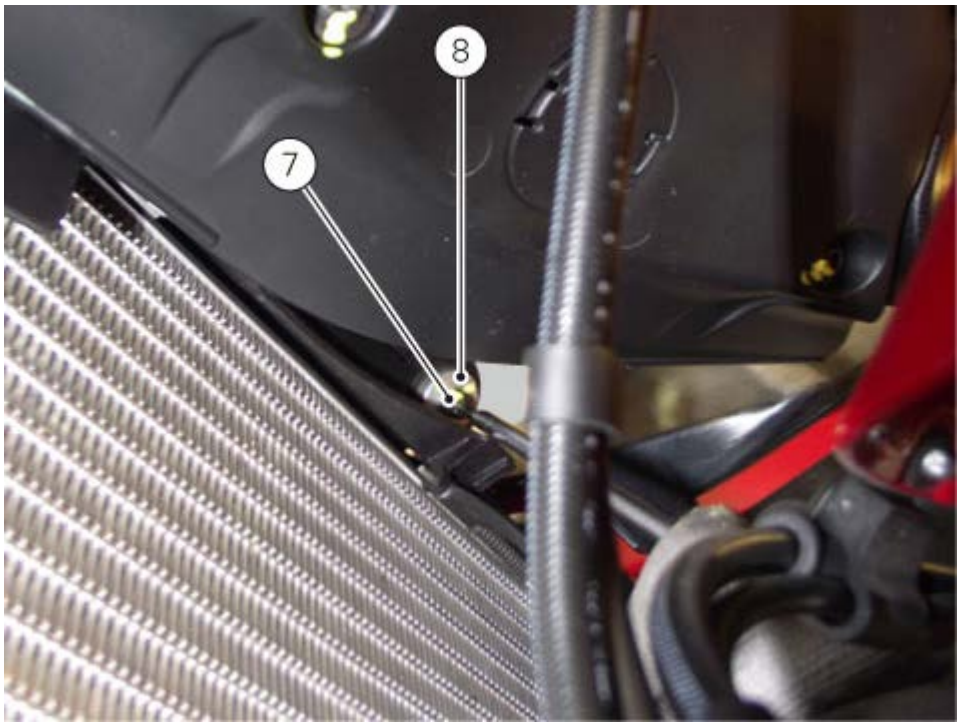
http://www.ducati-manuals.com
no. 140312



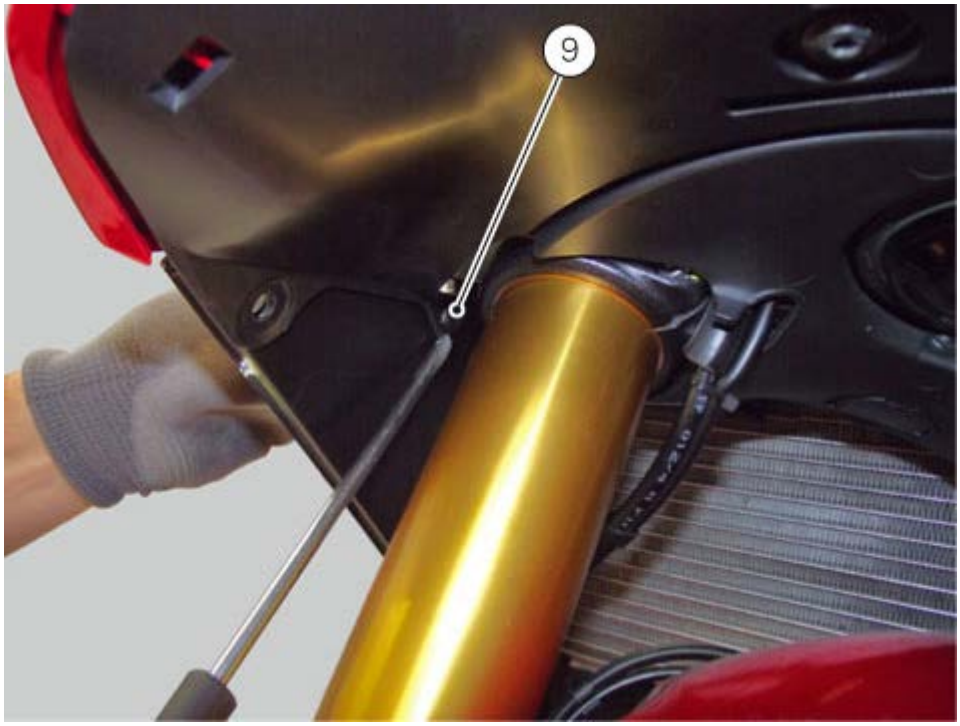
Loosen and remove top screw (7) from radiator mounts; keep spacers (8).



http://www.ducati-manuals.com
no. 140312



Open quick-coupling (9) to release the radiator mounts from the headlight fairing.



Remove the tie and disconnect fan connector (D) and exhaust valve drive motor connector (E).

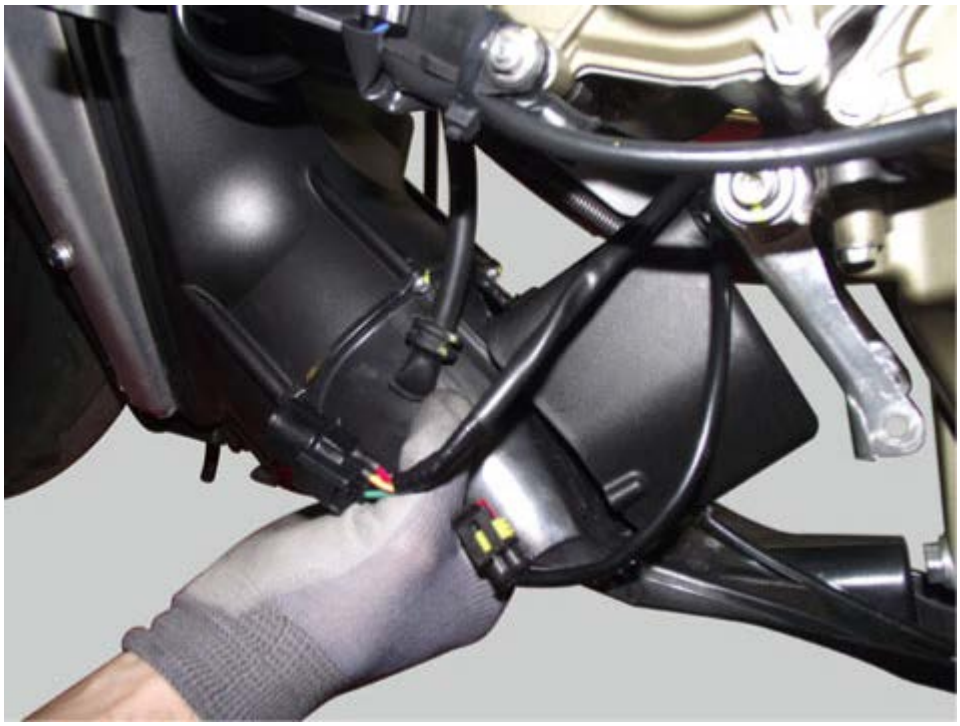
http://www.ducati-manuals.com
no. 140312



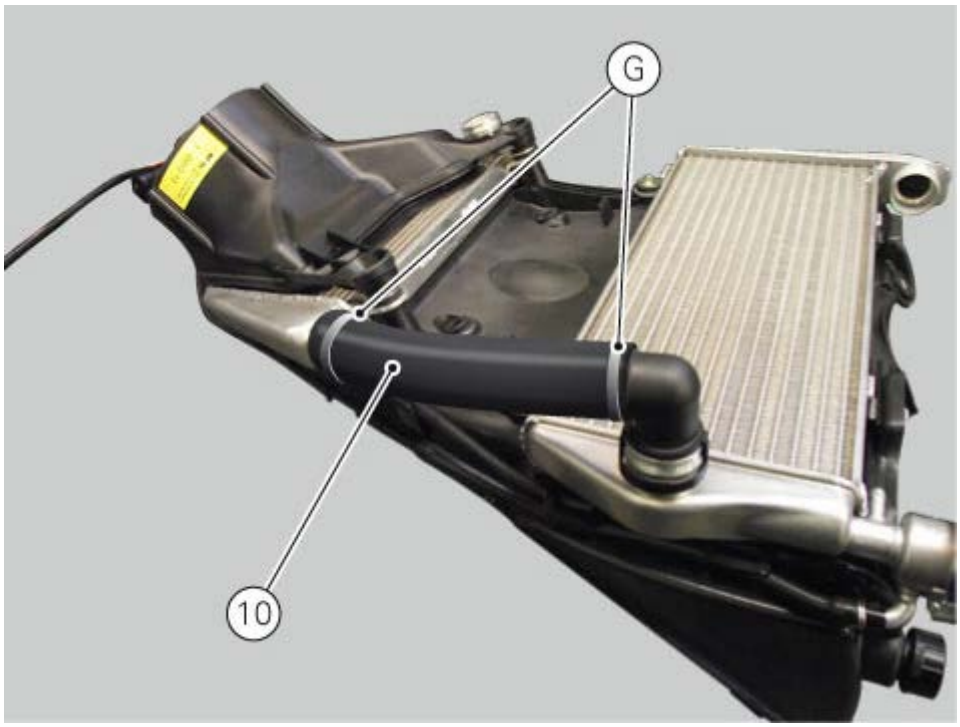
Remove the airbox draining hose (F) from air conveyor and remove the complete radiator mounts from the vehicle.



http://www.ducati-manuals.com
no. 140312



Slacken ties (G) fastening hose (10) which connects the top radiator to the bottom one and remove the hose.



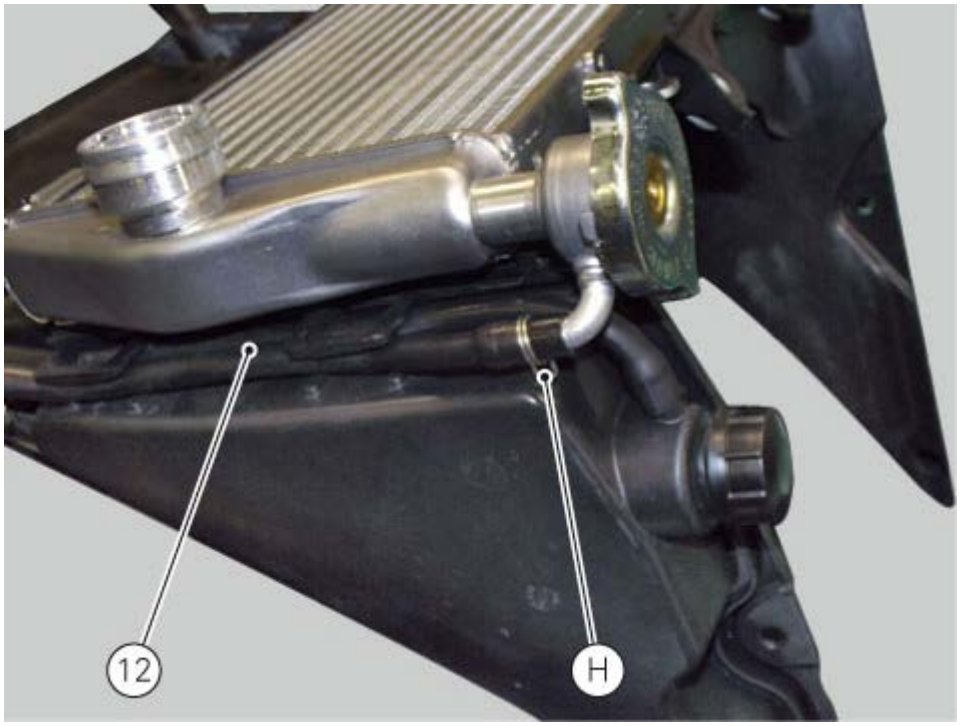
Remove the fan (Renewal of the cooling fan).

Slide out the bottom radiator (11) from the mount.

http://www.ducati-manuals.com
no. 140312

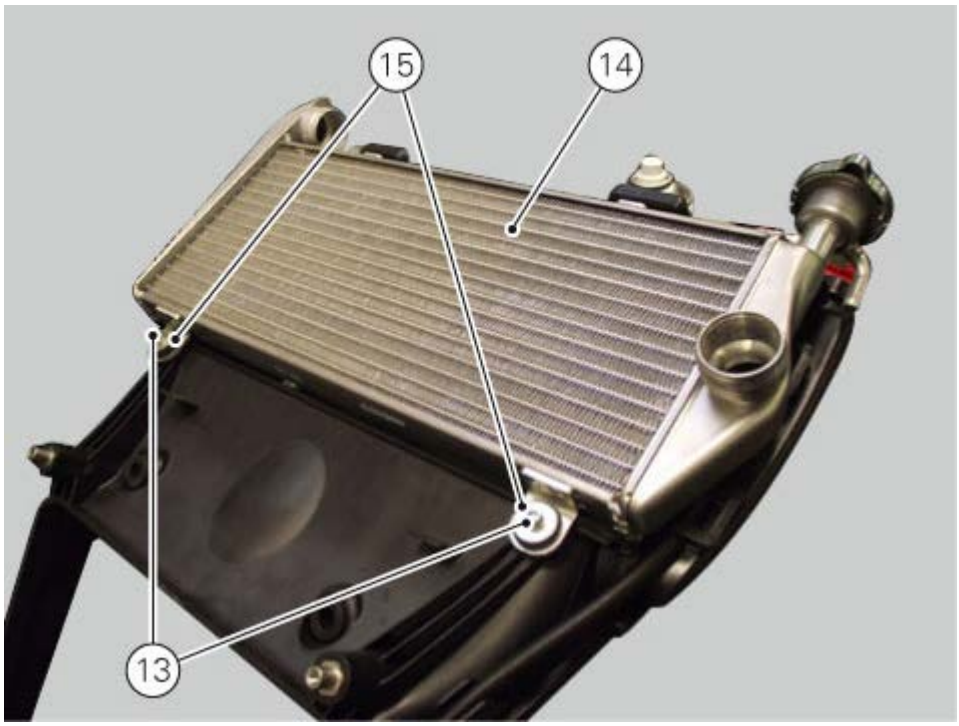


Remove clamp (H) fastening hose (12) which connects expansion tank to top radiator.

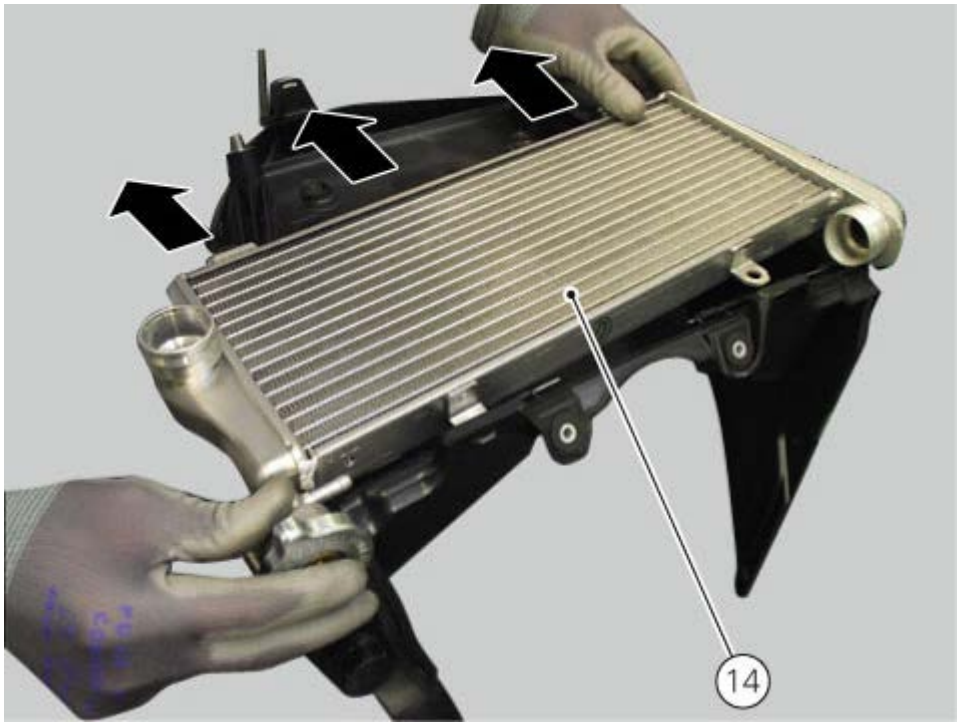


Loosen screws (13) fastening top radiator (14); keep washers (15).

http://www.ducati-manuals.com
no. 140312



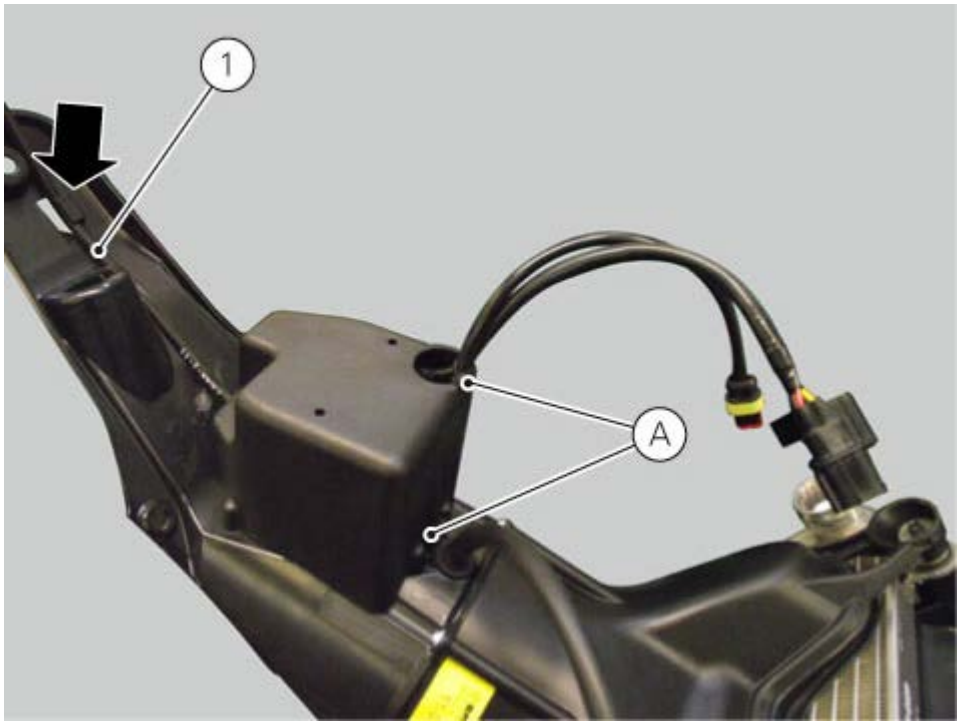
Slide down the top radiator (14) and disengage it from the mount.



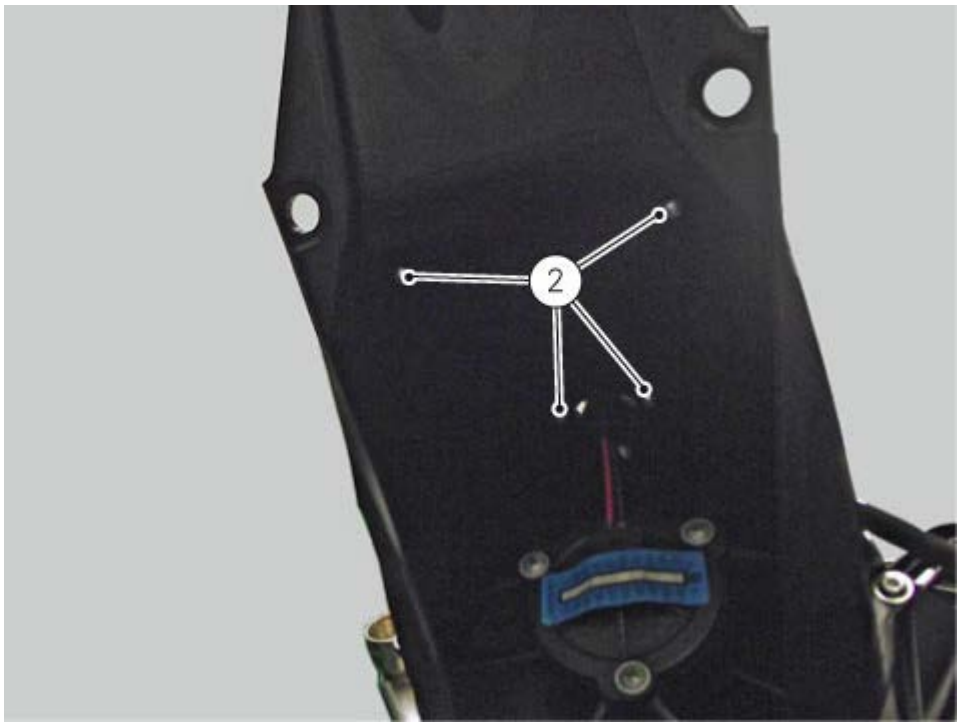
http://www.ducati-manuals.com
no. 140312

Renewal of the cooling fan

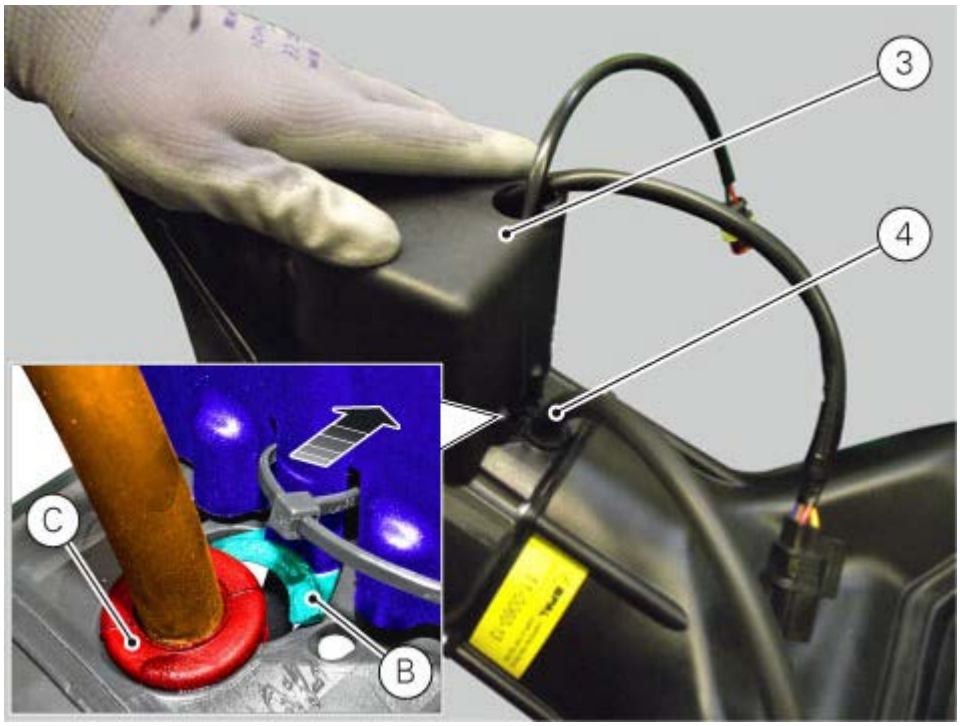
Release the exhaust valve drive motor cable (1) from the clip on air conveyor.
Remove clamp (A) and release the fan cable and exhaust valve drive motor cable.



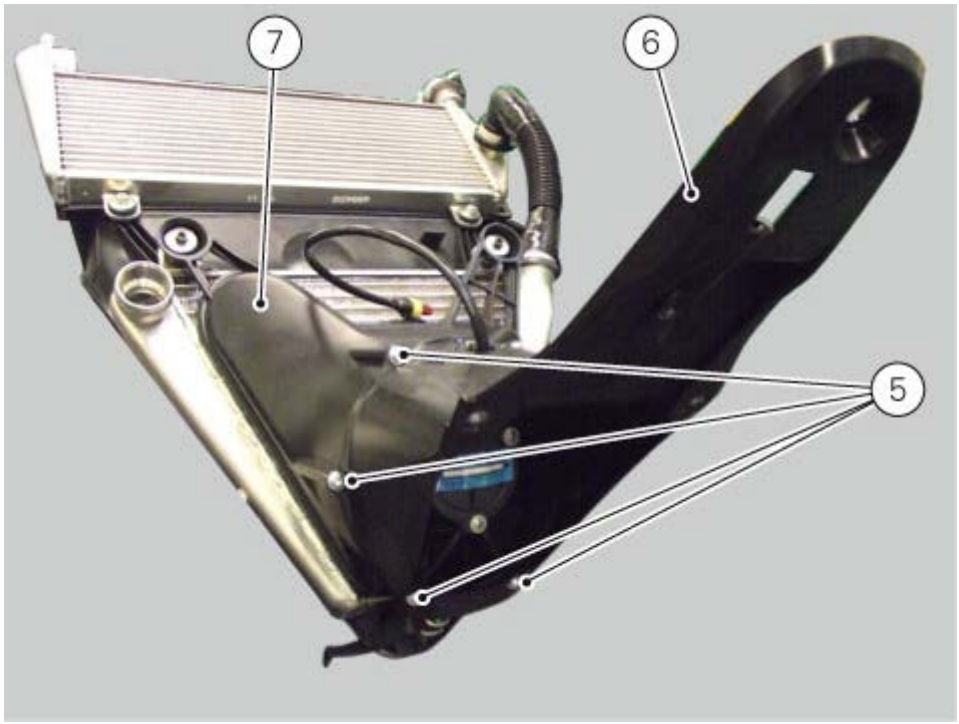
Loosen screws (2) retaining the exhaust valve drive motor (3).
Separate the exhaust valve drive motor (3) from the airbox draining hose (4), disengaging it from fork clip (B) in rubber block (C).
Remove the exhaust valve drive motor (3) from air conveyor.



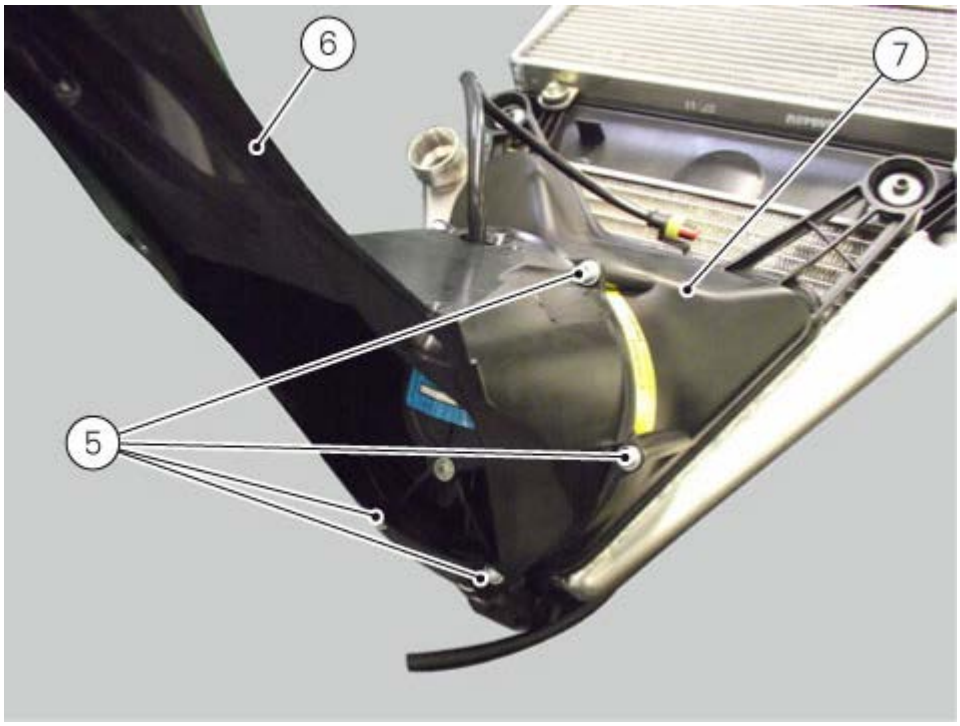
http://www.ducati-manuals.com
no. 140312



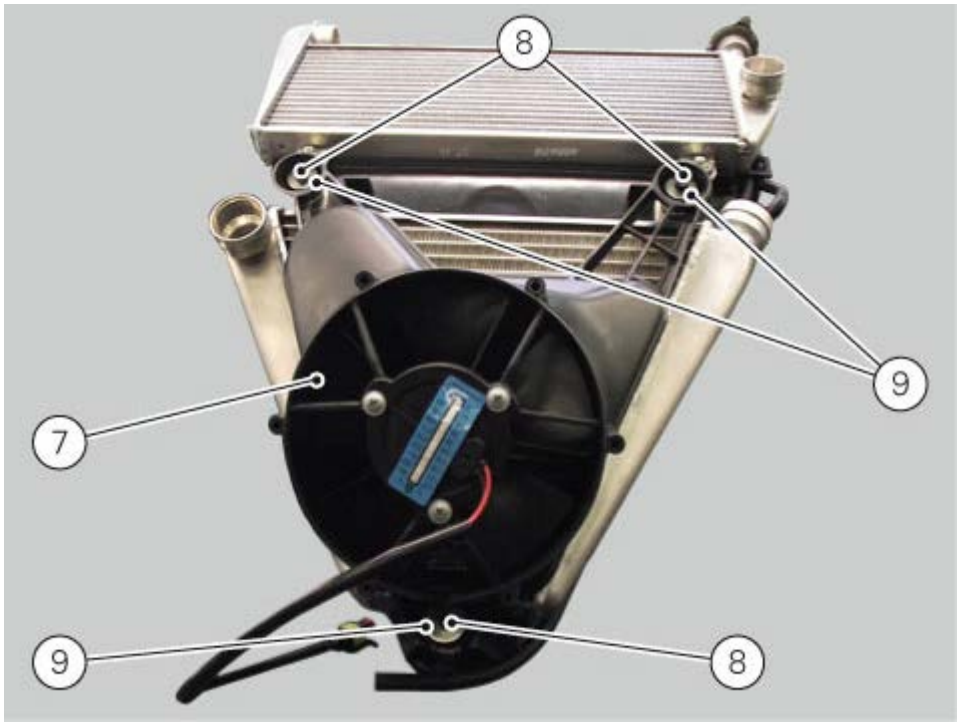
Loosen screws (5) and separate air conveyor (6) from fan (7).



http://www.ducati-manuals.com
no. 140312



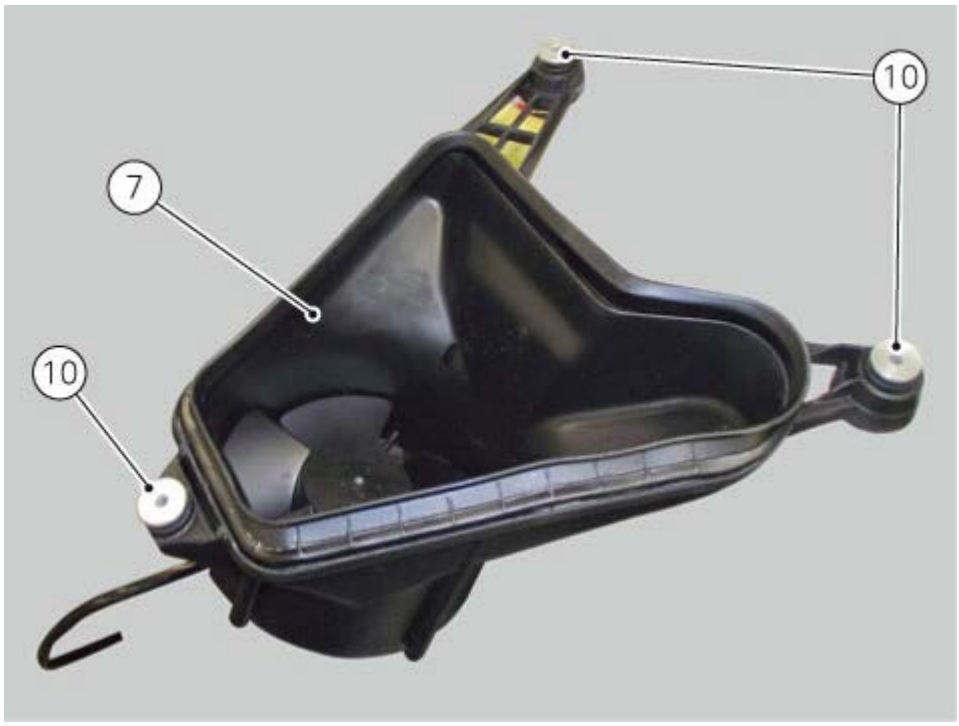
Remove fan (7) from bottom radiator by loosening screws (8); keep washers (9).



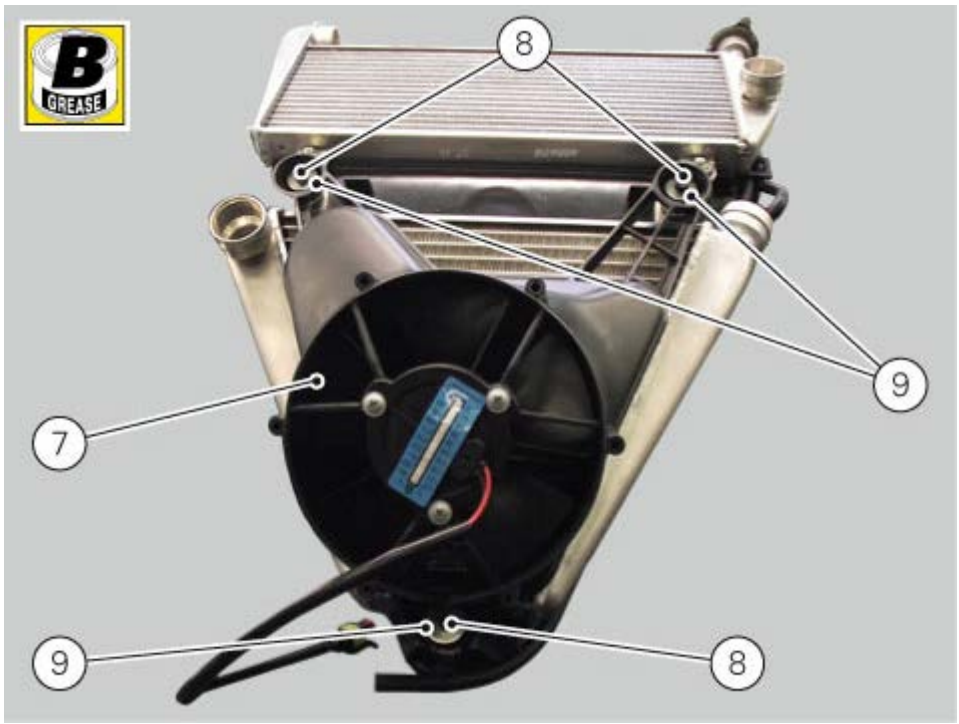
Installation of the cooling fan

Ensure that fan (7) is fitted with hat-shaped spacers (10) inside vibration dampers, or fit them on fan side as shown in the figure.

http://www.ducati-manuals.com
no. 140312

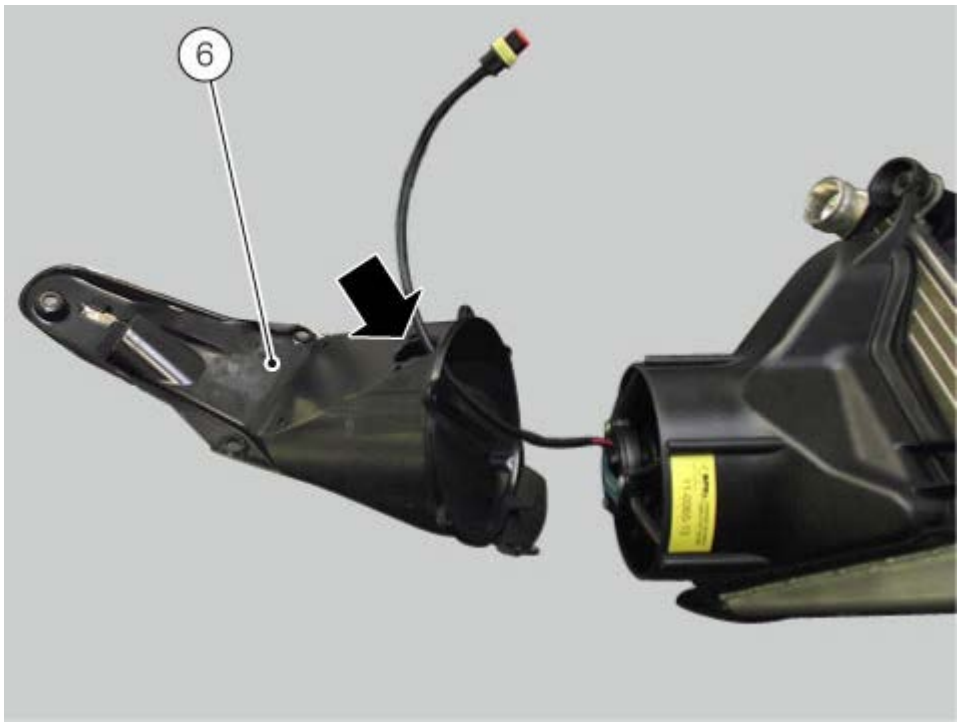


Smear recommended grease on thread and underside of screws (8).
Fit washers (9) onto screws (8).
Position fan (7) on bottom radiator, setting it as shown, and fasten it by starting screws (9)
Tighten screws (8) to 5 Nm ± 10%.

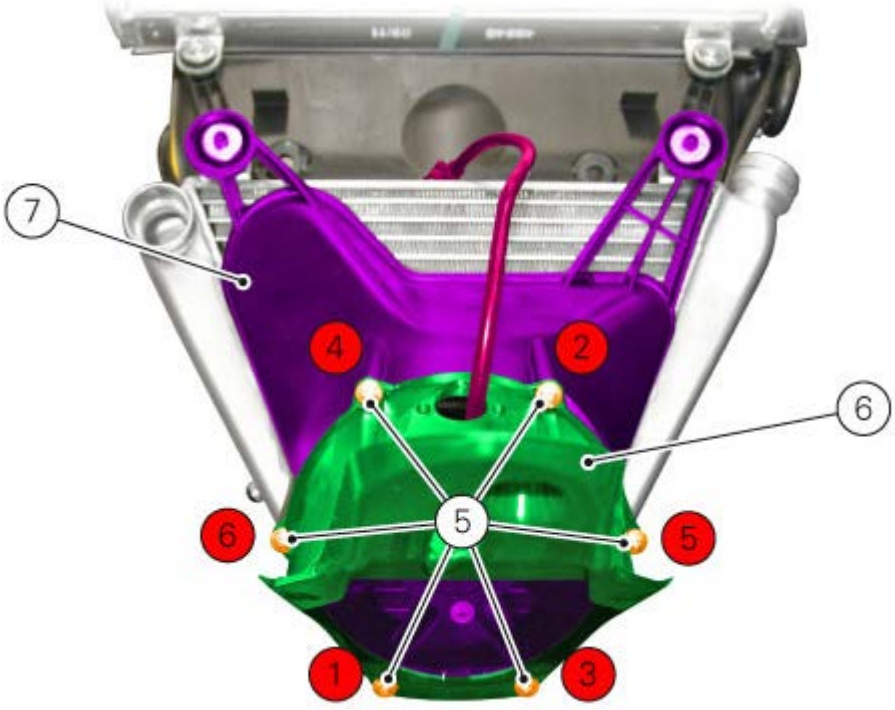


Let fan wiring slide inside the hole on air conveyor (6).

http://www.ducati-manuals.com
no. 140312



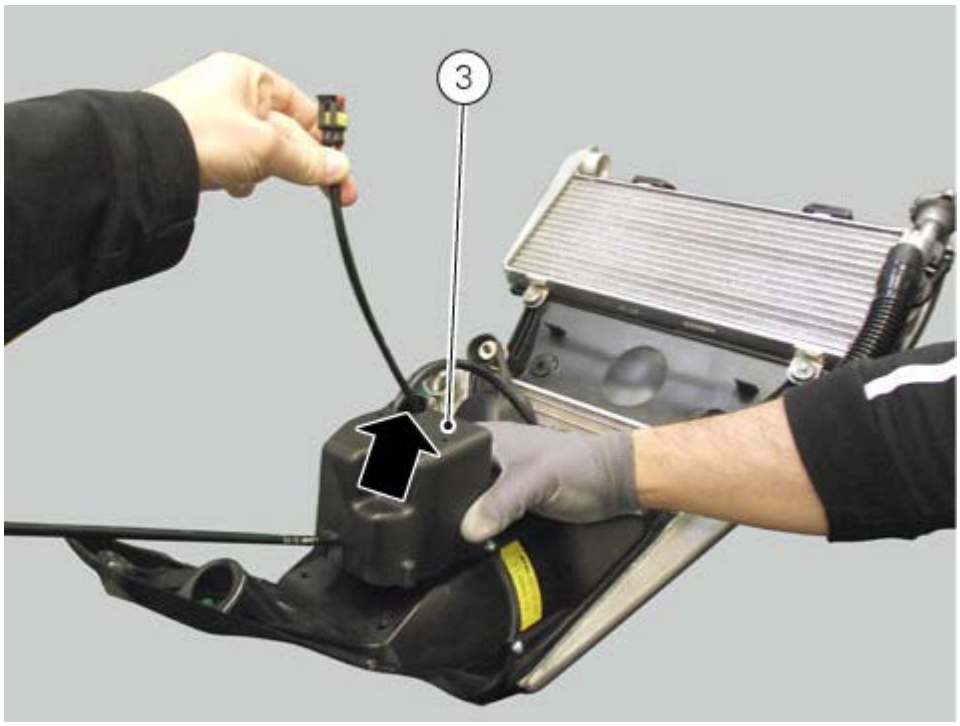
Position the air conveyor (6) on fan (7), set as shown in the figure, and fasten it by starting screws (5).
Tighten screws (5) to 5 Nm ± 10%, following a 1 - 2 - 3 - 4 - 5 - 6 sequence, as shown in the figure.



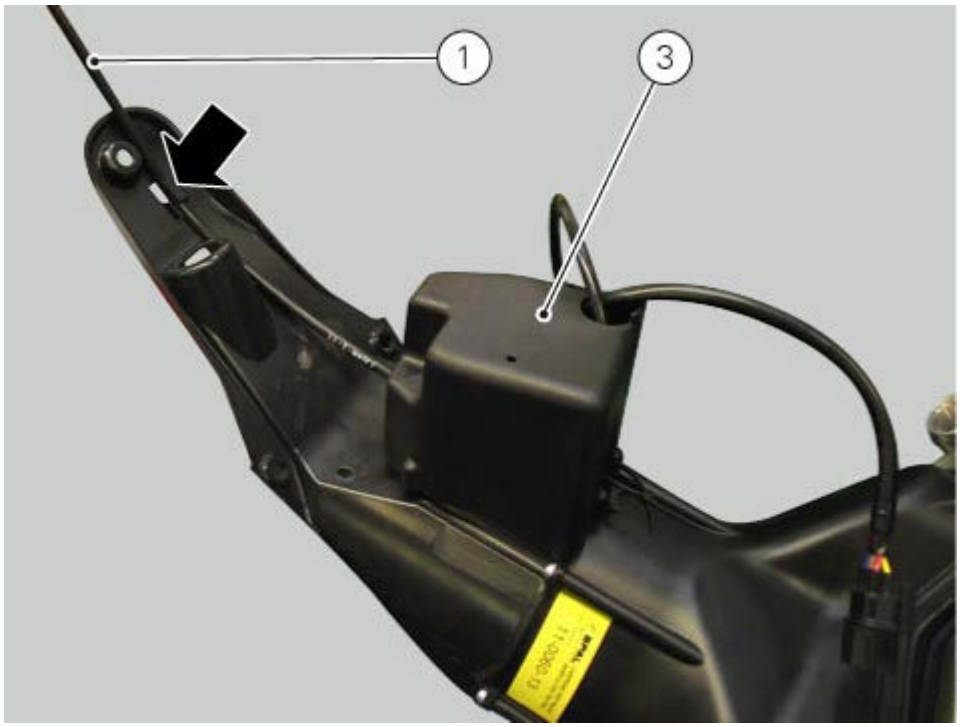
If the exhaust valve drive motor was disassembled, reassemble it as explained under "Reassembly of the exhaust valve drive motor".

Set the exhaust valve drive motor (3) on air conveyor.
Let fan wiring slide inside the hole on exhaust valve drive motor (3).

http://www.ducati-manuals.com
no. 140312

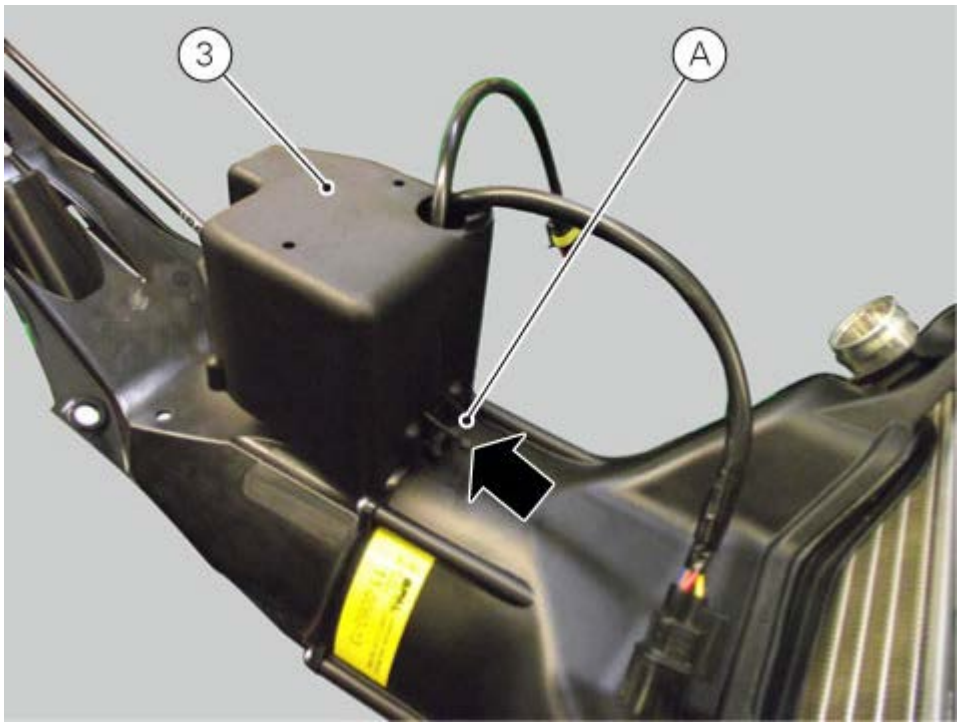


Engage the exhaust valve drive motor (3) inside clip, as shown.
Tie the fan wiring and the exhaust valve drive motor wiring using a tie (A), located in the position shown, without fastening it completely, so that fan wiring and exhaust valve drive motor wiring can freely slide inside it.

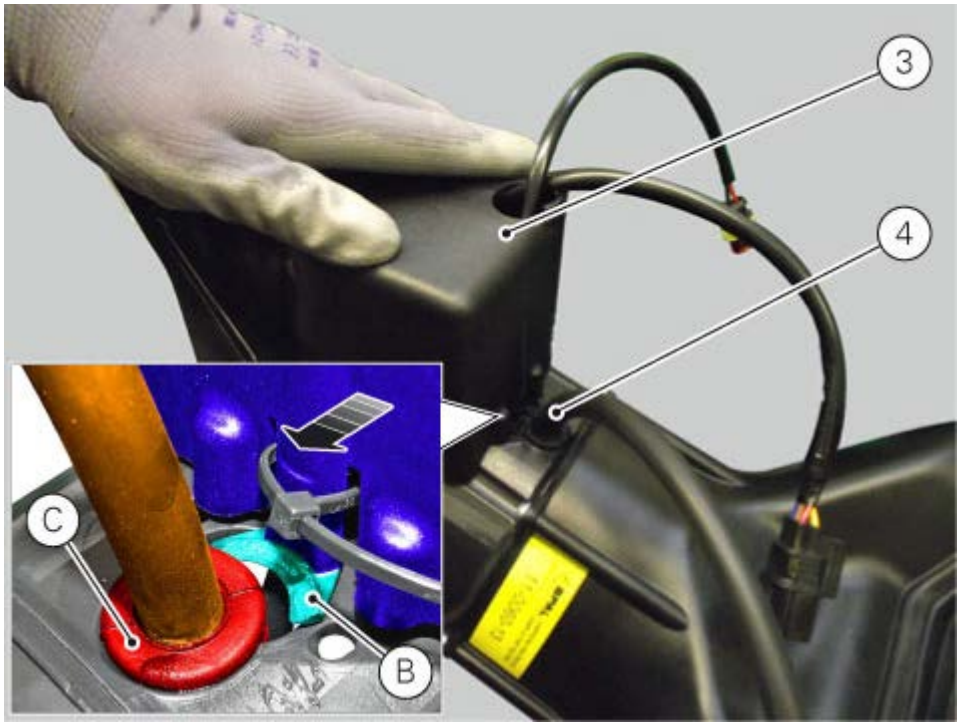


Install the airbox draining hose (4) fitting rubber block (C) in its seat on air conveyor (3), as shown in the figure.
Move the exhaust valve drive motor assembly (4) to airbox draining hose (4) and fit fork clip (B) in rubber block (C).

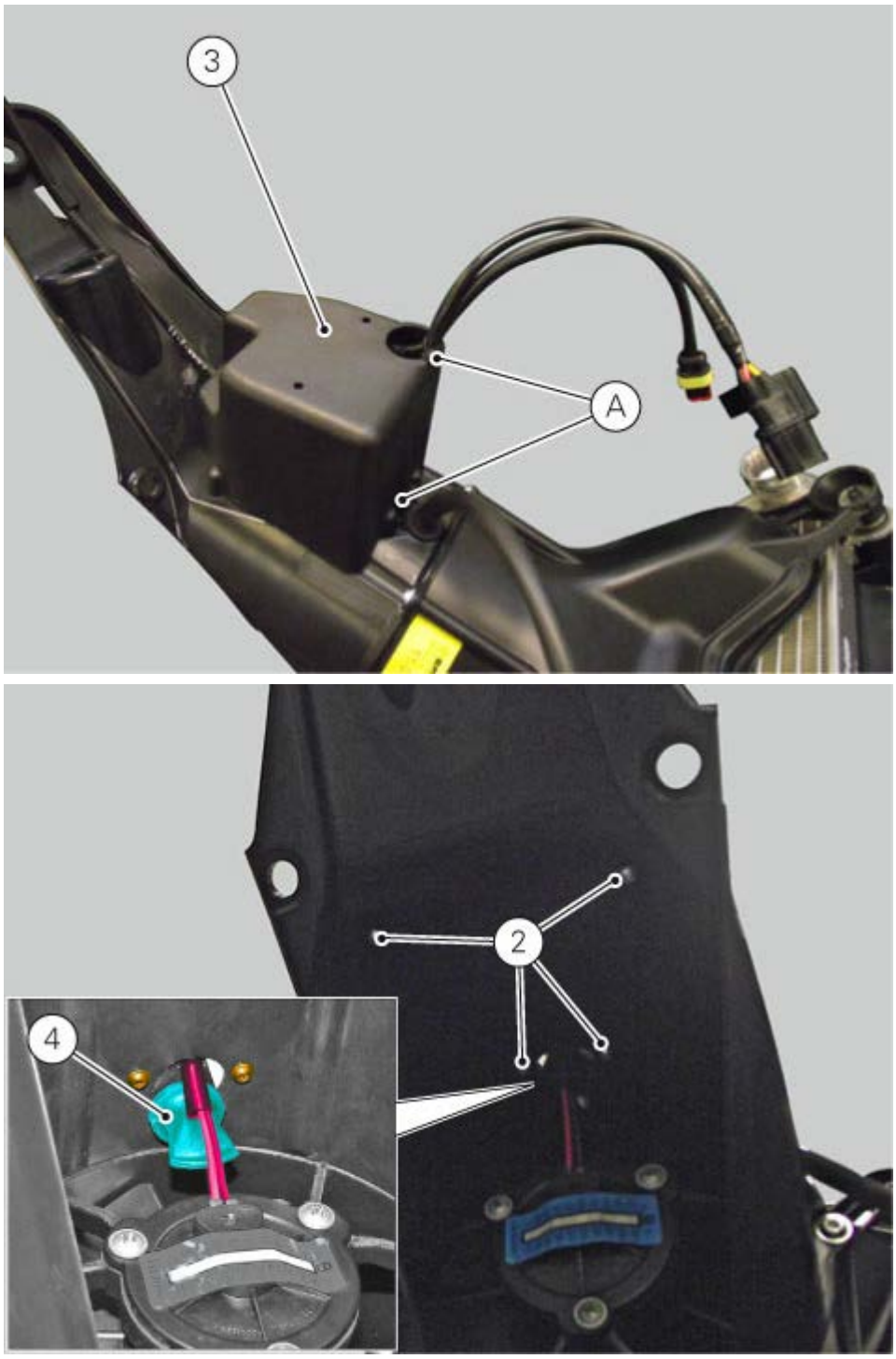
http://www.ducati-manuals.com
no. 140312



Fasten the exhaust valve drive motor (3) to air conveyor by starting screws (2) on conveyor bottom part.
Tighten screws (2) to 5 Nm ± 10%.
Slightly pull up with your hands to tension the fan wiring and exhaust valve drive motor wiring and fasten the small tie (1) you previously left loose.
Tie the fan wiring and the exhaust valve drive motor wiring to exhaust valve drive motor (3) using another tie (1), fitted in the position shown.
Position the draining hose (4) so as to prevent it from interfering with the fan wiring, as shown.



http://www.ducati-manuals.com
no. 140312



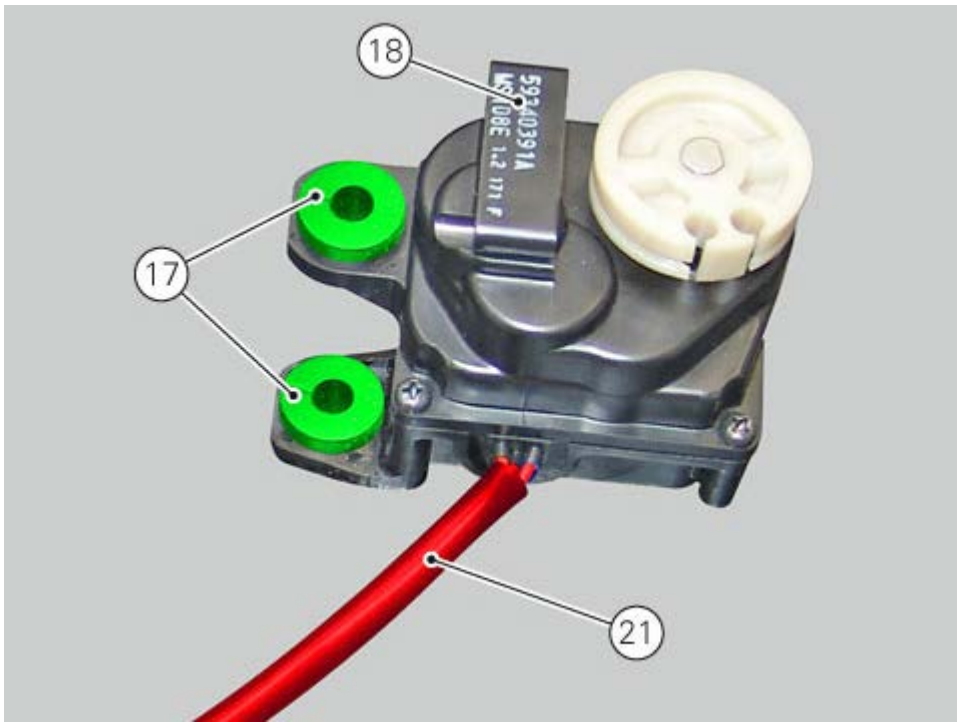
Reassembly of the exhaust valve drive motor

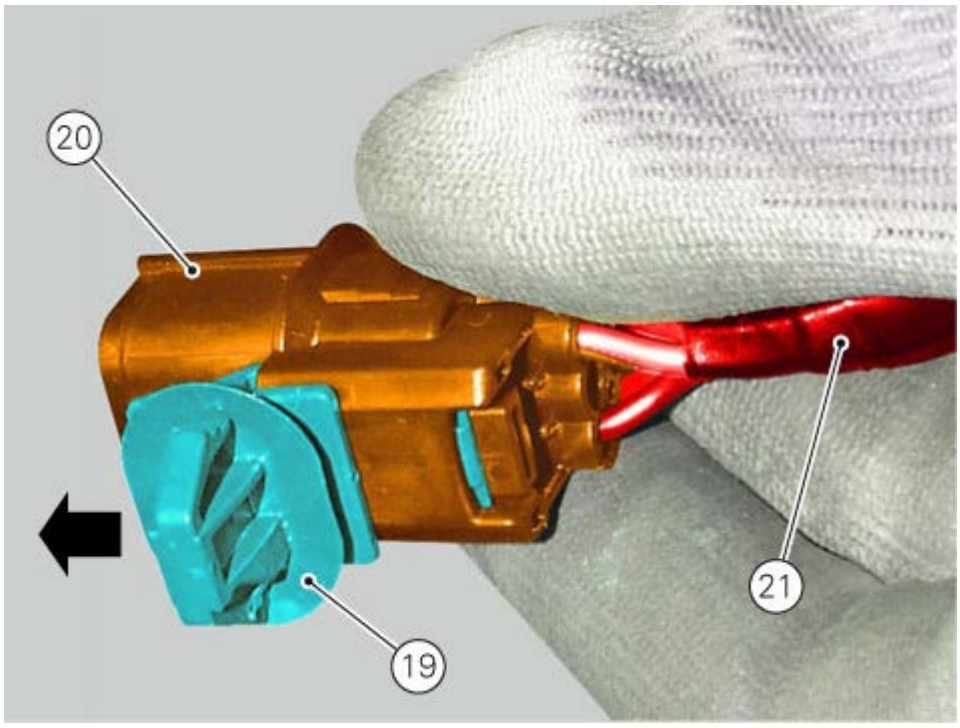
Fit the vibration damper mounts (17) in the relevant holes of the exhaust valve drive motor (18).

Note
In case of problems when fitting the vibration dampers (17), it is recommended to use KLÜBERPLUS S 06/100, and apply some on the vibration dampers.

Detach the quick-fitting (19) available on connector (20) of exhaust valve drive motor (21).

http://www.ducati-manuals.com
no. 140312



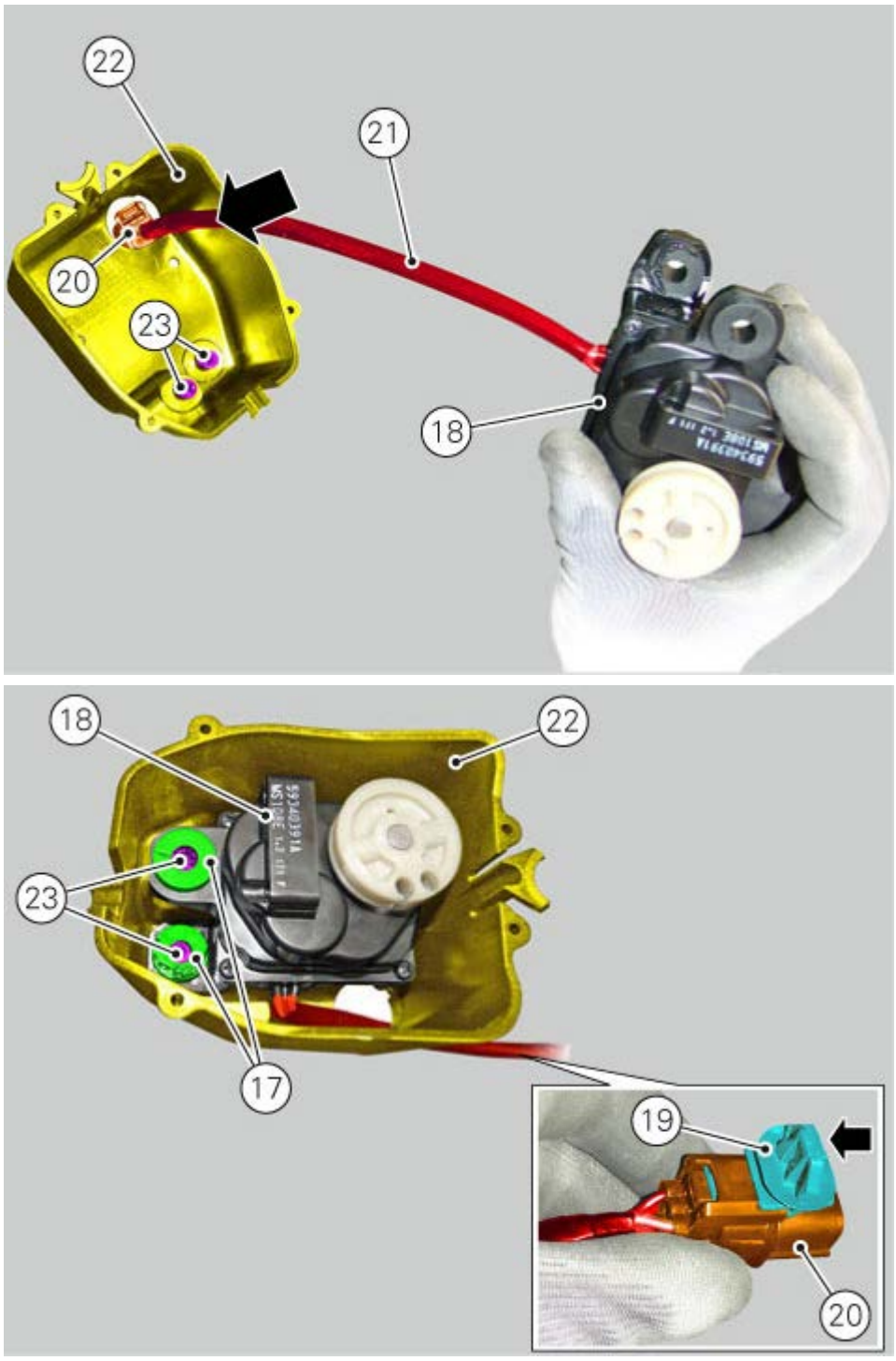


Install the exhaust valve drive motor (18) on cover (22), taking the vibration dampers (17) fully home on stud bolts (23).

Note
In case of problems when fitting the vibration dampers (17), it is recommended to use KLÜBERPLUS S 06/100, and apply some on the vibration dampers.

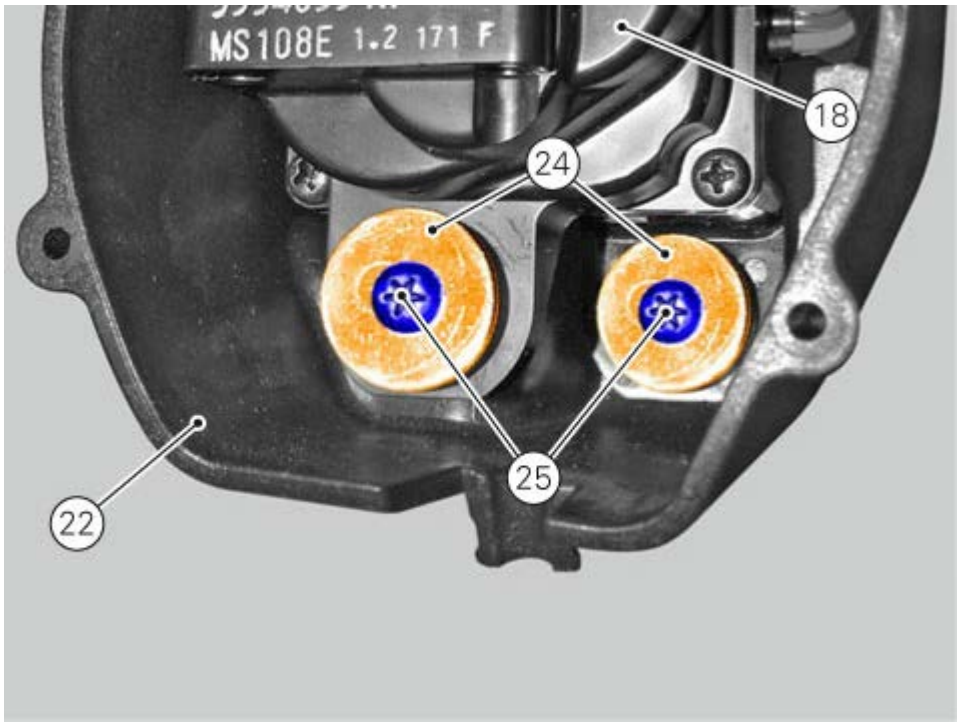
Route exhaust valve drive motor wiring (21) connector (20) inside the hole on cover (22), as shown.
Refit the quick-fitting (19) to exhaust valve drive motor wiring (21) connector (20).

http://www.ducati-manuals.com
no. 140312



Fit washers (24) on screws (25).
Fasten the exhaust valve drive motor (18) to cover (22) starting screws (25) on the vibration dampers installed previously.
Tighten screws (25) to 2 Nm±10%.

http://www.ducati-manuals.com
no. 140312

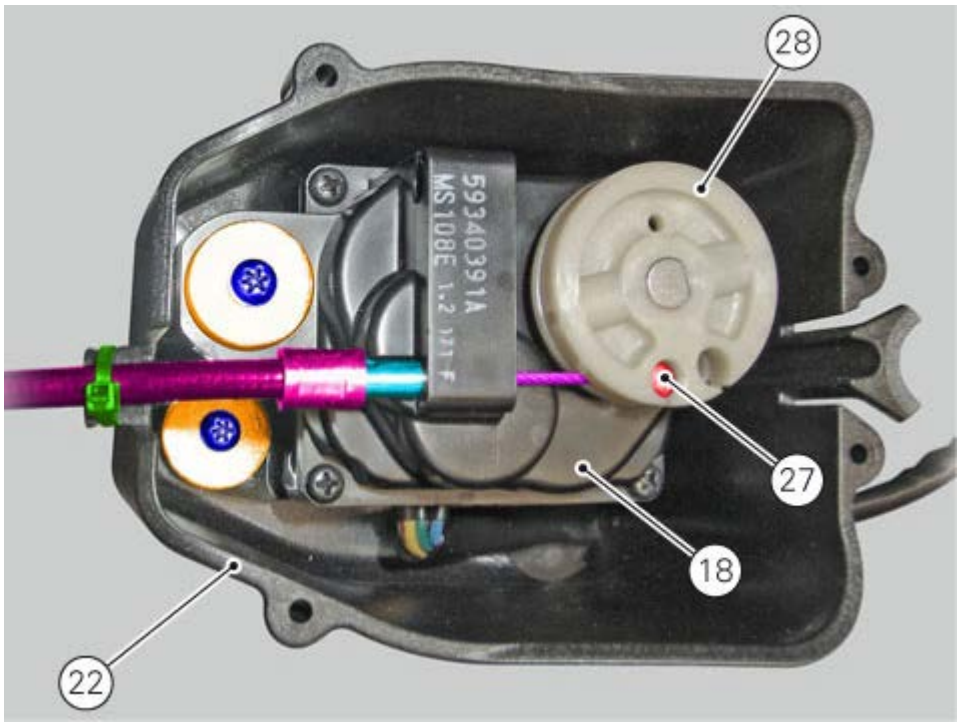


Install the exhaust valve drive motor cable (26) and engage pawl (27) in the relevant hole on pulley (28).

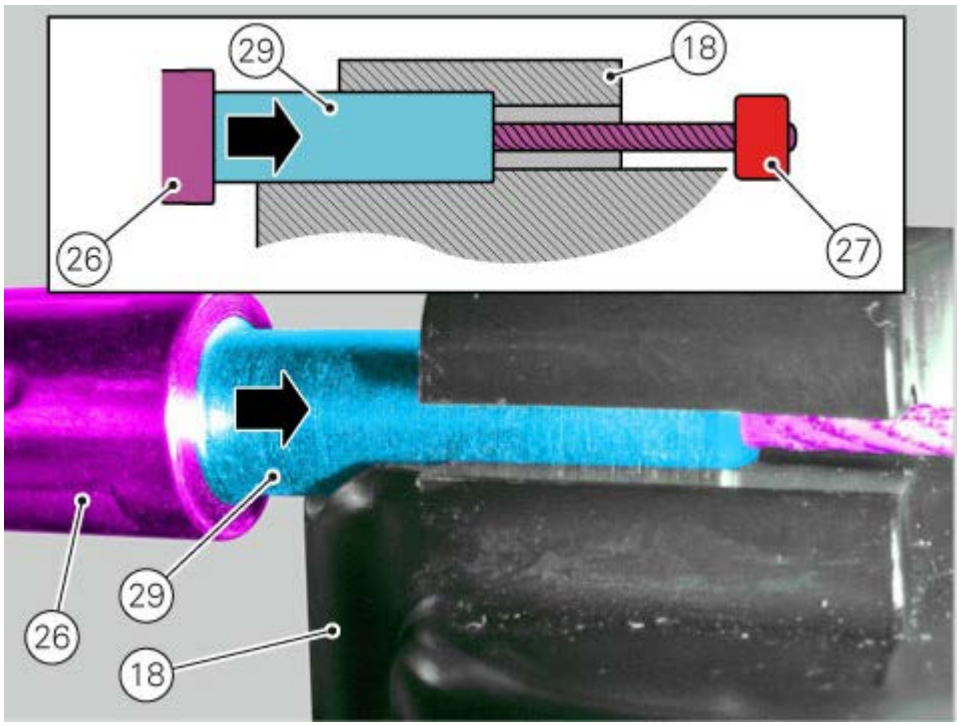
Note
The exhaust valve drive motor cable (26) must be positioned as indicated.

Fit the cylindrical end (29) in the relevant seat on exhaust valve drive motor (18), ensure to take it fully home as shown in the figure (30).

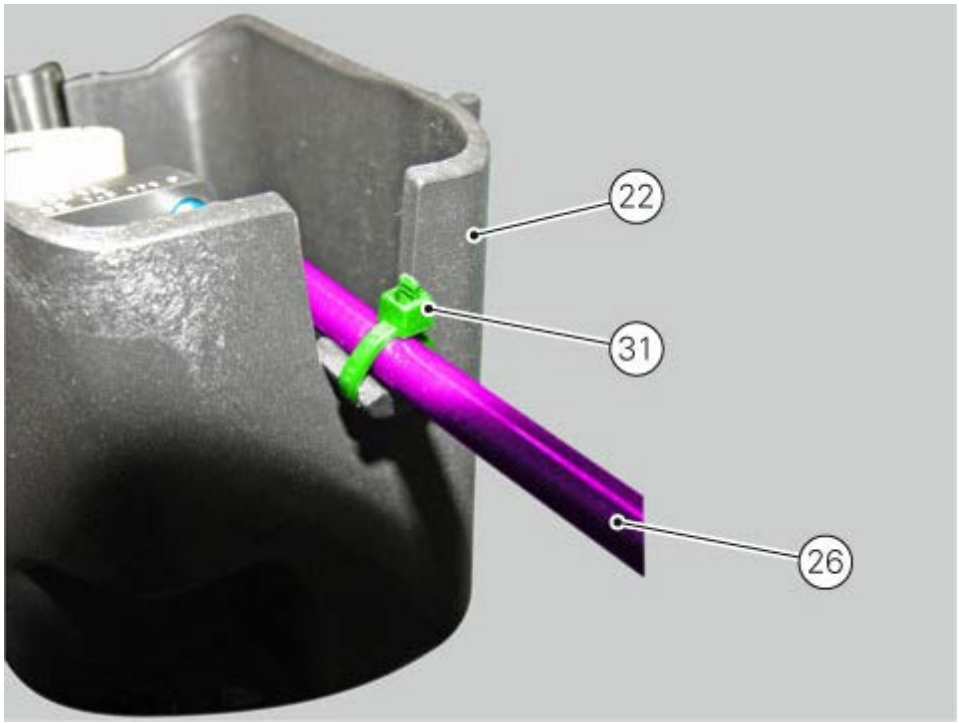
Attention
In case of problems when fitting the terminal (29) fully home, it is recommended to use RUBBER-SPECIFIC LUBRICANT (KLÜBERPLUS S 06/100), and apply some on the terminal.



http://www.ducati-manuals.com
no. 140312



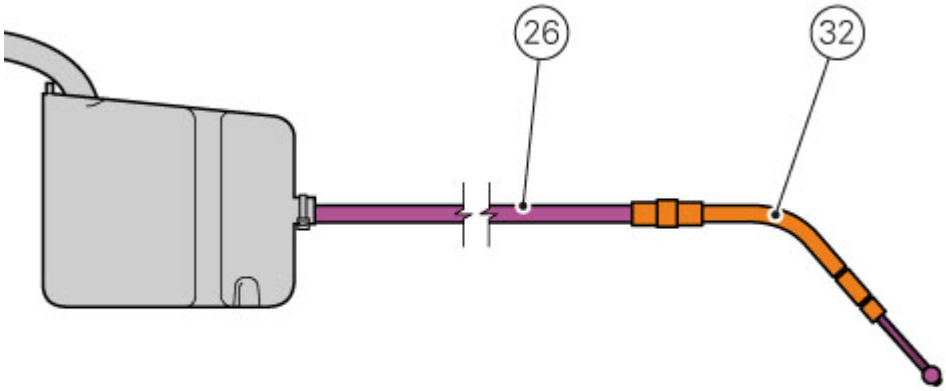
Tie the exhaust valve drive motor (26), using a small tie (31), in the indicated cover area (22).



Important

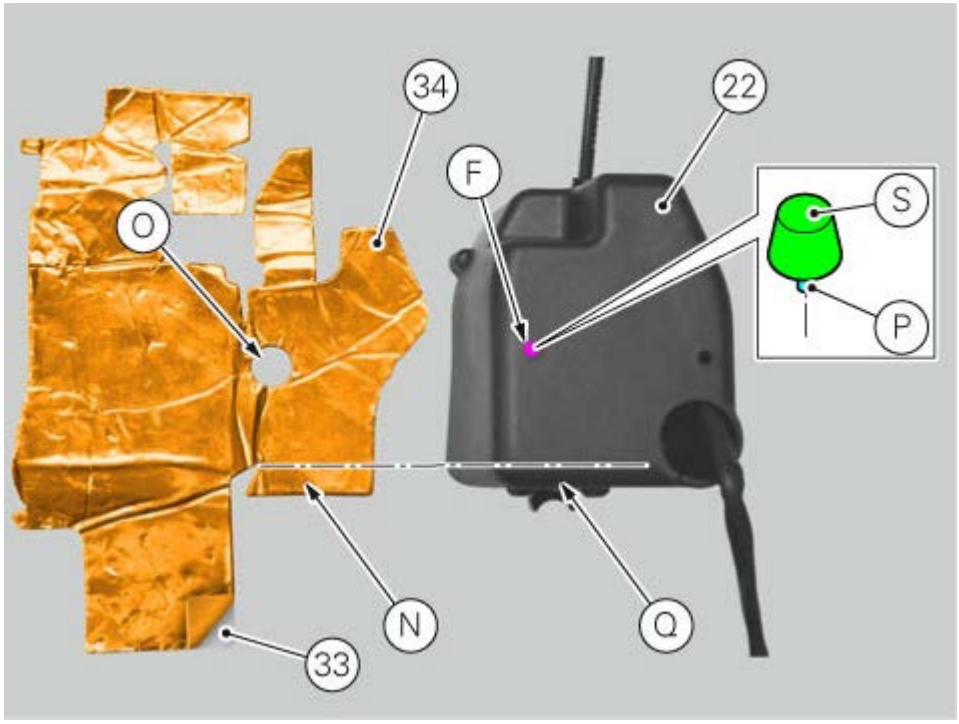
Once assembled, the exhaust valve drive motor cable (26) must be positioned with bent terminal (32) downward.

http://www.ducati-manuals.com
no. 140312

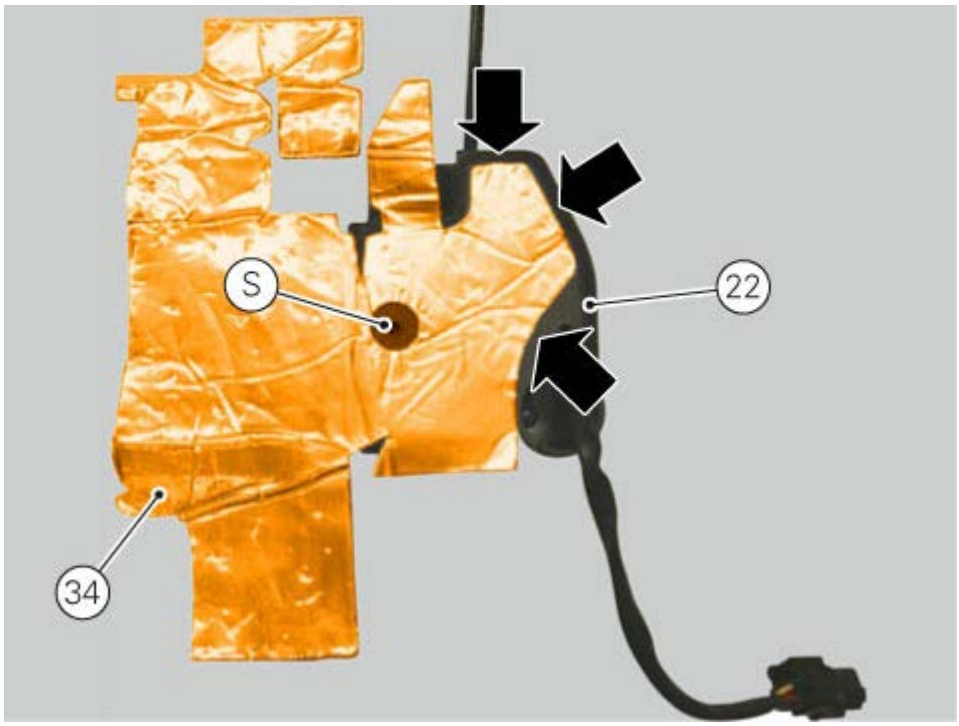


Install a service taper pin (S) and fit pin (P) in hole (F) on cover (22).
Remove the protective film (33) at the back of the heat reflective material (34).
Position the heat reflective material (34) on cover (22) top part, as follows:

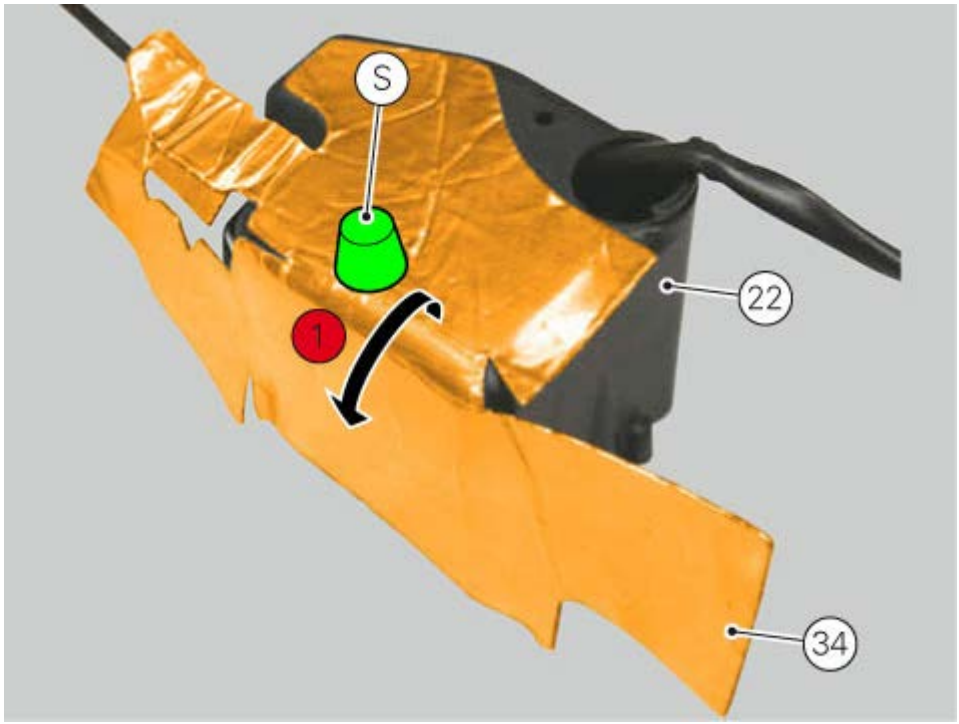
- Centre hole (O) of heat reflective material (34) on taper pin (S);
- Align heat reflective material (34) bend (P) with the internal profile (Q) of cover (22) chamfer;
- Make heat reflective material (34) perfectly adhere especially in the areas indicated by the blue arrows.



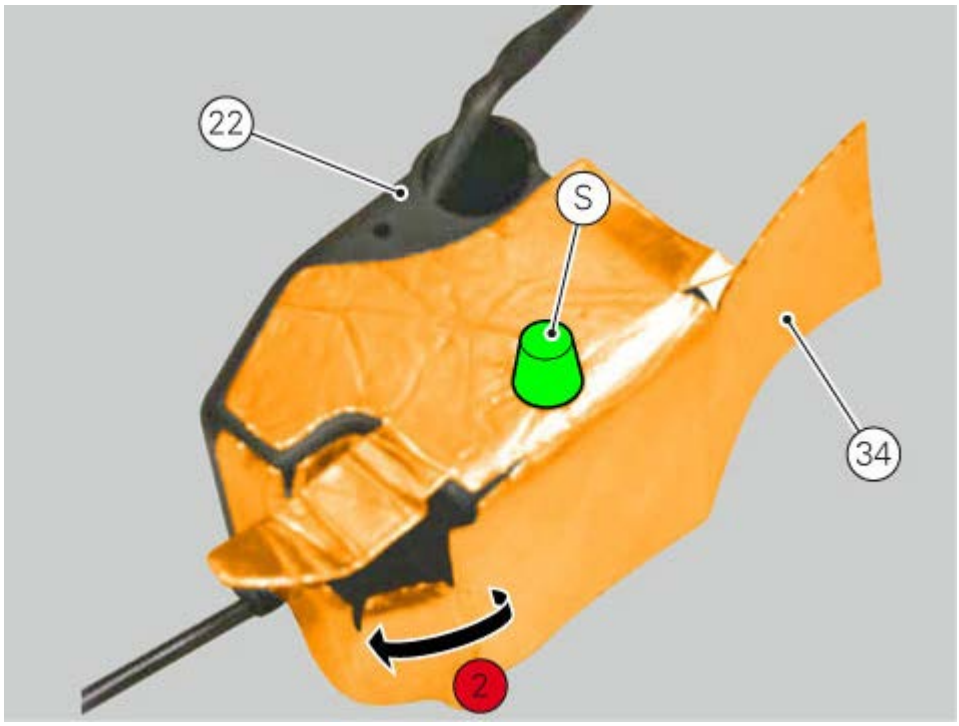
http://www.ducati-manuals.com
no. 140312

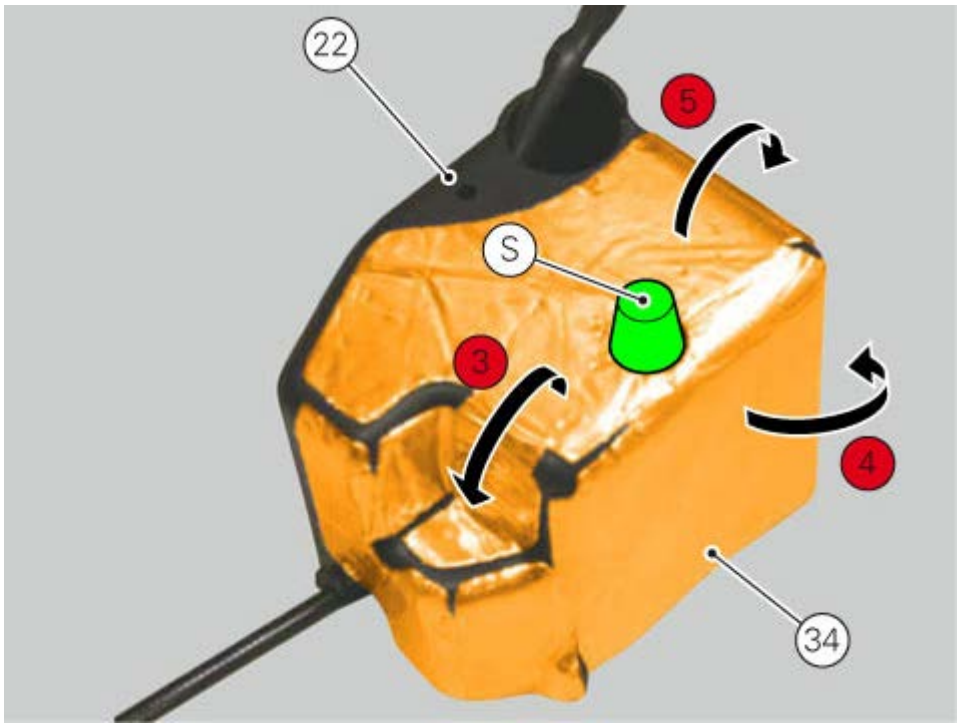


Apply the remaining parts of heat reflective material (34) on cover (22), strictly following the 1-2-3-4-5 sequence.
Remove the service taper pin (S).



http://www.ducati-manuals.com
no. 140312

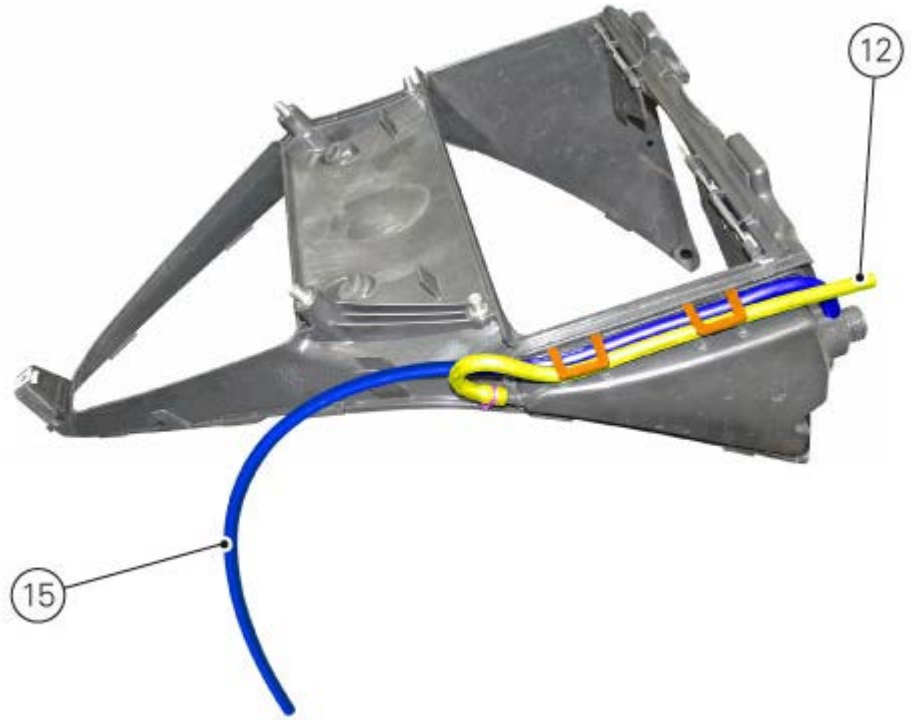




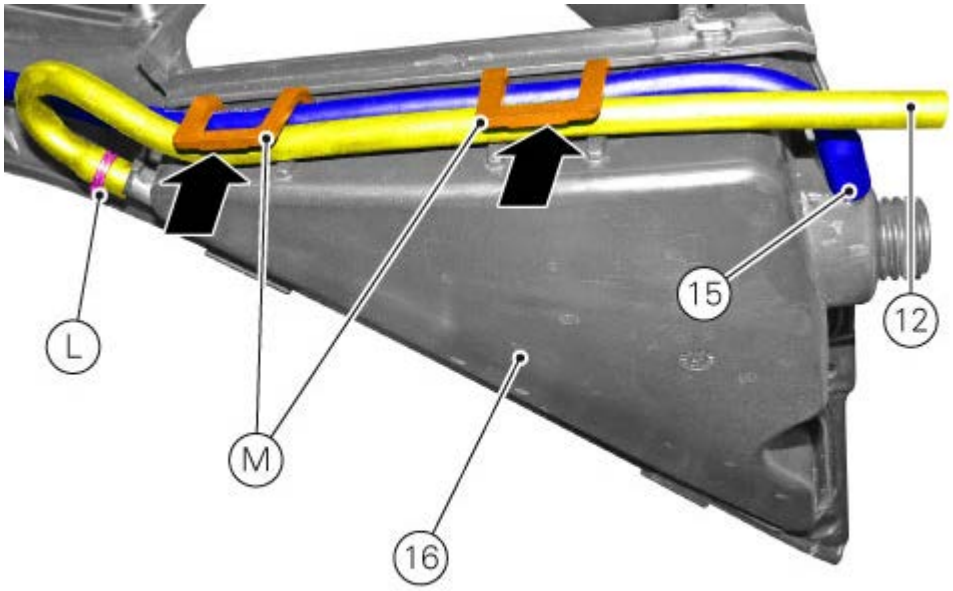
http://www.ducati-manuals.com
no. 140312

Installation of the radiator

Ensure that hoses (12) and (15) are installed on radiator mounts.

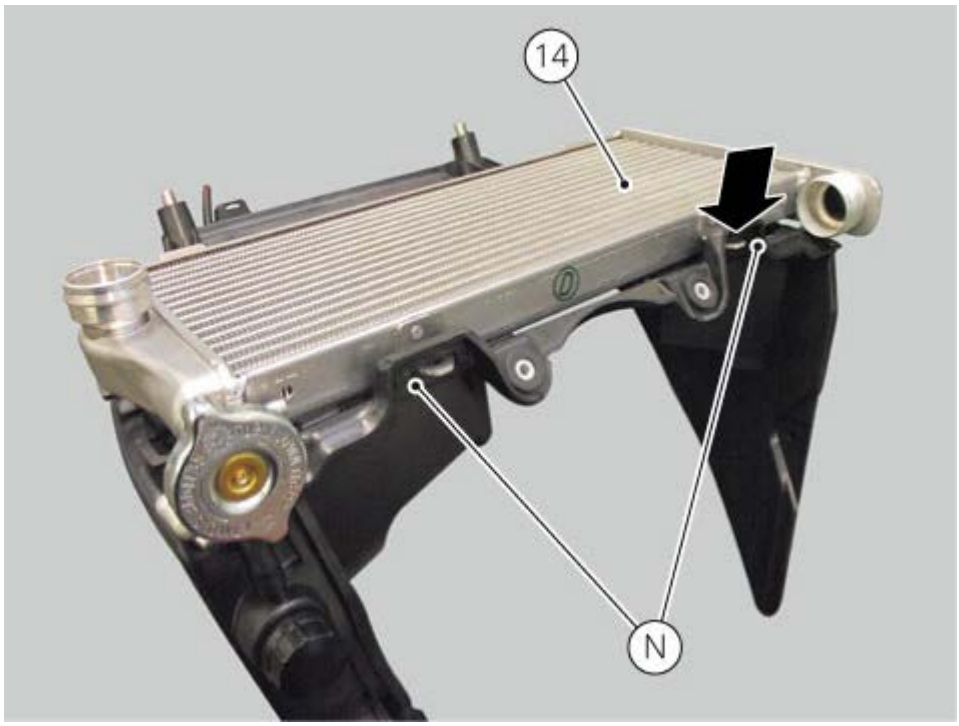


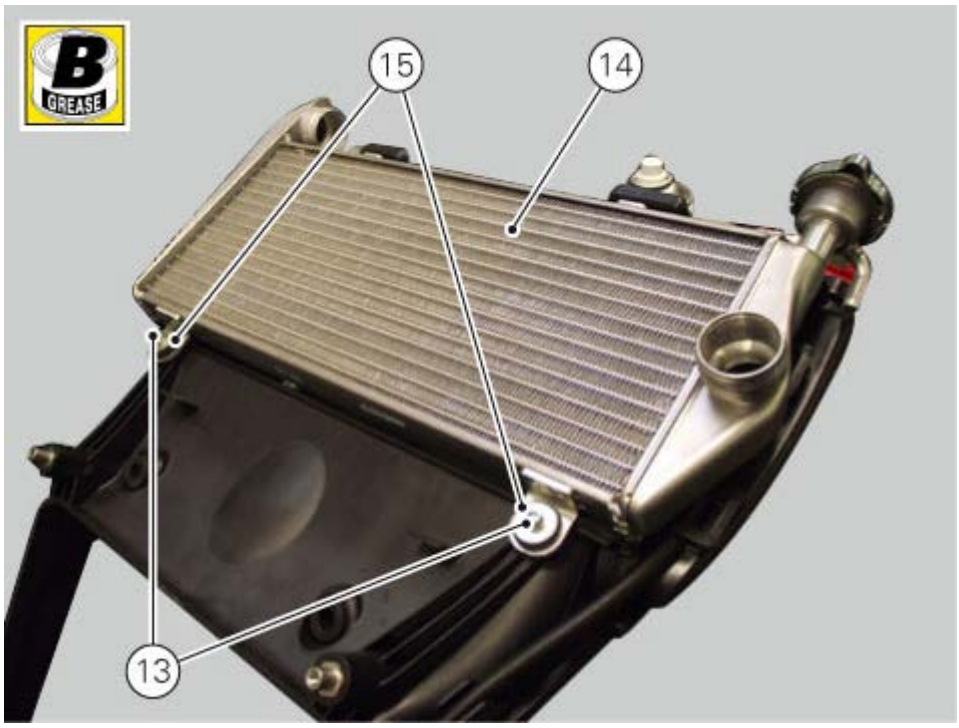
If they have been removed, refit as follows.
Install the expansion tank (15) draining hose on the upper fitting of the expansion tank (16) available on radiator mounts.
Install the expansion tank-radiator hose (12) on the bottom fitting of the expansion tank (16) and fasten it using the clip (L).
Lay down the draining hose (15) and the expansion tank-top radiator hose (12) inside clips (M), complying with the layout shown in the figure.



Set the top radiator (14) on radiator mounts, fitting the left bracket first and then the right bracket in the vibration dampers (N).
Complete installation of the top radiator (14) inserting the vibration dampers fully home on stud bolts, as shown.
Smear specified grease on thread and underside of screws (13), fit washers (15).
Fasten top radiator (14) tightening screws (13) to 5 Nm ± 10%.

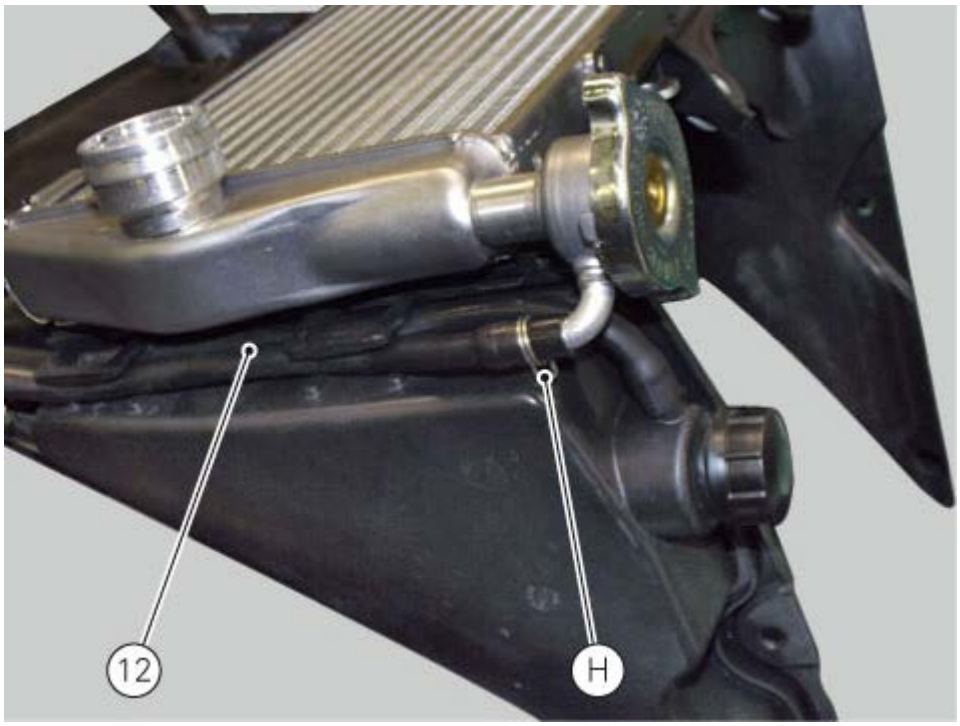
http://www.ducati-manuals.com
no. 140312



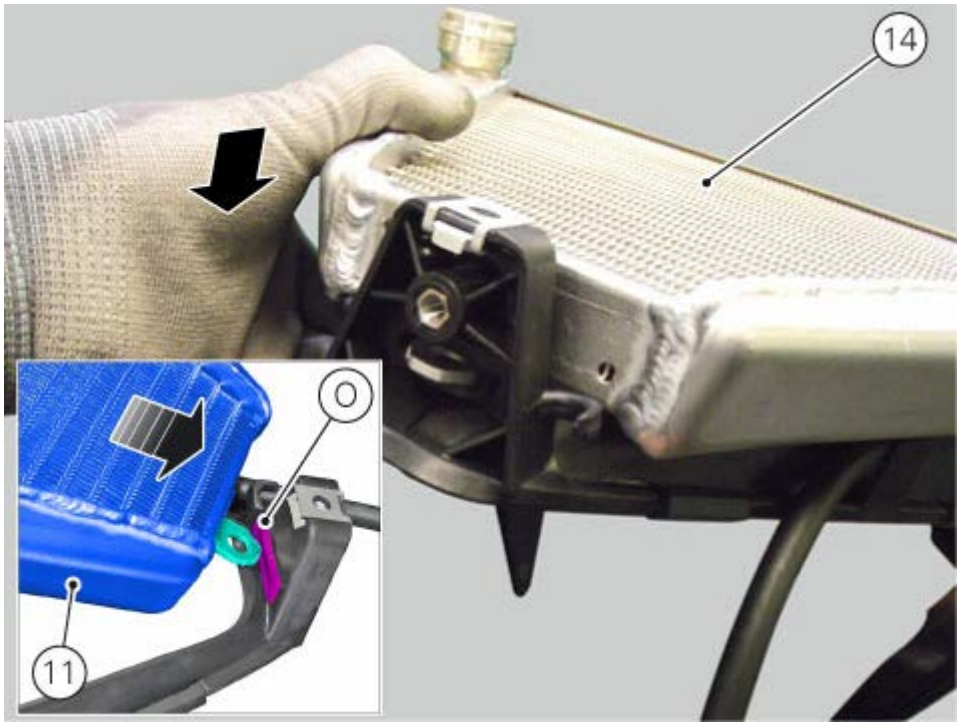


Fit expansion tank-top radiator hose (12) to the fitting and fasten it using clamp (H).

http://www.ducati-manuals.com
no. 140312



Position the bottom radiator (11) on radiator mounts by fitting the bracket in the vibration damper (O).



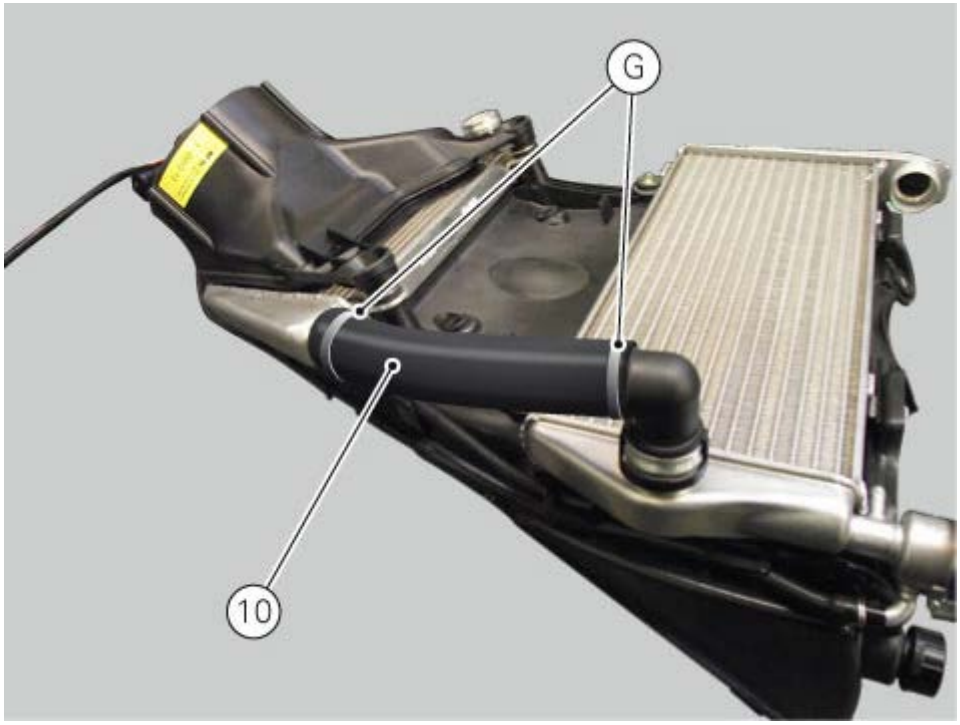
Complete installation of the bottom radiator (11) inserting the vibration dampers fully home on stud bolts, as shown.

http://www.ducati-manuals.com
no. 140312



Refit fan on bottom radiator (11) (Renewal of the cooling fan).

Refit hose (10) which connects the top radiator to the bottom one and tighten ties (G) to 2.5 Nm ± 10%.

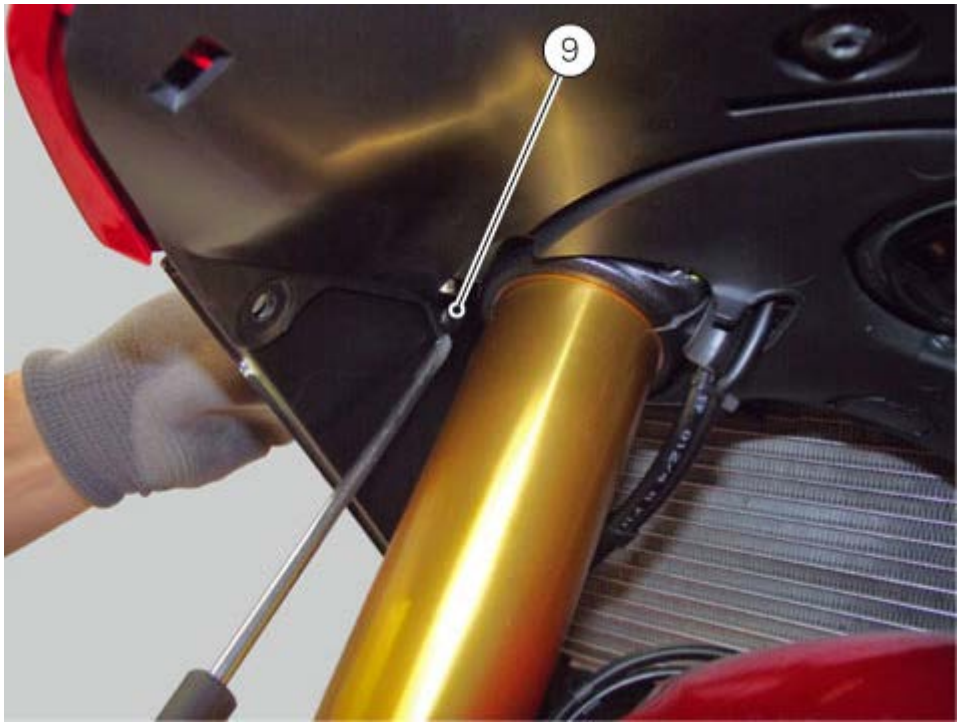


Fit the airbox draining hose (F) to air conveyor and refit the complete radiator assembly to the vehicle.

http://www.ducati-manuals.com
no. 140312



Secure the complete radiator mounts to the headlight fairing using quick-coupling (9).

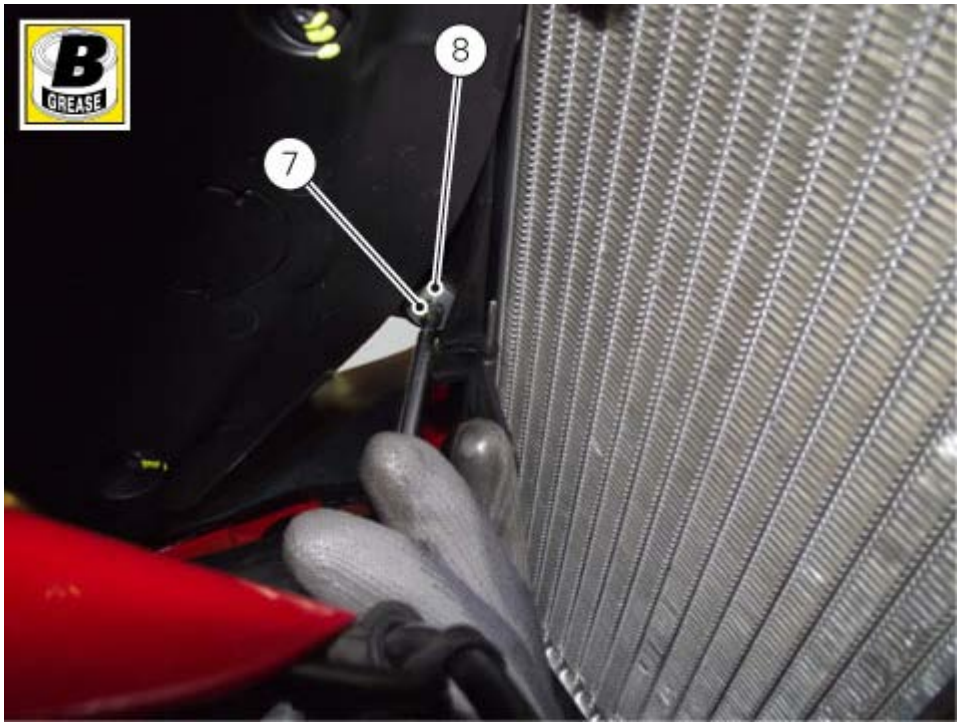


Connect fan connector (D) and exhaust valve drive motor connector (E) and fasten them using a tie.

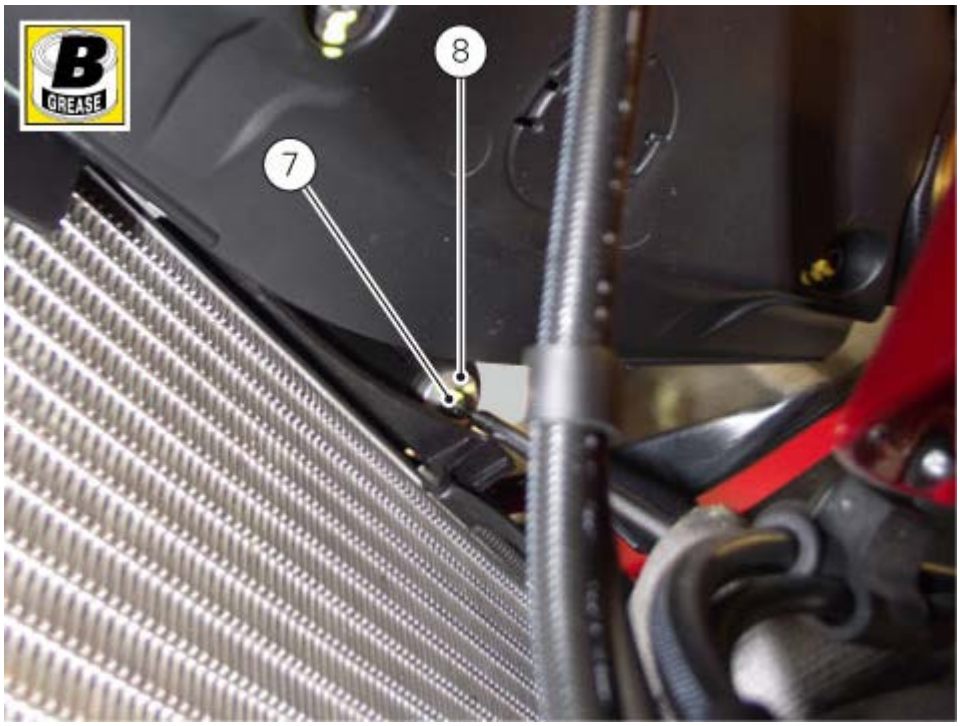
http://www.ducati-manuals.com
no. 140312



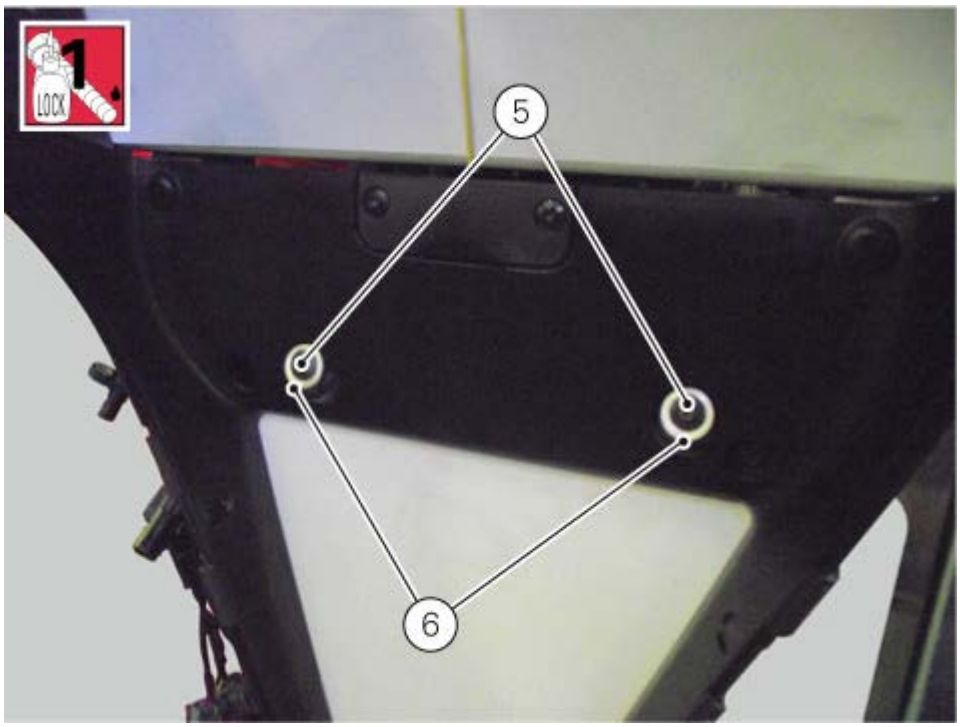
Smear screws (7) with specified grease.
Fasten the complete radiator assembly to the frame, start screws (7) in their thread with spacers (8).
Tighten screws (7) to 6 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



Smear screws (5) with specified threadlocker.
Fasten the complete radiator assembly to the horizontal head, start screws (5) in their thread with spacers (6).
Tighten screws (5) to 4 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

Removal of the cooling system hoses and unions

Loosen ties (A) and disconnect hoses from top and bottom radiator.



Loosen ties (B) and disconnect the hoses from water distributor.

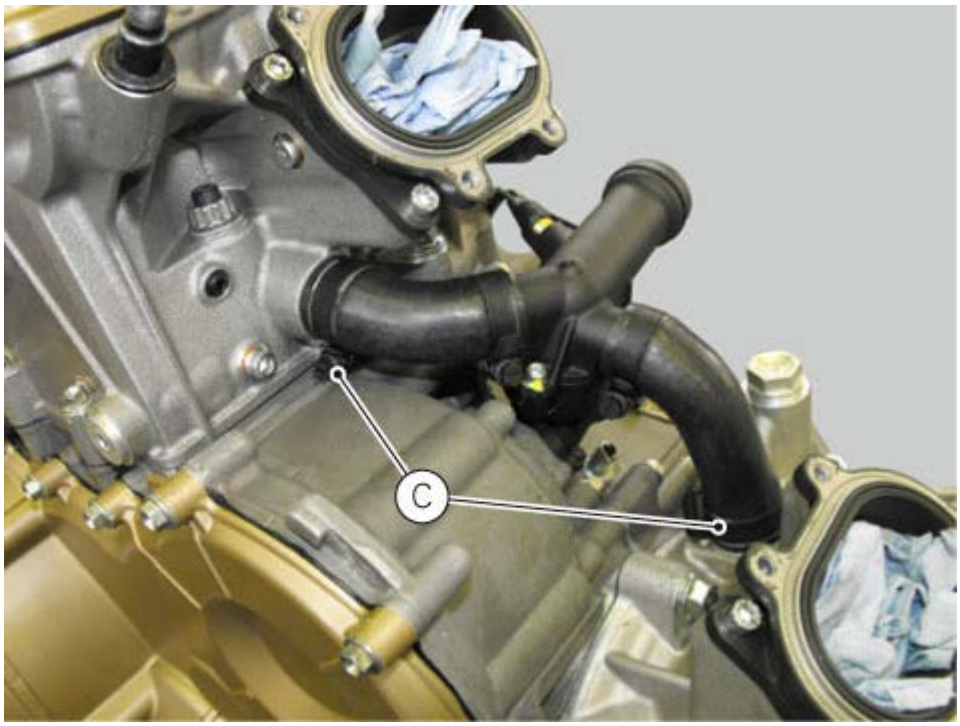


Note

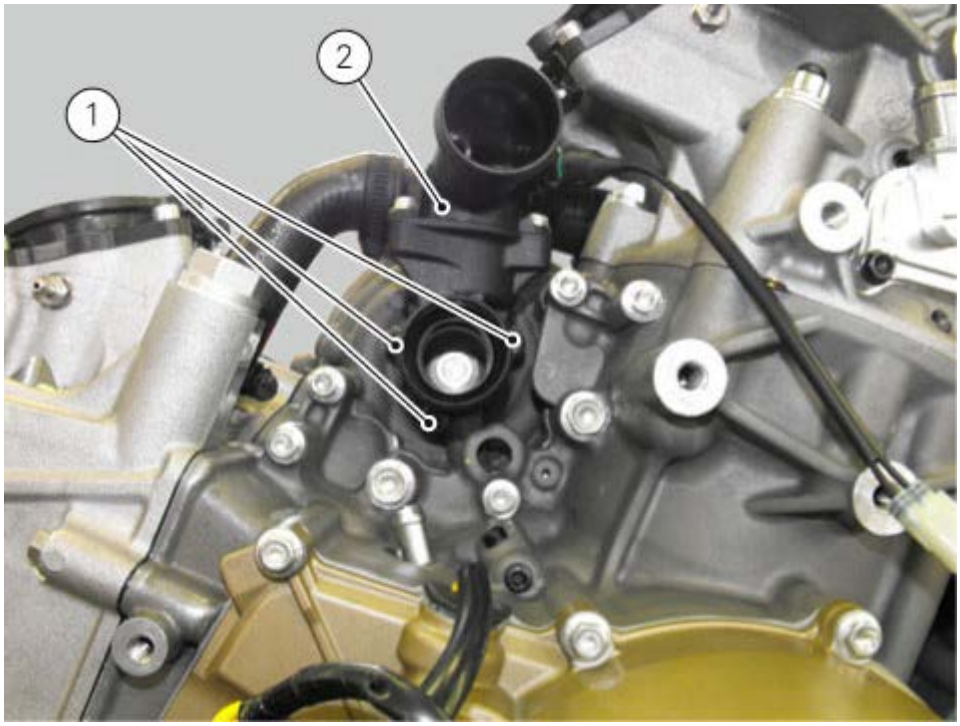
For clarity, the figures show the engine removed from the frame.

Loosen ties (C) and disconnect the thermostat hoses from the cylinder heads.

http://www.ducati-manuals.com
no. 140312



Unscrew the screws (1) and remove the thermostat (2).

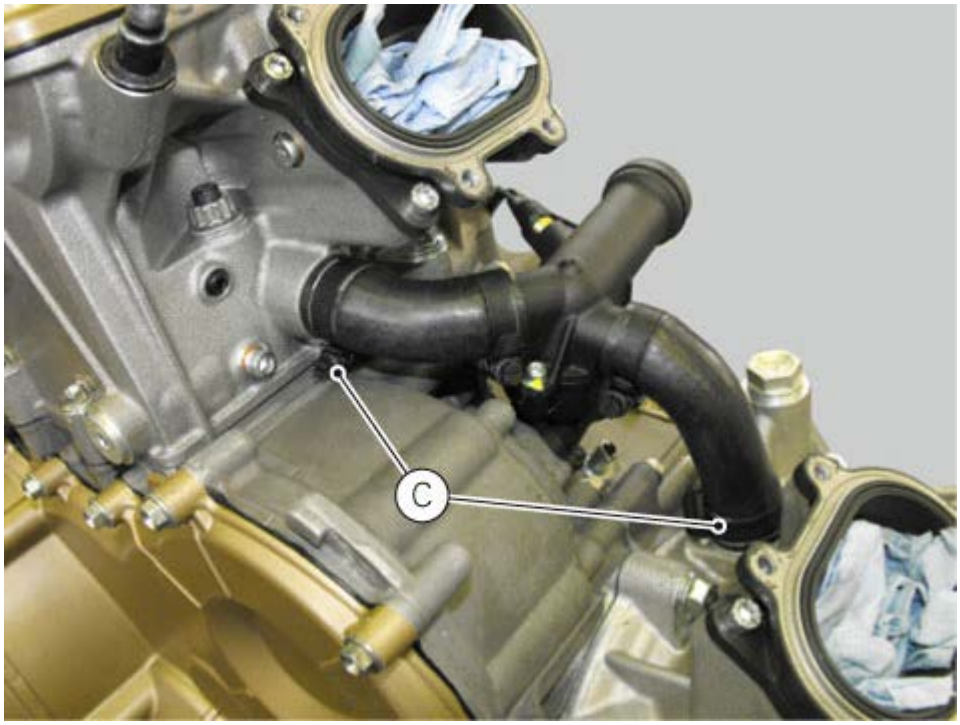


http://www.ducati-manuals.com
no. 140312

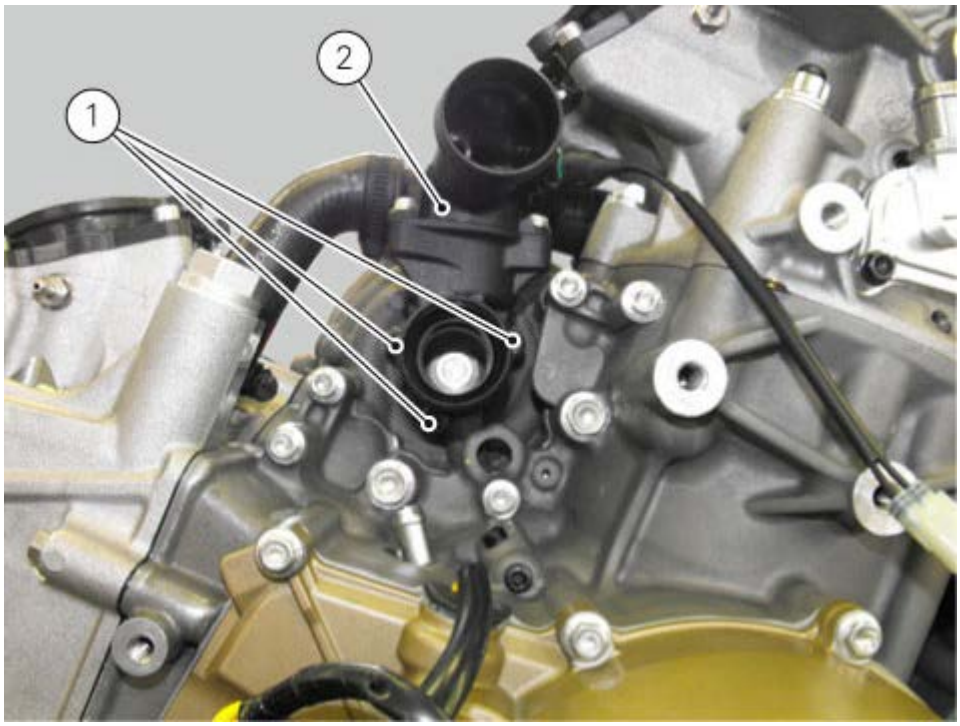
Installation of the cooling system hoses and unions

Note
For clarity, the figures show the engine removed from the frame.

Set the thermostat on engine, secure it with clamps (C) and tighten them to 2.5 Nm ± 10%.



Fasten thermostat (2) to engine by tightening the screws (1) to a torque of 6 Nm (Min. 5 Nm - Max. 7 Nm).



Connect the hoses to water distributor and tighten clamps (B) to 2.5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



Connect the hoses to top and bottom radiator and tighten clamps (A) to 2.5 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

Removal of the engine from frame

Remove the seat (Removal of the rider seat).
Remove the side fairings (Removal of the side fairings).
Remove the tank (Removal of the fuel tank).
Remove the battery (Battery).

Note
Let the headlight fairing on, but duly protect it so as not to damage it during parts removal.

Vice the front wheel.

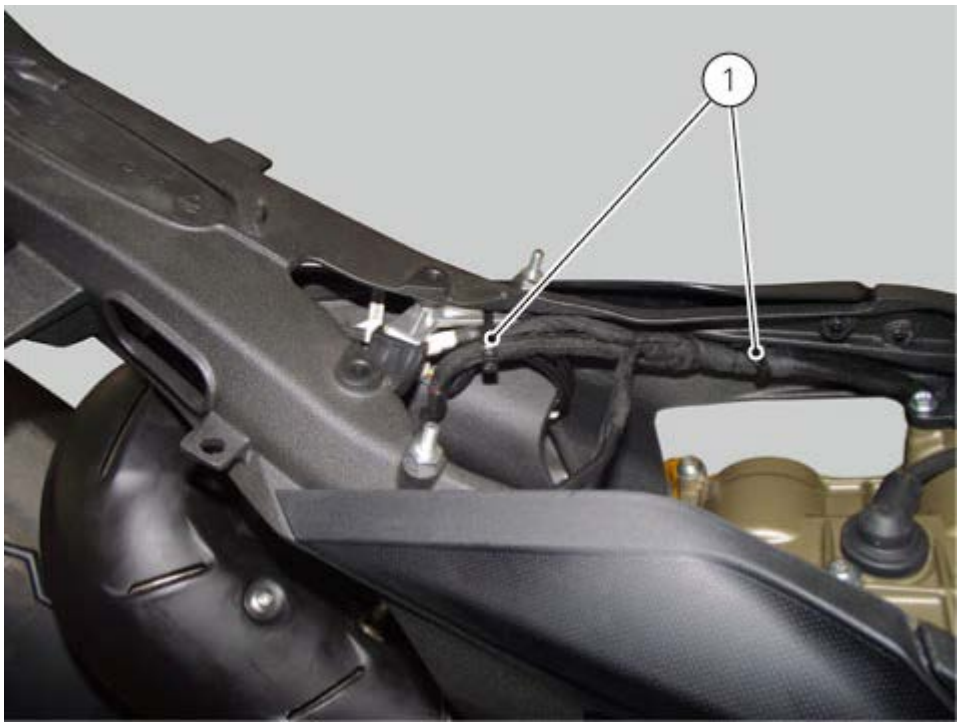


Keep brake lever locked using an elastic band.



Remove clamps (1) from rear wiring.

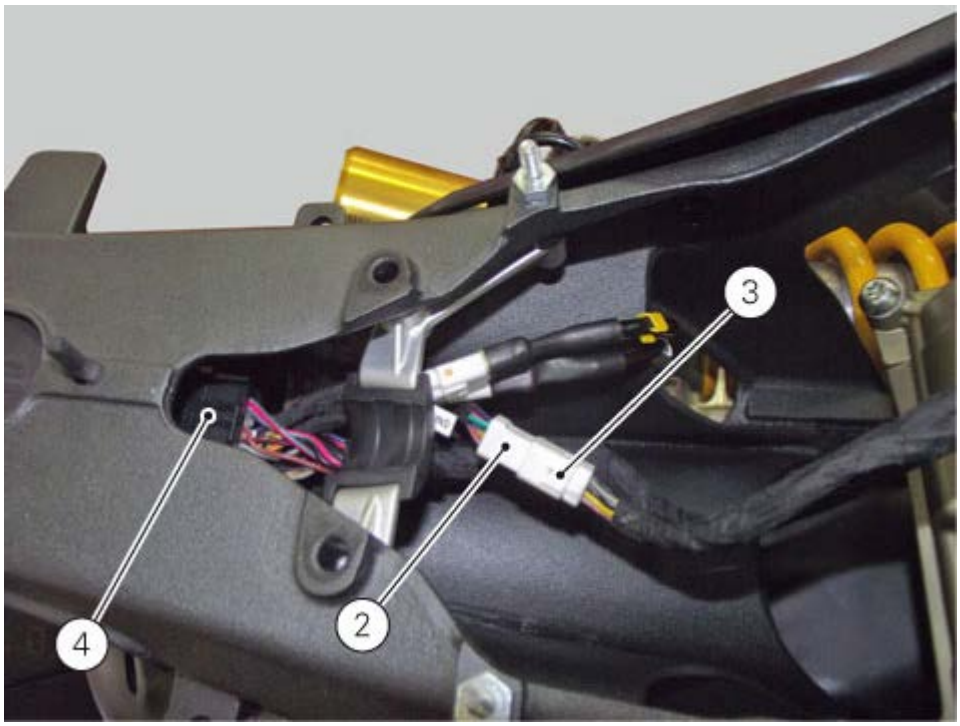
http://www.ducati-manuals.com
no. 140312

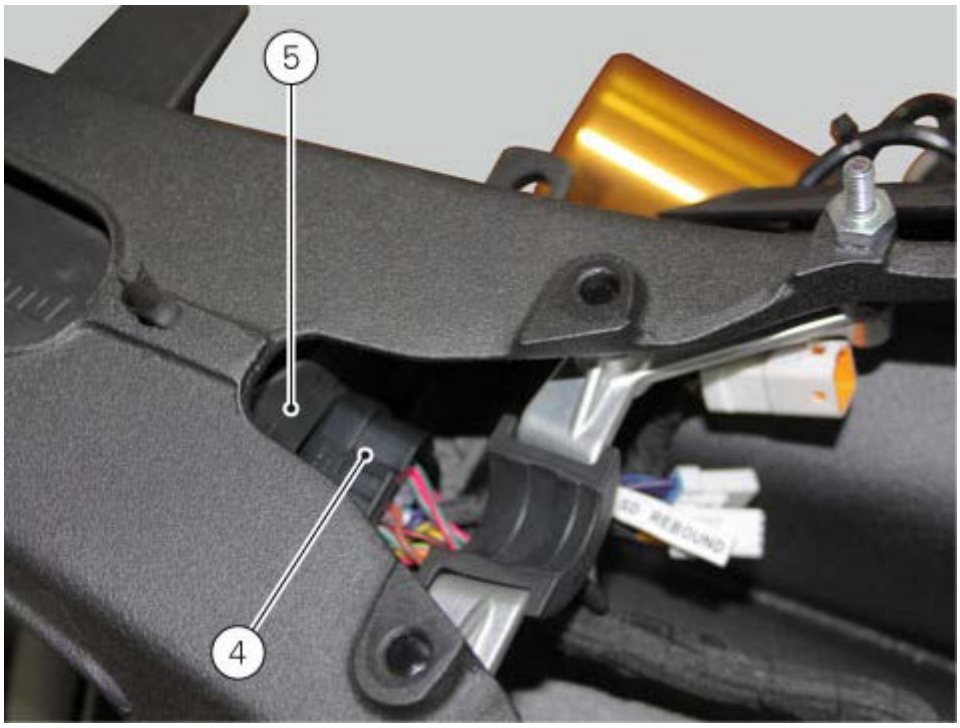


Disconnect rear wiring connector (2) from main wiring (3).
Disconnect black box (5) connector(4) from the main wiring.
Disconnect rear suspension adjuster connectors (6) .



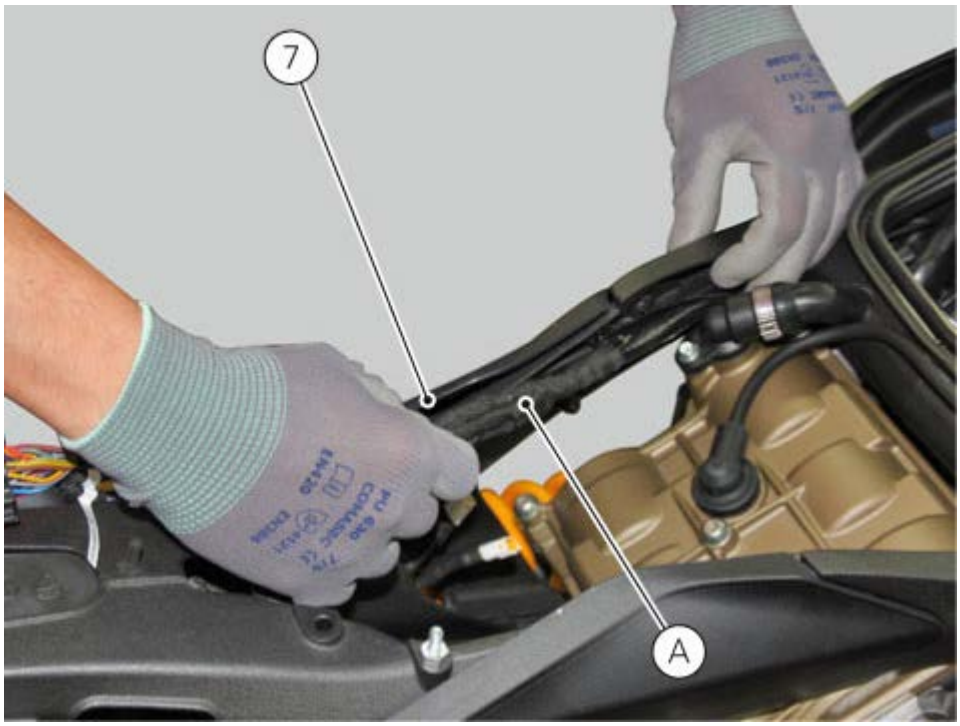
http://www.ducati-manuals.com
no. 140312

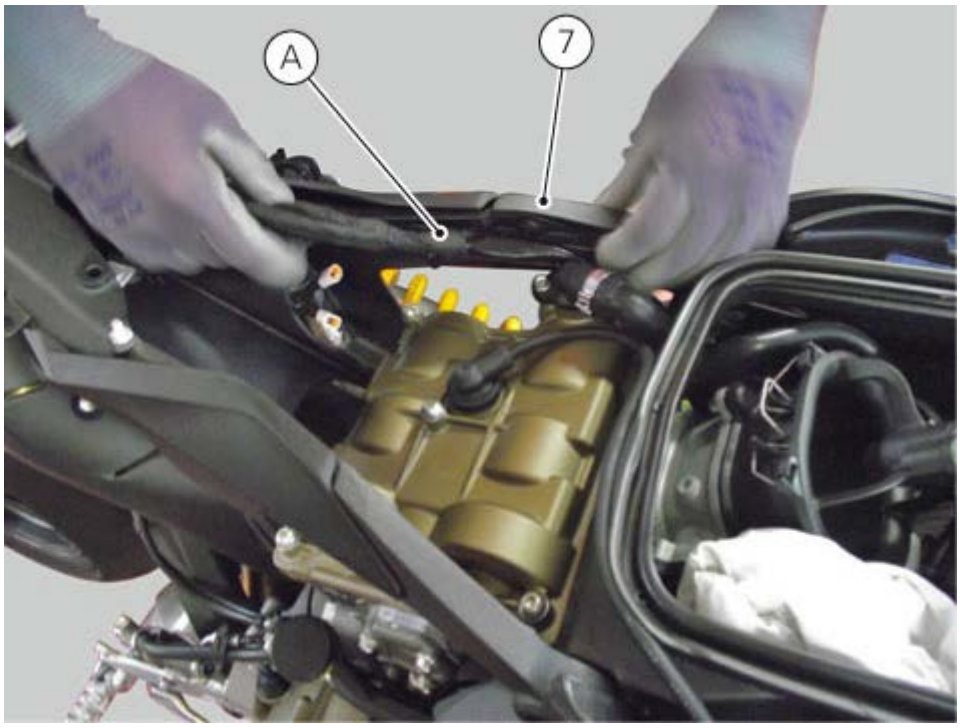




Slide main wiring section (A) out of the rear subframe seat (7).

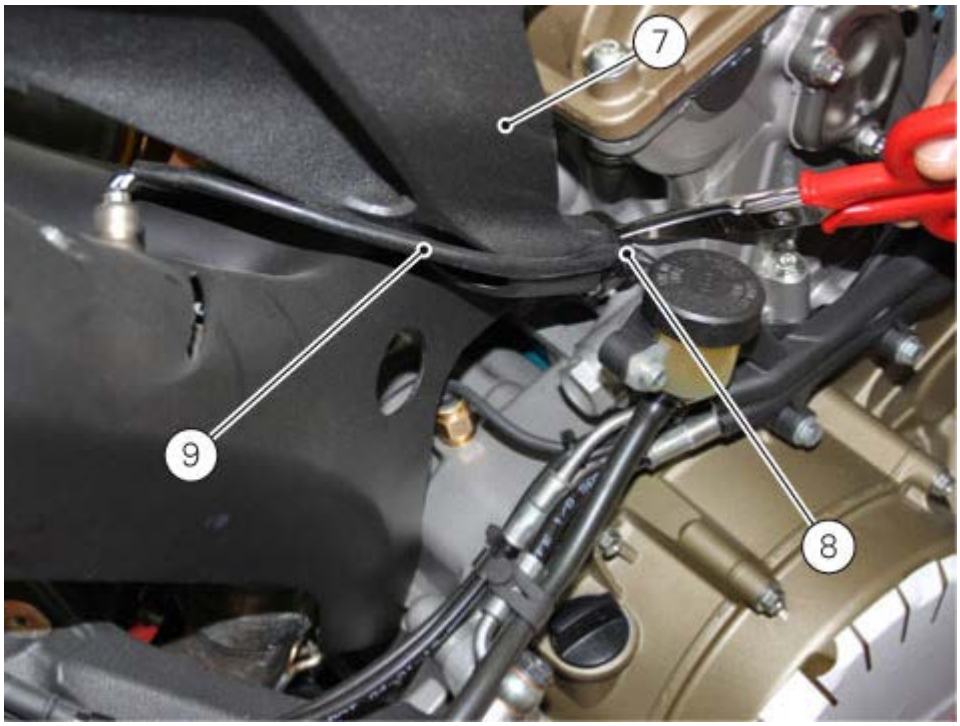
http://www.ducati-manuals.com
no. 140312



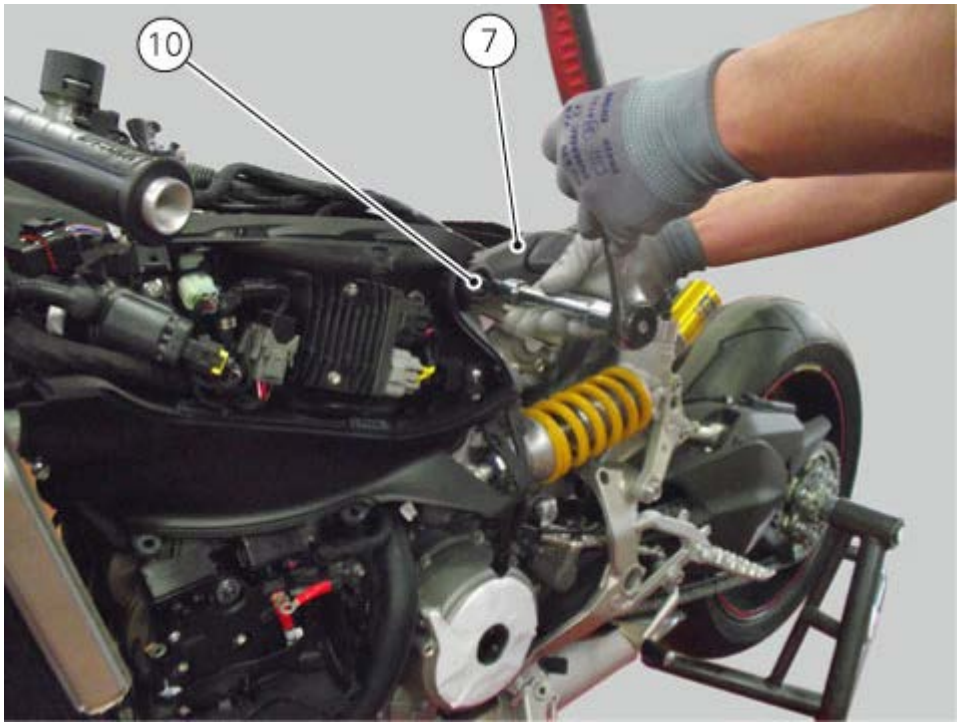


Remove clamp (8) securing vertical Lambda sensor (9) to rear subframe (7).

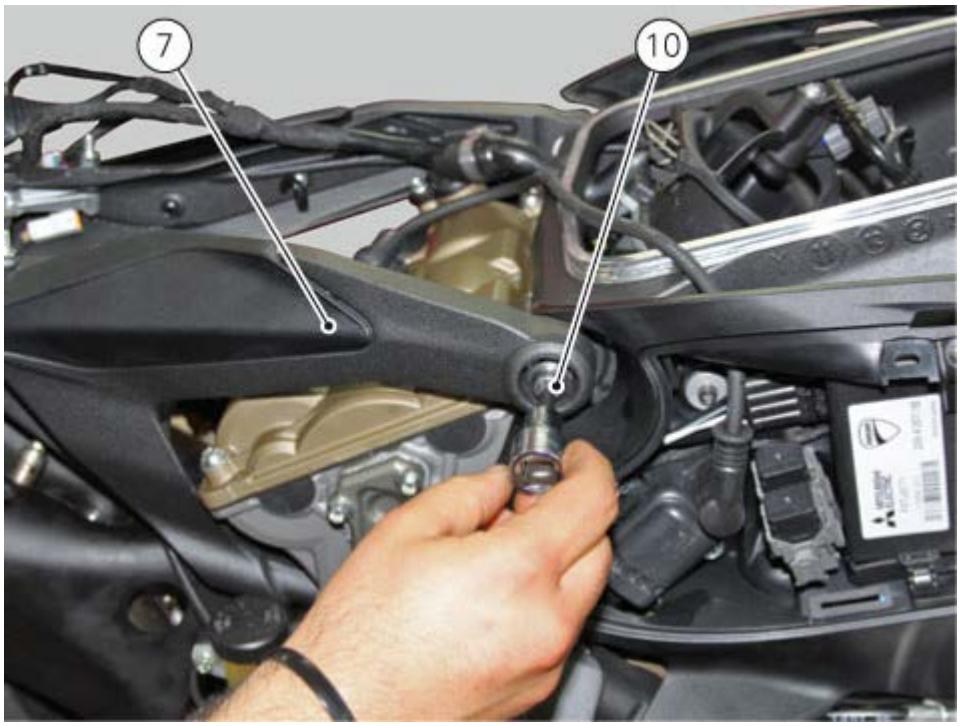
http://www.ducati-manuals.com
no. 140312



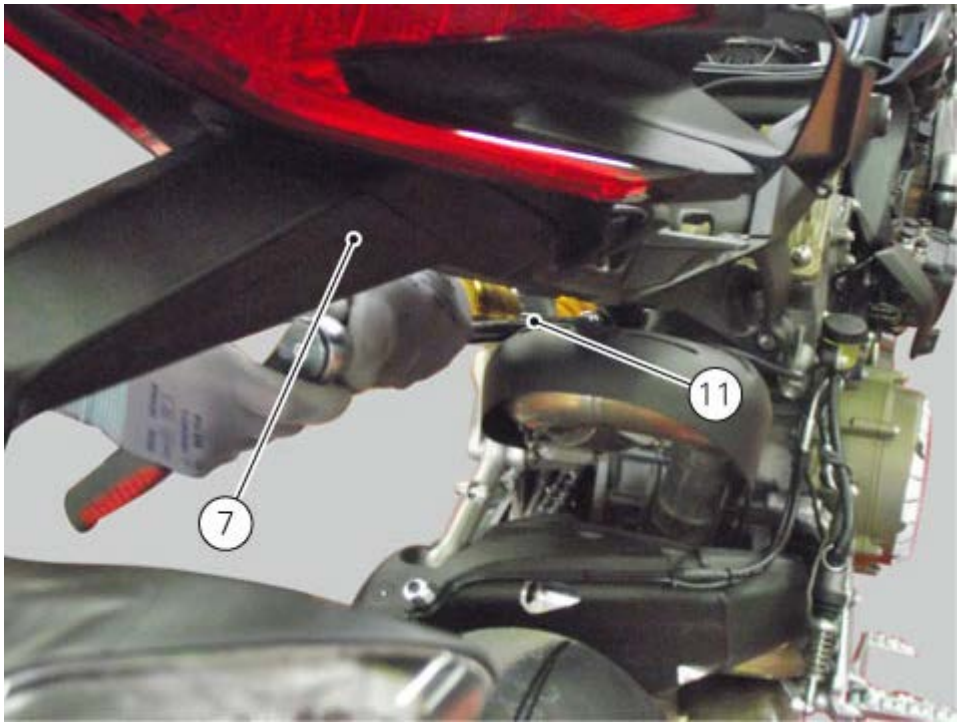
Loosen the side retaining screws (10) between rear subframe (7) and heads.



http://www.ducati-manuals.com
no. 140312



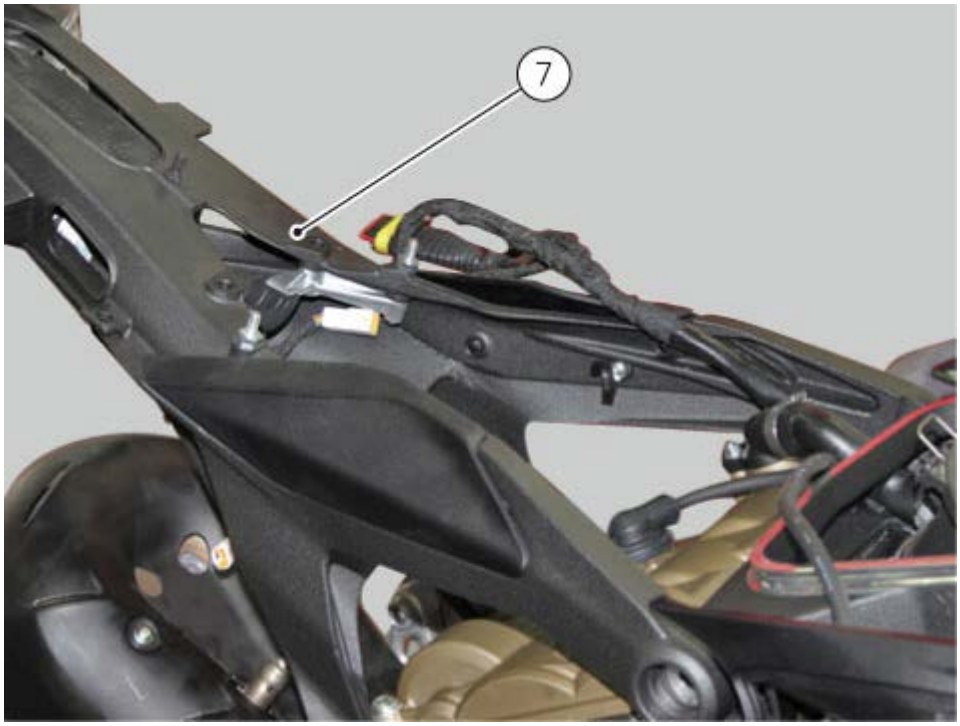
Loosen the rear retaining screws (11) between rear subframe (7) and heads.



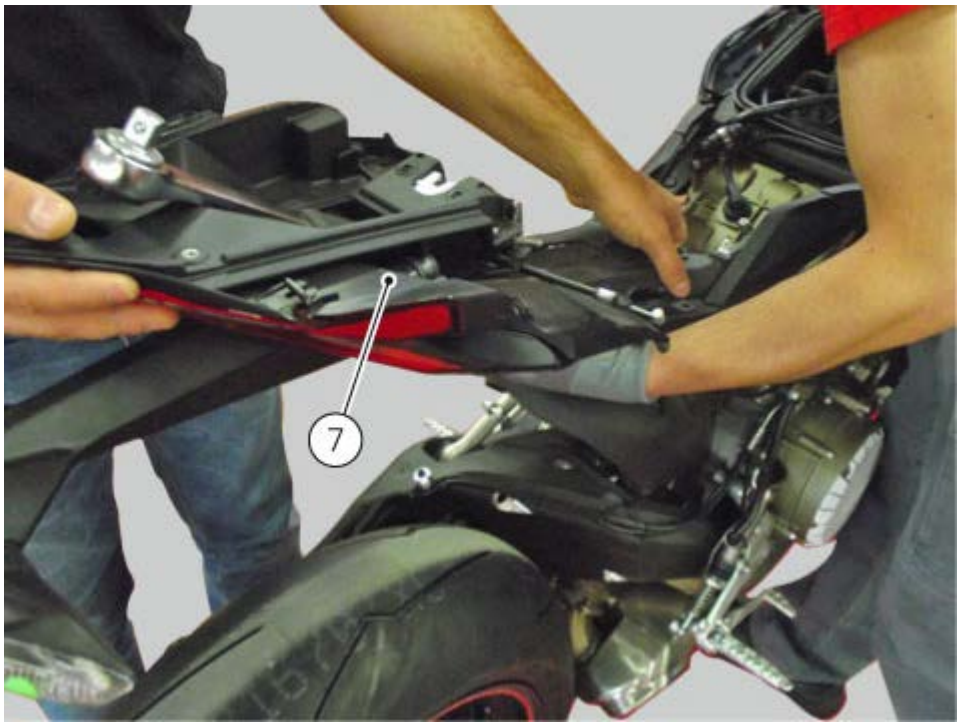
http://www.ducati-manuals.com
no. 140312

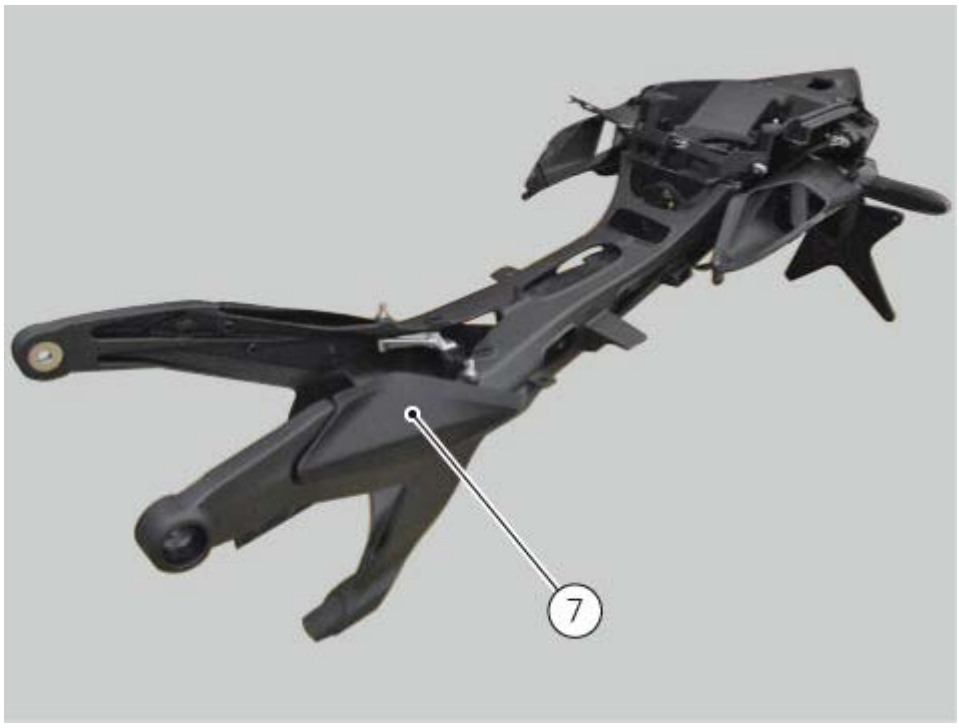


Remove rear subframe (7) complete with tail light and number plate holder from motorcycle.



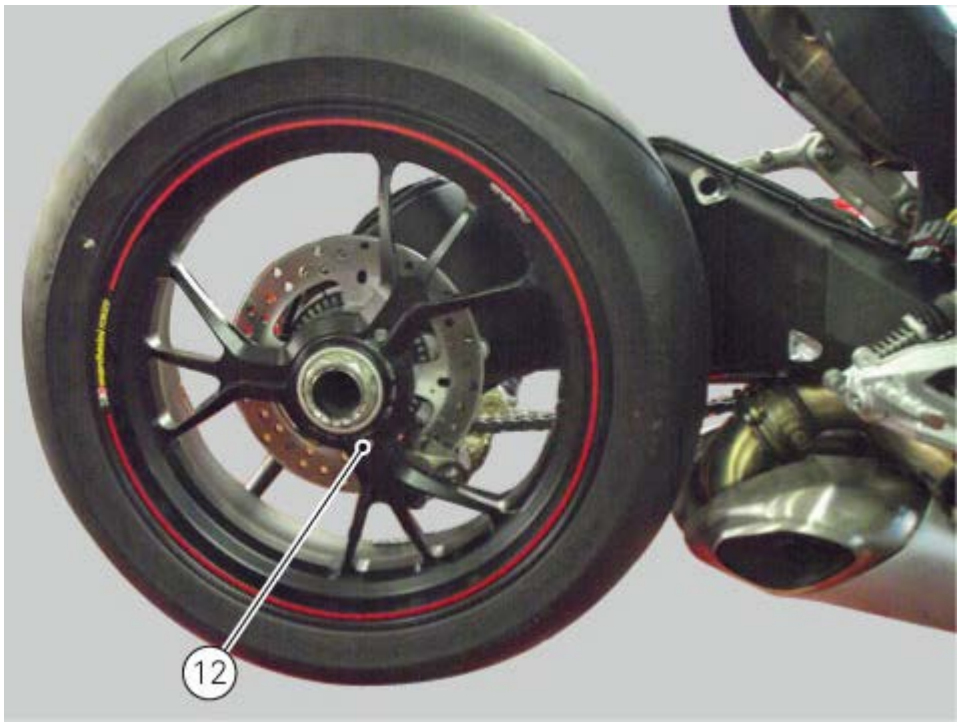
http://www.ducati-manuals.com
no. 140312





Remove the rear wheel (12), and duly support bike rear end.

http://www.ducati-manuals.com
no. 140312



Start working on bike left side.
Remove fuse box cover (B).

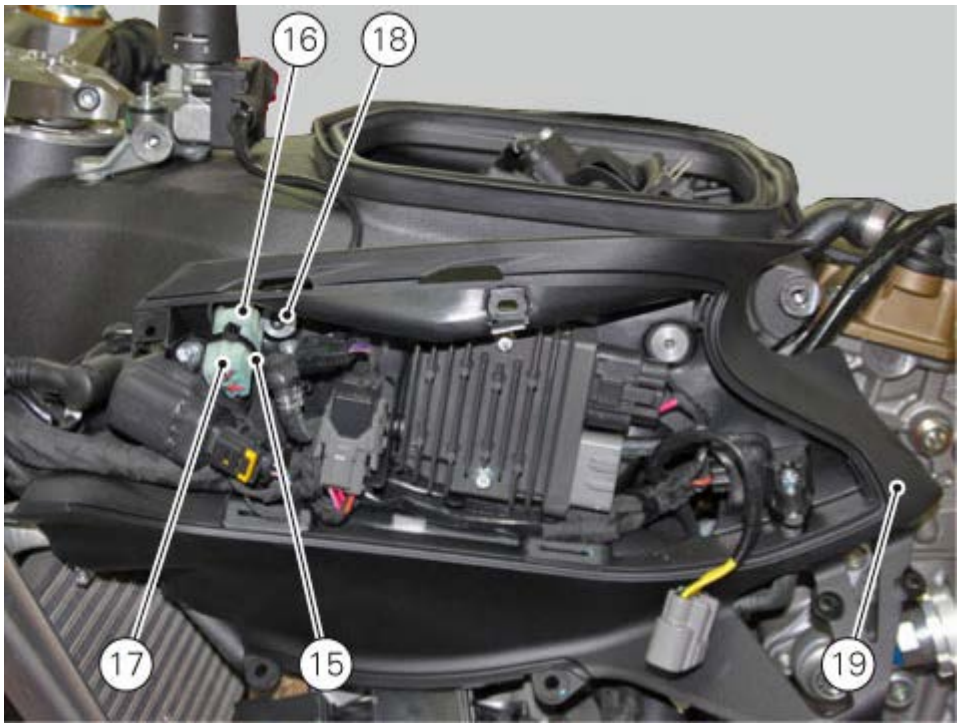


Disconnect the connector (13) between rectifier (14) wiring and generator.
Loosen the retaining screw (18) on LH electric system support (19).

http://www.ducati-manuals.com
no. 140312



Remove clamp (15), and disconnect ignition switch connector (16) from main wiring connector (17). Loosen the retaining screw (18) on LH electric system support (19).



Loosen the retaining screw (18) on LH electric system support (19).

http://www.ducati-manuals.com
no. 140312





Duly protect (C) the upper water radiator.

http://www.ducati-manuals.com
no. 140312



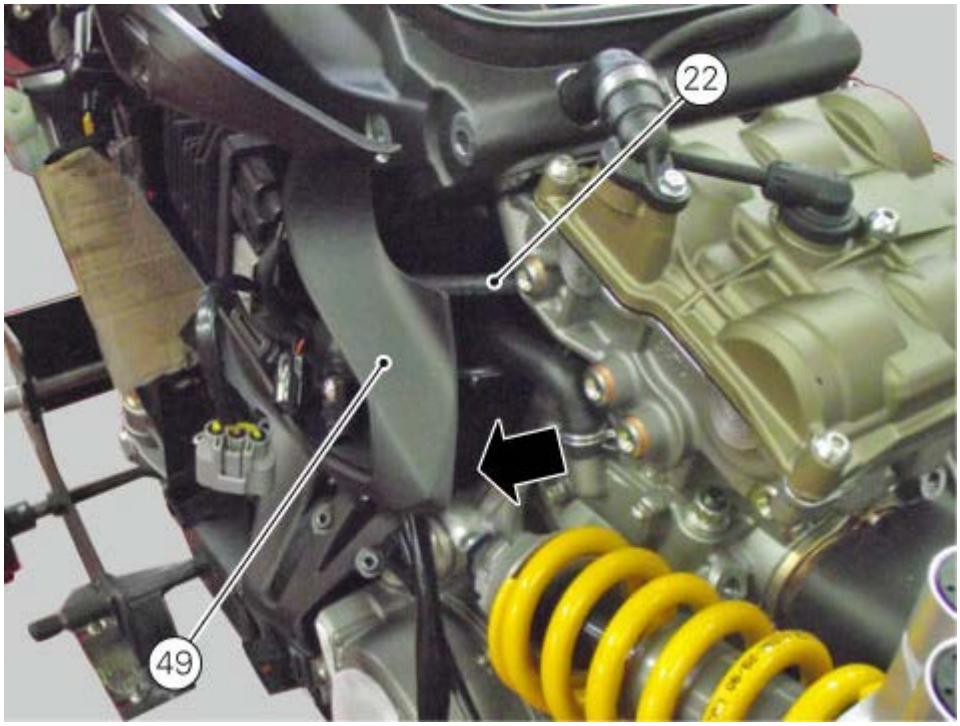
Disconnect connector (20) between wiring and horizontal MAP sensor (21).



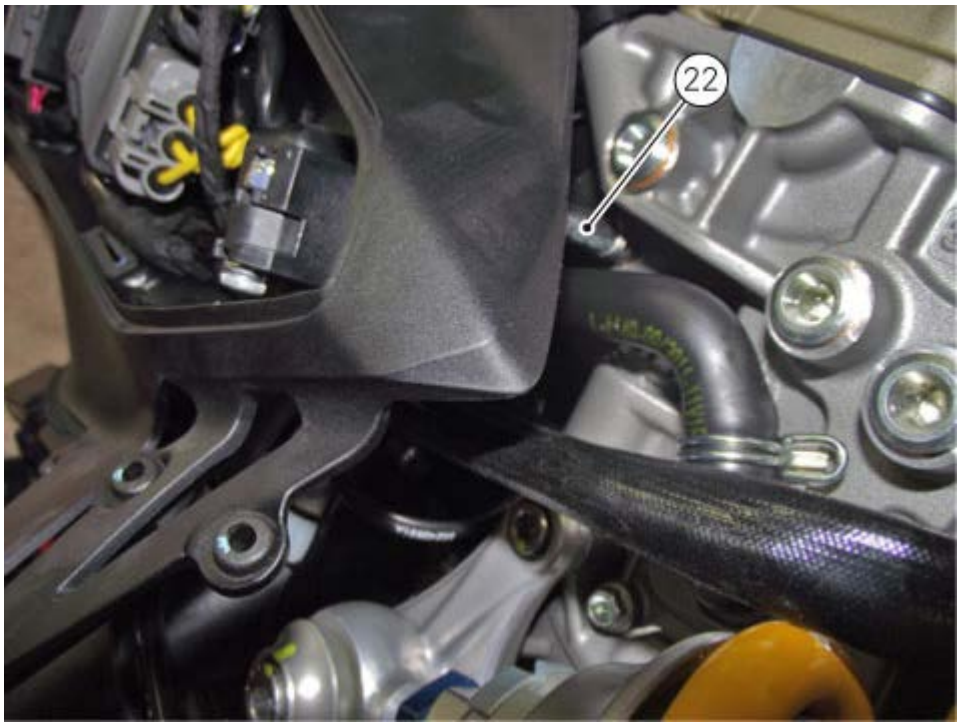
http://www.ducati-manuals.com
no. 140312



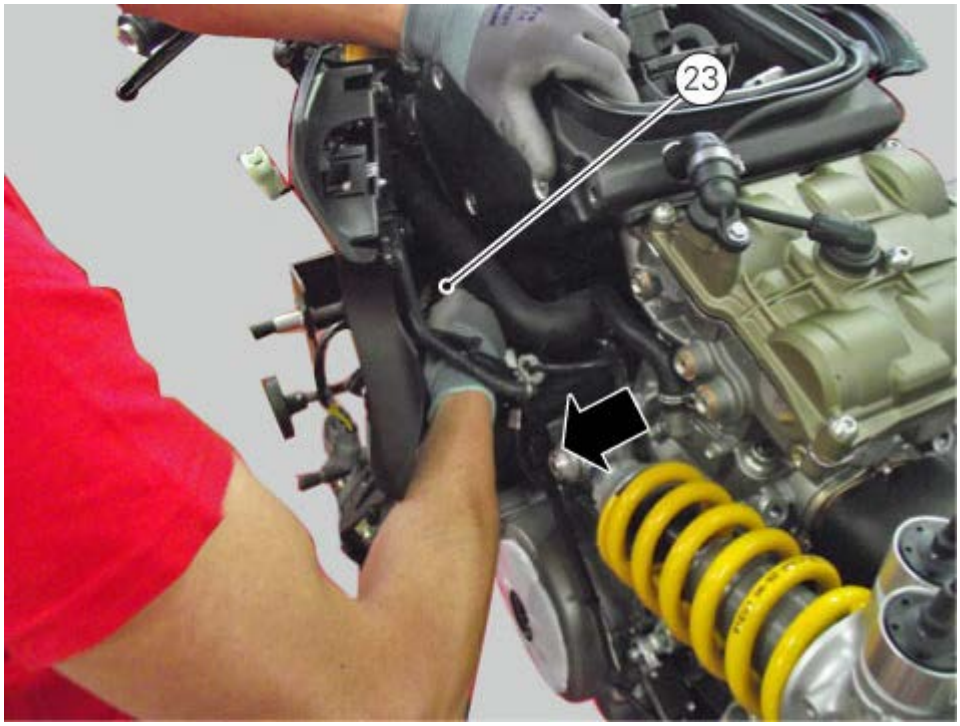
Move support (19) outwards so as to disconnect vertical head MAP sensor pipe (22).



http://www.ducati-manuals.com
no. 140312



Disconnect horizontal MAP sensor pipe (23) from horizontal head.

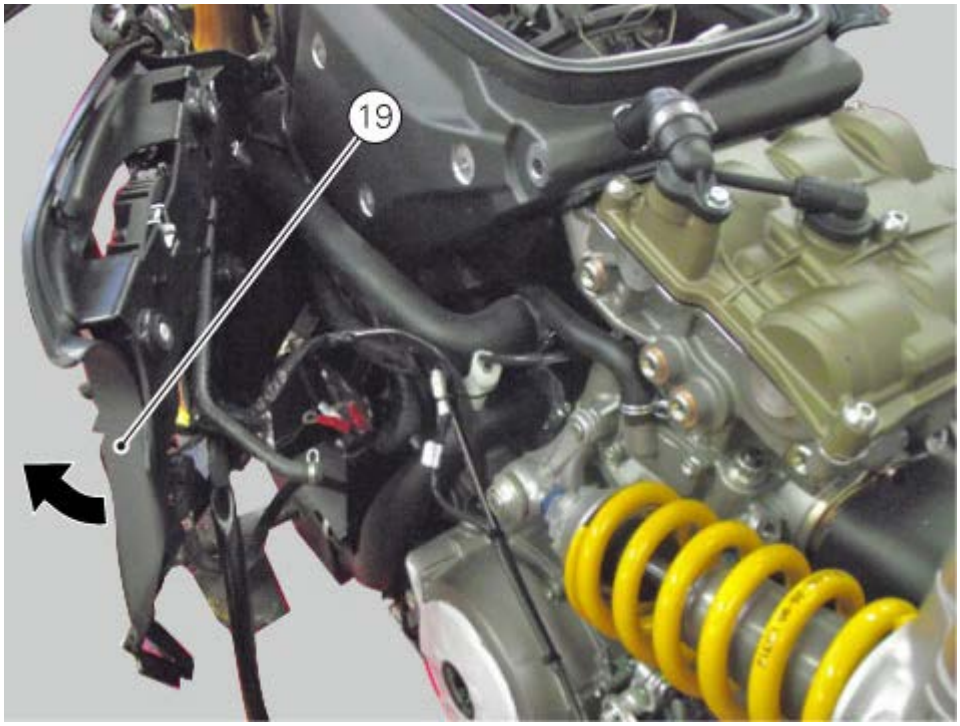


http://www.ducati-manuals.com
no. 140312

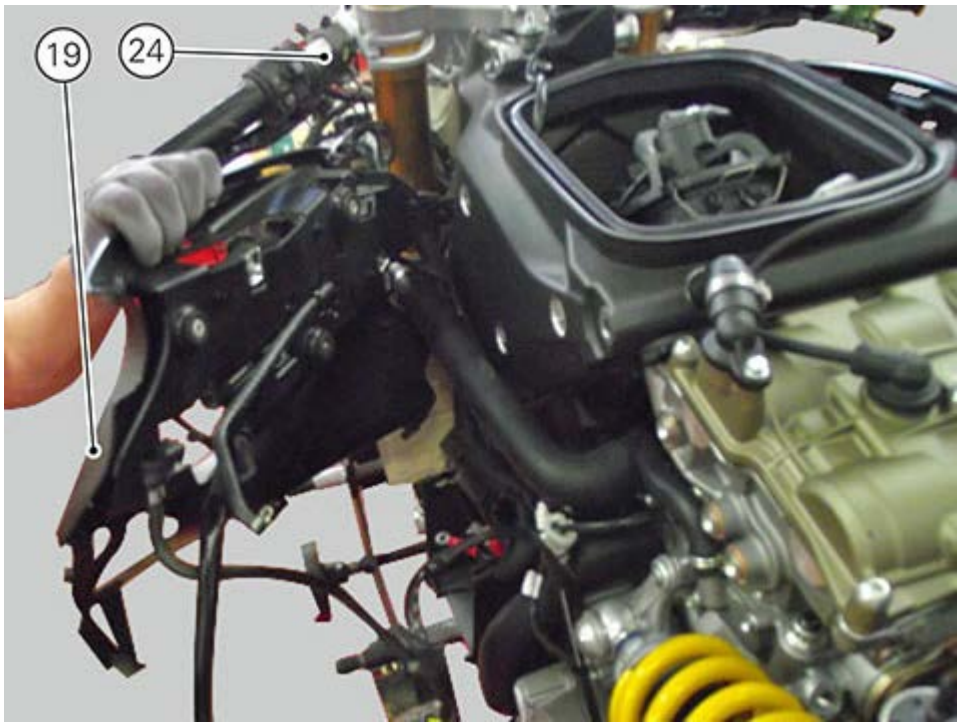


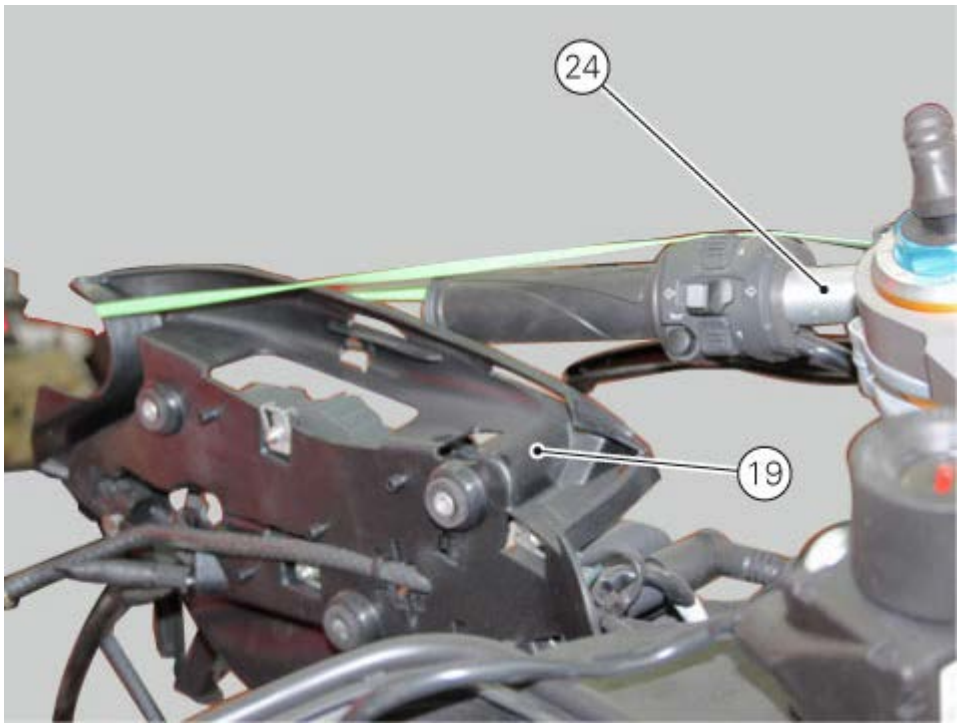
Move support (19) towards LH handlebar (24), taking special care to the still-connected wiring.
Secure support (19) to LH handlebar (24).

Warning
Duly protect support (19) so as not to damage the handlebar.



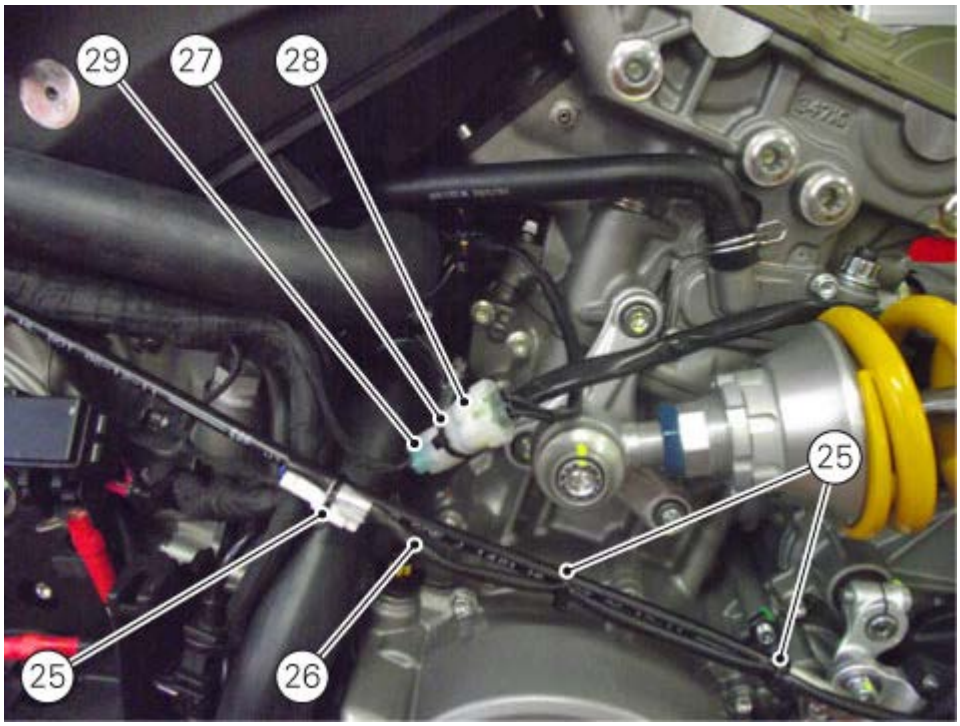
http://www.ducati-manuals.com
no. 140312



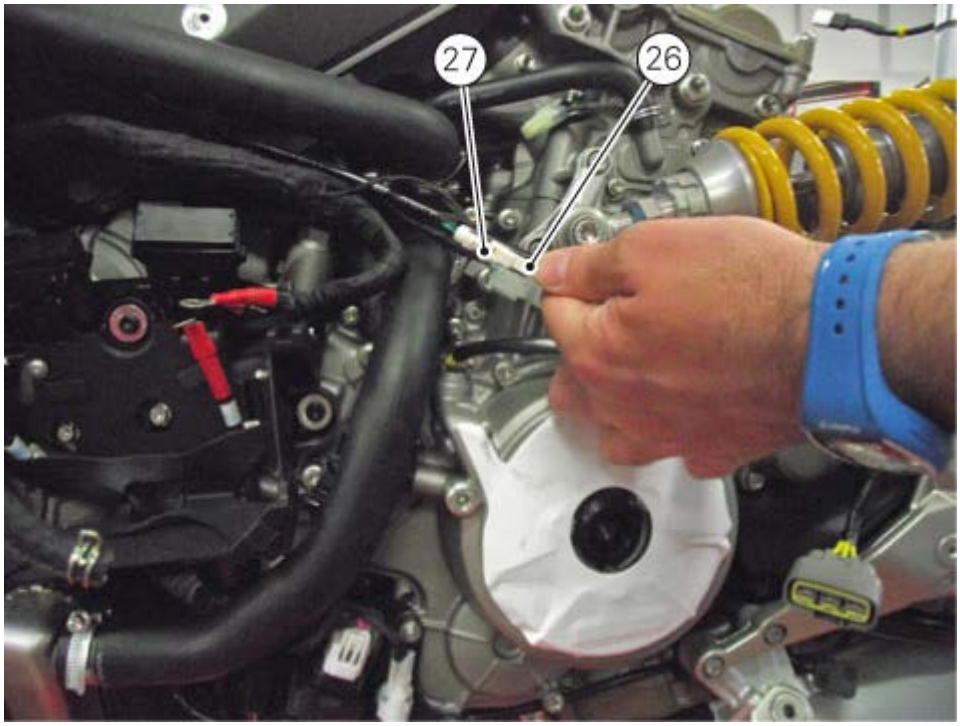


Remove quick shift wiring (26) clips (25), and water temperature sensor connector (28) clip (27). Disconnect water temperature sensor connector (28) from main wiring connector (29).

http://www.ducati-manuals.com
no. 140312

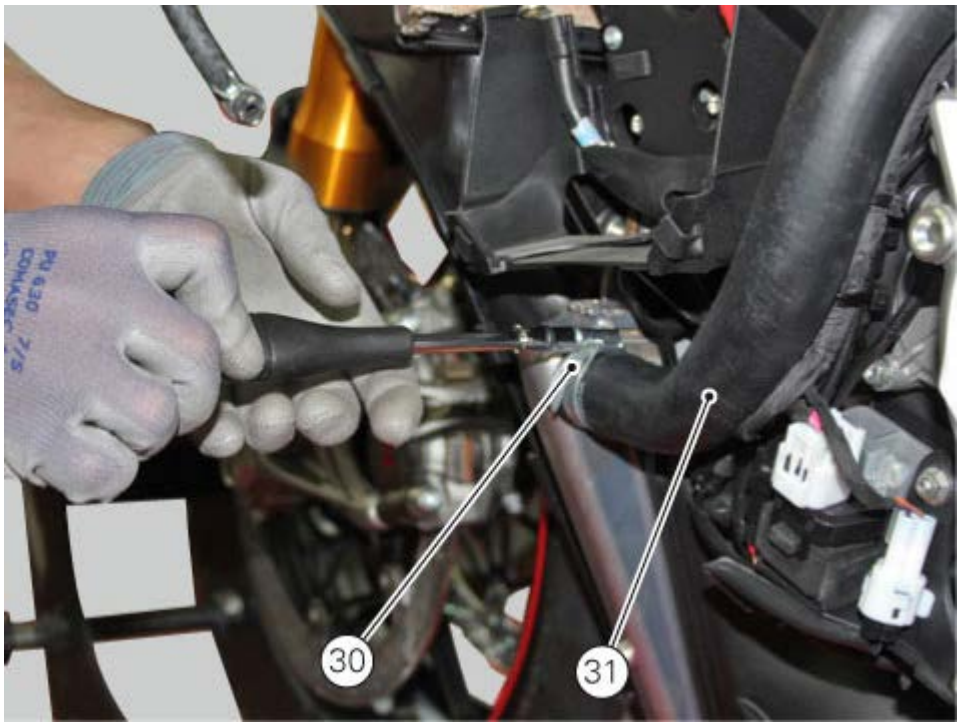


Disconnect quick shift wiring connector (26) from main wiring connector (27).



Drain the coolant.
Loosen the clips (30) on the connecting pipe (31) between lower radiator and water distributor. Remove pipe (31).

http://www.ducati-manuals.com
no. 140312

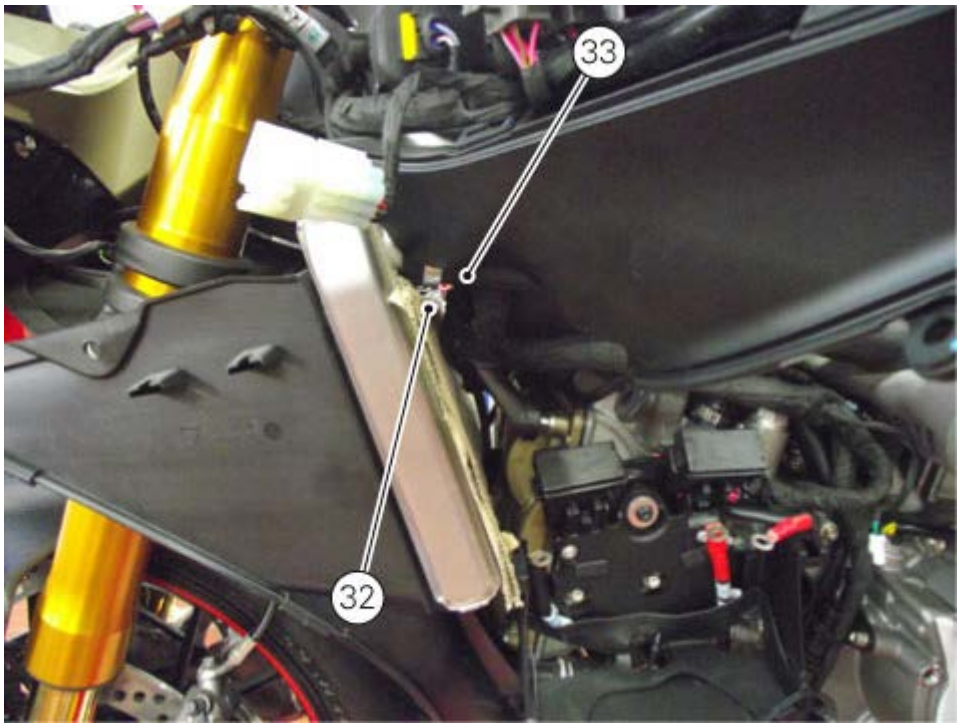




Loosen the clips (32) on the connecting pipe (33) between upper radiator and water distributor. Remove pipe (33).

http://www.ducati-manuals.com
no. 140312





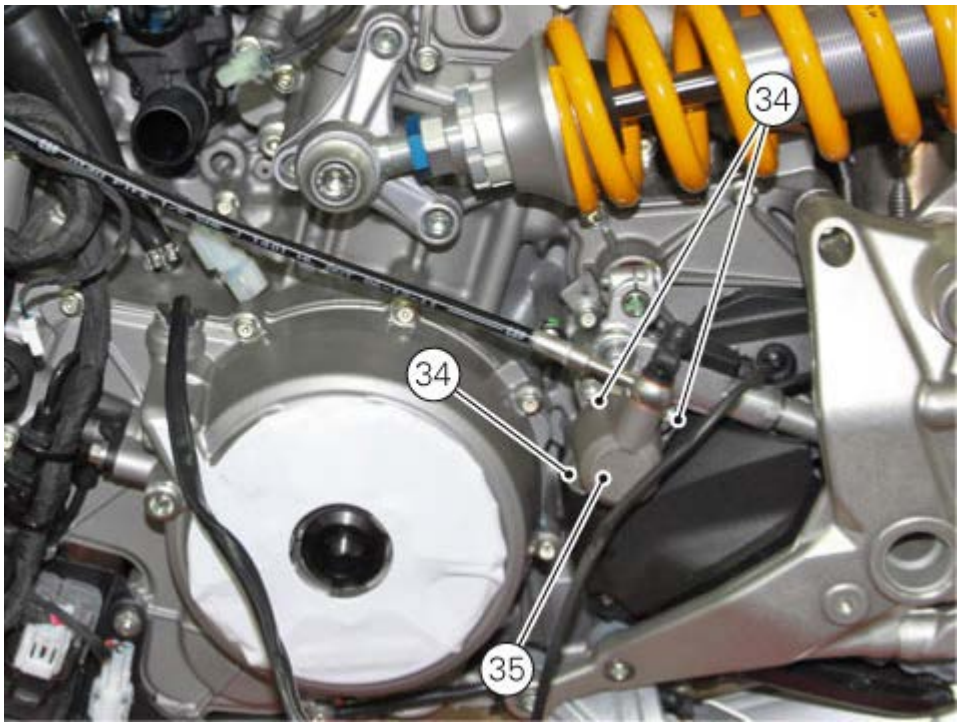
Loosen the retaining screws (34) on the clutch piston (35).

Important

Put a cloth under the piston so as to protect the surface from any oil spill during piston removal.

Remove piston (35) from the gear transmission lever. Secure the clutch piston block in place using a clamp.

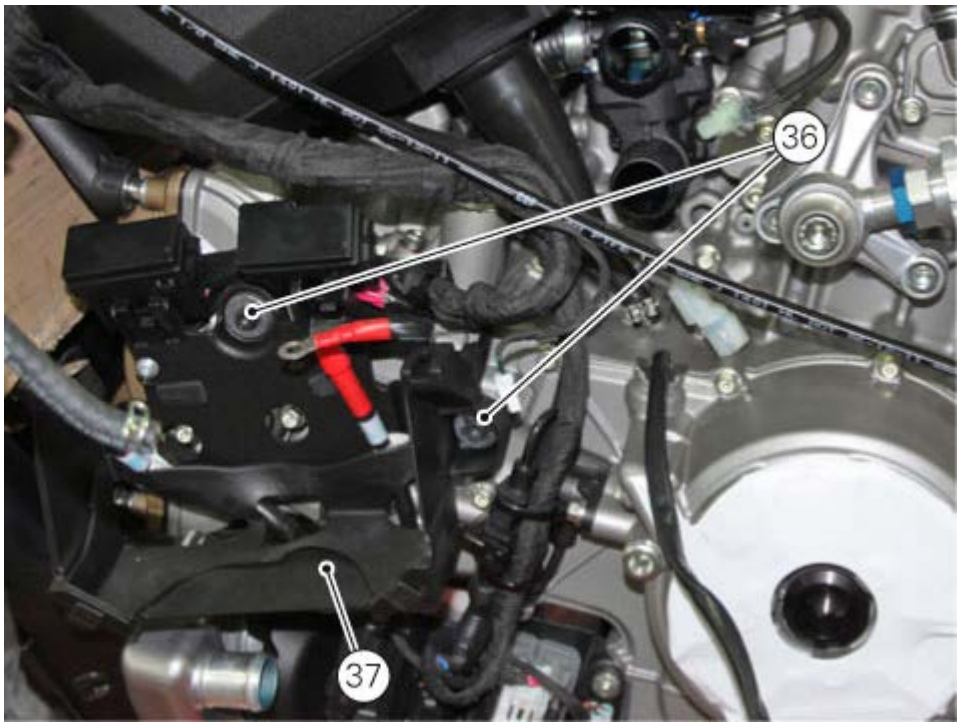
http://www.ducati-manuals.com
no. 140312





Loosen the retaining screws (36) on battery mount (37).

http://www.ducati-manuals.com
no. 140312

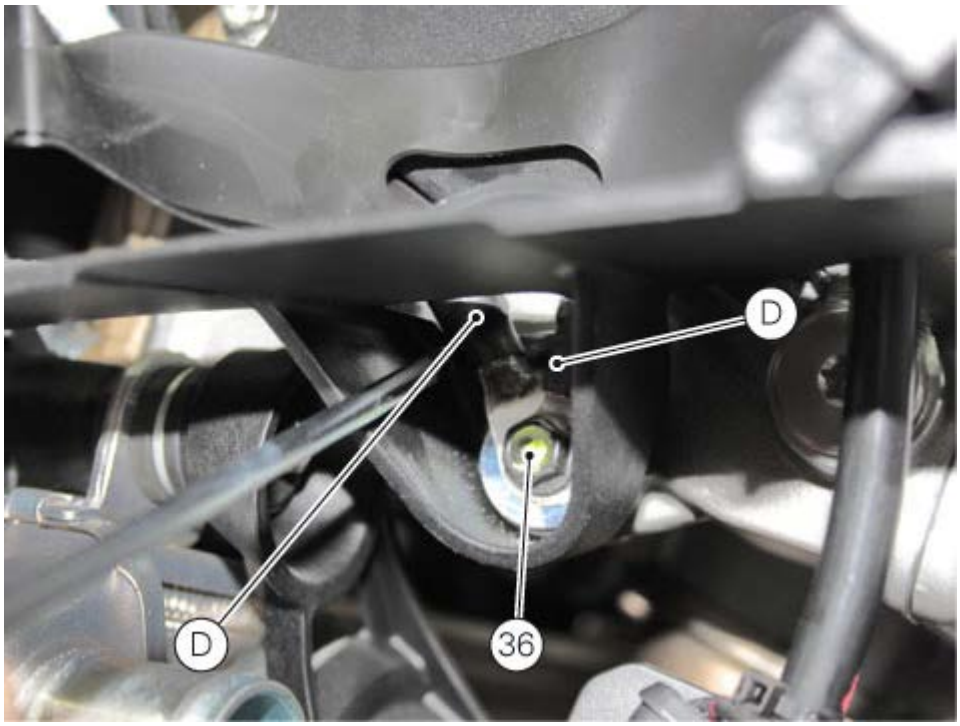




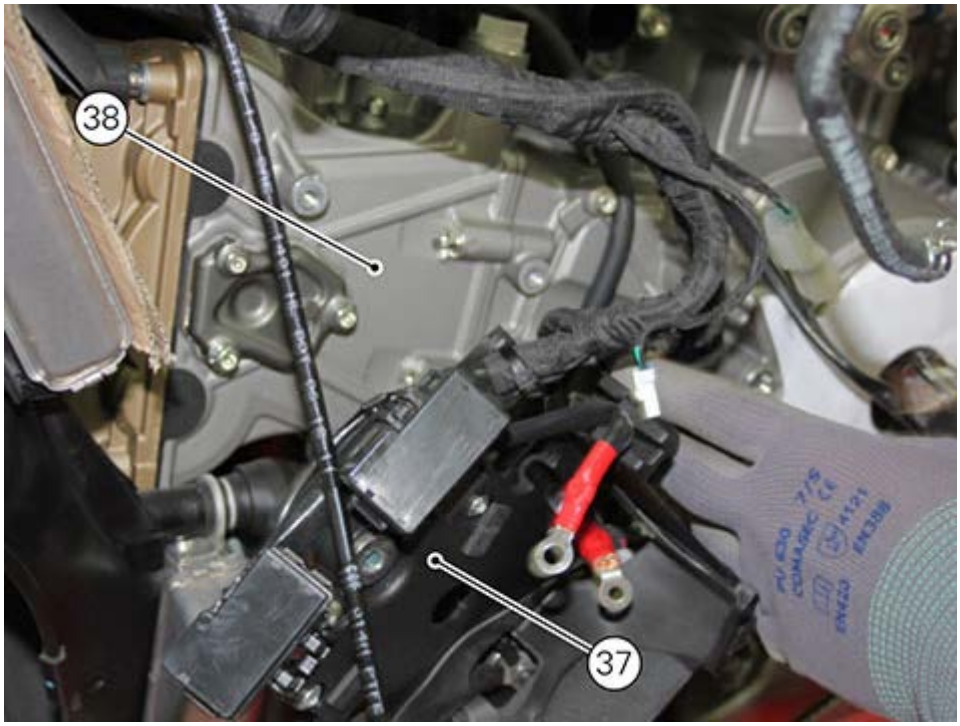
Warning

Take special care not to damage the ground cables (D) while loosening the support lower retaining screw (36).

http://www.ducati-manuals.com
no. 140312



Remove battery mount (37) from horizontal head (38), without disconnecting wiring.

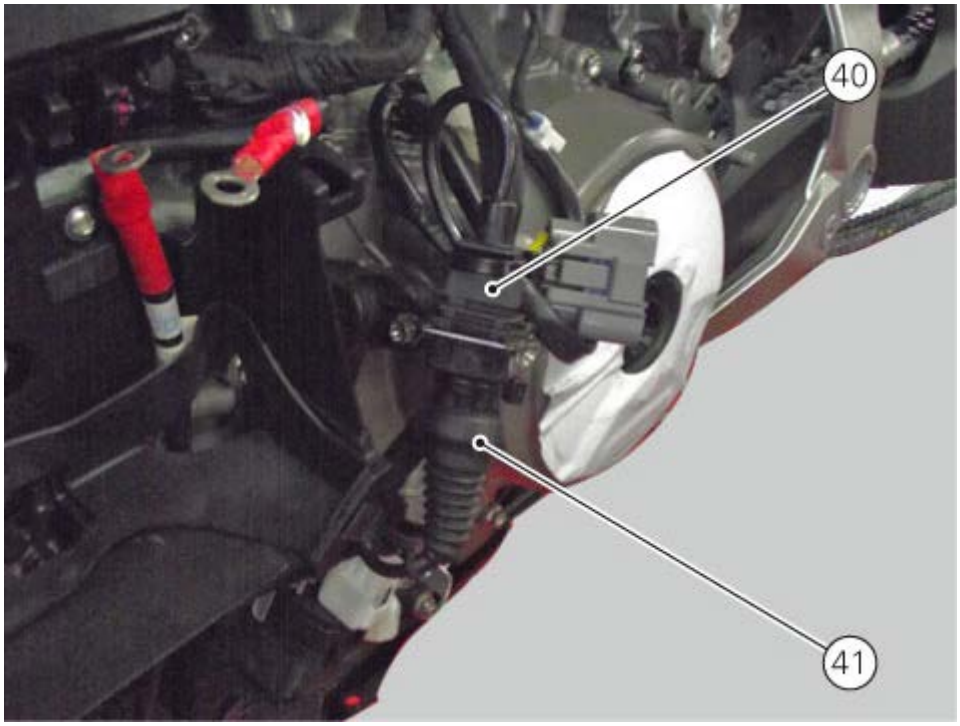


Remove clamps (39).

http://www.ducati-manuals.com
no. 140312

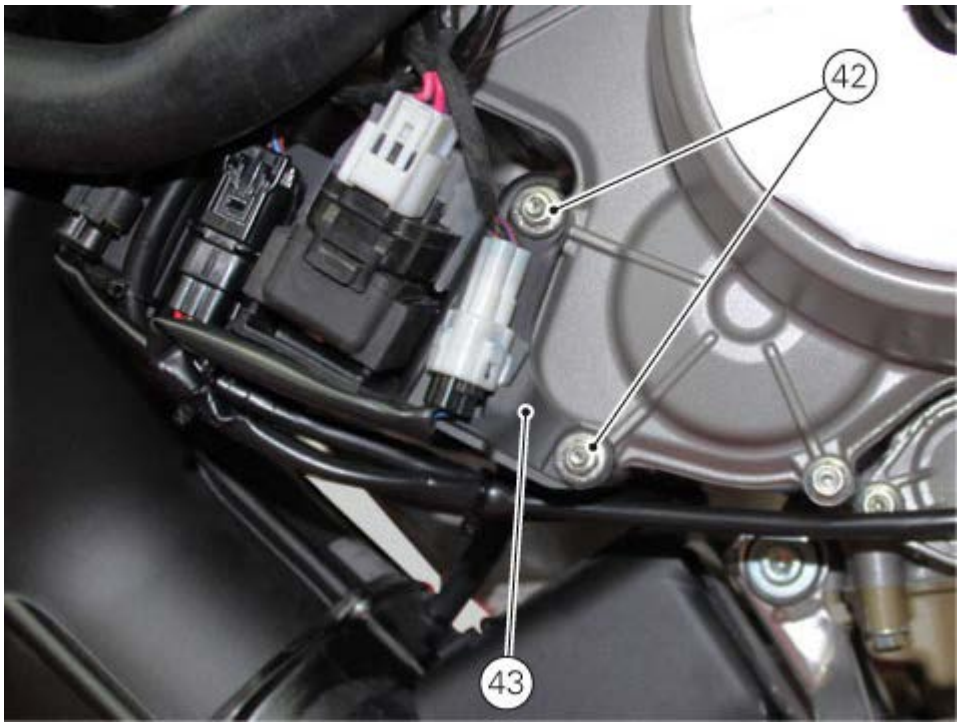


Disconnect pick-up connector (40) from main wiring connector (41).

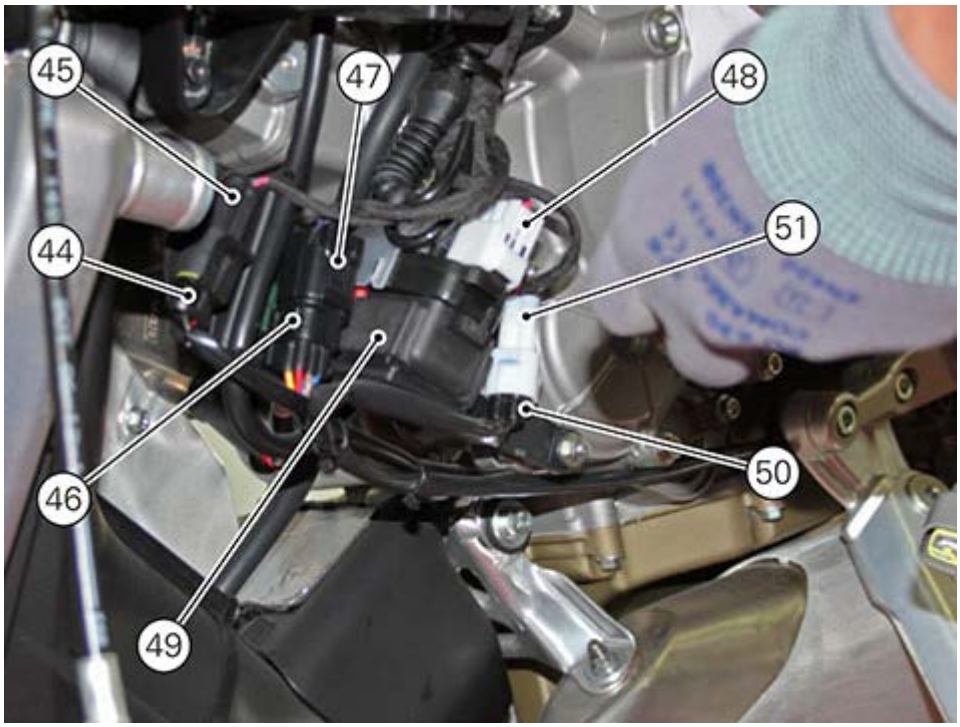


Loosen the two solenoid starter support (43) retaining nuts (42) and slightly move the support outwards.

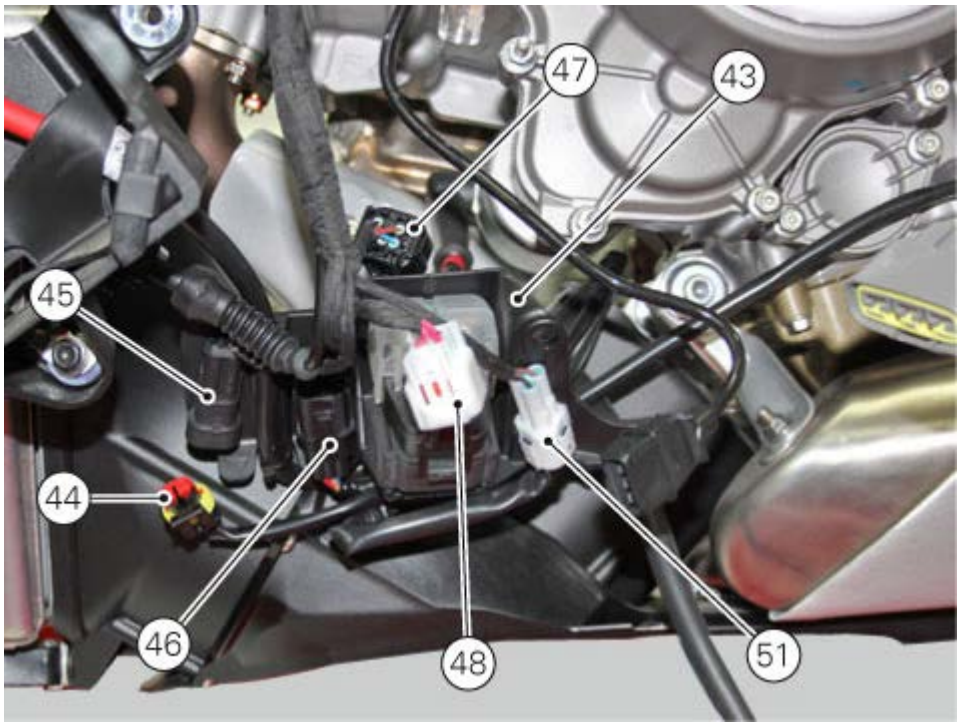
http://www.ducati-manuals.com
no. 140312



Disconnect electric fan connector (44) from main wiring connector (45).
Disconnect ex-up valve motor connector (46) from main wiring connector (47).
Disconnect main wiring connector (48) from solenoid starter (49).
Disconnect side stand connector (50) from main wiring connector (51).



http://www.ducati-manuals.com
no. 140312



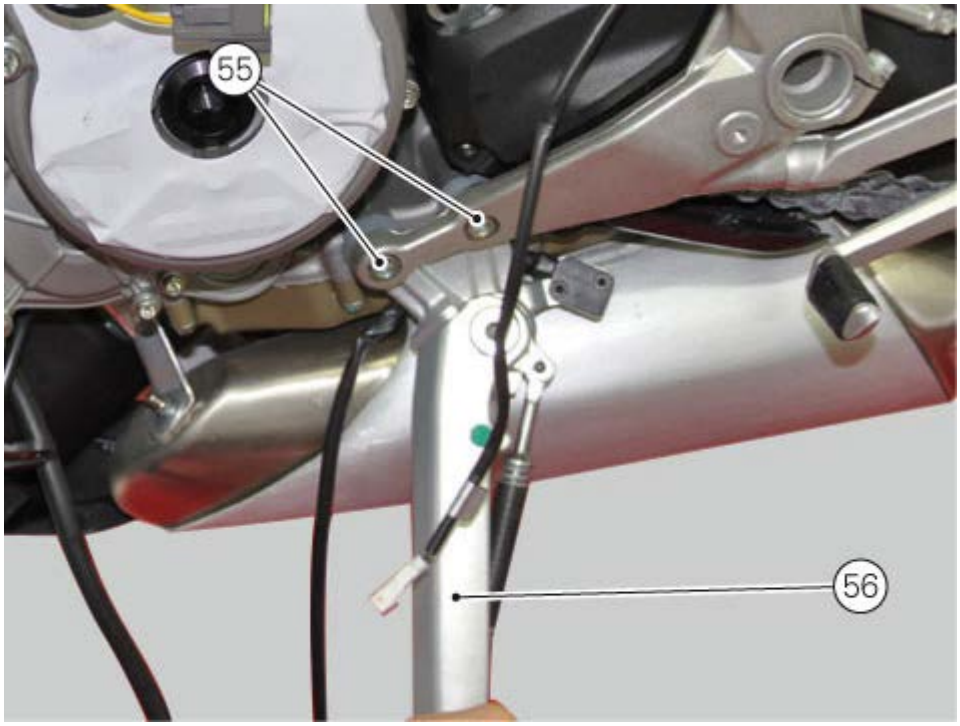
To remove the cable (52) connecting solenoid starter and starter motor, remove protective cap (53), and loosen screw (54).



http://www.ducati-manuals.com
no. 140312

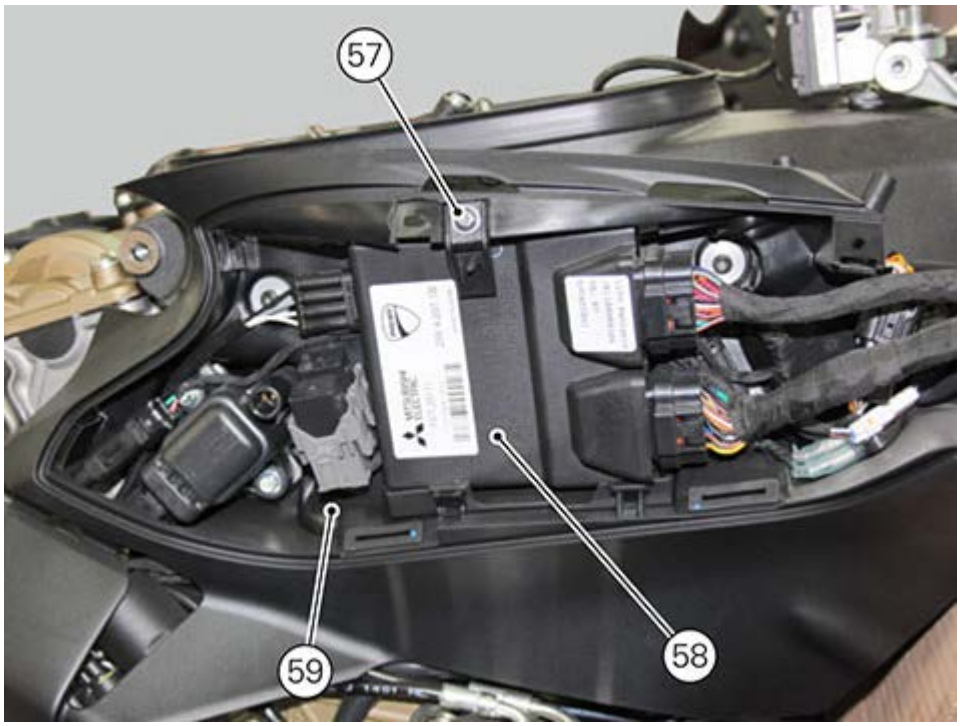


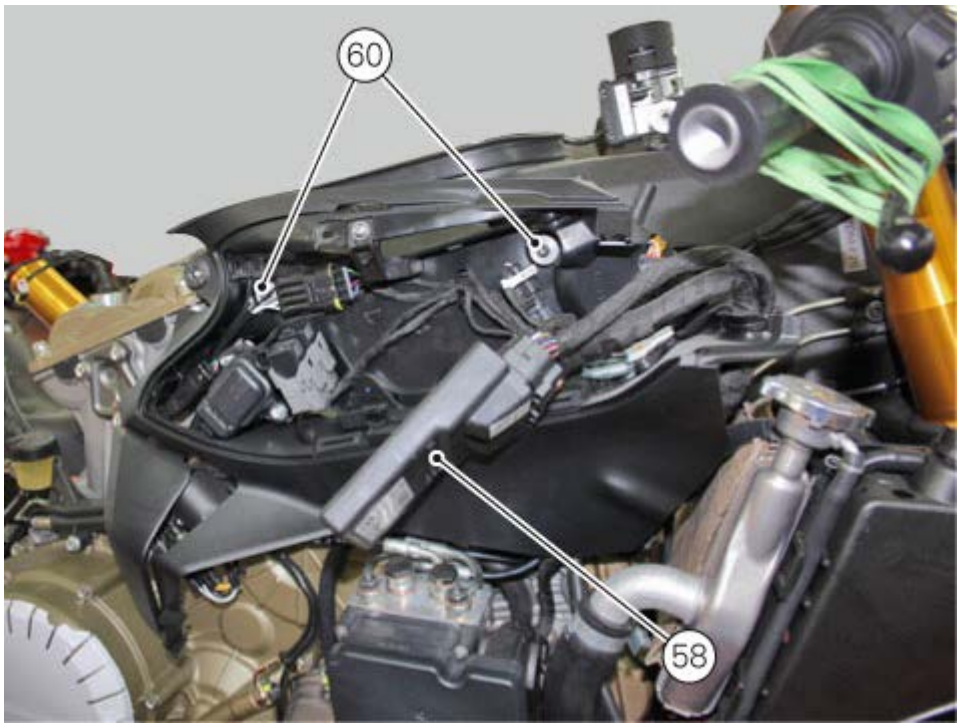
Loosen side stand (56) screw (55), and remove the side stand.



Loosen the retaining screw (57) between ECU (58) and RH electric system support (59). Remove ECU (58) from support, without disconnecting ECU wirings.

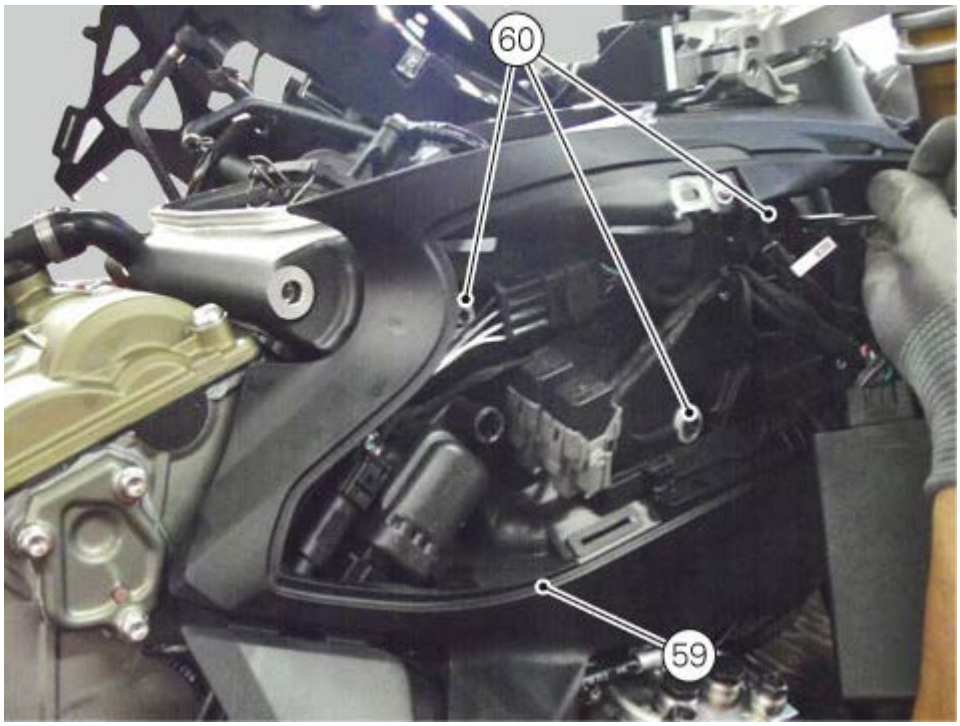
http://www.ducati-manuals.com
no. 140312



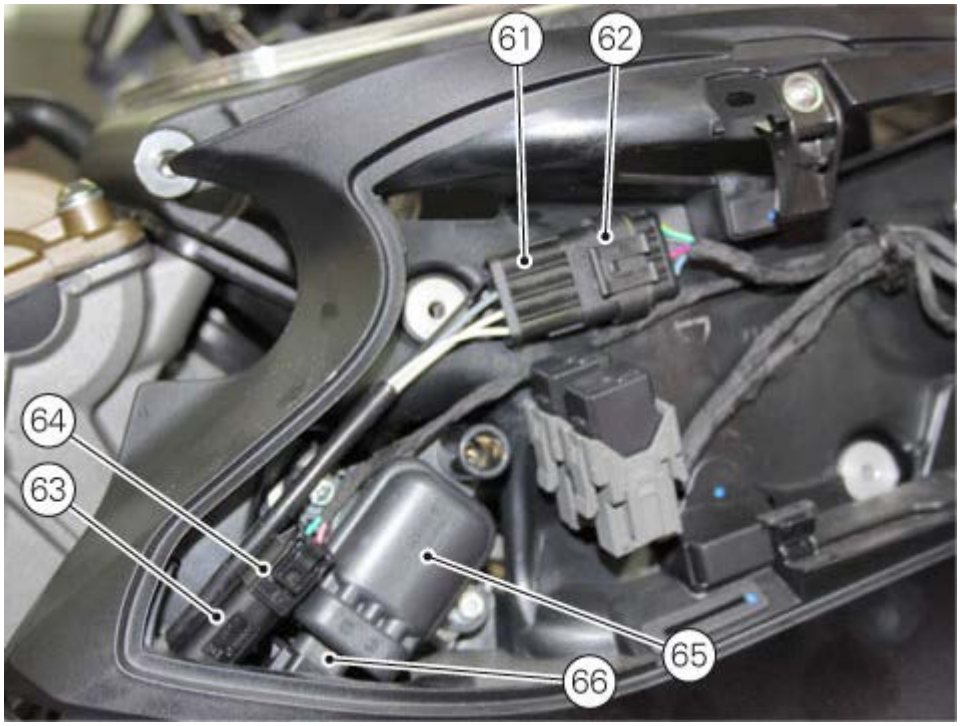


Loosen the three retaining screws (60) on the RH support (59).

http://www.ducati-manuals.com
no. 140312



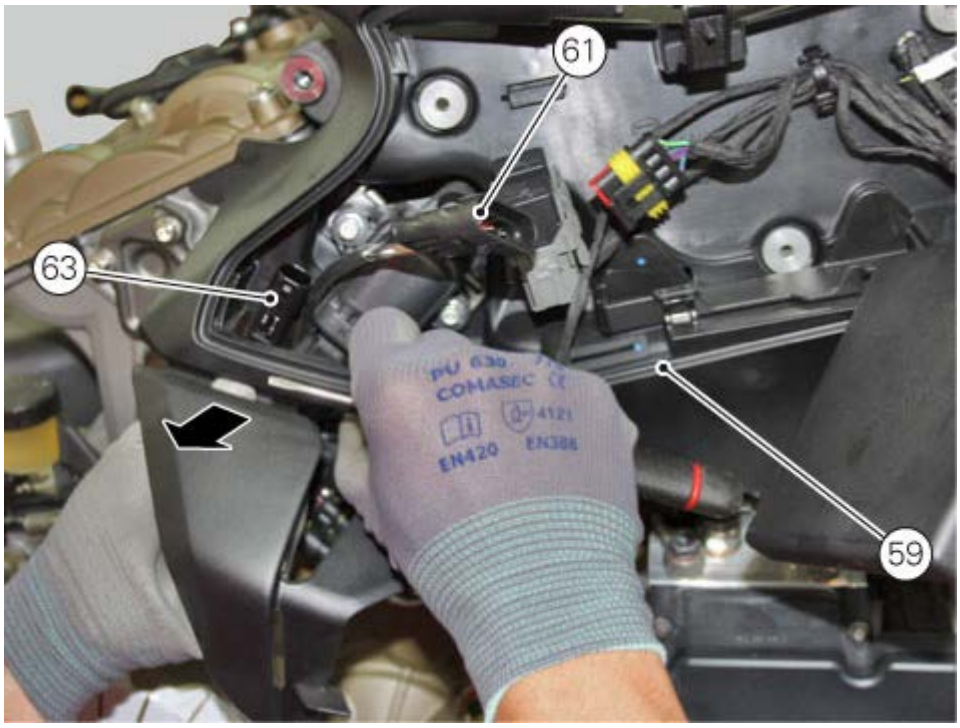
Disconnect vertical sensor connector (61) from main wiring connector (62).
Disconnect rear speed sensor connector (63) from main wiring connector (64).
Disconnect vertical cylinder coil (65) from main wiring connector (66).



http://www.ducati-manuals.com
no. 140312



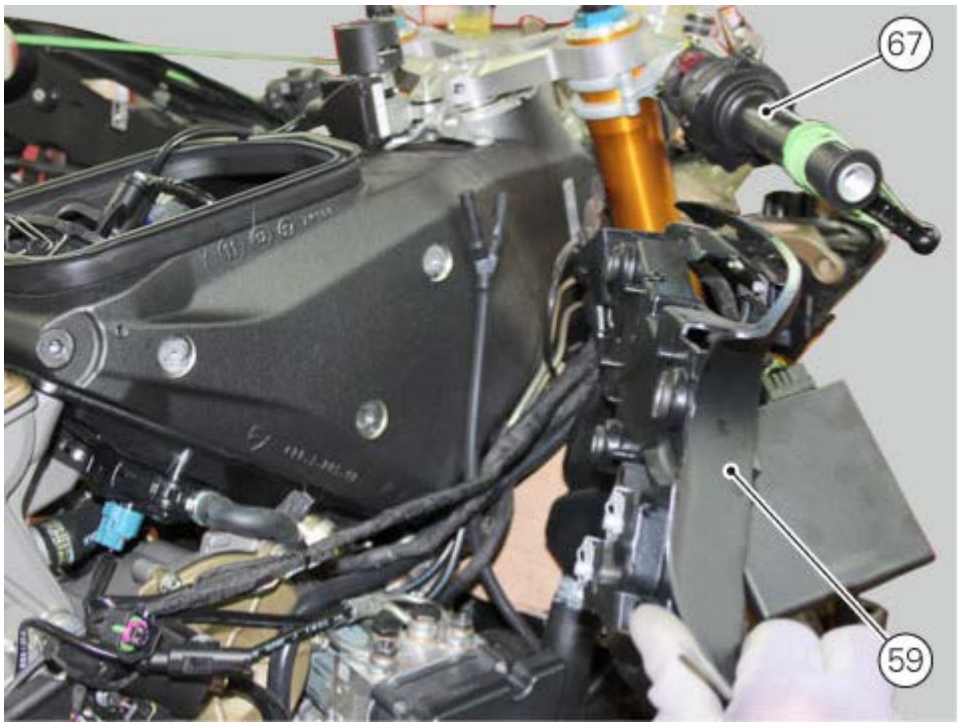
Slide connector cable (61) out of the support opening (59), on frame side. Remove connector pin (63) from the support seat.

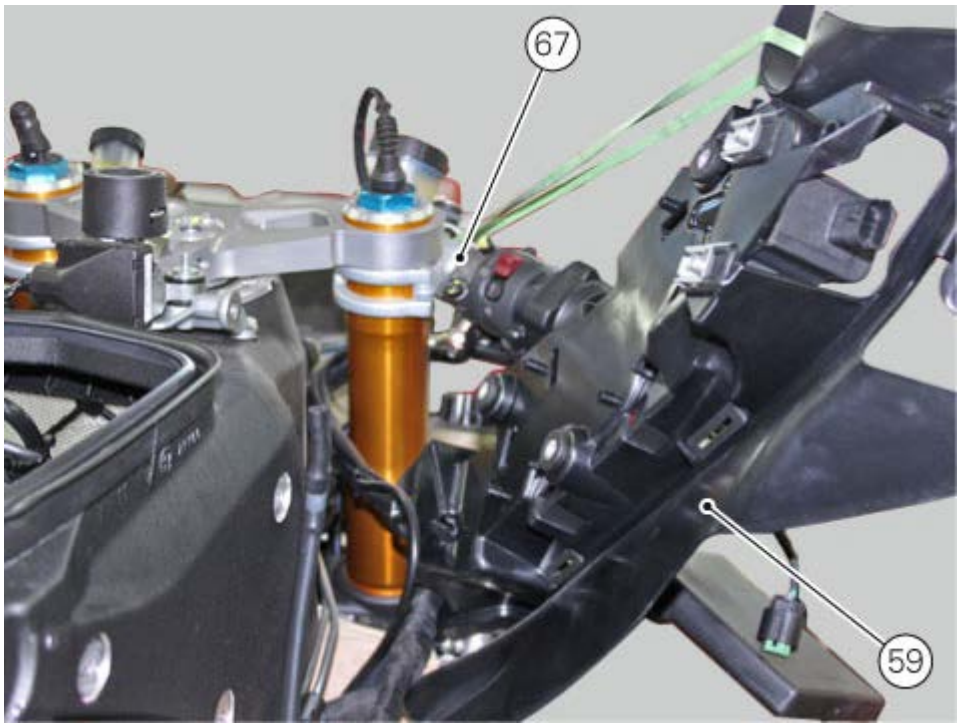


Move support (59) towards the RH handlebar (67), taking special care to the still-connected wiring. Secure support (59) to RH handlebar (67).

Warning
Duly protect support (59) so as not to damage the handlebar.

http://www.ducati-manuals.com
no. 140312



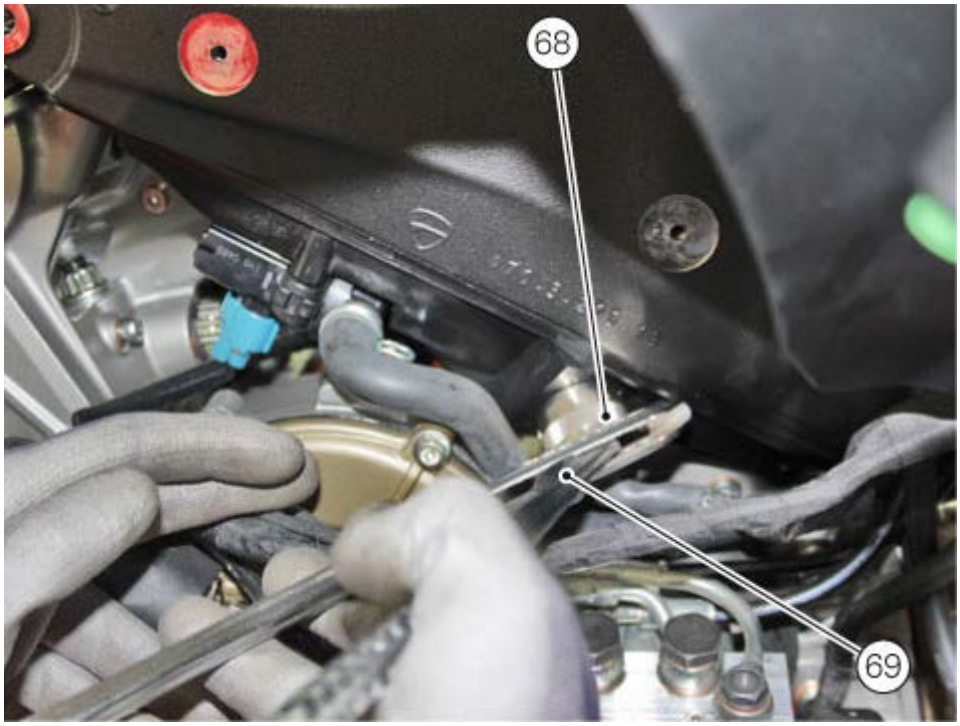


Remove clamps (70).

http://www.ducati-manuals.com
no. 140312

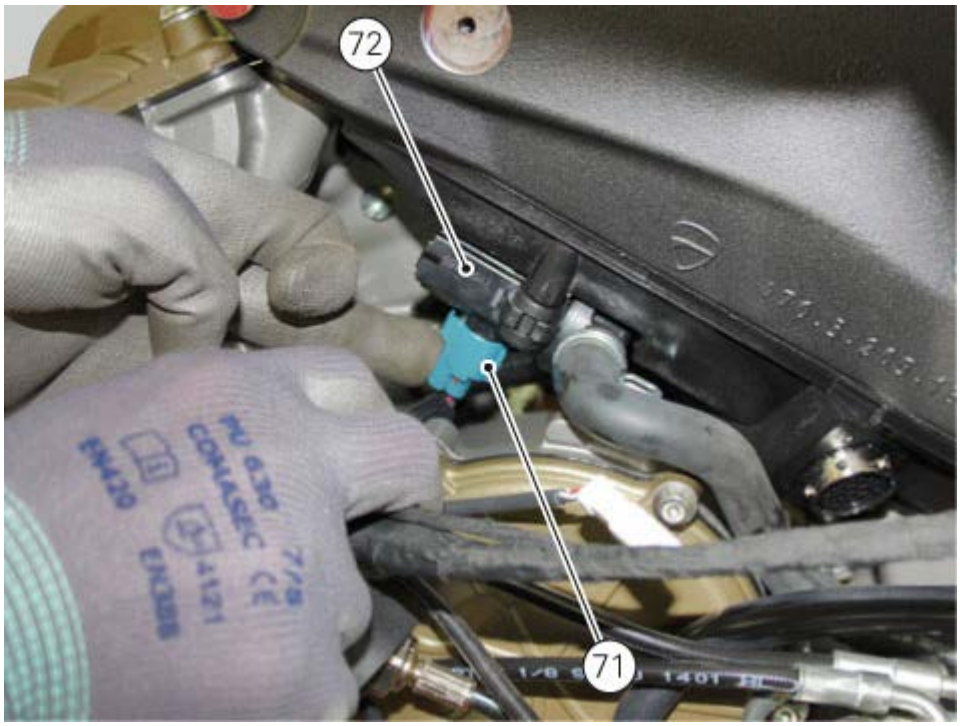


Loosen injection wiring (69) ring nut (68), and slide wiring (69) out of the airbox compartment.

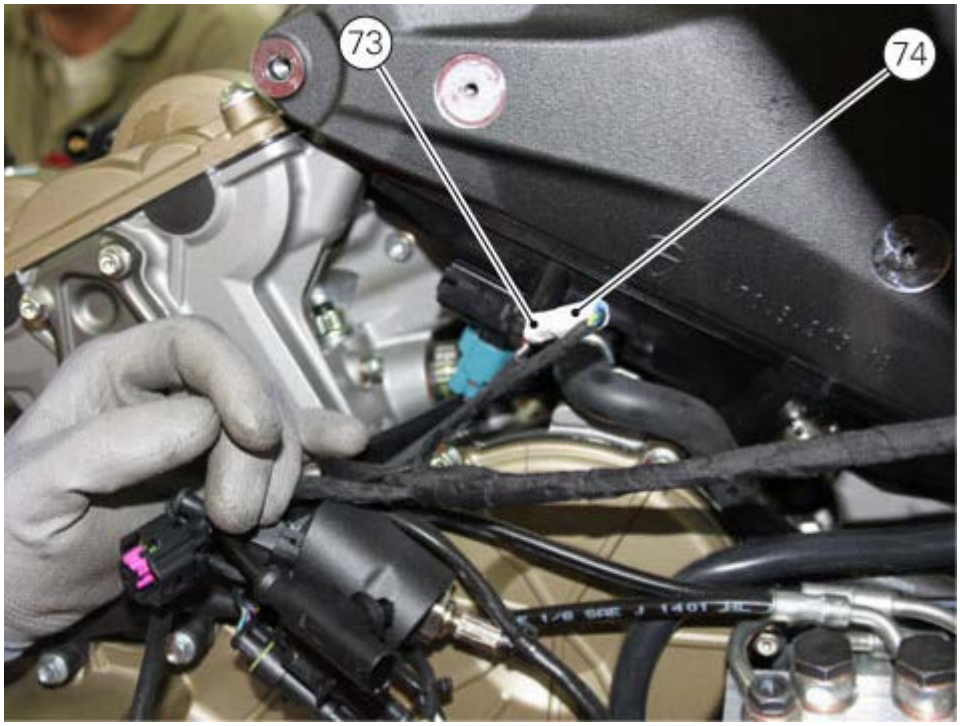


Disconnect main wiring connector (71) from secondary air actuator (72).

http://www.ducati-manuals.com
no. 140312

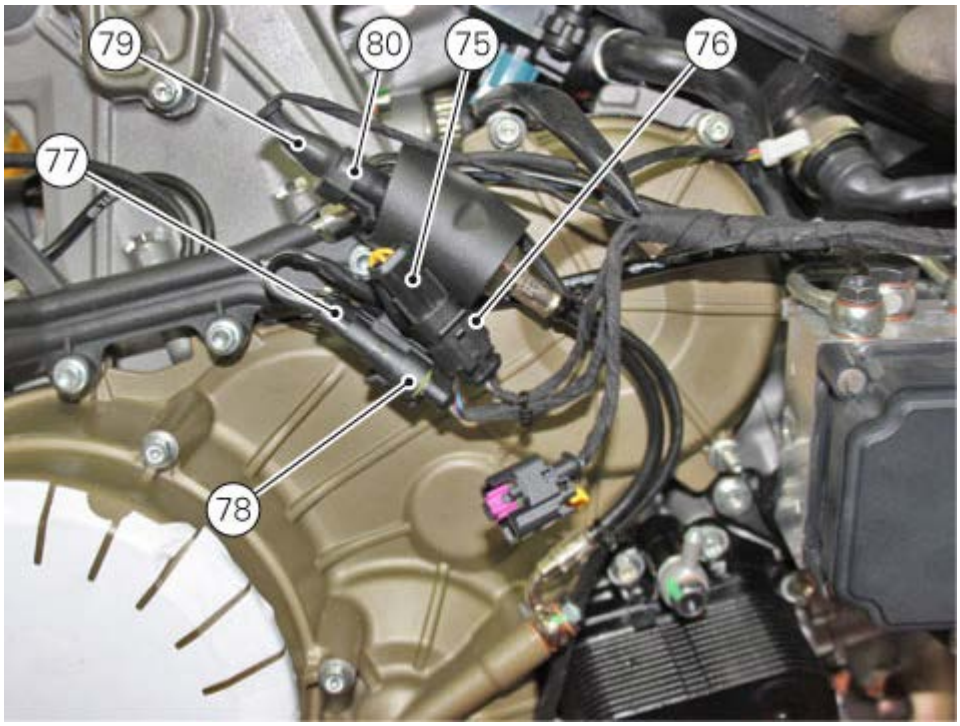


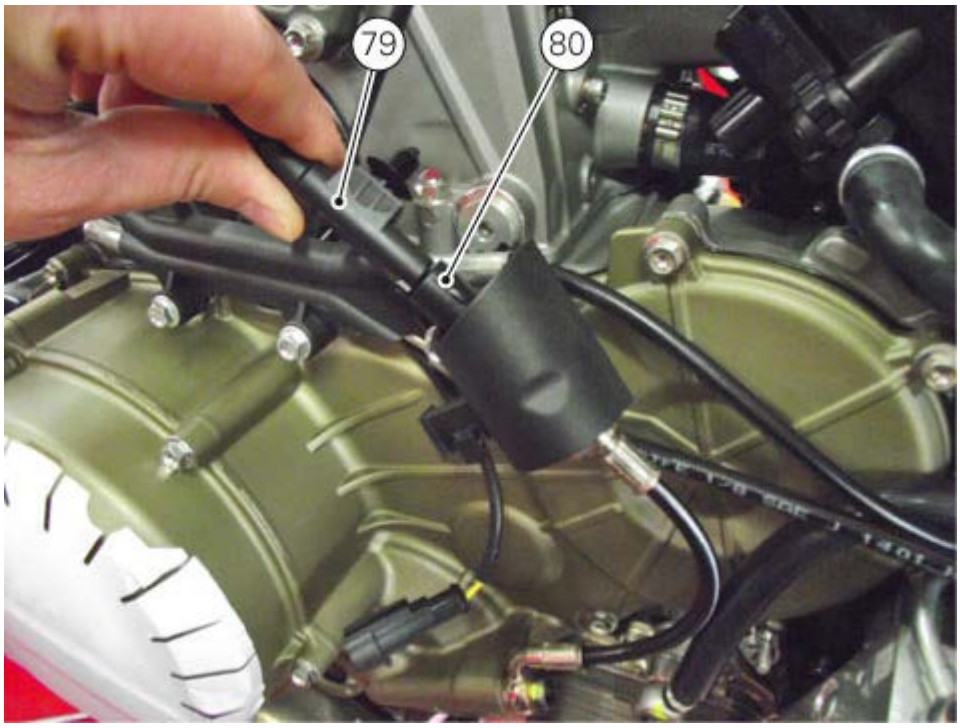
Disconnect gearbox connector (73) from main wiring connector (74).



Disconnect rear brake sensor connector (75) from main wiring connector (76).
Disconnect horizontal Lambda sensor connector (77) from main wiring connector (78).
Disconnect main wiring connector (79) from oil pressure sensor (80).

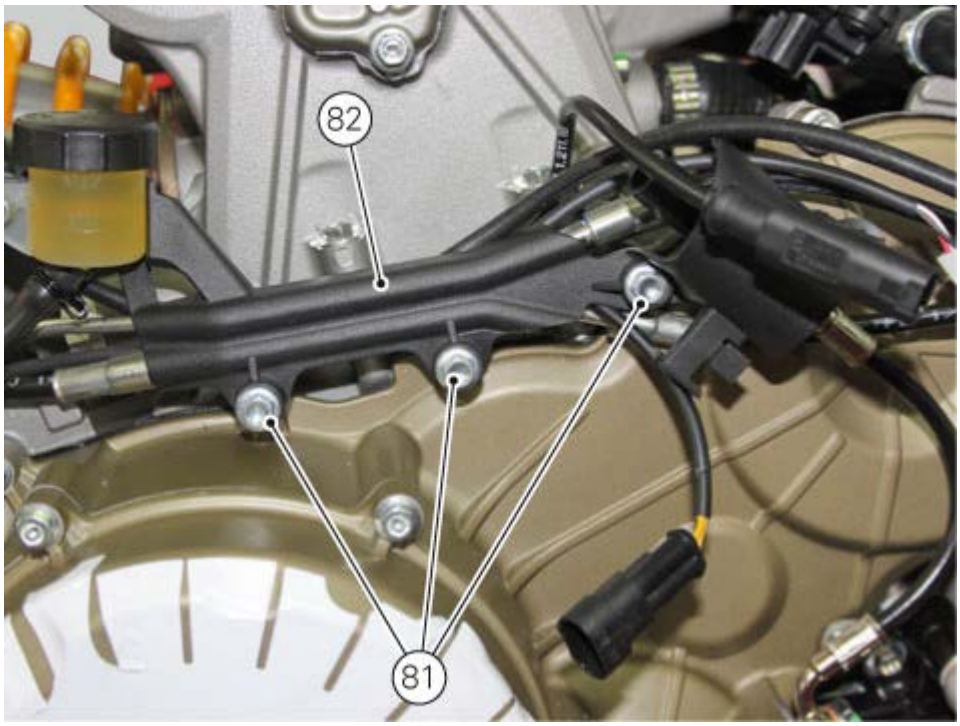
http://www.ducati-manuals.com
no. 140312



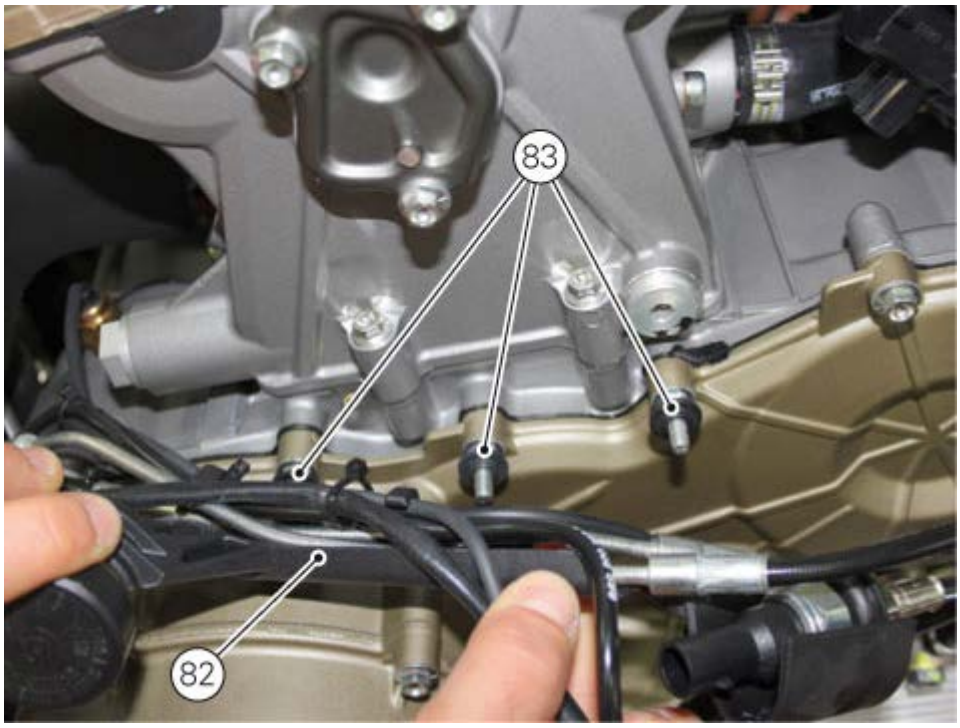


Loosen the special retaining nuts (81) from cable grommet (82).

http://www.ducati-manuals.com
no. 140312

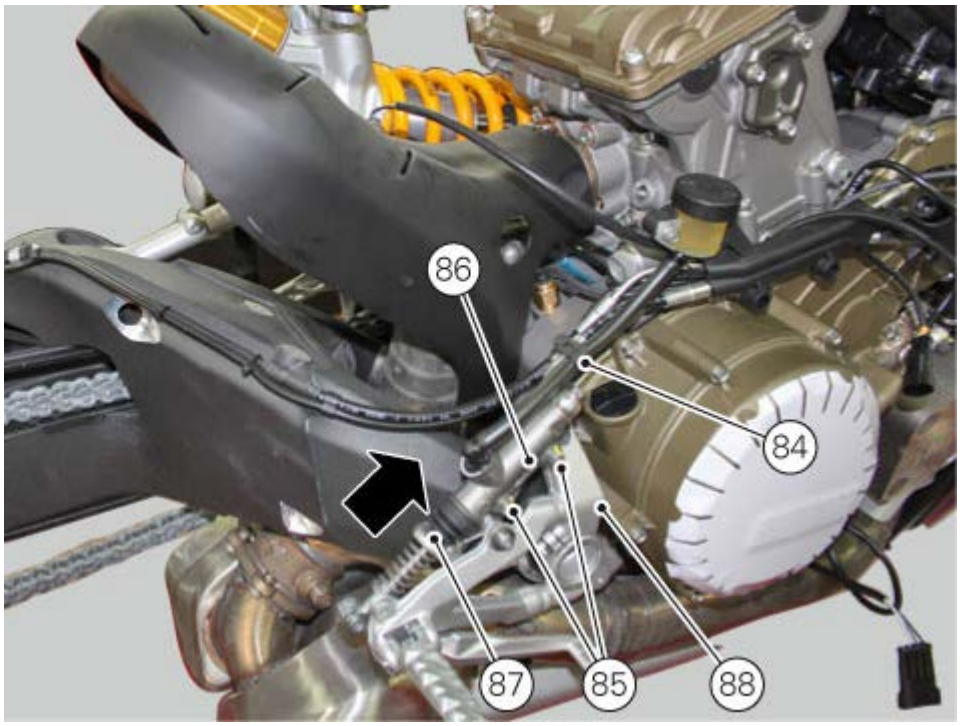


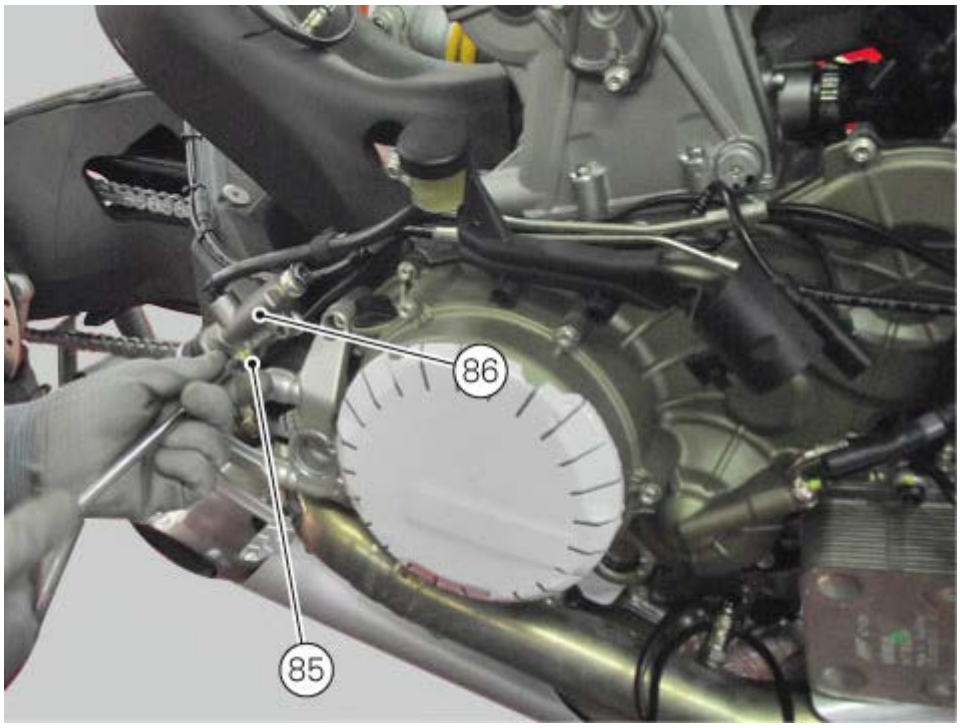
Move cable grommet (82) outwards. Keep the rubber seals (83).
Release the ABS system cable and the wiring cables from their seats inside the cable grommet.



Remove clip (84).
Loosen rear brake master cylinder (86) retaining screws (85).
Slide the rear bake master cylinder (86) out of the rod (87), and remove the master cylinder from the RH footpeg unit (88), without disconnecting the ABS cable.

http://www.ducati-manuals.com
no. 140312





Important

Using a clamp (89), secure the rear brake master cylinder unit to the ABS system, keeping the reservoir (90) in its assembling position, namely higher than the brake master cylinder (86).

http://www.ducati-manuals.com
no. 140312



Remove clamp (91).

http://www.ducati-manuals.com
no. 140312

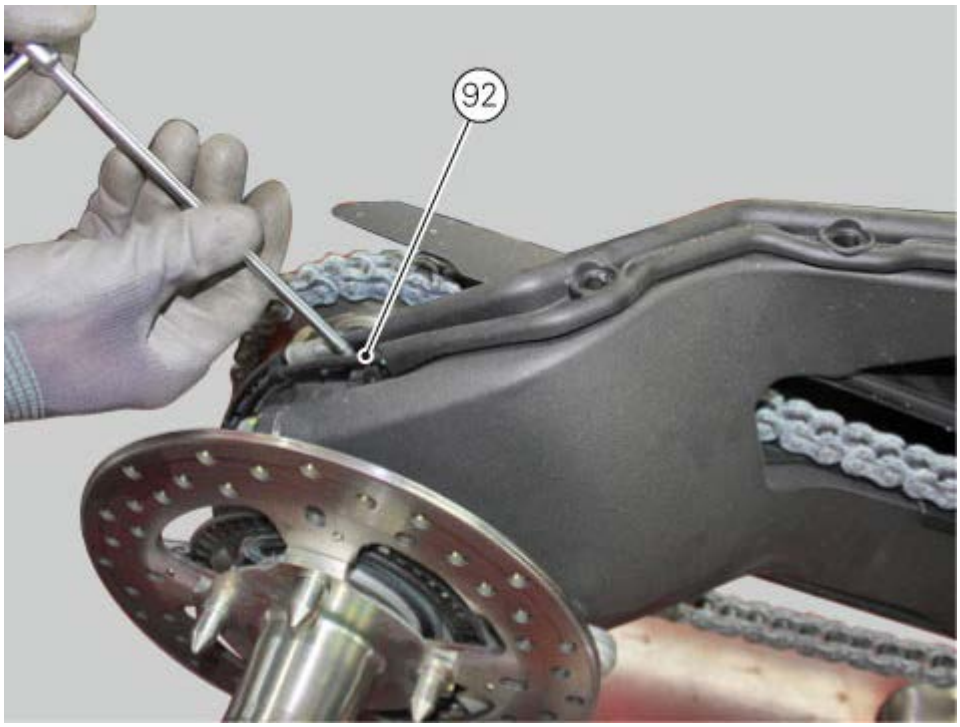


Loosen the retaining screws (92) securing rear brake master cylinder cable (93) and rear speed sensor cable (94) to the swinging arm.



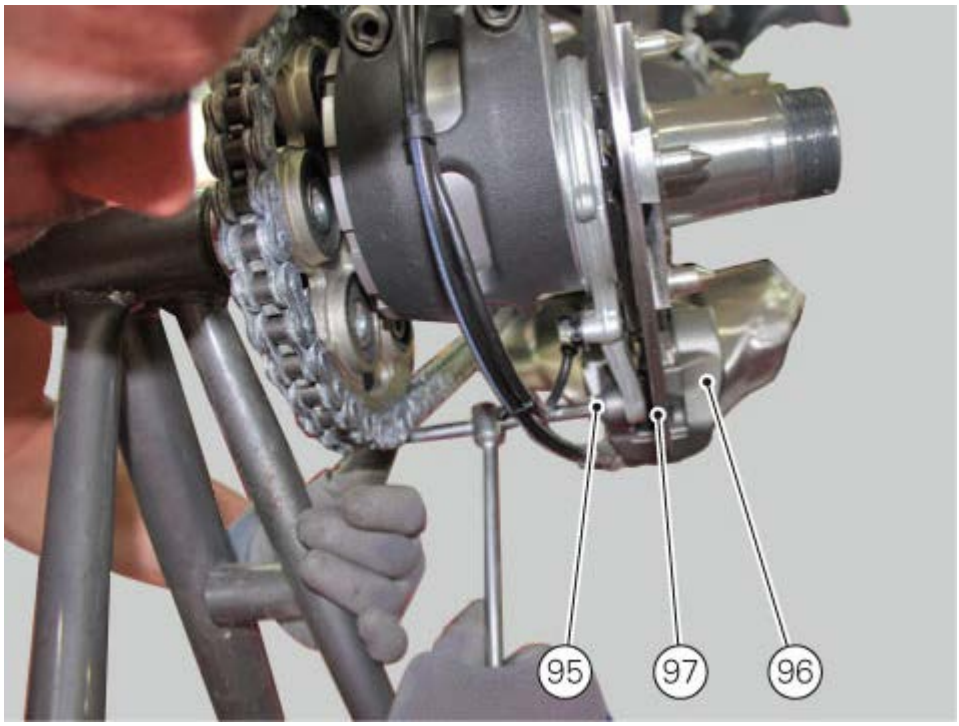
http://www.ducati-manuals.com
no. 140312

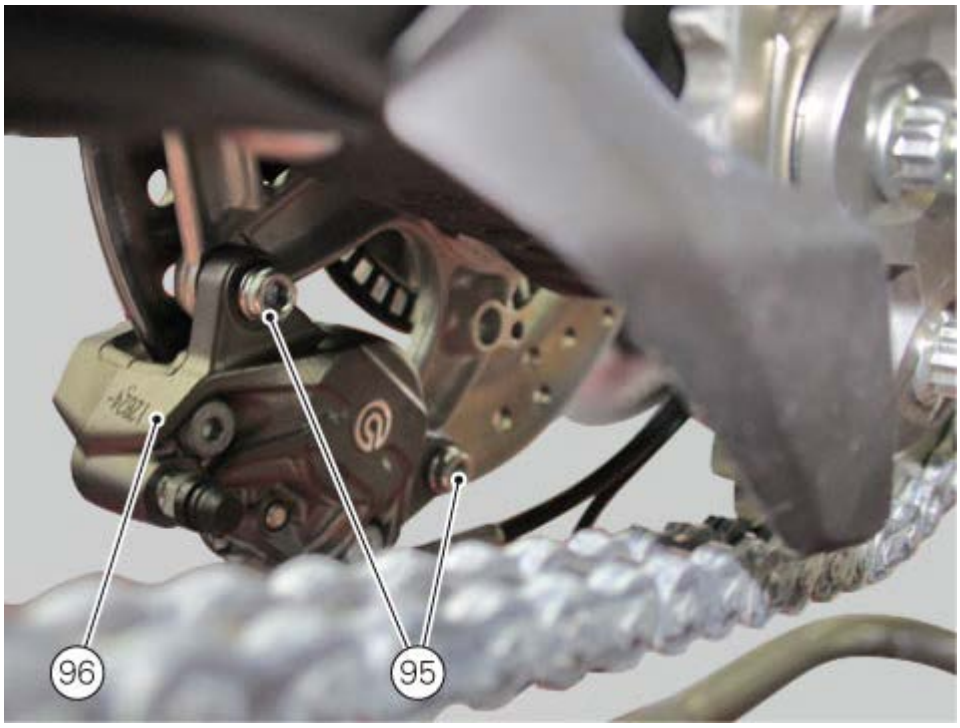




Loosen the retaining screws (95) between rear brake master cylinder (96) and brake disc (97).

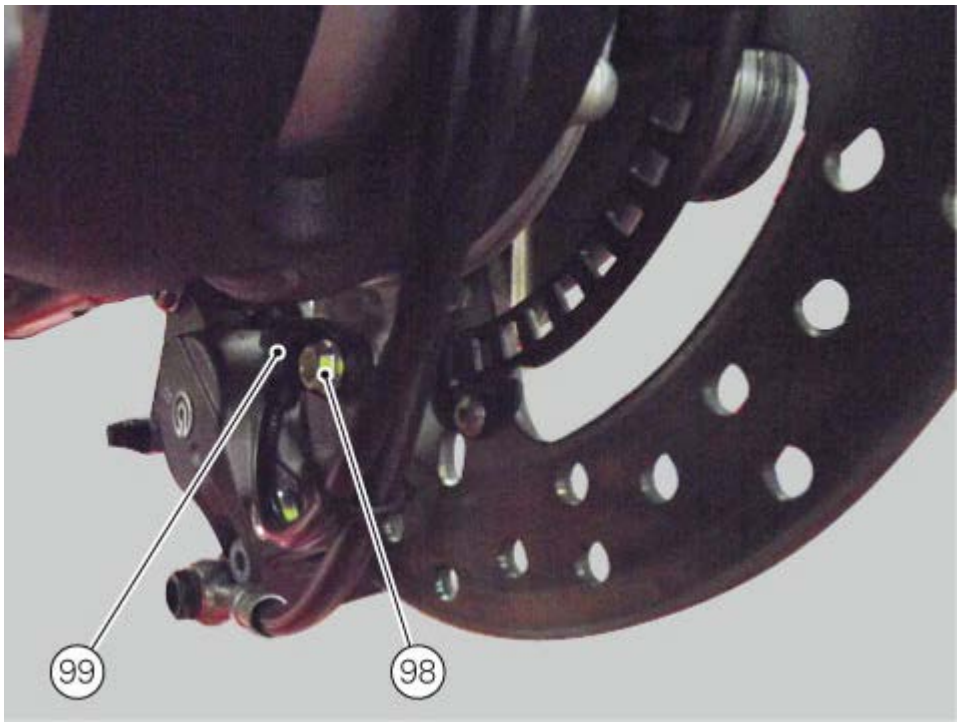
http://www.ducati-manuals.com
no. 140312



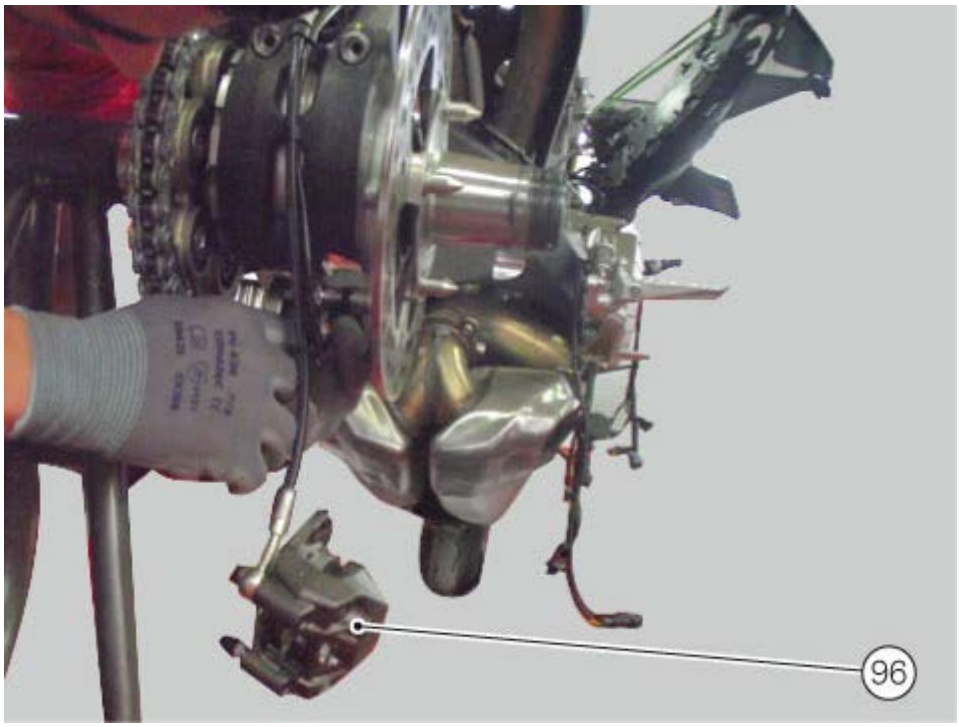


Loosen the rear speed sensor (99) retaining screw (98), and remove rear speed sensor (99) from calliper holder plate.

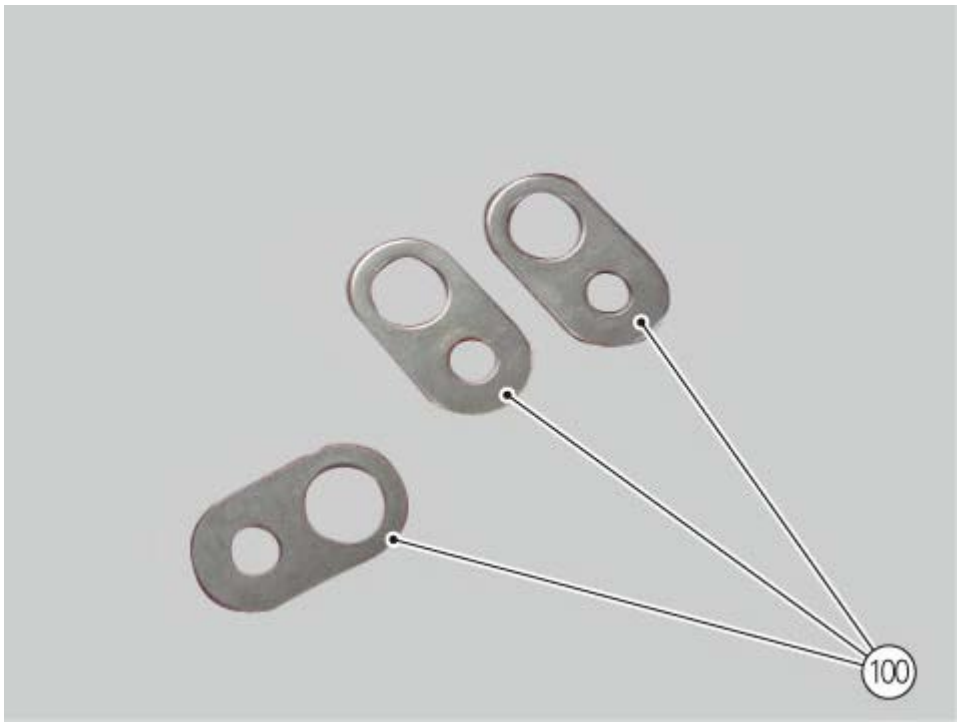
http://www.ducati-manuals.com
no. 140312

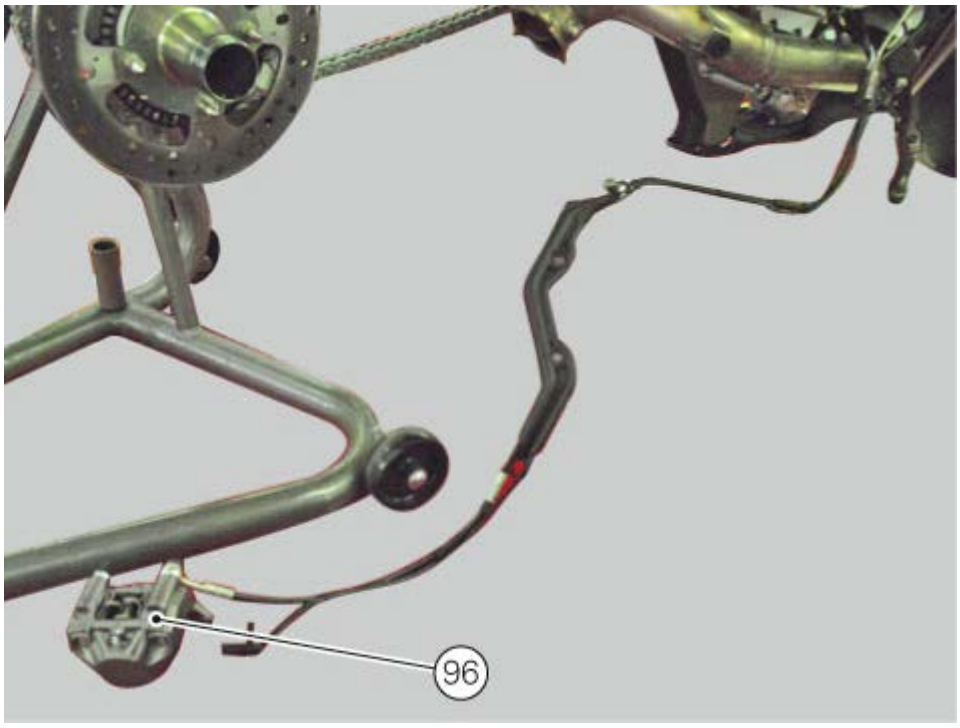


Remove brake rear master cylinder (96), and keep the three shims (100). Leave rear brake calliper connected to the brake system.



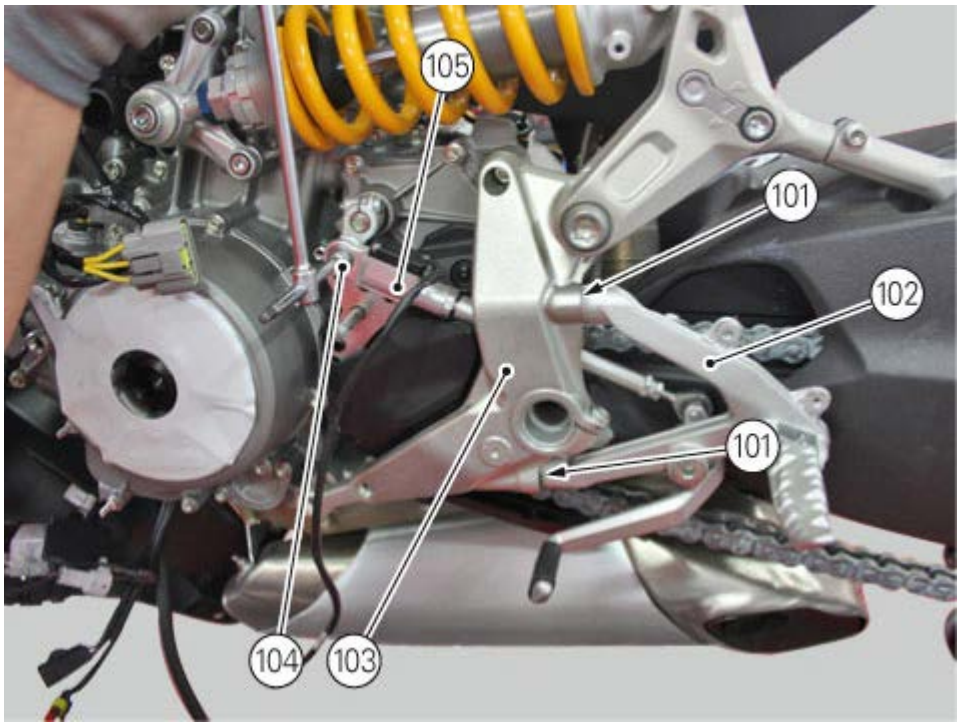
http://www.ducati-manuals.com
no. 140312

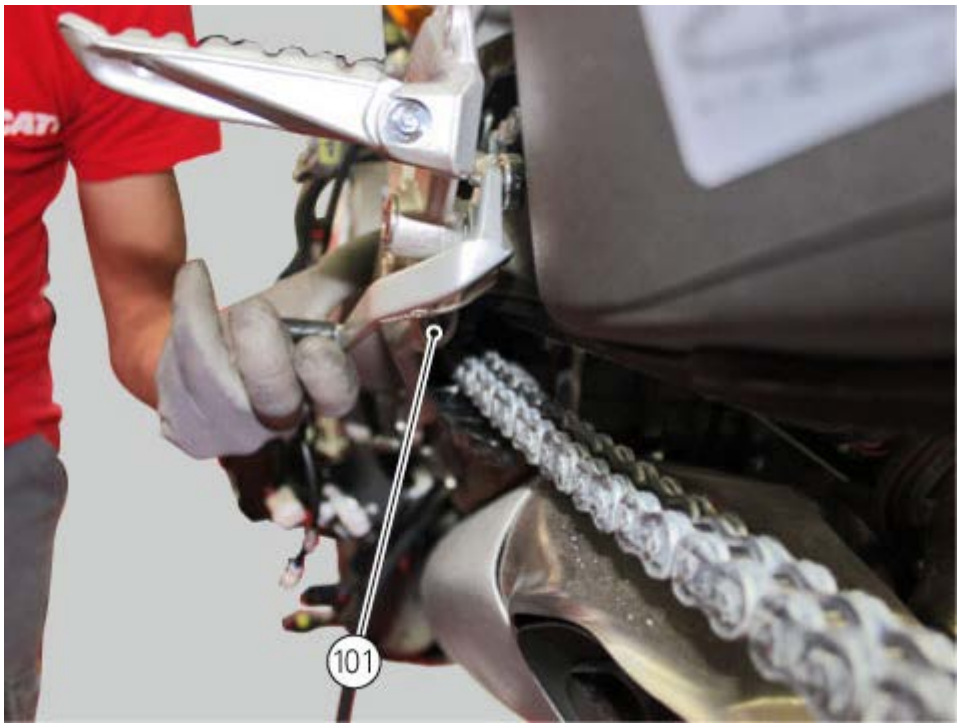




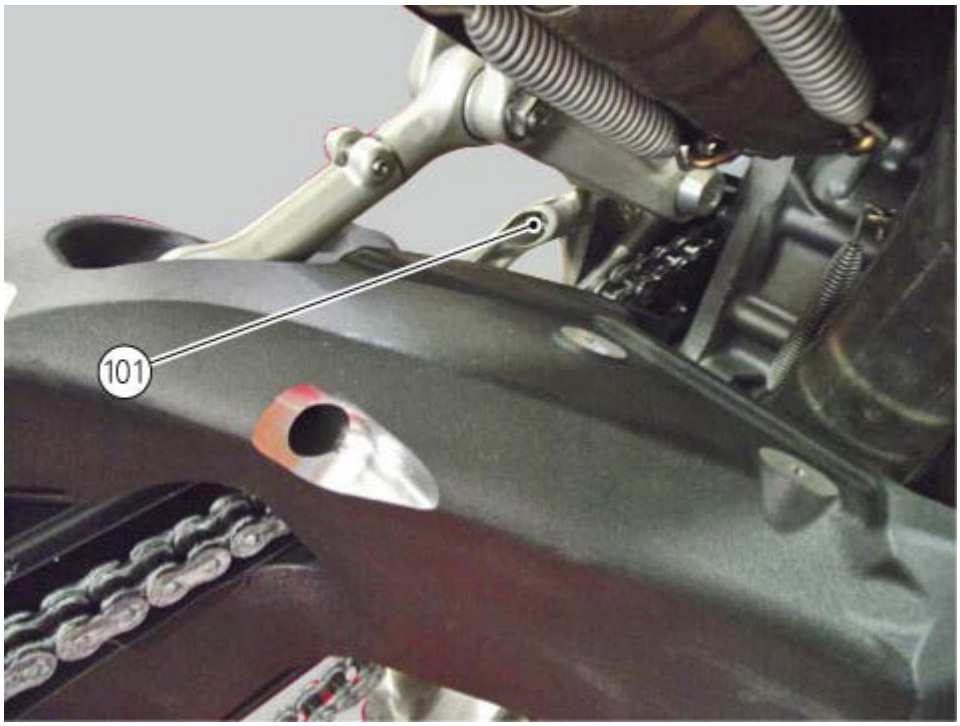
Loosen the two retaining screws (101) between LH footpeg (102) and LH support (103). Loosen the retaining screw (104) between gearbox unit (105) and gearbox shaft lever. Remove the LH footpeg (102) with the gearbox unit (105).

http://www.ducati-manuals.com
no. 140312





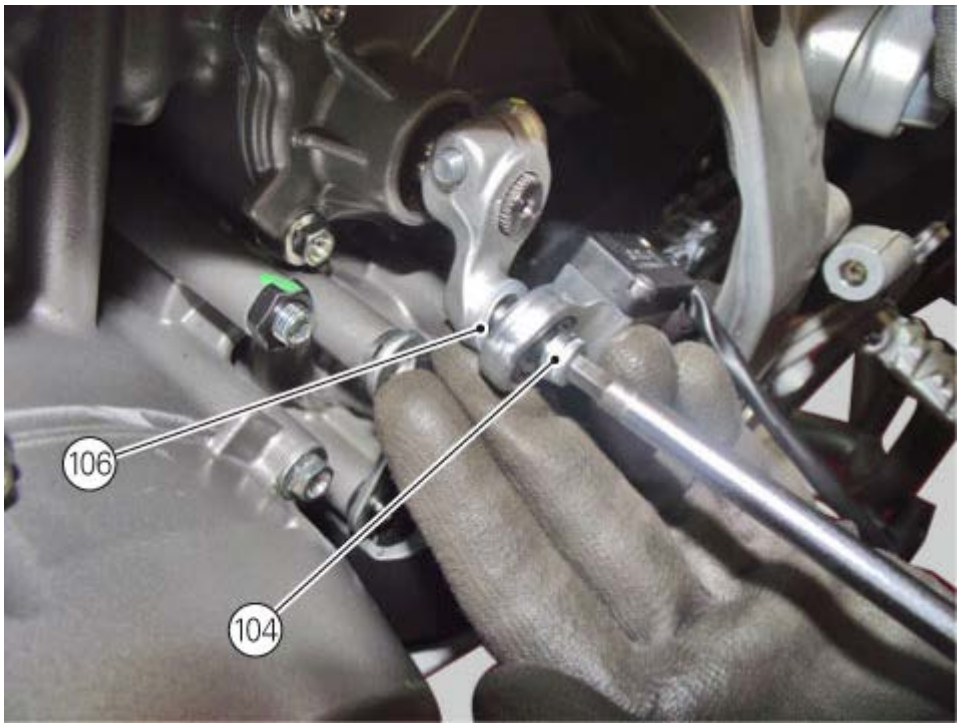
http://www.ducati-manuals.com
no. 140312



When loosening screw (104), keep Teflon washer (106).

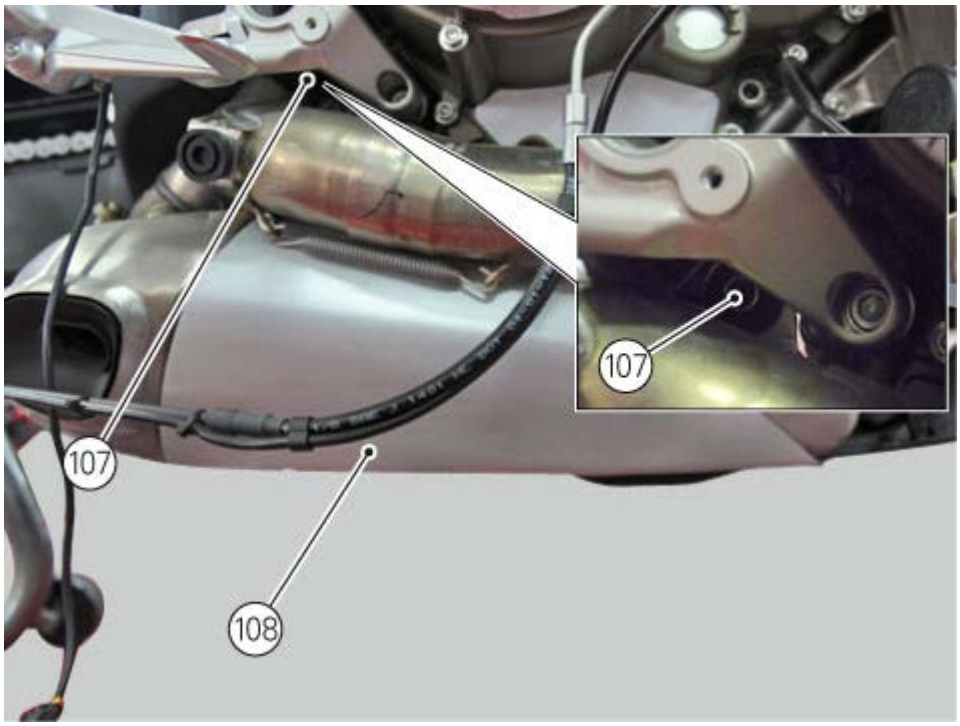
Important

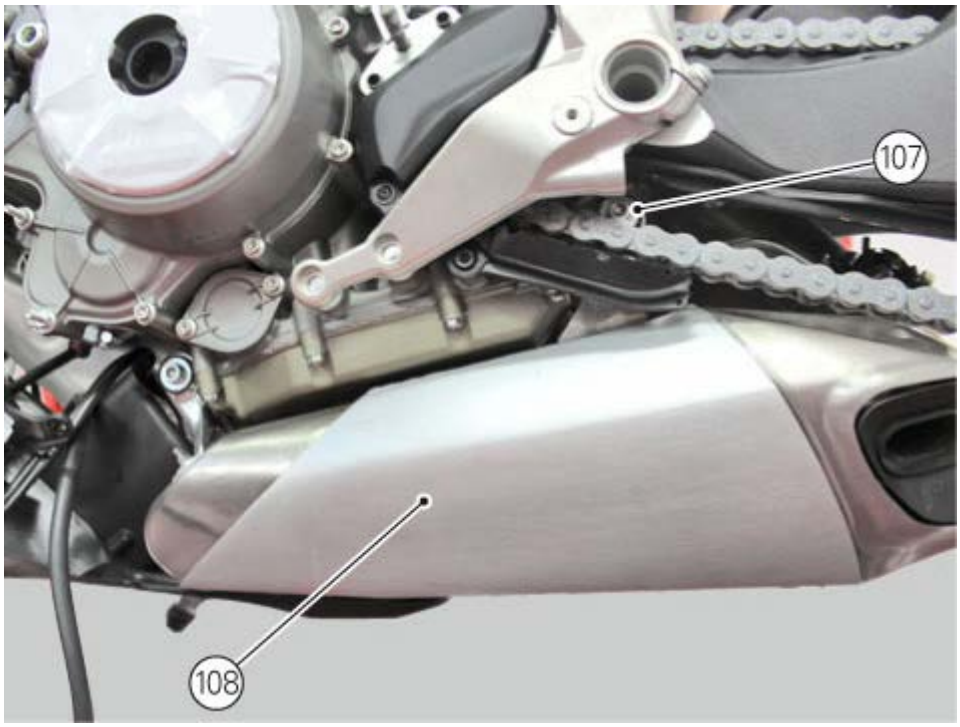
Always fit a new Teflon washer (106) on reassembly.



Loosen the rear fastening screws (107) on silencer (108) right and left sides.

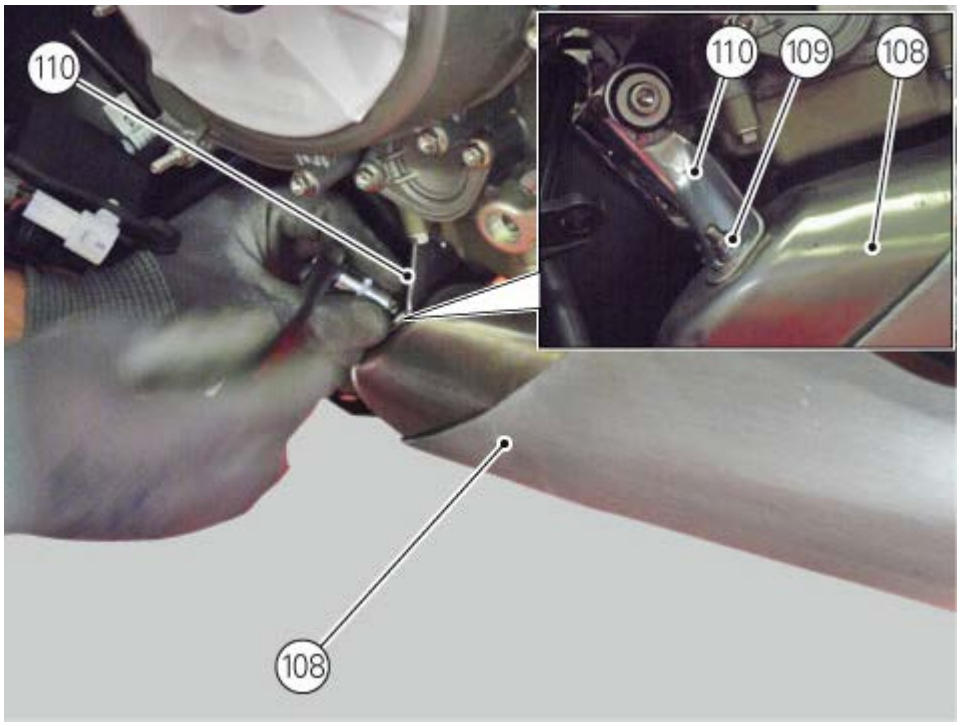
http://www.ducati-manuals.com
no. 140312

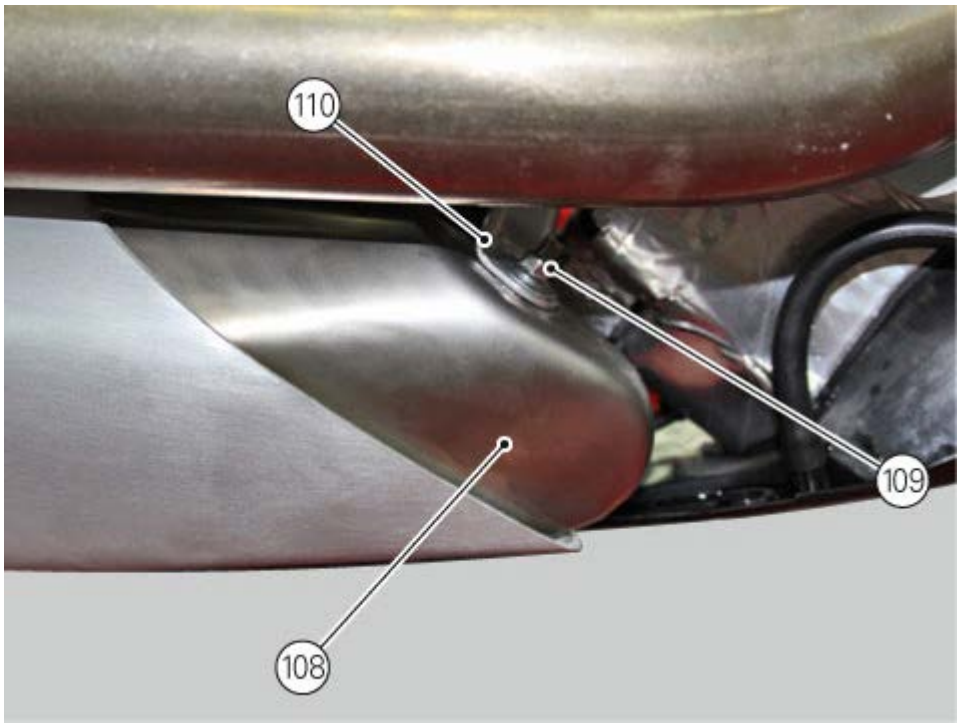




Loosen the front retaining nuts (109) between silencer (108) RH and LH sides and mounting bracket (110).

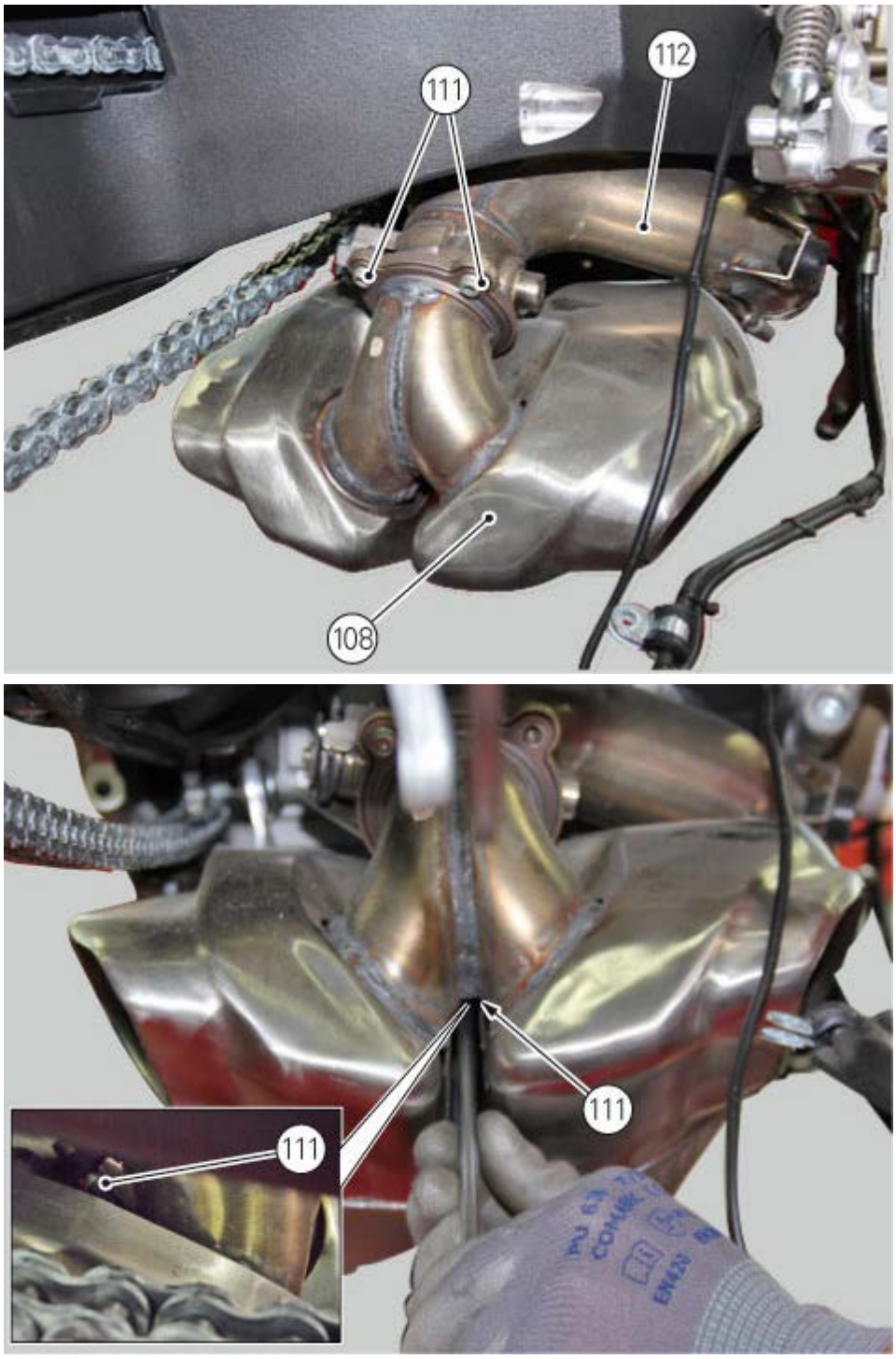
http://www.ducati-manuals.com
no. 140312





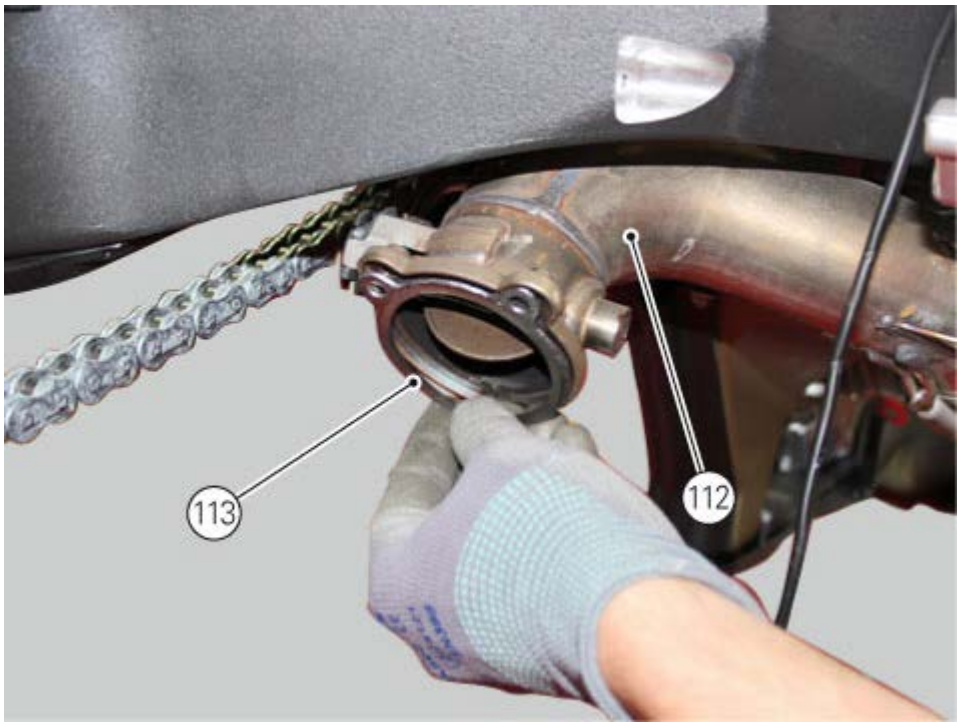
Loosen the three retaining screws (111) between silencer (108) and central exhaust pipe (112). Remove silencer (108) from central exhaust pipe.

http://www.ducati-manuals.com
no. 140312

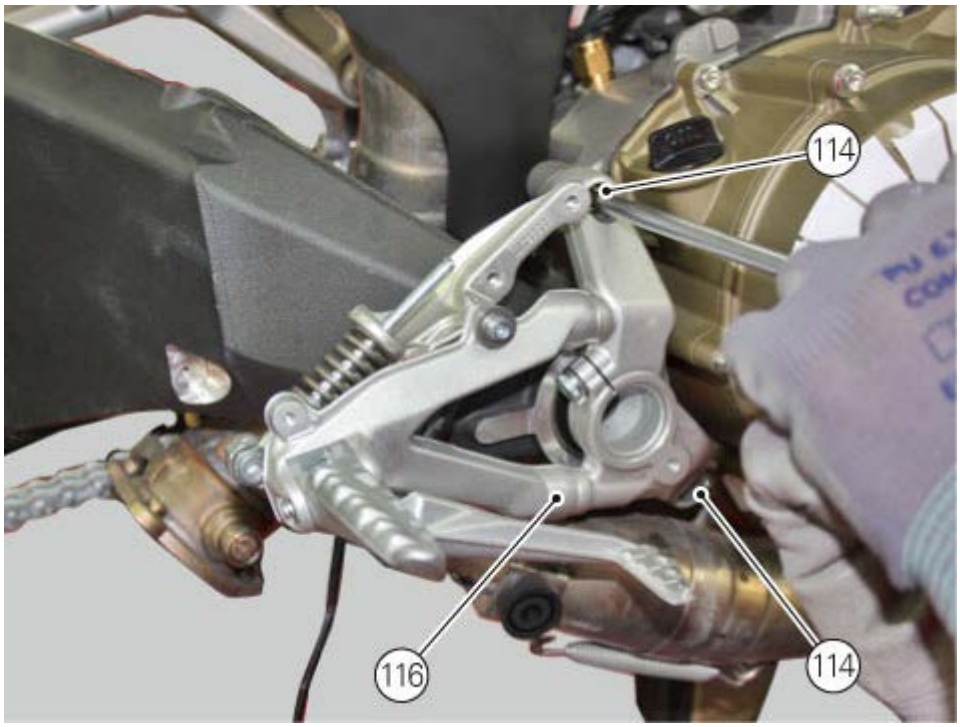


Recover the seal (113) from the seat inside central exhaust pipe (112).

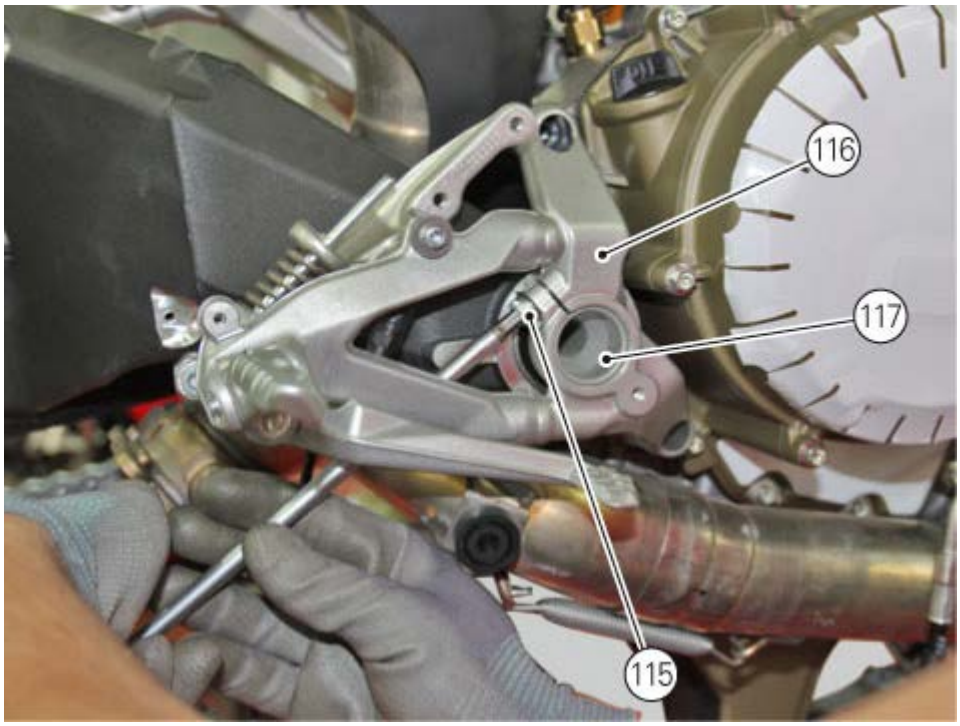
http://www.ducati-manuals.com
no. 140312



Loosen the retaining screws (114) and (115) securing the RH support (116) to the engine crankcase and to the RH swinging arm shaft (117), then remove the RH support (116).

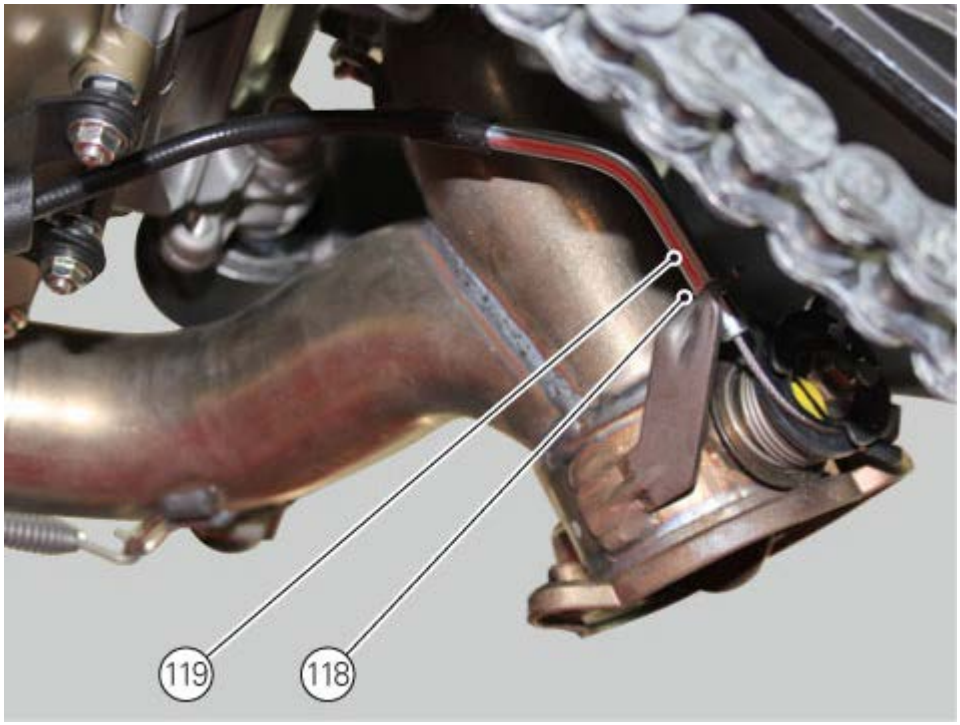


http://www.ducati-manuals.com
no. 140312



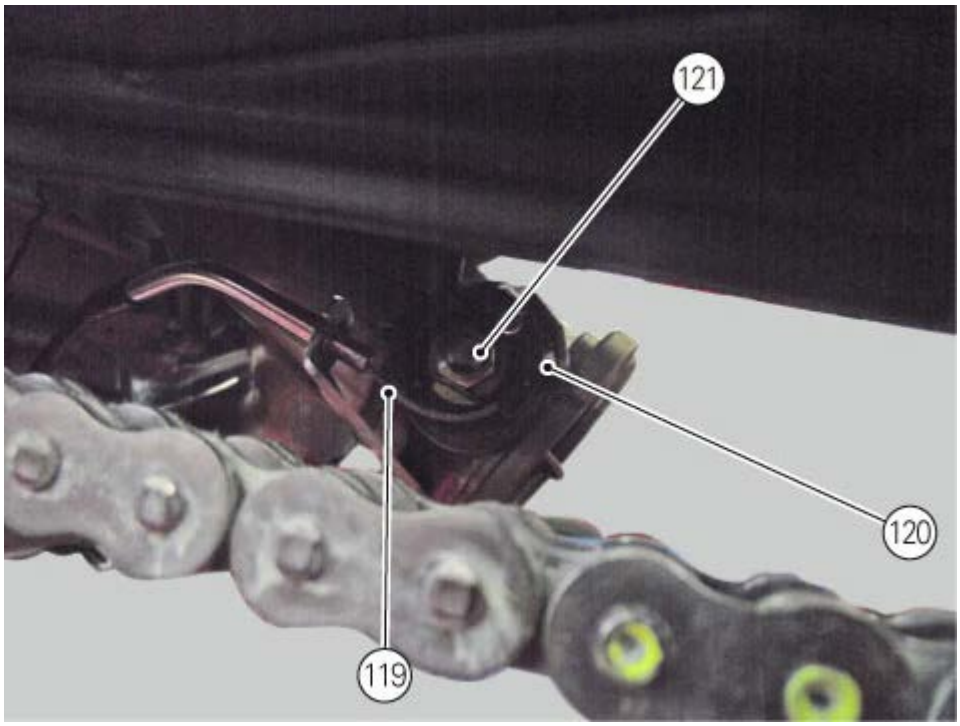
Remove circlip (118) from exhaust valve motor cable (119).

Warning
Always fit a new circlip (118) on reassembly.

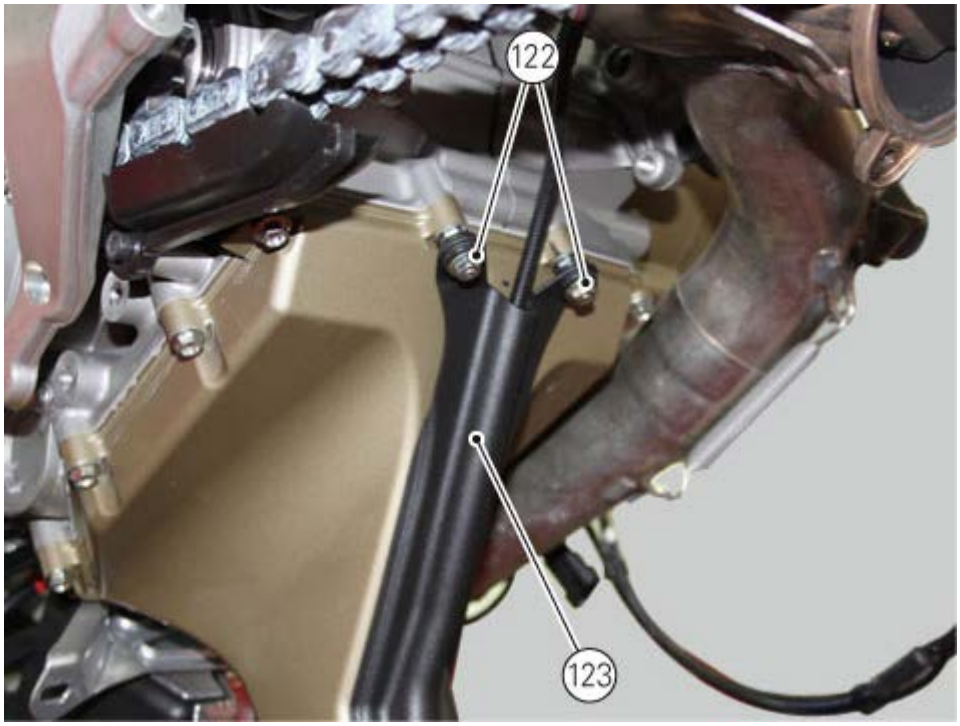


Remove cable (119) pawl (120) from exhaust valve (121), and remove cable (119) from exhaust valve.

http://www.ducati-manuals.com
no. 140312

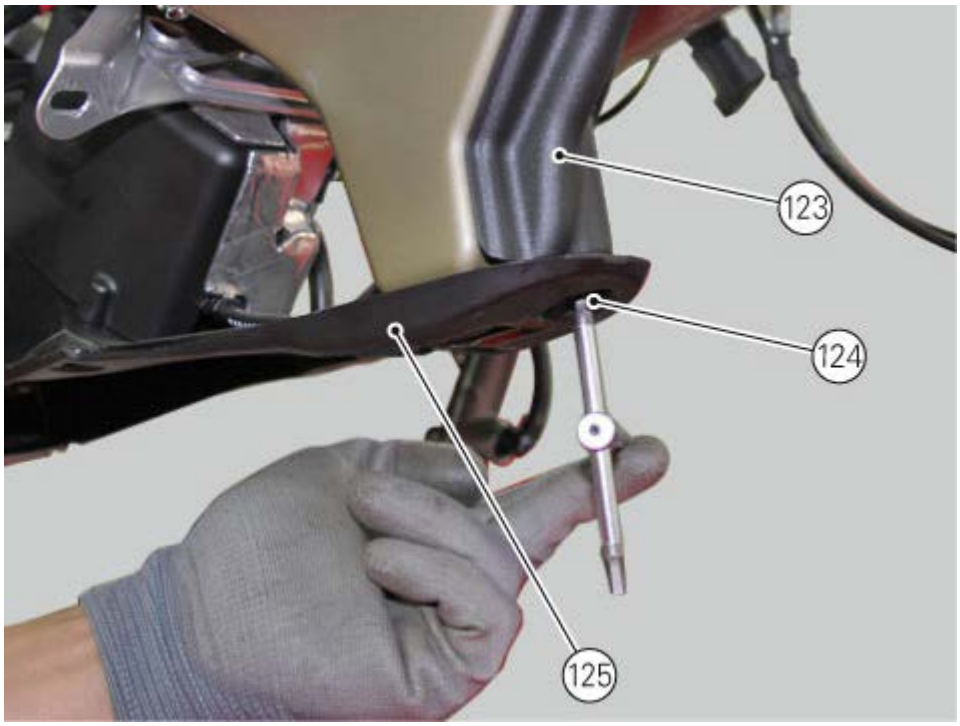


Loosen the two retaining nuts (122) between cable grommet (123) and engine block.

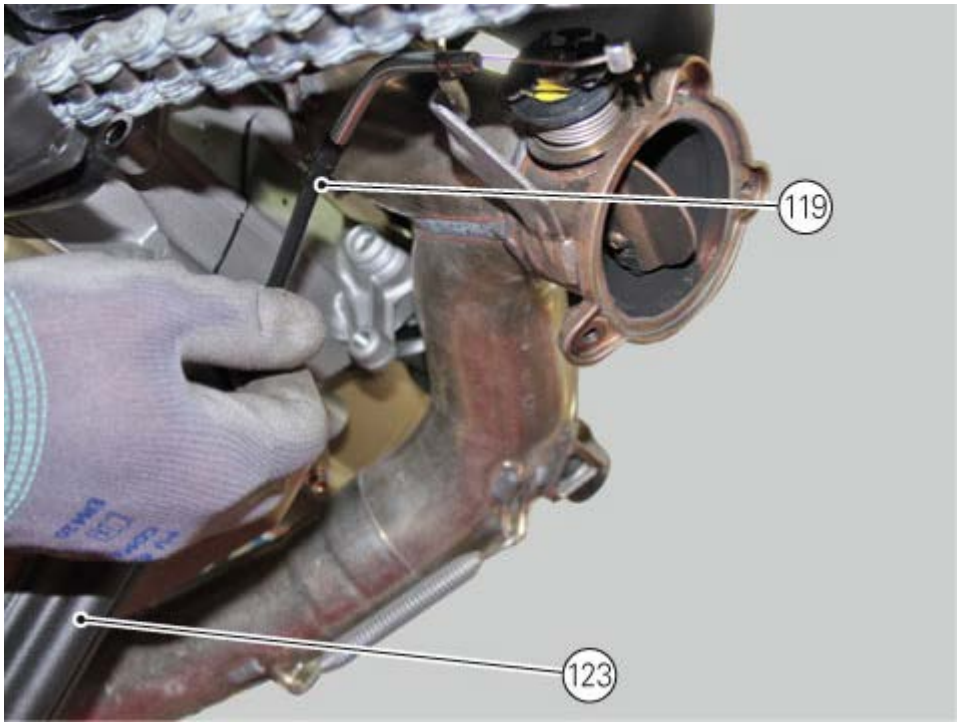


Loosen radiator support (125) and cable grommet (123) retaining screw (124).

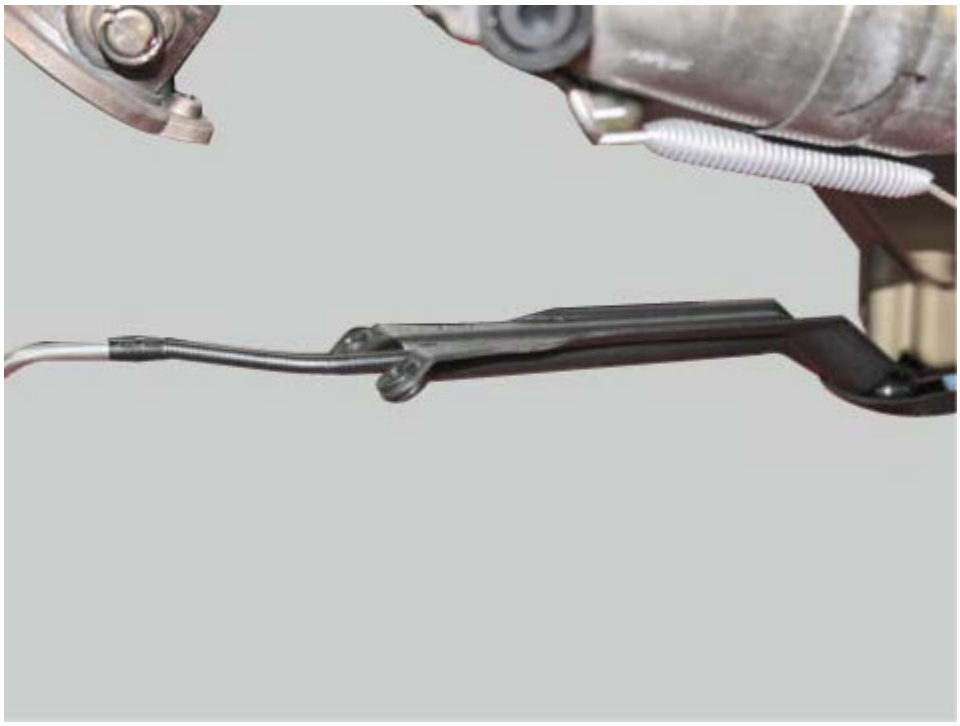
http://www.ducati-manuals.com
no. 140312

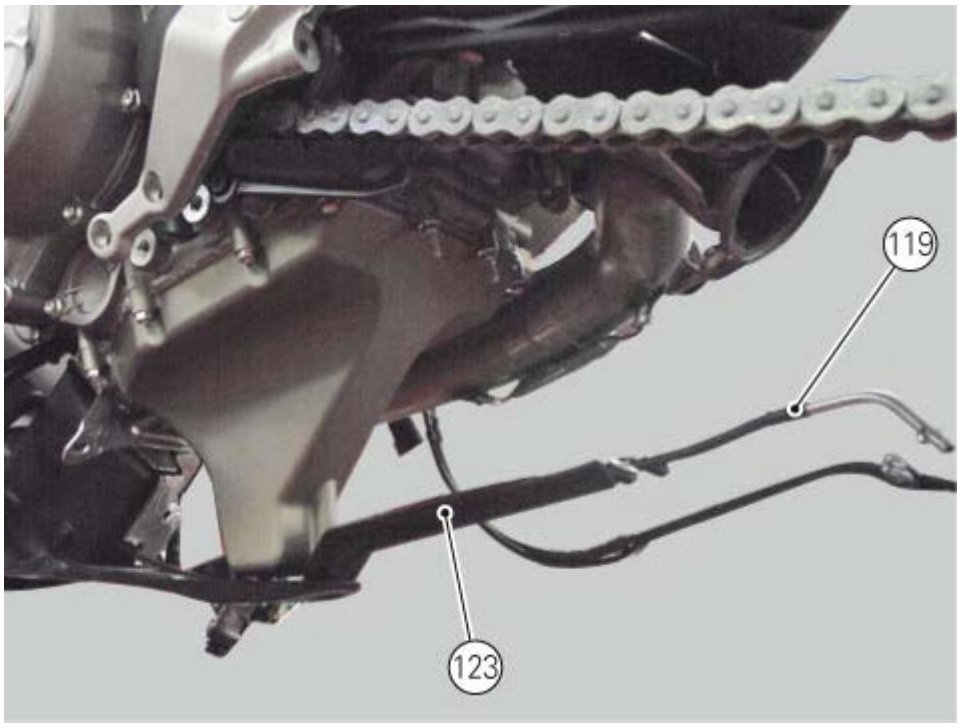


Remove cable (119) and cable grommet (123).



http://www.ducati-manuals.com
no. 140312

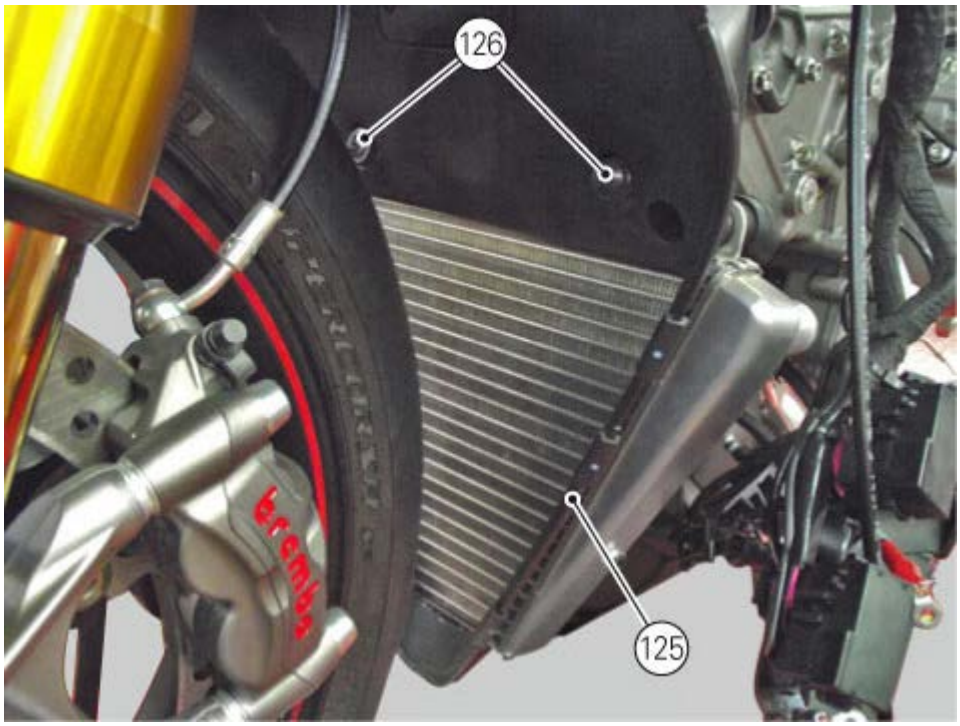




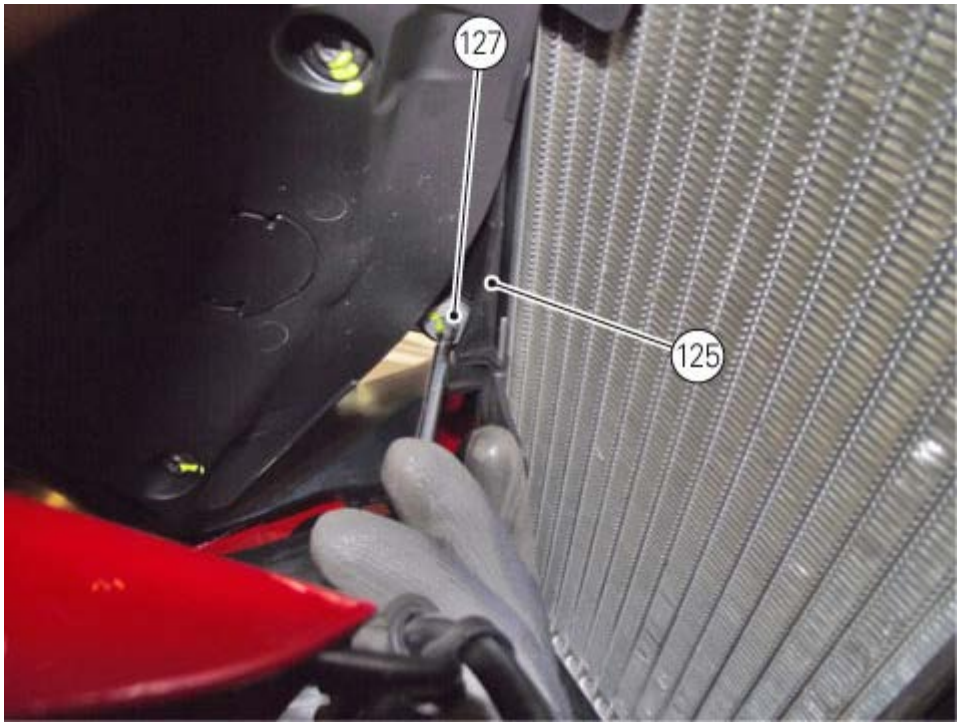
Loosen the lower retaining screws (126) on radiator support (125).

Warning
To loosen screws (126), always use a 3 mm Allen wrench in perfect conditions.

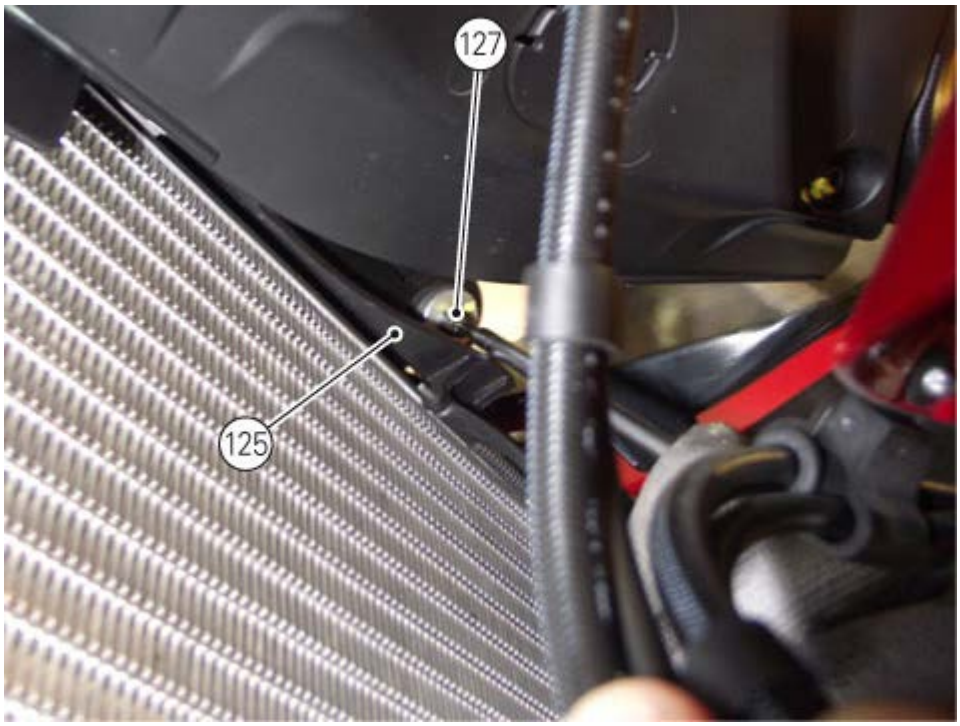
http://www.ducati-manuals.com
no. 140312



Loosen the upper retaining screws (127) on radiator support (125).



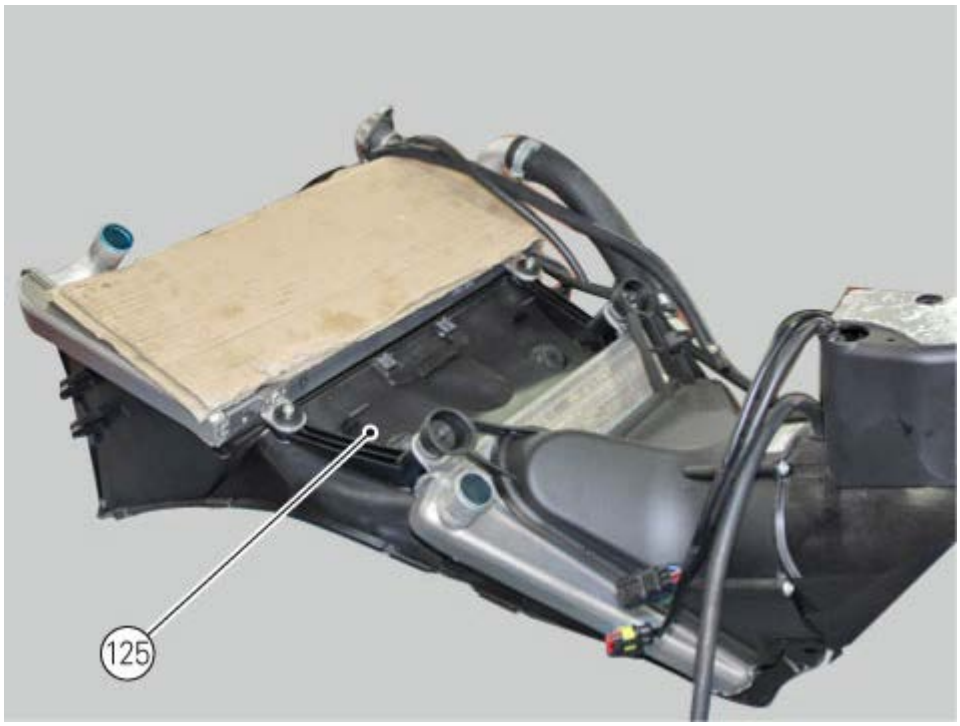
http://www.ducati-manuals.com
no. 140312



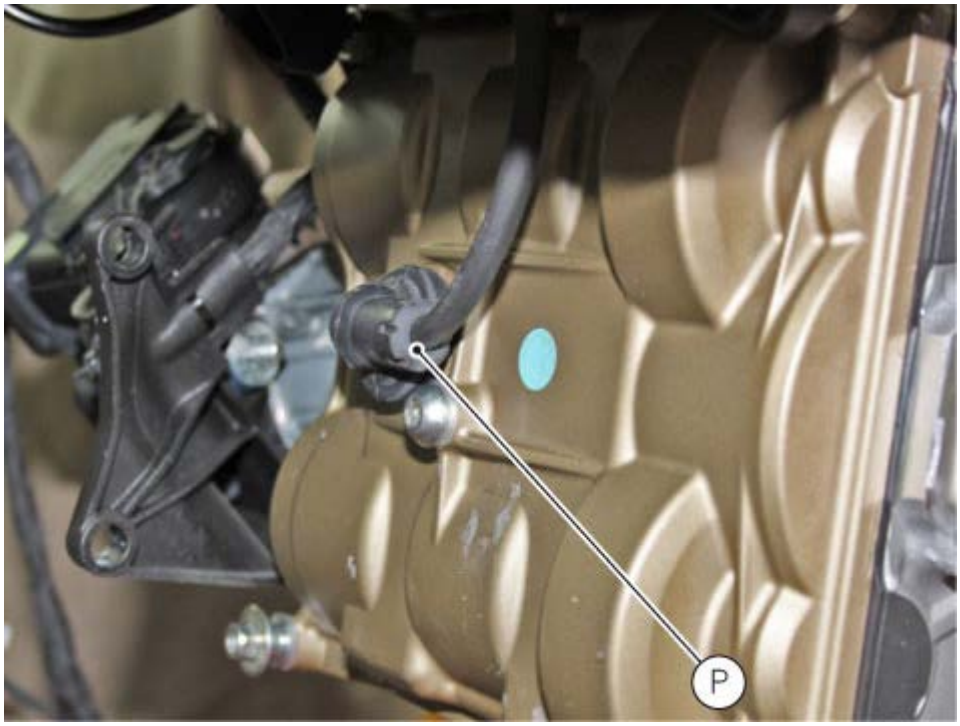
Remove the complete radiator support (125).



http://www.ducati-manuals.com
no. 140312

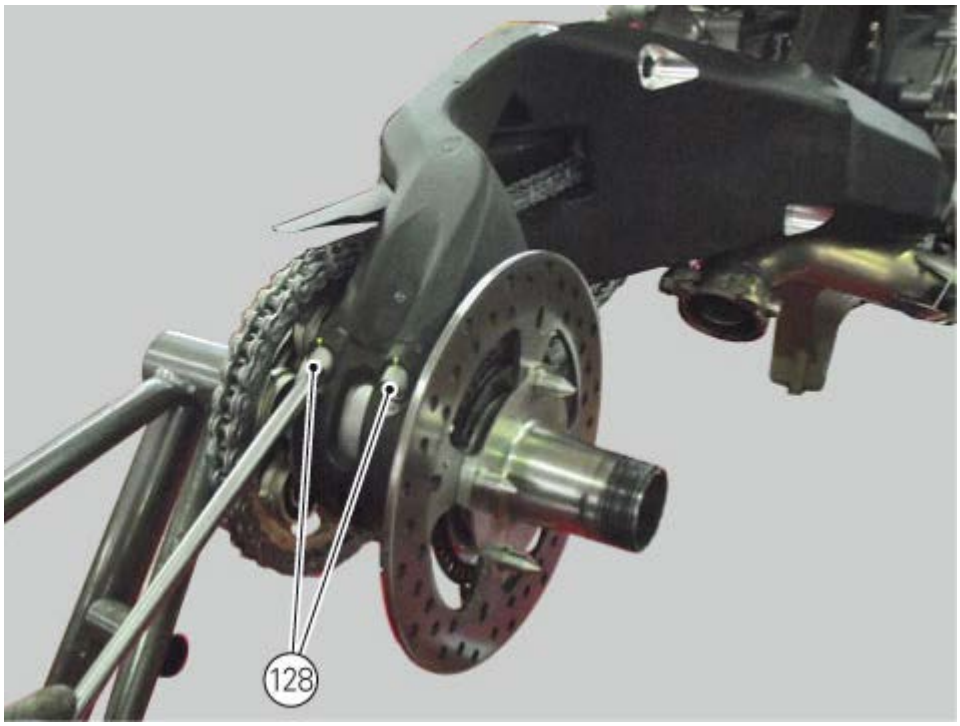


Remove horizontal head spark plug cap (P).

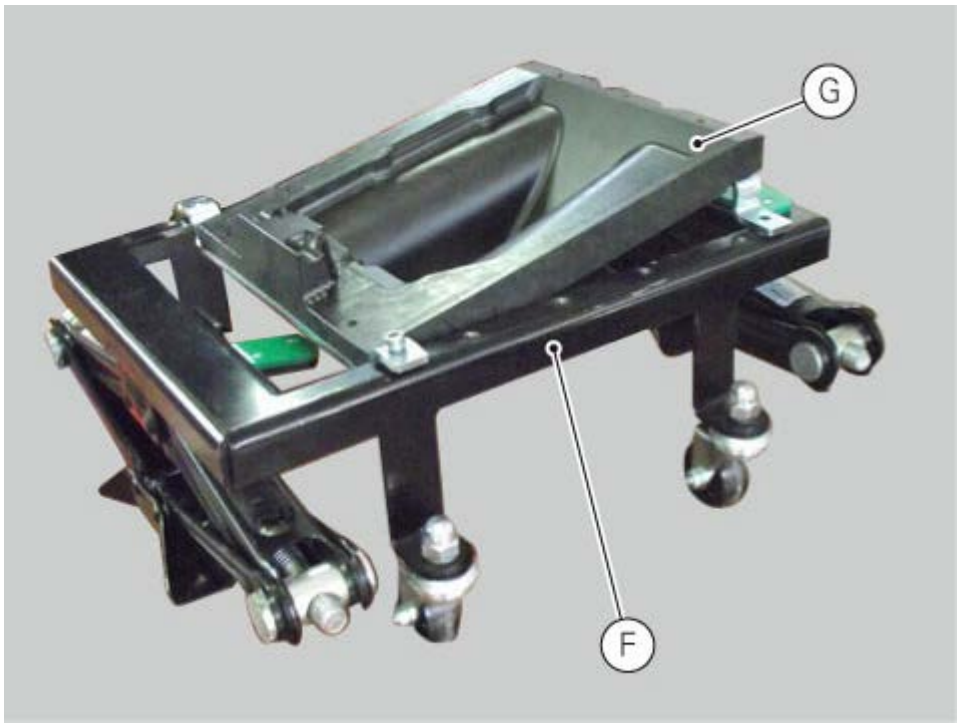


Loosen rear swinging arm screws (128).

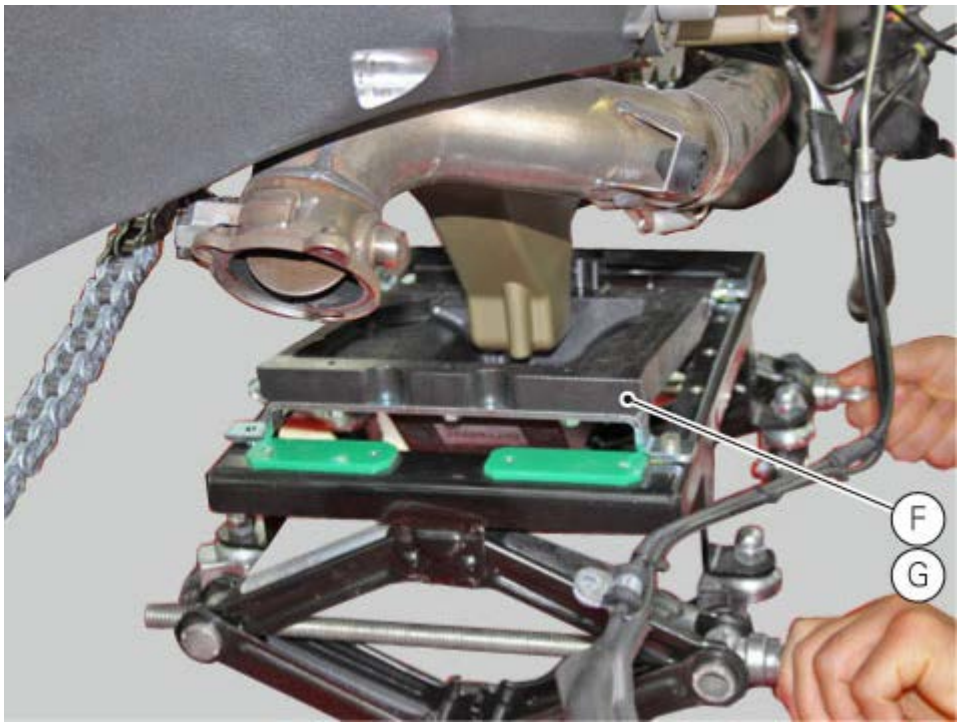
http://www.ducati-manuals.com
no. 140312

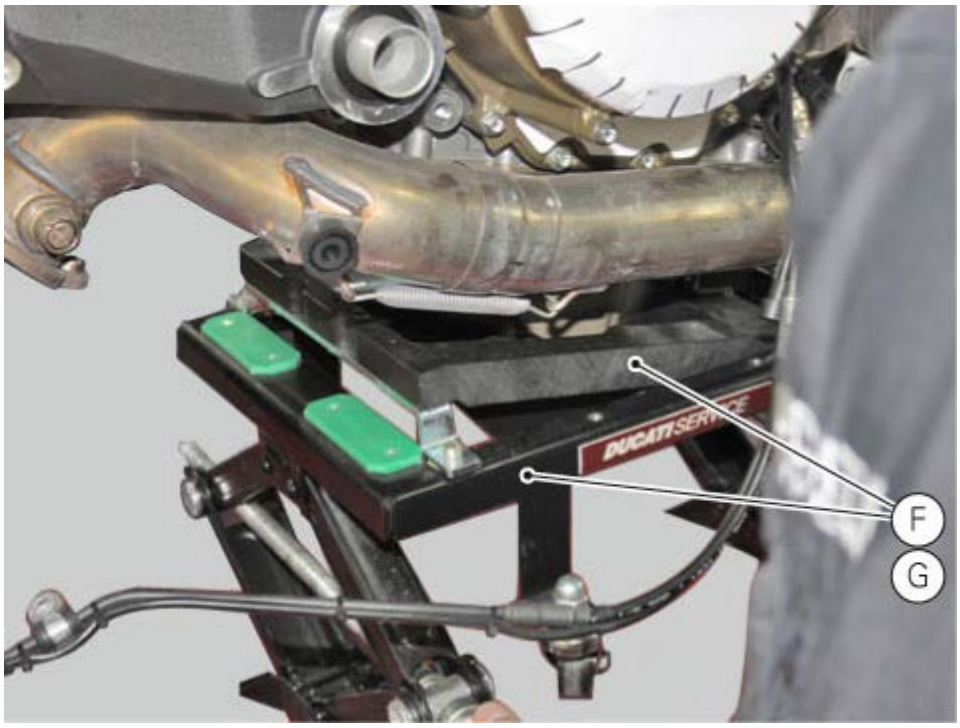


Position tools no. 88713.3092 – engine repair work bench (F) and no. 88713.3927 – engine support (G) under the engine block to duly support it.



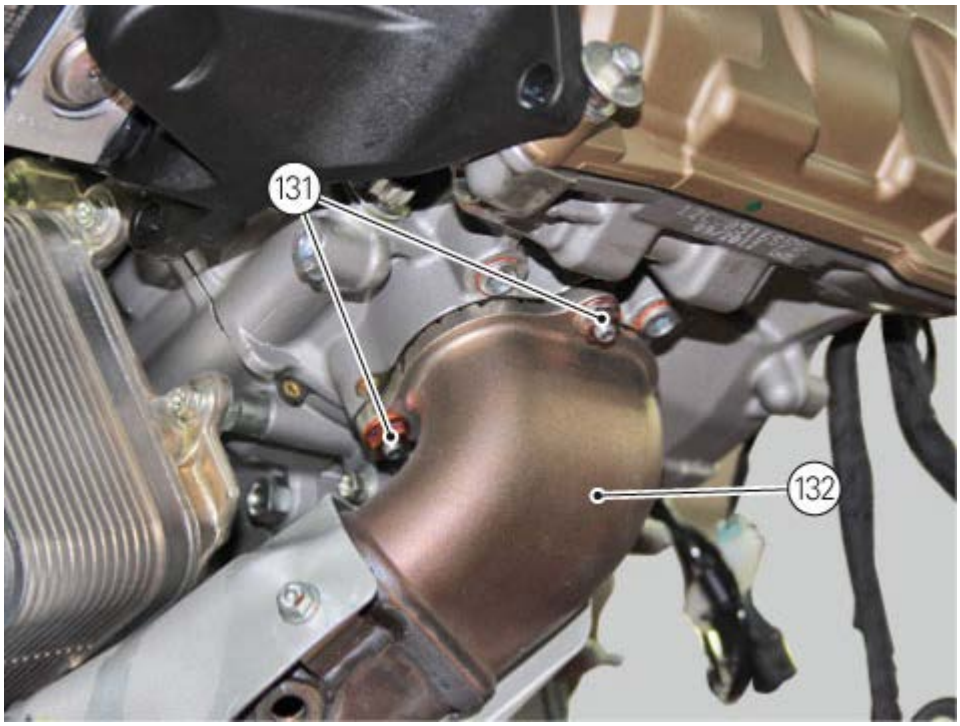
http://www.ducati-manuals.com
no. 140312

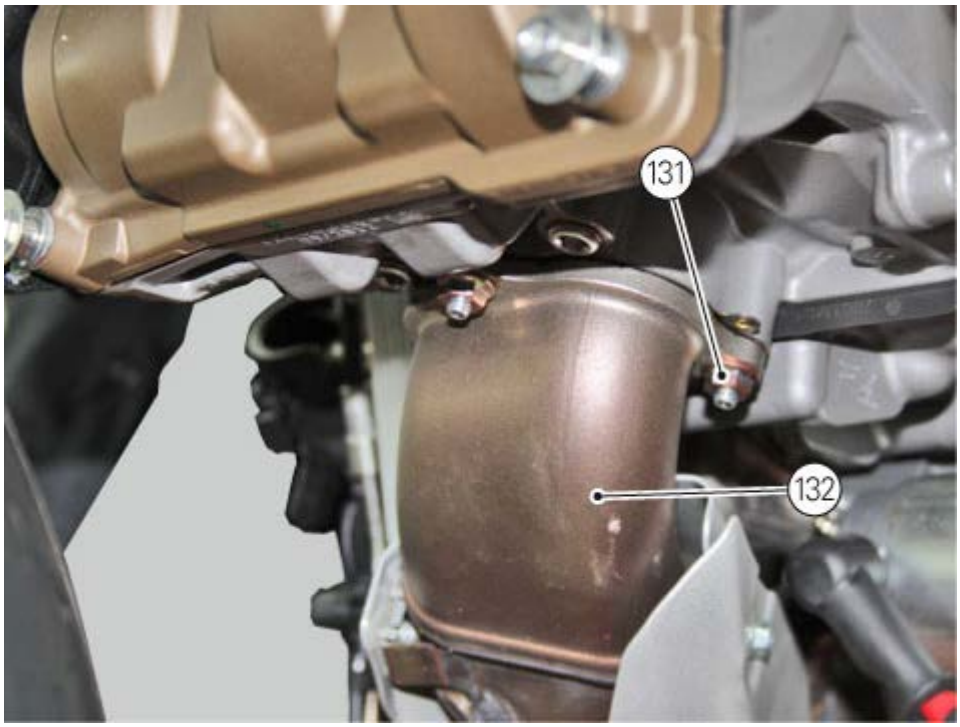




Remove the three retaining nuts (131) from the horizontal exhaust pipe (132), and remove pipe from horizontal head exhaust manifold.

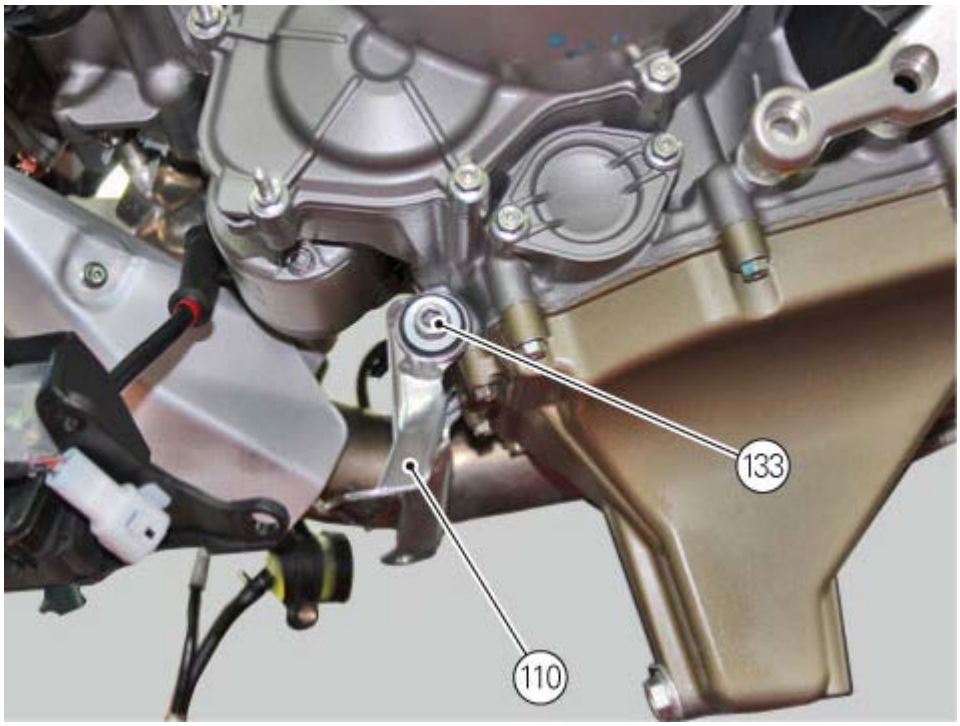
http://www.ducati-manuals.com
no. 140312

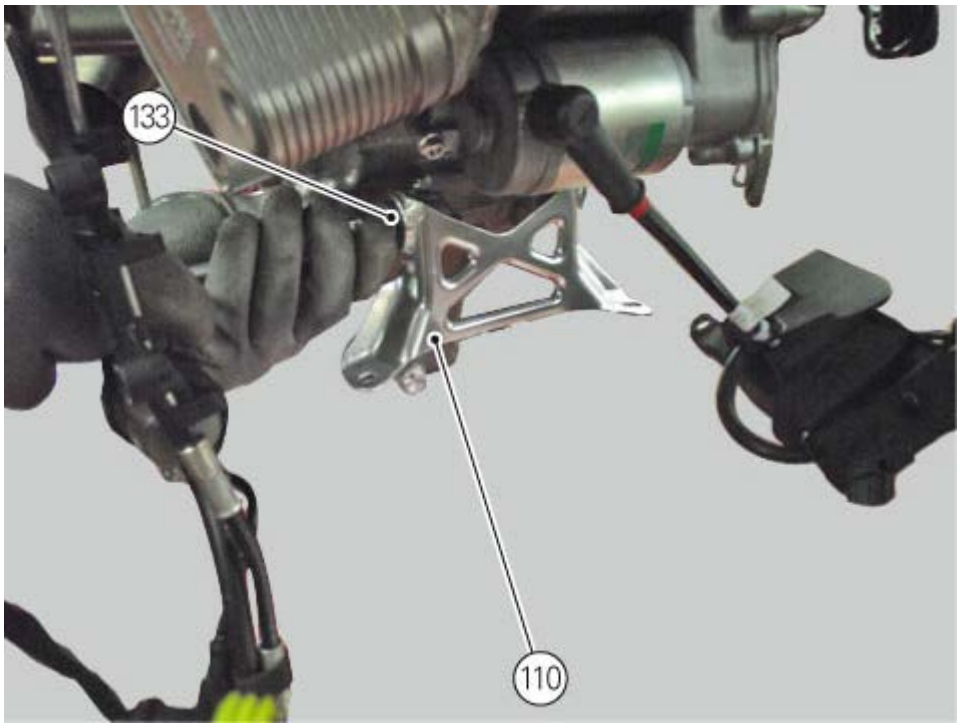




Loosen the retaining screws (133) on silencer mounting bracket (110).

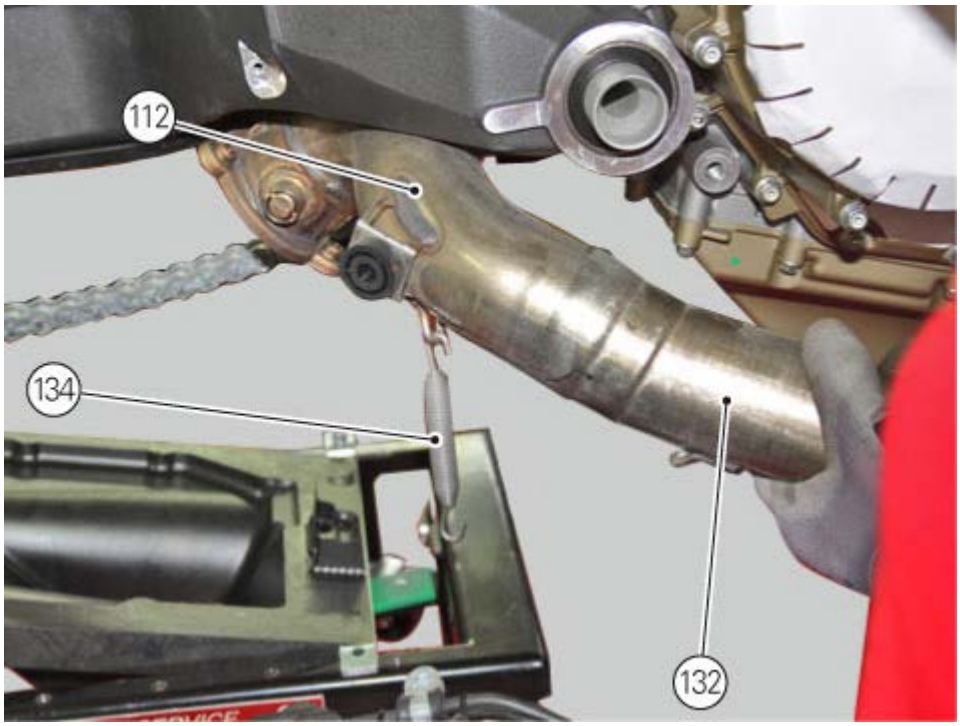
http://www.ducati-manuals.com
no. 140312



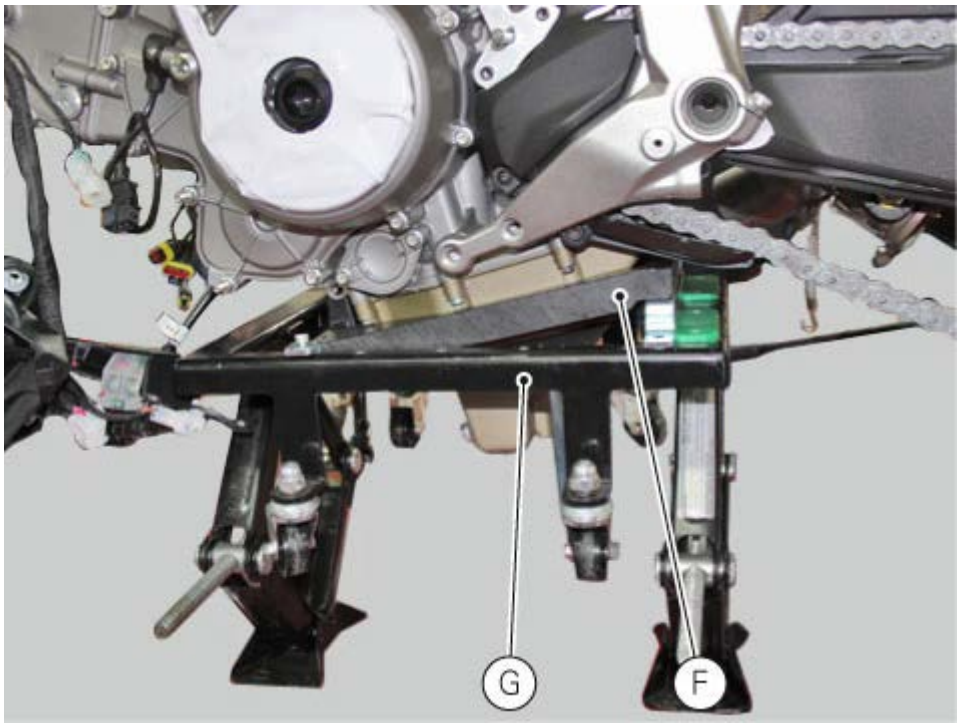


Remove spring (134), and remove horizontal exhaust pipe (132) from central exhaust pipe (112).

http://www.ducati-manuals.com
no. 140312



Draw tools no. 88713.3092 – engine repair work bench (F) and no. 88713.3927 – engine support (G) near the engine block, as shown.

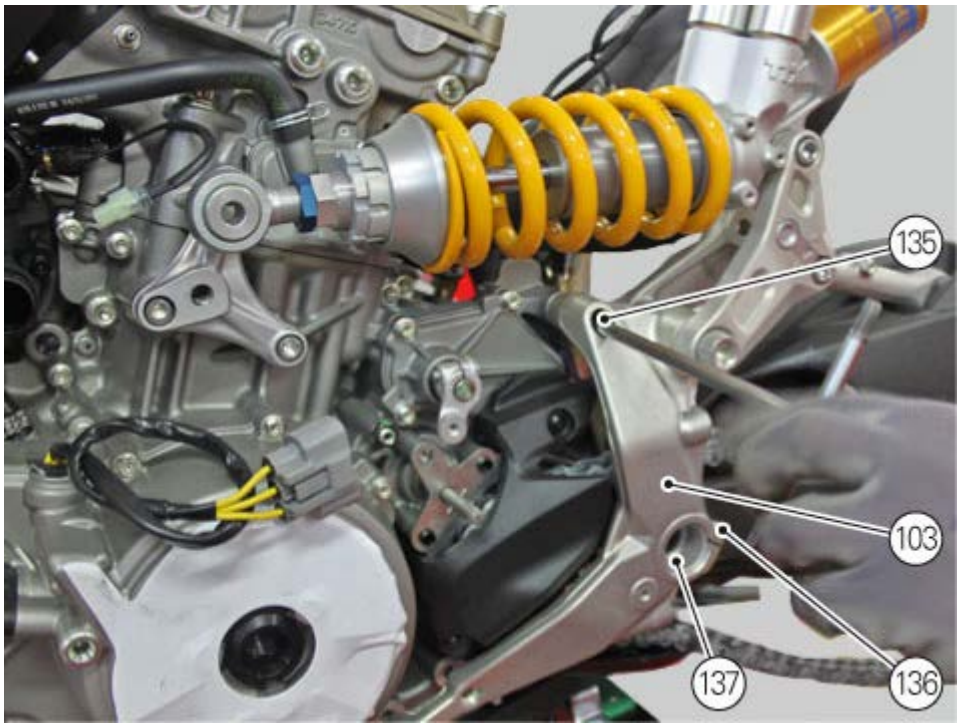


Loosen the front retaining screw (129) on rear shock absorber (130).

http://www.ducati-manuals.com
no. 140312

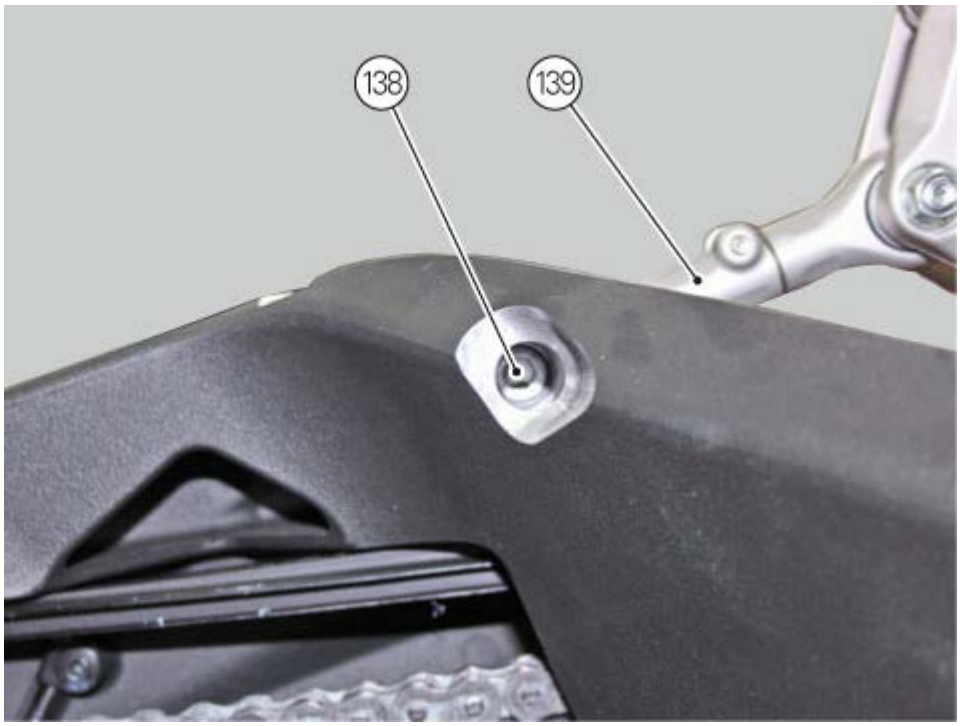


Loosen the retaining screw (135) between LH support (103) and engine crankcase. Loosen the retaining screw (136) between the LH support and the LH swinging arm shaft (137).

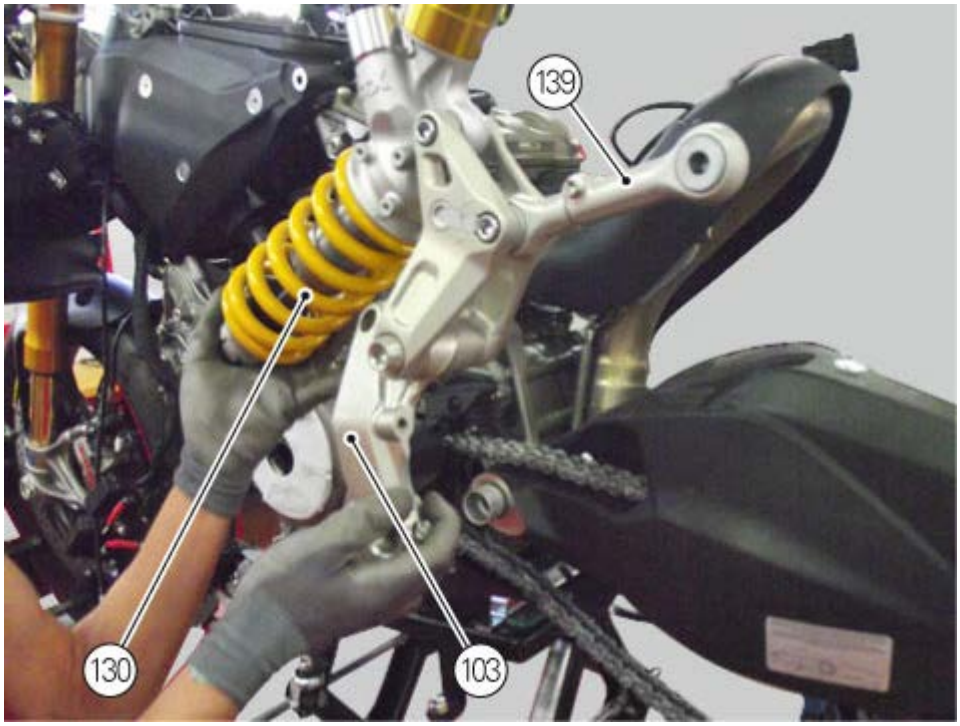


Working on swinging arm opposite side, loosen the screw (138) between linkage (139) and swinging arm.

http://www.ducati-manuals.com
no. 140312

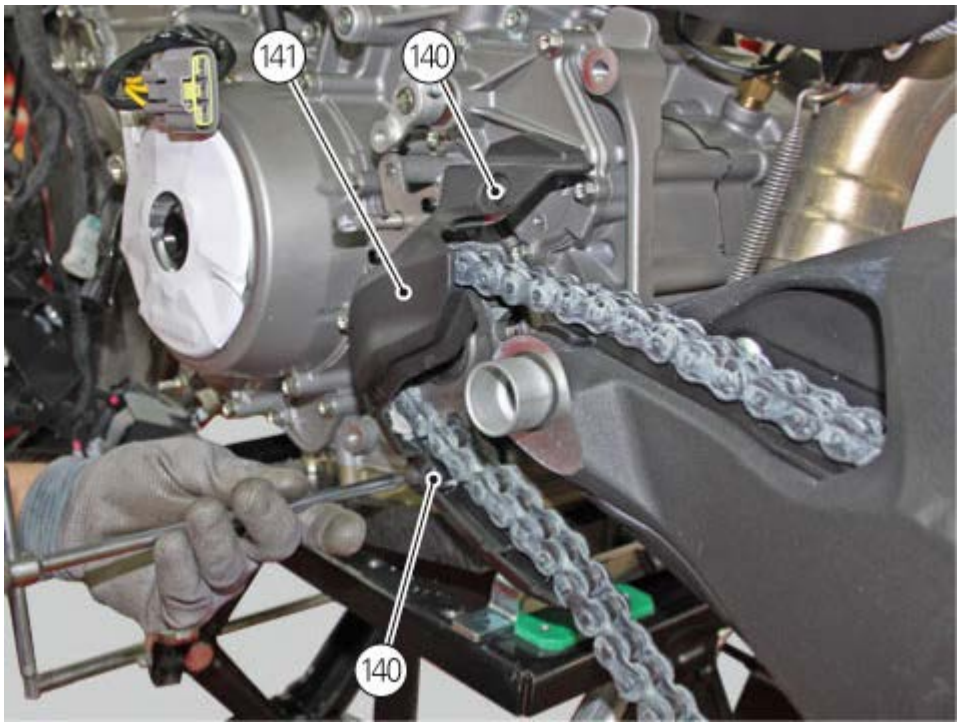


Remove the LH support (103) complete with shock absorber (130) and linkage (139).

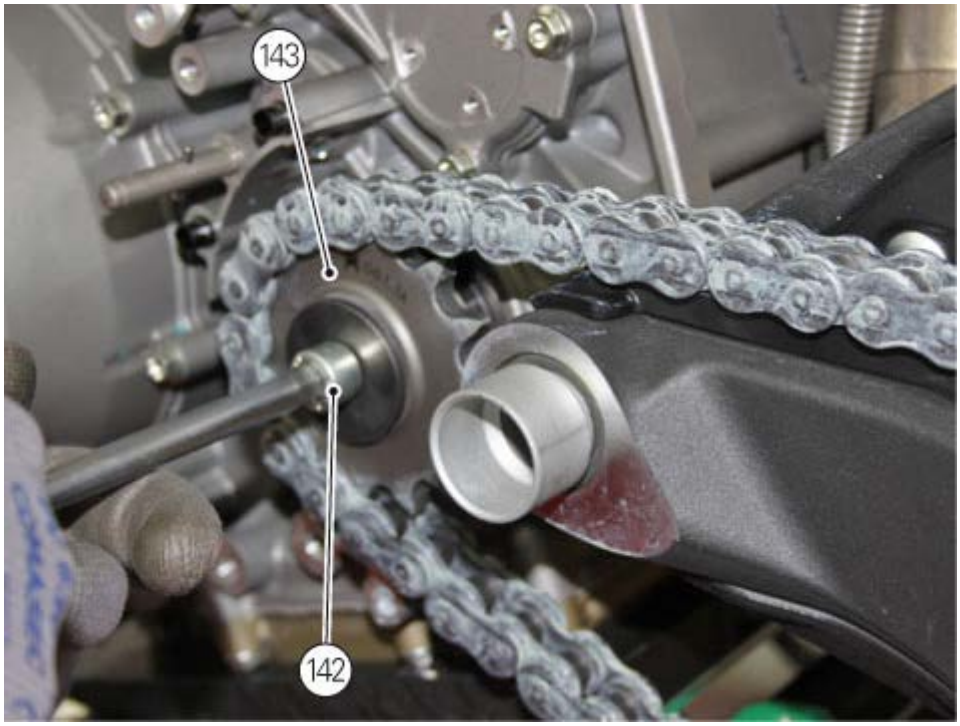


Loosen chain guard (141) screws (140), and remove chain guard.

http://www.ducati-manuals.com
no. 140312



Loosen crankshaft sprocket (143) retaining screw (142), and remove crankshaft sprocket.



http://www.ducati-manuals.com
no. 140312

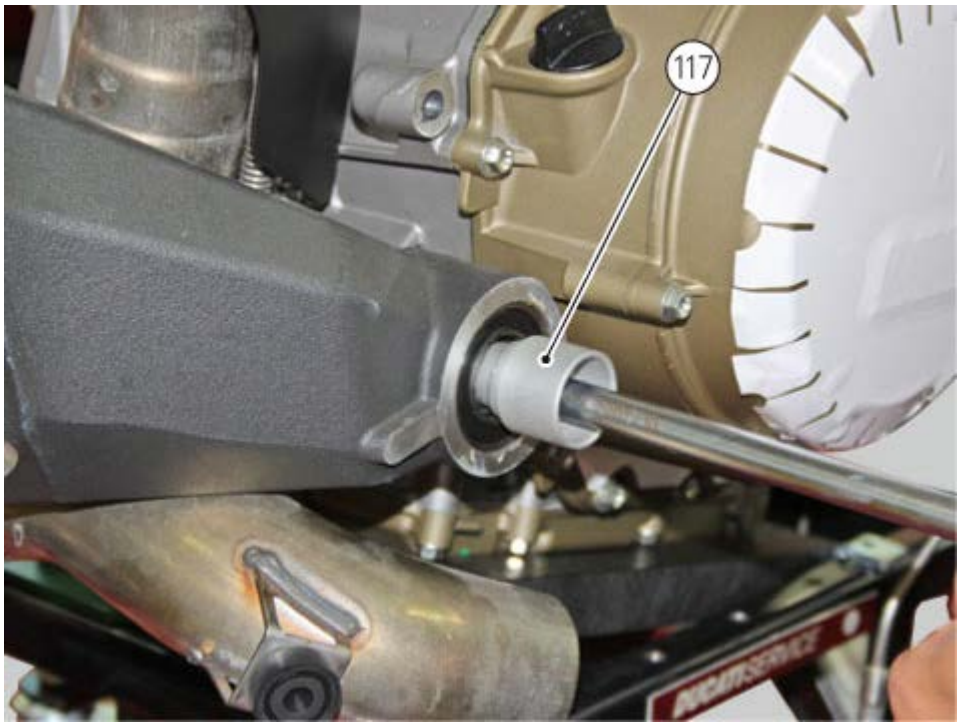


Loosen the LH swinging arm shaft (137).

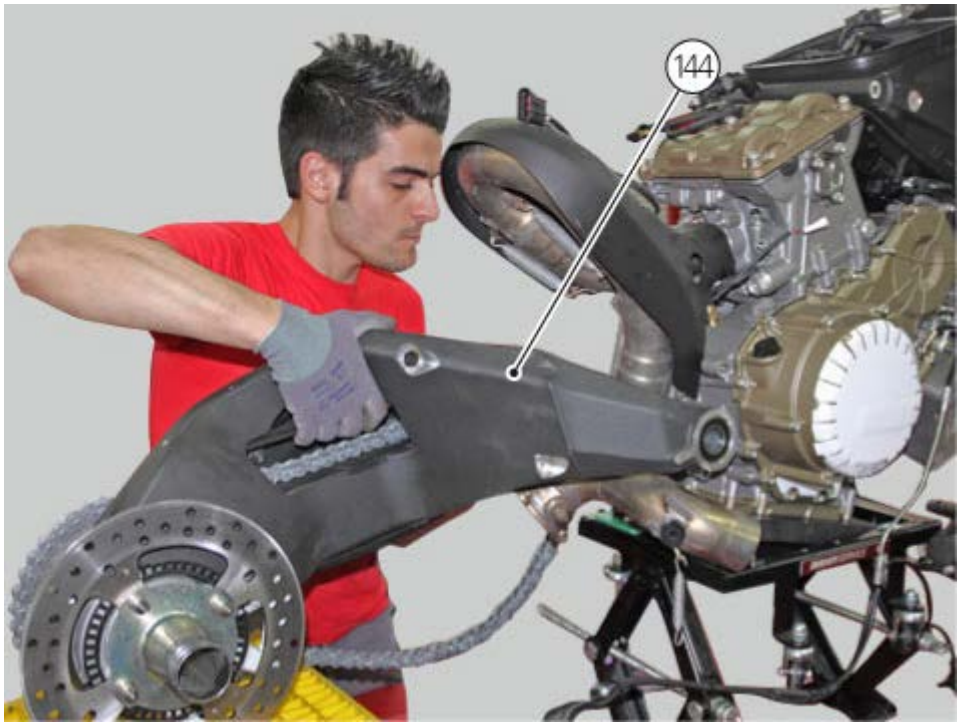


Loosen the RH swinging arm shaft (117).

http://www.ducati-manuals.com
no. 140312

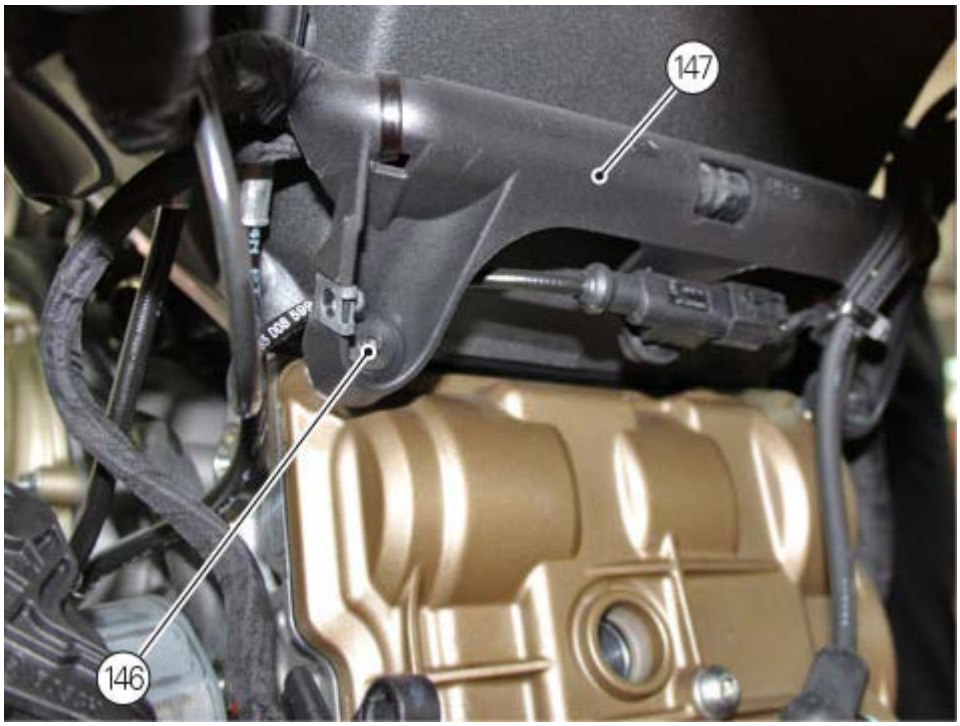


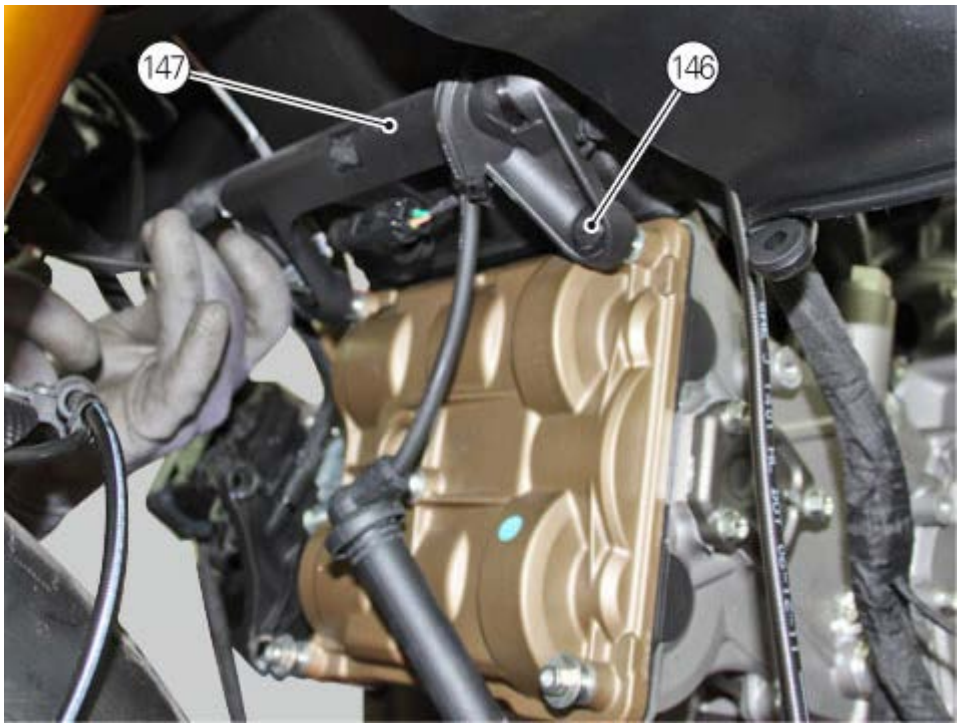
Remove the complete swinging arm (144).



Loosen screws (146), and remove wiring support (147) from horizontal head.

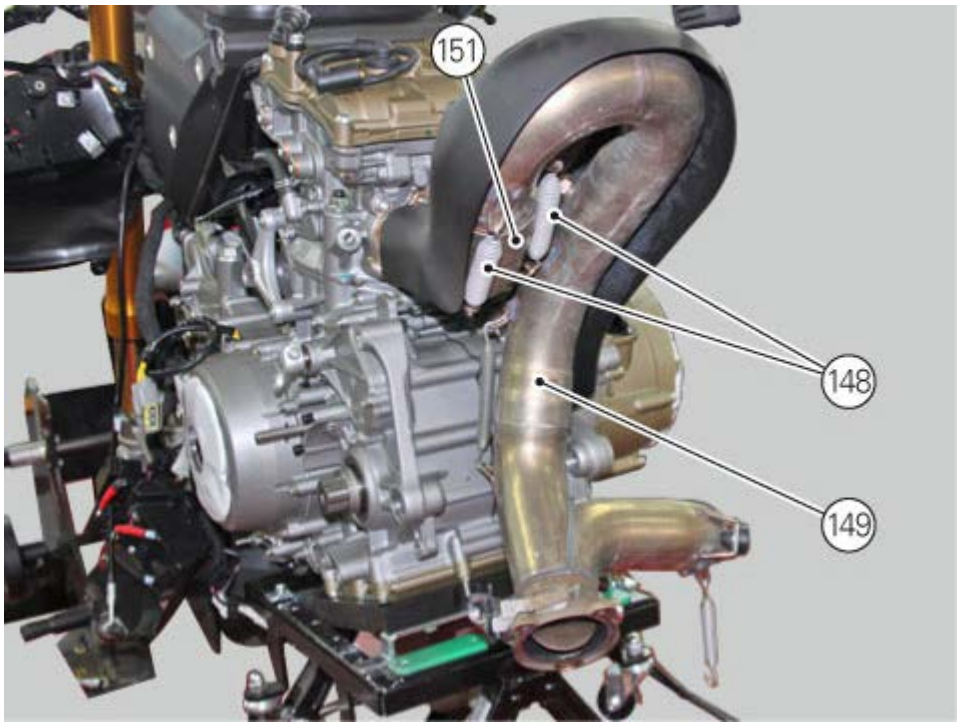
http://www.ducati-manuals.com
no. 140312



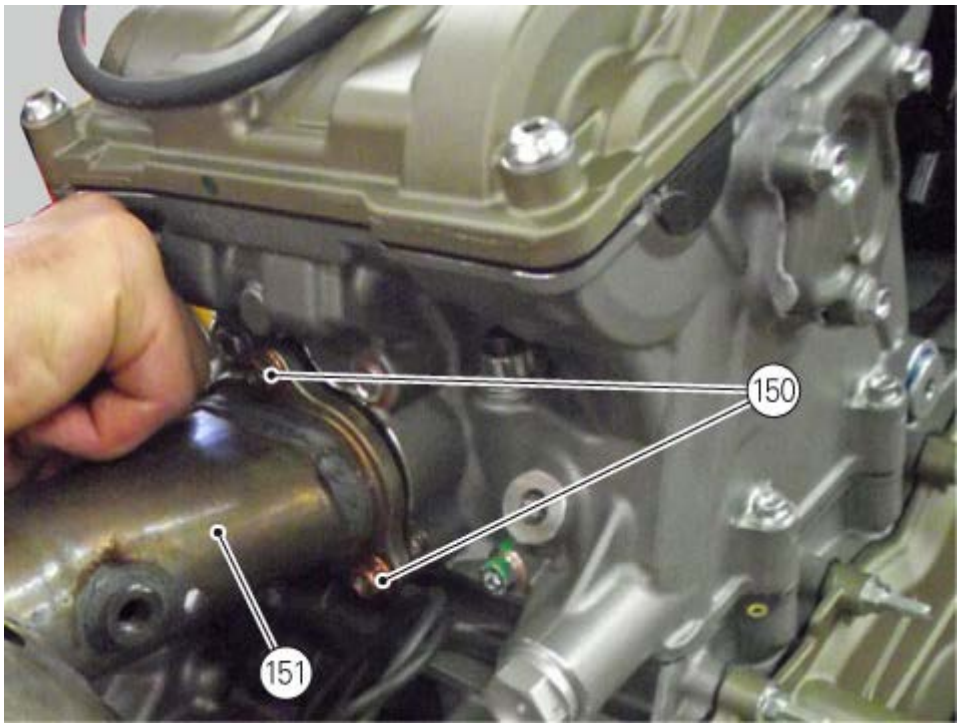


Remove the springs (148) fastening central exhaust pipe - heat guard included (149) - to vertical head exhaust pipe (151).

http://www.ducati-manuals.com
no. 140312



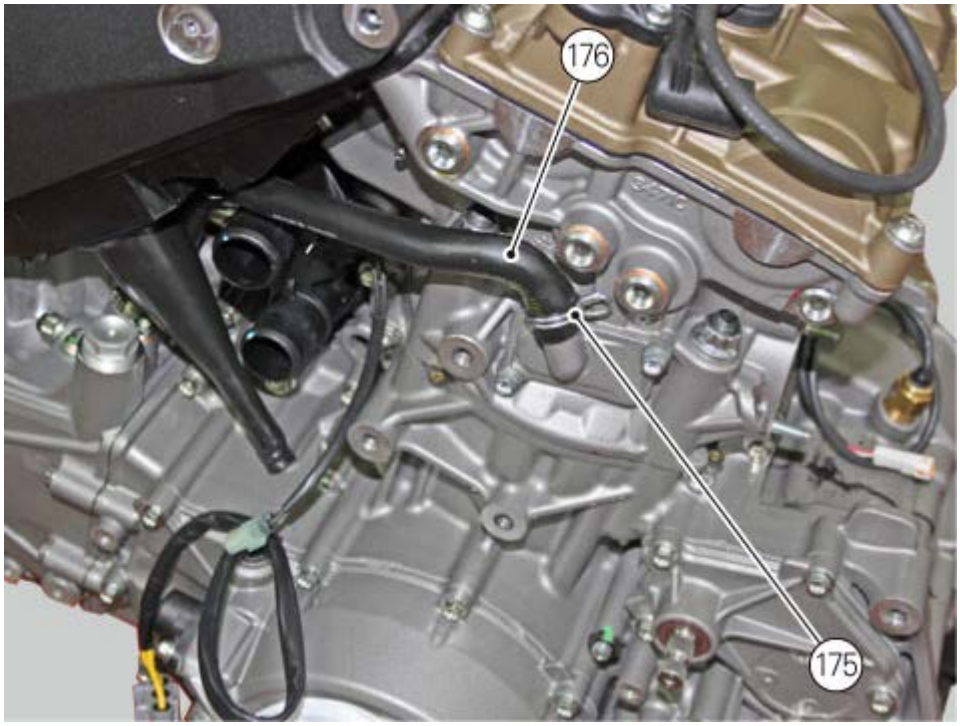
Loosen vertical cylinder exhaust pipe (151) retaining nuts (150). Remove vertical cylinder exhaust pipe (151).



http://www.ducati-manuals.com
no. 140312

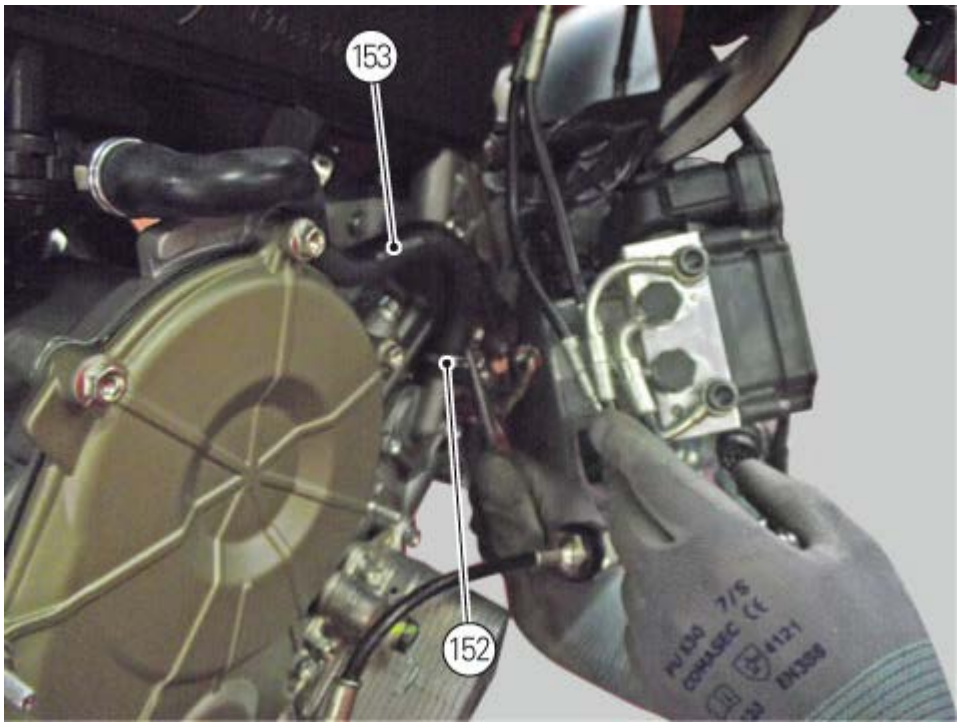


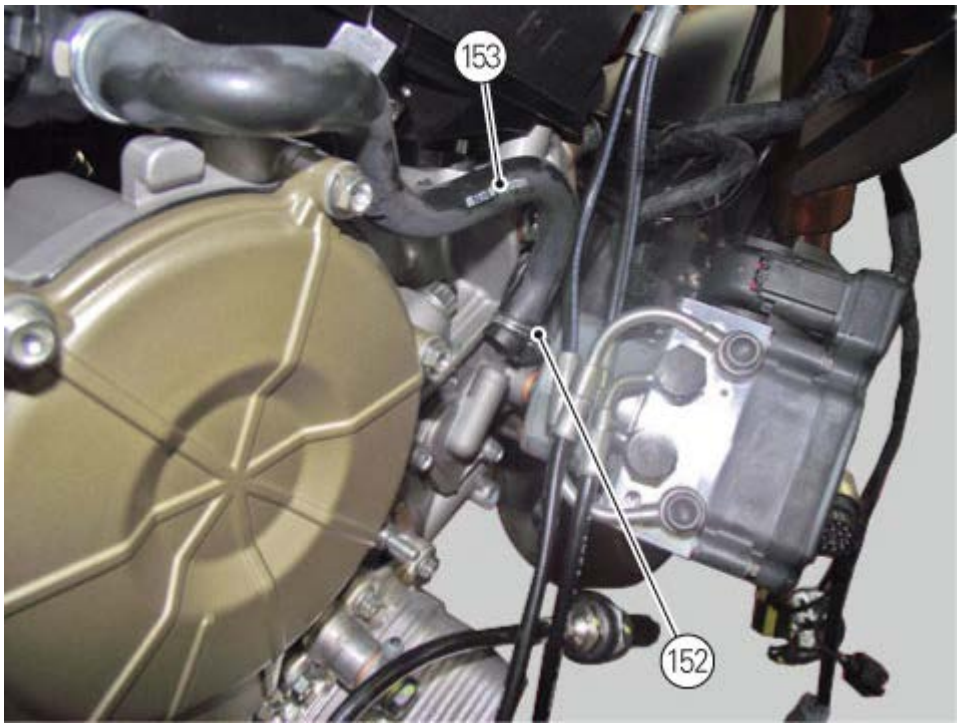
Remove clip (175), and remove vertical head secondary air pipe (176).



Remove clip (152), and remove horizontal head secondary air pipe (153).

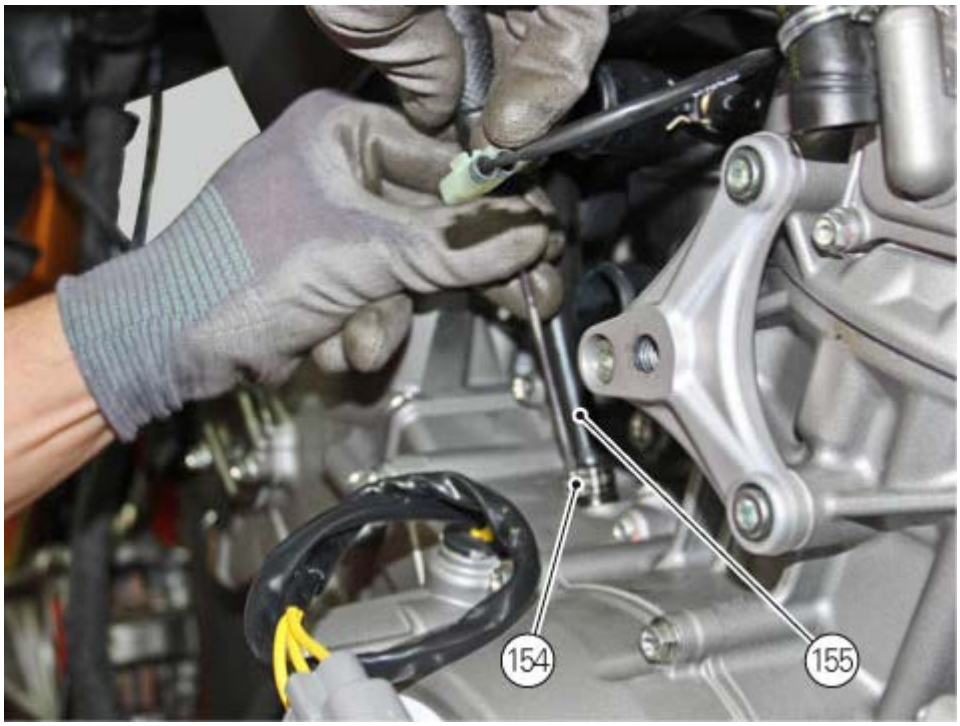
http://www.ducati-manuals.com
no. 140312

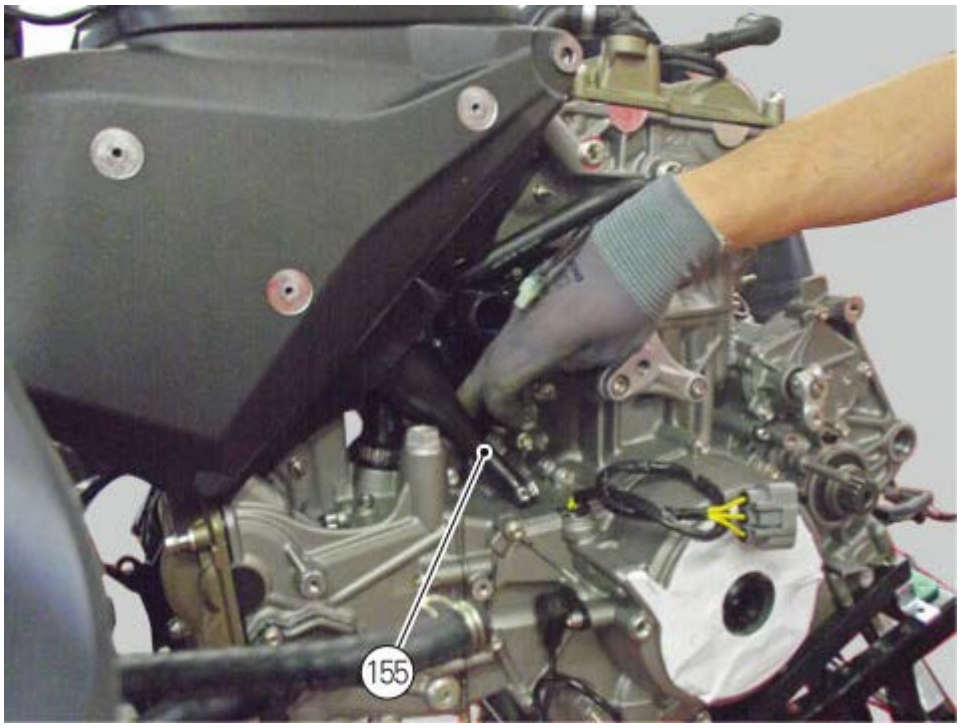




Loosen clip (154), and remove pipe (155) from engine crankcase.

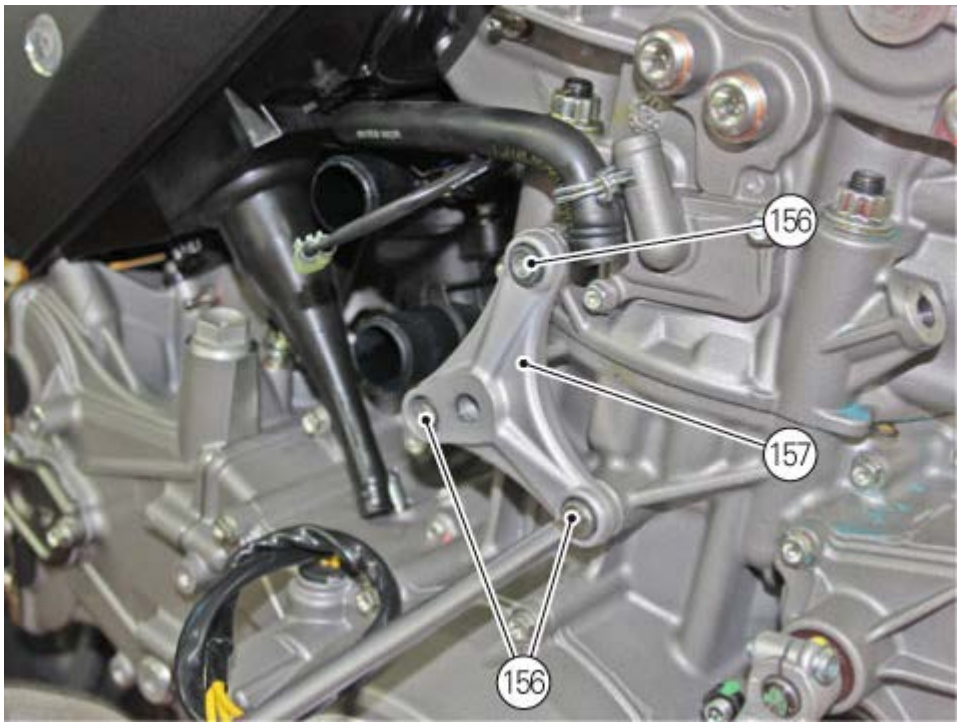
http://www.ducati-manuals.com
no. 140312



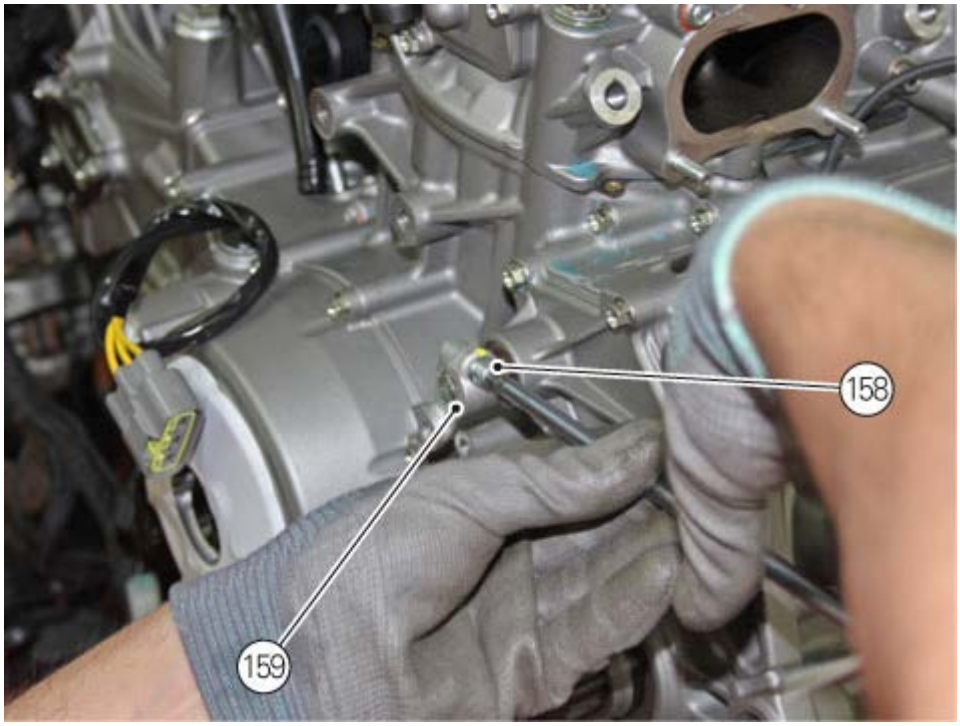


Loosen screws (156), and remove support (157).

http://www.ducati-manuals.com
no. 140312



Loosen the screw (158), and remove the gearchange lever (159).



Remove clamp, and disconnect breather hose (160) from blow-by output union (161).

http://www.ducati-manuals.com
no. 140312



Remove clamp (162).



Disconnect wirings (163) from injectors.

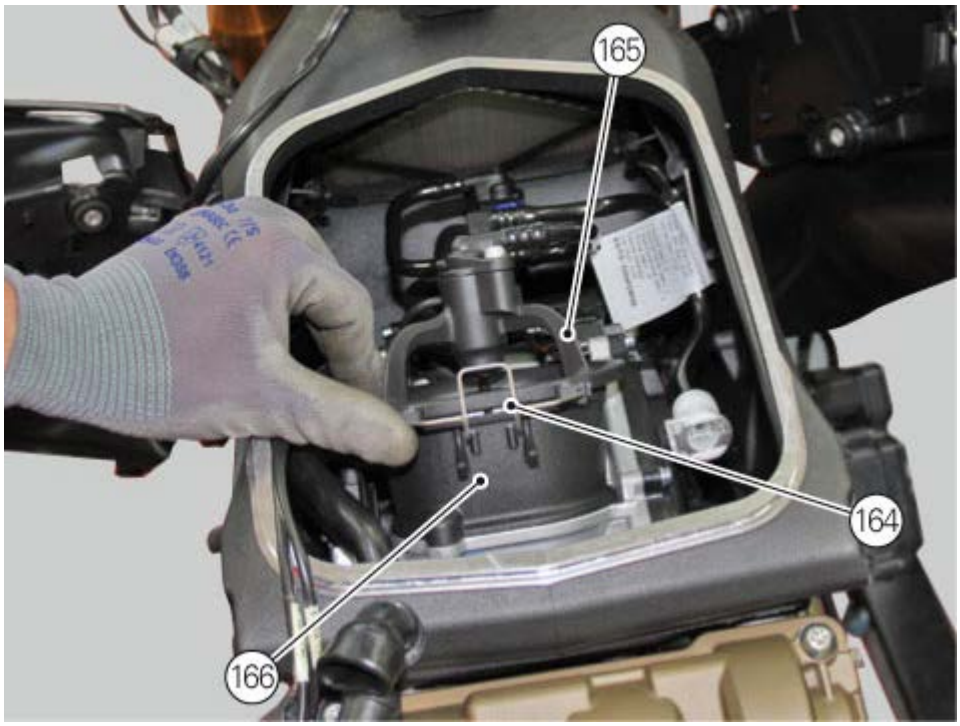
http://www.ducati-manuals.com
no. 140312



Release clips (164) on both throttle bodies (165), and remove them from the manifolds (166).



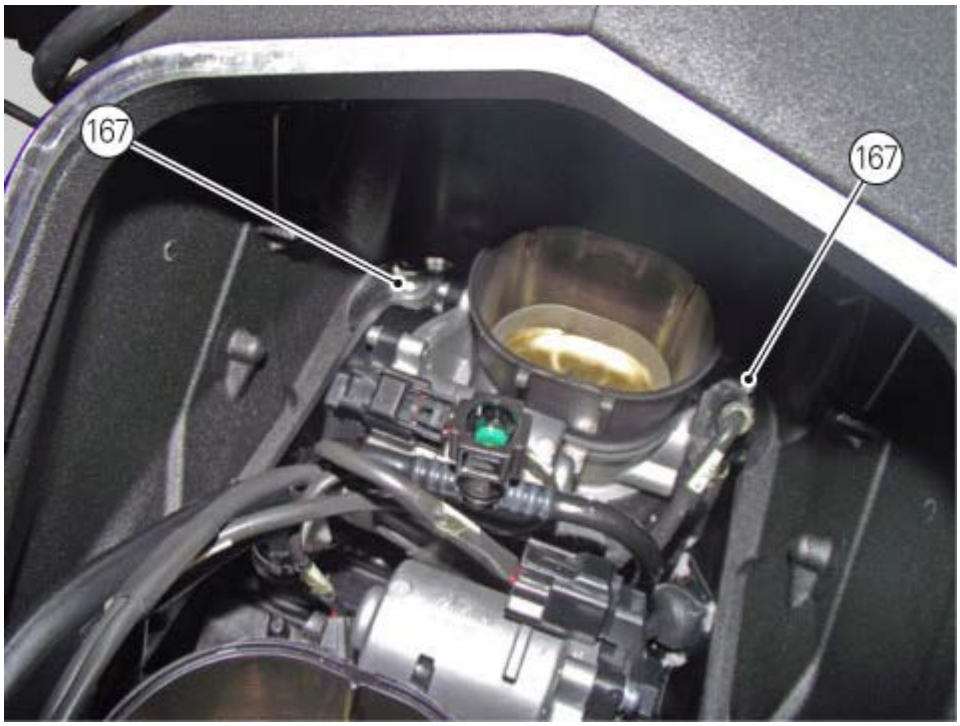
http://www.ducati-manuals.com
no. 140312





Loosen the four retaining nuts (167) securing frame to airbox compartment and engine block.

http://www.ducati-manuals.com
no. 140312

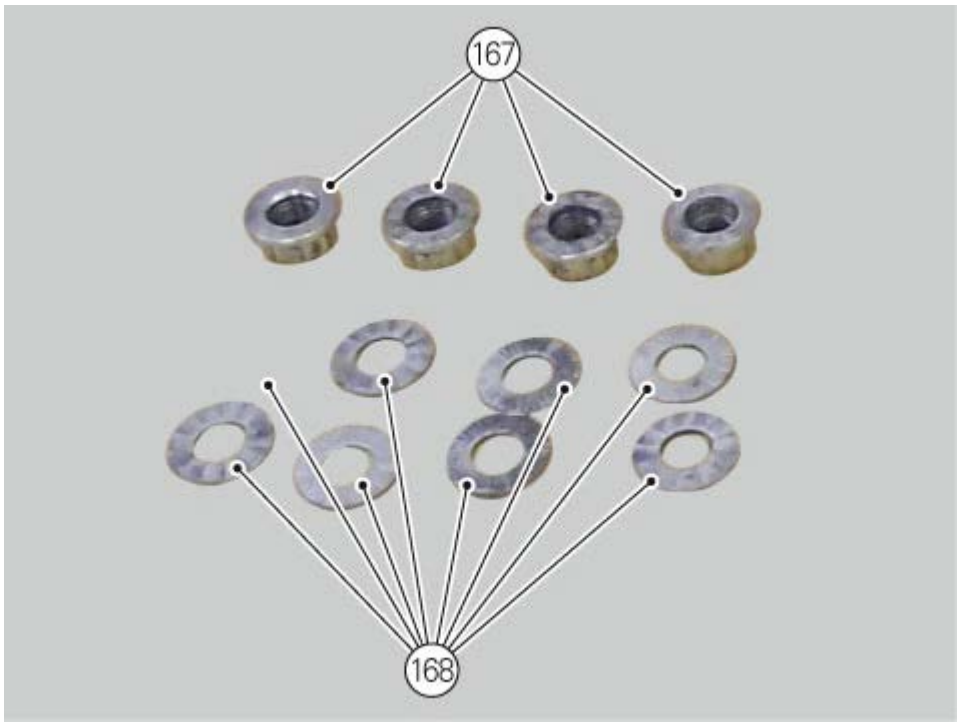




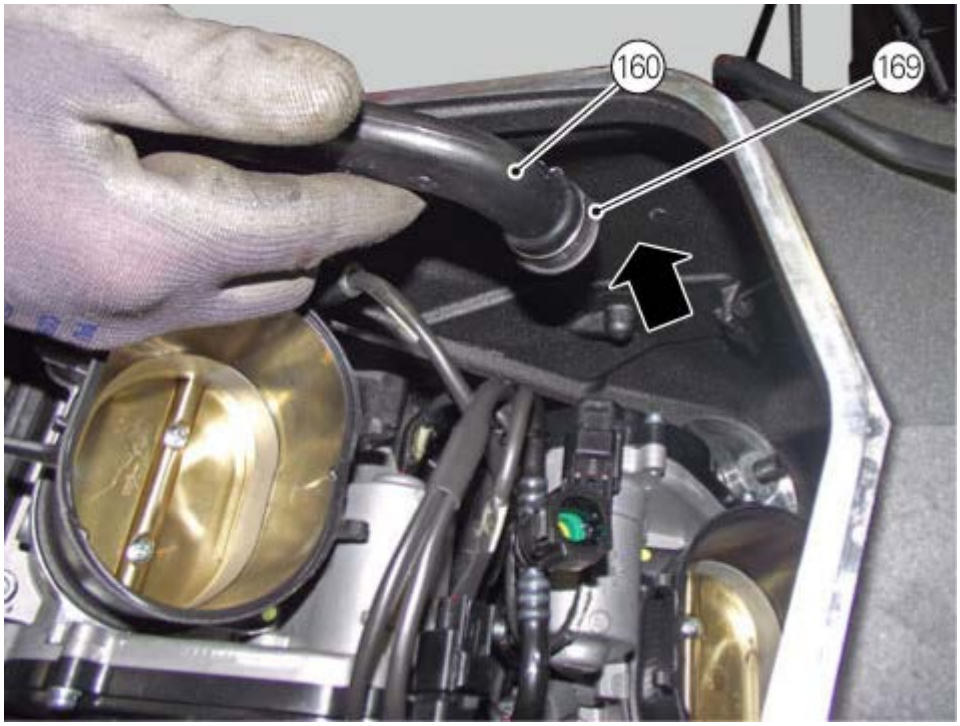
Keep washers (168).

Warning
Always fit new washers (168) on reassembly .

http://www.ducati-manuals.com
no. 140312



Loosen clip (169), and remove the breather hose (160) from the airbox compartment.



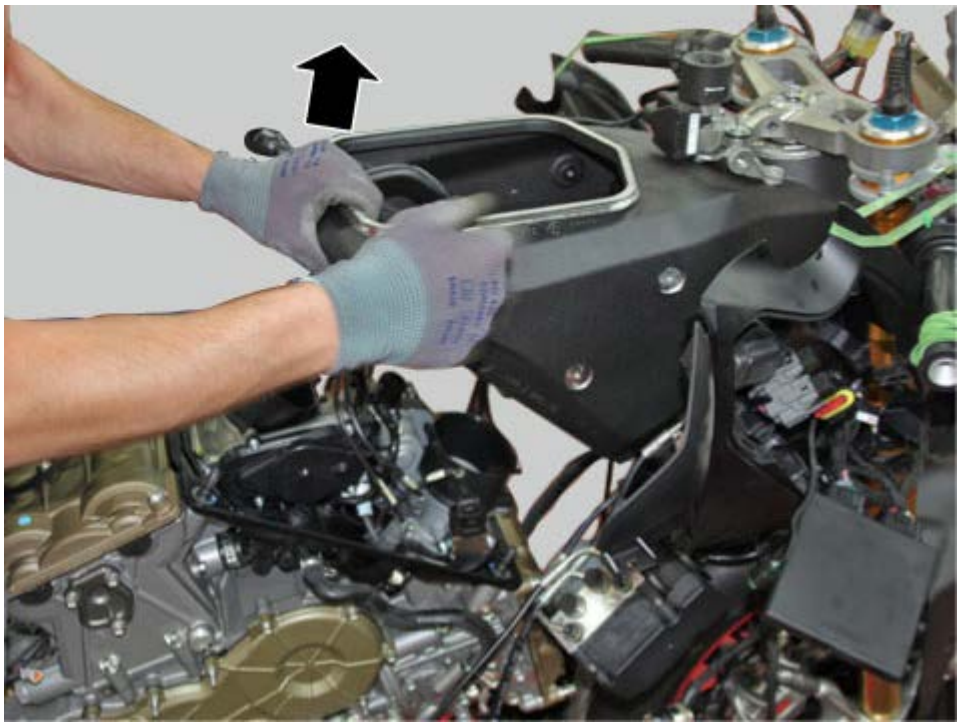
Raise frame to release it from engine block.

http://www.ducati-manuals.com
no. 140312

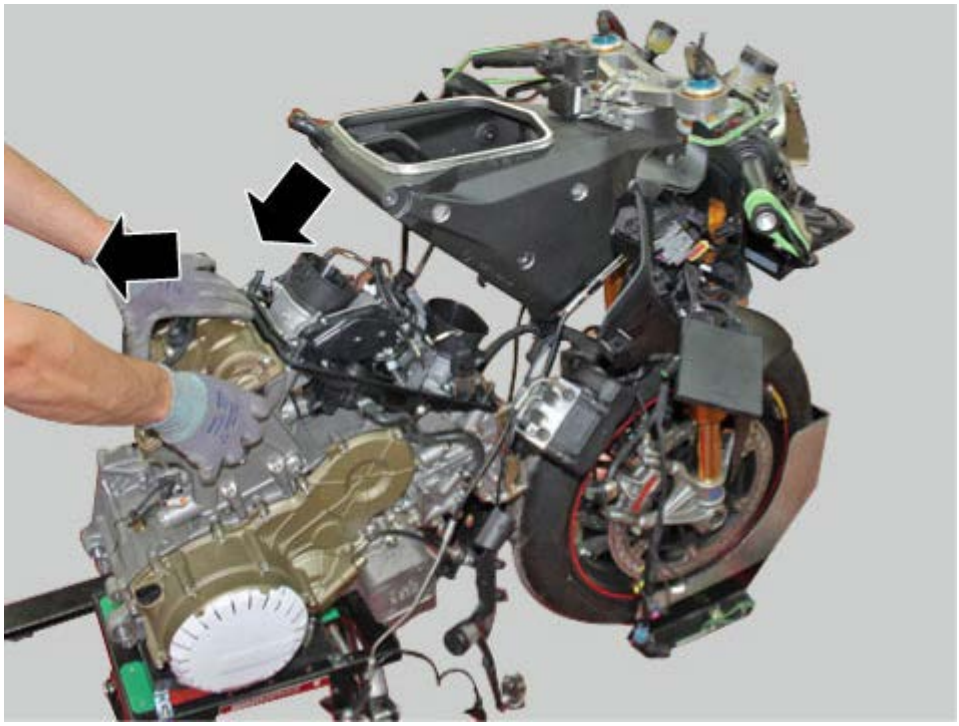




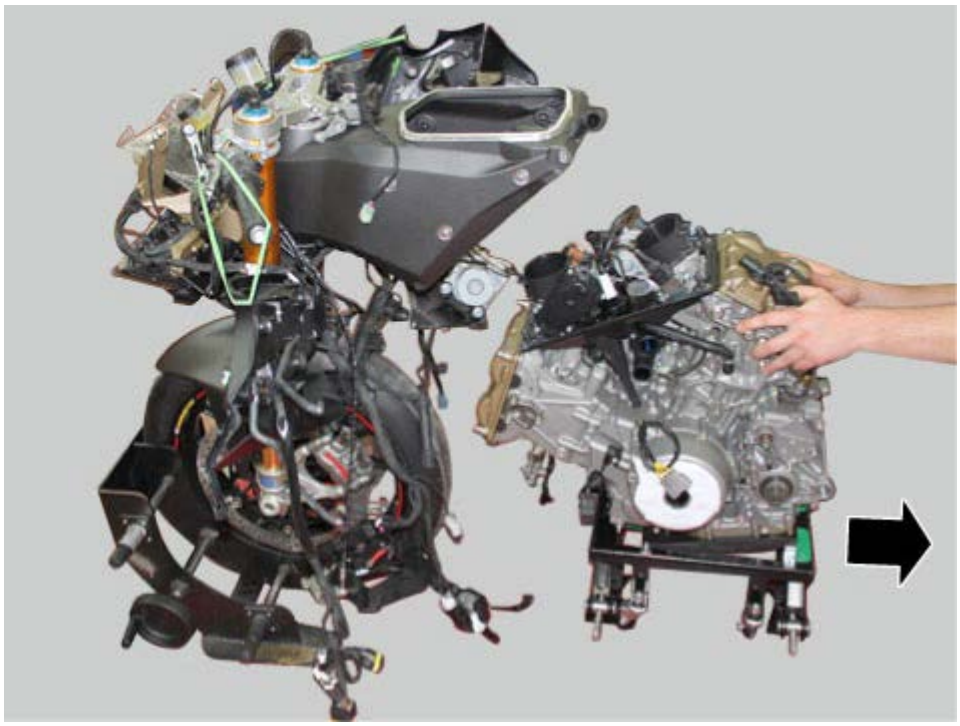
http://www.ducati-manuals.com
no. 140312



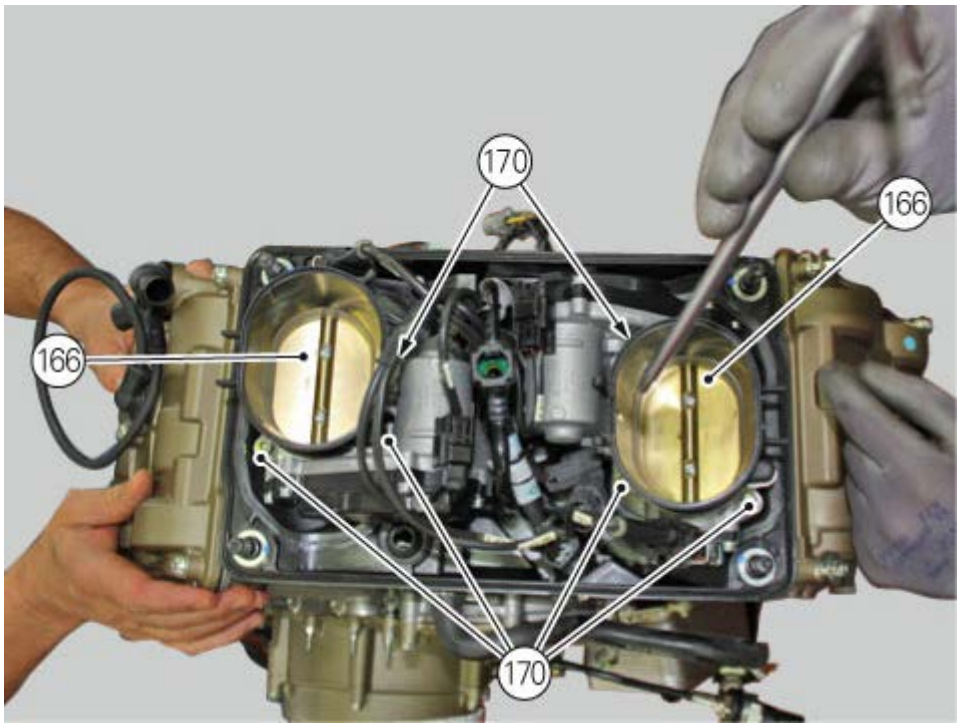
Slide the engine block on the supporting tool you had previously assembled.



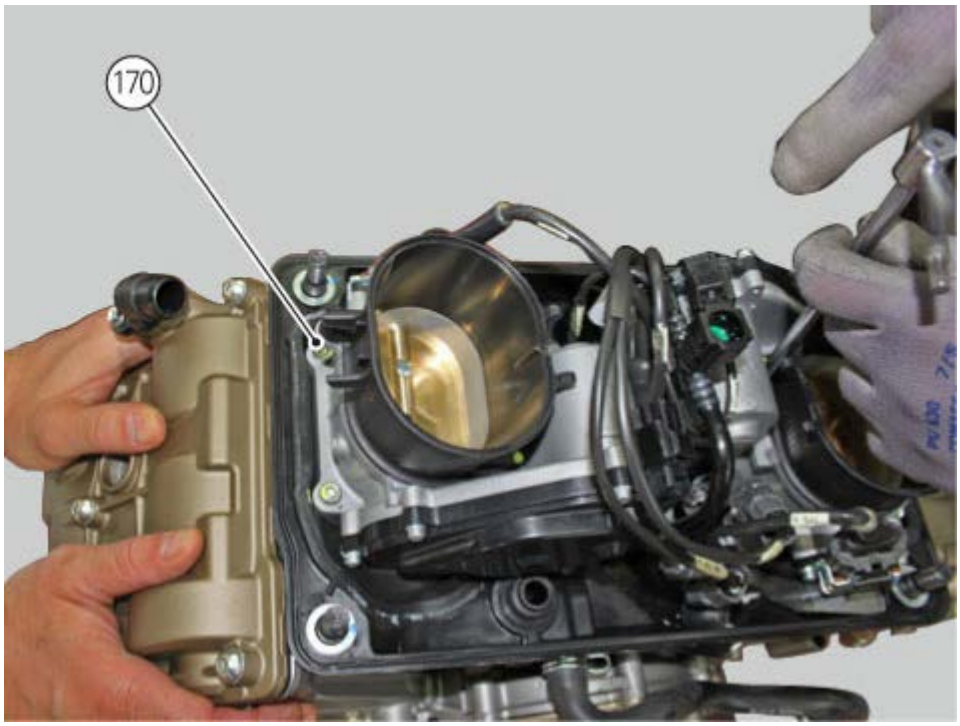
http://www.ducati-manuals.com
no. 140312



Loosen the eight retaining screws (170) securing manifolds (166) and airbox compartment (171) to heads.

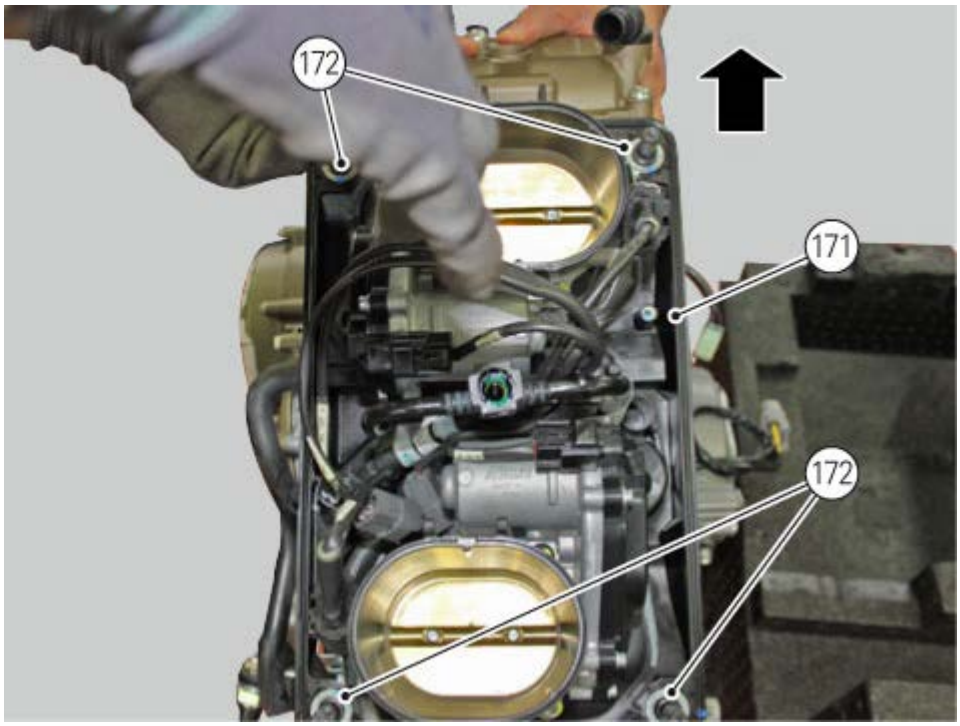


http://www.ducati-manuals.com
no. 140312



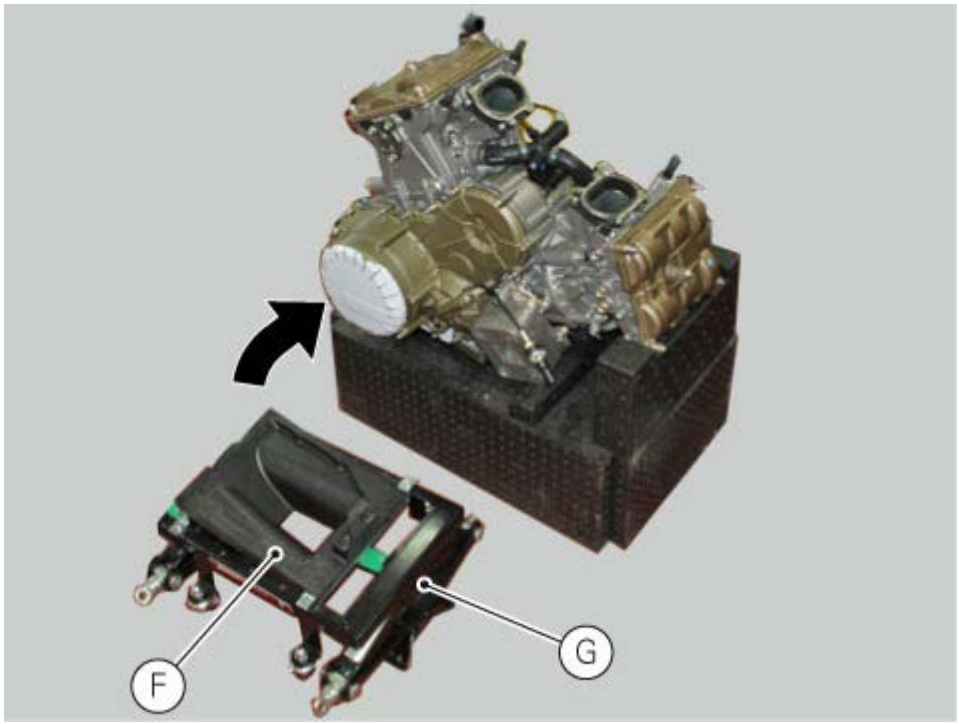


http://www.ducati-manuals.com
no. 140312



Raise the airbox compartment, slide it out of head stud bolts (172), then release it from the engine block.

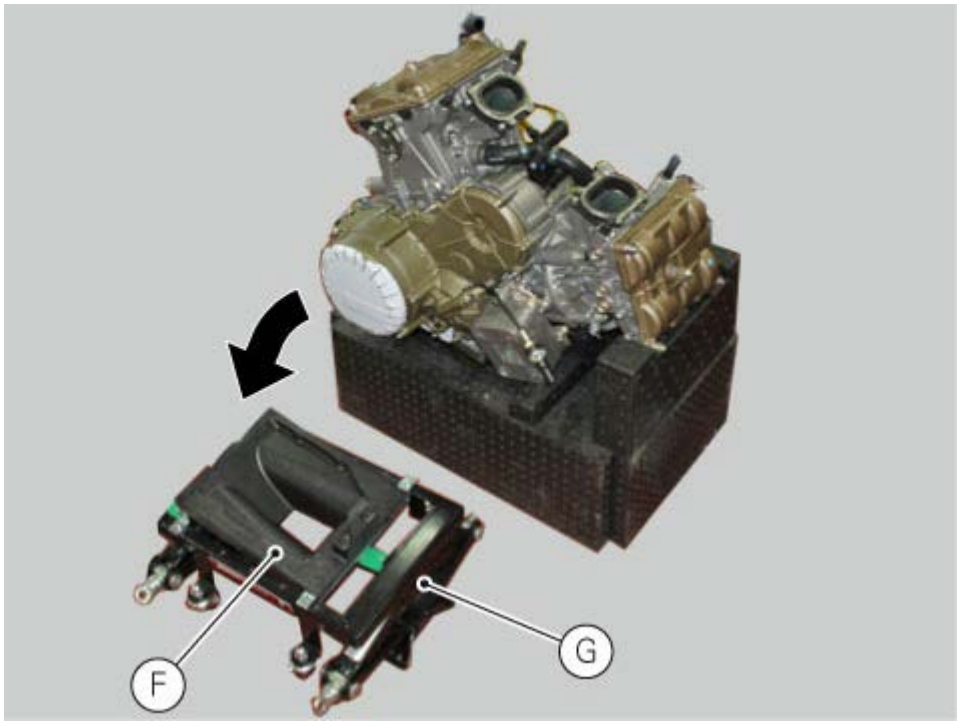
Now the engine block can be removed from the supporting tools (F) and (G).



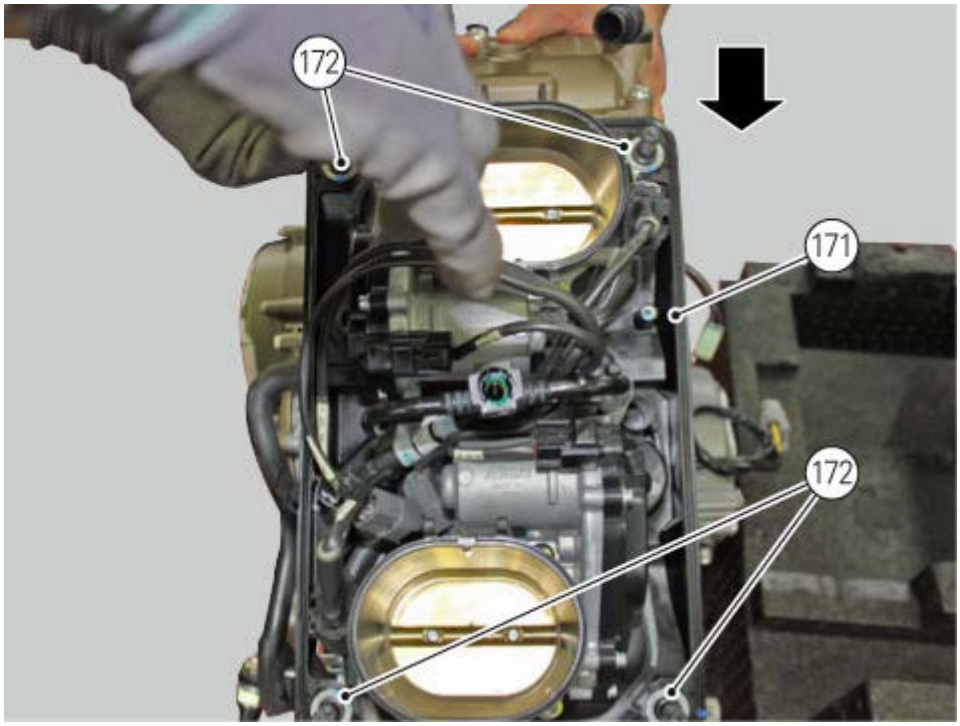
http://www.ducati-manuals.com
no. 140312

Installing the engine on frame

Remove the complete engine block, and position it onto the supporting tools (F) and (G): no. 88713.3092 – engine repair work bench (F) and no. 88713.3927 – engine support (G). Tools shall be positioned under the engine block to duly support it.



Install the airbox compartment on the engine block, inserting it onto head stud bolts (172).



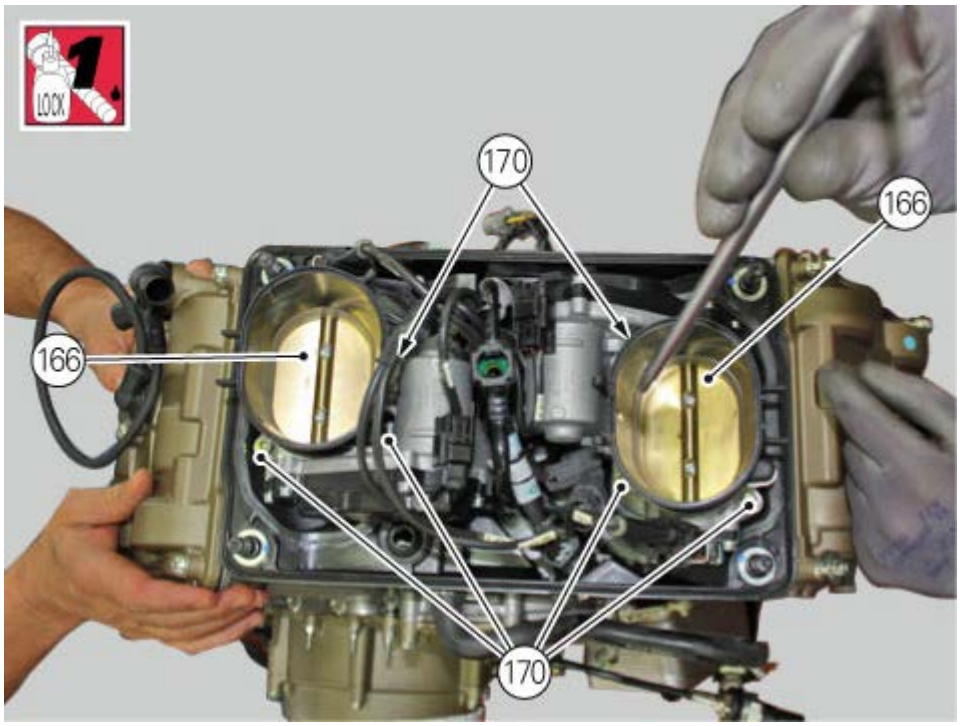
Smear the eight screws (170) with recommended threadlocker, then start them to fix manifolds (166) to the airbox compartment (171) and to the heads. Tighten the eight screws (170) to a torque of 10 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312

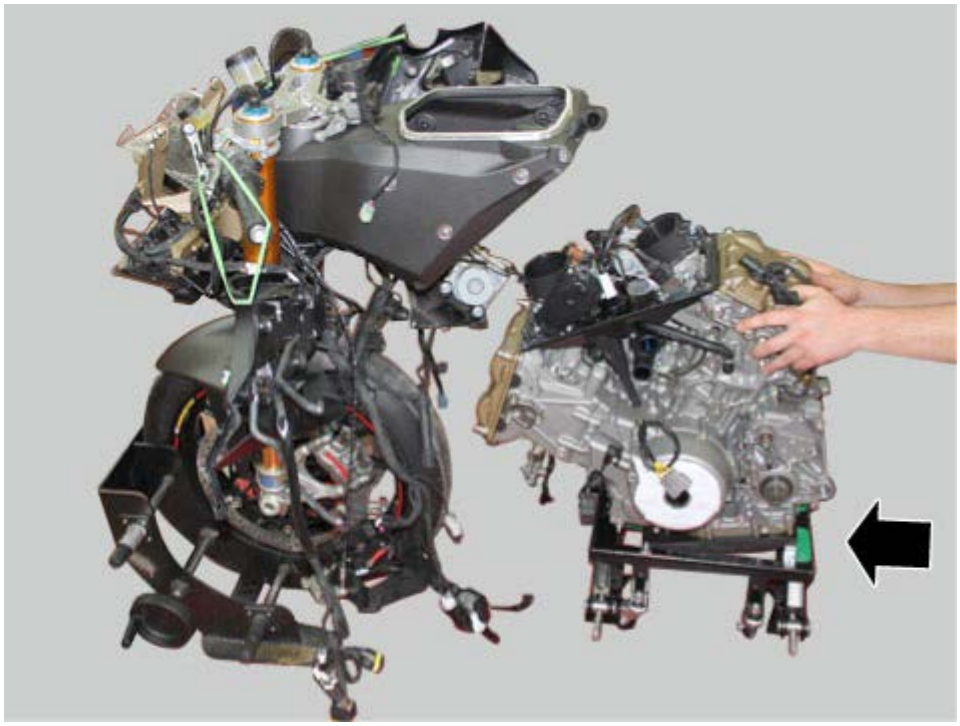




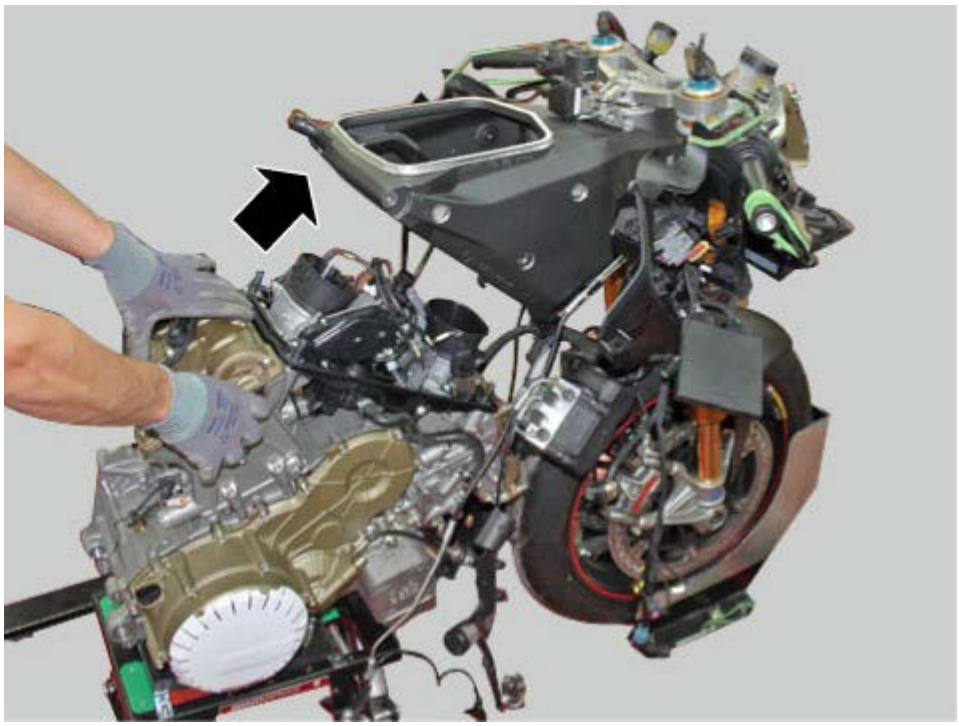
http://www.ducati-manuals.com
no. 140312



Slide the engine block on the supporting tools you had previously assembled.



http://www.ducati-manuals.com
no. 140312



Position the engine block under the frame, and draw it close to the frame.



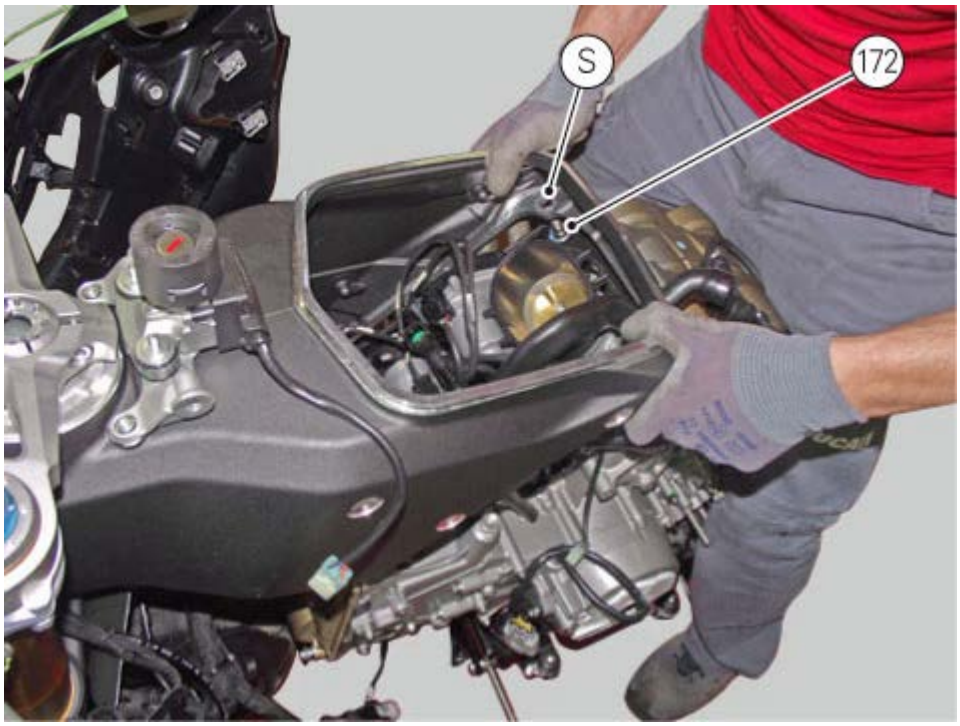
http://www.ducati-manuals.com
no. 140312



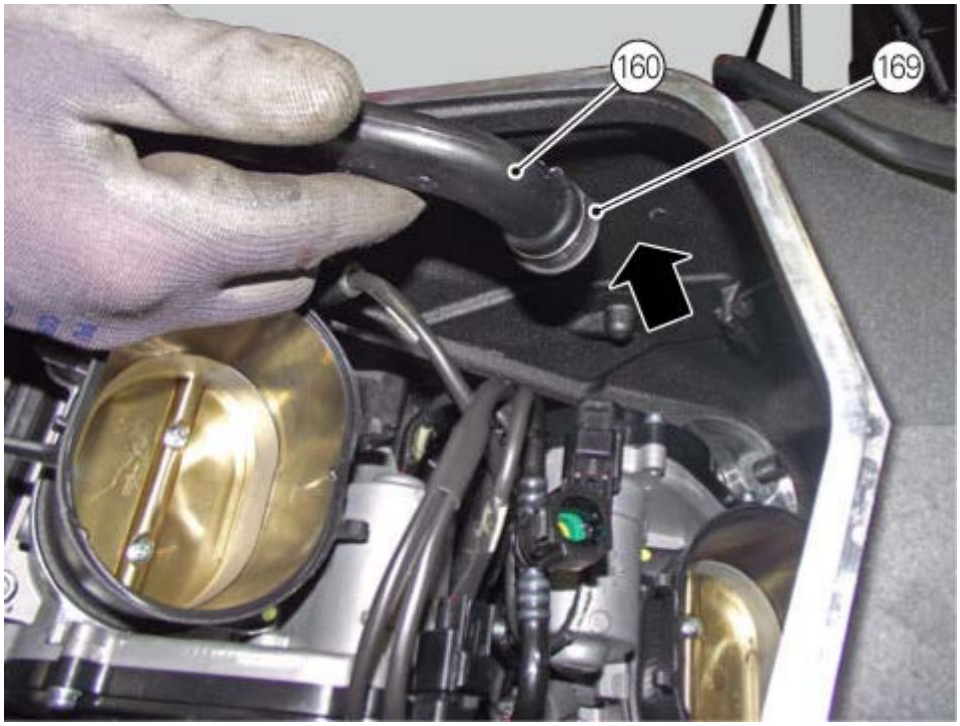


Insert the four frame seats (S) inside the four stud bolts (172).

http://www.ducati-manuals.com
no. 140312



Fit the breather hose (160) on the airbox compartment, and tighten clip (169).

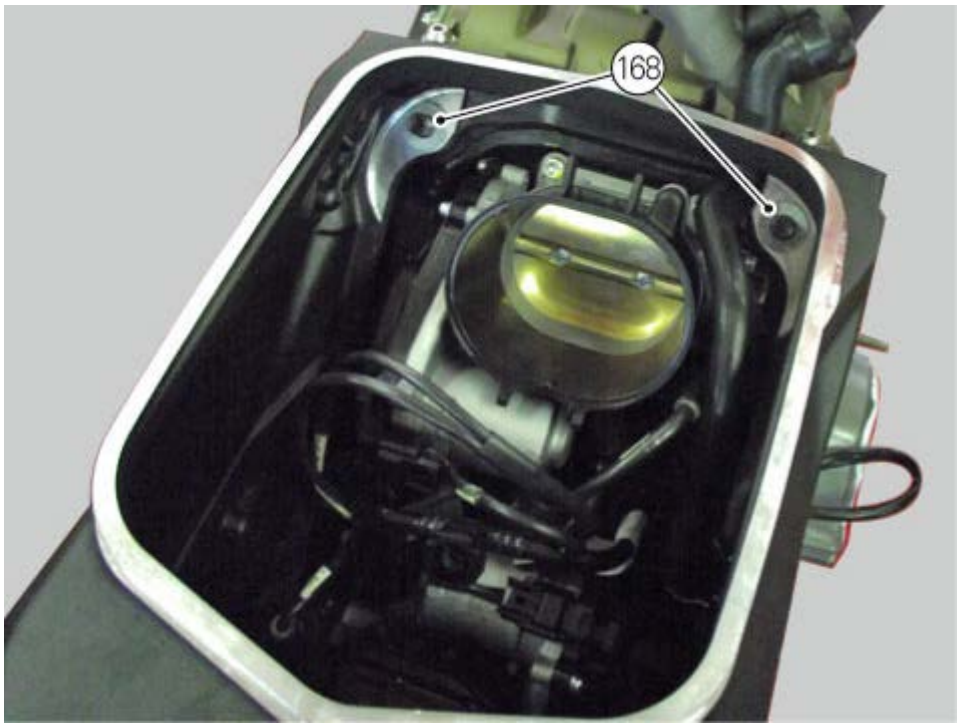


Install washers (168) onto stud bolts: fit two washers on each stud bolt so that washer narrower machined sides are outside, and larger machined sides match.

Warning
Always fit new washers on reassembly.

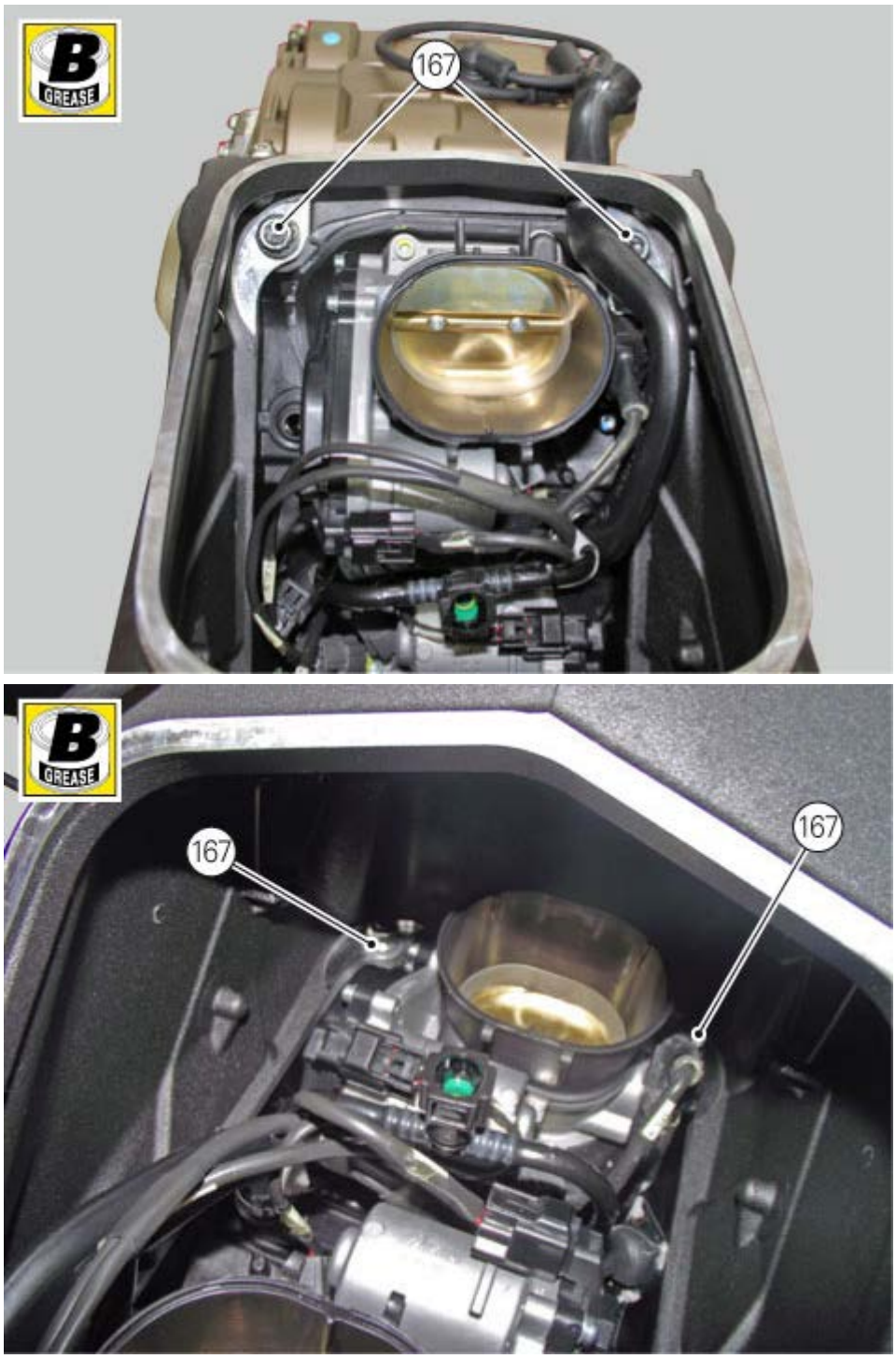
http://www.ducati-manuals.com
no. 140312





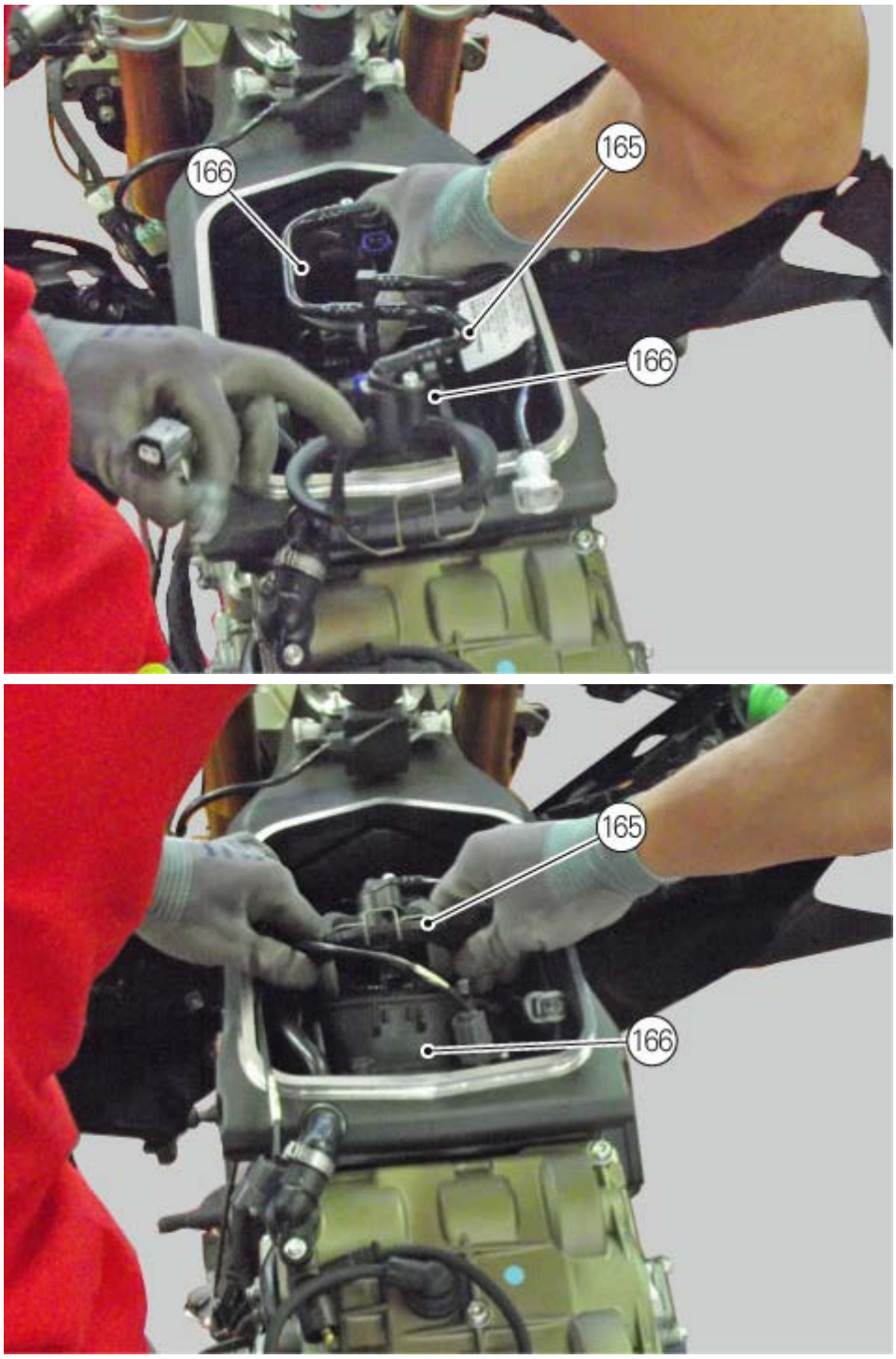
Smear the retaining nuts (167) securing frame to airbox compartment and engine block with recommended grease.
Tighten the four nuts (167) to a torque of 45 Nm ± 5%, in a cross pattern.

http://www.ducati-manuals.com
no. 140312



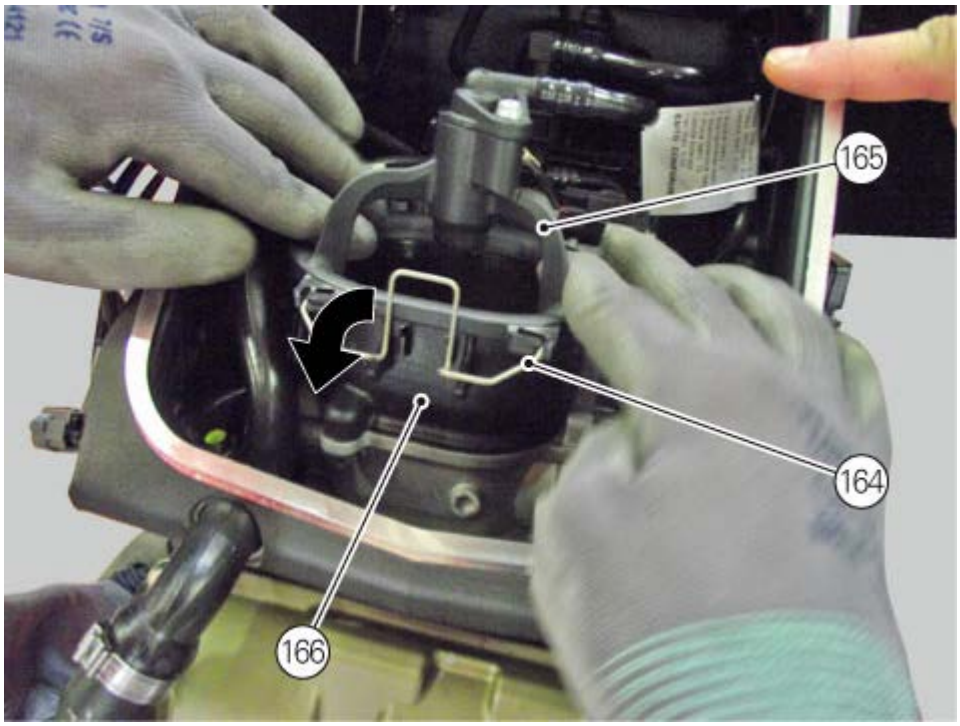
Install throttle bodies (165) onto manifolds (166).

http://www.ducati-manuals.com
no. 140312



Hook clips (164), as shown, to secure throttle bodies (165) to the relevant manifolds (166).

http://www.ducati-manuals.com
no. 140312





Connect wirings (163) to injectors.

http://www.ducati-manuals.com
no. 140312

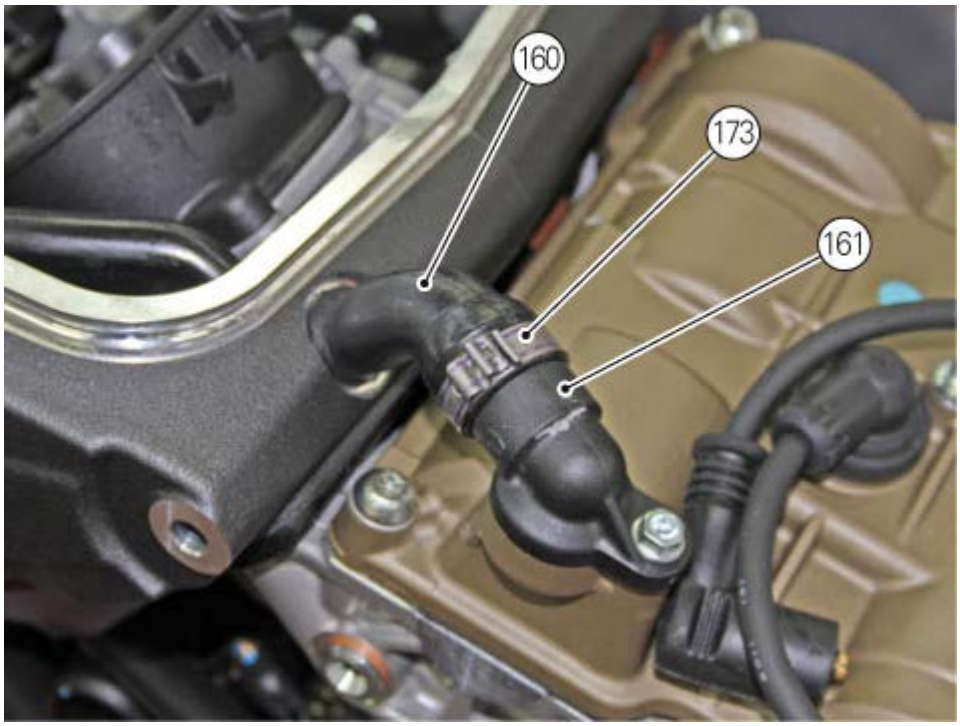


Fit clamp (162).

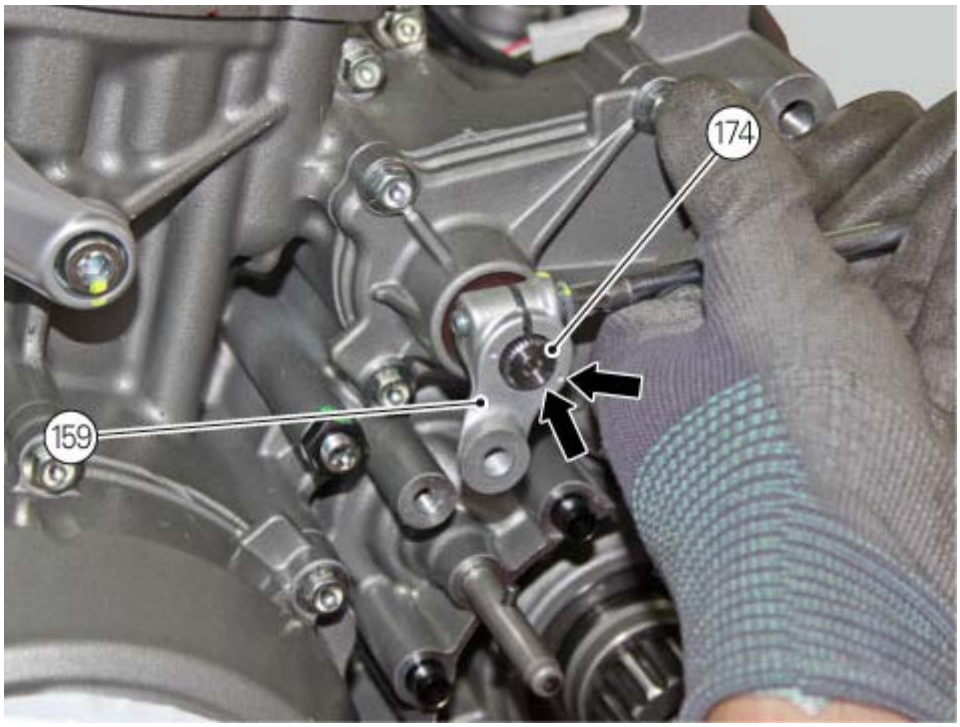


Connect breather hose (160) to blow-by output union (161), and secure in place with clip (173).

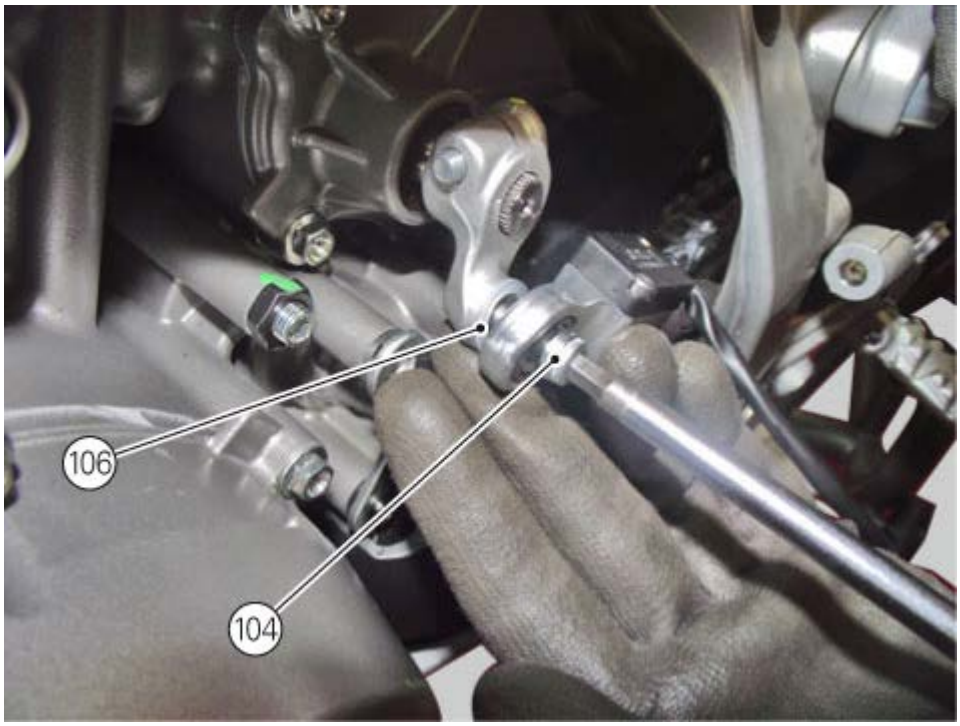
http://www.ducati-manuals.com
no. 140312



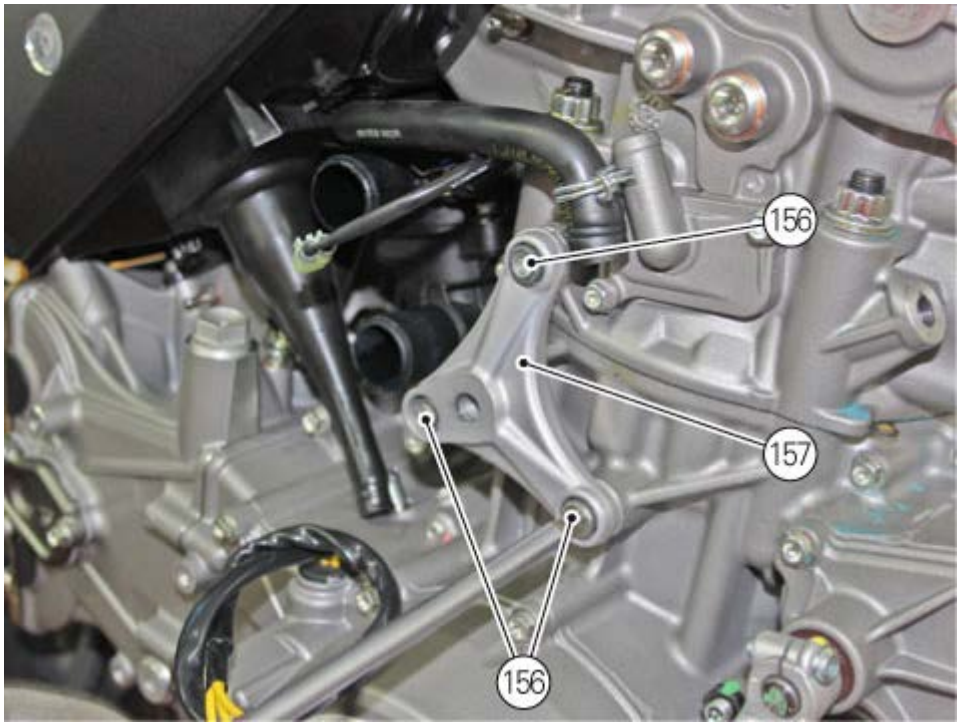
Position gearchange lever (159) onto shaft (174), aligning one lever marks with shaft mark. Tighten screw (158) to a torque of 10 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

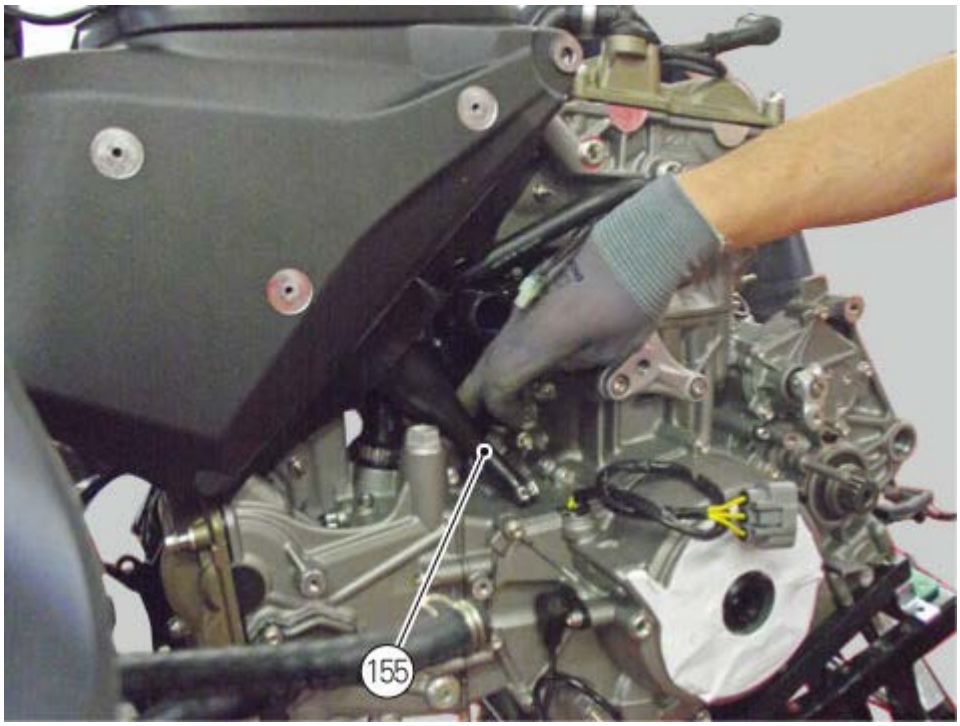


Install support (157), and tighten screws (156) to a torque of 22 Nm ± 10%.



Install pipe (155) onto engine crankcase, and tighten clip (154).

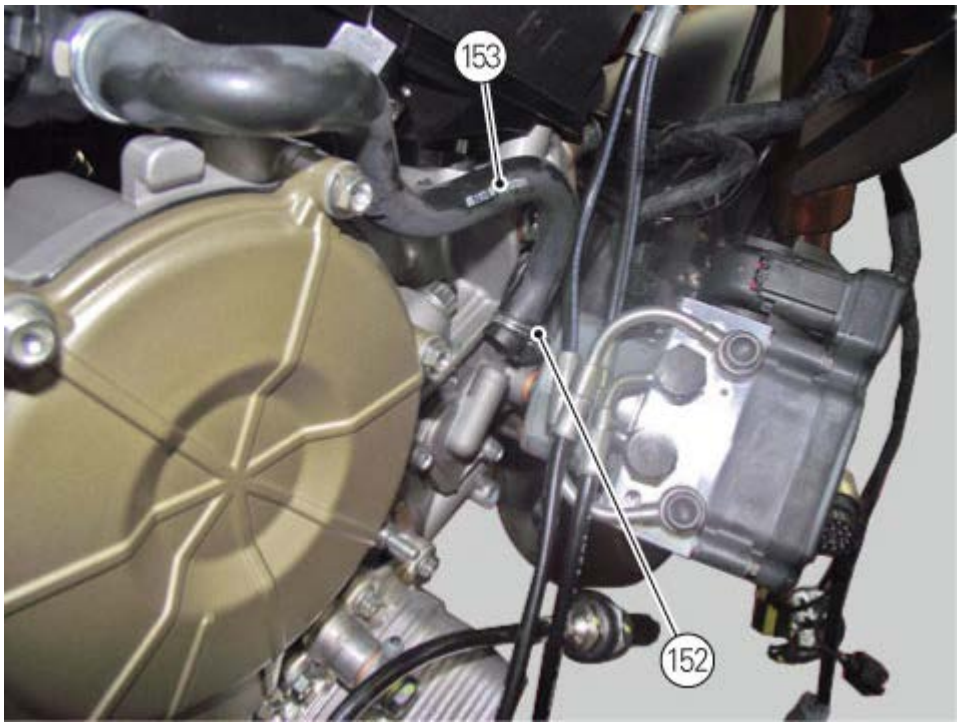
http://www.ducati-manuals.com
no. 140312

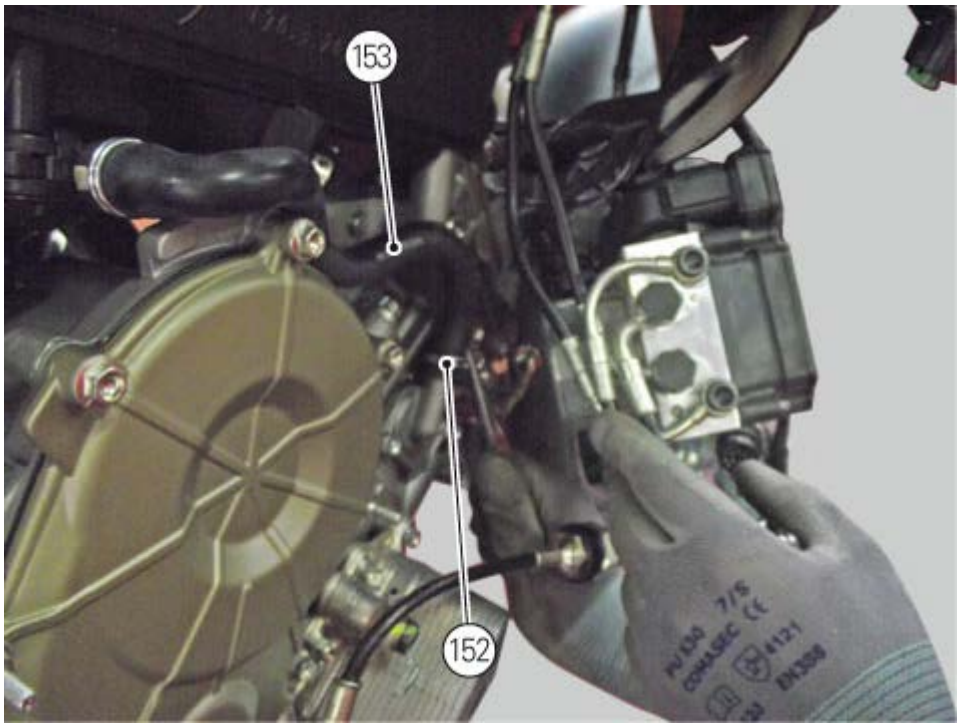




Fit horizontal head secondary air pipe (153), and tighten clip (152).

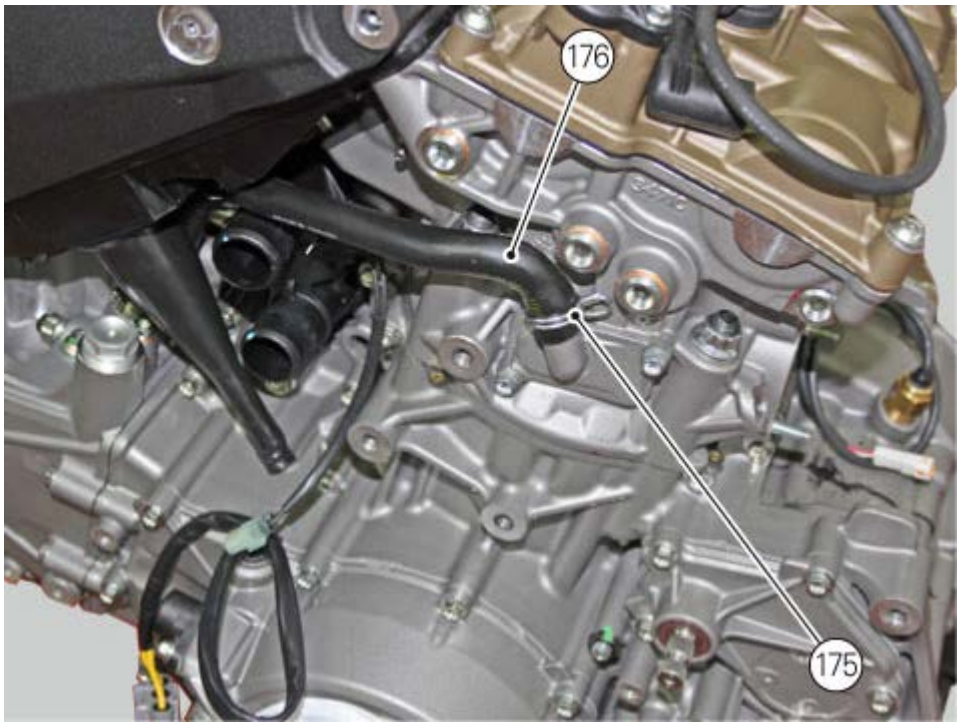
http://www.ducati-manuals.com
no. 140312



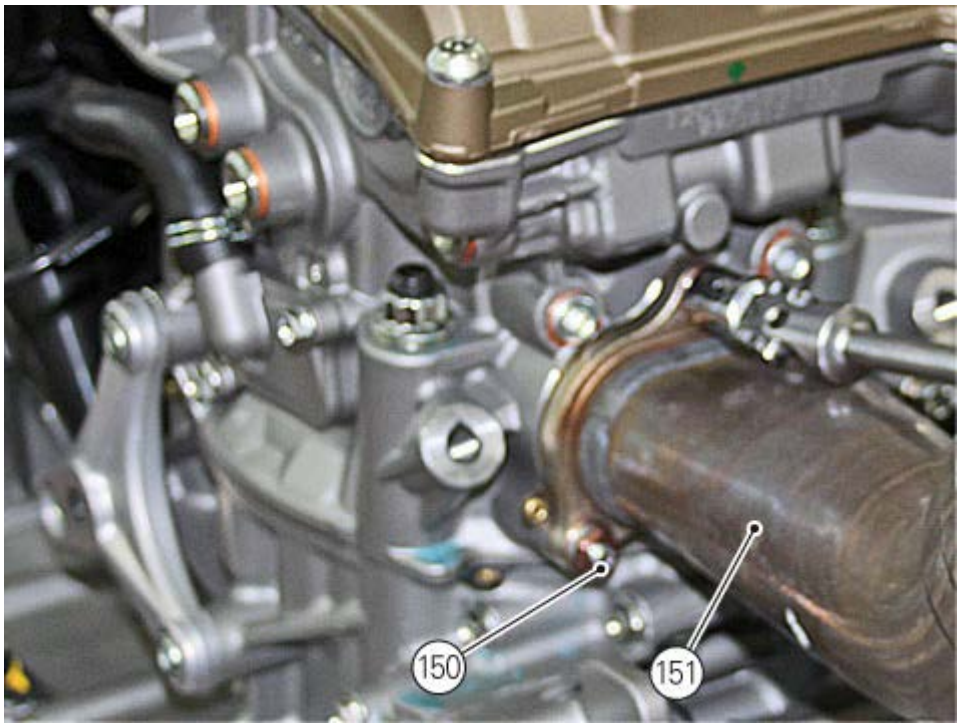


Fit vertical head secondary air pipe (176), and tighten clip (175).

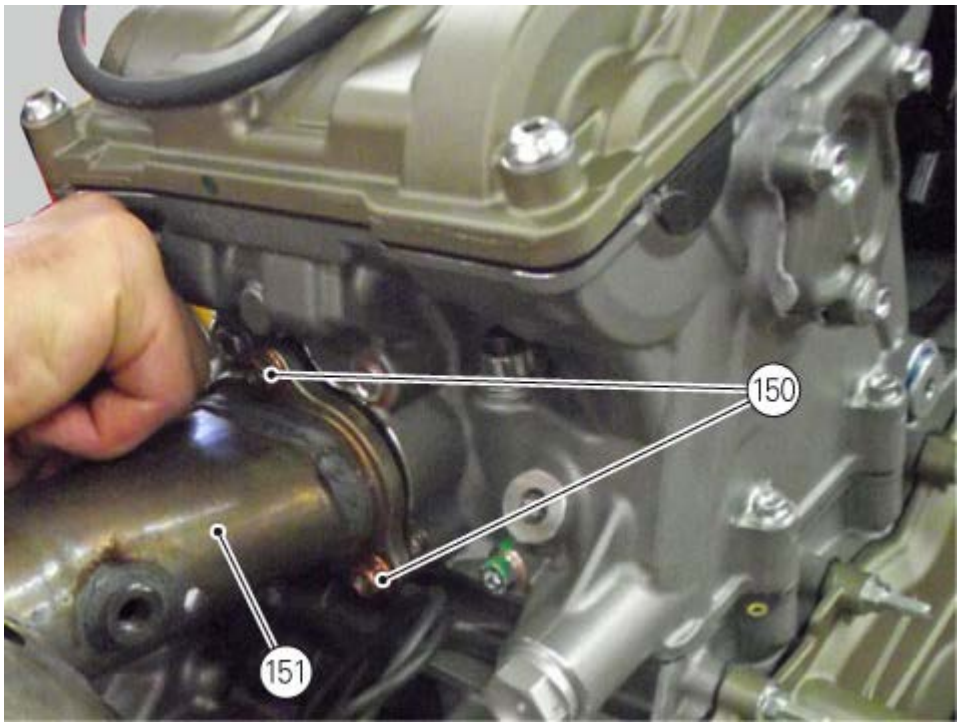
http://www.ducati-manuals.com
no. 140312



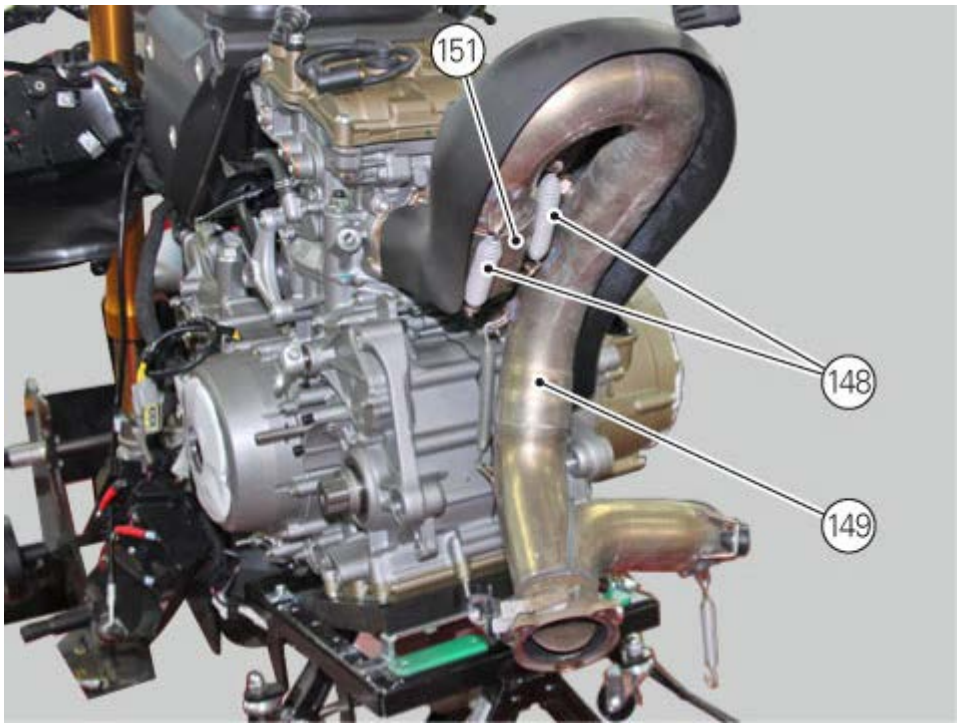
Install vertical cylinder exhaust pipe (151) onto vertical head, with gasket.
Tighten vertical cylinder exhaust pipe (151) retaining nuts (150) to a torque of 10 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

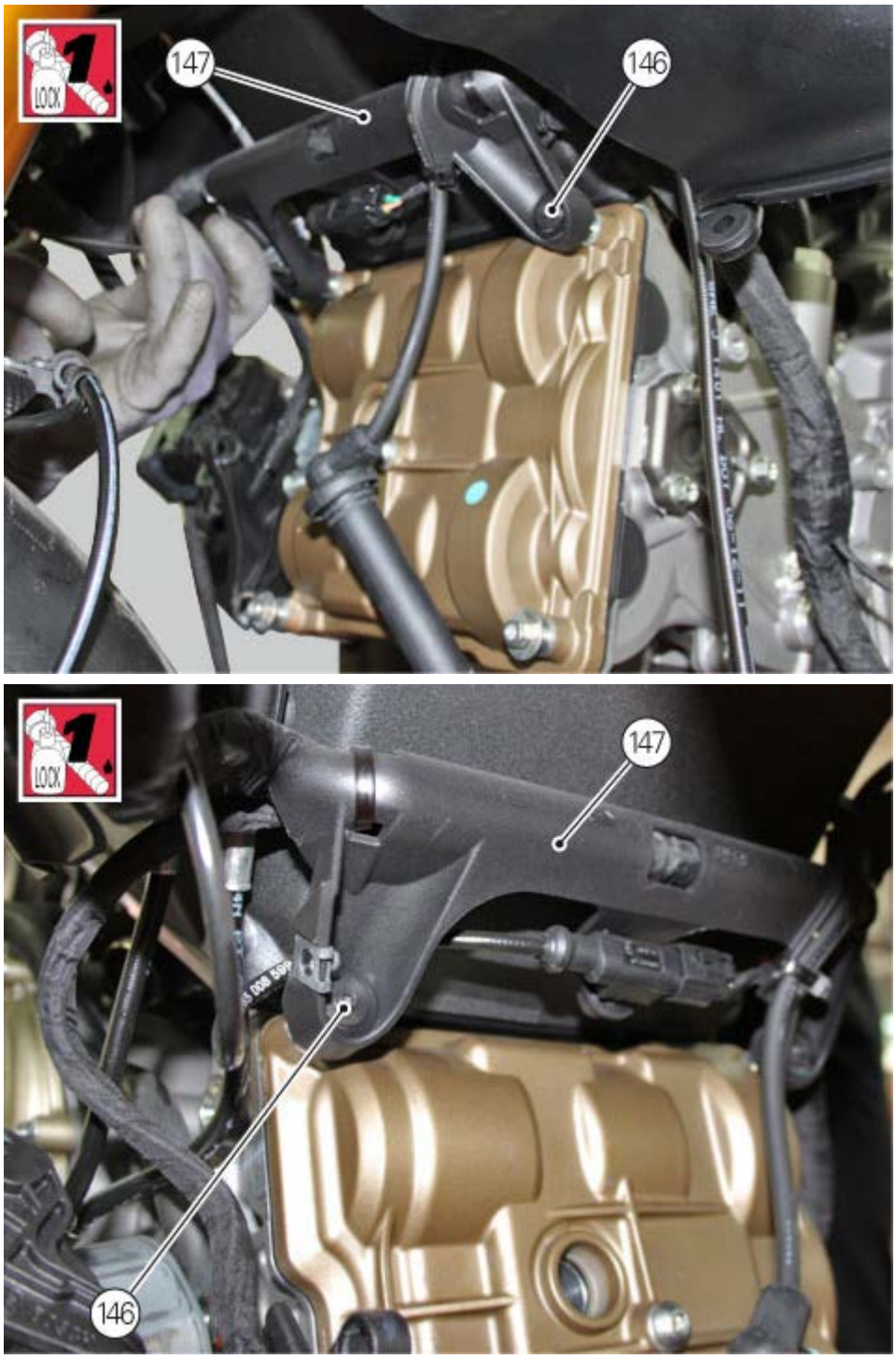


Install the central exhaust pipe - with heat guard (149) - inside vertical head exhaust pipe (151), and secure in place with springs (148).



Fit wiring support (147) onto horizontal head.
Apply recommended threadlocker.
Tighten the screws (146) to a torque of 4 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



Fit the swinging arm (144), with chain, onto engine block.

http://www.ducati-manuals.com
no. 140312



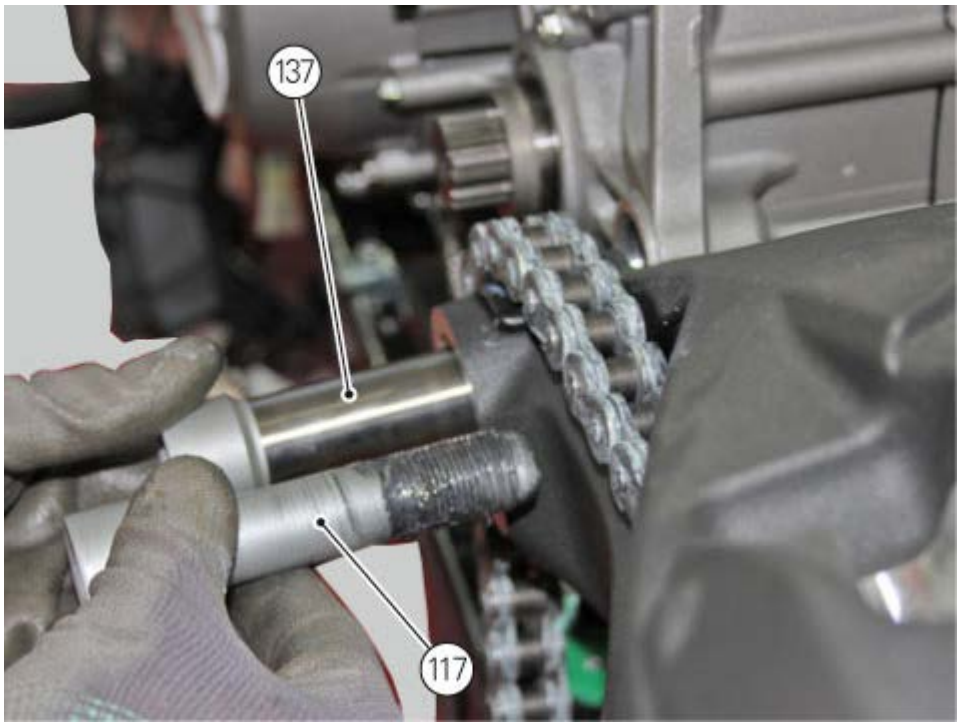
Apply recommended grease to LH swinging arm shaft (137).
Tighten LH swinging arm shaft (137) to a torque of 100 Nm ± 5%.



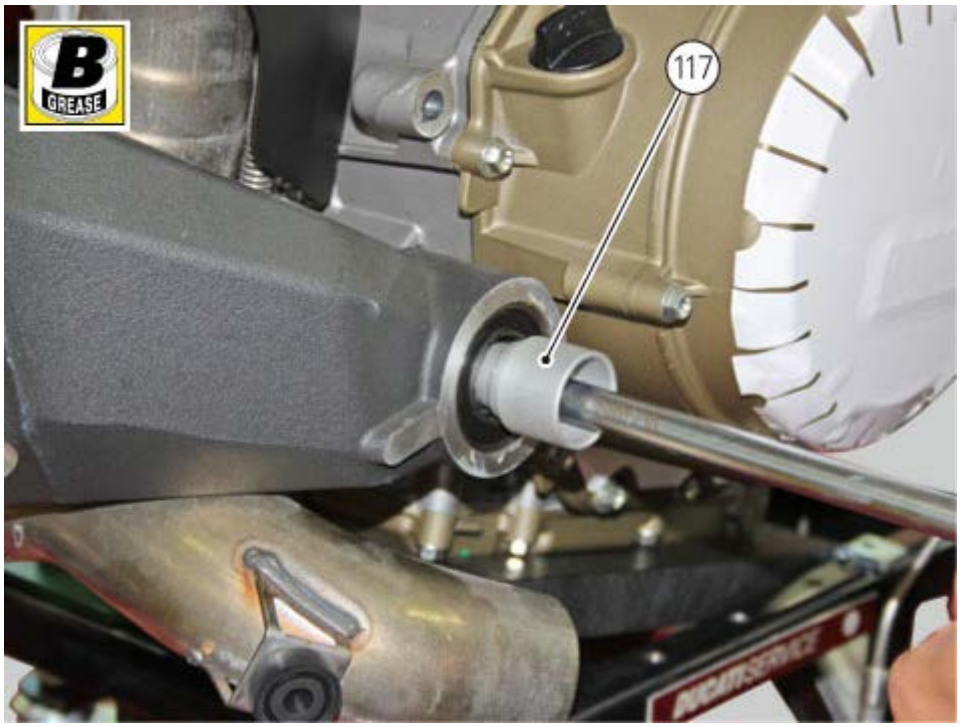
Important

The LH swinging arm shaft (137) differs from the RH swinging arm shaft (117) in the machining: the RH shaft (117) is not machined, while the LH shaft (137) is machined.

http://www.ducati-manuals.com
no. 140312

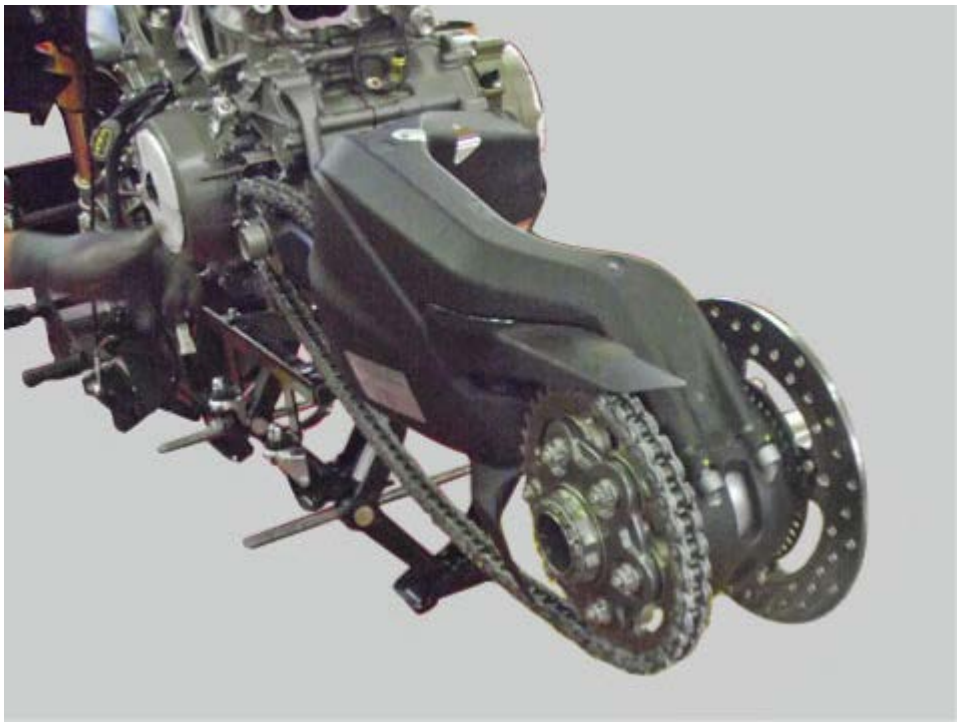


Apply recommended grease to RH swinging arm shaft (117).
Tighten RH swinging arm shaft (117) to a torque of 100 Nm ± 5%.



Duly support the swinging arm rear side.

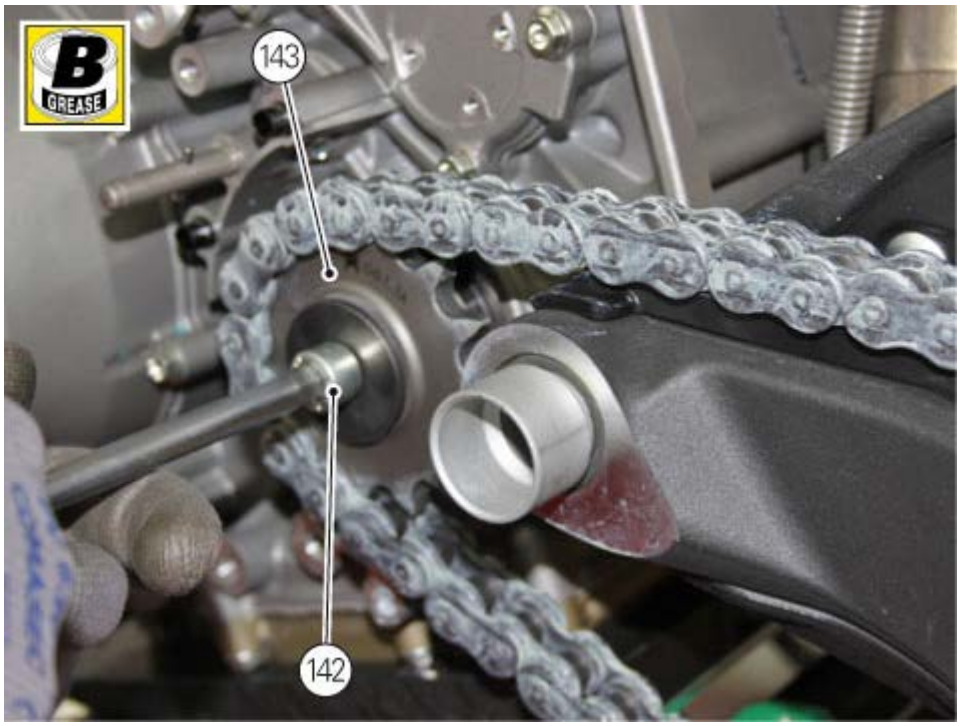
http://www.ducati-manuals.com
no. 140312



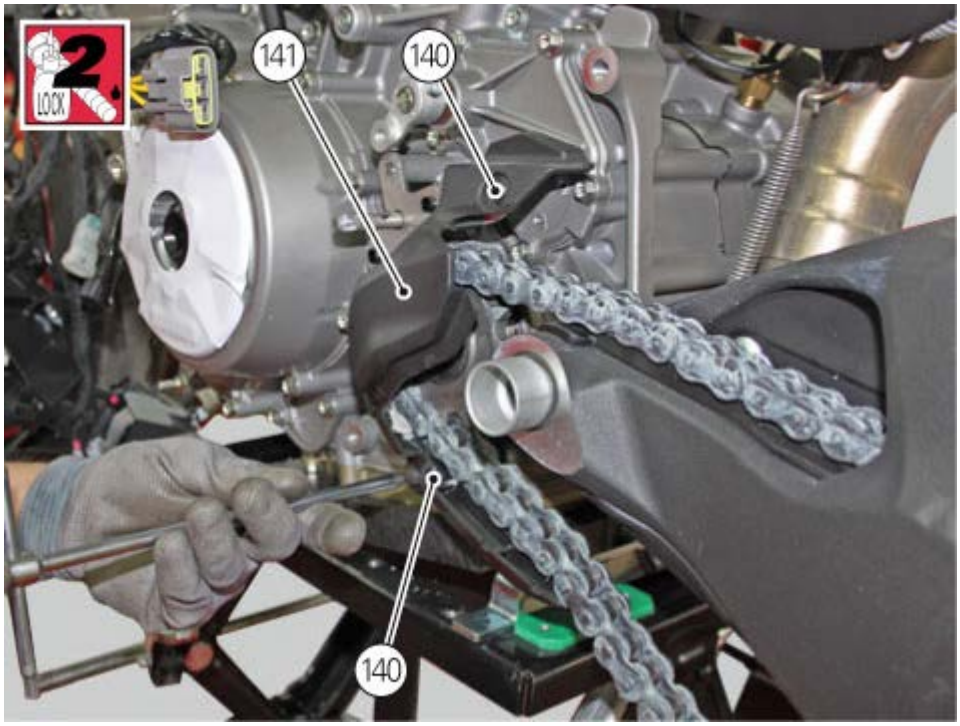
Install crankshaft sprocket (143) onto shaft. Fit chain on crankshaft sprocket.
Smear crankshaft sprocket (143) retaining screw (142) with recommended grease
Tighten the screw (142) to a torque of 55 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

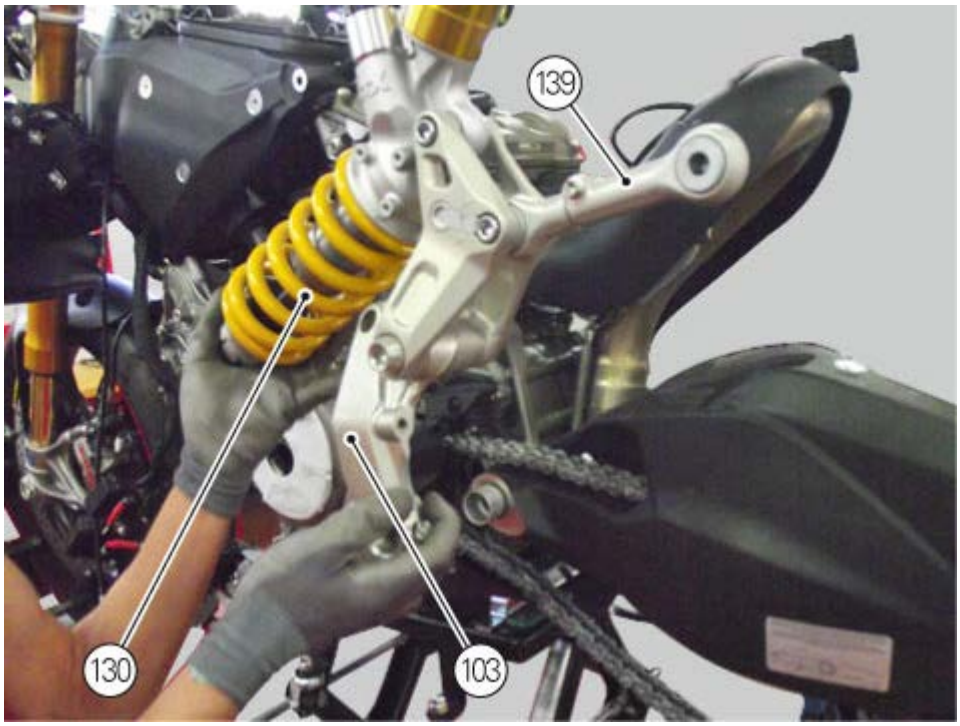


Refit the chain guard.
Smear the screws (140) with specified grease.
Tighten the screws (140) to a torque of 4 Nm ± 10%.

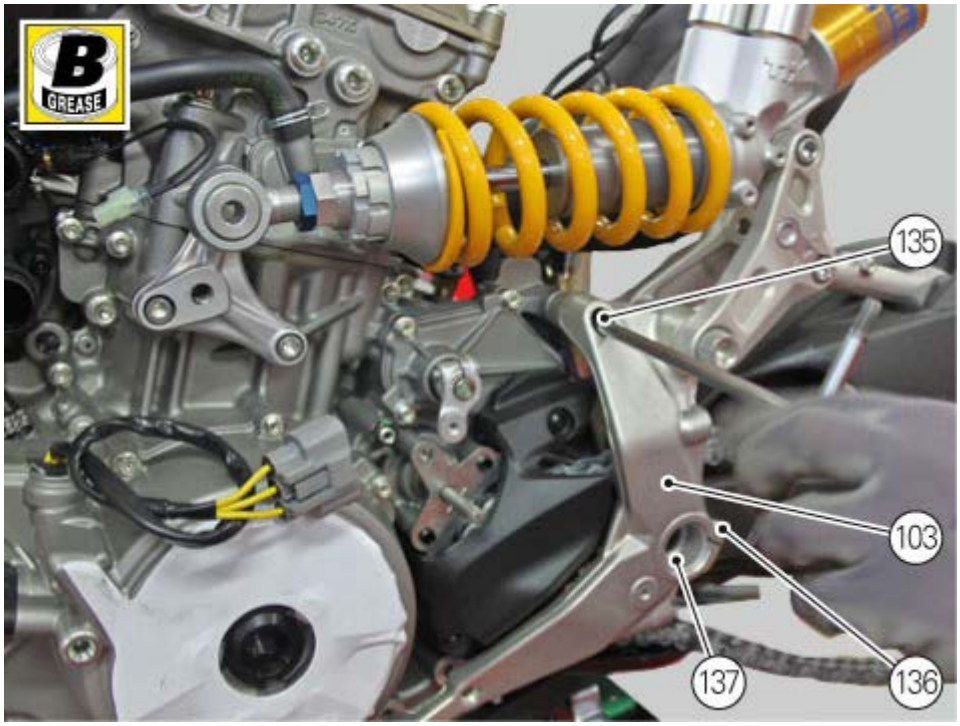


Install the LH support (103) complete with shock absorber (130) and linkage (139).

http://www.ducati-manuals.com
no. 140312

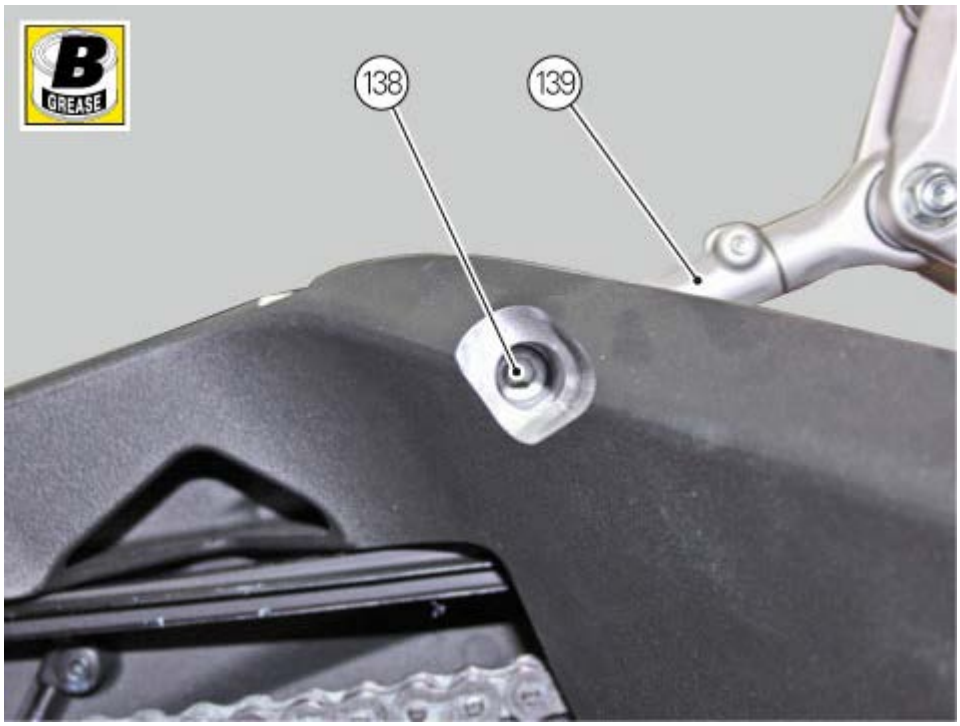


Smear the screw (135) and the screw (136) with recommended grease.
Start the retaining screw (135) between LH support (103) and engine crankcase. Start the retaining screw (136) between the LH support and the LH swinging arm shaft (137).
Tighten the screw (135) to a torque of 25 Nm ± 5%. Tighten the screw (136) to a torque of 8 Nm ± 10%.



Smear the screw (138) with specified grease.
Working on swinging arm opposite side, start the screw (138) securing linkage (139) to swinging arm.
Tighten the screw (138) to a torque of 45 Nm ± 5%.

http://www.ducati-manuals.com
no. 140312



Smear the screw (129) with specified grease.
Start the front retaining screw (129) on rear shock absorber (130). Tighten the screw to a torque of 45 Nm ± 5%.

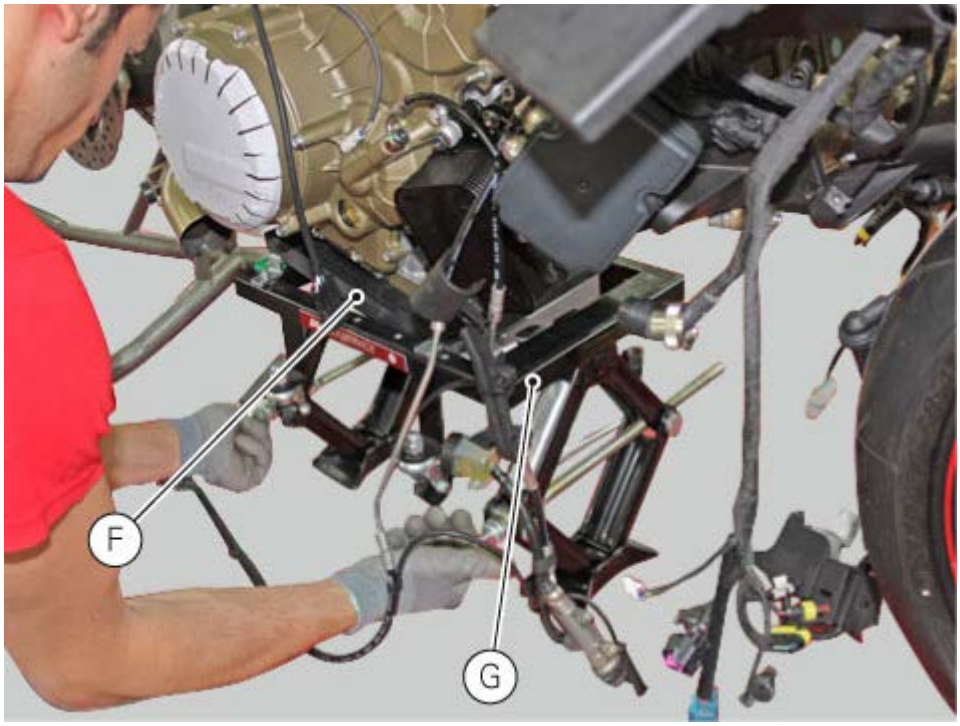


Position stand under swinging arm.

http://www.ducati-manuals.com
no. 140312

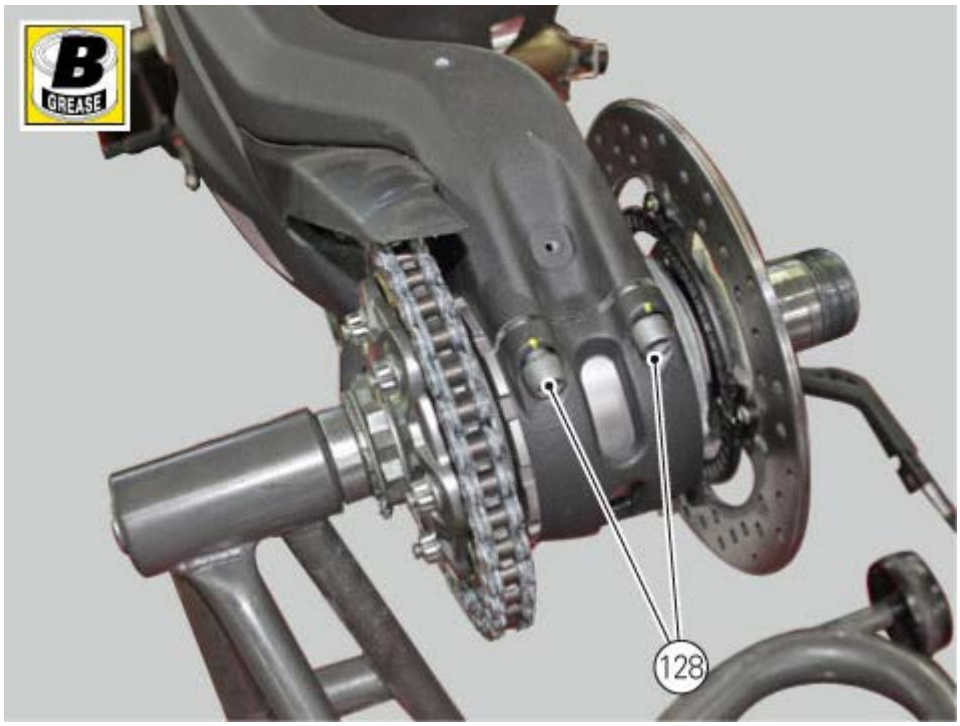


Lower the supporting tools (F) and (G), and remove them.

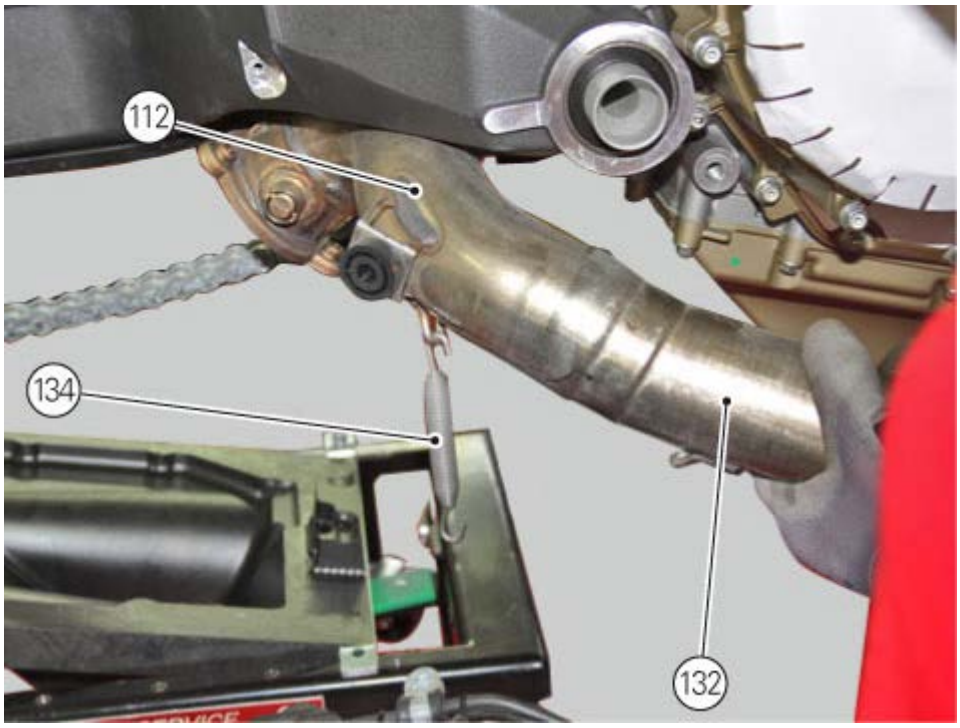


Smear the screws (128) with specified grease.
Start the rear swinging arm screws (128), and tighten them to a torque of 25 Nm ± 5%, following a 1-2-1 sequence.

http://www.ducati-manuals.com
no. 140312

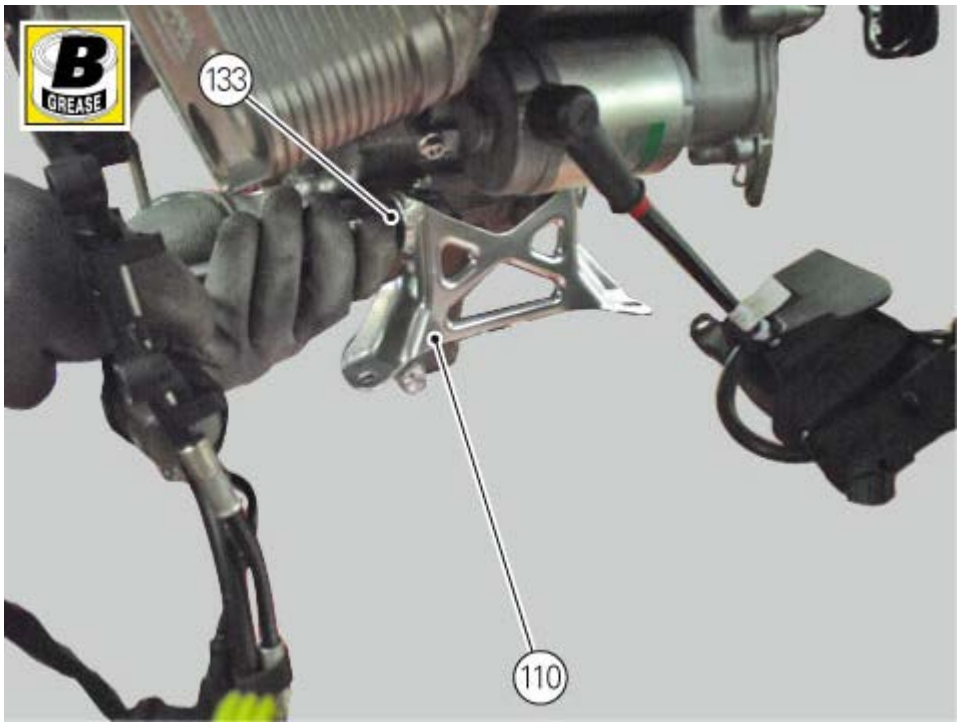


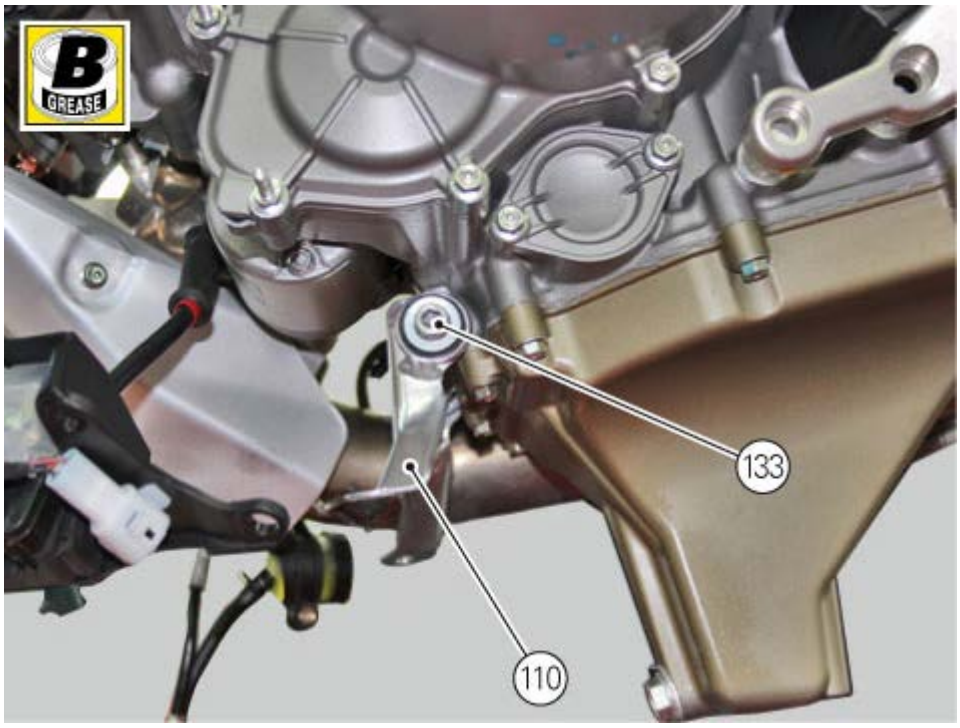
Install horizontal exhaust pipe (132) on central exhaust pipe (112), and secure in place with the spring (134).



Fit silencer mounting bracket (110) on engine block with screws (133), already smeared with recommended grease.
Tighten the screws (133) to a torque of 25 Nm ± 10%.

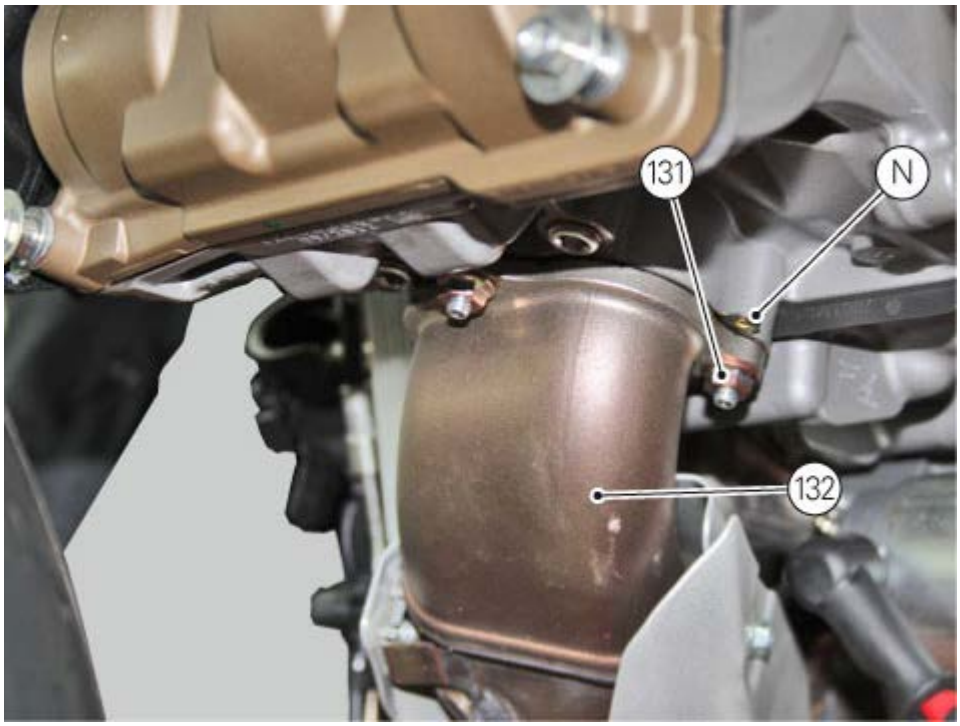
http://www.ducati-manuals.com
no. 140312

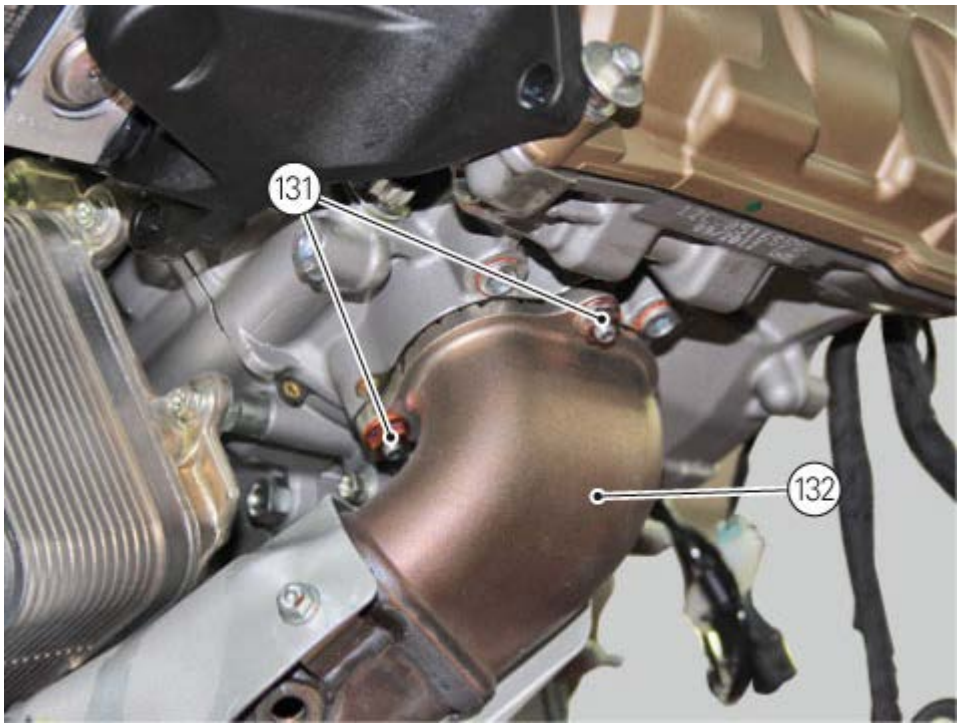




Fit horizontal exhaust pipe (132) on horizontal head exhaust manifold, with the relevant gasket (N). Start the three pipe retaining nuts (131), then tighten them to a torque of 10 Nm ± 10%.

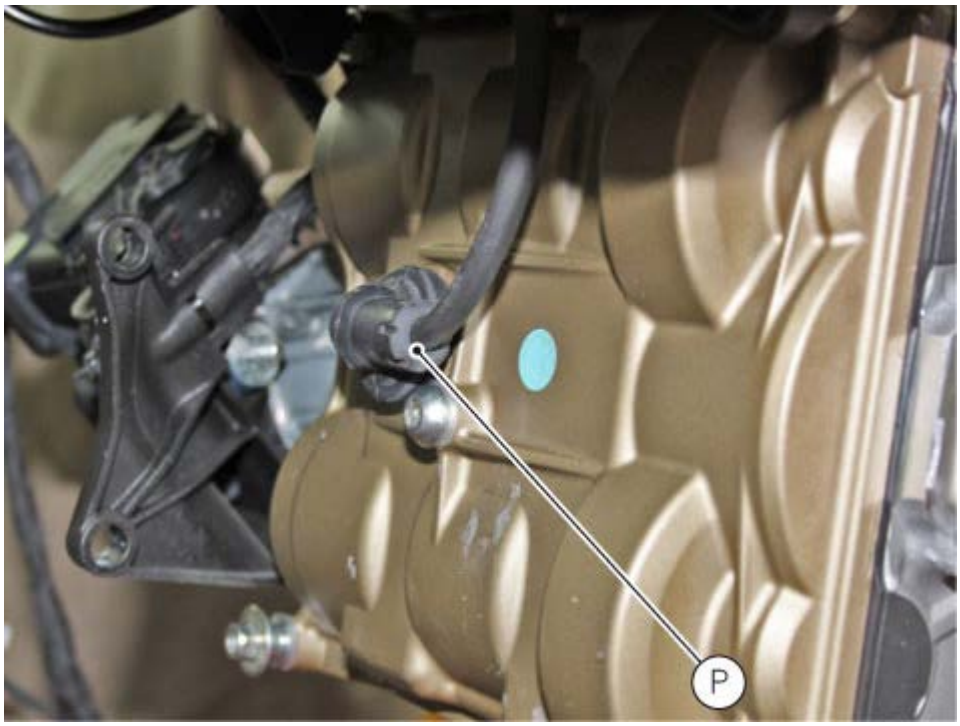
http://www.ducati-manuals.com
no. 140312



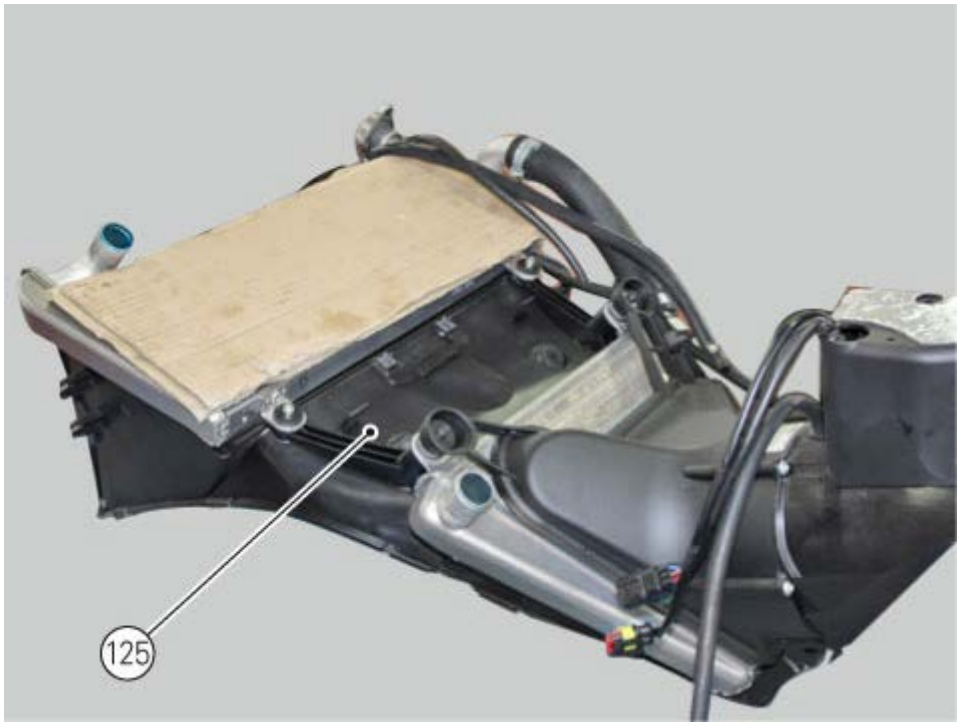


Fit horizontal head spark plug cap (P).

http://www.ducati-manuals.com
no. 140312



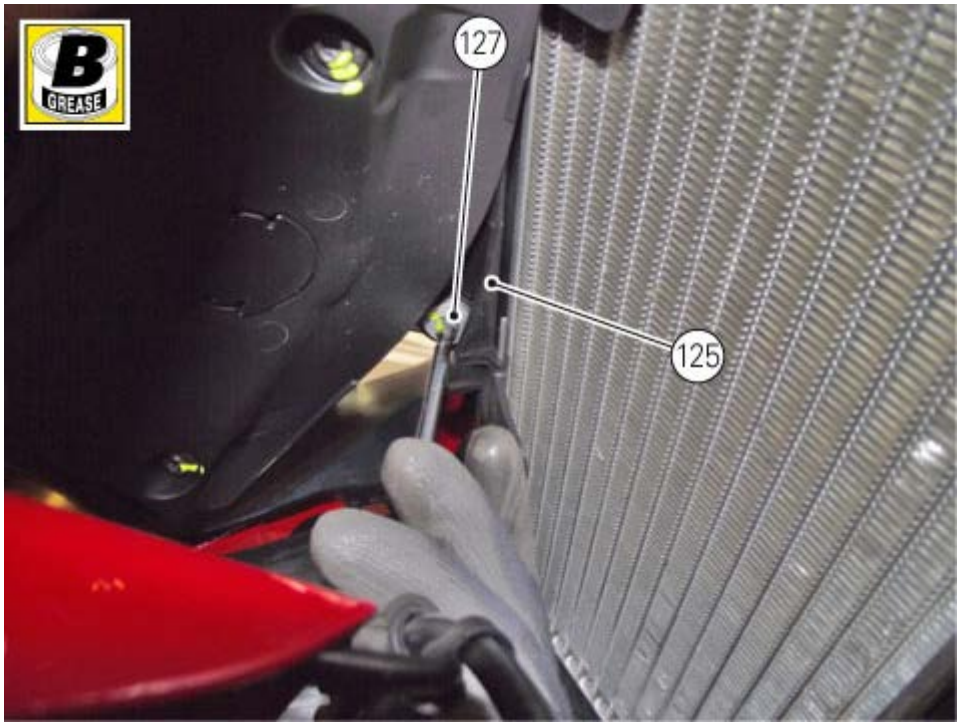
Install the complete radiator support (125) on the motorcycle.



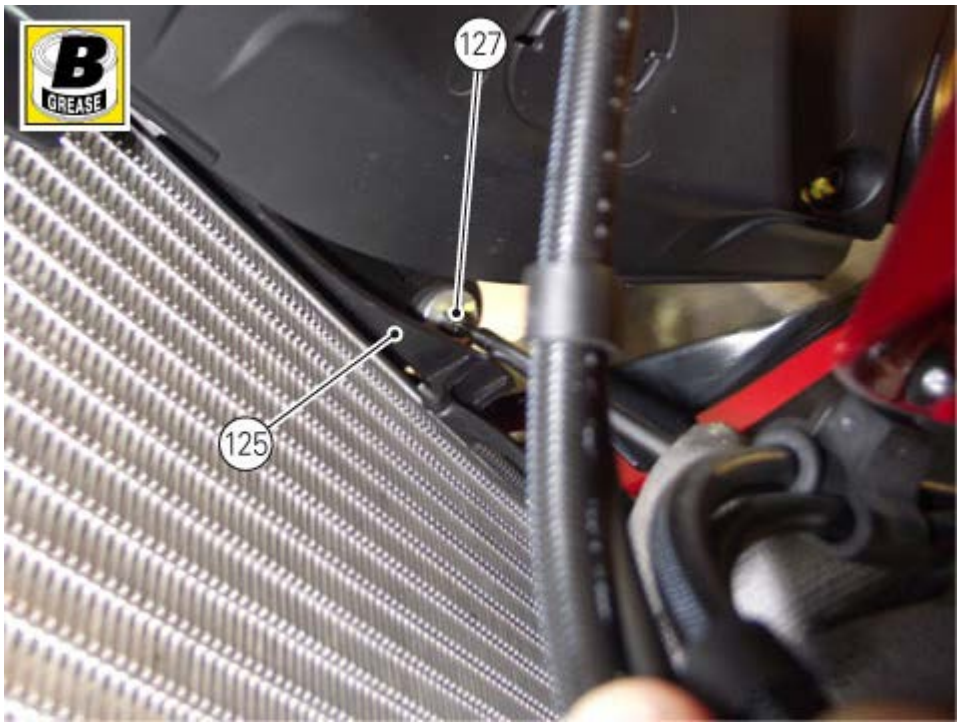
http://www.ducati-manuals.com
no. 140312



Smear the screws (127) with specified grease.
Start the upper retaining screws (127) on radiator support (125). Tighten the screws (127) to a torque of 6 Nm ± 10%.

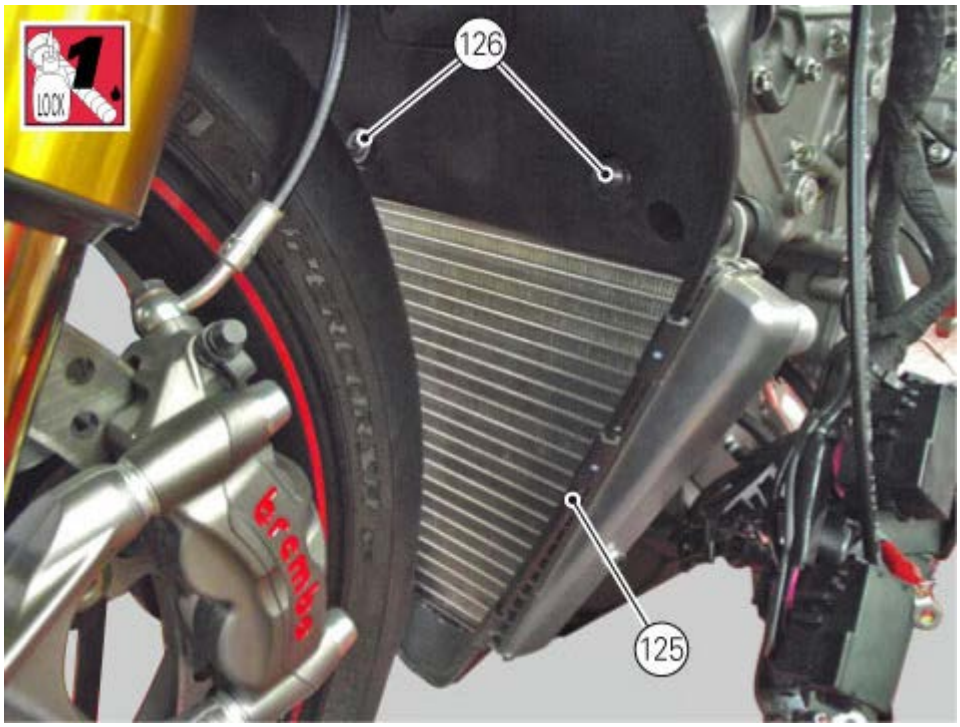


http://www.ducati-manuals.com
no. 140312



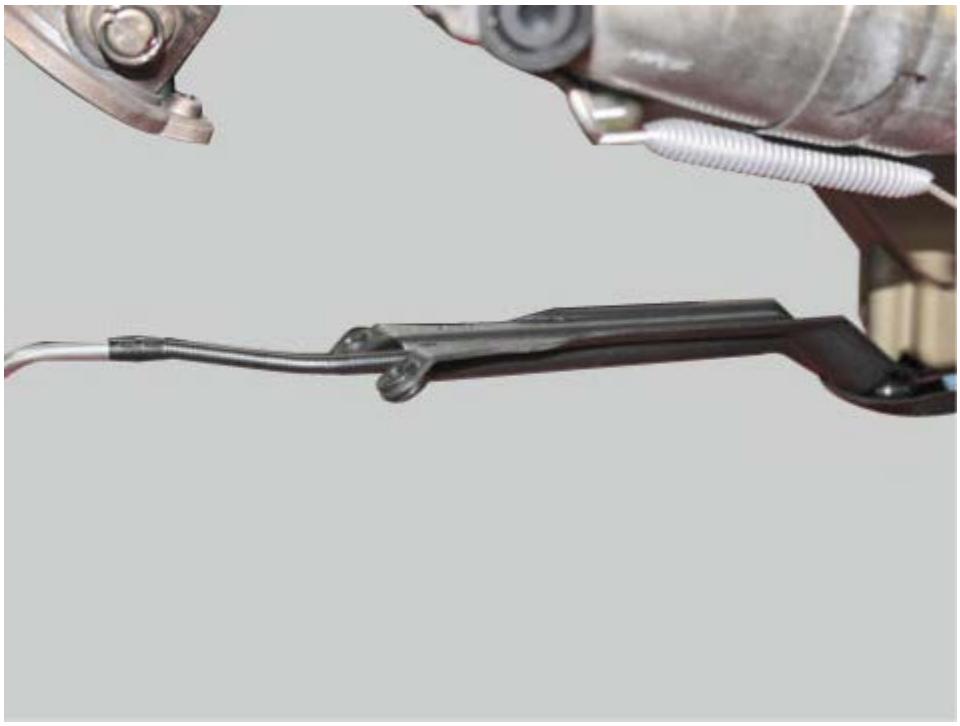
Apply recommended threadlocker.
Start the lower retaining screws (126) on radiator support (125). Tighten the screws (126) to a torque of 4 Nm ± 10%.

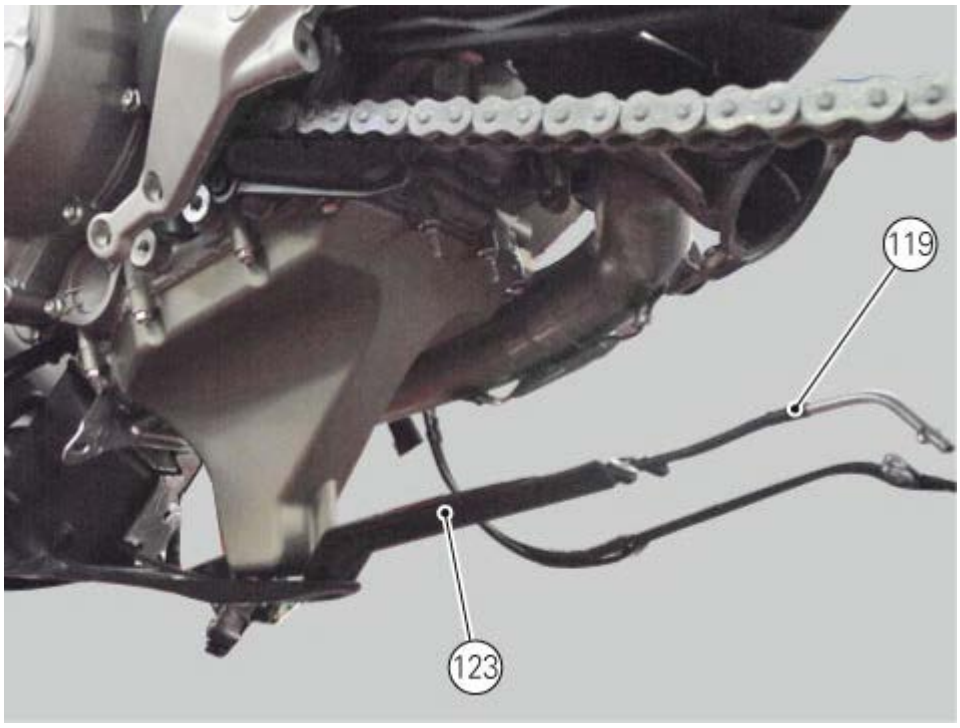
Warning
To turn screws (126), always use a 3 mm Allen wrench in perfect conditions.



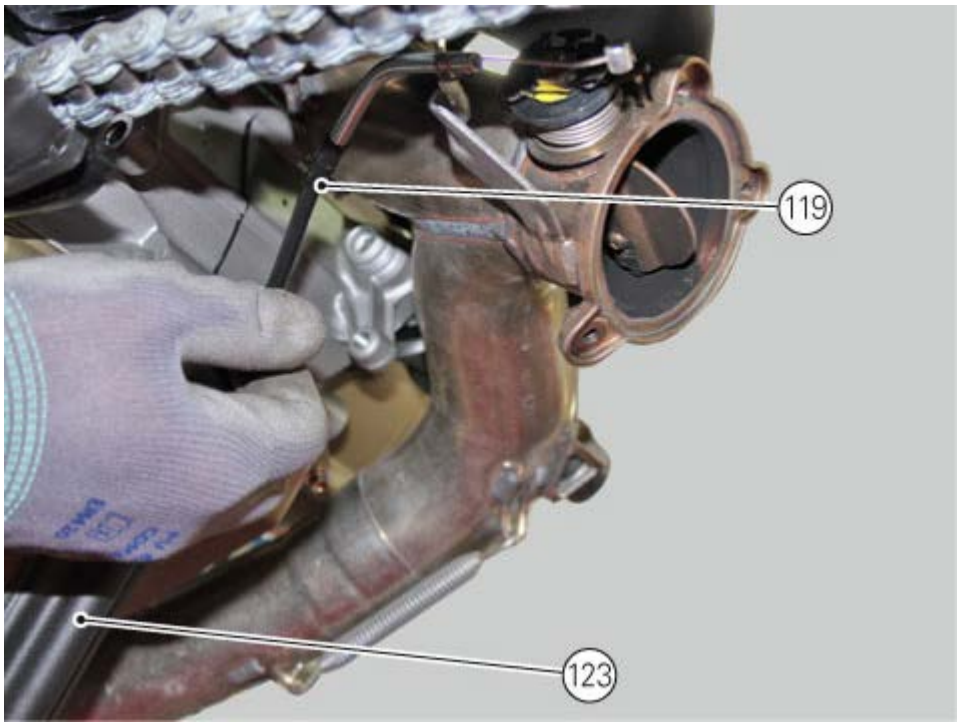
Install cable (119) and cable grommet (123).

http://www.ducati-manuals.com
no. 140312

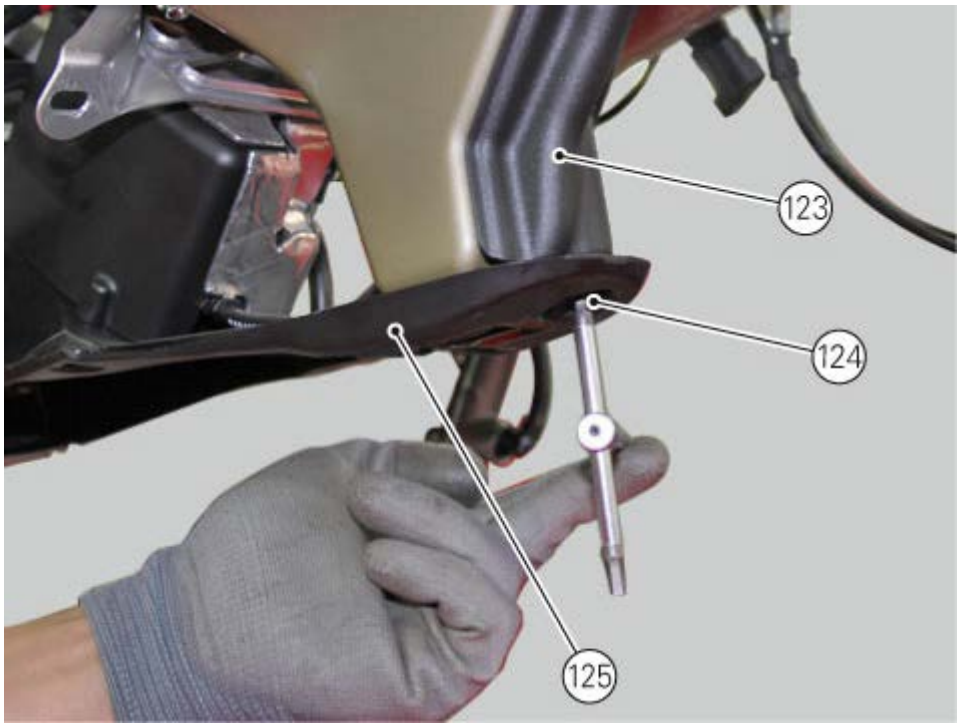




http://www.ducati-manuals.com
no. 140312

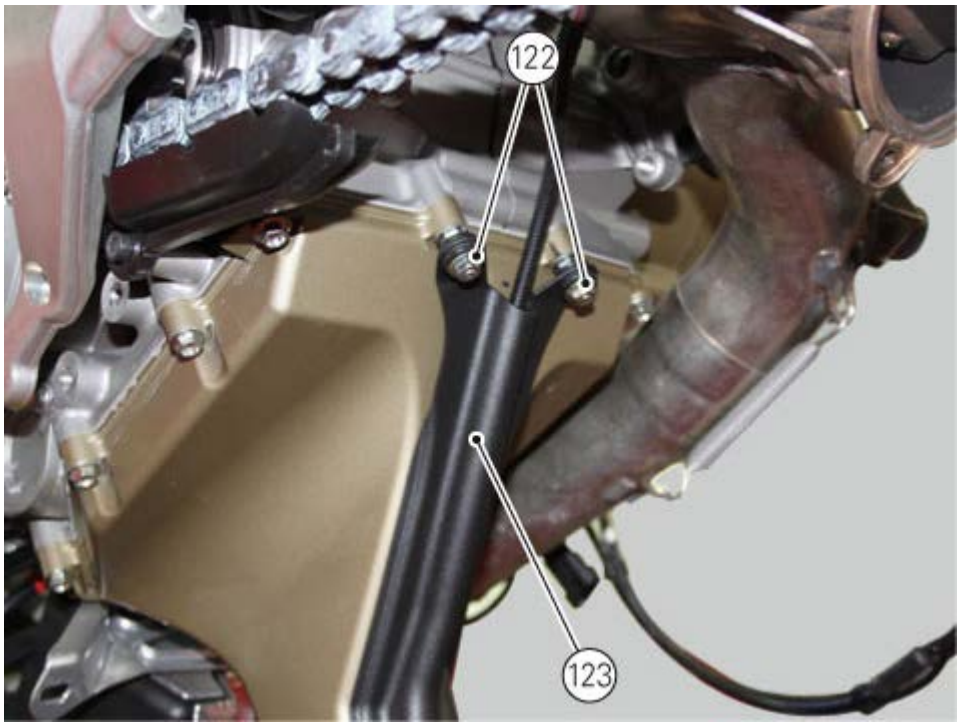


Start radiator support (125) and cable grommet (123) retaining screw (124).
Tighten the screw (124) to a torque of 4 Nm ± 10%.

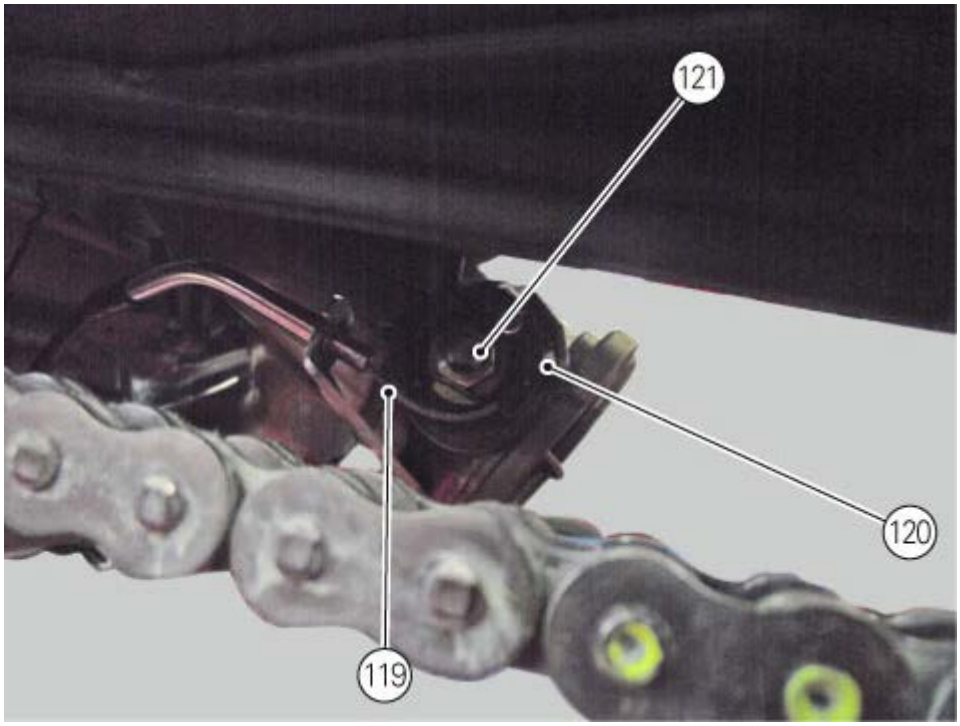


Start the two retaining nuts (122) between cable grommet (123) and engine block.
Tighten nuts (122) to a torque of 6 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



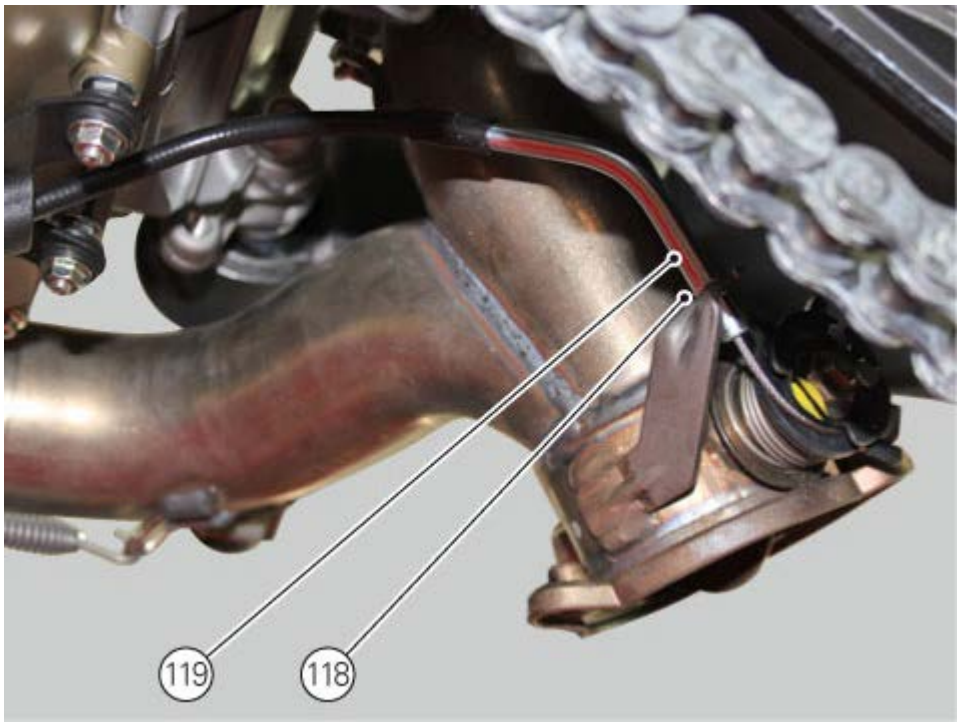
Refit cable (119) and pawl (120) on the exhaust valve (121).



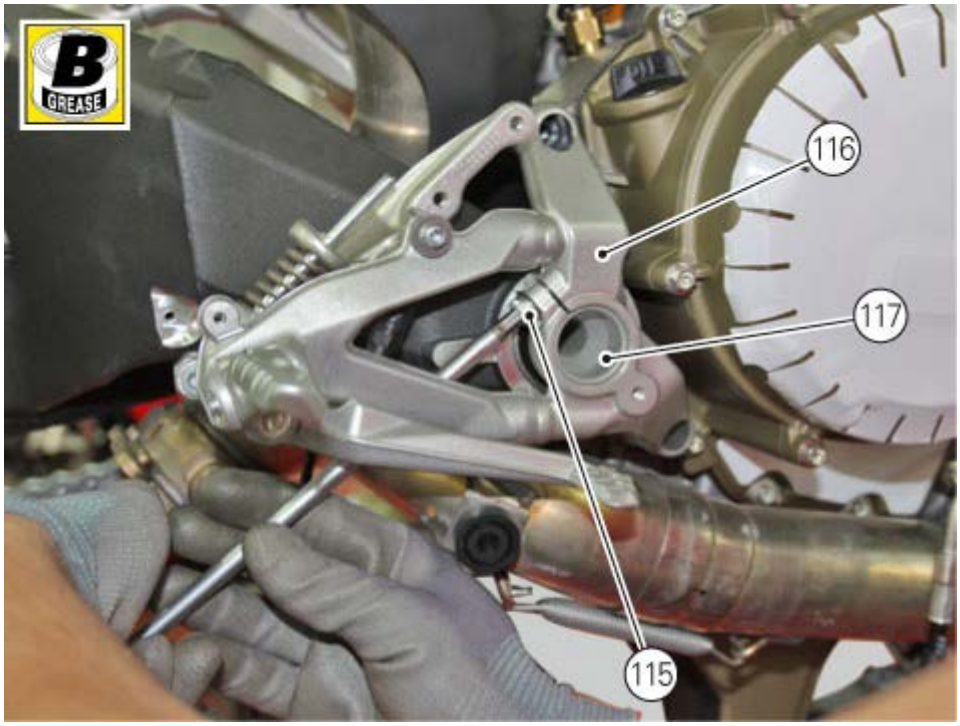
Install circlip (118) on exhaust valve motor cable (119).

Warning
Always fit a new circlip on reassembly .

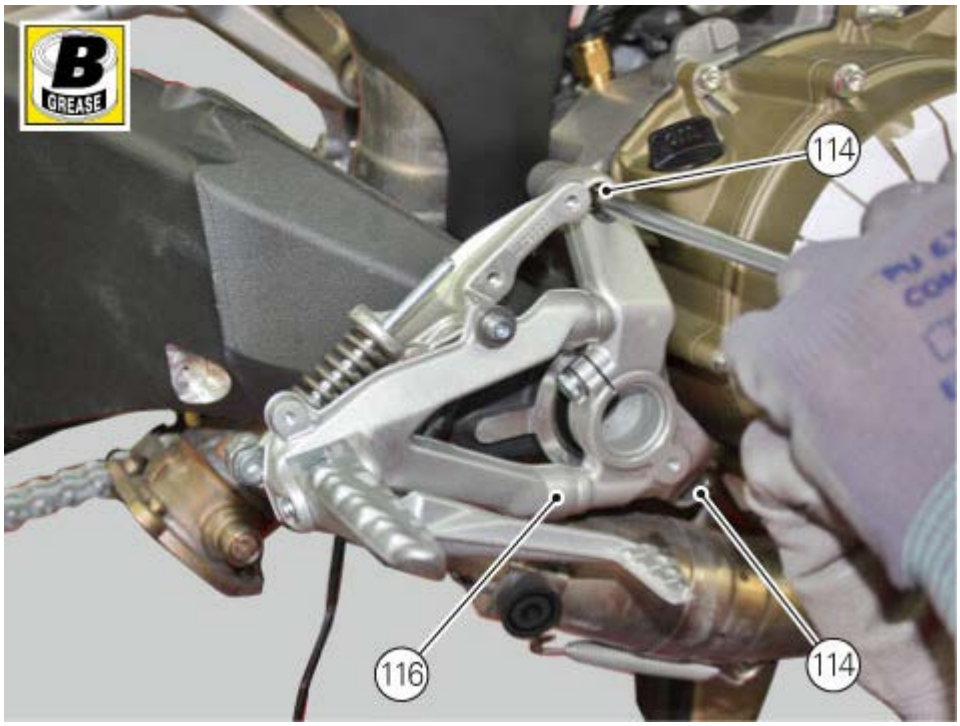
http://www.ducati-manuals.com
no. 140312



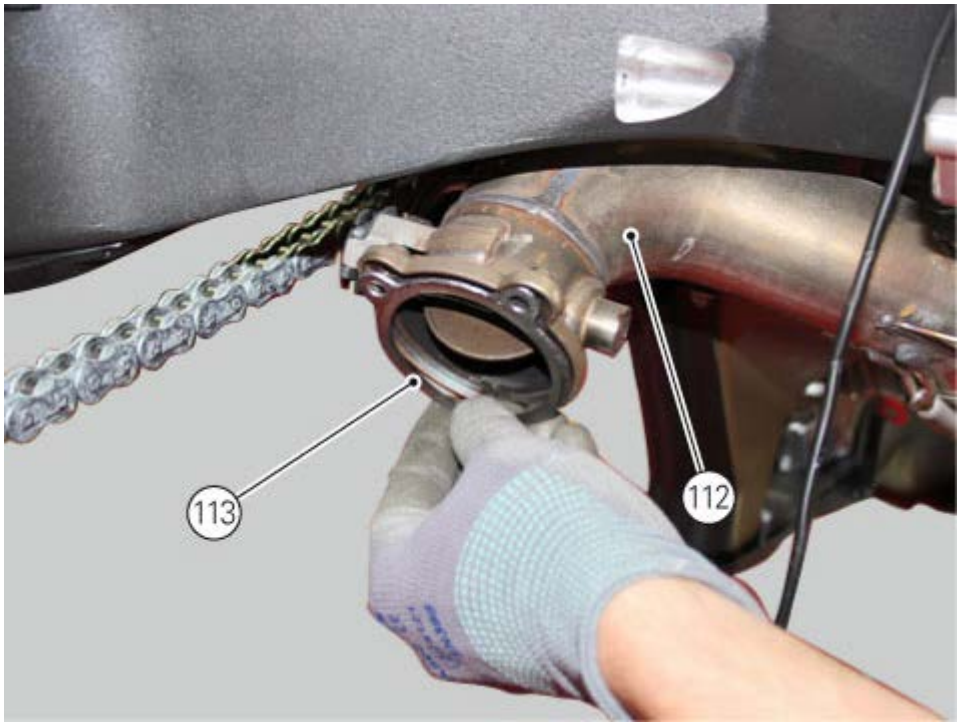
Refit the RH support (116).
Smear screws (114) and (115) with recommended grease. Start the retaining screws (114) and (115) securing the RH support (116) to the engine crankcase and to the RH swingarm shaft (117).
Tighten the screws (114) to a torque of 25 Nm ± 5%.
Tighten the screw (115) to a torque of 8 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

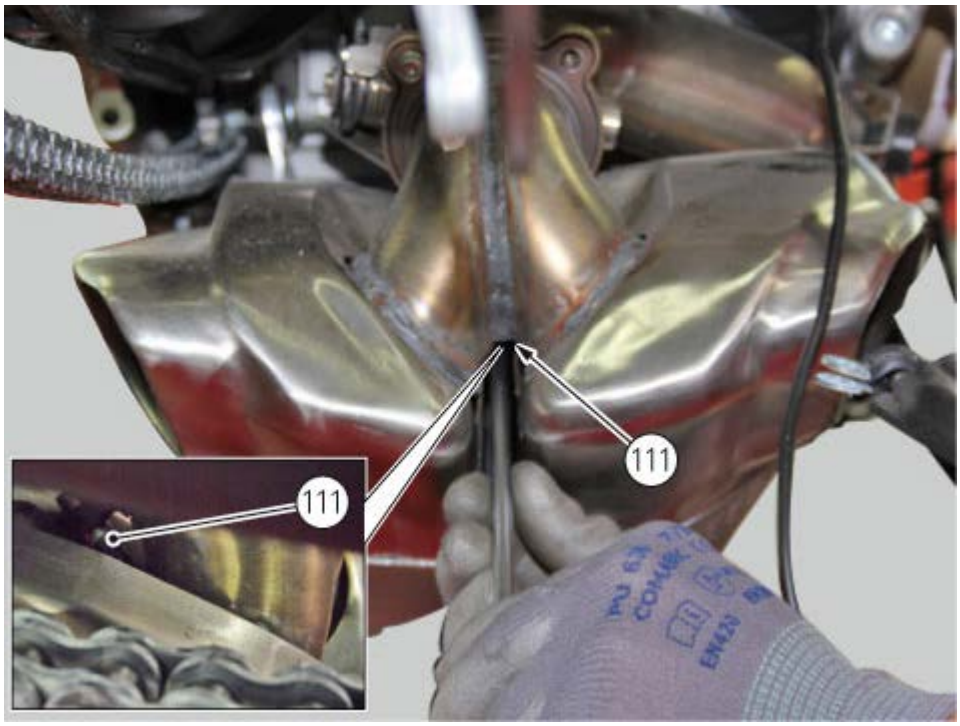


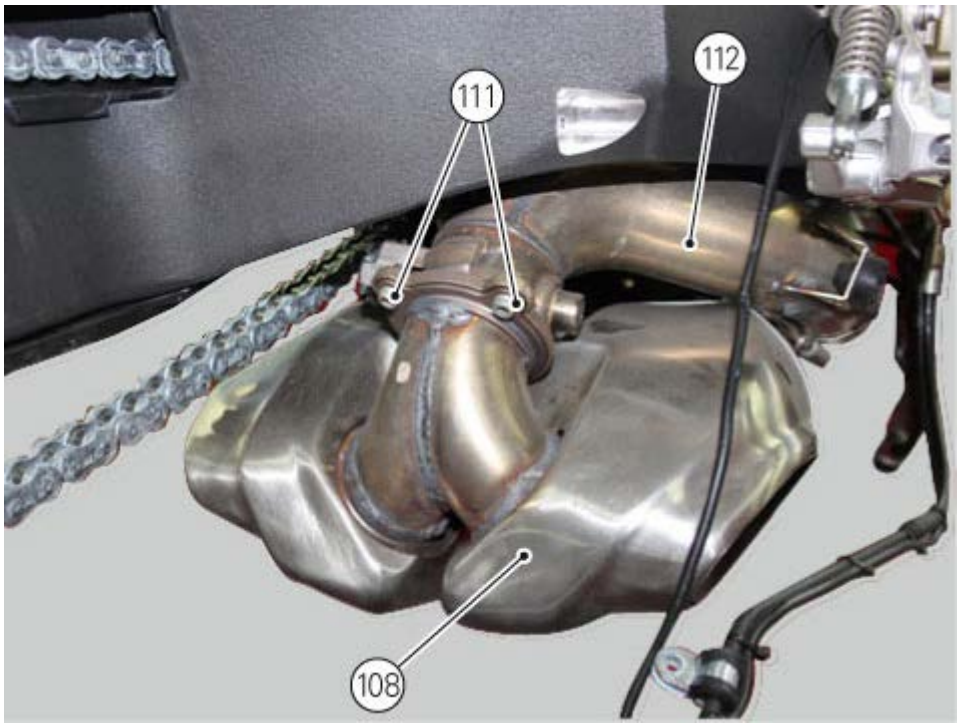
Refit the seal (113) inside central exhaust pipe seat (112).



Install silencer (108) on central exhaust pipe. Start the three retaining screws (111) between silencer (108) and central exhaust pipe(112), starting from the bottom one. Tighten the screws (111) to a torque of 10 Nm ± 10%.

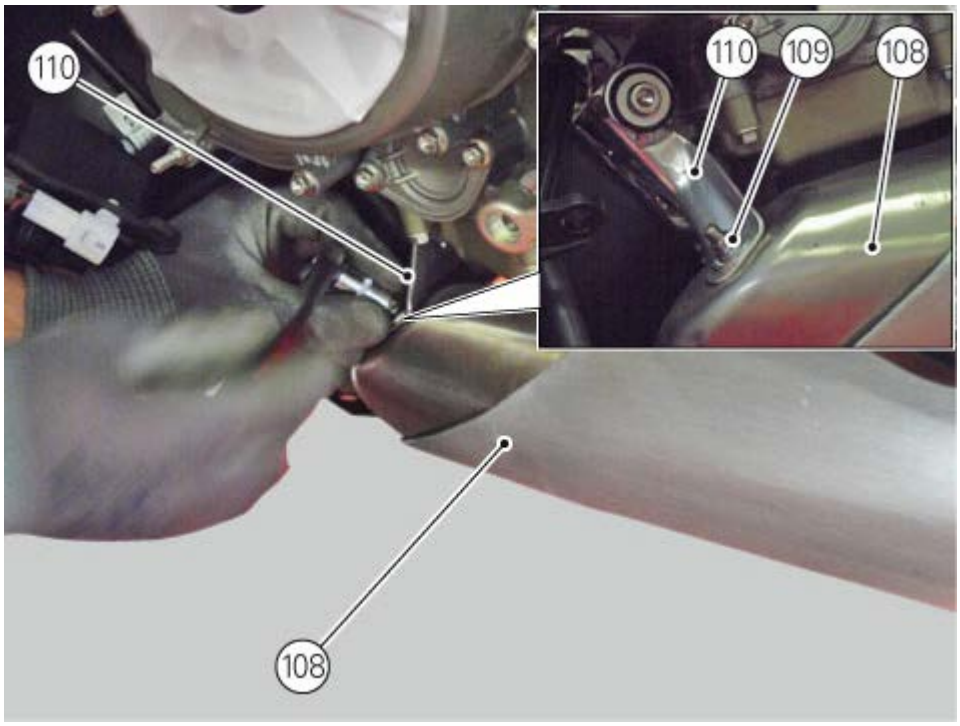
http://www.ducati-manuals.com
no. 140312

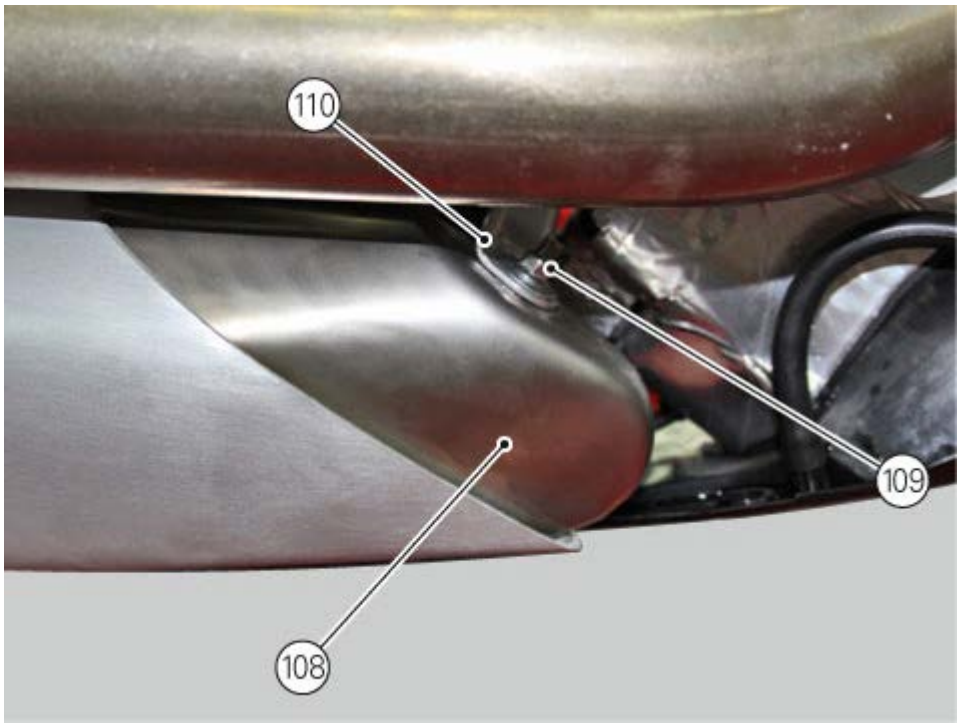




Refit silencer (108) on the mounting bracket (110). Start the front retaining nuts (109) between silencer (108) RH and LH sides and mounting bracket (110). Tighten nuts (109) to a torque of 10 Nm ± 10%.

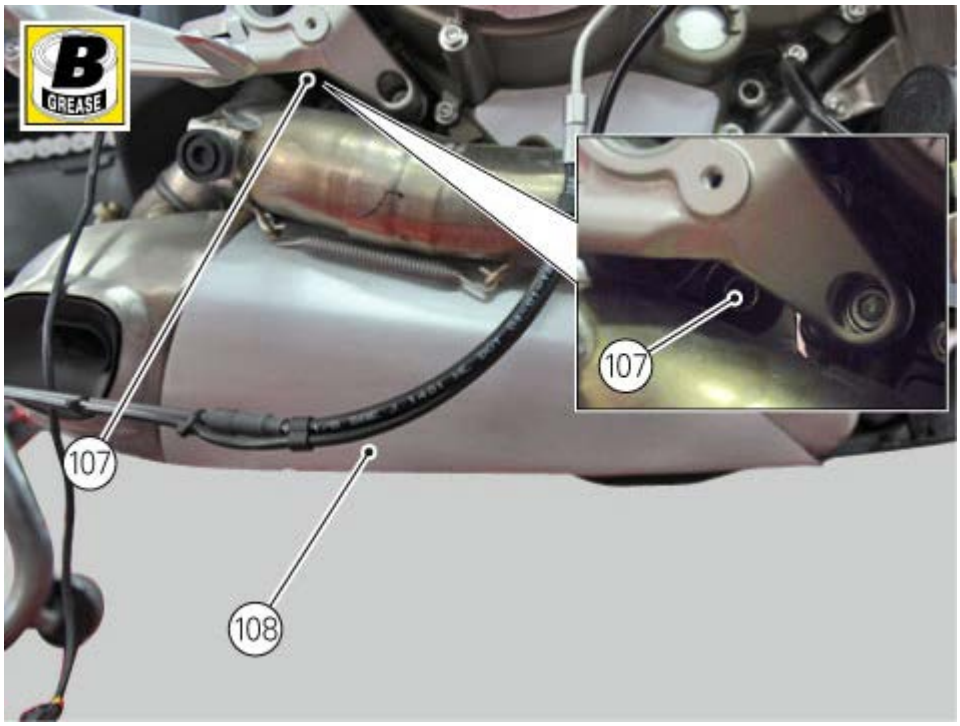
http://www.ducati-manuals.com
no. 140312





Smear the screws (107) with specified grease.
Start the rear fastening screws (107) on silencer (108) right and left sides.
Tighten the screws (107) to a torque of 25 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



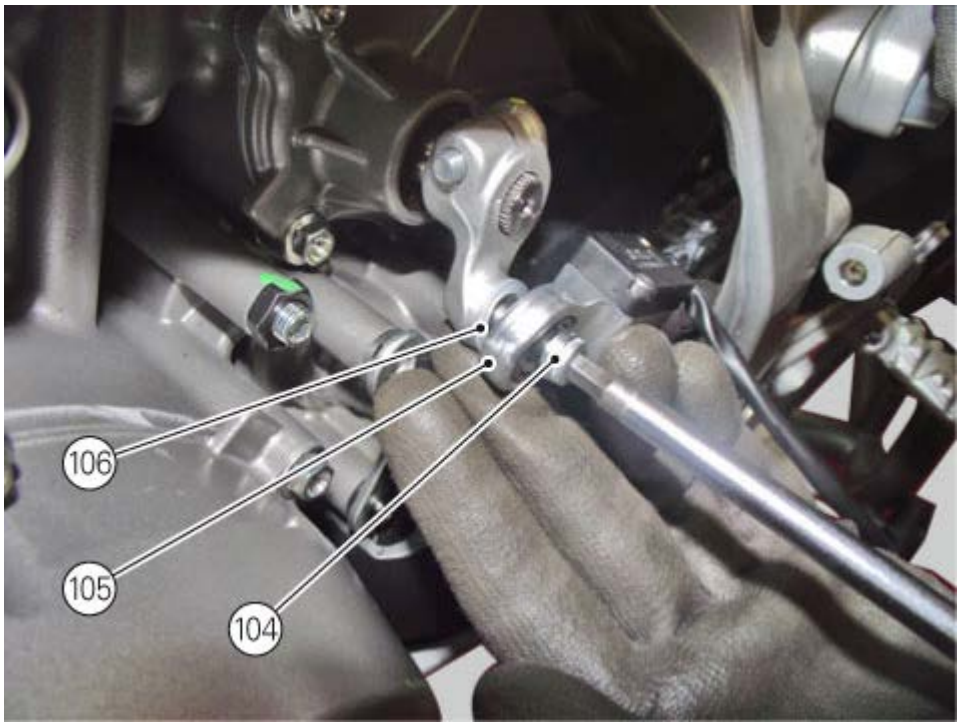


To secure gearbox unit (105) to lever, start the screw (104) with the Teflon washer (106); position washer as shown in the picture, namely fully resting onto gearchange lever.

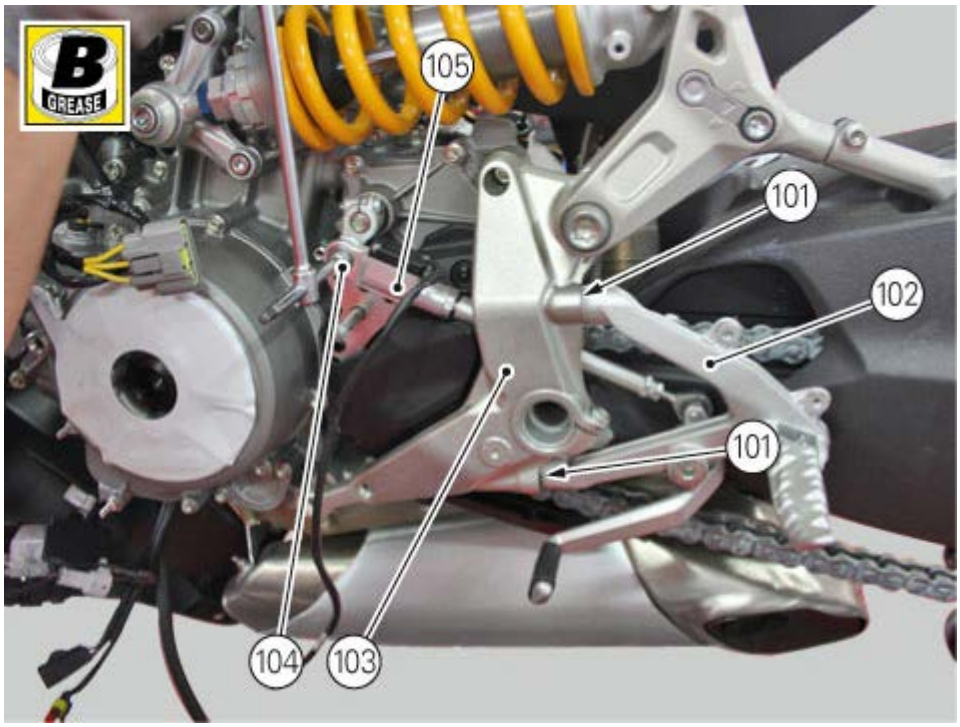
Important

Always fit a new Teflon washer (106) on reassembly.

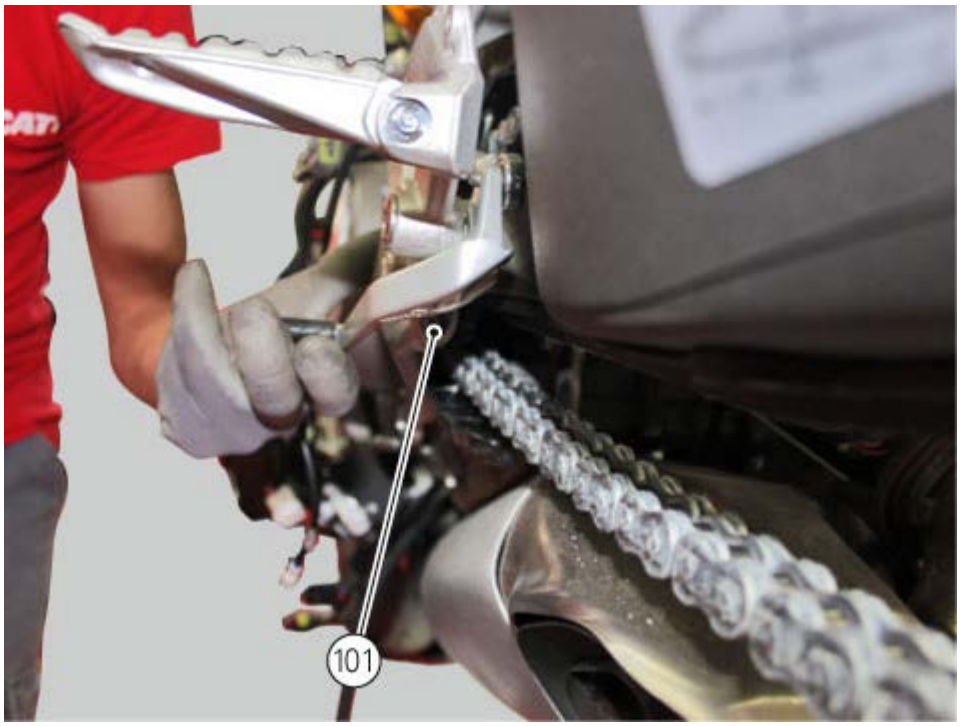
http://www.ducati-manuals.com
no. 140312



Refit the LH footpeg (102) with the gearbox unit (105). Smear the screws (101) with specified grease.
Start the two retaining screws (101) between LH footpeg (102) and LH support (103).
Tighten the screws (101) to a torque of 25 Nm ± 5%.
Tighten the screw (104) to a torque of 10 Nm ± 10%.



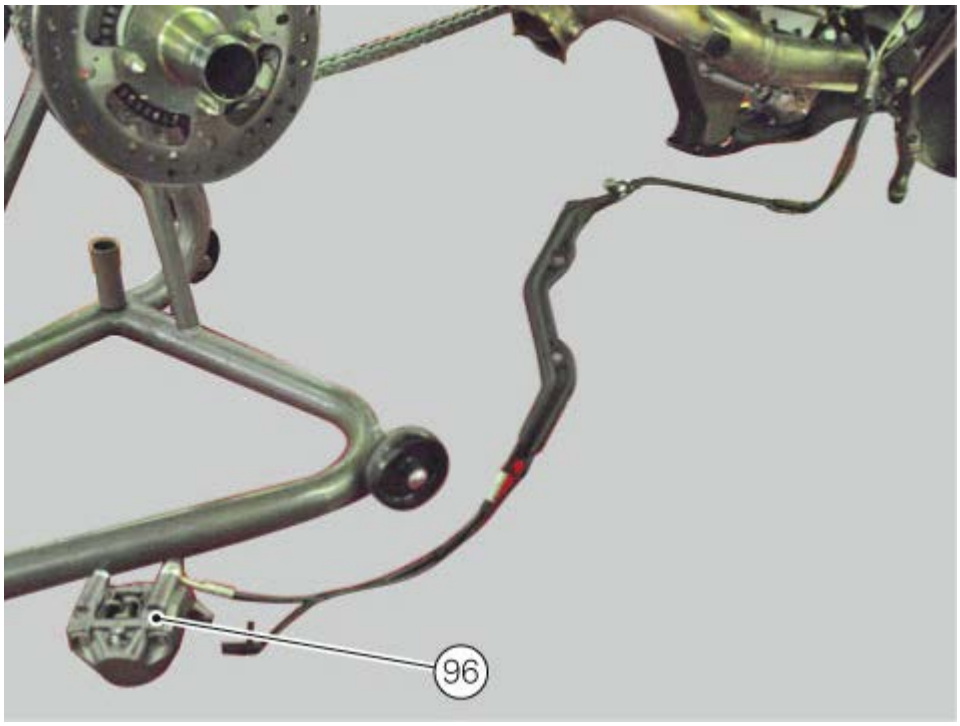
http://www.ducati-manuals.com
no. 140312

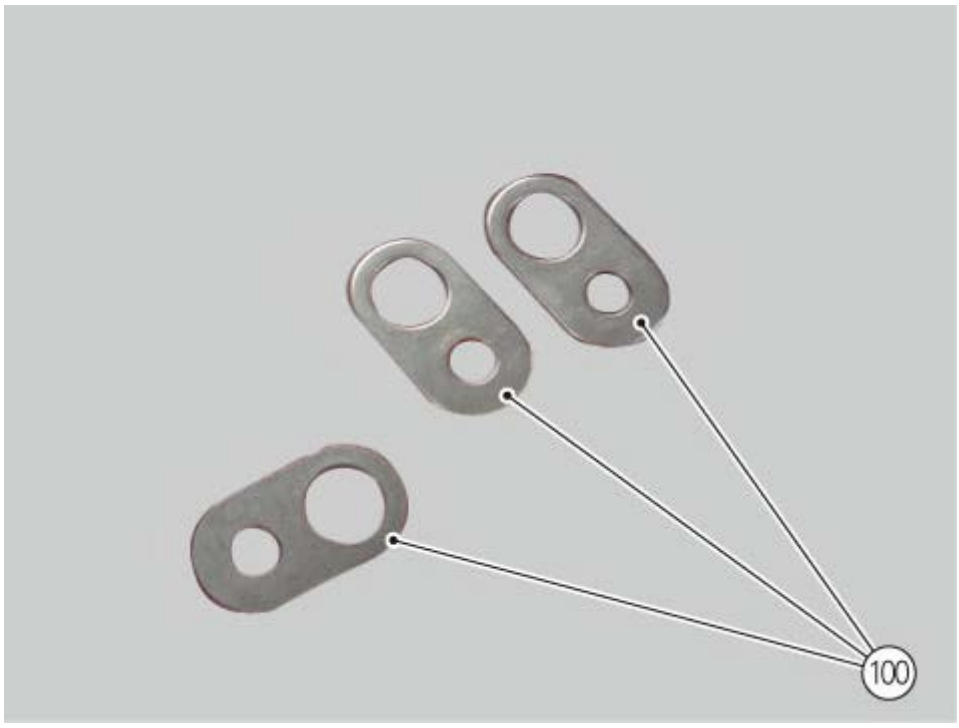




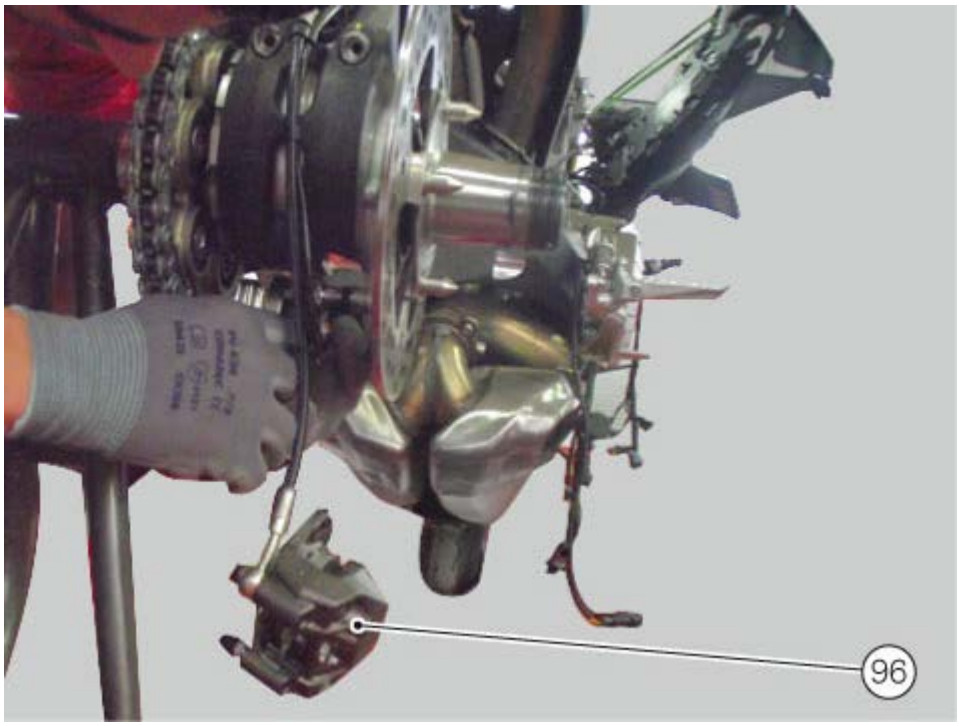
Refit the rear brake master cylinder (96), connected to the brake system, with three shims (100) on the brake disc.

http://www.ducati-manuals.com
no. 140312

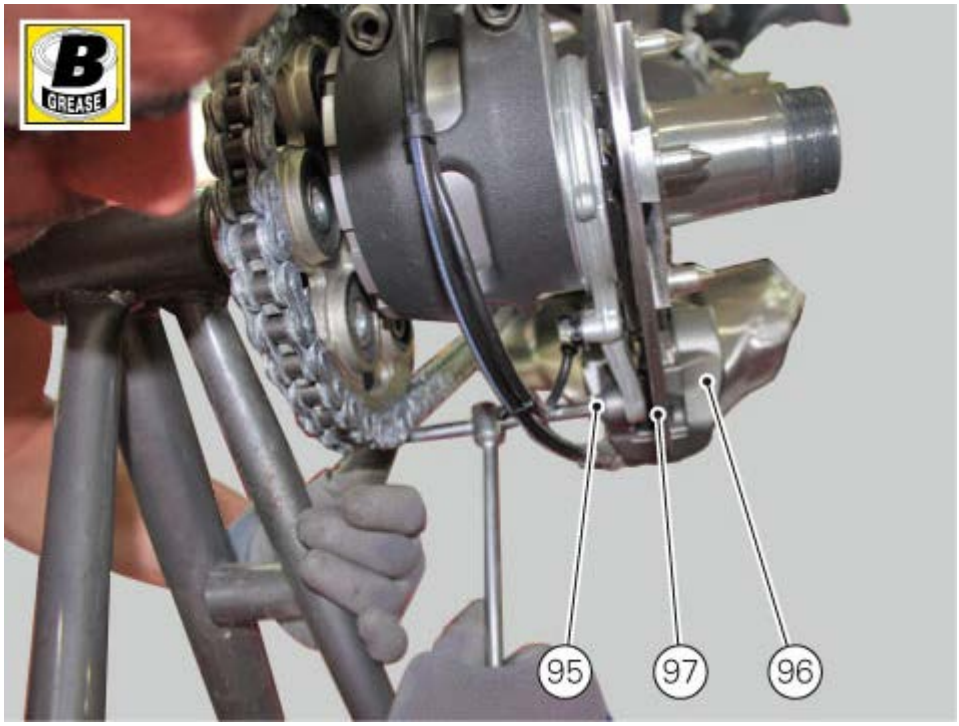




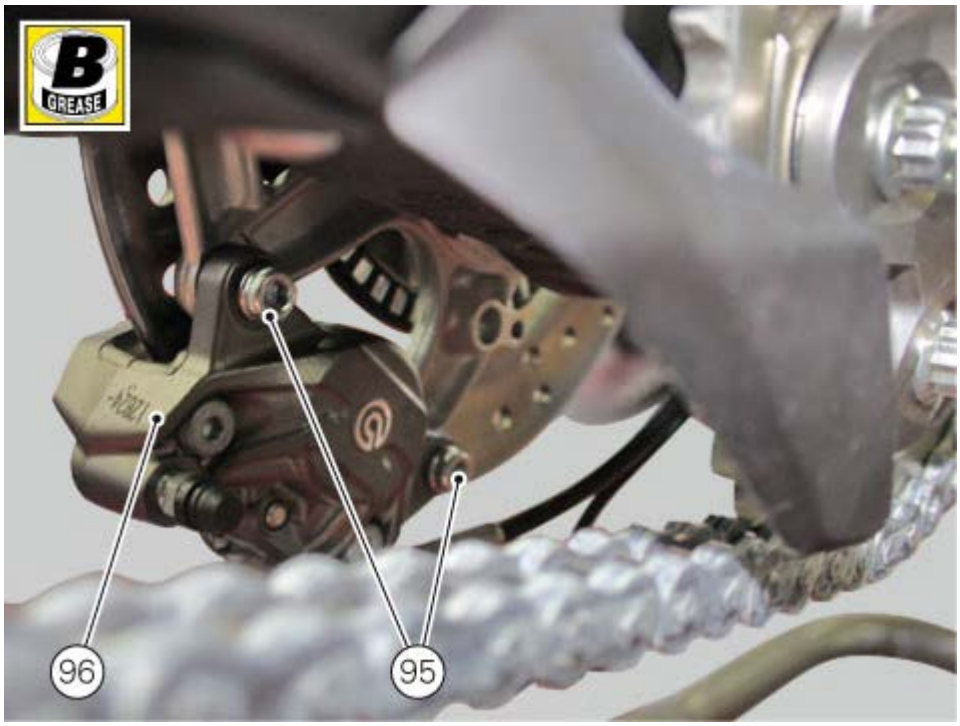
http://www.ducati-manuals.com
no. 140312



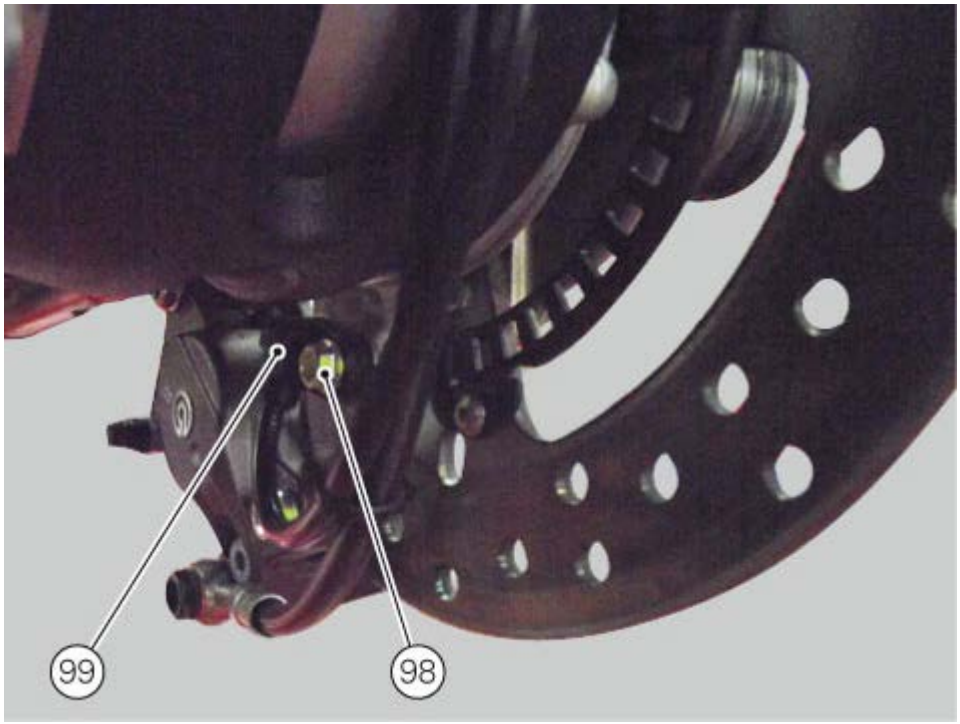
Smear the screws (95) with specified grease.
Start the retaining screws (95) between rear brake master cylinder (96) and brake disc (97).
Tighten the screws (95) to a torque of 25 Nm ± 5%.



http://www.ducati-manuals.com
no. 140312

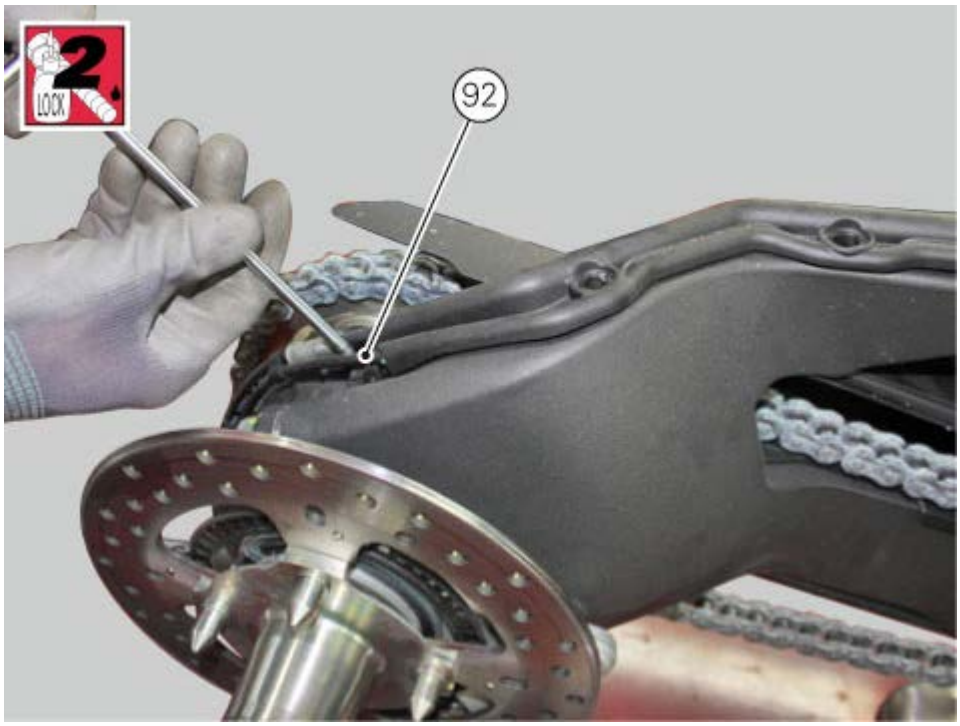


Refit the rear speed sensor (99) on the brake calliper holder plate.
Start the rear speed sensor (99) retaining screw (98).
Tighten the screw (98) to a torque of 10 Nm ± 10%.



Smear the screws (92) with specified grease.
Start the retaining screws (92) securing rear brake master cylinder cable (93) and rear speed sensor cable (94) to the swinging arm.
Tighten the screws to a torque of 3.5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

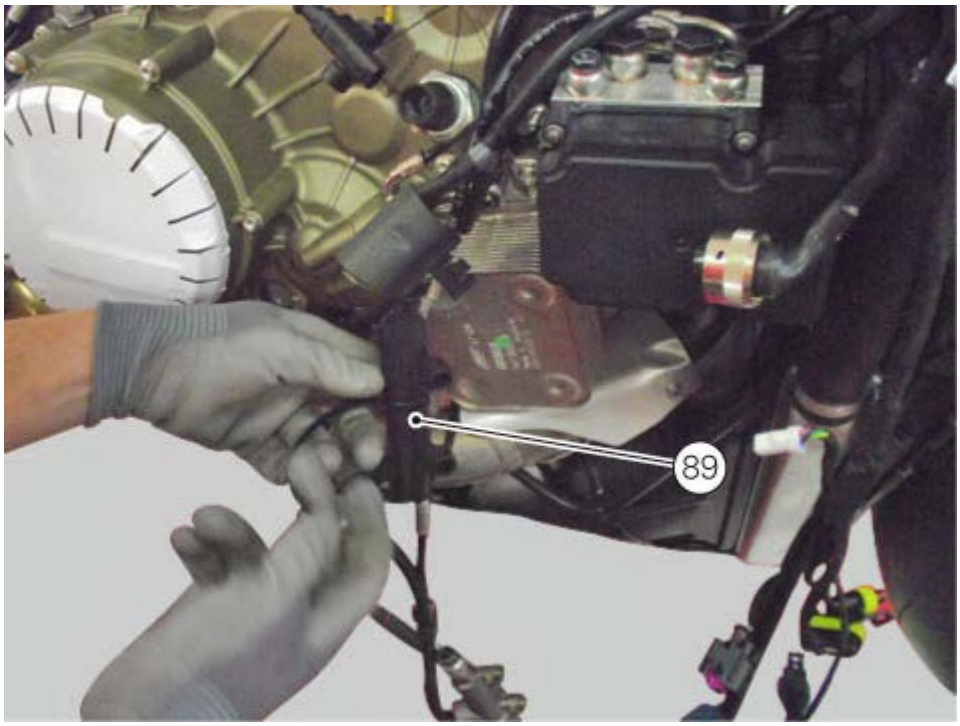


Refit clamp (91).

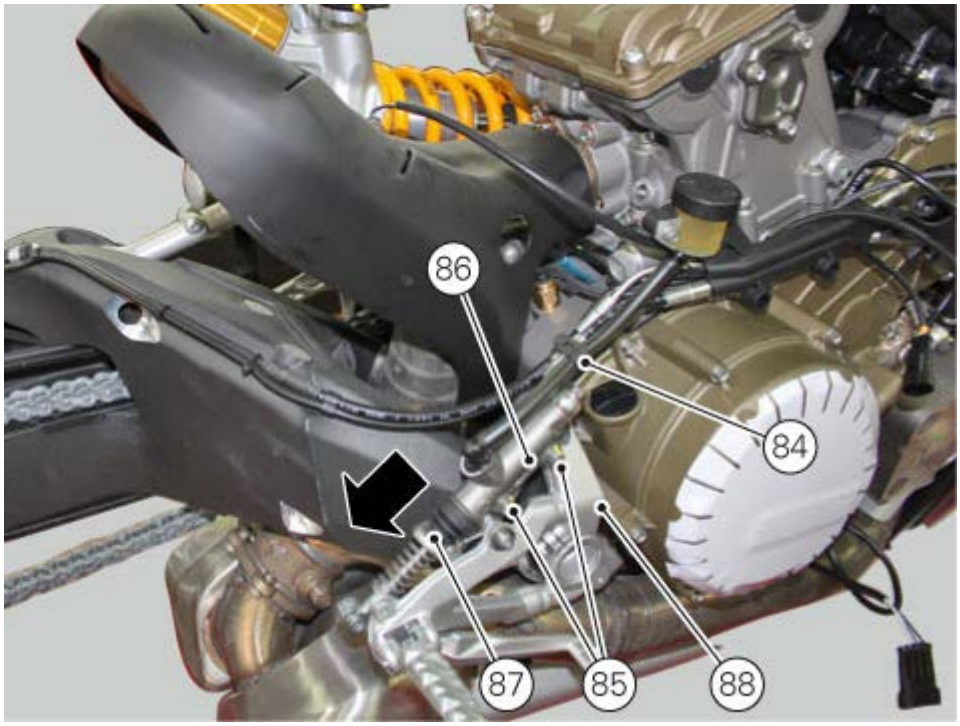


Remove the temporary clamp (89) used to fix the rear brake master cylinder unit to the ABS system.

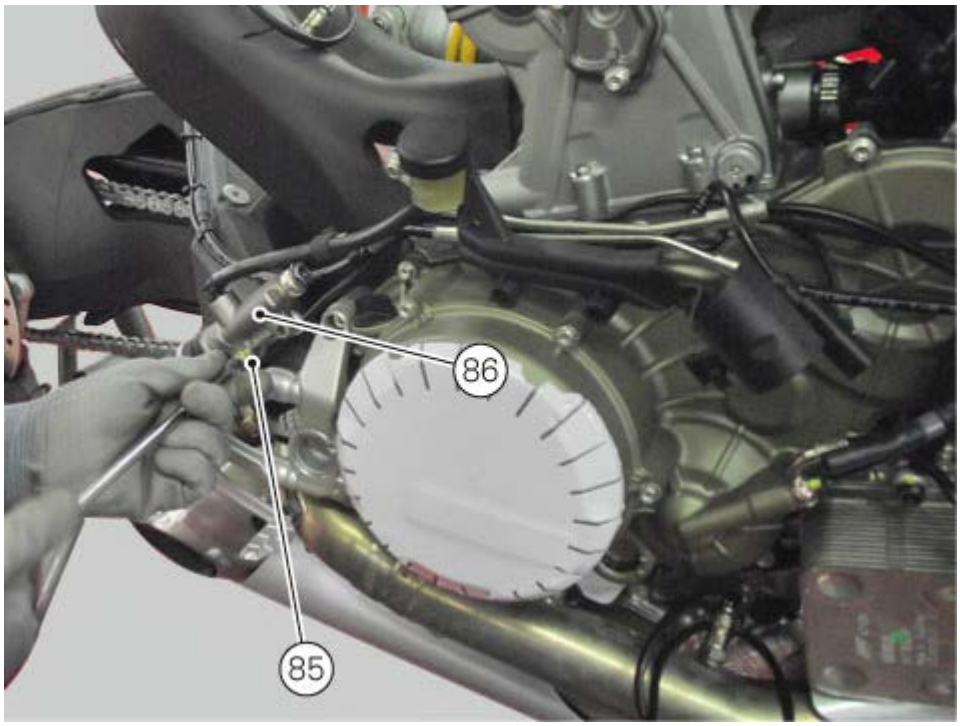
http://www.ducati-manuals.com
no. 140312



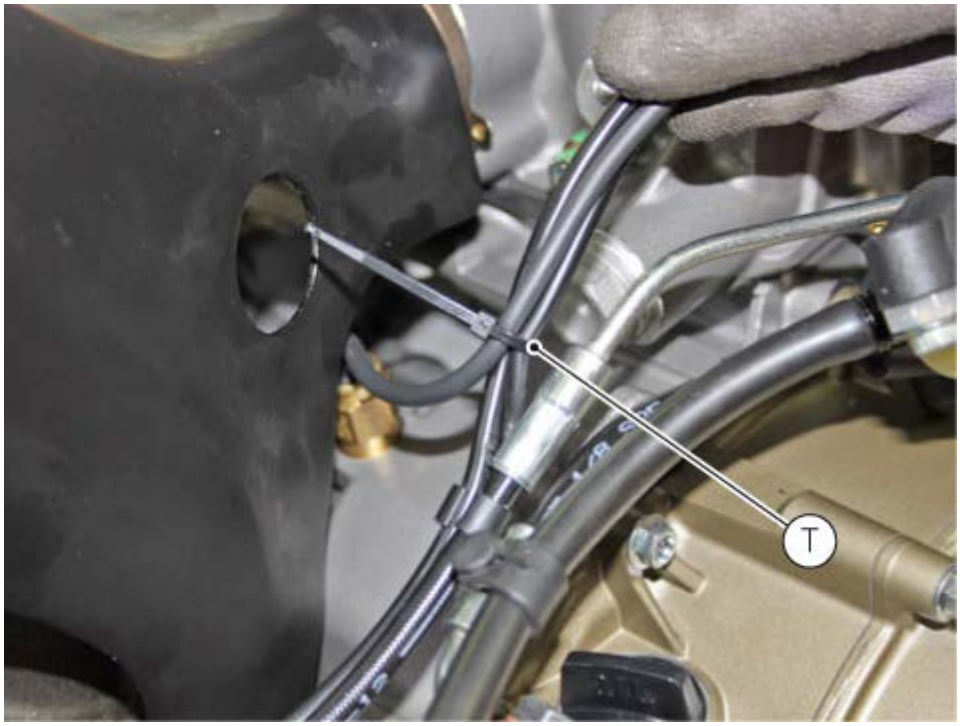
Install the rear brake master cylinder (86), connected to the ABS system, on the RH footpeg unit (88).
Install rear brake master cylinder (86) inside rod (87).
Start rear brake master cylinder (86) retaining screws (85).
Tighten the screws (85) to a torque of 8 Nm ± 10%.
Refit clip (84).



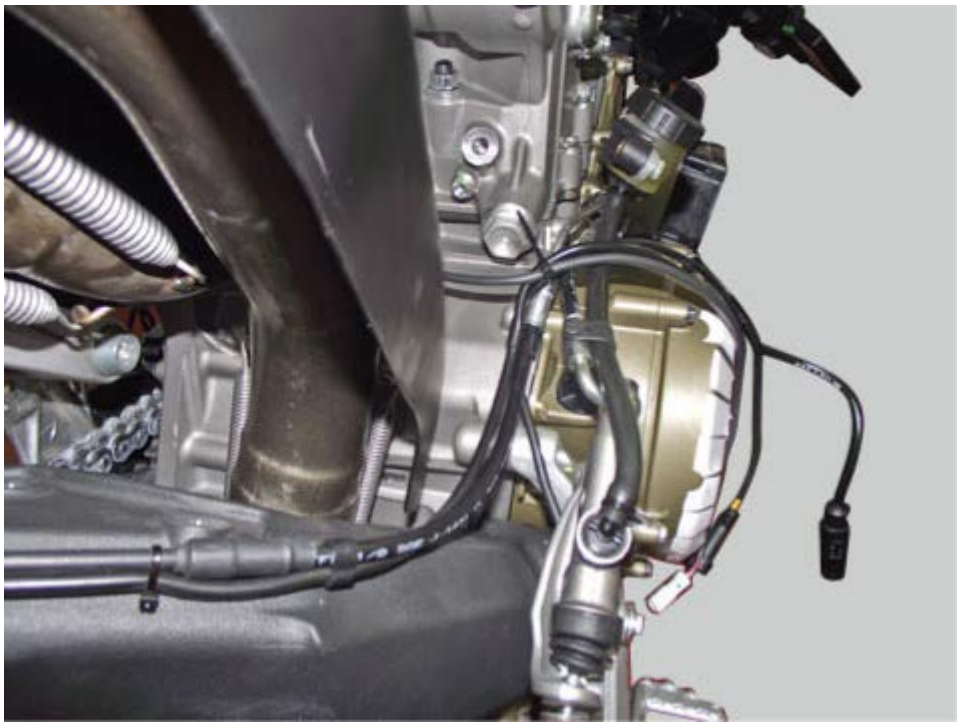
http://www.ducati-manuals.com
no. 140312



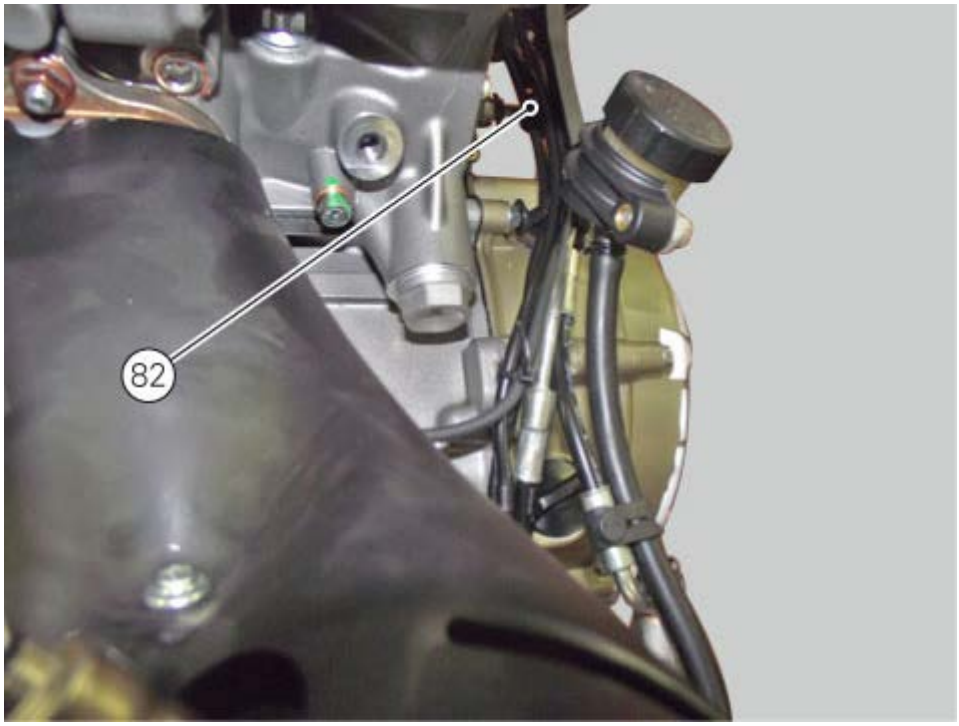
Secure wiring cables with clamp (T).



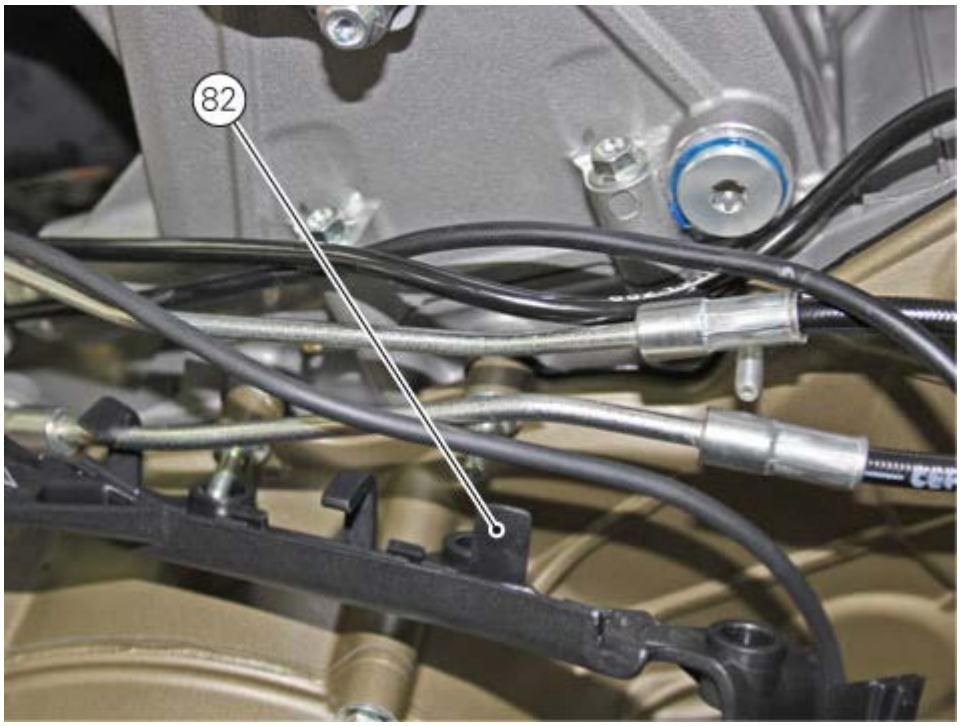
http://www.ducati-manuals.com
no. 140312



Insert ABS system cables and wiring cables inside cable grommet seats (82).



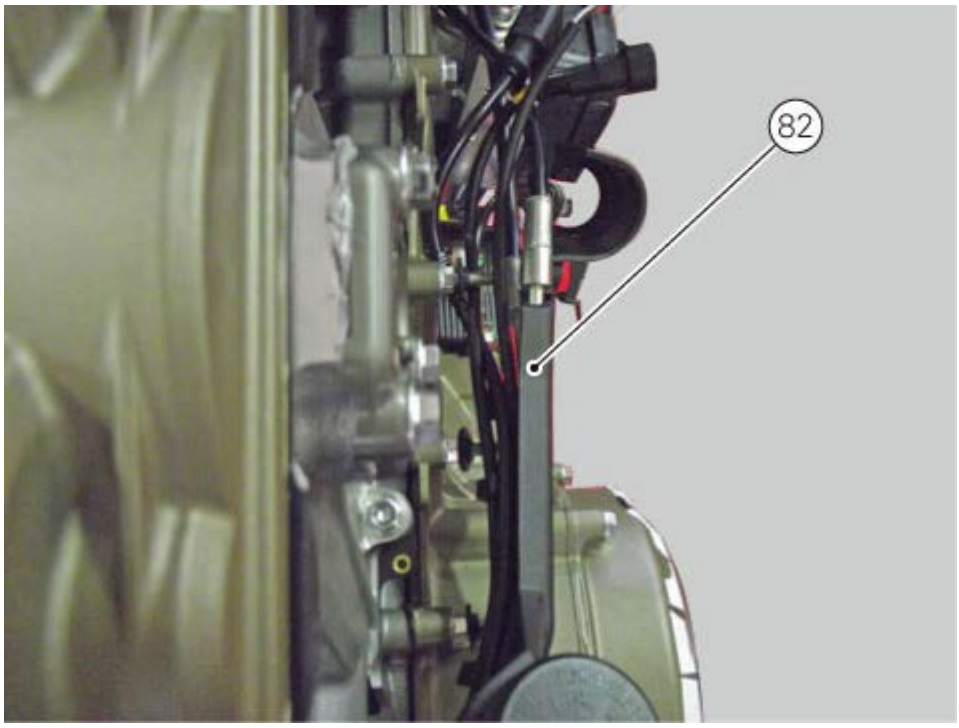
http://www.ducati-manuals.com
no. 140312



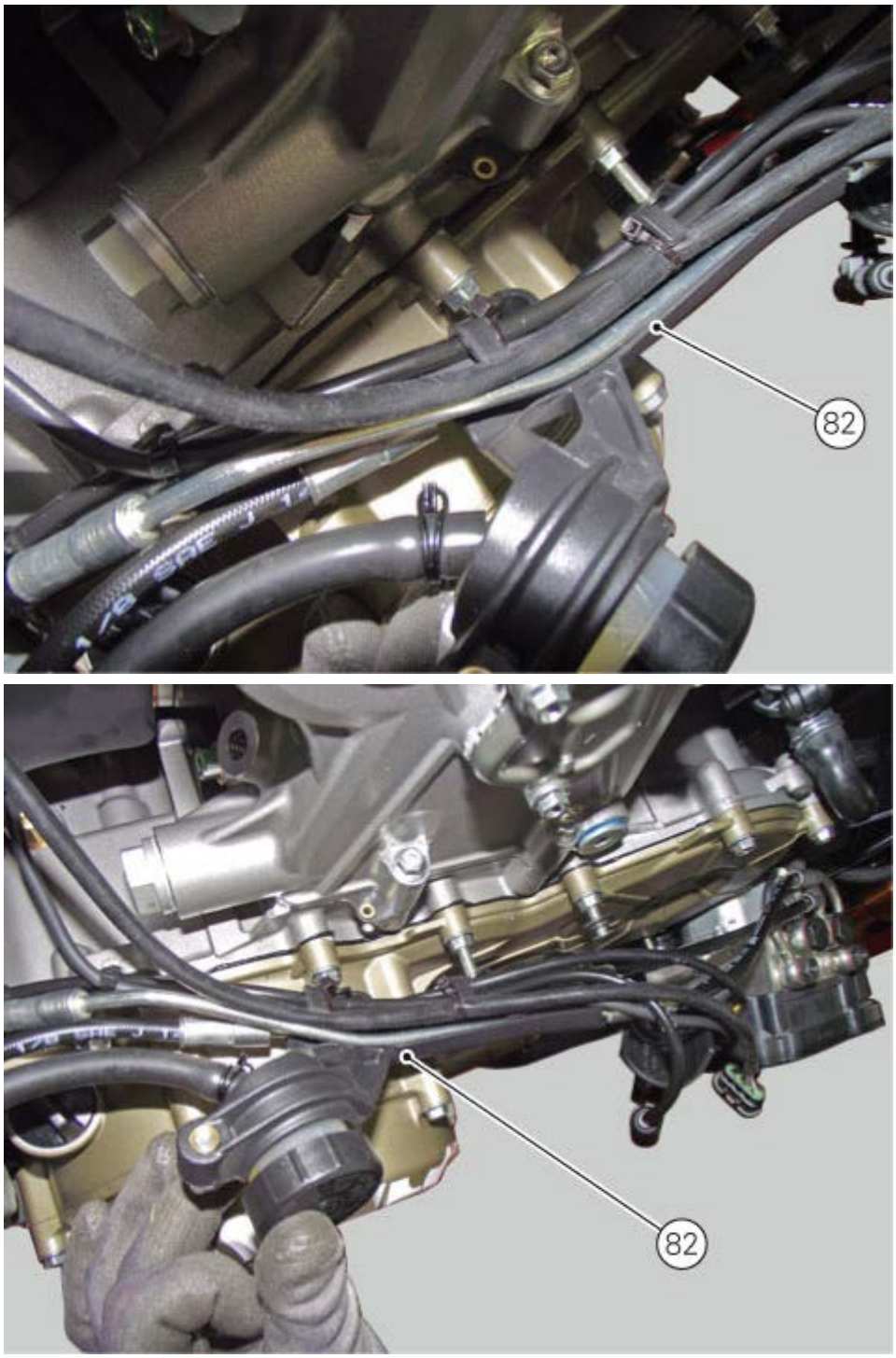


http://www.ducati-manuals.com
no. 140312



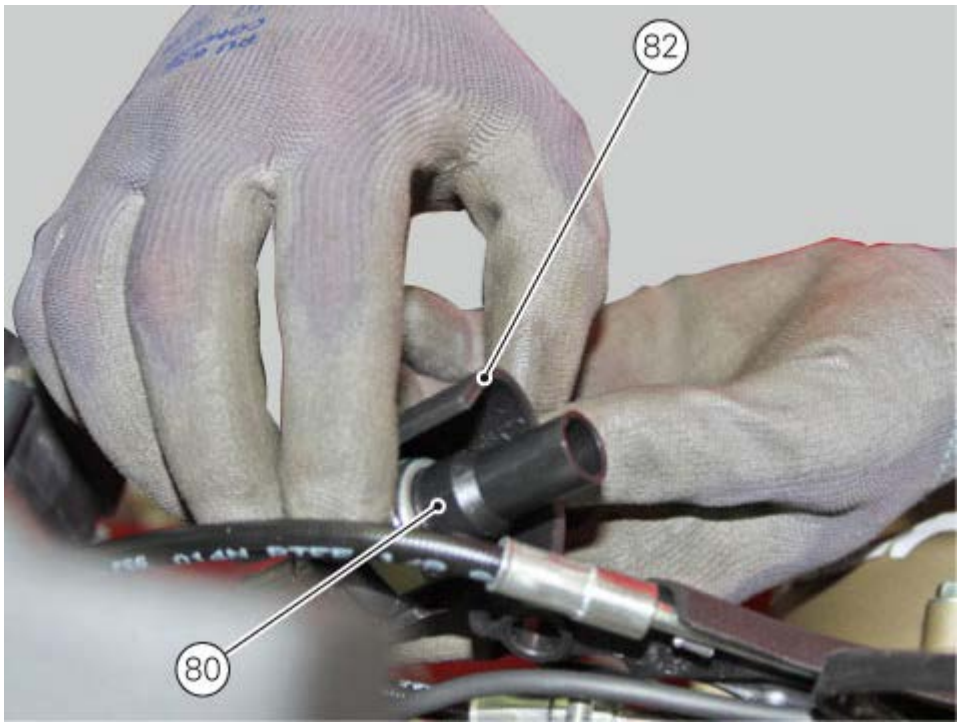


http://www.ducati-manuals.com
no. 140312

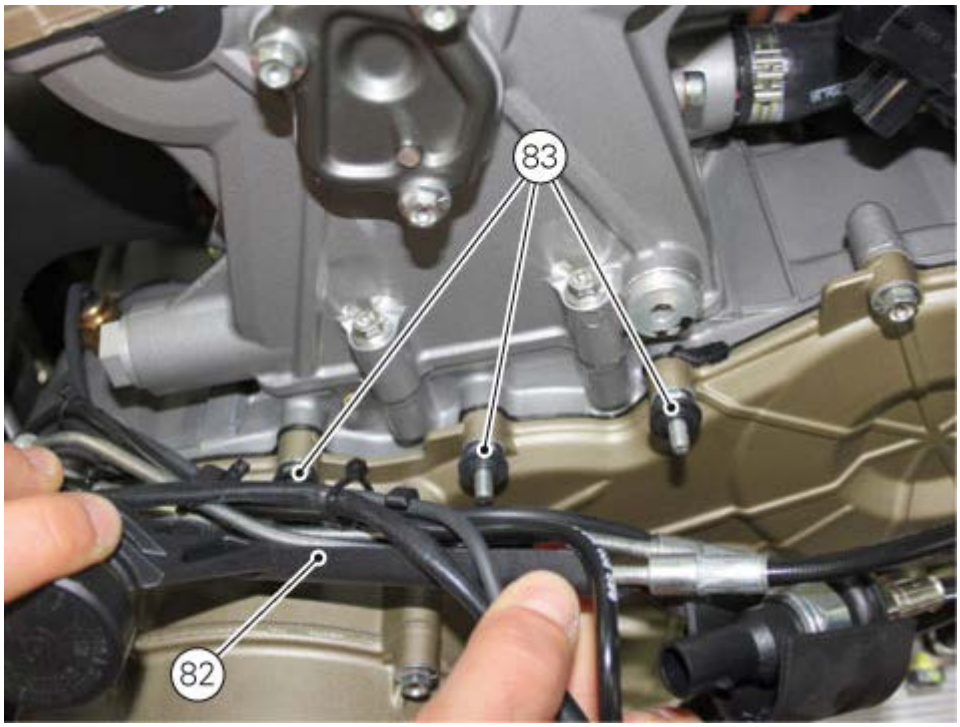


Insert oil pressure sensor (80) inside cable grommet seat (82).

http://www.ducati-manuals.com
no. 140312

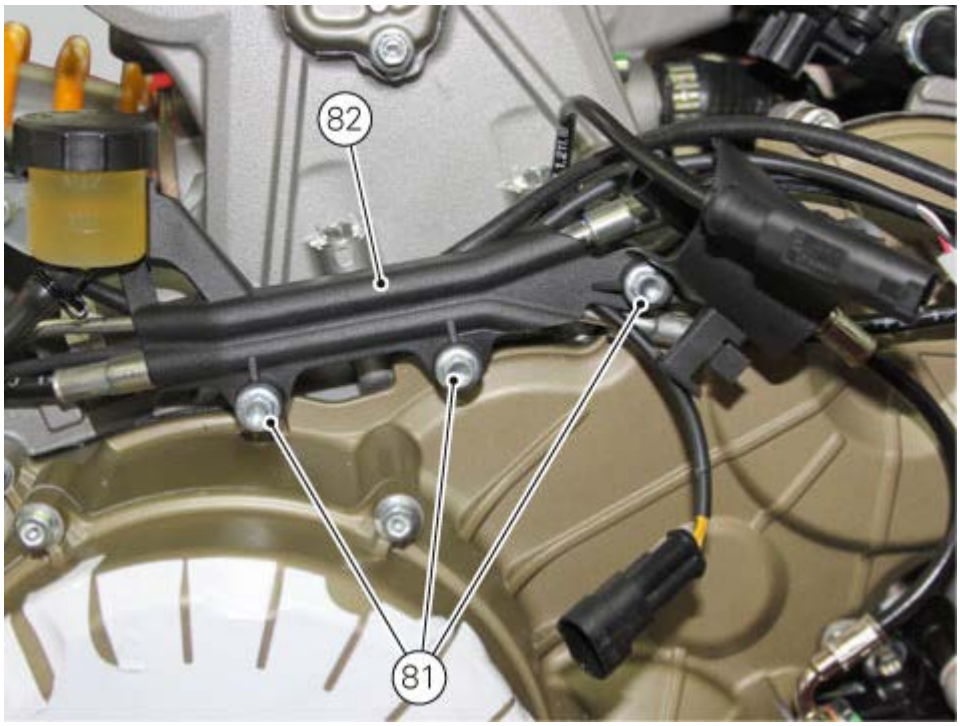


Refit the three rubber seals (83).
Move cable grommet (82) close to the engine crankcase.

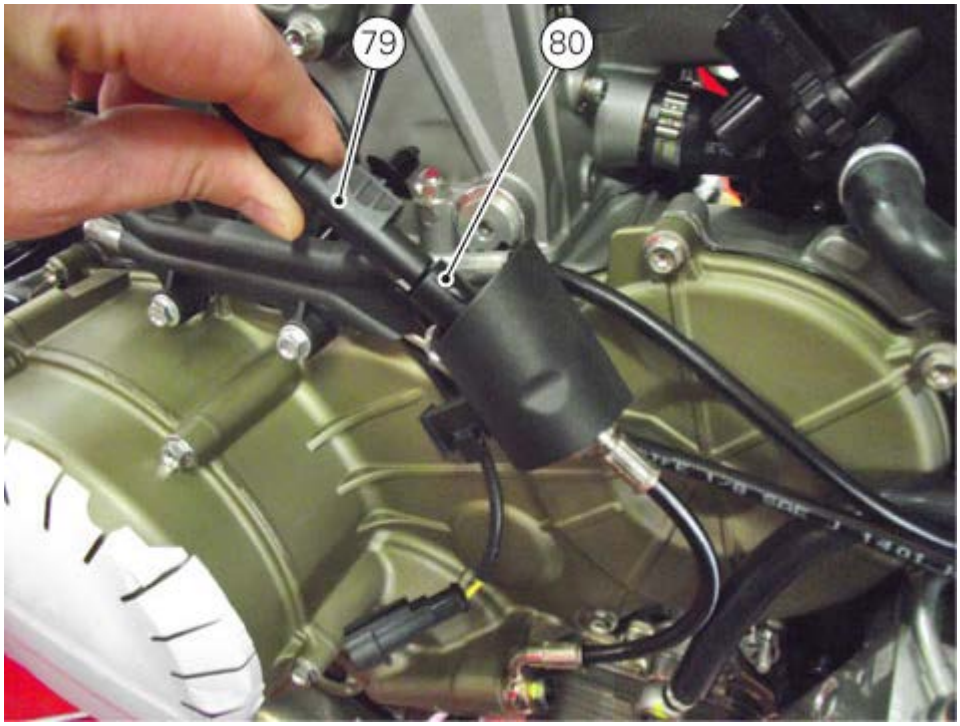


Start the special retaining nuts (81) on cable grommet (82).
Tighten nuts (81) to a torque of 5 Nm ± 10%.

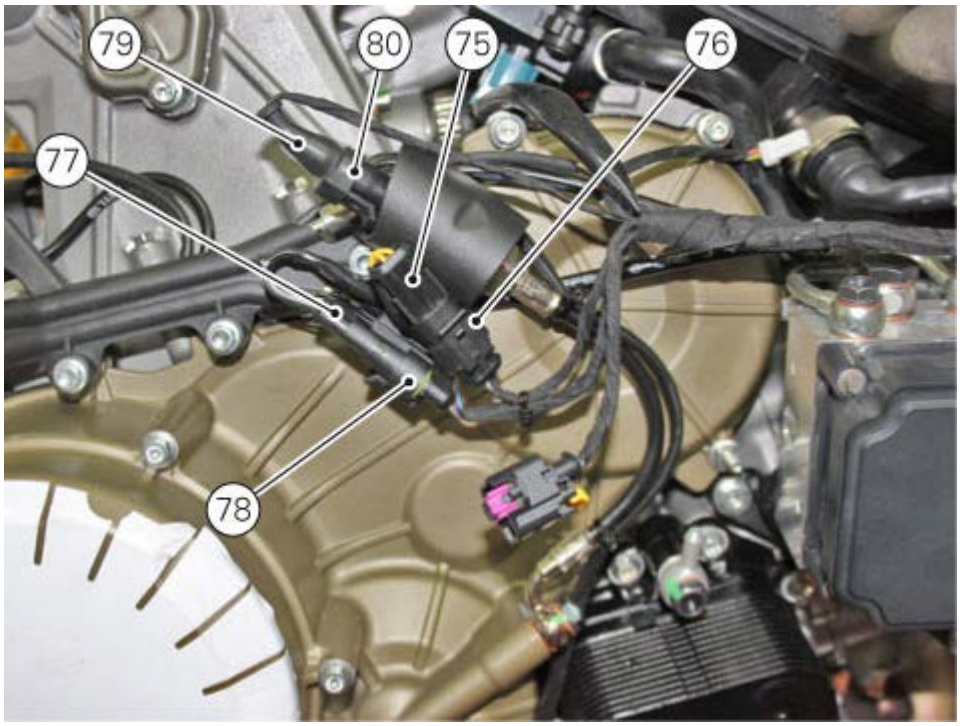
http://www.ducati-manuals.com
no. 140312



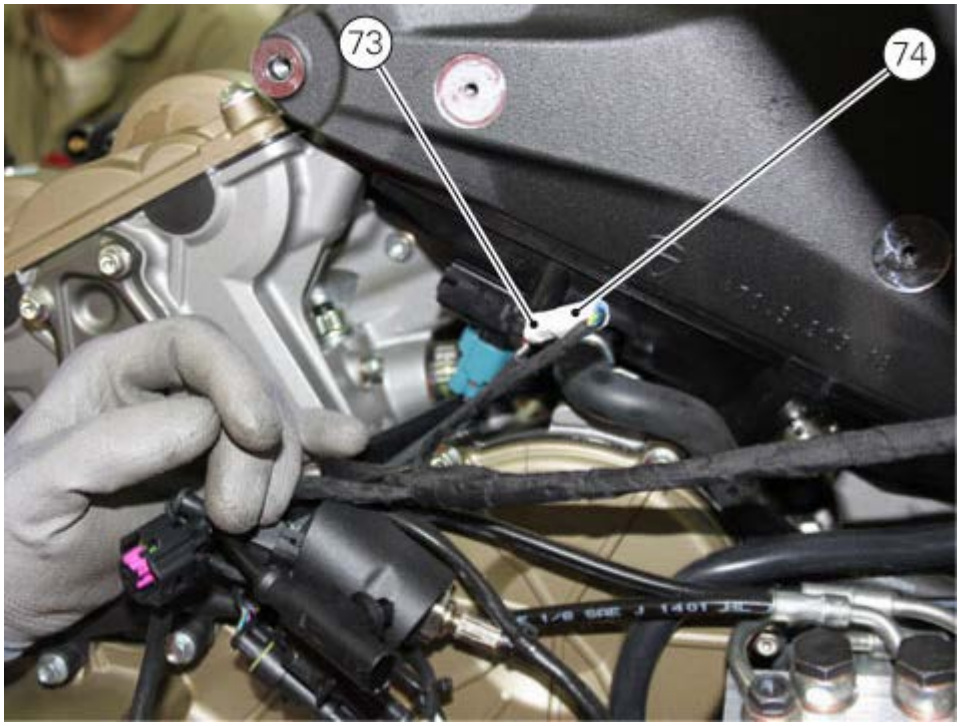
Connect main wiring connector (79) to oil pressure sensor (80).
Connect horizontal Lambda sensor connector (77) to main wiring connector (78).
Connect rear brake sensor connector (75) to main wiring connector (76).



http://www.ducati-manuals.com
no. 140312

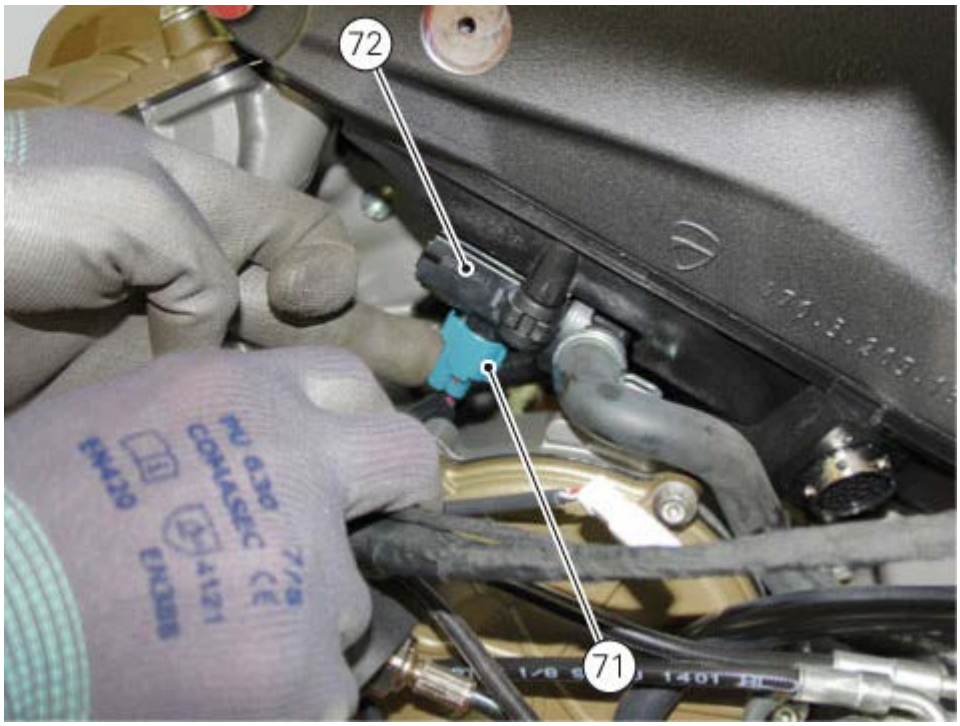


Connect gearbox connector (73) to main wiring connector (74).

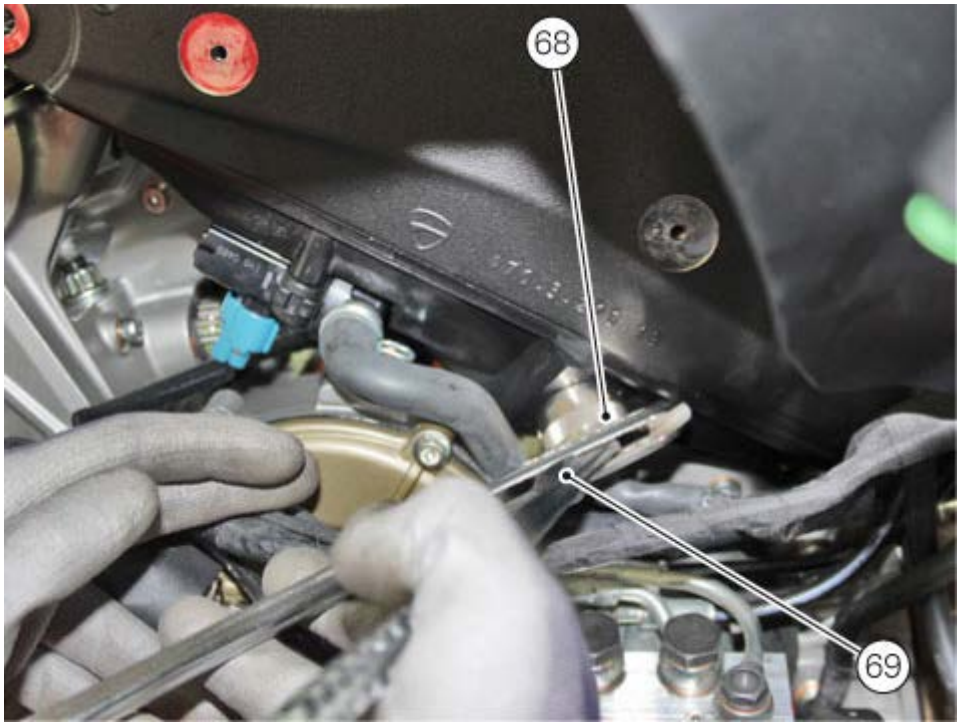


Connect main wiring connector (71) to secondary air actuator (72).

http://www.ducati-manuals.com
no. 140312



Insert wiring (69) inside the airbox compartment seat, and tighten injection wiring (69) ring nut (68).

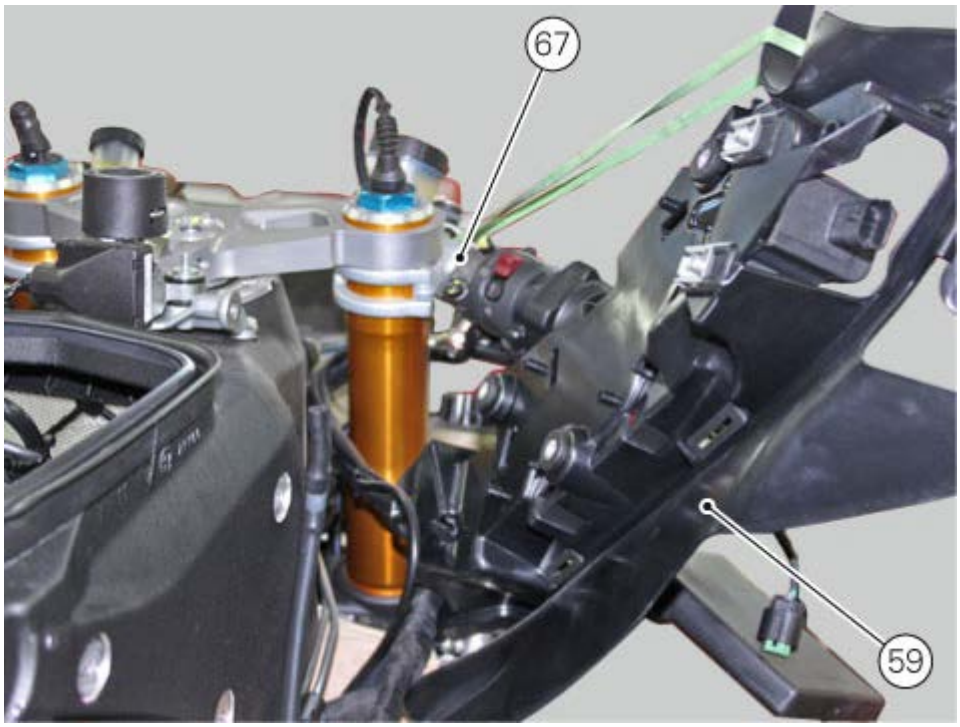


Refit clamps (70).

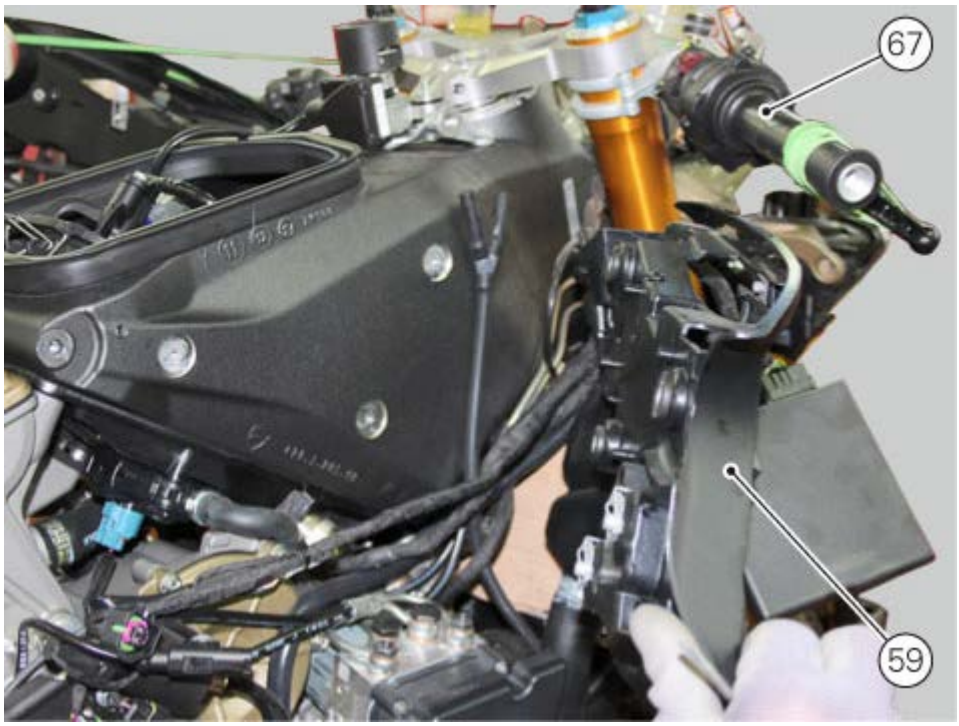
http://www.ducati-manuals.com
no. 140312



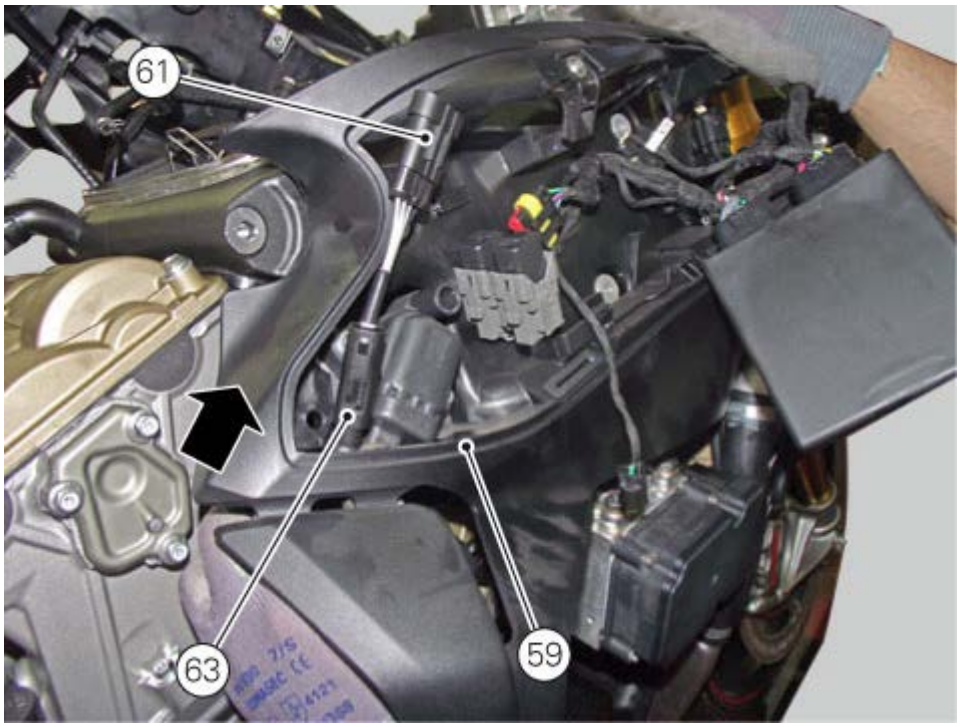
Remove the temporary fastener between support (59) and RH handlebar (67).
Move support (59) close to frame, taking care not to damage the connected wiring.



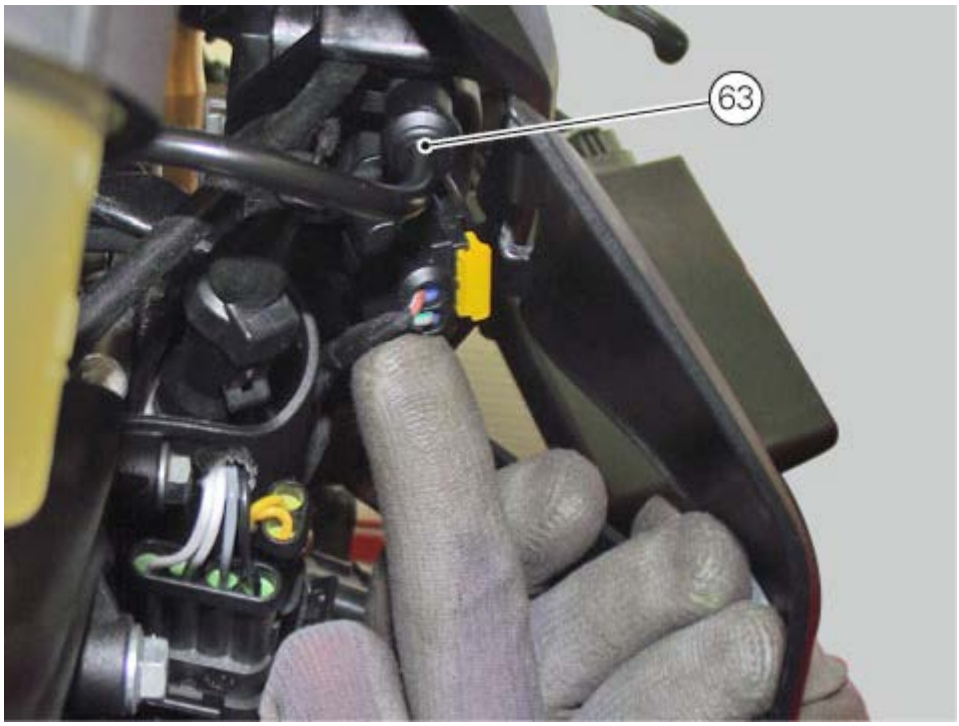
http://www.ducati-manuals.com
no. 140312



Install connector pin (63) inside the support seat (59).
Insert connector cable (61) inside the support opening (59), on frame side.



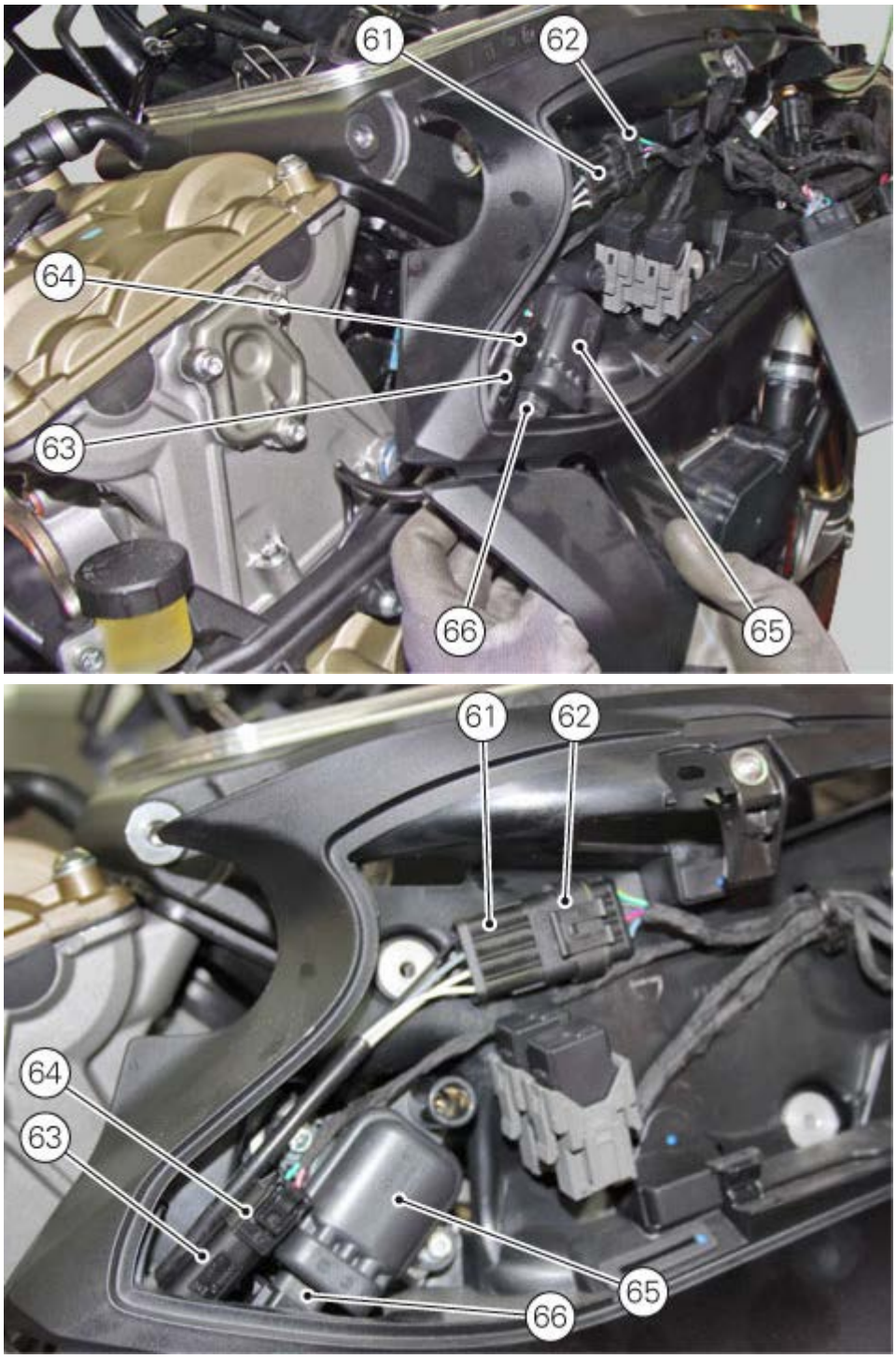
http://www.ducati-manuals.com
no. 140312



Connect vertical cylinder coil (65) to main wiring connector (66).
Connect rear speed sensor connector (63) to main wiring connector (64).
Connect vertical sensor connector (61) to main wiring connector (62).

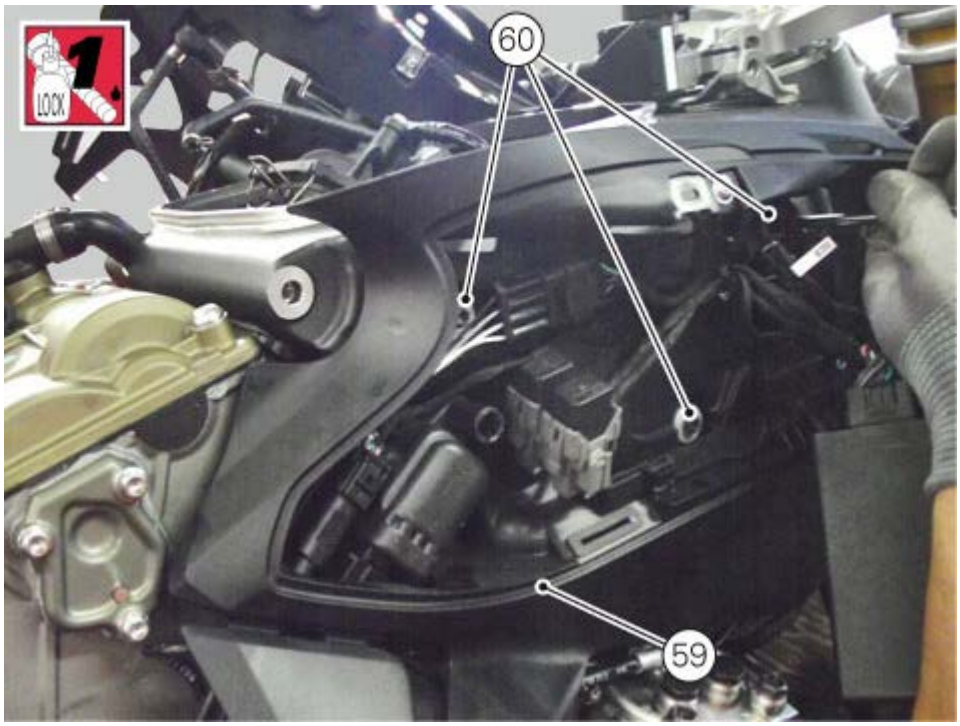


http://www.ducati-manuals.com
no. 140312

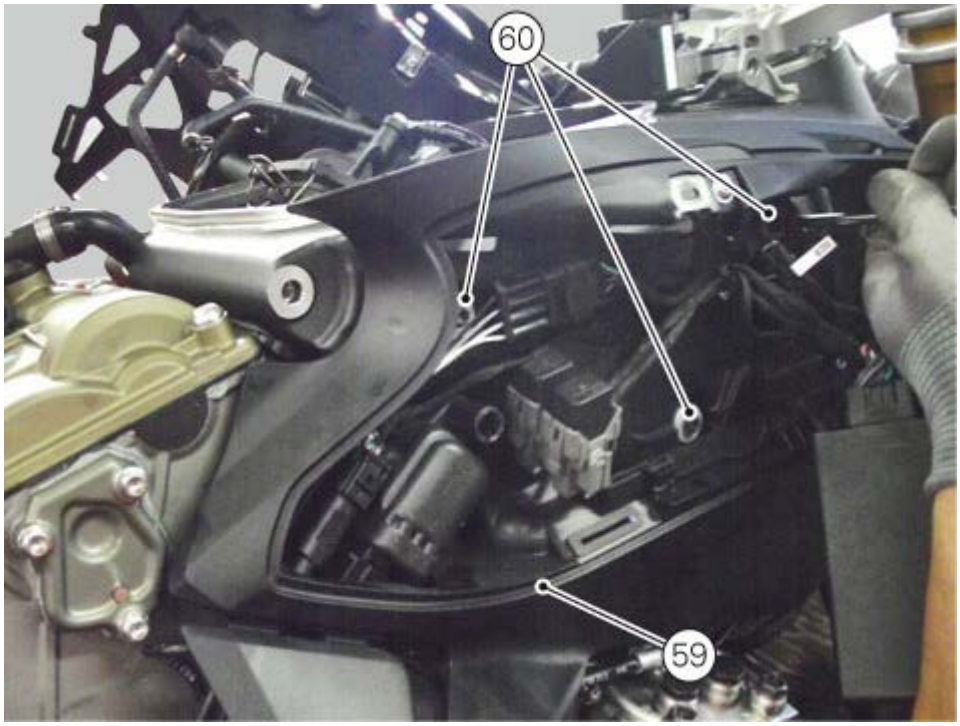


Smear the screws (60) with specified grease.
Start the three retaining screws (60) on the right support (59).
Tighten the screws (60) to a torque of 5 Nm ± 10%.

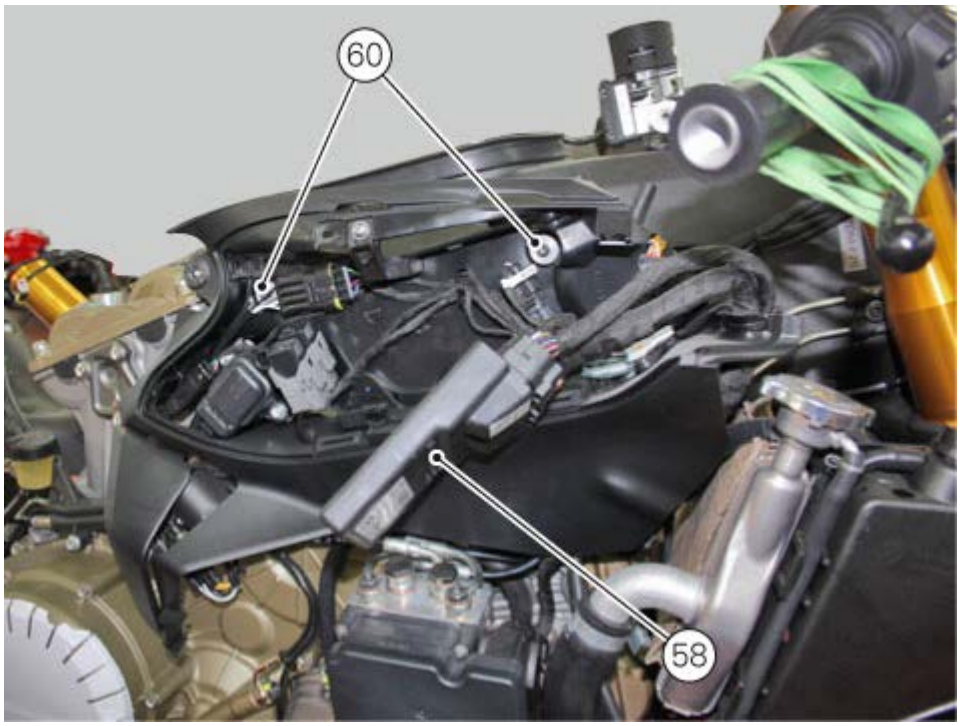
http://www.ducati-manuals.com
no. 140312



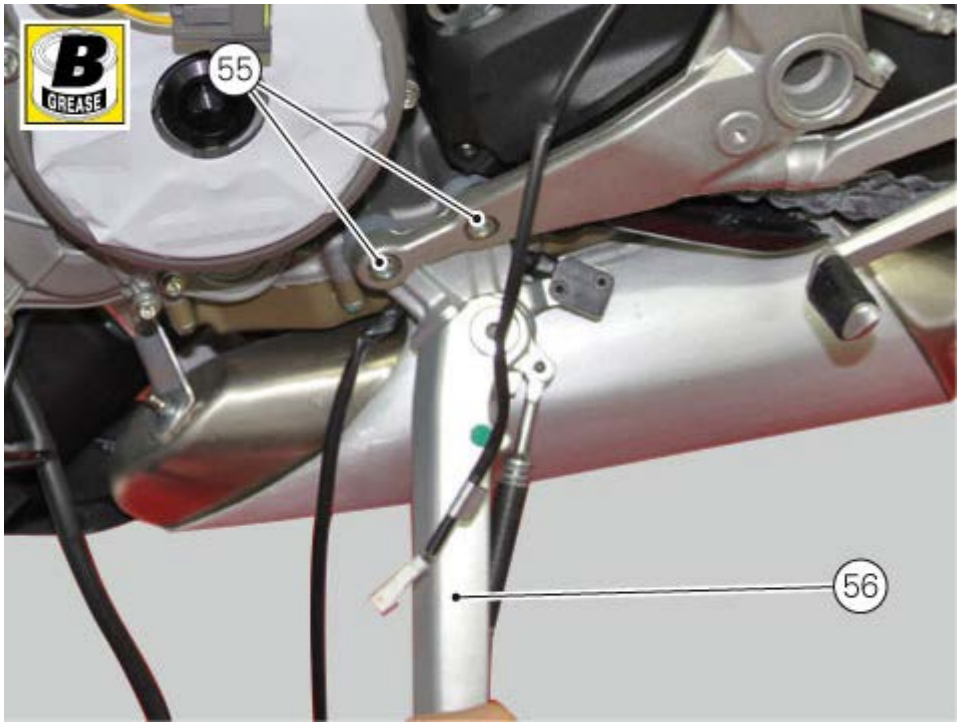
Refit the ECU (58), connected to the wirings, on the support (59).
Start the retaining screw (57) between ECU (58) and RH electric system support (59).
Tighten the screw (57) to a torque of 3 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312



Make sure that side stand is duly chamfered.
Refit side stand onto crankcase and under the LH support.
Smear the screws (55) with specified grease.
Start side stand (56) assembling screws (55).
Tighten the screws (55) to a torque of 25 Nm ± 5%.



Smear screw (54) with recommended grease, and start it on the starter motor together with the cable (52) connecting solenoid started and starter motor.
Tighten the screw (54) to a torque of 6 Nm ± 10%.
Fit cable (52) protective cap (53).

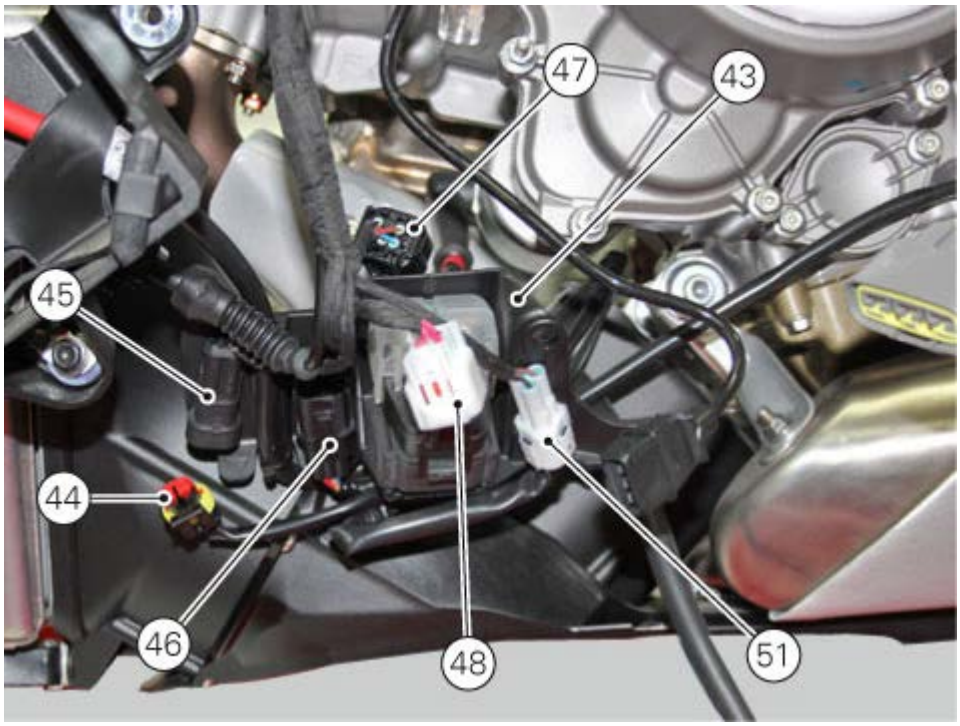
http://www.ducati-manuals.com
no. 140312

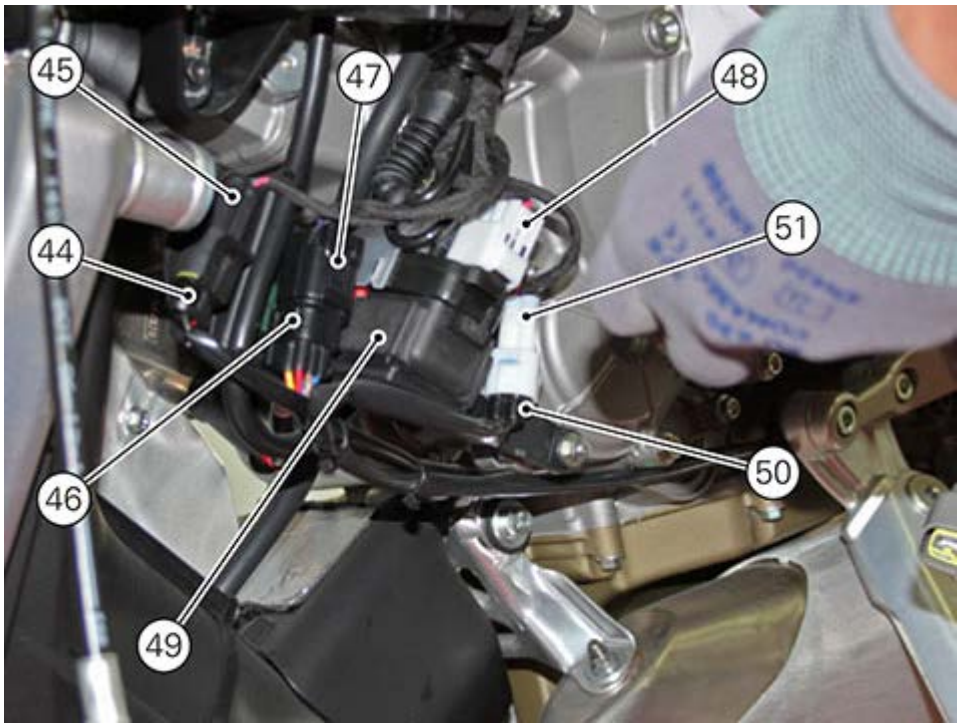




Connect side stand connector (50) to main wiring connector (51).
Connect main wiring connector (48) to solenoid starter (49).
Connect ex-up valve motor connector (46) to main wiring connector (47).
Connect electric fan connector (44) to main wiring connector (45).

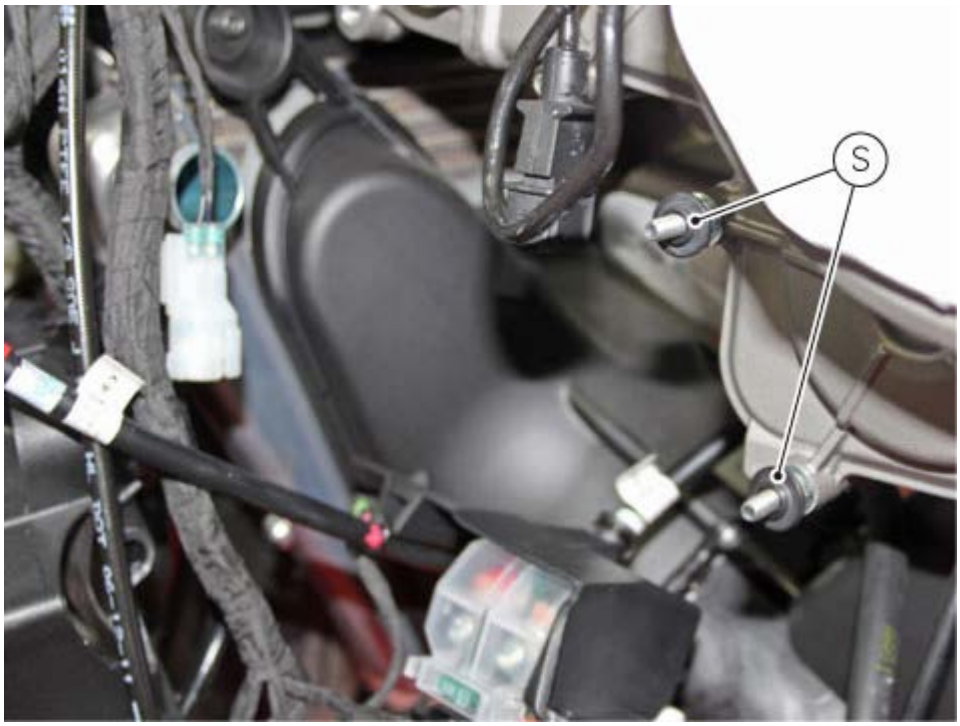
http://www.ducati-manuals.com
no. 140312

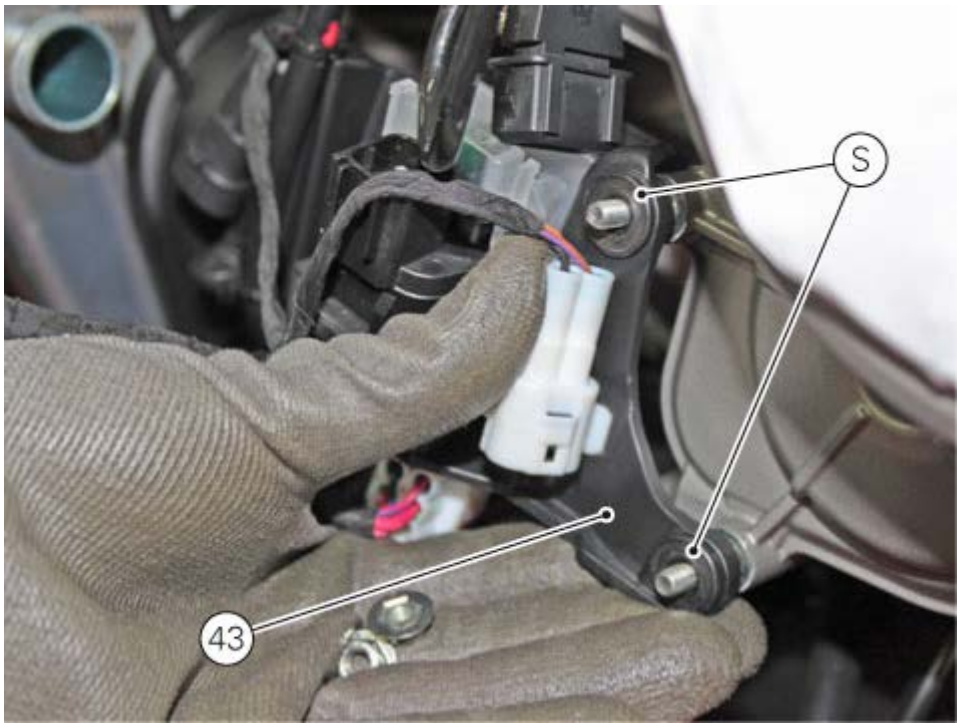




Install the solenoid starter (43) on the two engine crankcase bushings (S).
Fit another two bushings (S) on the solenoid starter support (43).

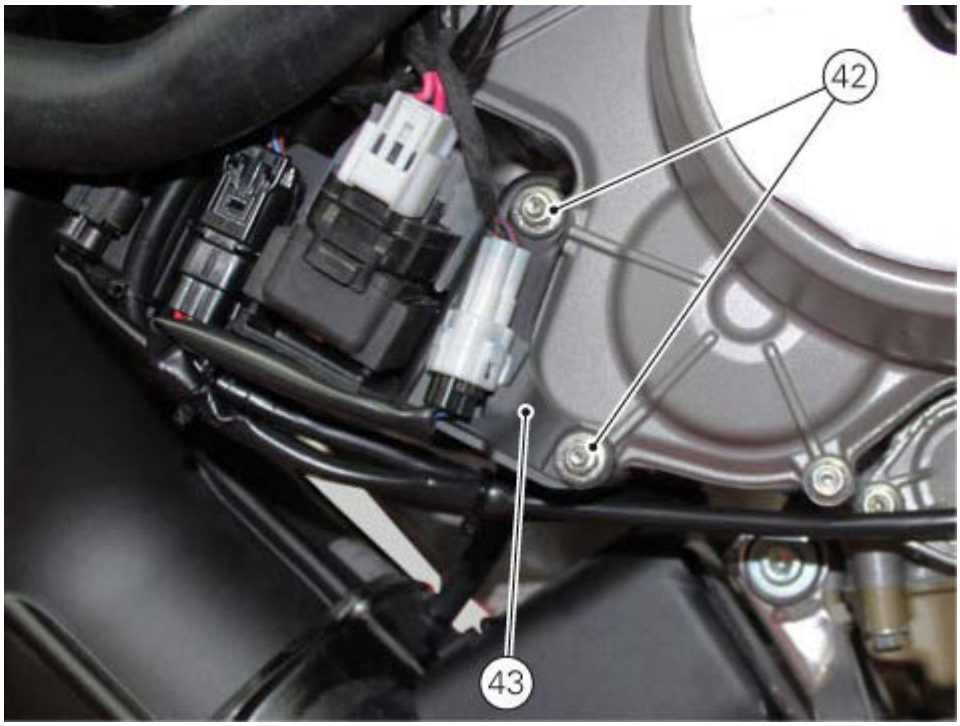
http://www.ducati-manuals.com
no. 140312



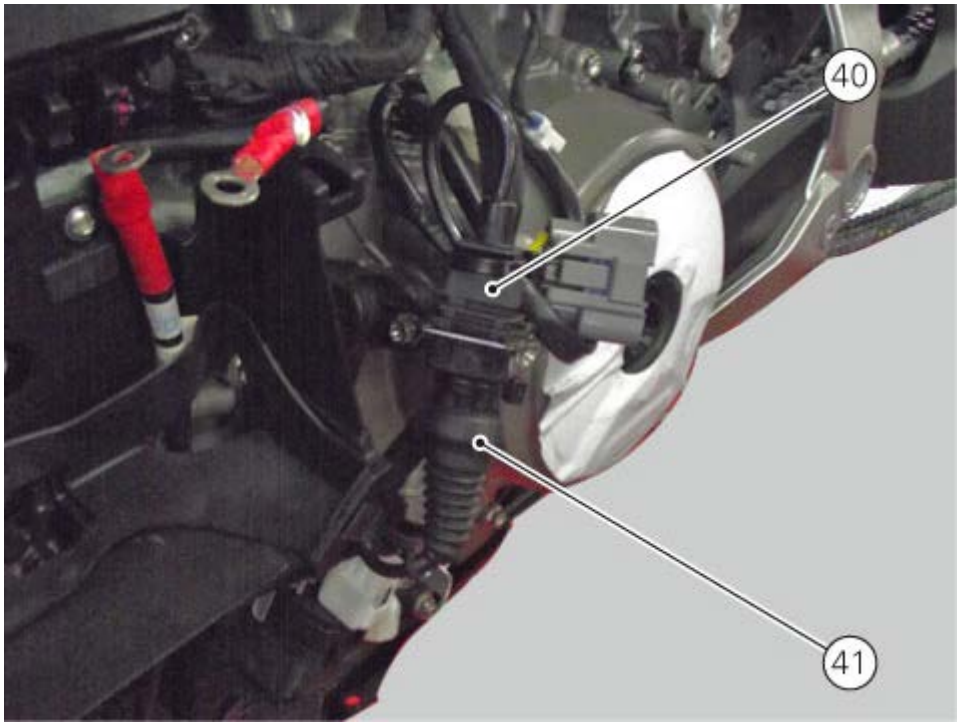


Start the two solenoid starter (43) retaining nuts (42).
Tighten nuts (42) to a torque of 5 Nm ± 10%.

http://www.ducati-manuals.com
no. 140312



Connect pick-up connector (40) to main wiring connector (41).

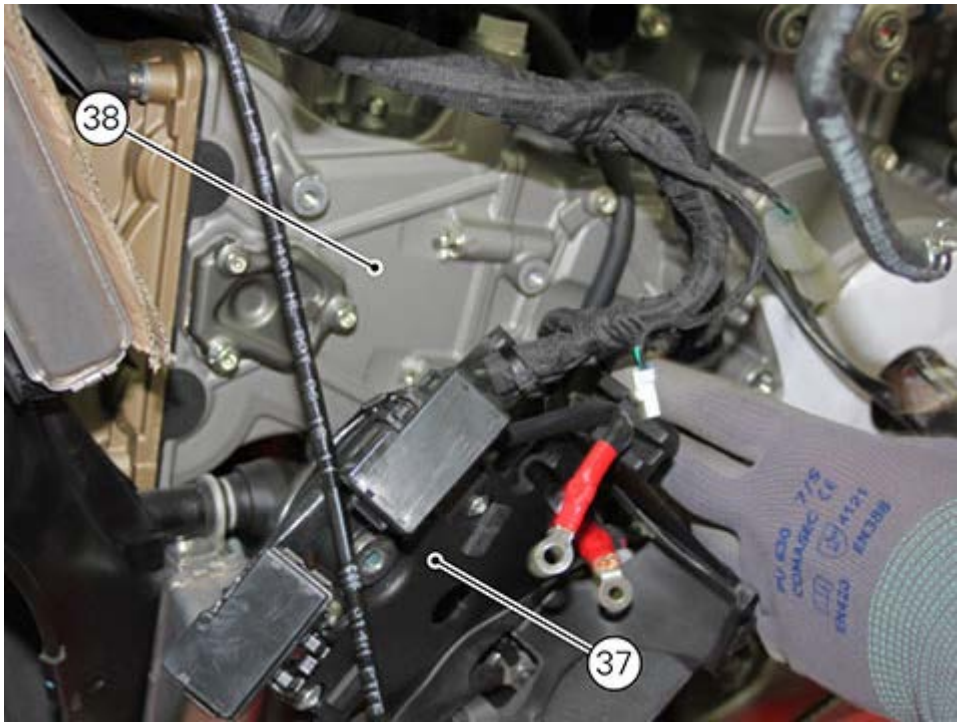


Refit clamps (39).

http://www.ducati-manuals.com
no. 140312

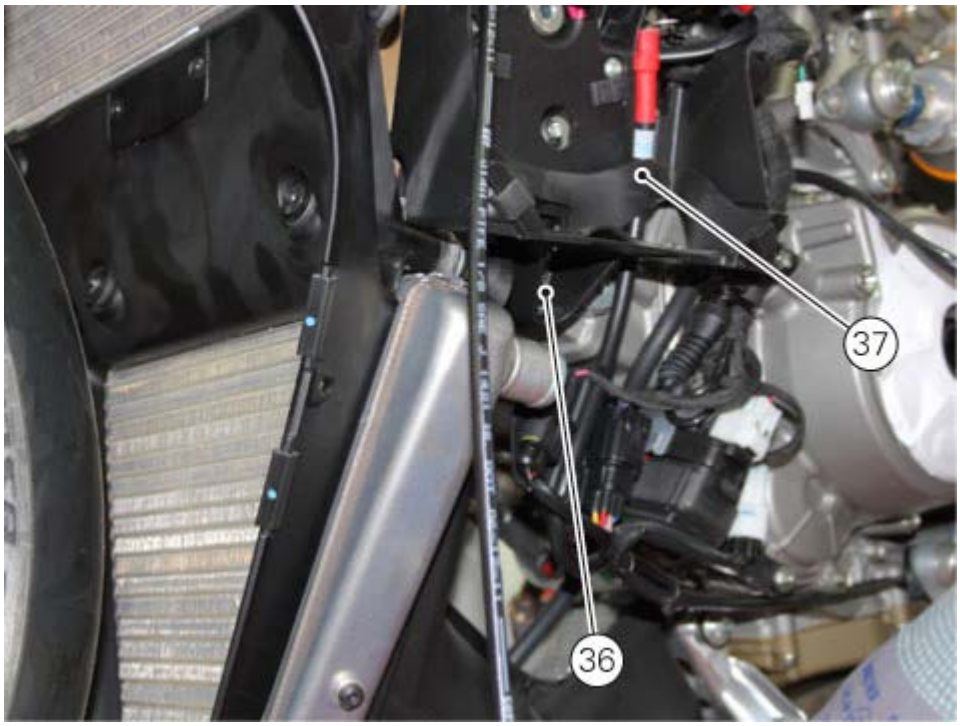


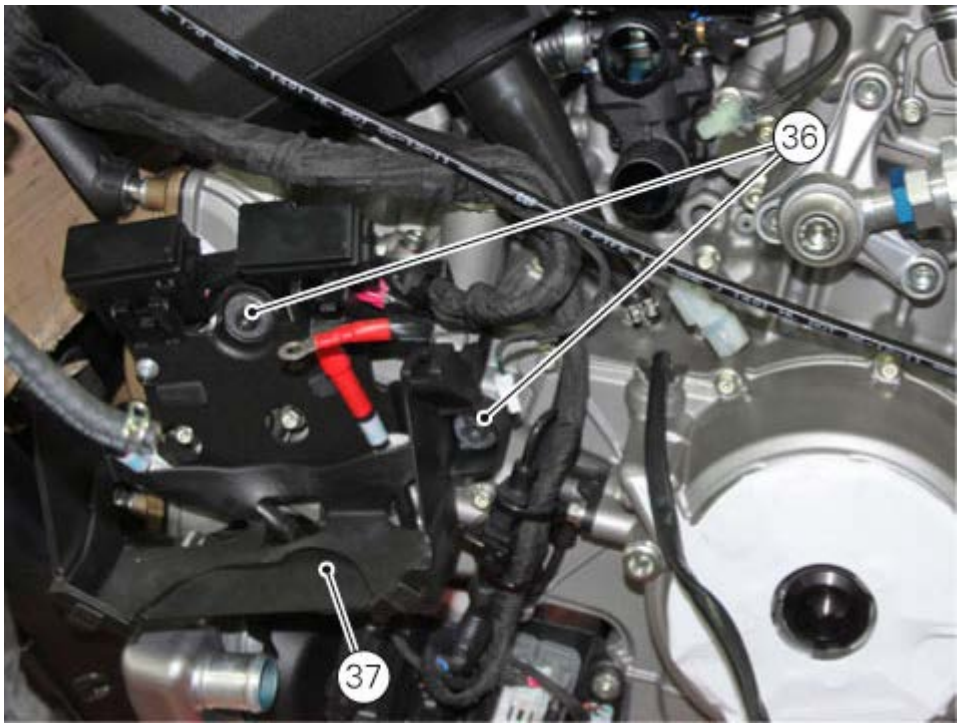
Refit battery mount (37), connected to wiring, onto horizontal head (38).



Start the retaining screws (36) on the battery mount (37).

http://www.ducati-manuals.com
no. 140312

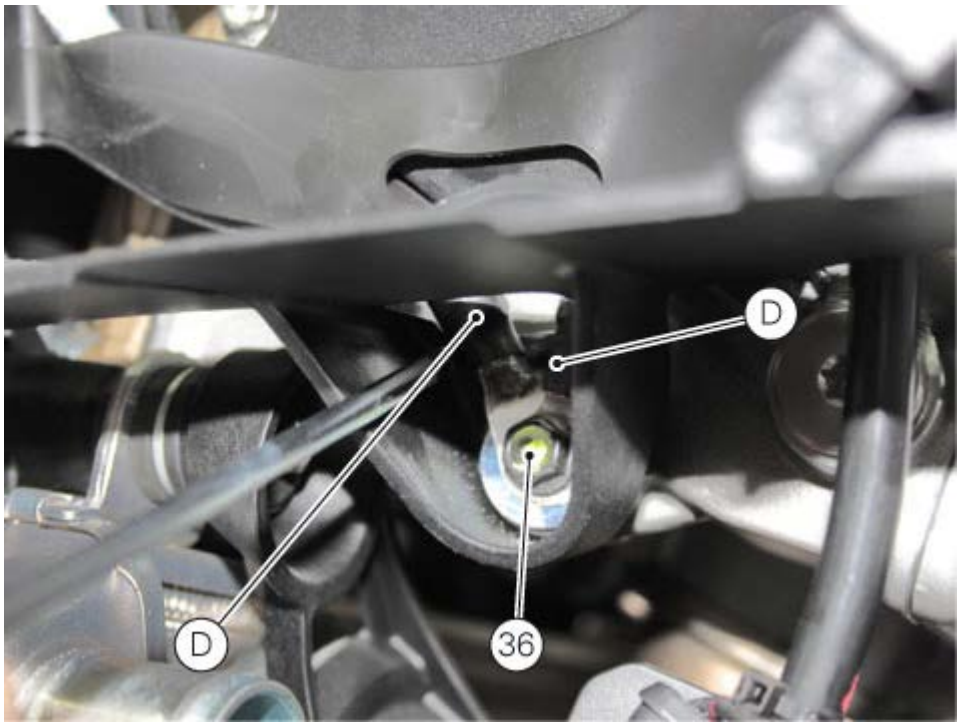




Warning

Start support lower retaining screw (36), taking special care to the position of ground cables (D): the two ground cables shall lay onto the engine crankcase.

http://www.ducati-manuals.com
no. 140312

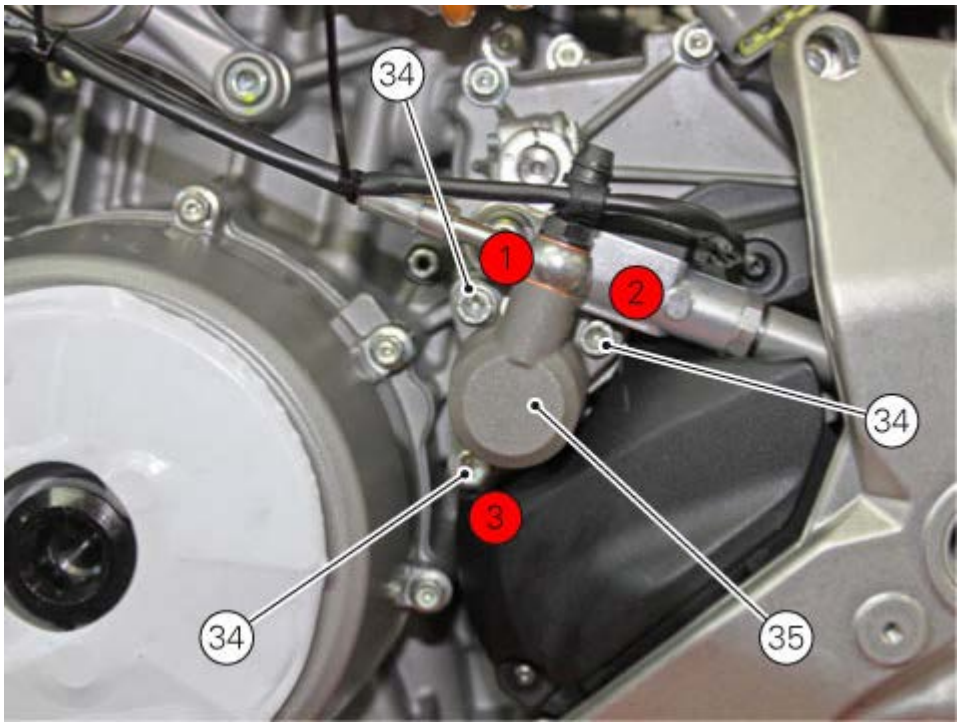


Remove the temporary clamp from the clutch piston block.

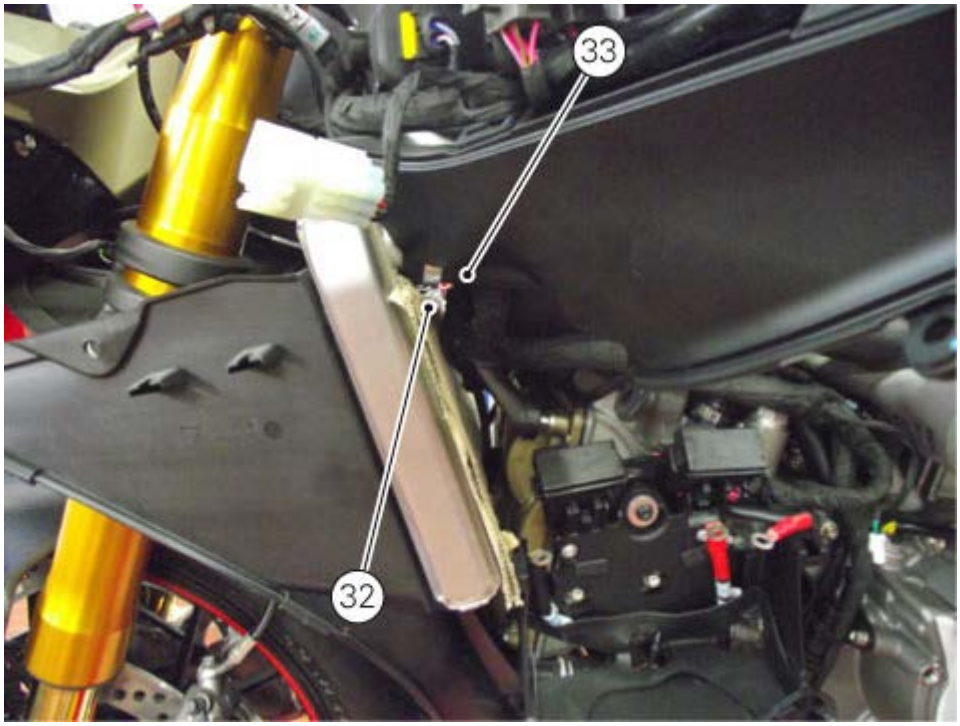


Fit piston (35) on the gear transmission lever.
Start the retaining screws (34) on the clutch piston (35).
Tighten the screws (34) to a torque of 10 Nm ± 10%, following a 1-2-3-1 sequence.

http://www.ducati-manuals.com
no. 140312



Install pipe (33).
Start clamps (32) on the pipe (33) connecting upper radiator to water distributor, and tighten clamps (32) to a torque of 2.5 Nm ± 10%.



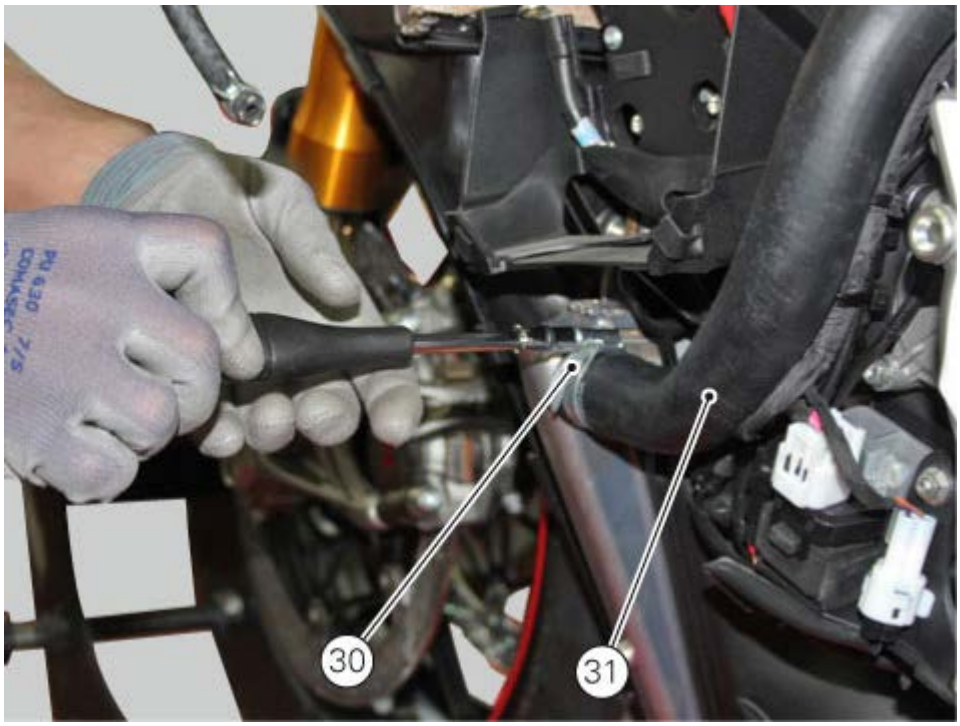
http://www.ducati-manuals.com
no. 140312



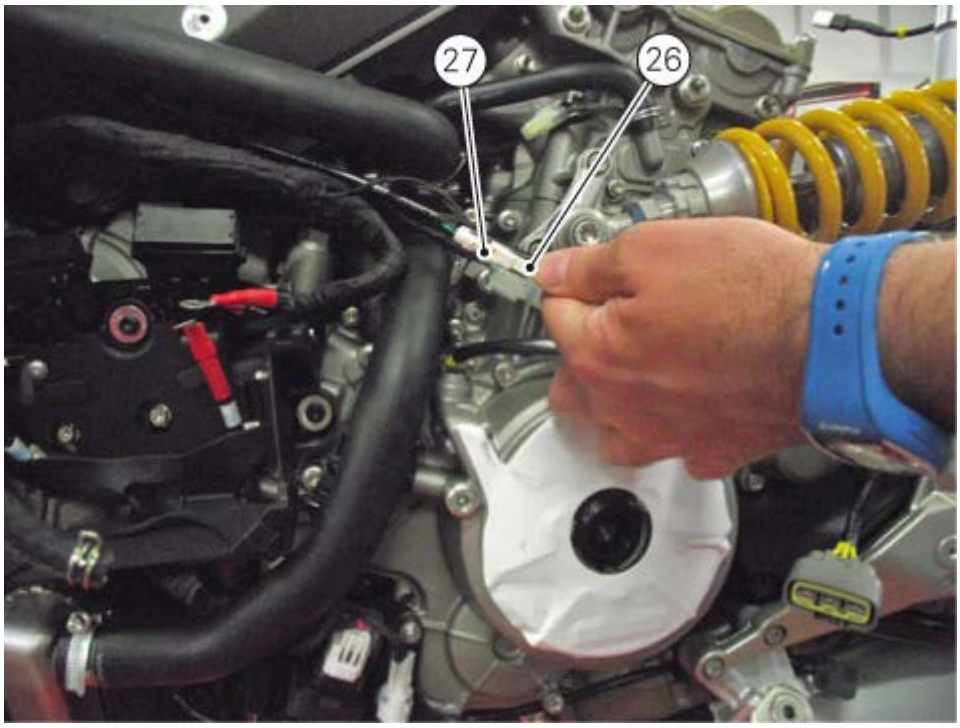
Install pipe (31).
Start clamps (30) on the connecting pipe (31) between lower radiator and water distributor.
Tighten clamps (30) to a torque of 2.5 Nm ± 10%.



http://www.ducati-manuals.com
no. 140312

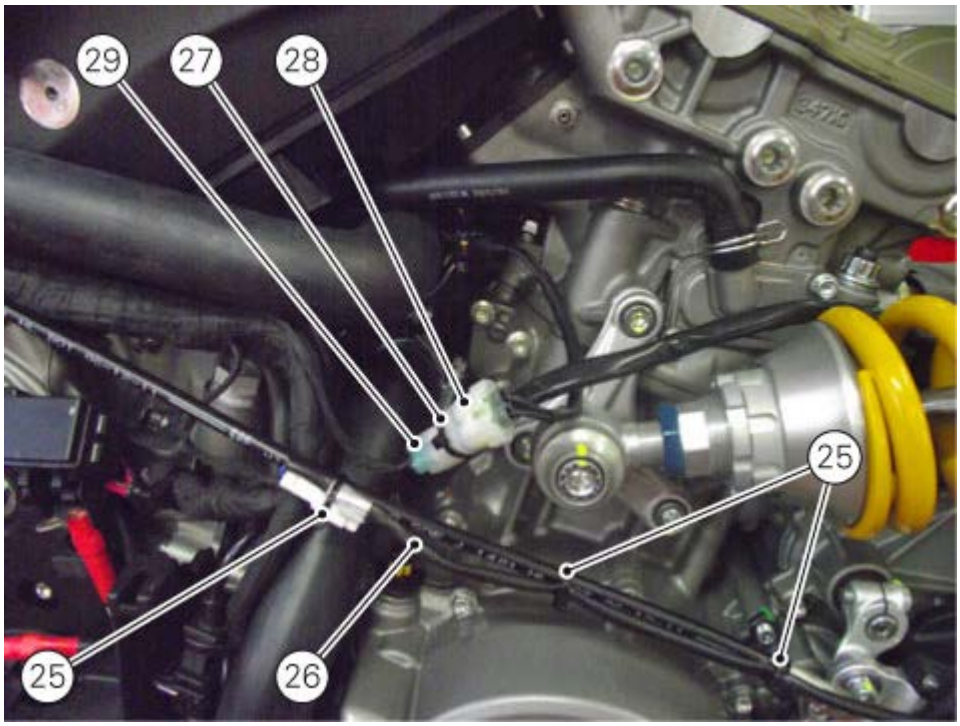


Refill the system with coolant.
Connect quick shift wiring connector (26) to main wiring connector (27).

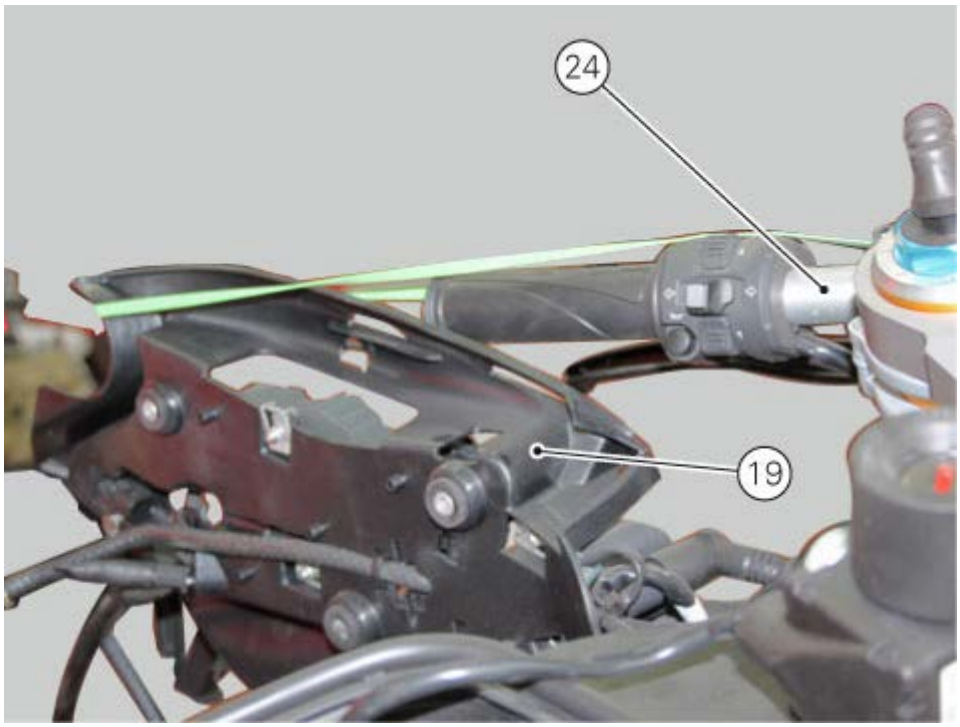


Connect water temperature sensor connector (28) to main wiring connector (29).
Fit quick shift wiring (26) clips (25), and water temperature sensor connector (28) clip (27).

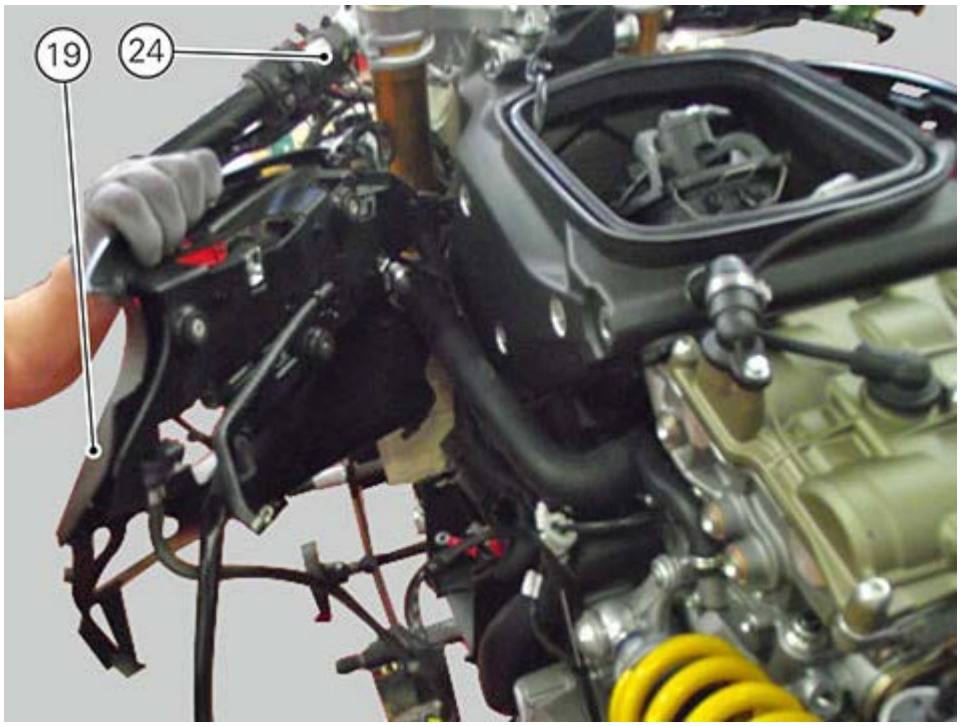
http://www.ducati-manuals.com
no. 140312

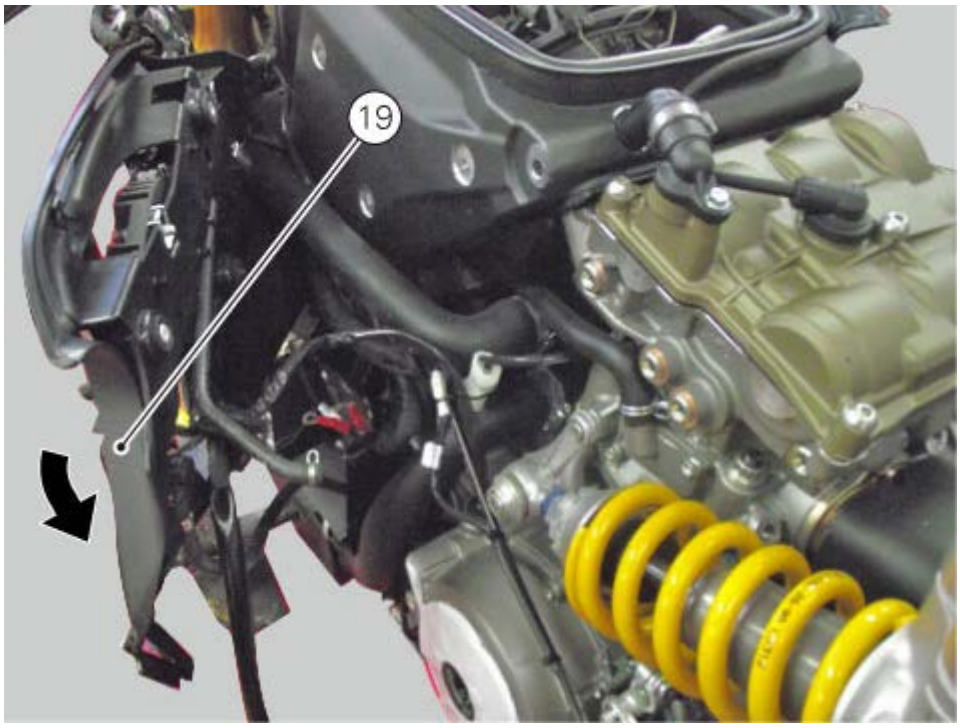


Remove the temporary fastener between support (19) and LH handlebar (24).
Move support (19) close to frame, taking care not to damage the connected wiring.



http://www.ducati-manuals.com
no. 140312

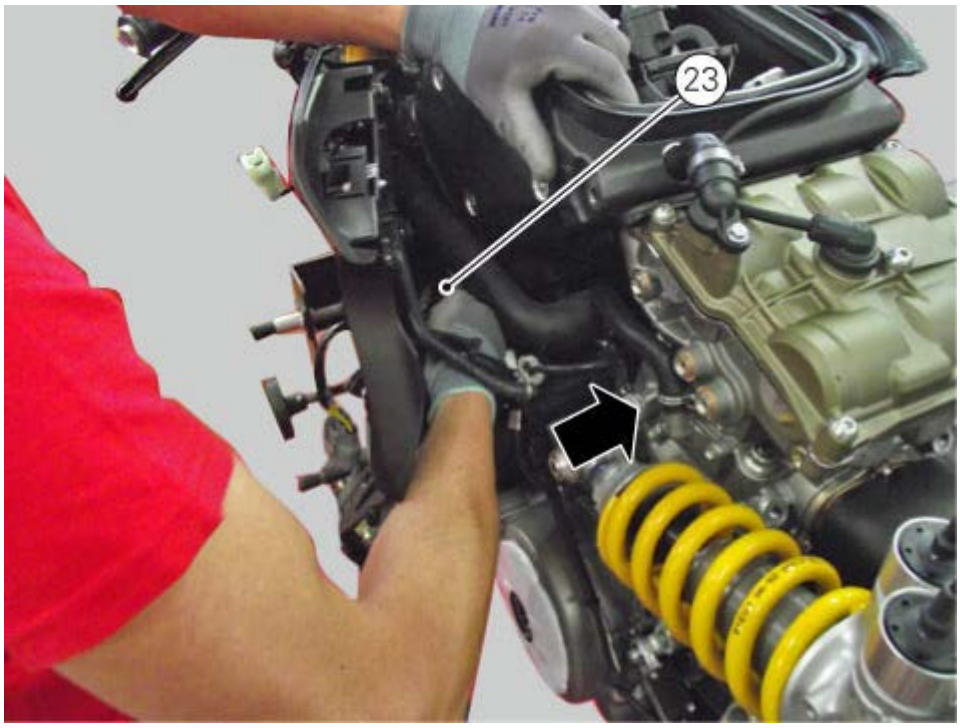




Connect the horizontal MAP sensor pipe (23) to the horizontal head.

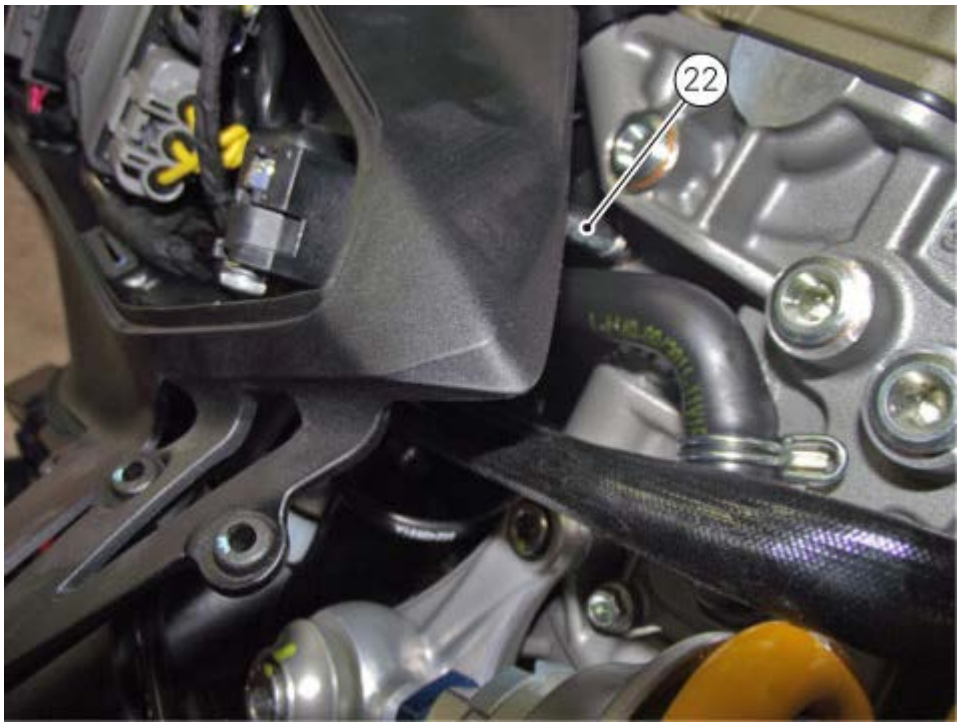
http://www.ducati-manuals.com
no. 140312





Connect the vertical MAP sensor pipe (22) to the vertical head.

http://www.ducati-manuals.com
no. 140312



Connect the connector (20) between wiring and horizontal MAP sensor (21).



http://www.ducati-manuals.com
no. 140312



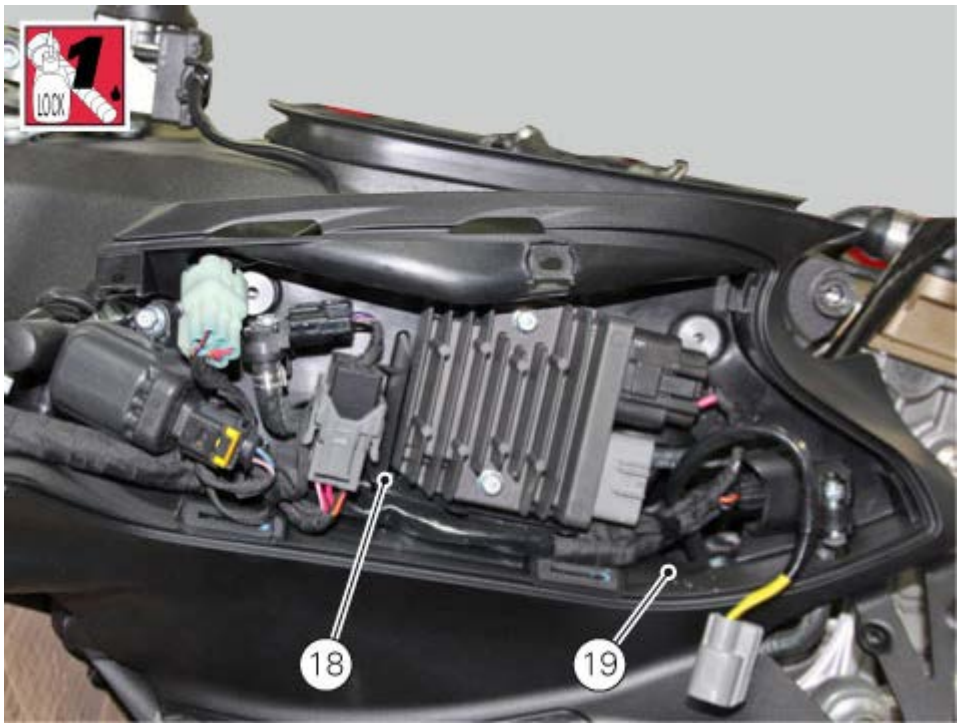
Remove the protection (C) from the upper water radiator.



Move support (19) close to frame.
Smear the screw (18) with specified threadlocker.
Start the retaining screw (18) on LH electric system support (19).
Tighten the screw (18) to a torque of 5 Nm ±10%.

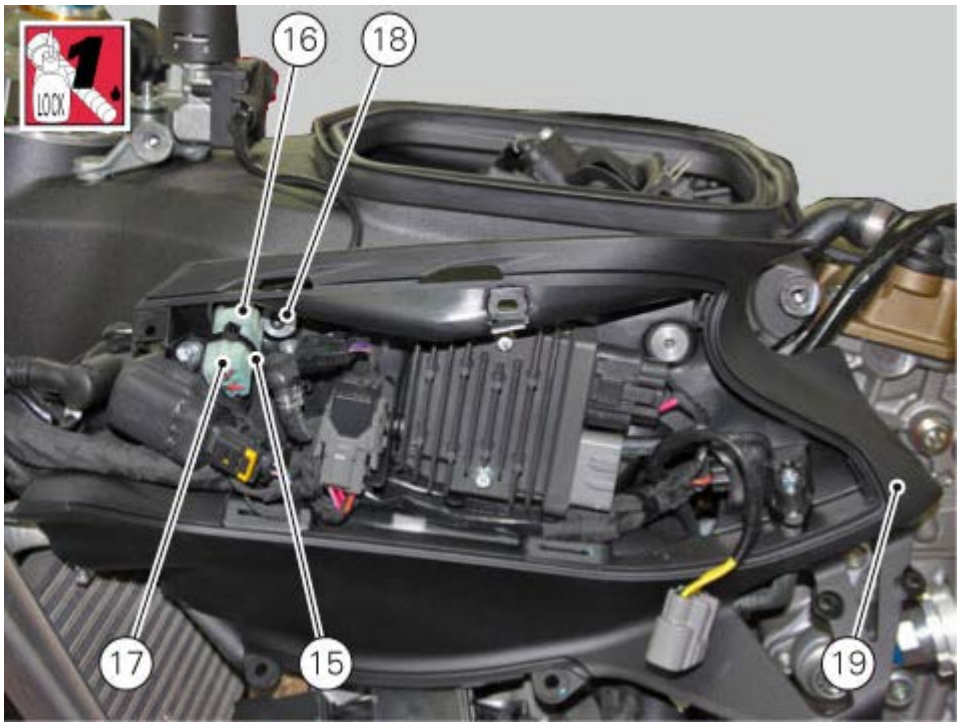
http://www.ducati-manuals.com
no. 140312





Connect the ignition switch connector (16) to the main wiring connector (17).
Fit clamp (15).
Smear the screw (18) with specified threadlocker.
Start the retaining screw (18) on LH electric system support (19).
Tighten the screw (18) to a torque of 5 Nm ±10%.

http://www.ducati-manuals.com
no. 140312



Connect the connector (13) between rectifier (14) wiring and generator.
Smear the screw (18) with specified threadlocker.
Start the retaining screw (18) on LH electric system support (19).
Tighten the screw (18) to a torque of 5 Nm ±10%.

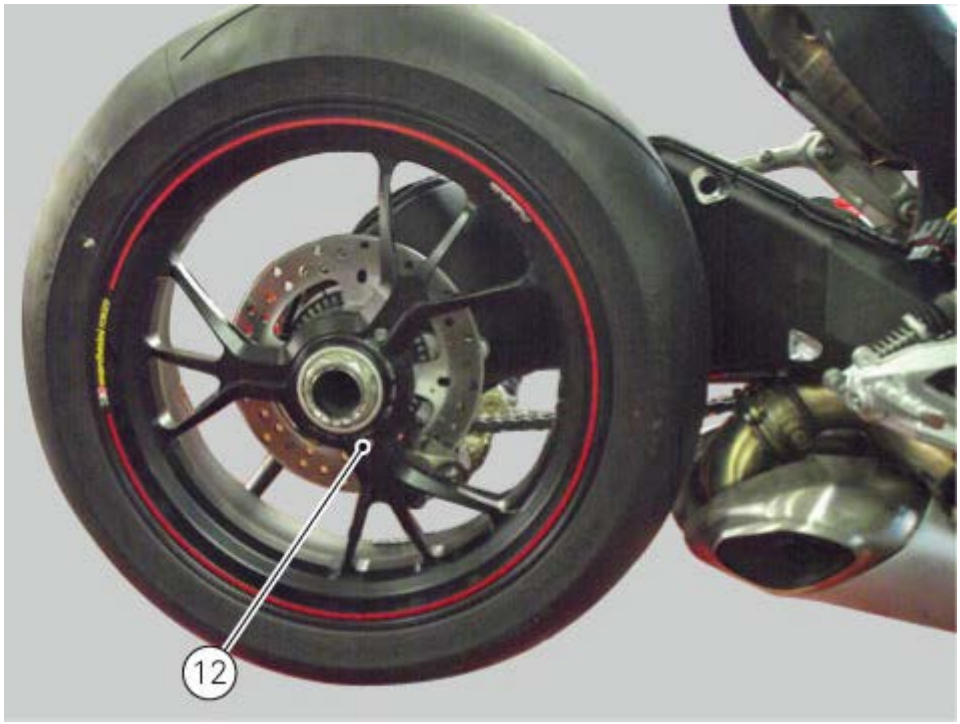


Install fuse box cover (B).

http://www.ducati-manuals.com
no. 140312

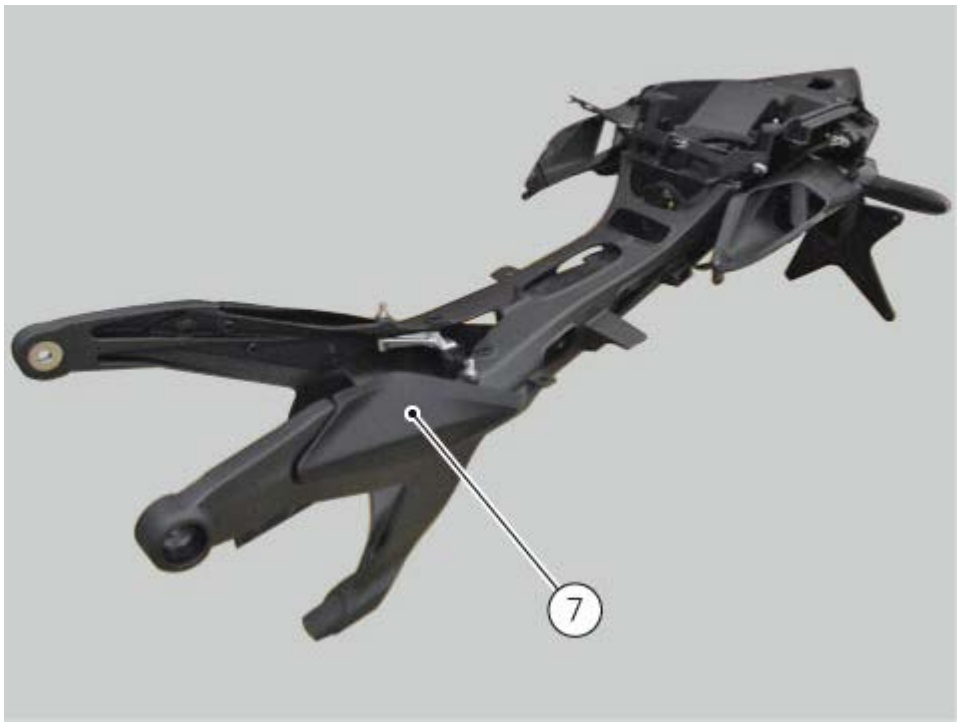


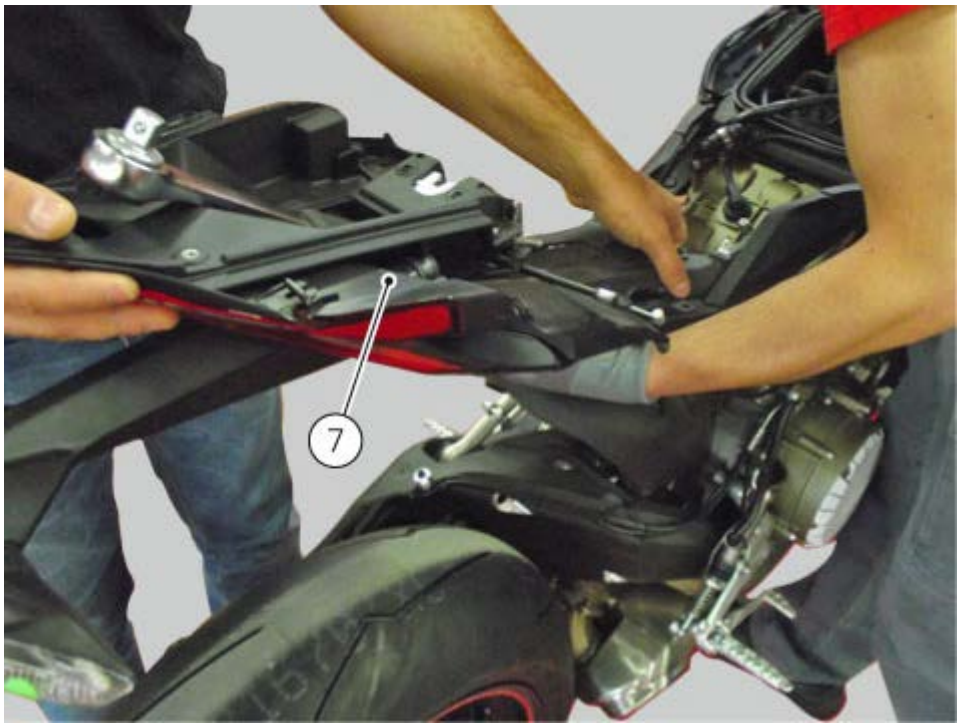
Refit the rear wheel (12), and remove the support.



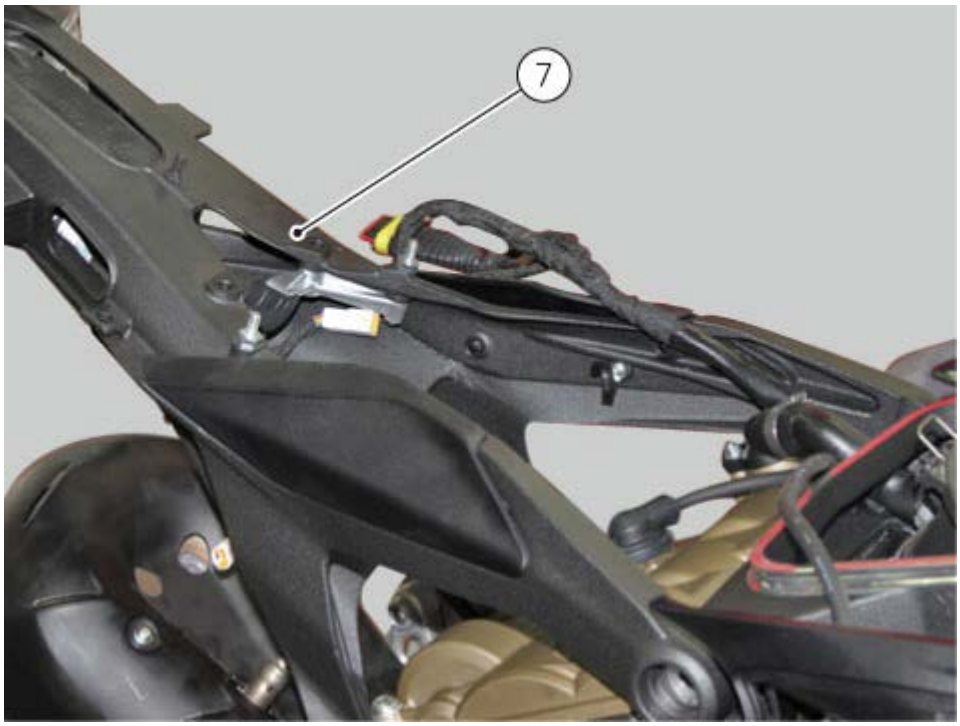
Install the rear subframe (7) complete with tail light and number plate holder on vehicle.

http://www.ducati-manuals.com
no. 140312





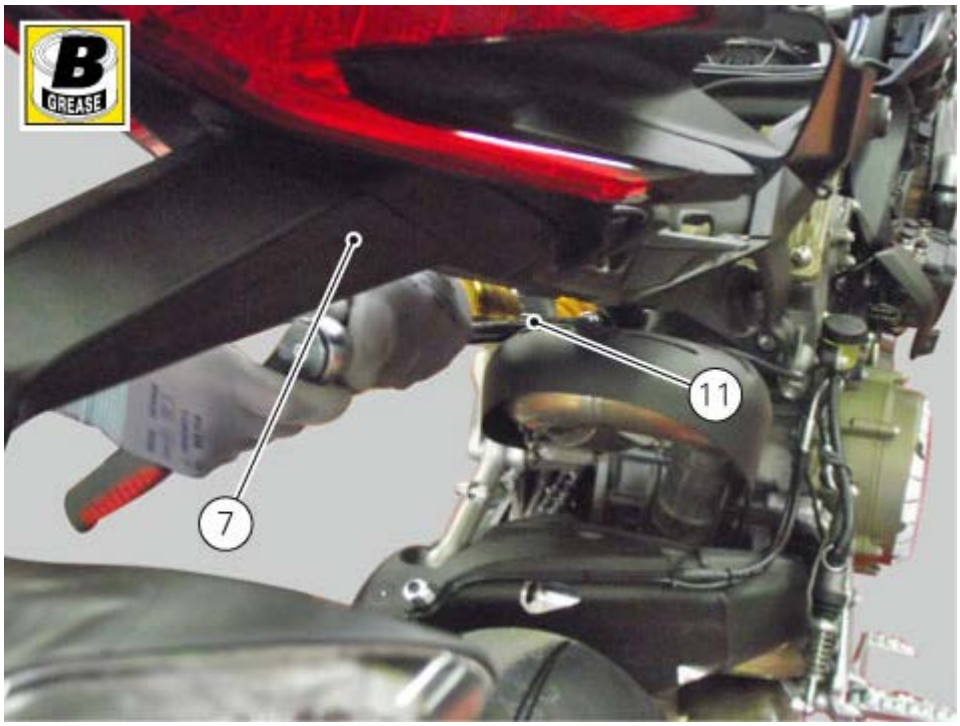
http://www.ducati-manuals.com
no. 140312



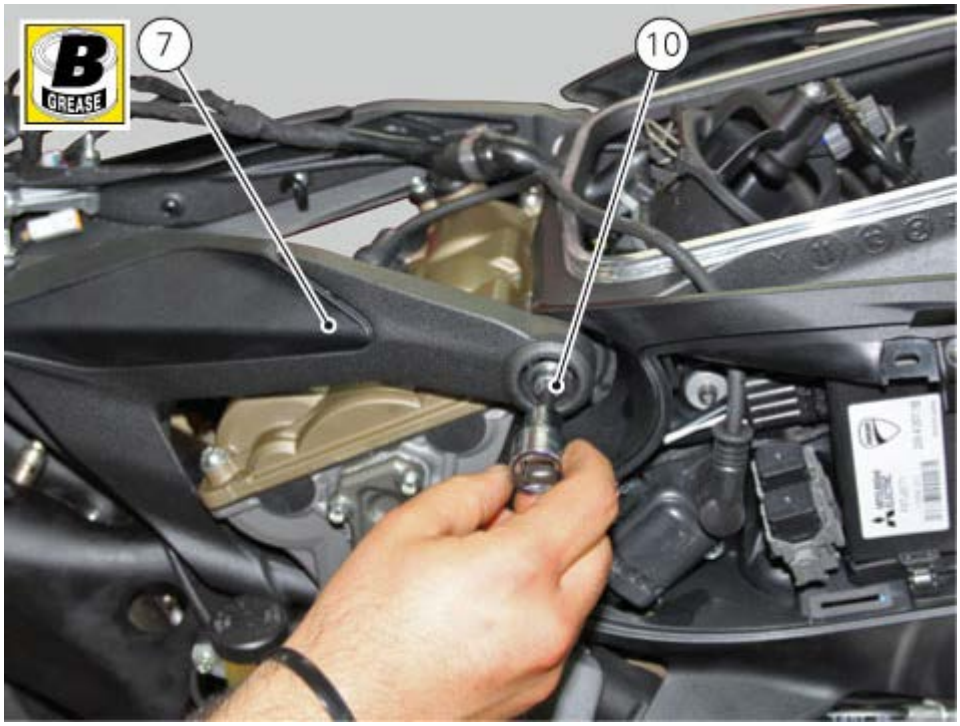
Smear the screws (11) with specified grease.
Start the rear retaining screws (11) securing the rear subframe (7) to the heads.
Tighten the screws (11) to a torque of 22 Nm ± 5%.



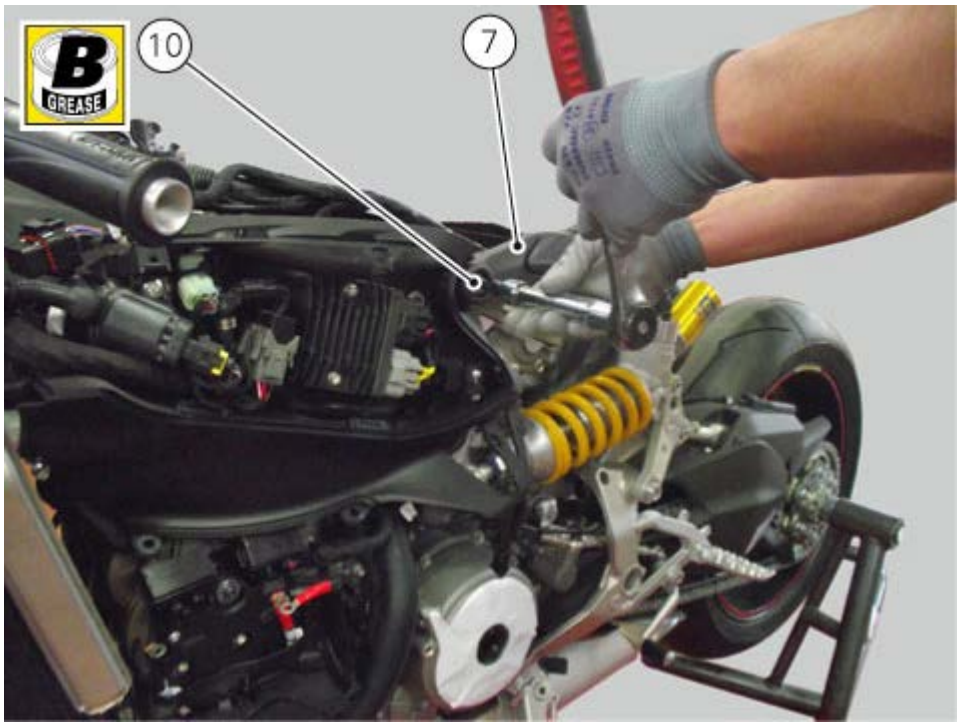
http://www.ducati-manuals.com
no. 140312



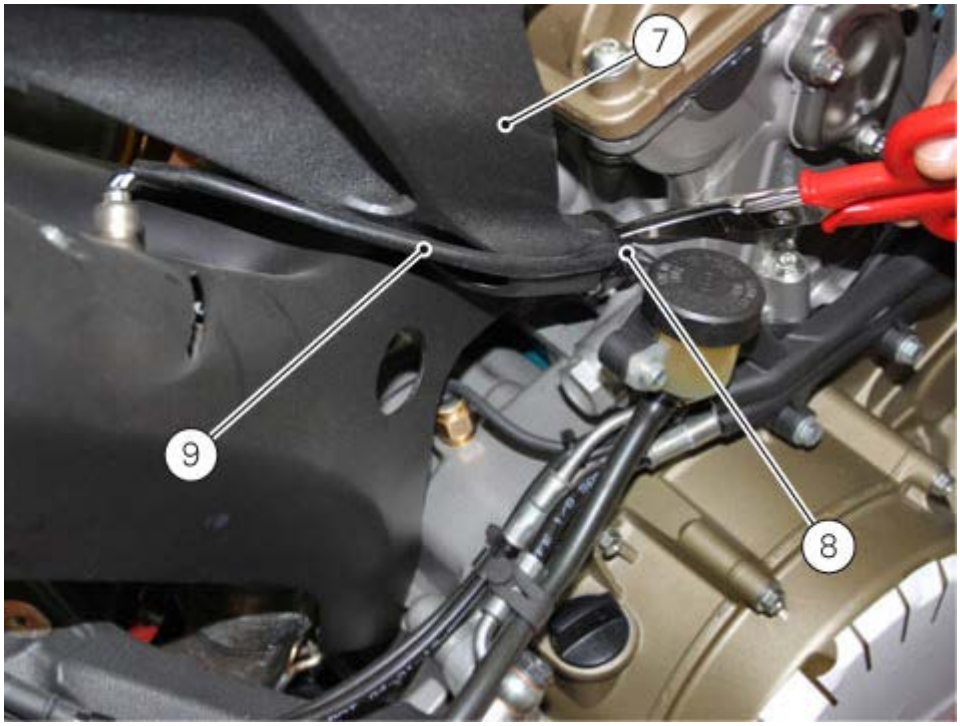
Smear the screws (10) with specified grease.
Start the side retaining screws (10) securing the rear subframe (7) to the heads.
Tighten the screws (10) to a torque of 28 Nm ± 5%.



http://www.ducati-manuals.com
no. 140312

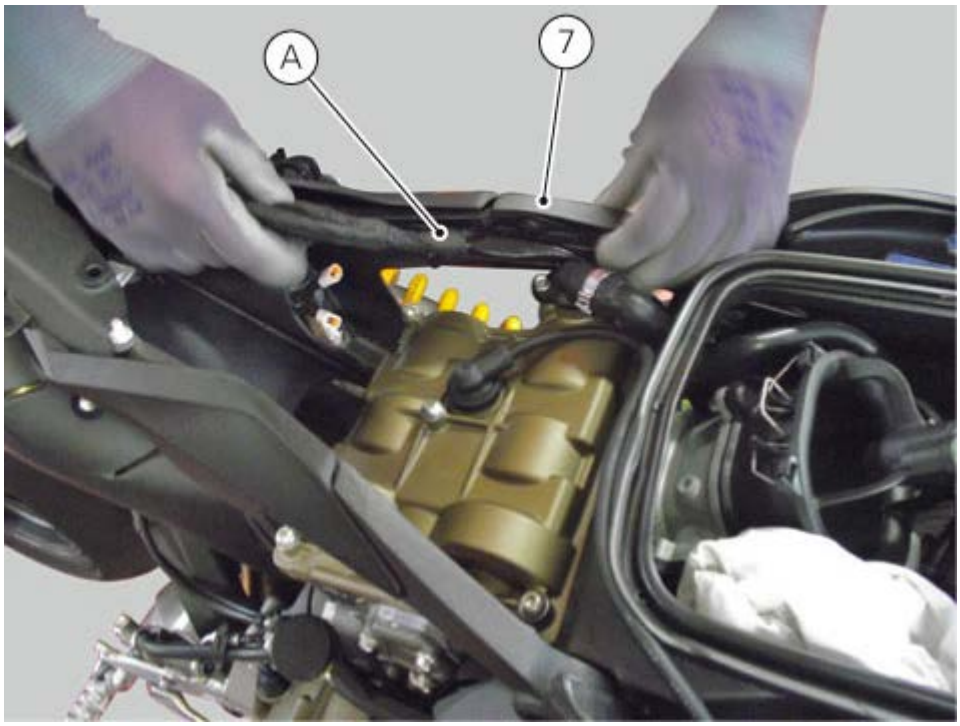


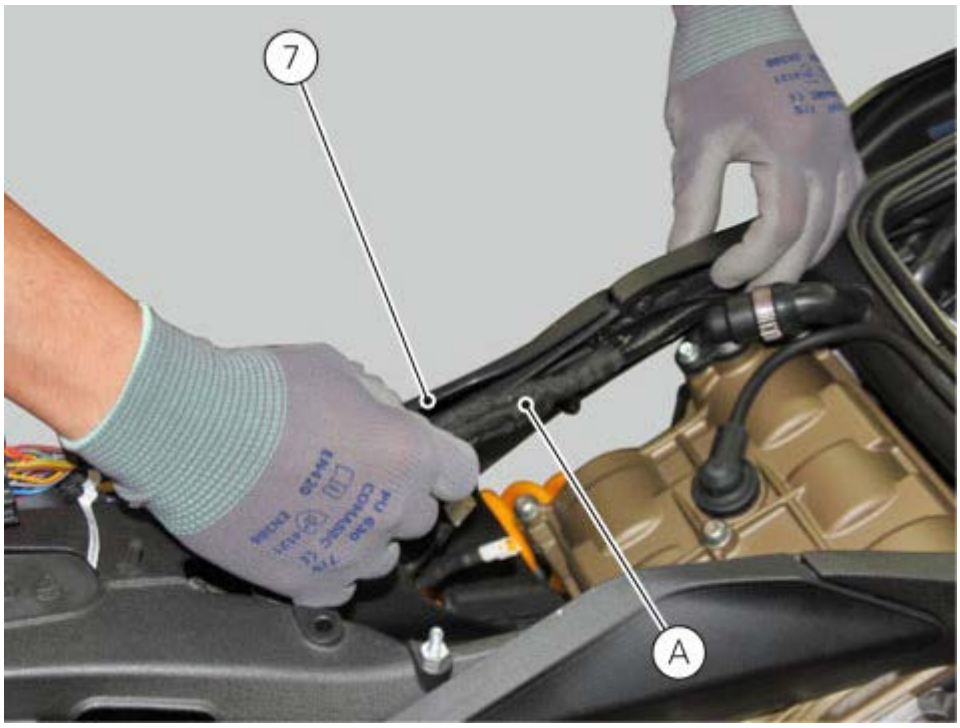
Fit clamp (8) securing vertical Lambda sensor (9) to rear subframe (7).



Insert main wiring section (A) inside rear subframe seat (7).

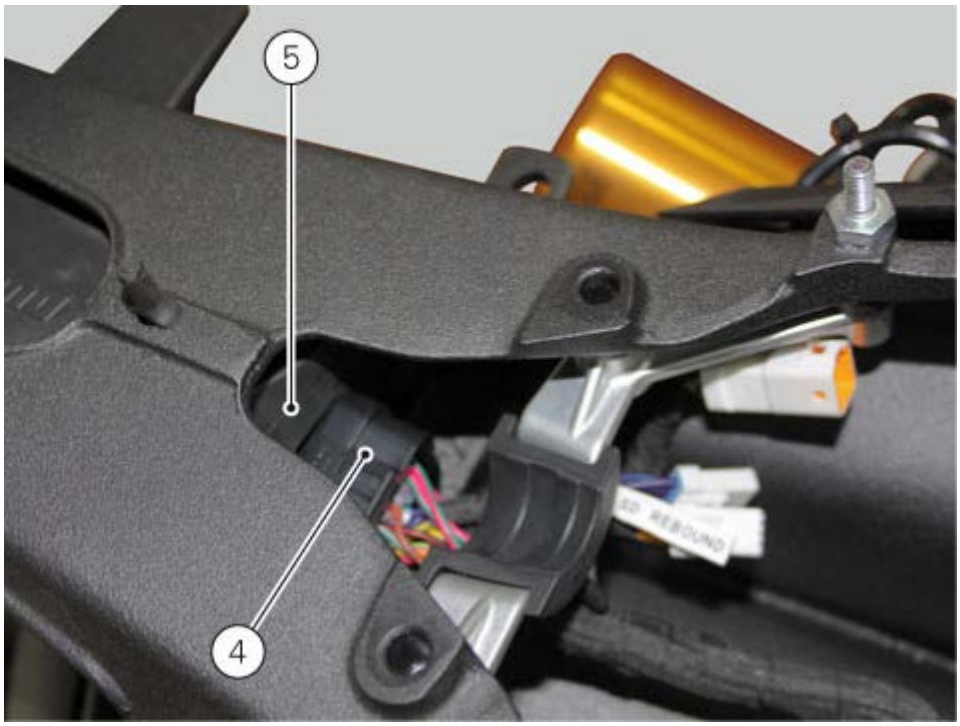
http://www.ducati-manuals.com
no. 140312

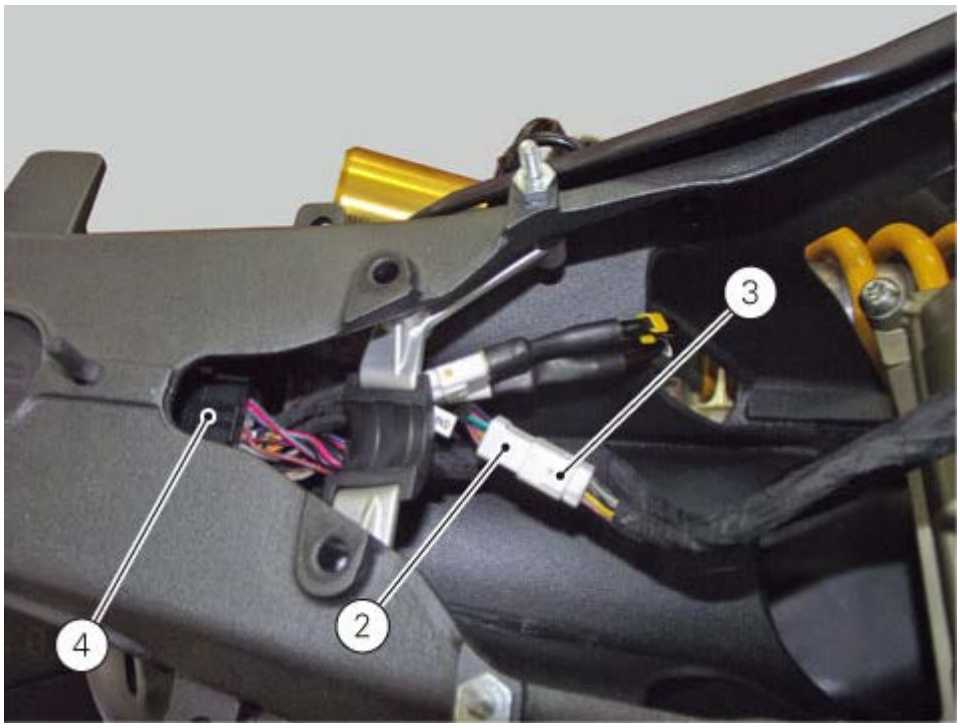




Connect rear suspension adjuster connectors (6).
Connect black box (5) connector (4) to main wiring.
Connect rear wiring connector (2) to main wiring (3).

http://www.ducati-manuals.com
no. 140312

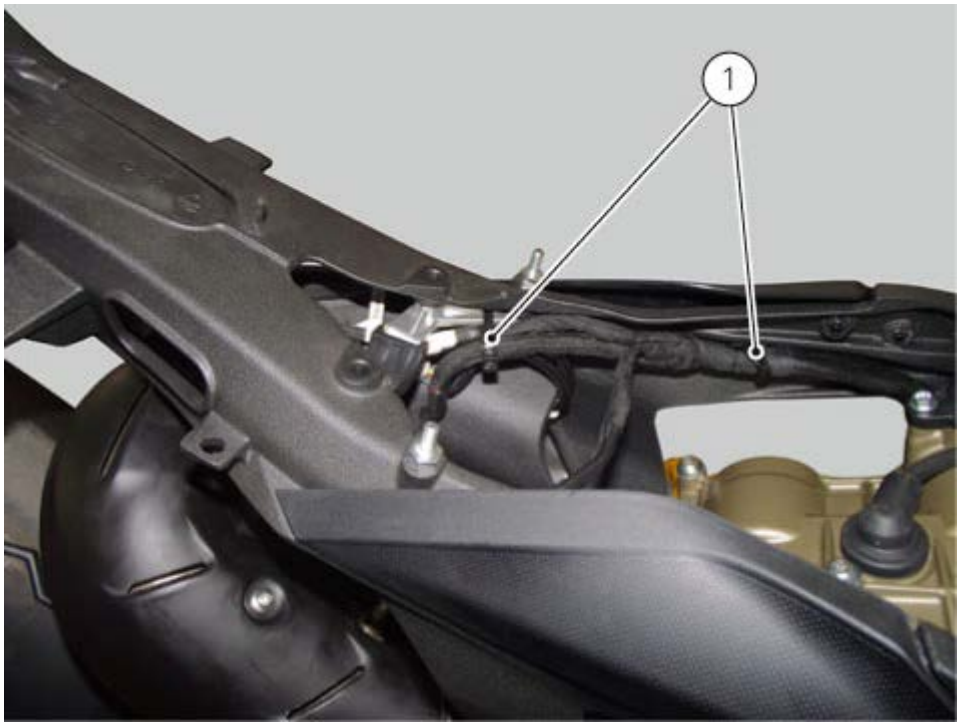




http://www.ducati-manuals.com
no. 140312



Fit clamps (1) on rear wiring.



Remove the headlight fairing protection.
Install the battery (Battery).
Install the tank (Installation of the fuel tank).
Install the fairings (Installation of the side fairings).
Install the seat (Installation of the rider seat).

http://www.ducati-manuals.com
no. 140312

Removal of the generator cover

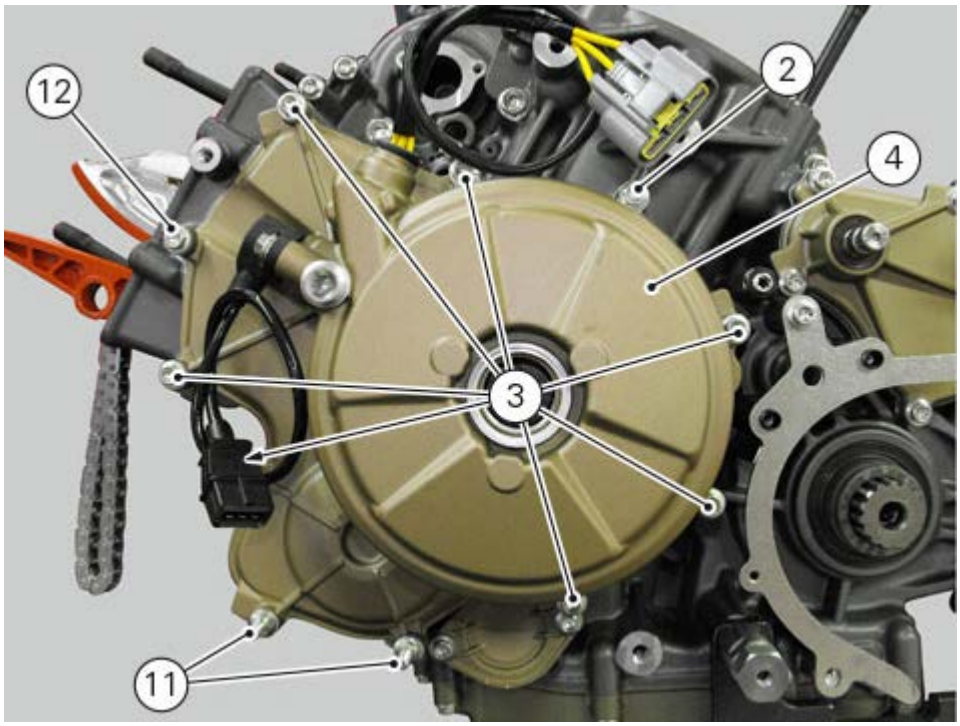
Remove the left-hand side fairing (Removal of the side fairings).
Drain engine oil (Changing the engine oil and filter cartridge).
Remove battery mount (Removing the battery support).
Remove the clutch slave cylinder assembly (Removing the clutch slave cylinder).

Note
For clarity, the figures show the engine removed from the frame.

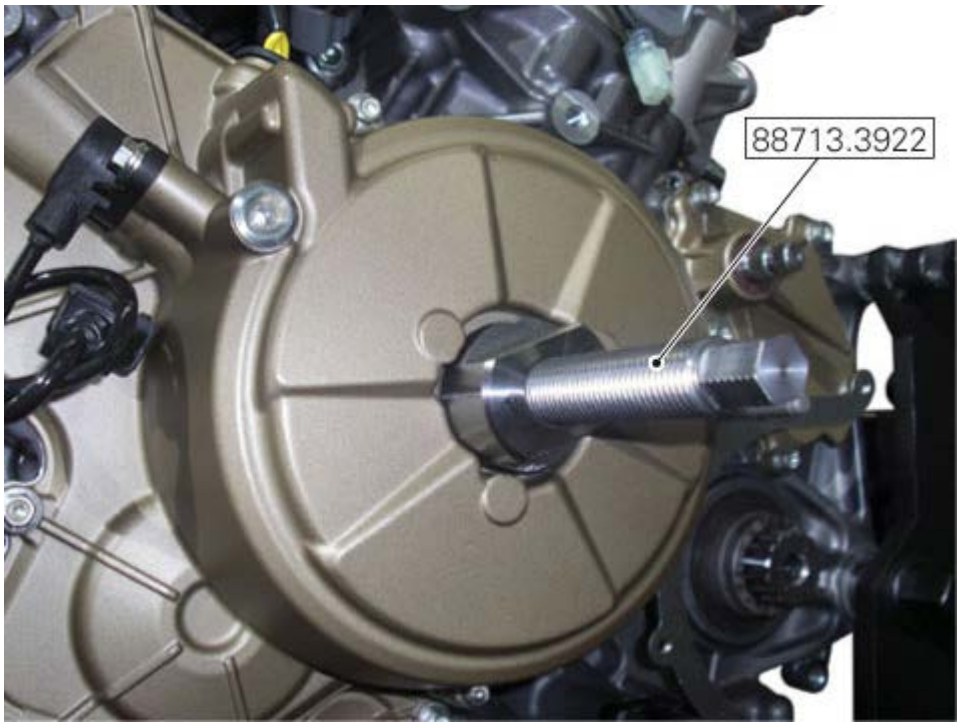
Disconnect bottom radiator tube (A) from vertical head.
Disconnect connector (B) from generator cable and connector (C) from pick-up cable.
Loosen nuts (1) retaining solenoid starter support.



Loosen the special screws (11), the screws (2), (3) and (12) and remove the generator cover (4) using the suitable tool part no. **88713.3922**.



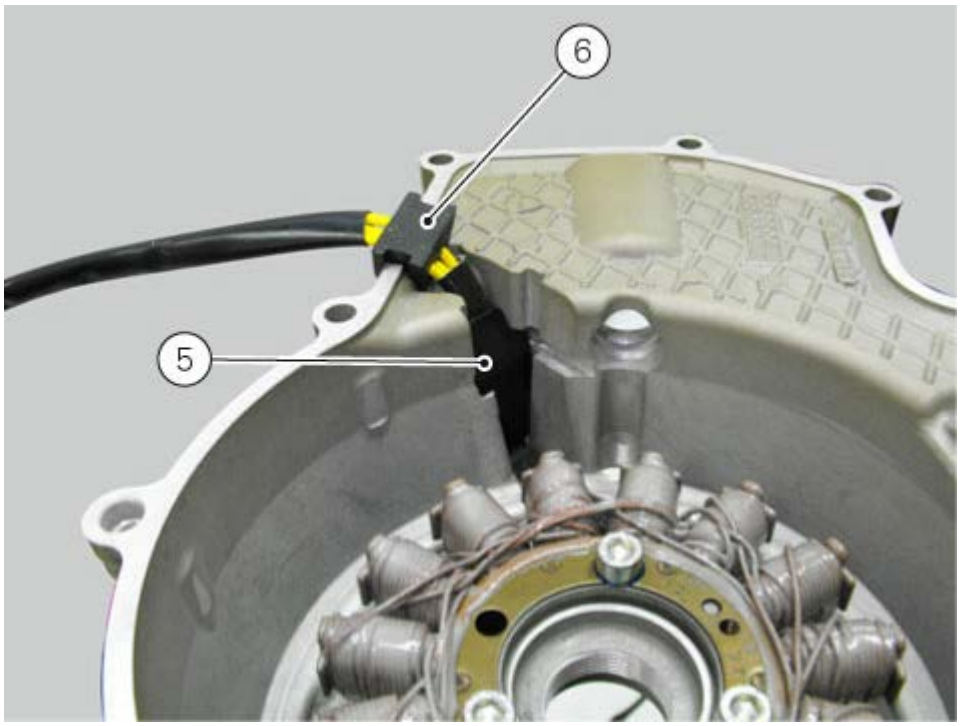
http://www.ducati-manuals.com
no. 140312



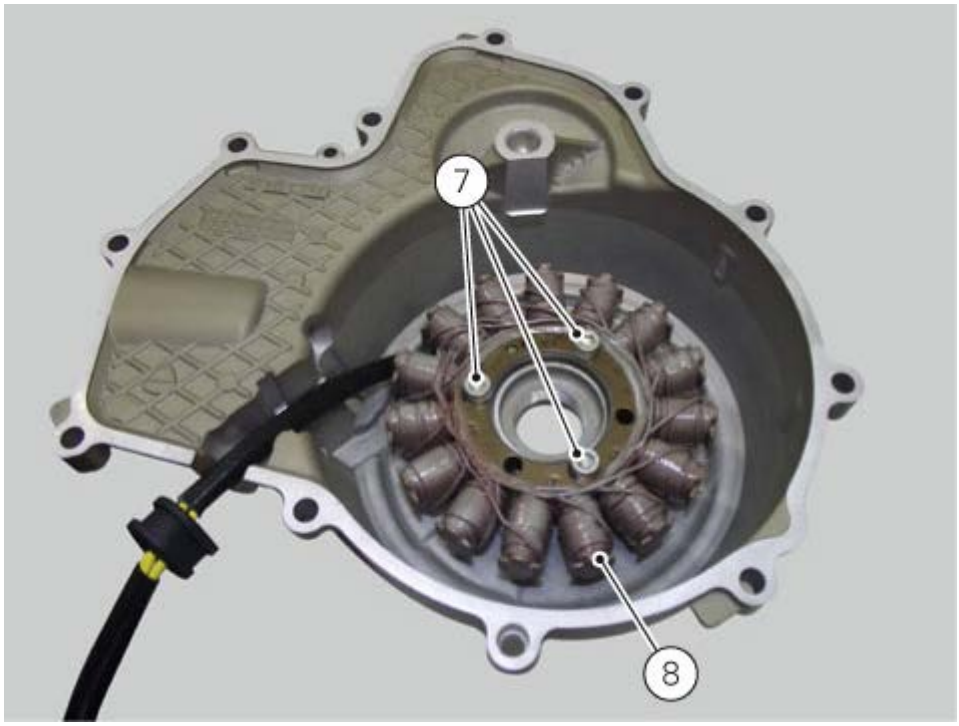
http://www.ducati-manuals.com
no. 140312

Disassembly of the generator cover

Remove the cable retainer (5) sliding it up and remove rubber block (6).

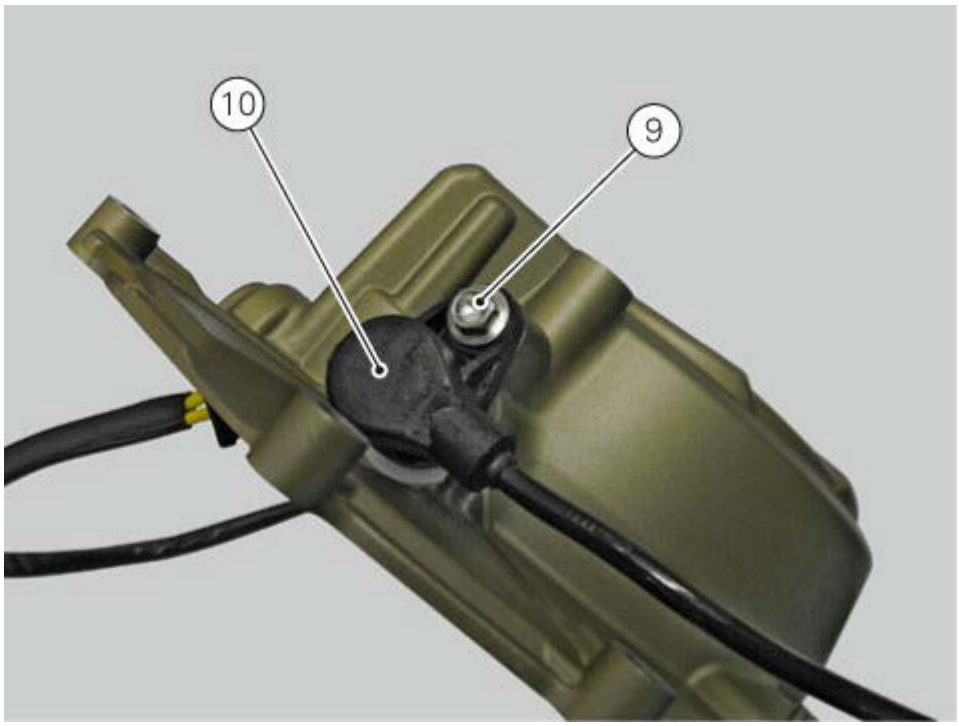


Unscrew the screws (7) and remove the stator (8).

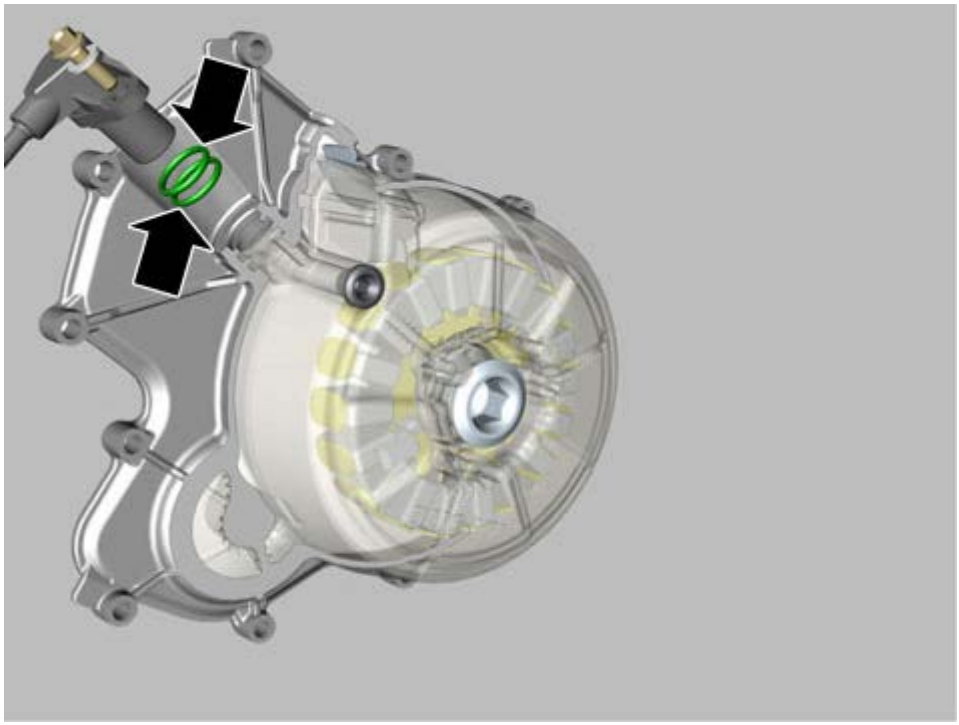


Undo the screw (9) and remove the pick-up sensor (10), keeping the washer.

http://www.ducati-manuals.com
no. 140312



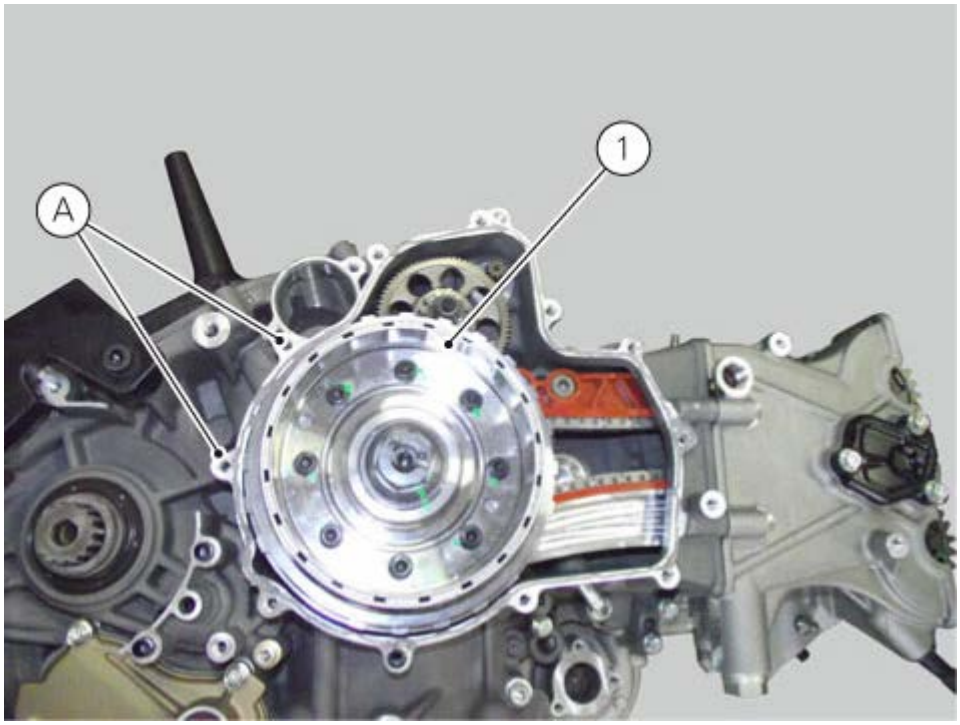
Check the two O-rings inside the pick-up seat and renew them, if necessary.

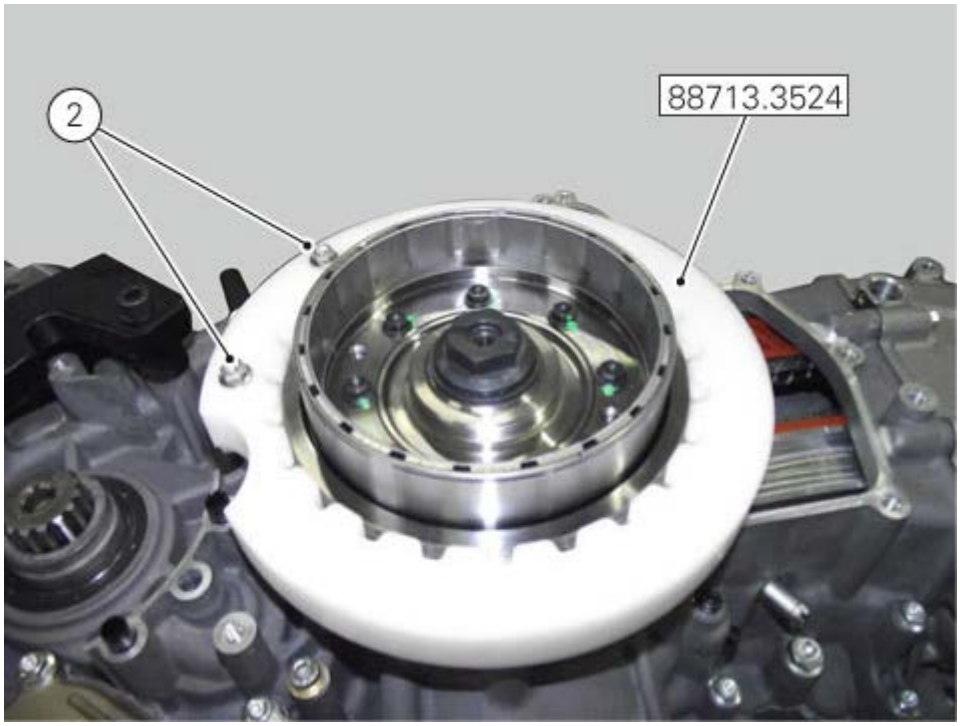


http://www.ducati-manuals.com
no. 140312

Removal of the flywheel/generator assembly

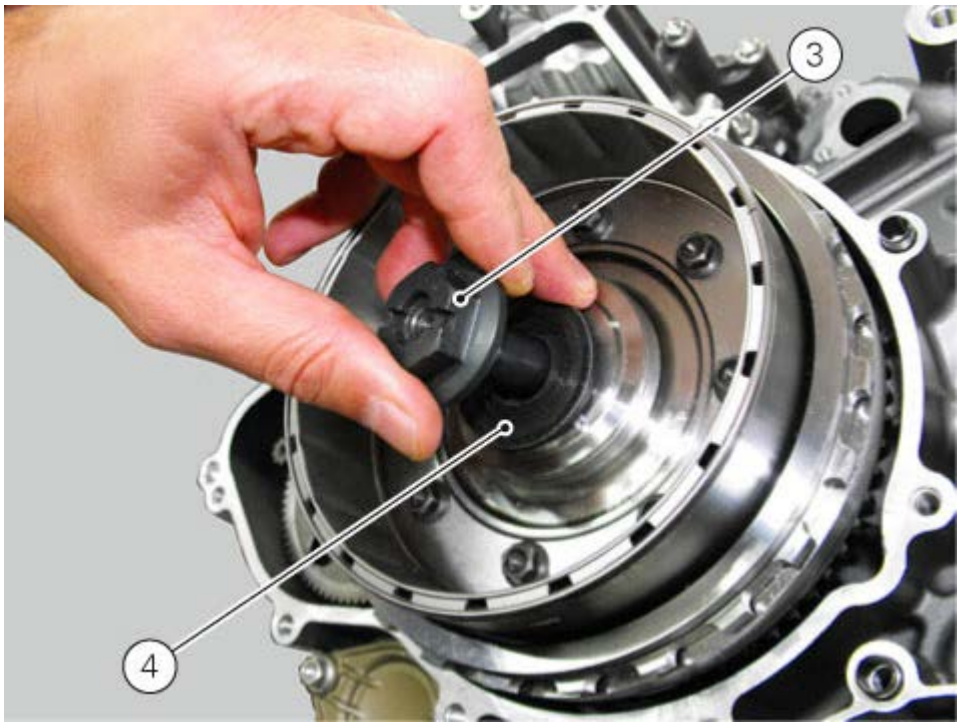
Hold the flywheel assembly (1) installing tool part no. **88713.3524** and securing it in place by means of screws (2) in holes (A).



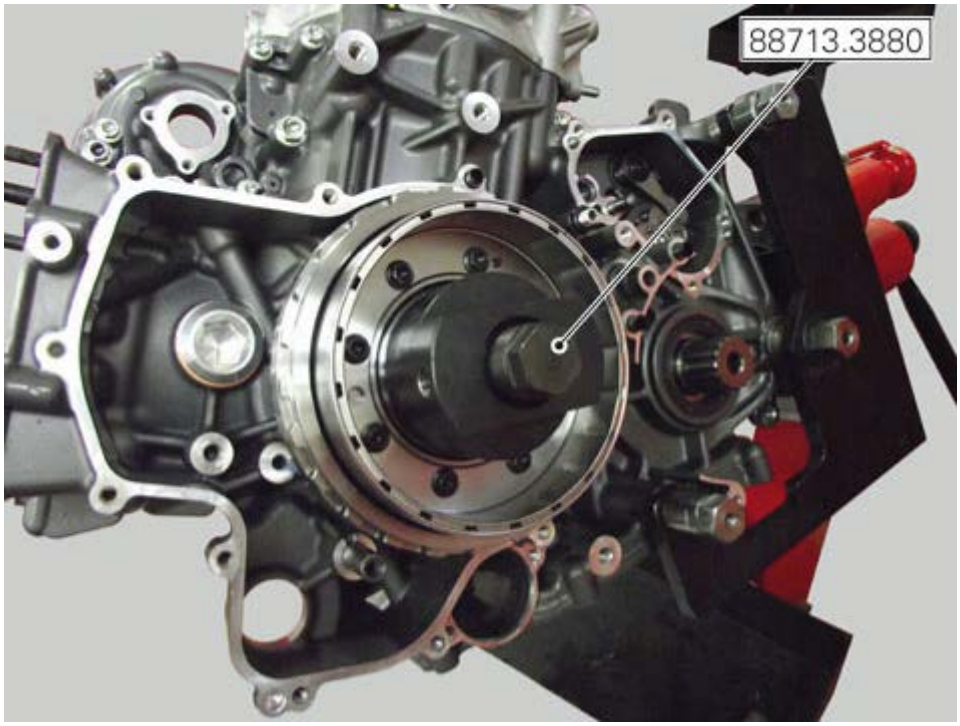


Loosen flywheel screw (3).
Remove screw (3) and washer (4).

http://www.ducati-manuals.com
no. 140312

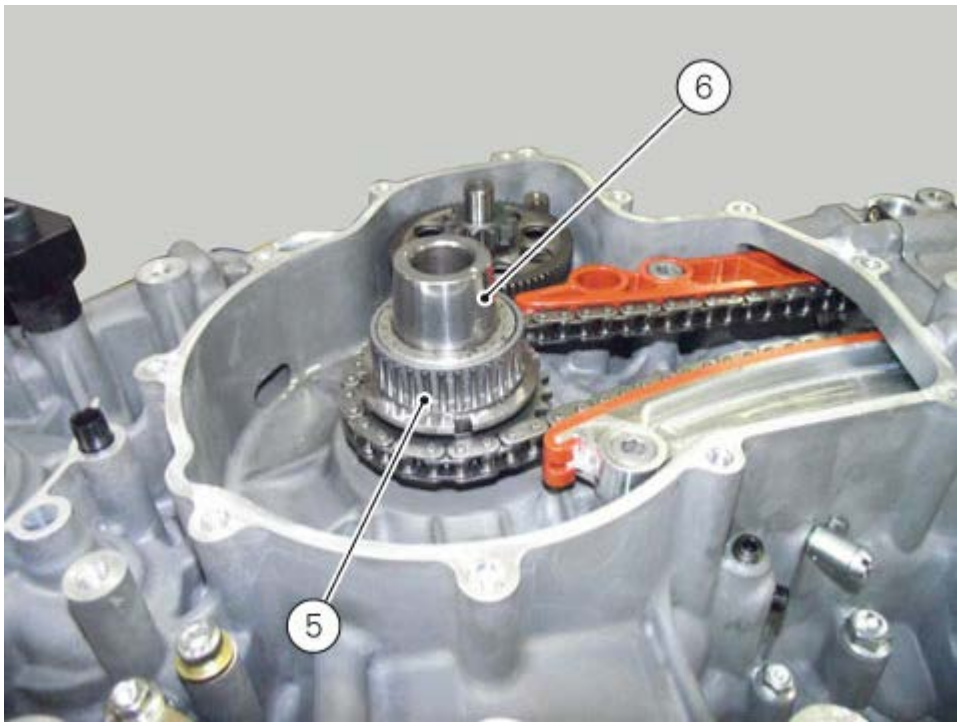


Using tool part no. **88713.3880**, remove the flywheel assembly and driven gear from crankshaft.



Remove the roller bearing (5) and key (6).

http://www.ducati-manuals.com
no. 140312



Important

Check roller bearing for wear. Change it if worn out.

http://www.ducati-manuals.com
no. 140312

Overhaul of the flywheel/generator assembly

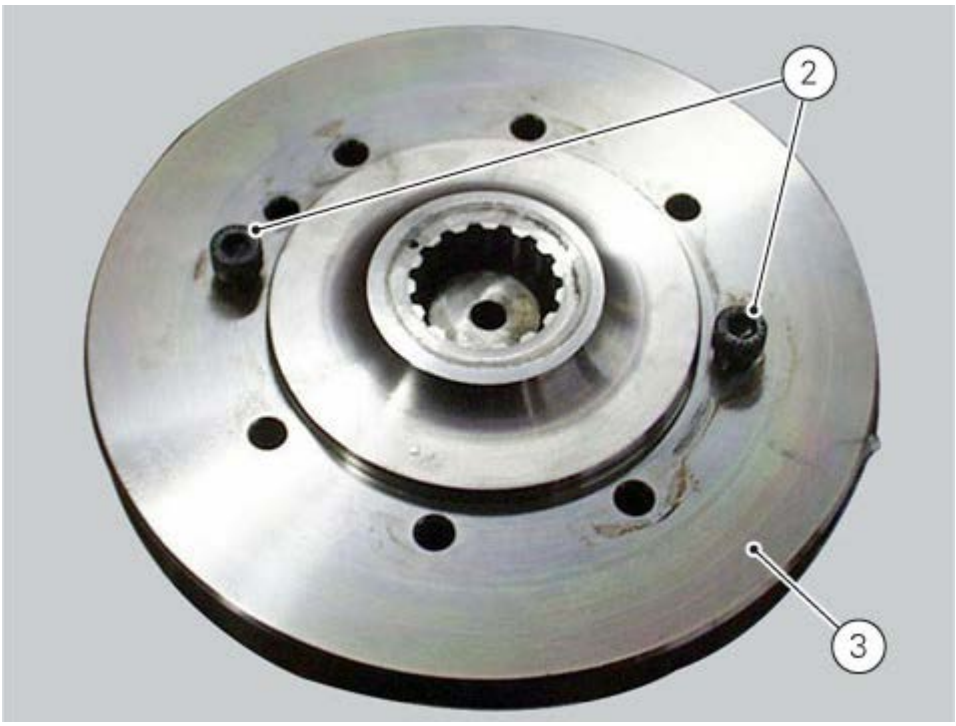
Make sure that the generator rotor (1) inside surface is not damaged.
Make sure that the starter clutch works correctly and roller tracks are not worn or damaged in any way.
Disassemble the unit if you find faulty operation.

Disassembly of the generator flywheel

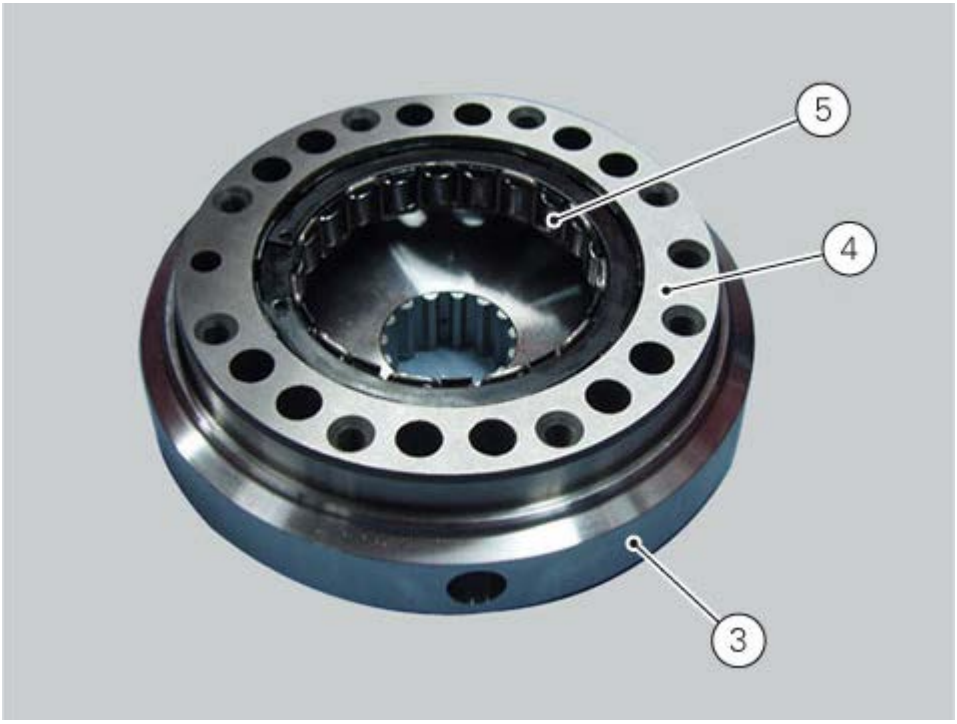
Unscrew the screws (2) and remove the generator rotor (1) from the flywheel.



Start two of the screws (2) just removed from rotor and use them to pull out flange (4) and starter clutch (5) from flywheel (3).
The starter clutch is installed on the flange with a slight interference. Use a suitable drift to remove it.



http://www.ducati-manuals.com
no. 140312

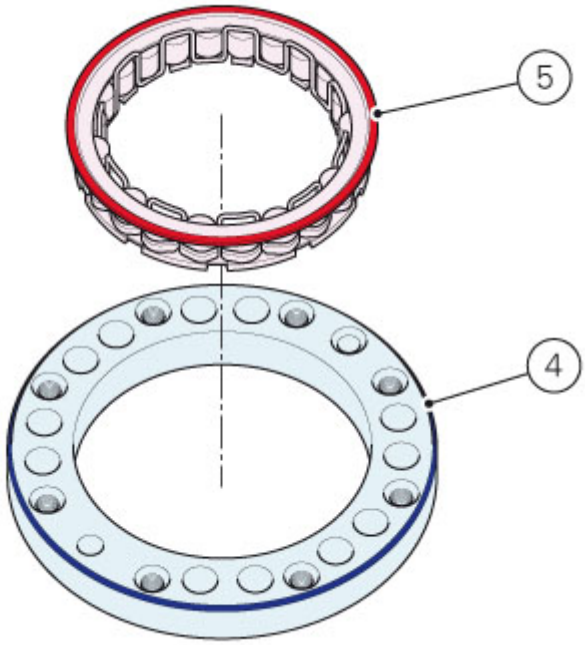


Reassembly of the flywheel/generator assembly

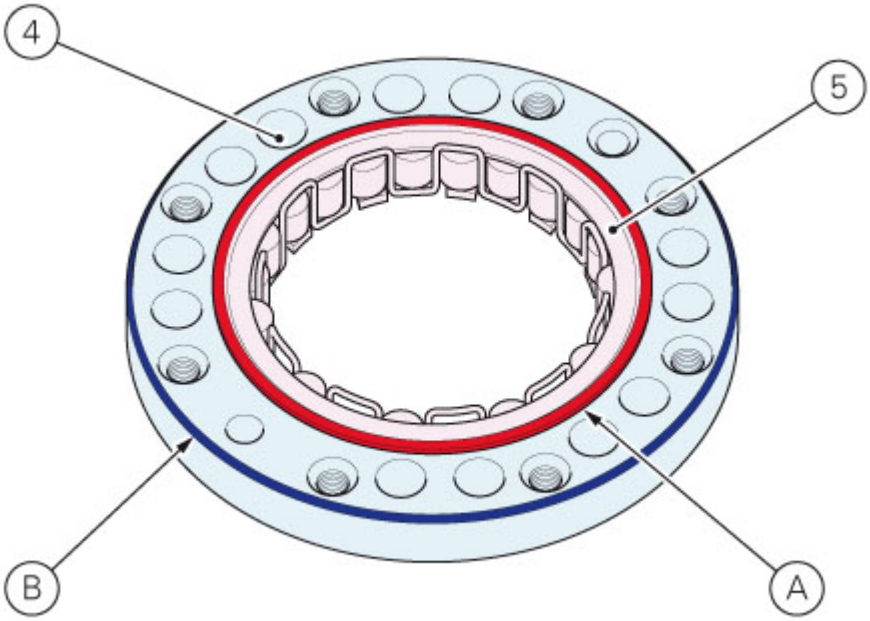
Fit starter clutch (5) on flange (4) taking starter clutch edge (A) fully home on flange.

Important

Assemble the components (starter clutch and flange) so that the edge (A) of the starter clutch is positioned on side of the flange with the bevelled edge (B).



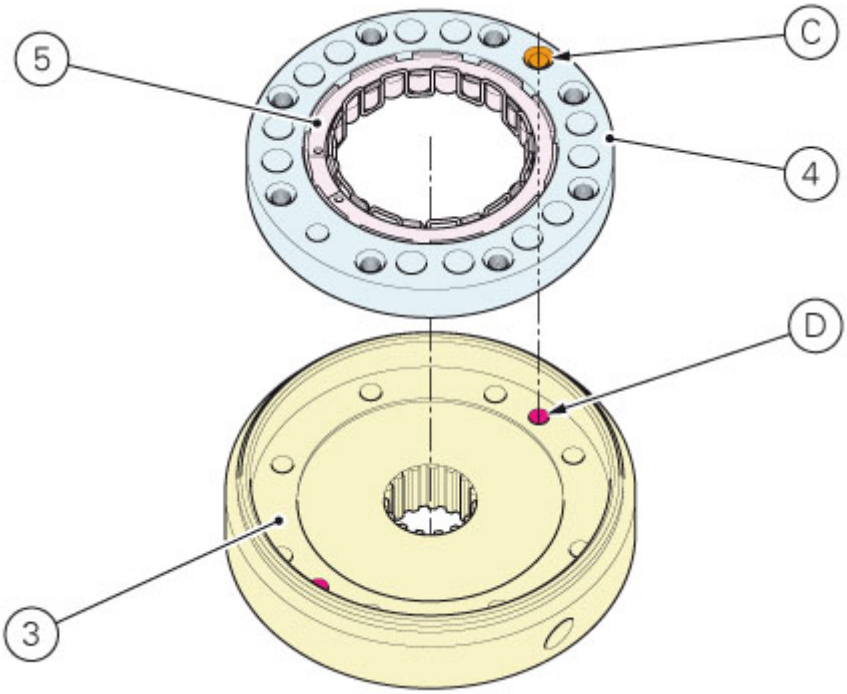
http://www.ducati-manuals.com
no. 140312



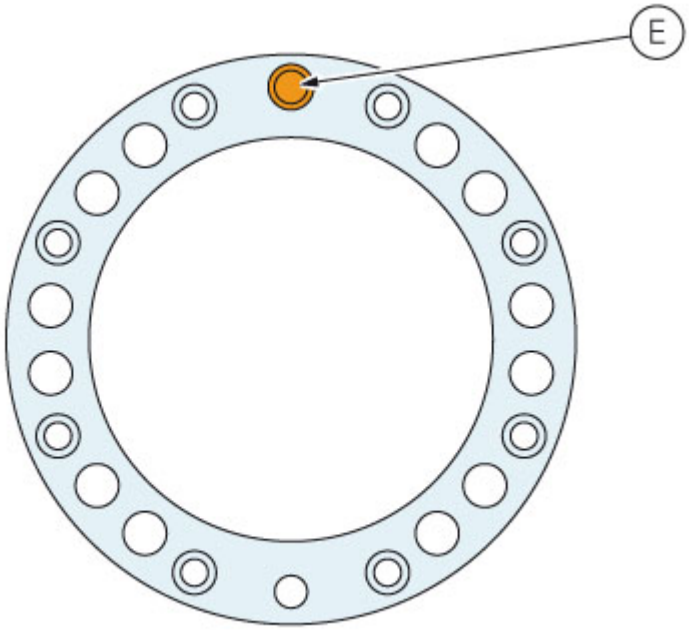
Fit the flange (4) with starter clutch (5) fully home into the flywheel (3), ensuring the centring hole (C) on flange matches the flywheel centring hole (D).

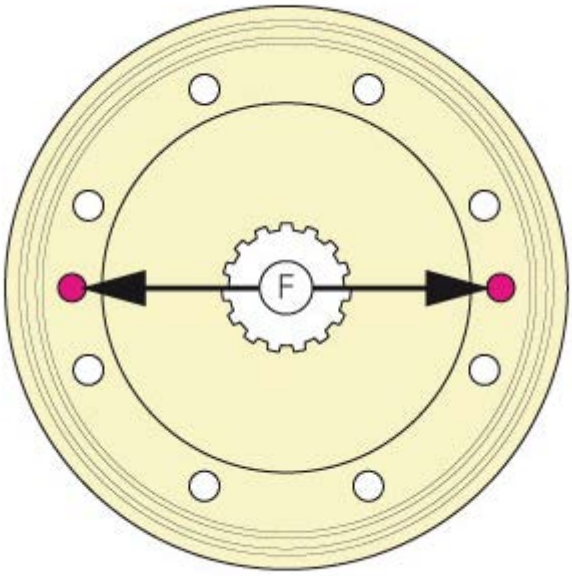
Note

The flange centring hole (C) is the hole with the countersunk lead-in (E).
The centring hole (D) of the flywheel can be either one of the two holes (F).
Use suitable tools to align the centring holes.



http://www.ducati-manuals.com
no. 140312

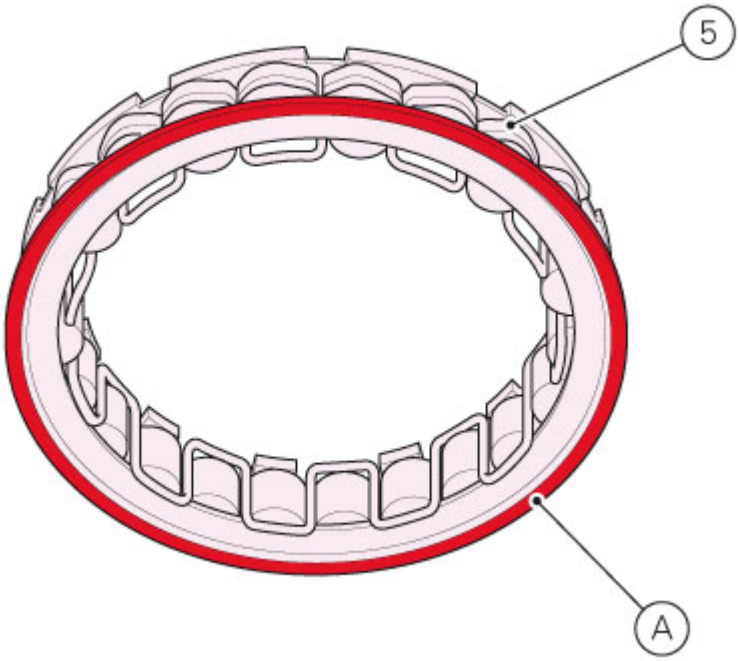




Important

Assemble the components (flange and flywheel) so that edge (A) of the starter clutch is enclosed between the flange and flywheel.

http://www.ducati-manuals.com
no. 140312

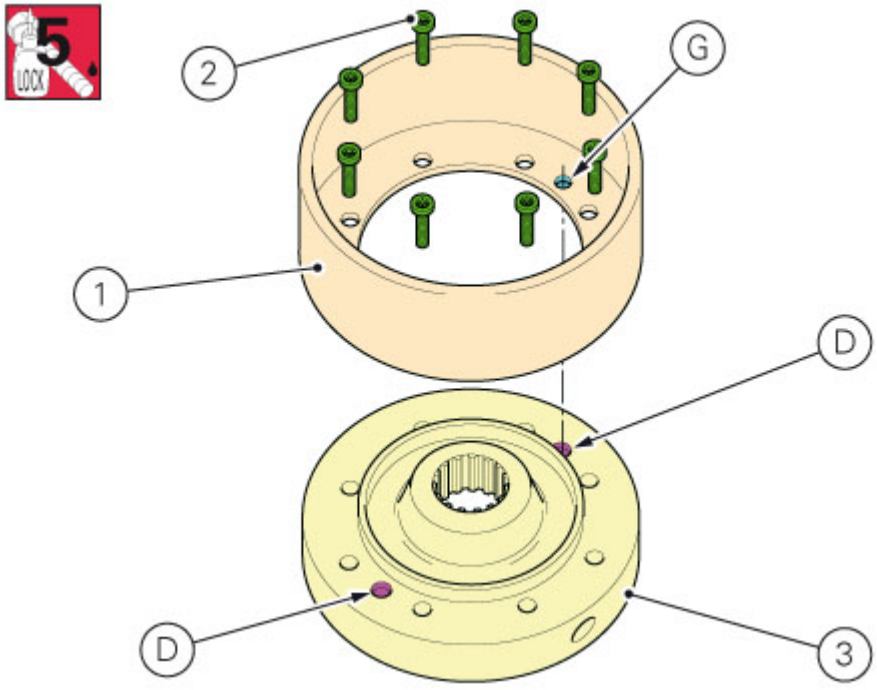


Install rotor (1) on flywheel (3), matching one of the two flywheel centring holes (D) with the rotor centring hole (G).

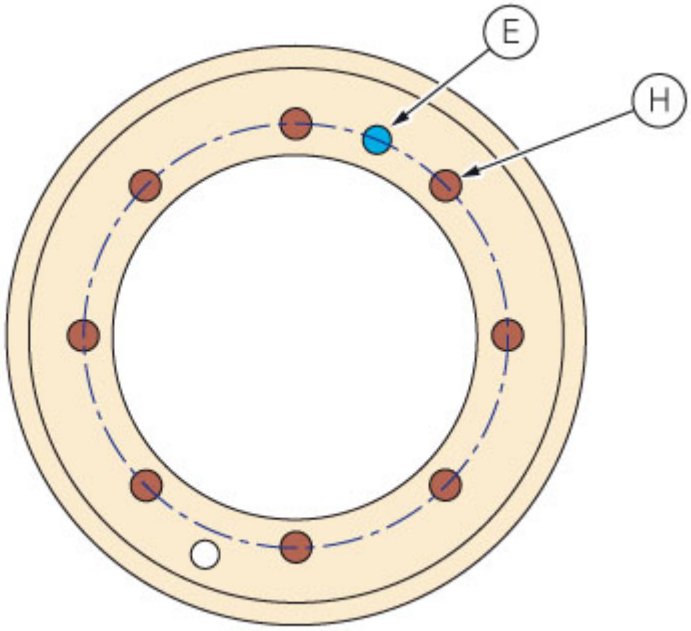
Note
The rotor centring hole (G) is the one positioned on the same diameter as the fixing holes (H).

Note
Use suitable tools to align the centring holes.

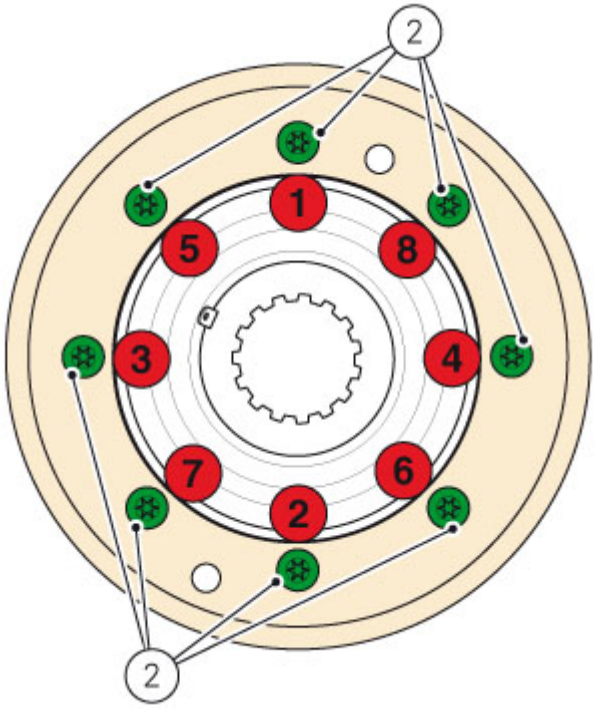
Smear some threadlocker on the rotor/flywheel retaining screws (2) and start them in their holes.



http://www.ducati-manuals.com
no. 140312



Tighten the screws (2) to a torque of 13 Nm (Min. 11 Nm - Max. 15 Nm), following the specified sequence.



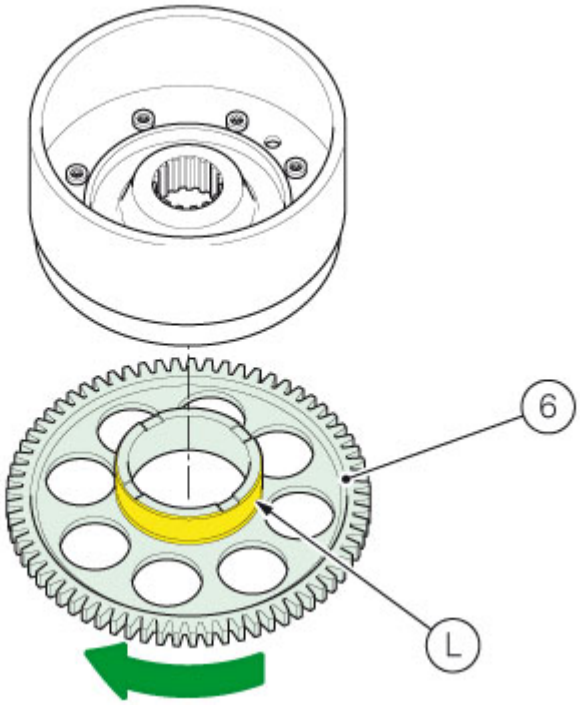
Smear engine oil on the driven gear (6) track (L).
Fit the driven gear fully home in the starter clutch.

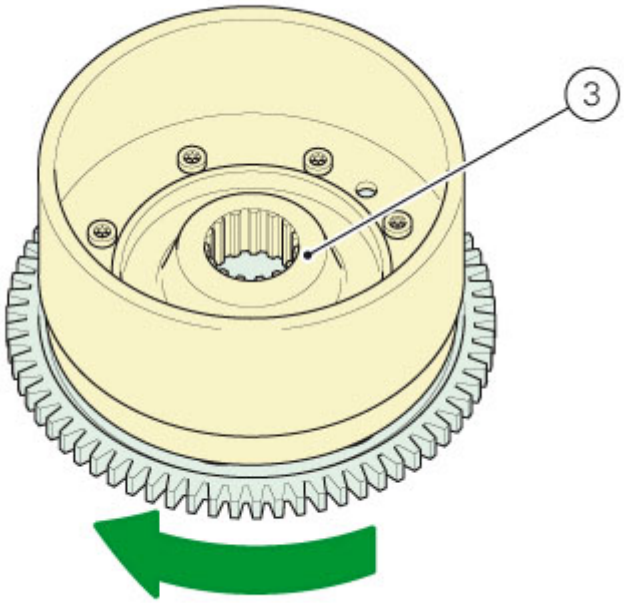
Note
To help insertion, turn the driven gear in the direction indicated by the green arrow.

Hold flywheel (3), and make sure that the driven gear (6) can turn in the direction indicated by the green arrow and that it can not turn in direction indicated by the red arrow.
If one of the two above conditions is not verified, it means that the starter clutch was not assembled correctly.

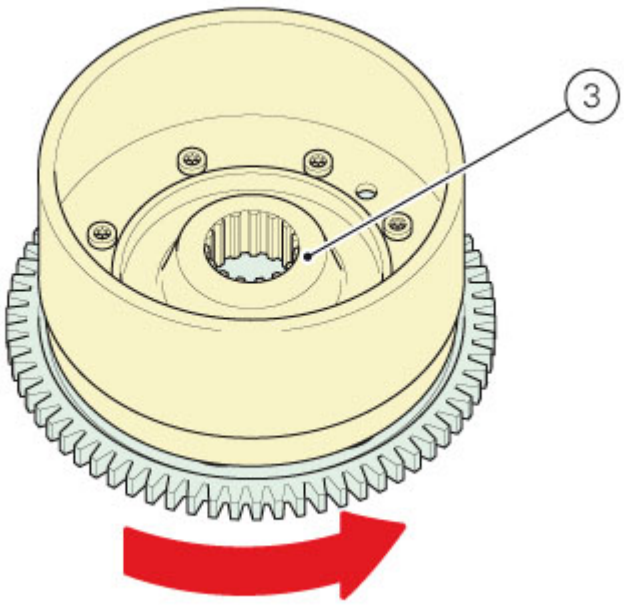
http://www.ducati-manuals.com
no. 140312







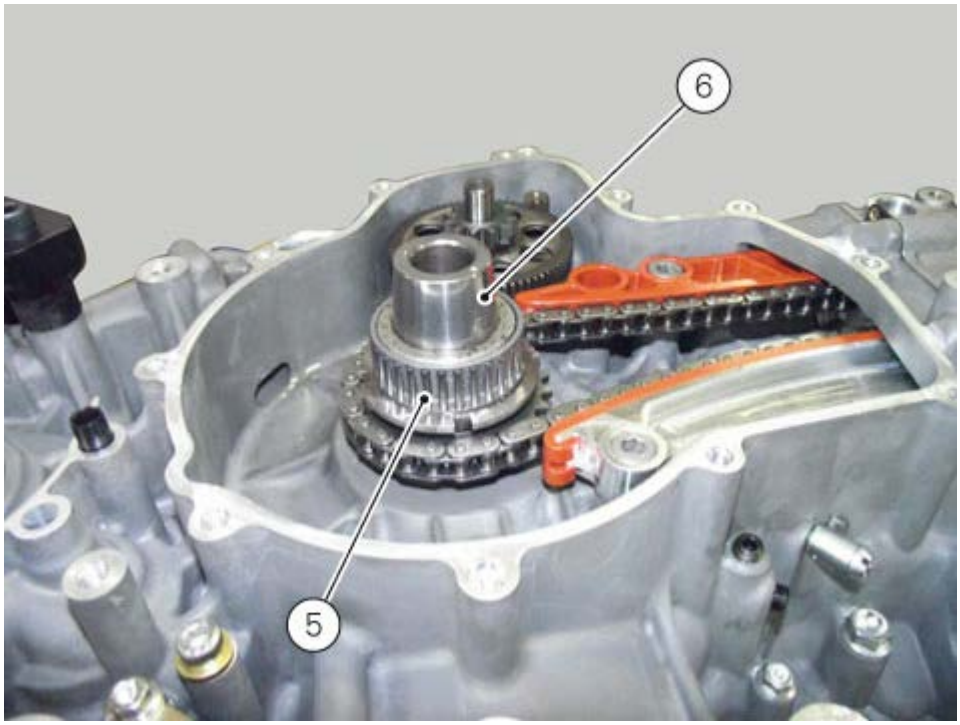
http://www.ducati-manuals.com
no. 140312

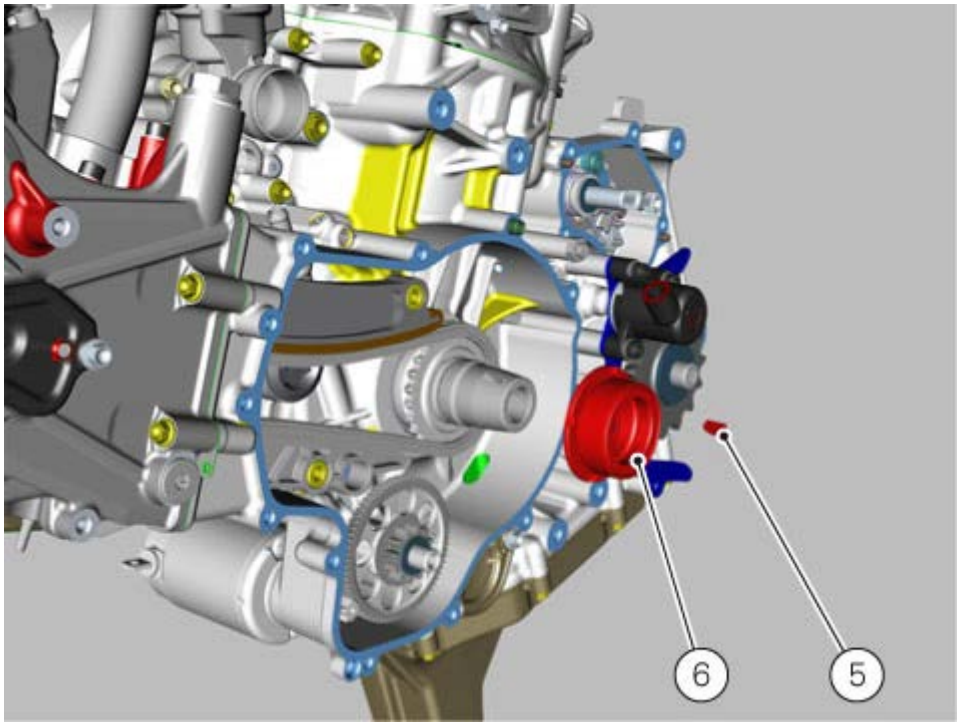


http://www.ducati-manuals.com
no. 140312

Installation of the flywheel/generator assembly

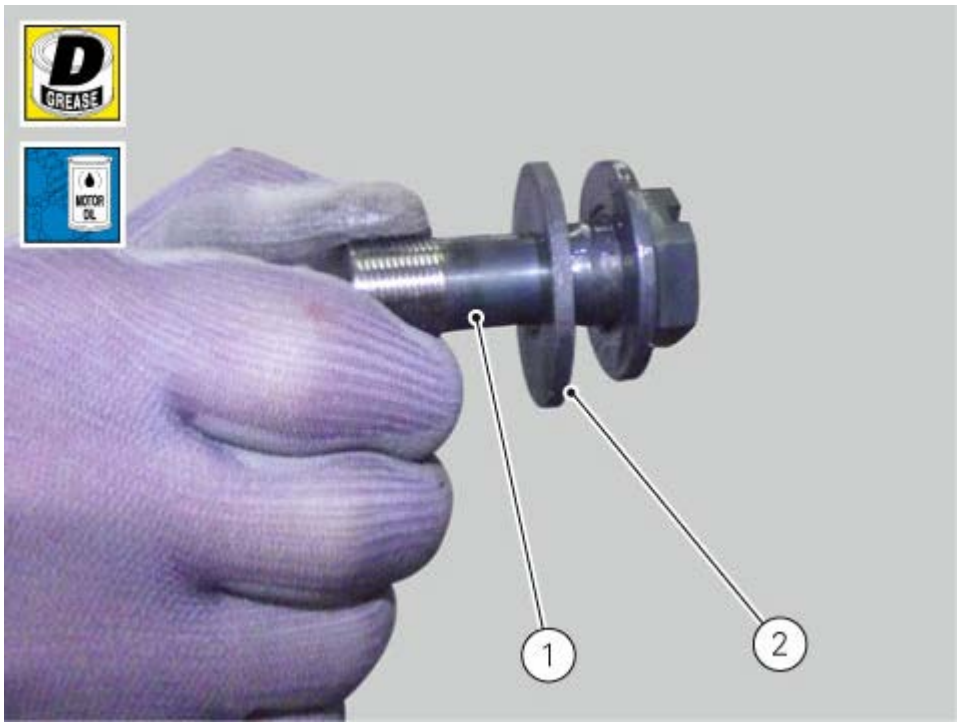
Carefully clean the crankshaft taper coupling.
Position the key (6) in its seat on crankshaft and position the roller bearing (5), after lubricating it.



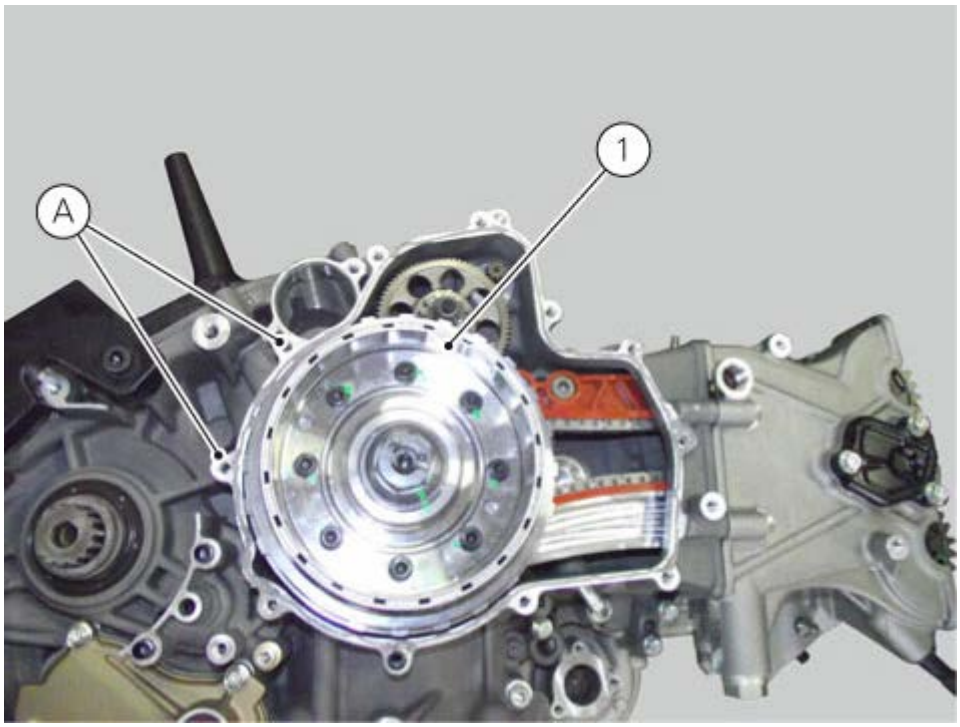


Clean inside the flywheel and fit it in the crankshaft by turning the idle gear until it meshes.
Apply specified grease on screw underside (1) and fit washer (2).
Lubricate screw thread (1) with engine oil.

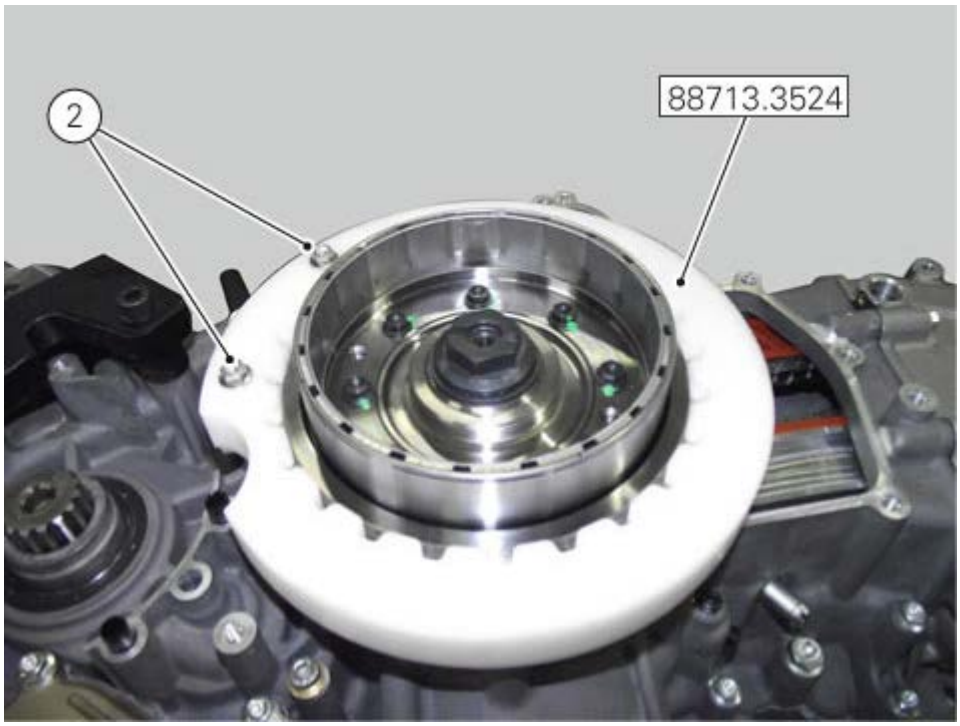
http://www.ducati-manuals.com
no. 140312



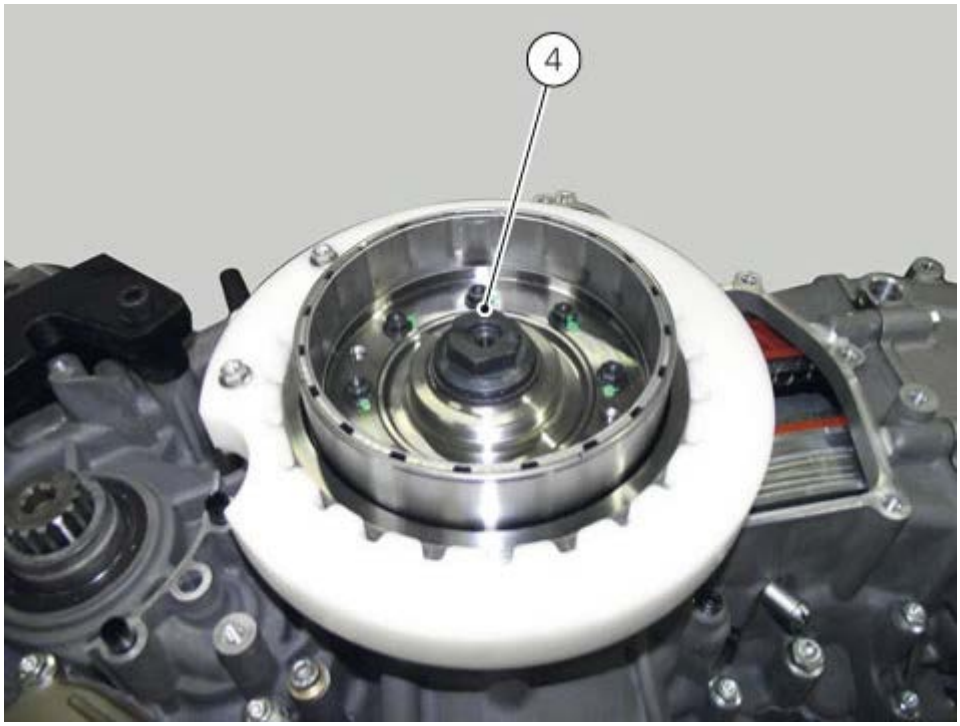
Hold the flywheel assembly (1) installing tool part no. **88713.3524** and securing it in place by means of screws (2) in holes (A).



http://www.ducati-manuals.com
no. 140312



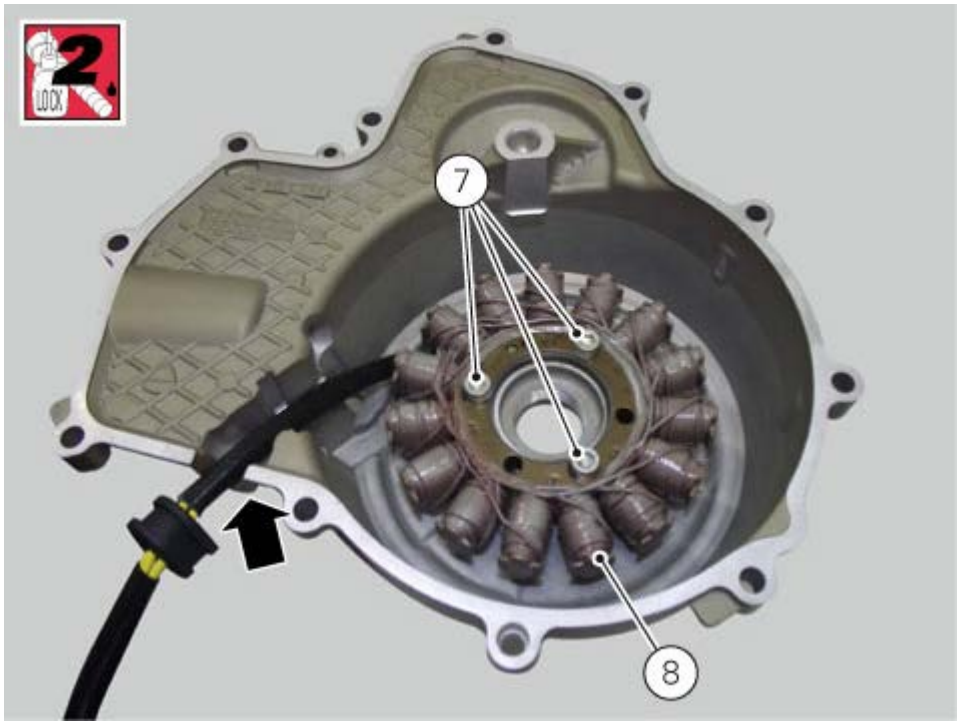
Start and tighten the screw (4) to a torque of 190 Nm (Min. 180 Nm - Max. 200 Nm).



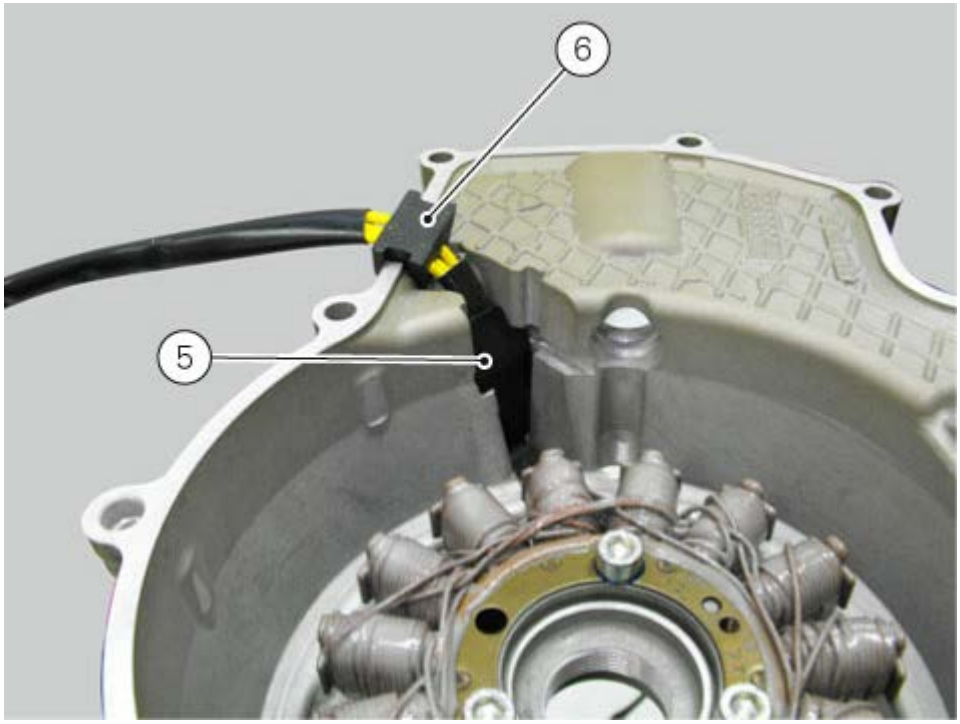
http://www.ducati-manuals.com
no. 140312

Installation of the generator cover

Install stator (8) in the generator cover, making sure that cable comes out facing down and the chamfer.
Insert rubber block (6) in the slot on generator cover and lock cable by fitting sheet plate (5).
Carefully clean the screws (7) and their threaded holes
Apply the recommended threadlocker to the screws (7).
Match stator holes with the corresponding threaded holes on generator cover, start screws (7) and tighten them to 10 Nm (Min. 9 Nm - Max. 11 Nm).



Make sure that rubber block (6) is correctly in place in its seat on generator cover.
Insert bottom tabs of sheet plate (5) along the grooves in generator cover.
Push sheet plate (5) down along the guides making sure that stator cable is correctly positioned under the sheet plate until the top tabs engage in the grooves.

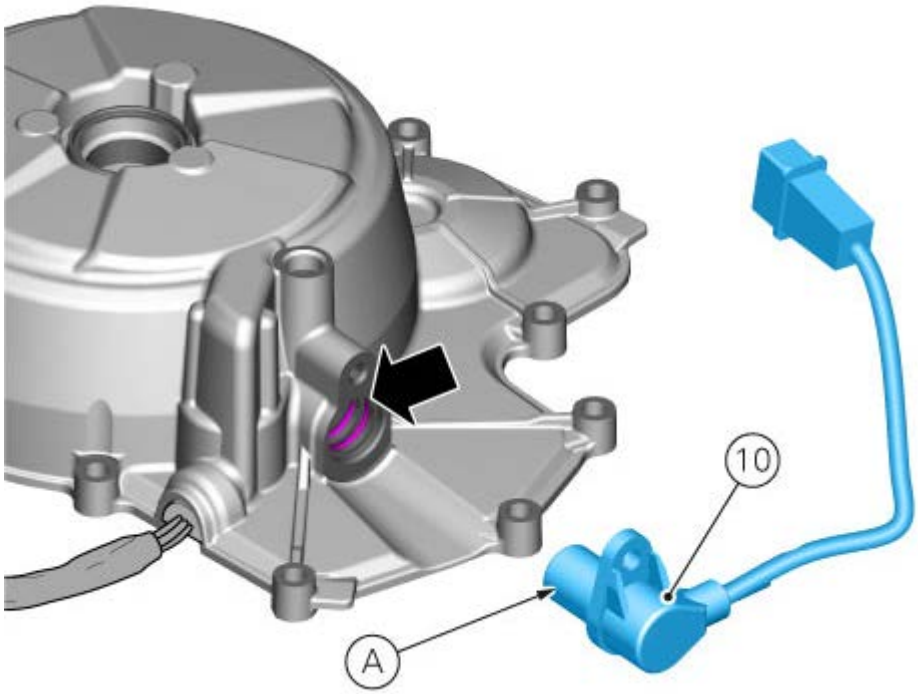


If pick-up sensor was removed, when reassembling make sure that the O-rings are duly inserted in the relevant seats on generator cover.

http://www.ducati-manuals.com
no. 140312

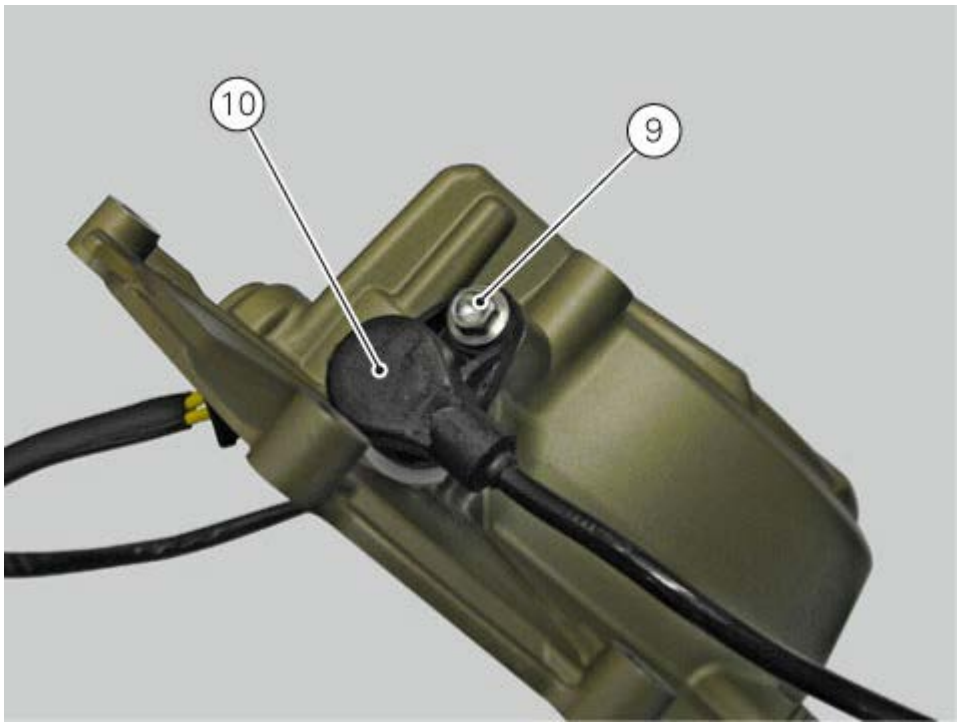


Smear “Grease” on surface (A) of pick-up sensor (10).

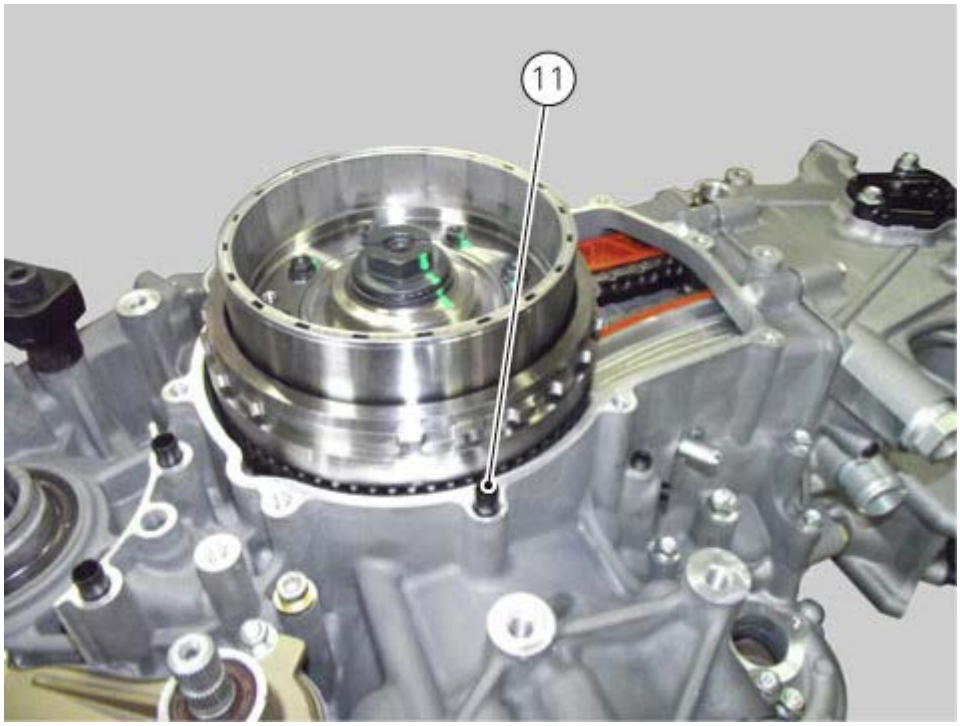


Install the pick-up (10) with spring washer on generator cover and start screw (9).
Tighten screw (9) to a torque of 10 Nm (Min. 9 Nm - Max. 11 Nm).

http://www.ducati-manuals.com
no. 140312

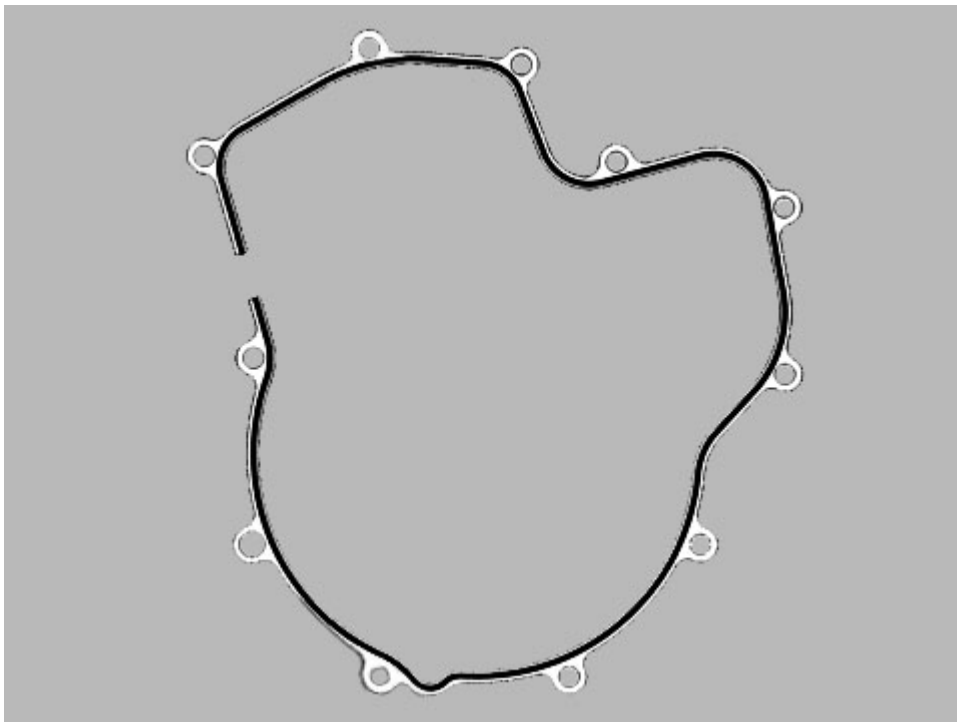


Remove any scale and grease from the mating surfaces of the left-hand crankcase half and the generator cover.
Install reference bush (11).



Apply a uniform bead of DUCATI sealing paste on the crankcase, avoiding holes for screws and pilot bushings.

http://www.ducati-manuals.com
no. 140312



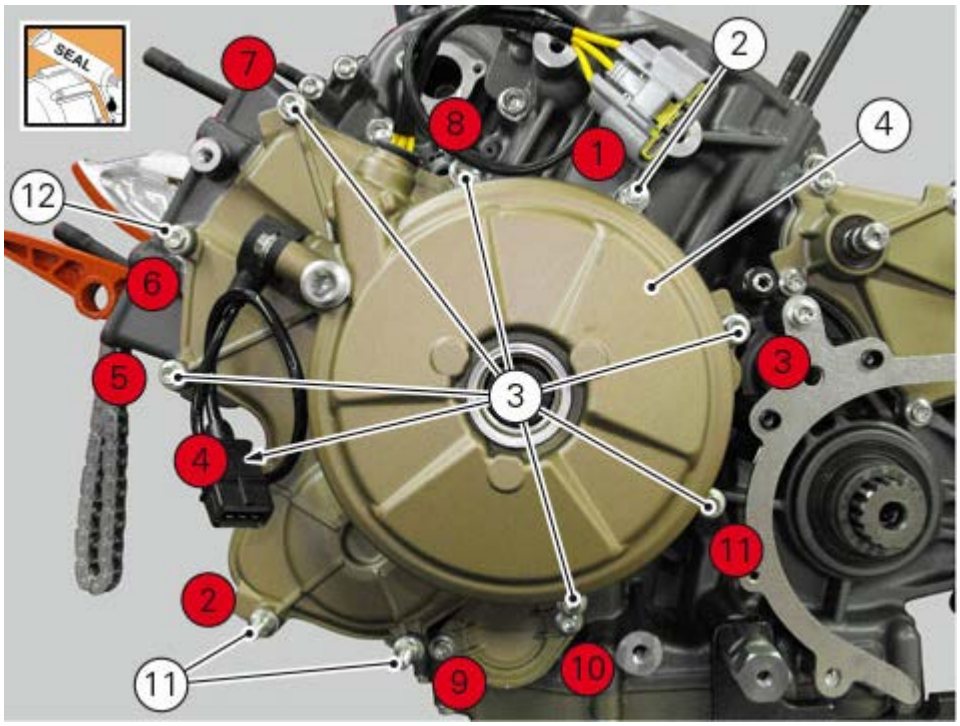
Position cover (4) and start the screws following the specifications in the table.

Warning
The rotor magnet strongly attracts the cover, be careful when refitting it and avoid touching the surface smeared with Ducati sealant.

Smear the screw (12) with specified sealant.
Tighten the screws (2), (3), (11) and (12) to 13 Nm (Min. 12 Nm - Max. 13 Nm), following the specified sequence.

Ref.	Q.ty	Description
3 - 12	7+1	M6X25 Screws
2	1	M6X30 Screws
11	2	Special screws M6X25

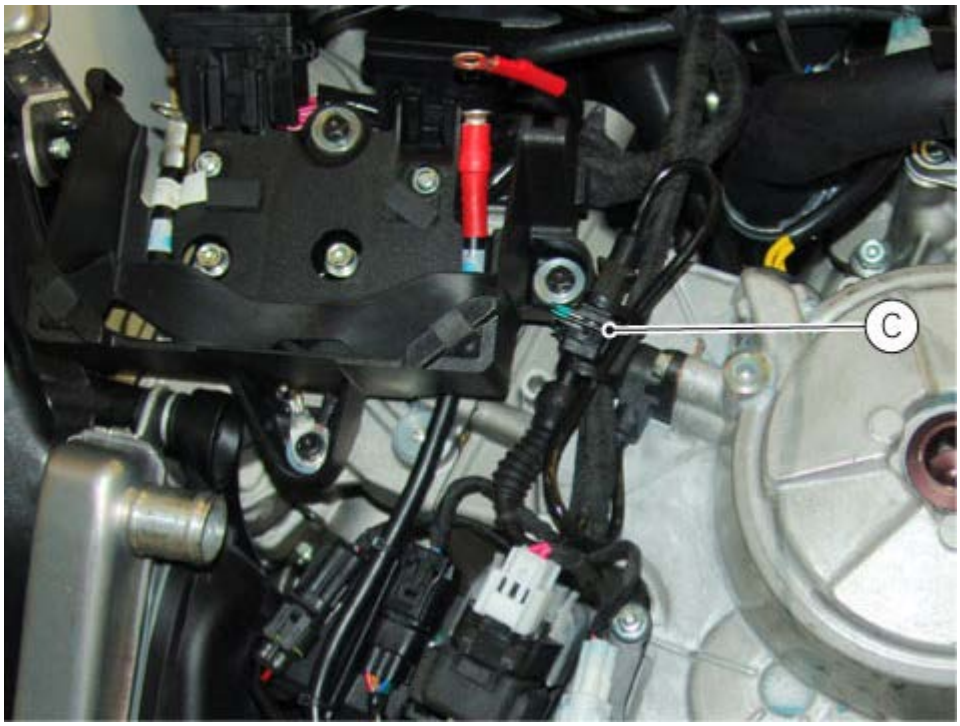
http://www.ducati-manuals.com
no. 140312



Tighten nuts (1) retaining solenoid starter support.
Connect connector (B) from generator cable and connector (C) from pick-up cable.
Connect bottom radiator tube (A) from vertical head.



http://www.ducati-manuals.com
no. 140312

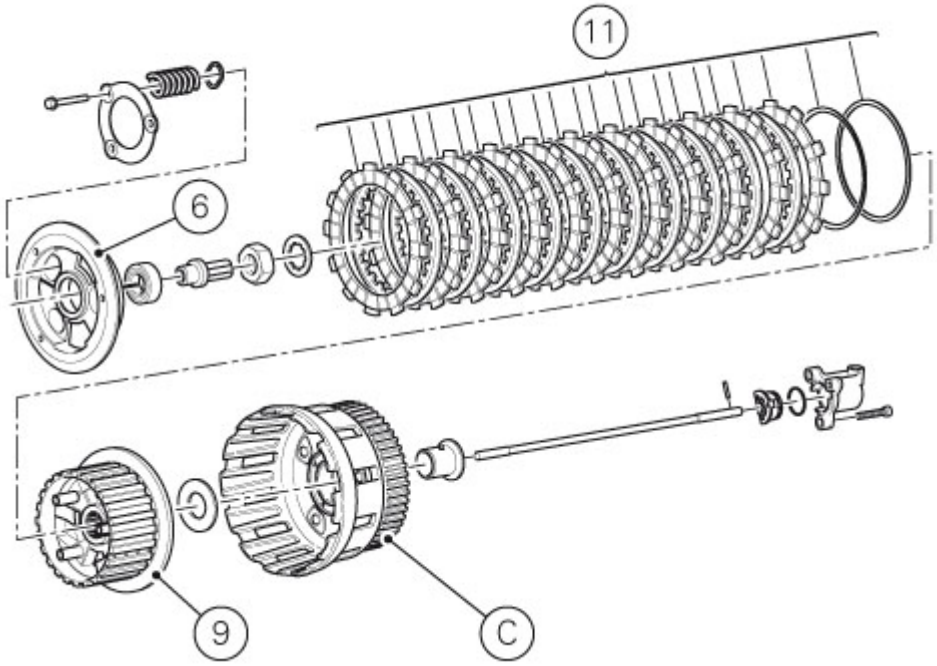


Refit the clutch slave cylinder assembly (Refitting the clutch slave cylinder).
Refit battery mount (Refitting the battery support).
Fill engine oil (Changing the engine oil and filter cartridge).
Refit the left-hand side fairing (Refitting the side fairings).

http://www.ducati-manuals.com
no. 140312

Description of the clutch assembly

The clutch is disengaged by a drive unit consisting of a thrust piston (A) accommodated inside a small cap mounted to the generator cover. This piston (A) pushes a pushrod (B), which runs through gearbox primary shaft and operates the pusher plate (6) located on top of the clutch plate pack (11).
Drive is transmitted from the crankshaft to the gearbox primary shaft by a gear integrated with the clutch housing/primary drive gear pair (C).
Accommodated in the clutch housing is a set of drive and driven plates (11). When the clutch is operated, the driven plates push away a drum (9) which is splined onto the gearbox primary shaft.
Before working on the internal clutch parts, check that the clutch operates correctly. Then deal with the problem in a systematic manner.



The following is a list of possible causes of clutch malfunction.

A clutch which does not disengage may be caused by:

- excessive play of the control lever;
- distorted clutch plates;
- incorrect spring tension;
- faulty clutch release mechanism;
- excessive wear of the hub or clutch housing.

A clutch which slips may be caused by:

- insufficient play of the control lever;
- worn clutch plates;
- weakened springs;
- faulty clutch release mechanism;
- excessive wear of the hub or clutch housing.

A noisy clutch may be caused by:

- excessive backlash between the primary drive gears;
- damaged primary drive gear teeth;
- excessive play between friction plate tabs and the clutch housing;
- worn gear/clutch housing bearings;
- the presence of metal particles (filings) on the gear teeth.

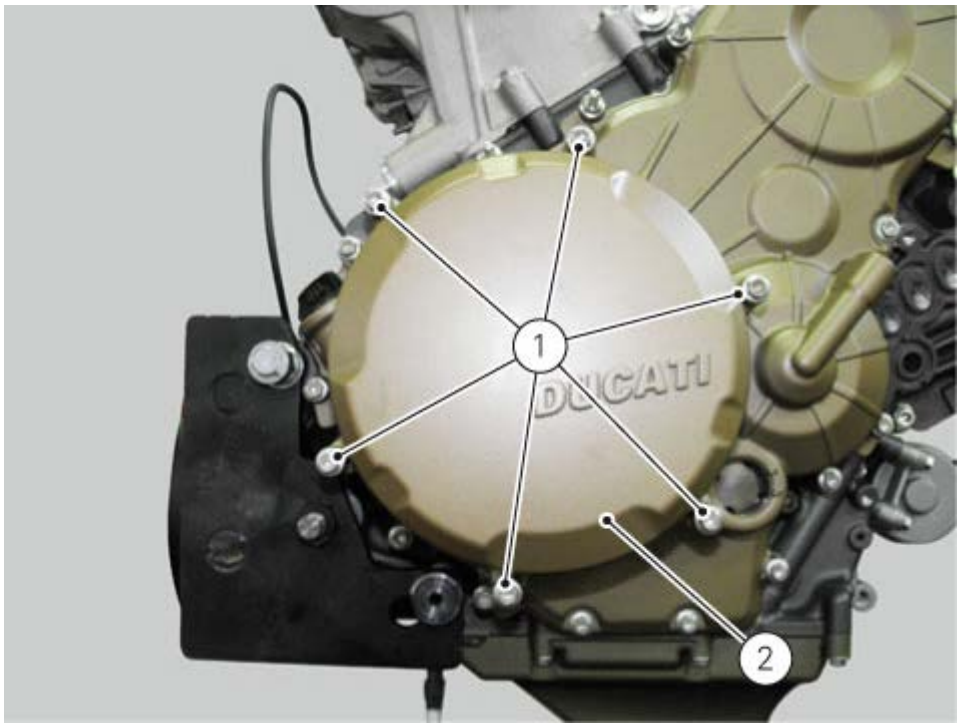
http://www.ducati-manuals.com
no. 140312

Removal of the clutch

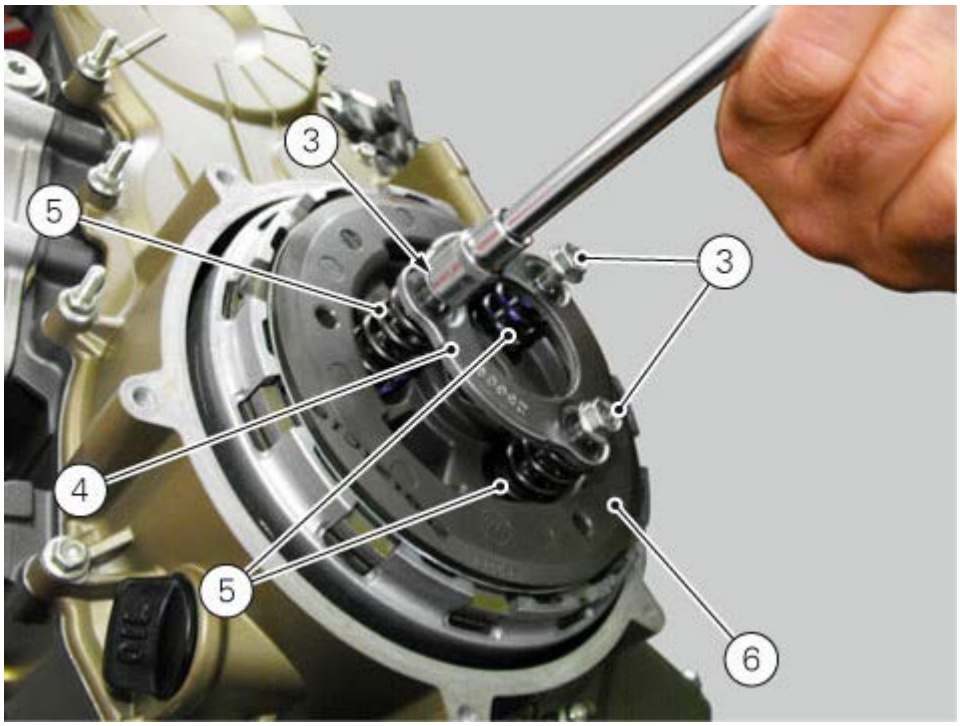
Remove the right-hand fairing (Removal of the side fairings).
Drain the engine oil (Changing engine oil and filter cartridge).

Note
For clarity, the figures show the engine removed from the frame.

Unscrew the screws (1) and remove the clutch inspection cover (2).

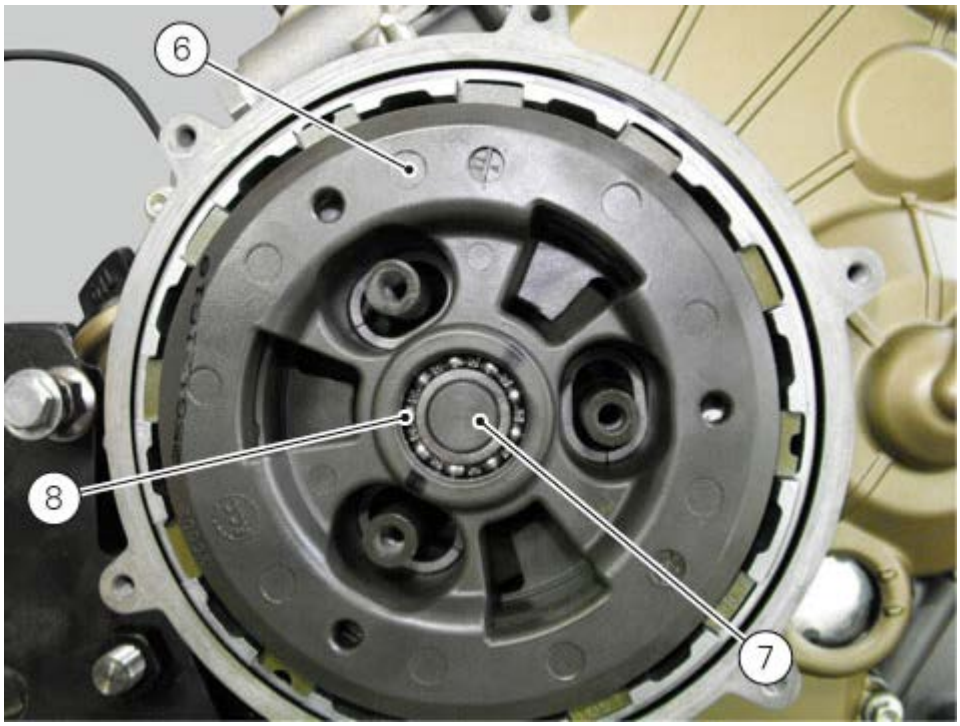


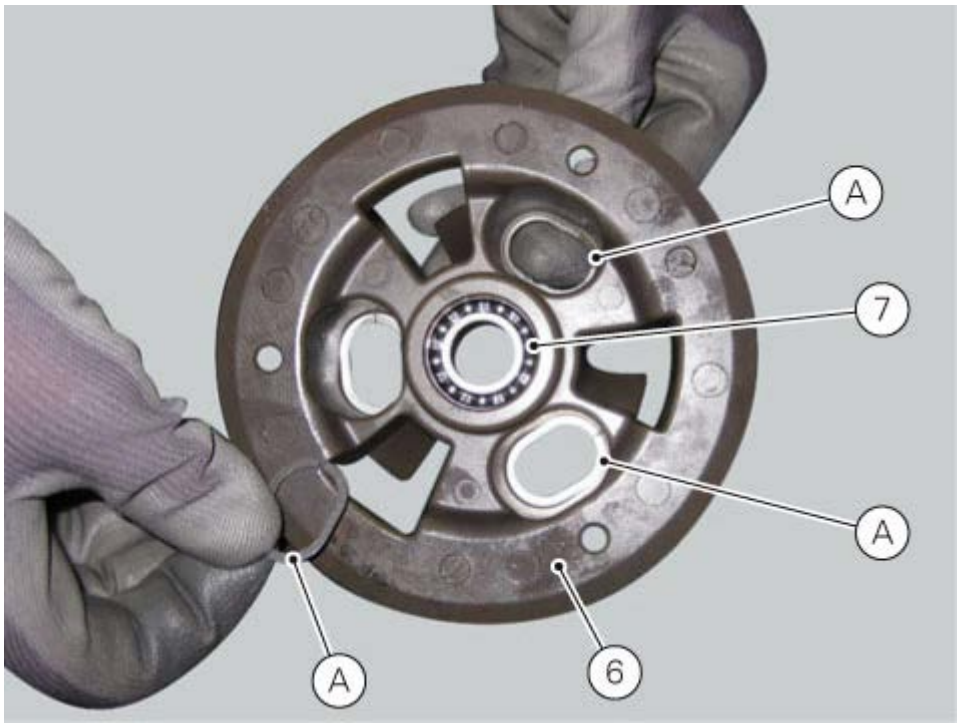
Undo the fixing screws (3) and remove the ring (4) and the springs (5) from the pusher plate (6).



Slide the pusher plate (6) paying attention to the circlips (A).
Remove the clutch control pin (7) and the bearing (8).

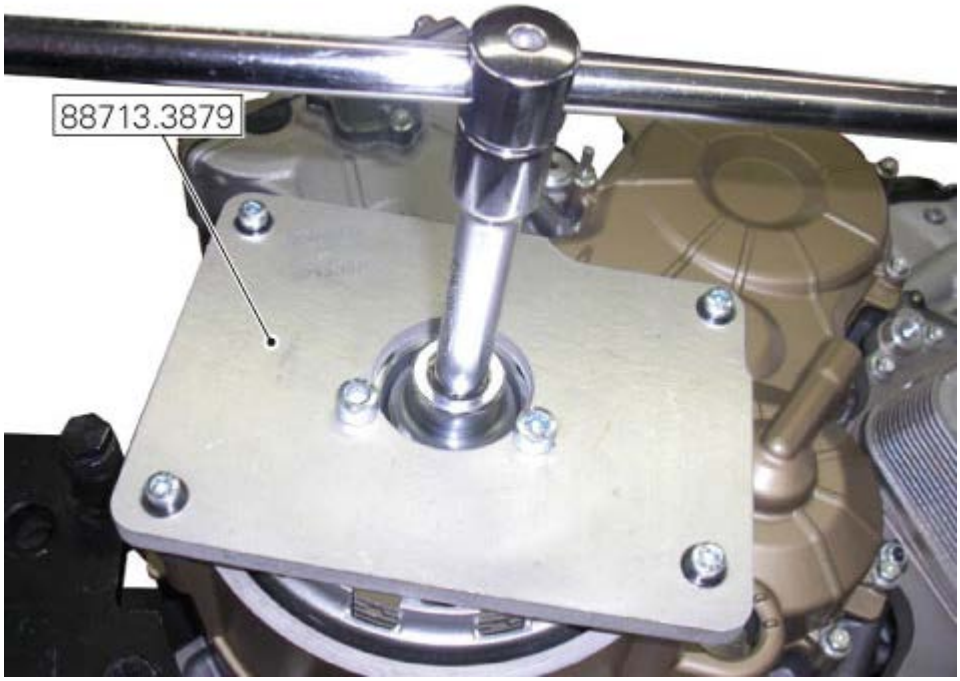
http://www.ducati-manuals.com
no. 140312





Lock the clutch drum (9) using the appropriate tool part number **88713.3879**, undo the fixing nut (10).

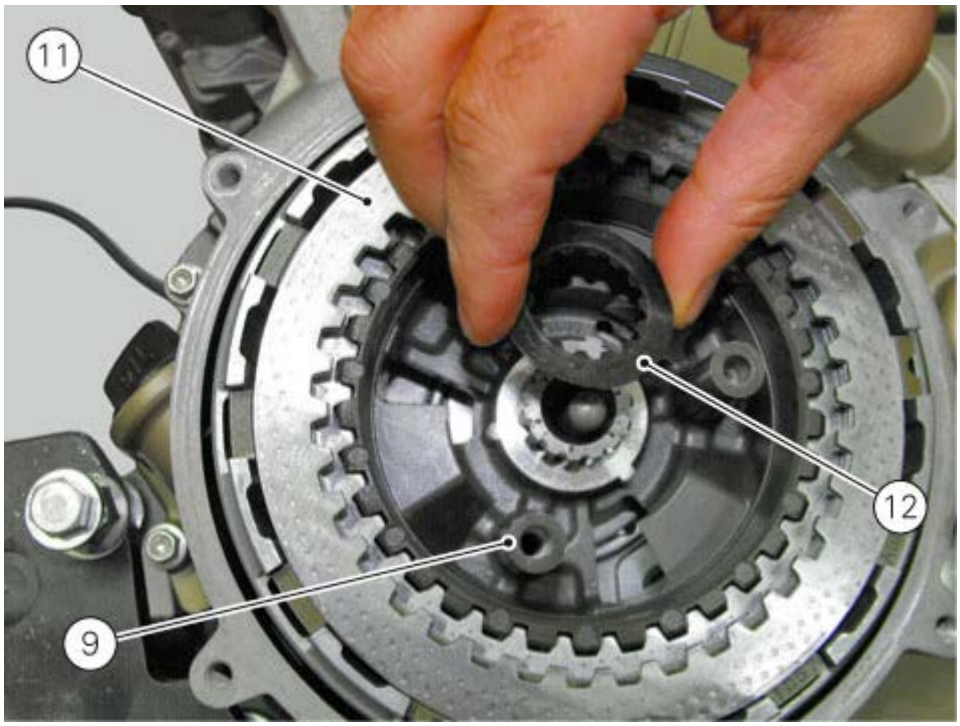
http://www.ducati-manuals.com
no. 140312



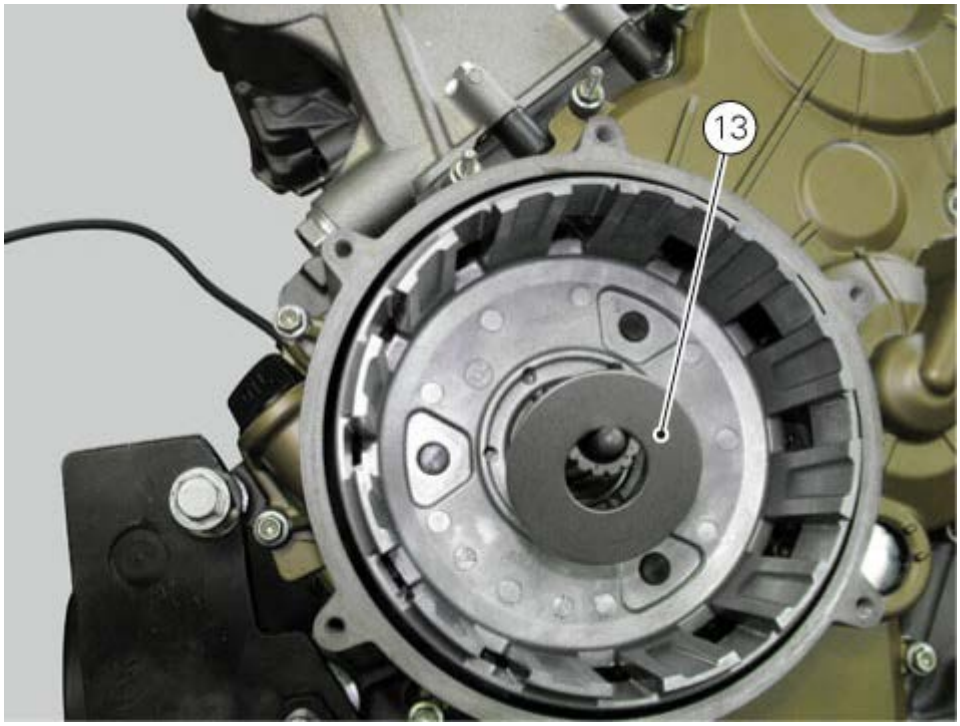


Remove the spider washer (12) and slide out the clutch drum (9) together with plates pack.
Remove the clutch plates. When removing the plates (11), keep them paired in the assembly order and set them aside tied together, if necessary.

http://www.ducati-manuals.com
no. 140312



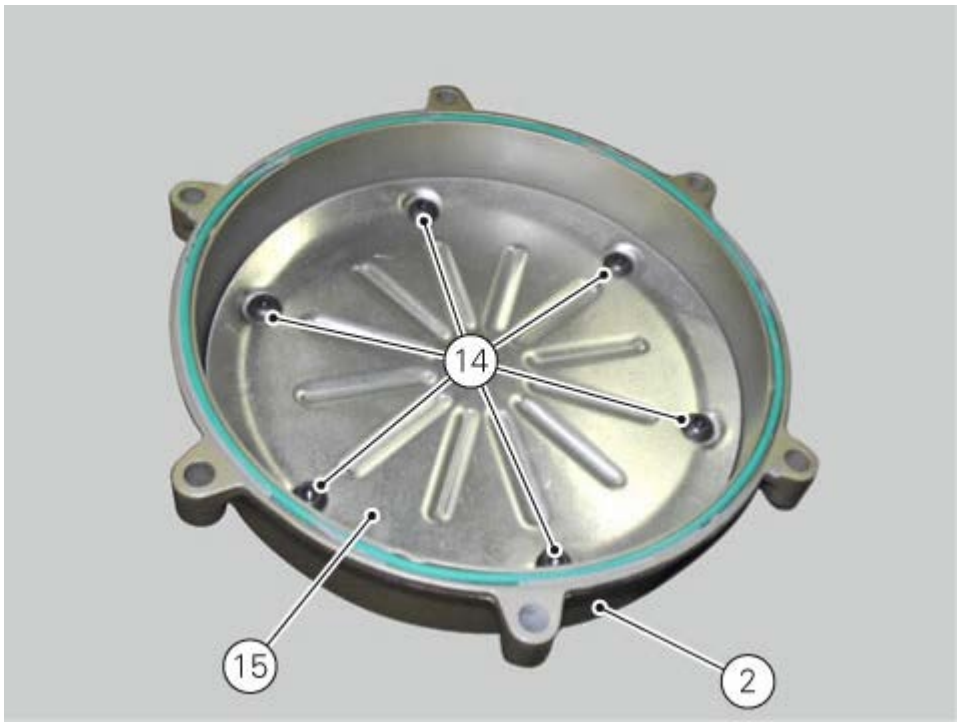
Slide out the spacer (13).



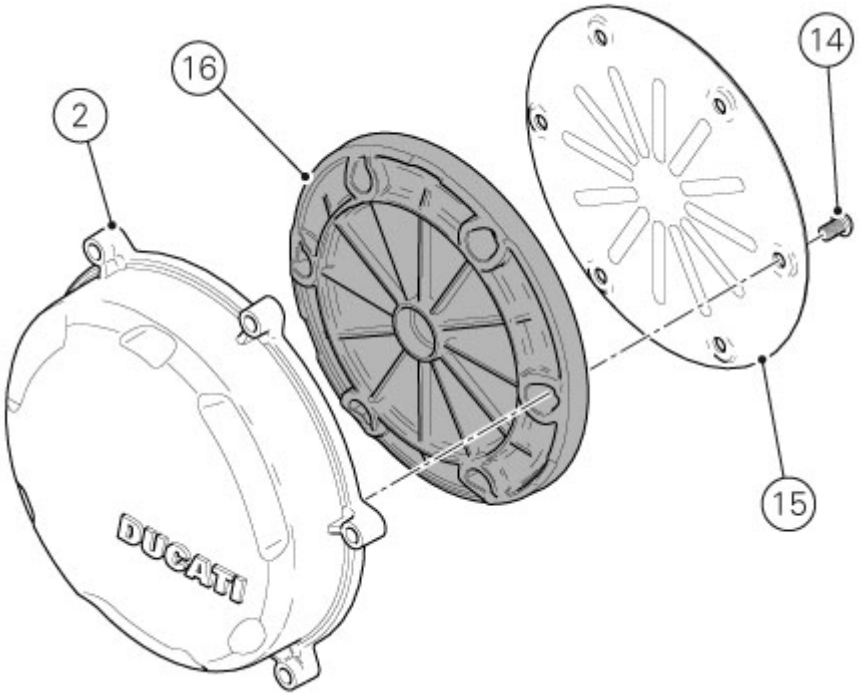
Disassemble the clutch inspection cover (2), if necessary.

Unscrew the screws (14) retaining the inner cover (15).

http://www.ducati-manuals.com
no. 140312



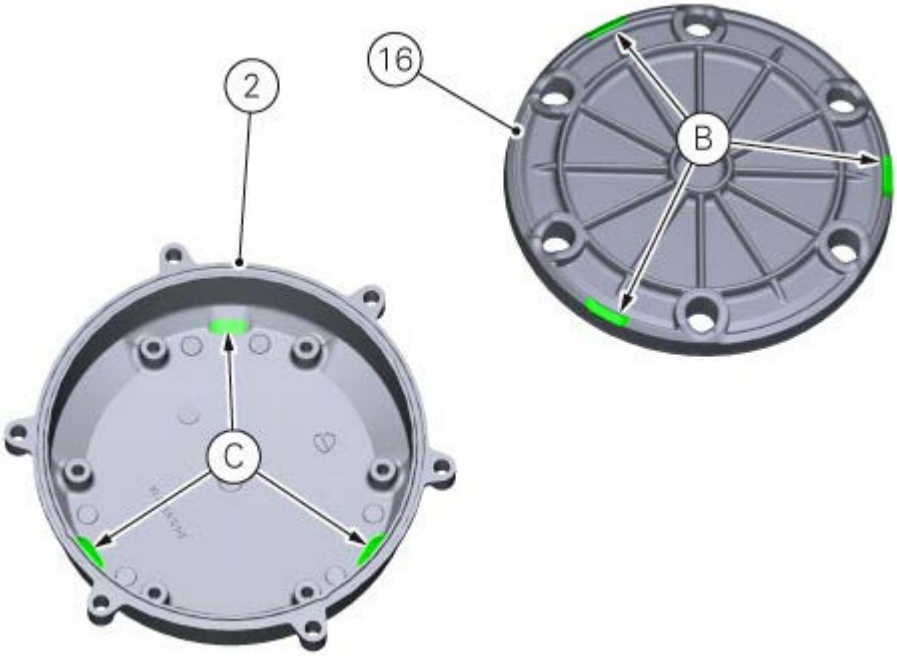
Remove the inner cover (15) and the soundproofing panel (16).



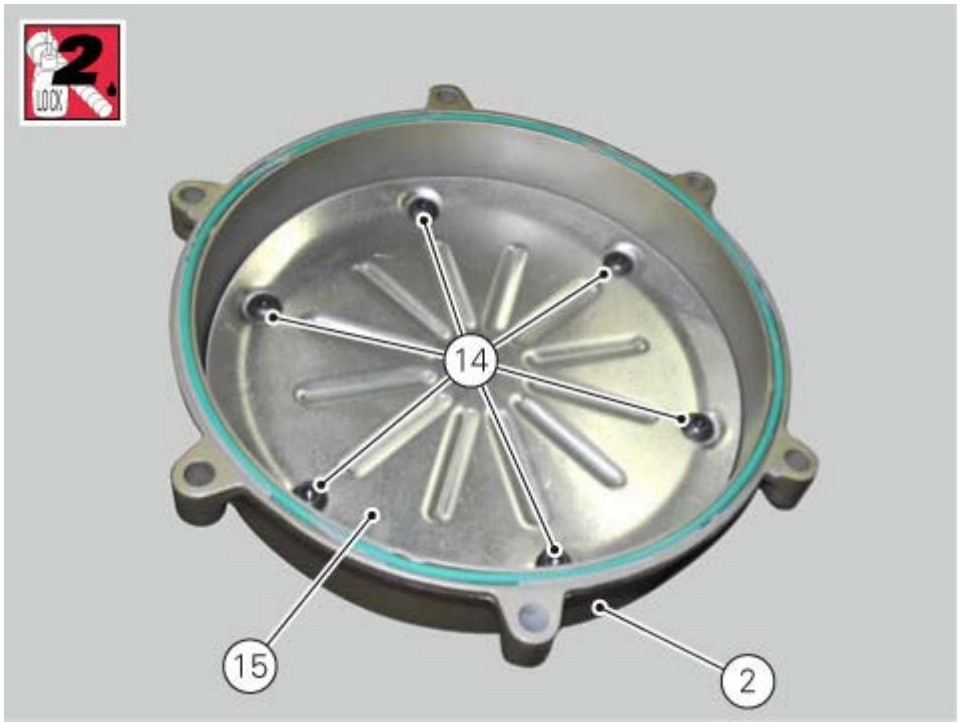
Reassembly of the clutch inspection cover (2).

Set soundproofing panel (16) inside the clutch inspection cover (2), positioned as shown in the figure, and make sure panel (16) grooves (B) match the ribs (C) on cover (2).

http://www.ducati-manuals.com
no. 140312



Fit inner cover (15) in clutch cover (2).
Apply threadlocker on screw (14) thread.
Start and tighten the screws (14) to 10 Nm (Min. 9 Nm - Max. 11 Nm).

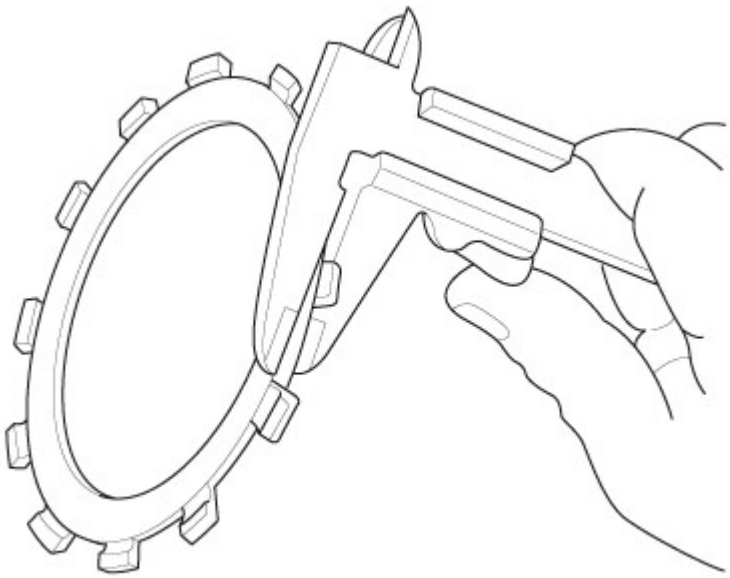


http://www.ducati-manuals.com
no. 140312

Check and overhaul of the components

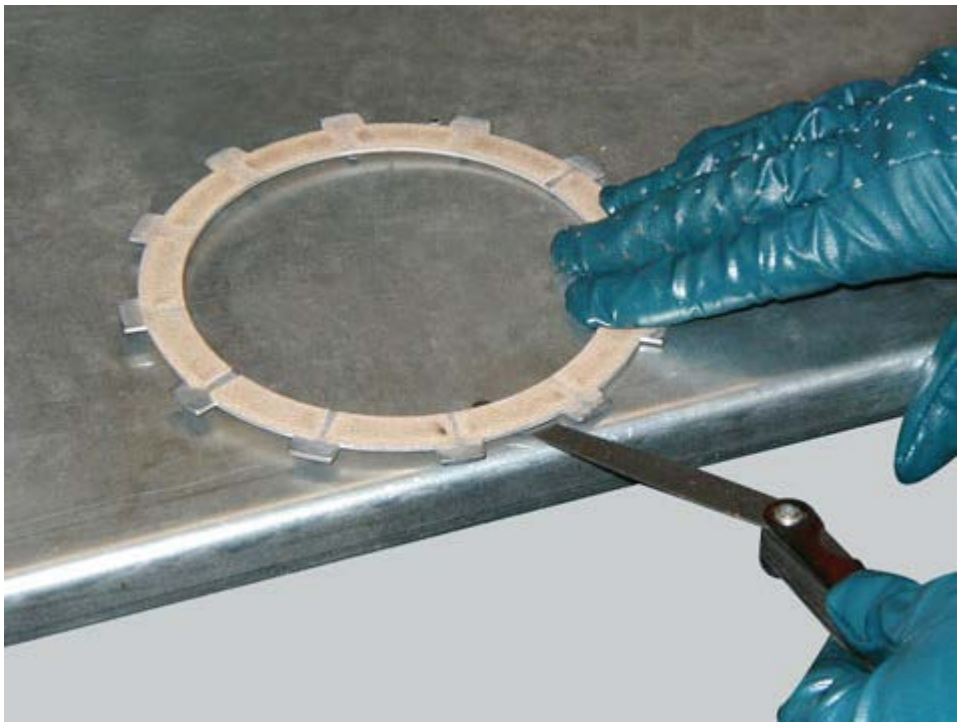
Overhaul of the clutch plates

The clutch plates must not show any signs of blackening, grooves or deformation.
Measure the thickness of the friction plates: it should not be less than **2.7** mm.



Important
The total thickness of the plates pack must not be less than **50.8** mm.

Place the plate on a flat surface and check the amount of deformation with a feeler gauge.
Max flatness error: **0.15** mm.

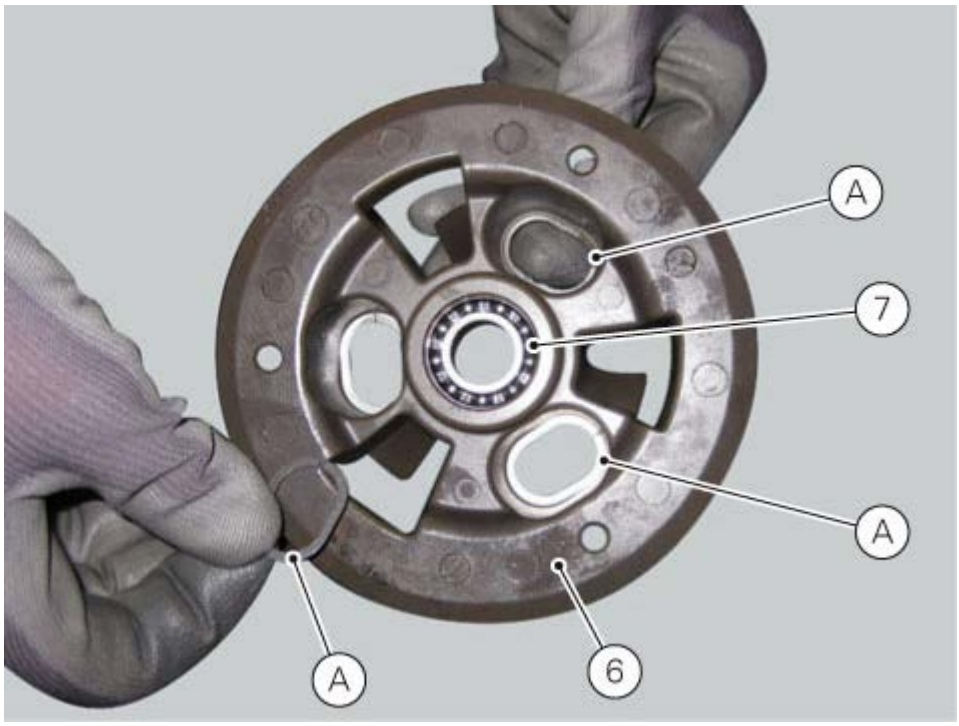


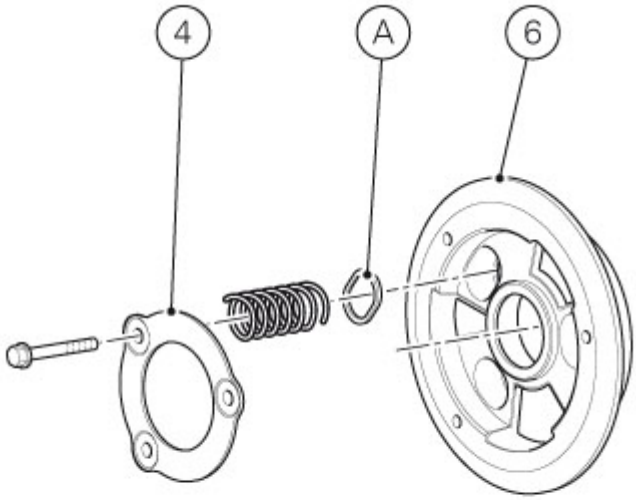
Overhaul of the pusher plate

Check bearing (7) condition: renew the bearing if the play is excessive.
Check the contact surfaces of the last friction plate; if extremely scored, polish it in the same manner as

http://www.ducati-manuals.com
no. 140312

described previously for the cylinder head surface (Overhaul of the head components).
Check conditions of the retainer (4), of the pusher plate (6) and of the circlips (A).

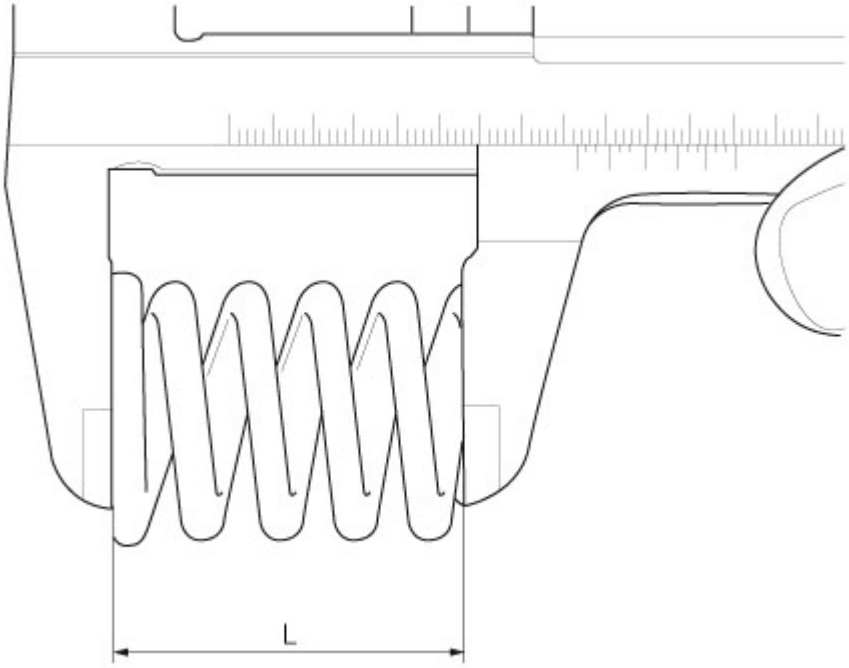




Overhaul of the pusher plate springs

Measure the length “L” of each spring.
Minimum length: **45** mm.
Renew any springs that are shorter than the above limit value.

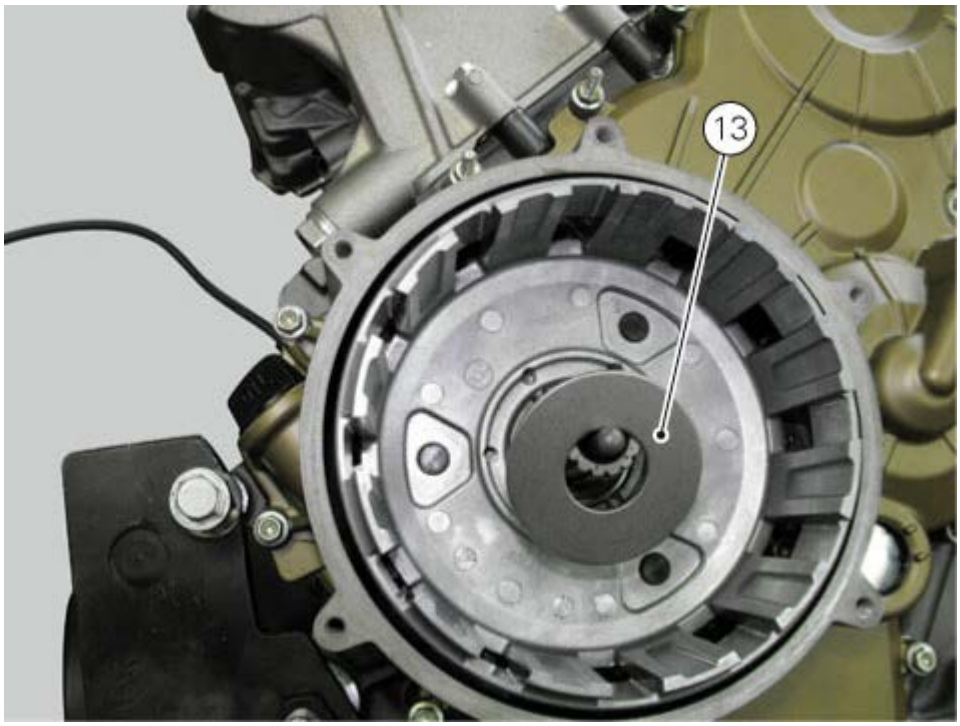
http://www.ducati-manuals.com
no. 140312



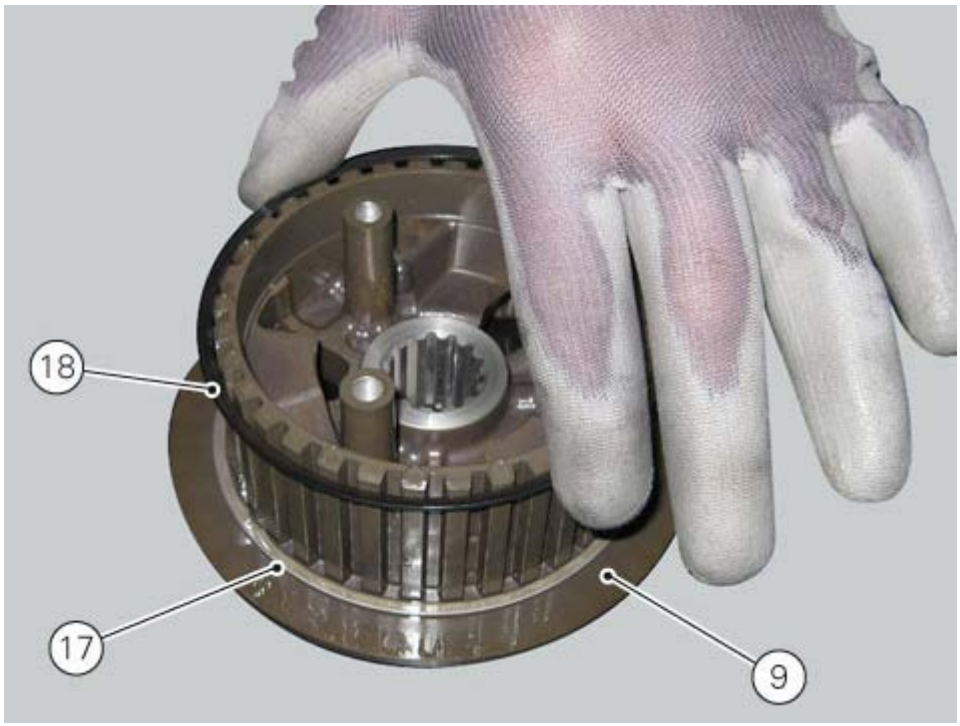
http://www.ducati-manuals.com
no. 140312

Reassembly of the clutch

Position the spacer (13).

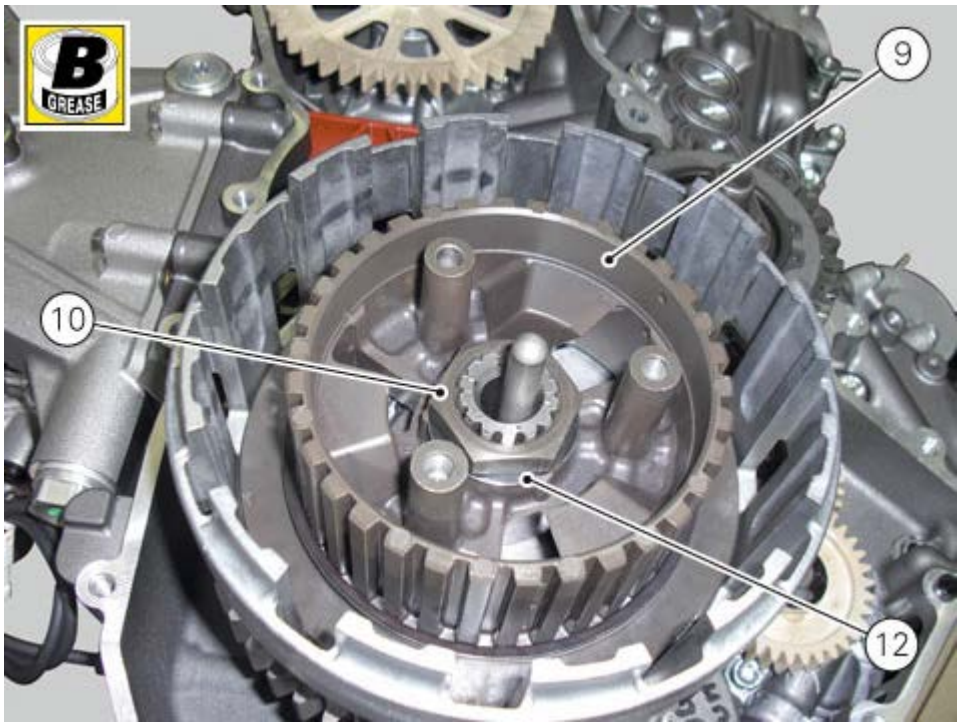


Fit the flat ring (18) and the Belleville washer (17) on the clutch drum (9), so that the convex side faces the clutch drum.

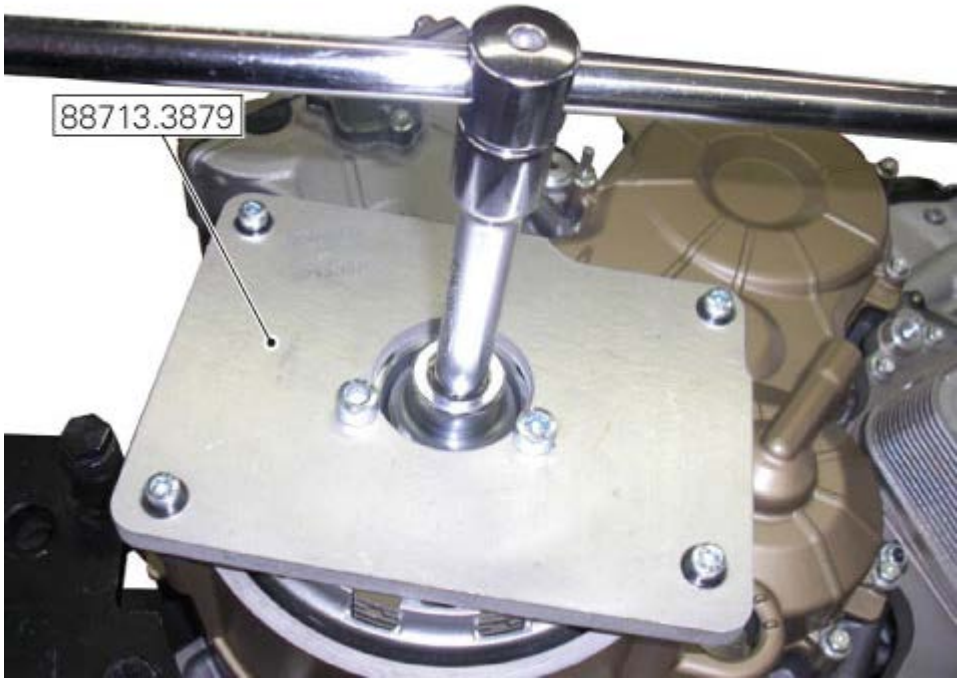


Position the spider washer (12).
Apply the prescribed grease to the thread of the gearbox primary shaft and the mating surface of nut (10), and fit it over spider washer (12).

http://www.ducati-manuals.com
no. 140312



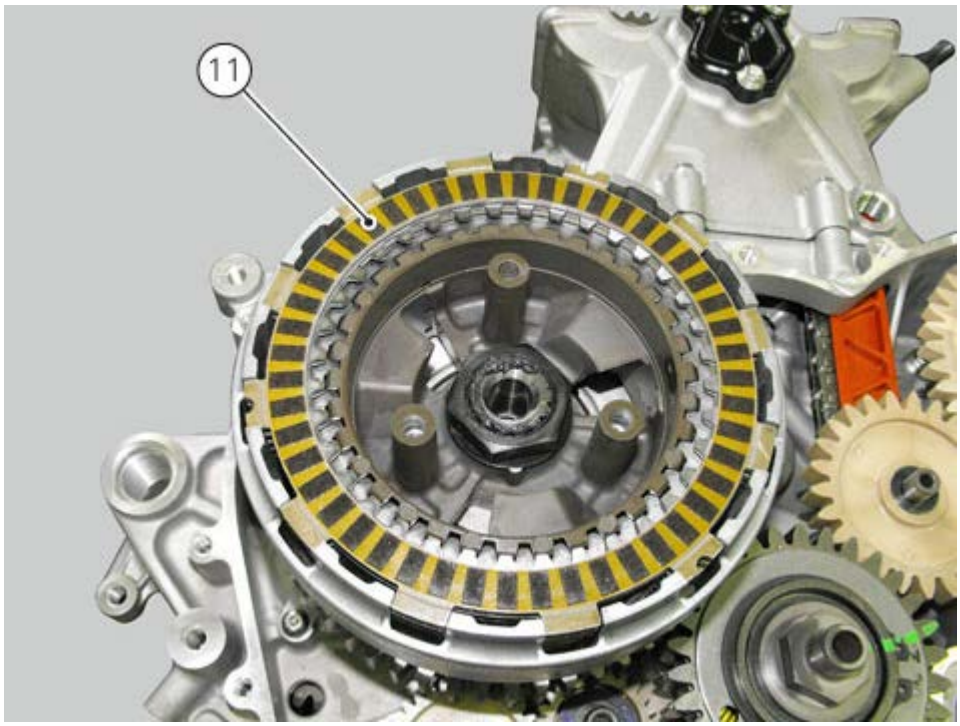
Lock the clutch drum (9) using the appropriate tool part number **88713.3879**, and tighten the nut (10) to 190 Nm (Min. 180 Nm - Max. 200 Nm).



Install the clutch plates (11) in the following order:
on drum (9):

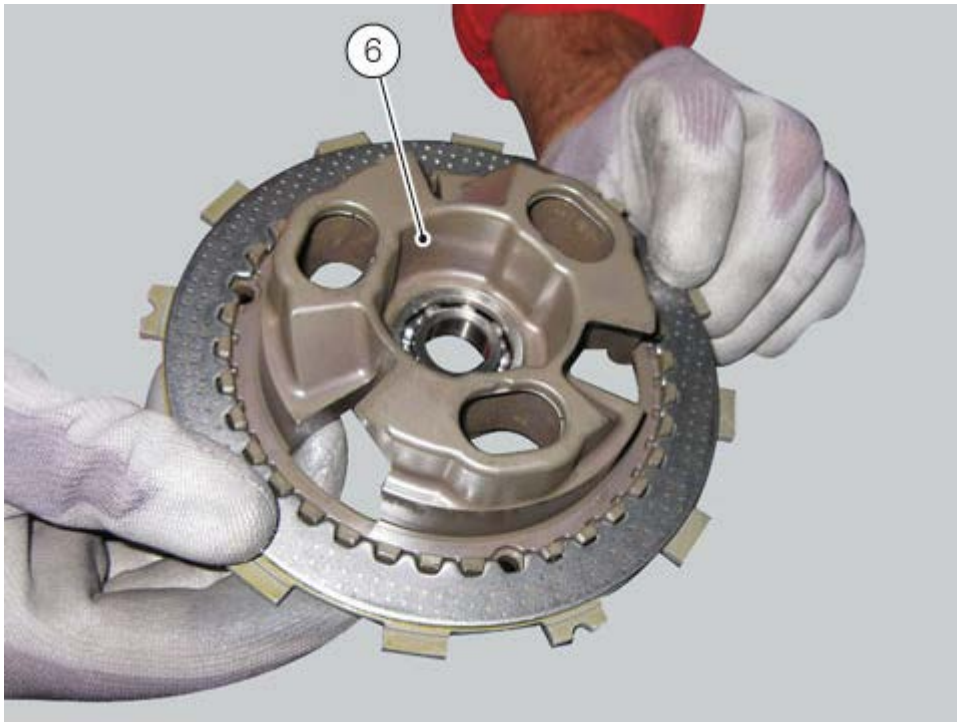
- a set of ten driving plates (S) alternately to nine driven plates (B) **2** mm thick;

http://www.ducati-manuals.com
no. 140312



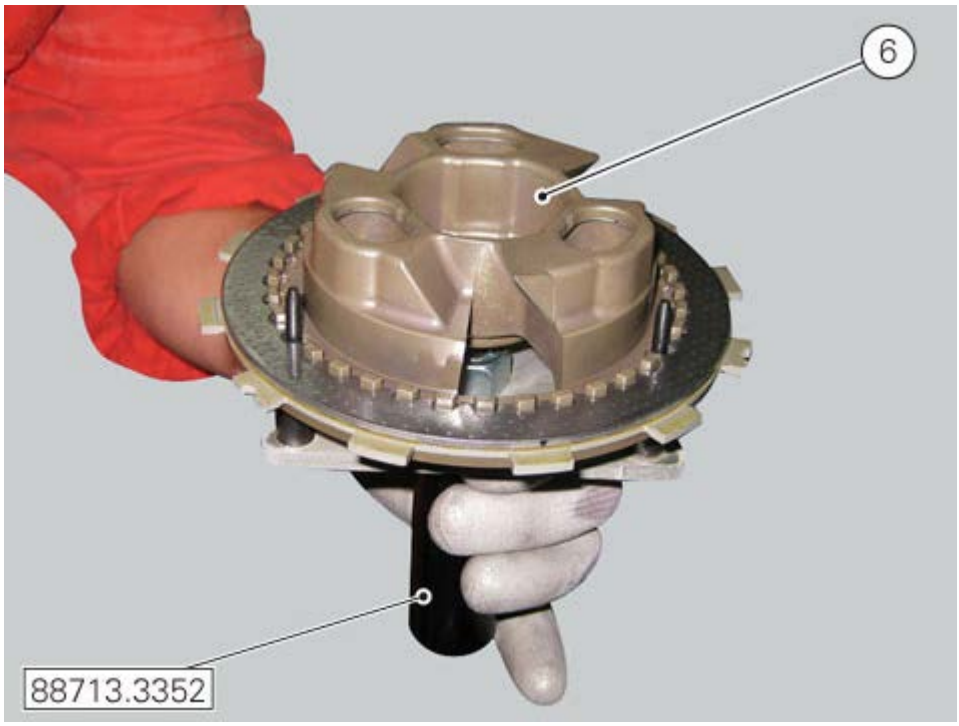
on the pusher plate (6):

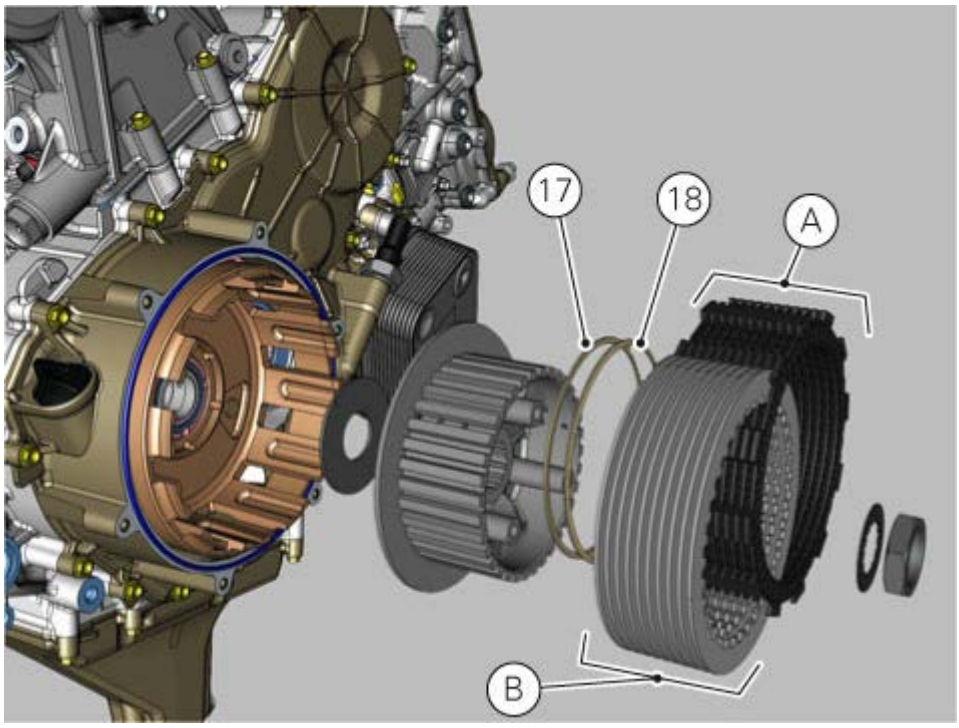
- one driven plate (B) **2** mm thick;
- one drive plate (A).



Place the pusher plate (6) with two plates on the corresponding centring tool part no. **88713.3352**.

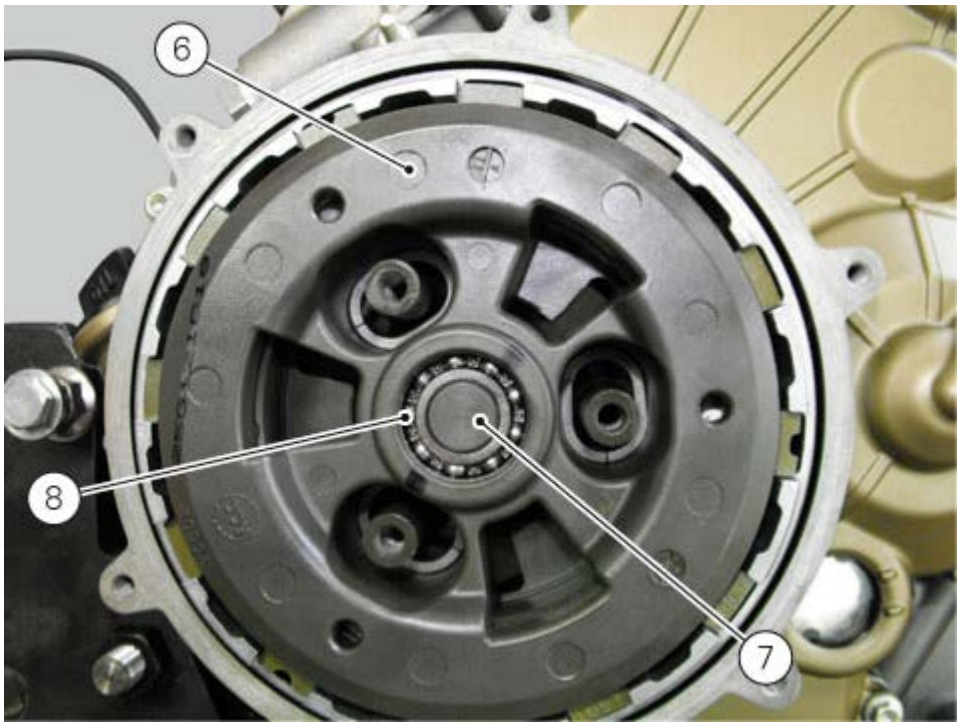
http://www.ducati-manuals.com
no. 140312



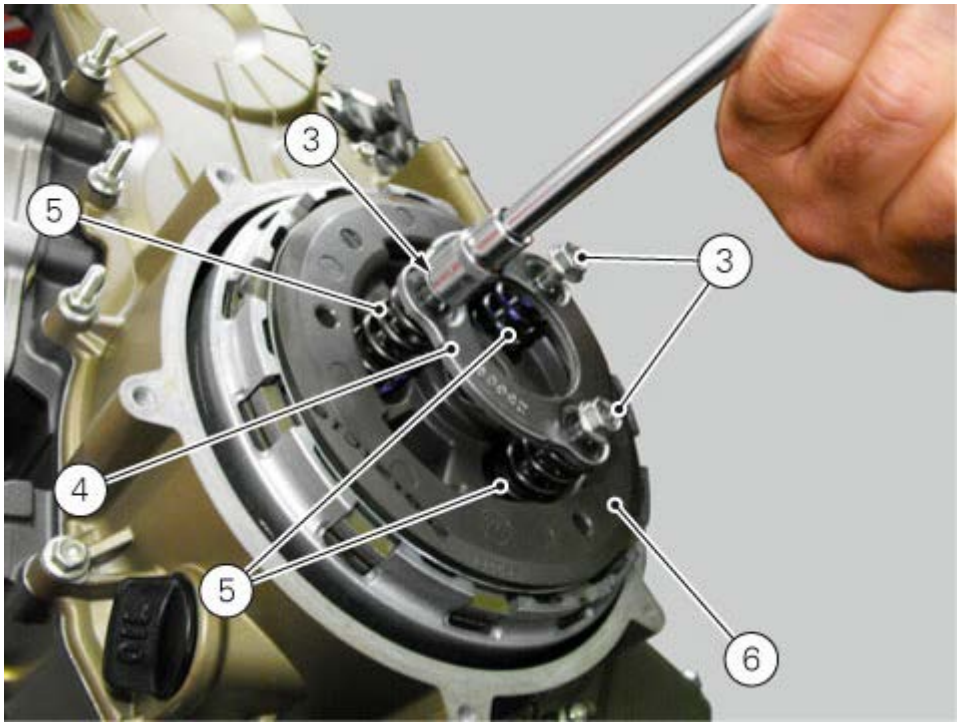


Insert the control pin (7) in the bearing (8) and the latter in the gearbox primary shaft.
Install the pusher plate (6).

http://www.ducati-manuals.com
no. 140312

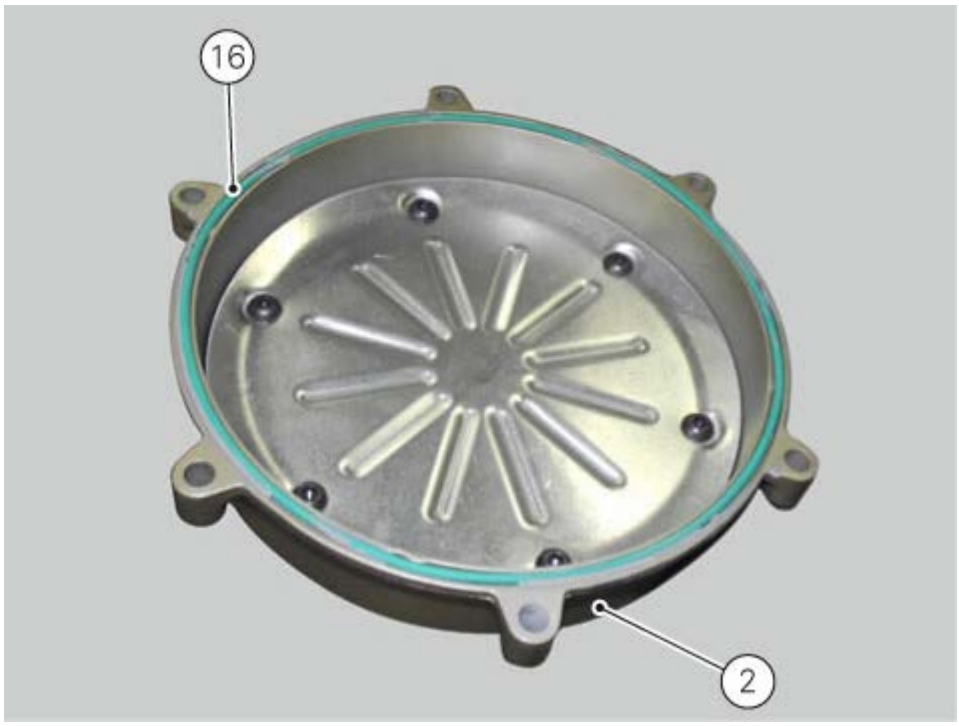


Insert a spring (5) in each recess.
Fit retainer (4).
Lubricate screw threads (3) with oil.
Start screws (3).
Tighten screws (3) to 10 Nm (Min. 9 Nm - Max. 11 Nm).

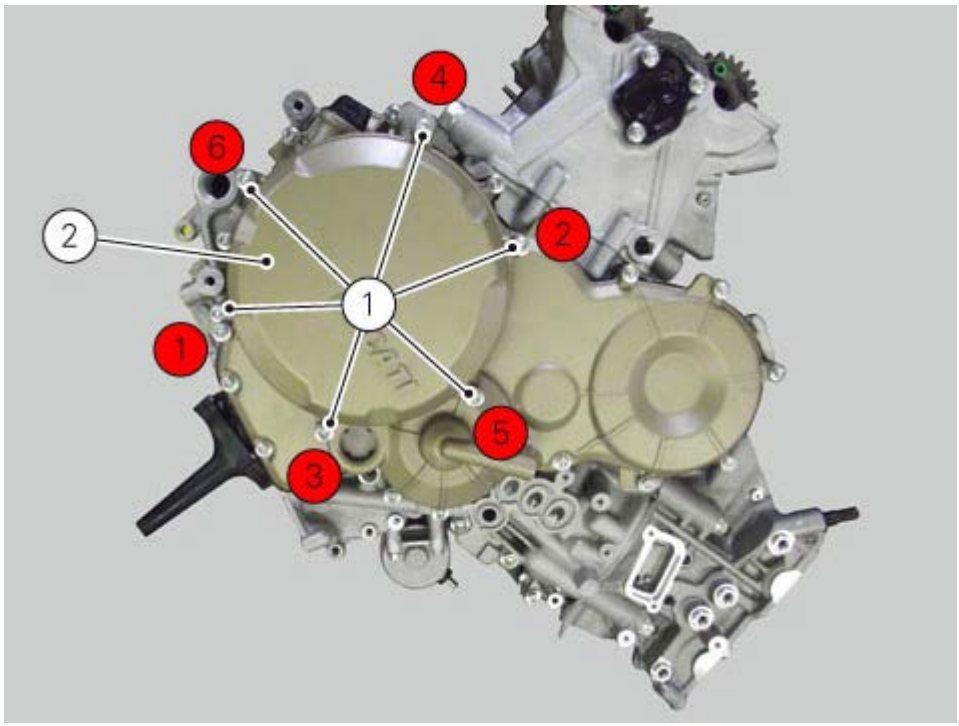


Apply sealant on clutch inspection cover (2).
Fit the O-ring (16) in its seat on clutch inspection cover (2).

http://www.ducati-manuals.com
no. 140312



Fit the clutch inspection cover (2) starting screws (1) and paying attention not to damage the O-ring.
Tighten screws (1) to 10 Nm (Min. 9 Nm - Max. 11 Nm), following the sequence specified in the figure.



Fill engine oil (Changing engine oil and filter cartridge).
Refit the right-hand fairing (Installation of the side fairings).

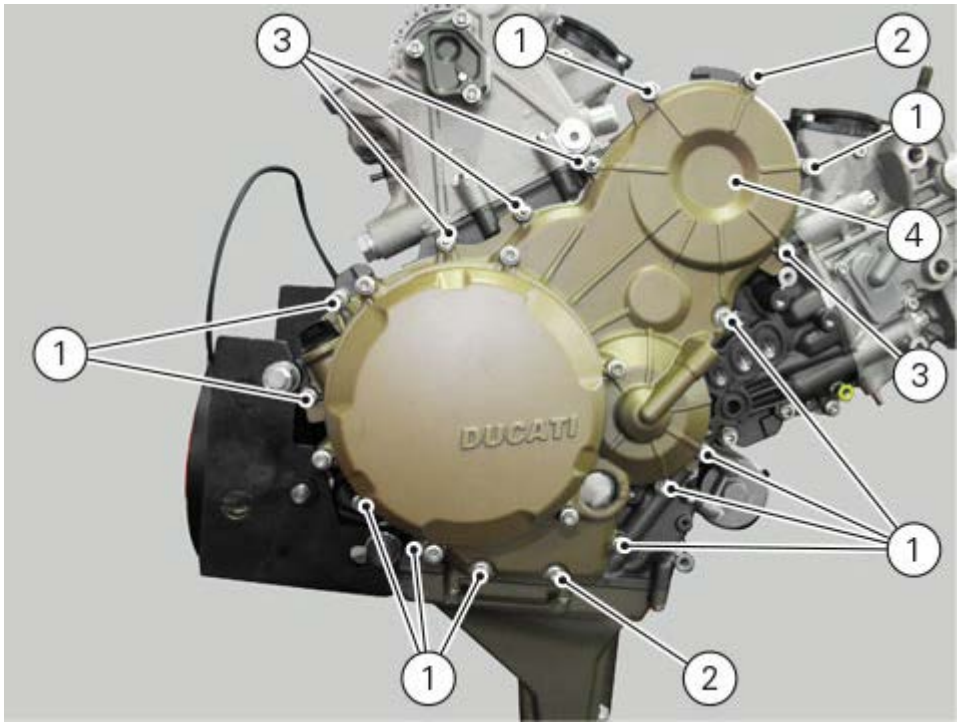
http://www.ducati-manuals.com
no. 140312

Removal of the clutch cover

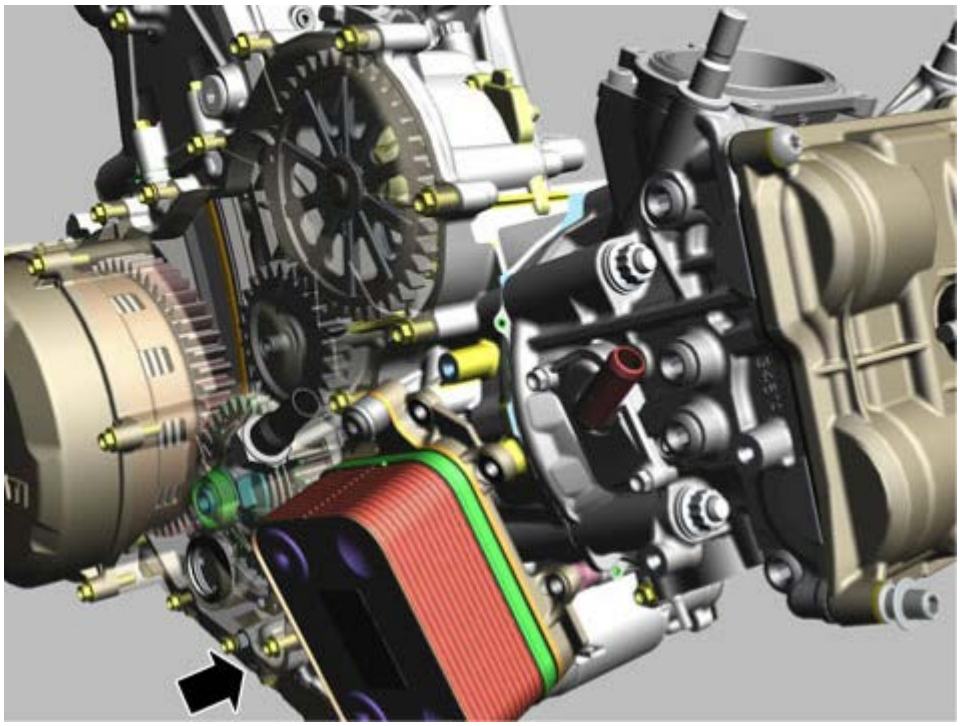
Remove side fairings (Removal of the side fairings).
Drain engine oil (Changing the engine oil and filter cartridge).
Remove heat exchanger (Removal of the oil heat exchanger).

Note
For clarity, the figures show the engine removed from the frame.

Loosen and remove the short screws (1), the long ones (2) and the special ones (3) retaining the clutch cover (4).

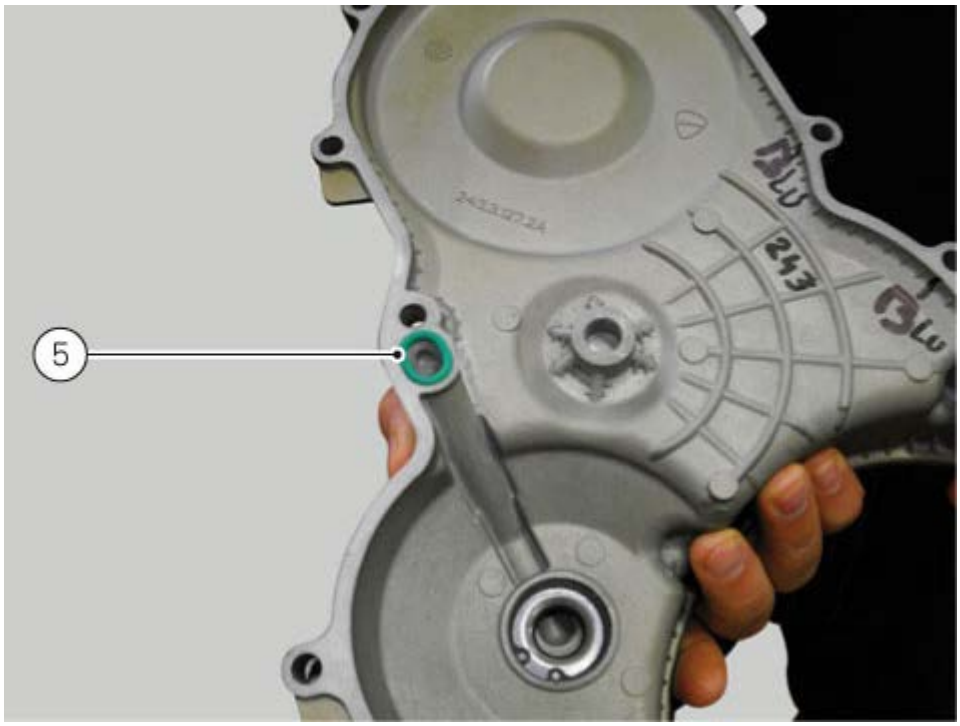


Using a plastic mallet, tap at several positions all along the cover edge to help separation from the crankcase. Remove the clutch cover from the crankcase, paying attention not to let the pilot pin fall.



Remove the O-ring (5) at the oilway from crankcase.

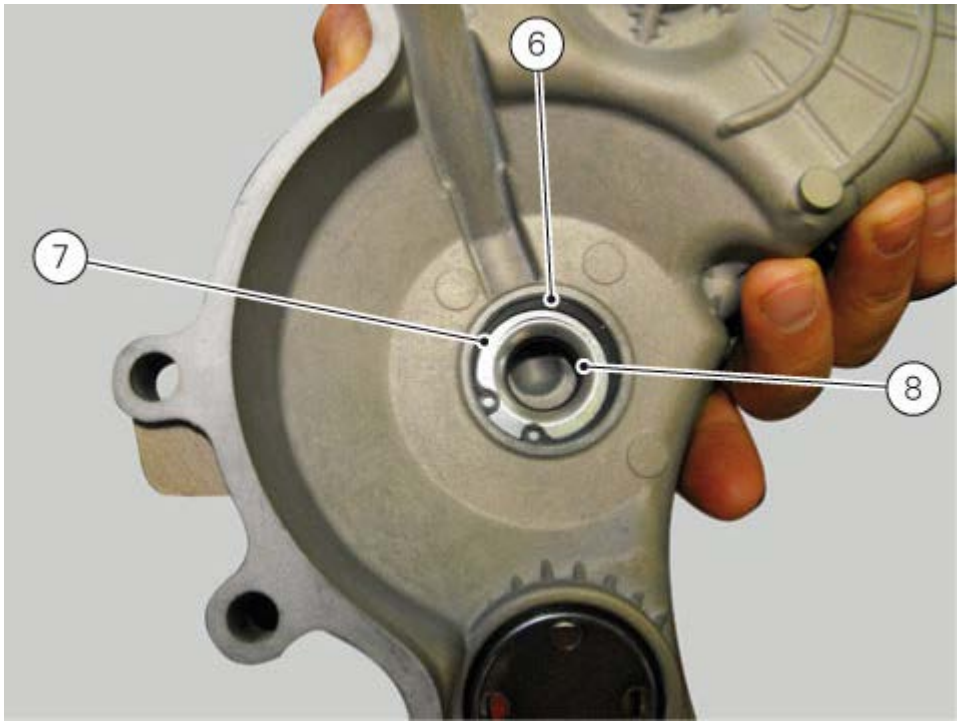
http://www.ducati-manuals.com
no. 140312



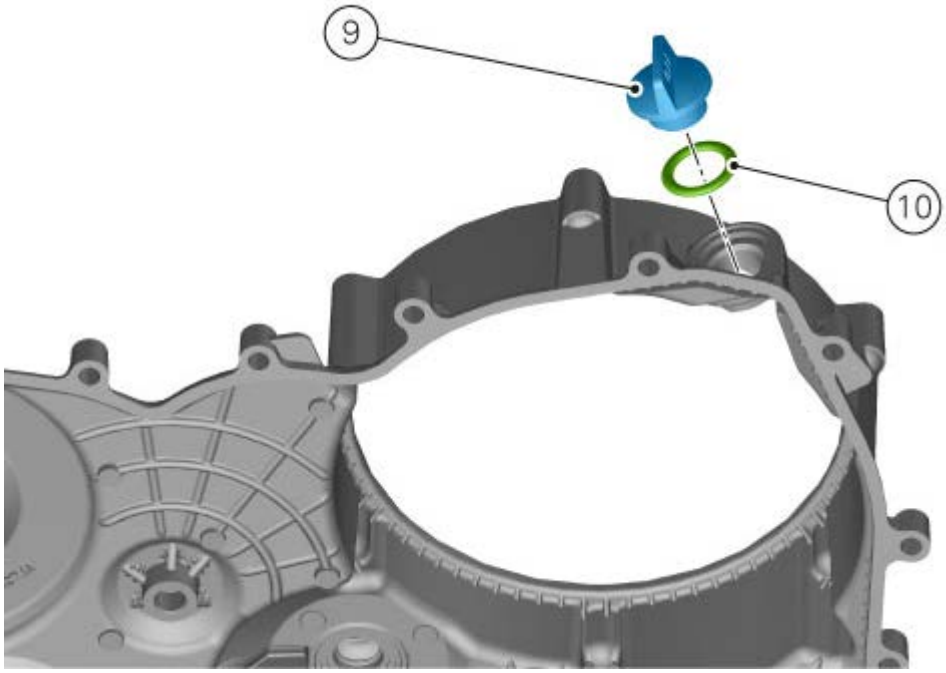
http://www.ducati-manuals.com
no. 140312

Disassembly of the clutch cover

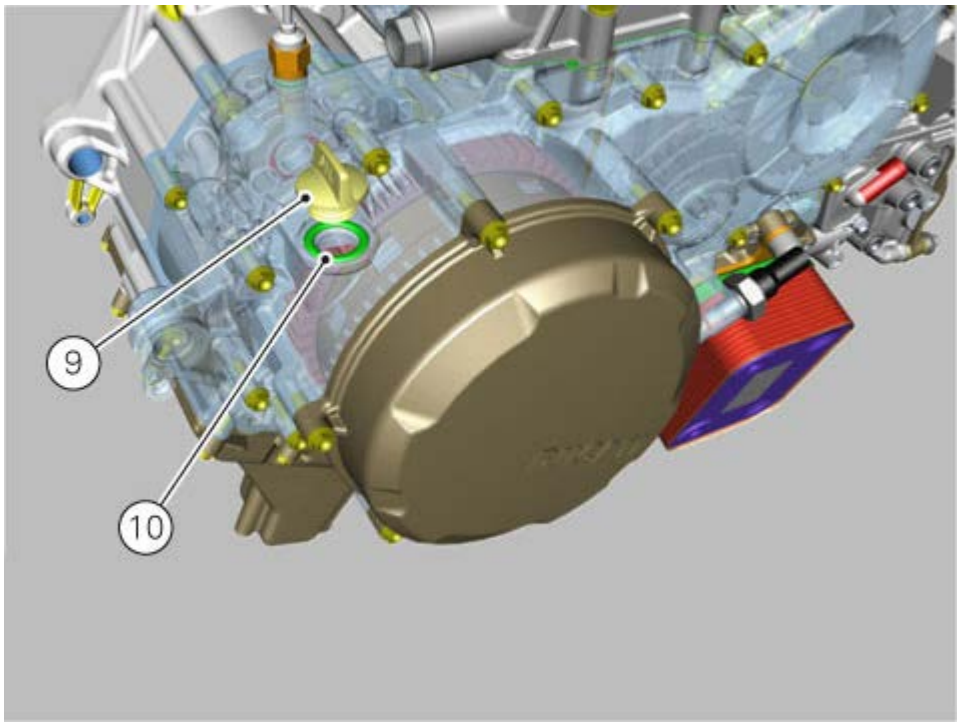
Remove the circlip (6) and slide out the shim (7) and seal (8).
Visually make sure that seal (8) is not worn and replace it, if necessary.



Remove the plug (9) with its O-ring (10) from cover.



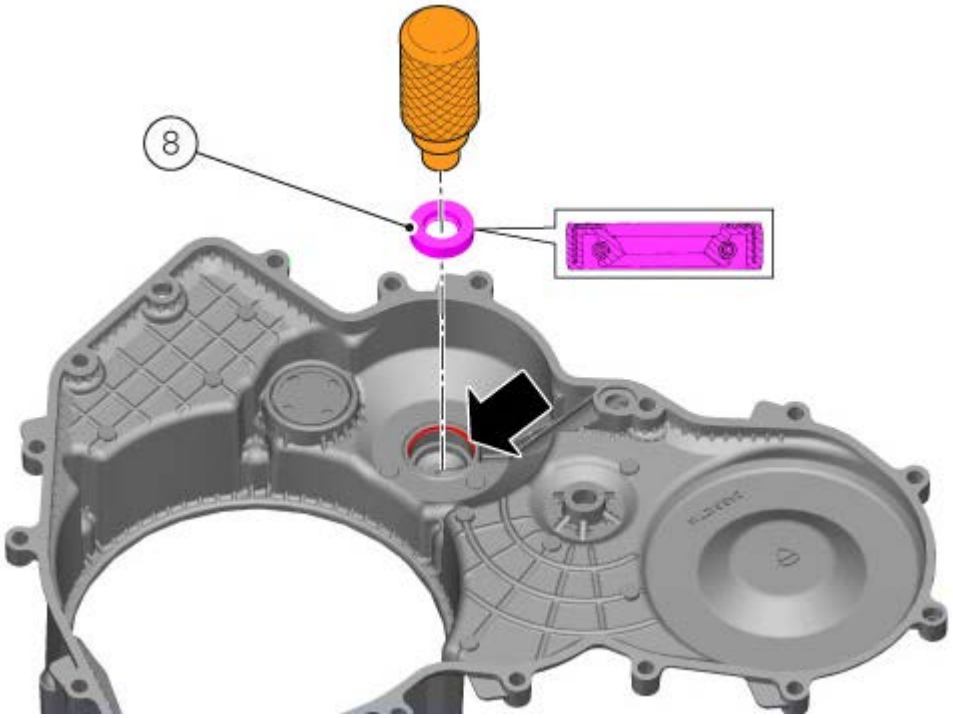
http://www.ducati-manuals.com
no. 140312



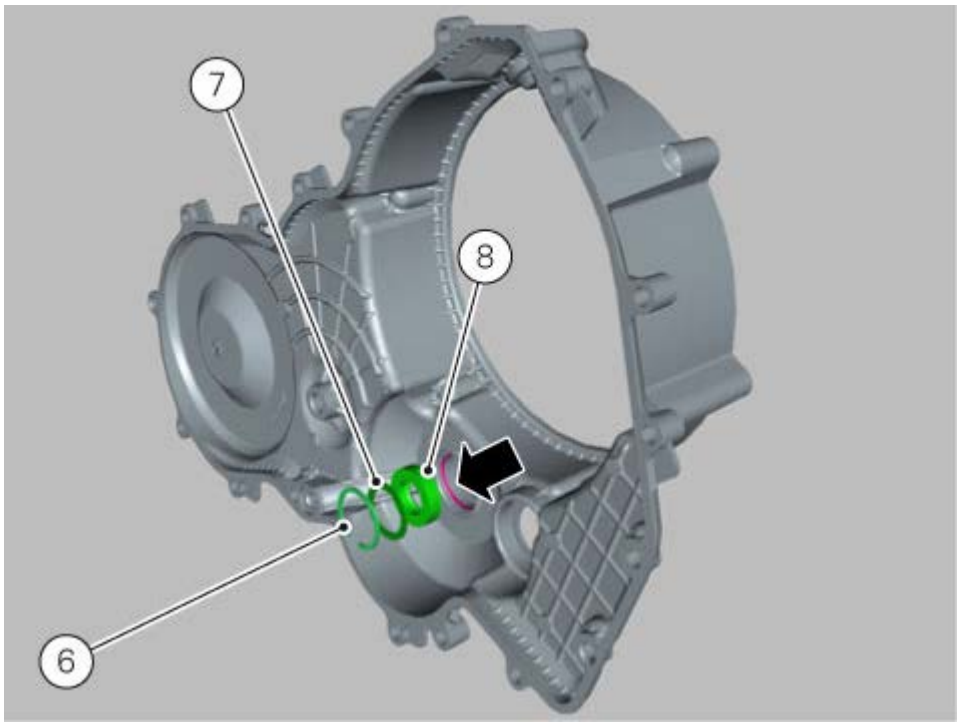
http://www.ducati-manuals.com
no. 140312

Reassembly of the clutch cover

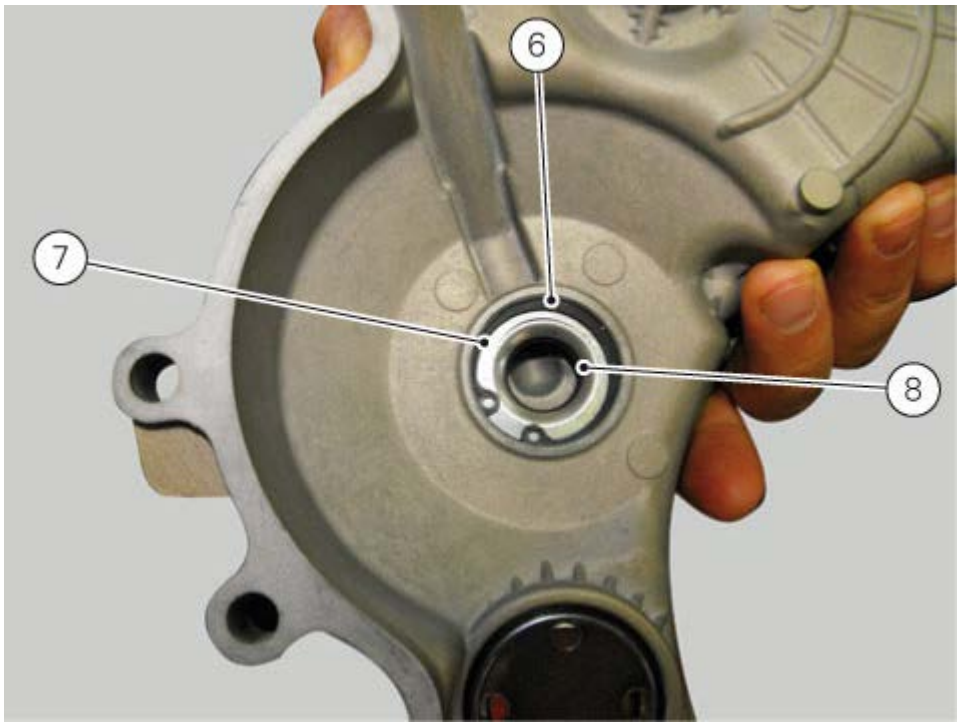
If the seal (8) needs replacing, fit the new seal in the clutch cover using the relevant tool, setting it as shown in the figure, until the circlip (6) groove is exposed.



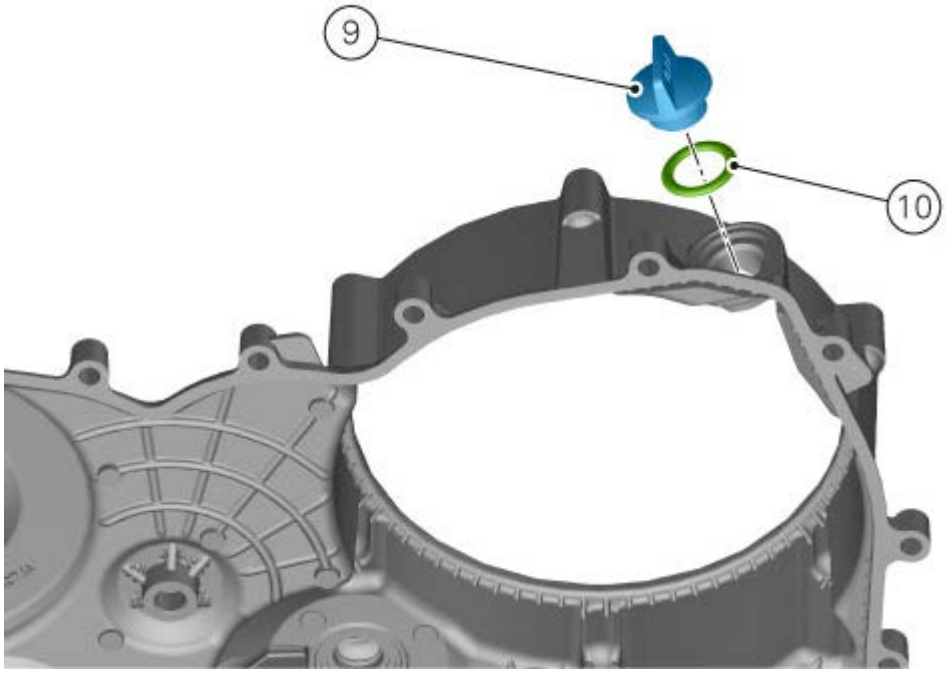
Before reassembling, make sure that circlip groove edges are free from burr susceptible to damage the seal.
Then fit shim (7) and circlip (6).
Check that circlip (6) is completely inside its seat on clutch cover.



http://www.ducati-manuals.com
no. 140312



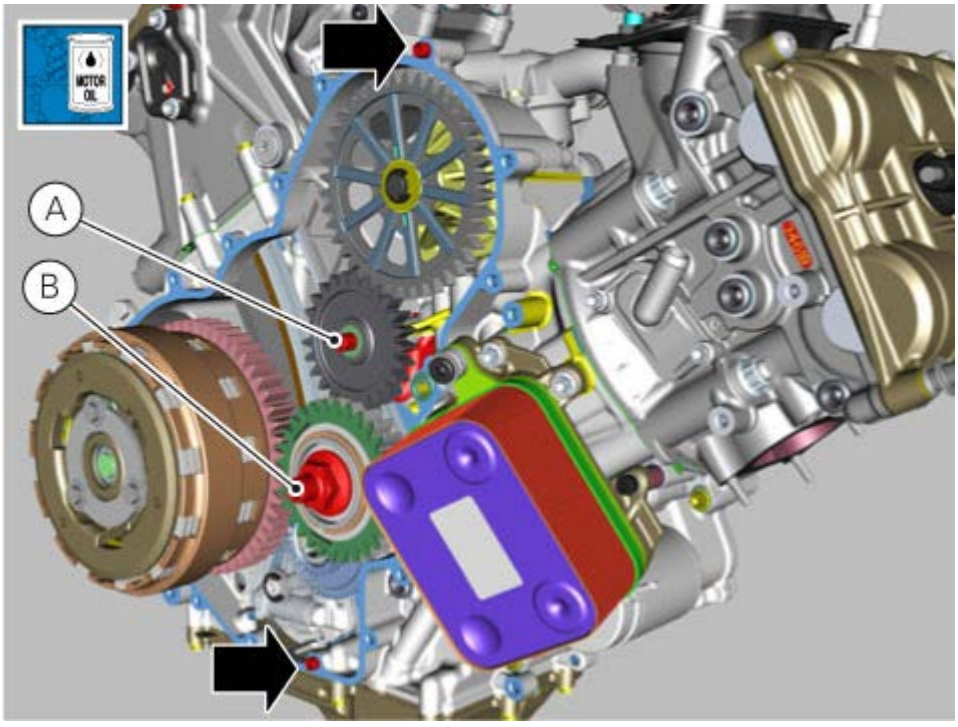
Ensure that oil filler plug (9) fits the O-ring (10).
Fit the plug (9) finger tight on clutch cover.

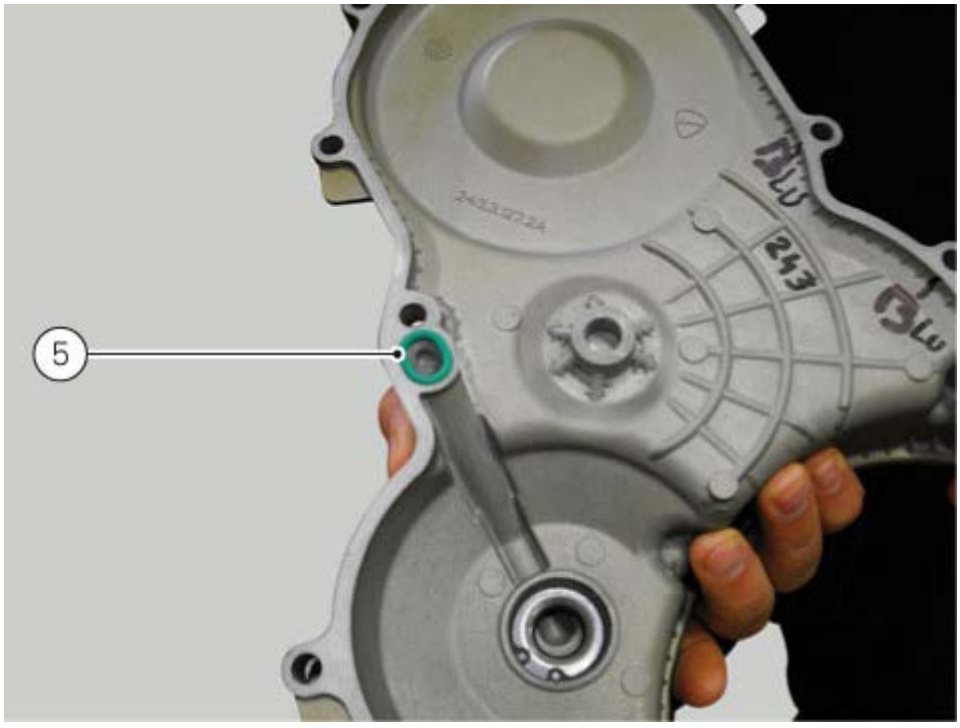


http://www.ducati-manuals.com
no. 140312

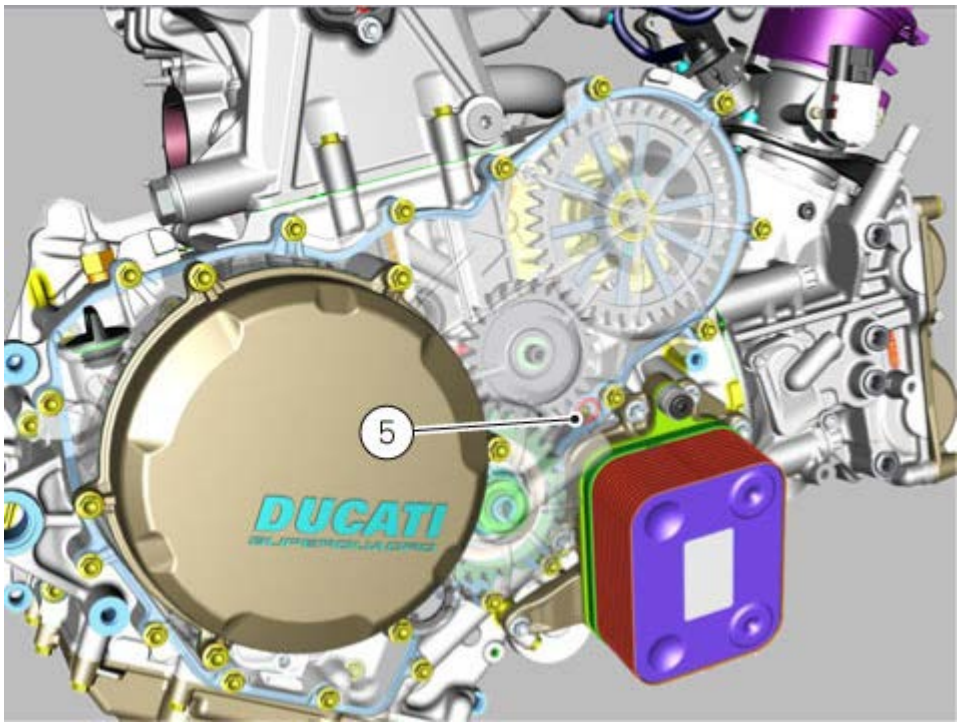
Reassembly of the clutch cover

Clean and degrease mating surfaces on cover and crankcase half, and ensure that centring bush and the O-ring (5), located in correspondence with the oil way, are installed on the crankcase.
Apply an even, regular bead of DUCATI sealing compound on the mating surface of the crankcase half and around all holes.
Lubricate reference pins (A) and (B) for clutch cover (4) with engine oil.
Install clutch cover (4) centred with bushes, pins (A) and (B) and take it fully home on crankcase.





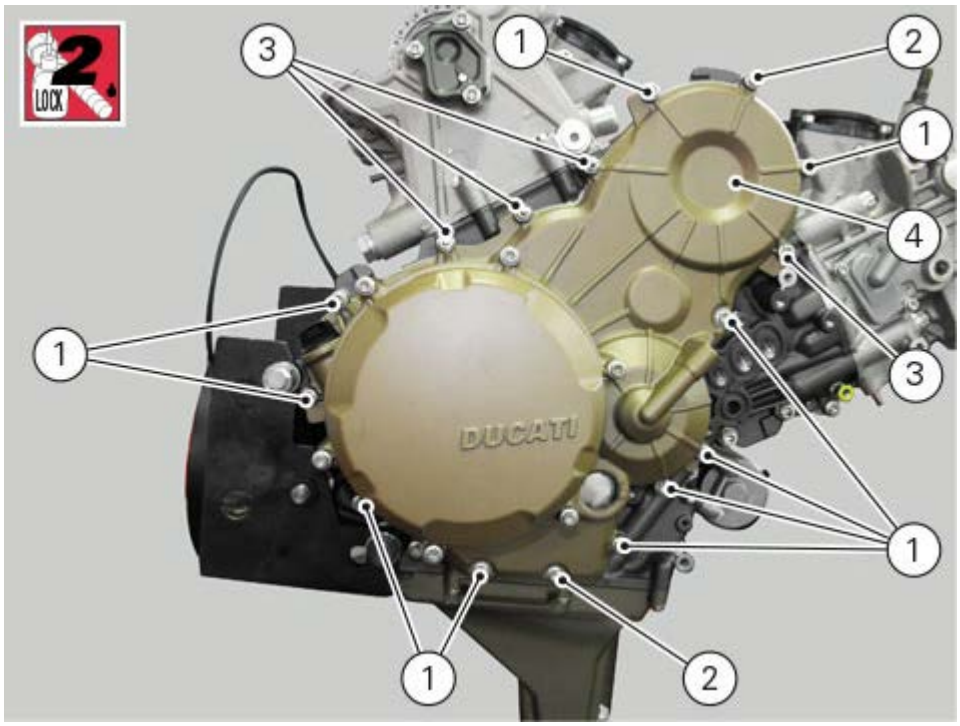
http://www.ducati-manuals.com
no. 140312

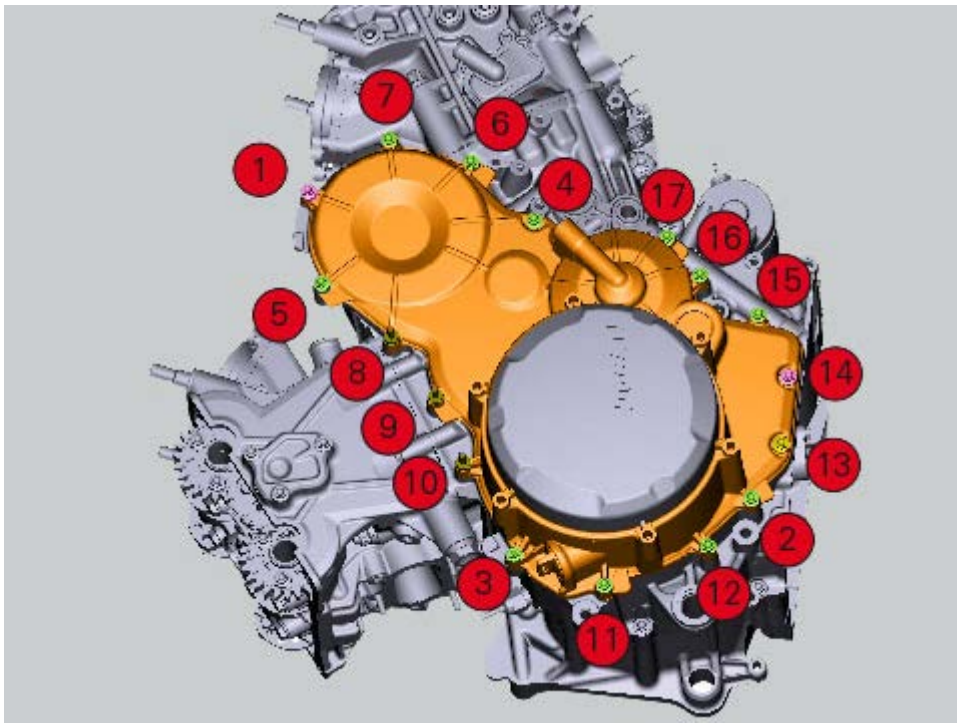




Apply recommended threadlocker on the special screws (3) and tighten them on clutch cover (4); tighten the remaining short screws (1) and long screws (2). Tighten the screws (1), (2) and (3) to a torque of 13 Nm (Min. 12 Nm - Max. 14 Nm), following the specified sequence.

http://www.ducati-manuals.com
no. 140312





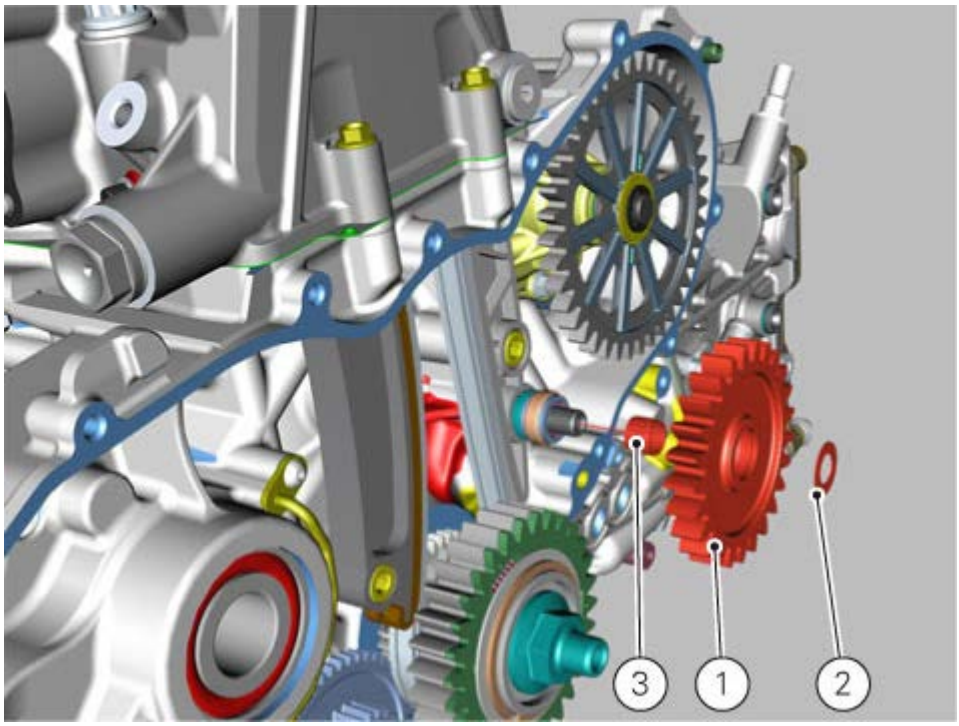
Retaining screws table			
Reference	Screw colour	Type	Quantity
1	Fuchsia	socket cap M6x25	11
2	Yellow	socket cap M6x30	2
3	Green	socket cap M6x25	4

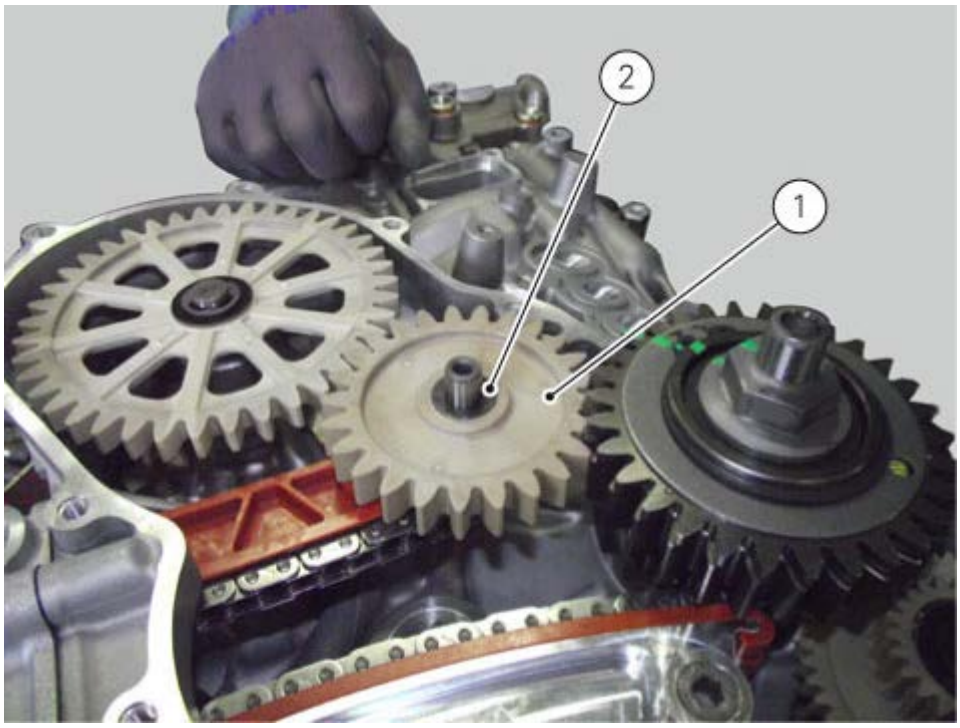
Reinstall oil heat exchanger (Installation of the oil heat exchanger).
Fill engine oil (Changing the engine oil and filter cartridge).
Refit side fairings (Refitting the side fairings).

http://www.ducati-manuals.com
no. 140312

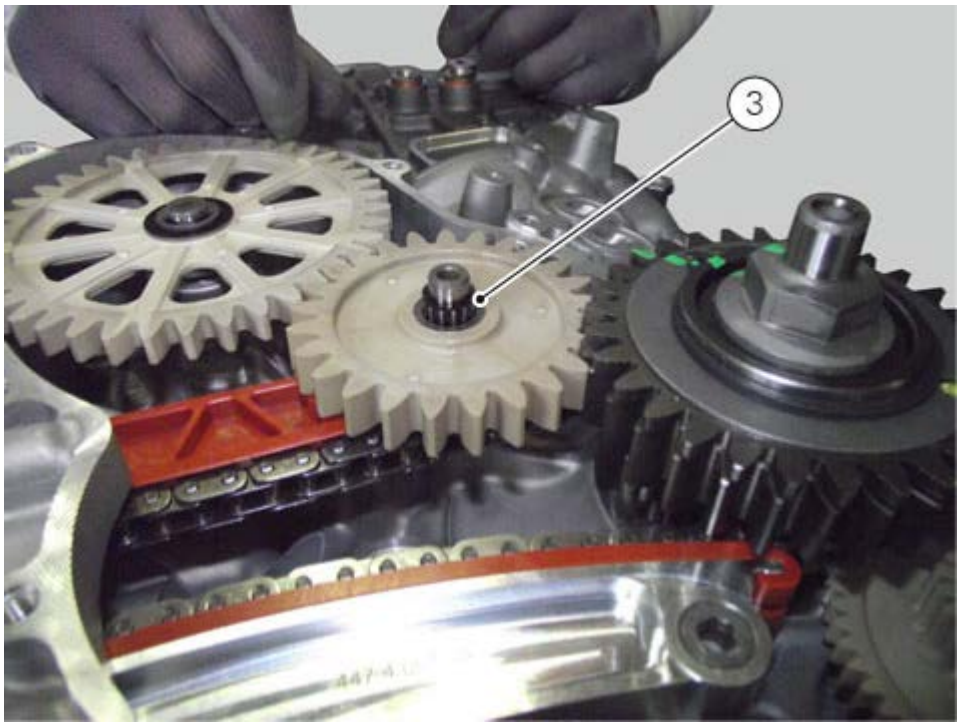
Removal of the water pump

Remove the water pump idle gear (1) sliding out washer (2) and needle roller cage (3).

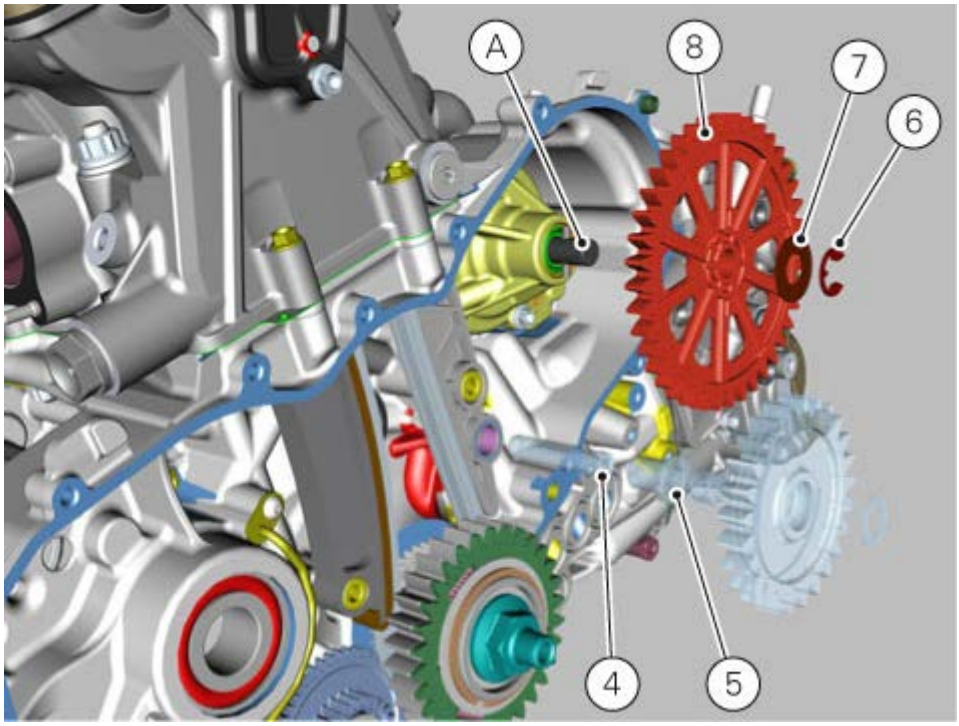




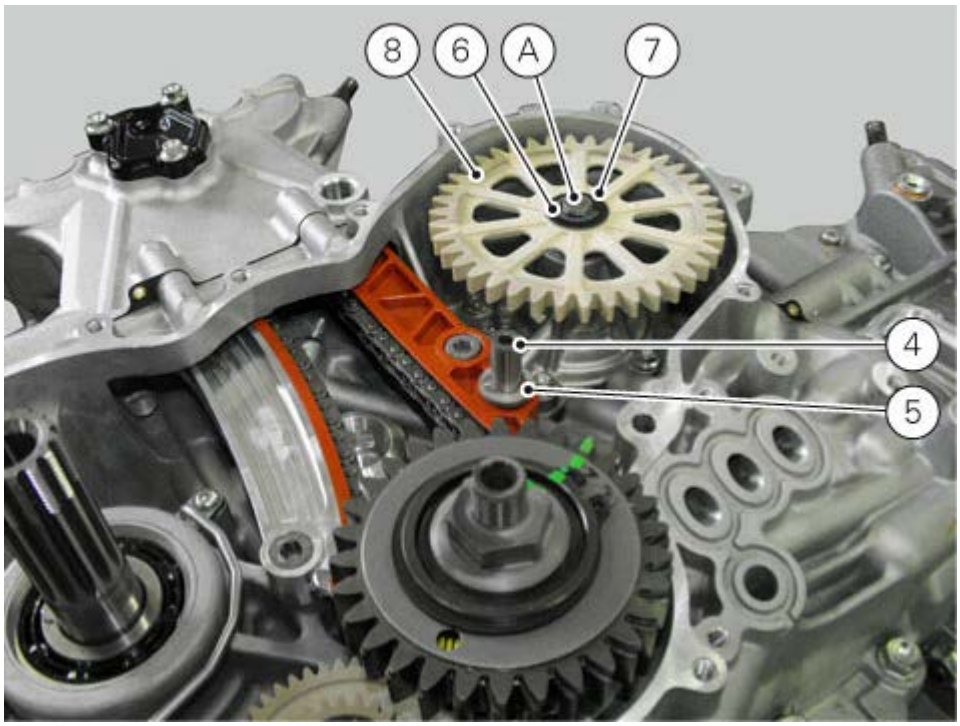
http://www.ducati-manuals.com
no. 140312



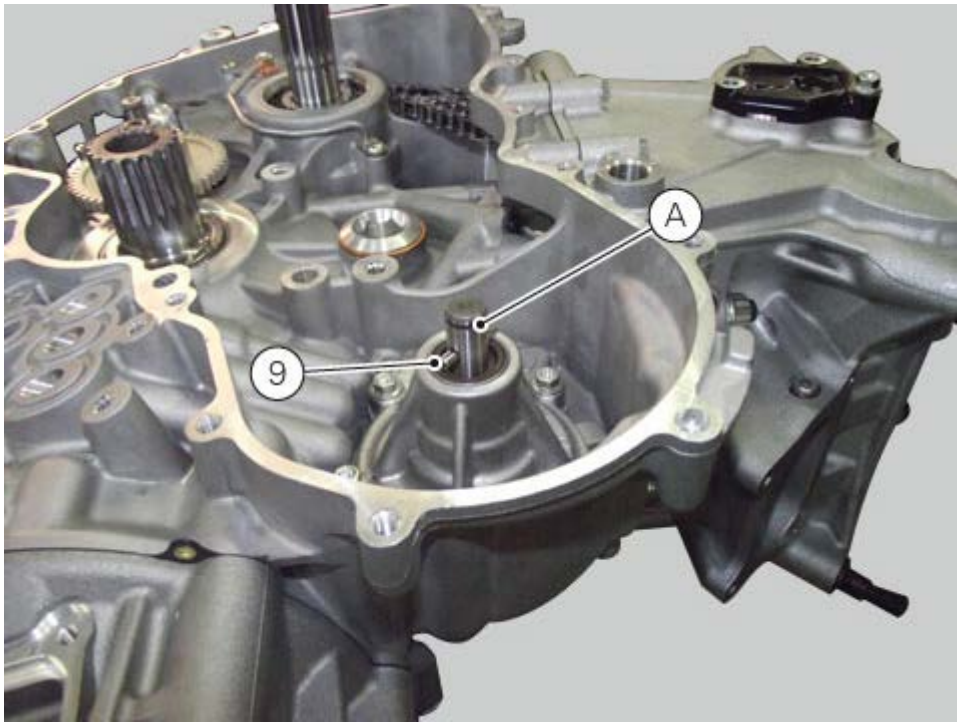
Remove pin (4) and slide out bushing (5) from fixed slider.
Remove the circlip (6) from the seat on water pump drive shaft (A).
Remove spacer (7) and water pump drive gear (8) from drive shaft (A).



http://www.ducati-manuals.com
no. 140312

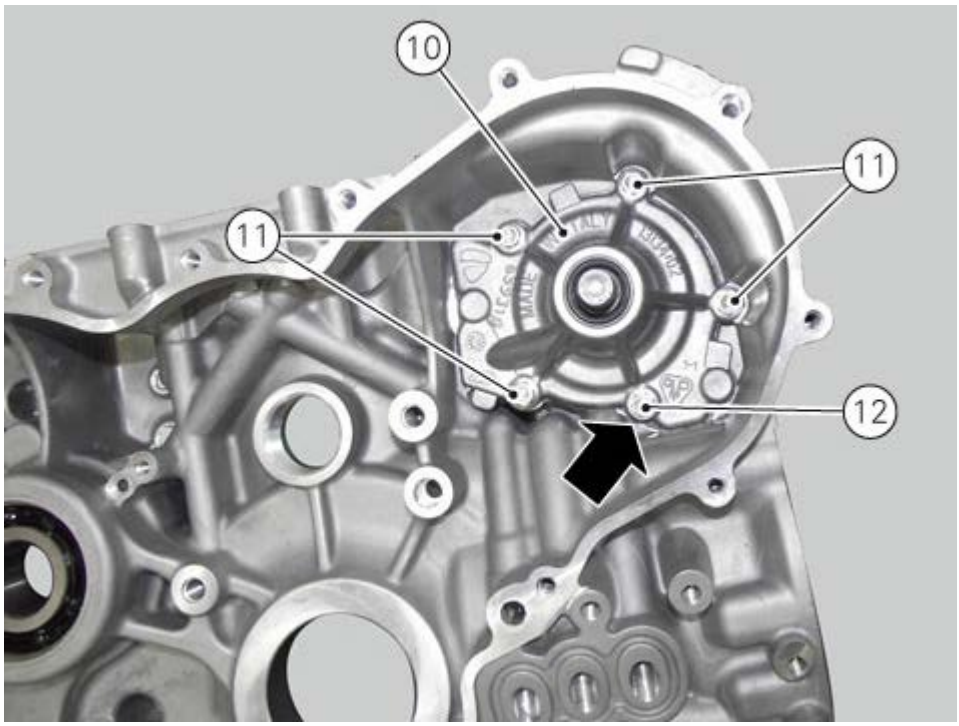


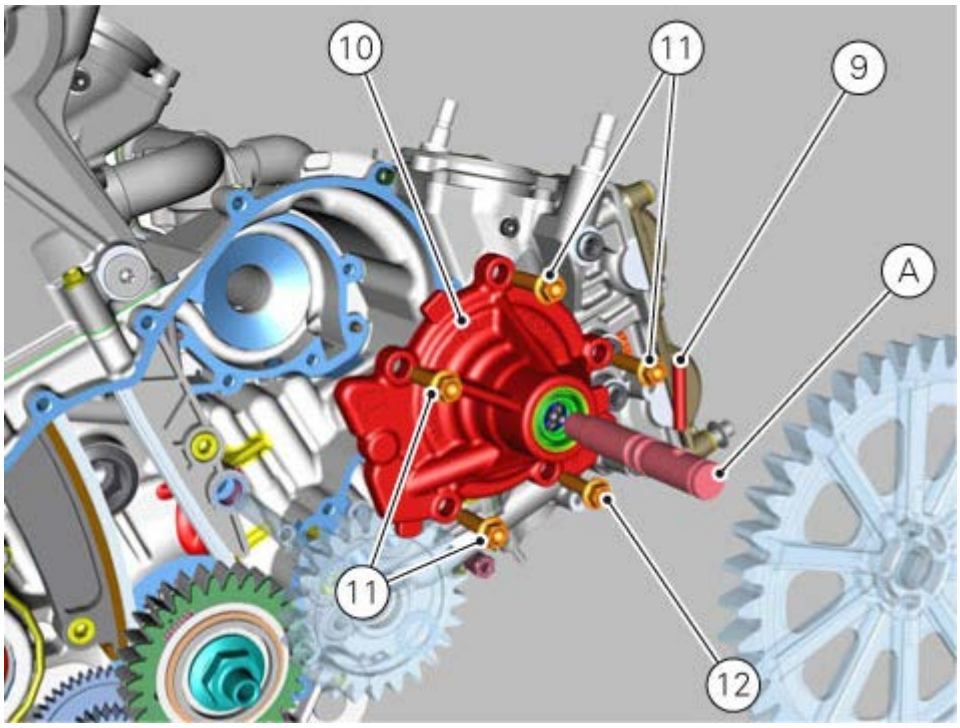
Remove pin (9) from the relevant hole on water pump shaft (A).



Remove the water pump (10) by loosening screws (11) and (12).
Remove the washer on screw (12).

http://www.ducati-manuals.com
no. 140312

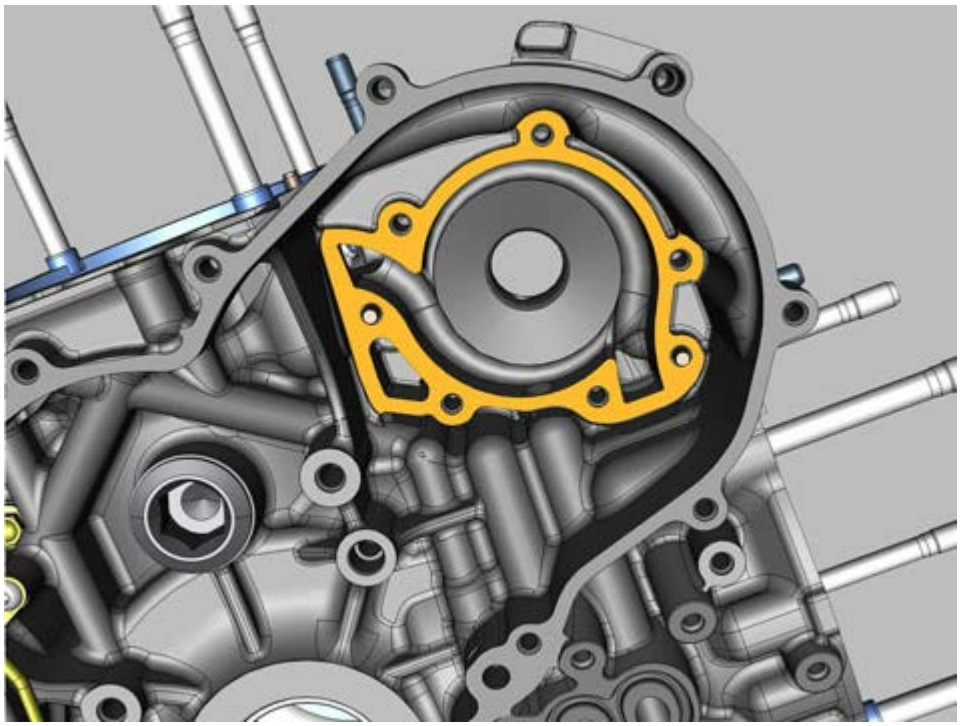




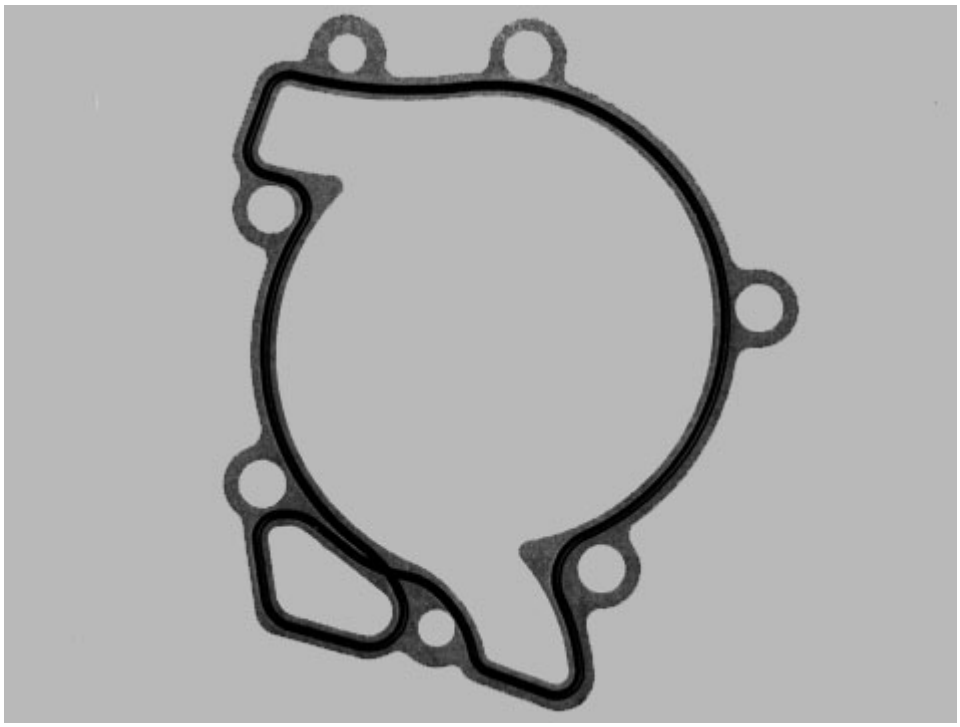
http://www.ducati-manuals.com
no. 140312

Installation of the water pump

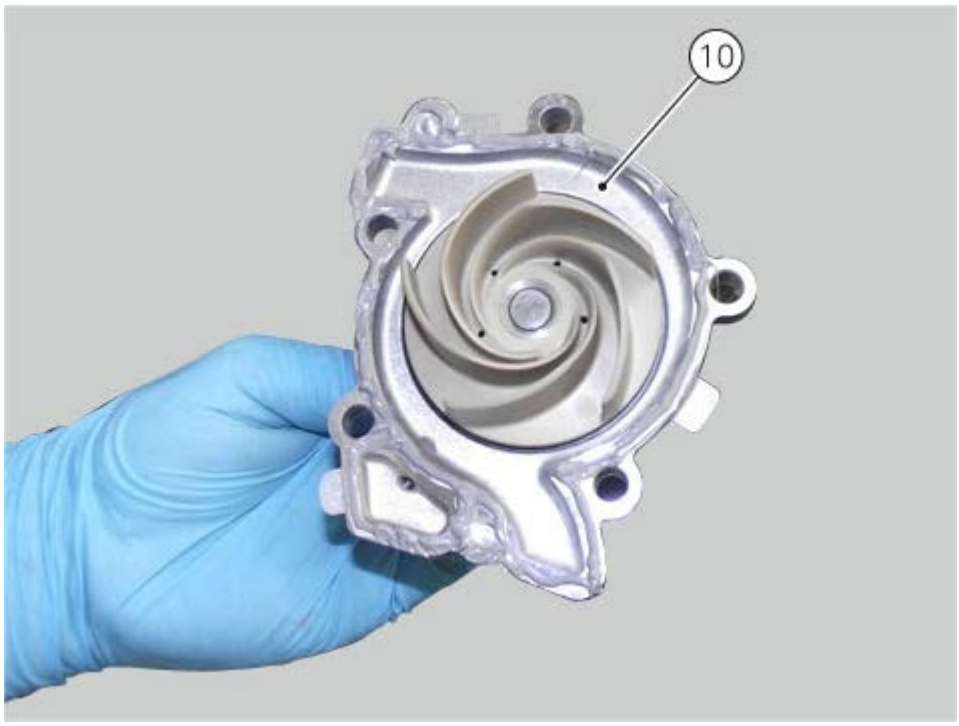
Clean the water pump (10) mating surface using a degreasing agent.

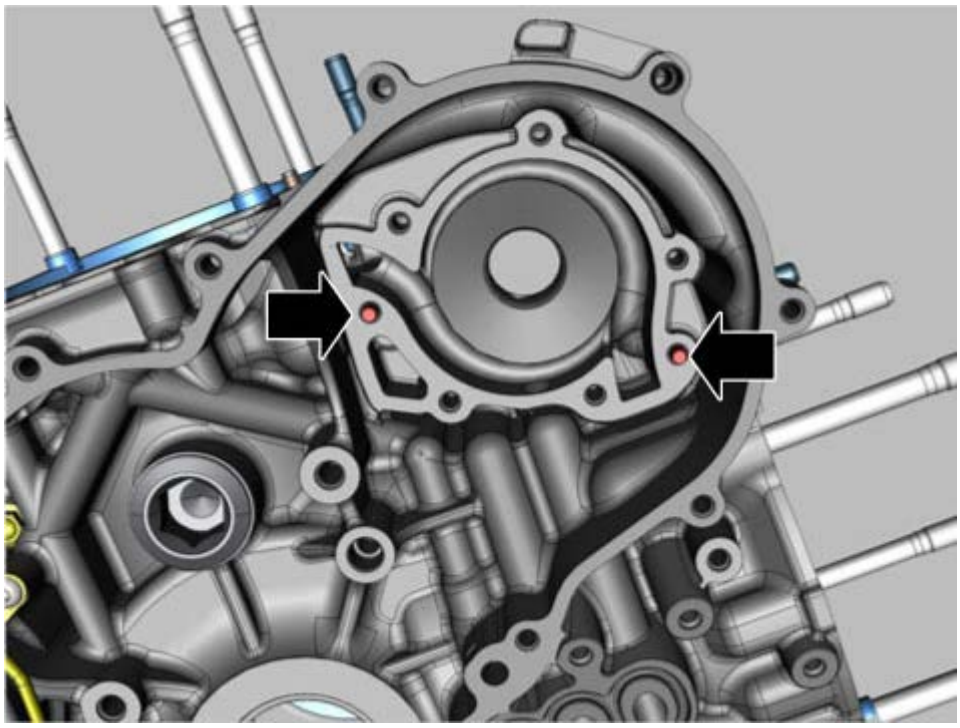


Ensure the surface is dry and apply a uniform bead of sealant on the water pump (10).
install water pump (10) on clutch-side crankcase, centring it on the pins and taking it fully home.



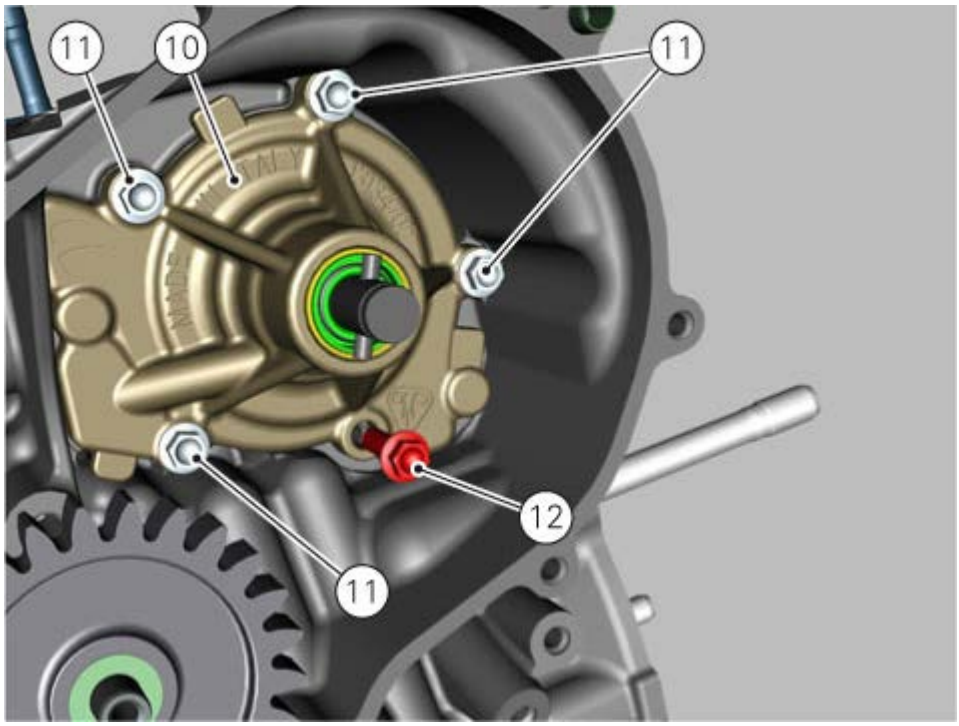
http://www.ducati-manuals.com
no. 140312

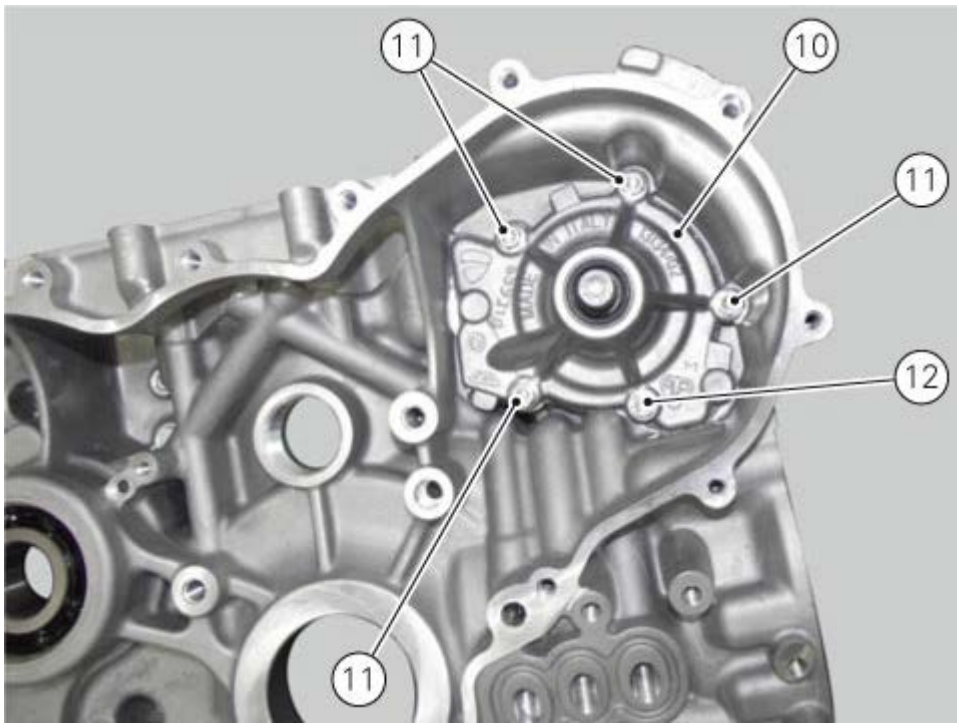




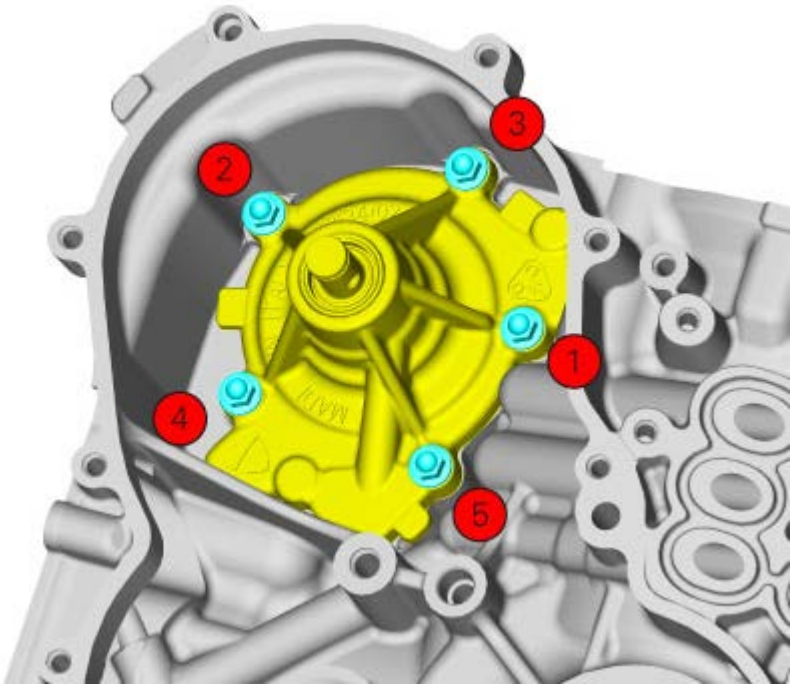
Fasten water pump (10) by starting screw (12) and screws (11). Tighten the screws (11) and (12) to a torque of 13 Nm (Min. 12 Nm - Max. 14 Nm), following the specified sequence.

http://www.ducati-manuals.com
no. 140312

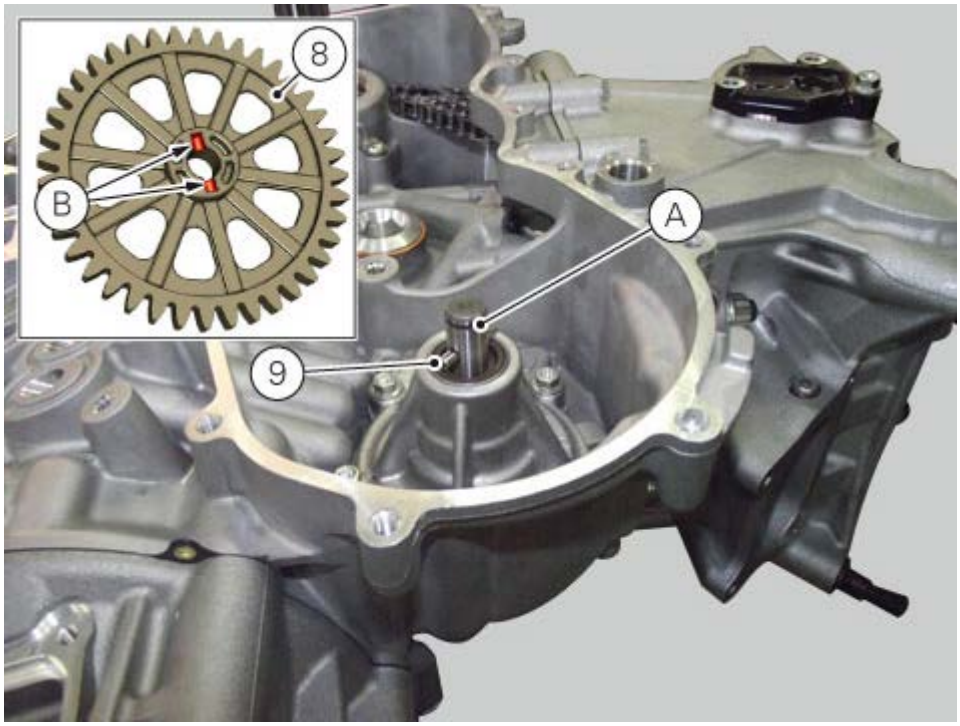




http://www.ducati-manuals.com
no. 140312

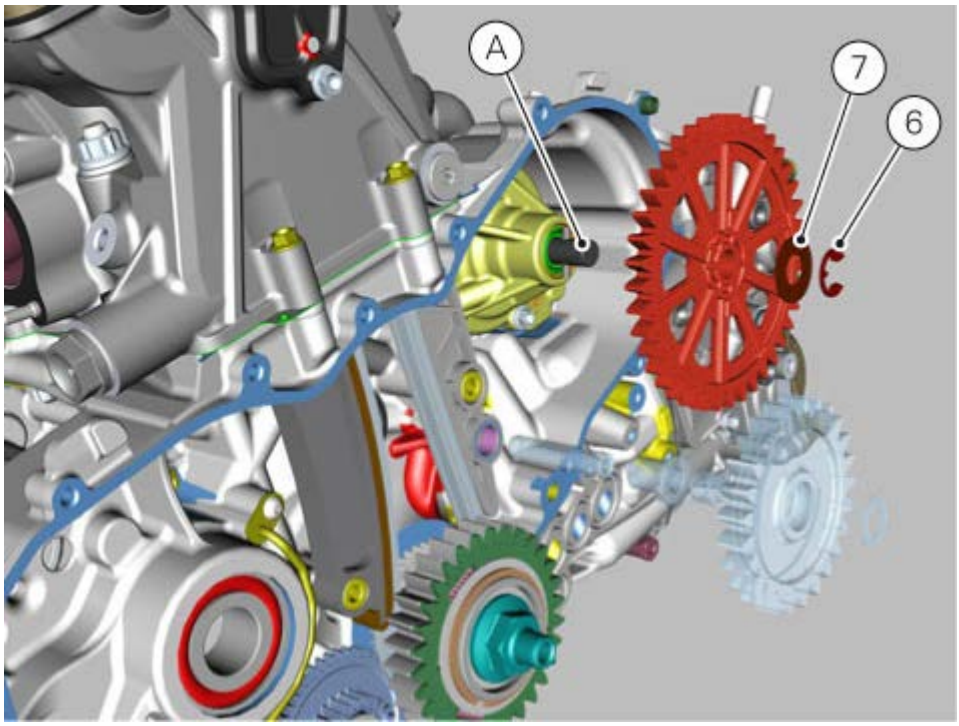


Ensure that the pump shaft (A) can turn freely, with no friction or hard spots.
Fit pin (9) in the relevant hole on water pump shaft (A).
Install the water pump drive gear (8) to shaft (A), fully home, centring pin (9) on groove (B).

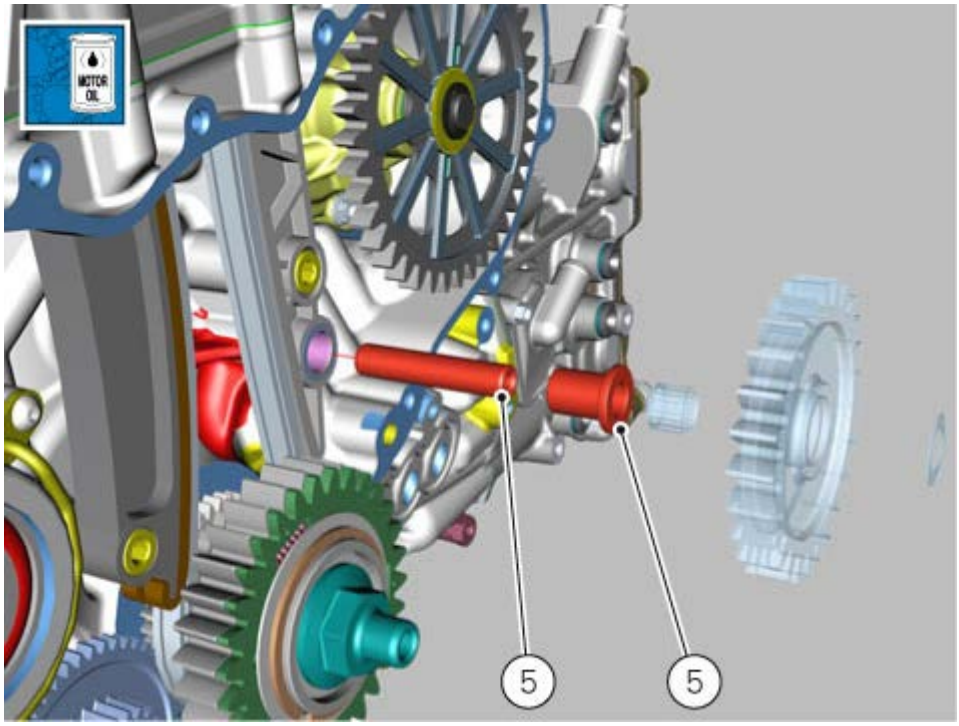


Fit spacer (7) in water pump drive shaft (A), fully home on gear. Fit the circlip (6) in its seat on water pump drive shaft (A).

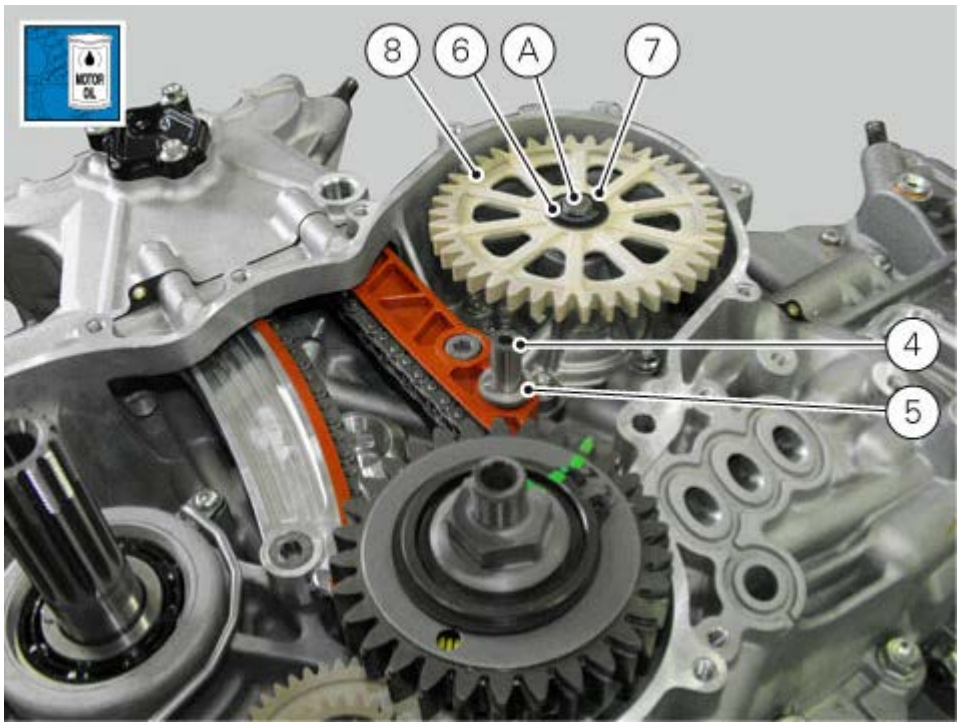
http://www.ducati-manuals.com
no. 140312



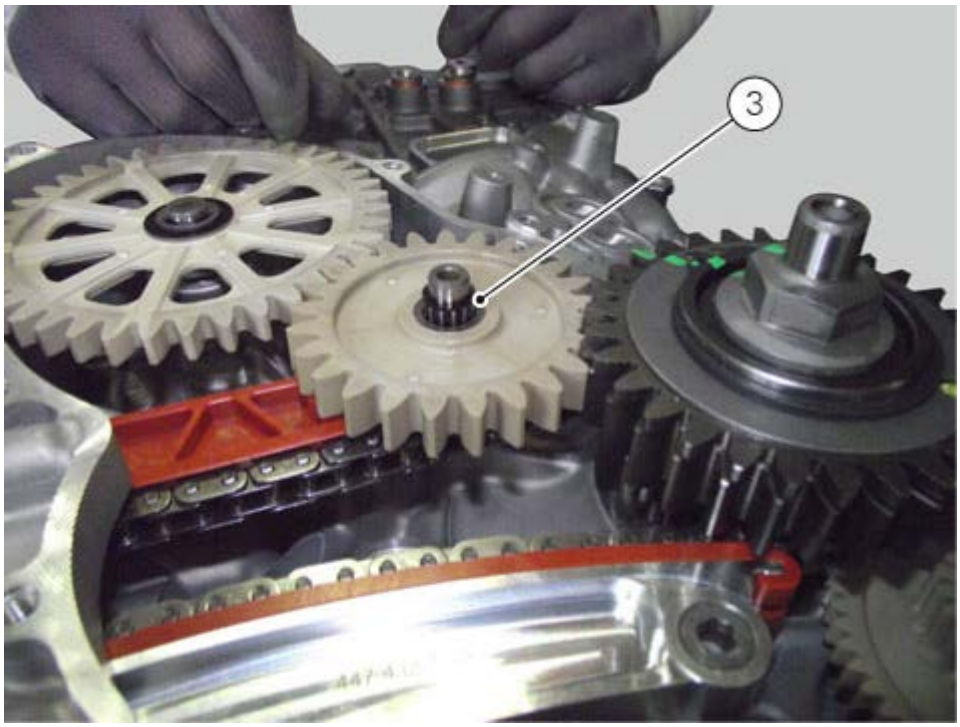
Ensure that the gear can turn freely.
Fit bushing (5) to vertical fixed slider.
Lubricate pin (4) with engine oil and fit it to bushing (5), fully home onto crankcase.



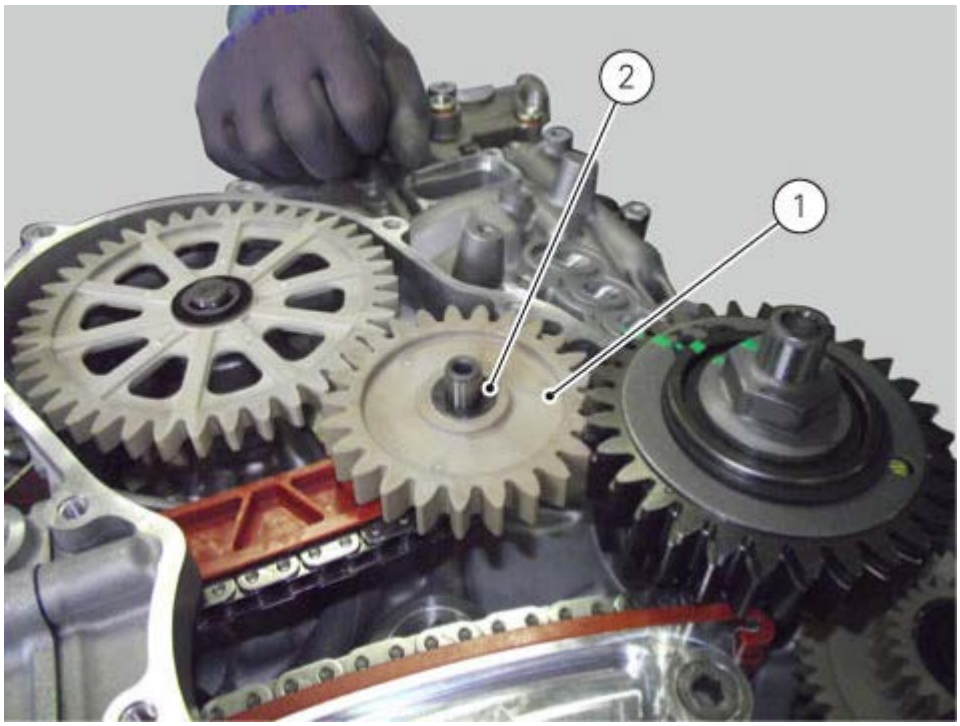
http://www.ducati-manuals.com
no. 140312

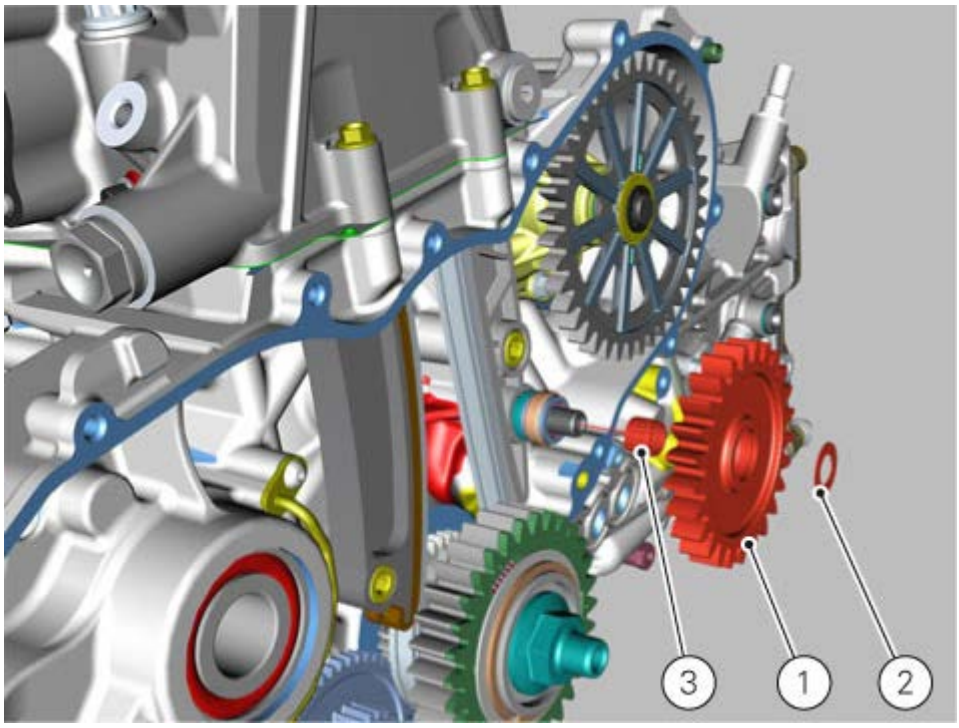


Install water pump idle gear (1) onto shaft (4), first mesh it with crankshaft sprocket and then with water pump drive gear (1).
Fit roller cage (3) onto shaft (4) and take it fully home onto gear (1).
Fit washer (2) to shaft (4) and take it fully home onto gear (1).



http://www.ducati-manuals.com
no. 140312





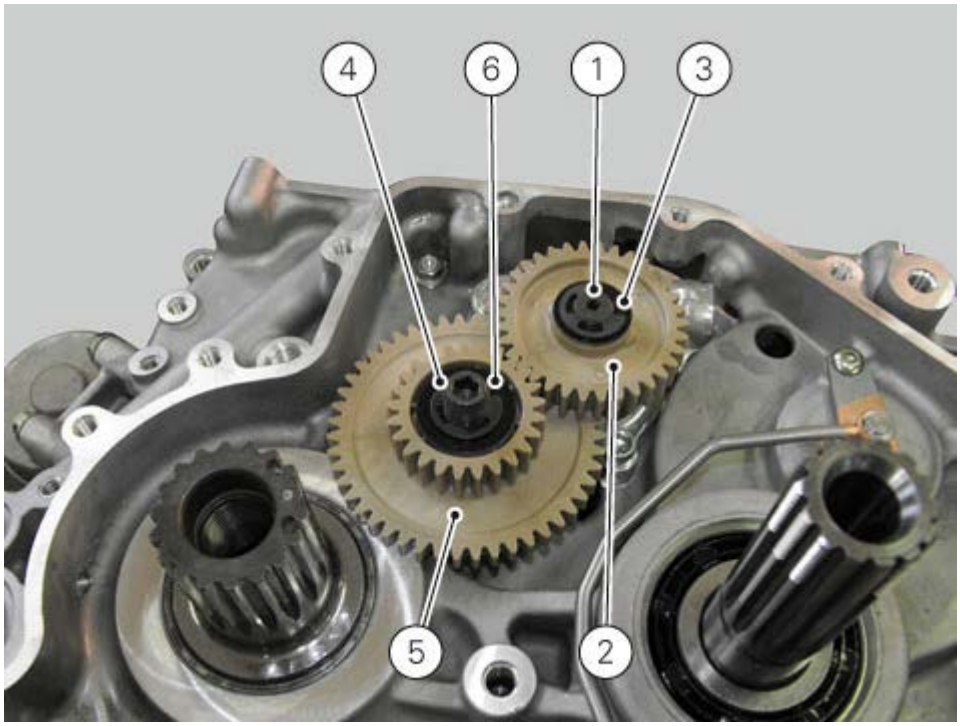
http://www.ducati-manuals.com
no. 140312

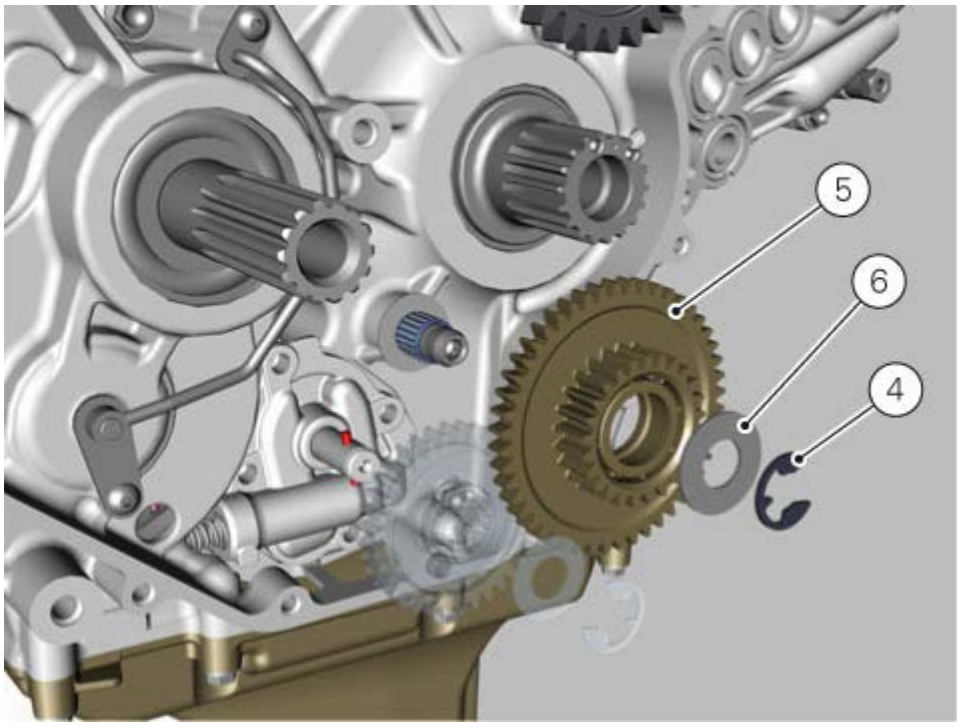
Removal of the oil pressure pump

Drain the engine oil (Changing engine oil and filter cartridge).
Remove the clutch cover (Removal of the clutch cover).
Remove the clutch (Removal of the clutch).
Remove the primary gears (Removal of the primary gears).

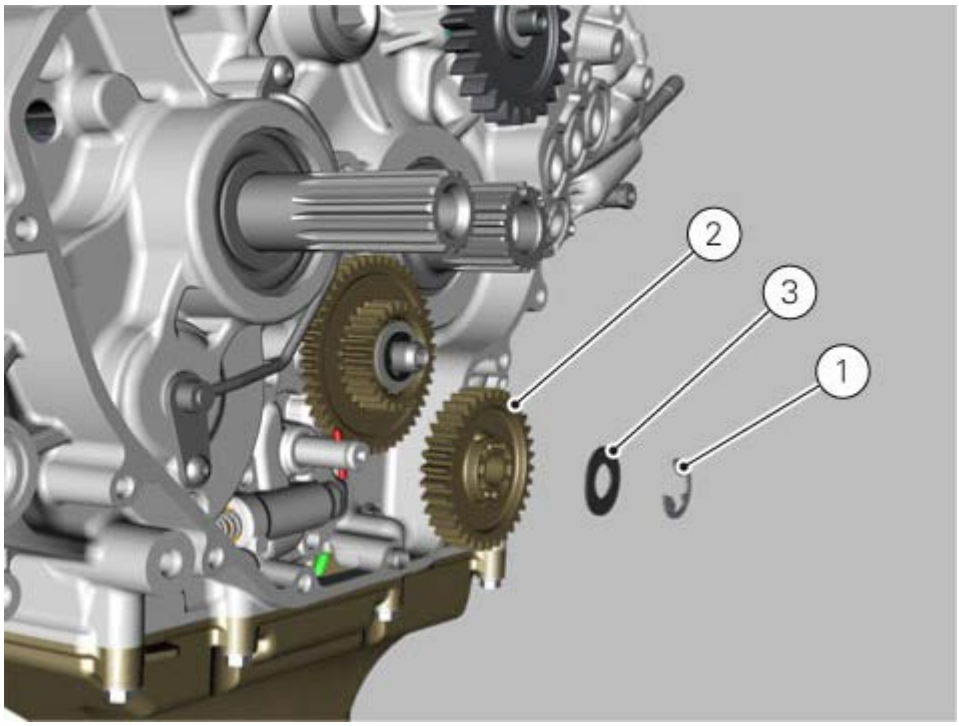
Remove the circlip (1) and slide out the oil pump drive gear (2); keep washer (3).
Remove the circlip (4) and slide out the oil pump idle gear (5); keep the washer (6).

Note
It is not necessary to remove the primary gear sprocket in order to work only on the oil pump. Loosen the shaft (LH thread), and slide out the oil pump idle gear from the side.

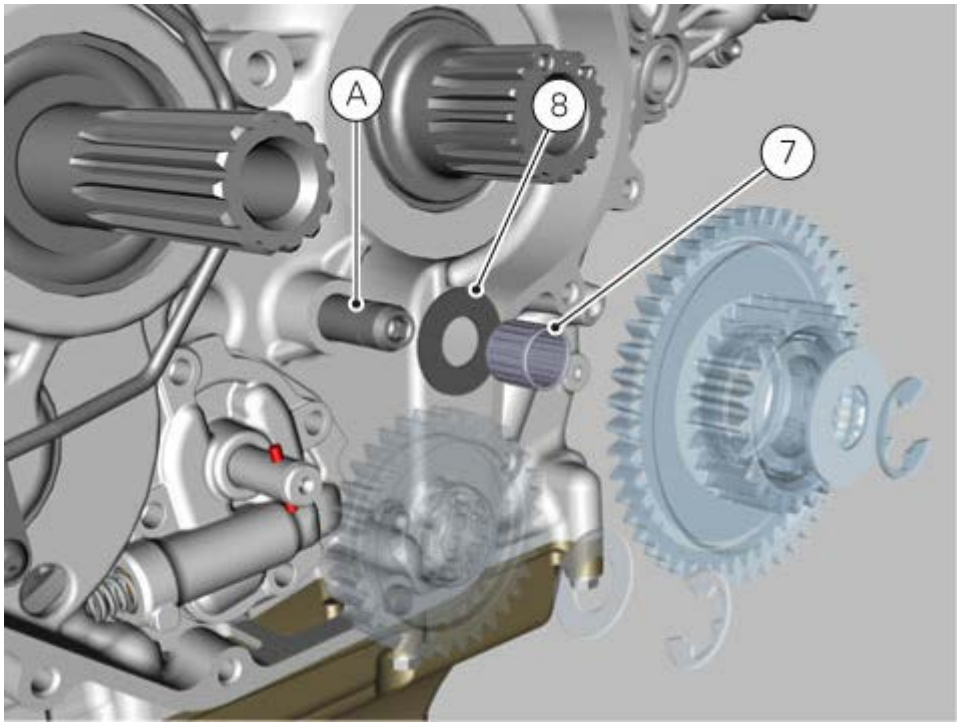




http://www.ducati-manuals.com
no. 140312

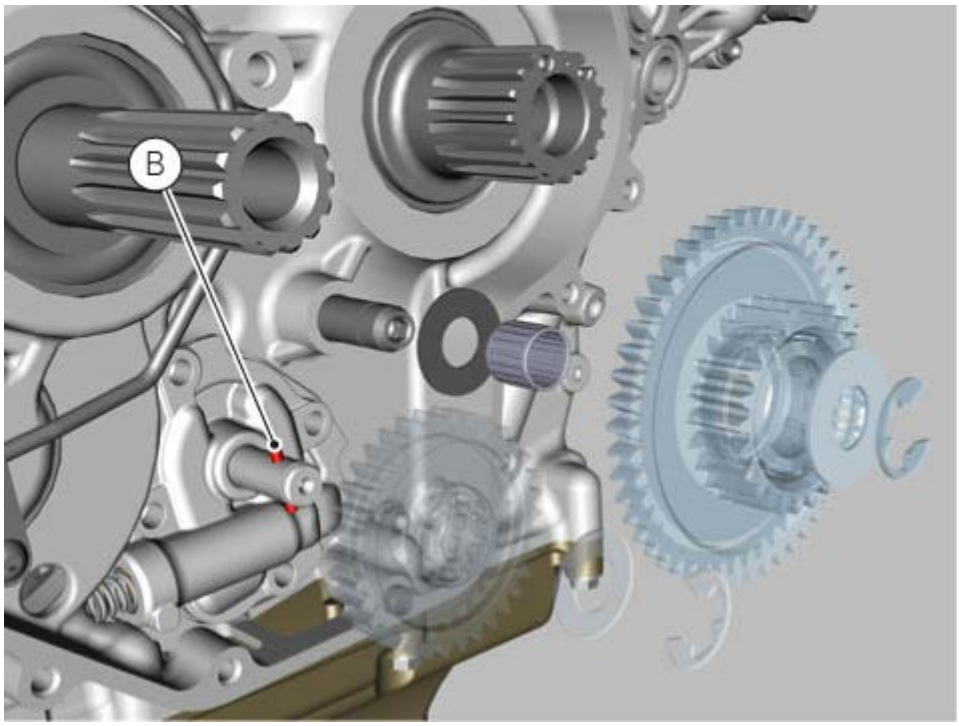


Remove the needle roller bearing (7) and washer (8) from shaft (A).

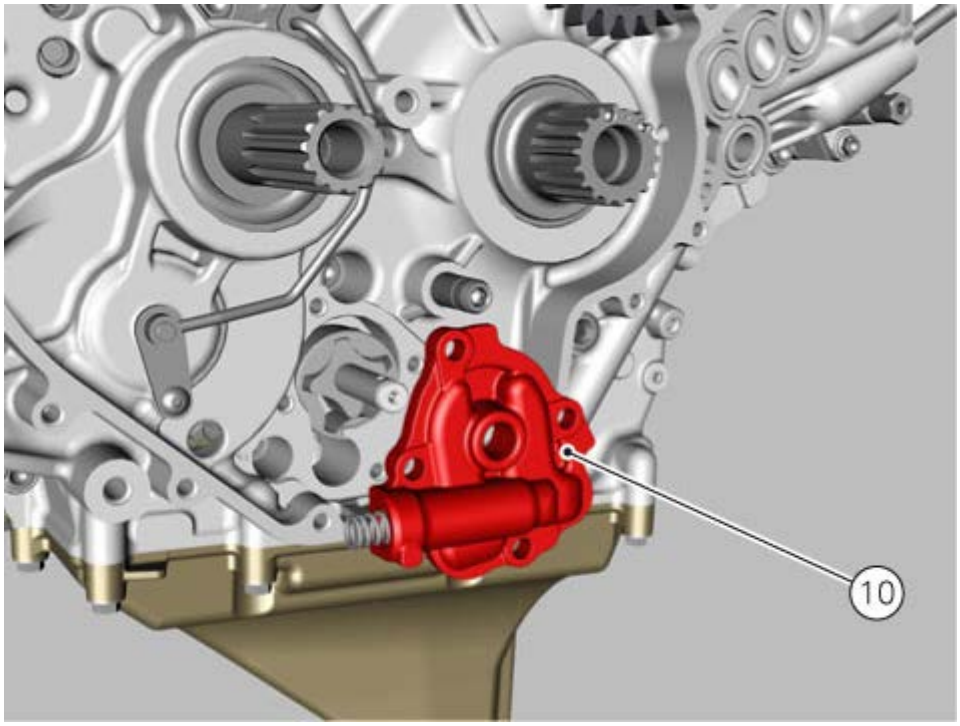


Remove pin (B).

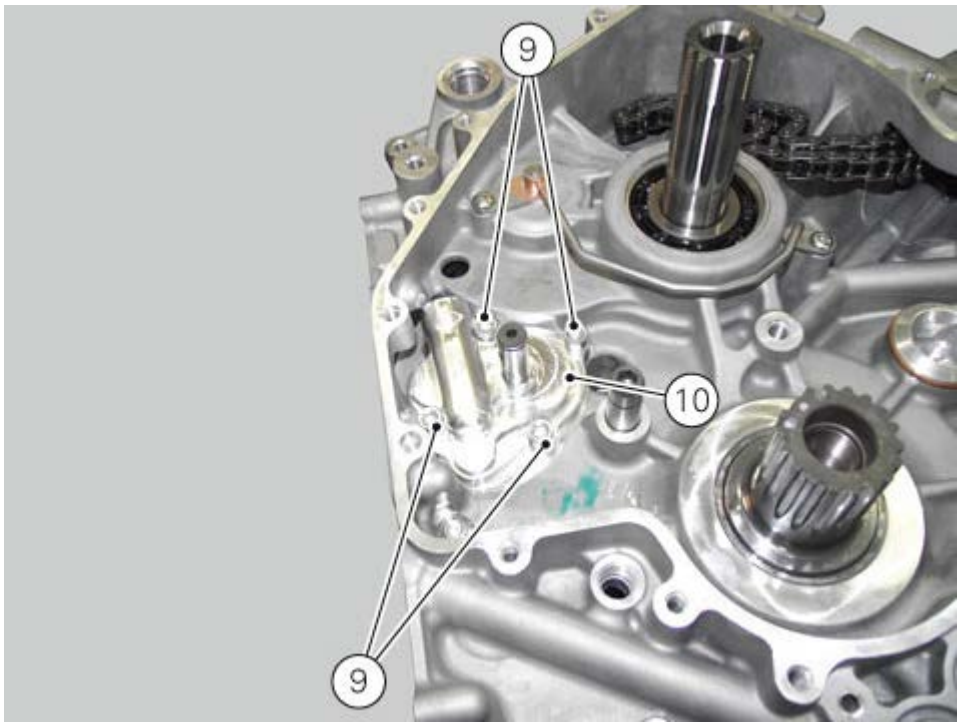
http://www.ducati-manuals.com
no. 140312



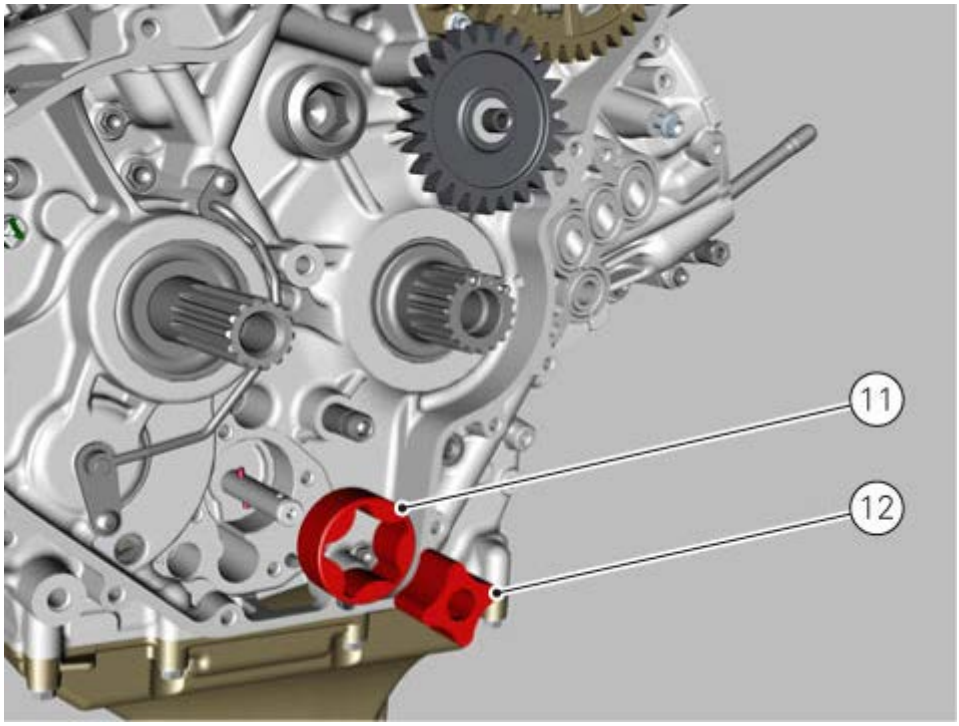
Unscrew the screws (9) and remove the oil pump cover (10).



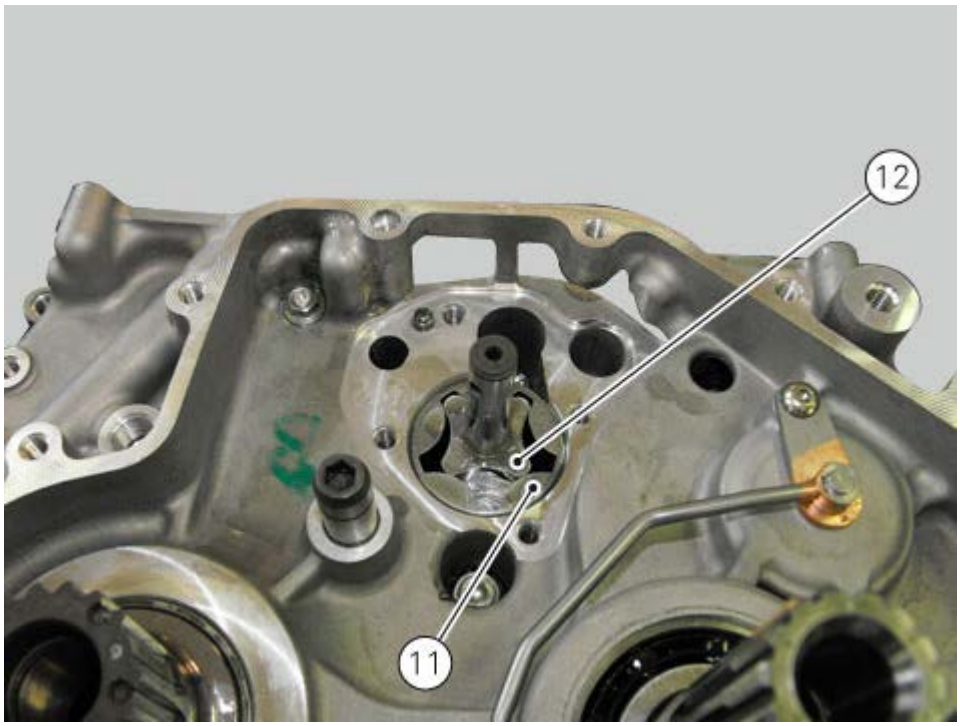
http://www.ducati-manuals.com
no. 140312



Remove the oil pump internal rotor (12) and external rotor (11).



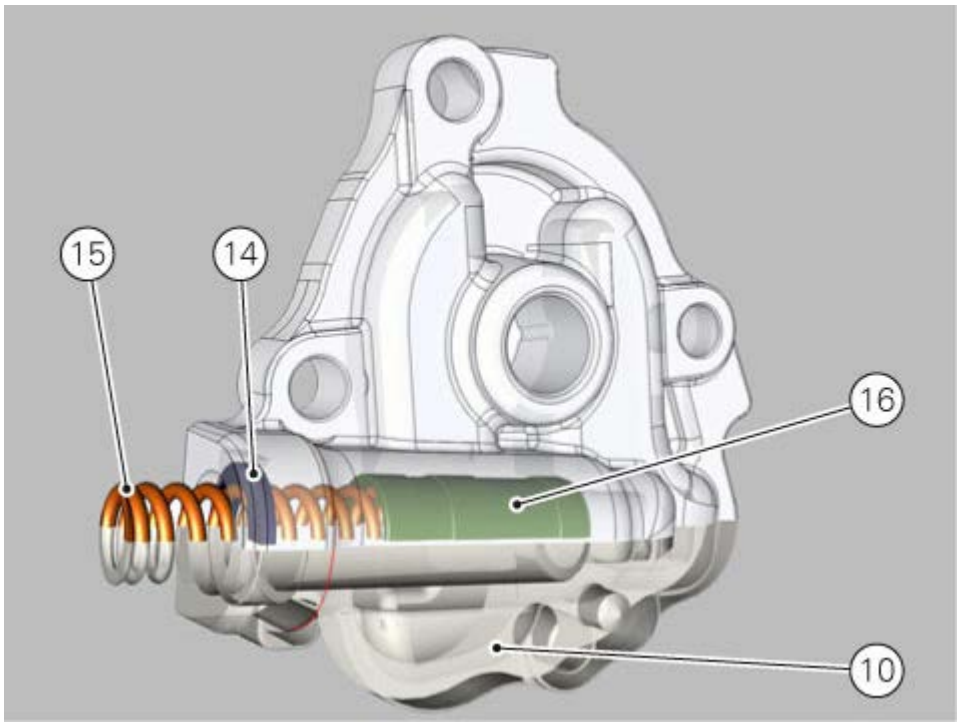
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Removal of the oil pressure pump cover

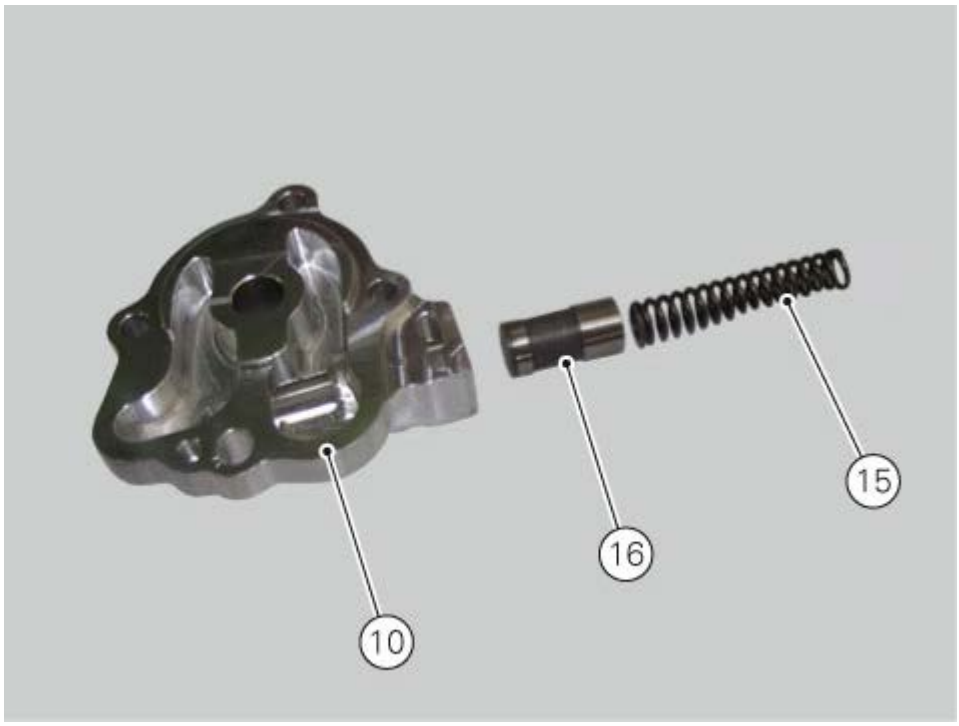
Remove the washer (14) from its seat.





Remove the spring (15) and by-pass piston (16) from cover (10).

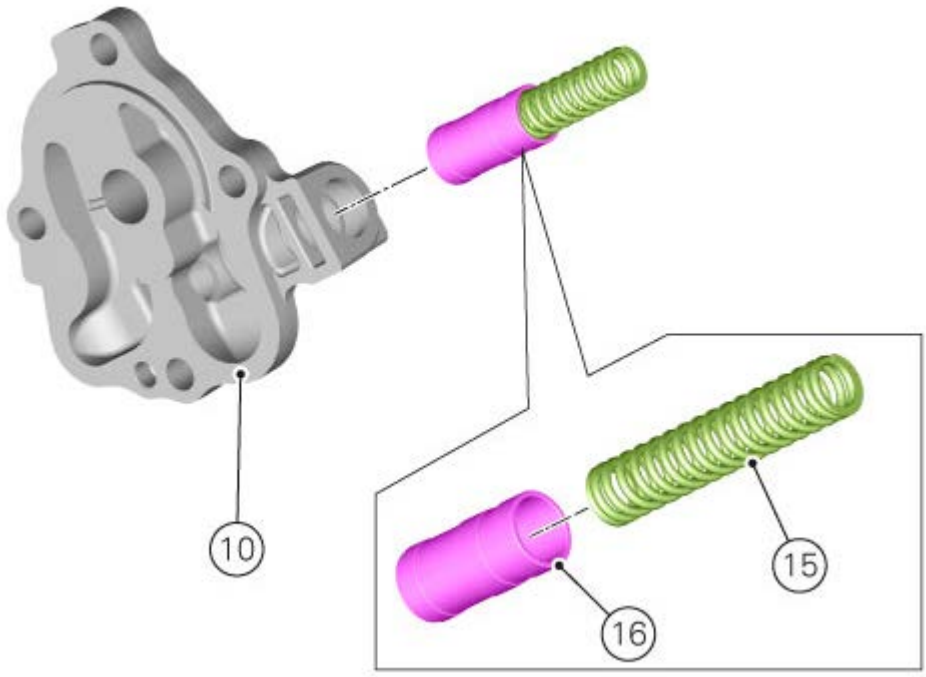
http://www.ducati-manuals.com
no. 140312



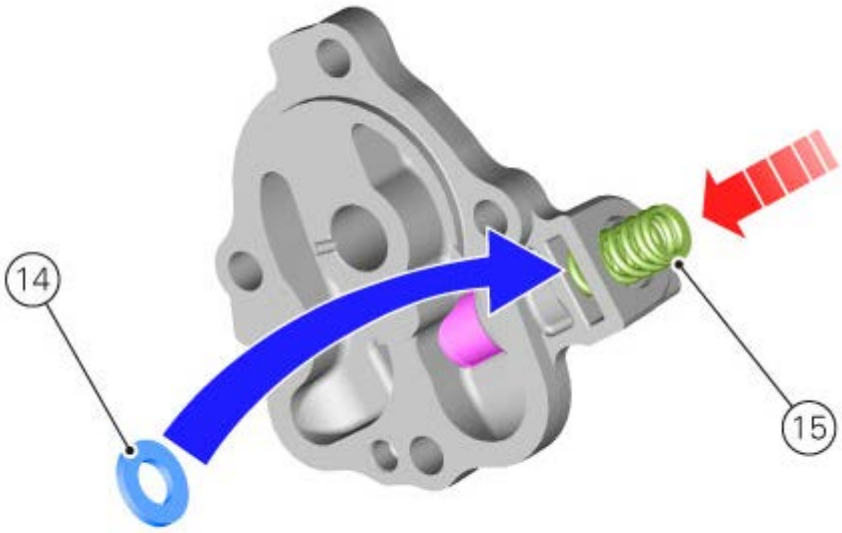
http://www.ducati-manuals.com
no. 140312

Installation of the oil pressure pump cover

Fit the spring (15) fully home inside piston (16).
Fit the spring (15) and piston (16) assembly fully home on oil pump cover (10).



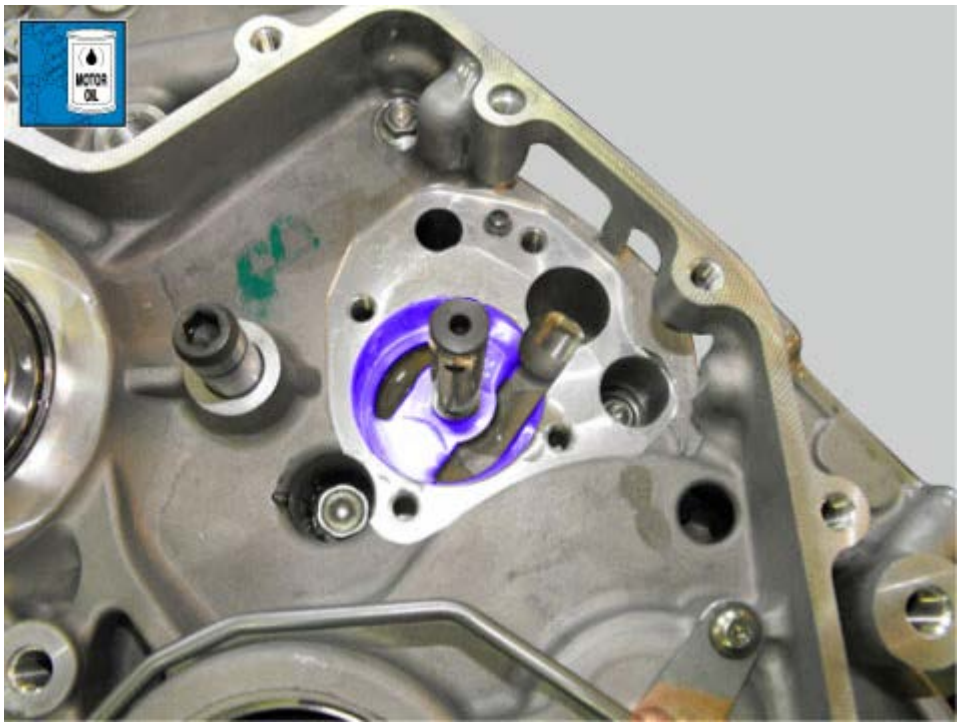
Press spring (15) inside the cover and put washer (14) fully home.
make sure that washer is in place, fully inside pump cover.



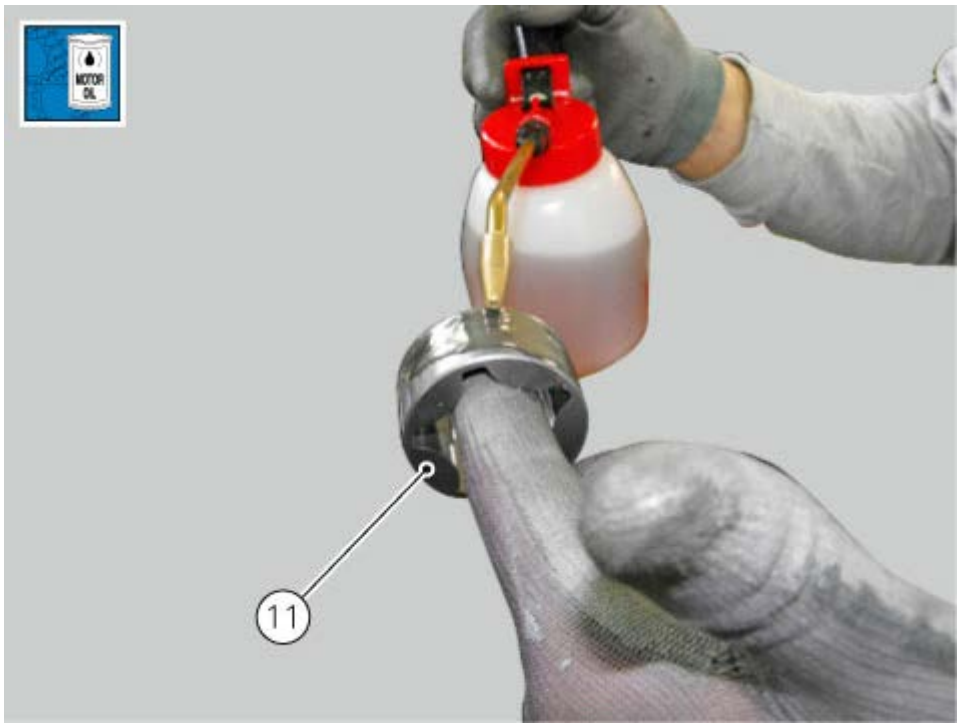
http://www.ducati-manuals.com
no. 140312

Installation of the oil pressure pump

Lubricate pump seat with engine oil.

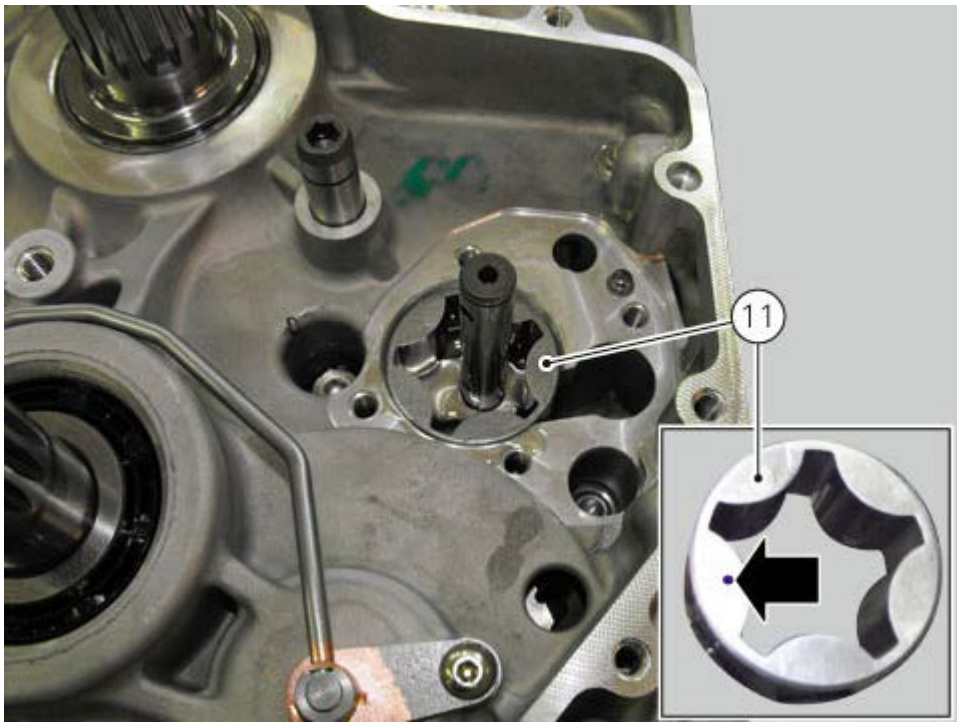


Lubricate with engine oil the outside and inside of external rotor (11) and position the latter in its seat in the casing.

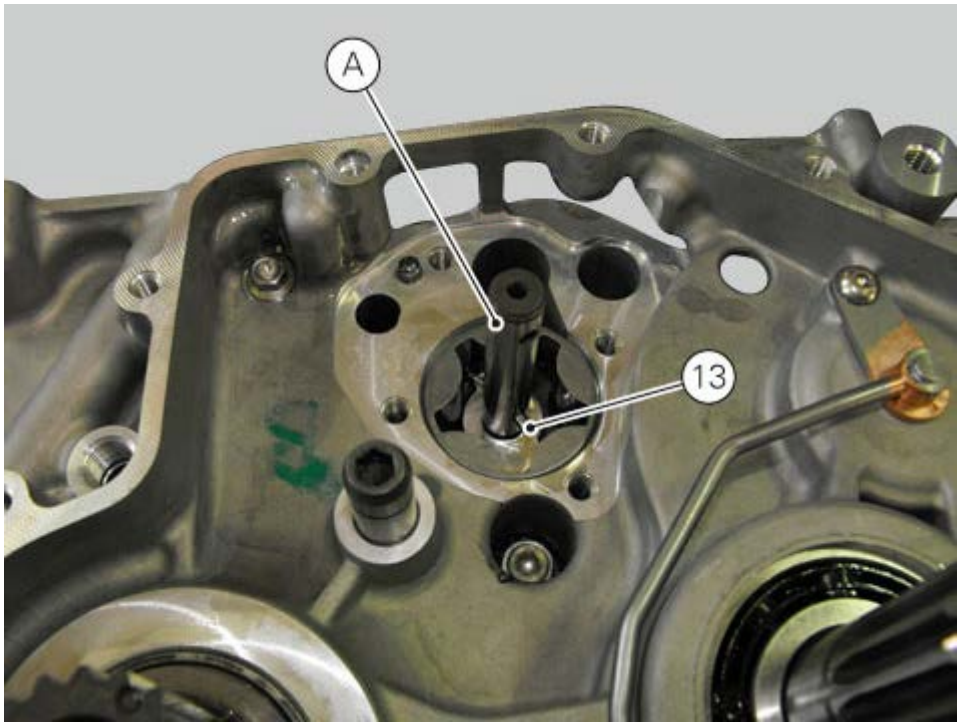


Pay attention to assembly direction: the surface with reference must be facing the inside of the casing.

http://www.ducati-manuals.com
no. 140312

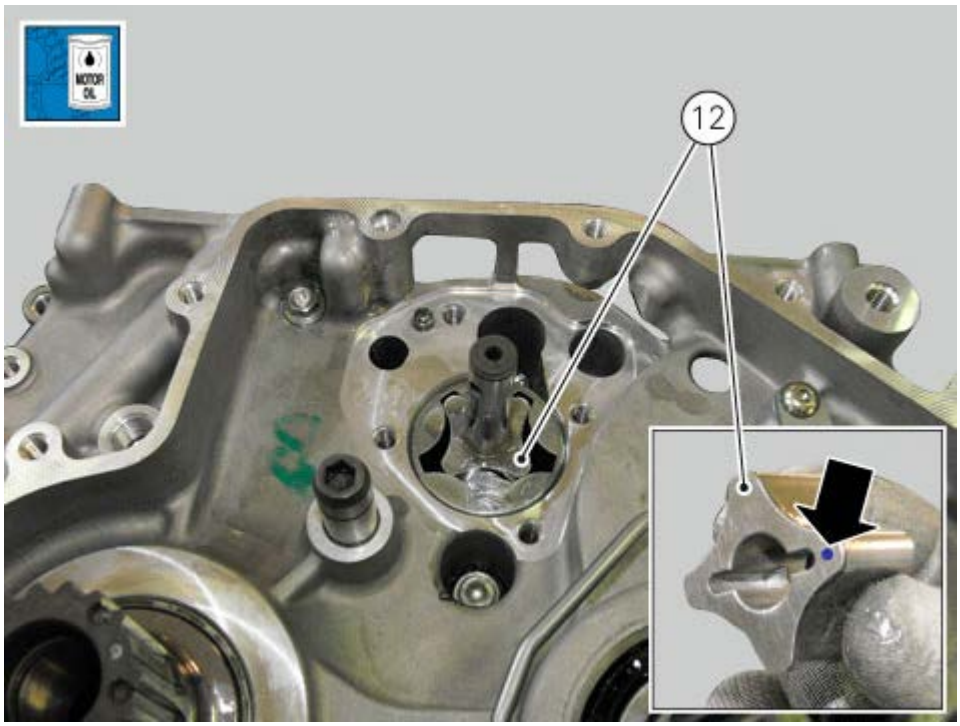


Fit the centring pin (13) in shaft (A).

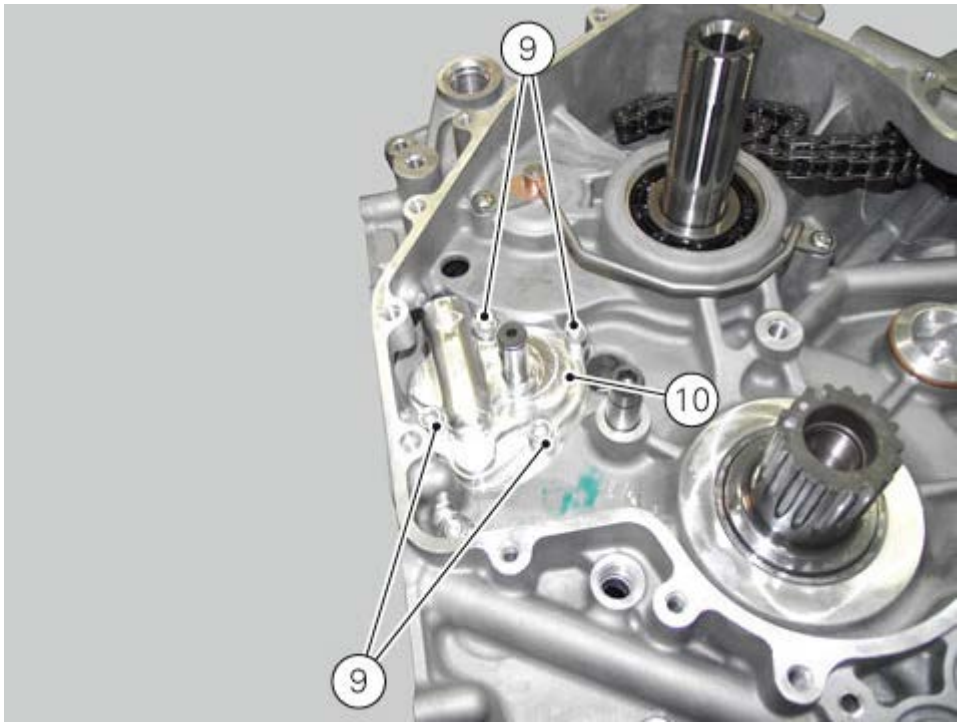


Lubricate the inner rotor (12) with engine oil and set it in its seat, the surface with the reference should be facing inside.
The rotor groove must match the centring pin (13) previously set in the oil pump drive shaft.

http://www.ducati-manuals.com
no. 140312

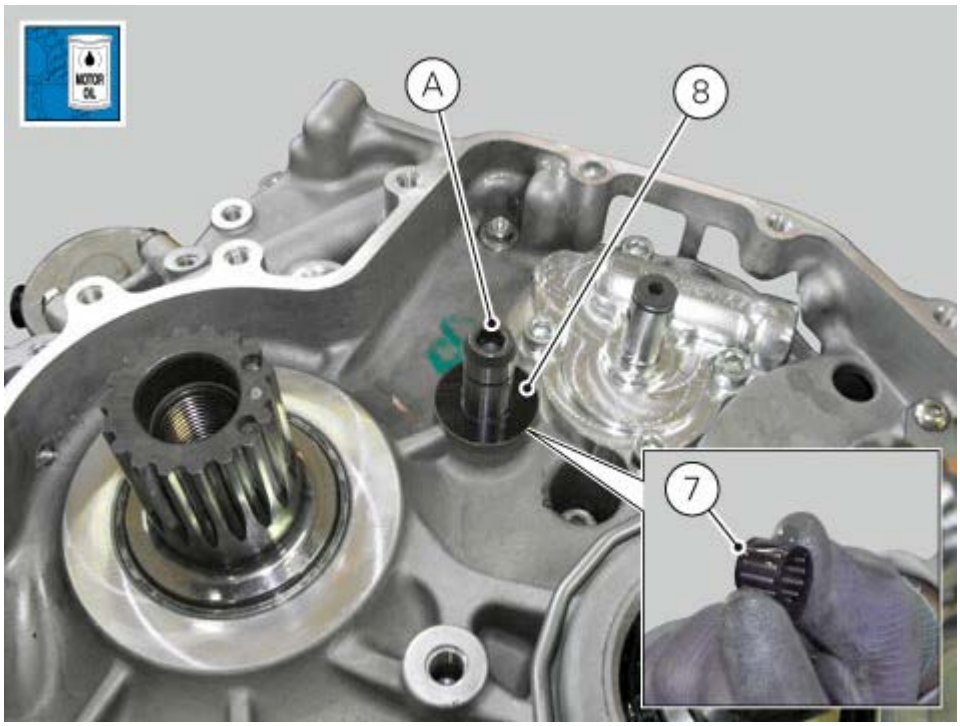


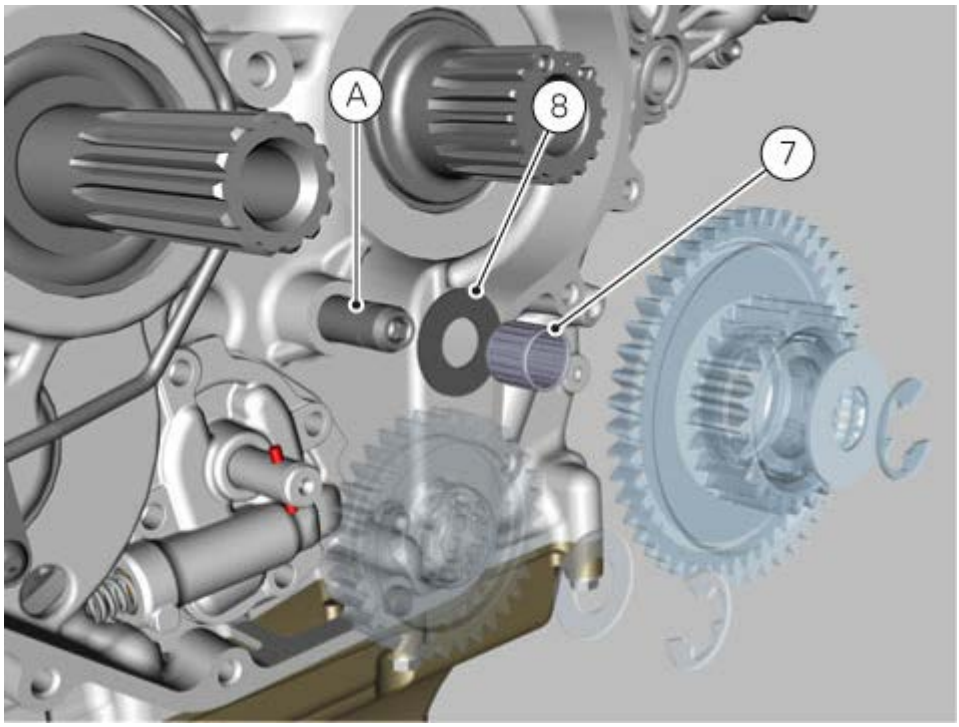
Fit oil pump cover (10), start and tighten the four screws (9) to a torque of 10 Nm (Min. 9 Nm - Max. 10 Nm).
Turn oil pump drive shaft and make sure it turns smoothly.



Fit shim (8) and roller cage (7) to transmission shaft (A).
Smear roller cage and shaft with engine oil.

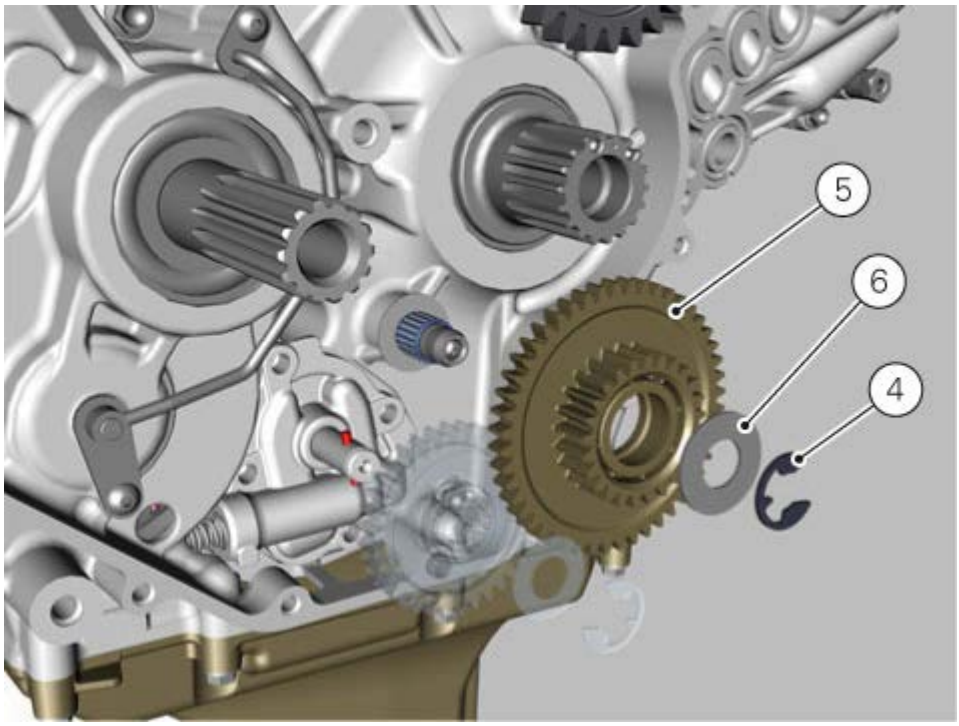
http://www.ducati-manuals.com
no. 140312

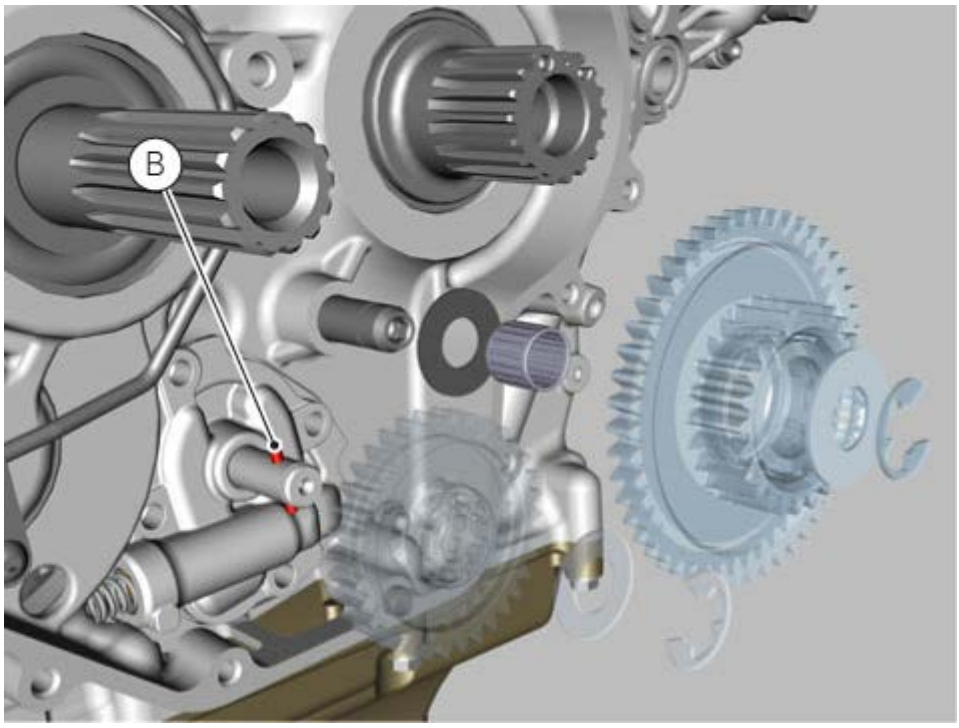




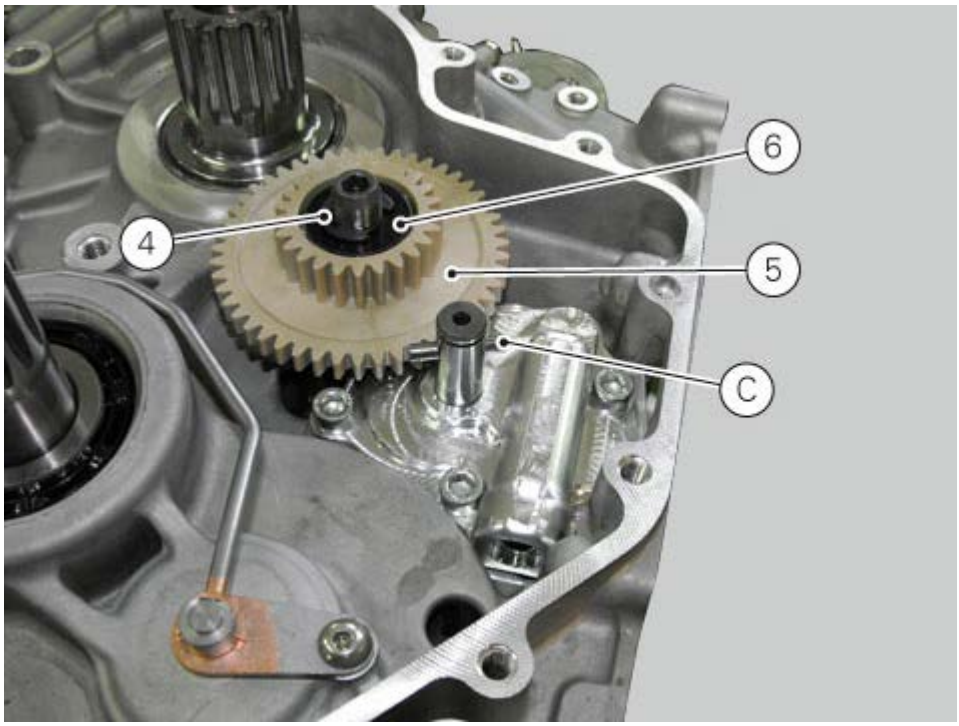
Fit top shim (6) and install oil pump idle gear (5) then fasten it with its circlip (4).
Fit pin (B) to oil pump shaft.

http://www.ducati-manuals.com
no. 140312

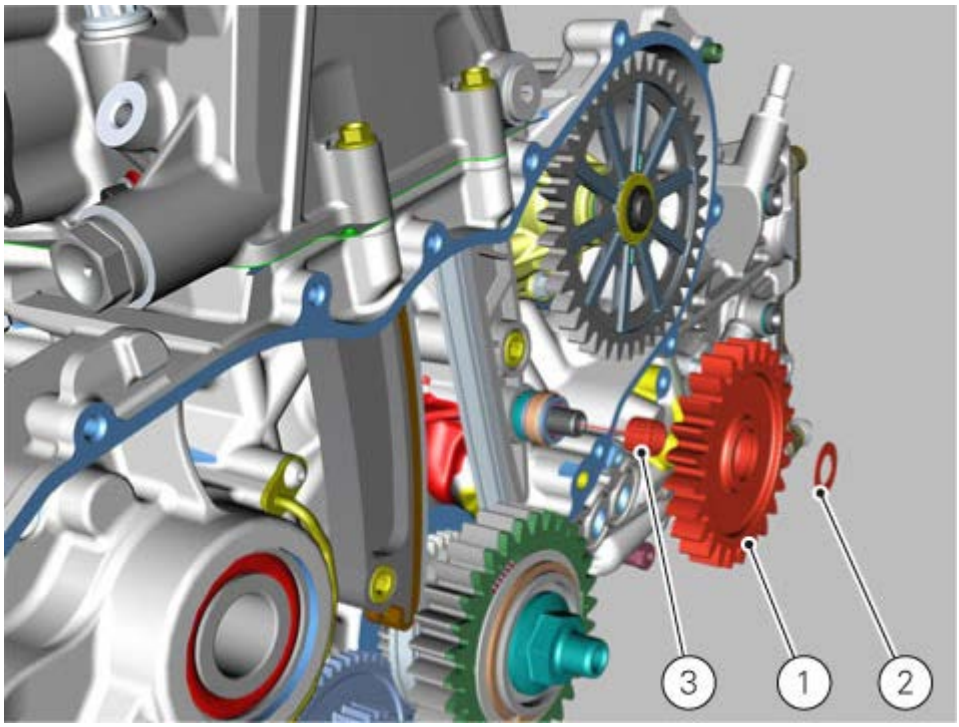




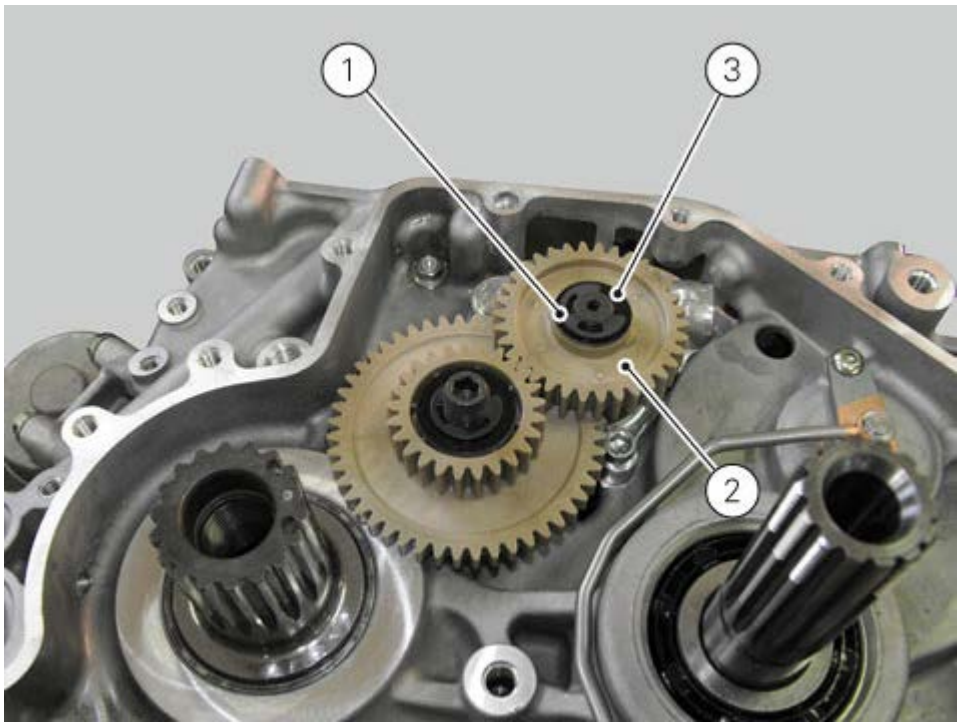
http://www.ducati-manuals.com
no. 140312



Install oil pump drive gear (2), fit top shim (3) and then fasten with circlip (1).
Try to turn pump.



http://www.ducati-manuals.com
no. 140312

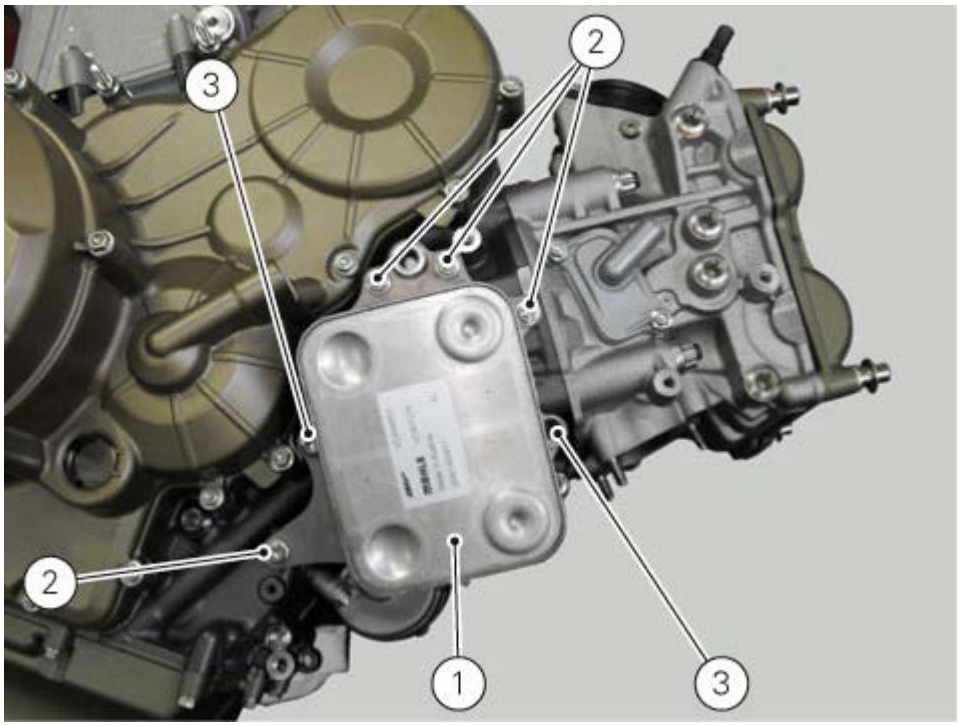


Refit the primary drive gears (Refitting the primary drive gears and checking backlash).
Reinstall the clutch (Refitting the clutch).
Refit the clutch cover (Refitting the clutch cover).
Fill engine oil (Changing the engine oil and filter cartridge).

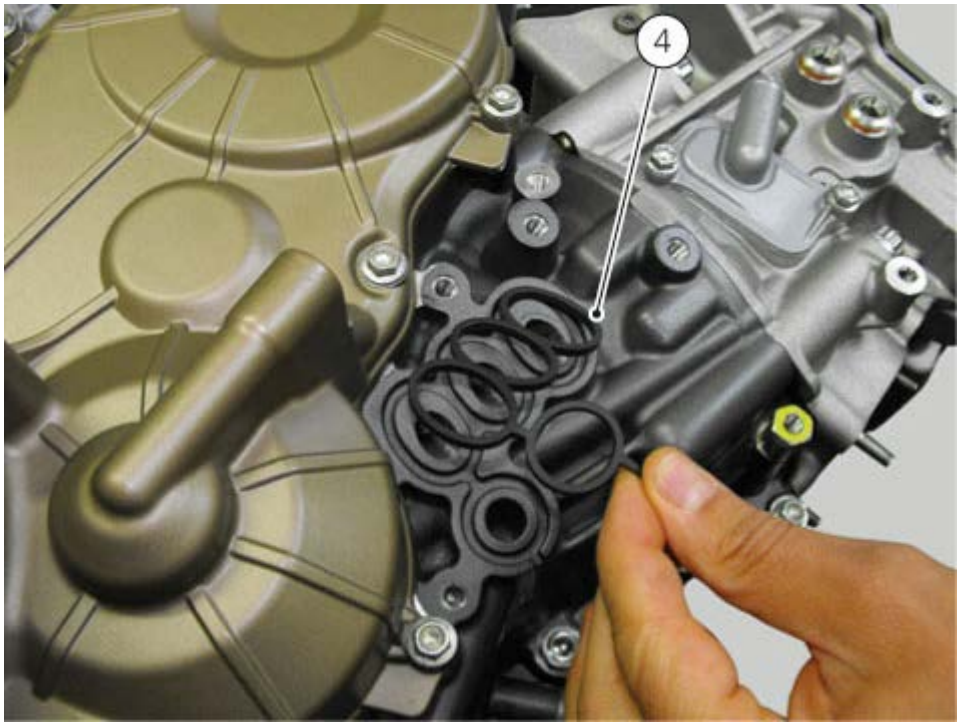
http://www.ducati-manuals.com
no. 140312

Removal of the oil heat exchanger

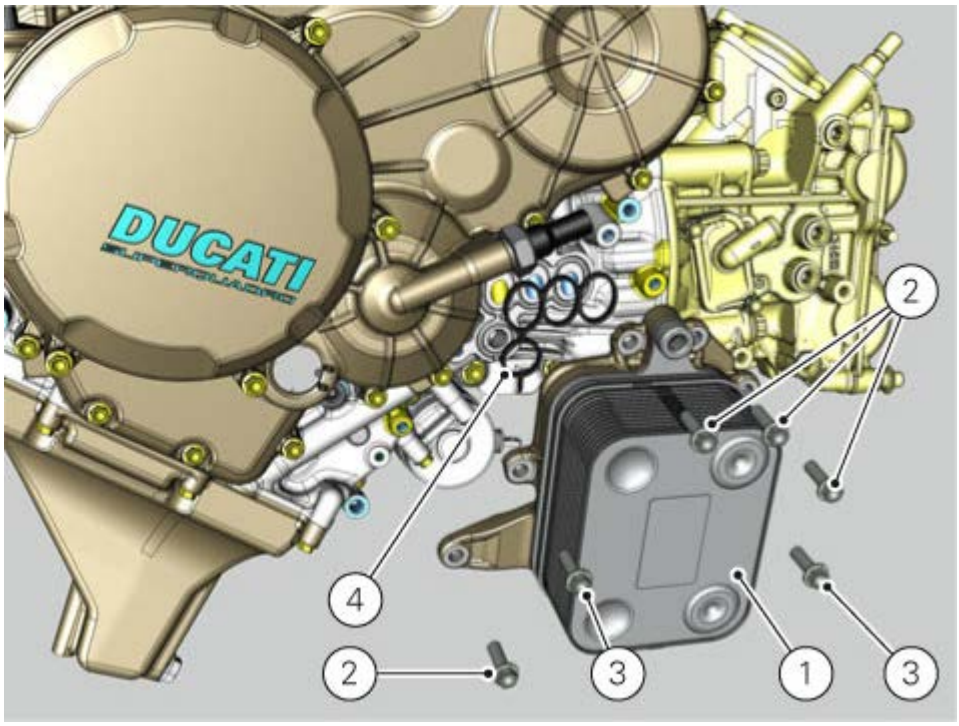
Remove the heat exchanger (1) by loosening the screws (2) and (3).



Remove gasket (4) from the crankcase.



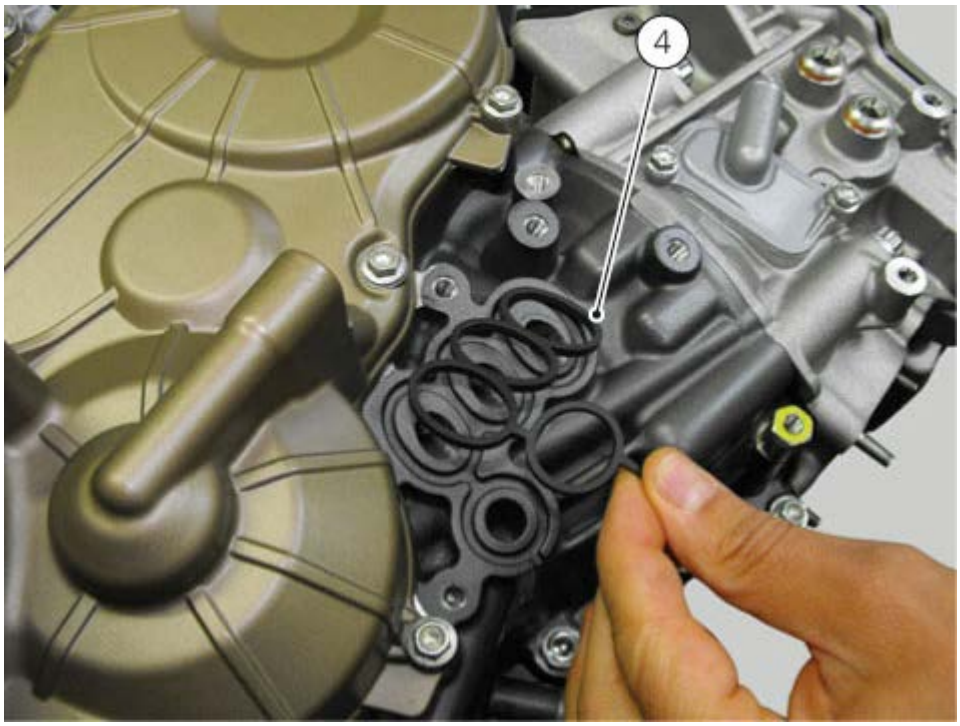
http://www.ducati-manuals.com
no. 140312



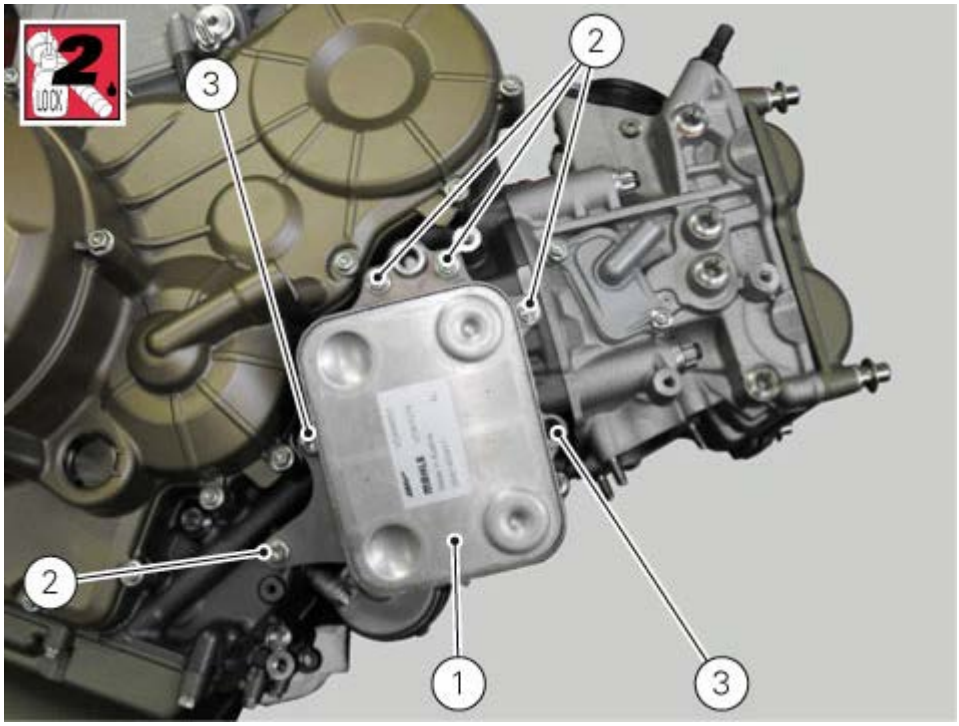
http://www.ducati-manuals.com
no. 140312

Installation of the oil heat exchanger

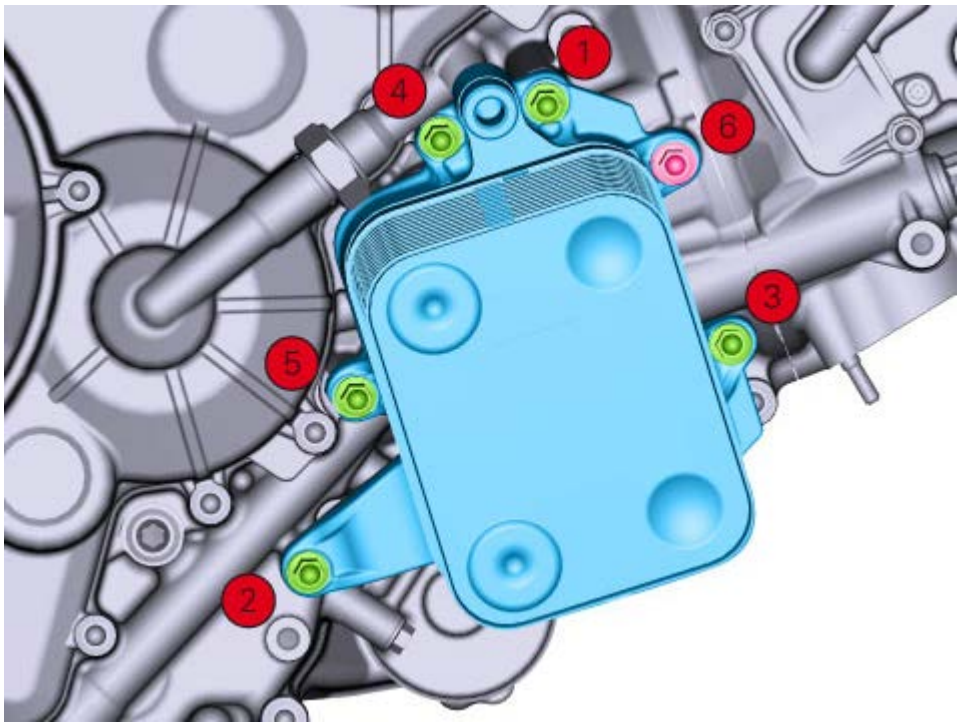
Fit gasket (4) in its seat on the crankcase.



Apply specified threadlocker on screws (2).
Position the heat exchanger (1) on the crankcase and tighten the screws (2) and (3).
Tighten screws (2) and (3) to 13 Nm (Min. 12 Nm - Max. 14 Nm), following the specified sequence.



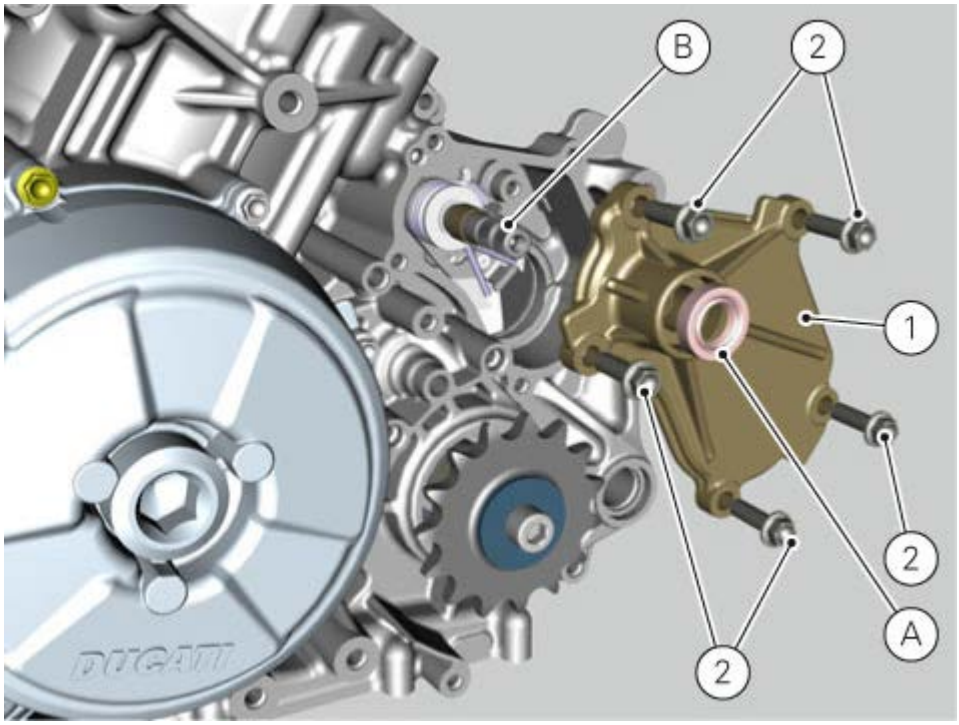
http://www.ducati-manuals.com
no. 140312

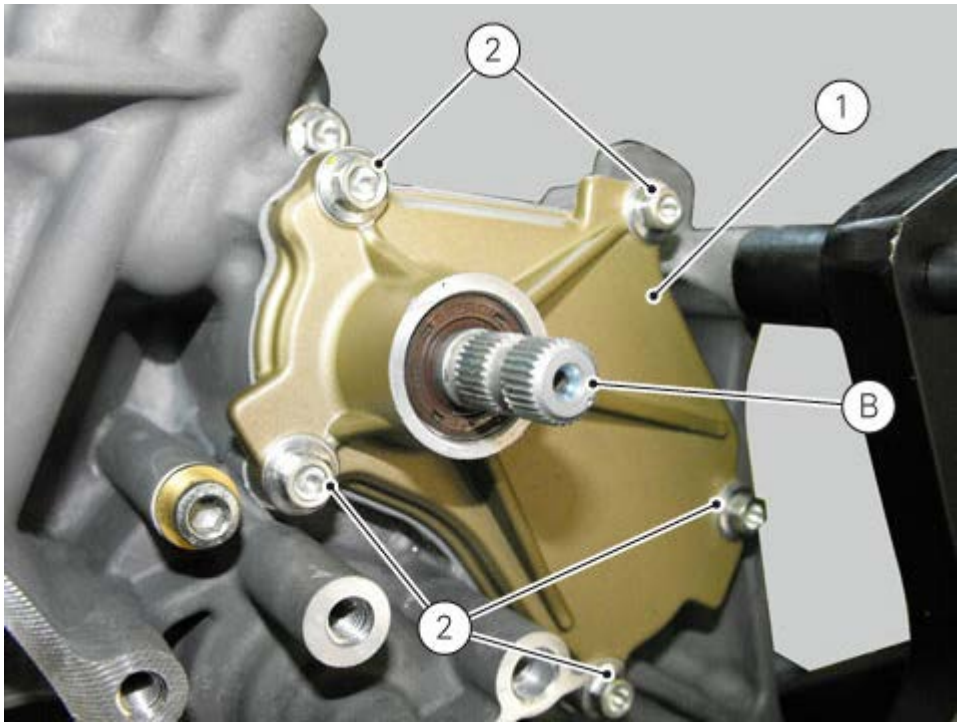


http://www.ducati-manuals.com
no. 140312

Removal of the gear selector lever

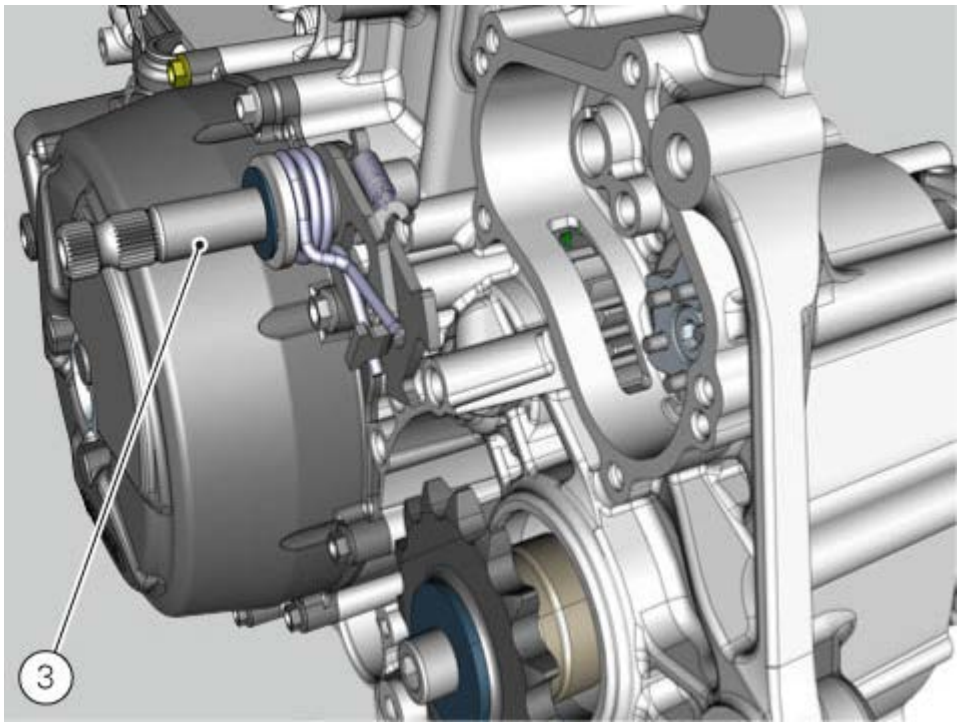
Remove the gear control cover (1) by loosening screws (2), avoiding to let oil seal (A) touch the splined coupling of the gear selector.

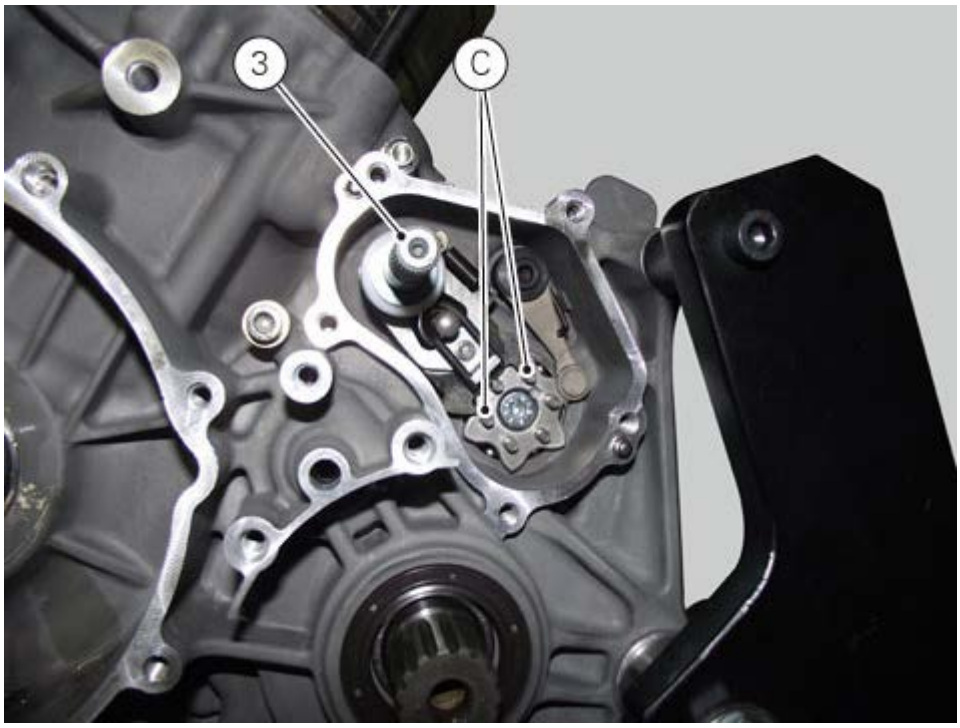




Take selector out (3).
During removal, be careful not to damage the pins (C) of shift star assembly.

http://www.ducati-manuals.com
no. 140312

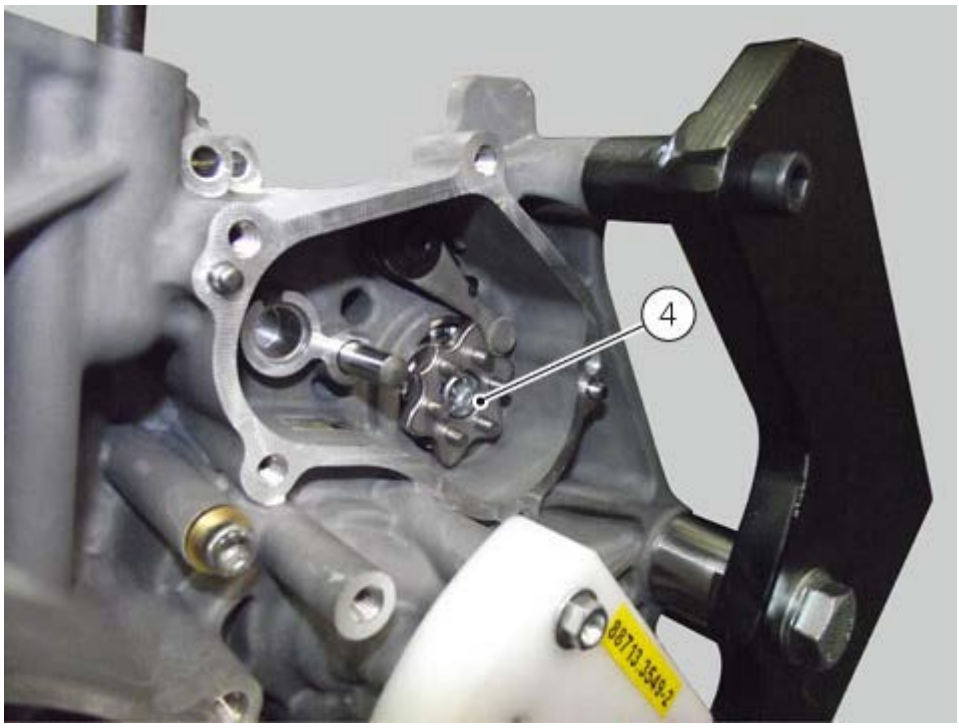




Remove the shift star by loosening and removing screw (4), with the relevant tool part no. **88713.3853**.

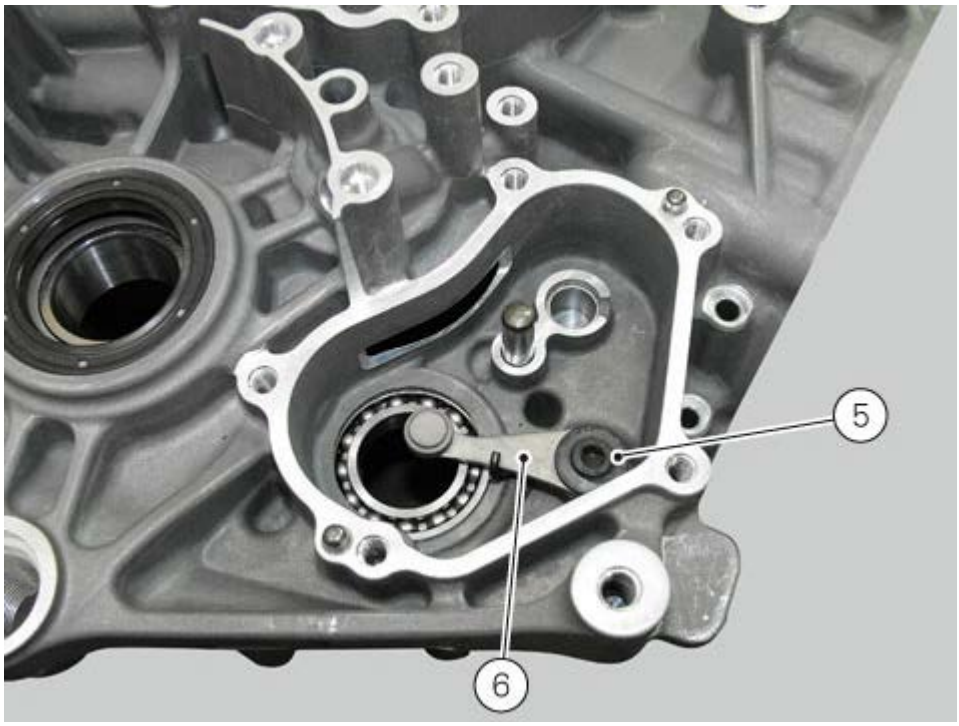
http://www.ducati-manuals.com
no. 140312



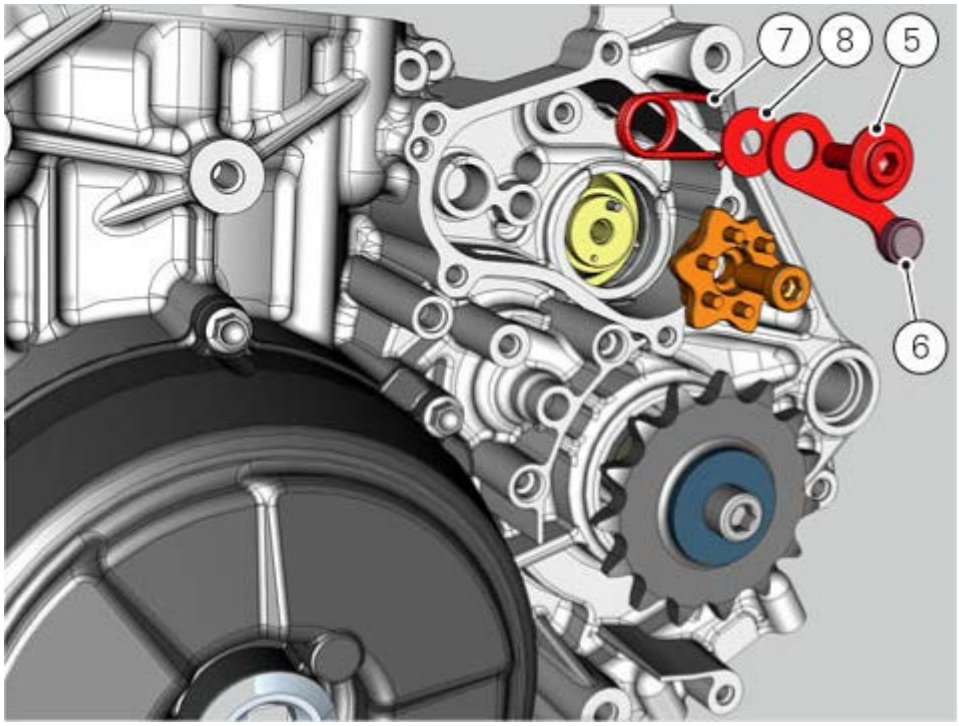


Undo the screw (5) and remove the gear stopper (6).

http://www.ducati-manuals.com
no. 140312



Ensure to keep the washer (8) and spring (7).



http://www.ducati-manuals.com
no. 140312



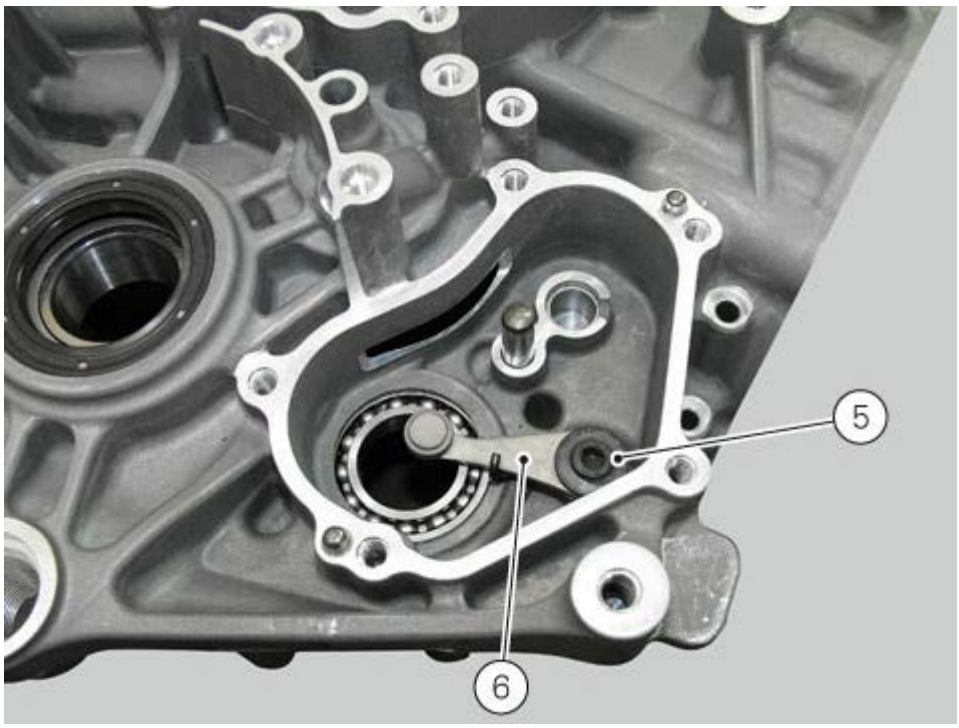
http://www.ducati-manuals.com
no. 140312

Installation of the gear selector lever

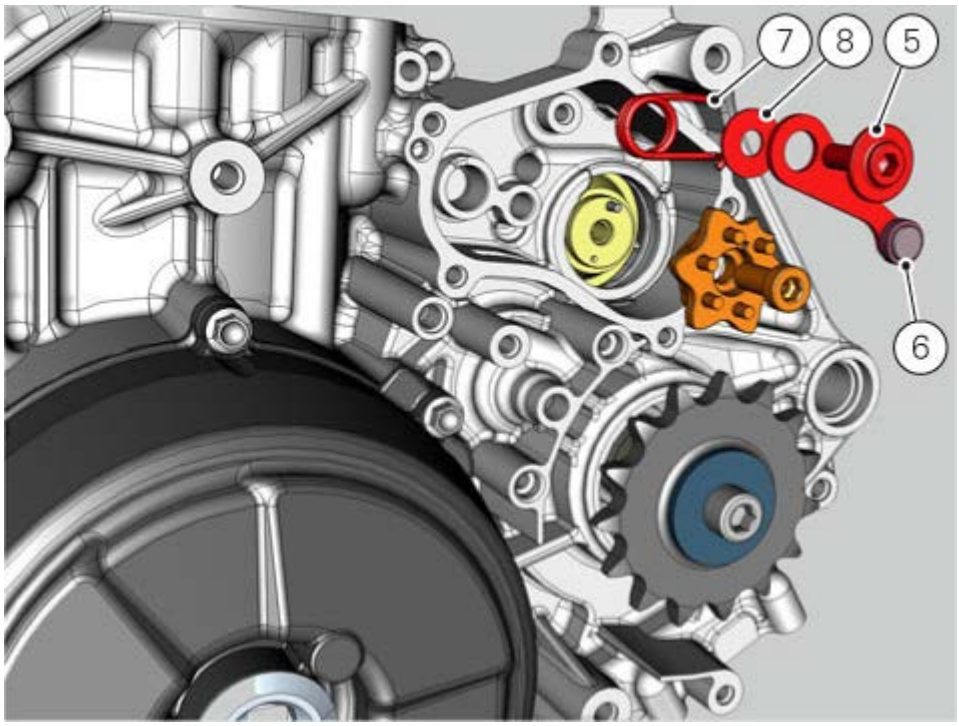
Fit the spring to gear stopper (7).



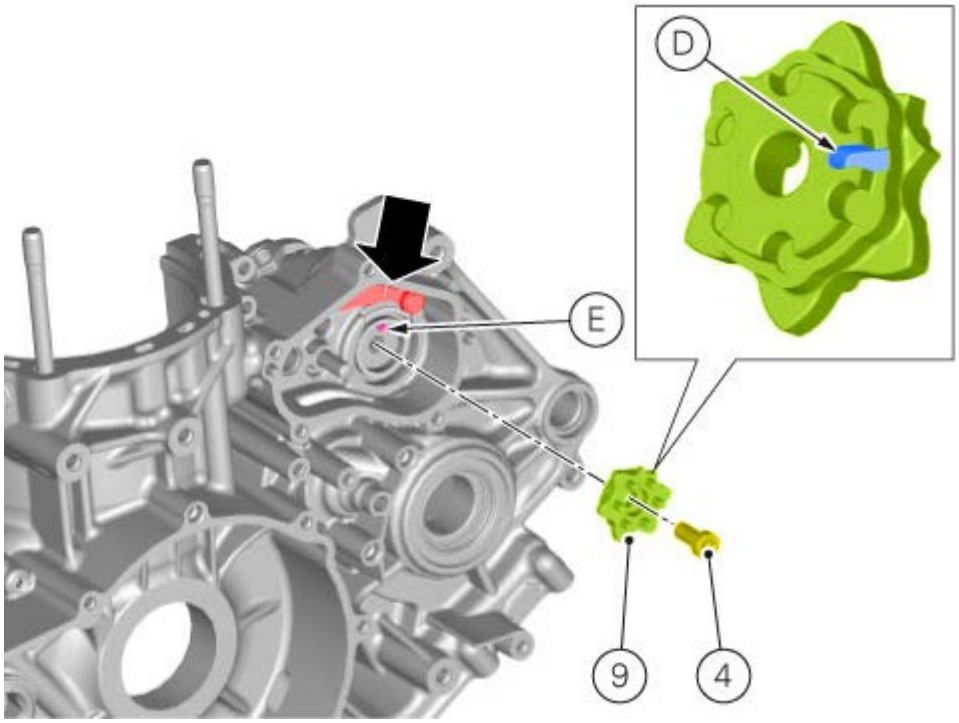
Lubricate screw (5) with engine oil.
Set the gear stopper (6) starting screw (5) with washer (8).
Tighten screw (5) to 10 Nm (Min. 9 Nm - Max. 11 Nm).



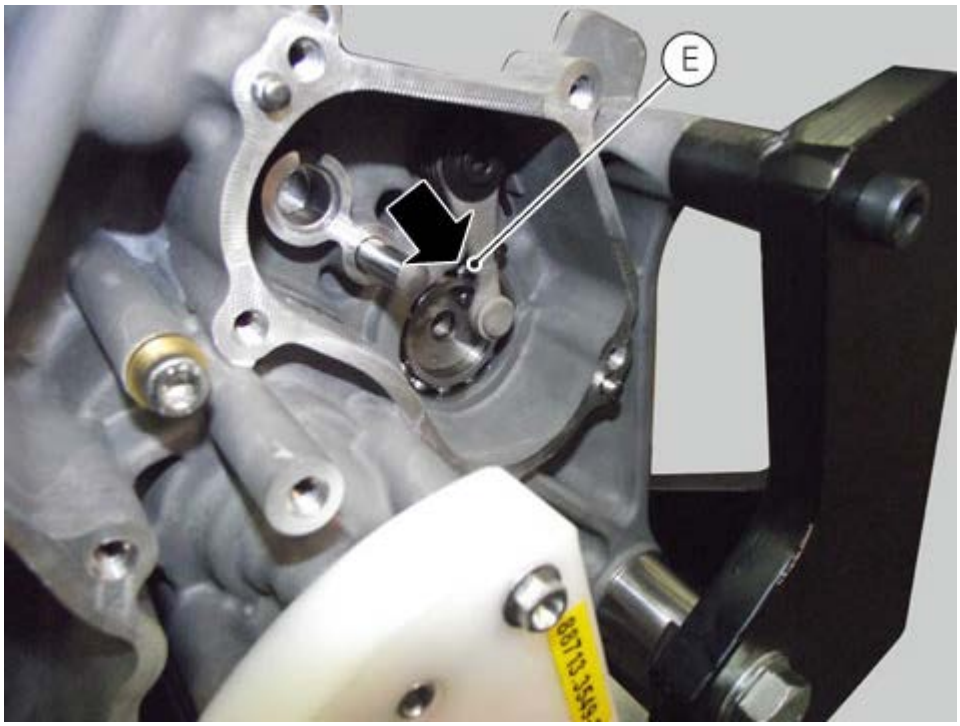
http://www.ducati-manuals.com
no. 140312



Push the gear ratchet toward the casing edge, fit the shift star (9) on selector drum by centring the slot (D) on pin (E) and release the ratchet that sets against shift star (9).
Fit tool part no. **88713.3853** on pin (F) and on shift star pins.
Apply specified threadlocker on screw (4), start it and tighten to 25 Nm (Min. 23 Nm - Max. 27 Nm) using the relevant tool part no. **88713.3853**.

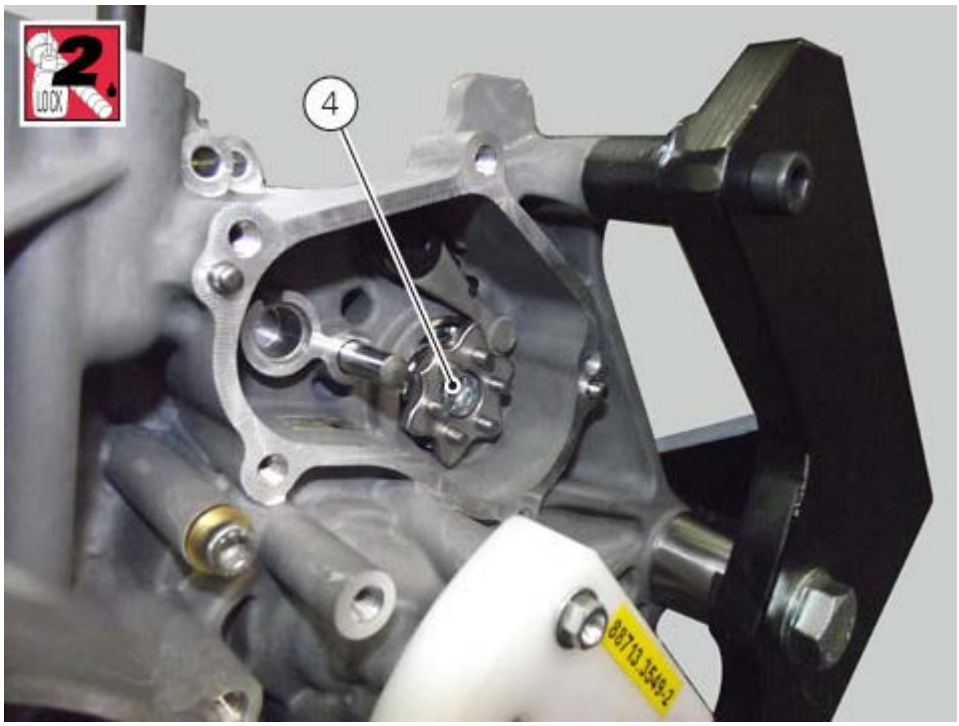


http://www.ducati-manuals.com
no. 140312

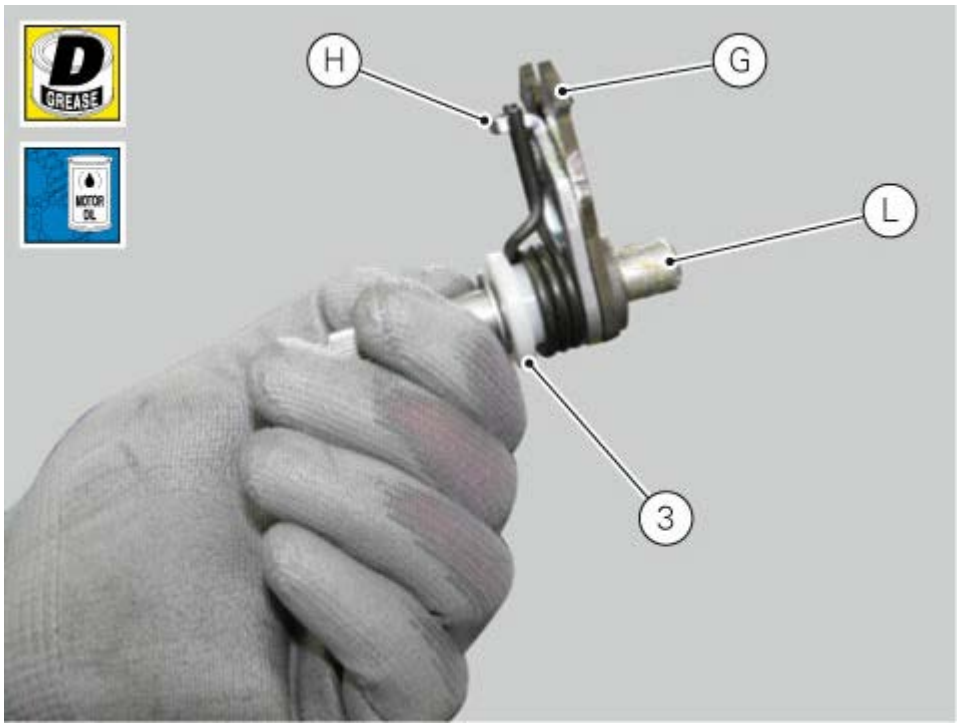




http://www.ducati-manuals.com
no. 140312

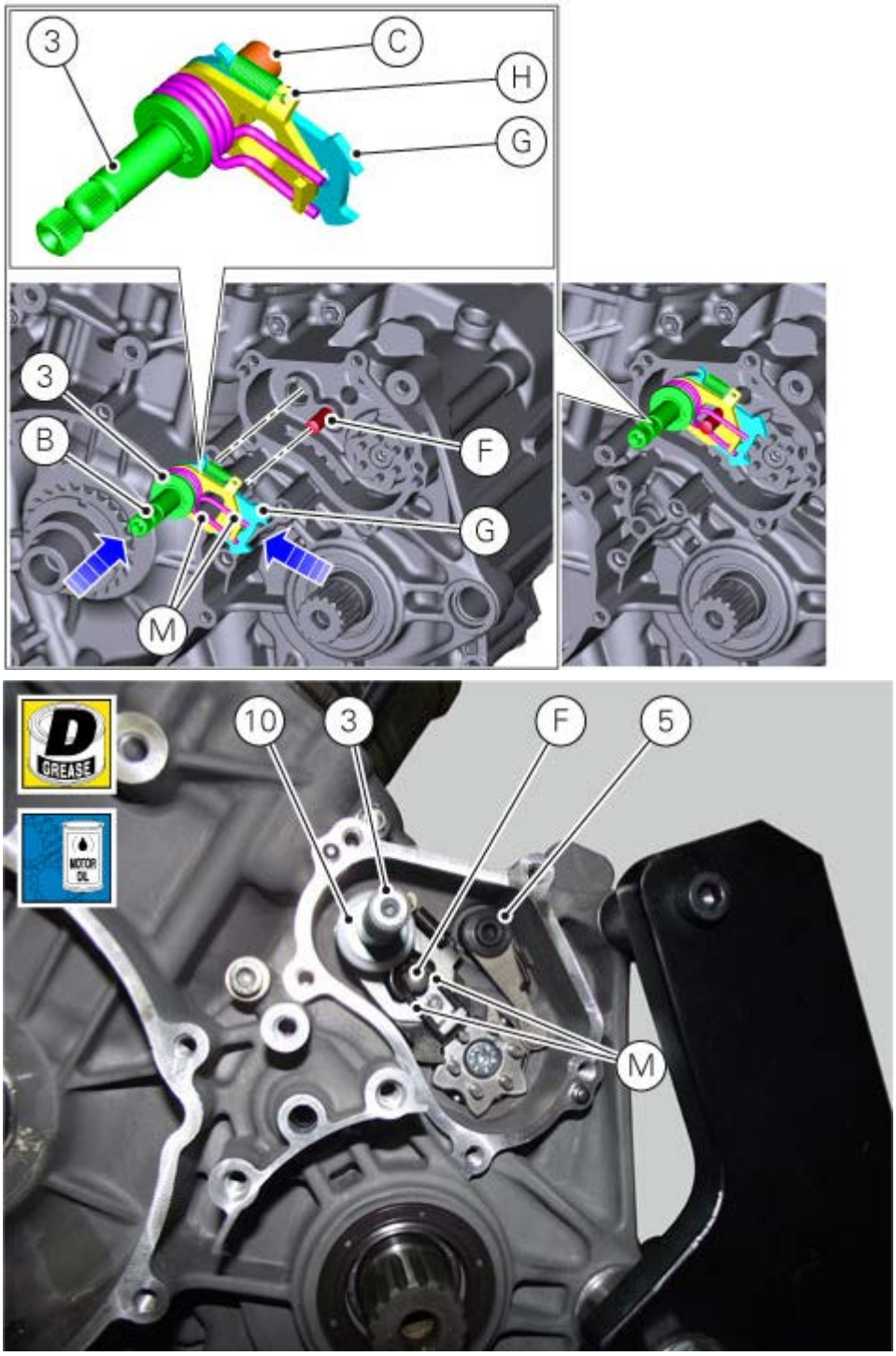


Lubricate with engine oil the sliding surface between pawl (G) and plate (H) of gear selector (3).
Smear grease on pin (L) of gear selector (3).



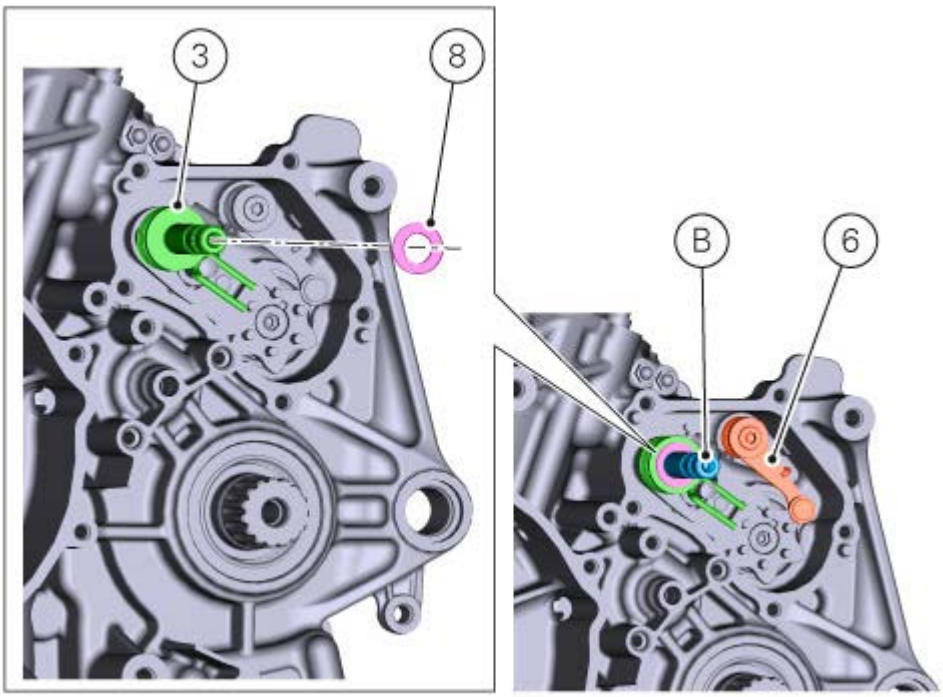
Install gear selector (3) ensuring that pin (F) engages between spring ends (M).
Fit washer (10) on gear selector (3) splined coupling.
Smear grease on gear selector (3) splined coupling and engine oil on gear stopper (M).
Start screw (5) and tighten it to 10 Nm (Min. 9 Nm - Max. 11 Nm).

http://www.ducati-manuals.com
no. 140312

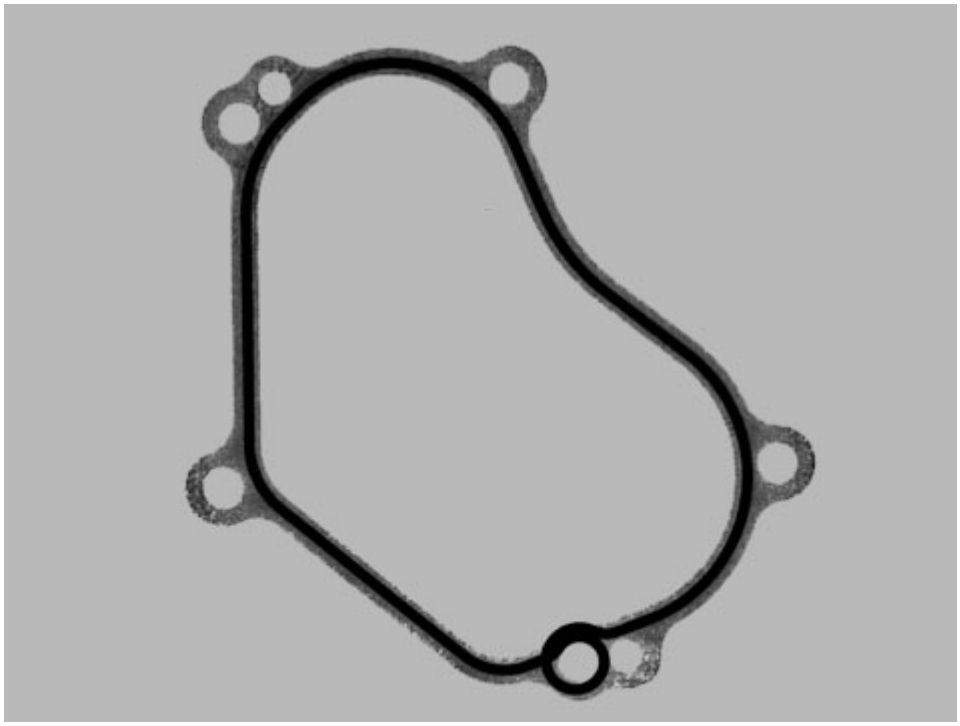


Fit washer (8) on gear selector (3) splined coupling.
Smear grease on gear selector (3) splined coupling (B) and lubricate lever (6) with engine oil.

http://www.ducati-manuals.com
no. 140312

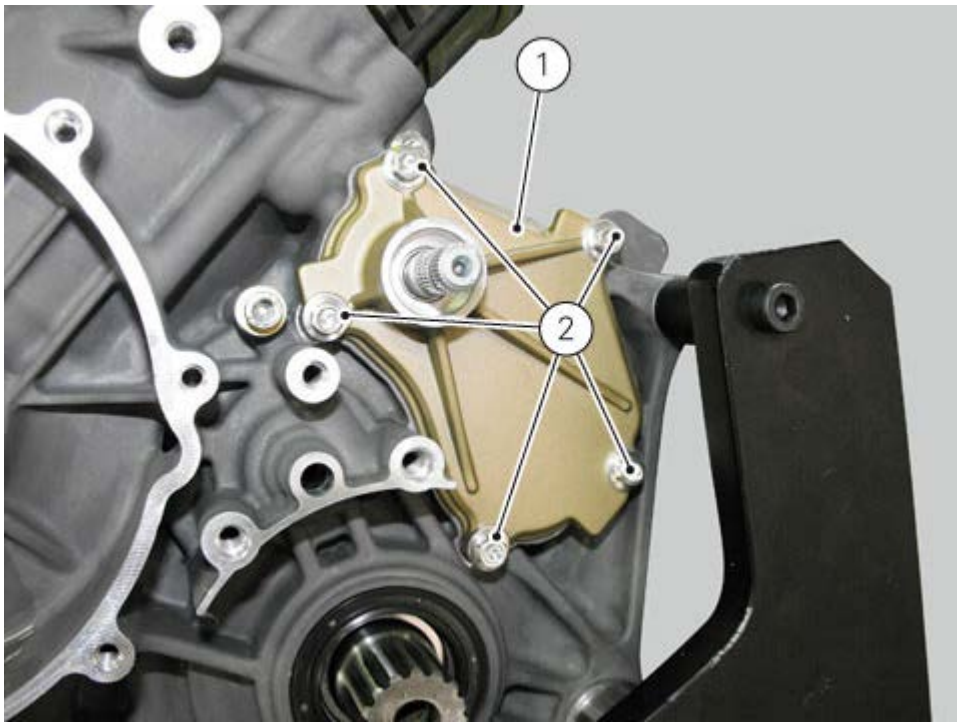


Carefully clean the surface that will mate with cover and the cover itself.
Apply Ducati sealing compound on cover (1) and position the cover on the casing relying on the pilot pins for centring.



Tighten the screws (2) to 13 Nm (Min.12 Nm – Max.14 Nm) in a cross pattern.

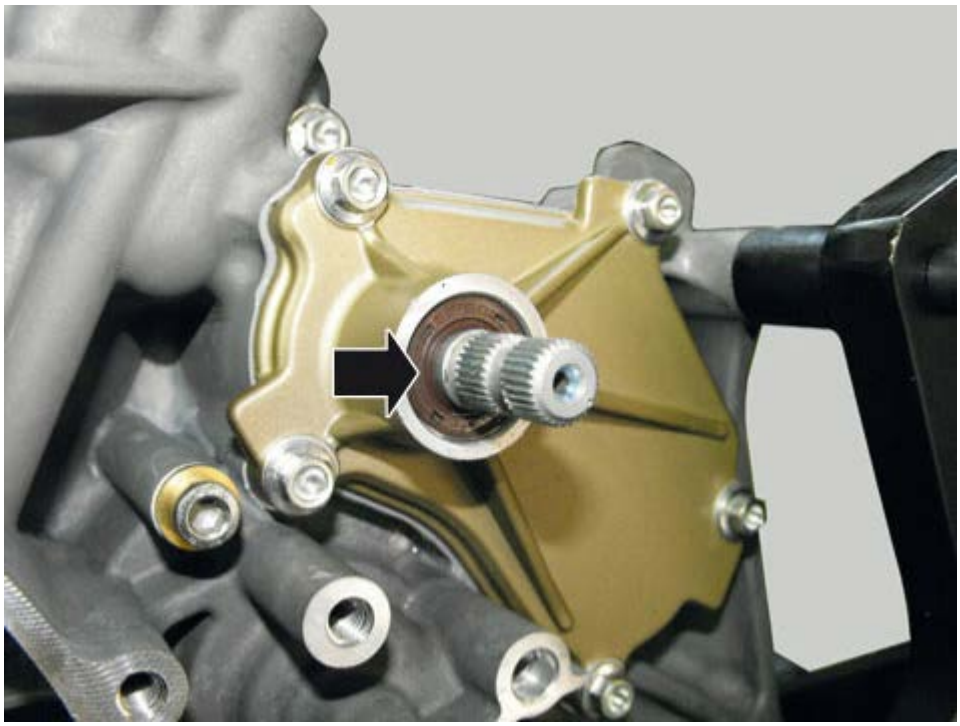
http://www.ducati-manuals.com
no. 140312

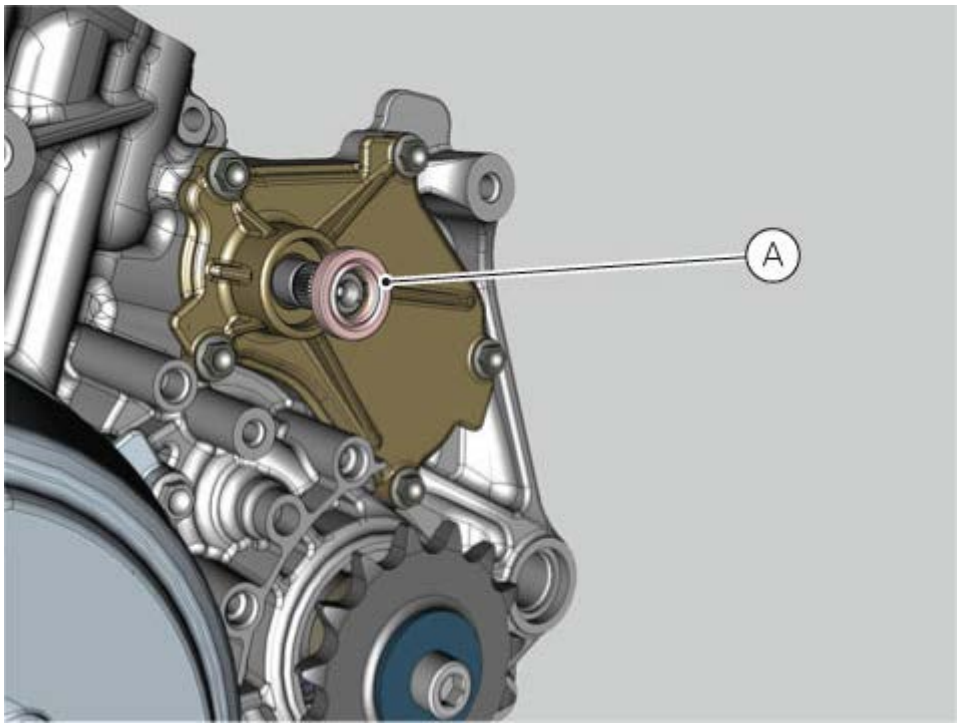


Fit oil seal (A) using the relevant tool part no. **88713.3507**.



http://www.ducati-manuals.com
no. 140312

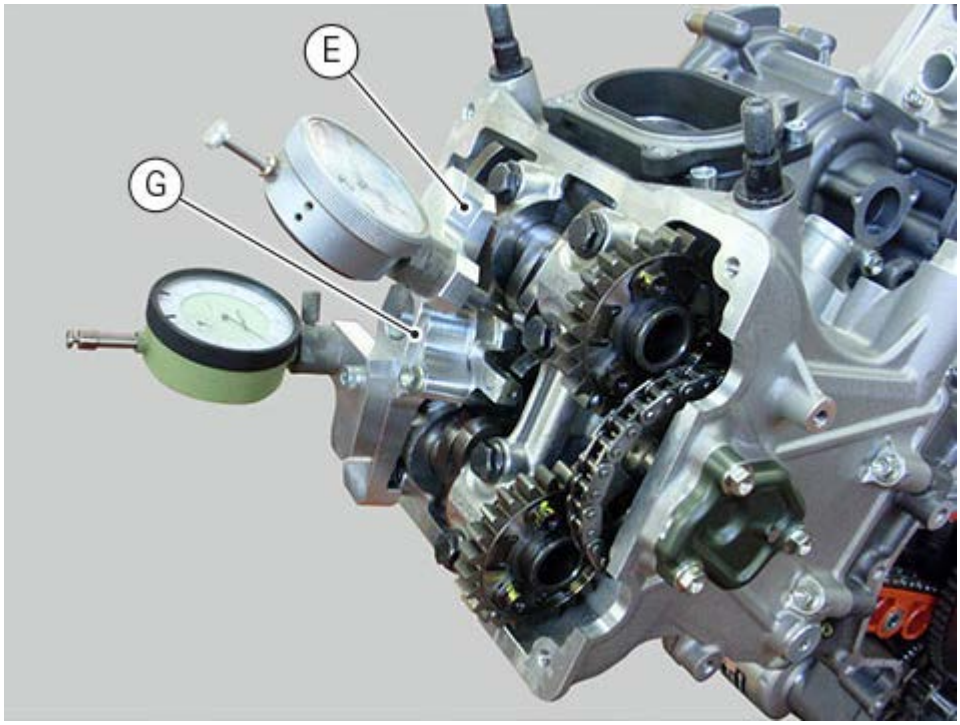




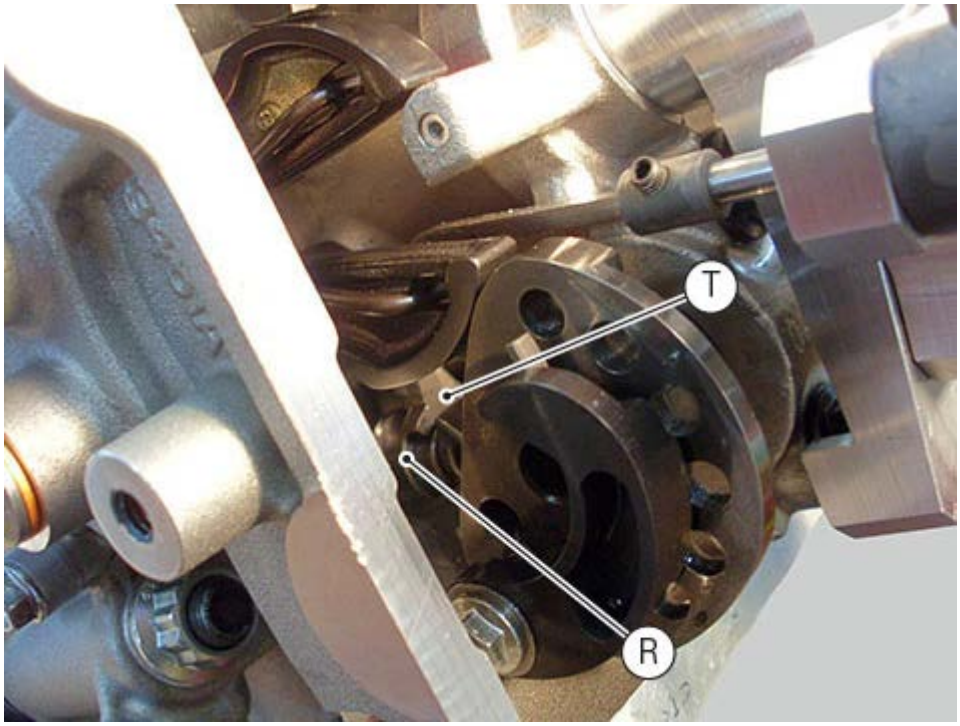
http://www.ducati-manuals.com
no. 140312

Checking the engine timing

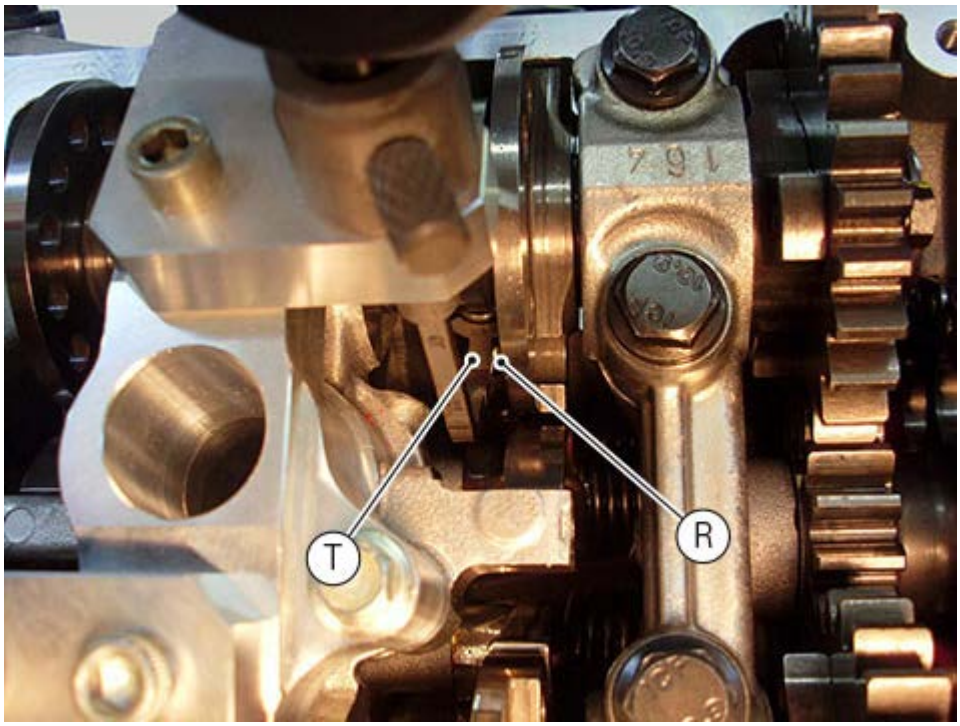
Set engine in the conditions described for the "Checking and adjusting the valve clearance", previously indicated.
Position tool (G) **88765.1632** on the head: position part (E) on intake side and the other side on exhaust side.



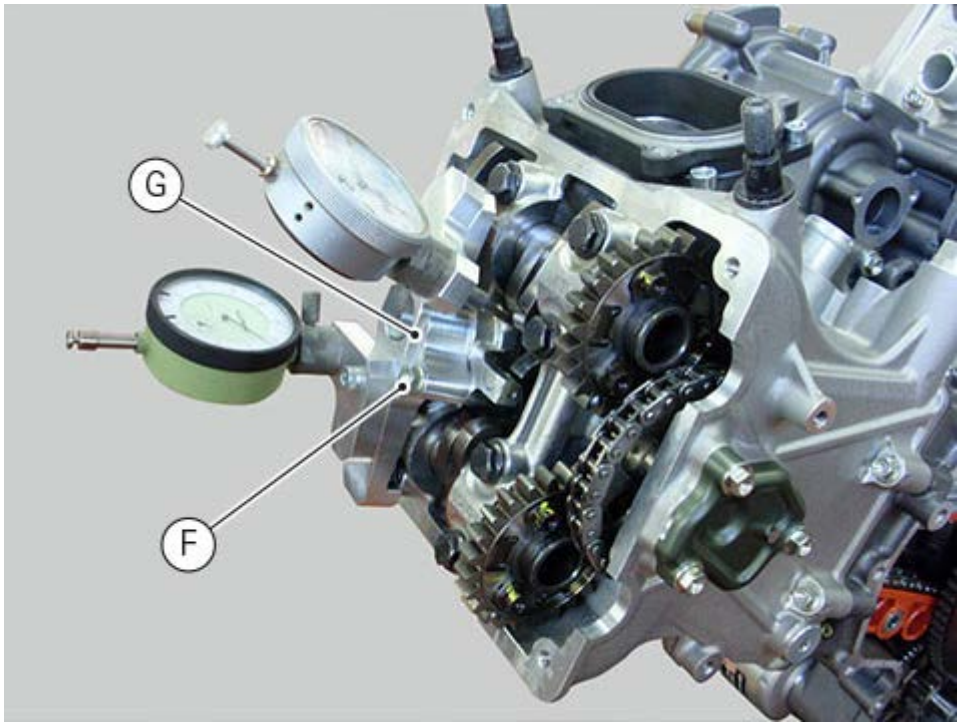
Position fork-shaped ends (T) of tool against the closing shim surface (R).



http://www.ducati-manuals.com
no. 140312

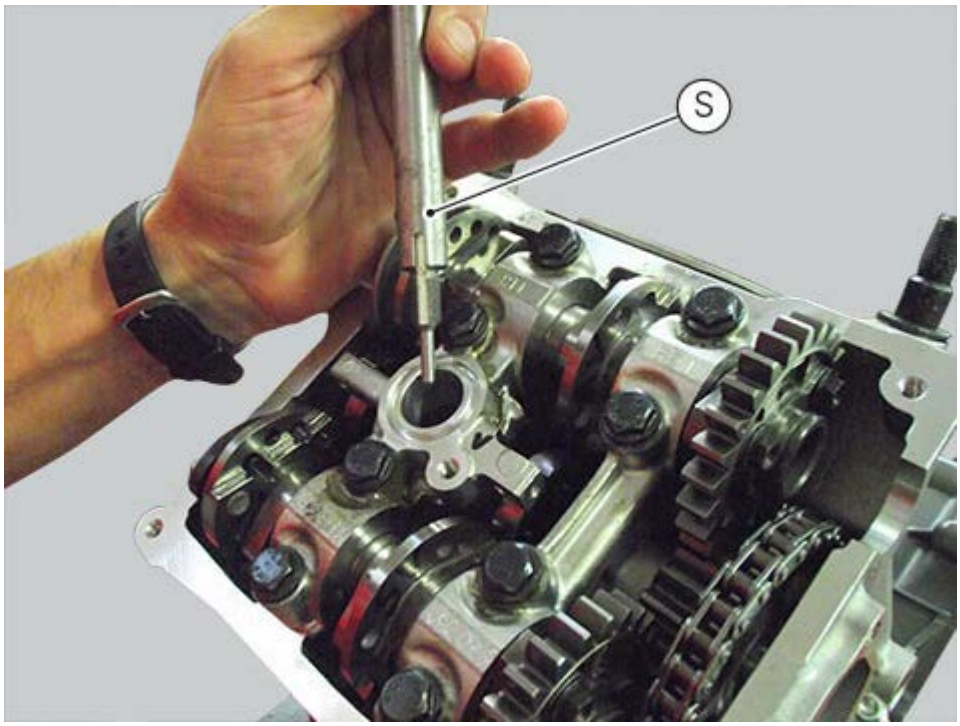


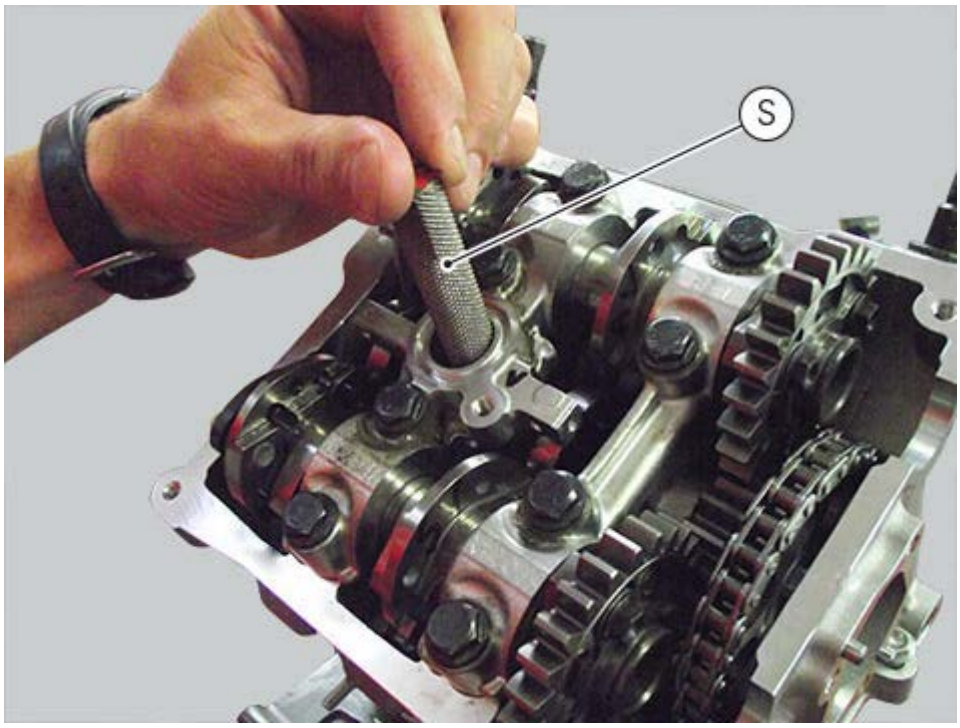
Take central plate of tool (G) fully home and tighten screw (F).



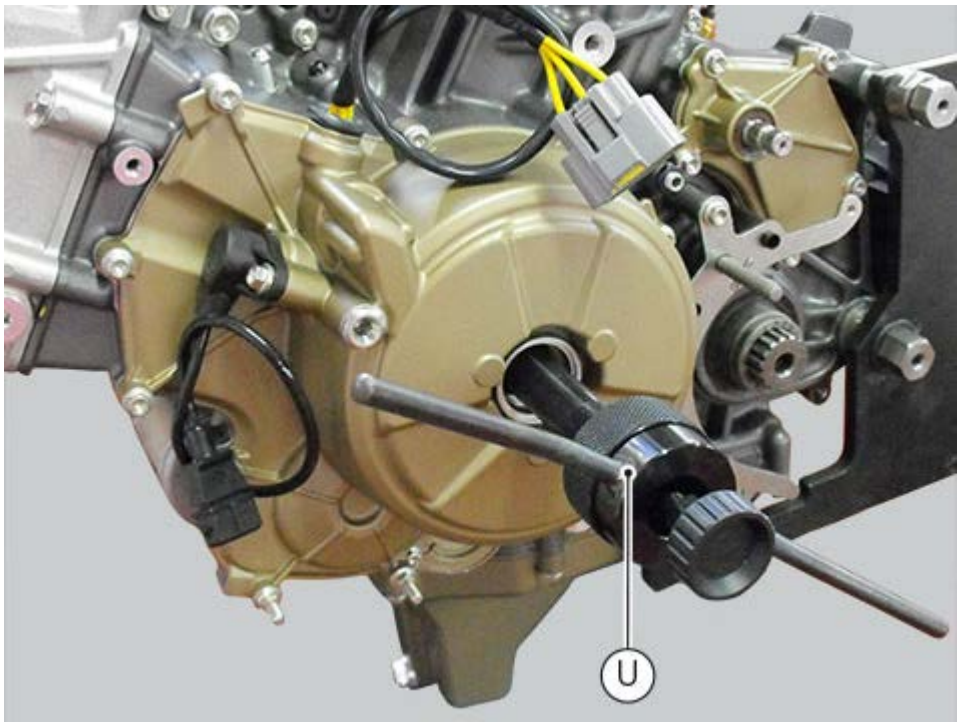
Install TDC check tool **88713.2574** (S) and the tool for checking the timing **88713 3824** (V).

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Set the opening valve clearance to zero when the camshafts are in rest position by fitting a feeler gauge between the upper rocker arm and the opening shim for which clearance is being measured.
In this condition, with the piston at TDC and the valves fully closed , Set the dial gauge to zero when the valve is fully closed.
Turn crankshaft in the operating direction until the gauge dial (H), on the exhaust side, shows a lift of 1 mm.
Check that the value of the angular displacement read on the degree wheel (L) is as specified.
Continue to rotate in the same direction until you obtain a lift of 1 mm on the intake side.
Proceed until inspection is completed.
Repeat the procedure for the other cylinder.
A tolerance of ±3° is allowed on the values detected with the described procedure, compared to the specified ones.

Reinstall performing the same operations indicated under "Checking and adjusting the valve clearance", above.
Refit the components removed in the procedure.

Refit the radiator assembly (Installation of the radiator).
Refit the fuel tank (Refitting the fuel tank).
Refit both fairings (Refitting the side fairings).
Refit the rider seat (Installation of the rider seat).

http://www.ducati-manuals.com
no. 140312

Removal of the camshafts

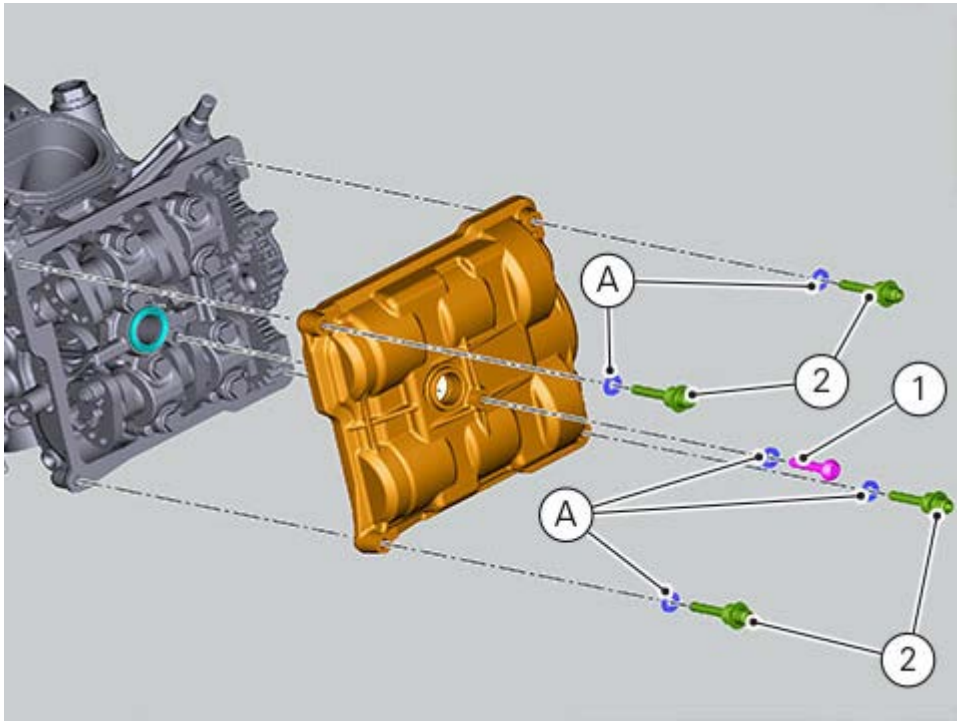
The removal procedure of camshafts from cylinder heads can be carried out even with engine on the vehicle.

Note
For clarity, the figures show the engine removed from the frame.

Remove the following parts to reach the vertical head.
Remove the rider seat (Removal of the rider seat).
Remove the fuel tank (Removing the fuel tank).
Remove spark plug (Renewal of the spark plugs).

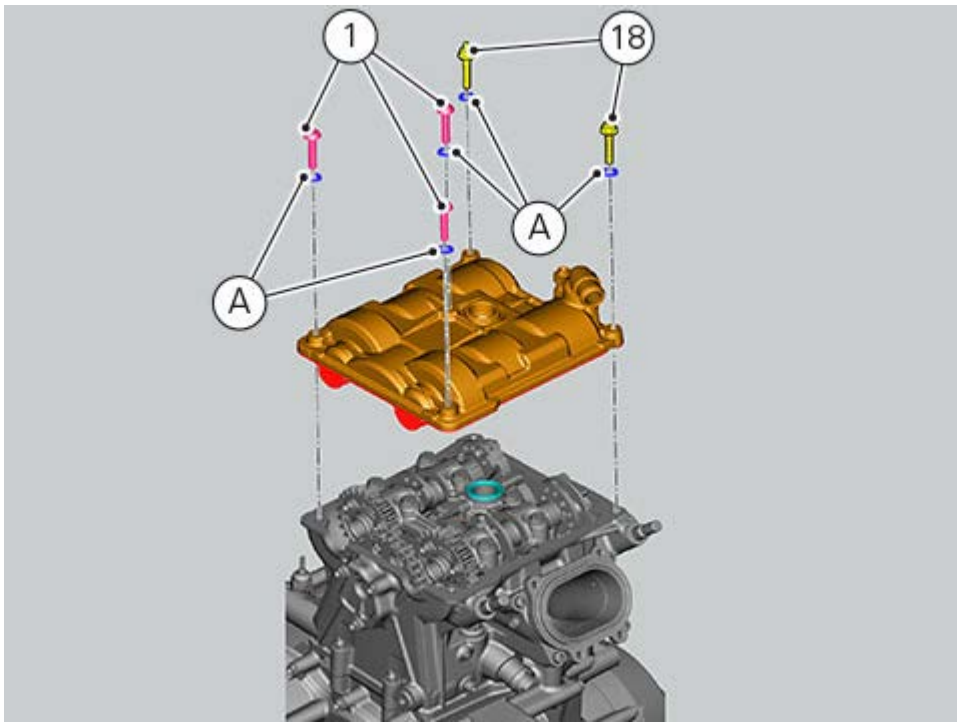
Remove the following parts to reach the horizontal head.
Remove the radiator assembly (Removal of the radiator).

For the horizontal head, loosen the special screws (2), and screw (1) retaining the cover.
Keep washers (A).

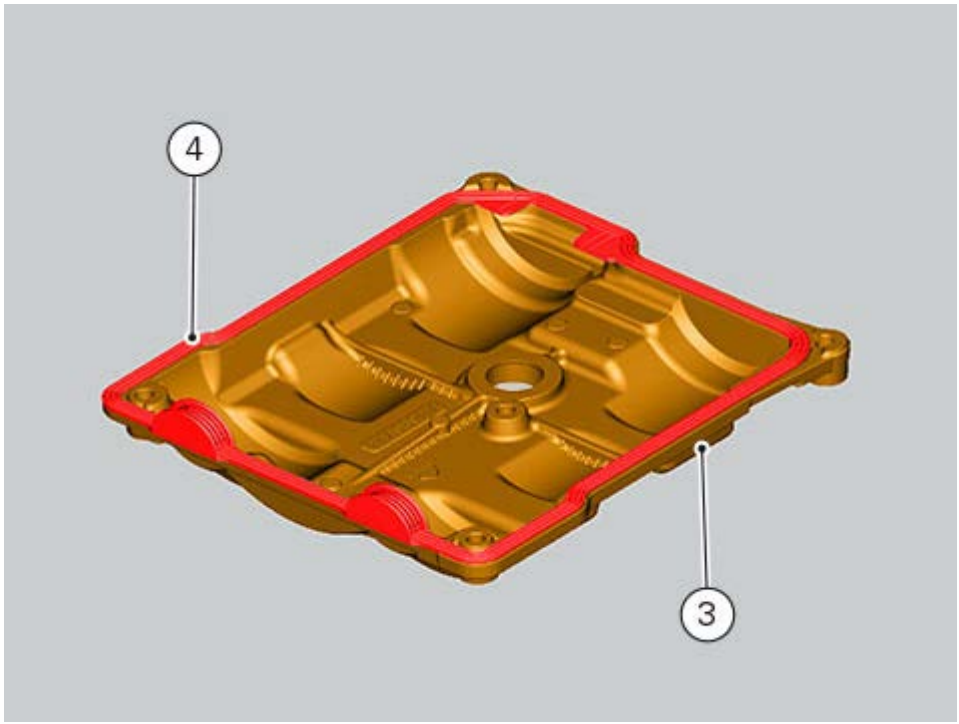


For the vertical head, loosen screws (1) and special screws (18) and collect gaskets (A).

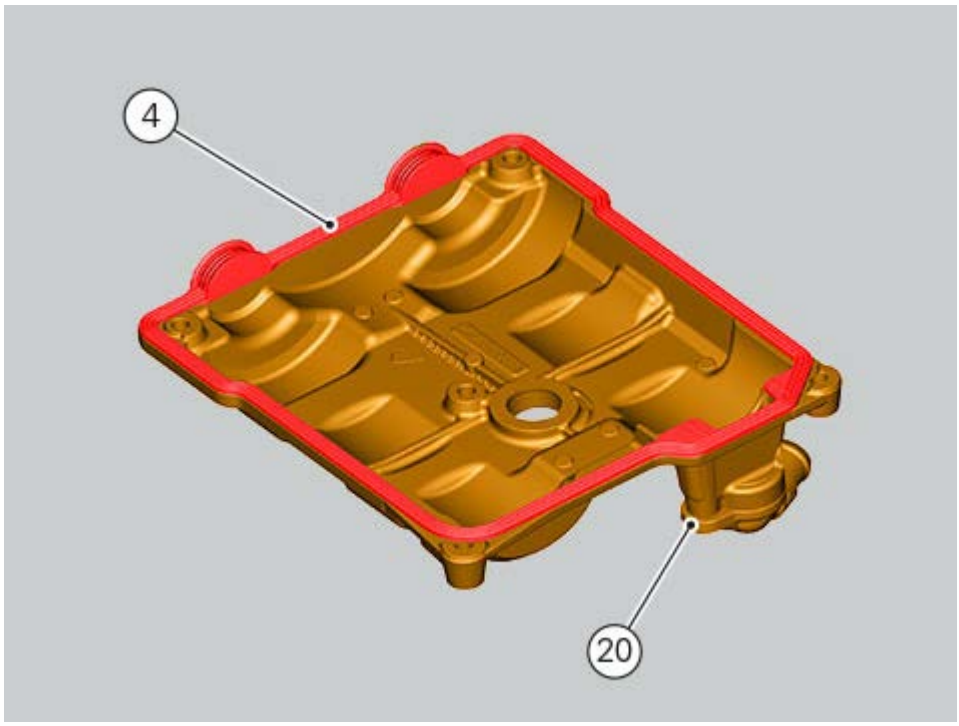
http://www.ducati-manuals.com
no. 140312



Remove head covers (3) and (20) and recover gaskets (4).

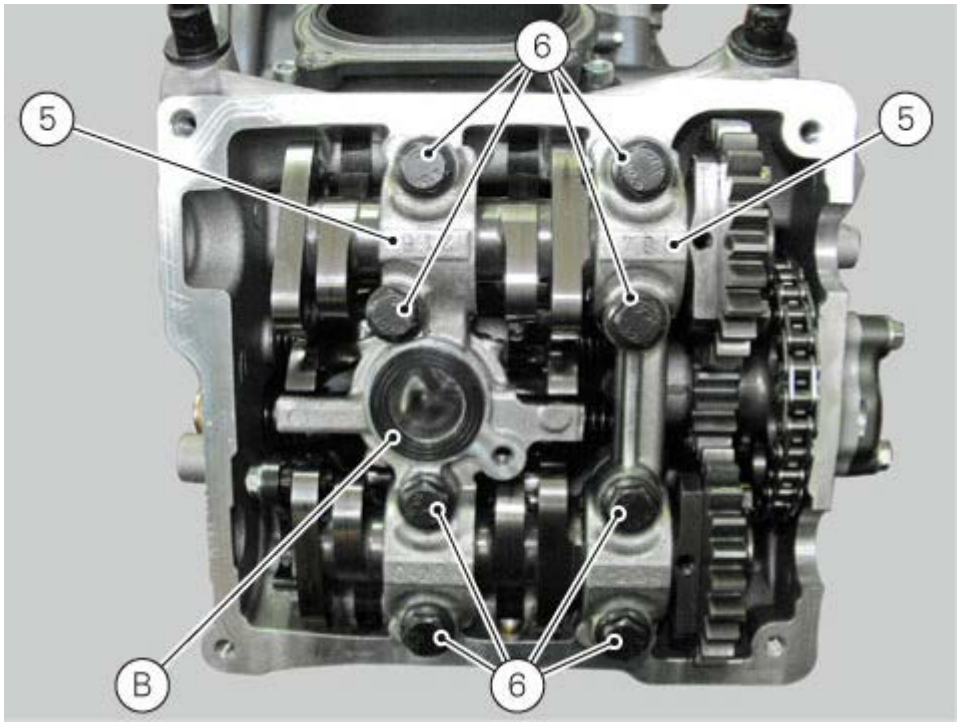


http://www.ducati-manuals.com
no. 140312

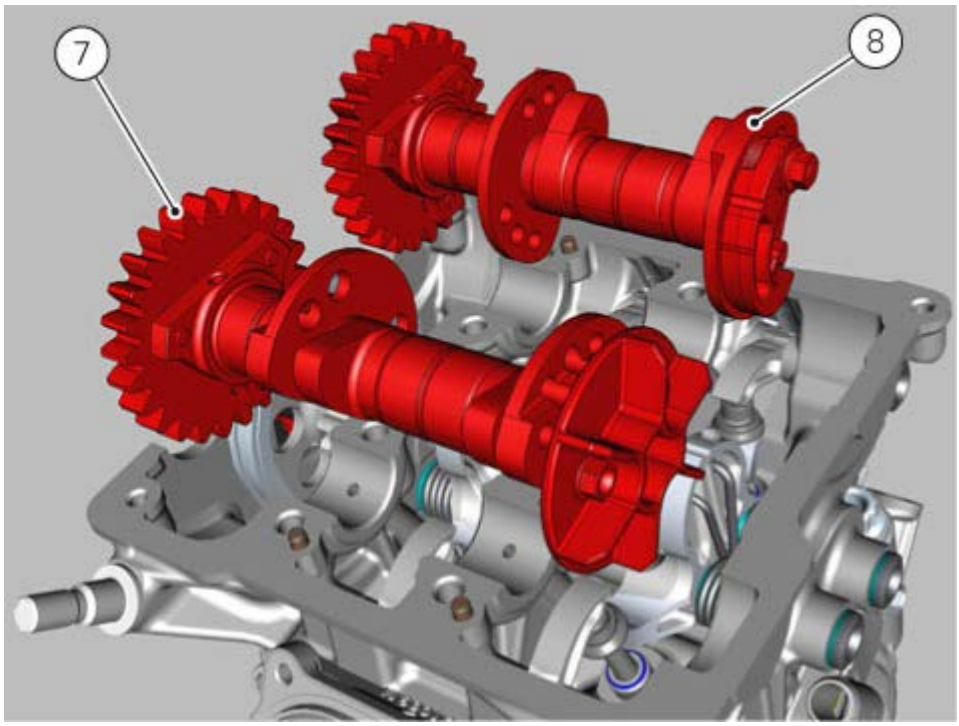


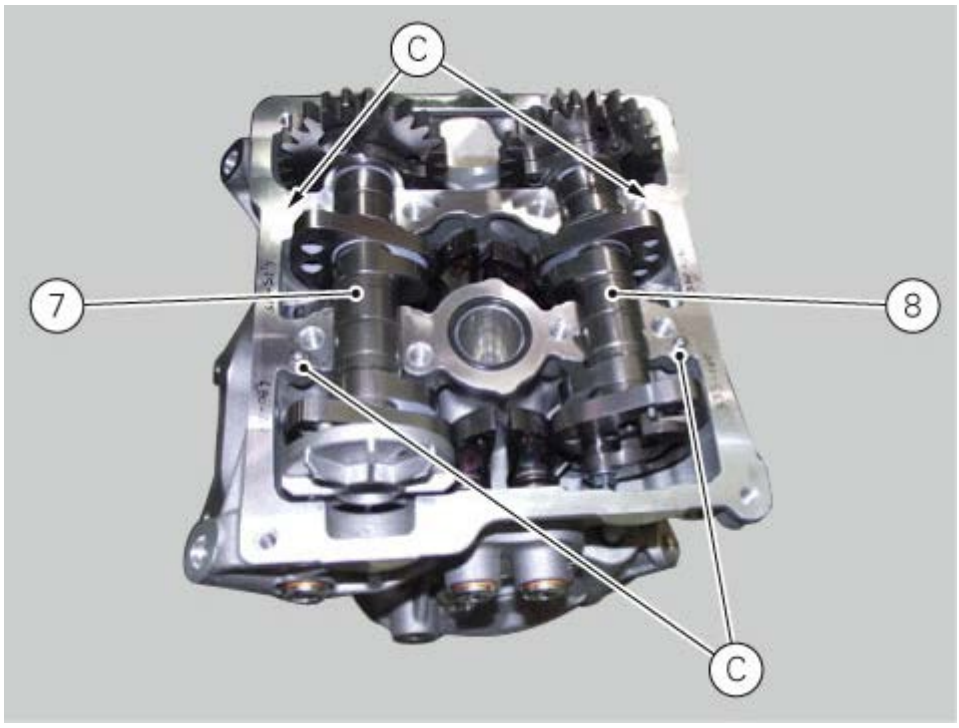
Set the crankshaft at TDC in the combustion stage (Crankshaft positioning at TDC in the combustion stage).

Remove seal (B) on spark plug recess.
Undo the screws (6) securing the camshaft supports.
Withdraw the camshaft supports (5) straight out from the cylinder head, taking care not to damage the machined faces and centring dowels (C).
Remove the vertical intake camshaft (7) and vertical exhaust camshaft (8) from the head.



http://www.ducati-manuals.com
no. 140312



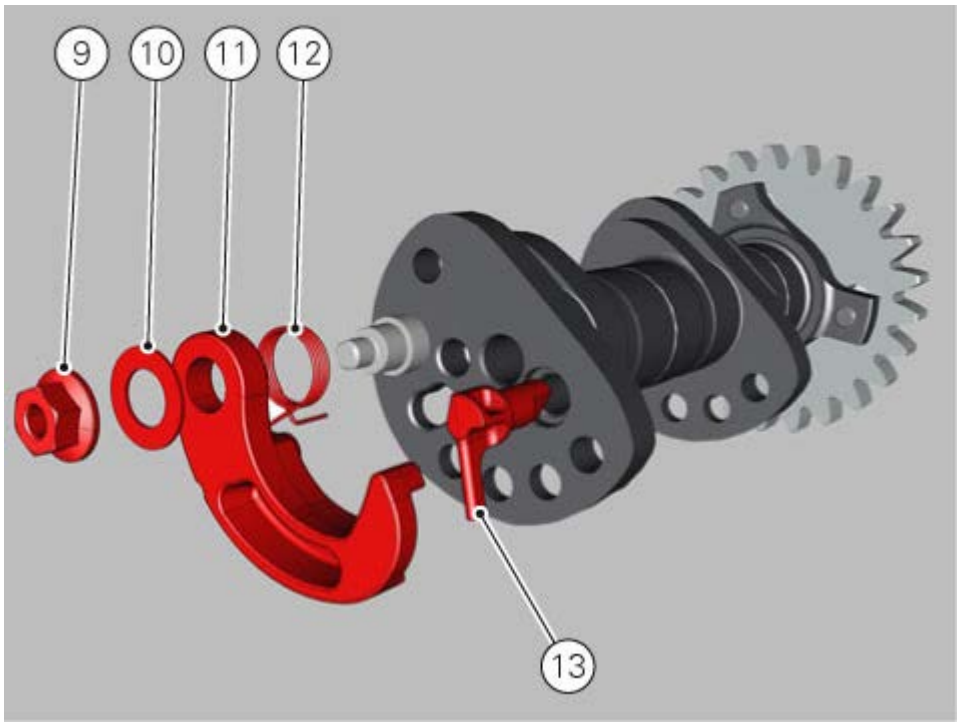


Warning
The opening shims are no longer retained and could fall inside the engine.

Repeat the same procedure for the other cylinder head.

Shafts of both heads, on exhaust side feature a de-compressor (11), which can be removed as follows. Undo the nut (9) and collect the washer (10).

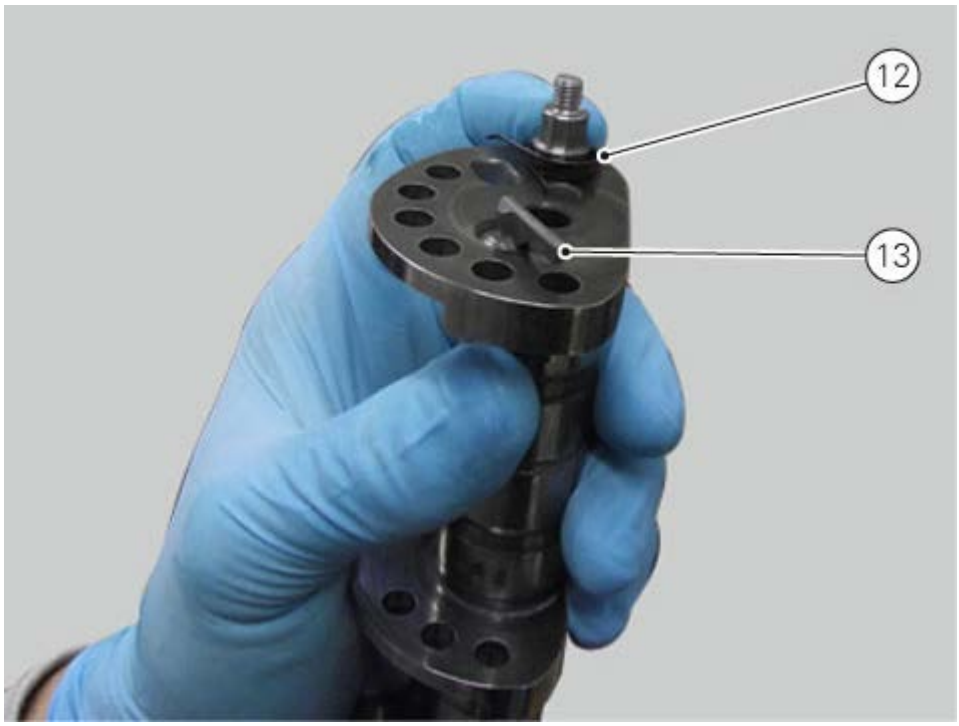
http://www.ducati-manuals.com
no. 140312



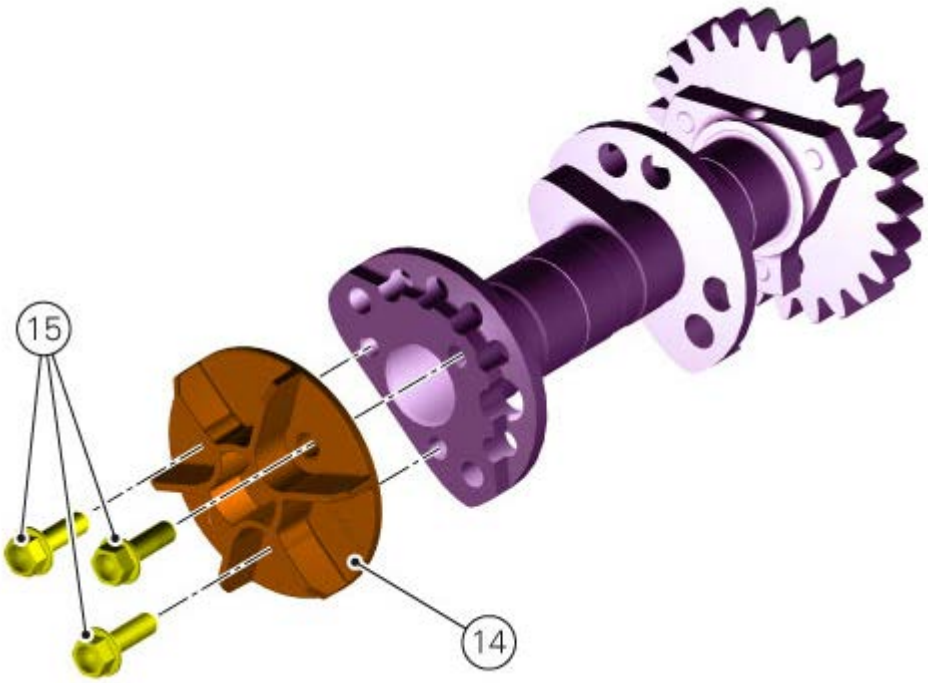


If necessary, remove spring (12) and compressor roller (13).

http://www.ducati-manuals.com
no. 140312

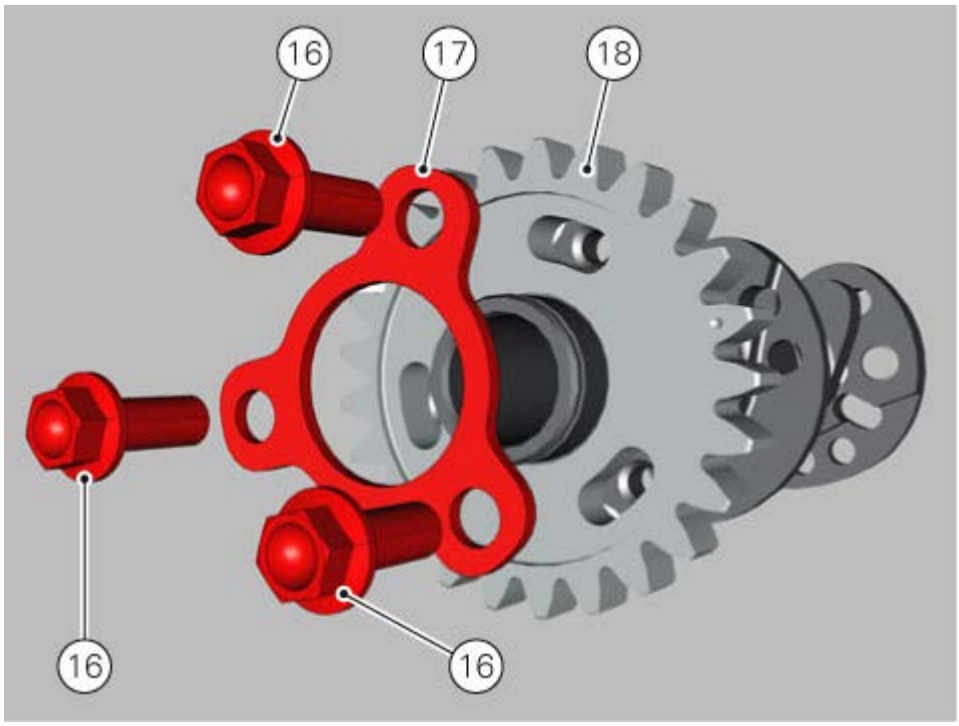


The vertical head camshaft on intake side features rotor (14).
To remove it from camshaft, loosen screws (15).



Loosen screws (16) to separate the shaft from gear (18) and plate (17).

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Check of the camshafts and supports

Ensure that the cam working surfaces are free from scoring, grooves and steps.
Worn cams often cause wrong timing resulting in poor engine performance.
Set camshaft between centres and use two dial gauges to check for any deviation in the indicated areas.
Service limit: **0.1** mm.

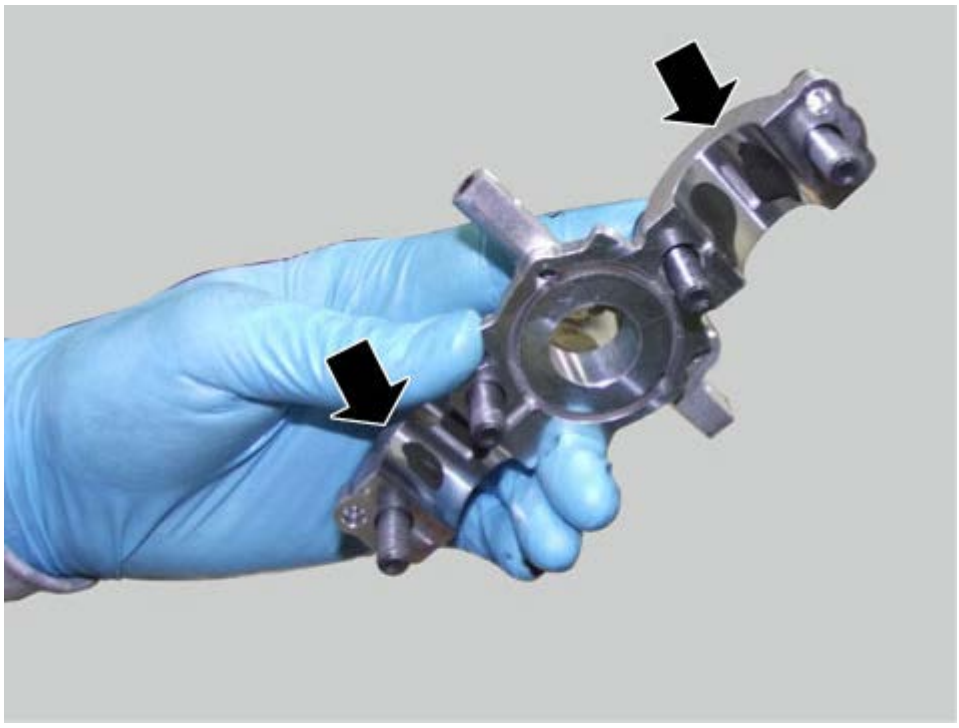


Visually inspect the camshaft tracks for scoring and abnormal wear.
If any of the above defects are found, the camshaft should be renewed. If you find scoring or excessive wear, check the operation of the engine lubrication circuit.



http://www.ducati-manuals.com
no. 140312





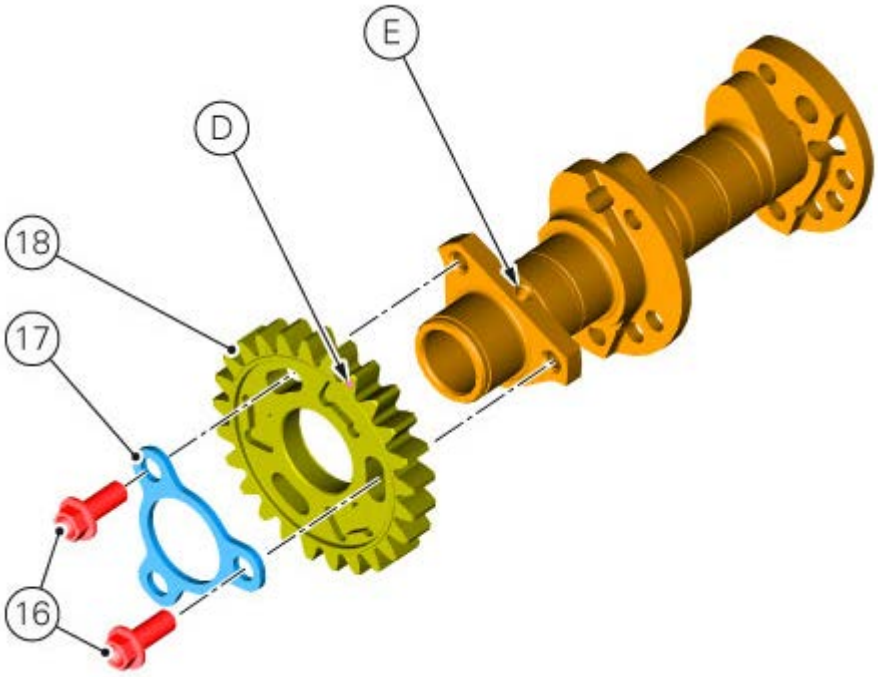
http://www.ducati-manuals.com
no. 140312

Installation of the camshafts

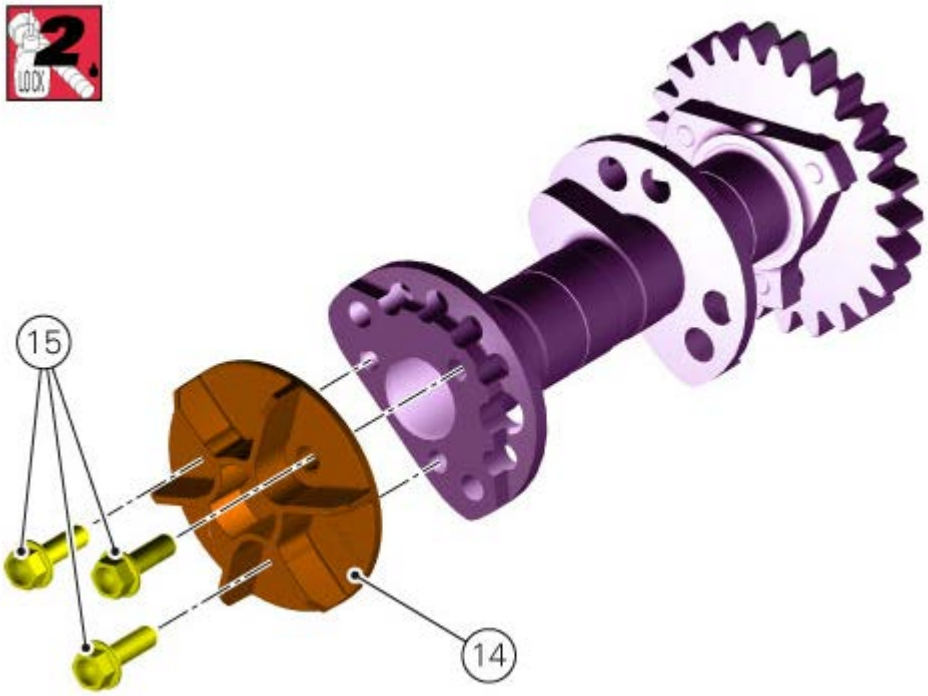
The removal procedure of camshafts from cylinder heads can be carried out even with engine on the vehicle.

Note
For clarity, the figures show the engine removed from the frame.

Fit gears (18) to camshafts, with mark (D) facing out and flush with camshaft surface (E).
Install plate (17) and start screws (16) fully home.
Undo the screws (16) by about 90°.

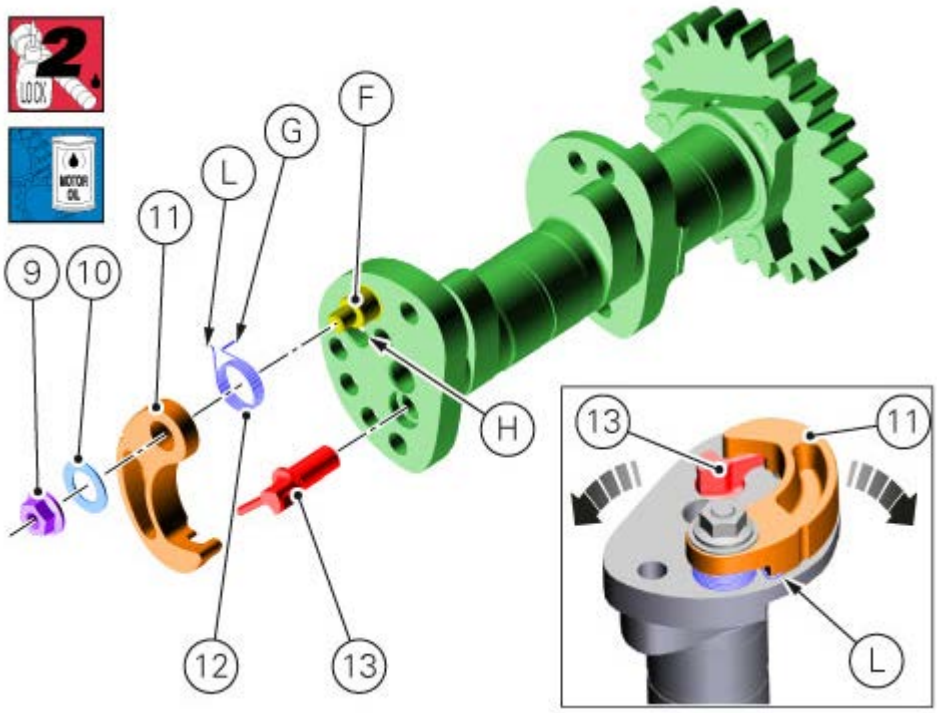


The vertical head camshaft on intake side features rotor (14).
Apply the recommended threadlocker to the thread of the screws (15).
Fit rotor (14) to camshaft.
Start the screws (15) and tighten them to a torque of 8 Nm (Min. 7 Nm - Max. 9 Nm).
After tightening, remove any excess threadlocker.



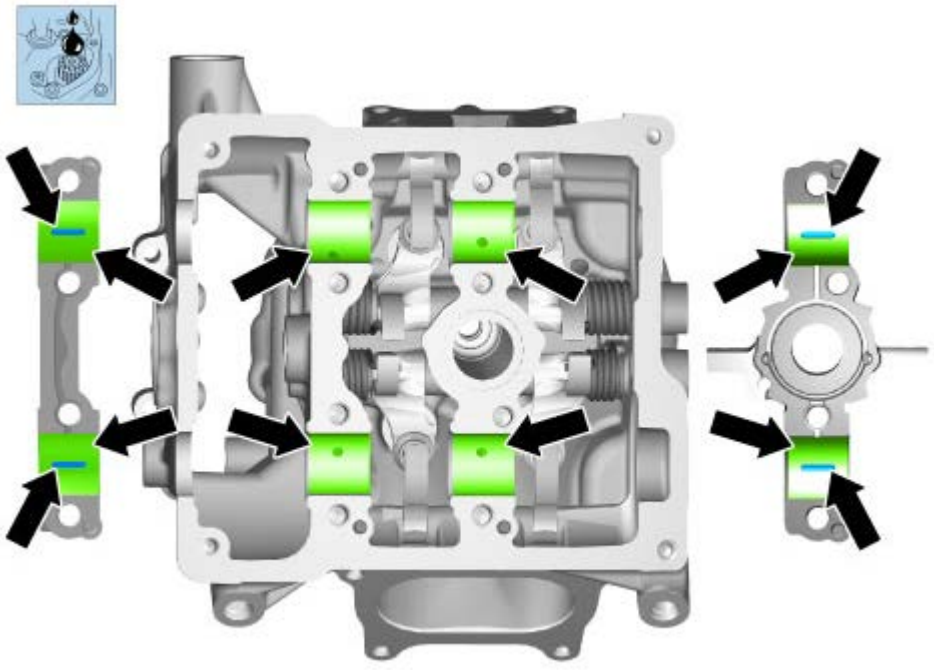
http://www.ducati-manuals.com
no. 140312

Camshafts of both heads on exhaust side feature the de-compressor (11).
Apply the recommended threadlocker to the thread of the pin (F).
Start pin on shaft and tighten to 8 Nm (Min. 7 Nm - Max. 9 Nm).
After tightening, remove any excess threadlocker.
Smear de-compressor roller (13) with engine oil and fit it to camshaft.
Insert spring (12) in pin (F), engage tooth (G) in hole (H) on camshaft.
Smear de-compressor (11) groove with engine oil.
Insert de-compressor (11) to pin (F) while preloading spring (12) so that the other tooth (L) on spring touches the external surface of de-compressor (11).
Fit washer (10) to pin (F) and fasten de-compressor (11) by starting nut (9) on pin, with recommended threadlocker.
Test de-compressor (11) operation, it should be smoothly sliding on de-compressor roller (13) in both directions.



The described operations refer to a vertical head. These operations also apply to the horizontal head.

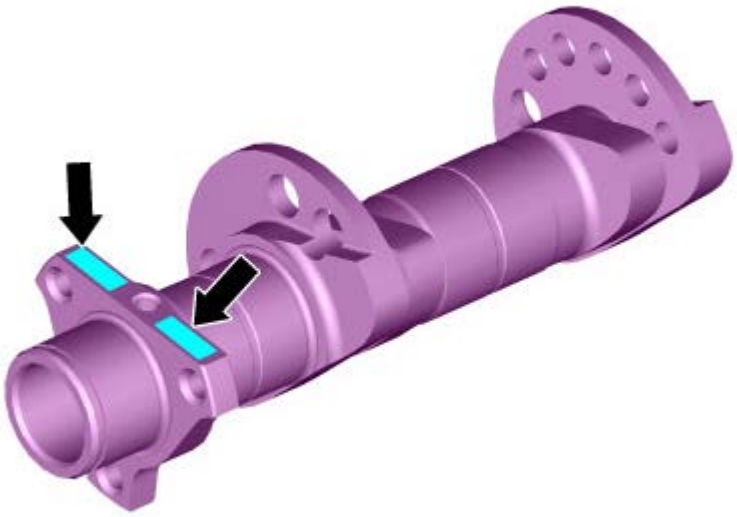
Lubricate the shaft seats on heads and cam caps as well as the oilways on cam caps with specified lubricant.



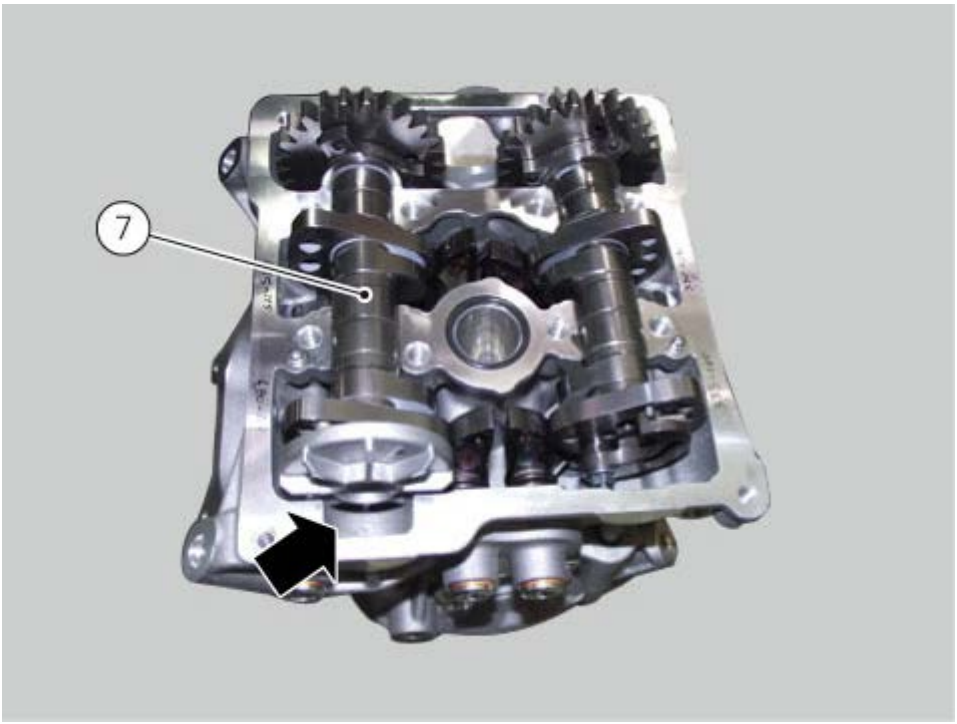
When refitting the camshaft to the cylinder heads, pay attention to the following points.

http://www.ducati-manuals.com
no. 140312

Check that the camshafts (marked “VA” and “VS” for the vertical cylinder head and “OS” and “OA” for the horizontal cylinder head) are clean and in good condition. If the camshafts are not new, use emery cloth to remove signs of wear on the camshafts and support surfaces, working on a flat surface.



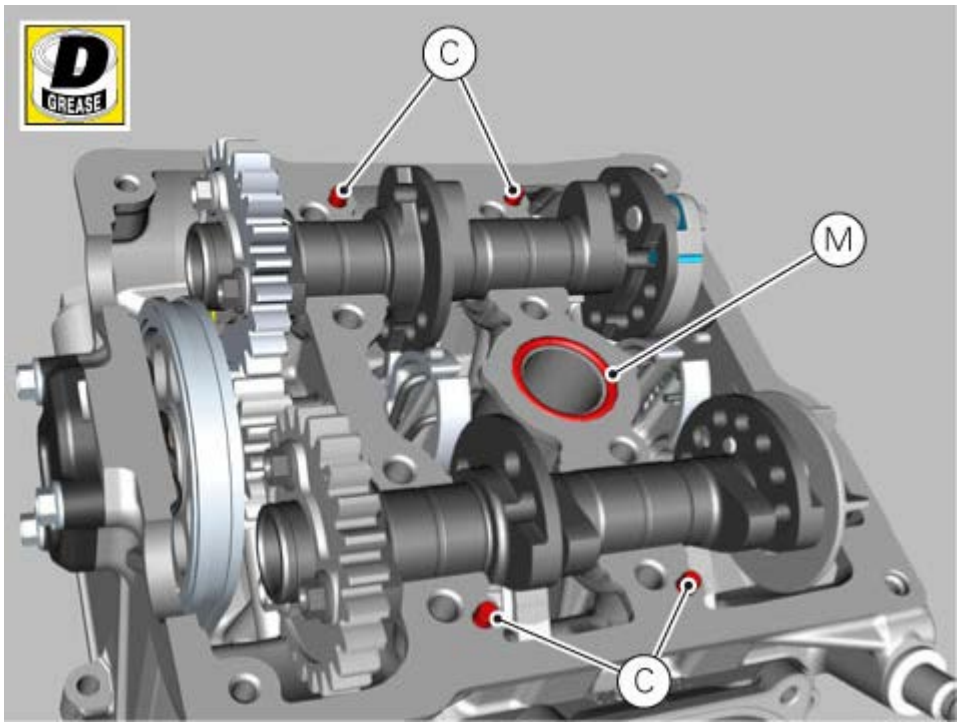
Only the vertical head, intake side, features camshaft (7) with rotor.
Fit it with rotor facing the recess in the head.



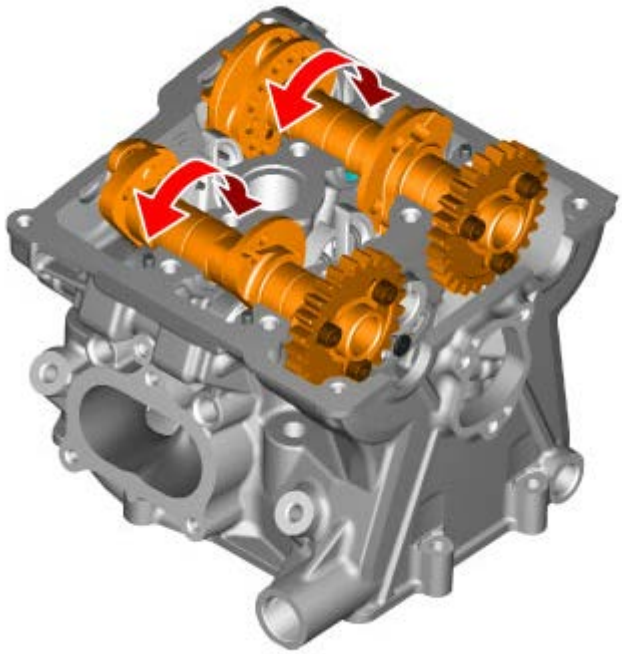
Both heads, on the exhaust side, fit camshafts with de-compressor.

Check that the centring dowels (C) are present.
Lightly smear O-ring (M) with recommended grease and install it to the corresponding seat on head.

http://www.ducati-manuals.com
no. 140312

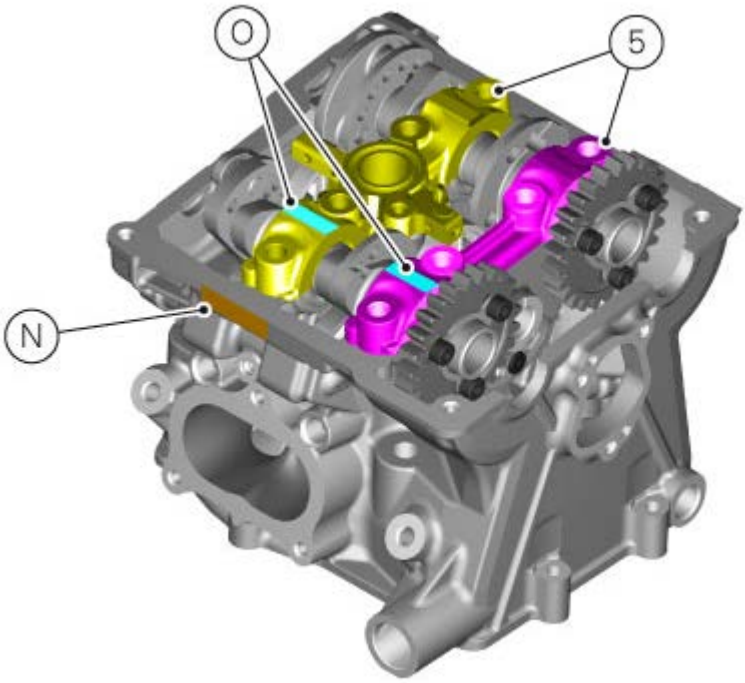


Fit camshafts on the head and turn them to evenly lubricate all mating surfaces.



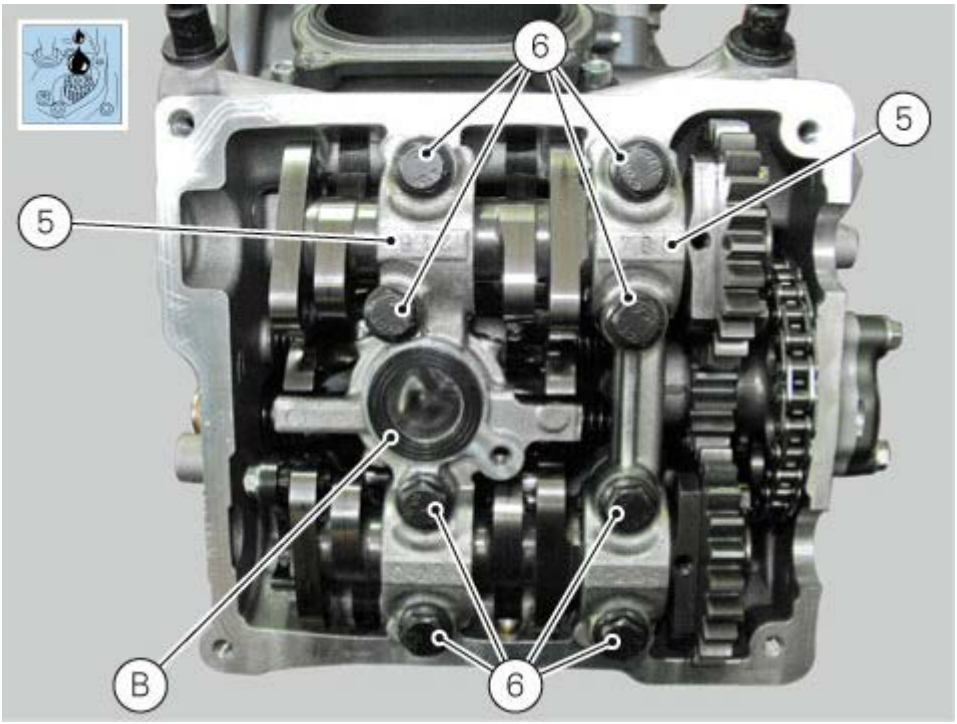
Fit the camshaft supports (5) fully home against the head.
Make sure that the progressive number punched on the head in area (N) is the same punched in area (O) of camshaft supports (5).
Bed down the supports.

http://www.ducati-manuals.com
no. 140312

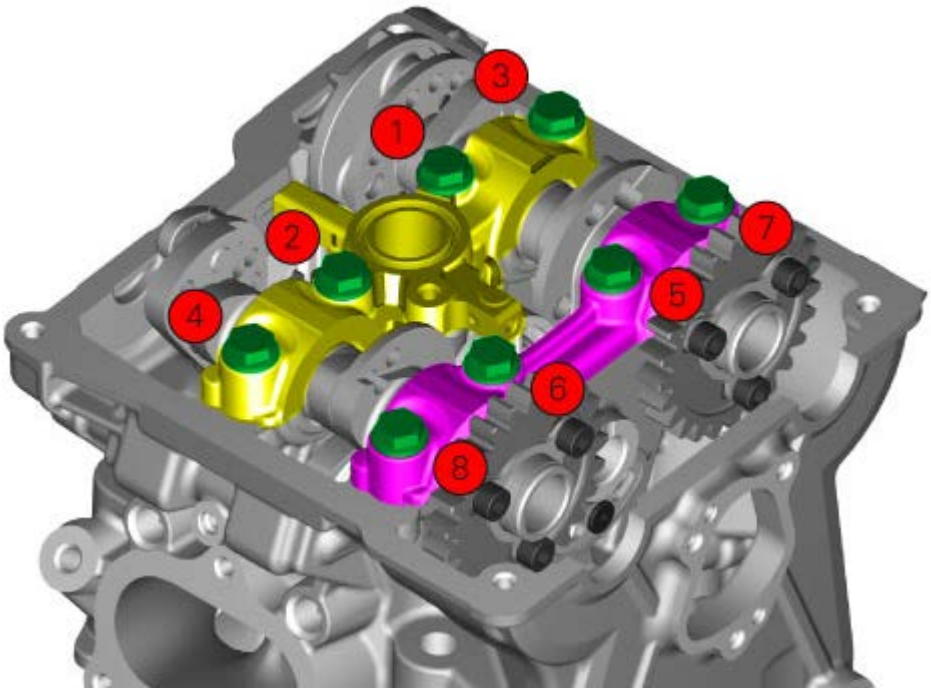


Lubricate screws (6) with MOLYCOTE M55 PLUS.

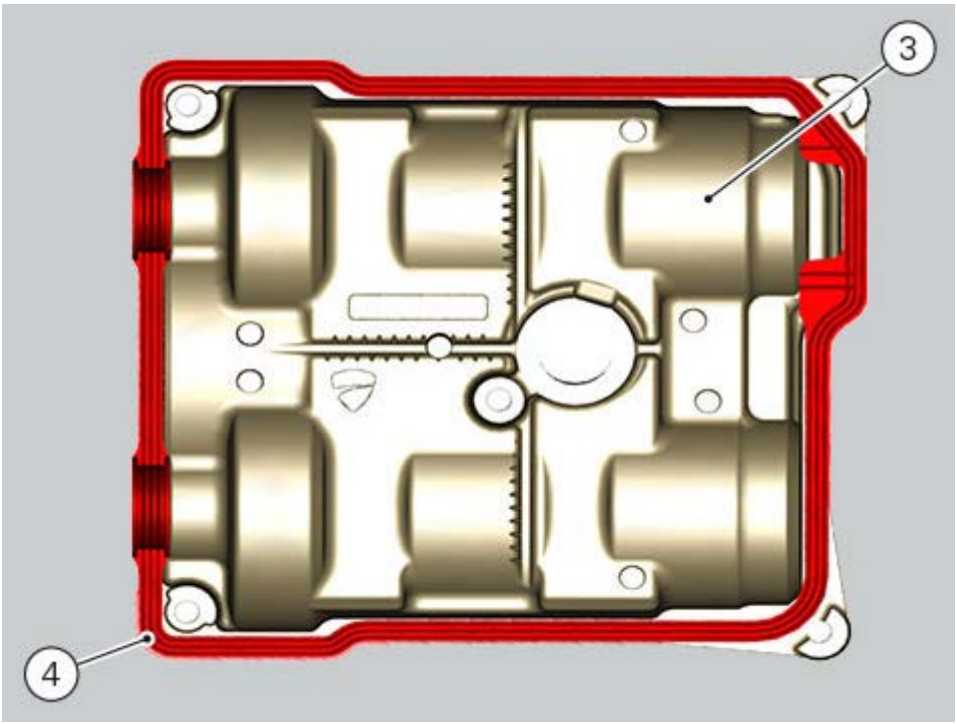
Refit seal (B) on spark plug recess.
Pre-tighten screws (6) to a torque of 10 Nm (Min. 9 Nm - Max. 11 Nm), following the sequence specified in the figure.
Then tighten screws (6) to a torque of 22.5 Nm (Min. 21 Nm - Max. 25 Nm), following the sequence specified in the figure.
Turn the camshafts by hand to check that they rotate freely.



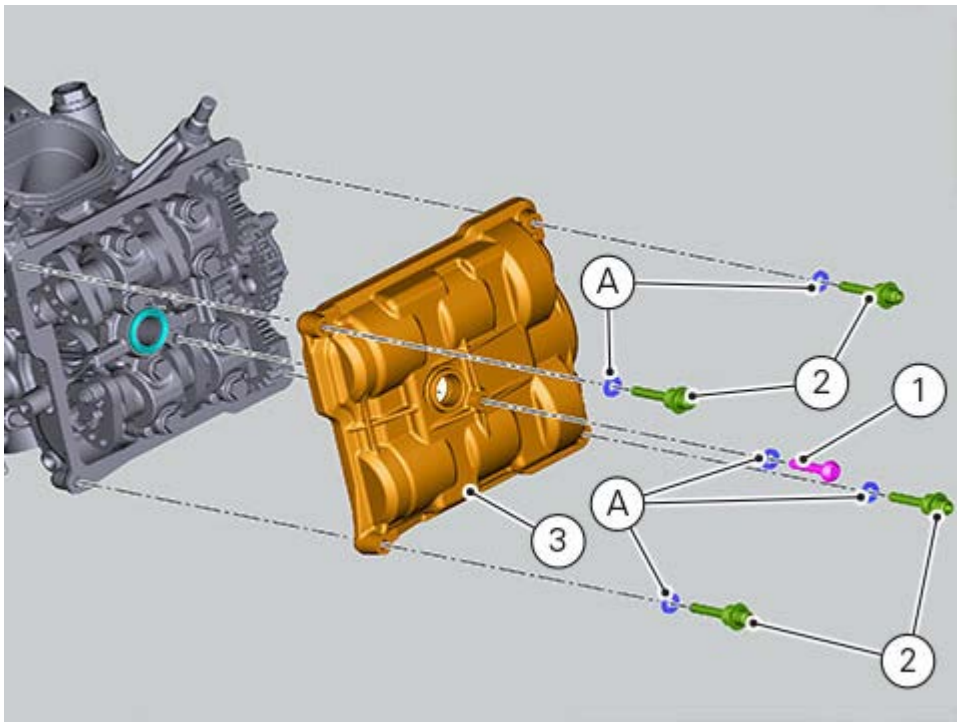
http://www.ducati-manuals.com
no. 140312



Fit seals (4) on head covers (3) and (20) laying it inside the groove on the cover.
Make sure that seals (4) are duly laid down on covers (3) and (20) and do not protrude out of their groove.



http://www.ducati-manuals.com
no. 140312

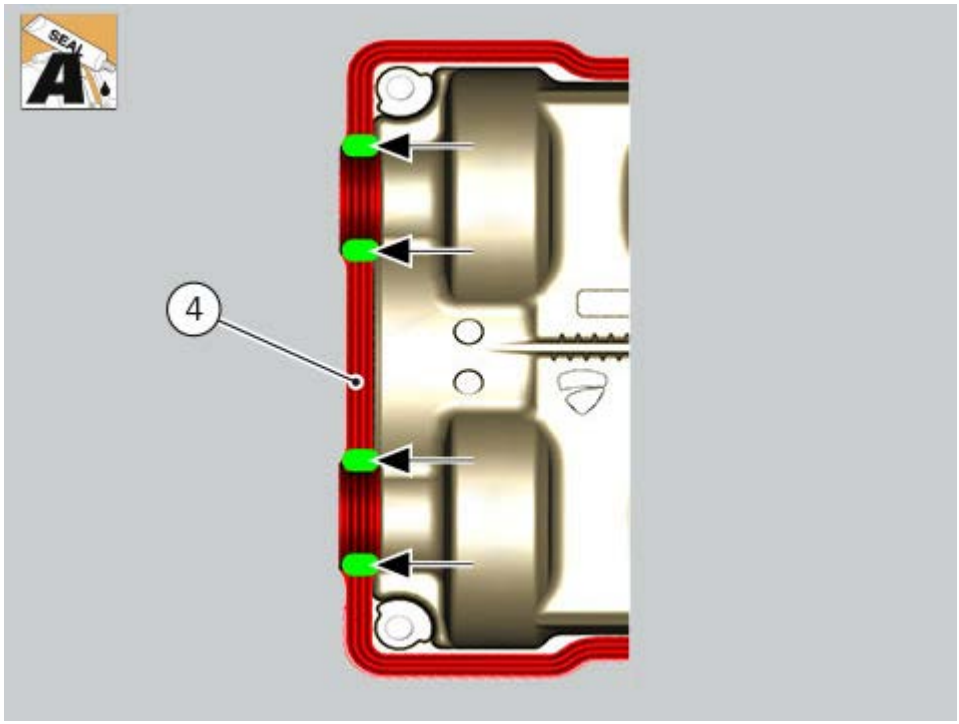


Apply recommended sealant at the indicated points on seals (4) of head covers.

Note
The sealant bead must indicatively have a thickness of 1.5 mm.

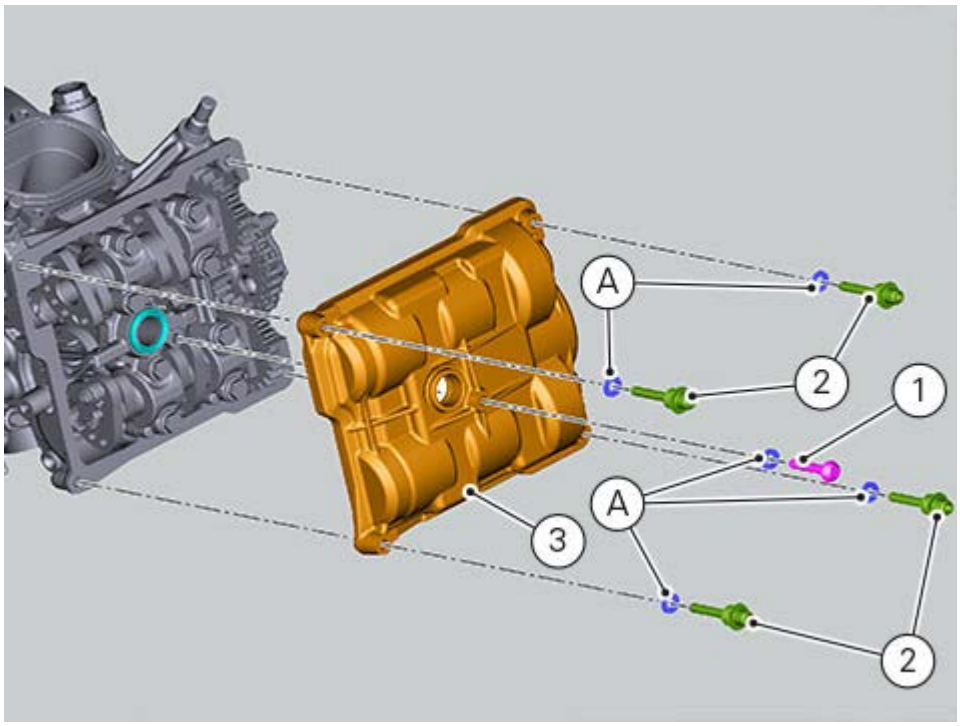
Warning
An excessive quantity of sealant may cause the internal components of the valve cover to block.

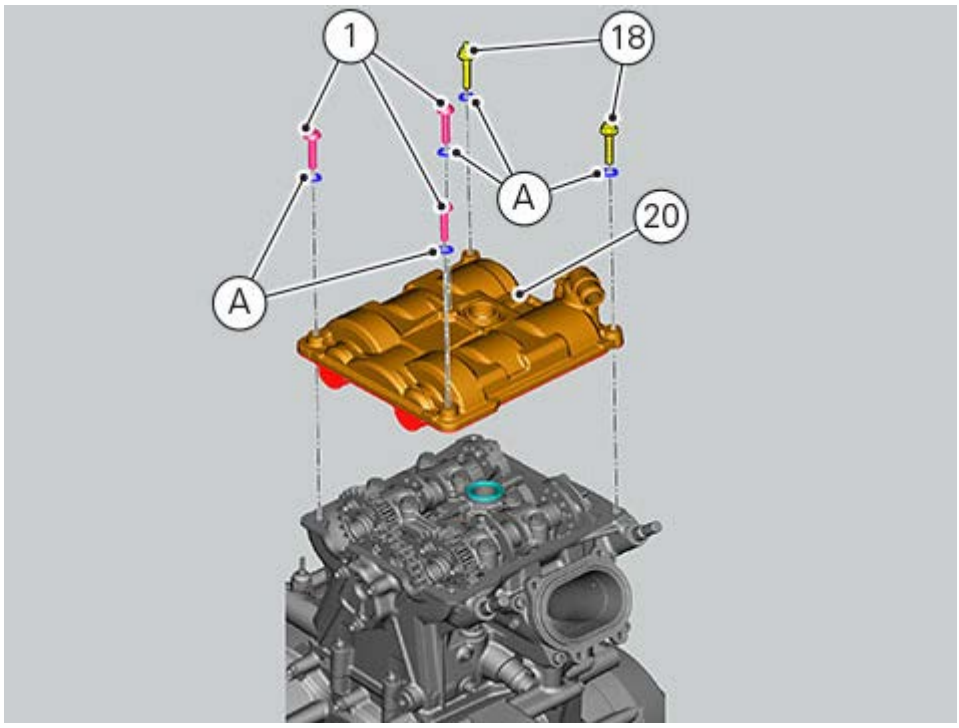
Important
Fit valve covers within 5 minutes form sealant application.



Fit head covers (3) and (20) with seals (4) on heads, making sure they are perfectly in place.
Apply recommended threadlocker to special screws (2) of horizontal head cover.
Start screws (1), (2) and (18) with their gaskets (A) to fasten head covers.
On vertical head exhaust side start special screws (2).

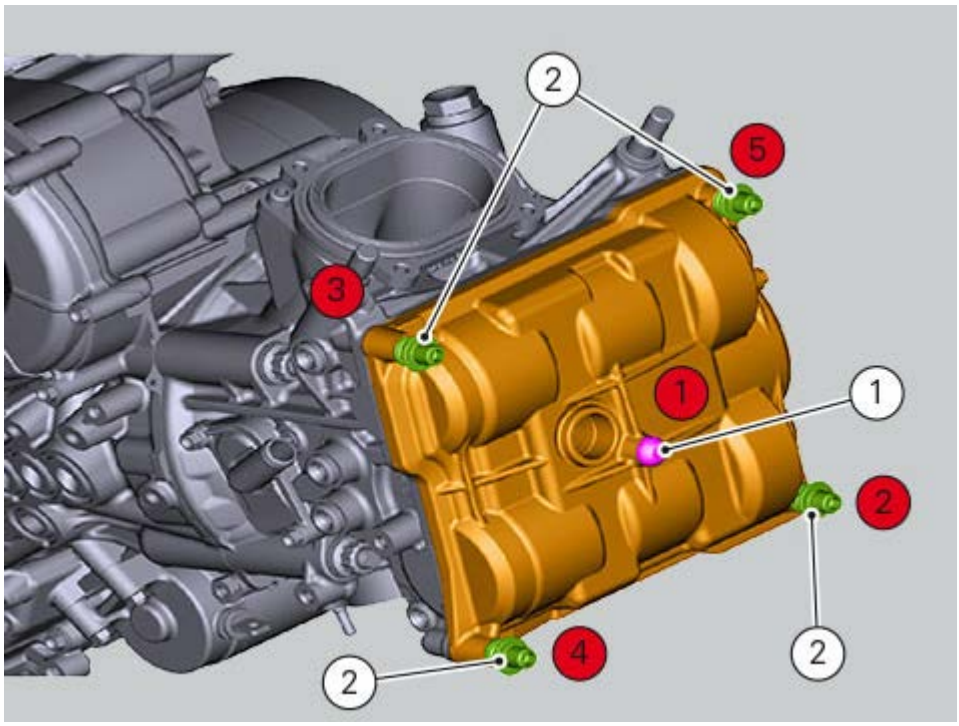
http://www.ducati-manuals.com
no. 140312

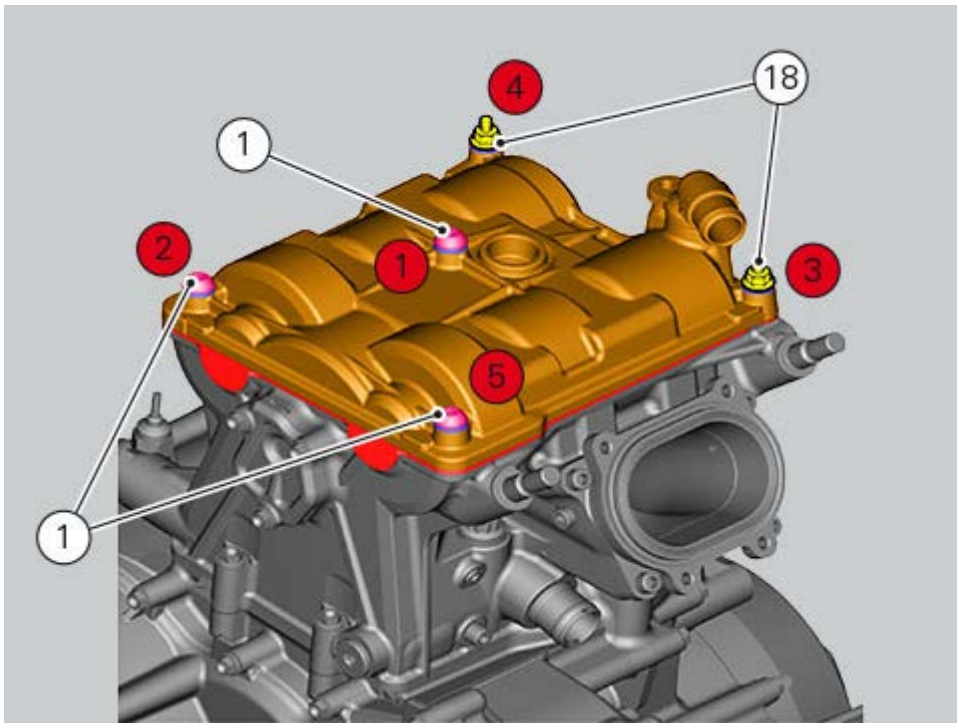




Tighten the screws (1), (2) and (18) to a torque of 10 Nm (Min. 9 Nm - Max. 11 Nm), following the specified sequence.

http://www.ducati-manuals.com
no. 140312





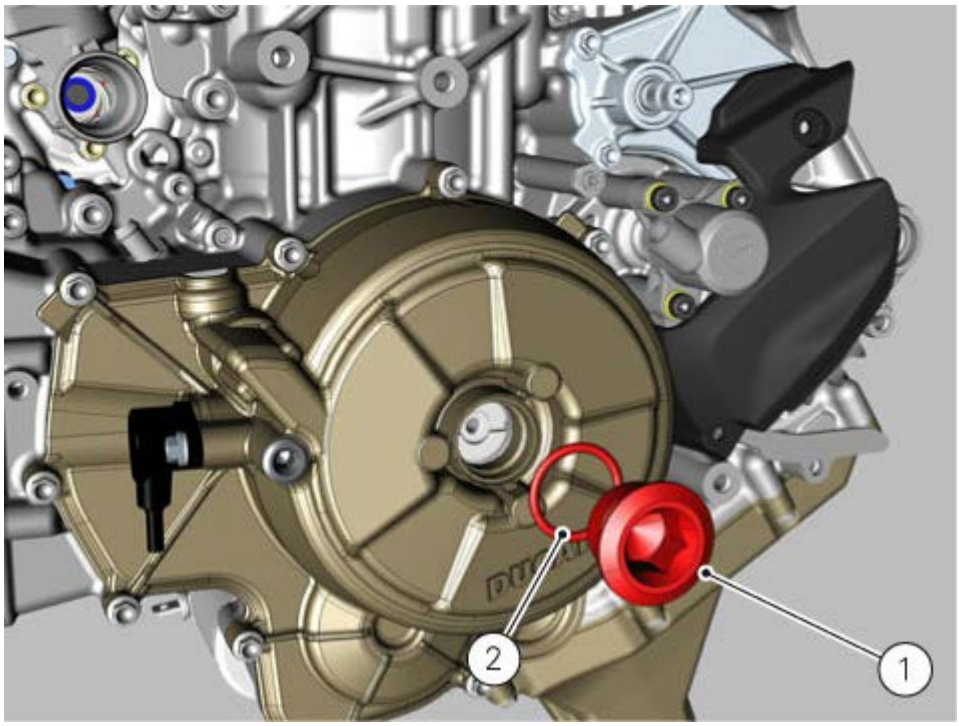
Refit the spark plugs (Renewal of the spark pugs).
Refit the radiator assembly (Installation of the radiators).
Refit the fuel tank (Refitting the fuel tank).
Refit the rider seat (Installation of the rider seat).

http://www.ducati-manuals.com
no. 140312

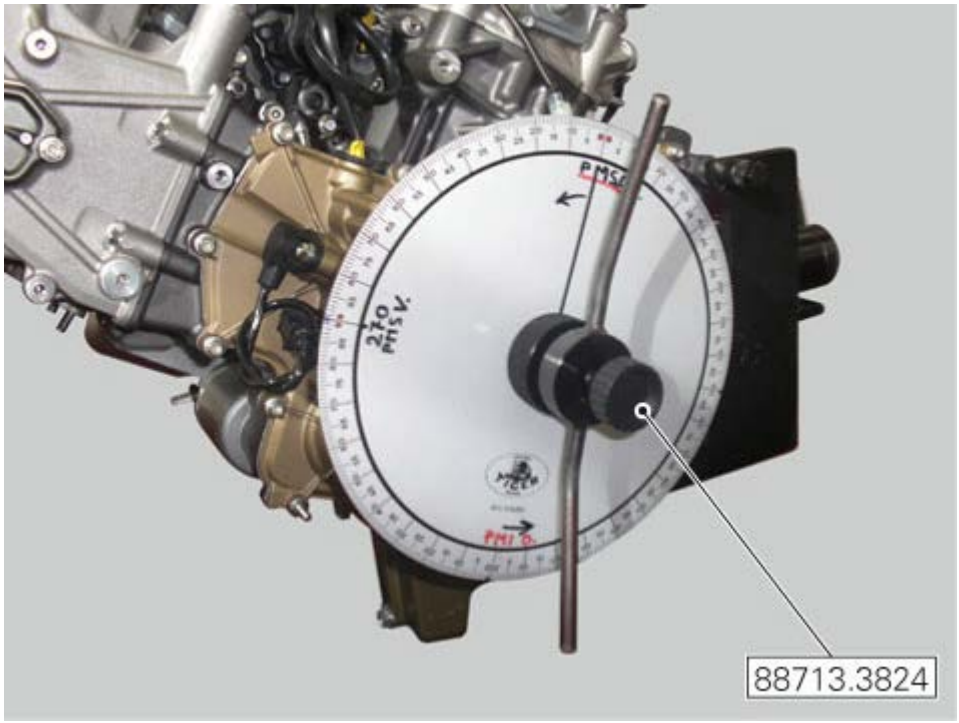
Crankshaft positioning at TDC in the combustion stage

Remove the head covers as described under Removal of the camshafts.

Remove the timing inspection cover (1), with seal (2), from generator cover, paying attention since a small quantity of oil could spill out (and must be topped up).

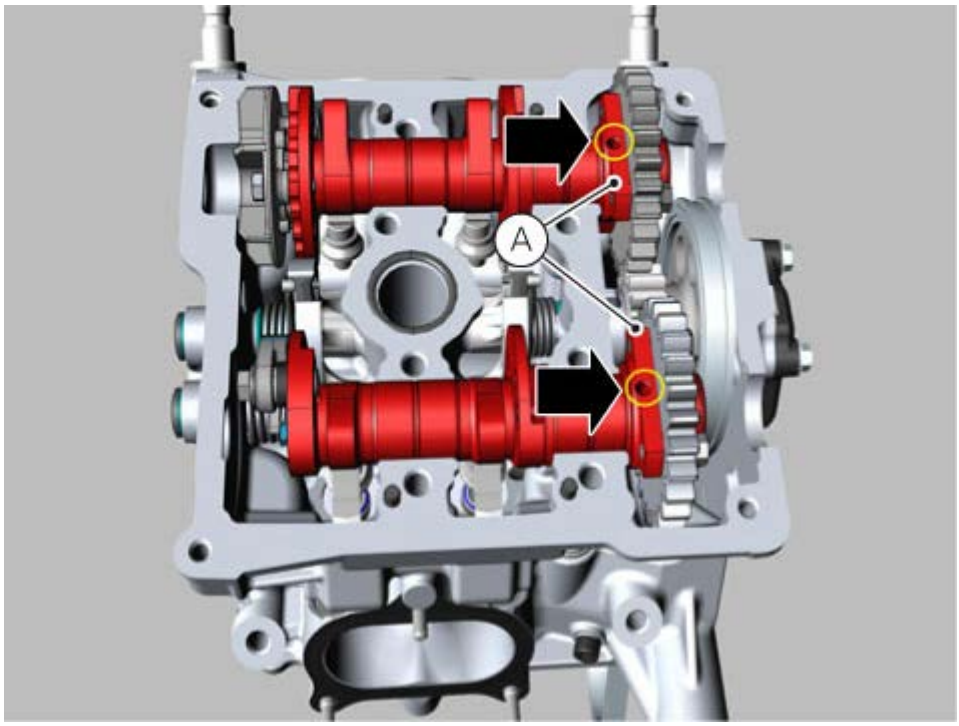


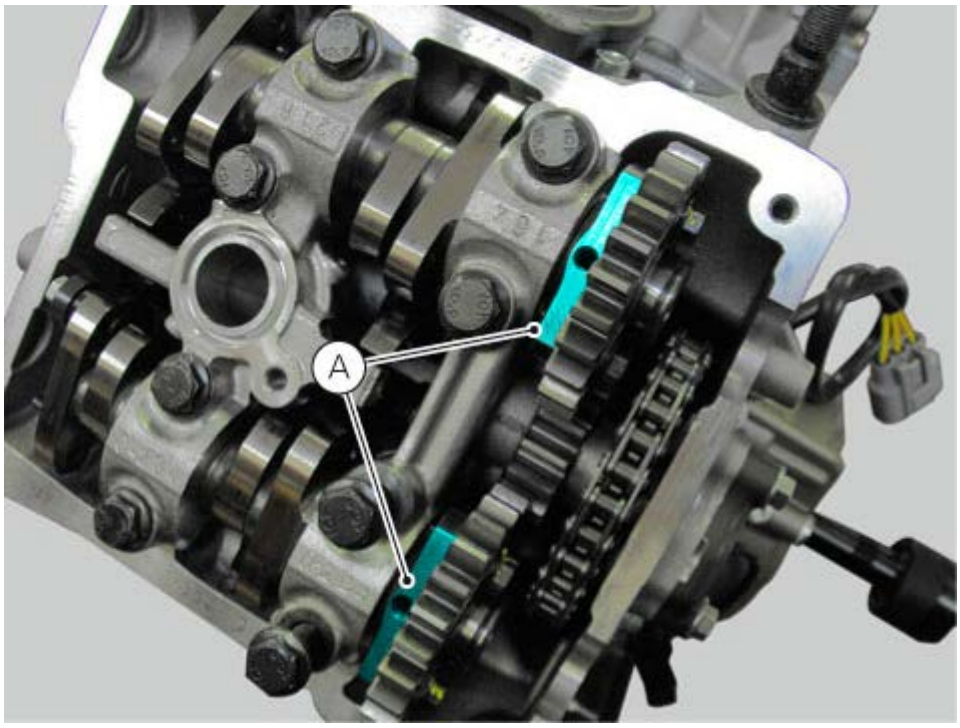
Install the tool with partition for checking the timing part no. **88713.3824**.



Turn crankshaft in the operating direction until valves are in rest position (reference flats (A) on camshafts are aligned).
Install the can locking tool part no. **88765.1678**, tightening the knobs into camshaft holes.

http://www.ducati-manuals.com
no. 140312

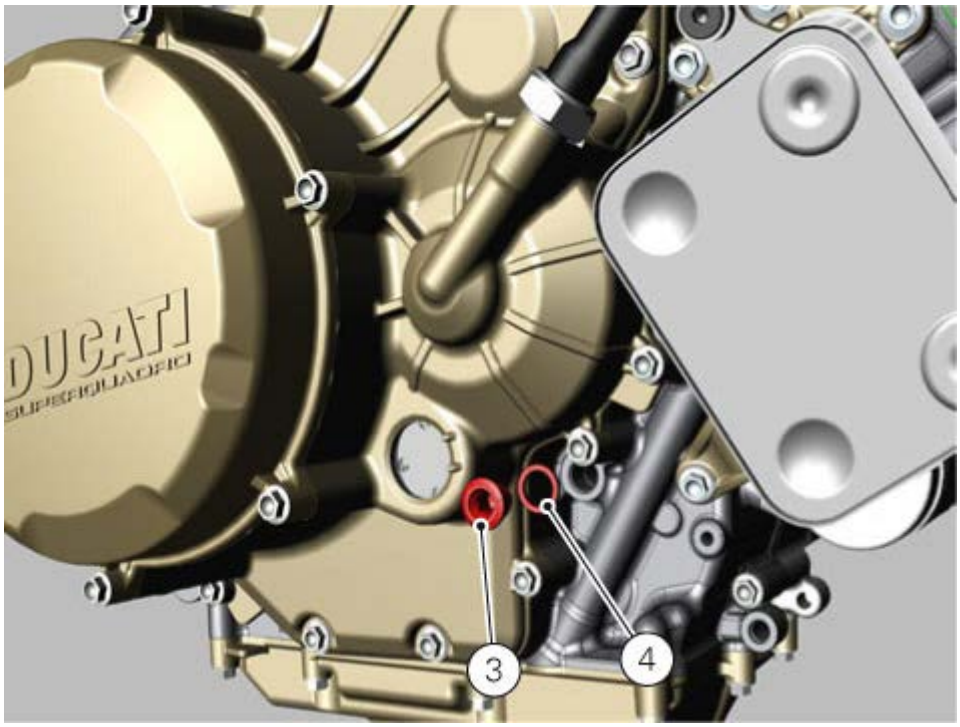




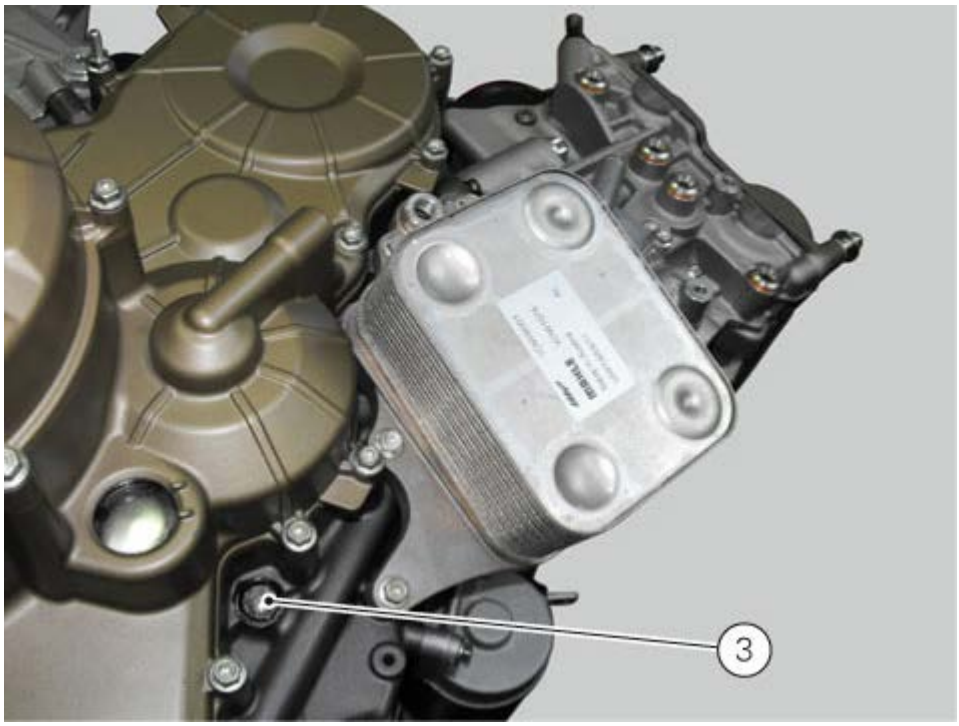
http://www.ducati-manuals.com
no. 140312



On clutch side, undo screw (3), with washer (4), used as a reference to lock crankshaft and then lock crankshaft with tool part no. **88713.3500**.



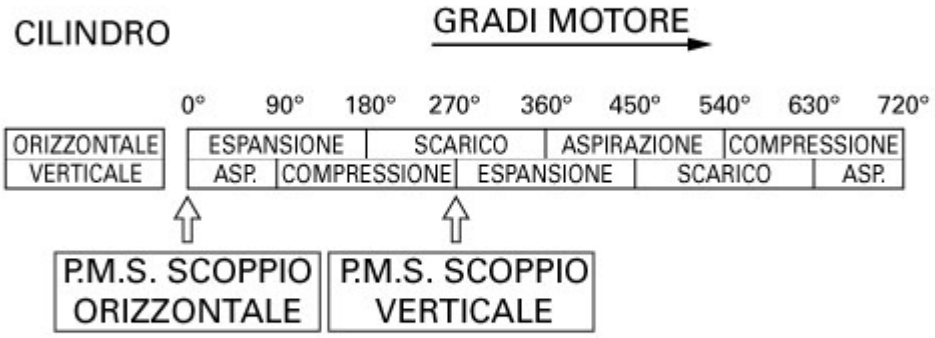
http://www.ducati-manuals.com
no. 140312





The chart below represents the sequence of engine stages.

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Removing the rocker arms

The removal procedure of rocker arms can be carried out even with engine on the vehicle.
Remove the cylinder head cover and camshafts (Removing the camshafts).
Valve retainers inside the cylinder heads are tapered collets on the intake side and split rings on the exhaust side.
Lift the opening rocker arms and remove the opening shims.

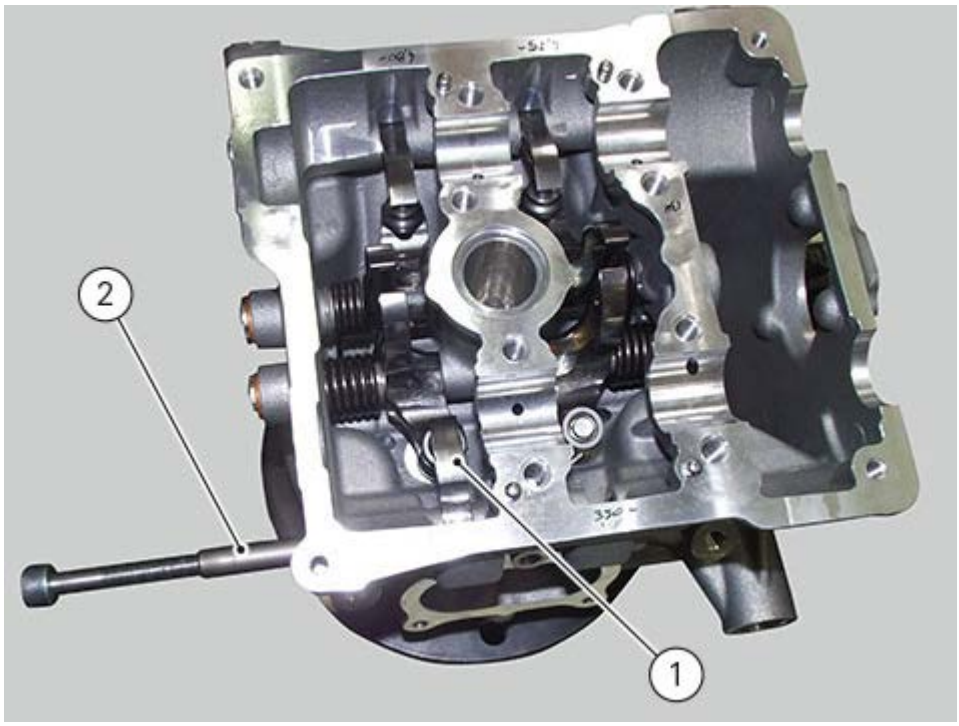
Note
Upon reassembly, make sure to refit the opening rocker arms in their original position.

Loosen and remove the plugs (1) with their washers, for reaching the opening rocker arm shafts.



Using tool **88713.2994**, slide out the shafts (2) of the opening rocker arms on the exhaust and intake sides: make sure shims do not fall down.
The opening rocker arm shafts have an M7 thread, it is recommended to use the threaded insert part no. **88713.3760** with the corresponding tool **88713.1994**. The closing rocker arm shafts have an M6 thread, use the suitable insert with tool **88713.1994**.
Remove the opening rocker arms (3).

http://www.ducati-manuals.com
no. 140312

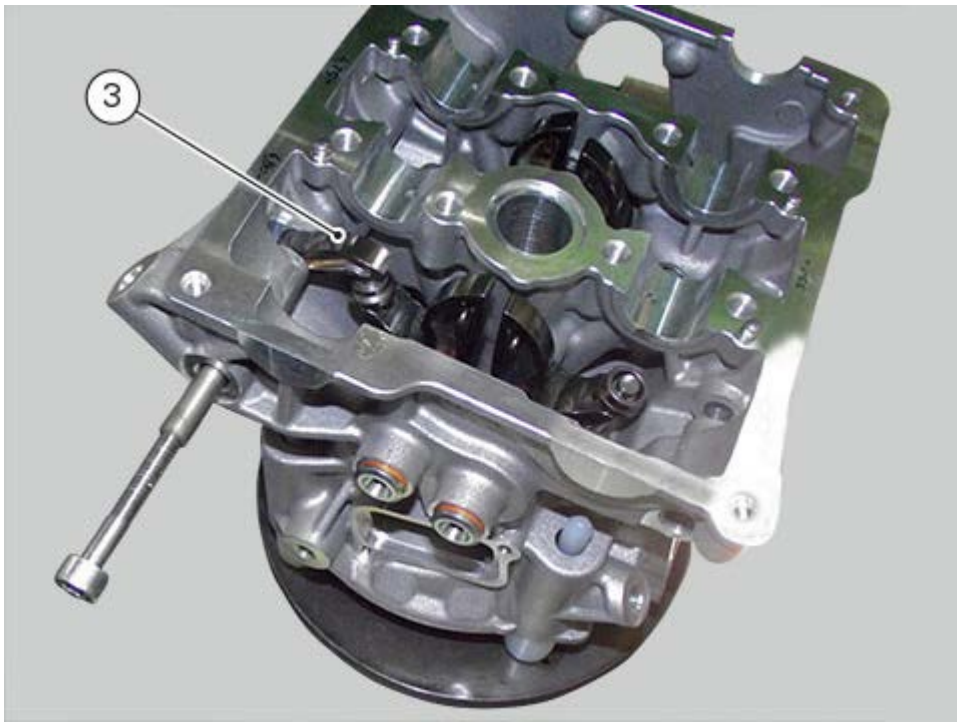


On the exhaust side, remove plug and then remove shaft (2).



Remove the opening rocker arm (3).

http://www.ducati-manuals.com
no. 140312

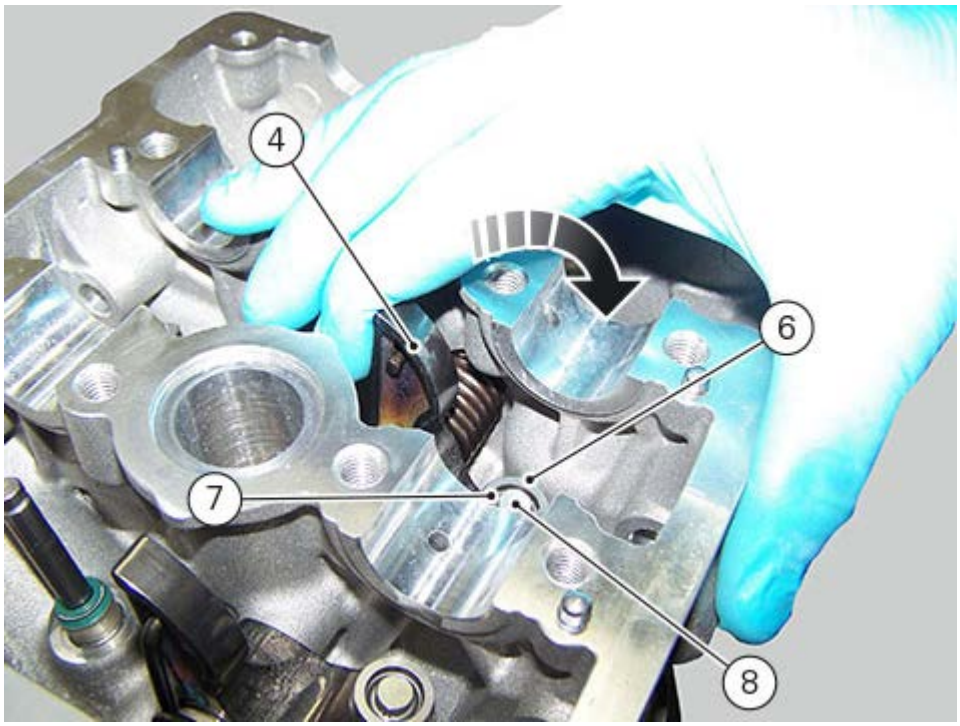


Remove closing rocker arms as follows.
Remove the mobile tensioner.
Release the closing rocker arm (4) from the spring (5).

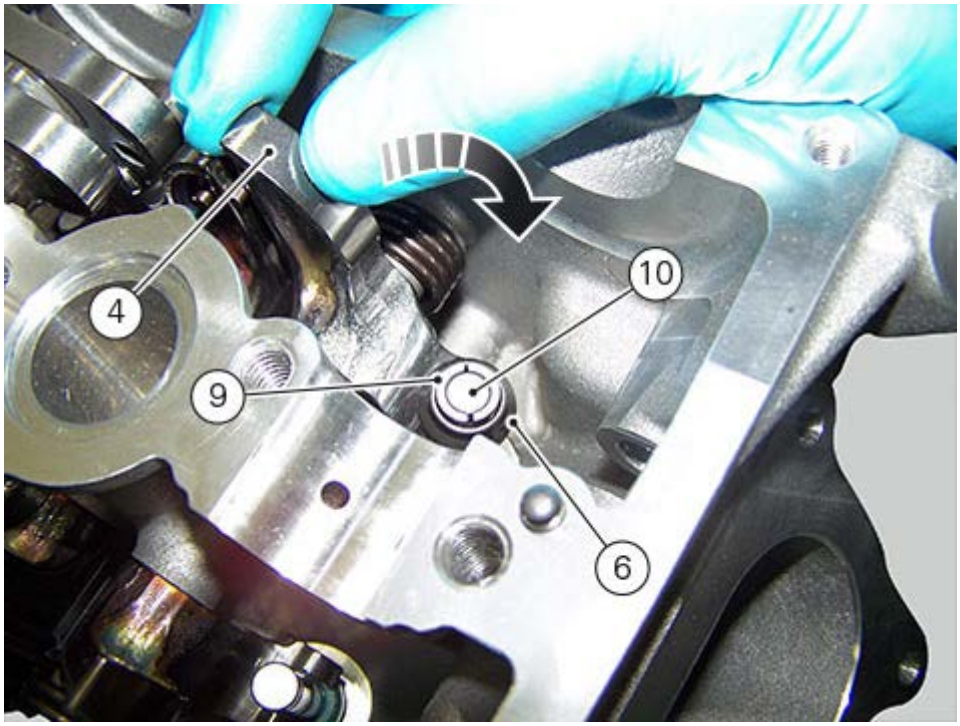


Push down the closing rocker arms (4) and the closing shim (6).
Remove the split rings (7) from the exhaust valves (8) with a magnetic screwdriver. Slide out closing shims from valve stems.

http://www.ducati-manuals.com
no. 140312

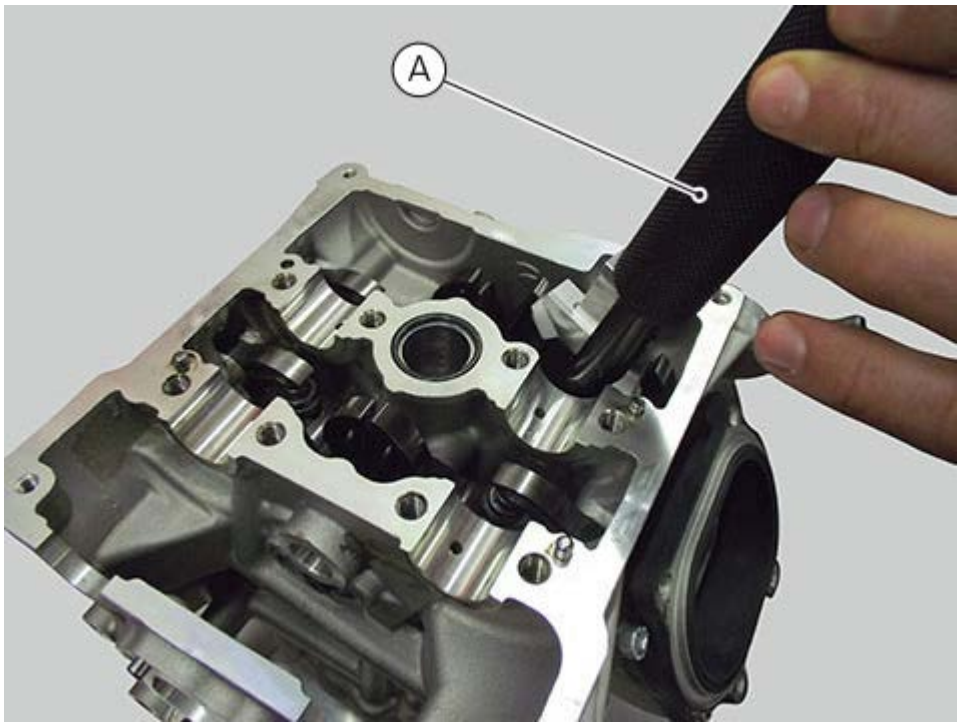


Use tool part no. **88713.3924** to remove valve collets (9) from intake valves (10).



If the cylinder head is off the engine and set on tool **88713.3422**, you can use tool **88713.3468** (A) to remove valve collets.

http://www.ducati-manuals.com
no. 140312

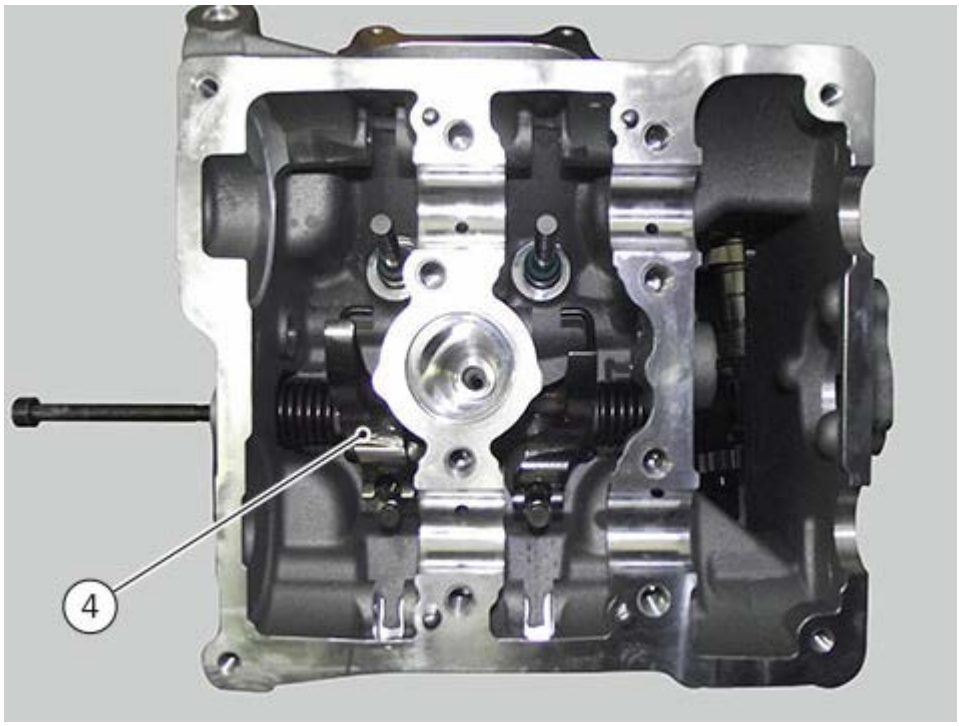


Loosen and remove the plugs (11) with their washers, for reaching the closing rocker arm shafts on timing opposite side.

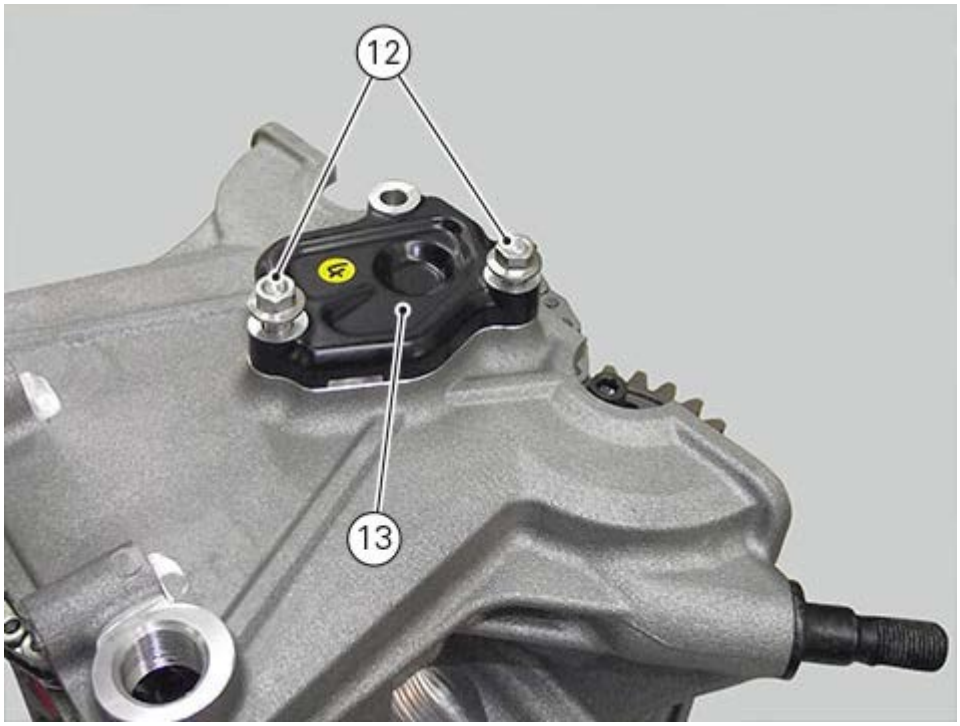


Remove the closing rocker arms (4) on timing opposite side.

http://www.ducati-manuals.com
no. 140312



Loosen screws (12) and remove cover (13), paying attention not to drive the moving parts.

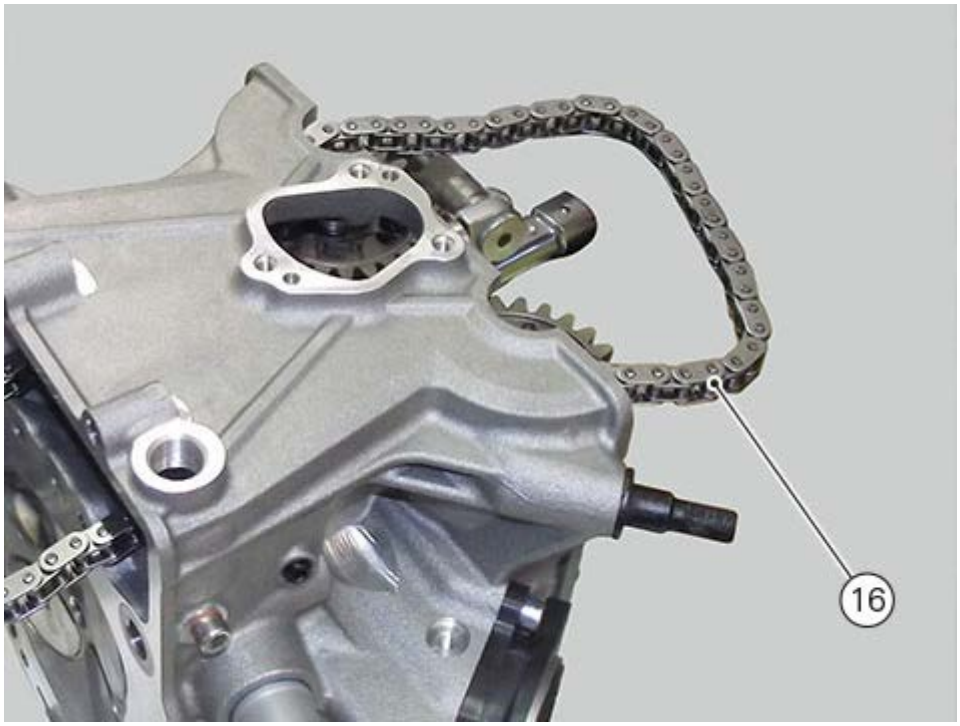


Remove the shim, shaft (14) and spacer (15) from idle sprocket.

http://www.ducati-manuals.com
no. 140312

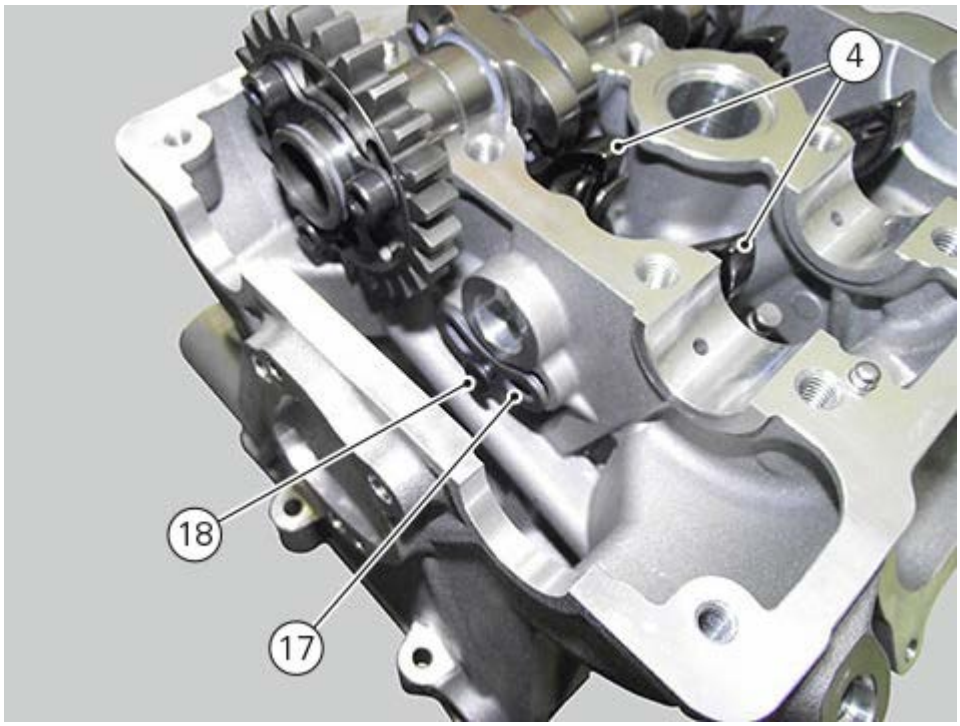


Remove chain (16) from gear, making sure it will not fall inside the timing compartment.

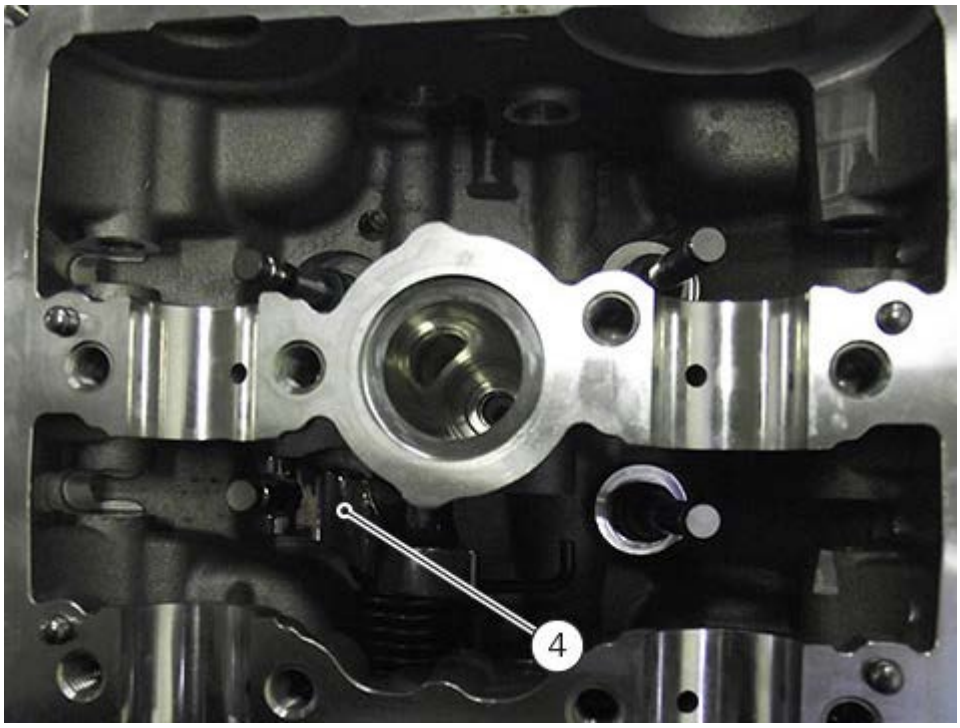


Remove plate (17) blanking timing transmission pins by loosening screws (18).

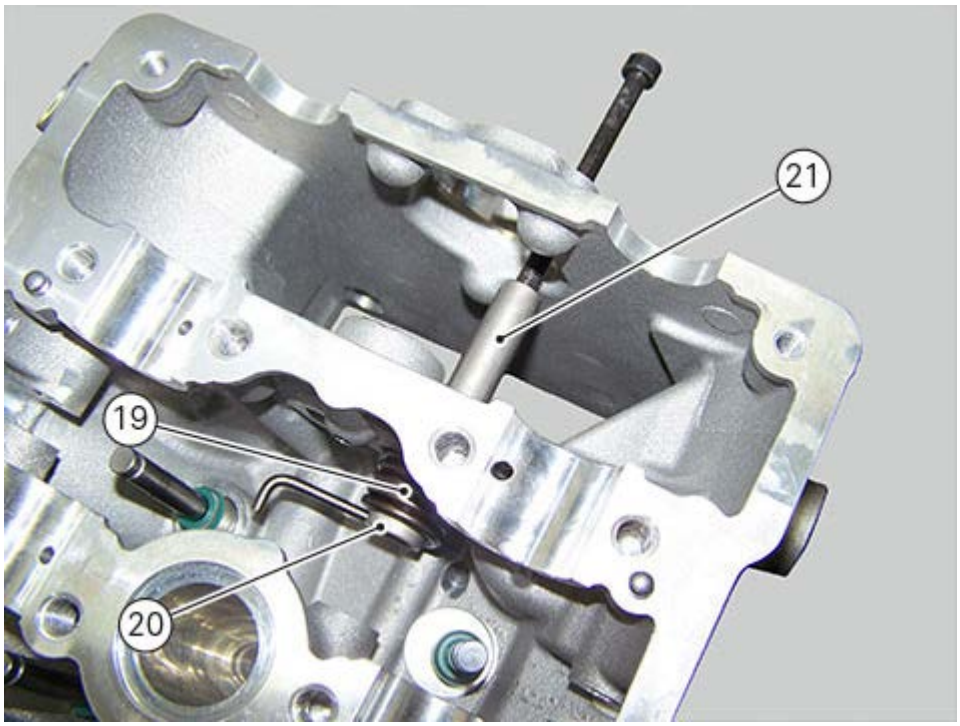
http://www.ducati-manuals.com
no. 140312



Using tool **88713.2994**, remove the closing rocker arms, the springs (19) with spacers (20) and shafts (21).



http://www.ducati-manuals.com
no. 140312



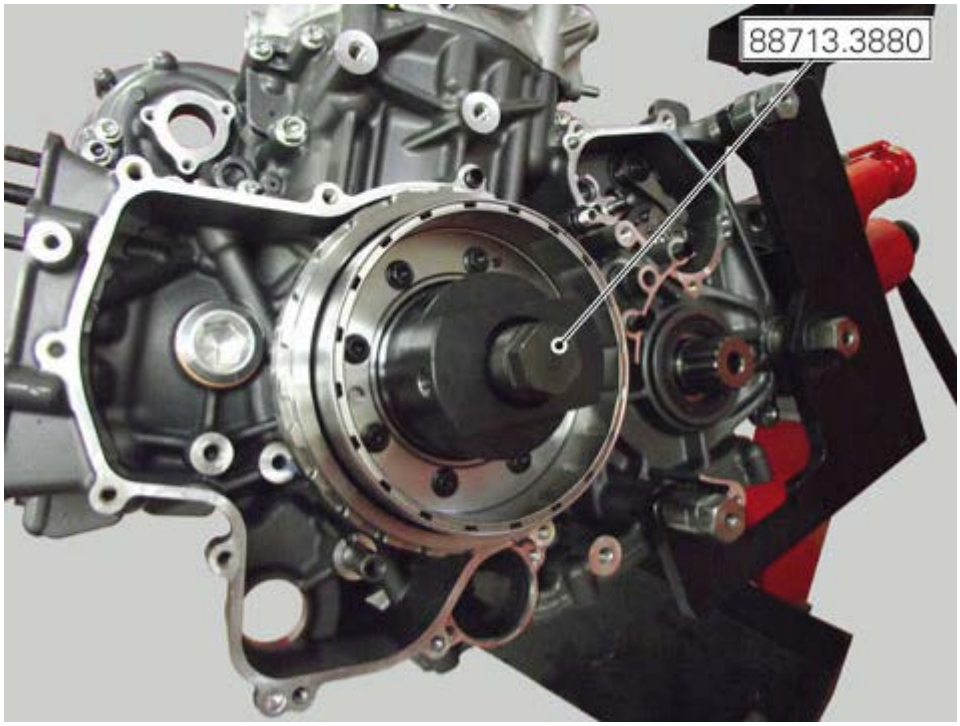
http://www.ducati-manuals.com
no. 140312

Horizontal cylinder head chain detachment

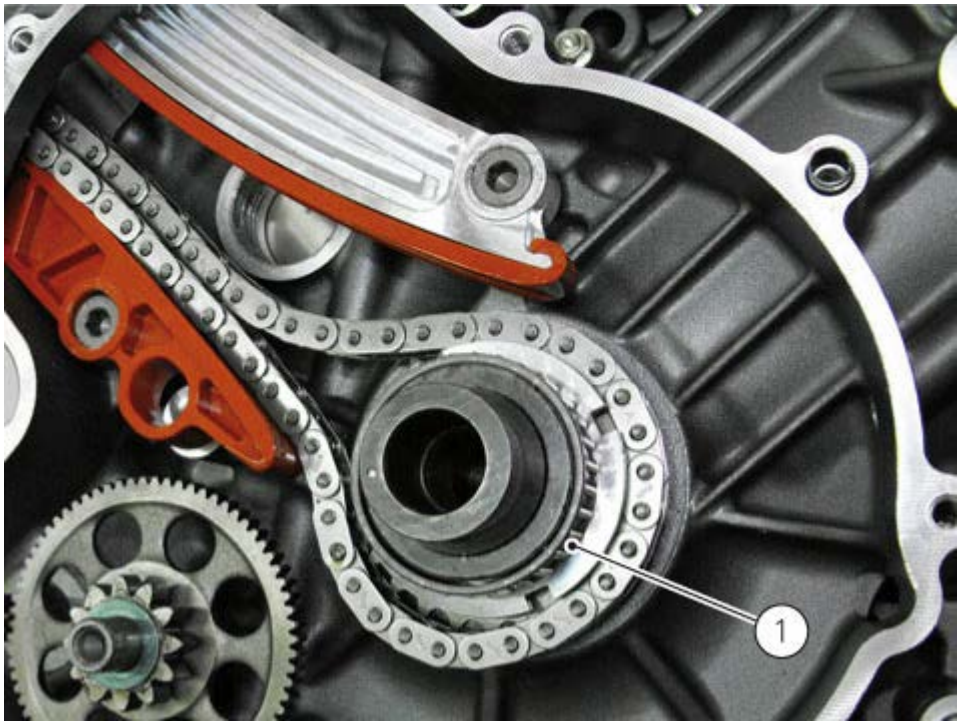
This operation can be carried out with the engine on the motorcycle.
The two timing chains are placed on both sides of the crankcase: for removal operation work only on the side of the chain to be removed.
Generator side chain detachment (horizontal cylinder head).

Remove both spark plugs (Renewal of the spark plugs).
Remove the generator cover (Removal of the generator cover).
Loosen flywheel retaining screw (do not release the flywheel).
Set the crankshaft at TDC in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
Remove the camshafts (Camshaft removal).

Remove flywheel with the special puller tool, part no. **88713.3880**.

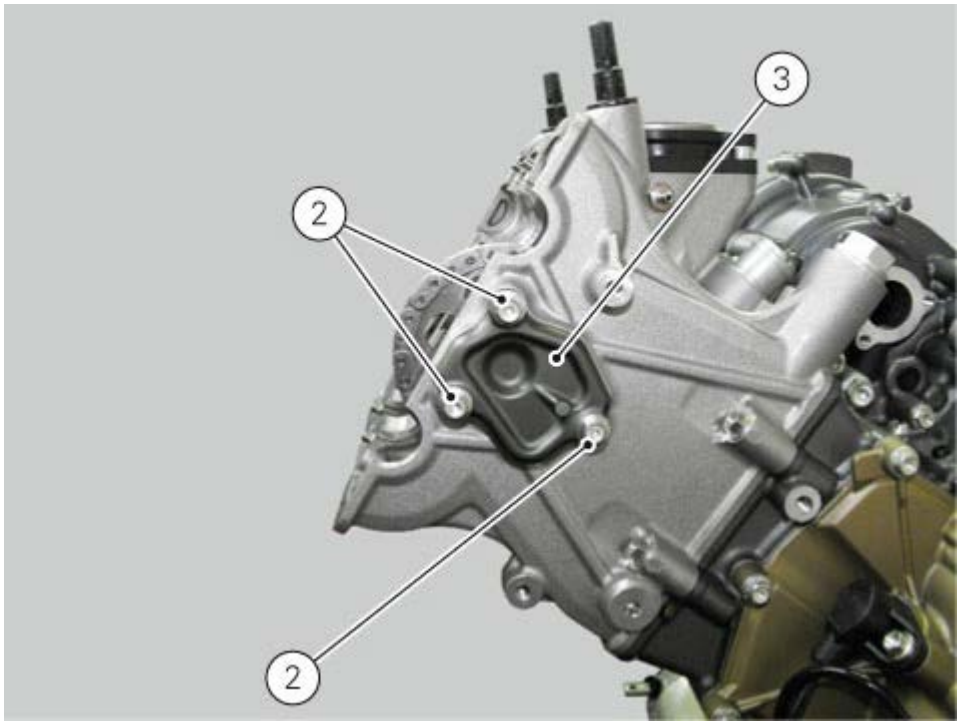


Slide out roller cage (1).

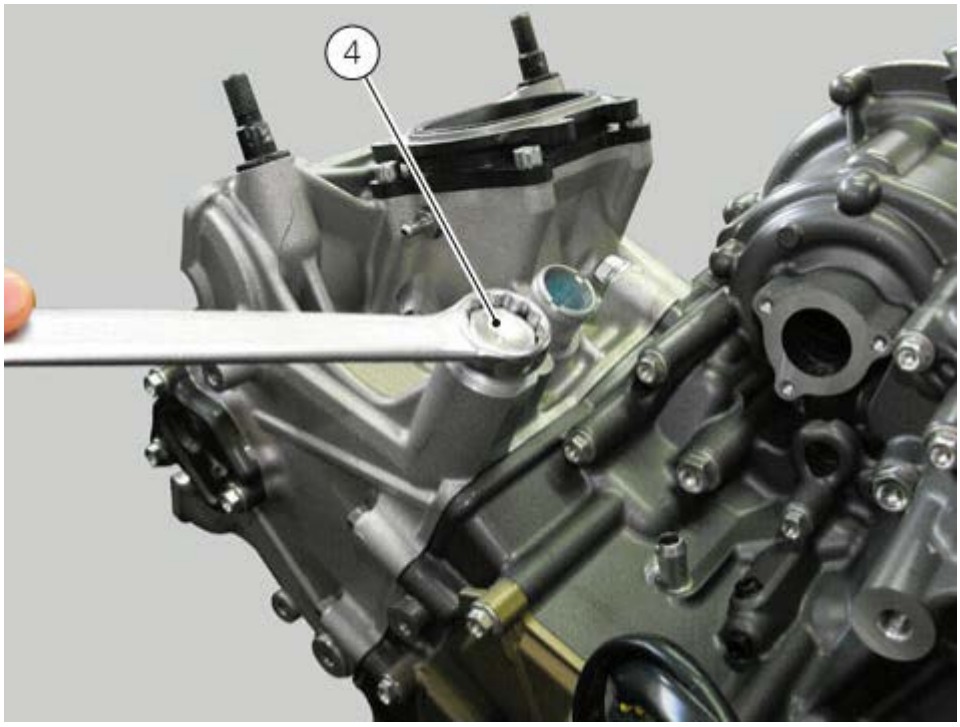


Loosen screws (2) and remove cover (3), paying attention to moving parts.

http://www.ducati-manuals.com
no. 140312



Loosen tensioner (4) and remove it.

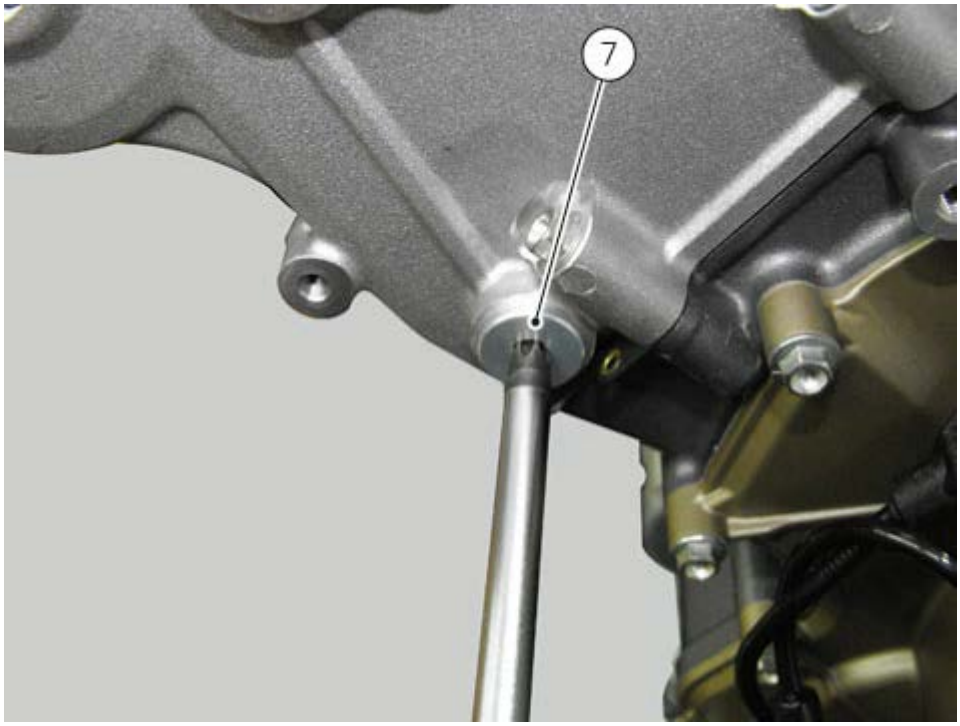


Remove mobile slider (5) by loosening pin (6).

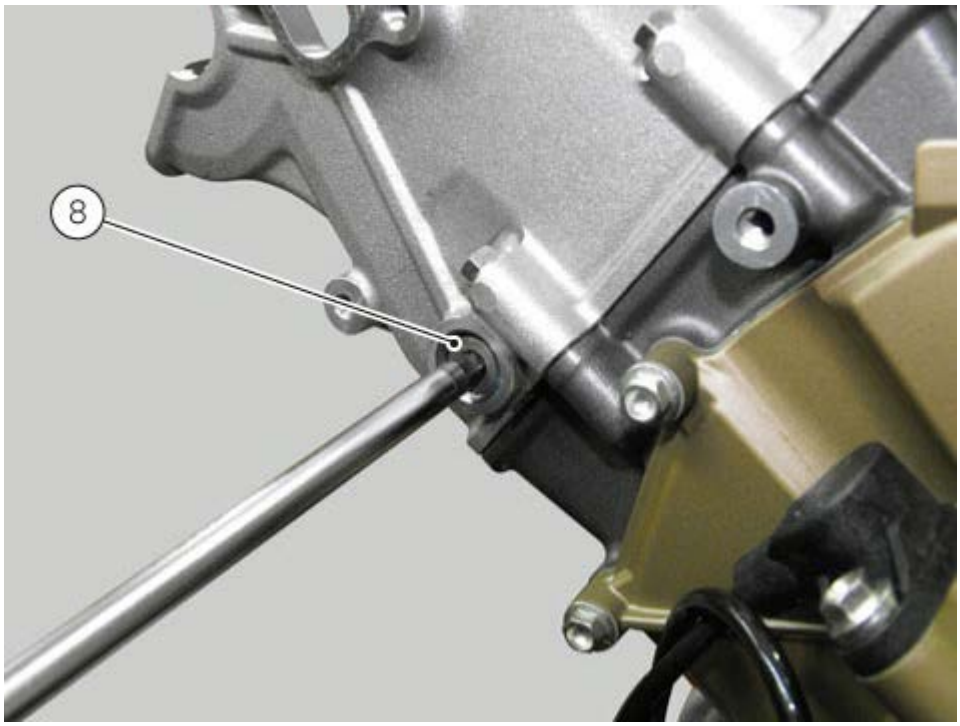
http://www.ducati-manuals.com
no. 140312

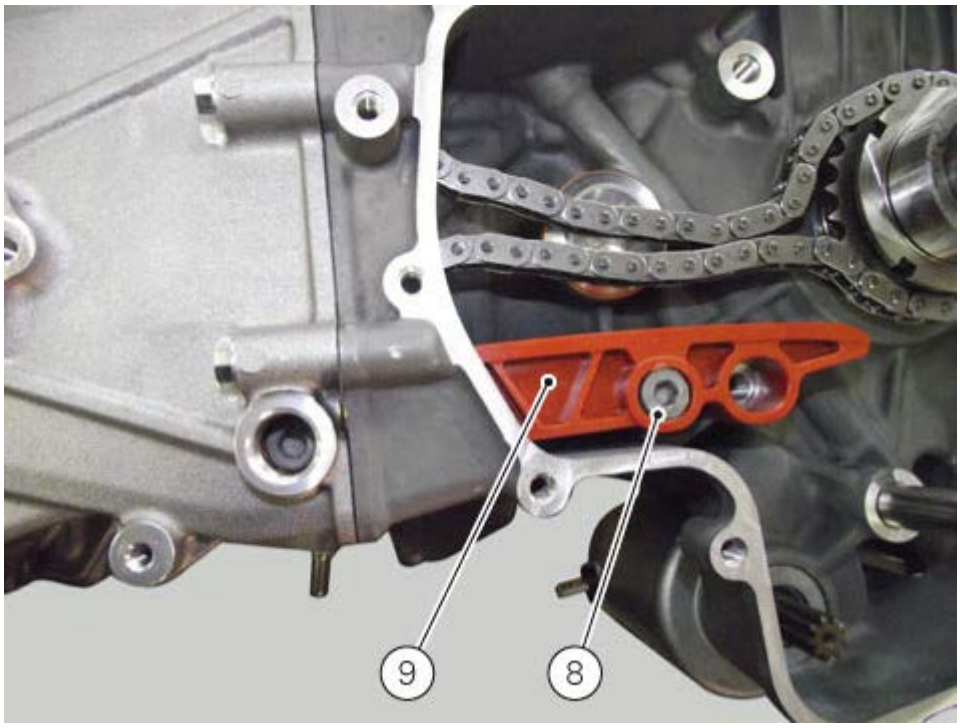


It is recommended to remove fixed slider (9) by loosening fixing pins (8).
Remove plug (7) to reach the fixed slider pin located at the basis of the cylinder head.
Remove fixed slider pin (8).



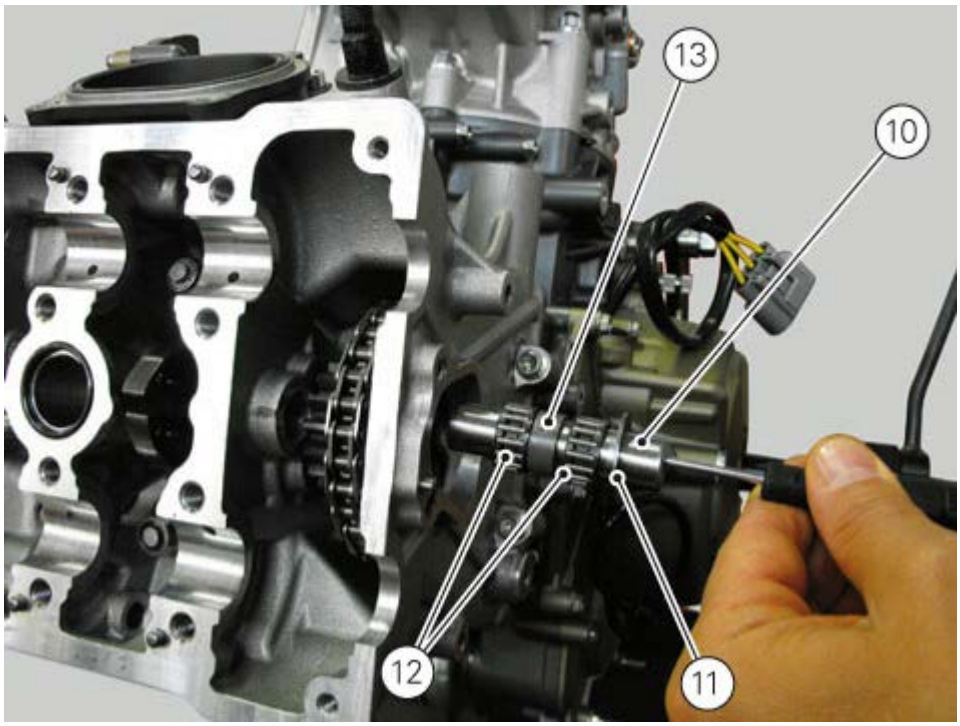
http://www.ducati-manuals.com
no. 140312



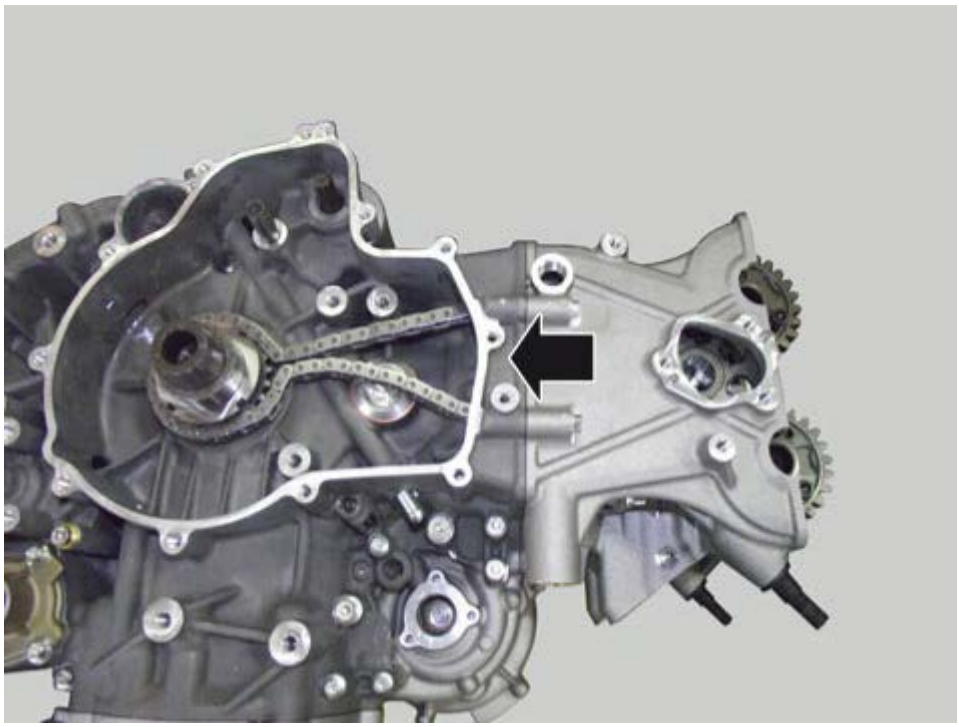


Remove shim (11), pin (10), bearings (12) and spacer (13) from timing transmission.

http://www.ducati-manuals.com
no. 140312



Slide drive gear with chain towards crankshaft.
At this stage the chain is free.



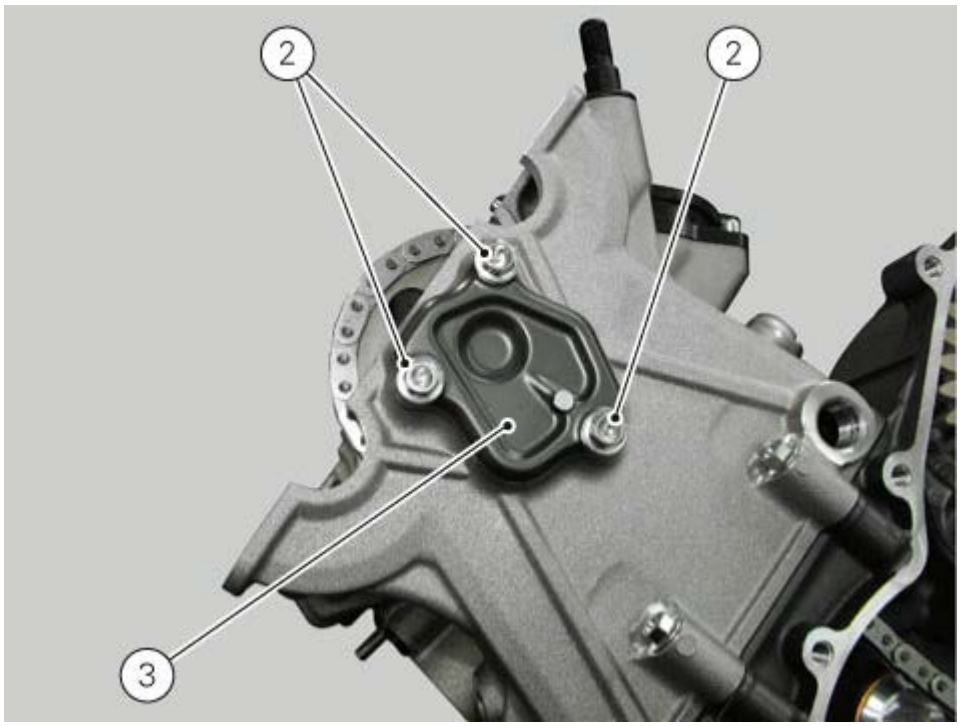
Slide out the timing lay split gear and the chain from the timing compartment.

Clutch side chain detachment (vertical cylinder head)

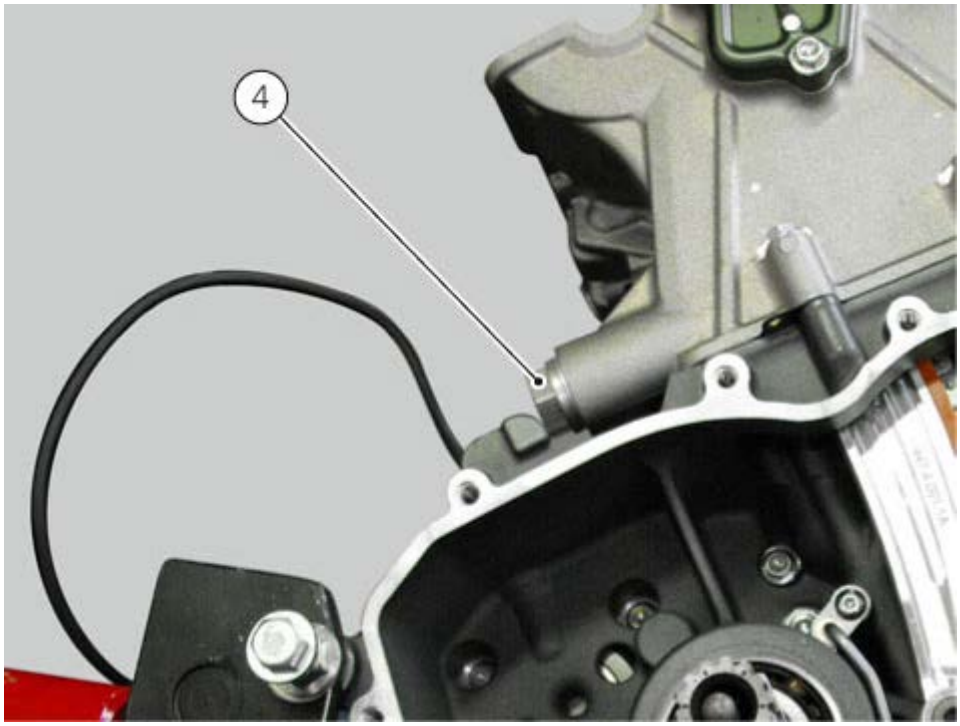
Remove both spark plugs (Renewal of the spark plugs).
Remove the camshafts (Camshaft removal).
Remove the clutch cover (Removal of the clutch cover).
Remove the water pump control idle gear (Removal of the water pump) being careful to loose parts.
Remove clutch group (Clutch removal).
Set the crankshaft at TDC in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
Remove primary drive gear (Removal of the primary gears).

Loosen screws (2) and remove cover (3), paying attention to moving parts.

http://www.ducati-manuals.com
no. 140312

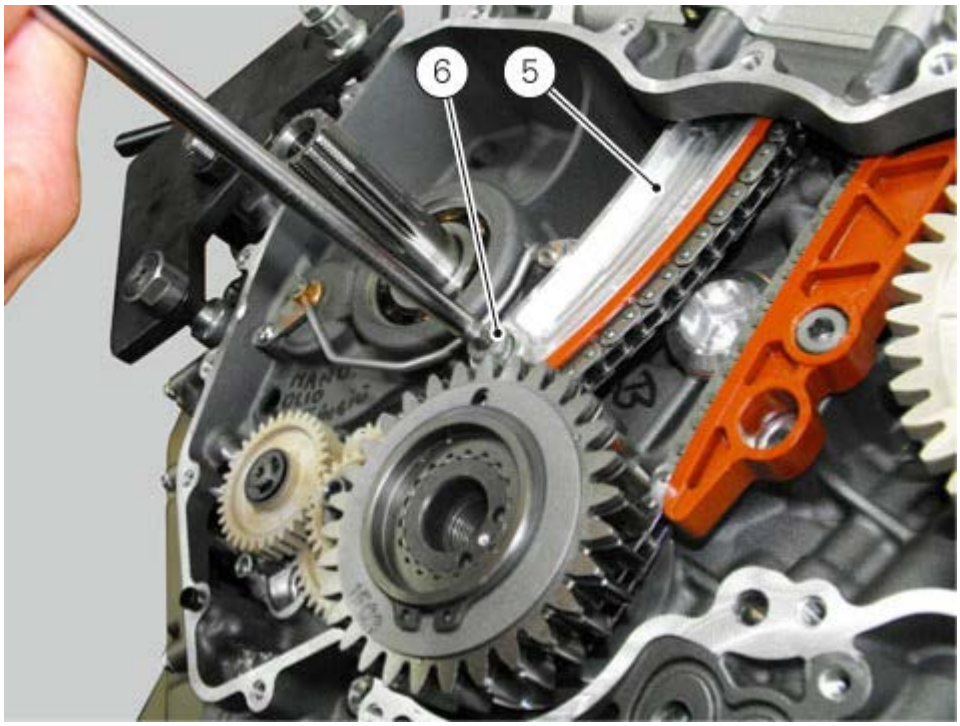


Loosen tensioner (4) and remove it.

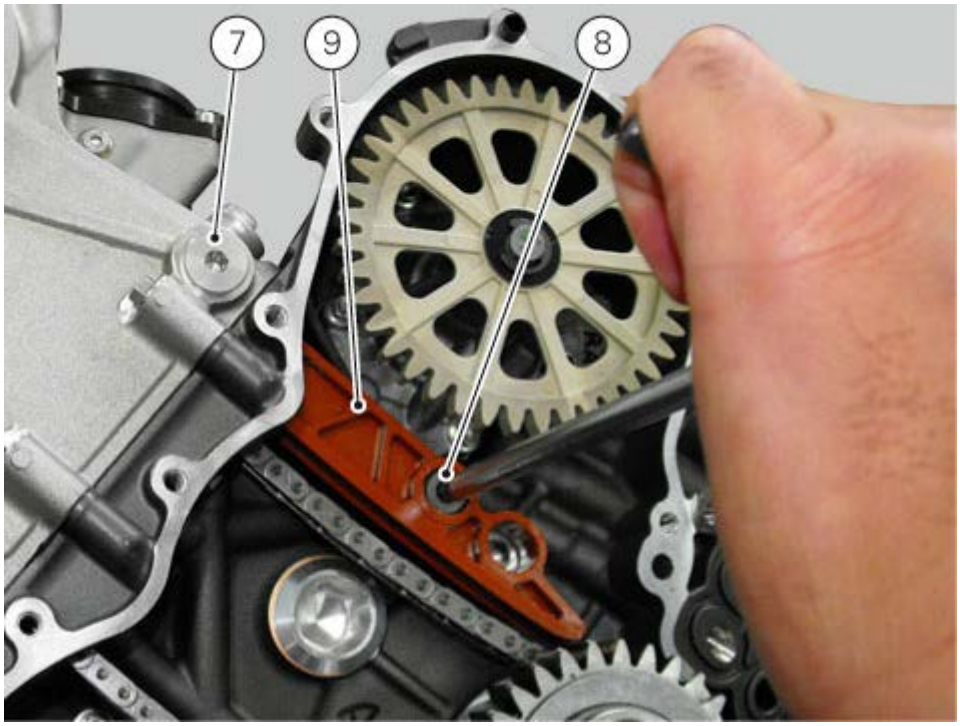


Remove mobile slider (5) by loosening pin (6).

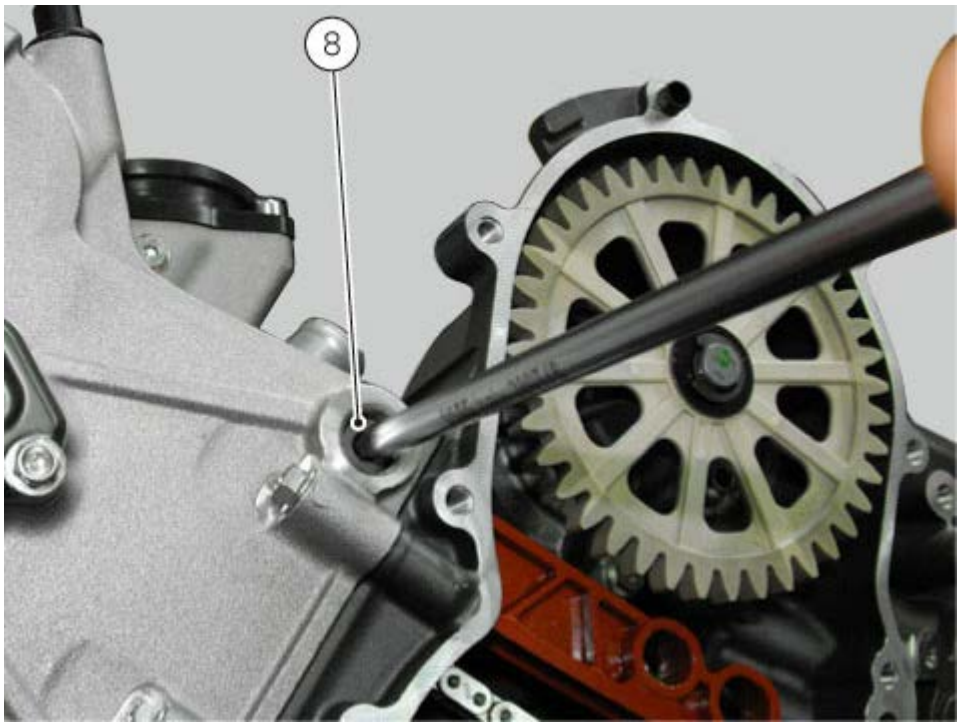
http://www.ducati-manuals.com
no. 140312



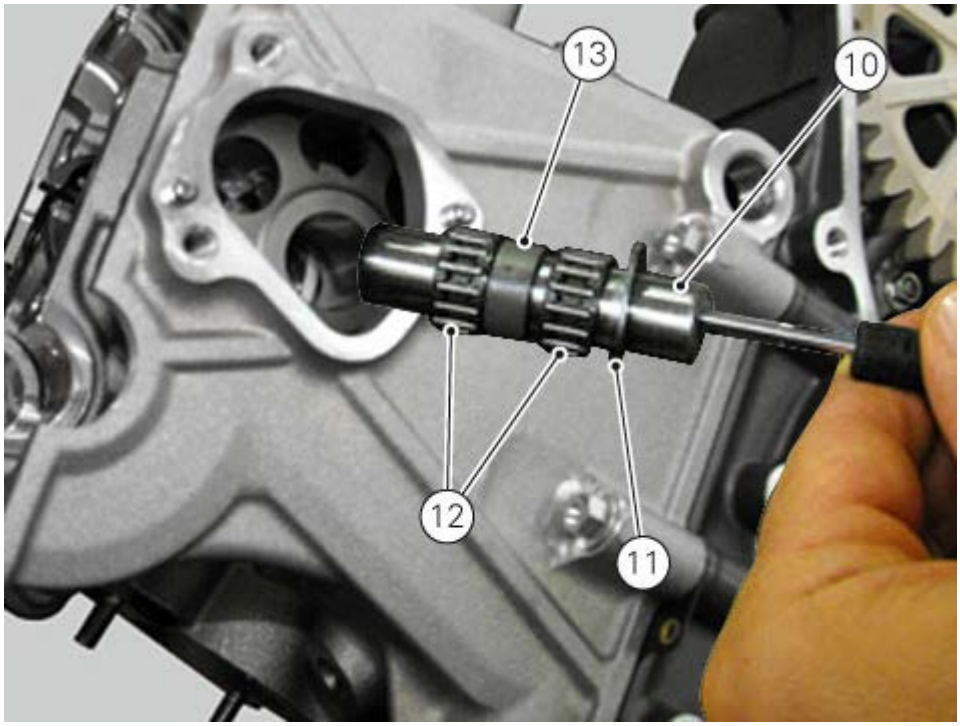
It is recommended to remove fixed slider (9) by loosening fixing pins (8).
Remove plug (7) to reach the fixed slider pin located at the basis of the cylinder head.
Remove fixed slider pin (8).



http://www.ducati-manuals.com
no. 140312

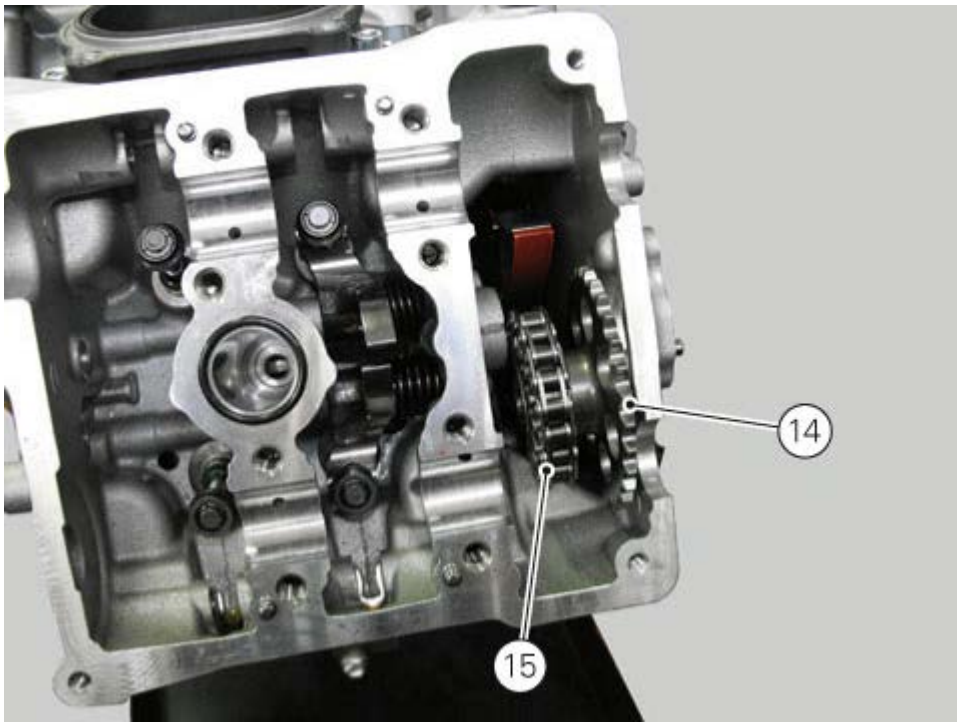


Remove shim (11), pin (10), bearings (12) and spacer (13) from timing transmission.



Slide drive gear (14) with chain towards crankshaft.
At this stage the chain (15) is free.
Slide out the timing lay split gear (14) and the chain from the timing compartment.

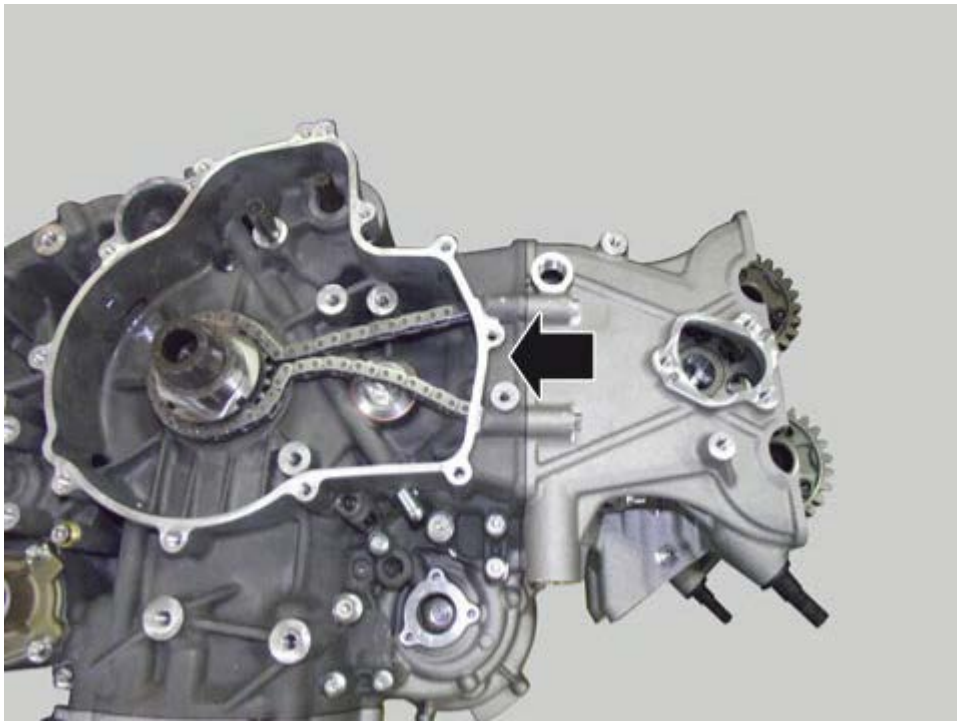
http://www.ducati-manuals.com
no. 140312



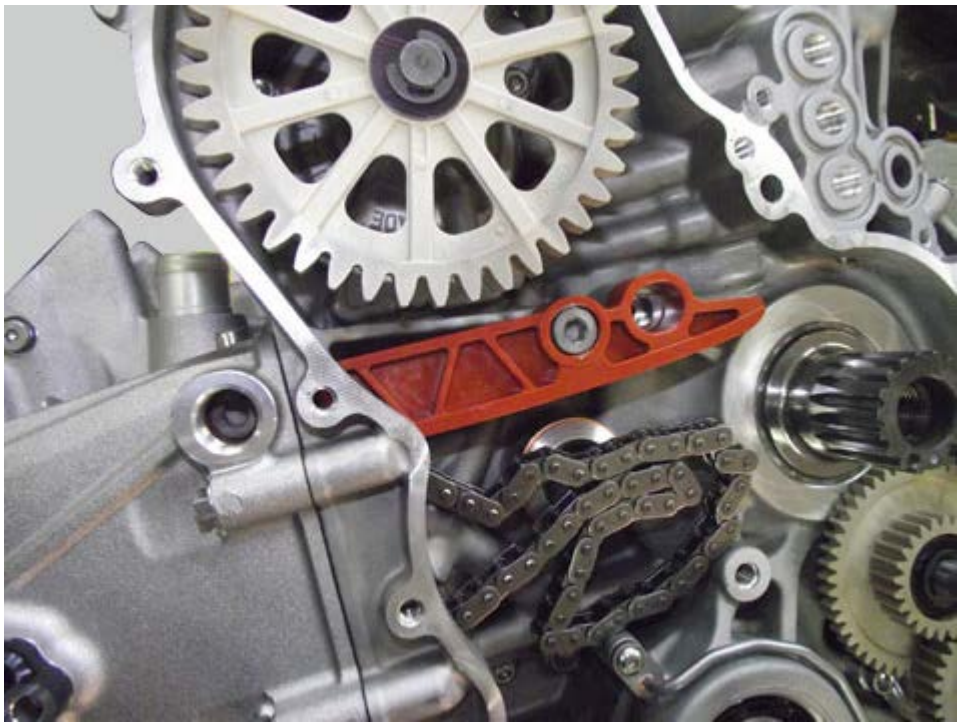
http://www.ducati-manuals.com
no. 140312

Horizontal cylinder head chain reassembly

Fit chain with split gear transmission in the timing compartment.
Fit chain on crankshaft timing gear, flywheel side.

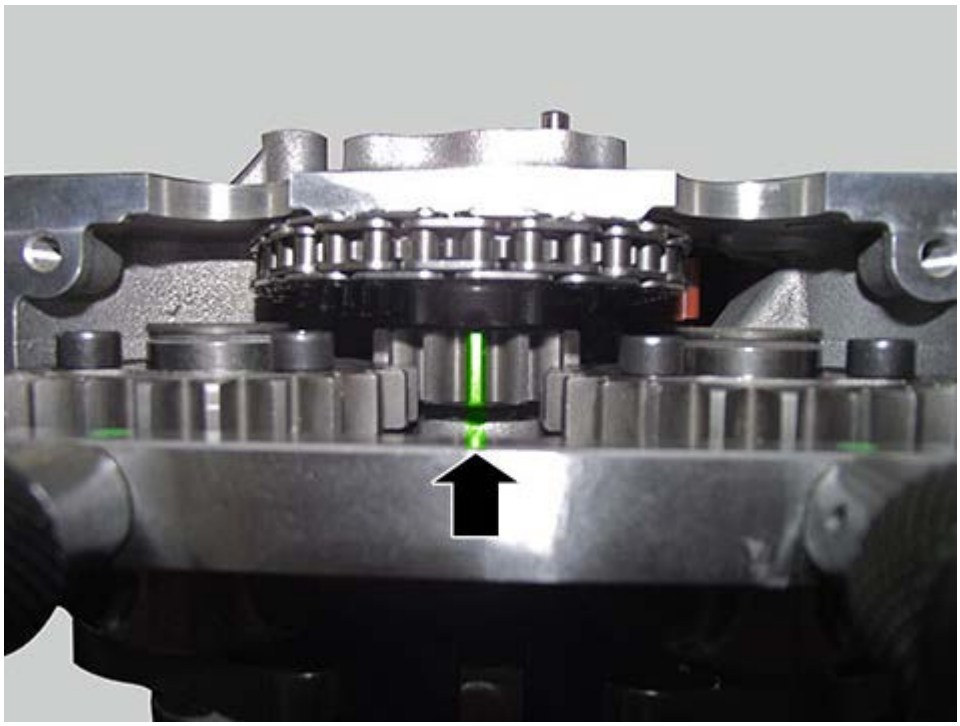


Verify that the crankshaft is on TDC of the horizontal cylinder, in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
If a reassembly of the vertical cylinder timing has been already carried out, in order to reach this condition it is needed to turn the crankshaft by 450° in the operating direction.
Hold the chain against the fixed slider.

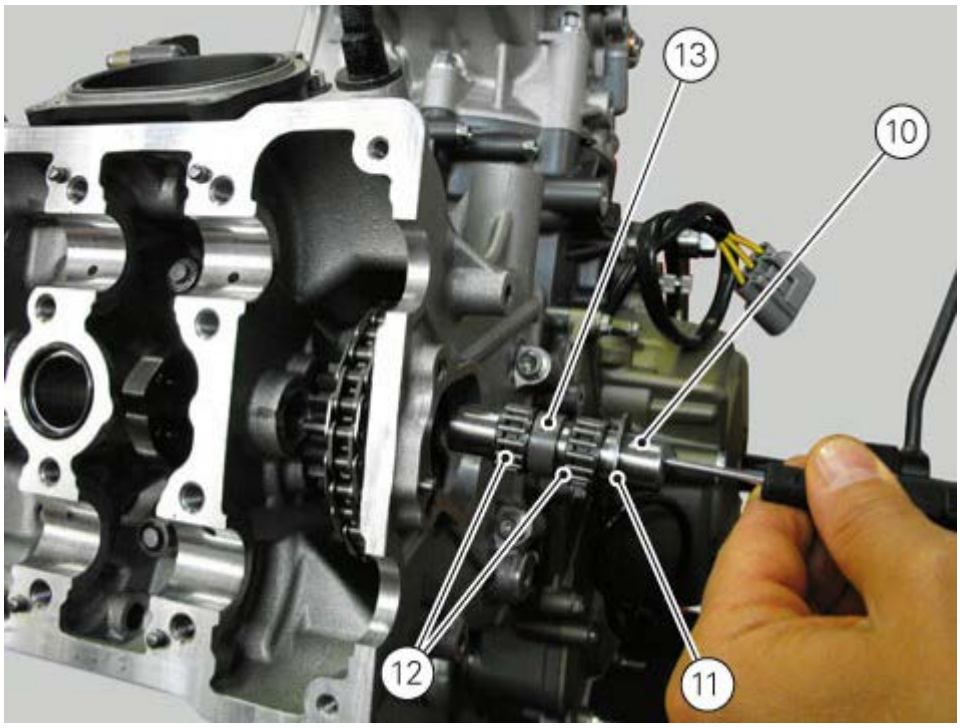


Check that one split gear retainer is placed on cylinder head reference, as shown in the picture.

http://www.ducati-manuals.com
no. 140312

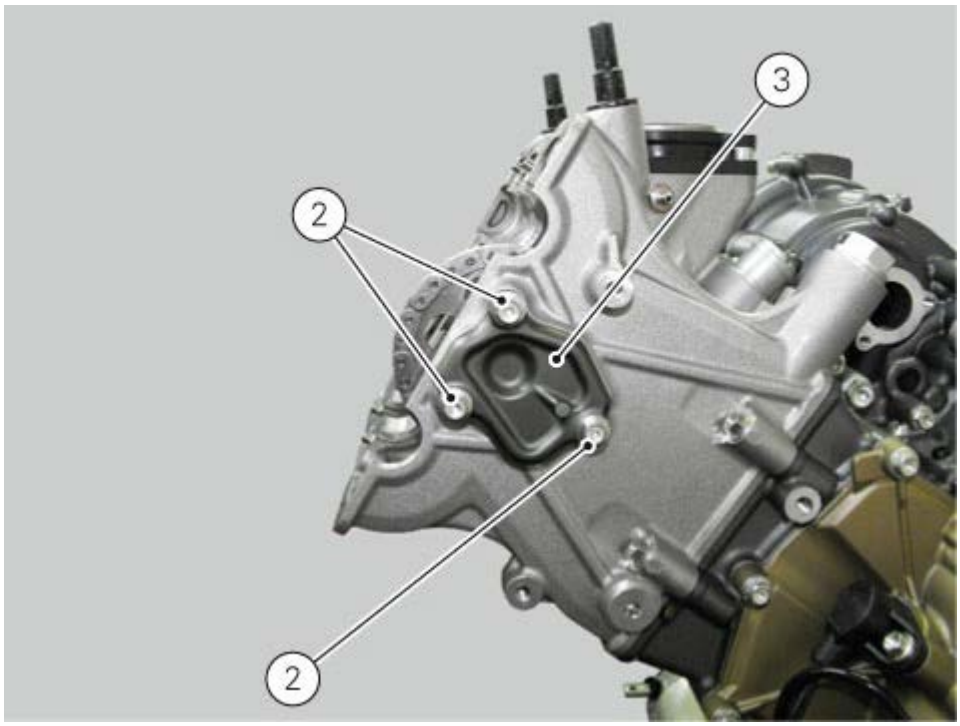


Insert pin (10) with bearing (12), spacer (13) and another bearing (12) on cylinder head.
Fit the shim (11).



Apply Ducati sealing compound on cover transmission pin as shown in the picture.
Place cover and tighten screws (3) and (2) to a torque of 10 Nm (Min. 9 Nm - Max. 11 Nm).

http://www.ducati-manuals.com
no. 140312

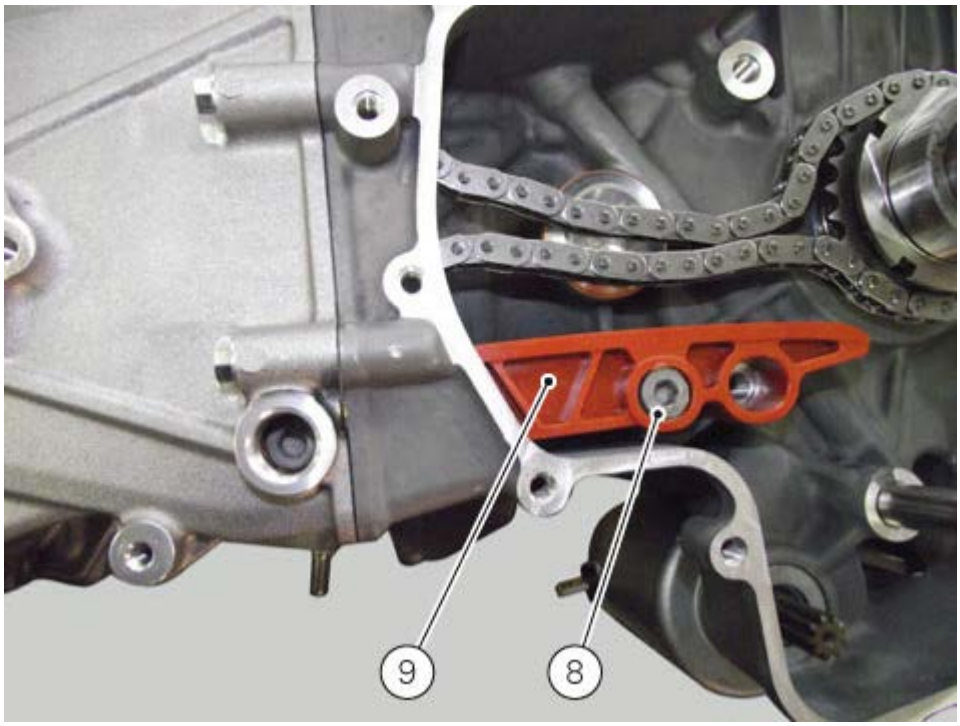


Place mobile slider (5) and tighten fixing pin (6) to a value of 20 Nm (Min. 18 Nm - Max. 22 Nm).

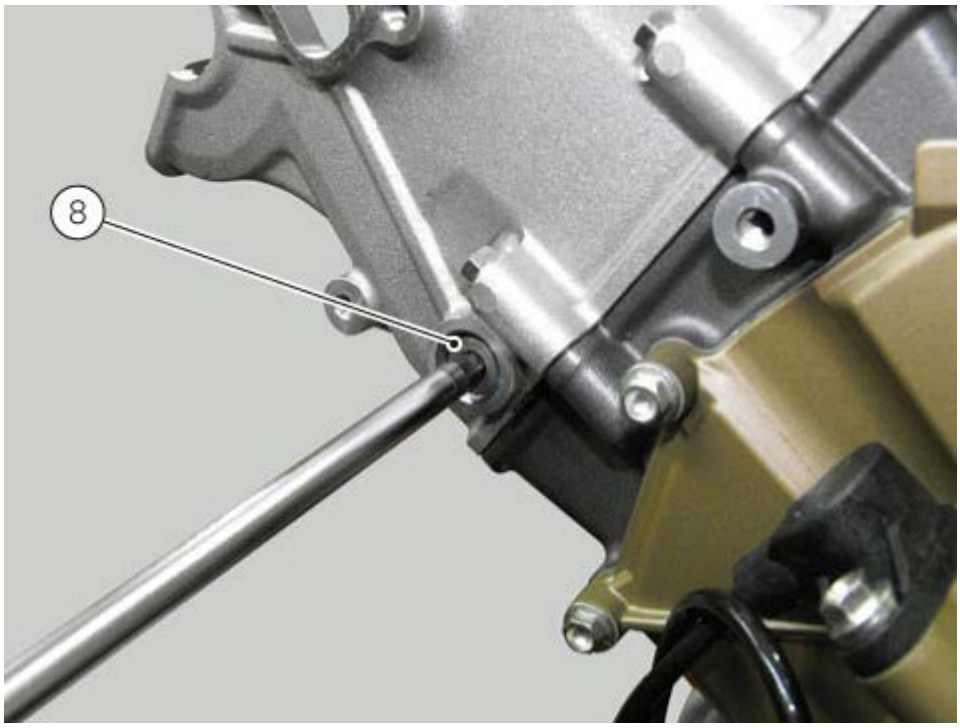


Place fixed slider (9) and tighten fixing pin (8) to a torque of 20 Nm (Min. 18 Nm - Max. 22 Nm).

http://www.ducati-manuals.com
no. 140312

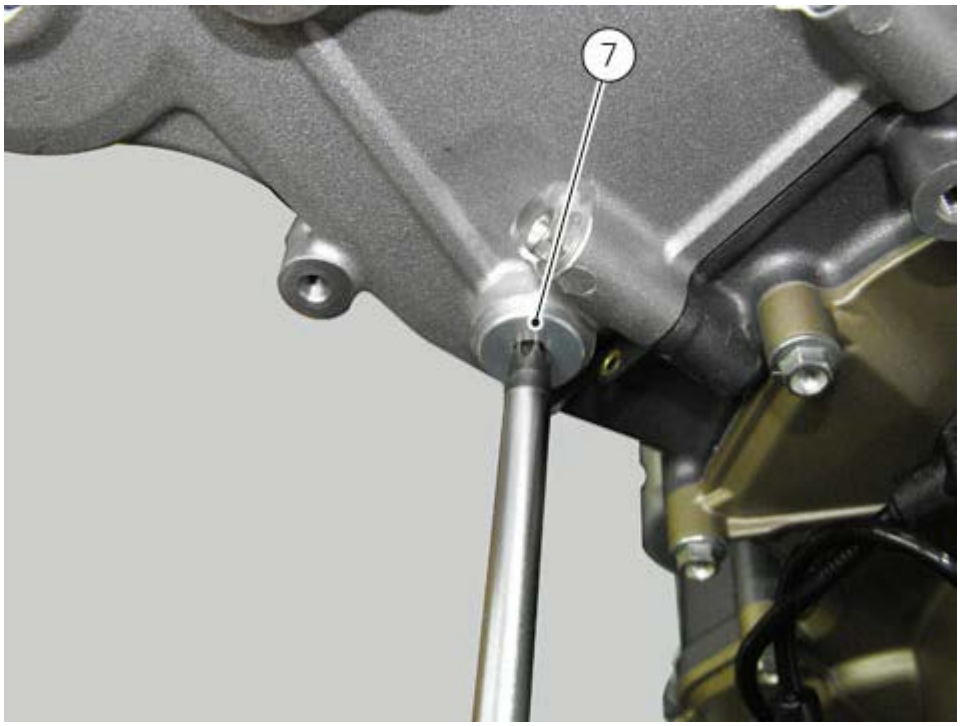


Install fixed slider pin (8) located at the basis of the cylinder head by tightening it to the torque of 20 Nm (Min. 18 Nm - Max. 22 Nm).

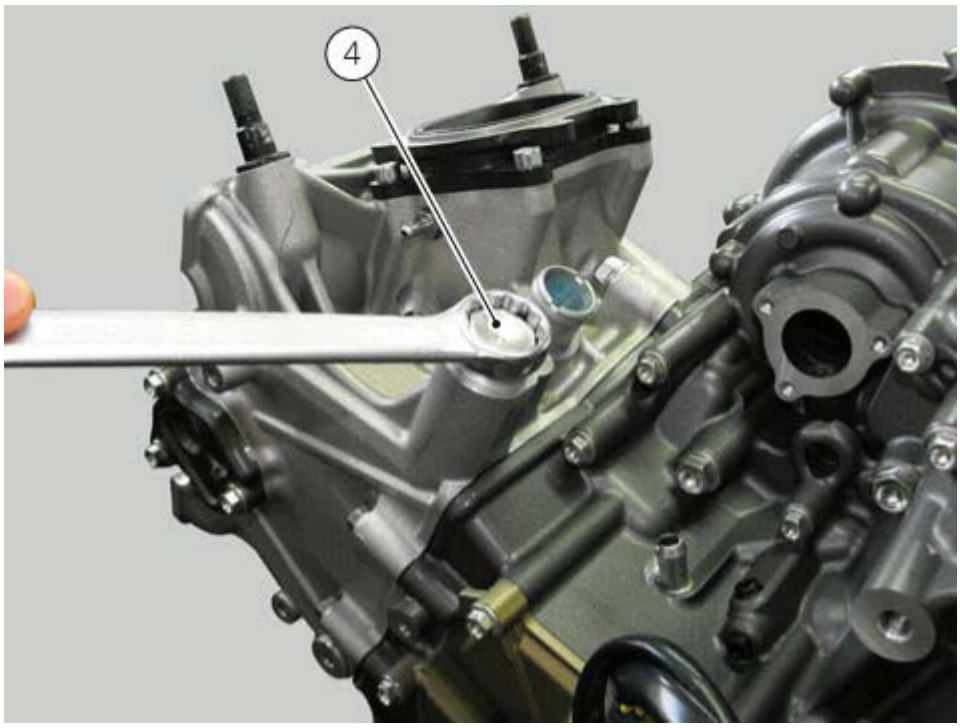


Install plug (7), previously opened to reach the fixed slider pin located at the basis of the cylinder head and tighten it to 17 Nm (Min. 16 Nm - Max. 18 Nm).

http://www.ducati-manuals.com
no. 140312



Place tensioner (4) and tighten it to a torque of 25 Nm (Min. 23 Nm – Max. 27 Nm) making sure that chain is centred on the sliders.



Install camshafts on the cylinder head, with aligned reference surfaces and fitting the timing tool part no. **88765.1678**.

http://www.ducati-manuals.com
no. 140312



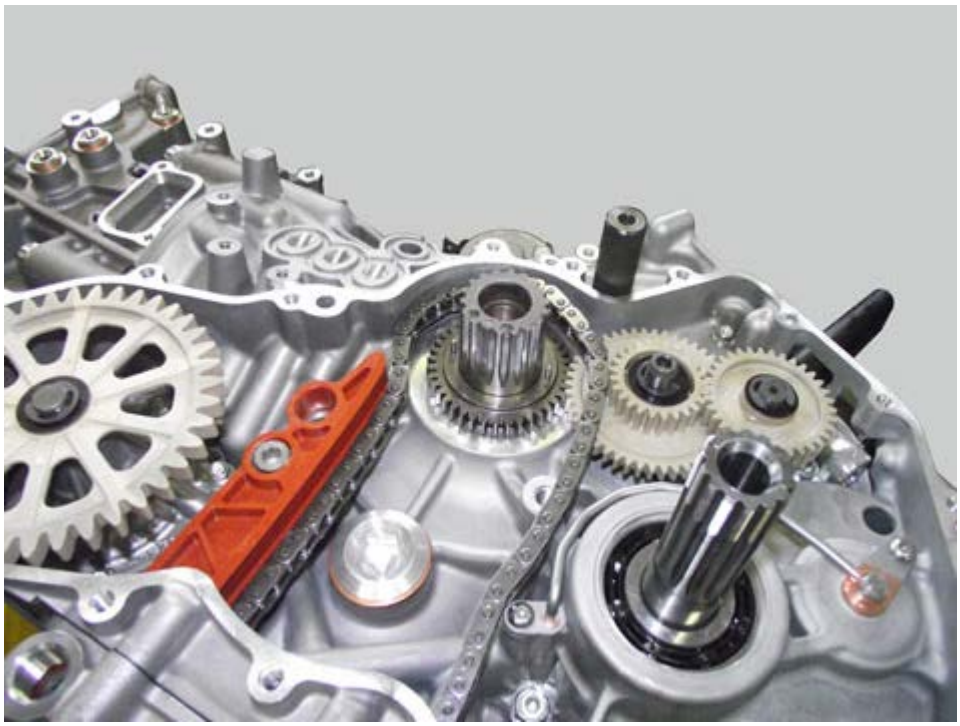
Fully loosen the two screws in view (one on each camshaft), apply threadlocker as per the chart and tighten to a torque of 19 Nm (Min. 18 Nm - Max. 20 Nm).
Remove tool part no. **88765.1678** and tool part no. **88713.3500**.
Turn crankshaft in the running direction until two different screws are in view (A) (one on each camshaft).
Fully loosen the two screws now in view (A), apply threadlocker as per the chart and tighten to the torque specified in the relevant table.



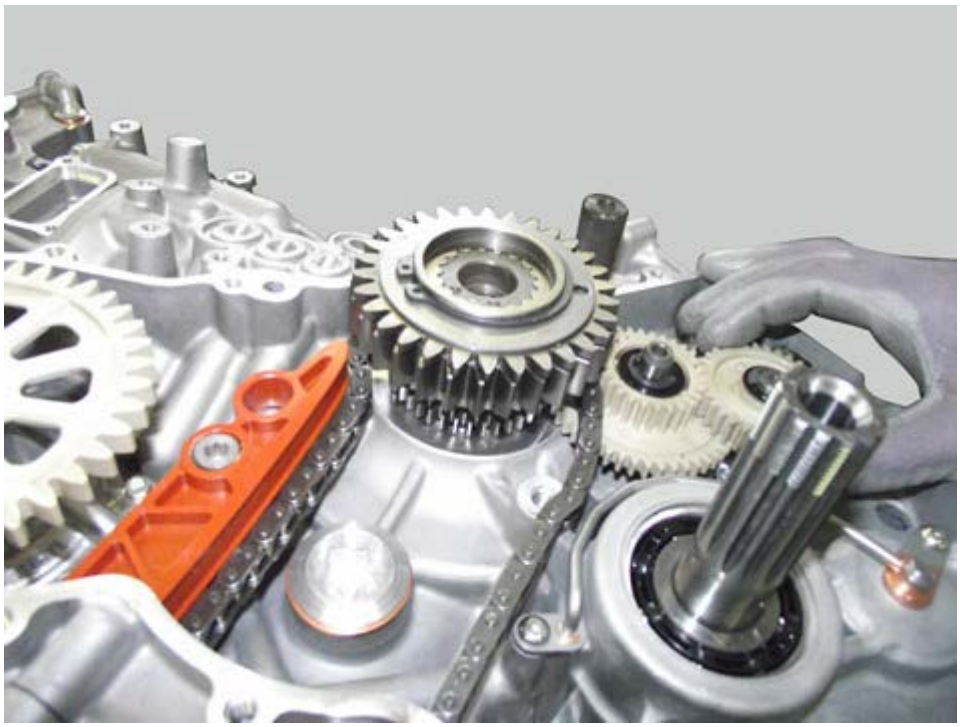
Vertical head chain reassembly

Fit chain with split gear transmission in the timing compartment.
Wrap the chain on crankshaft.

http://www.ducati-manuals.com
no. 140312

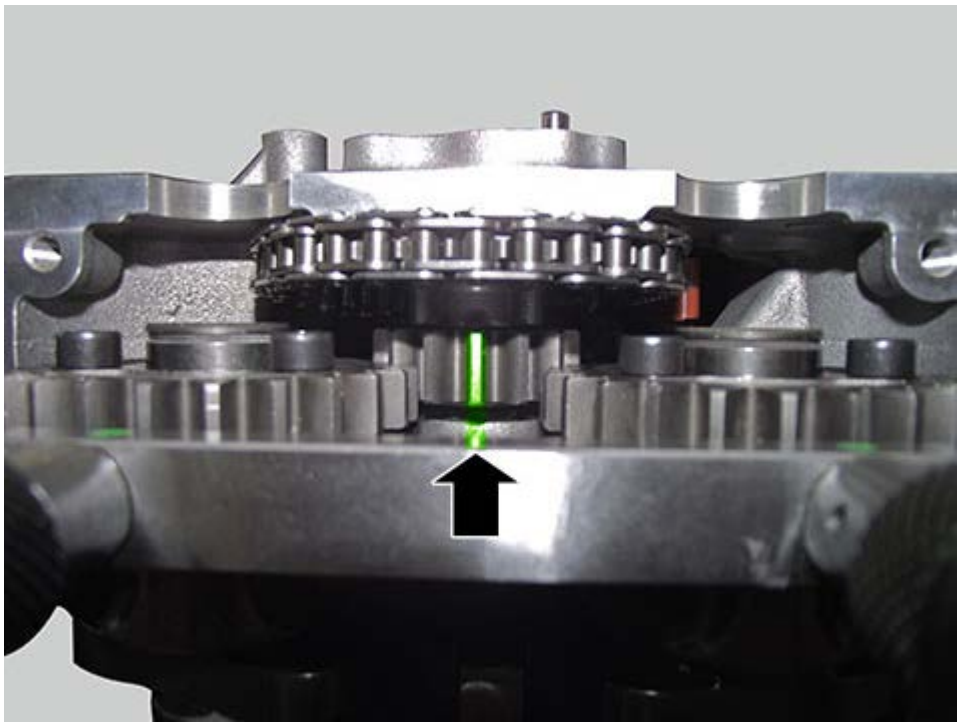


Verify that the crankshaft is on TDC of the vertical cylinder, in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
If a reassembly of the horizontal cylinder transmission has been already carried out, in order to reach this condition it is needed to turn by 270° the crankshaft in the operating direction.
Fit sprocket of the primary transmission, making sure that the two drive gear pins of oil pressure pump control fit into the engine sprocket holes.
Hold the chain against the fixed slider.

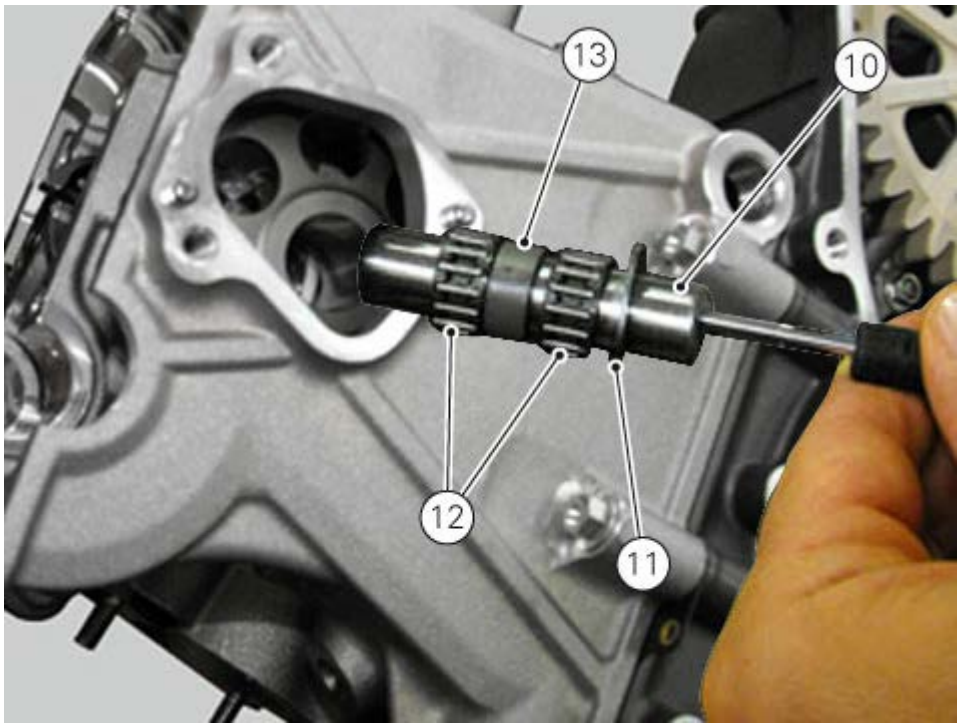


Check that one split gear retainer is placed on cylinder head reference, as shown in the picture.

http://www.ducati-manuals.com
no. 140312

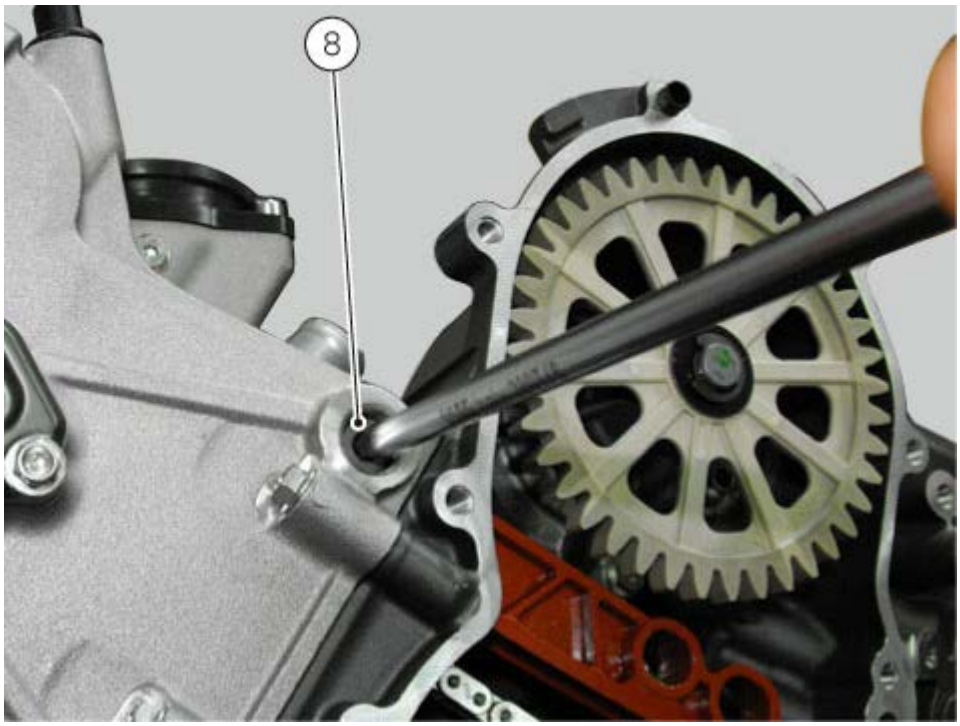


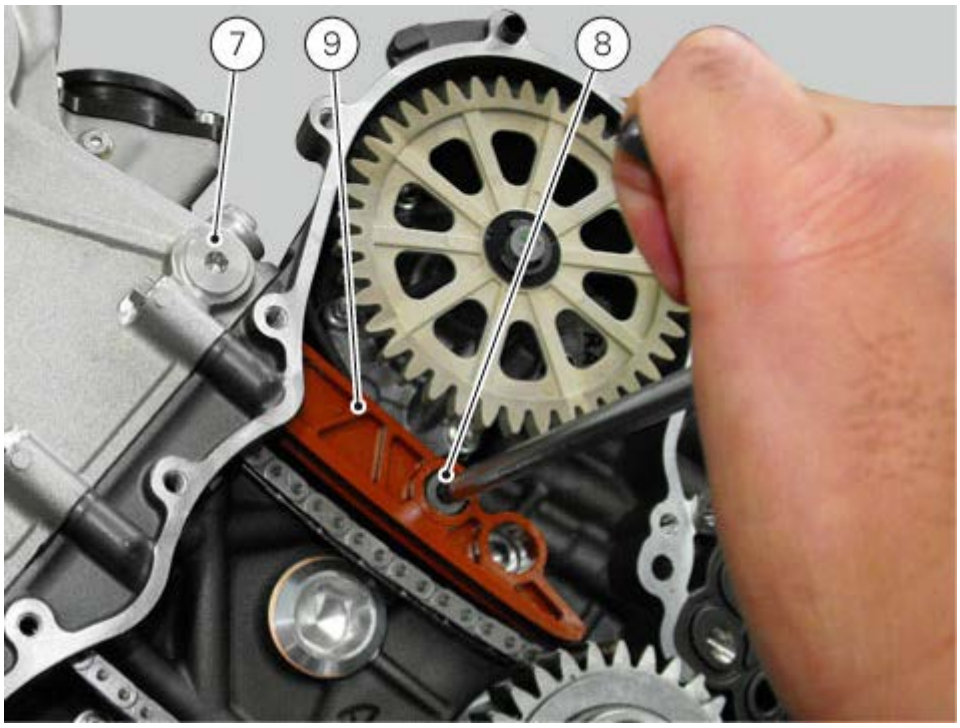
Insert pin (10) with bearing (12), spacer (13) and another bearing (12) on cylinder head.
Fit the shim (11).



Install pin (8) of the fixed slider located at the basis of the cylinder head.
Install plug (7), previously opened to reach the fixed slider pin located at the basis of the cylinder head and tighten it to 17 Nm (Min. 16 Nm - Max. 18 Nm).

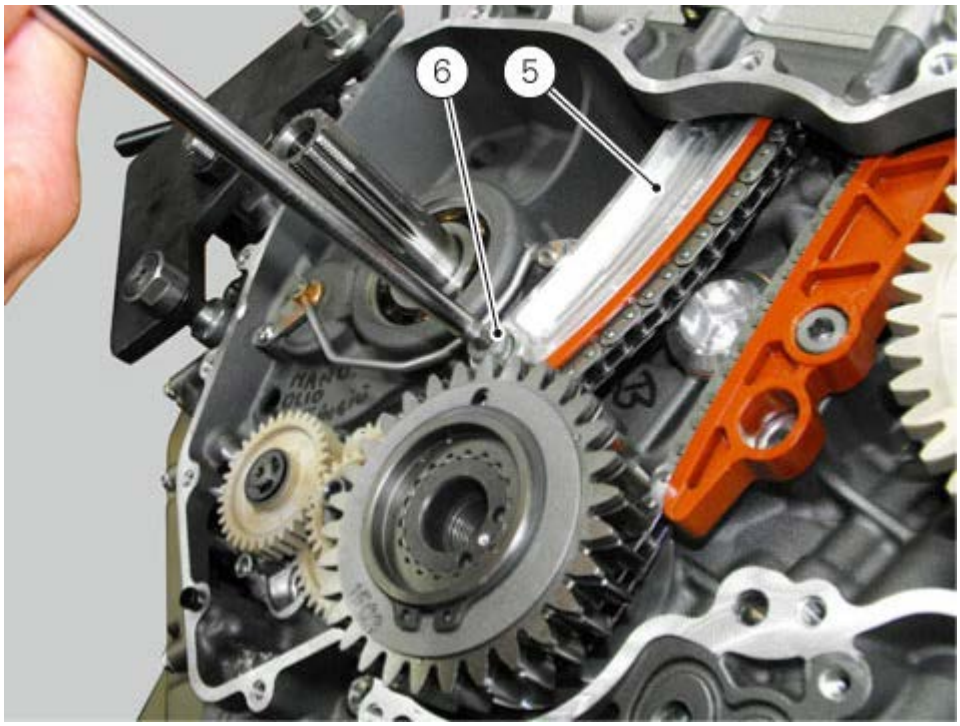
http://www.ducati-manuals.com
no. 140312



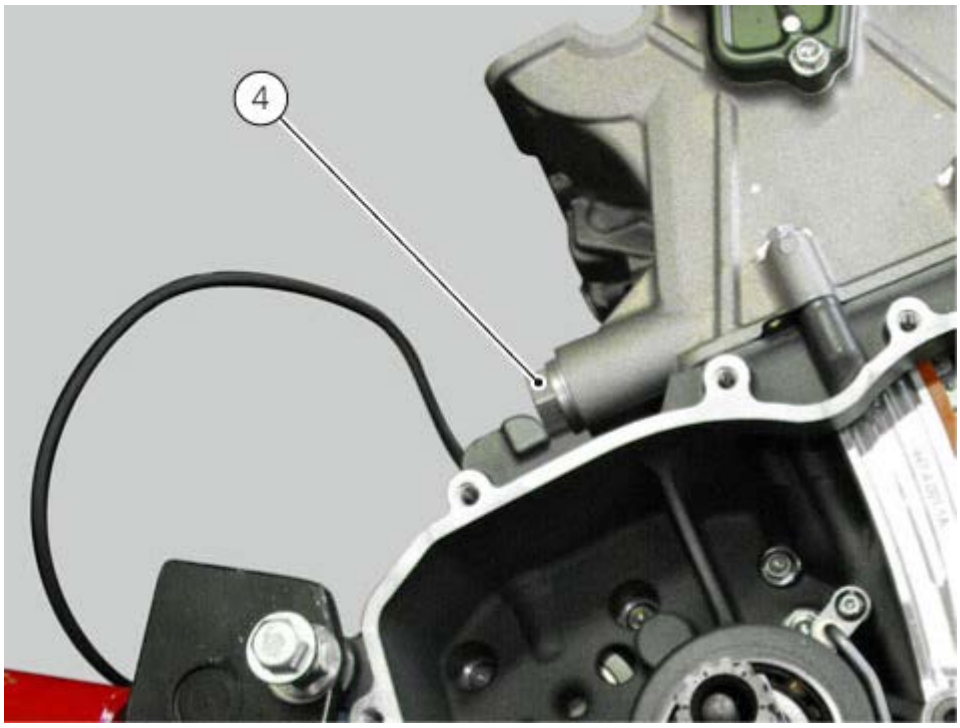


Place mobile slider (5) and tighten fixing pin (6) to a value of 20 Nm (Min. 18 Nm - Max. 22 Nm).

http://www.ducati-manuals.com
no. 140312



Place tensioner (4) and tighten it to a torque of 25 Nm (Min. 23 Nm – Max. 27 Nm) making sure that chain is centred on the sliders.



Install camshafts on the cylinder head, with aligned reference surfaces and fitting the timing tool part no. **88765.1678**.

http://www.ducati-manuals.com
no. 140312



Fully loosen the two screws in view (one on each camshaft), apply threadlocker as per the chart and tighten to a torque of 19 Nm (Min. 18 Nm - Max. 20 Nm).
Remove tool part no. **88765.1678** and tool part no. **88713.3500**.
Turn crankshaft in the running direction until two different screws are in view (A) (one on each camshaft).
Fully loosen the two screws now in view (A), apply threadlocker as per the chart and tighten to the torque specified in the relevant table.



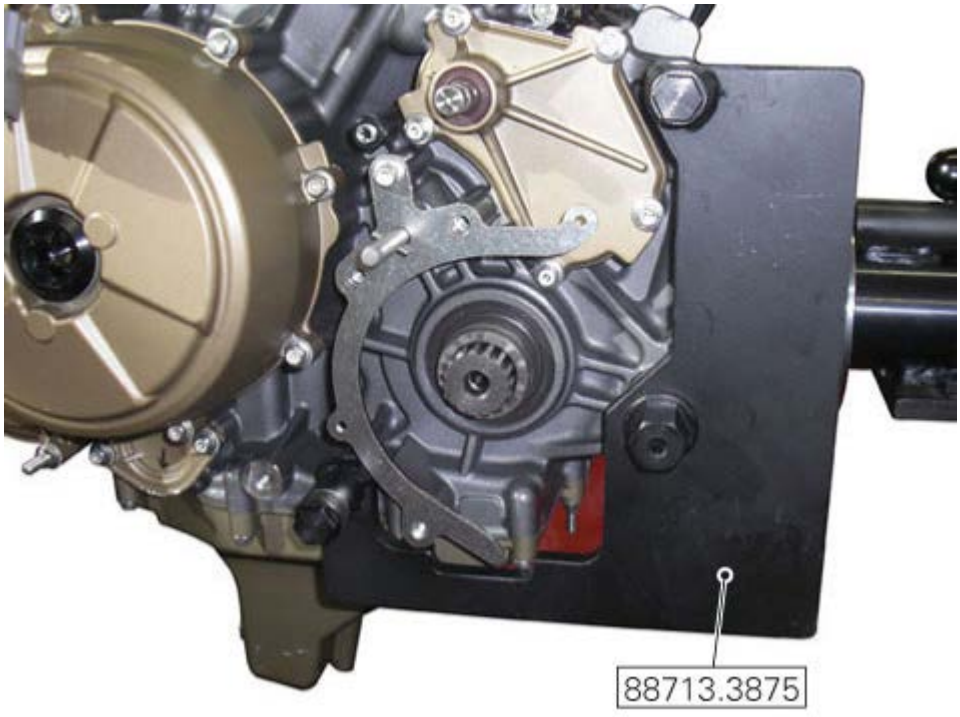
Refit the clutch cover (Refitting the clutch cover).
Refit both spark plugs (Renewal of the spark pugs).

http://www.ducati-manuals.com
no. 140312

Removal of the cylinder head without removing the timing chain

Remove engine from motorcycle (Removal of the engine (ABS version) - Removal of the engine (non-ABS version)).

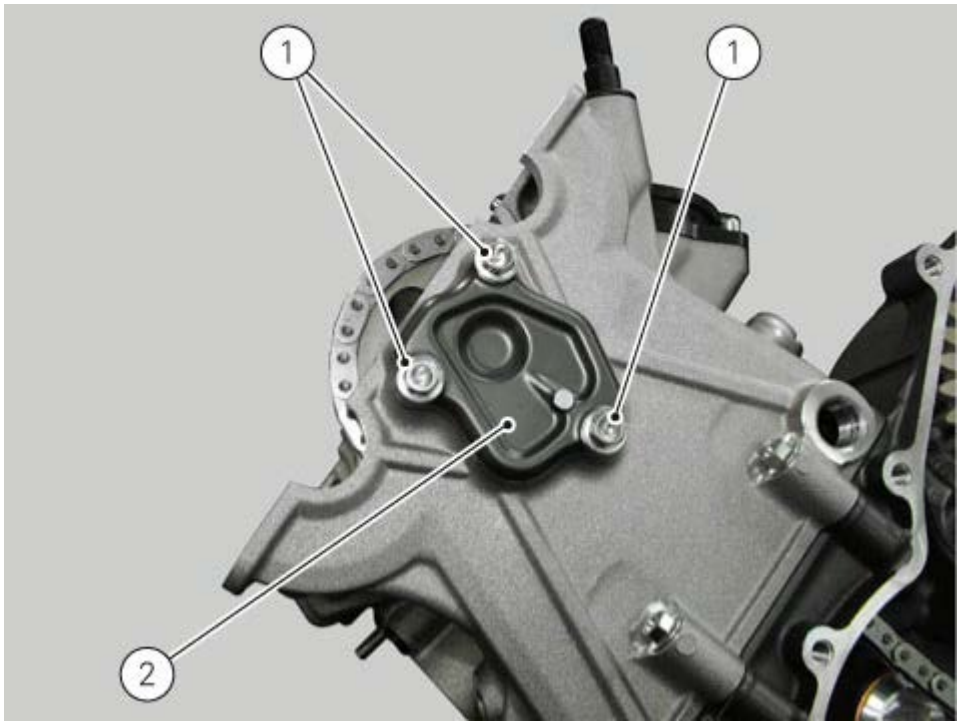
Set the engine on the relevant tool part no. **88713.3875**.



These operations refer to removal of a horizontal cylinder head. These operations also apply to the vertical cylinder head.

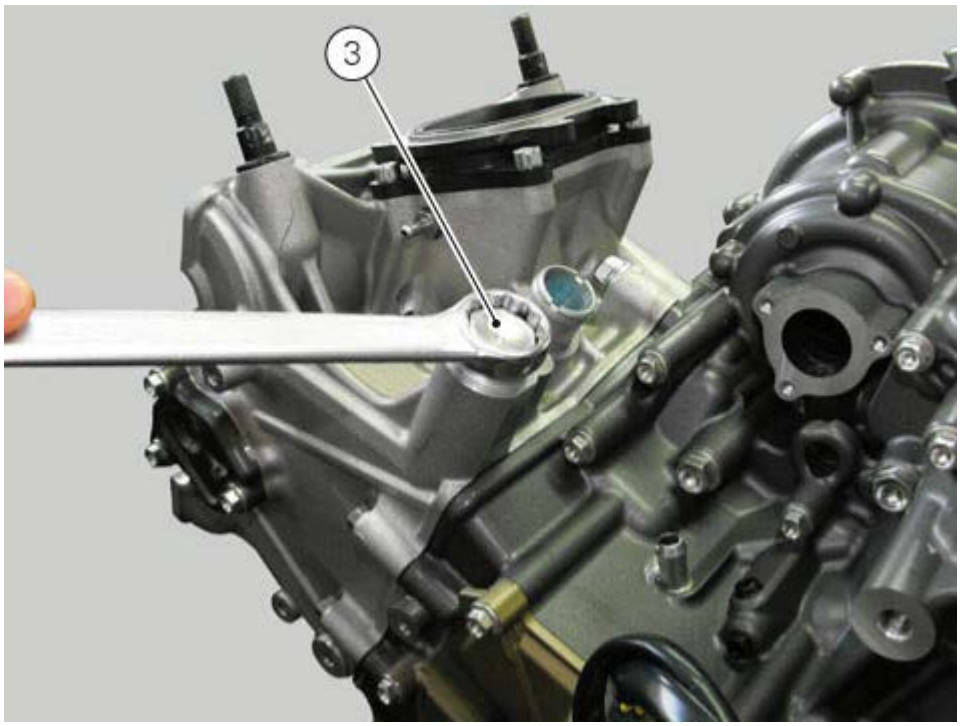
Remove both spark plugs (Renewal of the spark pugs).
Set the crankshaft at TDC in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
Remove the camshafts (Removal of the camshafts).

Loosen screws (1) and remove cover (2), paying attention to the moving parts.

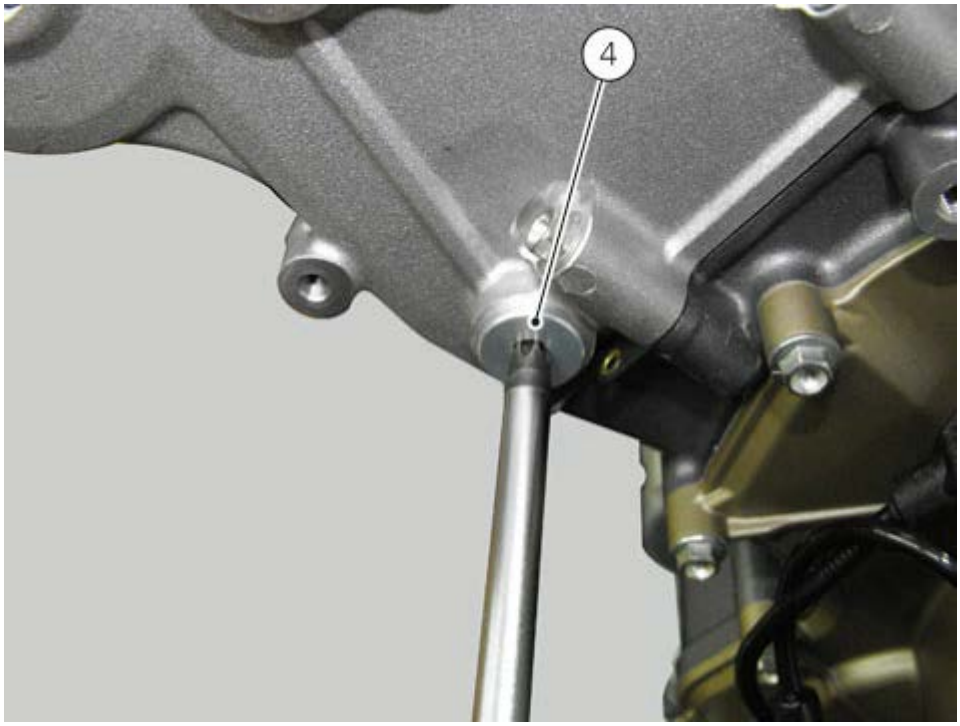


Loosen tensioner (3) and remove it.

http://www.ducati-manuals.com
no. 140312

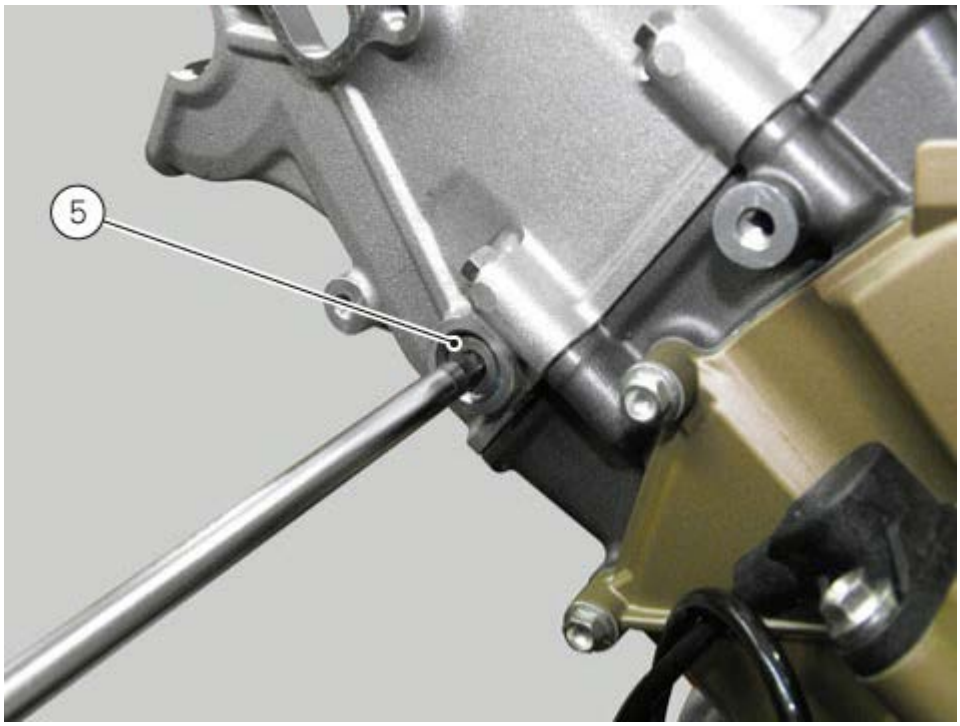


Remove plug (4) to reach the fixed slider pin located at the basis of the cylinder head.

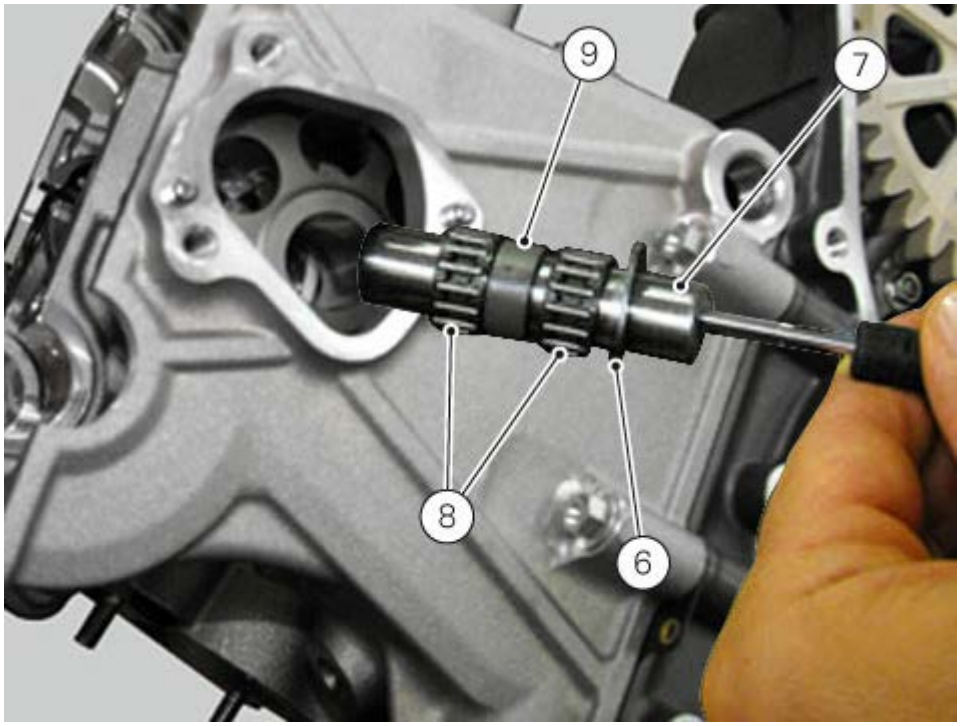


Remove pin (5) of the fixed slider located at the basis of the cylinder head.

http://www.ducati-manuals.com
no. 140312

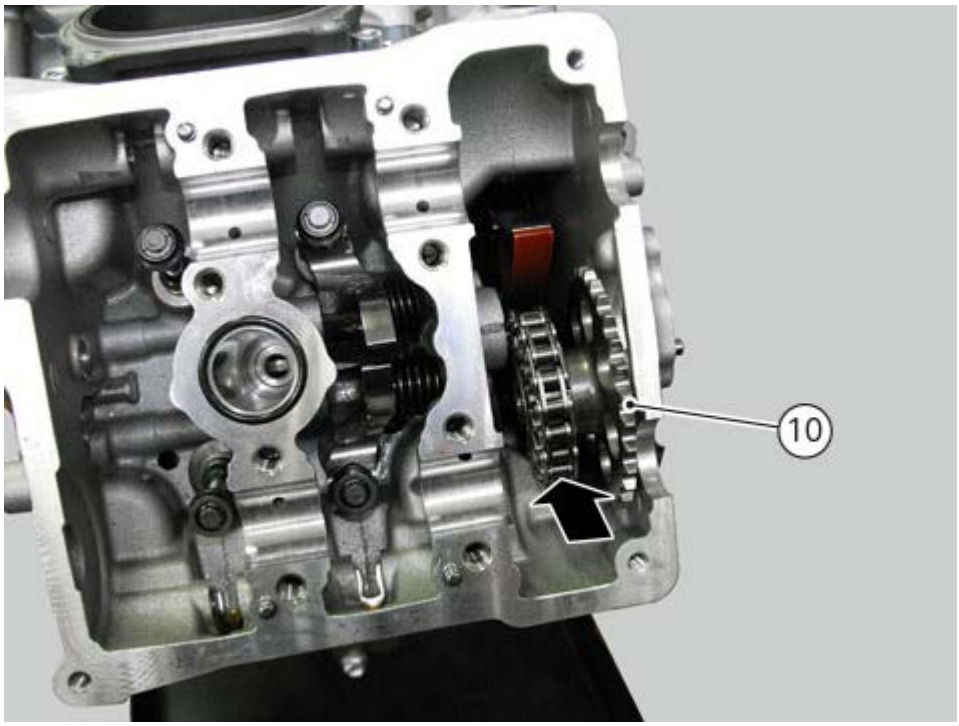


Remove shim (6), pin (7), bearings (8) and spacer (9) from timing idle gear.

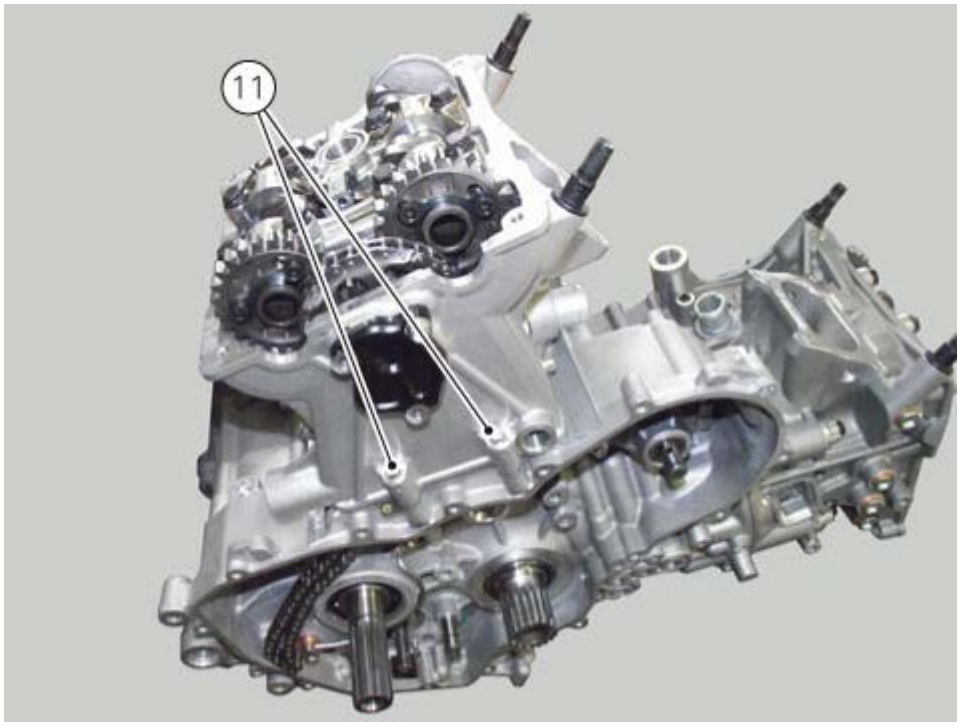


Remove chain from gear (10) making sure it will not fall inside the timing compartment.

http://www.ducati-manuals.com
no. 140312



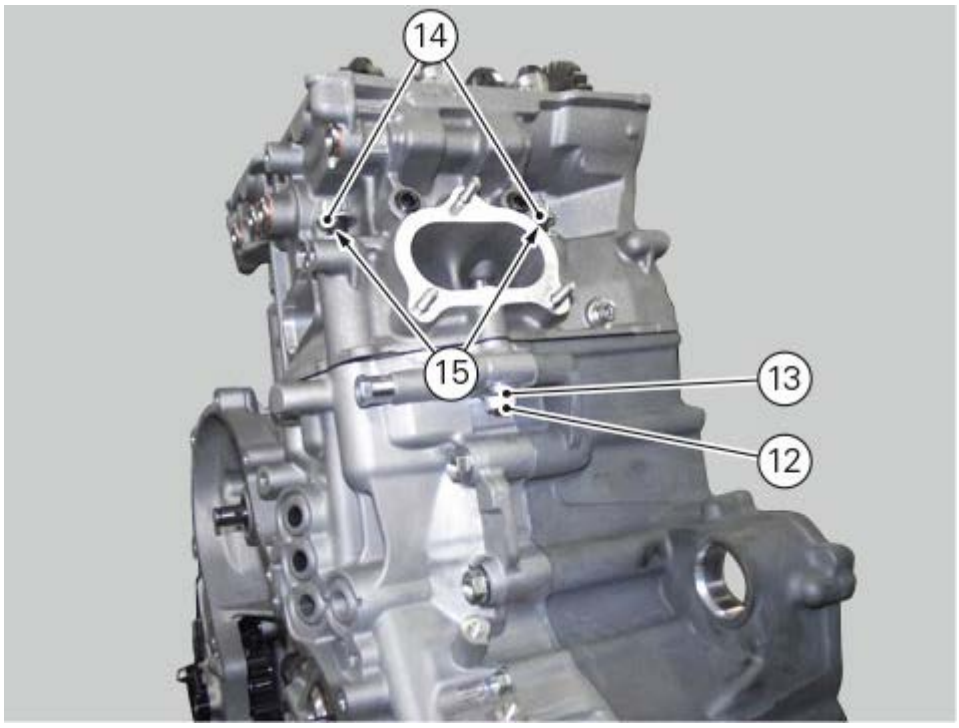
Loosen screws (11) retaining the cylinder heads on timing side.



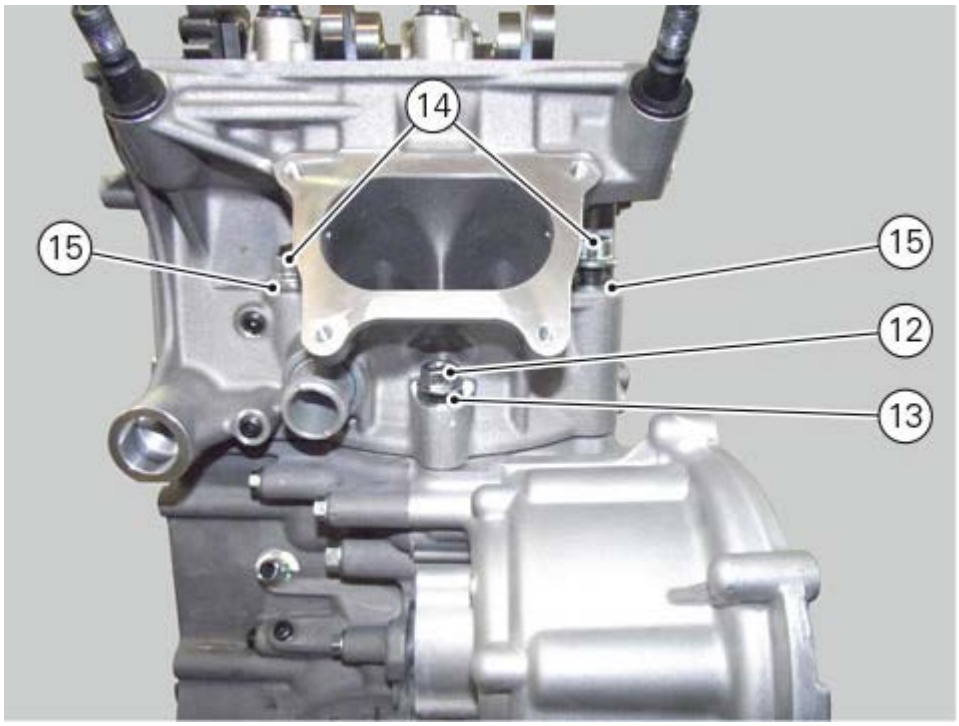
Use tool part no. **88713.2676** to loosen 8 mm nuts (12), from the stud bolts on the cylinder head.
Remove nuts (12) and collect the special washers (13) located between nut and head.
Use tool part no. **88713.3926** to loosen 10 mm nuts (14), from the stud bolts on the cylinder head.
Remove nuts (14) and collect the special washers (15) located between nut and head.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



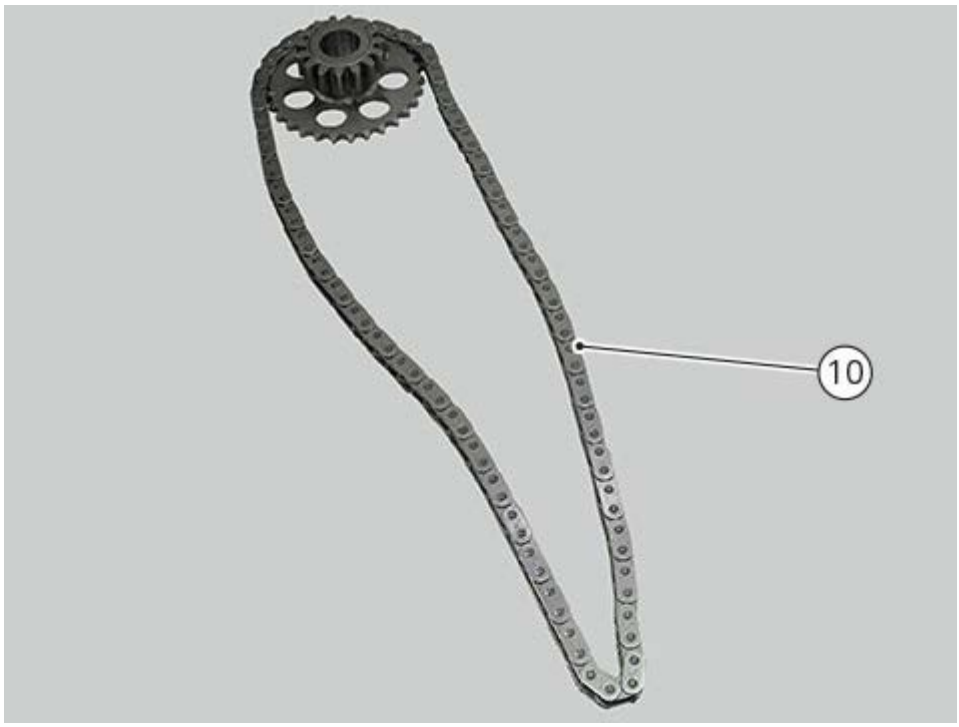
Slide out the cylinder head keeping the chain against the sliders.

http://www.ducati-manuals.com
no. 140312

Installation of the cylinder head (under Removal of the cylinder head without removing the timing chain)

Note
Make sure the cylinder-head gasket, centring pins on the case surface and the bushing for oil passage to the heads are in the correct position.

These operations refer to refitting a horizontal cylinder head. These operations also apply to the vertical cylinder head.
Wrap chain (10) on the hub of the idle split gear, between the two ranges of teeth.



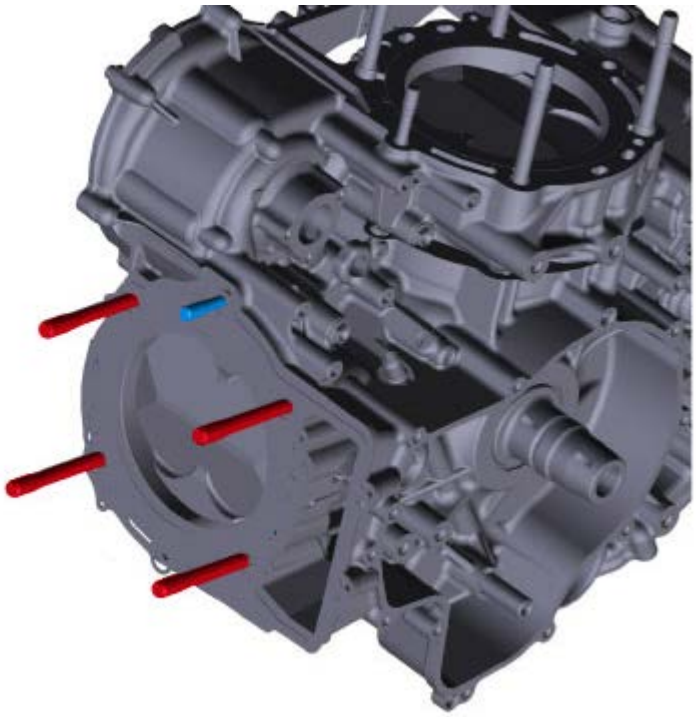
Insert the idle split gear with chain from the bottom of the timing compartment in the head.
Grab the idle split gear with chain from the top of the timing compartment.

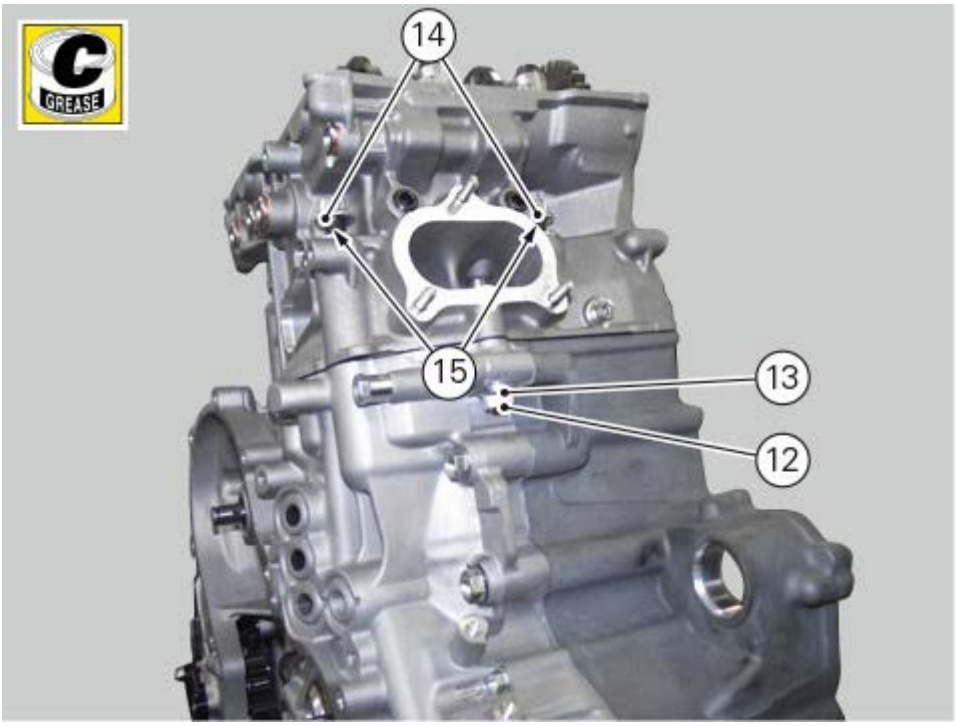


Install head onto stud bolts.
Apply specified grease on underside of nuts (12) and (14) and on stud bolt thread.
Install washers (13) and (15) onto stud bolts.

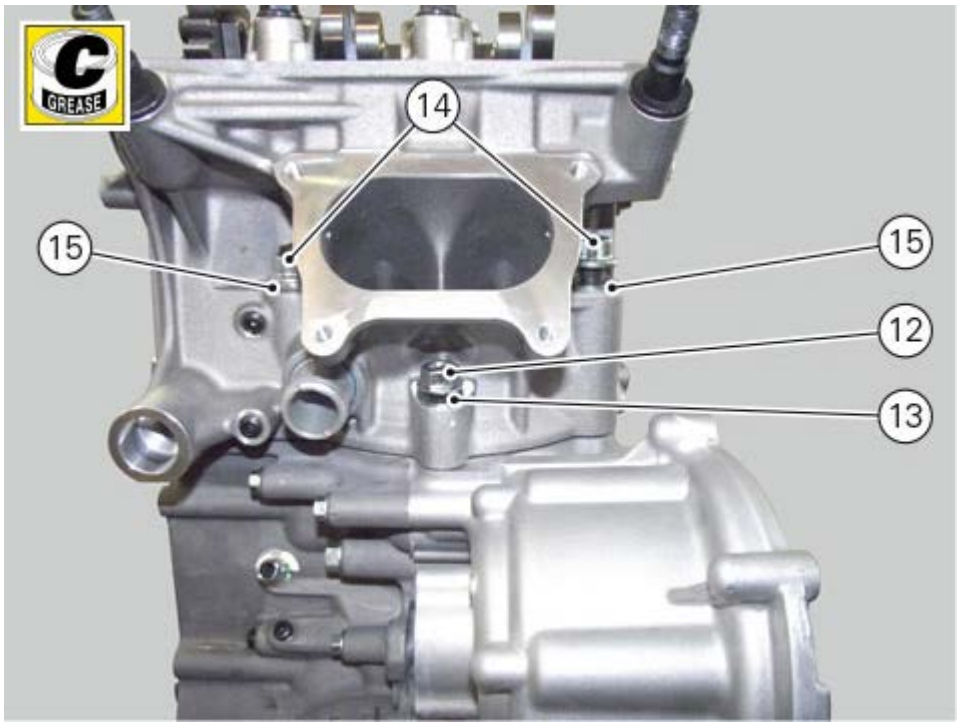
http://www.ducati-manuals.com
no. 140312

Start the head nuts on stud bolt thread in a cross pattern using tool part no. **88713.2676** for nuts (12) and tool part no. **88713.3926** for nuts (14), with a torque wrench.

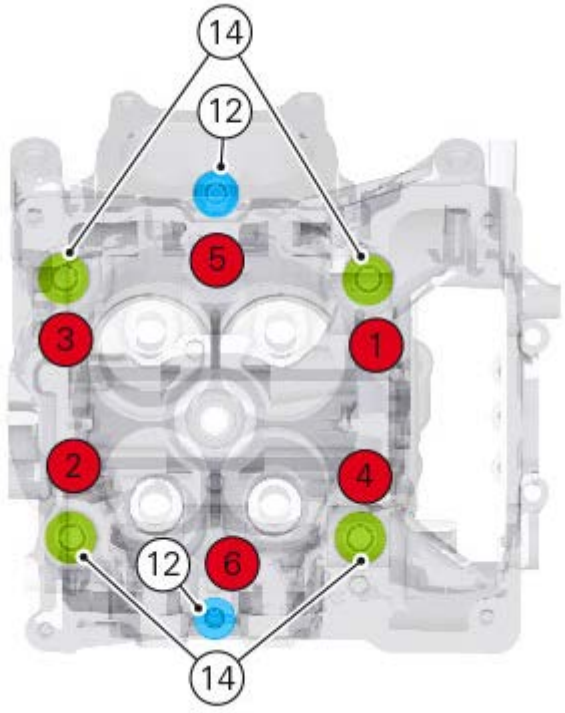




http://www.ducati-manuals.com
no. 140312

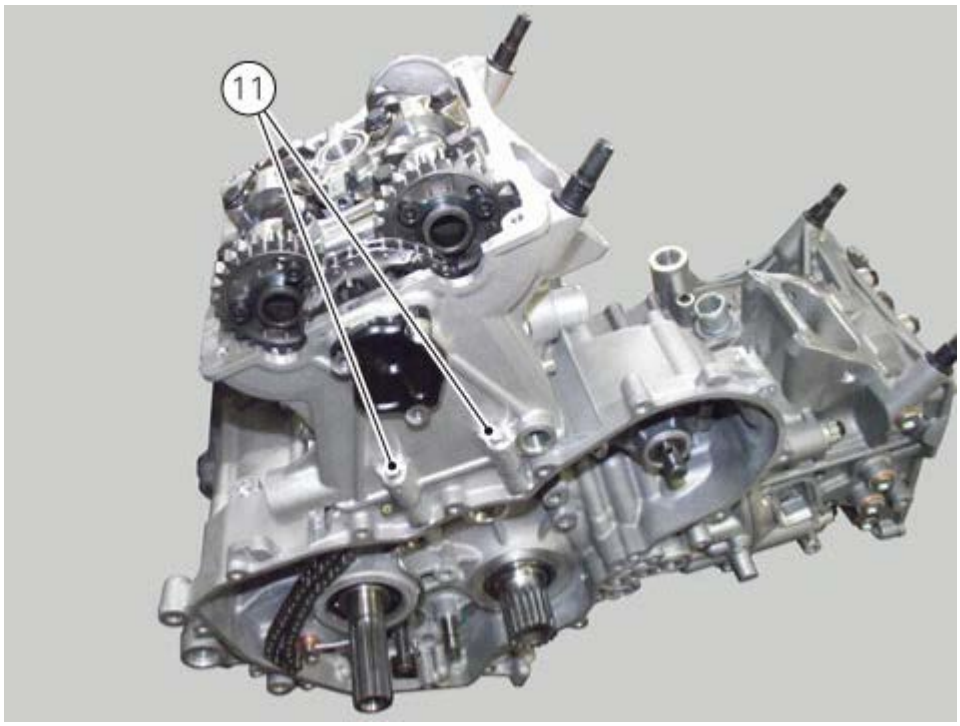


Tighten nuts (14) first to 20 Nm in a 1-2-3-4 sequence.
As a second step, tighten nuts (14) to a torque of 40 Nm (Min. 38 Nm – Max. 42 Nm) in the following sequence: 1-2-3-4.
Tighten nuts (14) to a torque of 67 Nm (Min. 64 Nm – Max. 70 Nm) in the following sequence: 1-2-3-4.
Start nuts (12) in the following sequence: 5-6.
Tighten nuts (12) to a torque of 28.5 Nm (Min. 27 Nm – Max. 30 Nm) in the following sequence: 5-6.



Start the screws (11) securing heads on timing side and tighten them to a torque of 13 Nm (Min. 12 Nm - Max. 14 Nm).

http://www.ducati-manuals.com
no. 140312



Use tool part no. **88713.3500** to lock out the crankshaft.

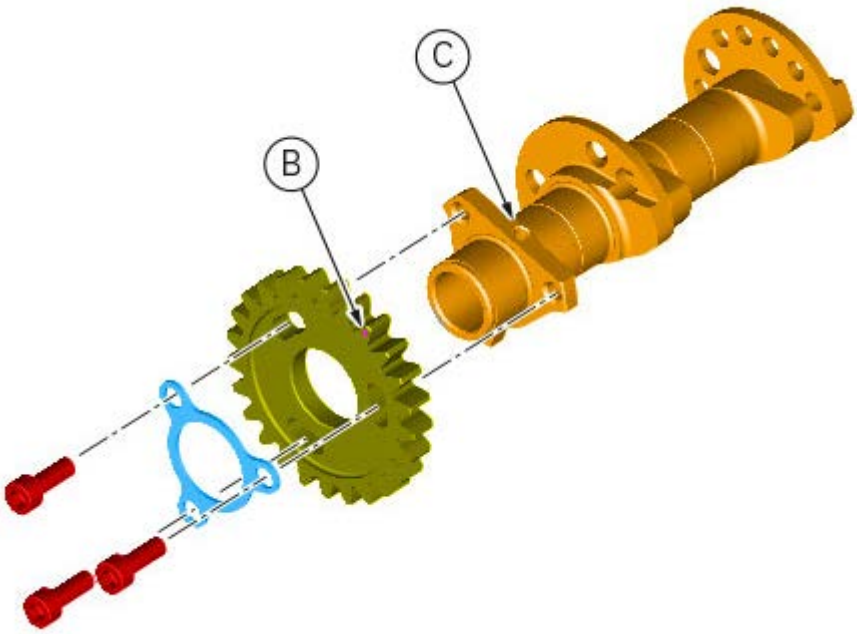


Loosen and remove screws (A) from camshaft gears; clean any residue of threadlocker. Reposition screws (A) without tightening them.

http://www.ducati-manuals.com
no. 140312

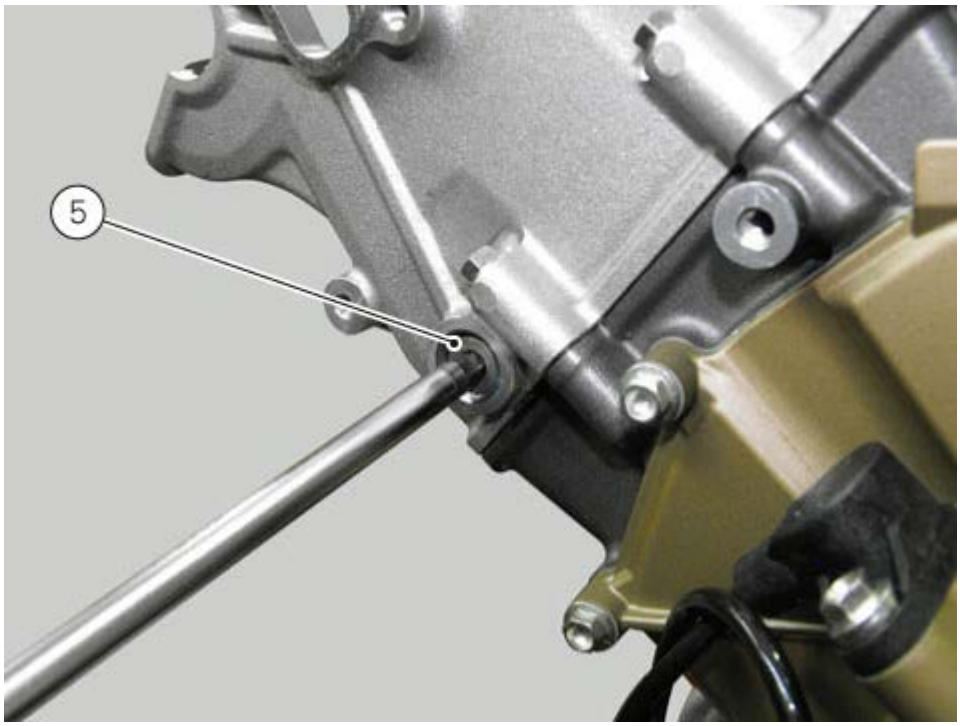


Make sure that the timing mark (B) on camshaft gear matches with hole (C) on camshaft reference surface.

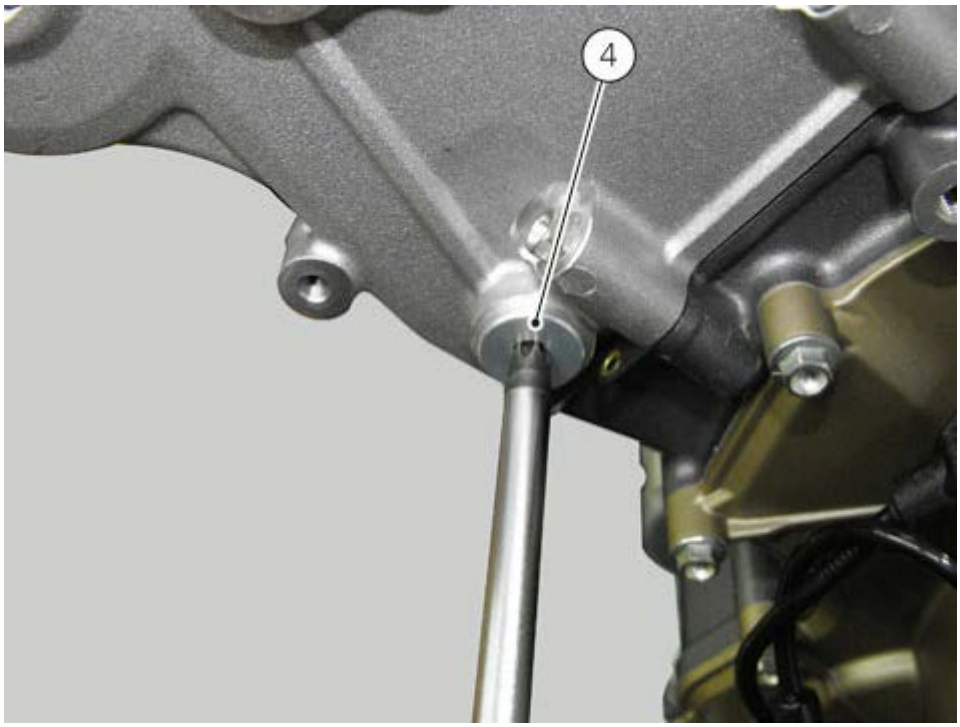


Install pin (5) of the fixed slider located at the basis of the cylinder head.

http://www.ducati-manuals.com
no. 140312

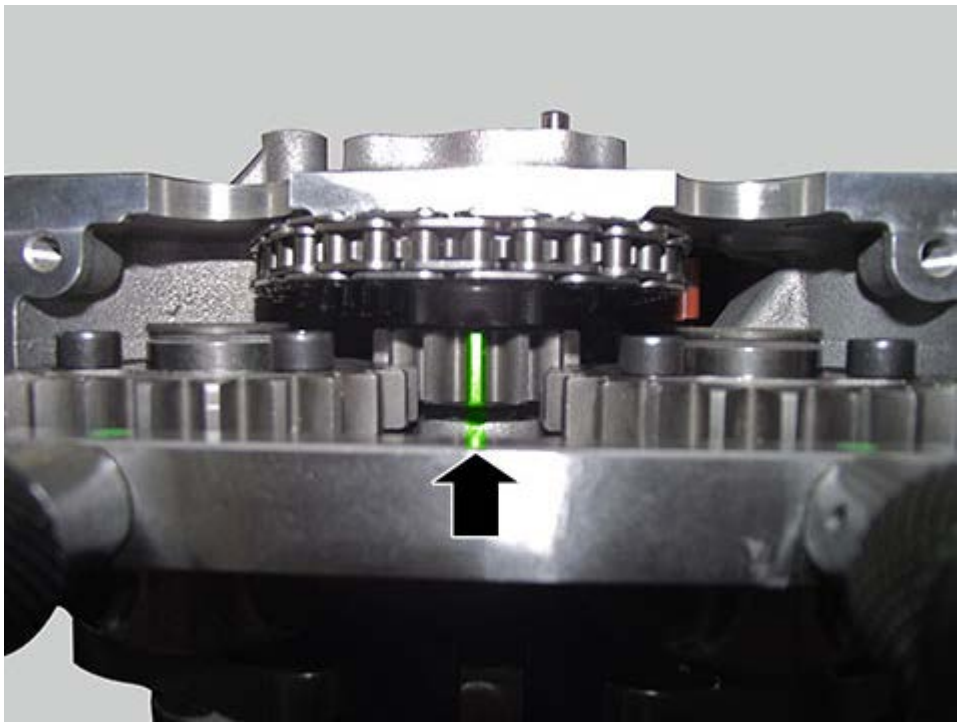


Install plug (4), previously opened to reach the fixed slider pin located at the basis of the cylinder head and tighten it to 17 Nm (Min. 16 Nm - Max. 18 Nm).

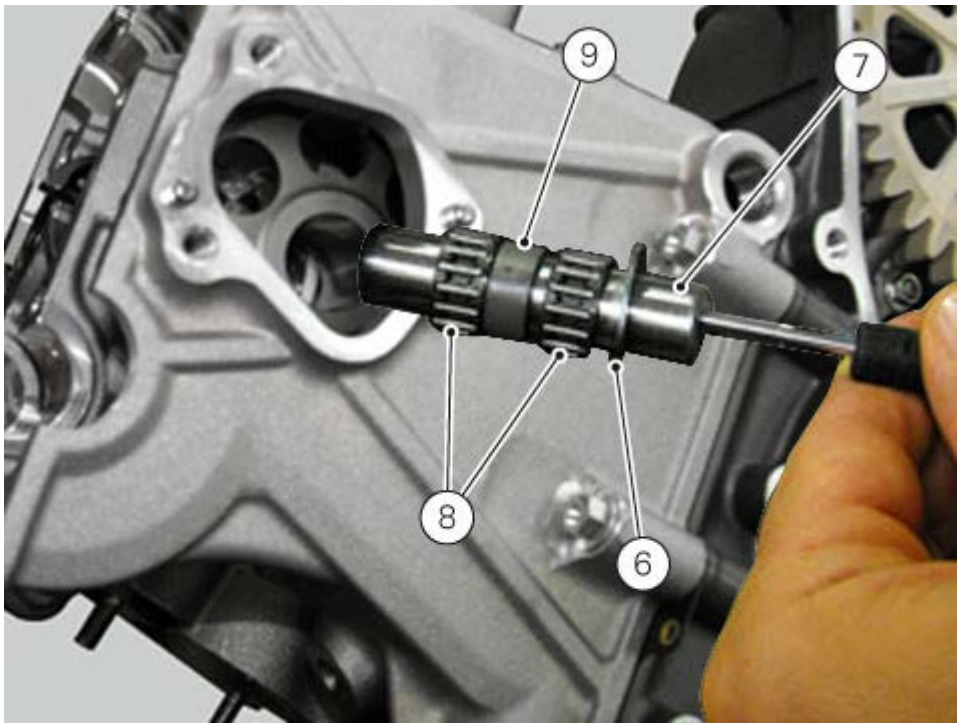


Hold the chain against the fixed slider.
Make sure that a tooth of the idle split gear is positioned on the head reference.

http://www.ducati-manuals.com
no. 140312

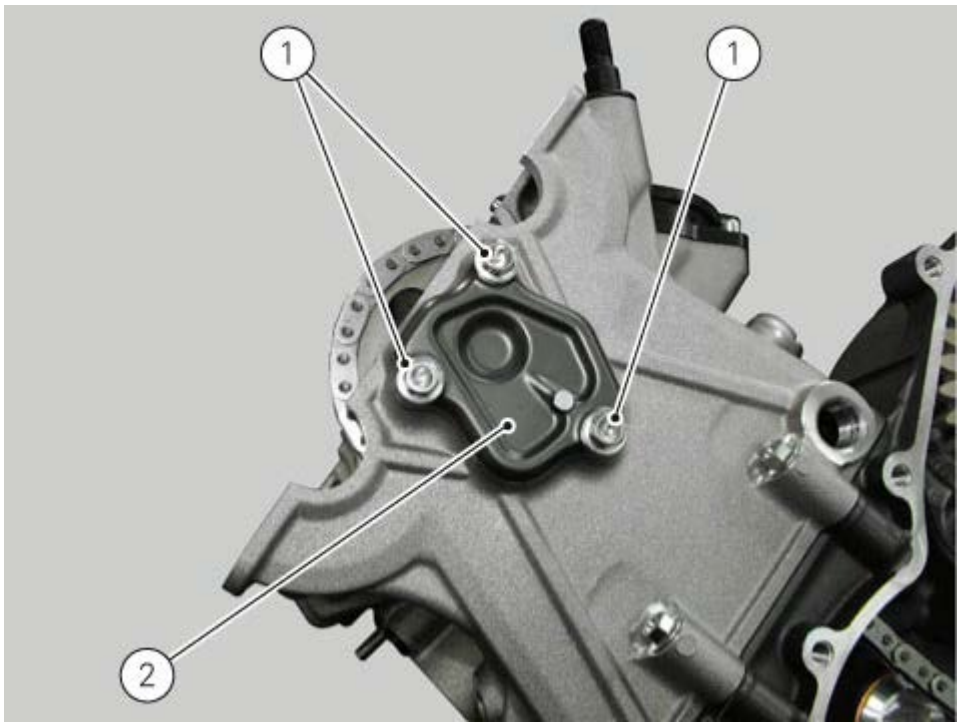


Insert pin (7) with a bearing (8), a spacer (9) and another bearing (8) on the cylinder head.
Fit the shim (6).

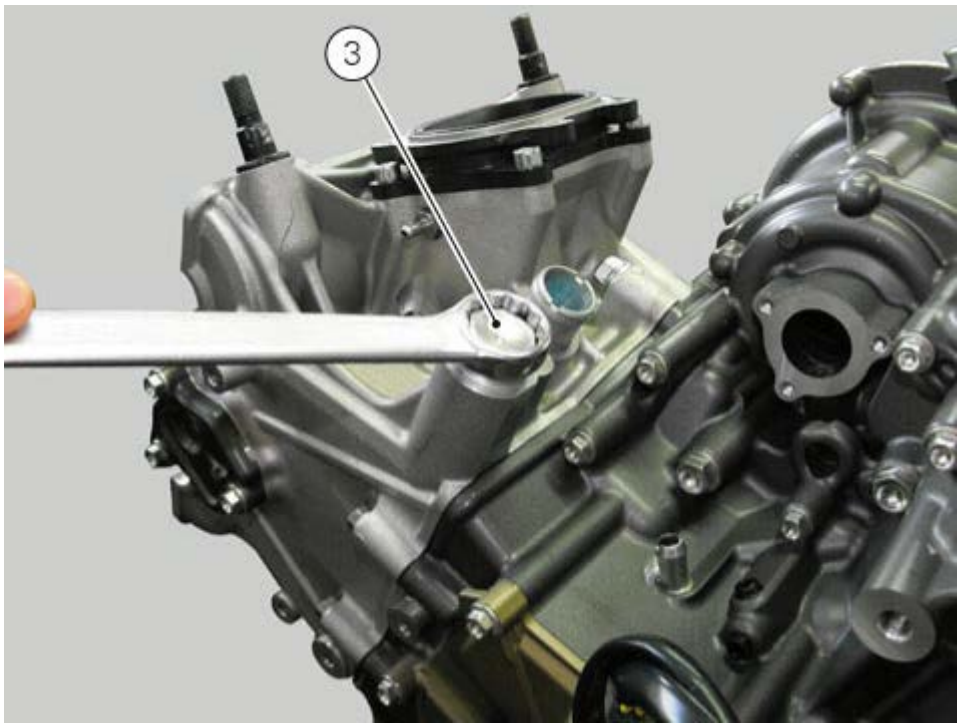


Apply Ducati sealing compound onto pin cover (2).
Position cover and tighten the screws (1) to a torque of 10 Nm (Min. 9 Nm - Max. 11 Nm).

http://www.ducati-manuals.com
no. 140312



Position tensioner (3) and tighten it to a torque of 25 Nm (Min. 23 Nm – Max. 27 Nm) making sure that chain is centred on the sliders.



Install camshafts on the cylinder head, with aligned reference surfaces and fitting the timing tool part no. **88765.1678**.

http://www.ducati-manuals.com
no. 140312



Fully loosen the two screws in view (one on each camshaft), apply threadlocker as per the chart and tighten to a torque of 19 Nm (Min. 18 Nm - Max. 20 Nm).
Remove tool part no. **88765.1678** and tool part no. **88713.3500**.
Turn crankshaft in the running direction until two different screws are in view (A) (one on each camshaft).
Fully loosen the two screws now in view (A), apply threadlocker as per the chart and tighten to the torque specified in the relevant table.



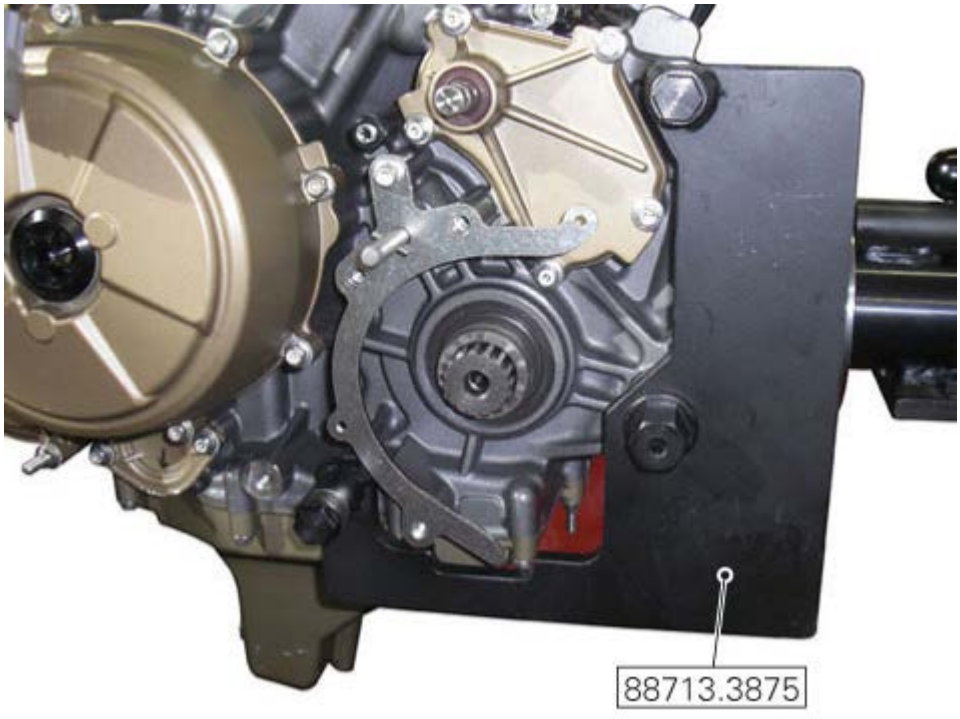
Refit both spark plugs (Renewal of the spark pugs).
Reinstall engine to the vehicle (Installation of the engine (ABS version) - Installation of the engine (non-ABS version))

http://www.ducati-manuals.com
no. 140312

Removal of the cylinder heads and the timing chain

Remove engine from motorcycle (Removal of the engine (ABS version) - Removal of the engine (non-ABS version)).

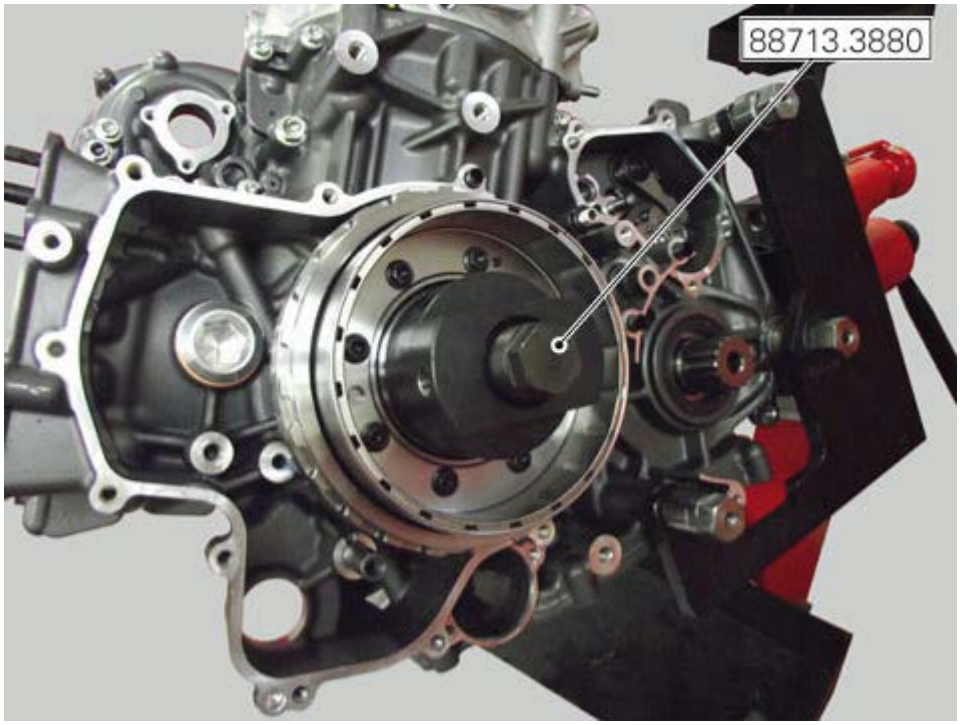
Set the engine on the relevant tool part no. **88713.3875**.



These operations refer to removal of a horizontal cylinder head. These operations also apply to the vertical cylinder head.

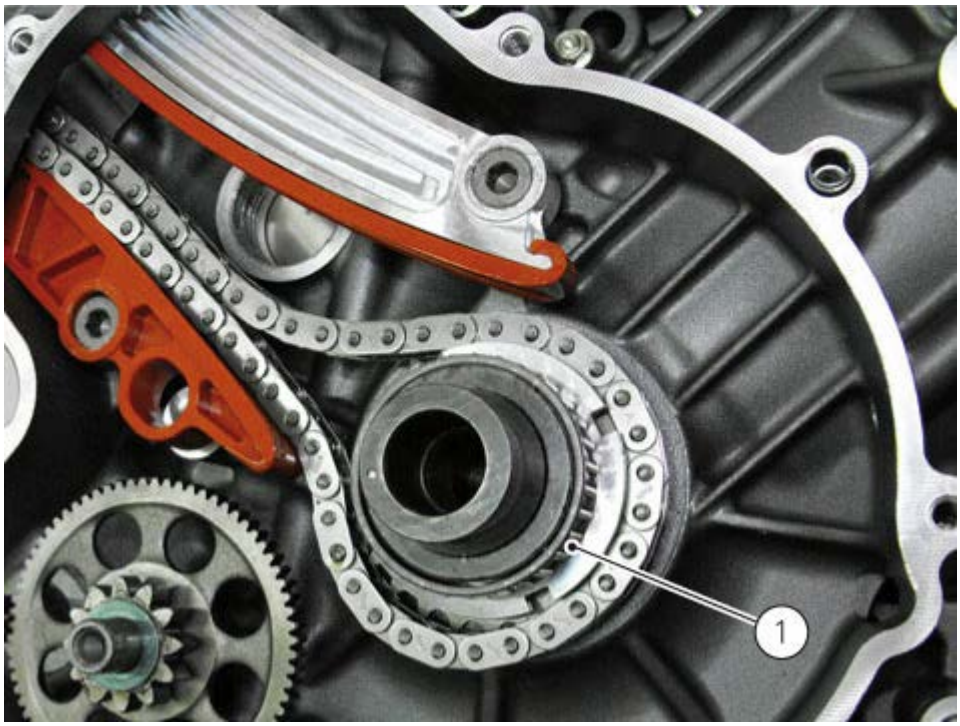
Remove both spark plugs (Renewal of the spark pugs).
Set the crankshaft at TDC in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
Remove the camshafts (Removal of the camshafts).

Remove flywheel with the special puller tool, part no. **88713.3880**.

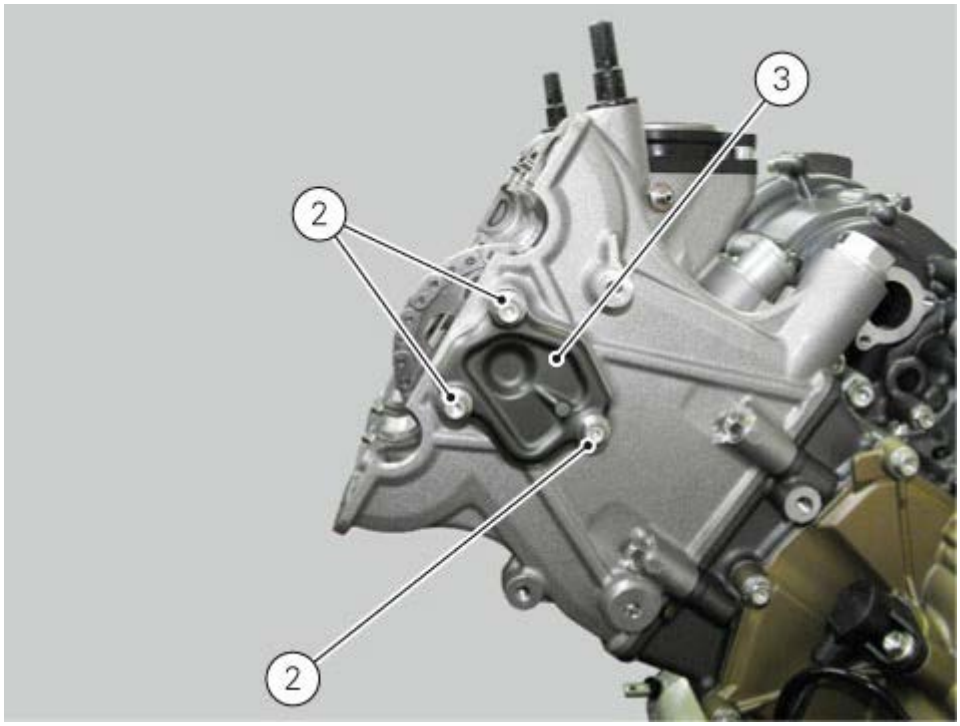


Slide out roller cage (1).

http://www.ducati-manuals.com
no. 140312

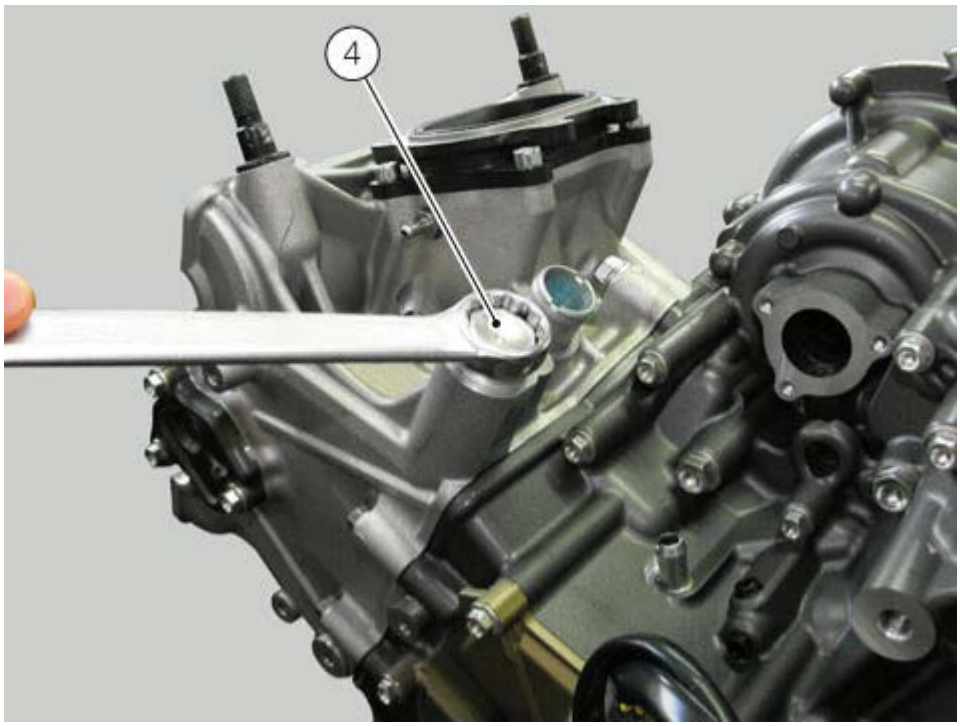


Loosen screws (2) and remove cover (3), paying attention to moving parts.



Loosen tensioner (4) and remove it.

http://www.ducati-manuals.com
no. 140312

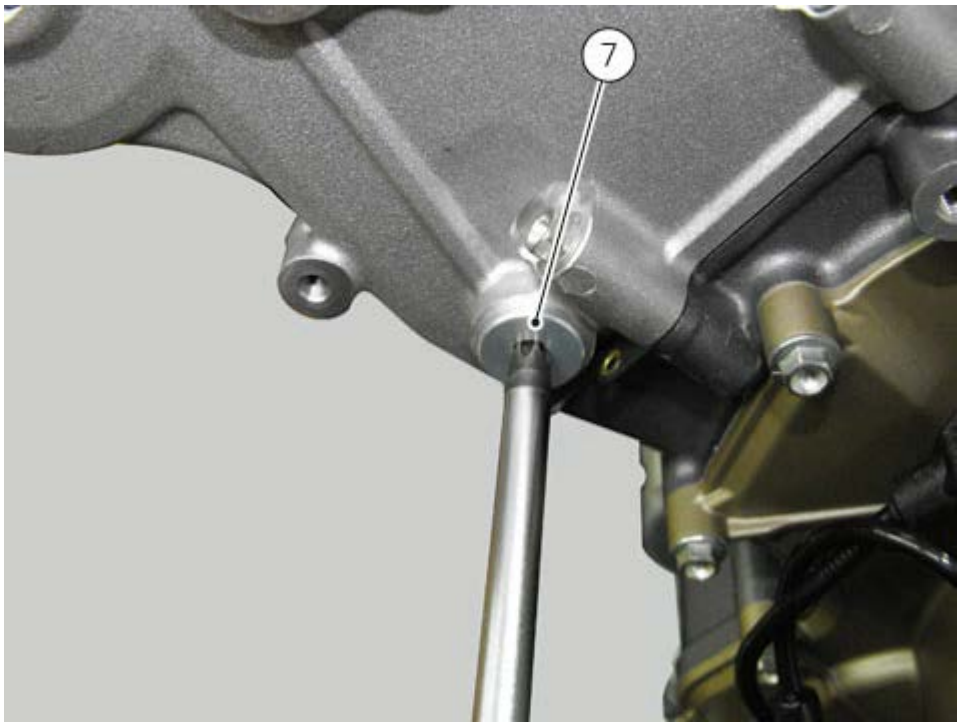


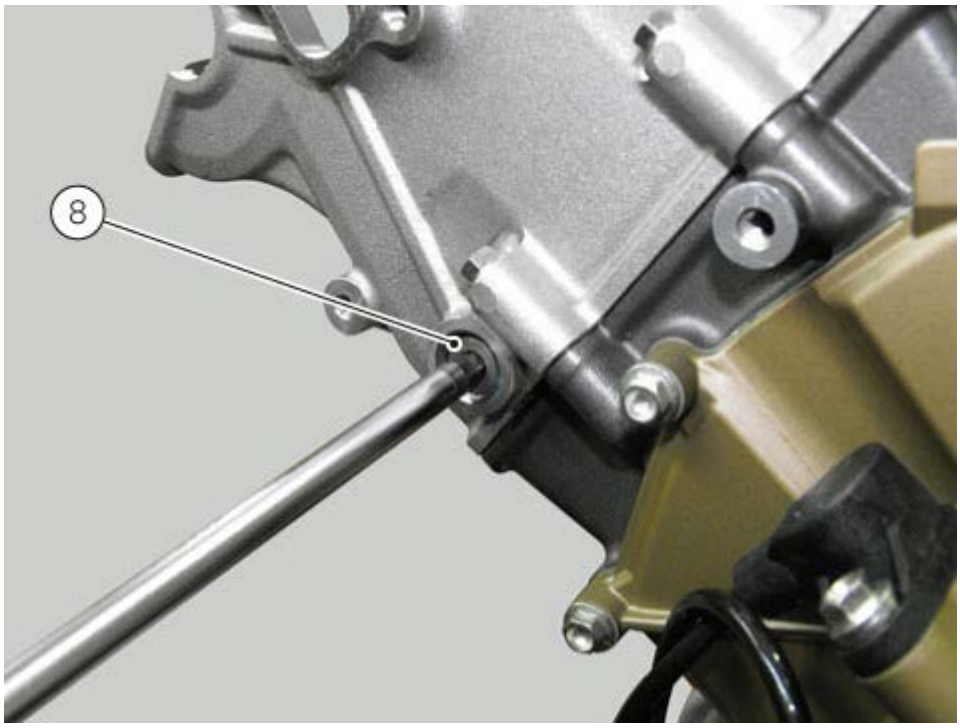
Remove mobile slider (5) by loosening pin (6).



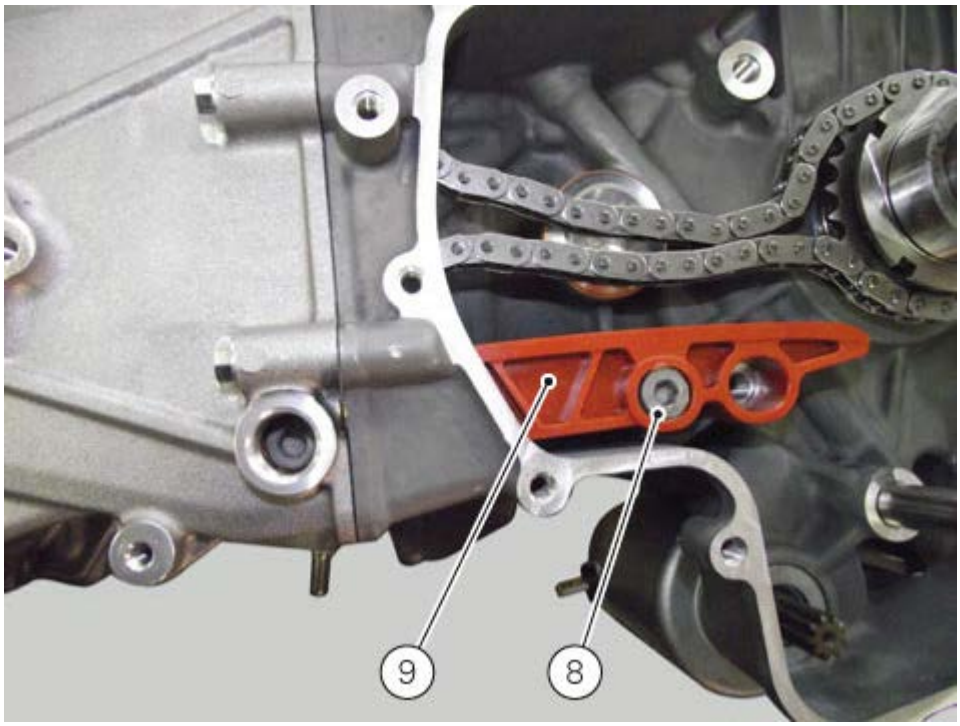
It is recommended to remove fixed slider (9) by loosening fixing pins (8).
Remove plug (7) to reach the fixed slider pin located at the basis of the cylinder head.
Remove fixed slider pin (8).

http://www.ducati-manuals.com
no. 140312

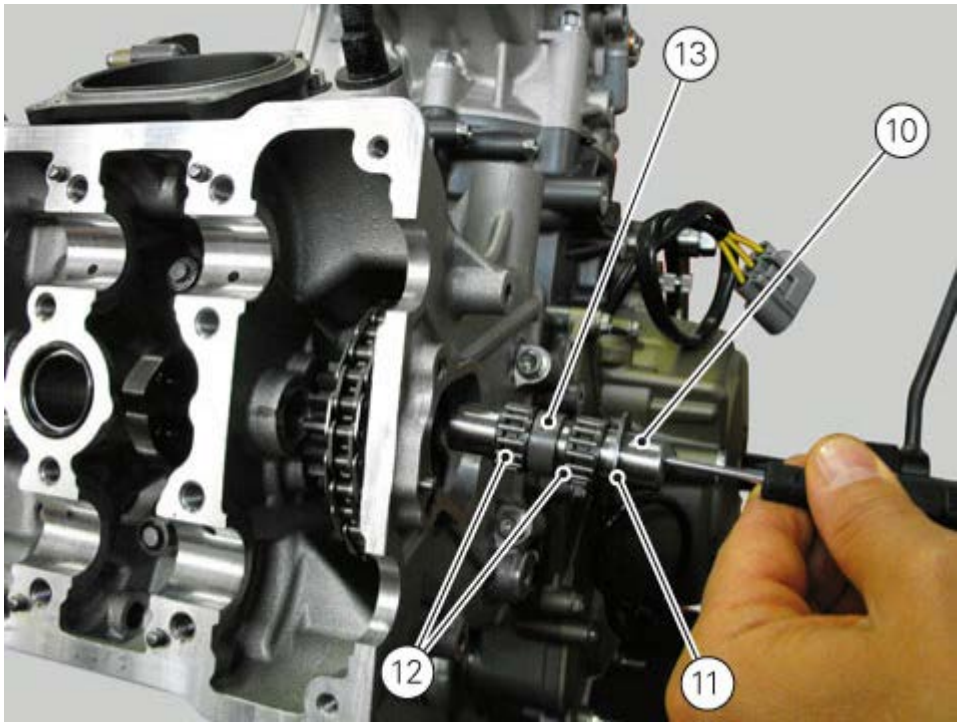




http://www.ducati-manuals.com
no. 140312

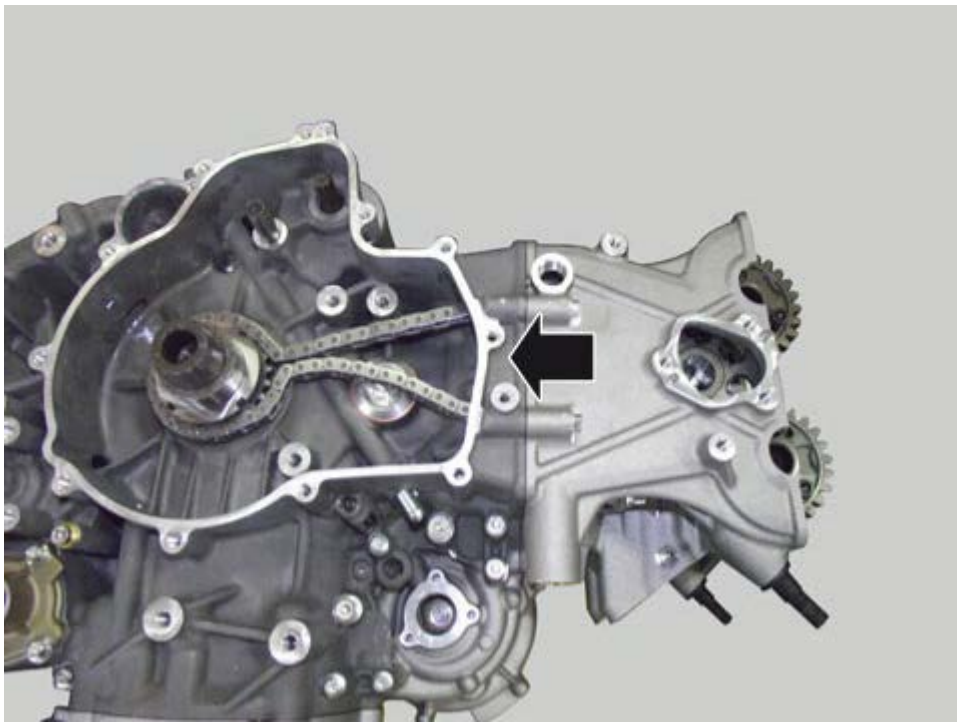


Remove shim (11), pin (10), bearings (12) and spacer (13) from timing transmission.



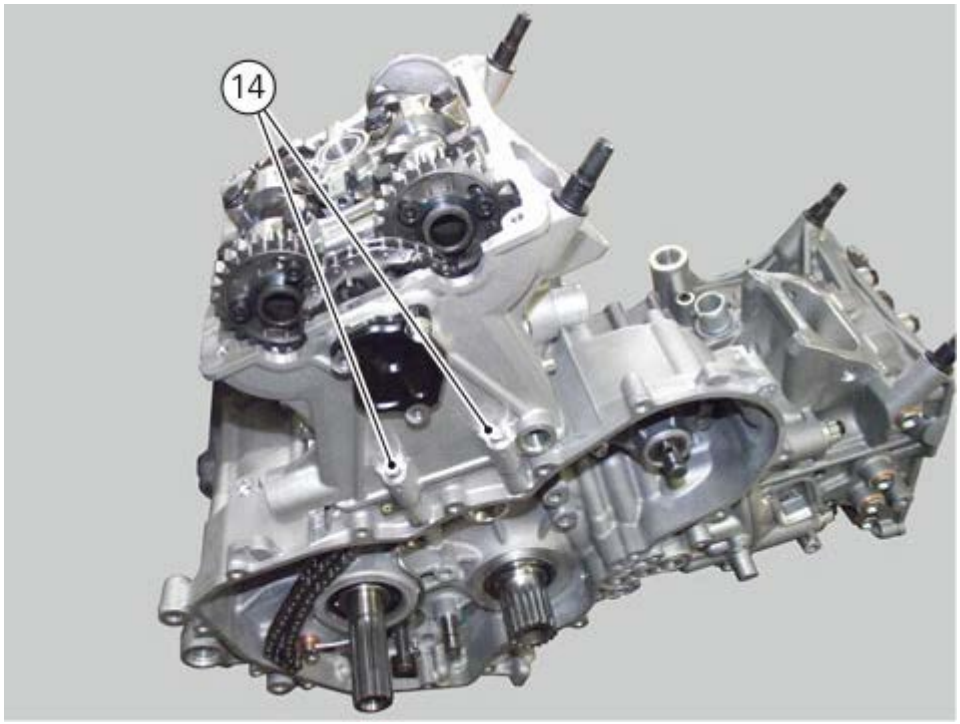
Slide drive gear with chain towards crankshaft.
Slide out the chain from crankshaft.
At this stage the chain is free.

http://www.ducati-manuals.com
no. 140312



Place split gear and chain in their original position by using only the pin and reposition the cover, so that it is possible to move the head together with the chain.

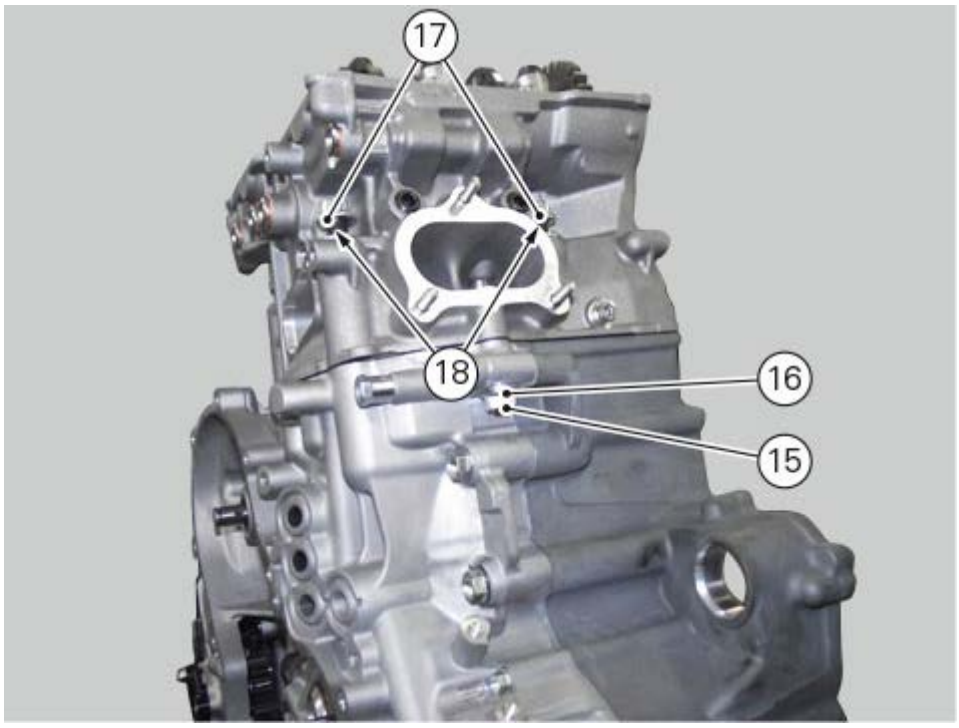
Loosen screws (14) retaining the cylinder heads on timing side.



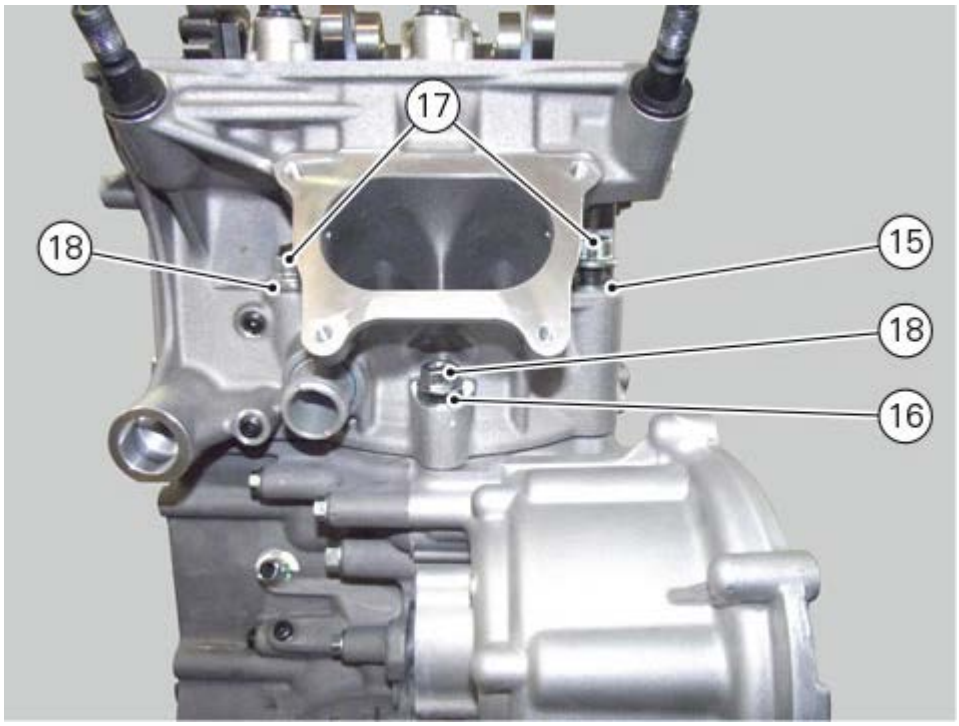
Use tool part no. **88713.2676** to loosen 8 mm nuts (15), from the stud bolts on the cylinder head.
Remove nuts (15) and recover the special washers (16) located between nut and head.
Use tool part no. **88713.3926** to loosen 10 mm nuts (17), from the stud bolts on the cylinder head.
Remove nuts (17) and recover the special washers (18) located between nut and head.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Cylinder vertical head disassembly

Remove both spark plugs (Renewal of the spark pugs).
Set the crankshaft at TDC in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
Remove clutch cover (Removing the clutch cover).
Remove water pump control idle gear water pump being careful to loose parts (Water pump disassembly).
Remove clutch group (Clutch removal).

Loosen screws (2) and remove cover (3), paying attention to moving parts.

Loosen tensioner (4) and remove it.

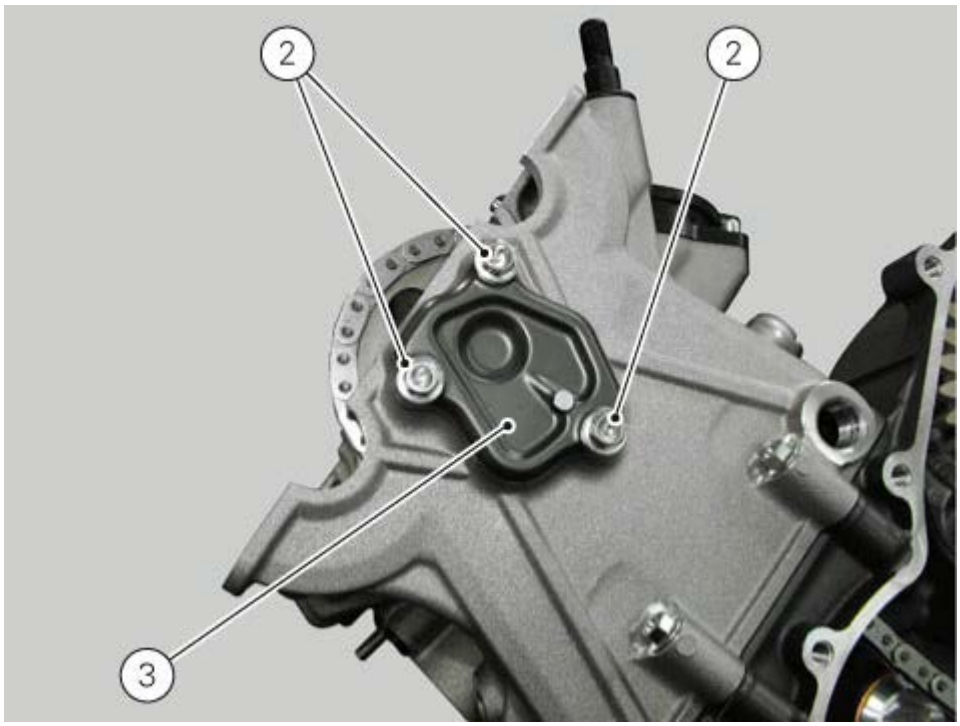
Remove mobile slider (5) by loosening pin (6).

It is recommended to remove fixed slider (9) by loosening fixing pins (8).
Remove plug (7) to reach the fixed slider pin located at the basis of the cylinder head.
Remove fixed slider pin (8).

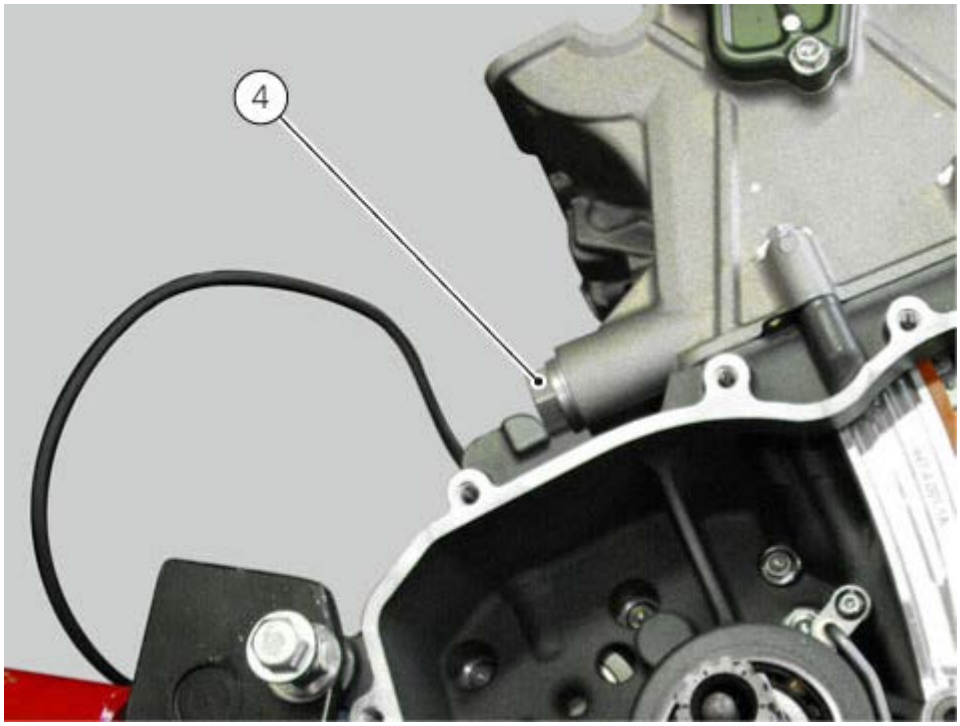
Remove shim (11), pin (10), bearings (12) and spacer (13) from timing transmission.

Loosen screws (2) and remove cover (3), paying attention to moving parts.

http://www.ducati-manuals.com
no. 140312

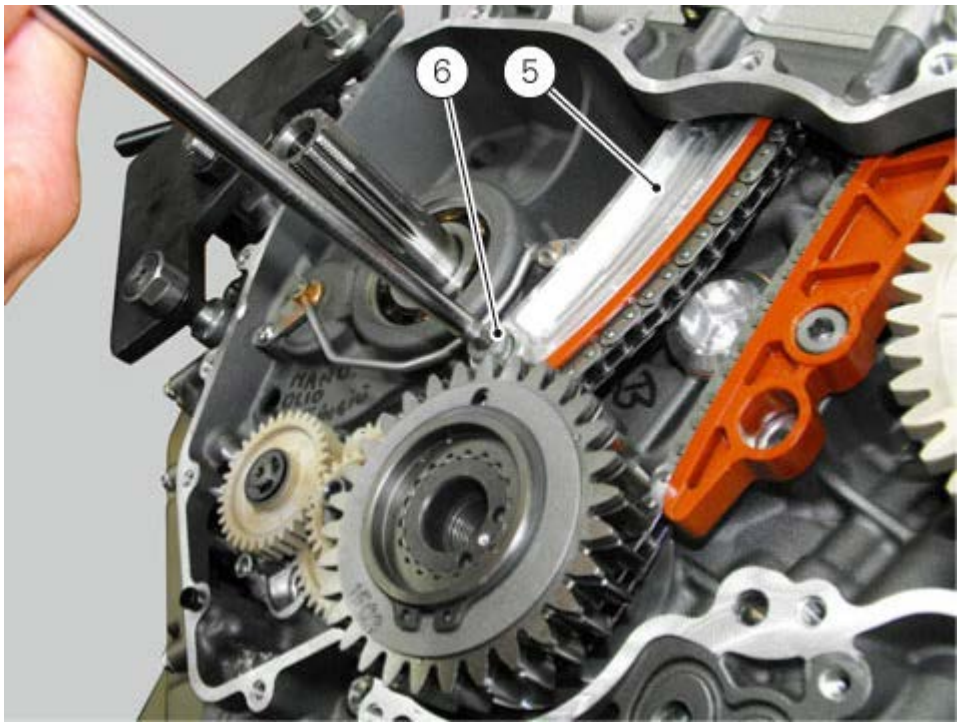


Loosen tensioner (4) and remove it.

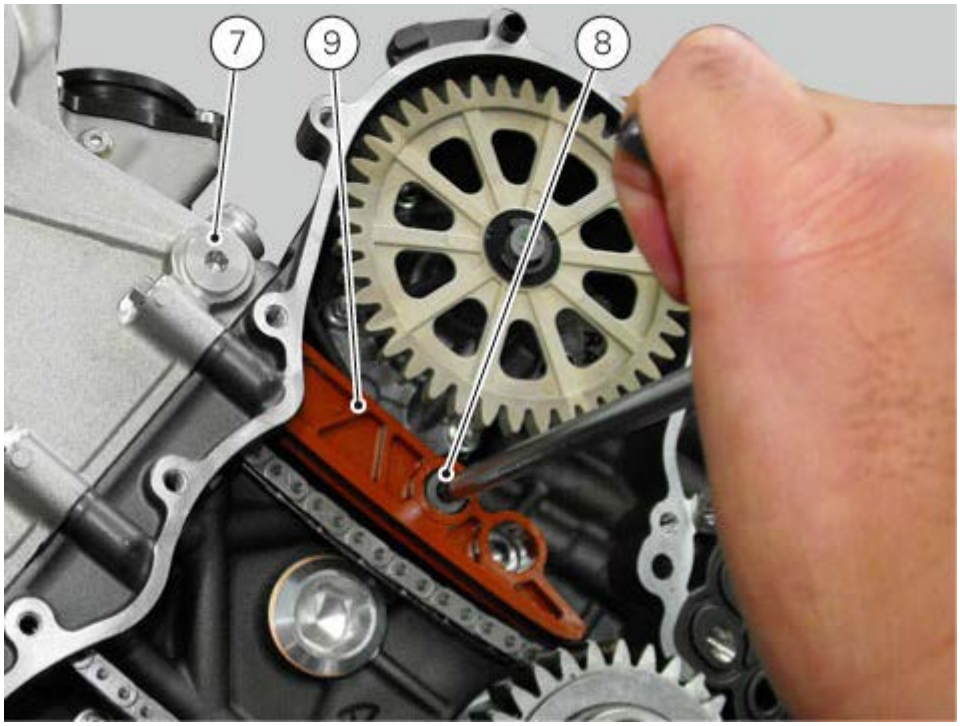


Remove mobile slider (5) by loosening pin (6).

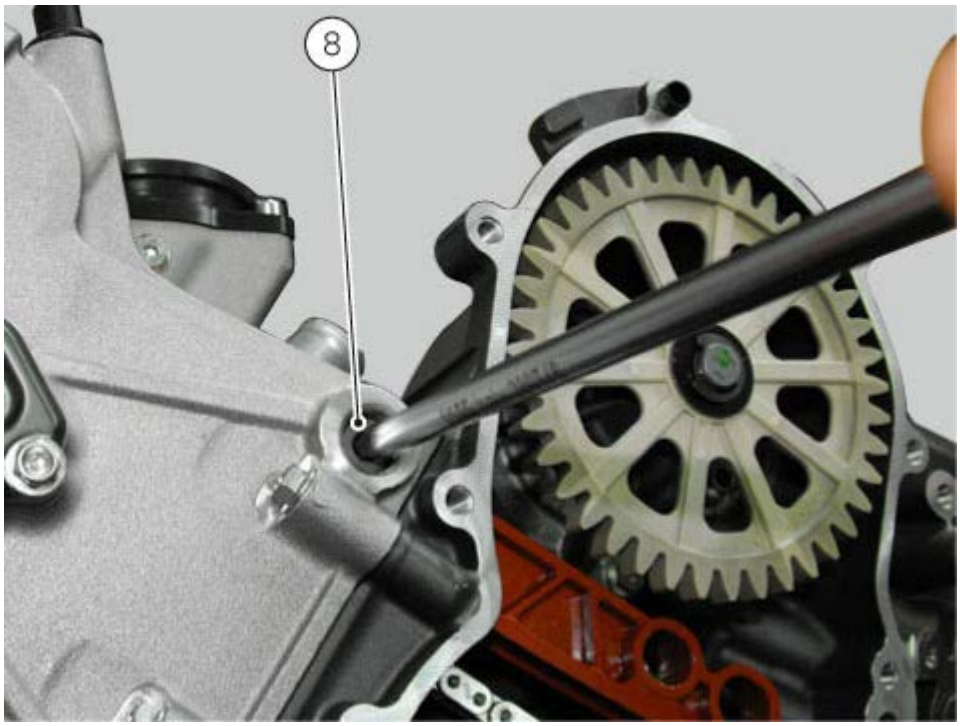
http://www.ducati-manuals.com
no. 140312



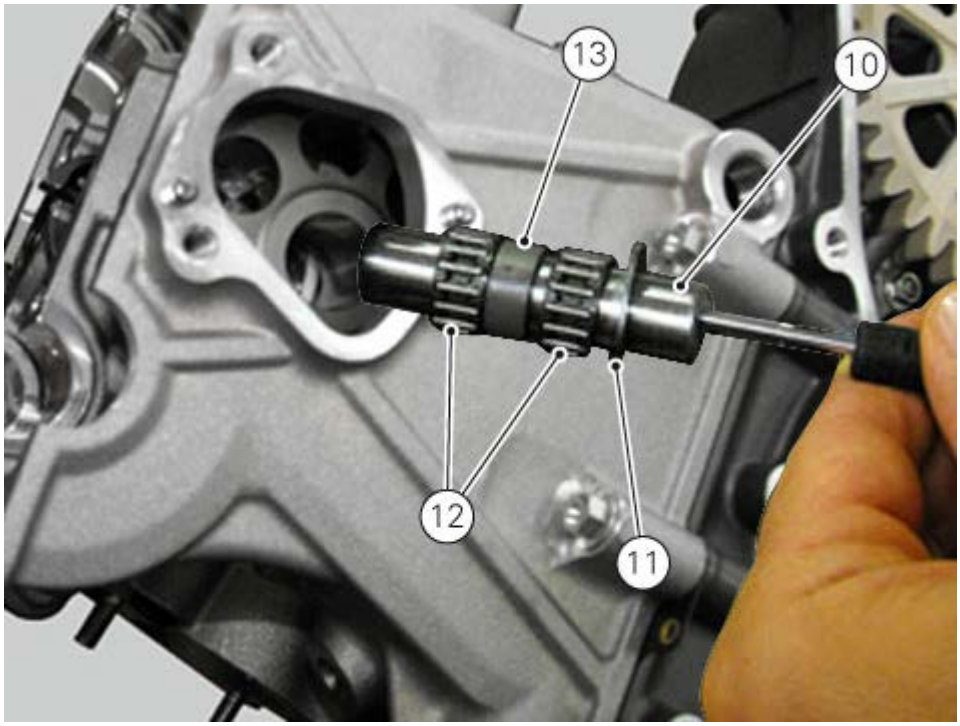
It is recommended to remove fixed slider (9) by loosening fixing pins (8).
Remove plug (7) to reach the fixed slider pin located at the basis of the cylinder head.
Remove fixed slider pin (8).



http://www.ducati-manuals.com
no. 140312

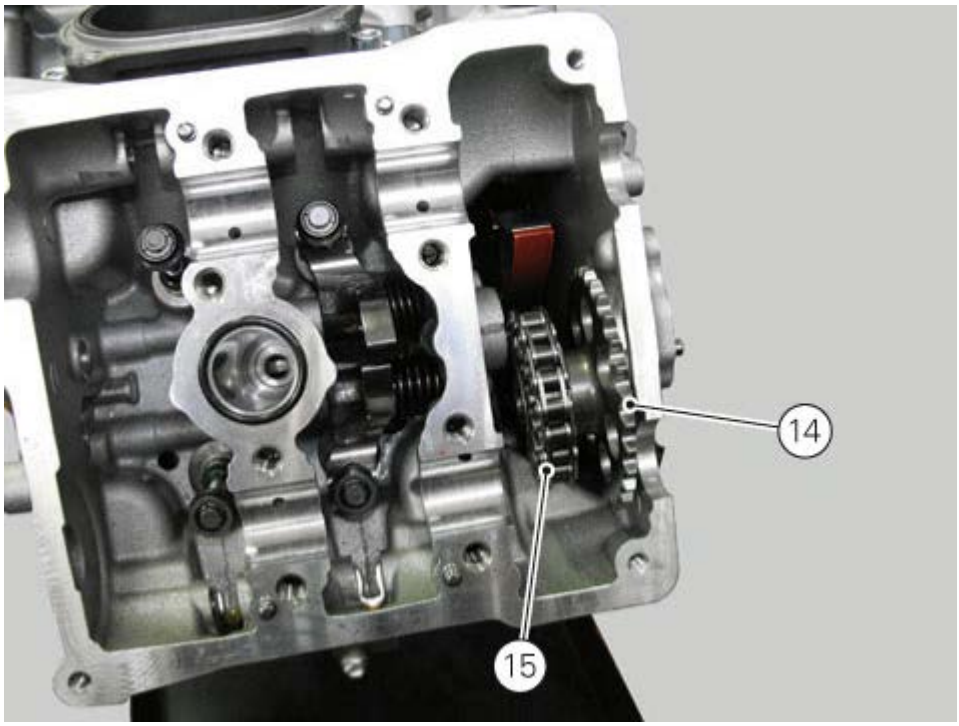


Remove shim (11), pin (10), bearings (12) and spacer (13) from timing transmission.



Slide drive gear (14) with chain towards crankshaft.
At this stage the chain (15) is free.

http://www.ducati-manuals.com
no. 140312

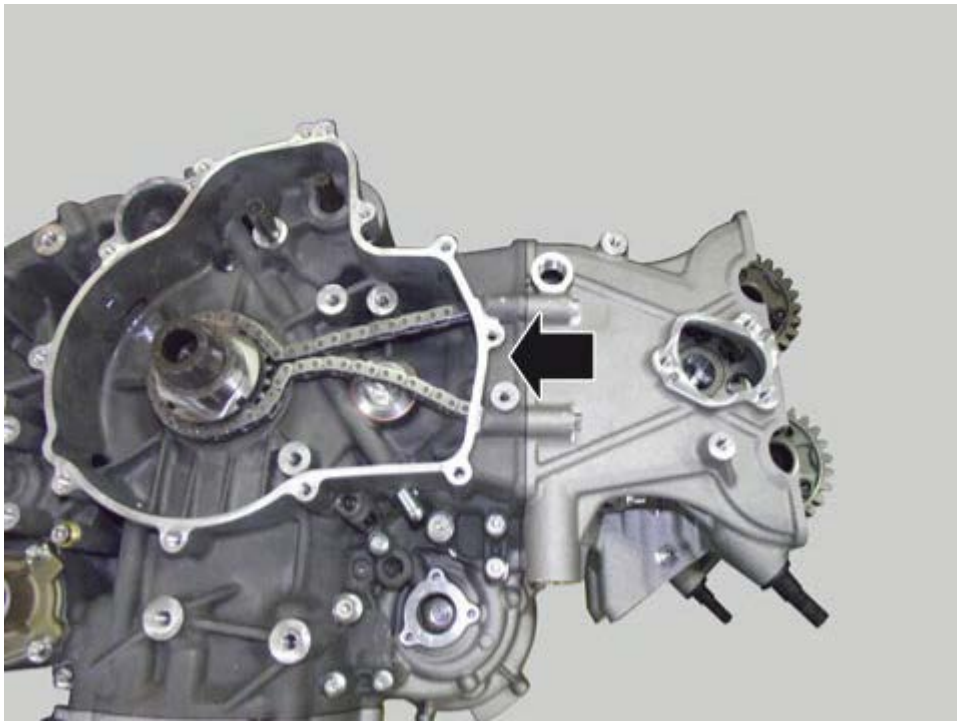


Place gear and chain in their original position by using only the pin and reposition the cover, so that it is possible to move the head together with the chain.
Repeat the head screw and stud bolt tightening operation, already described for the horizontal head.

http://www.ducati-manuals.com
no. 140312

Cylinder head reassembly (from head disassembly with timing chain removal)

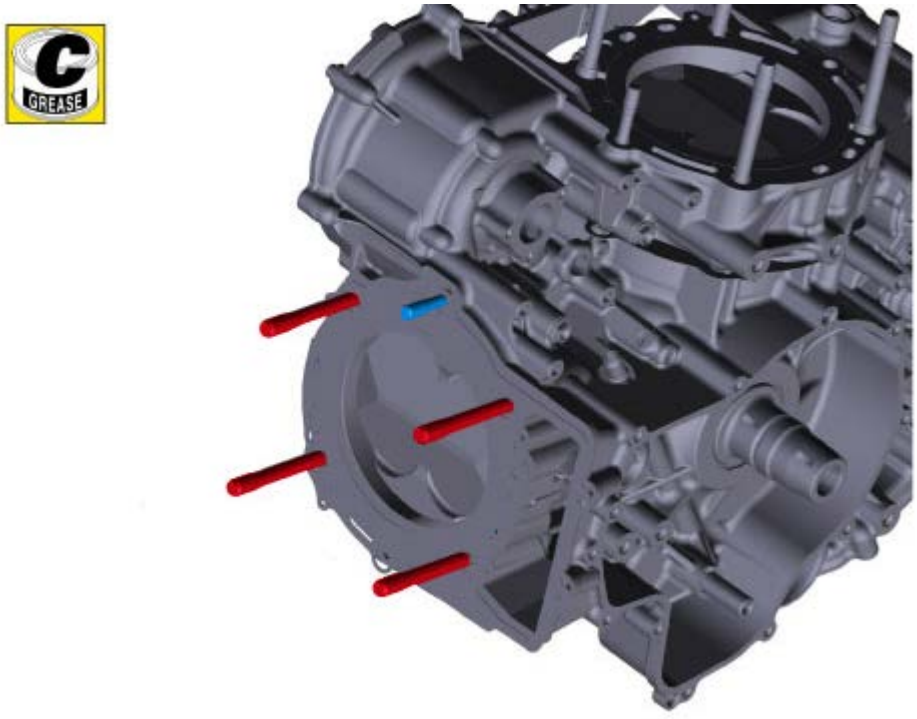
Fit chain with split gear transmission in the timing compartment.
Fit chain on crankshaft timing gear, flywheel side.



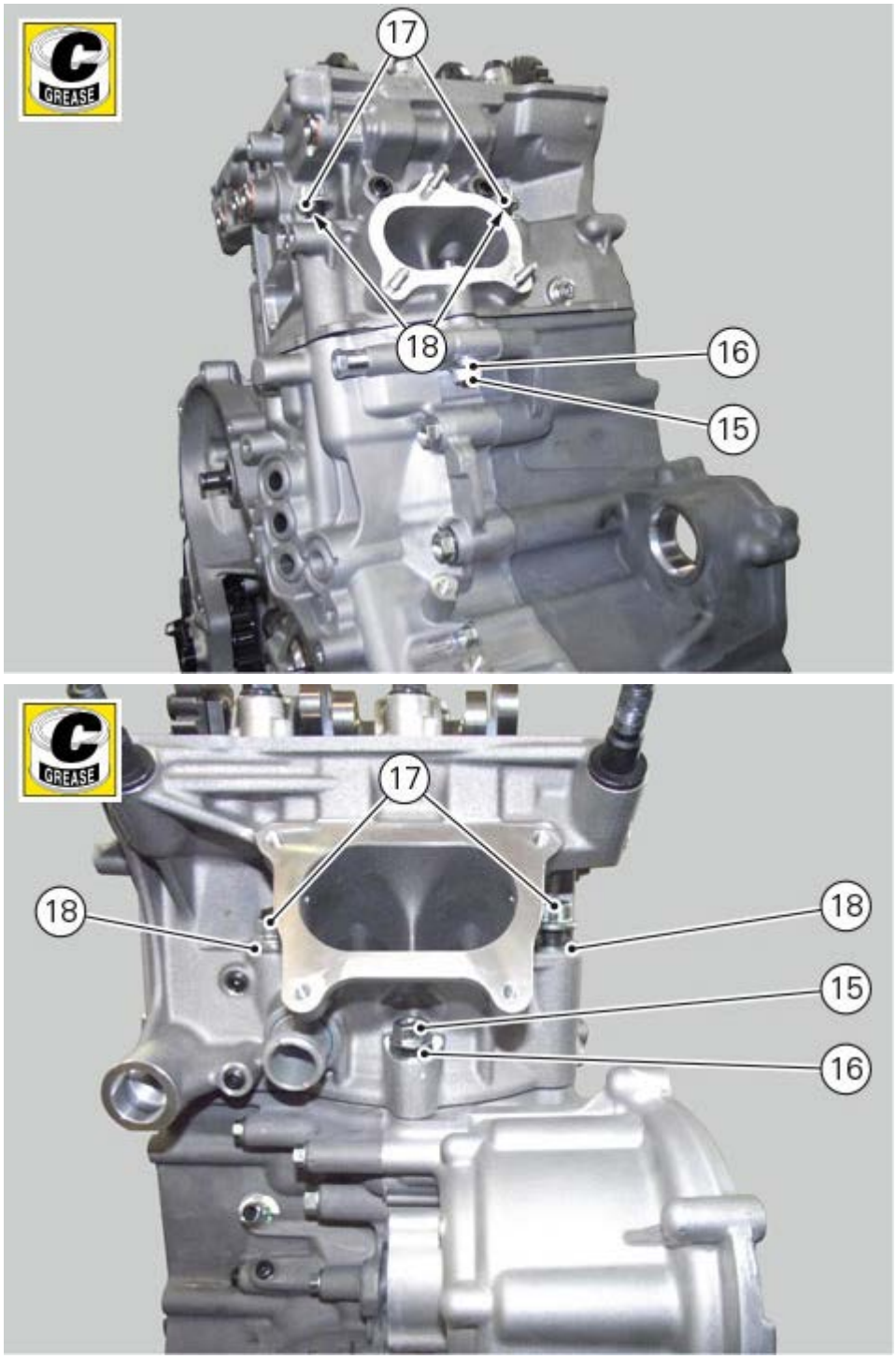
Note
Make sure the cylinder-head gasket, centring pins on the case surface and the bushing for oil passage to the heads are in the correct position.

These operations refer to refitting a horizontal cylinder head. These operations also apply to the vertical cylinder head.
Fit the chain on the timing split gear hub between the two gears.

Install head onto stud bolts.
Apply the specified grease on underside of nuts (15) and (17) and on stud bolt thread.
Install washers (16) and (18) onto stud bolts.
Start the head nuts on stud bolt thread in a cross pattern using tool part no. **88713.2676** for nuts (15) and tool part no. **88713.3926** for nuts (17), with a torque wrench.

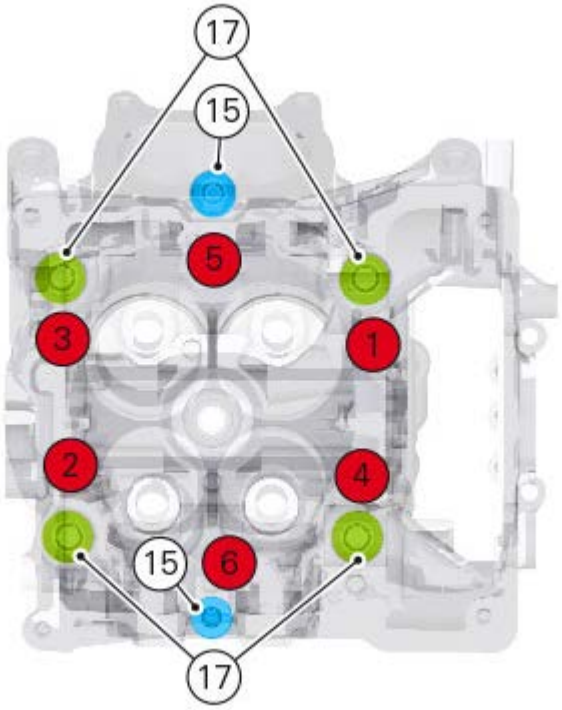


http://www.ducati-manuals.com
no. 140312

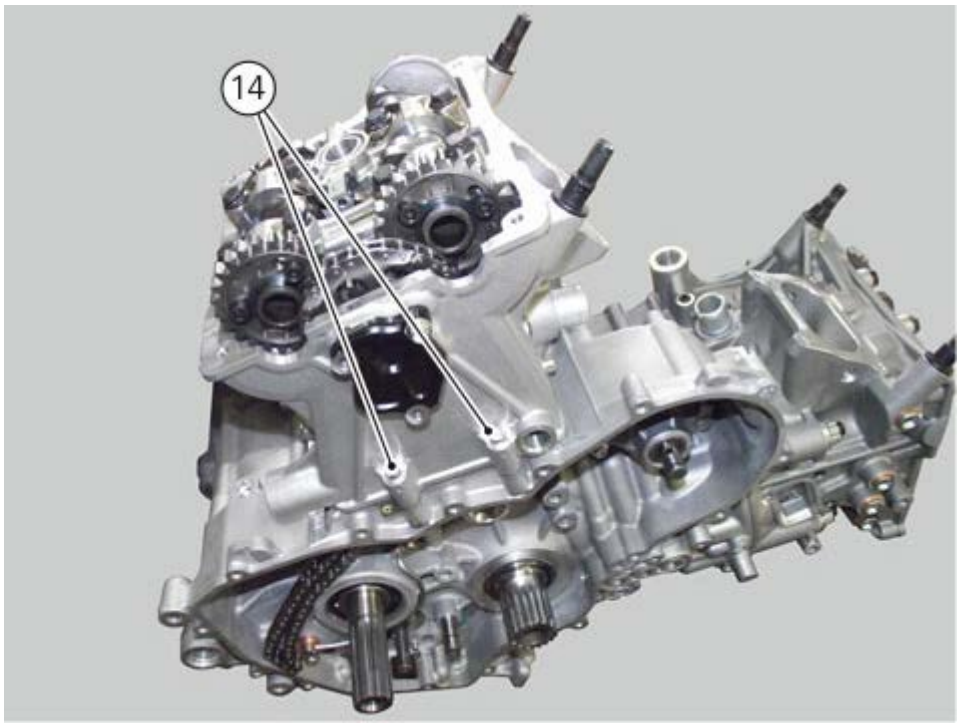


Tighten nuts (17) first to 20 Nm in a 1-2-3-4 sequence.
Then tighten nuts (17) to a torque of 40 Nm (Min. 38 Nm – Max. 42 Nm) in the following sequence: 1-2-3-4.
Tighten nuts (17) to a torque of 67 Nm (Min. 64 Nm – Max. 70 Nm) in the following sequence: 1-2-3-4.
Start nuts (15) in the following sequence: 5-6.
Tighten nuts (15) to a torque of 28.5 Nm (Min. 27 Nm – Max. 30 Nm) in the following sequence: 5-6.

http://www.ducati-manuals.com
no. 140312

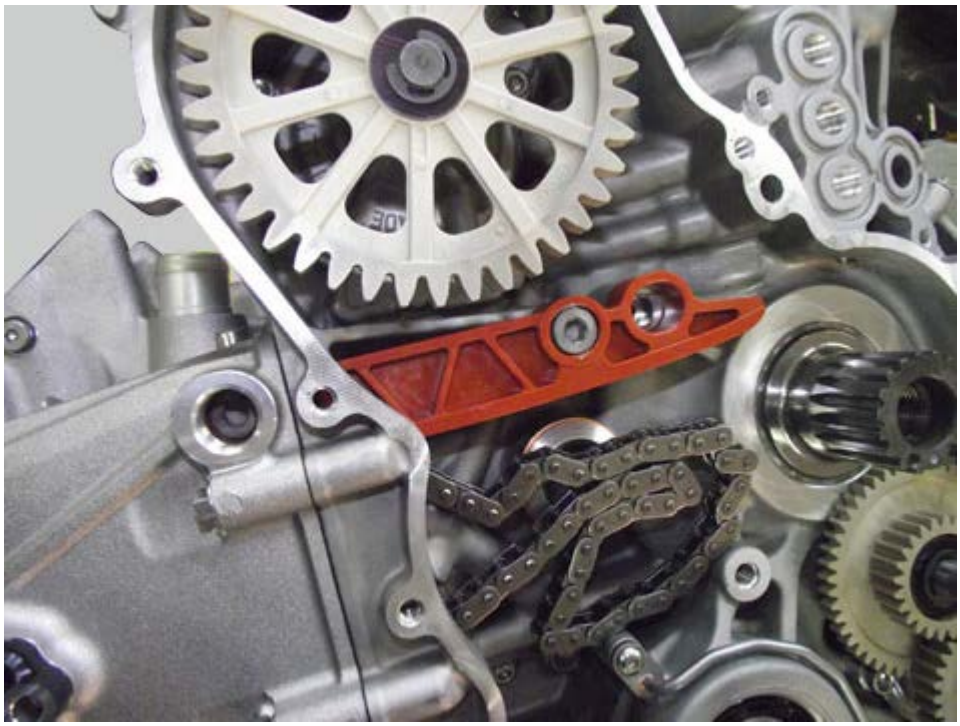


Start the screws (14) securing heads on timing side and tighten them to a torque of 13 Nm (Min. 12 Nm - Max. 14 Nm).

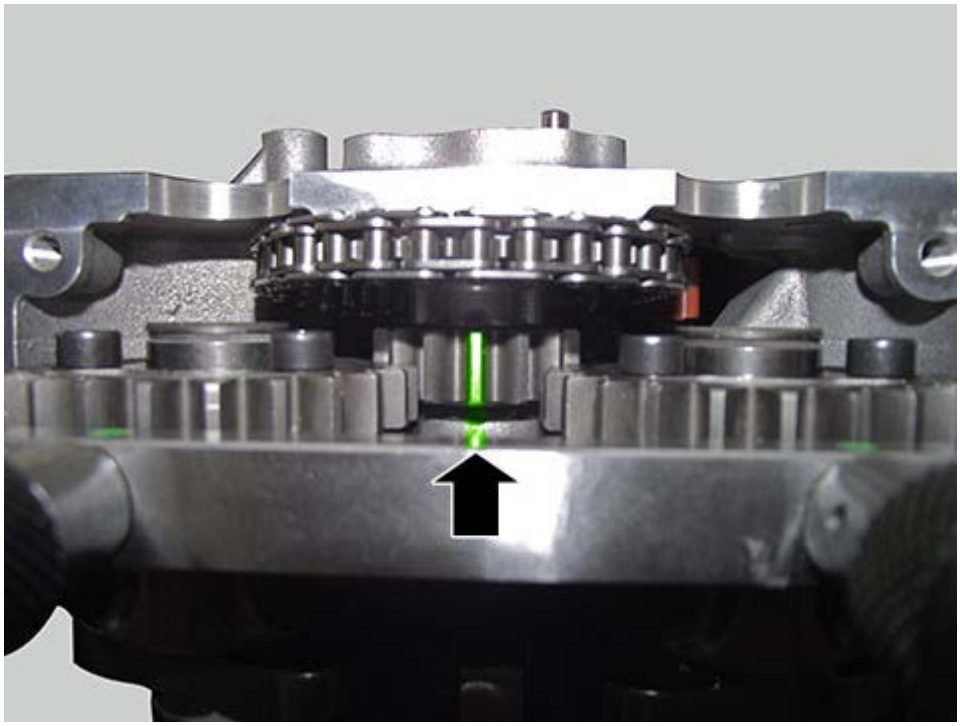


Verify that the crankshaft is on TDC of the horizontal cylinder, in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
If a reassembly of the vertical cylinder timing has been already carried out, in order to reach this condition it is needed to turn the crankshaft by 450° in the operating direction.
Hold the chain against the fixed slider.

http://www.ducati-manuals.com
no. 140312

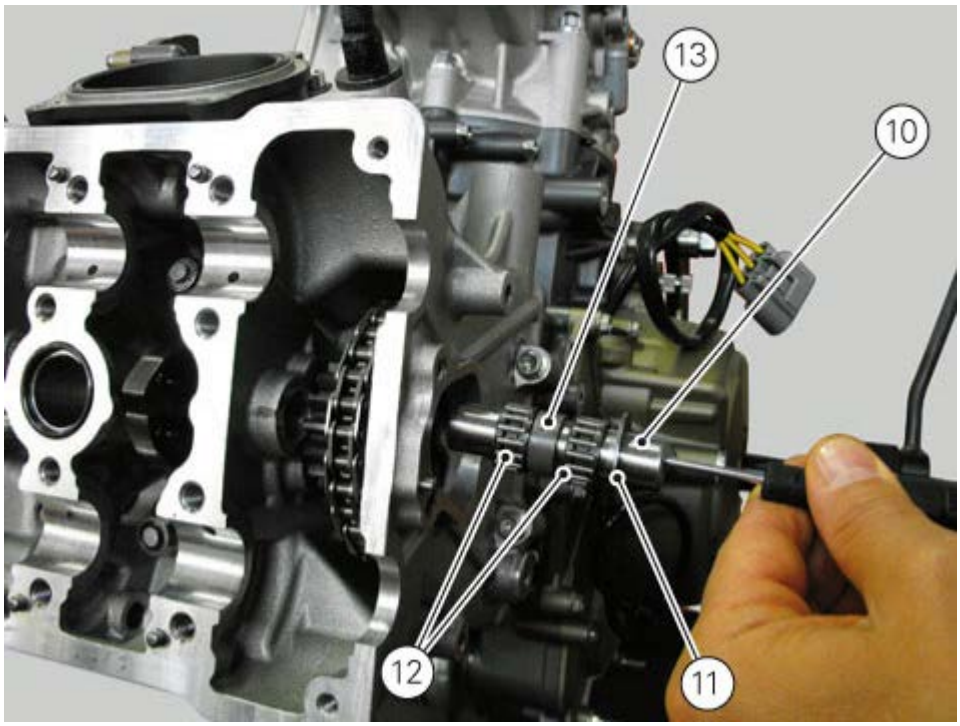


Check that one split gear retainer is placed on cylinder head reference, as shown in the picture.

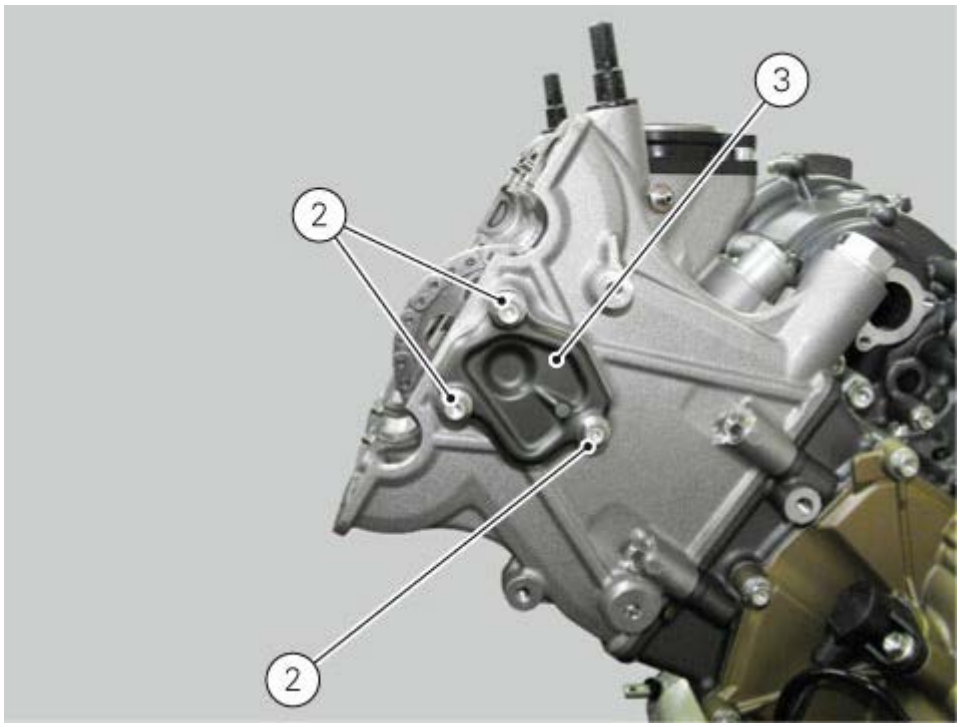


Insert pin (10) with bearing (12), spacer (13) and another bearing (12) on cylinder head.
Fit the shim (11).

http://www.ducati-manuals.com
no. 140312



Apply Ducati sealing compound on cover transmission pin as shown in the picture.
Place cover and tighten screws (3) and (2) to a torque of 10 Nm (Min. 9 Nm - Max. 11 Nm).

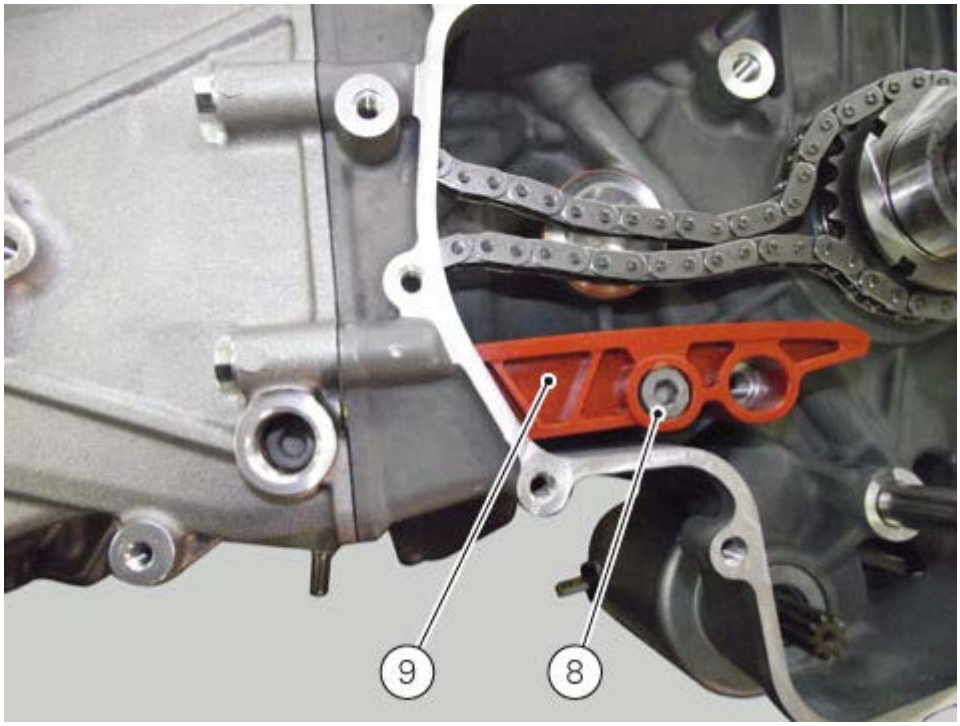


Place mobile slider (5) and tighten fixing pin (6) to a value of 20 Nm (Min. 18 Nm - Max. 22 Nm).

http://www.ducati-manuals.com
no. 140312

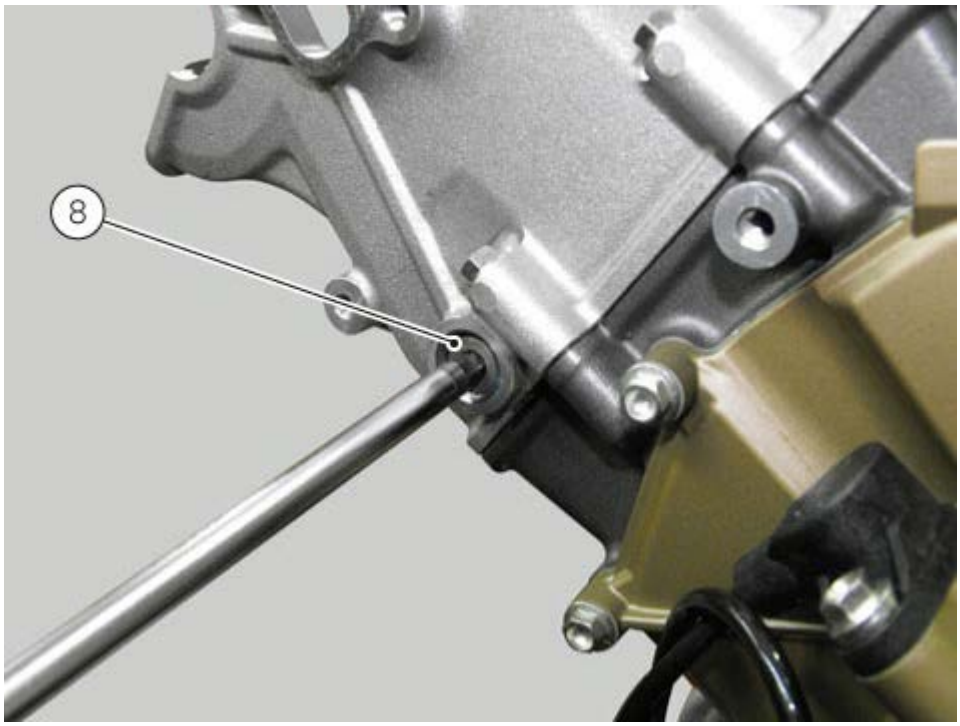


Place fixed slider (9) and tighten fixing pin (8) to a torque of 20 Nm (Min. 18 Nm - Max. 22 Nm).

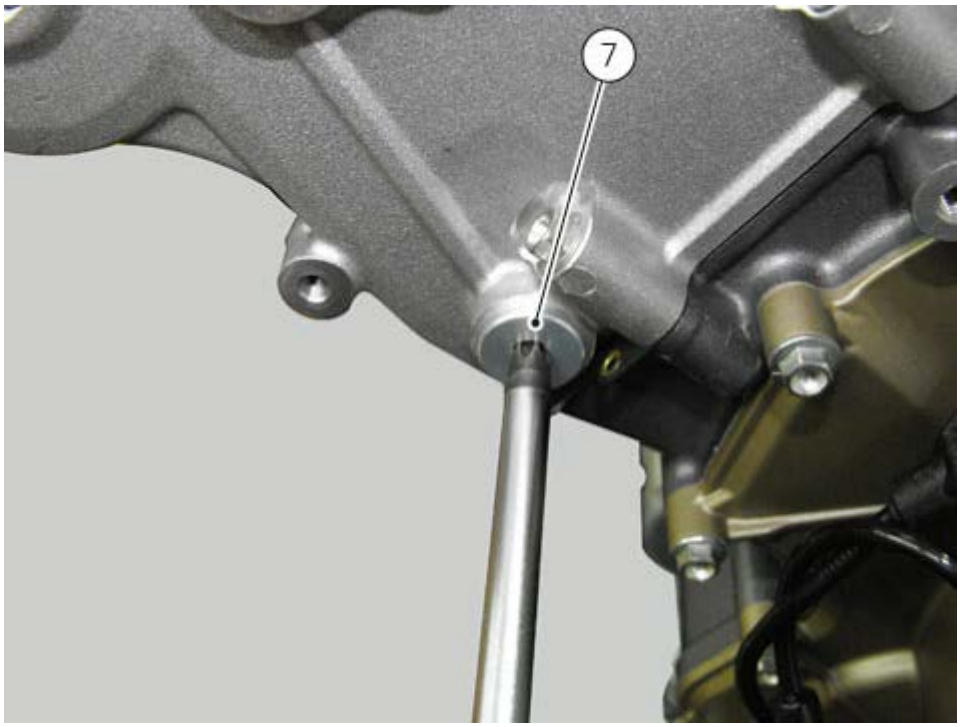


Install fixed slider pin (8) located at the basis of the cylinder head by tightening it to the torque of 20 Nm (Min. 18 Nm - Max. 22 Nm).

http://www.ducati-manuals.com
no. 140312

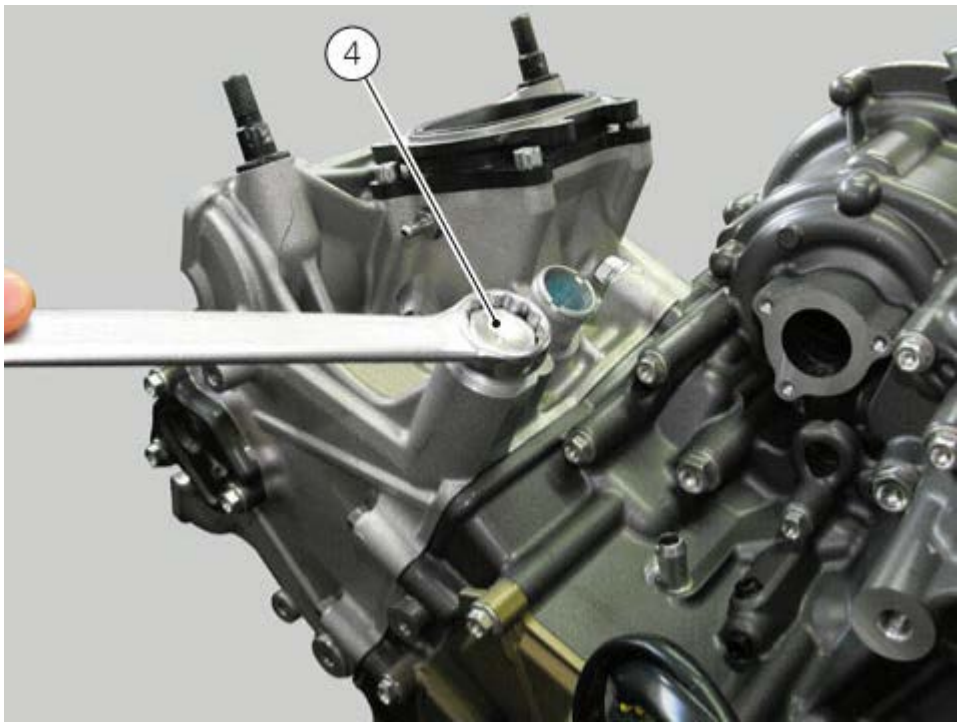


Install plug (7), previously opened to reach the fixed slider pin located at the basis of the cylinder head and tighten it to 17 Nm (Min. 16 Nm - Max. 18 Nm).



Place tensioner (4) and tighten it to a torque of 25 Nm (Min. 23 Nm – Max. 27 Nm) making sure that chain is centred on the sliders.

http://www.ducati-manuals.com
no. 140312



Install camshafts on the cylinder head, with aligned reference surfaces and fitting the timing tool part no. **88765.1678**.

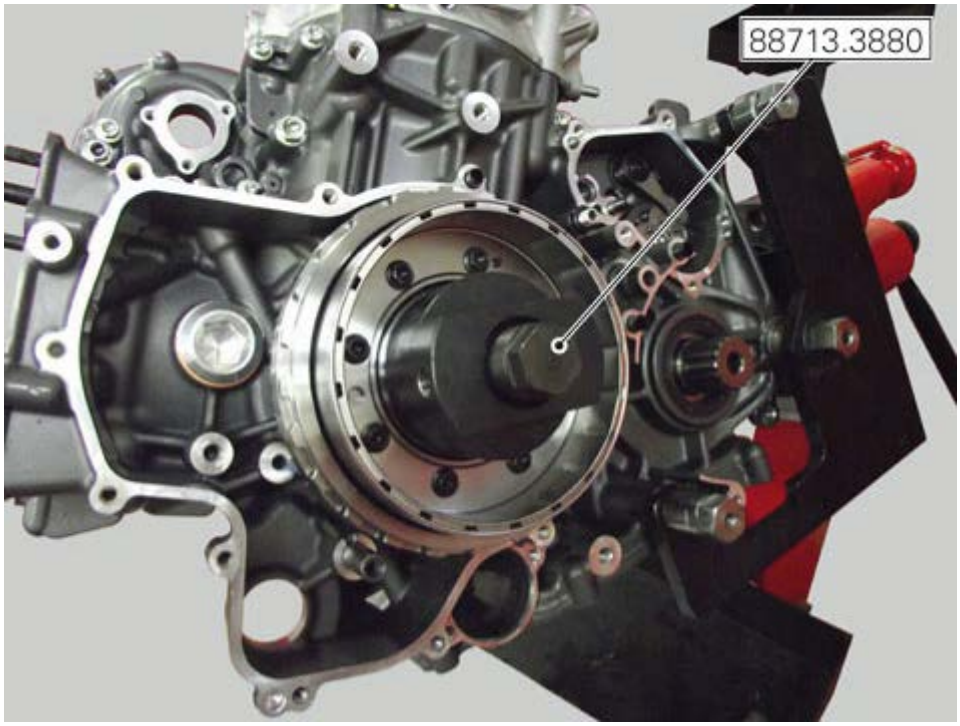


Fully loosen the two screws in view (one on each camshaft), apply threadlocker as per the chart and tighten to a torque of 19 Nm (Min. 18 Nm - Max. 20 Nm).
Remove tool part no. **88765.1678** and tool part no. **88713.3500**.
Turn crankshaft in the running direction until two different screws are in view (A) (one on each camshaft).
Fully loosen the two screws now in view (A), apply threadlocker as per the chart and tighten to the torque specified in the relevant table.

http://www.ducati-manuals.com
no. 140312



Reassemble the flywheel with the special tool, part no. **88713.3880**.

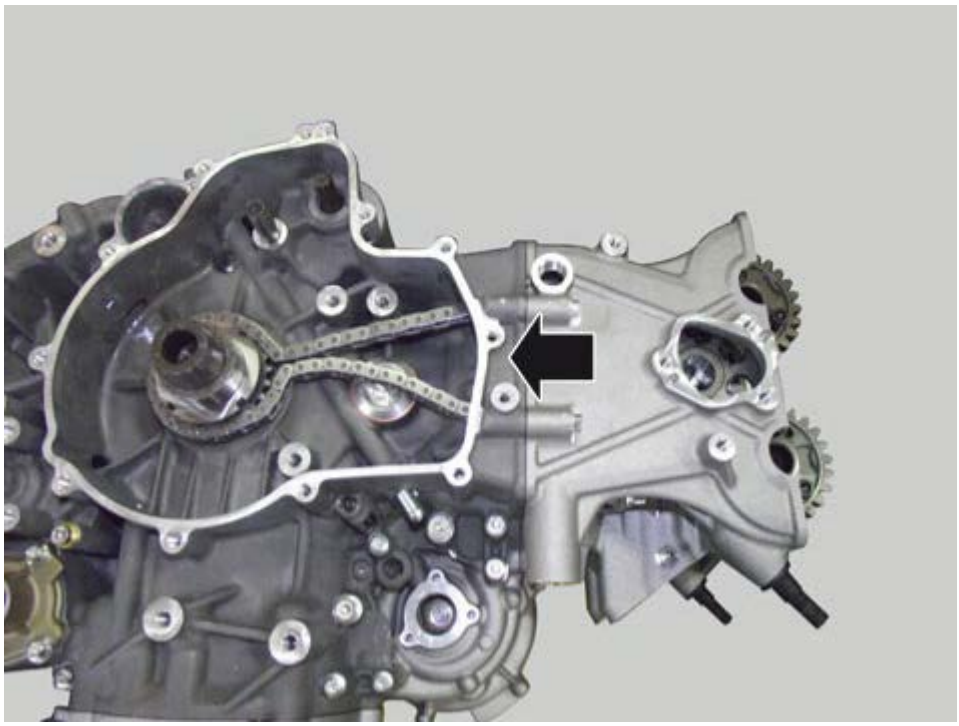


Reassemble camshafts (Camshaft reassembly).
Refit both spark plugs (Renewal of the spark pugs).
Reassemble the engine on the motorcycle (Installation of the engine (ABS version)- Installation of the engine (non-ABS version)).

Vertical cylinder head chain reassembly

Fit chain with split gear transmission in the timing compartment.
Fit chain on crankshaft timing gear, flywheel side.

http://www.ducati-manuals.com
no. 140312



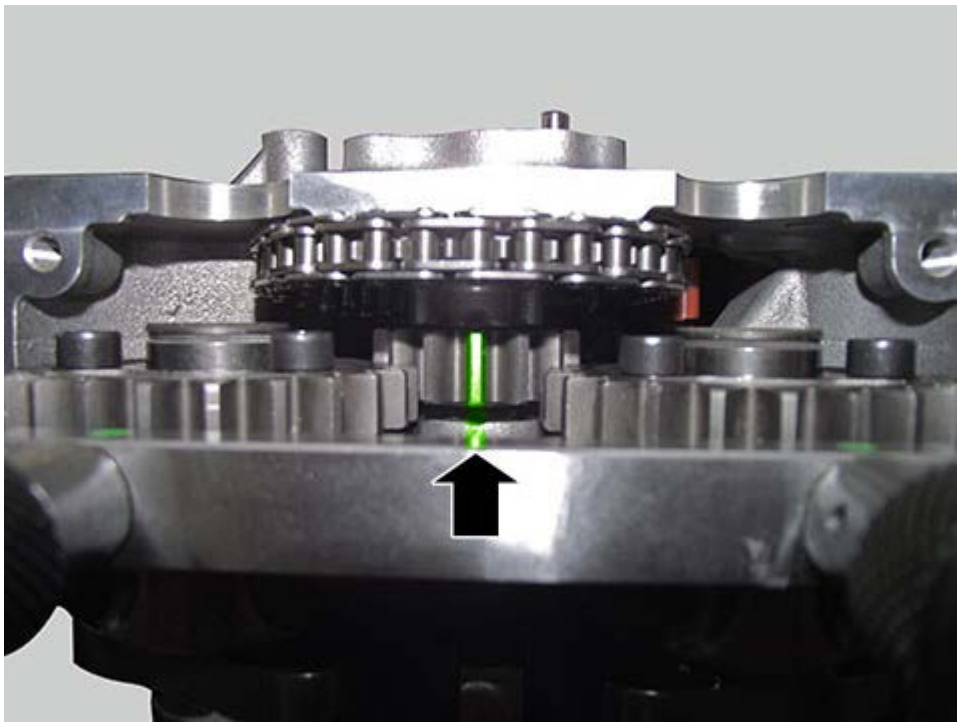
Repeat the head fixing operation already described for the horizontal head.

Verify that the crankshaft is on TDC of the horizontal cylinder, in the combustion stage (Crankshaft positioning at TDC in the combustion stage).
If a reassembly of the vertical cylinder transmission has been already carried out, in order to reach this condition it is needed to turn by 270° the crankshaft in the operating direction.
Fit sprocket of the primary transmission, making sure that the two drive gear pins of oil pressure pump control fit into the engine sprocket holes.
Hold the chain against the fixed slider.

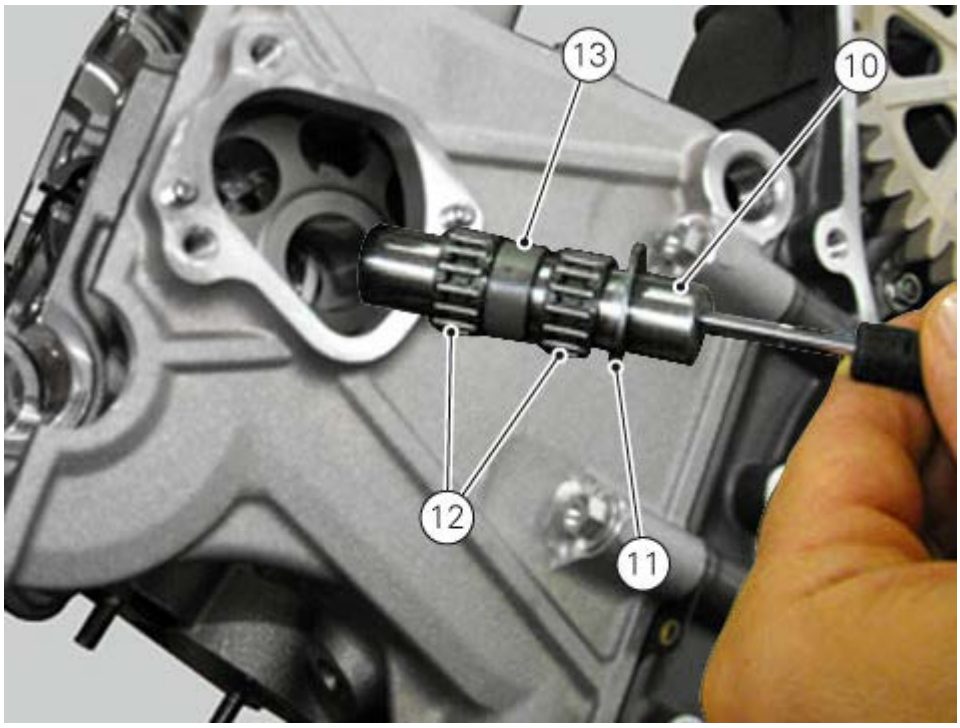


Check that one split gear retainer is placed on cylinder head reference, as shown in the picture.

http://www.ducati-manuals.com
no. 140312

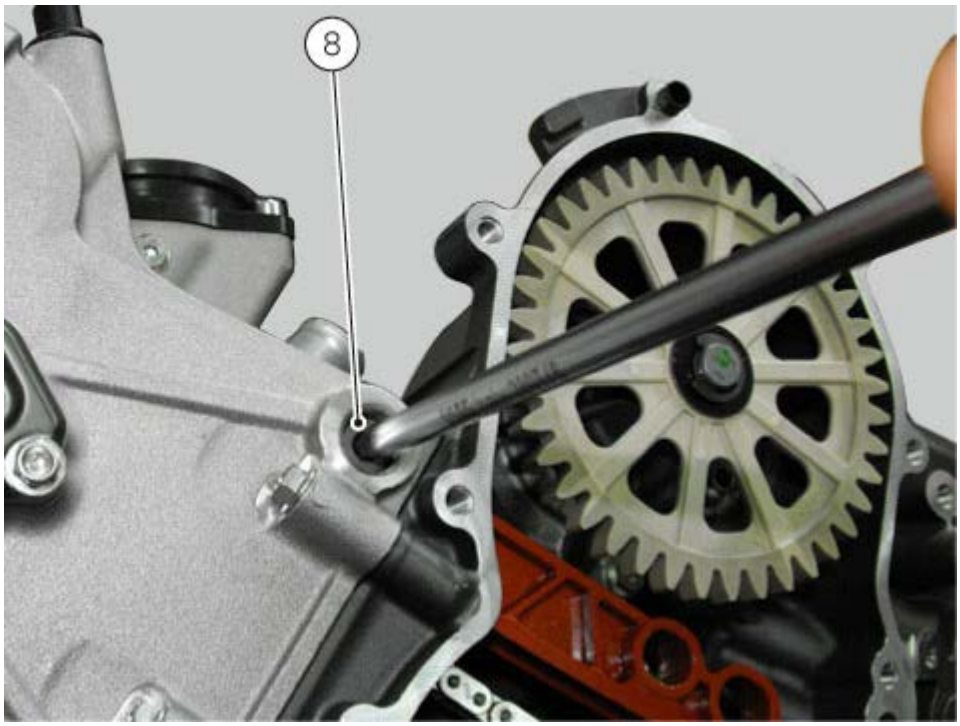


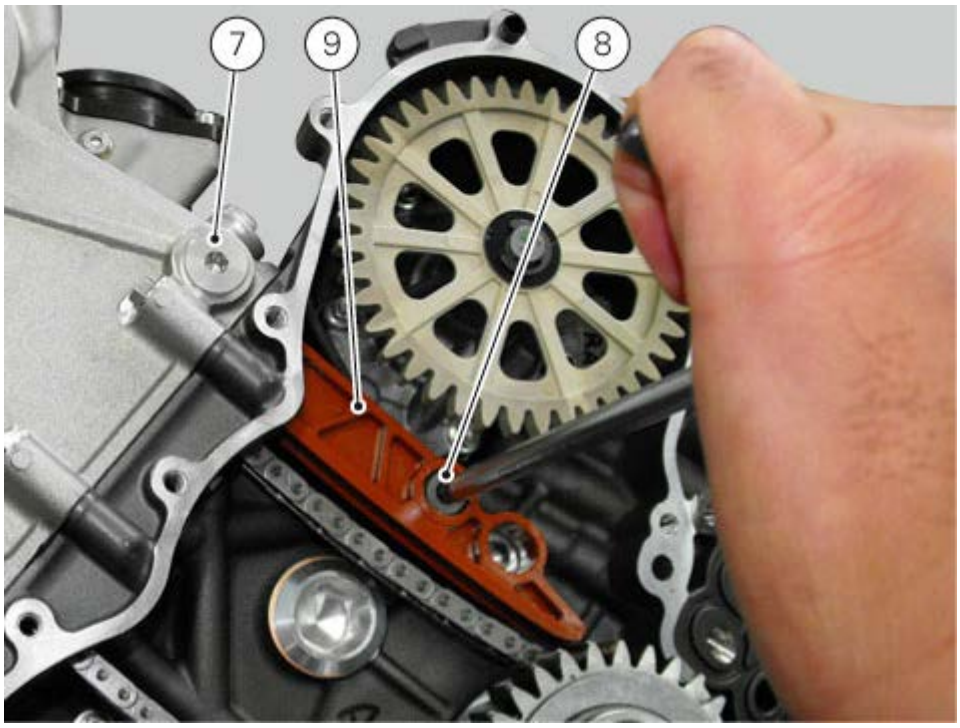
Insert pin (10) with bearing (12), spacer (13) and another bearing (12) on cylinder head.
Fit the shim (11).



Install pin (8) of the fixed slider located at the basis of the cylinder head.
Install plug (7), previously opened to reach the fixed slider pin located at the basis of the cylinder head and tighten it to 17 Nm (Min. 16 Nm - Max. 18 Nm).

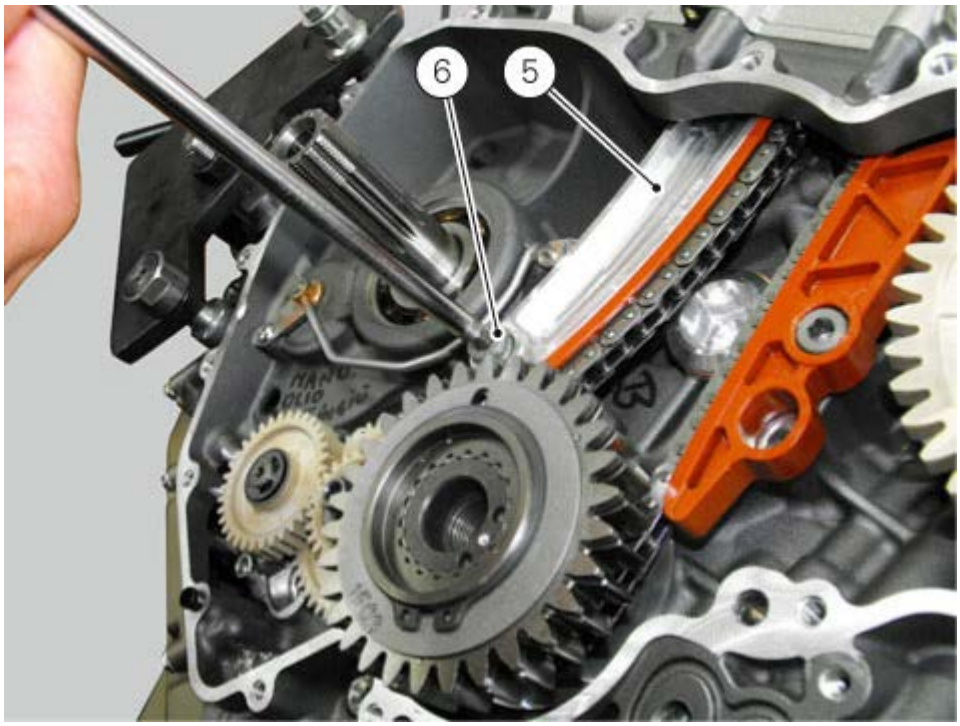
http://www.ducati-manuals.com
no. 140312



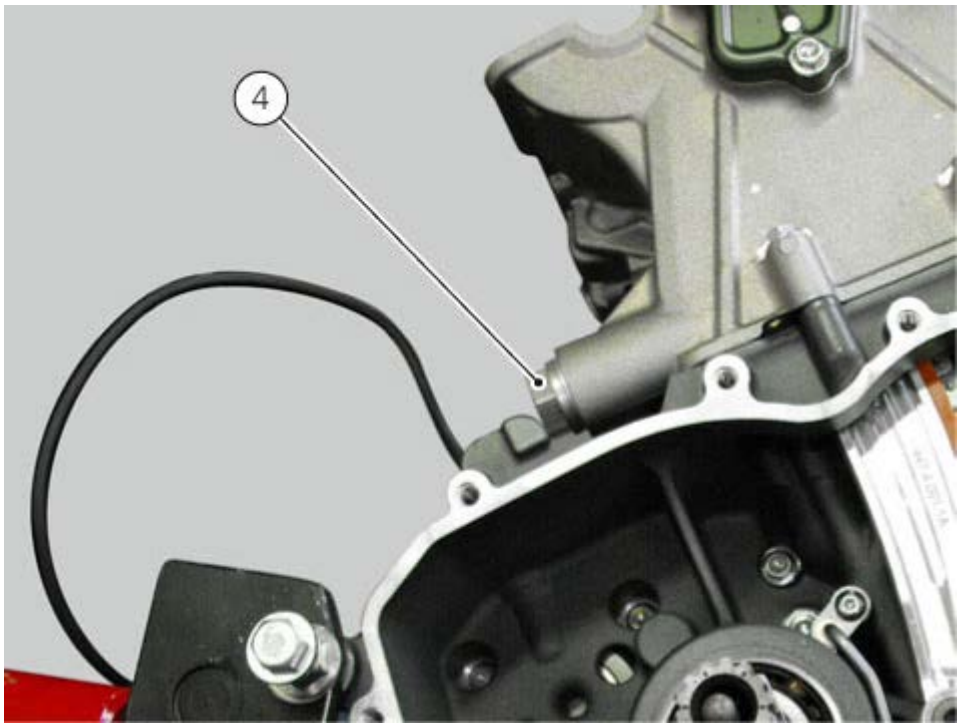


Place mobile slider (5) and tighten fixing pin (6) to a value of 20 Nm (Min. 18 Nm - Max. 22 Nm).

http://www.ducati-manuals.com
no. 140312



Place tensioner (4) and tighten it to a torque of 25 Nm (Min. 23 Nm – Max. 27 Nm) making sure that chain is centred on the sliders.



Install camshafts on the cylinder head, with aligned reference surfaces and fitting the timing tool part no. **88765.1678**.

http://www.ducati-manuals.com
no. 140312



Fully loosen the two screws in view (one on each camshaft), apply threadlocker as per the chart and tighten to a torque of 19 Nm (Min. 18 Nm - Max. 20 Nm).
Remove tool part no. **88765.1678** and tool part no. **88713.3500**.
Turn crankshaft in the running direction until two different screws are in view (A) (one on each camshaft).
Fully loosen the two screws now in view (A), apply threadlocker as per the chart and tighten to the torque specified in the relevant table.



Remove clutch cover (Clutch cover removal).
Remove water pump control idle gear water pump being careful to loose parts (Water pump disassembly).
Remove clutch group (Clutch removal).

Reassemble camshafts (Camshaft reassembly).
Reassemble generator cover (Generator cover reassembly).
Refit both spark plugs (Renewal of the spark pugs).

http://www.ducati-manuals.com
no. 140312

Removal of the valves

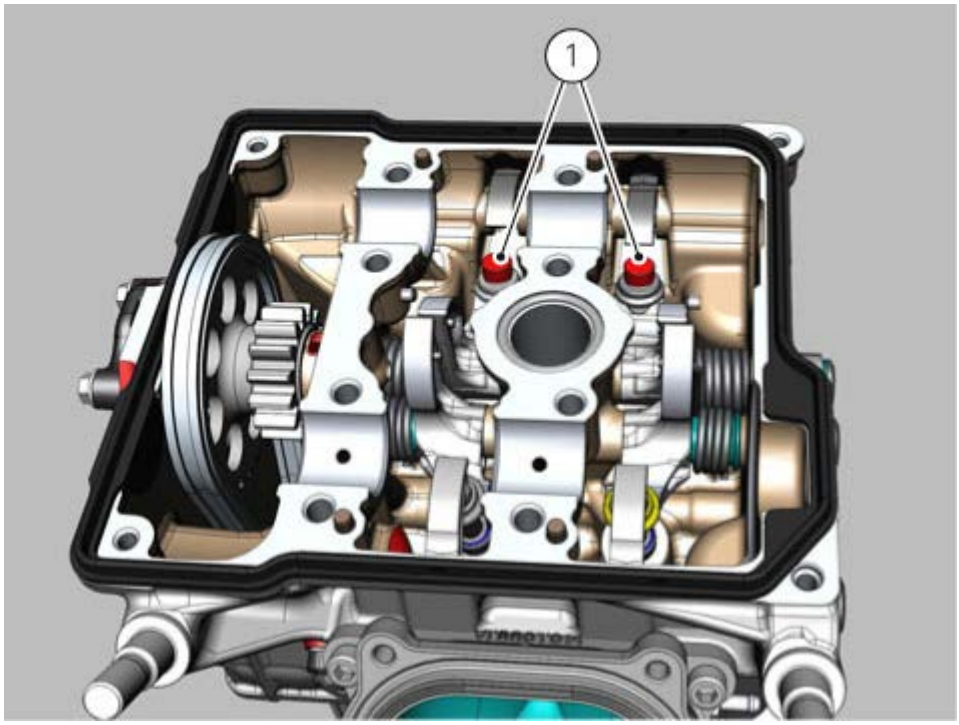
Note
Valve retainers inside the cylinder heads are tapered collets on the intake side and split rings on the exhaust side.

Remove the complete cylinder head from the engine with timing chain (Removal of the cylinder heads and the timing chain).
Take the head you are going to work on and set it onto tool part no. **88713.3422** so that the valves can rest onto the mating Teflon surface.
Remove the camshafts (Removal of the camshafts).

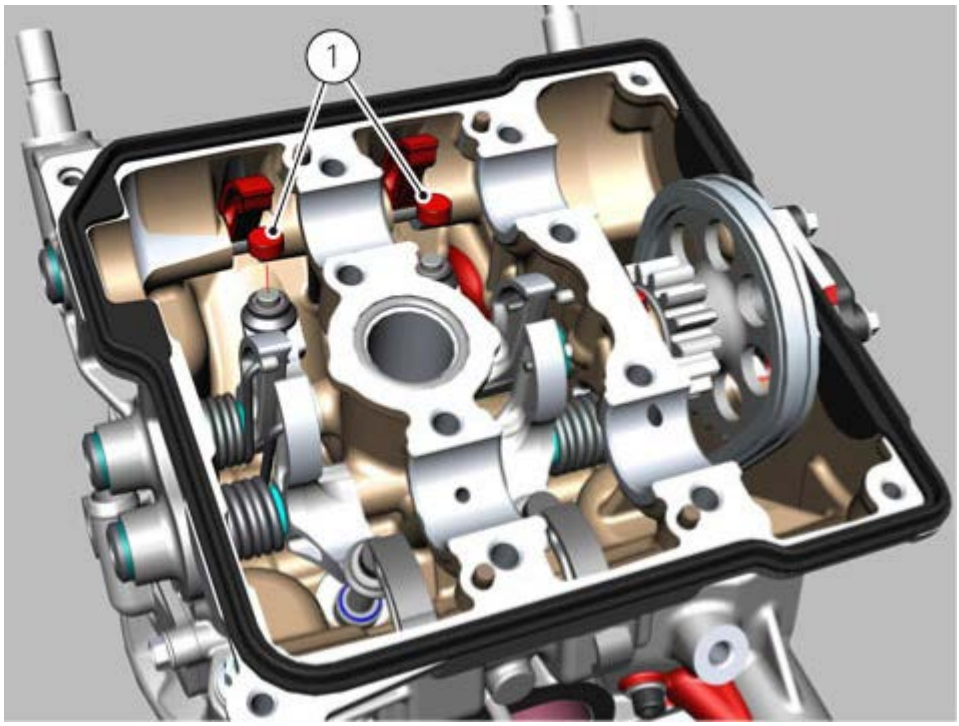


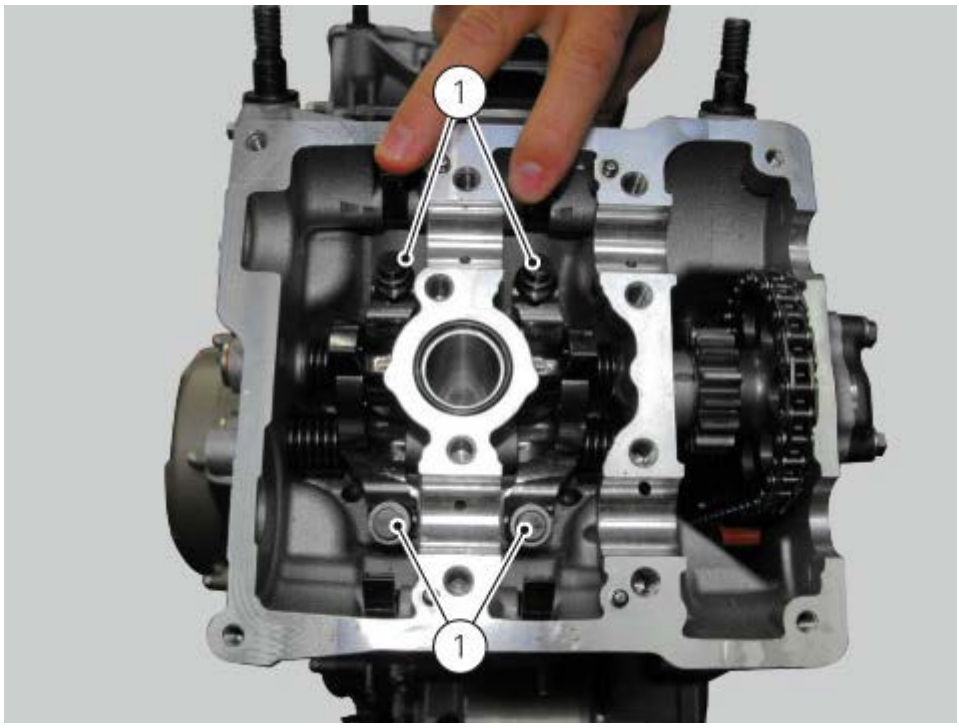
Lift the opening rocker arms and remove the opening shims (1).

Note
Upon reassembly, make sure to refit the opening rocker arms in their original position.



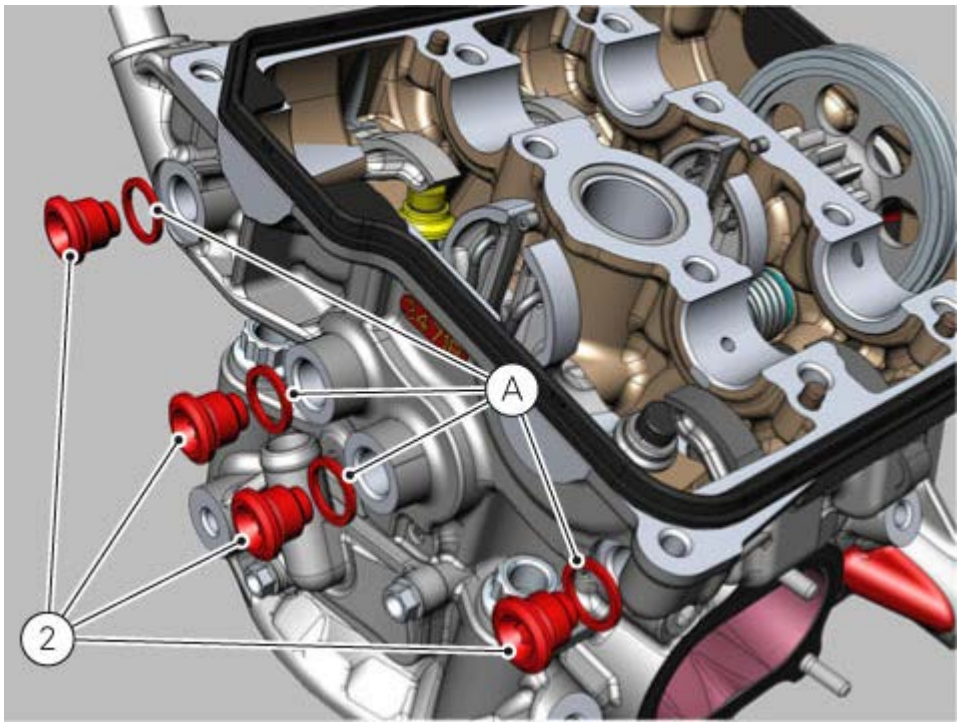
http://www.ducati-manuals.com
no. 140312





Loosen and remove the plugs (2) for reaching the opening rocker arm shafts, with their washers (A).

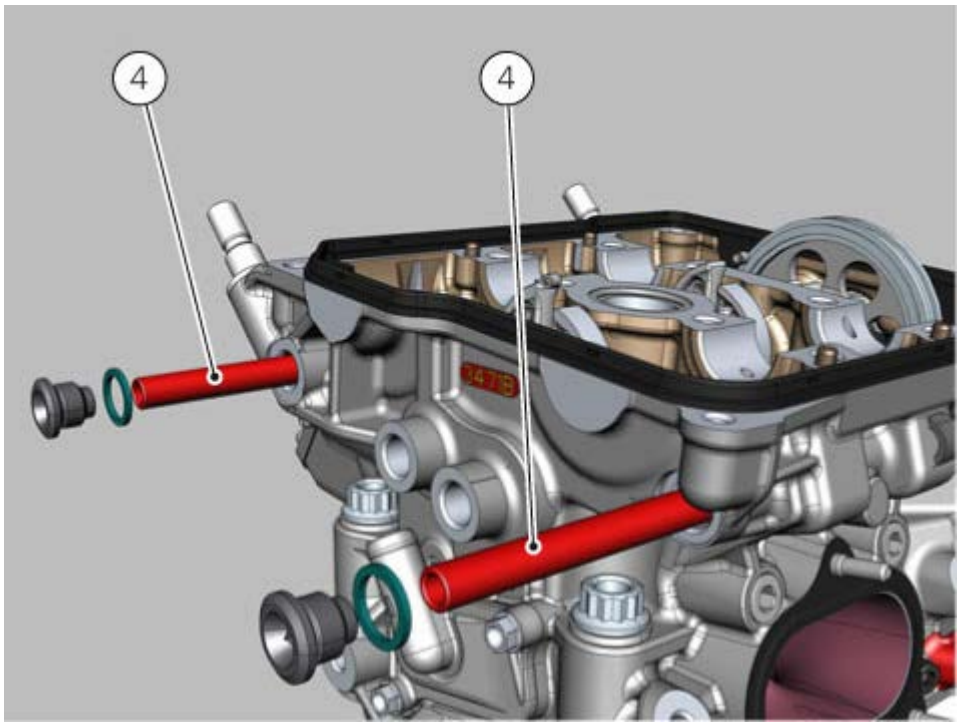
http://www.ducati-manuals.com
no. 140312

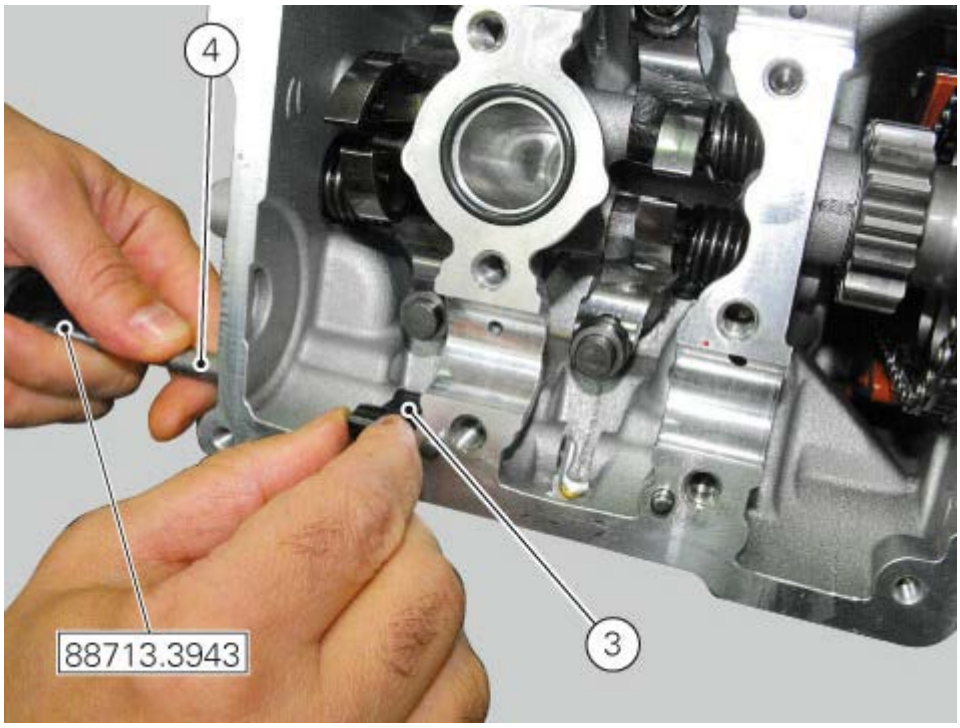




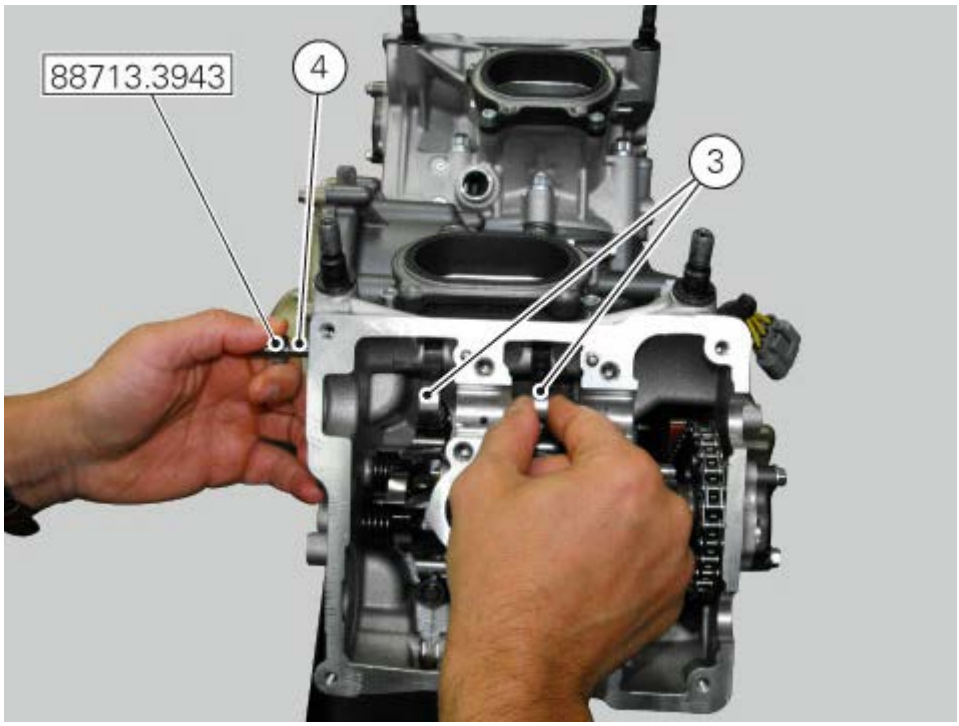
Using tool part no. **88713.3943** slide out the shafts (4) of exhaust and intake side opening rocker arms (3); make sure shims do not fall down.
Remove the opening rocker arms (3).

http://www.ducati-manuals.com
no. 140312

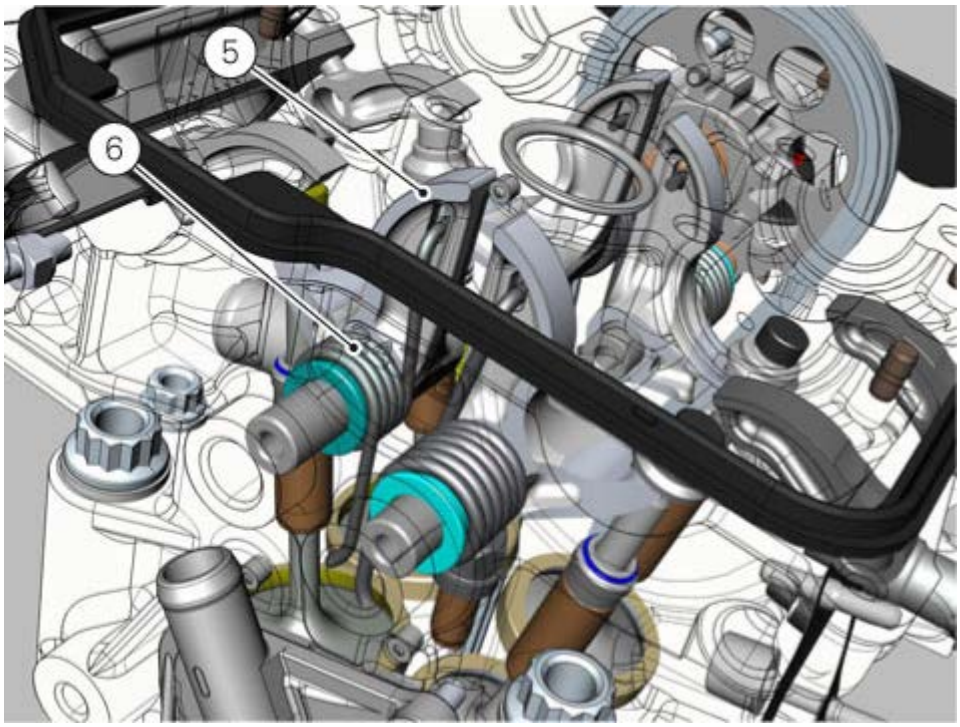




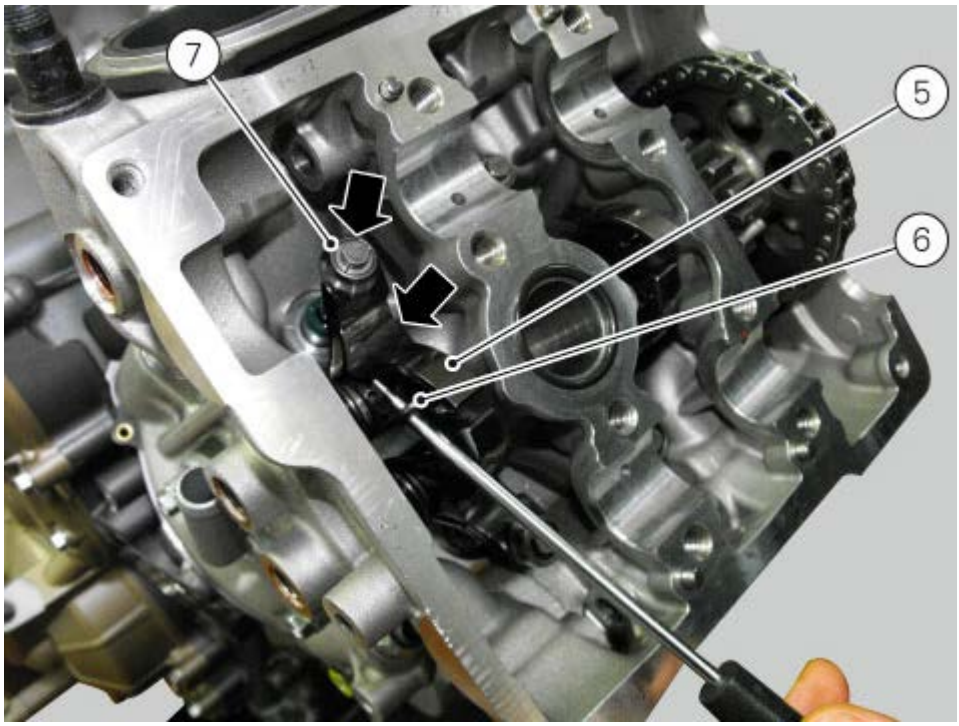
http://www.ducati-manuals.com
no. 140312



Disengage spring (6) from closing rocker arm (5).
Push down closing rocker arms (5) and closing shim (7).



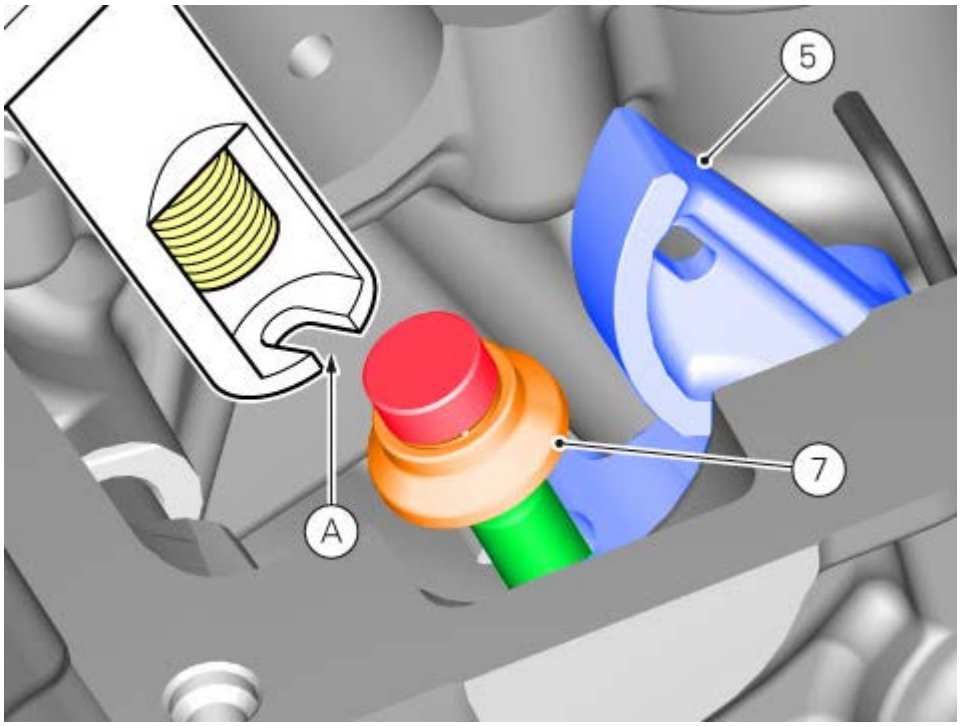
http://www.ducati-manuals.com
no. 140312



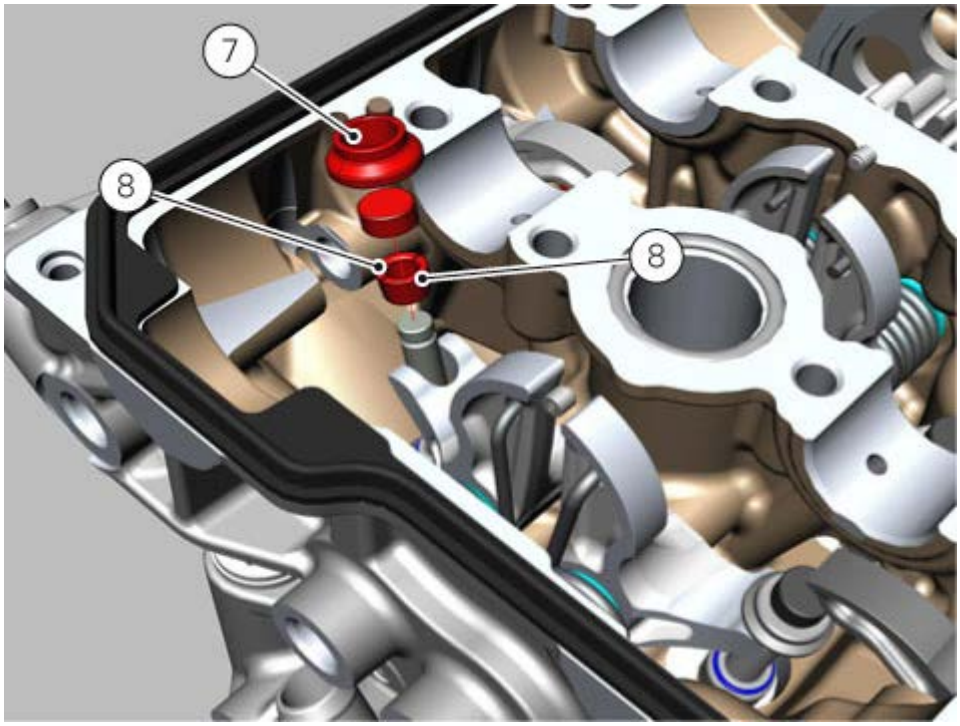
Engage slot (B) of tool part no. **88713.3468** in valve stem, between rocker arm (5) and shim (7). Set tool part no. **88713.3468** on head internal edge and then hit the top of the tool with a plastic mallet.
Remove the taper collets from the intake valves using tool part no. **88713.3468**.



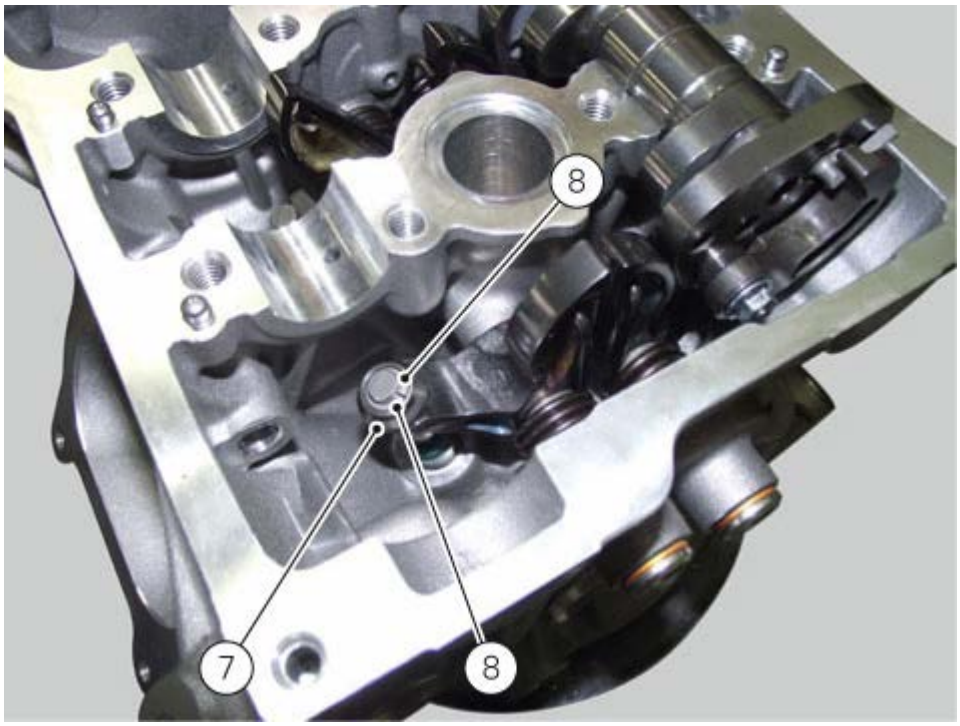
http://www.ducati-manuals.com
no. 140312



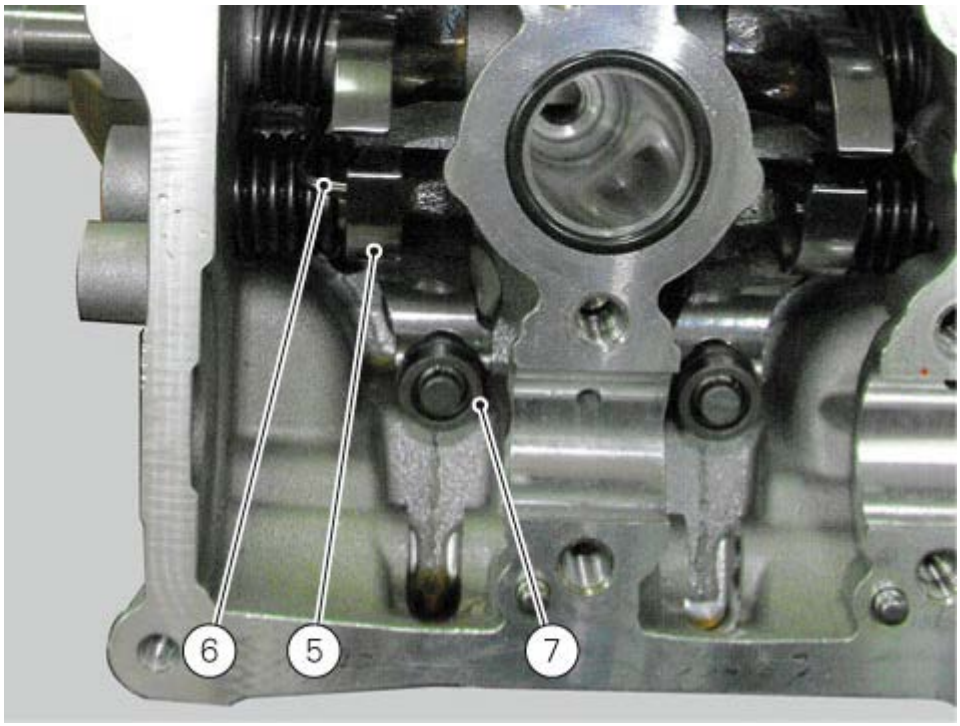
Remove closing shim (7) and both collets (8).



http://www.ducati-manuals.com
no. 140312

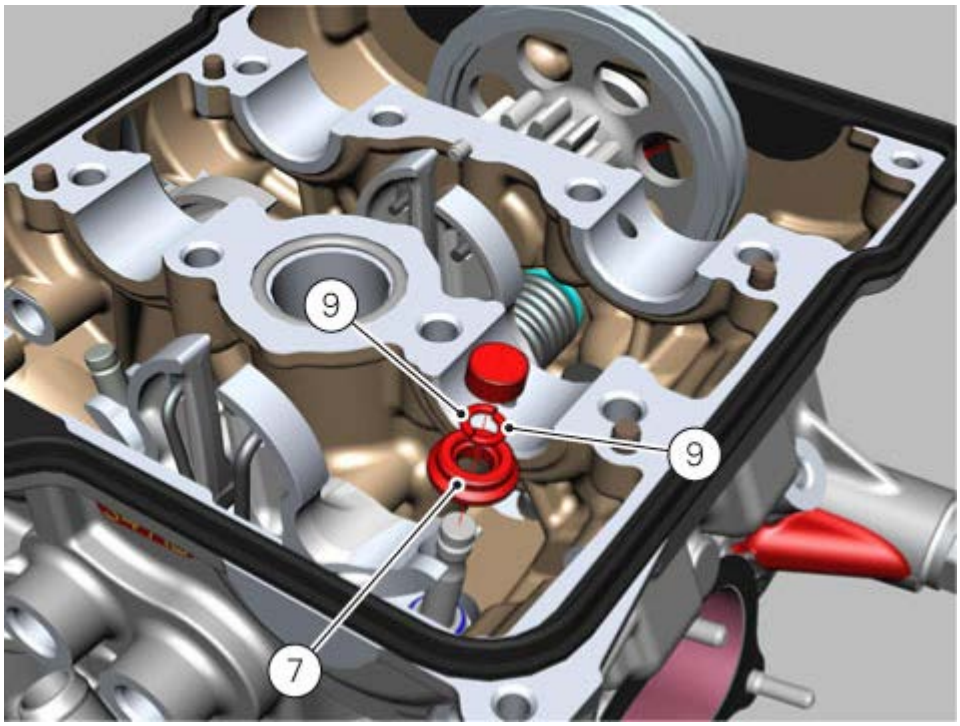


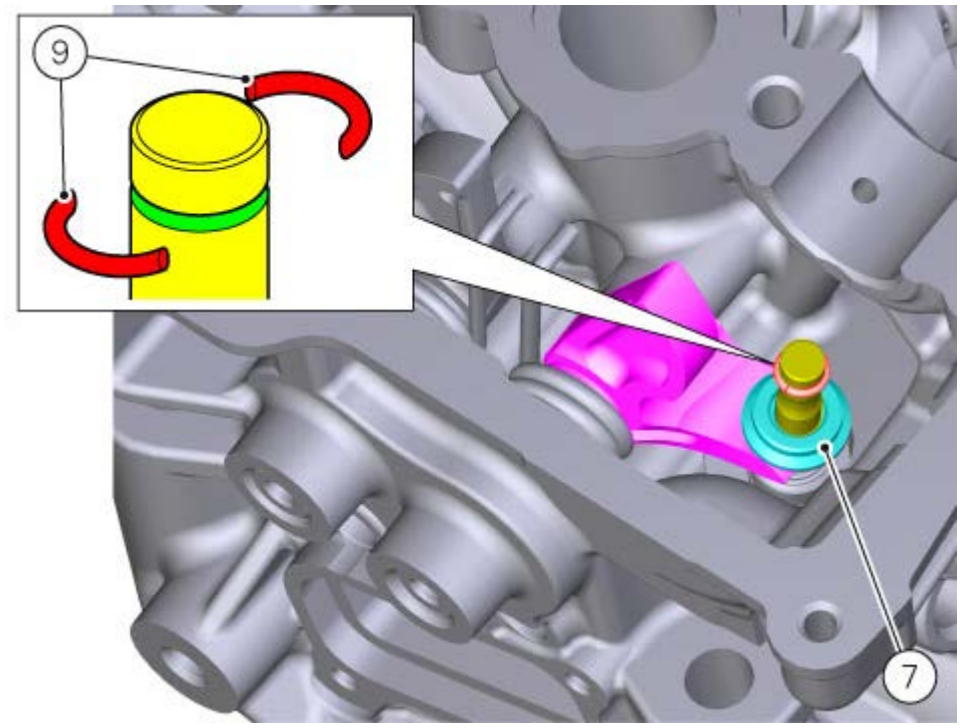
Disengage spring (6) from closing rocker arm (5).
Push down closing rocker arms (5) and closing shim (7).



Remove split rings (9) from the exhaust valves using a magnetic screwdriver.
Remove closing shims (7) from the valves.

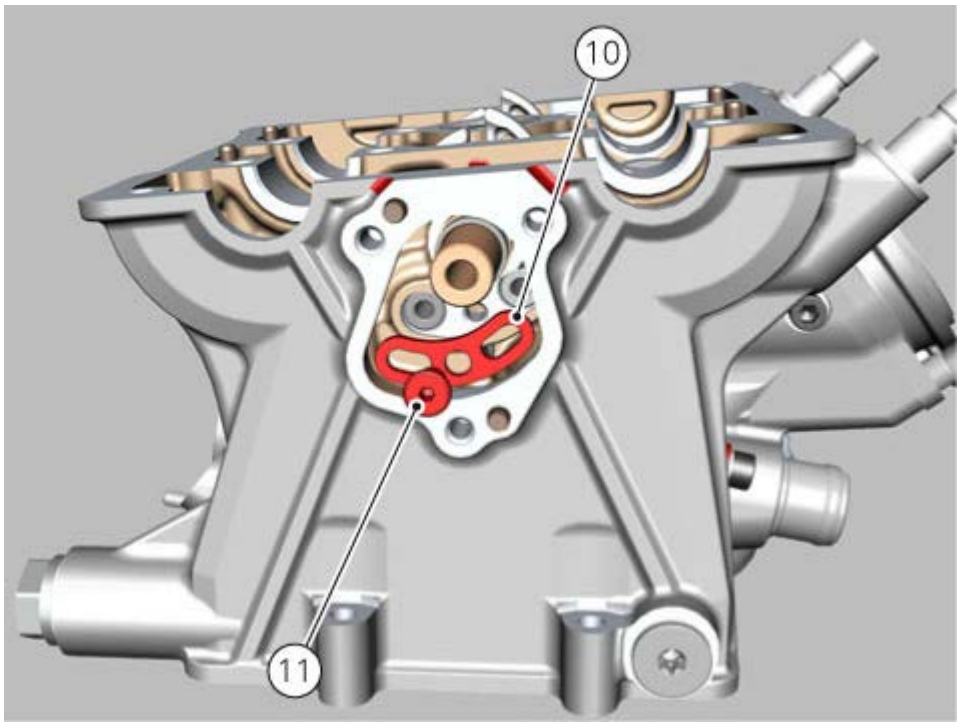
http://www.ducati-manuals.com
no. 140312

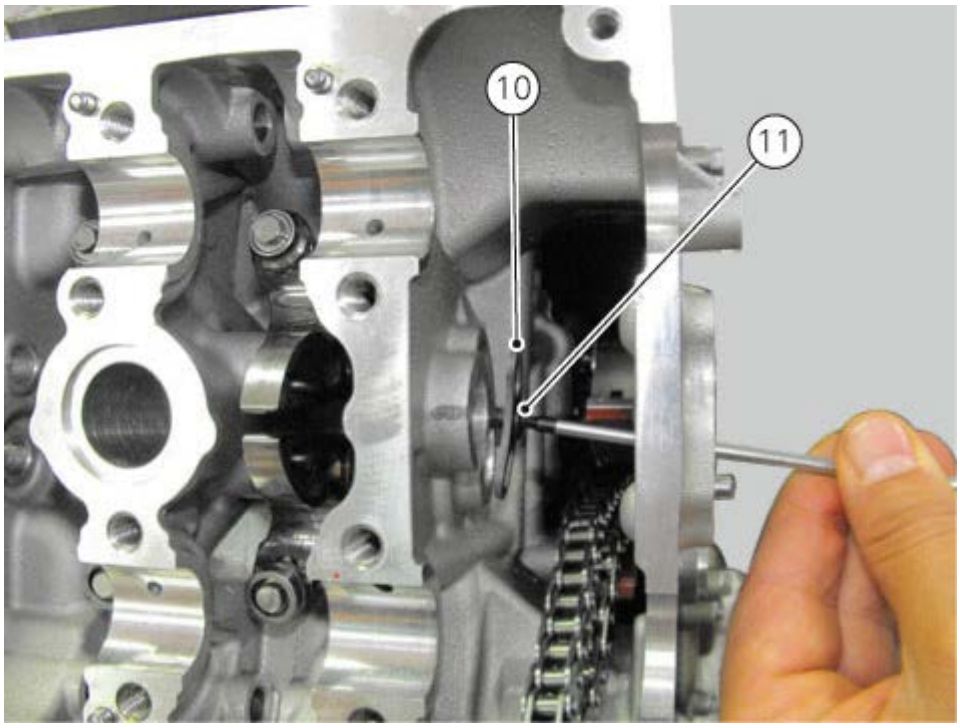




Remove plate (10) blanking timing transmission pins by loosening screw (11).

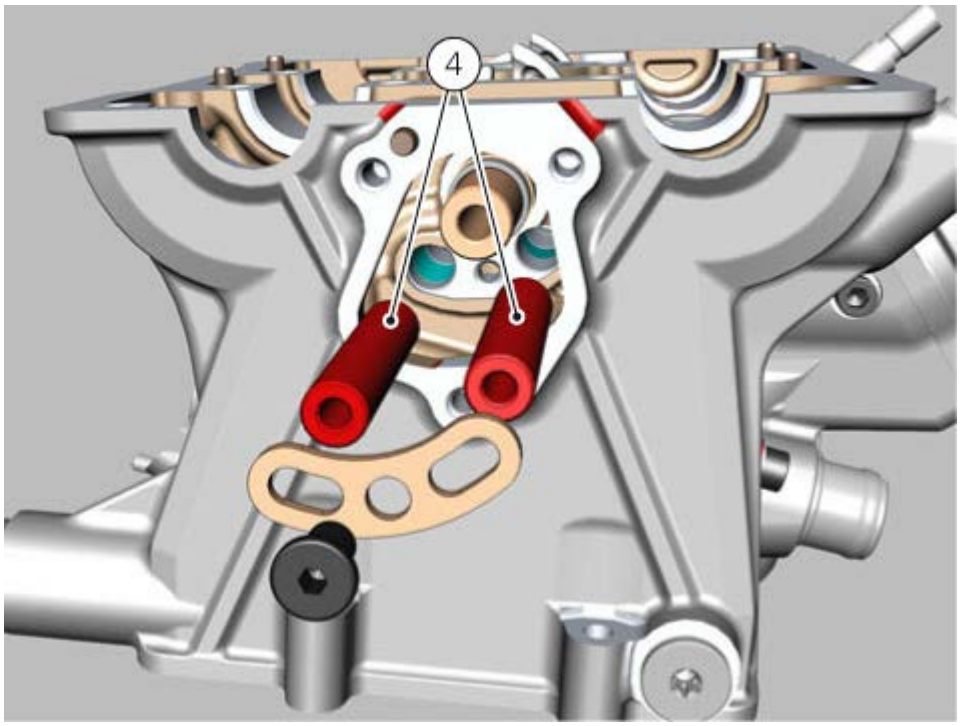
http://www.ducati-manuals.com
no. 140312

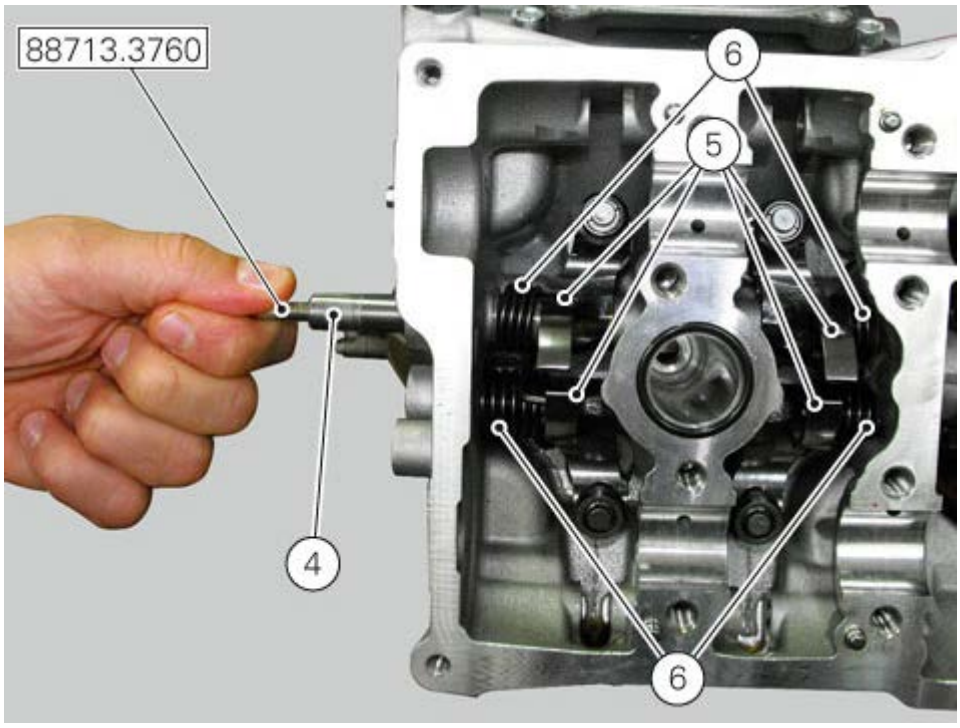




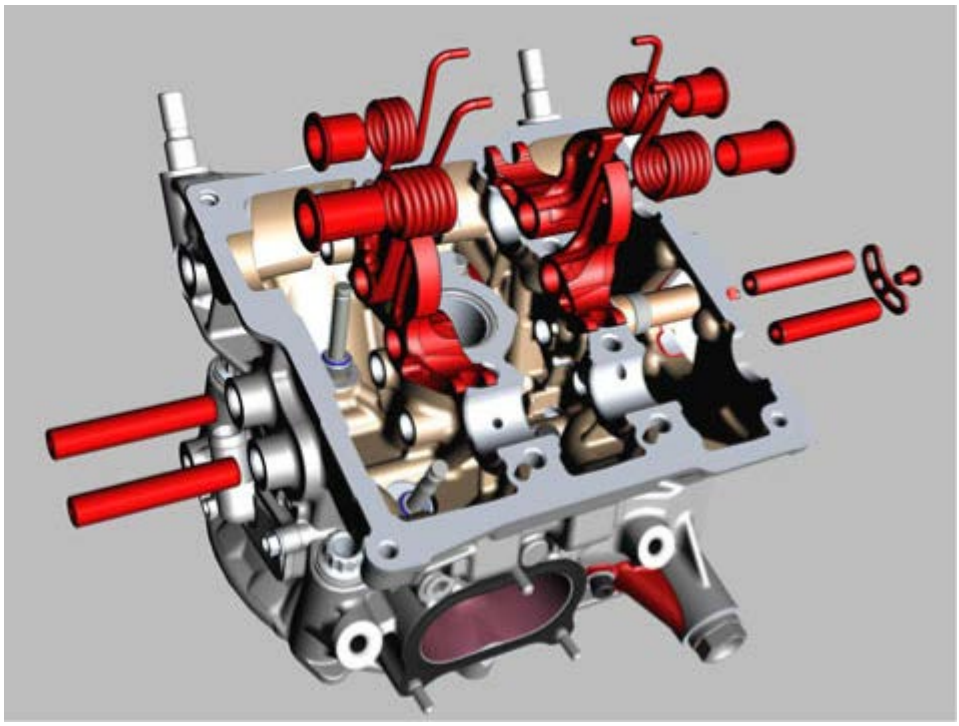
Using tool part no. **88713.3760** slide out the closing rocker arm shafts (4) on exhaust and intake side. Remove the springs (6) with spacers (12) and rocker arms (5).

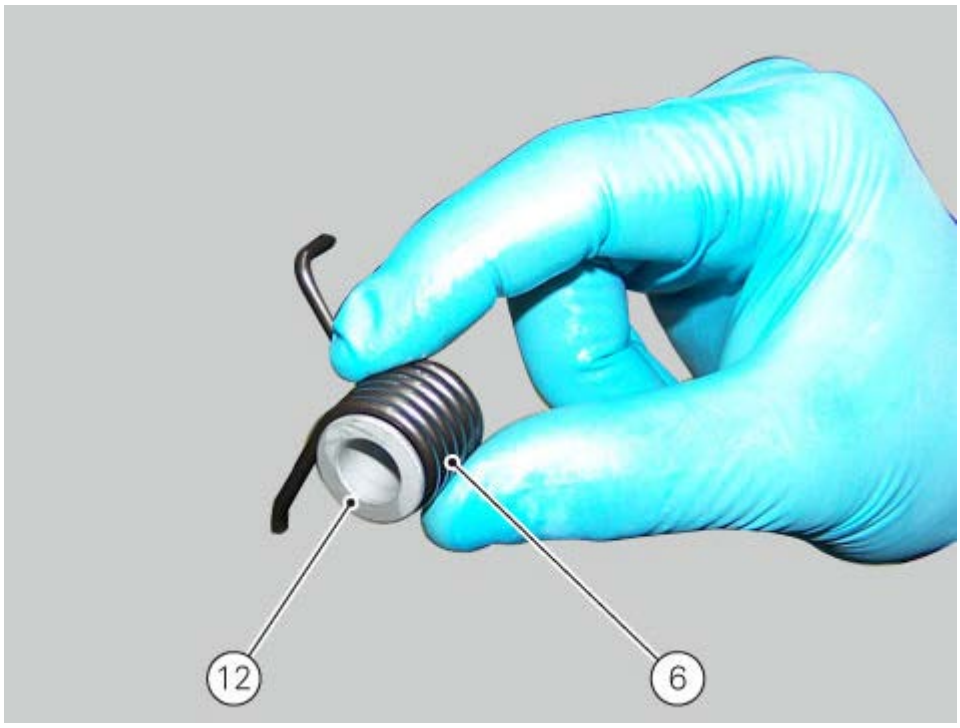
http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

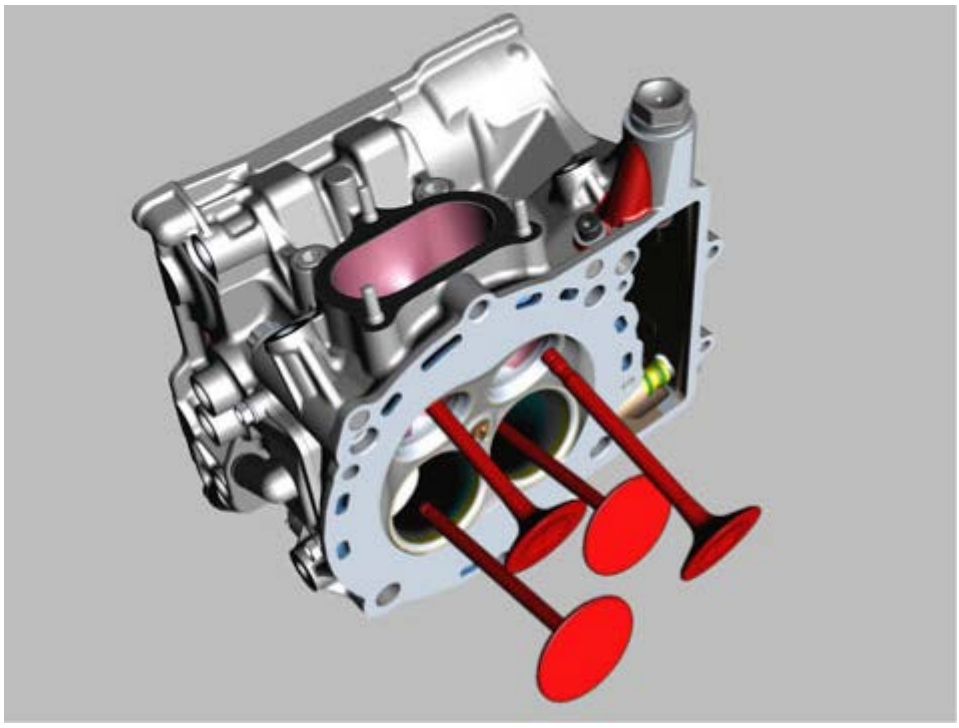




Remove head from tool part no. **88713.3422** and take out the valves from below the head.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Repeat the same procedure for the other cylinder head.

http://www.ducati-manuals.com
no. 140312

Installation of the valves

Note
Valve retainers inside the cylinder heads are tapered collets on the intake side and split rings on the exhaust side.

Thoroughly clean the valve seats on intake and exhaust side.
Smear the central part of valve stem with engine oil and lubricate in this way both intake and both exhaust valves.



Fit the valves in their seats on cylinder head, fully home.



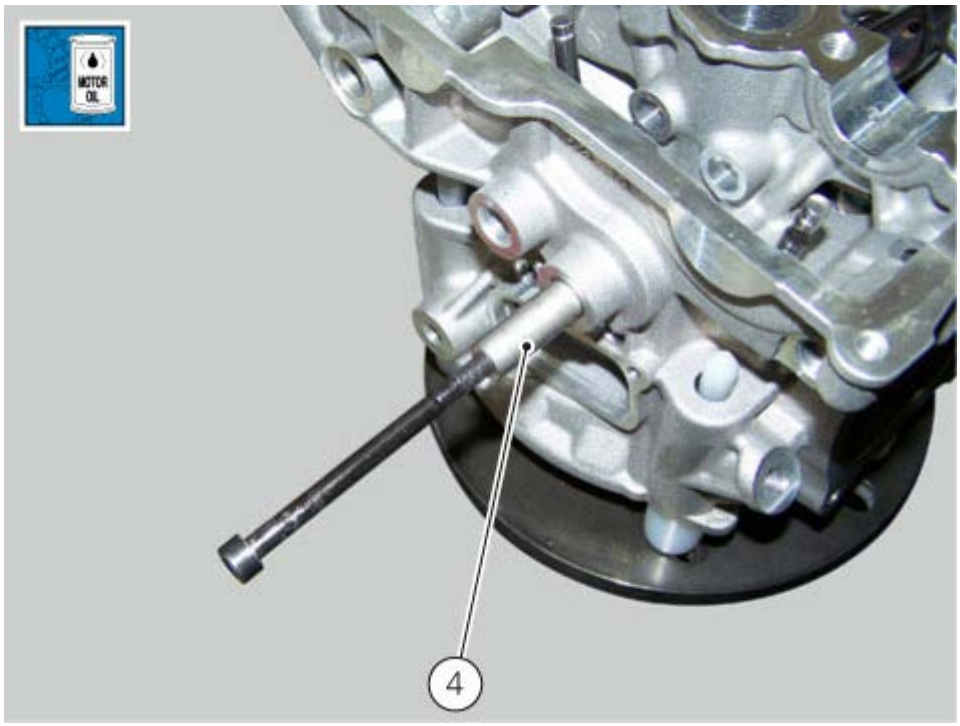
Take the head you are going to work on and set it onto tool part no. **88713.3422** so that the valves can rest onto the mating Teflon surface.

http://www.ducati-manuals.com
no. 140312



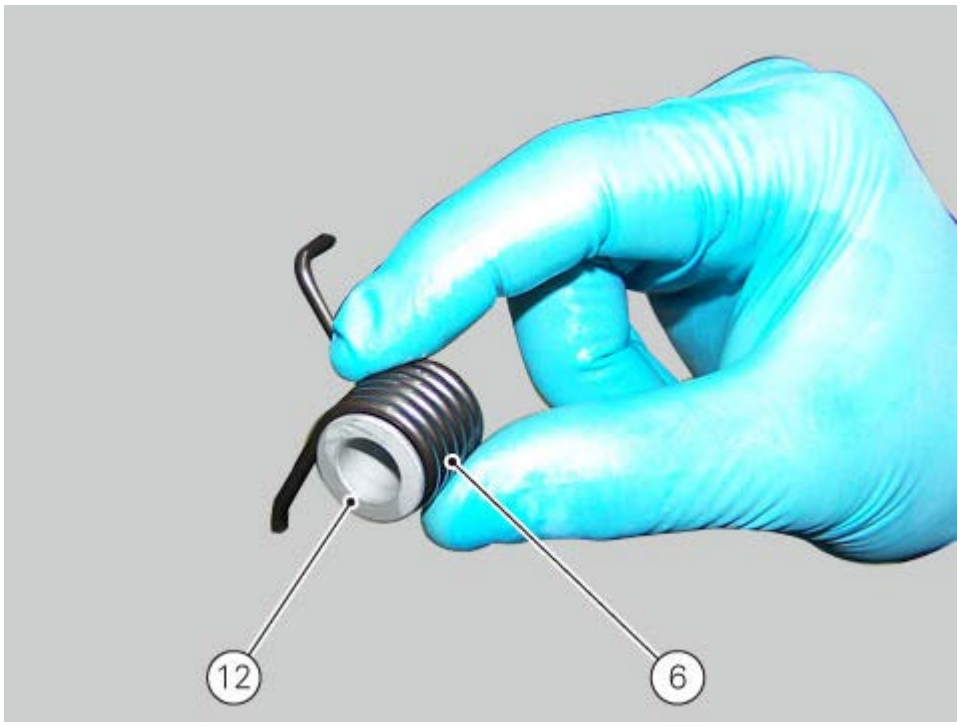
Make sure that the rocker arms are not scored or cracked in the contact area with camshaft and shim.
Screw a service bolt on closing rocker arm shaft (4), on the side with threaded hole.
Lubricate closing rocker arm shaft (4) with engine oil.
Insert shaft (4) in the relevant hole on the head, sliding it to spread the engine oil all over the shaft surface and inside the passage in the head.

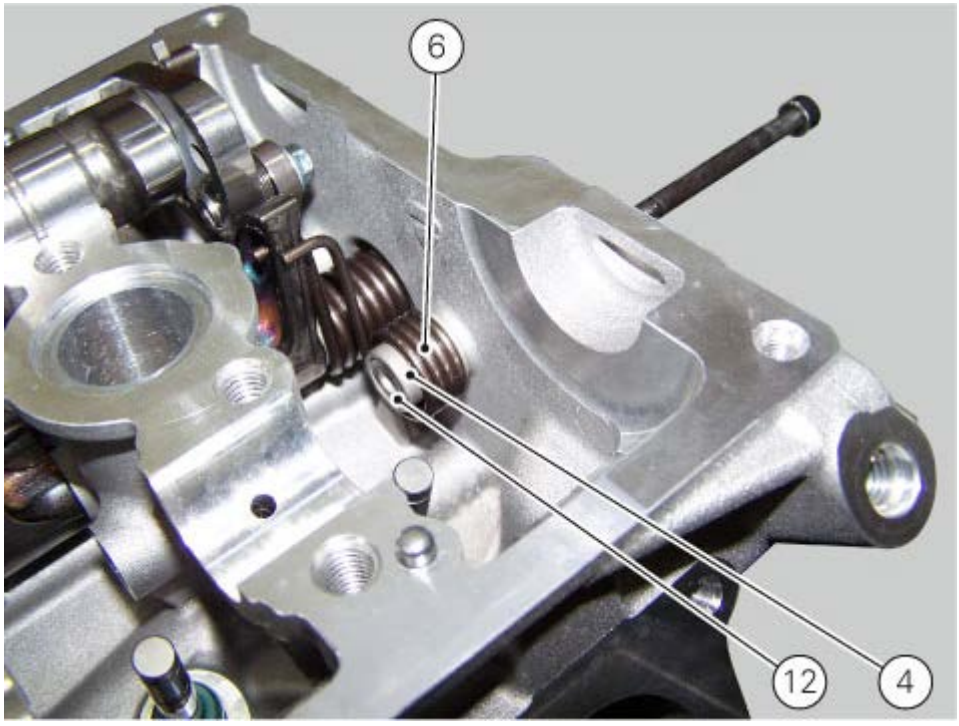
Note
Once shaft is fitted to the head, the threaded side must be facing outwards.



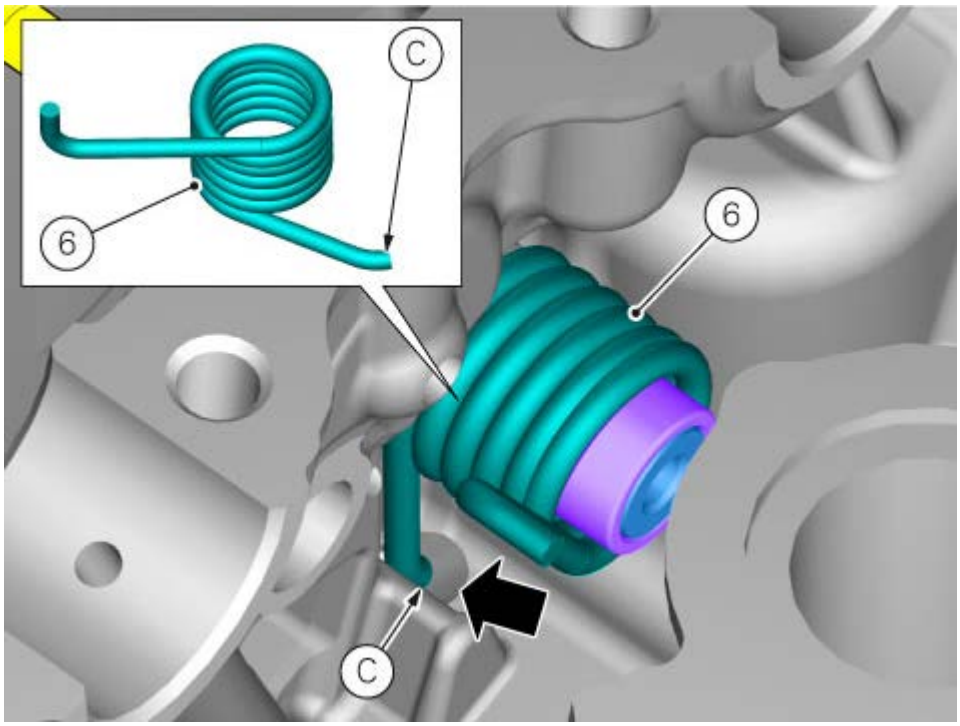
Fit a spacer (12) to closing rocker arm shaft (4). Then fit return spring (6) on spacer, setting its end (C) in the corresponding recess on the head.

http://www.ducati-manuals.com
no. 140312

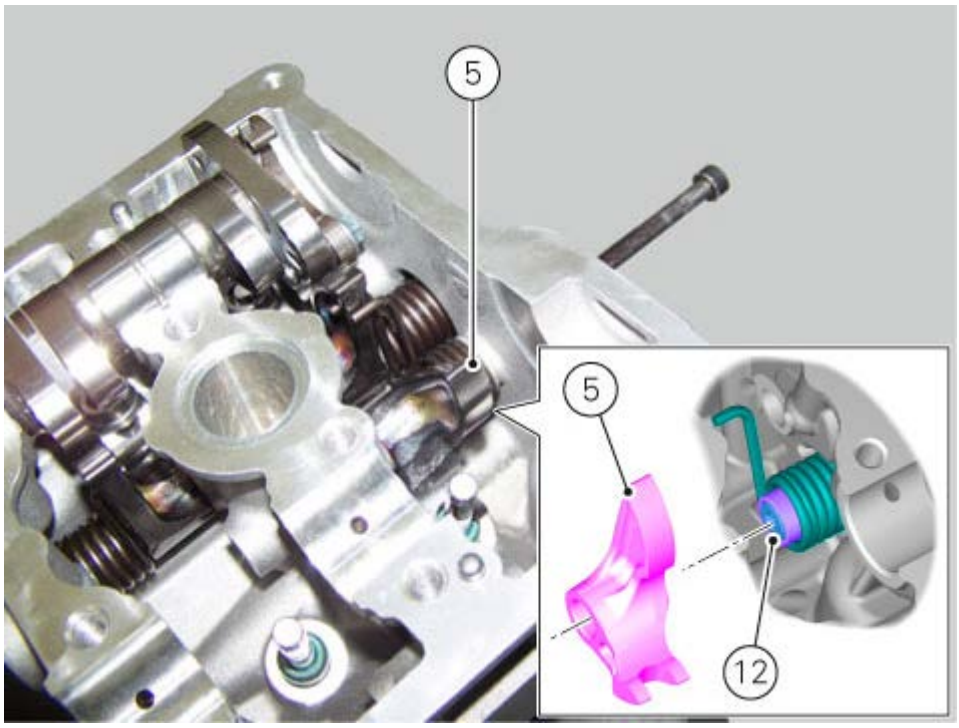




http://www.ducati-manuals.com
no. 140312

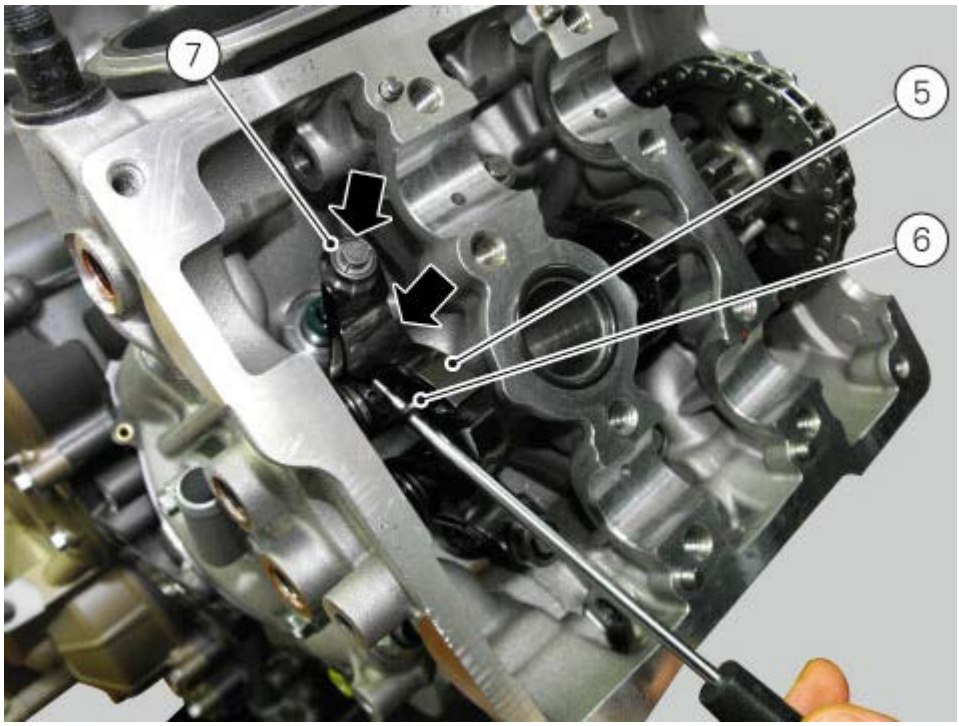


Set closing rocker arm (5) in position, making sure that the through hole is in line with the closing rocker arm shaft (12).
Push the service bolt in until taking the closing rocker arm shaft (12) fully home.
Loosen and remove the service bolt from the closing rocker arm shaft.

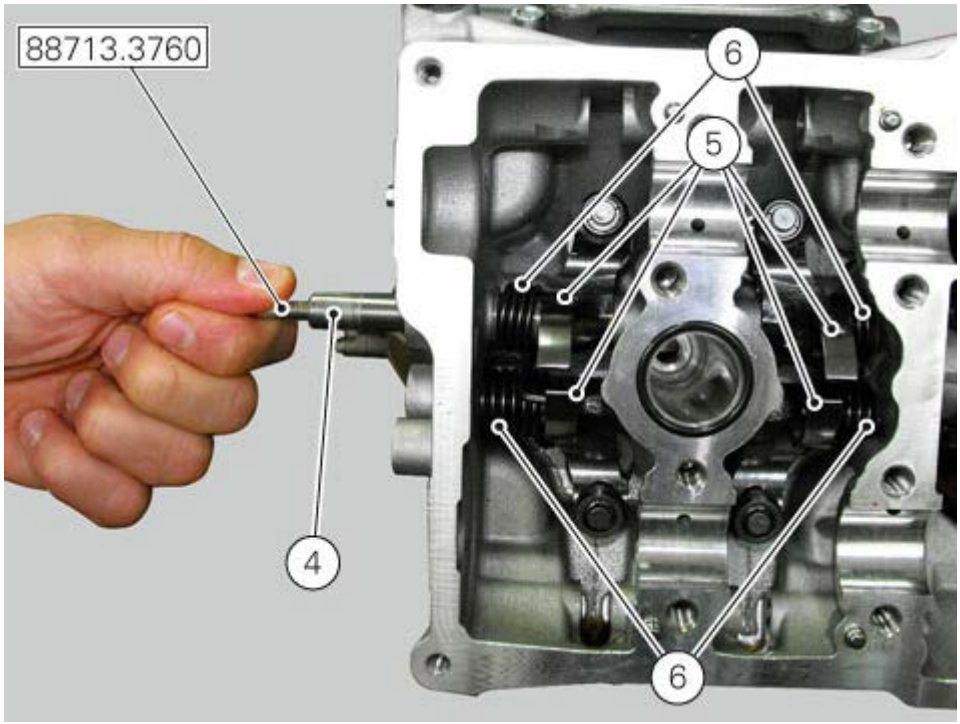


Hold closing rocker arm (5) pushed down while fitting the closing shim (7) on valve stem, so that it gets against the rocker arm.
If reassembling a used head, first refit the original shim

http://www.ducati-manuals.com
no. 140312

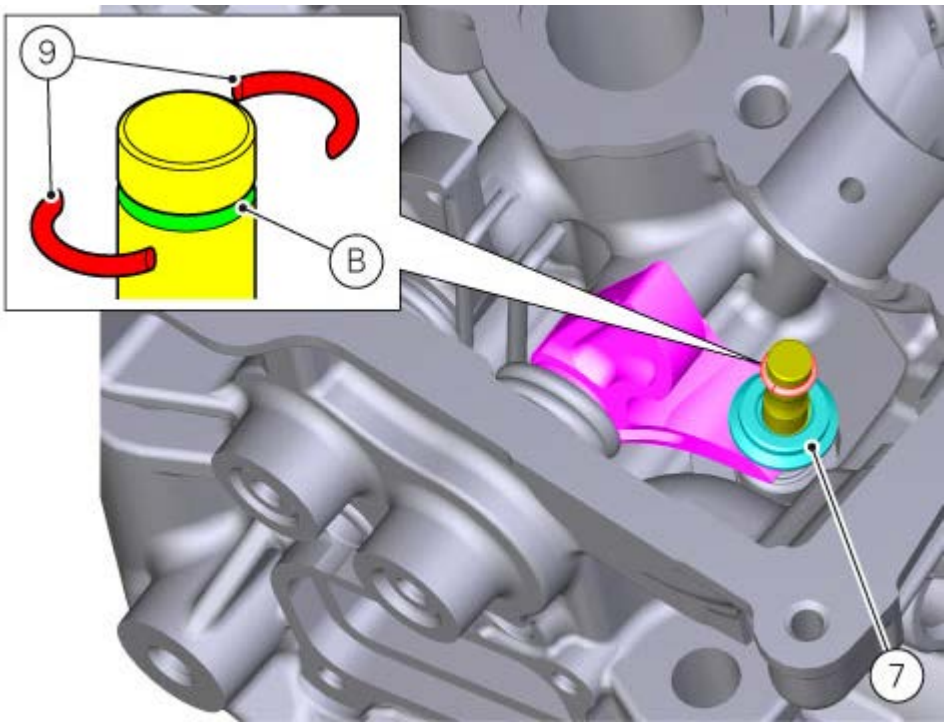


Work in the same way to install the shafts (5), springs (6) and shafts (4) on exhaust side.

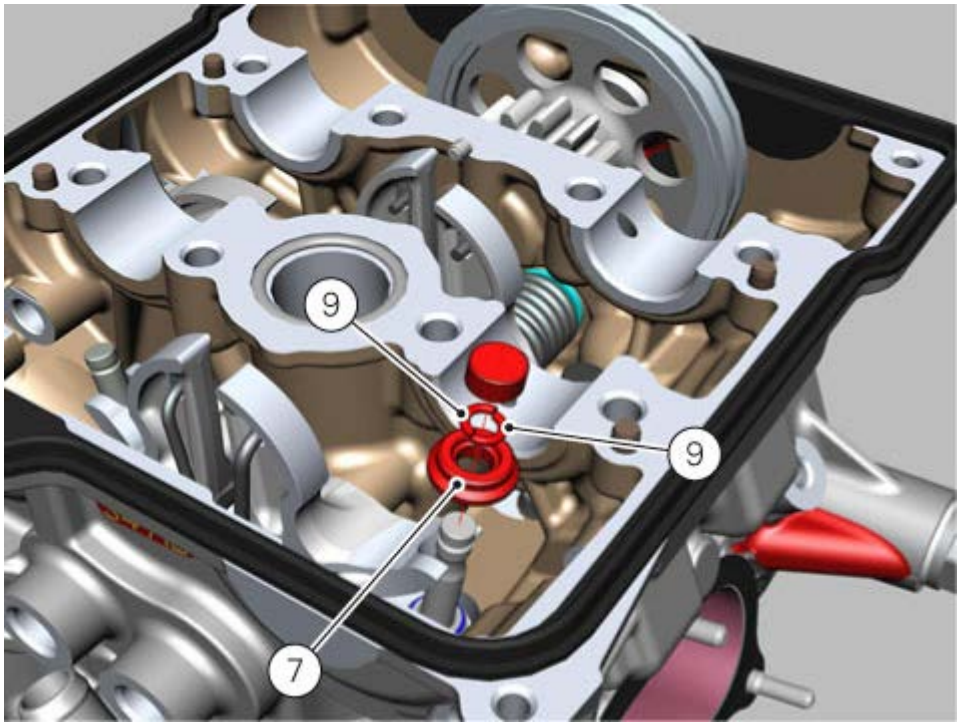


On the exhaust side, install split rings (9) as follows: fit the new rings in groove (B) on valve stem and release the rocker arm to obtain proper split ring positioning inside the shim.

http://www.ducati-manuals.com
no. 140312

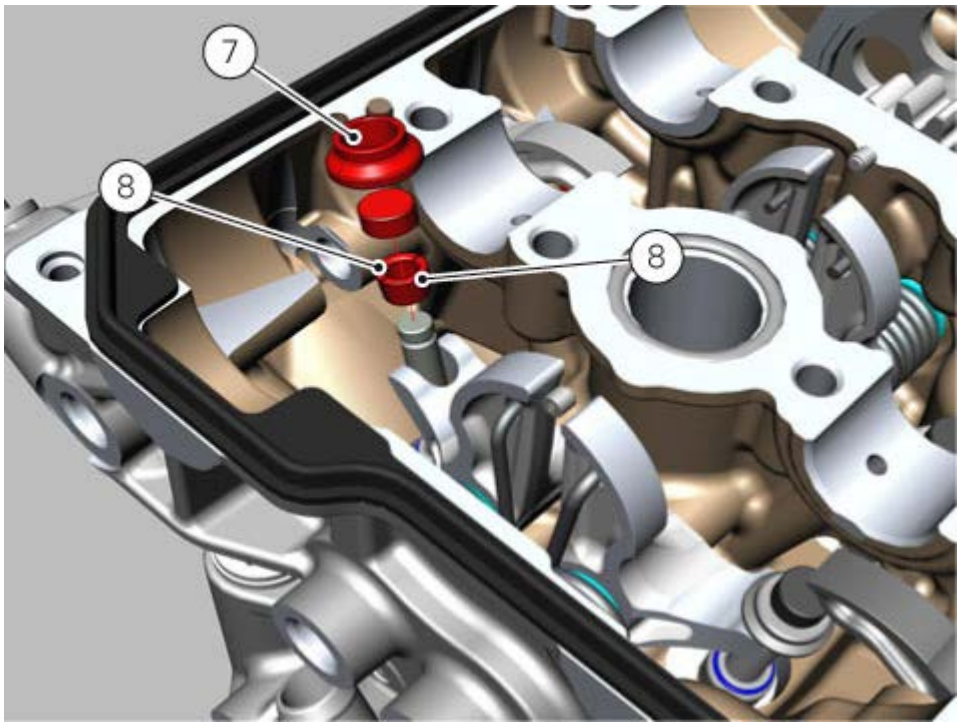


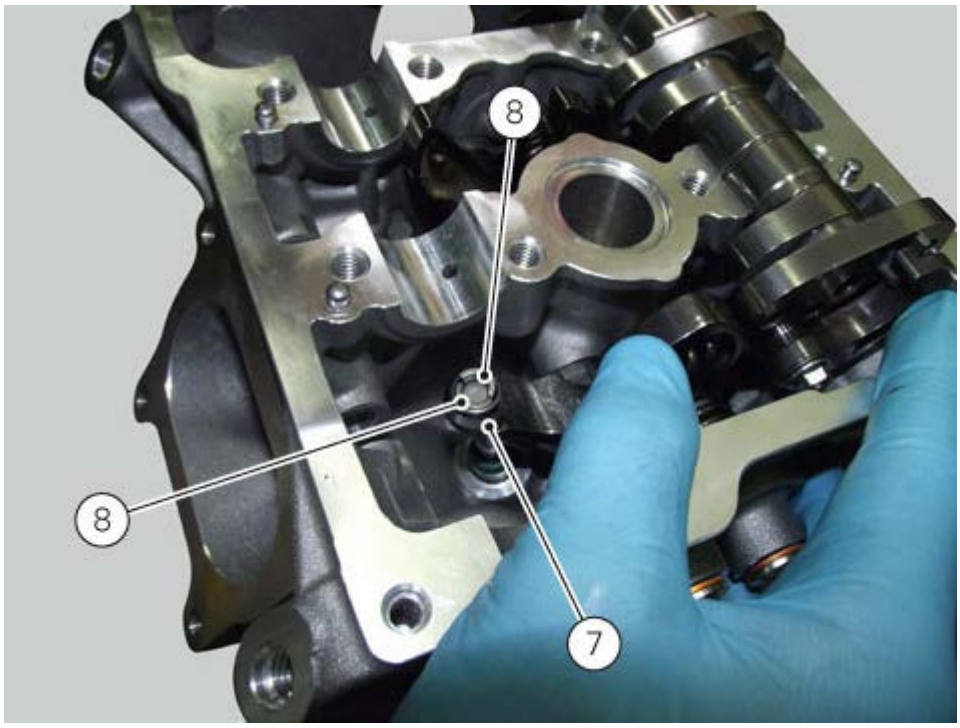
Move the closing rocker arm so as to load the spring as much as possible and hold the valve, shim (7) and split rings (9) in closed valve position.
Quickly let go of the rocker arm, so as to settle the split rings (9) inside shim.
Carry out the same operation on the opposite valve and make sure that the valve stem tip is flush with shim (7). If it is not so, repeat the procedure for reassembling the split rings (9).



On the exhaust side, install valve collets (8) as follows.
Thoroughly clean the collets (8) with alcohol before starting.
Fit both collets (8) between closing shim (7) and valve stem, letting them slide along the stem.
Take closing shim (7) fully home against collets (8).

http://www.ducati-manuals.com
no. 140312

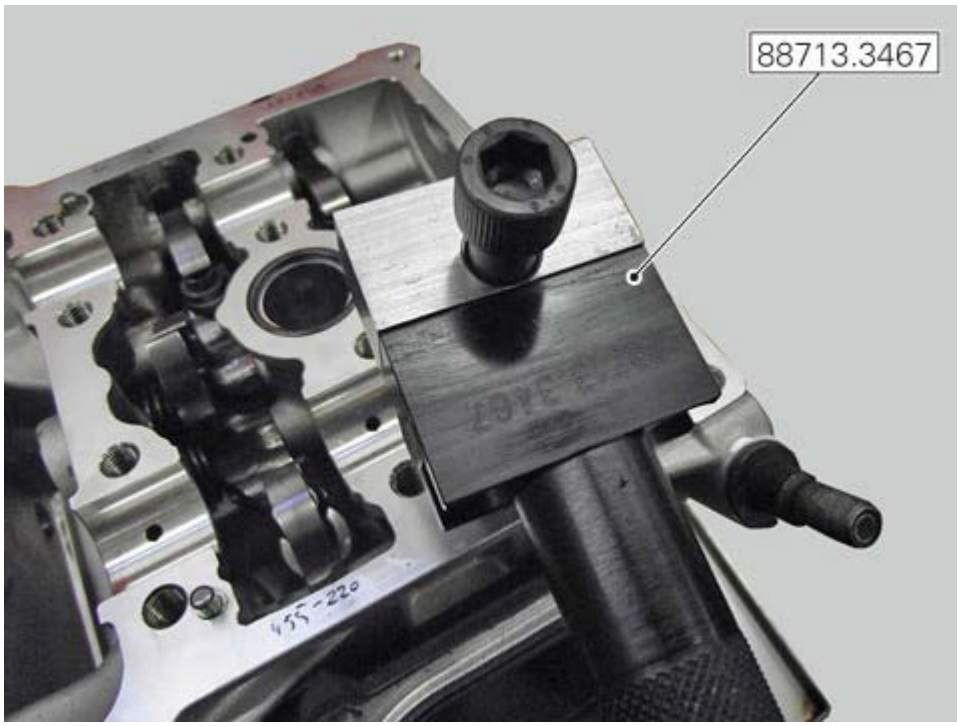


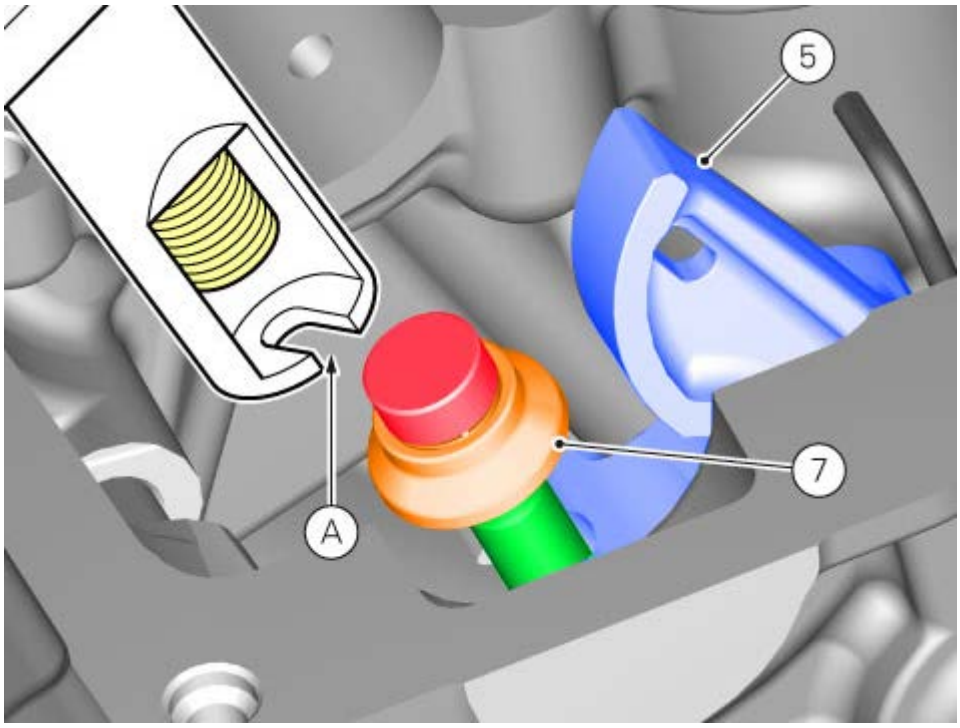


Set a service opening shim on top of the valve stem then use the special tool part no. **88713.3467** to settle the coupling of parts.
Insert the opening rocker arm in the slot of tool part no. **88713.3467**, se tool **88713.3467** on the internal edge of the head and tighten the bolt to 12 Nm (Min. 11 Nm - Max. 13 Nm).
Loosen tool bolt and remove tool.

Note
The tool is designed so that the stroke is stopped by the closing rocker arm in order to avoid to hit the seal or the head, thereby damaging them.

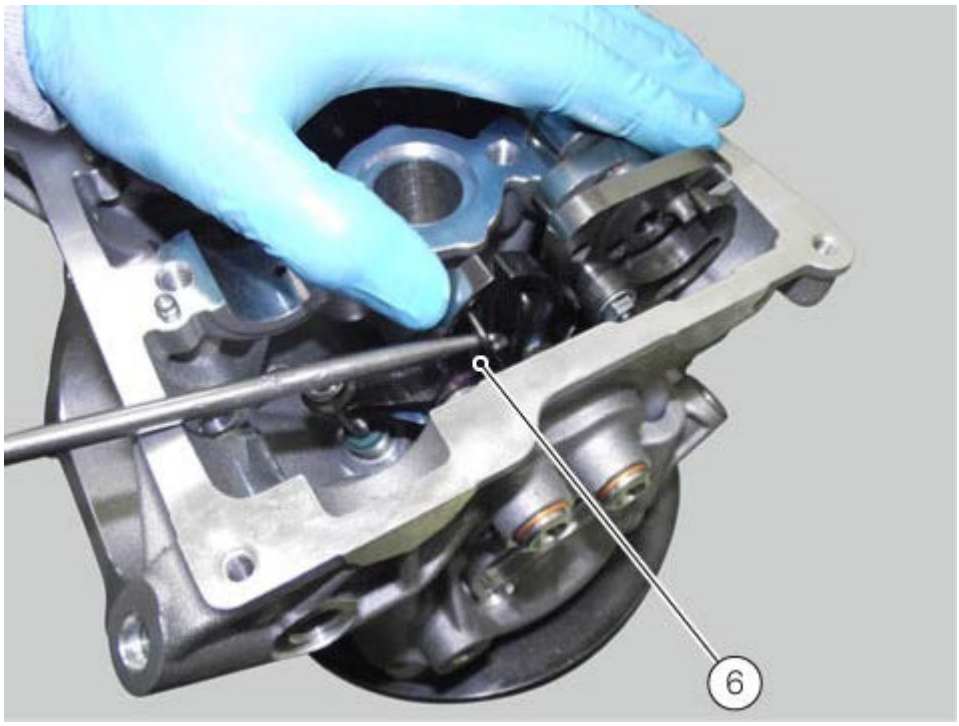
http://www.ducati-manuals.com
no. 140312





Using the suitable tool, fit one end of return spring (6) in the relevant hole on closing rocker arm.

http://www.ducati-manuals.com
no. 140312



If the specified clearance can not be achieved, or if clearance is just below the lower limit of the allowed range, before changing shim thickness it is recommended to perform a second tightening step, in a cross pattern, by 90° (compared to the first step) at the same torque.
Valve collets must be renewed after they have been tightened 2 or 3 times.

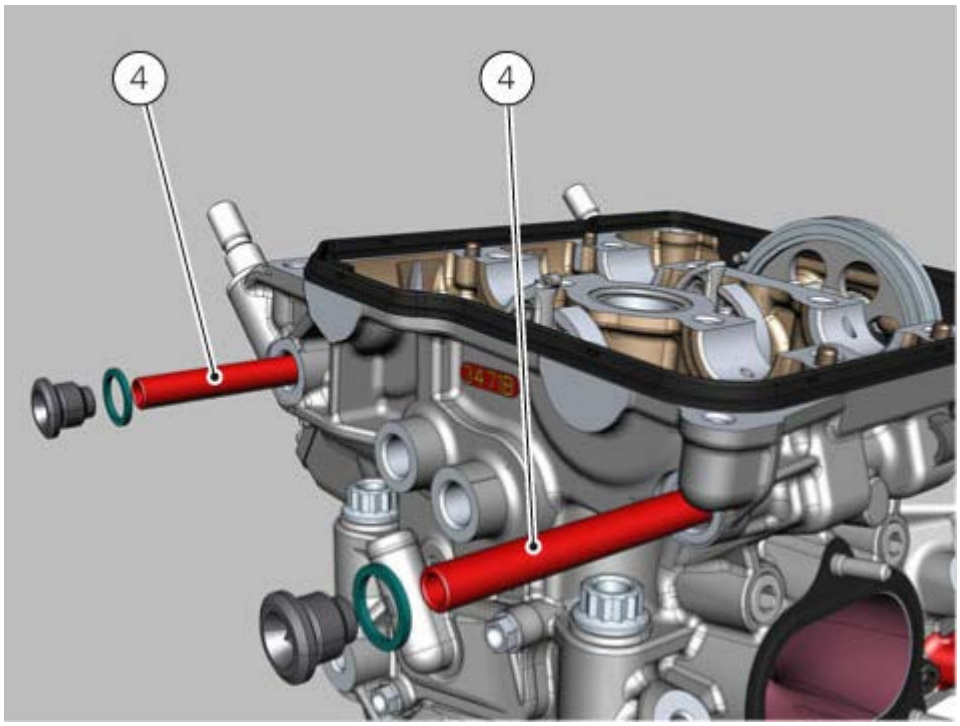
Temporarily position the camshafts and check closing valve clearance (Check valve clearance).

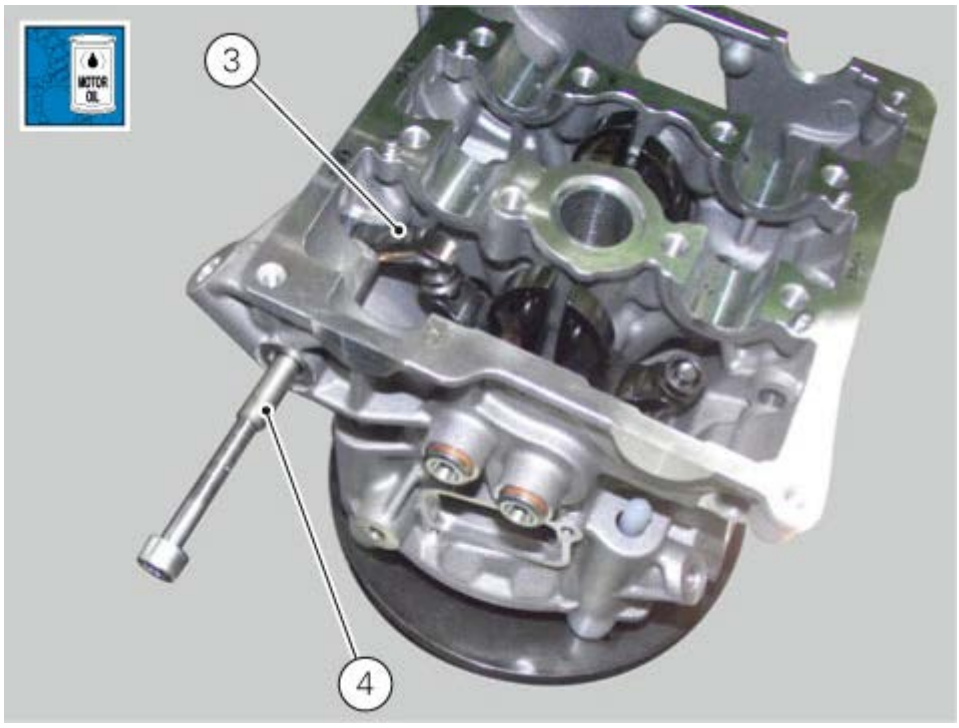
Closing rocker arm	
INTAKE:	
Operation	0.13÷0.18 mm
Inspection	0.13÷0.23 mm
EXHAUST:	
Operation	0.08÷0.13 mm
Inspection	0.08÷0.18 mm

Remove the camshafts.

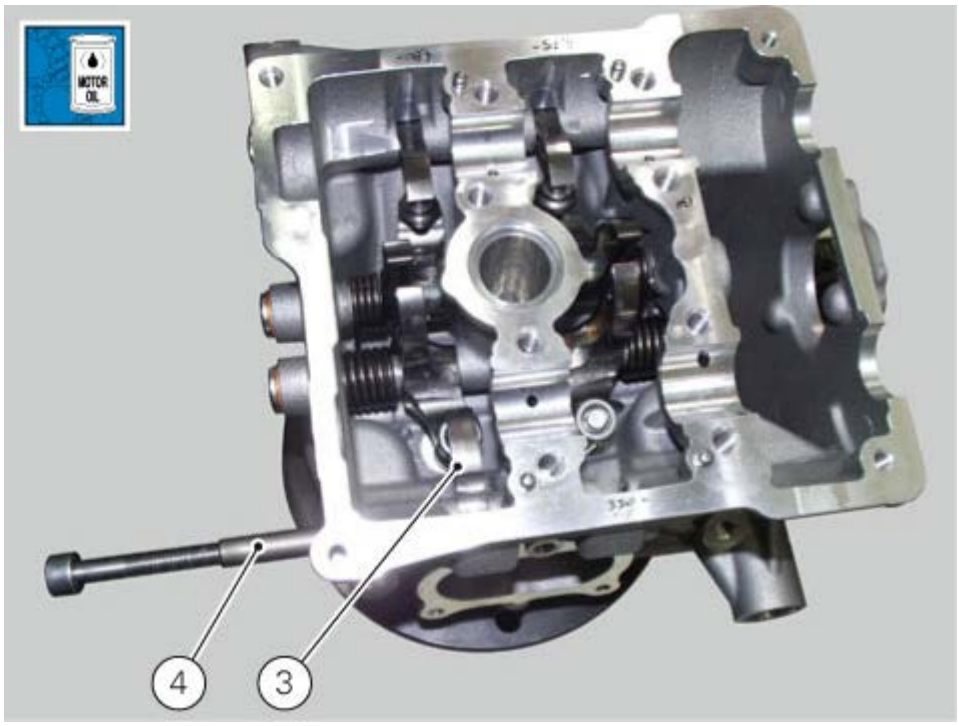
Screw a service bolt on opening rocker arm shaft (4), on the side with threaded hole.
Lubricate rocker arm shaft (4) with engine oil.
Insert shaft (4) in the relevant hole on the head, sliding it to spread the engine oil all over the shaft surface and inside the passage in the head.
Set opening rocker arm (3) in position and push shaft (4) fully home.
Loosen and remove the service bolt from the opening rocker arm shaft (4).

http://www.ducati-manuals.com
no. 140312

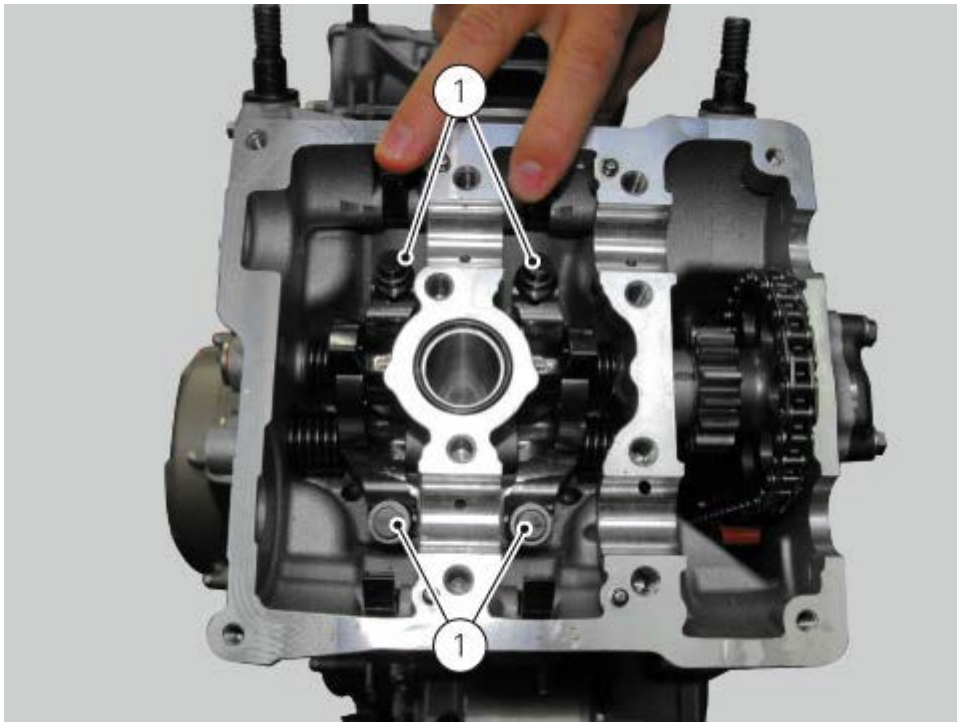




http://www.ducati-manuals.com
no. 140312



Lift opening rocker arm and refit opening shim (1) on valve.
Release rocker arm taking it against the shim.
Settle shim (1) position by tapping moderately hard on the rocker arm slider with a nylon mallet.



Temporarily position the camshafts and check opening valve clearance (Check valve clearance).

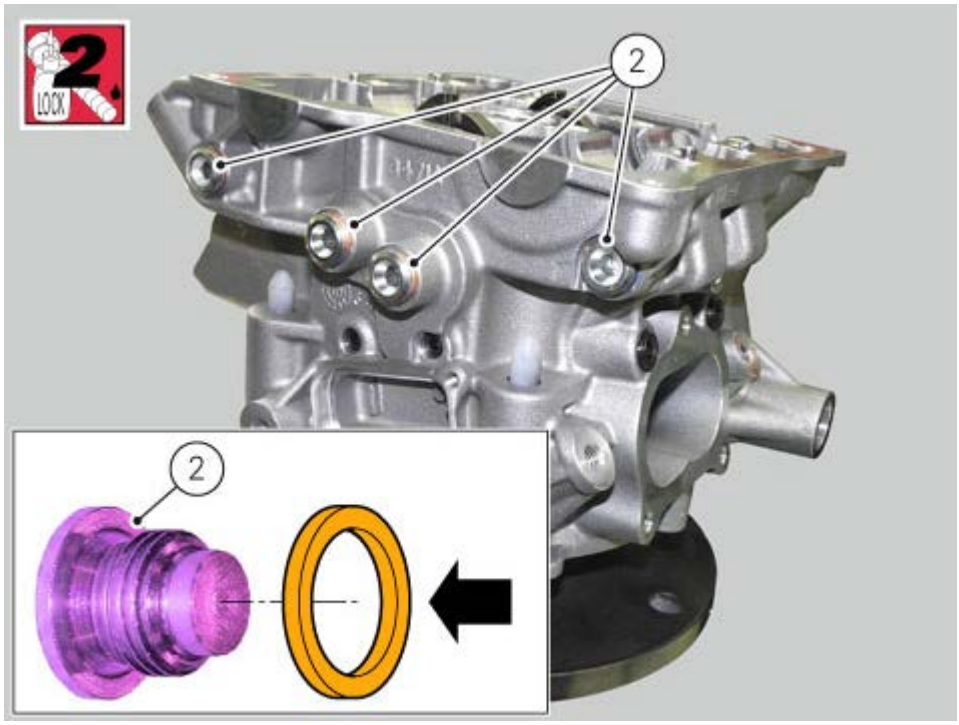
Opening rocker arm	
INTAKE:	
Operation	0.10÷0.15 mm
Inspection	0.07÷0.22 mm
EXHAUST:	
Operation	0.15÷0.20 mm

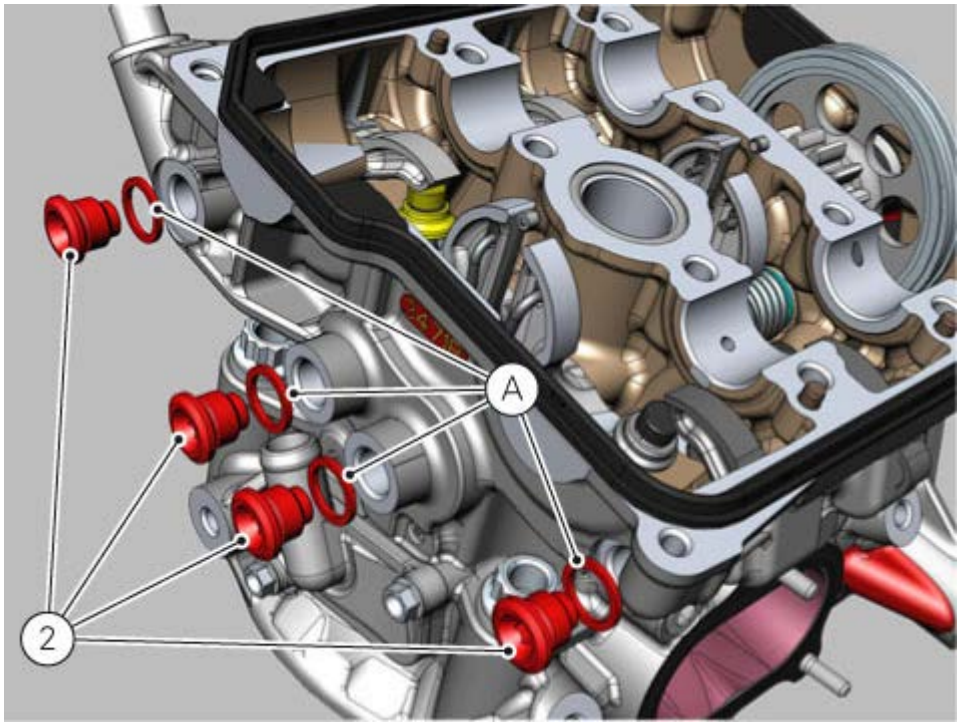
http://www.ducati-manuals.com
no. 140312

Inspection	0.12÷0.27 mm

Remove the camshafts.

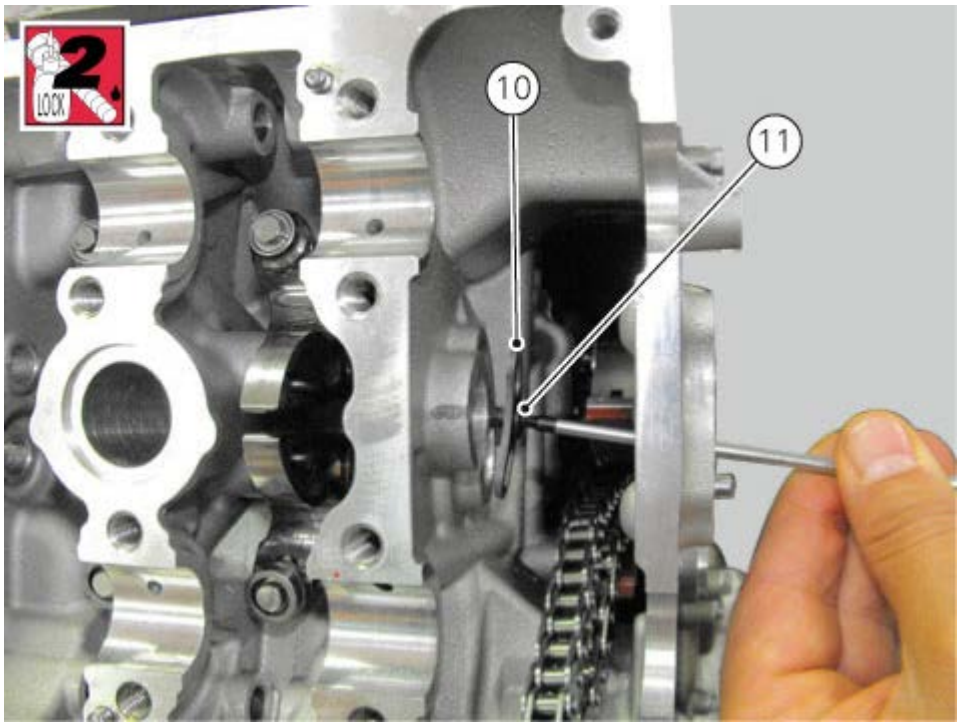
Fit gaskets (B) on plugs (2), positioning them (preferably) with the sharp edge facing the head.
Apply specified threadlocker on plug thread: smear some product on the first two threads, and spread around half its circumference (approx. 180°).
Tighten the plugs to 15 Nm (Min. 14 Nm - Max. 16 Nm).





Apply specified threadlocker to screw (11).
Refit plate (10) blanking timing transmission pins and tighten screw (11) to 10 Nm (Min. 9 Nm - Max. 11 Nm).

http://www.ducati-manuals.com
no. 140312



Repeat the same procedure for the other cylinder head.

Refit the camshafts (Installation of the camshafts).
Refit the cylinder head on the engine (Installation of the cylinder heads (under Removal of the cylinder heads and the timing chain)).

http://www.ducati-manuals.com
no. 140312

Overhauling the cylinder liner components

Overhauling the cylinder liner

Check that the walls of the cylinder are perfectly smooth. Measure the cylinder liner diameter and determine the tolerance class it belongs to according to specified values; based on the measurements, make sure that taper and oval values fall within the specified values.
Liner diameter for determining the tolerance class shall be measured at these three axial positions: 10 mm – 40 mm – 80 mm from the top edge.



In the event of damage or excessive wear the liner must be replaced as it has a silicon carbide coating (which provides the cylinder liner walls with excellent anti-friction and anti-wear properties) and therefore cannot be ground.
Liners are marked with a letter indicating the class they belong to. This letter is punched on the outer diameter, at the bottom of the liner and on the side opposite to the timing pin seat.
Always match liners with pistons from the same size class.

	Piston Class		
Piston mark	Piston size	Liner mark	Liner size
A	111.925 to 111.935	A	112.00 to 112.01
B	111.935 to 111.945	B	112.01 to 112.02
C	111.945 to 111.955	C	112.02 to 112.03
	Coupling clearance:	0.065 to 0.085	

http://www.ducati-manuals.com
no. 140312



Overhauling the piston

Clean the piston crown and piston ring grooves, removing any carbon deposits. Visually inspect the piston and check its dimensions carefully: there must be no signs of scuffing, scoring, cracks, or other damage.
The piston diameter must be measured at 8 mm up from the bottom of the skirt and in perpendicular direction to the gudgeon pin axis.



Checking the piston-liner clearance

The pistons are marked with a letter (punched into the piston crown) that indicates the size class to which they belong.
Always match liners with pistons from the same size class.
For class specifications, please refer to the previous section.

http://www.ducati-manuals.com
no. 140312



Overhauling the gudgeon pins

Gudgeon pins must be perfectly smooth without signs of scoring or steps.
The well-lubricated gudgeon pin must slide smoothly inside the piston without stiffness.
For the coupling clearance values with the piston and the connecting rod, see section "Cylinder piston".



Overhauling the piston rings

The piston rings must not show any signs of scuffing or scoring. Spare pistons are supplied complete with piston rings and gudgeon pin.

http://www.ducati-manuals.com
no. 140312

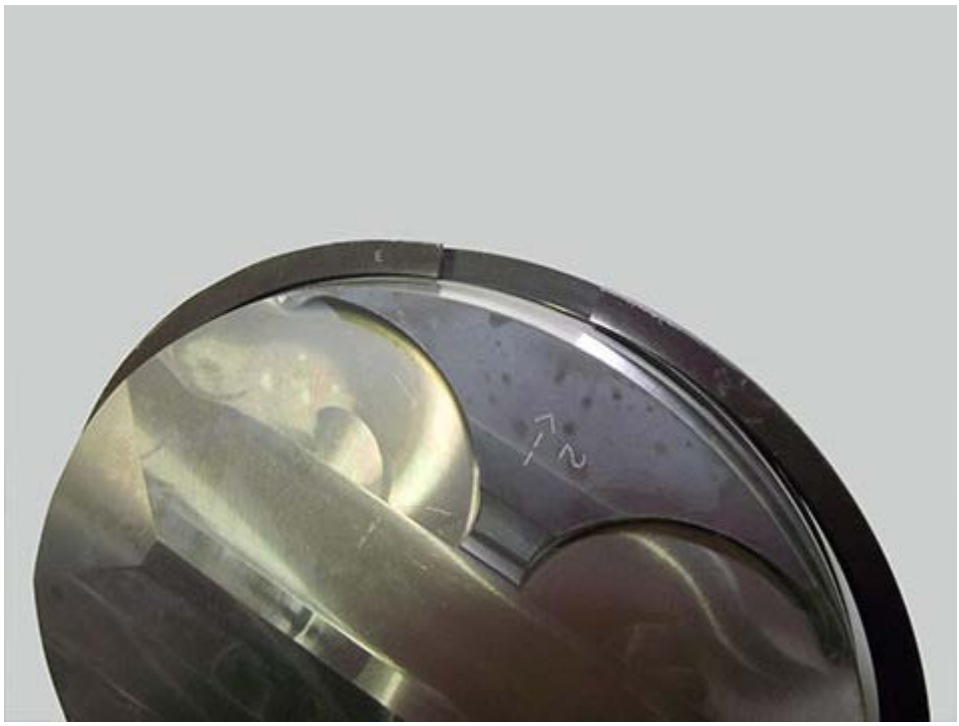


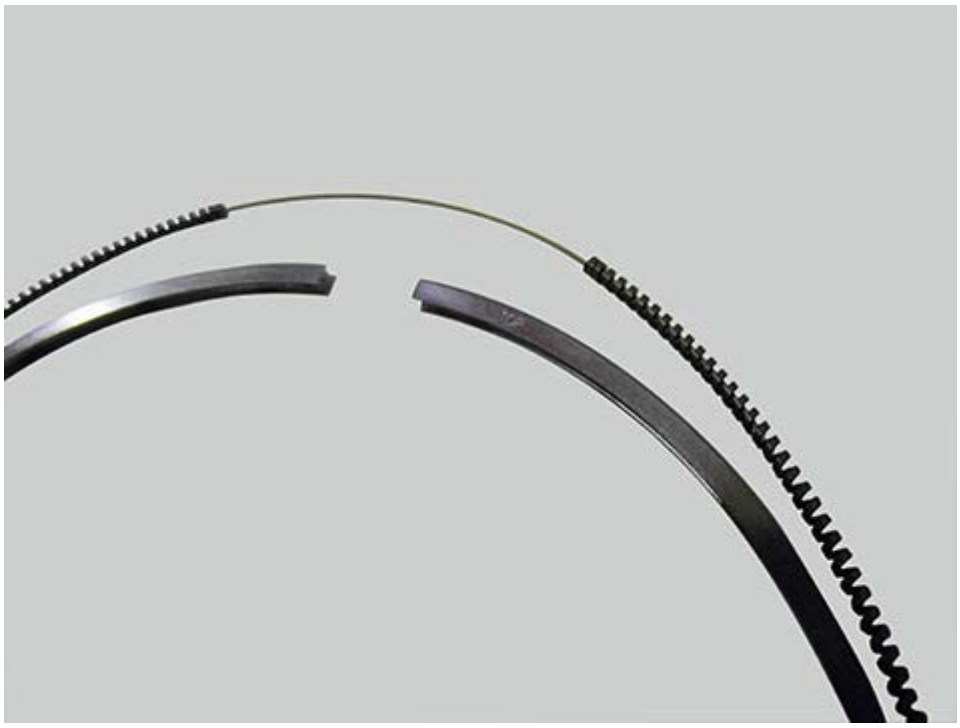


Checking the piston ring-grooves clearance

The piston rings must always be installed with markings facing upwards.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312



Checking the piston ring-liner clearance

Insert the piston ring 40 mm from the top face of the liner; make sure that the ring is positioned perfectly square to the cylinder axis by checking with a gauge at several points around the ring that the top surface of the ring is 40 mm from the cylinder top face.
Measure the piston ring gap (A):

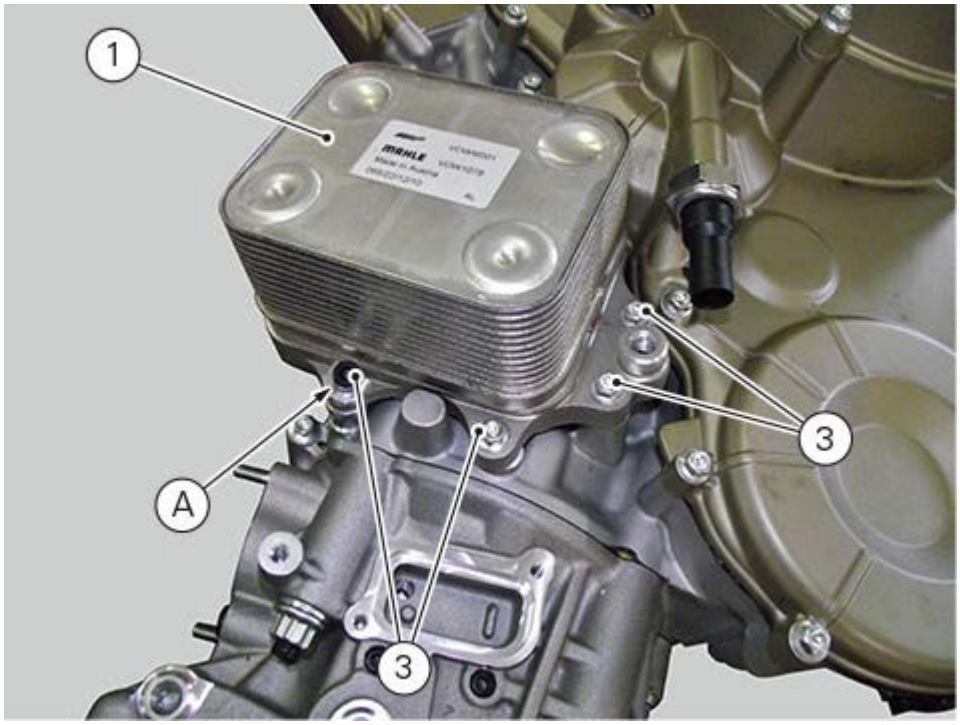
	Distance A (mm)	Wear limit
Upper piston ring	0.25 to 0.5	0.7
Intermediate piston ring	0.3 to 0.6	0.8
Oil scraper ring	0.2 to 0.45	0.6

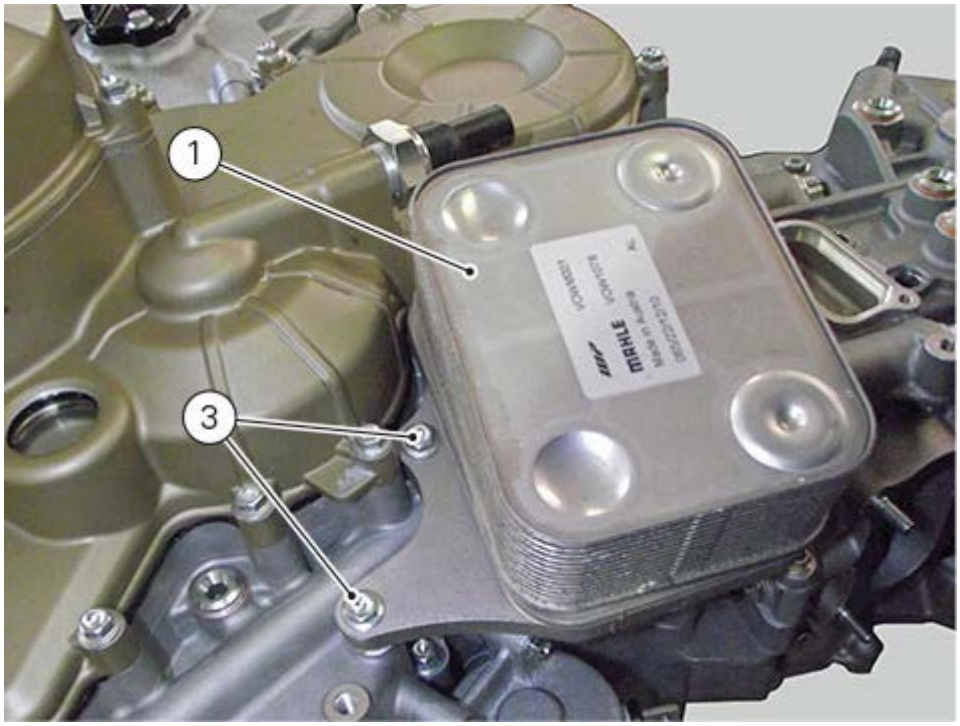
http://www.ducati-manuals.com
no. 140312

Removing outer components

Remove the heat exchanger (1) with gasket (2) by loosening the screws (3).

Warning
After the removal, some coolant and engine oil could leak out.

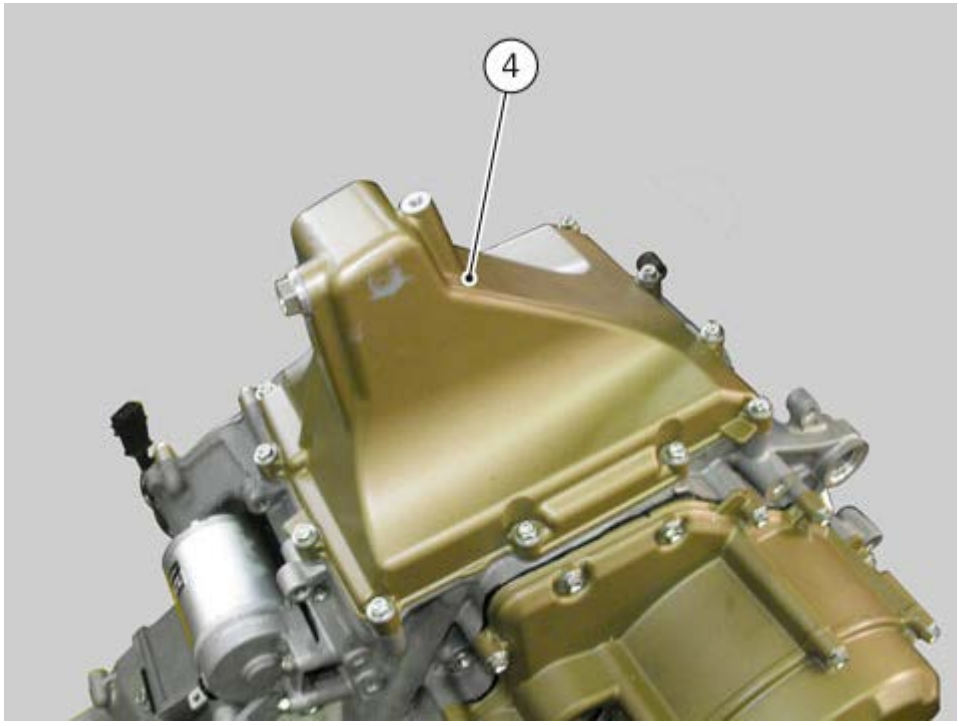




http://www.ducati-manuals.com
no. 140312

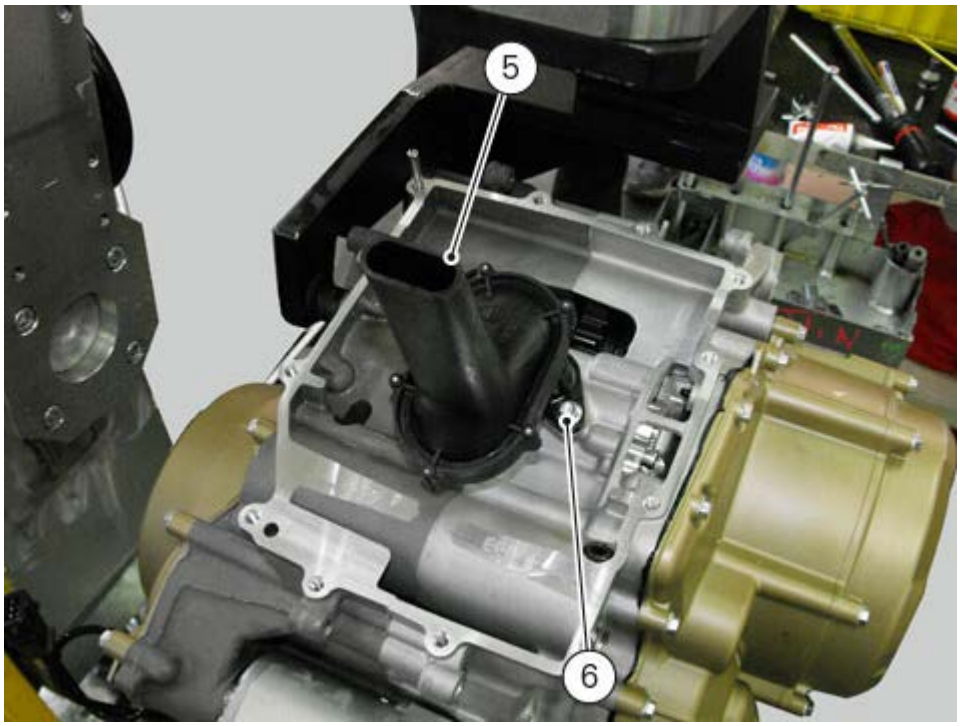


Remove the oil sump (4) (Removing the oil sump).



Undo the screw (6) and remove oil intake filter (5).

http://www.ducati-manuals.com
no. 140312



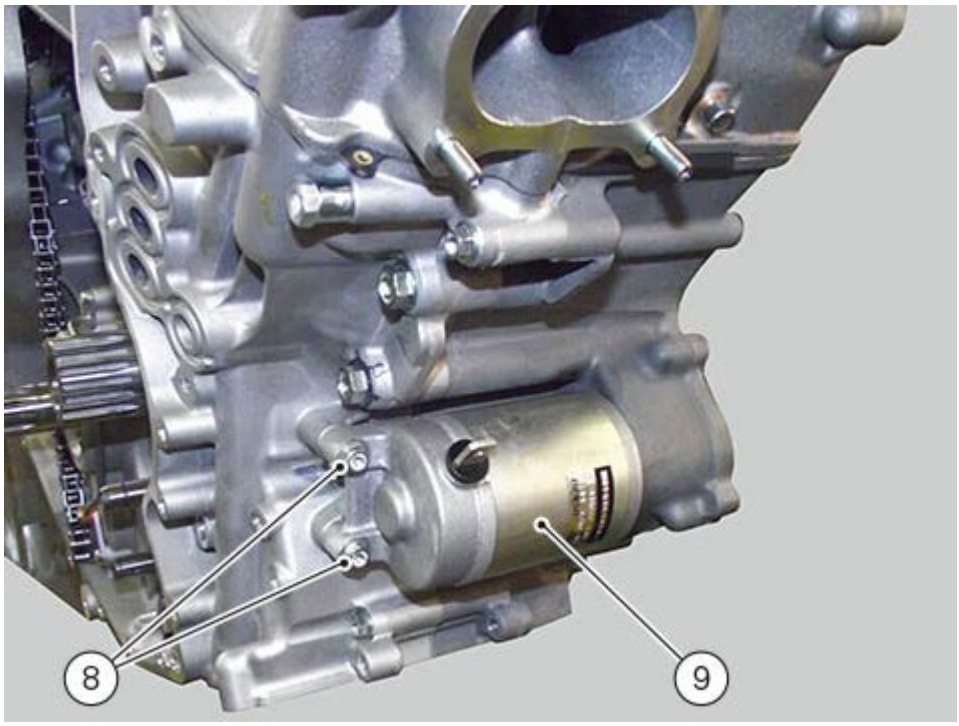
Remove the generator cover (Removing the generator cover).
Remove the flywheel/alternator assembly (Removal of the flywheel/generator assembly).

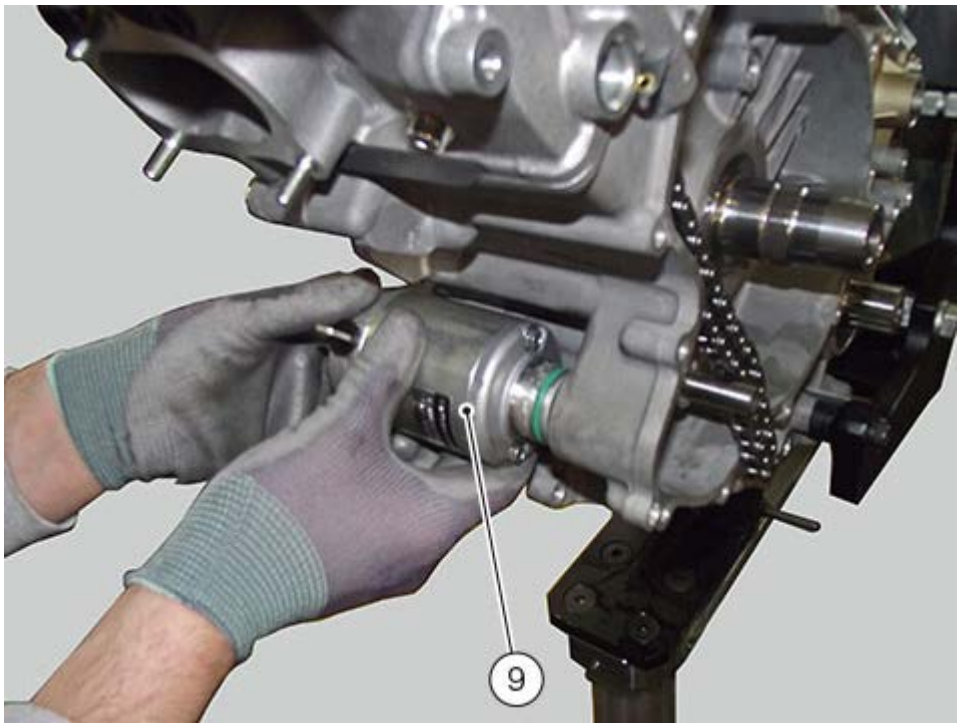
Slide out the split starter gear (7).



Loosen the screws (8) on the starter motor (9), and remove it from crankcase.

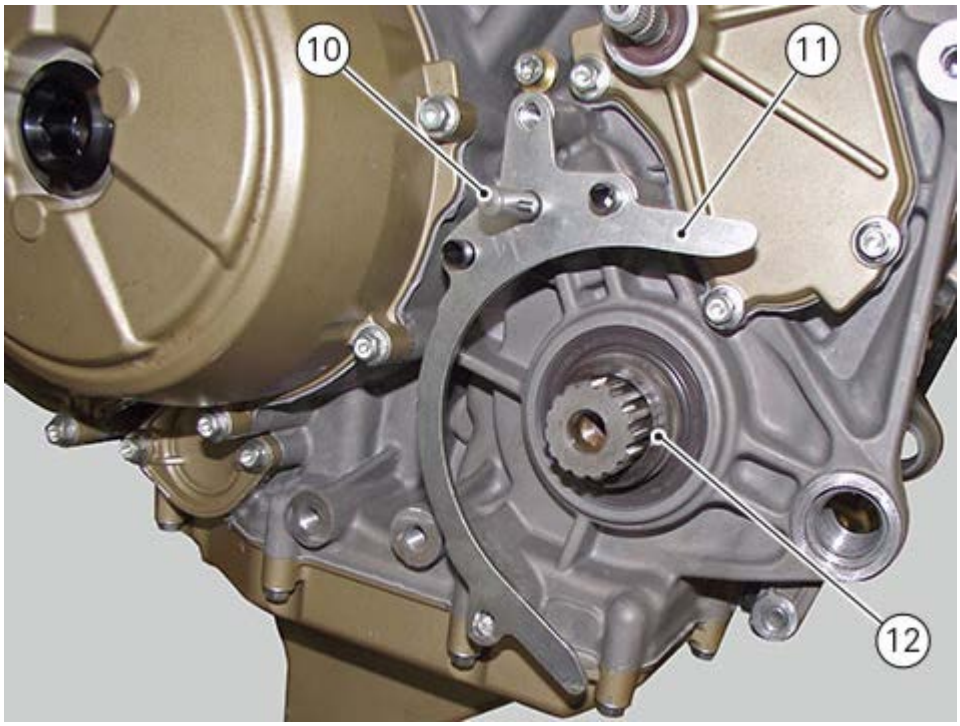
http://www.ducati-manuals.com
no. 140312



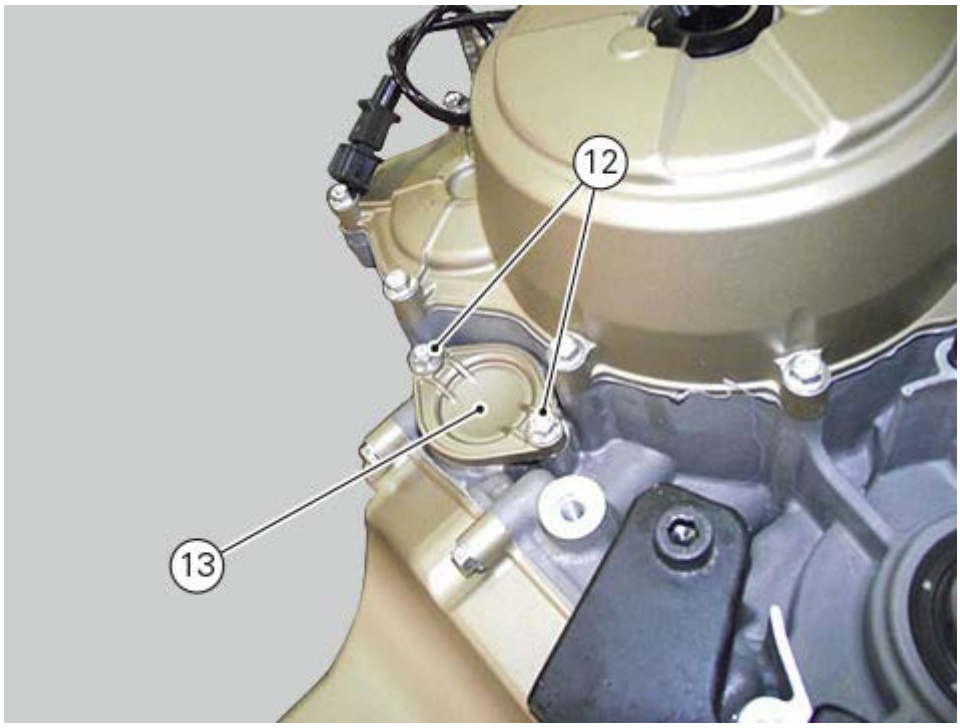


Slide out the clutch pushrod (10).
Remove the chain slider (11) and the chain sprocket spacer (12).

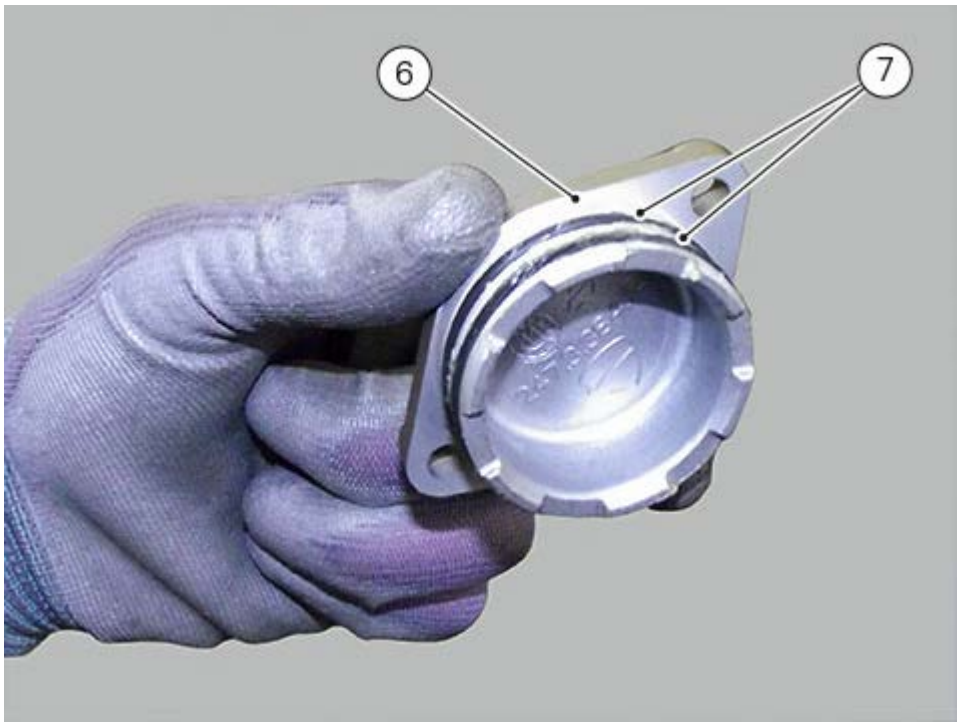
http://www.ducati-manuals.com
no. 140312

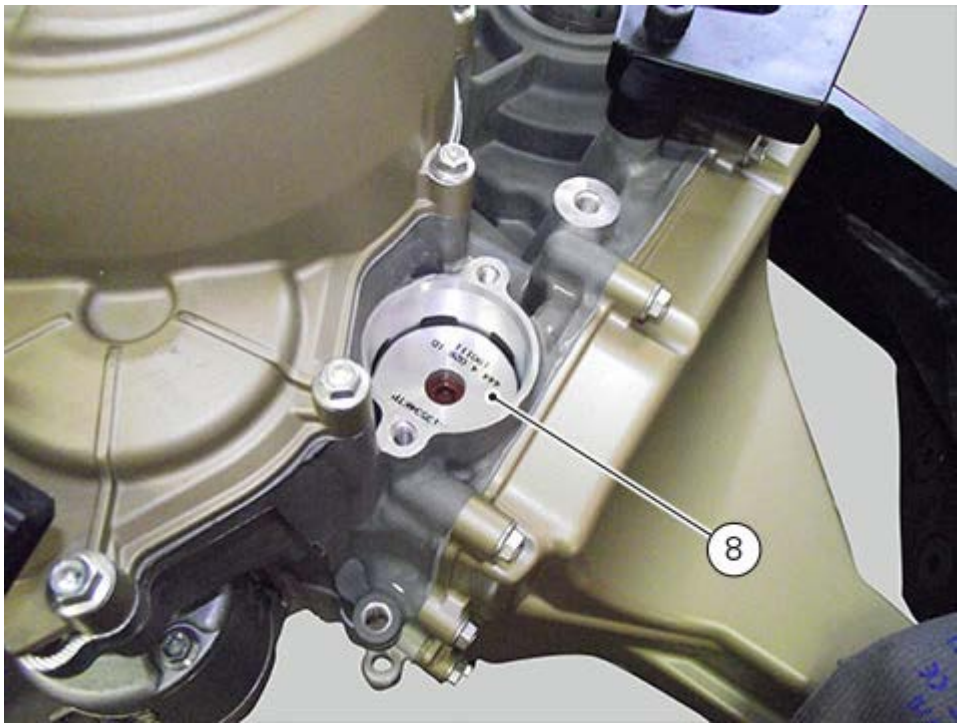


Loosen the screws (12).
Remove the oil filter cover (13) with its O-ring (14) and oil filter (15).



http://www.ducati-manuals.com
no. 140312

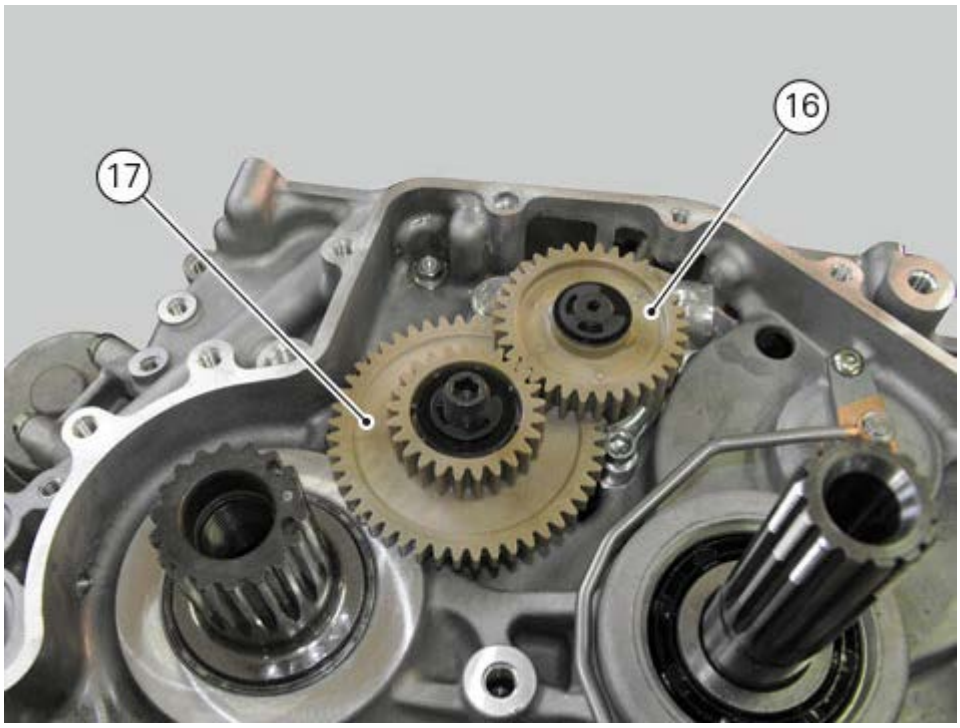




http://www.ducati-manuals.com
no. 140312

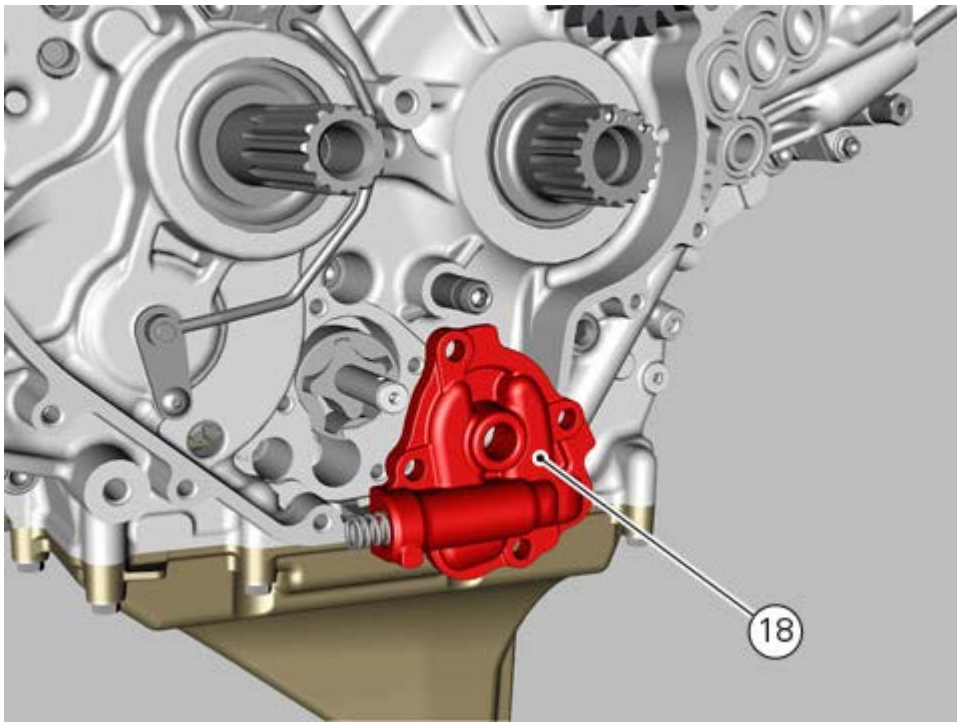


Remove the oil pump drive gear (16).
Remove the split oil pump drive gear (17), paying attention to any mobile parts.



Remove the oil pressure pump (18) (Removing the oil pressure pump).

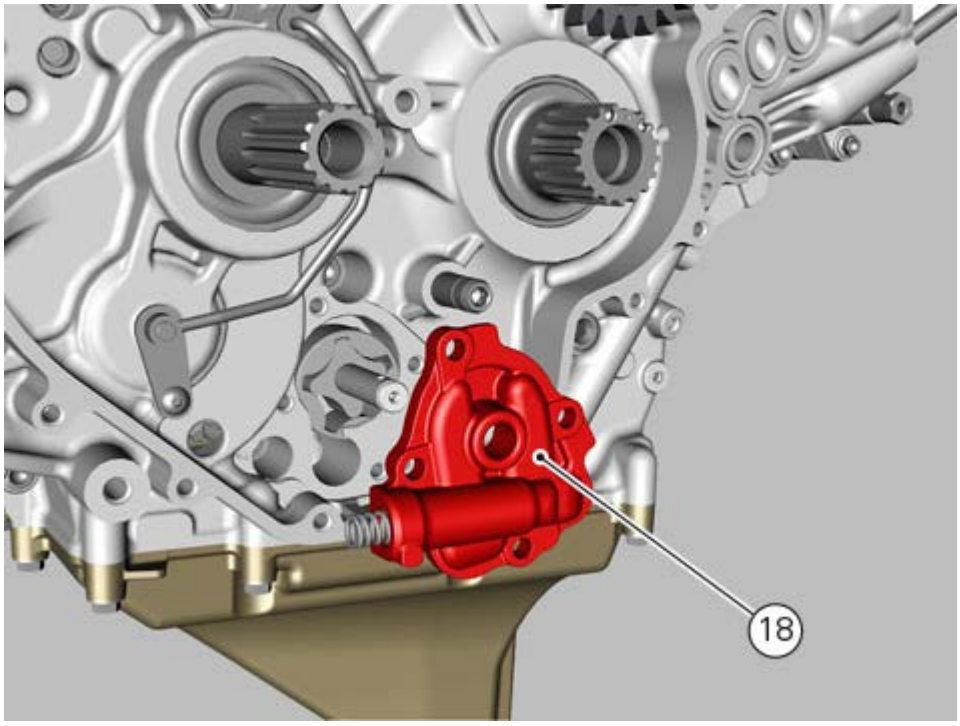
http://www.ducati-manuals.com
no. 140312



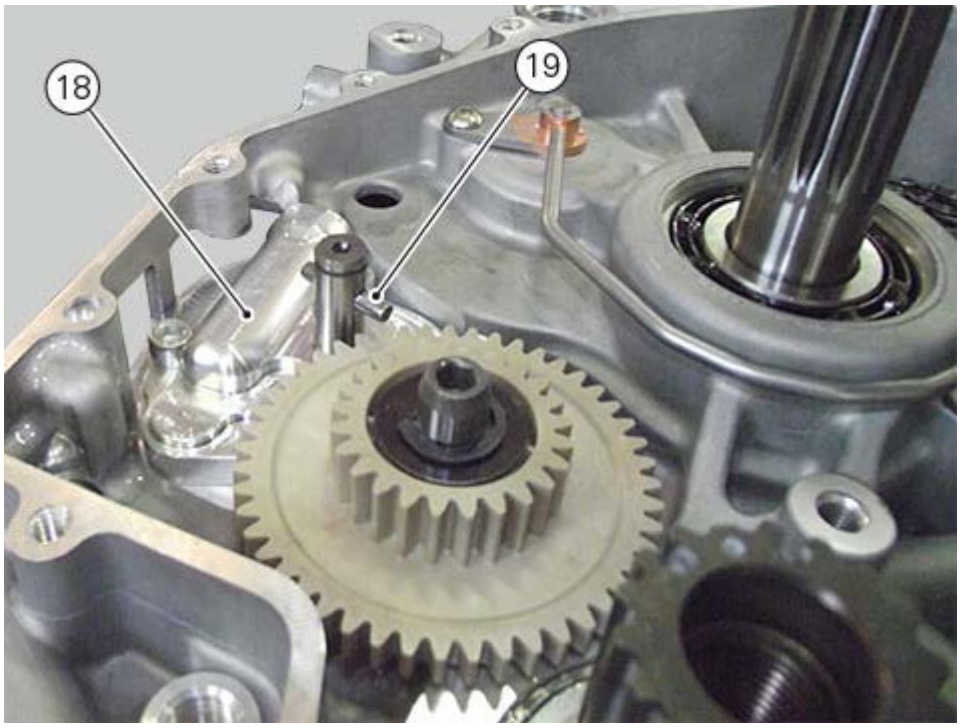
http://www.ducati-manuals.com
no. 140312

Refitting outer components

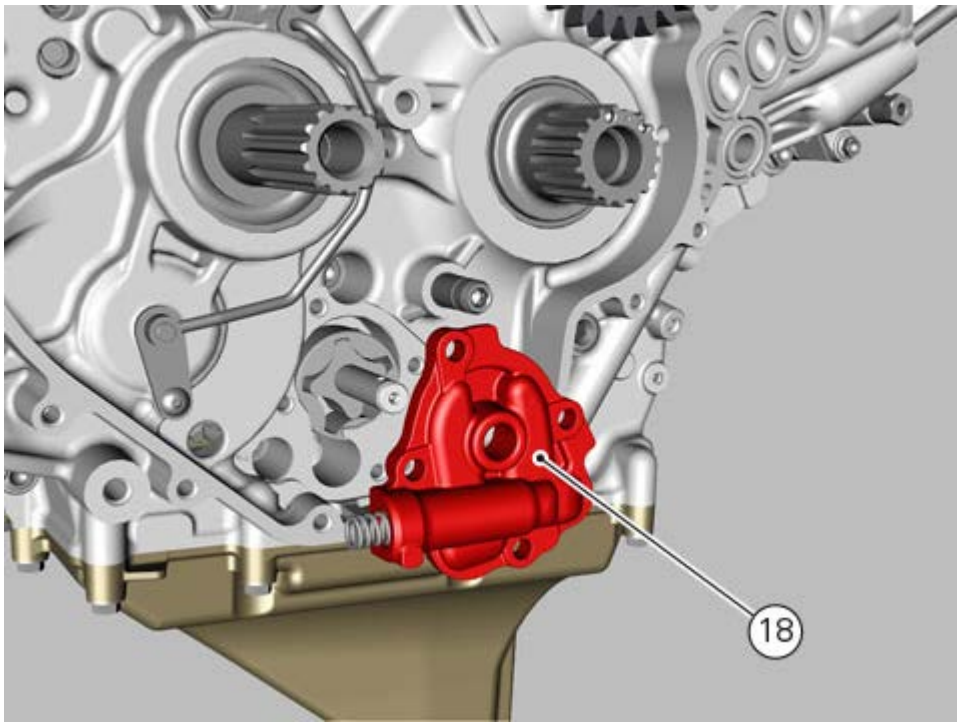
Refit the oil pressure pump (18) (Refitting the oil pressure pump).



Fit the split oil pump drive gear (17), paying attention to any mobile parts.
Make sure pin (19) is fitted on oil pump shaft (18) (Refitting the oil pressure pump).
Refit the oil pump drive gear (16).



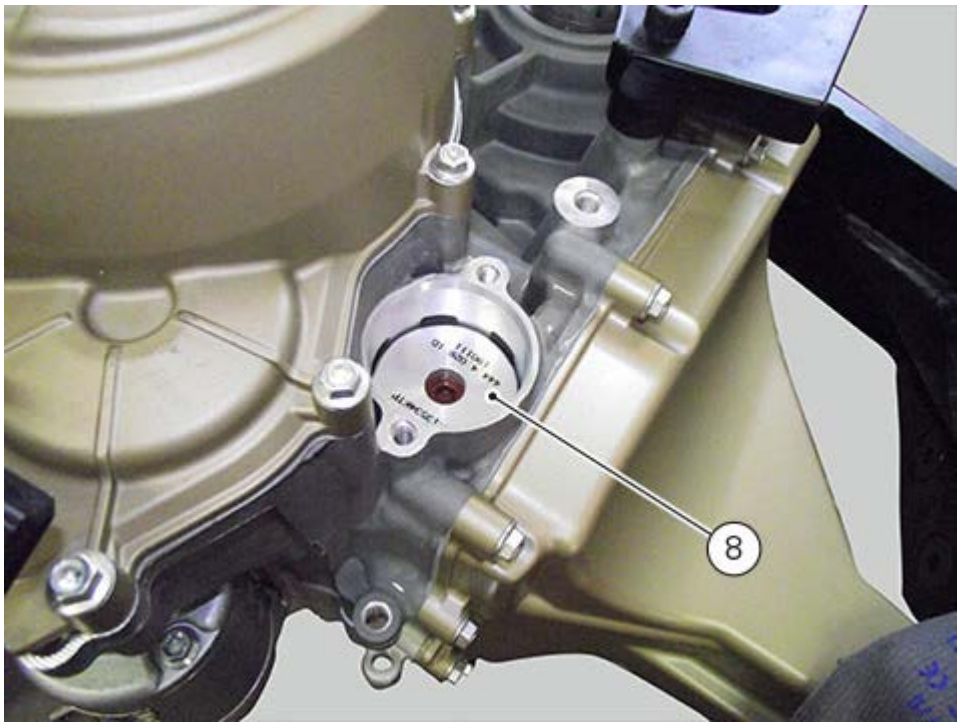
http://www.ducati-manuals.com
no. 140312

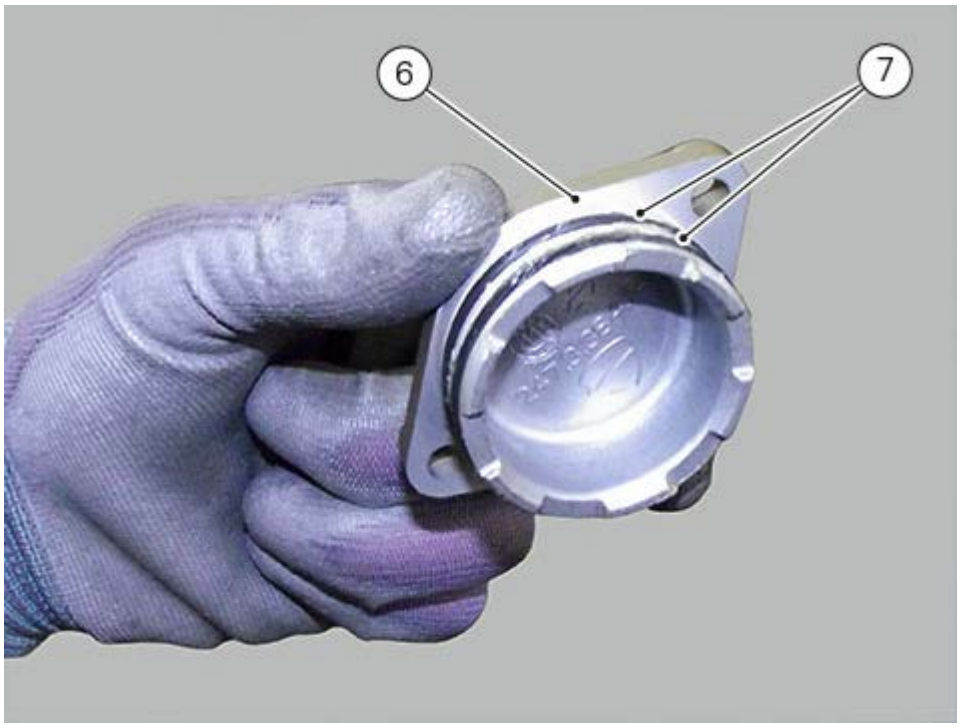


Refit the oil filter (15) and oil filter cover (13) with its O-ring (14).

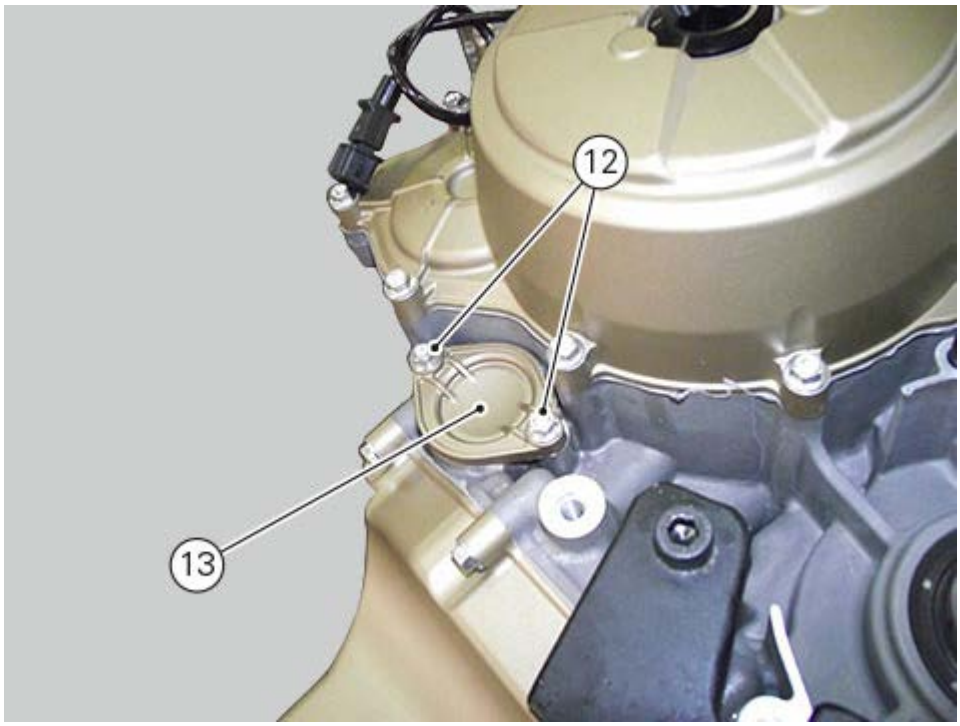


http://www.ducati-manuals.com
no. 140312

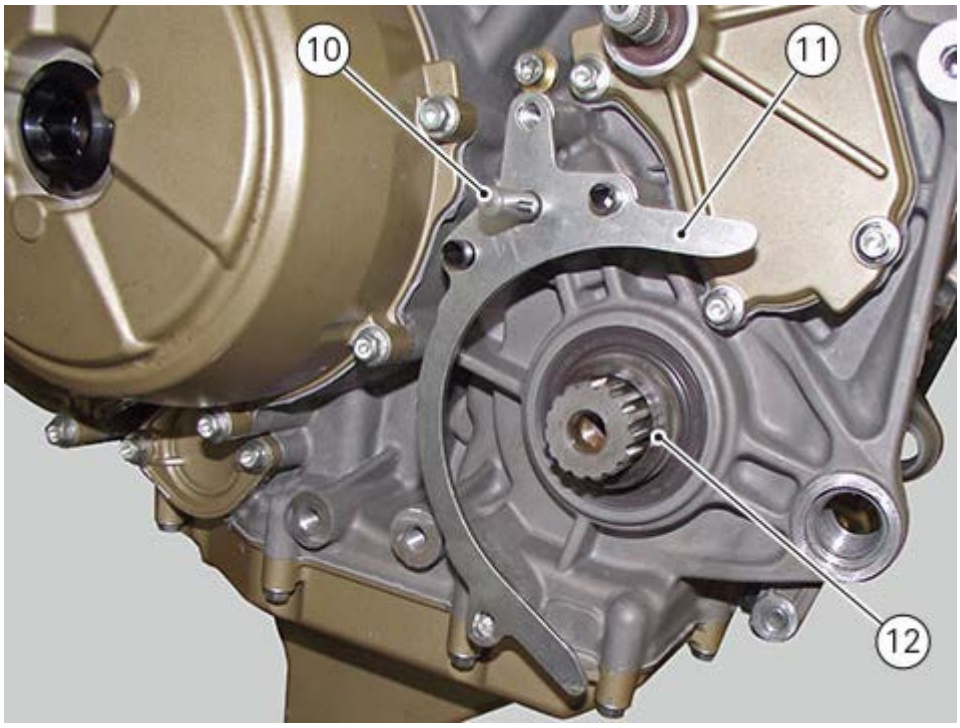




http://www.ducati-manuals.com
no. 140312

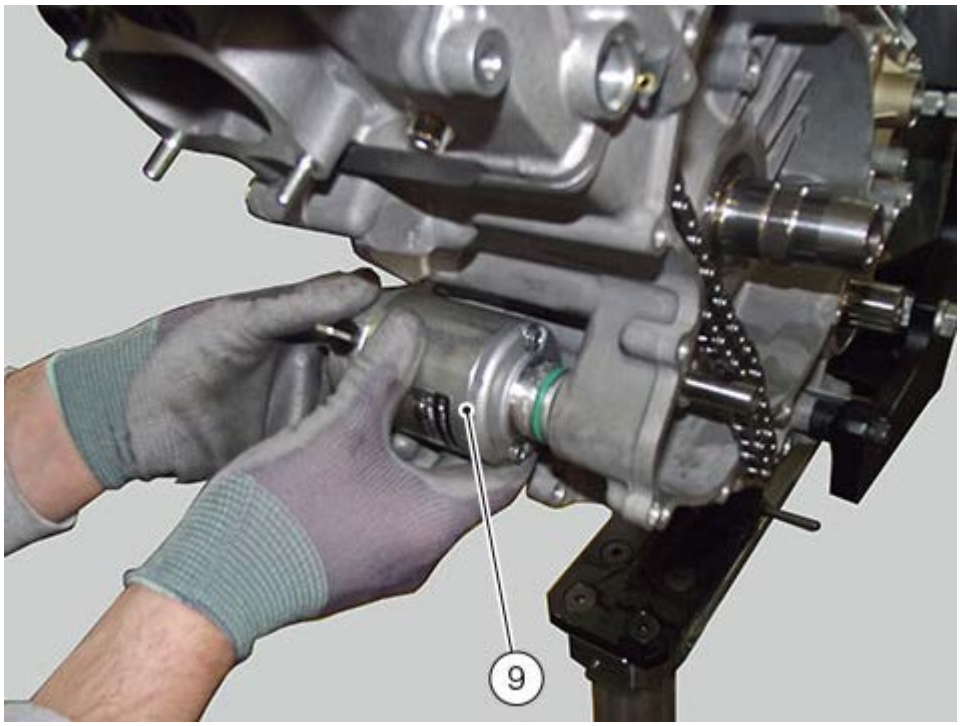


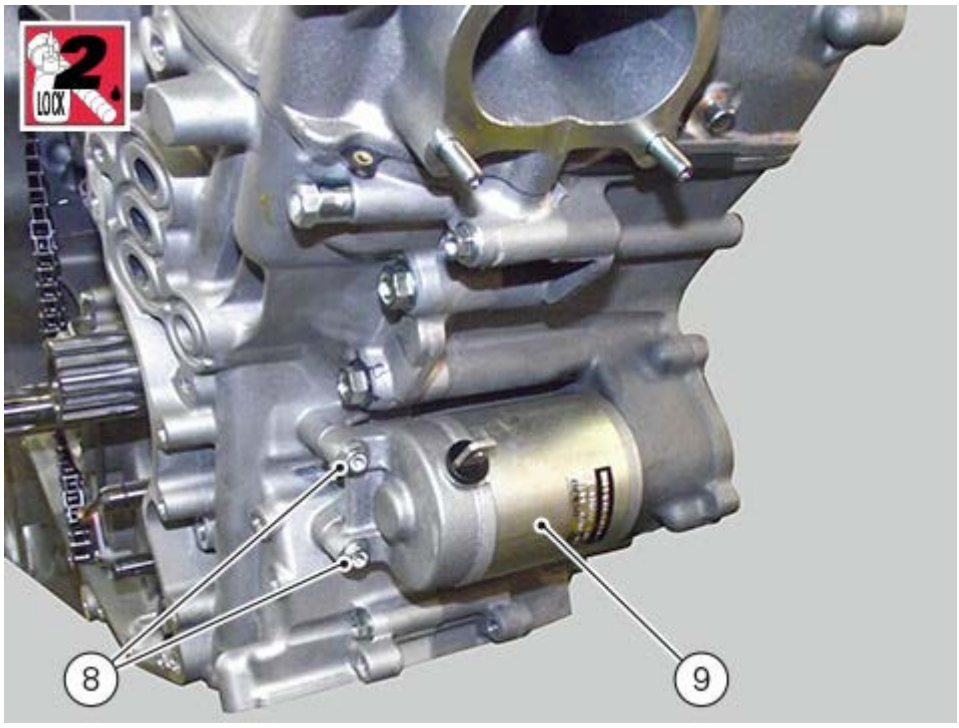
Refit the chain sprocket spacer (12) and the chain slider (11).
Refit the clutch pushrod (10).



Apply the recommended threadlocker to the screws (8).
Refit the starter motor (9) and tighten to 13 Nm (Min. 12 Nm - Max. 14 Nm) the retaining screws (8).

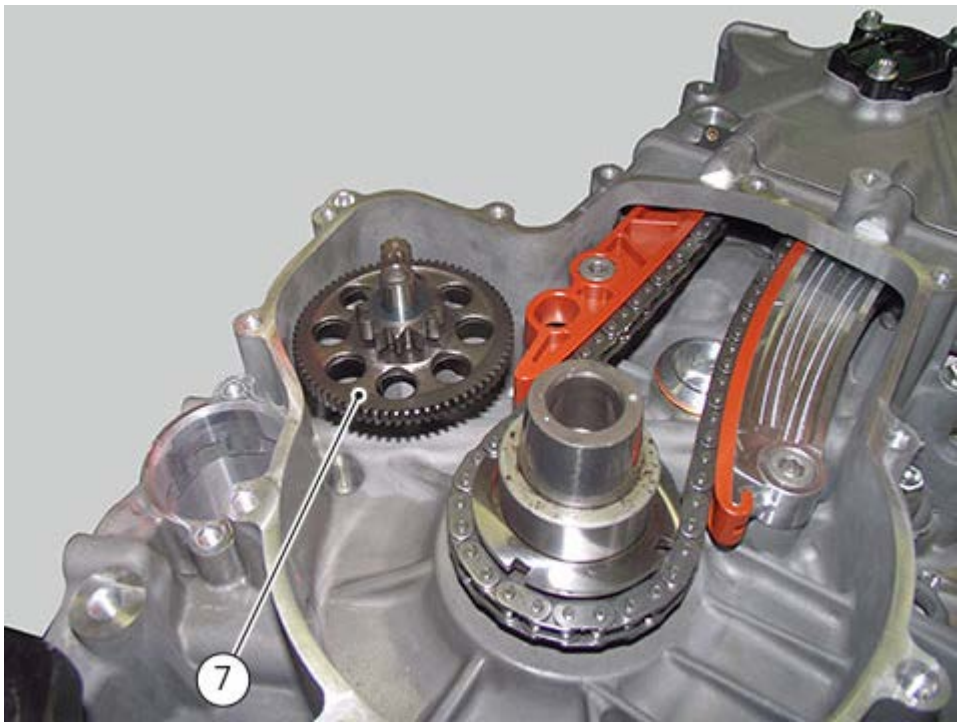
http://www.ducati-manuals.com
no. 140312



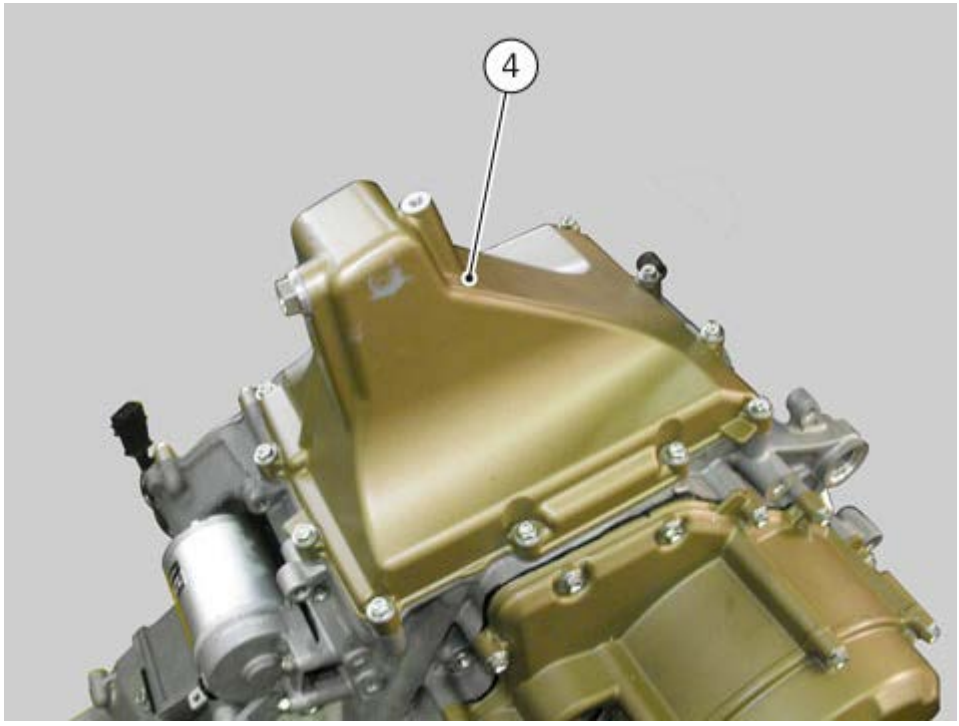


Fit the split starter gear (7) and its shim.

http://www.ducati-manuals.com
no. 140312



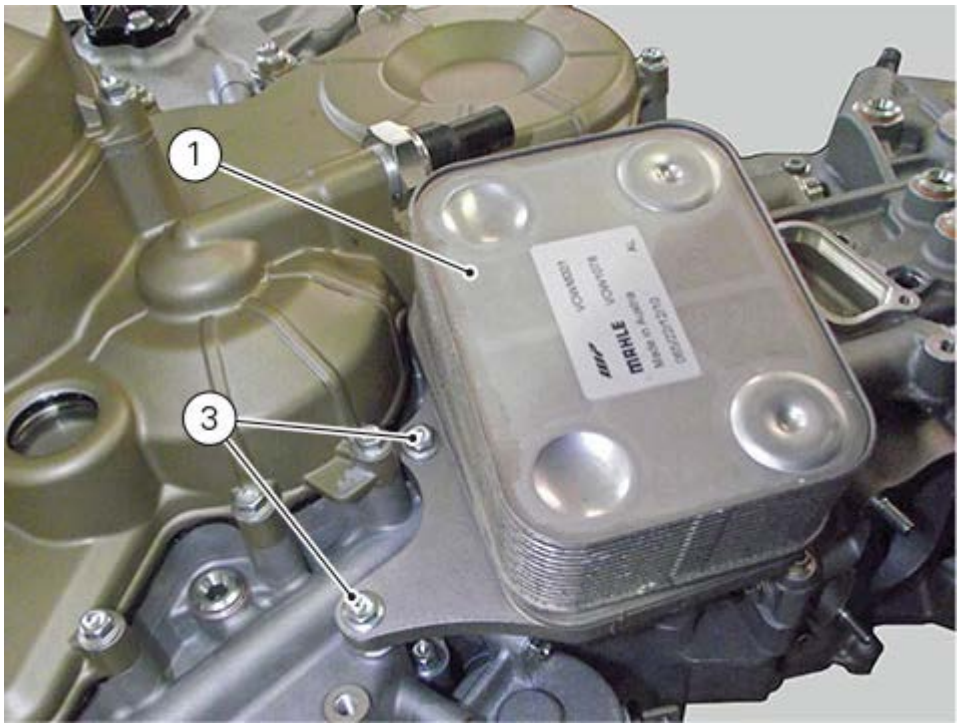
Refit the oil sump (4) (Refitting the oil sump).



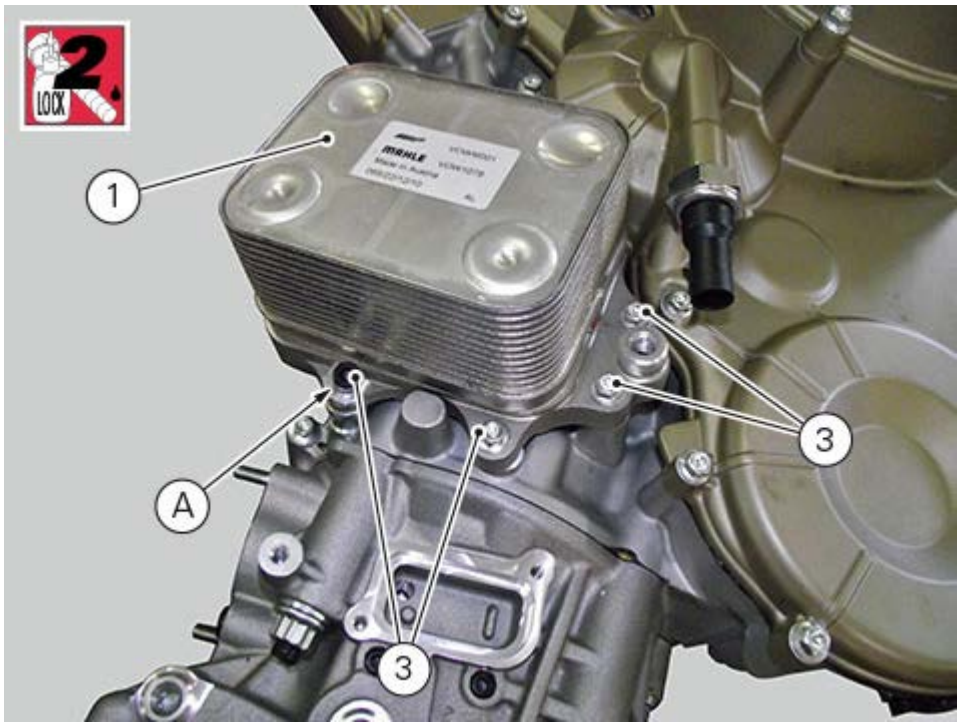
Apply the recommended threadlocker to the screws (3) but not to screw (A).
Refit heat exchanger (1) and its seal (2), tighten to 13 Nm (Min. 12 Nm - Max. 14 Nm) the retaining screws (3).

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

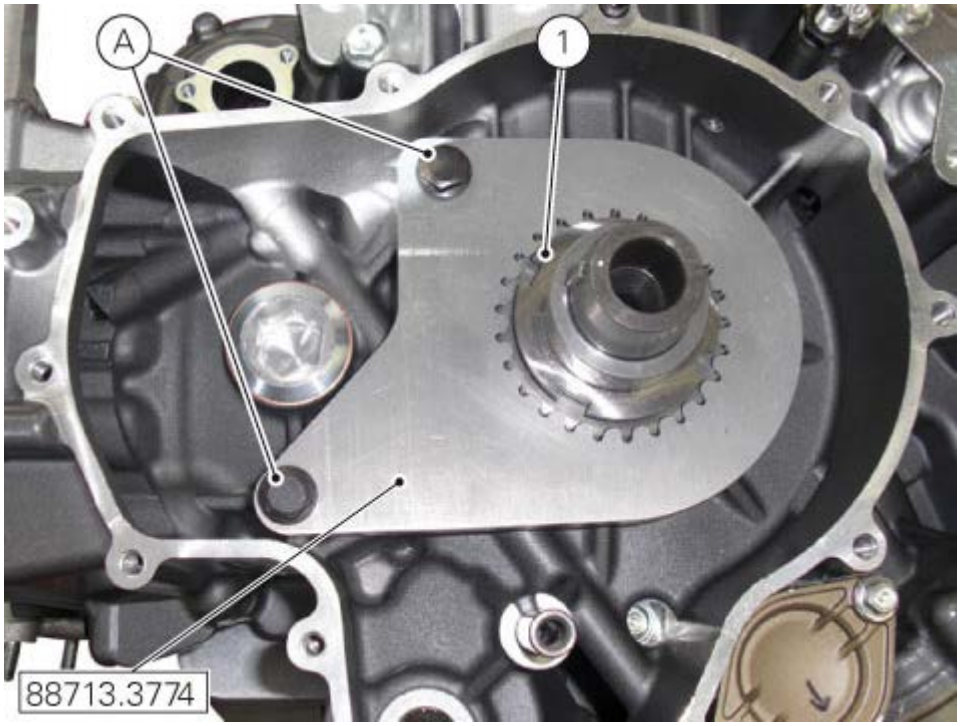


http://www.ducati-manuals.com
no. 140312

Opening the crankcase

Remove the engine from the vehicle (Removal of the engine).
Remove the cylinder heads (Removal of the cylinder heads and the timing chain).
Remove the heat exchanger (Removal of the heat exchanger).
Remove the oil sump (Removal of the oil sump).
Remove the clutch cover (Removal of the clutch cover).
Remove the complete clutch (Removal of the clutch).
Remove the generator cover (Removal of the generator cover).
Remove the flywheel/generator assembly (Removal of the flywheel/generator assembly).

Fit locking tool part no. **88713.3774** on ring nut (1) retaining the timing gear and fasten tool to casing by doing screws (A) finger tight.
Using tool part no. **88713.3773**, remove ring nut (1) retaining the timing gear.
Remove both tools.

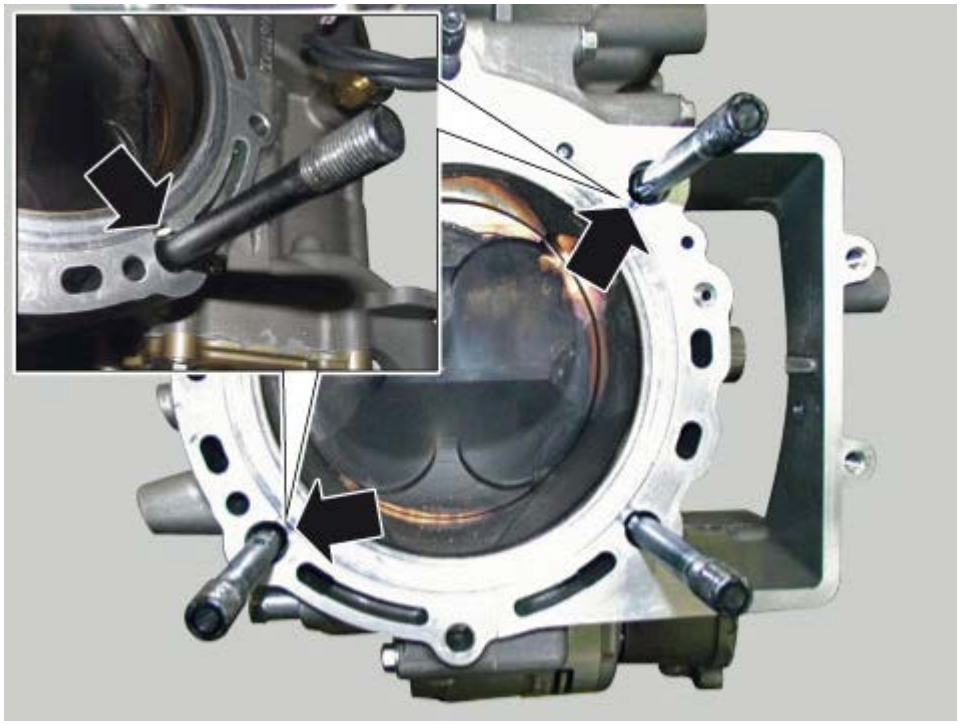


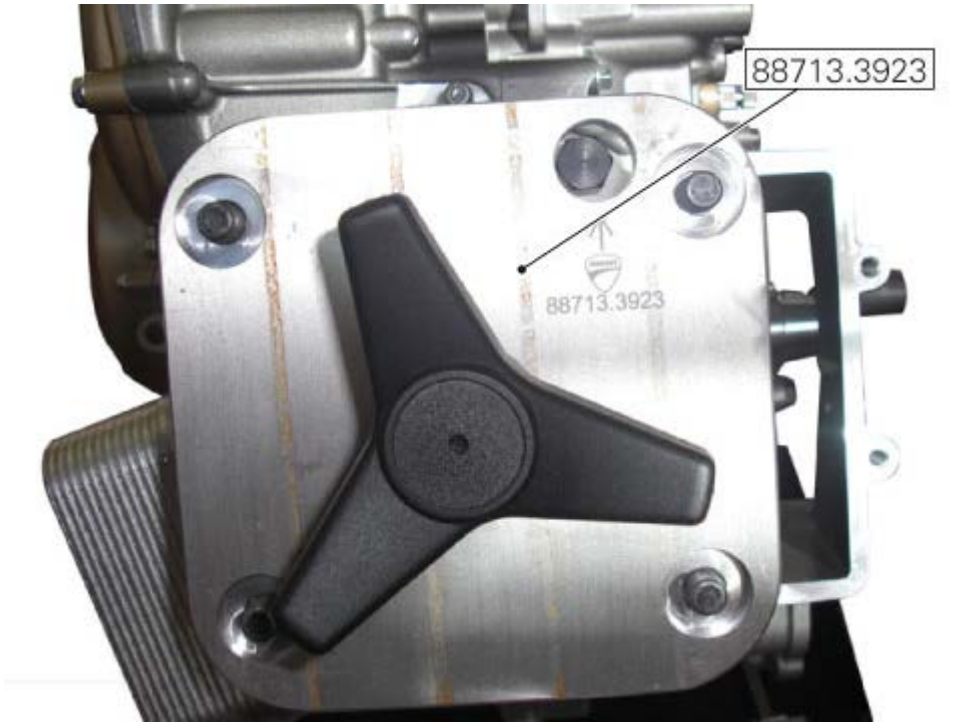


Set crankshaft with both pistons at mid-stroke.

http://www.ducati-manuals.com
no. 140312

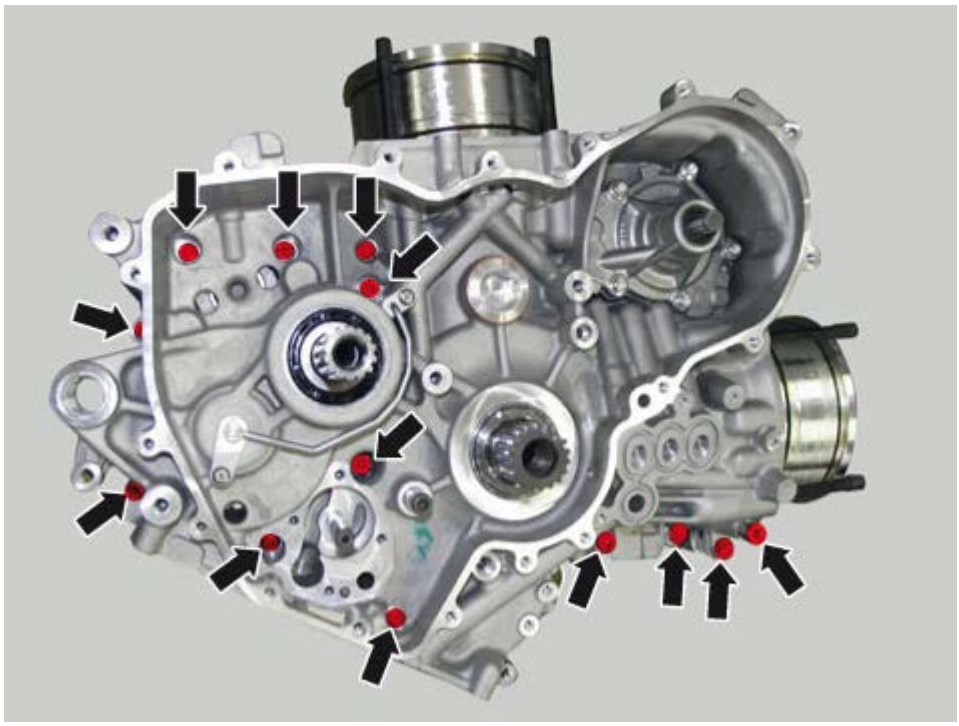
Position tool part no. **88713.3878** with its tabs engaged in piston liner slots.
Tighten tool part no. **88713.3878** to slide out the horizontal liner by approx. 60 mm; do not completely remove the liner.

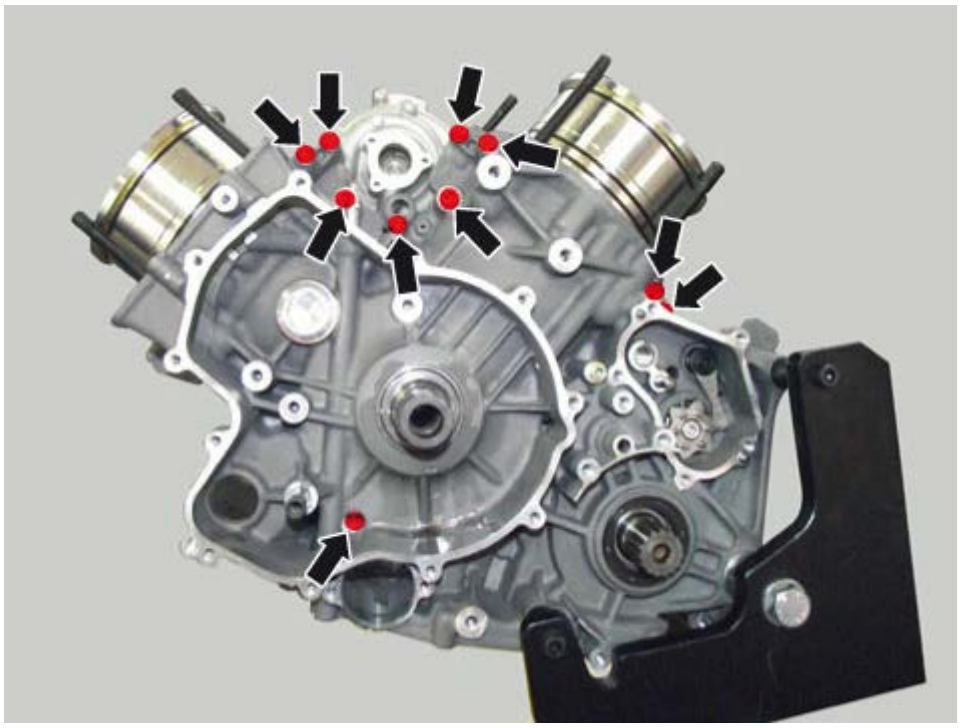




Once you slide out the horizontal slider, loosen the crankcase jointing screws on clutch side and flywheel side.

http://www.ducati-manuals.com
no. 140312

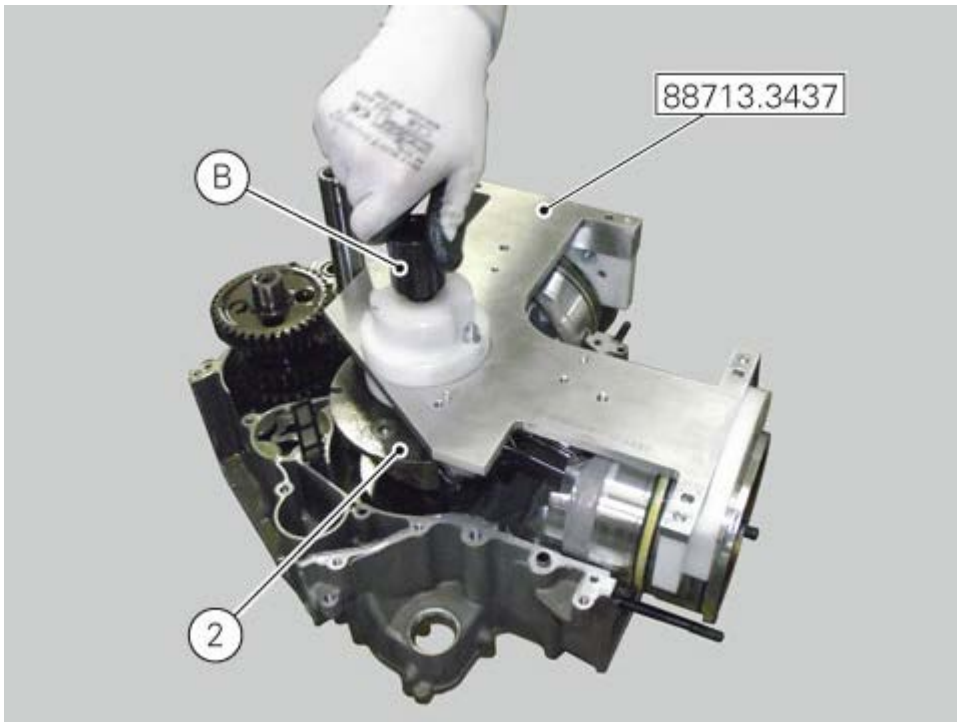




Split the casings.

Slide out the vertical liner with the same procedure as for the horizontal one.
Set tool part no. **88713.3437** on connecting rod assembly (2) and fasten it by tightening bushing (B).
Remove the connecting rod assembly (2) by lifting it with tool part no. **88713.3437**.

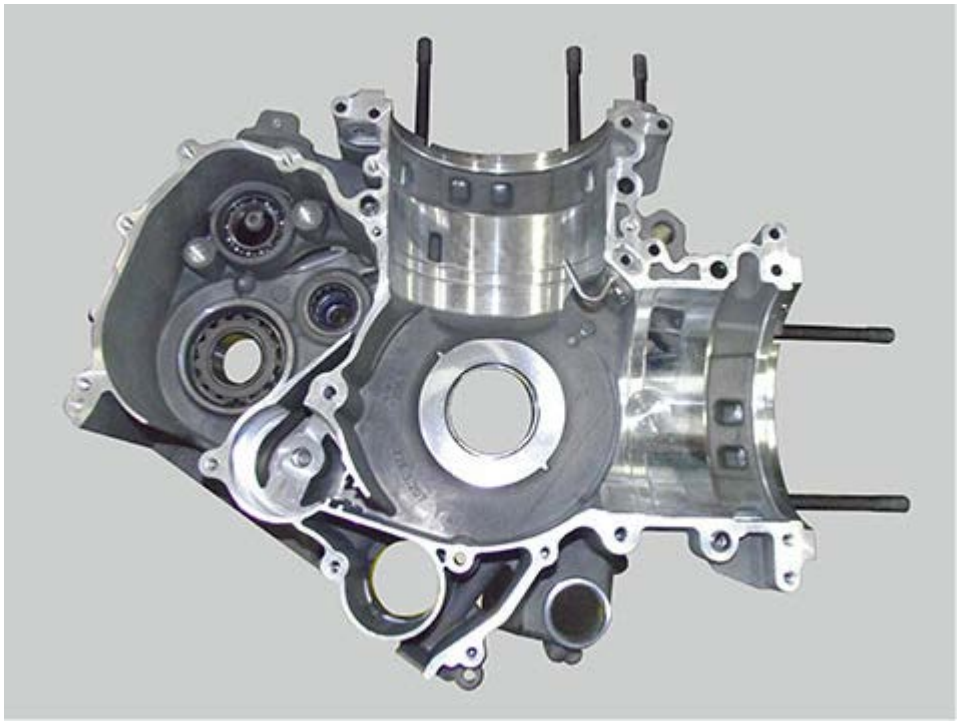
http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Overhauling the crankcase halves

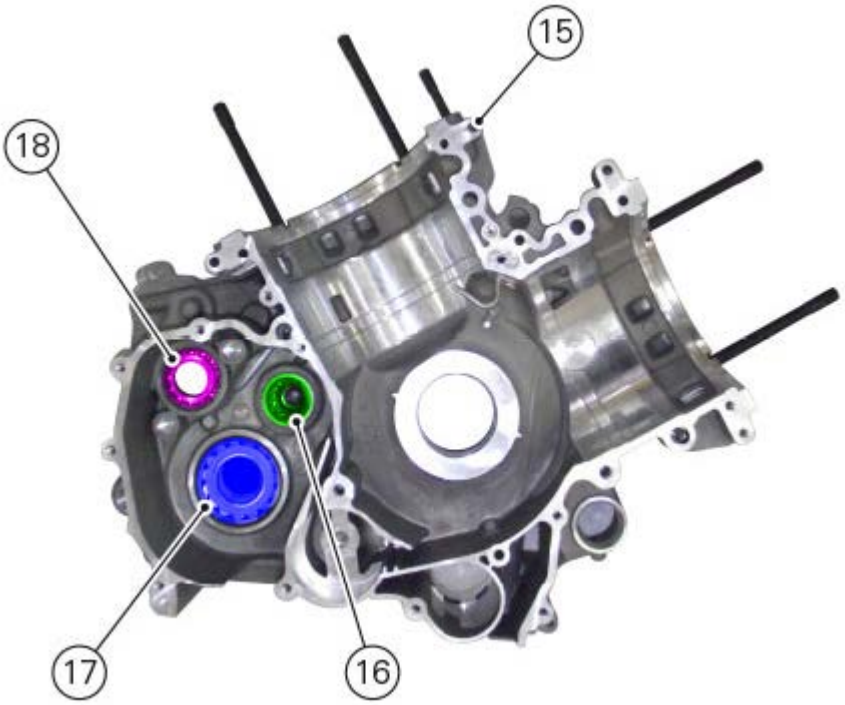
Visually inspect the engine crankcase halves.
Check that the surfaces of the crankcase halves are perfectly flat using a reference surface.
Check that the main bearing shells are in perfect conditions.
If main bearing shells need replacing, they must be changed both as a set.

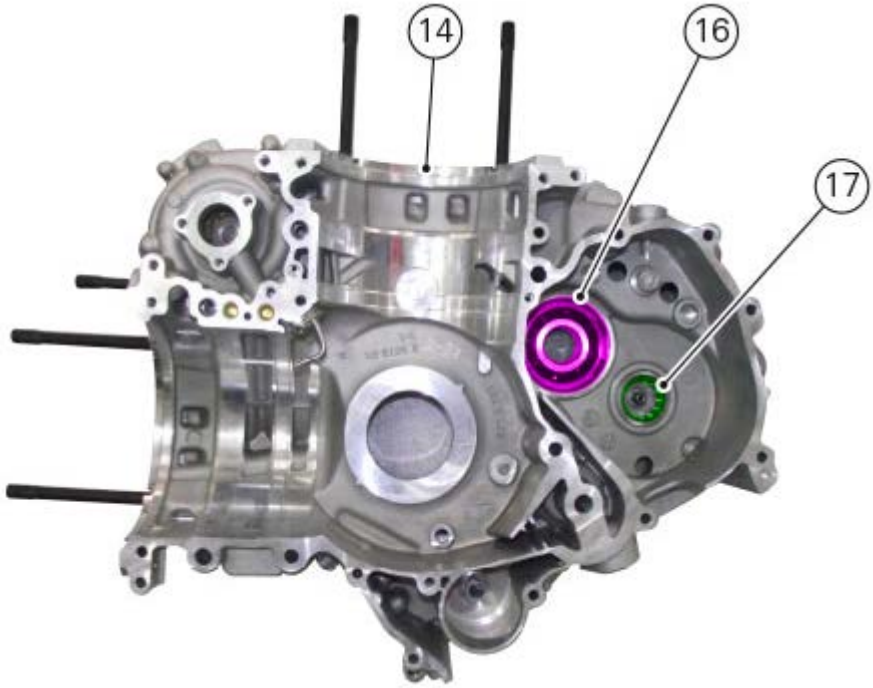




Bearings (16) and (17) support the gearbox shafts and are located both on chain-side casing (15) and on clutch-side casing (14).
Bearing (18) supports the gear selector drum and is located only on chain-side casing (15).

http://www.ducati-manuals.com
no. 140312





Should it be necessary to change gearbox shaft and gear selector drum bearings, proceed as follows.

Warm up clutch-side casing (14) and chain-side casing (15) to a temperature ranging from min. 95 °C to max. 110 °C, for the time necessary to obtain an even temperature over the whole casing surface. Immediately after warming the chain-side casing (15) up, drive the following parts fully home in the casing inner side:

- The gearbox secondary shaft bearing (17), positioning it so that the side with markings (N) faces upwards.
- The gearbox primary shaft roller bearing (16), positioning it so that the side with markings (N) faces upwards.
- The gear selector drum bearing (18), positioning it so that the side with markings (N) faces upwards.

Immediately after warming the clutch-side casing (14) up, drive the following parts fully home in the casing inner side:

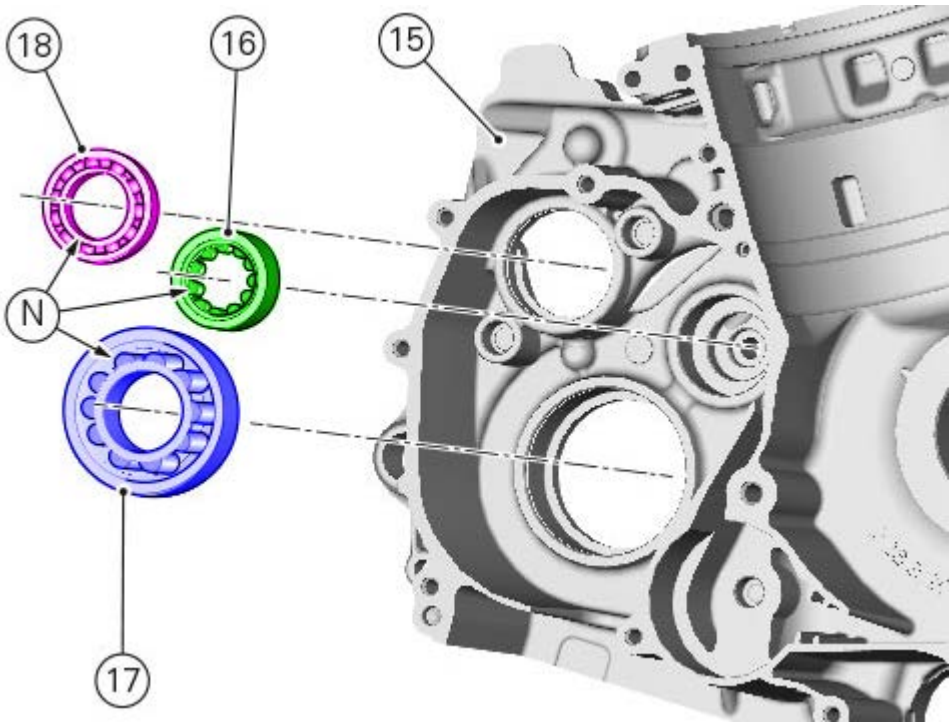
- The gearbox primary shaft bearing (16), positioning it so that the side with markings (N) faces upwards.
- The gearbox secondary shaft roller bearing (17), positioning it so that the side with markings (N)

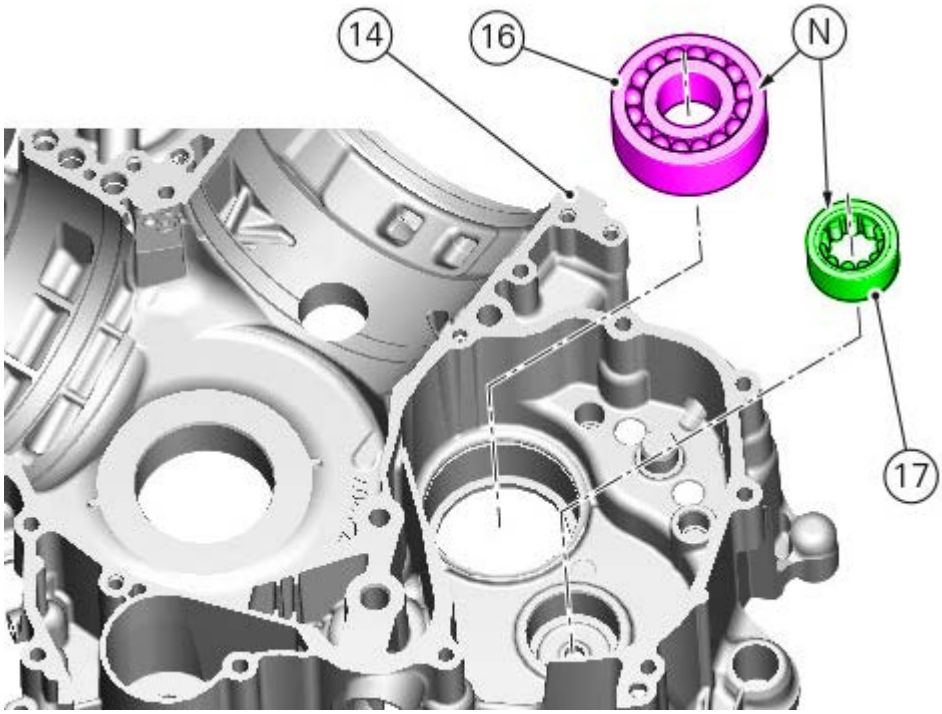
http://www.ducati-manuals.com
no. 140312

faces upwards.

Warning

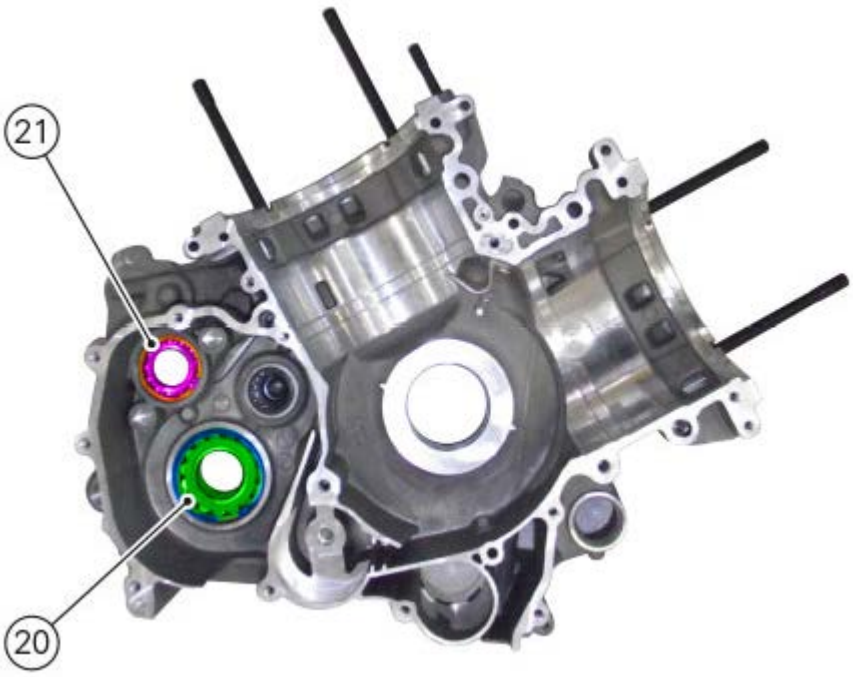
During casing cooling, the above mentioned parts may shift from their fully home position. It is therefore important to keep the parts fully home for the time required to ensure that the casing has sufficiently cooled down and that the bearings are locked into their fully home position.





At each replacement it is recommended to replace also the snap rings (19), (20) and (21) on the outside of bearings.

http://www.ducati-manuals.com
no. 140312

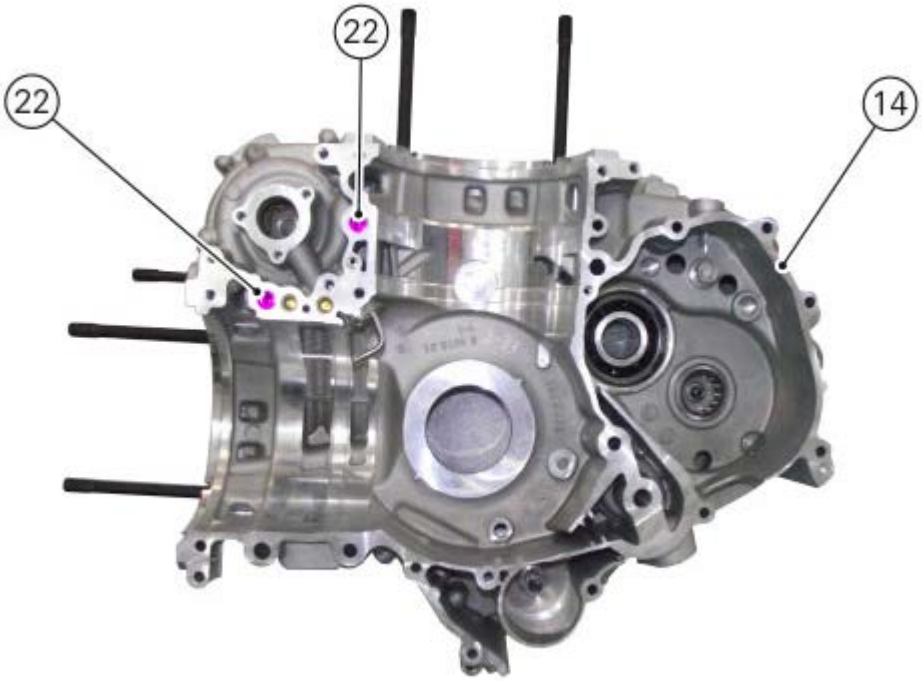




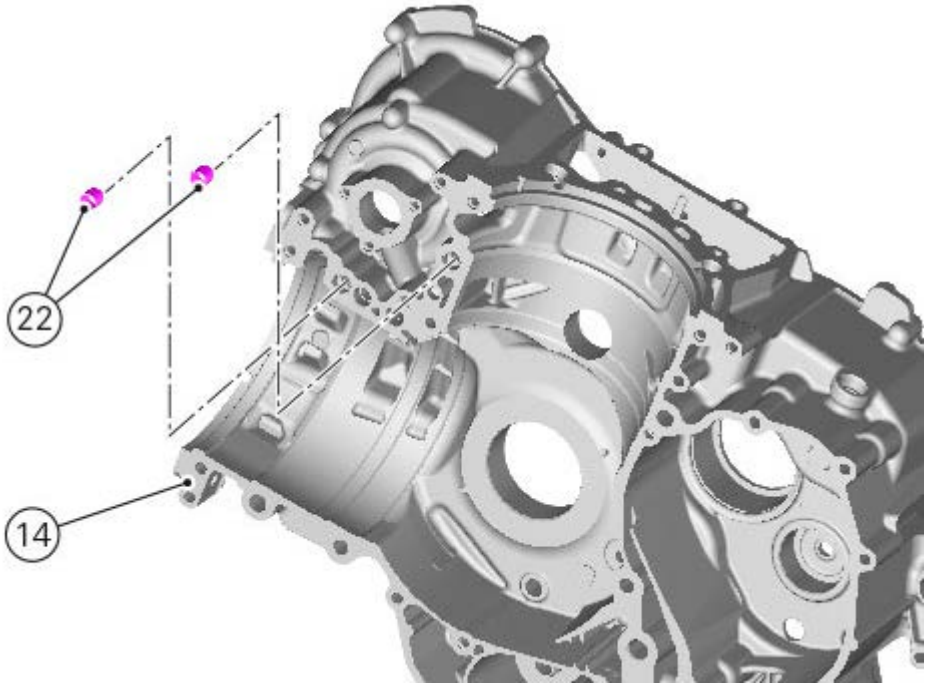
Check that the oilways are free of restrictions or clogging.
Check the condition of locating bushes (22) on casing (14). If apparently distorted or loose in their seats, change them using proper tools.
When the centring bushes (22) are hard to remove from casing, use a left-hand tap to force bushes out.

Important
The bushes must always be replaced when they have been removed using the above procedure.

http://www.ducati-manuals.com
no. 140312



If it was necessary to remove the bushes, it is now necessary to warm up casing (14) in order to refit them, in the same way as described above for installing the bearings.
When casing is warm, fit centring bushes (22) fully home in their housings.

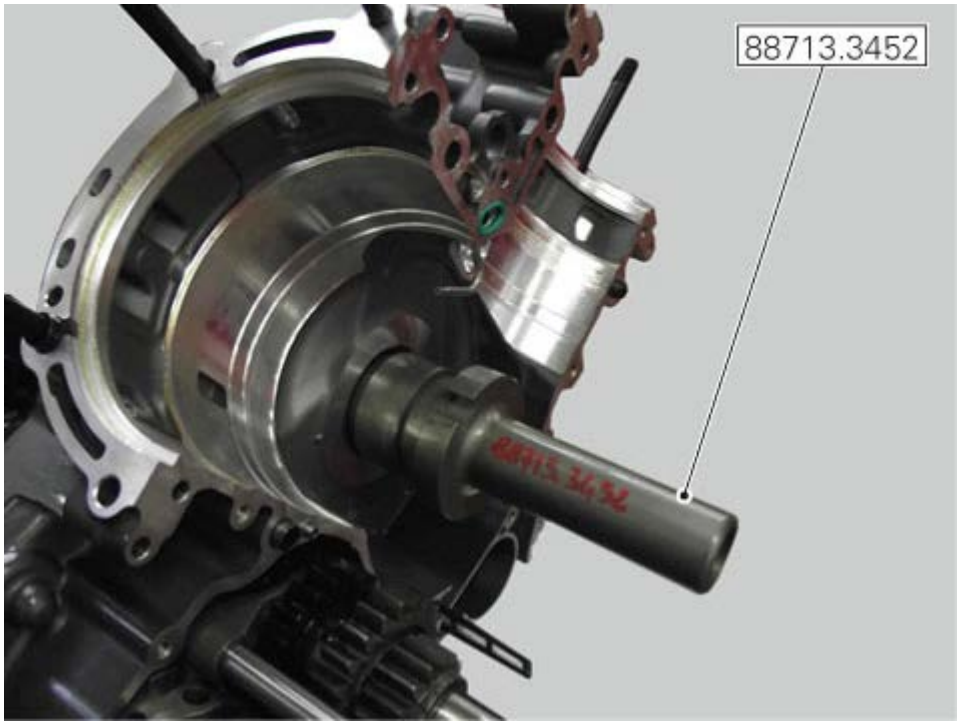


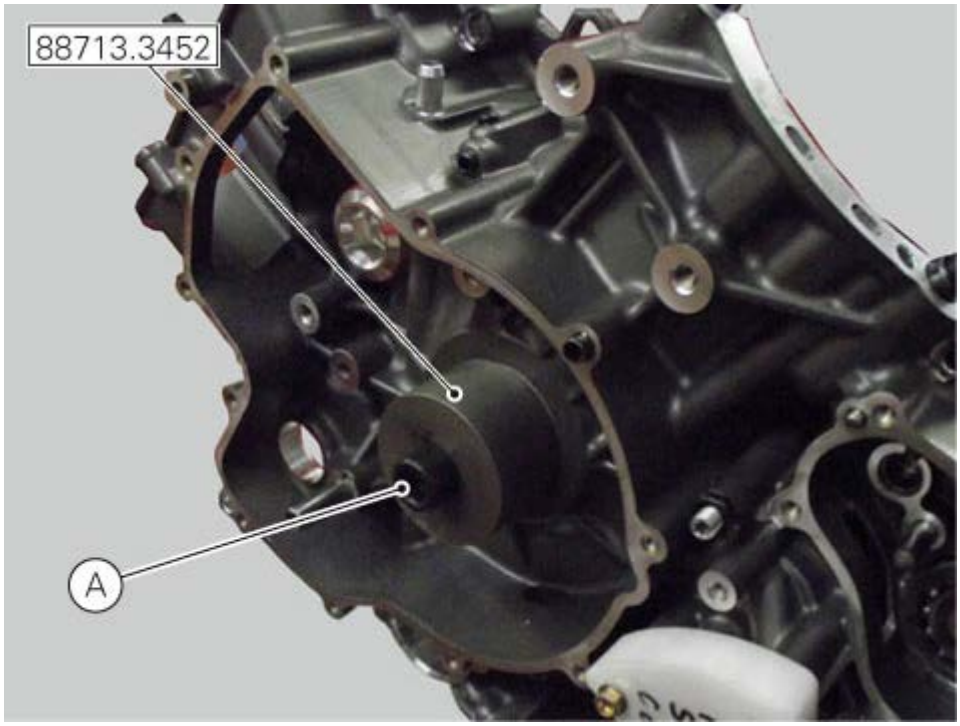
http://www.ducati-manuals.com
no. 140312

Main bearing shells

Renewal of crankshaft bearings.

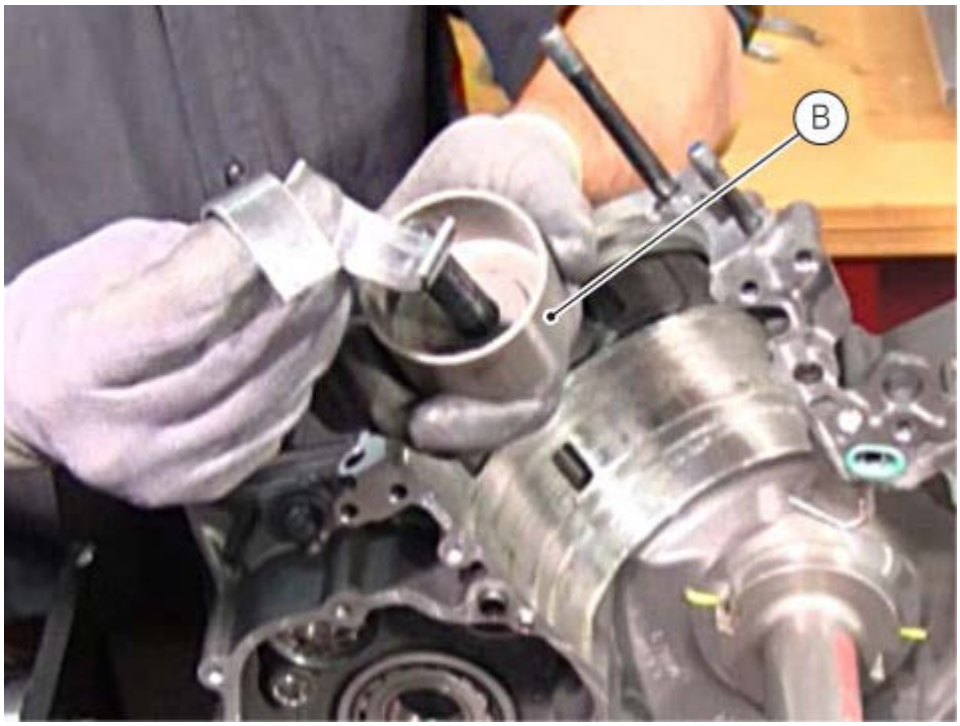
Remove the crankshaft bearing shells using tool part no. **88713.3452**, set drift inside the casing and the cap on the outside.
Fully tighten screw (A).





Loosen screw (A) and remove the shells from cap (B).

http://www.ducati-manuals.com
no. 140312

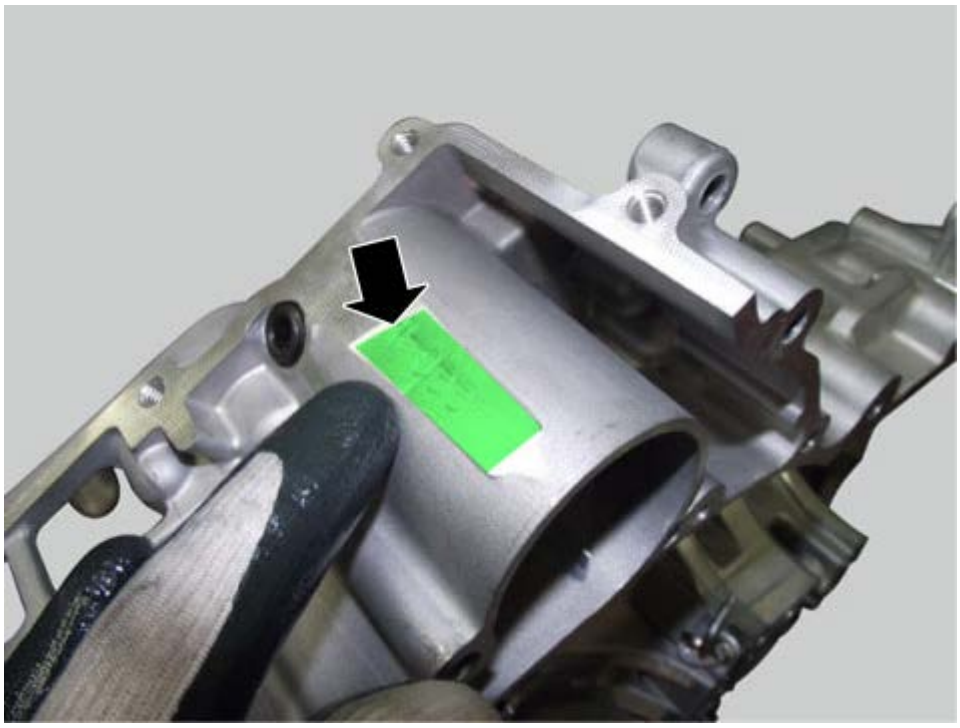


Select the main bearing shells according to crankshaft and crankcase punching, as follows:

MAIN BEARING SHELLS CLASS					
Crankshaft class	Crank pin size (mm)	Crankcase class	Crankcase hole size (mm)	Shell colour	Bearing shell thickness (mm)
A	49.992 to 50.000	A	55.000 to 55.0094	BLUE	2.501 to 2.506
A	49.992 to 50.000	B	55.0095 to 55.0190	YELLOW	2.505 to 2.510
B	49.984 to 49.992	A	55.000 to 55.0094	YELLOW	2.505 to 2.510
B	49.984 to 49.992	B	55.0095 to 55.0190	BLUE	2.509 to 2.514
COUPLING CLEARANCE **0.043 to 0.072**					

http://www.ducati-manuals.com
no. 140312



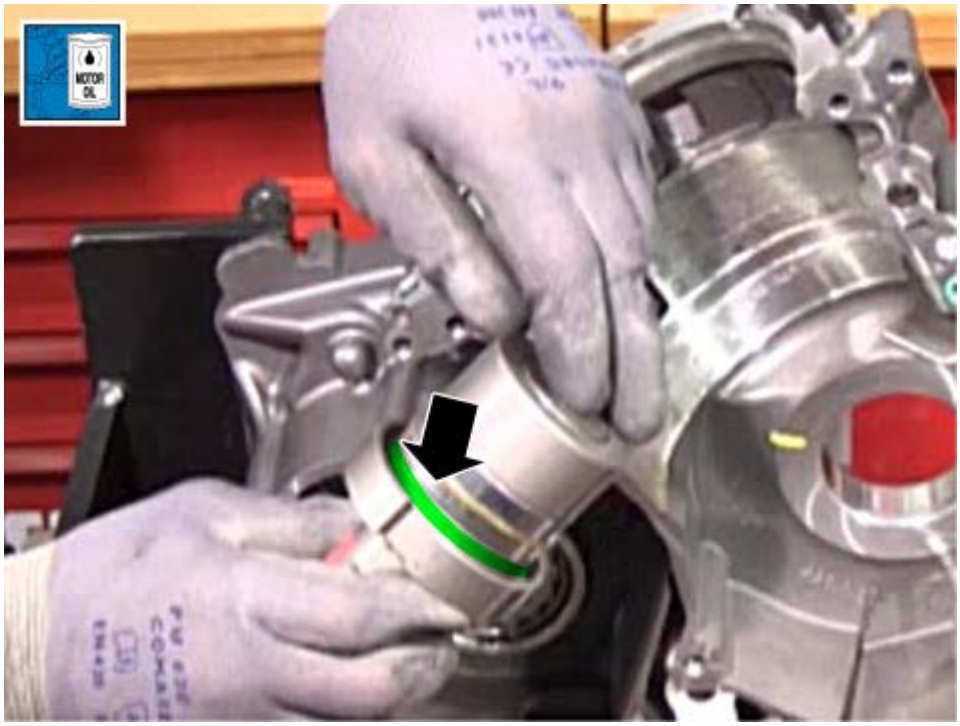


Set the new shells in tool drift part no. **88713.3452** and set bushing (C) fully home.

http://www.ducati-manuals.com
no. 140312

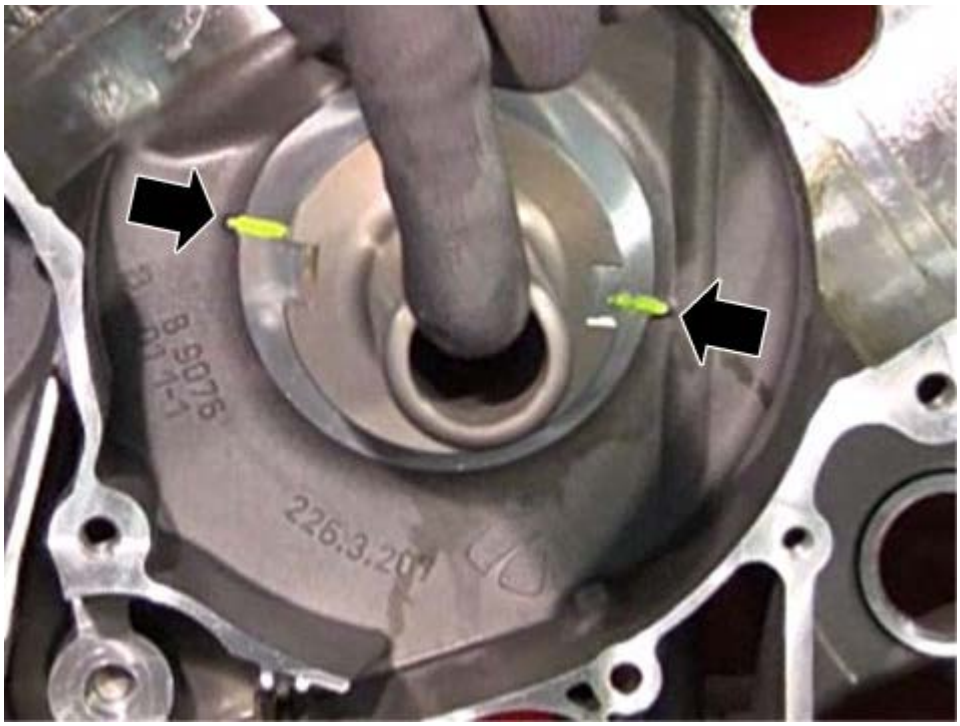


Smear tool part no. **88713.3452** with engine oil.

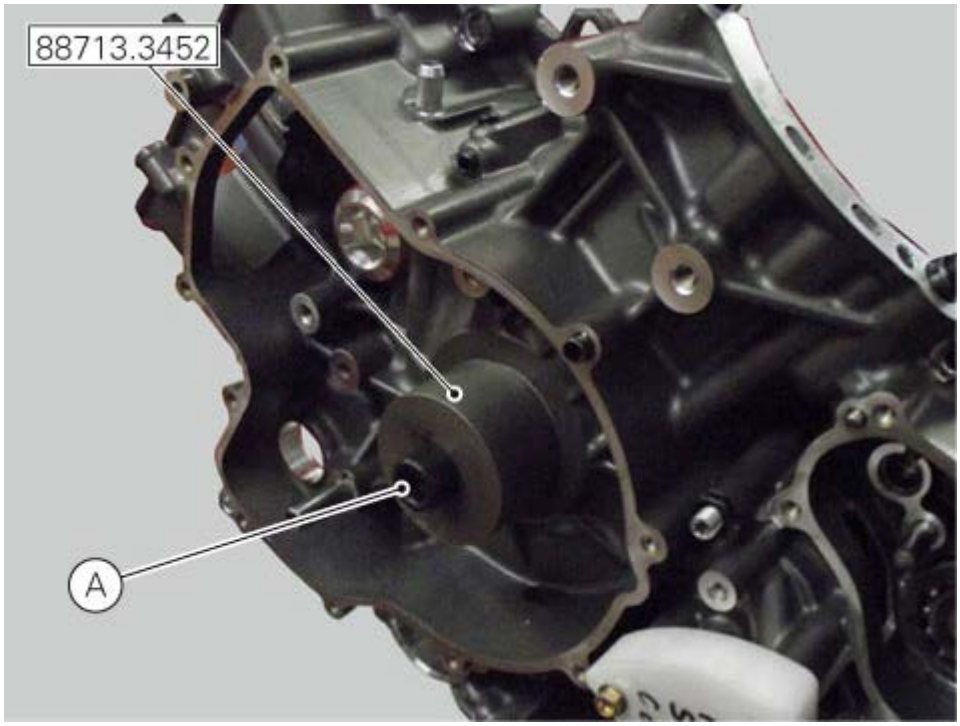


Install the main bearing shells using the tool drift part no. **88713.3452** and positioning the shell parting line at a right angle to cylinder centreline, as shown.

http://www.ducati-manuals.com
no. 140312



Tighten screw (A).



Remove tool part no. **88713.3452** and make sure that the shells have been installed correctly.

http://www.ducati-manuals.com
no. 140312



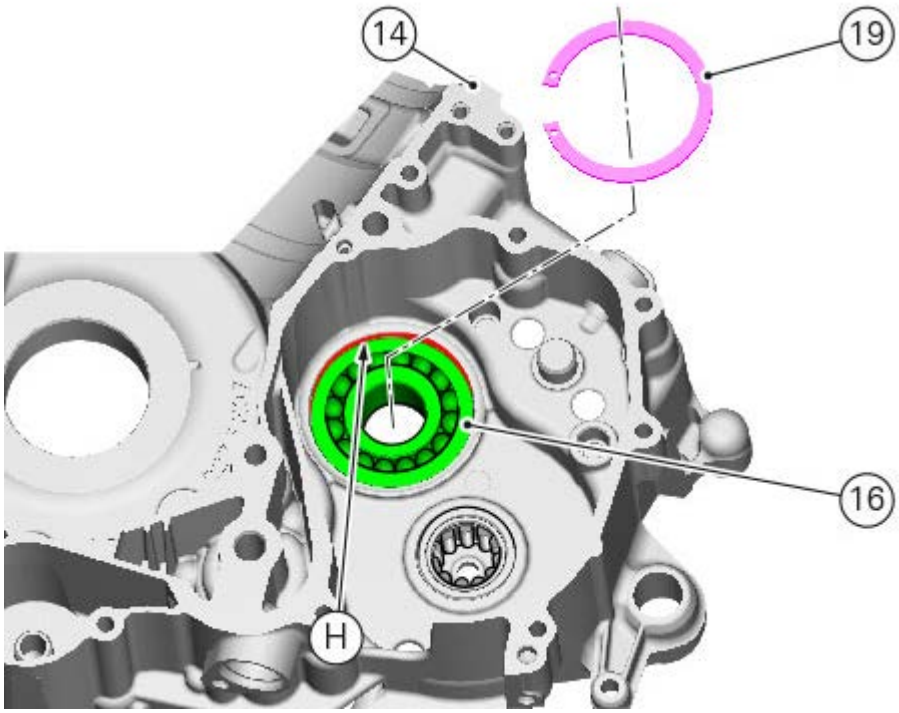
http://www.ducati-manuals.com
no. 140312

Reassembling the crankcase halves

The crankcase halves must be in good condition and perfectly clean.
The mating surfaces must be perfectly flat and free from burrs.

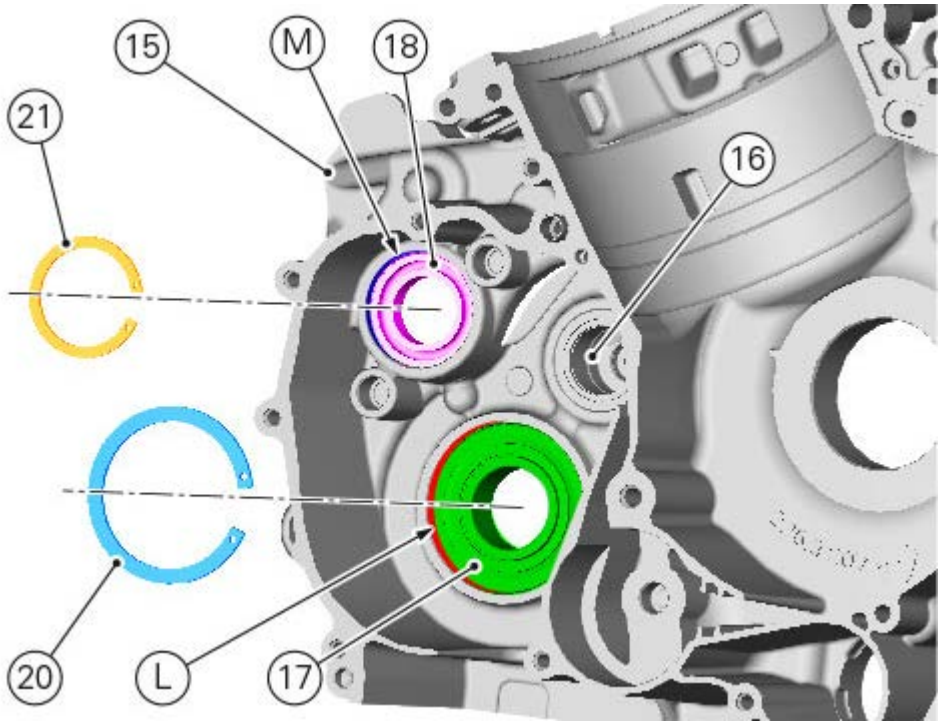
Reassembling the clutch-side casing

Gearbox secondary shaft bearing (17) and gear selector drum bearing (18) must be present on clutch-side casing (14) inside. While snap rings (20) and (21) must be present on casing outside, respectively at bearing (17) and bearing (18). The gearbox primary shaft bearing (16) must also be present inside the casing.



Reassembling the generator-side casing

Gearbox secondary shaft bearing (17) and gear selector drum bearing (18) must be present on chain-side casing (15) inside. While snap rings (20) and (21) must be present on casing outside, respectively at bearing (17) and bearing (18).



http://www.ducati-manuals.com
no. 140312

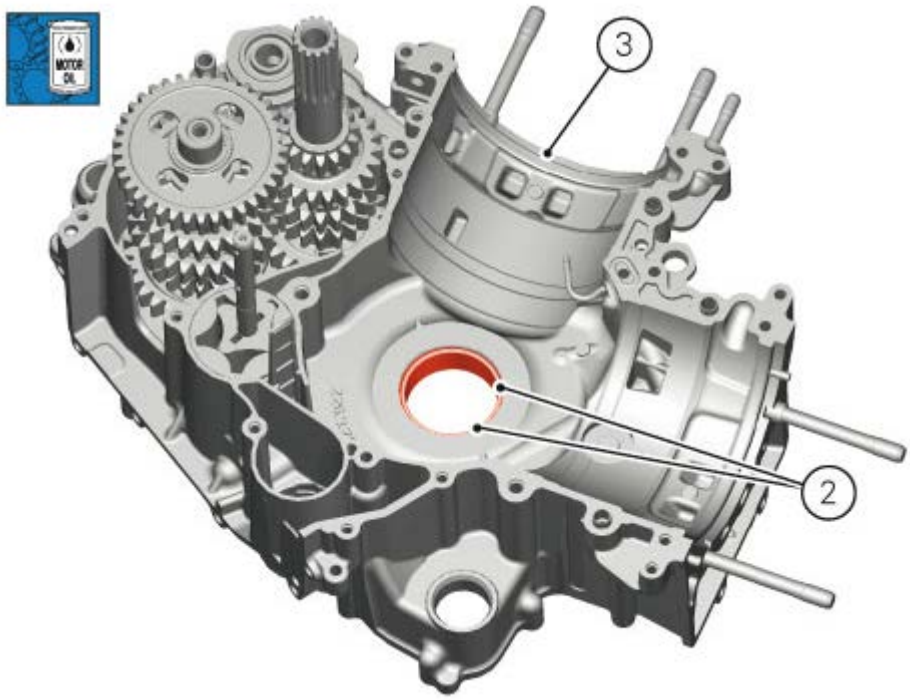
Closing the crankcase

Make sure that pilot bushes are in place on casings and that all external and internal parts are in place. Carefully clean the mating surfaces of both casings.

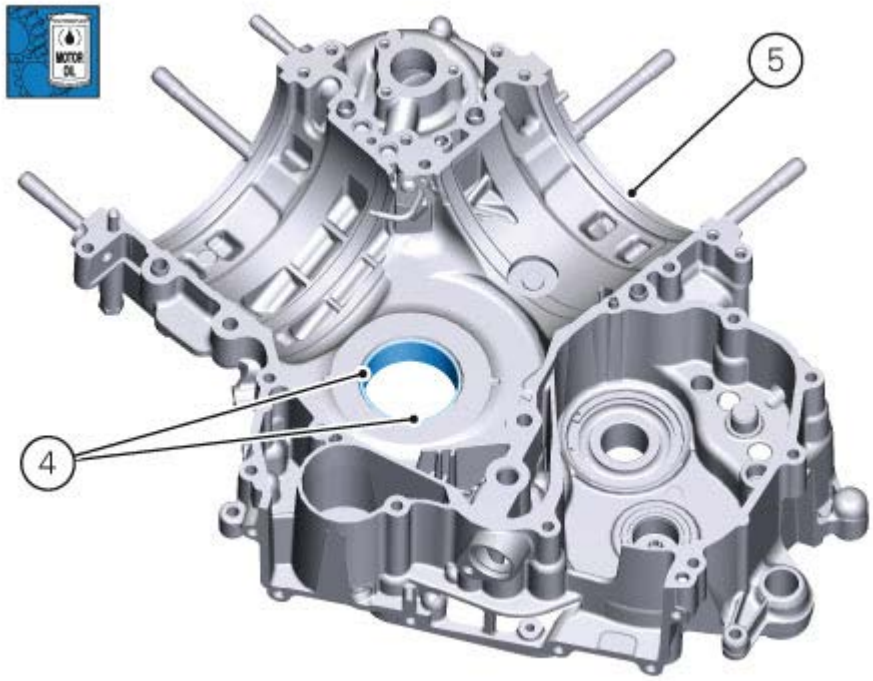
Note
Ensure that the timing marks of both rotors are in view.

Lubricate the main bearing shells (2) on chain-side casing (3) and main bearing shells (4) on clutch-side casing (5) with engine oil.
Also lubricate liner O-rings.

FLYWHEEL SIDE



CLUTCH SIDE

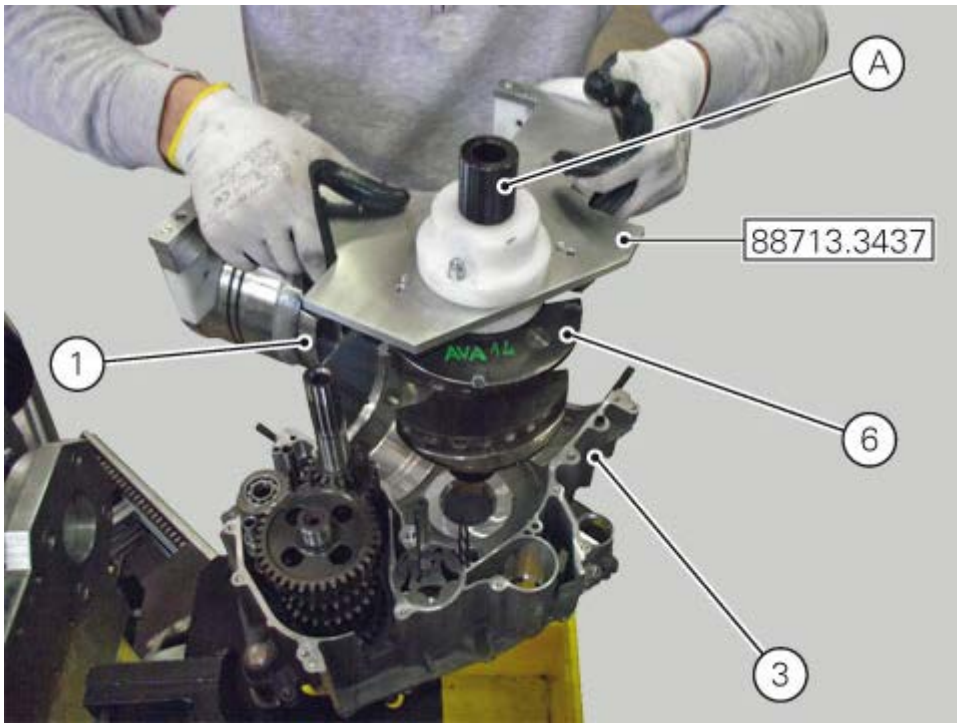


Position the centring tool for gearbox secondary shaft part no. **88713.3549**.

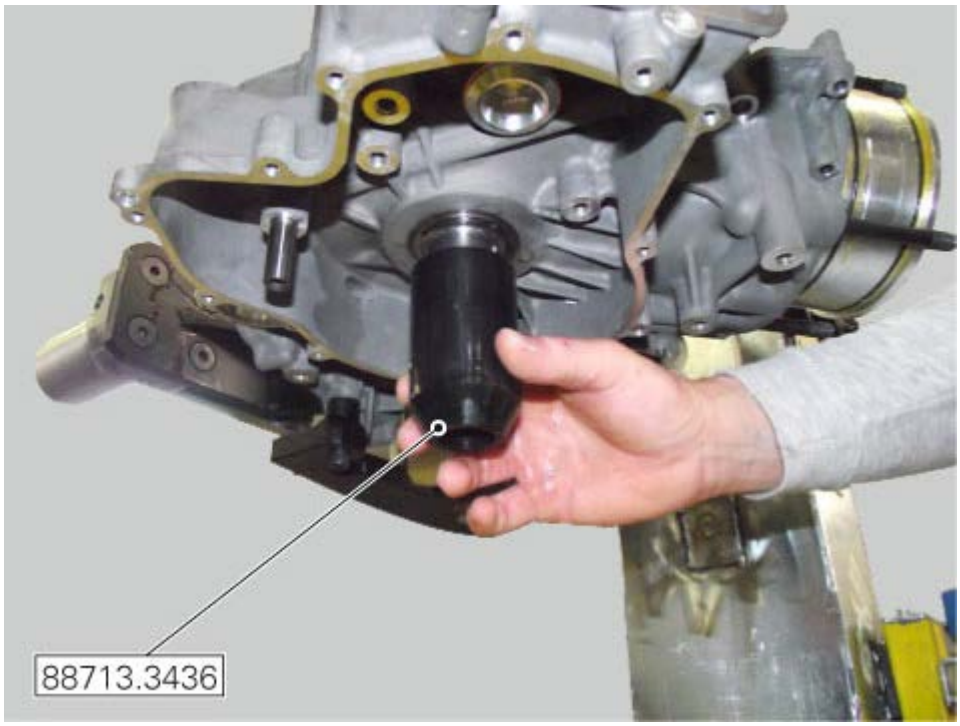
http://www.ducati-manuals.com
no. 140312



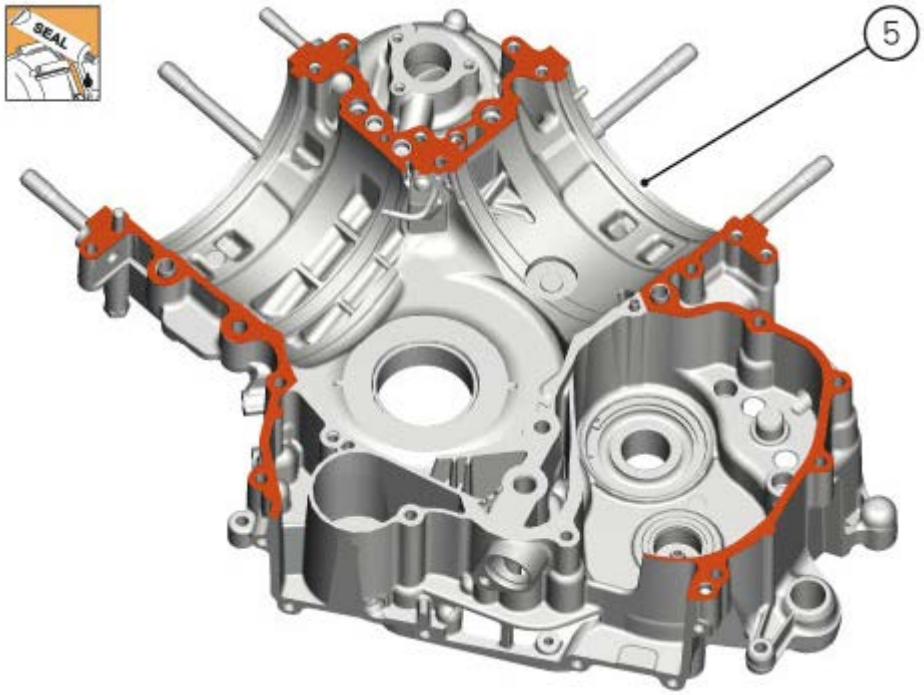
Set tool part no. **88713.3437** on connecting rod assembly (1) and fasten it by tightening bushing (A).
Fit main bearing shell tool part no. **88713.3436** on crankshaft (6).
Take connecting rod assembly (1) together and up using tool part no. **88713.3437**.
Fit the connecting rod assembly (1) in main bearing shells fully home on flywheel-side casing (3).
Slide out tool **88713.3436** from crankshaft and refit it on clutch side.
Loosen bushing (A) fastening connecting rod assembly (1) to tool part no. **88713.3437**.
Remove tool part no. **88713.3437** from connecting rod assembly (1).



http://www.ducati-manuals.com
no. 140312

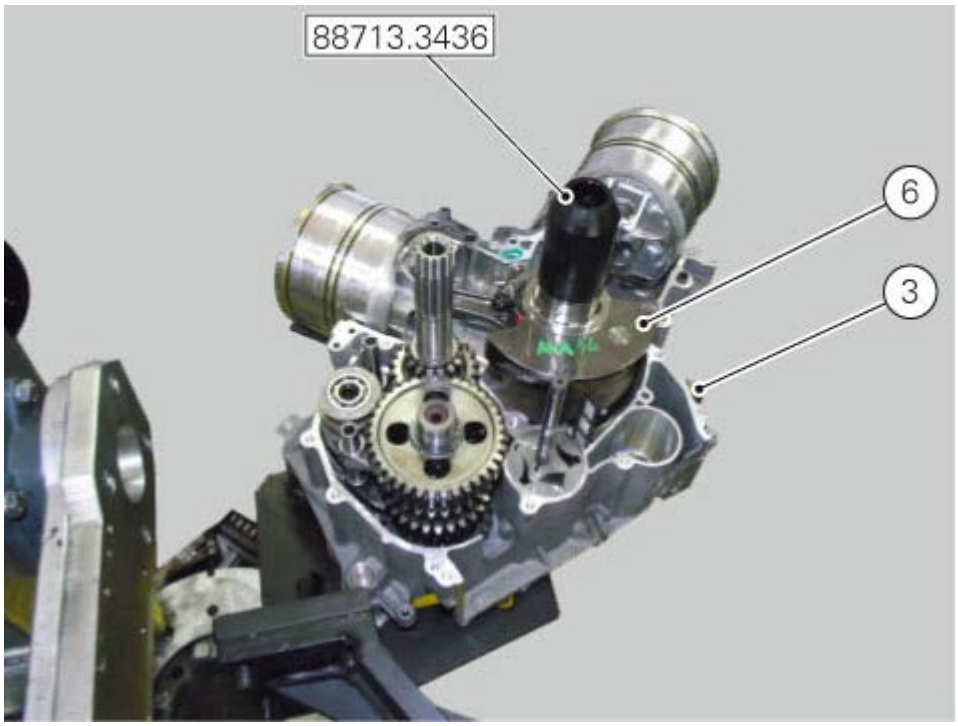


Apply a uniform bead of DUCATI sealing compound on clutch-side casing (5) along the whole mating surface, avoiding all holes, as shown.



Fit the insertion tool part no. **88713.3436** to crankshaft (6).
Close the crankcase by fitting the clutch-side casing (5) on chain-side casing (3) while centring tool part no. **88713.3436** and hence the primary shaft (7) and oil pump shaft (8).

http://www.ducati-manuals.com
no. 140312



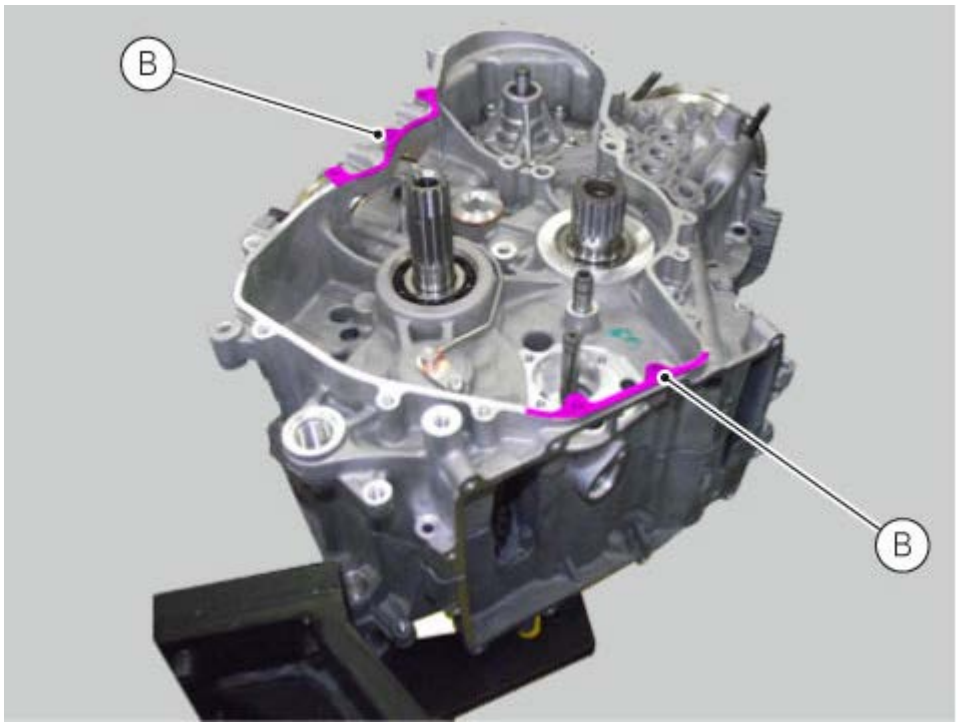


Take casings fully home against one another, lightly hitting with a nylon mallet alternately on opposite points to settle casings and ensure perfect coupling.

Important

Do not hit surfaces (B) that have cutouts underneath since this could result in serious damage.

http://www.ducati-manuals.com
no. 140312



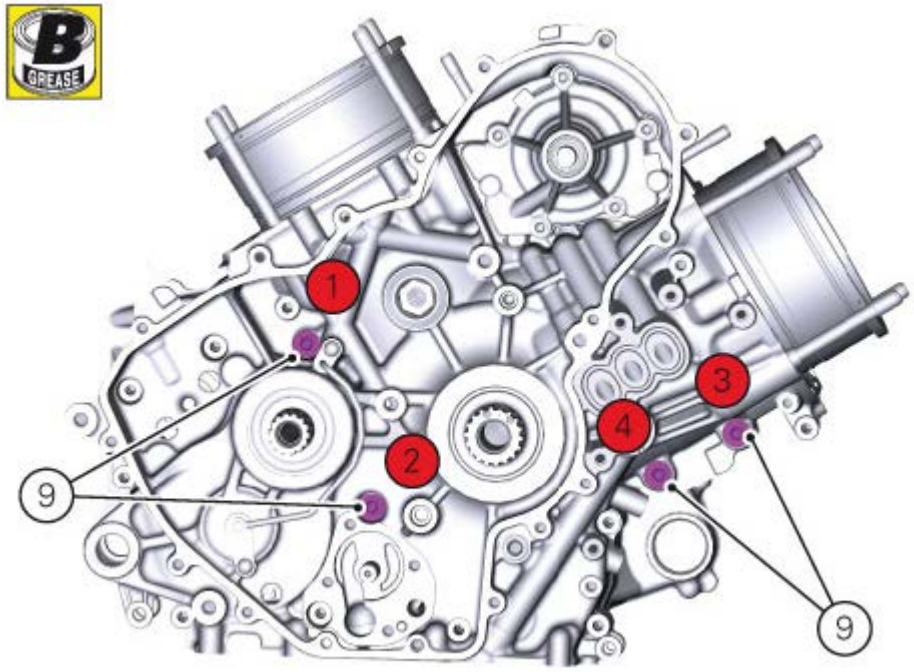
Prepare the fastening screws smearing them with specified grease, and start them on crankcase, paying attention to the different lengths, starting from the larger ones (M8) and following the specified sequence.

Ref.	Description
CLUTCH SIDE	
9	M8x50 Screws
10	Special screw
11	M6x45 Screw
12	M6x75 Screw
CHAIN SIDE	
9	M8x50 Screws
11	M6x45 Screw
12	M6x75 Screw

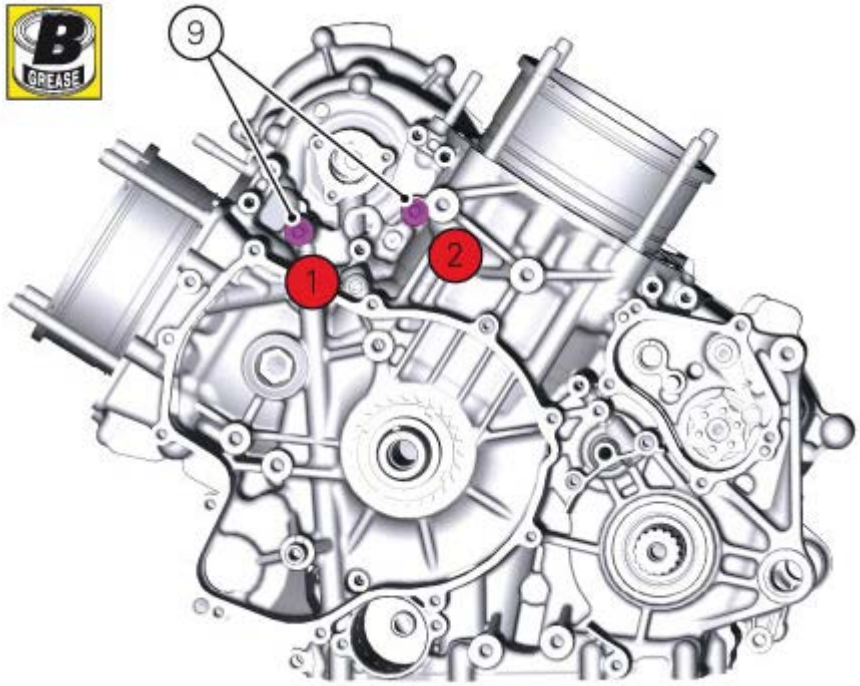
Start and tighten the screws (9) to a first torque of 25 Nm (Min. 24 Nm - Max. 26 Nm), following the sequence specified in the figure.

CLUTCH SIDE

http://www.ducati-manuals.com
no. 140312



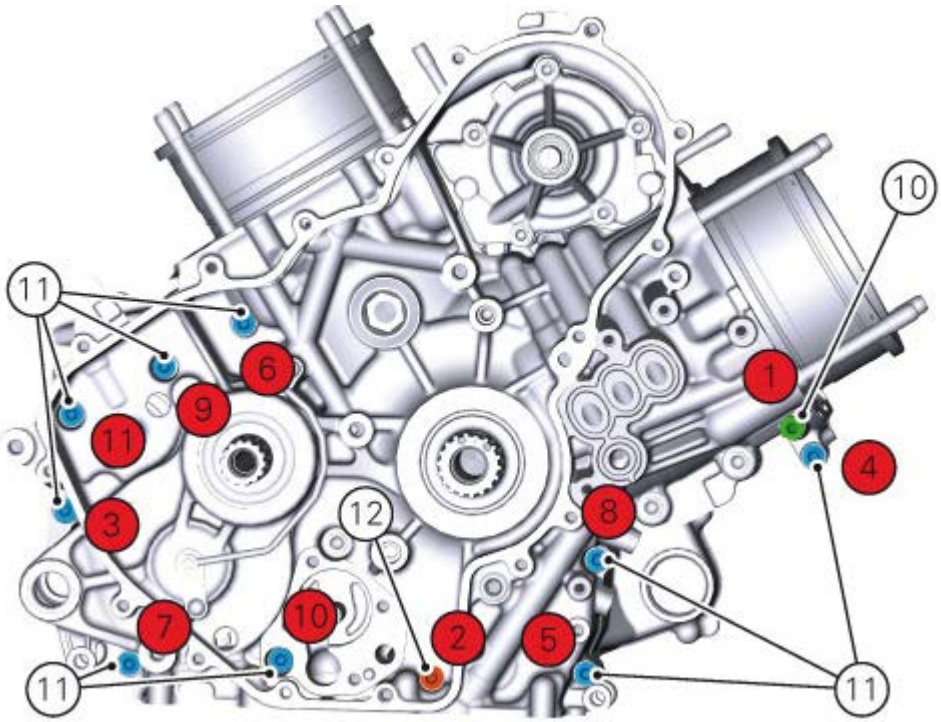
FLYWHEEL SIDE



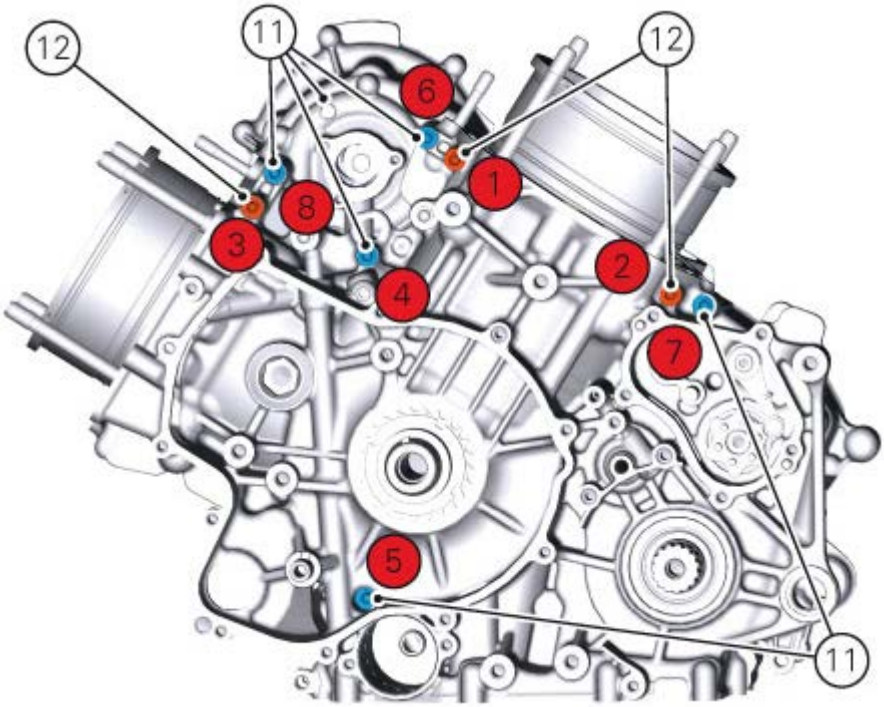
Start and tighten the screws (10), (11), (12) to a torque of 13 Nm (Min. 12 Nm - Max. 14 Nm), following the sequence specified in the figure.

CLUTCH SIDE

http://www.ducati-manuals.com
no. 140312

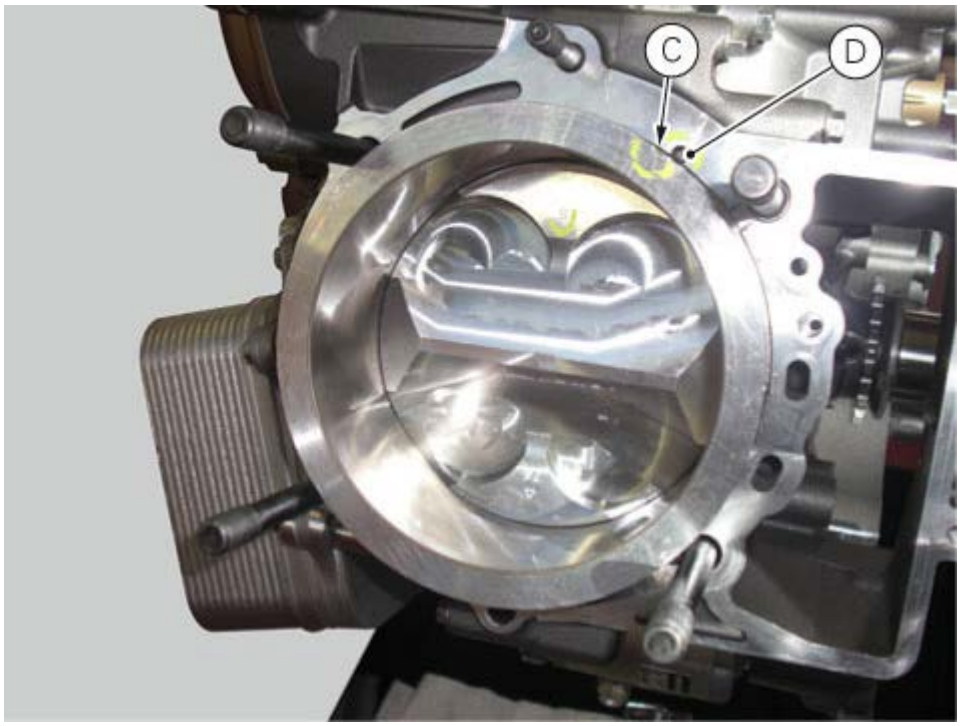


FLYWHEEL SIDE



Set liner down on crankcase and make sure that notch (C) matches pin (D).

http://www.ducati-manuals.com
no. 140312

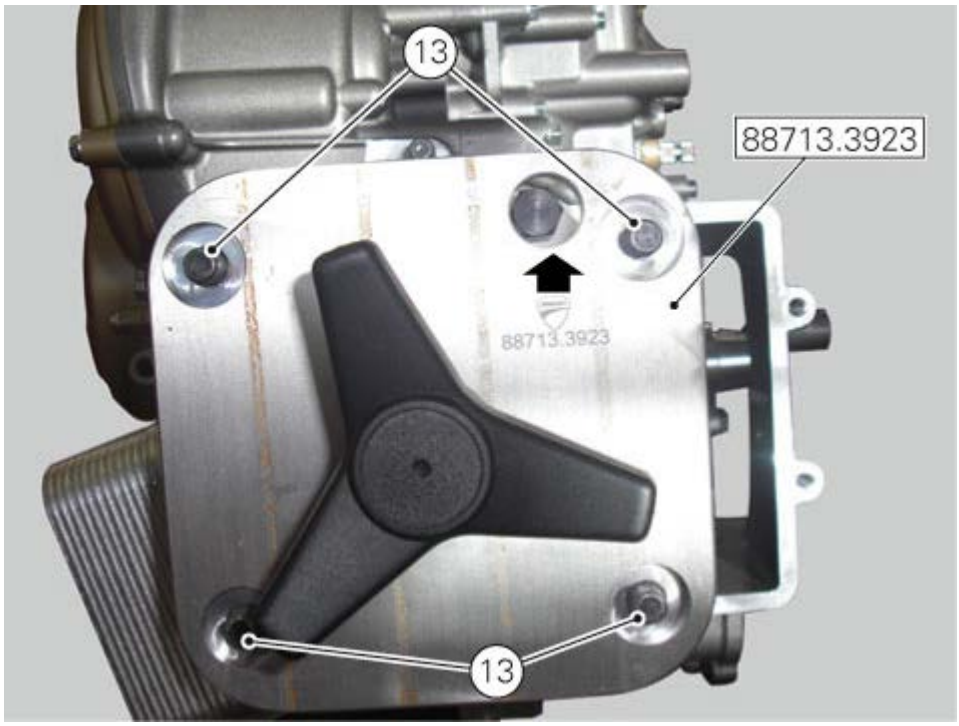


Install guide (E) to liner and fasten it by tightening pin (F).

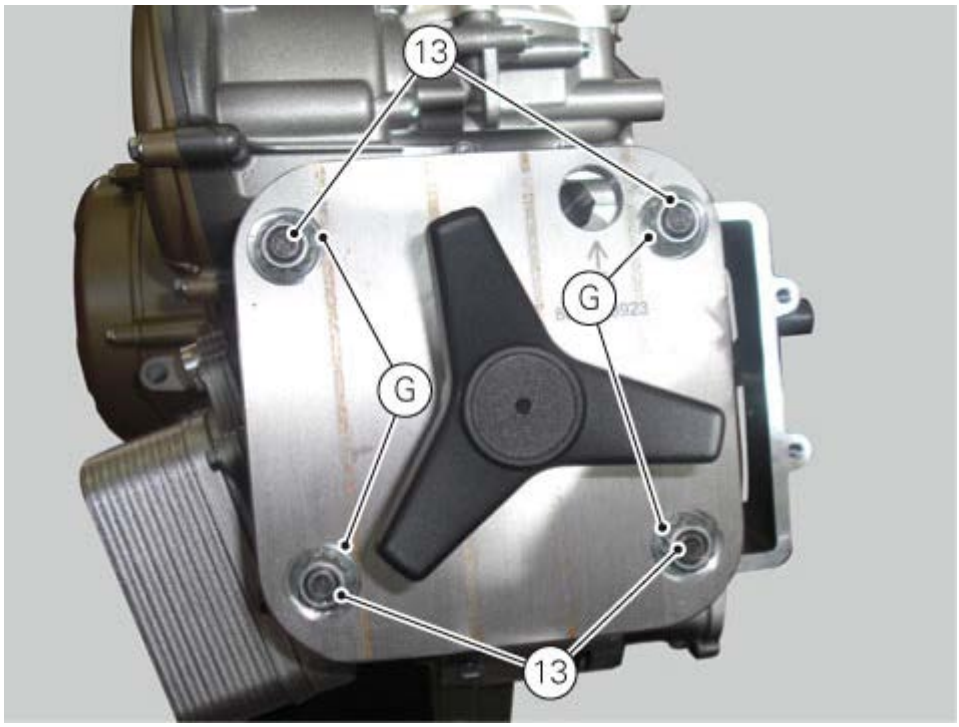


Fit insertion tool part no. **88713.3923** on the stud bolts (13) ensuring that the arrow is facing up.

http://www.ducati-manuals.com
no. 140312



Fit the head mounting screws (G) on stud bolts (13).
Tighten the tool fully home ensuring that the liner is fully inserted.
Remove the insertion tool part no. **88713.3923** and make sure that the liner surface mating with the head is perfectly flush with the crankcase surface mating with the head.



Refit the flywheel/generator assembly (Installation of the flywheel/generator assembly).
Refit the generator cover (Installation of the generator cover).
Refit the complete clutch (Installation of the clutch).
Refit the clutch cover (Installation of the clutch cover).
Refit the oil sump (Installation of the oil sump).
Refit the heat exchanger (Installation of the oil heat exchanger).
Refit the cylinder heads (Installation of the cylinder heads (under Removal of the cylinder heads and the timing chain)).
Refit the engine to the vehicle (Installation of the engine).

http://www.ducati-manuals.com
no. 140312

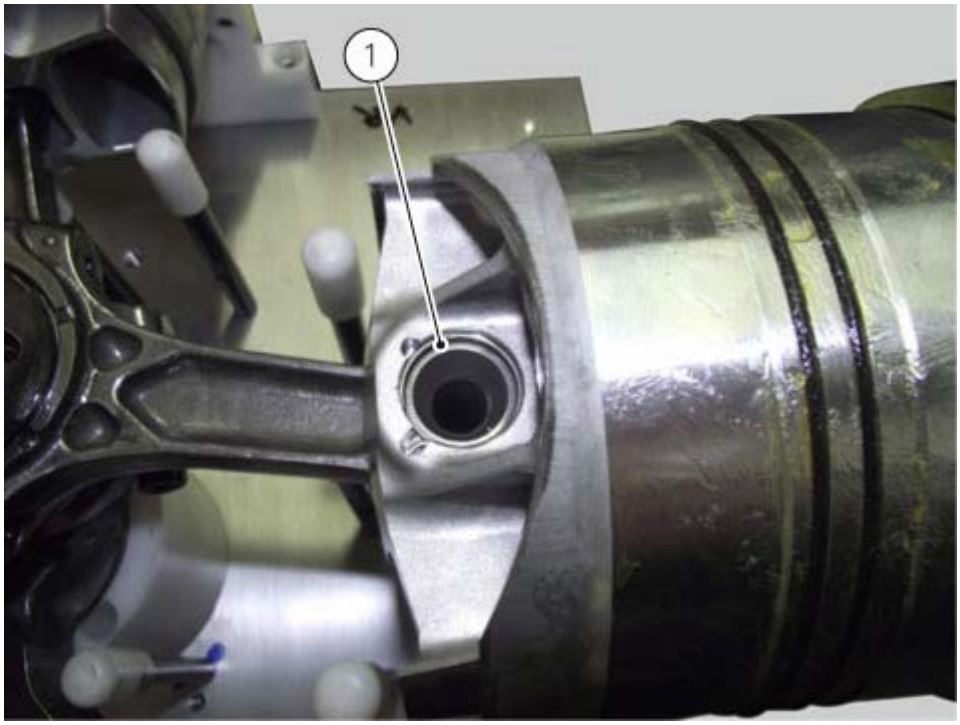
Removal of the connecting rod assembly

Split the crankcase and remove the connecting rod assembly together with liners and pistons (Opening the crankcase).

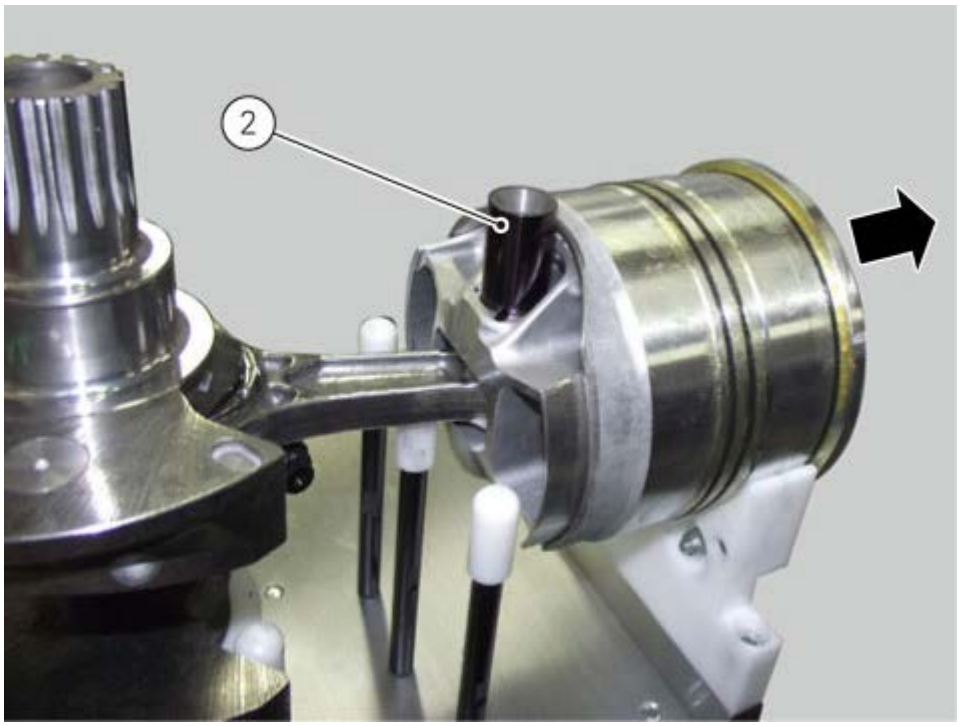
Set the connecting rod assembly on tool part no. **88713.3440**.



Slide liners out until piston pin is in view, making sure that the oil scraper ring remains in the casings. Remove circlip (1) and pin (2) of each con-rod using the suitable tool part no. **88713.3517** and then remove the liner-piston assembly from con-rod small end.



http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

Disassembly of the connecting rod assembly

Unscrew the screws (1) and separate the connecting rods from the crankshaft.

Important

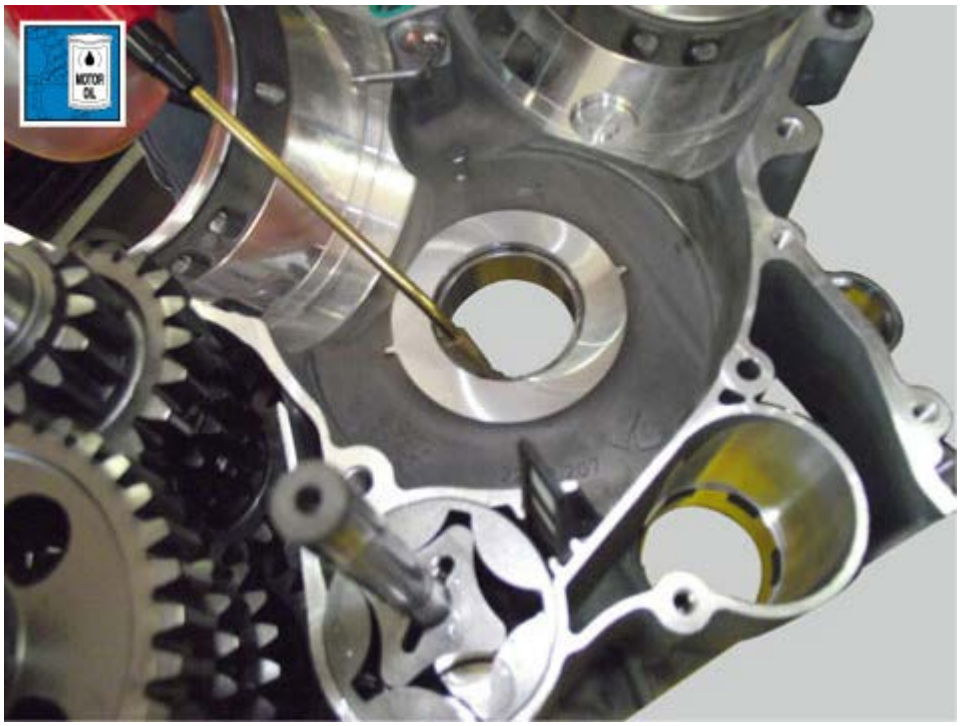
Take care not to mix up components of different connecting rods and maintain the original orientation.



http://www.ducati-manuals.com
no. 140312

Installation of the connecting rod assembly

Lubricate the main bearing shells with engine oil.

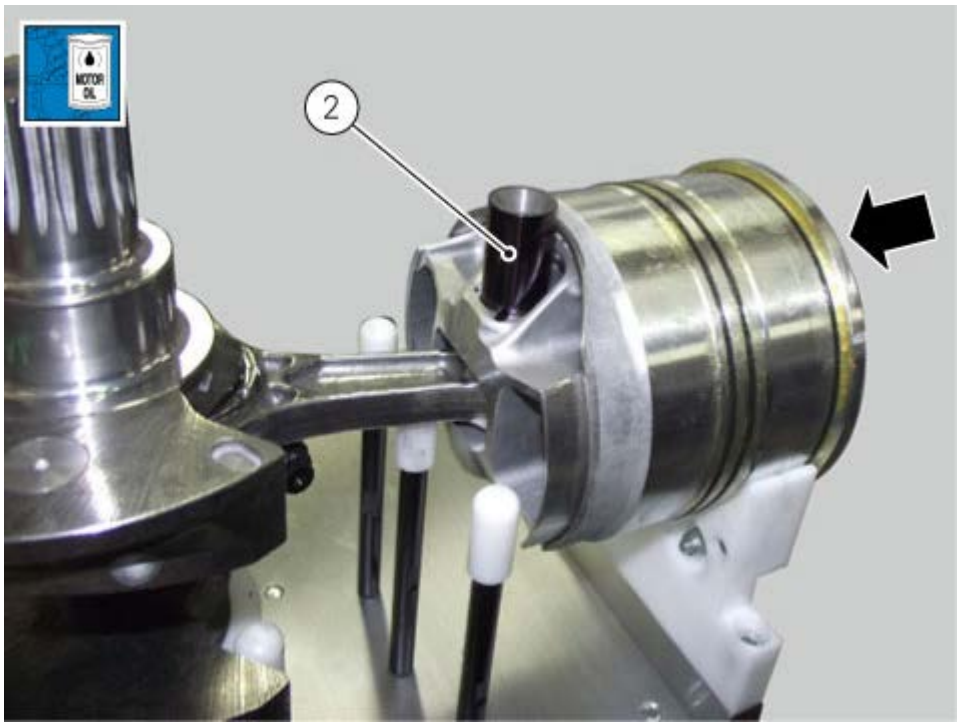


Duly support the connecting rod assembly on tool part no. **88713.3440** in order to install the liner-piston assembly to the con-rod.

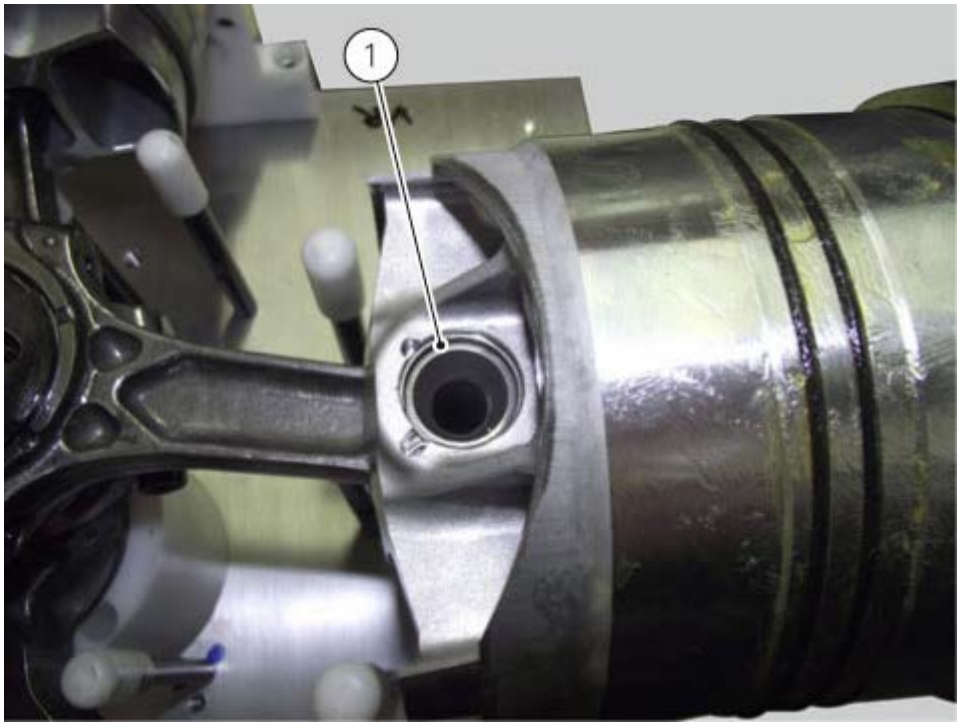


Insert con-rod under the piston.
Lubricate gudgeon pin (2) with engine oil and fit it inside piston a con-rod.

http://www.ducati-manuals.com
no. 140312



Refit circlip (1) to gudgeon pin (2) on each connecting rod using tool part no. **88713.3517**

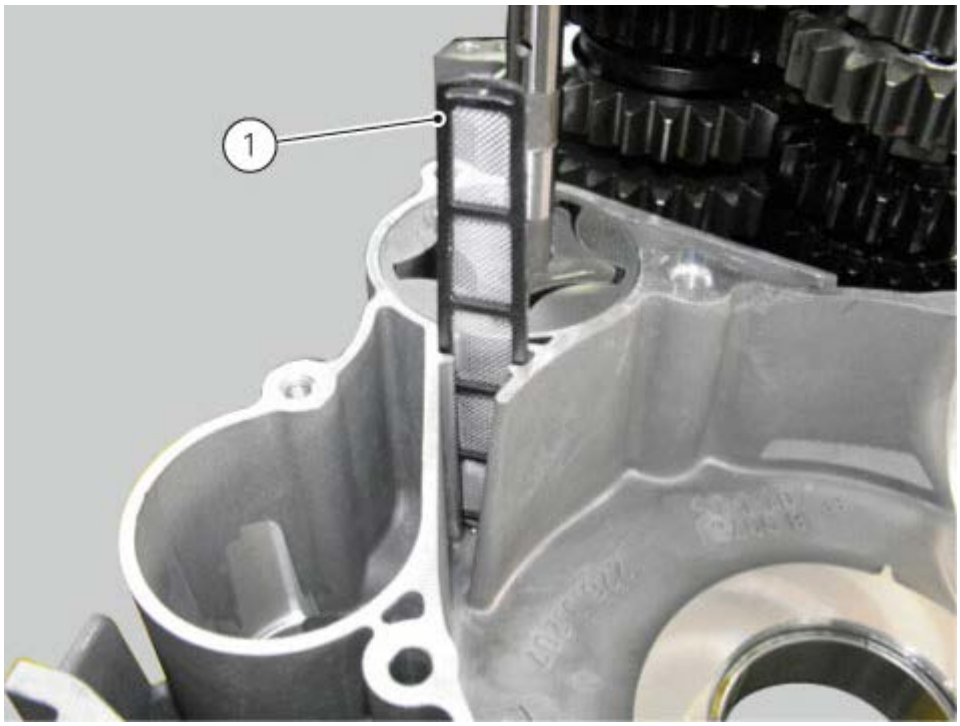


Fit the connecting rod assembly together with liners and pistons and close the crankcase (Closing the crankcase).

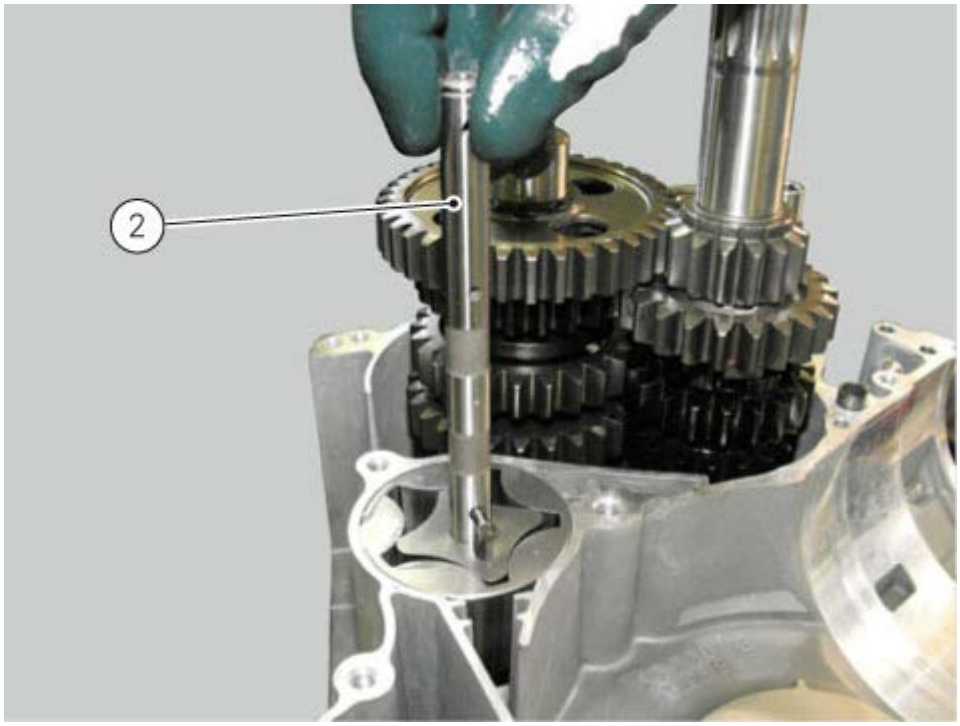
http://www.ducati-manuals.com
no. 140312

Removal of the oil scavenge pump

Remove scavenge pump filter (1) by pulling it up.

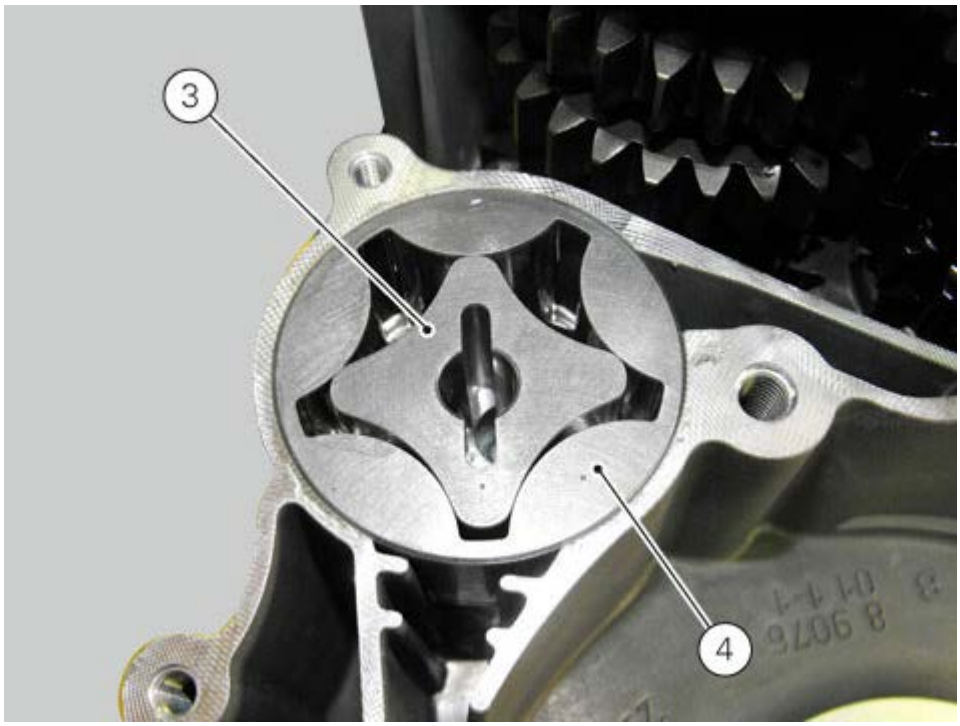


Remove the oil pump drive shaft (2).



Remove the internal rotor (3) and the external rotor (4).

http://www.ducati-manuals.com
no. 140312



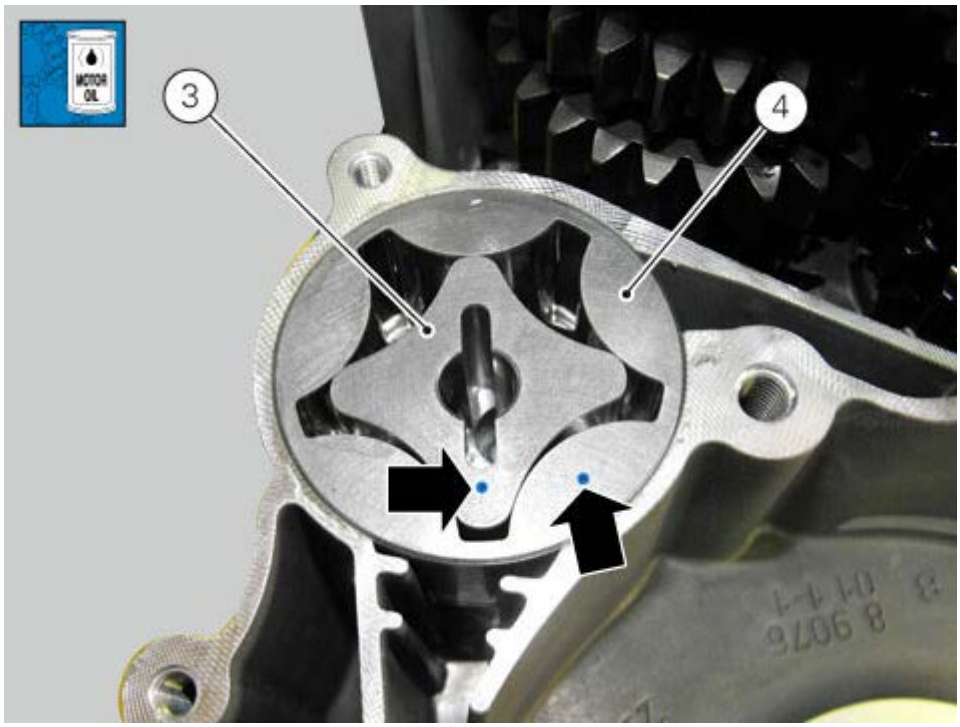
http://www.ducati-manuals.com
no. 140312

Installation of the oil scavenge pump

Carefully clean the scavenge pump seat and smear with engine oil.

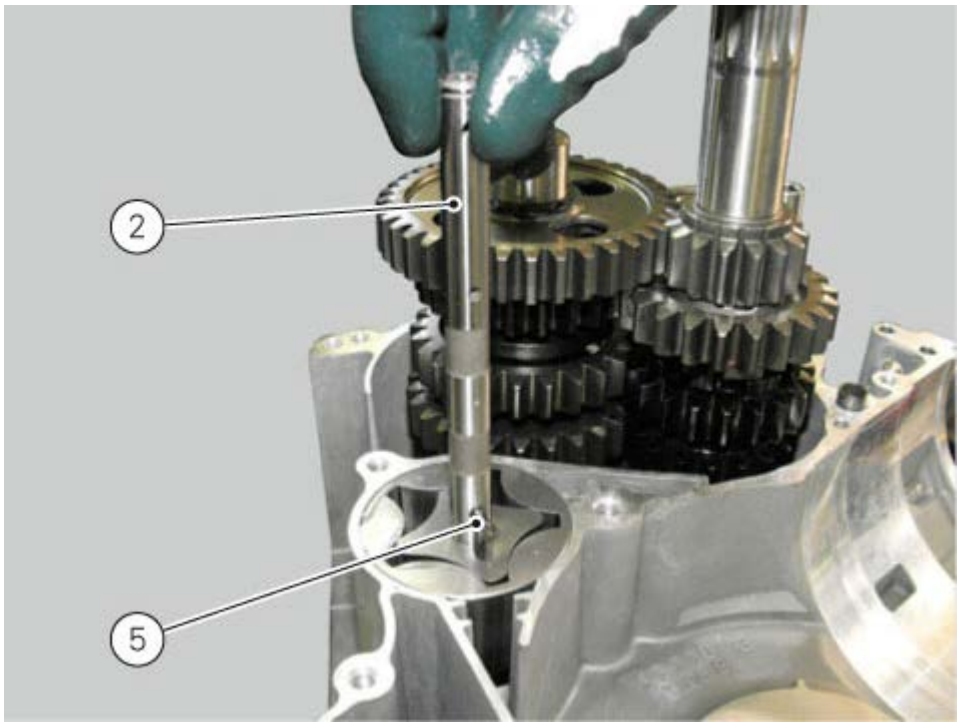


Lubricate the external and internal surface of the external rotor (4) and fit it in its seat with reference mark upward.
Lubricate the external surface of internal rotor (3) and fit it in the external rotor with reference mark upward.

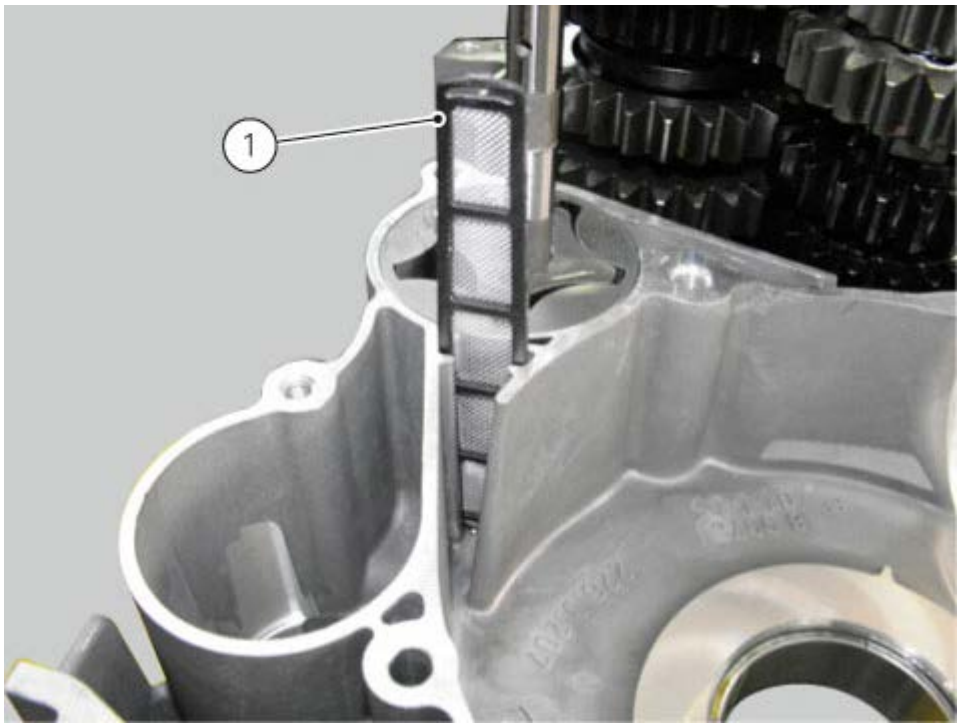


Fit pin (5) in the hole on oil pump drive shaft (2).
Fit the oil pump drive shaft (2) in the internal rotor ensuring that pin (5) engages and gets fully home in the relevant groove.
Test pump rotation

http://www.ducati-manuals.com
no. 140312



Carefully clean the scavenge pump mesh filter (1).
Fit the scavenge pump mesh filter (1) fully home in its seat on chain-side casing.

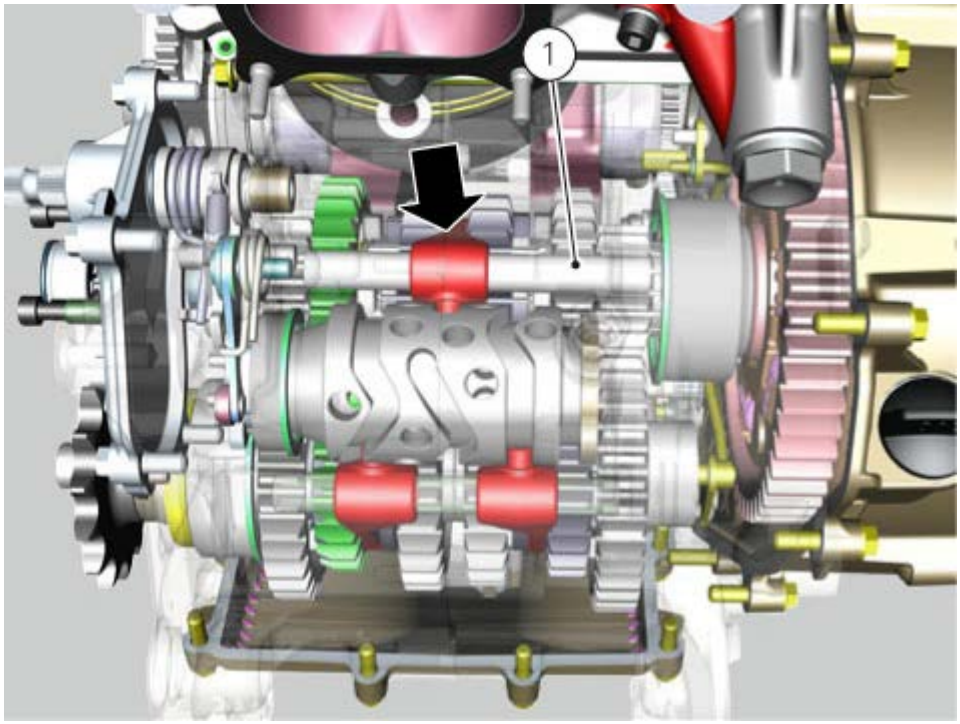


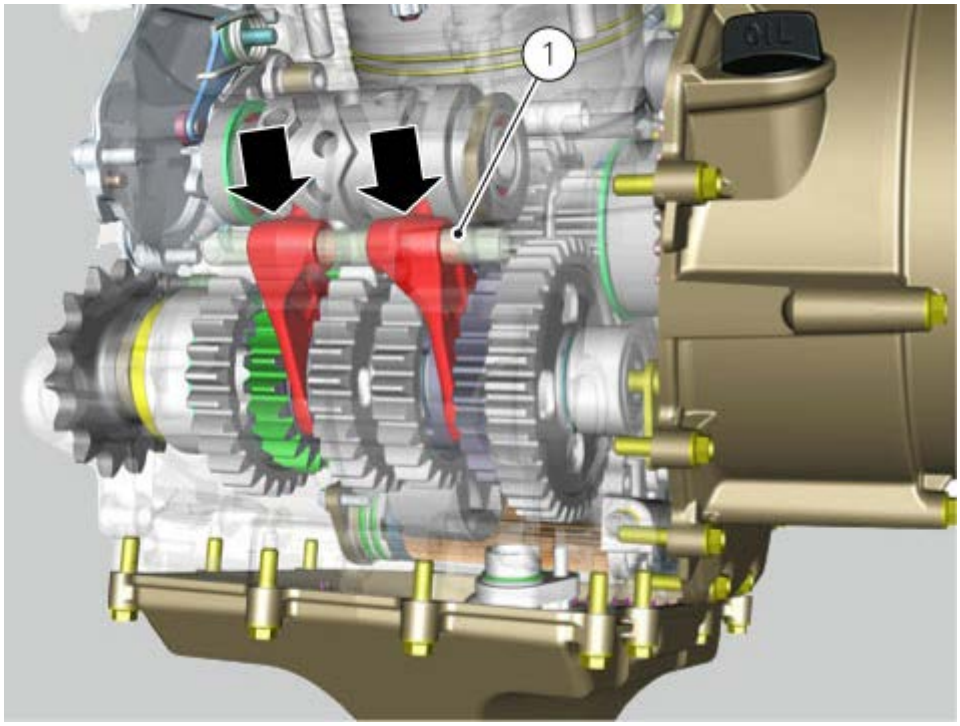
http://www.ducati-manuals.com
no. 140312

Removal of the gearbox assembly

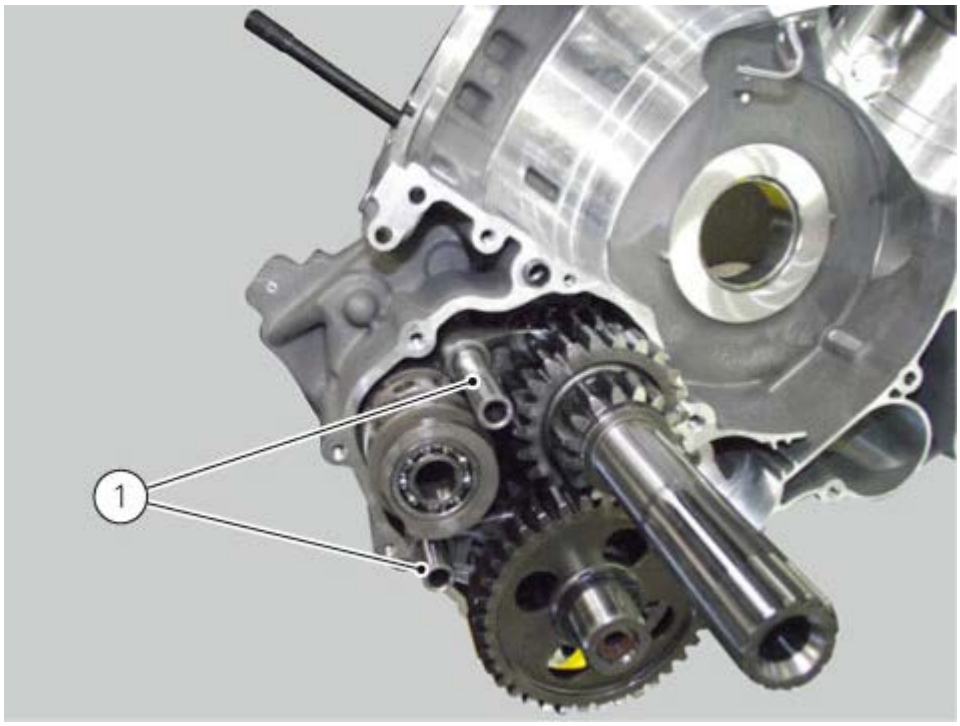
Remove engine from frame (Removal of the engine).
Separate the crankcase halves (Separating the crankcase halves).

Remove pins (1) from speed selector forks.
Move the speed selector forks away from the gearbox desmodromic drum.
Remove forks from the grooves on the relevant gears.

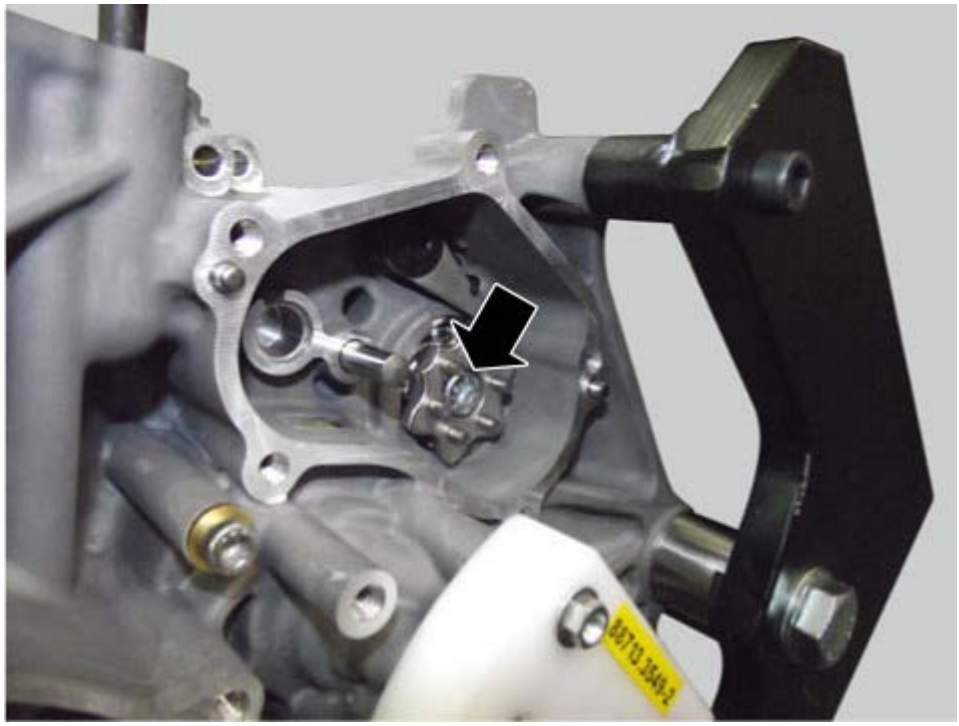




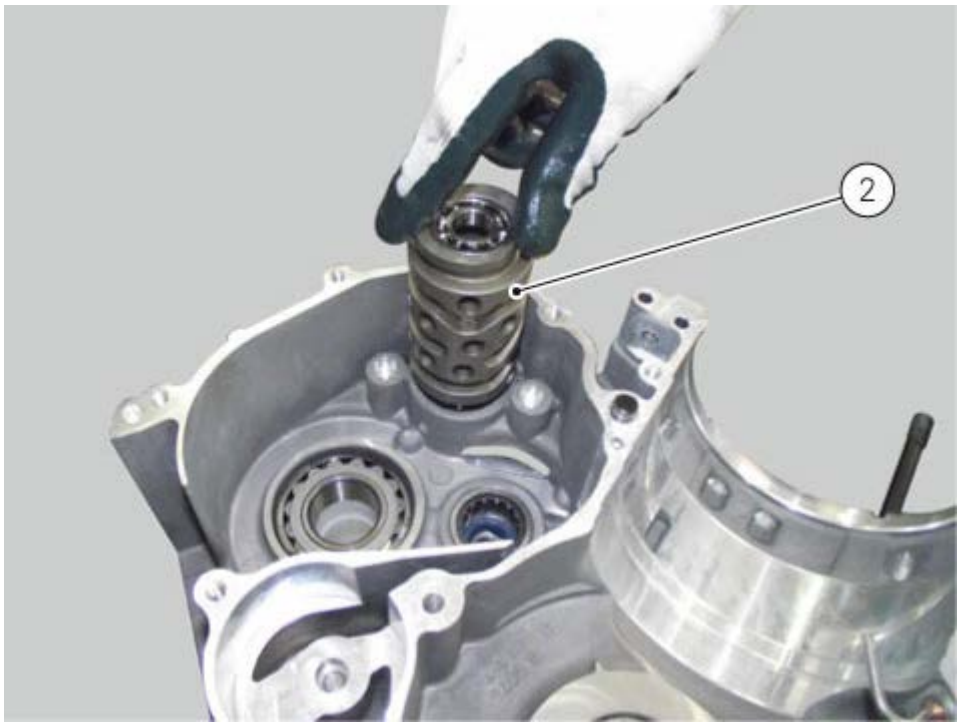
http://www.ducati-manuals.com
no. 140312

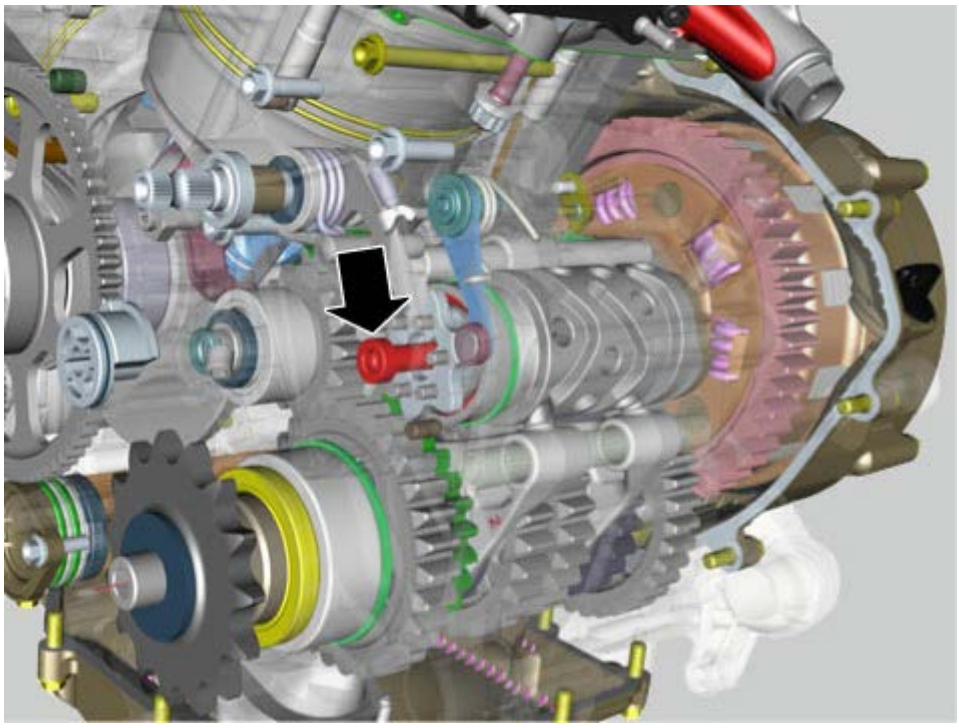


To remove gearbox desmodromic drum (2), loosen the screw on the gearchange mechanism flange, as indicated in section "Removal of the gear selector lever".



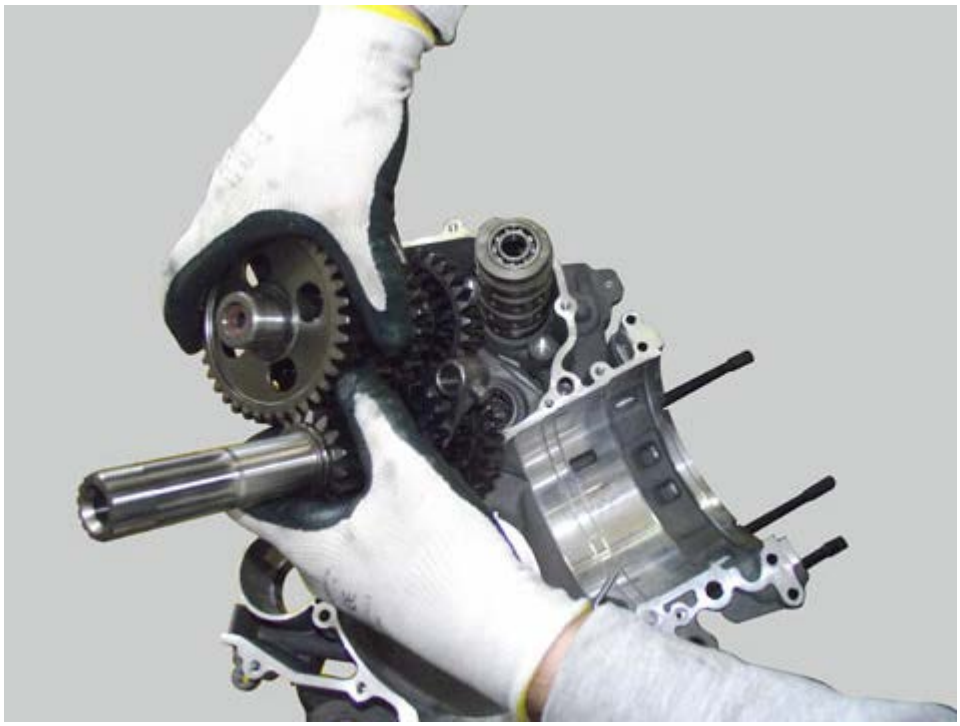
http://www.ducati-manuals.com
no. 140312





Remove the gear pack.

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312

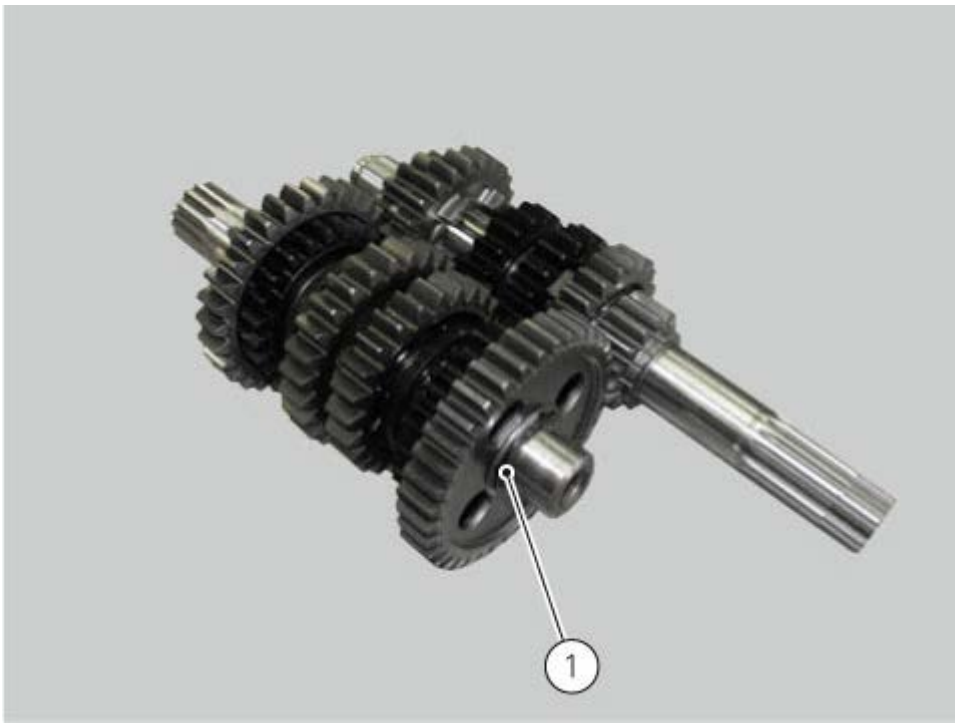
Disassembly of the gearbox shafts

Place the shaft in a vice in such a way as to facilitate the disassembly operations.

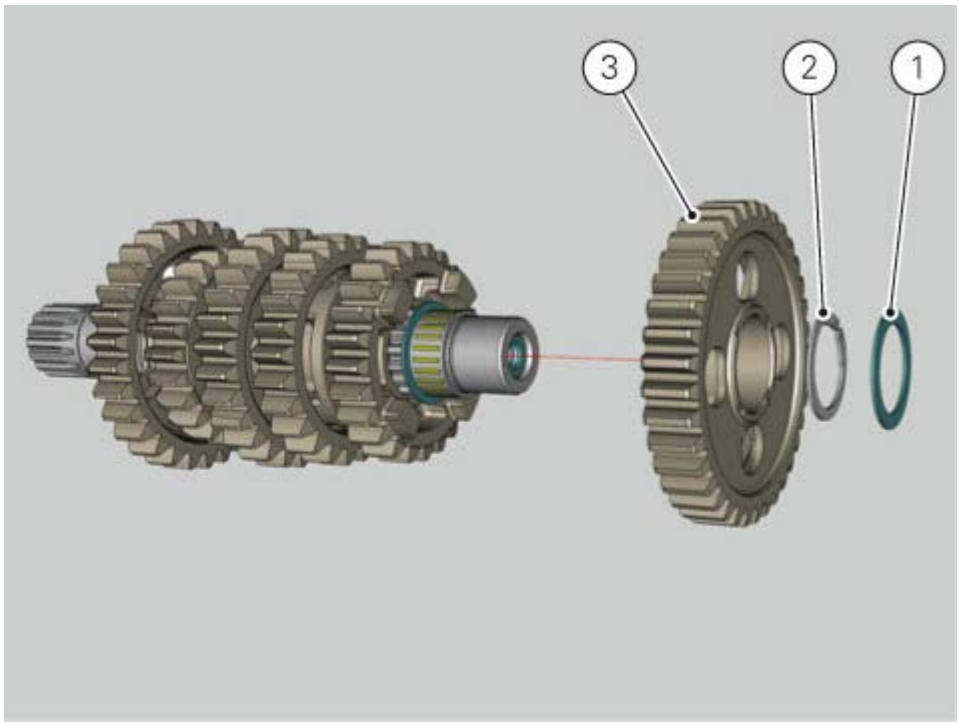
Important
Take care not to invert the shim position upon reassembly: this would potentially lead to jamming when using the gear selector control, making it necessary to reopen the crankcase.

Disassembly of the gearbox secondary shaft

Remove the chain-side shim washer and the clutch-side shim washer (1) from the secondary shaft.

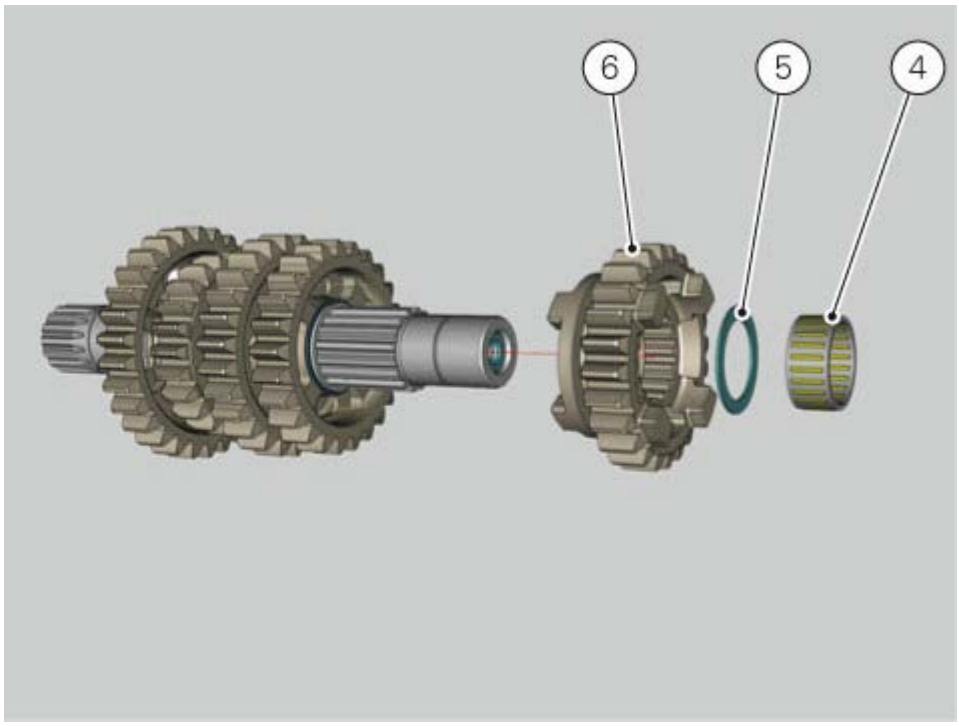


Remove the circlip (2) and slide the first speed driven gear out (3).

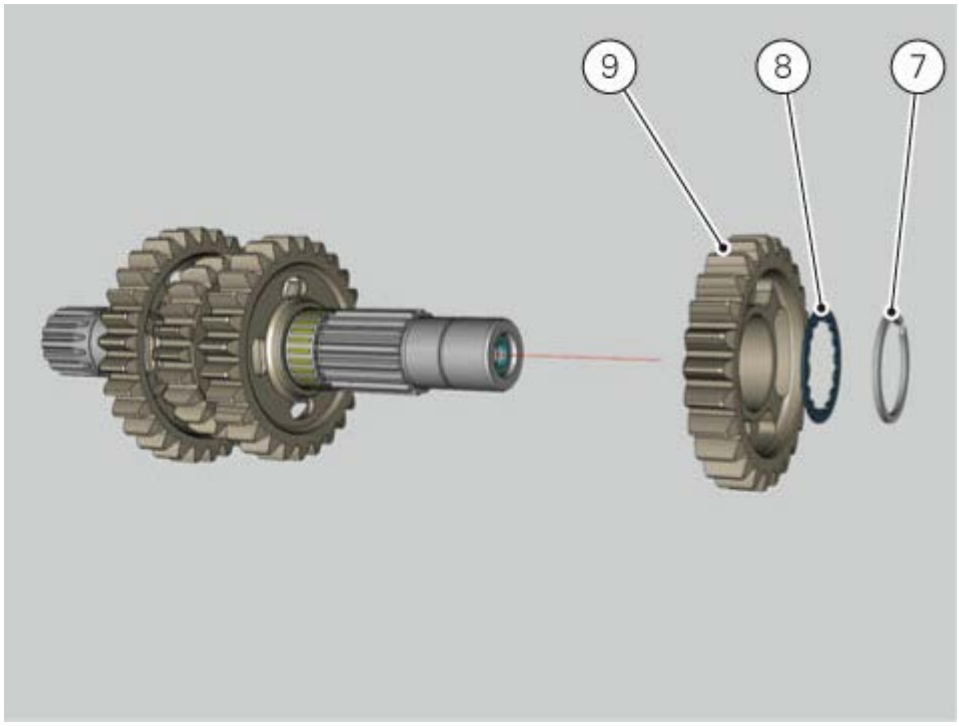


Remove the needle roller cage (4) and the shim (5).
Remove the fifth speed driven gear (6).

http://www.ducati-manuals.com
no. 140312

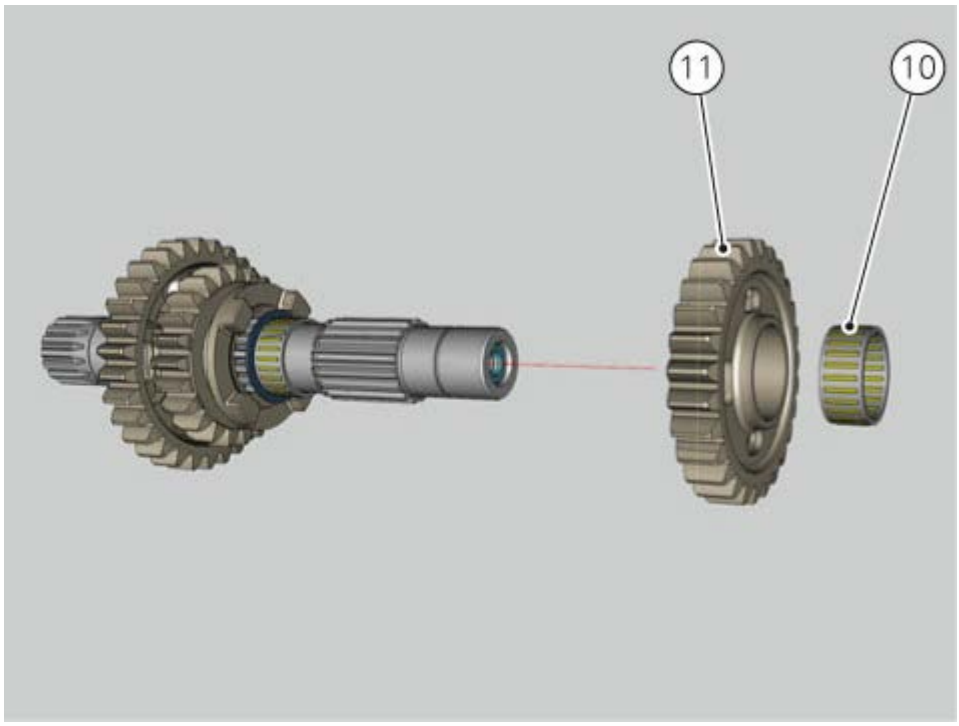


Use two flat blade screwdrivers to remove the circlip (7) from its sear, taking care not to damage the shaft surface.
Remove the circlip (7), the splined washer (8), and the fourth speed driven gear (9).

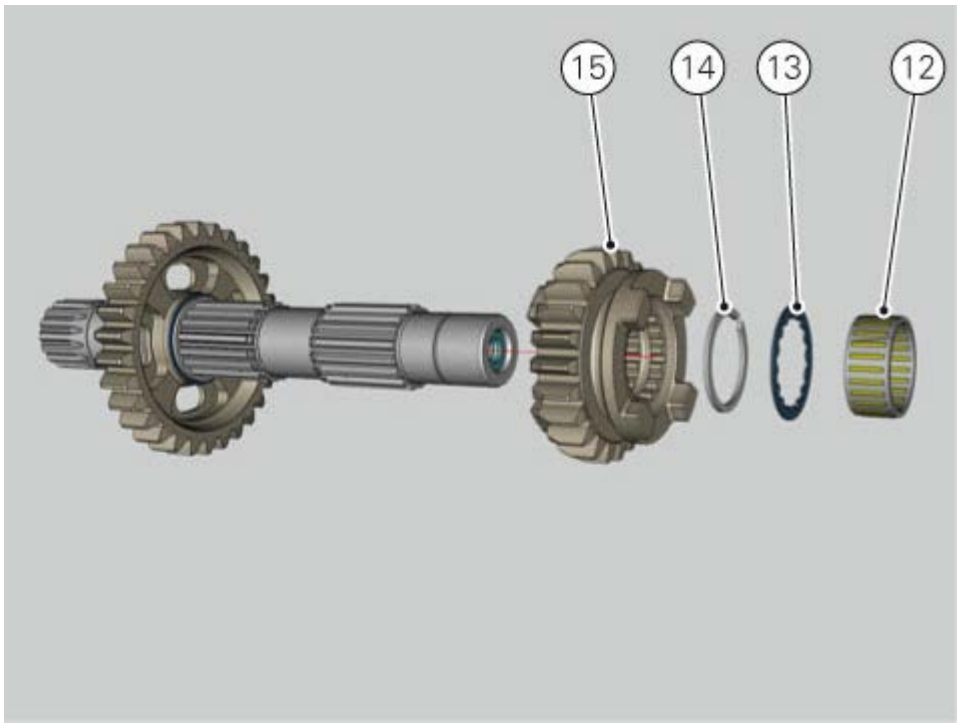


Remove the needle roller cage (10), and remove the third speed driven gear (11).

http://www.ducati-manuals.com
no. 140312

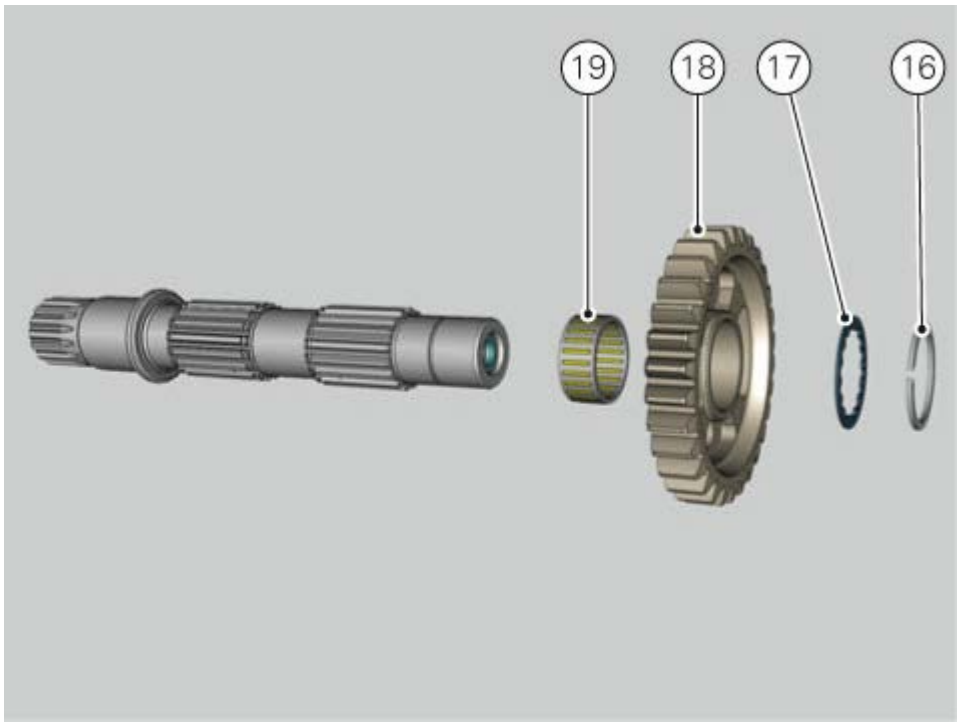


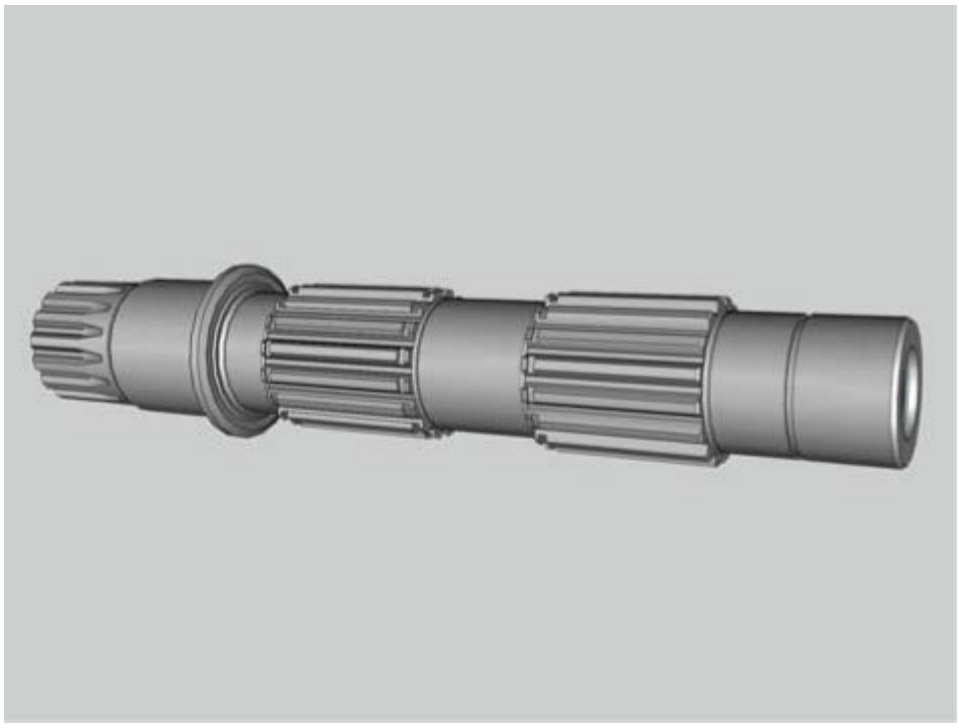
Remove the needle roller cage (12).
Remove the splined washer (13), the circlip (14), and slide the sixth speed driven gear out (15).



Remove the circlip (16), the splined washer (17), and the second speed driven gear (18).
Keep the needle roller cage (19): all the components have now been removed from gearbox secondary shaft .

http://www.ducati-manuals.com
no. 140312



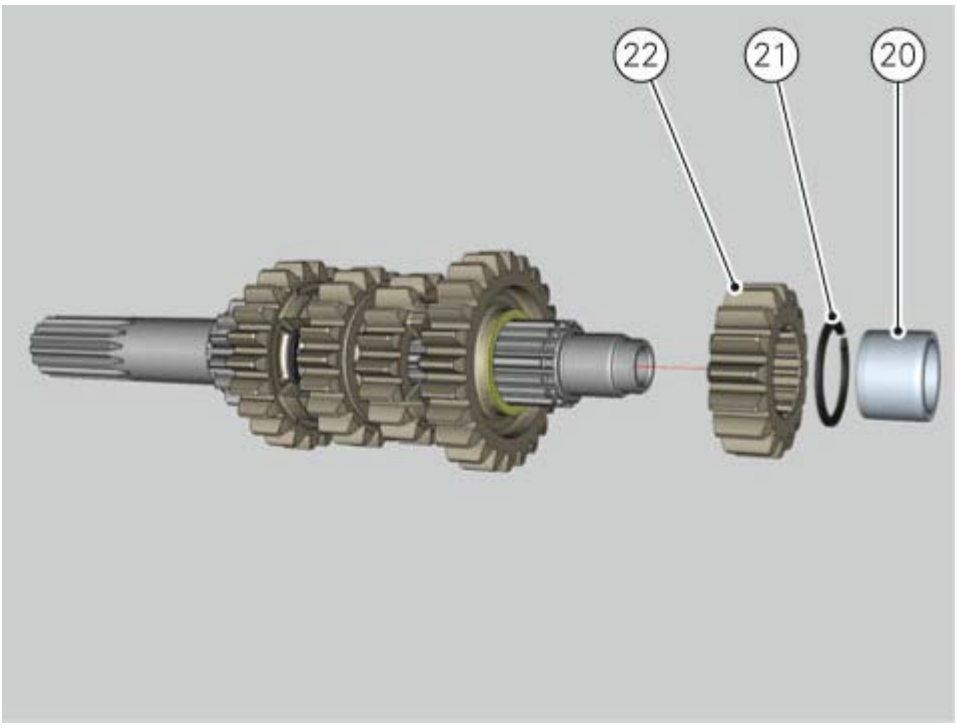


Disassembly of the gearbox primary shaft

Remove the inner ring (20), the chain-side shim washer (21) and the clutch-side shim washer from the primary shaft.
Remove the second speed driving gear (22).

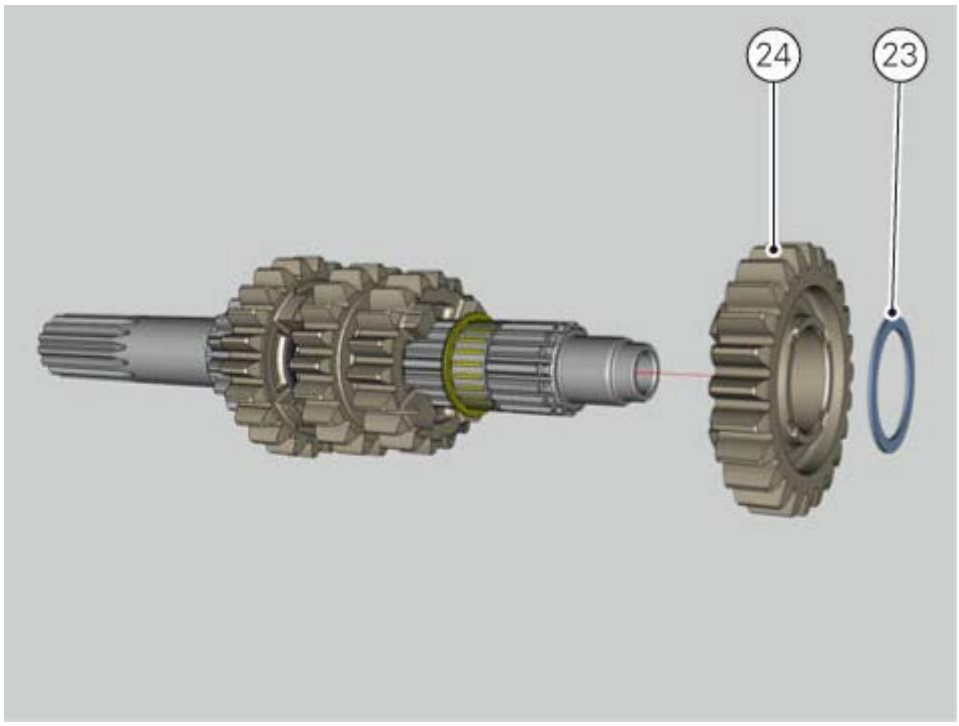
http://www.ducati-manuals.com
no. 140312



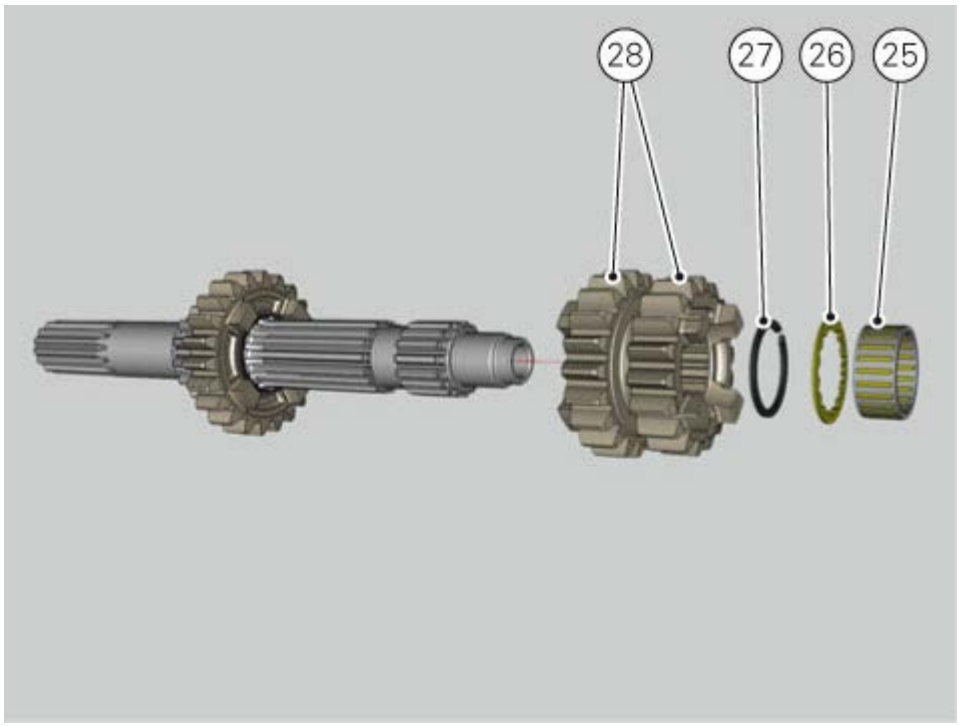


Use two screwdrivers to prise the circlip out (23).
Take care to avoid damaging the surface of the shaft while removing circlip (23).
Remove the sixth speed driving gear (24).

http://www.ducati-manuals.com
no. 140312

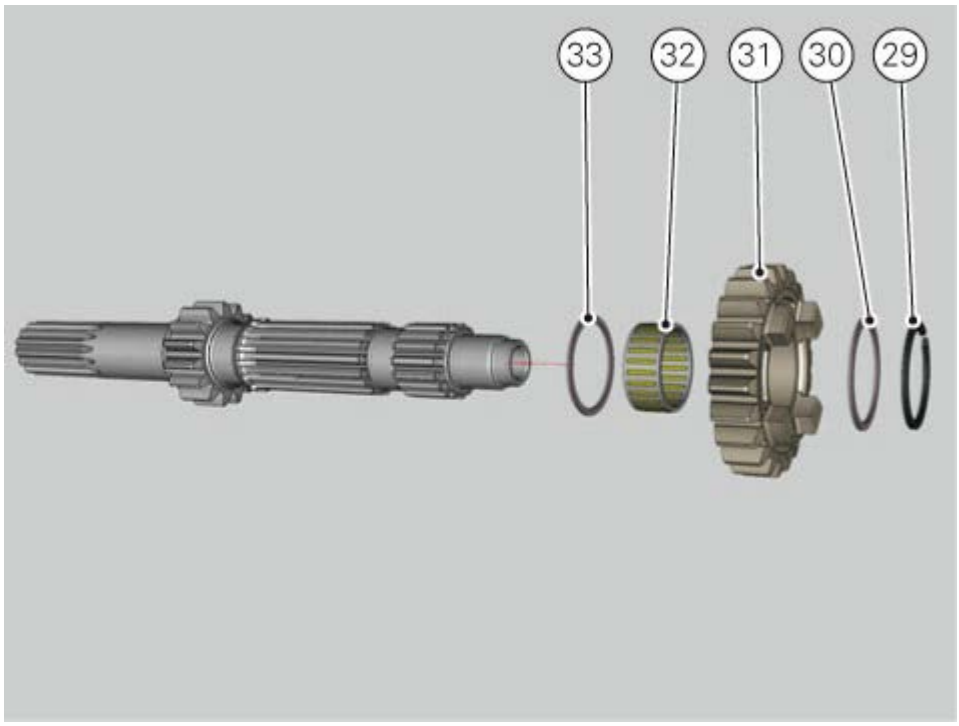


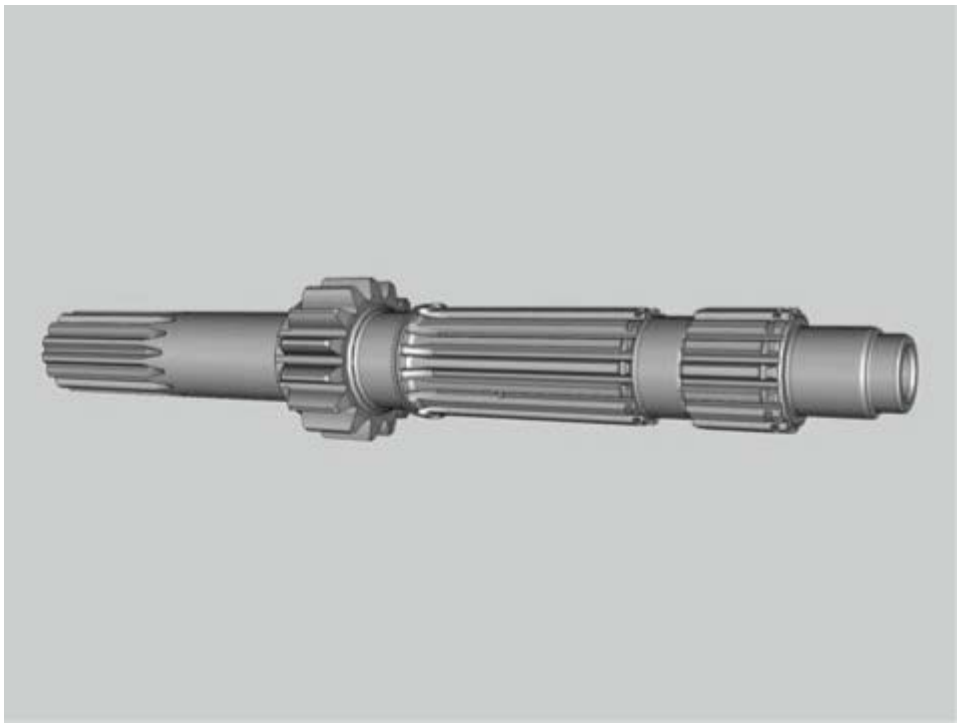
Remove the needle roller cage (25), then the splined washer (26), and the circlip (27).
Remove the third and fourth speed driving gear (28).



Remove the circlip (29) and the splined washer (30).
Remove the fifth speed driving gear (31) complete with the roller cage (32).
Slide the shim (33) off the primary shaft.

http://www.ducati-manuals.com
no. 140312





http://www.ducati-manuals.com
no. 140312

Overhaul of the gearbox

Check the condition of the front coupling dogs of the gears. They must be in perfect condition and with no sign of wear on the edges of the teeth.
The idler gears must rotate freely on their shafts.
When refitting, make sure the circlips are correctly positioned.
Check the needle roller bearings for wear.
The threads and splines of the shafts must be in perfect condition.
Also check that the component parts of the gear selector mechanism are in good condition.

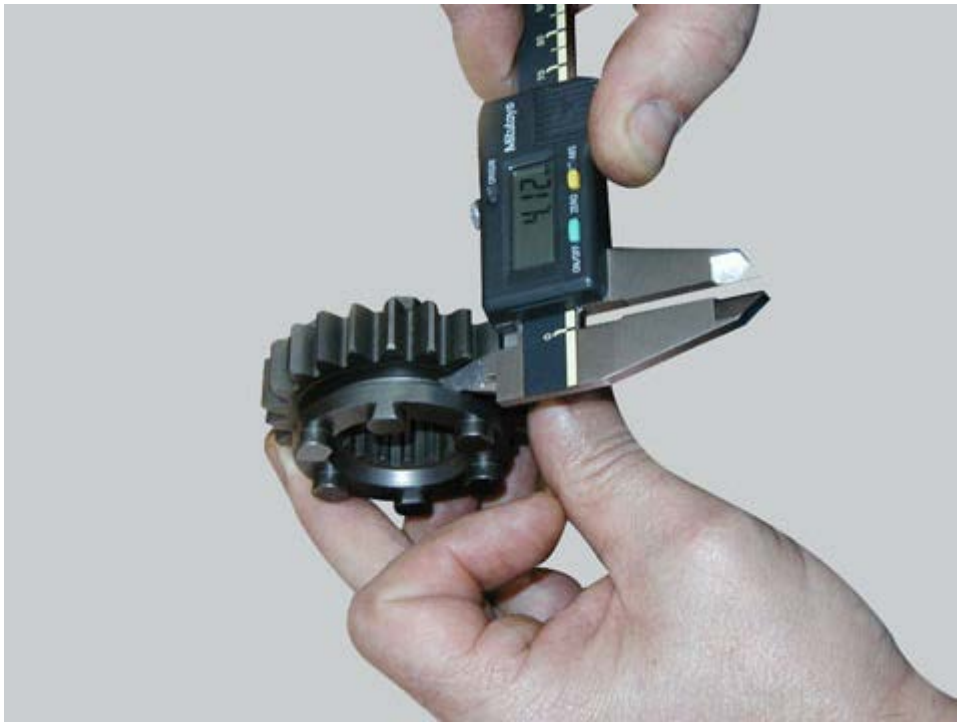
Engage the gears and check that the gearchange mechanism does not stick (selector fork - gear groove, and fork pin - desmodromic drum groove).
For the total gearbox shaft and selector drum end clearance values, refer to paragraph"Gearbox".

http://www.ducati-manuals.com
no. 140312

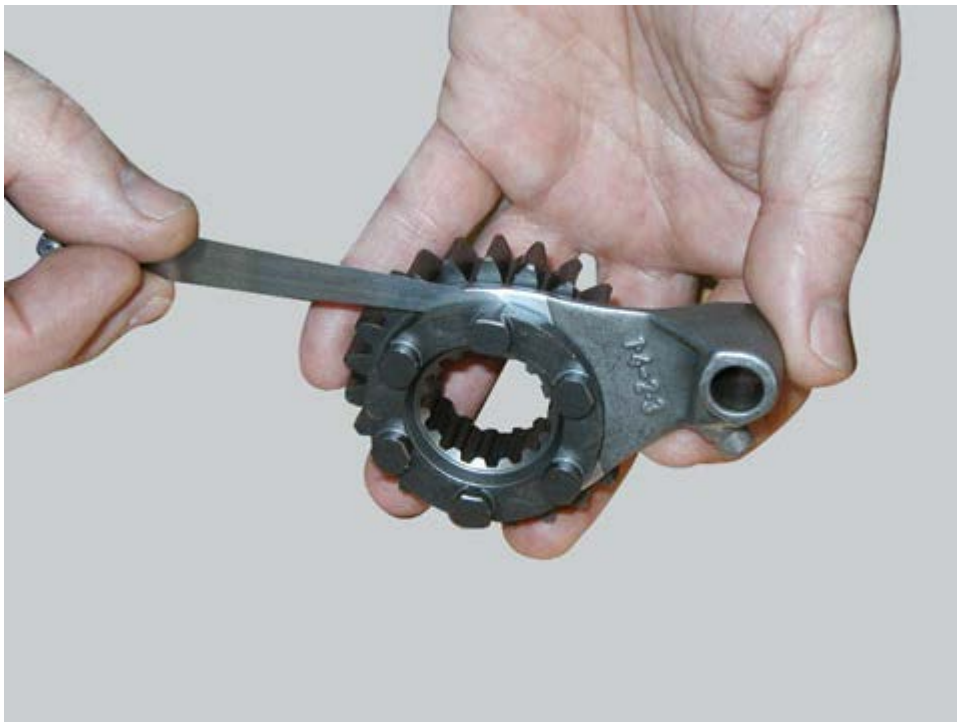
Inspection of the gear selector forks

Visually inspect the gear selector forks. Bent forks must be renewed as they may lead to difficulties in gear changing or may suddenly disengage when under load.
Use a feeler gauge to check the clearance of each fork in its gear groove.
If the service limit has been exceeded, check whether or not it is necessary to replace the gear or the fork by referring to the limits specified for each part, as specified in paragraph "Gearbox".





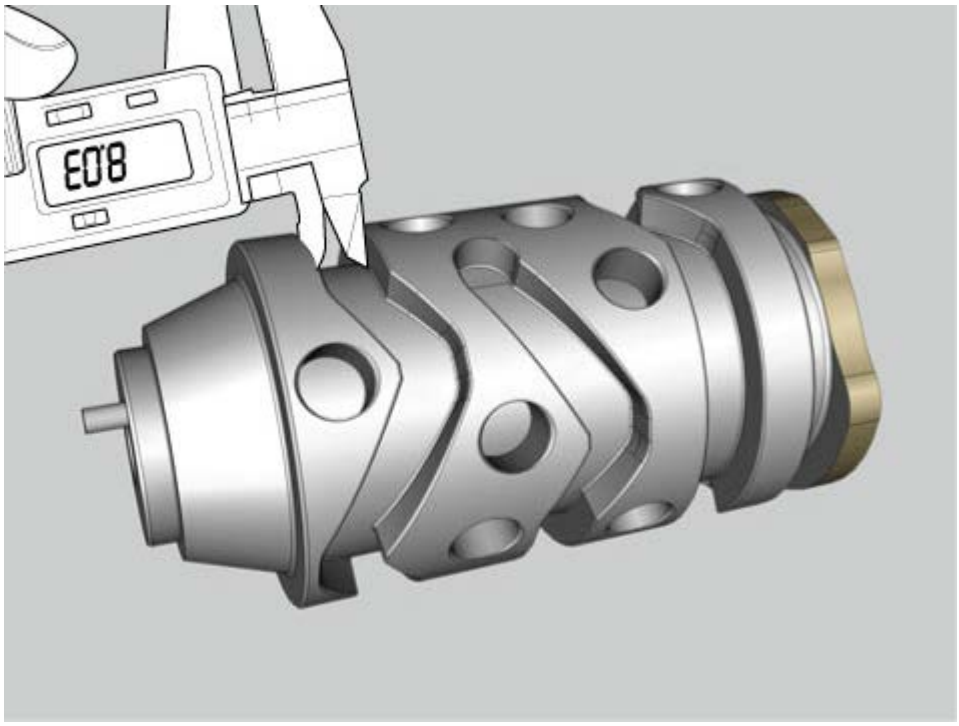
http://www.ducati-manuals.com
no. 140312

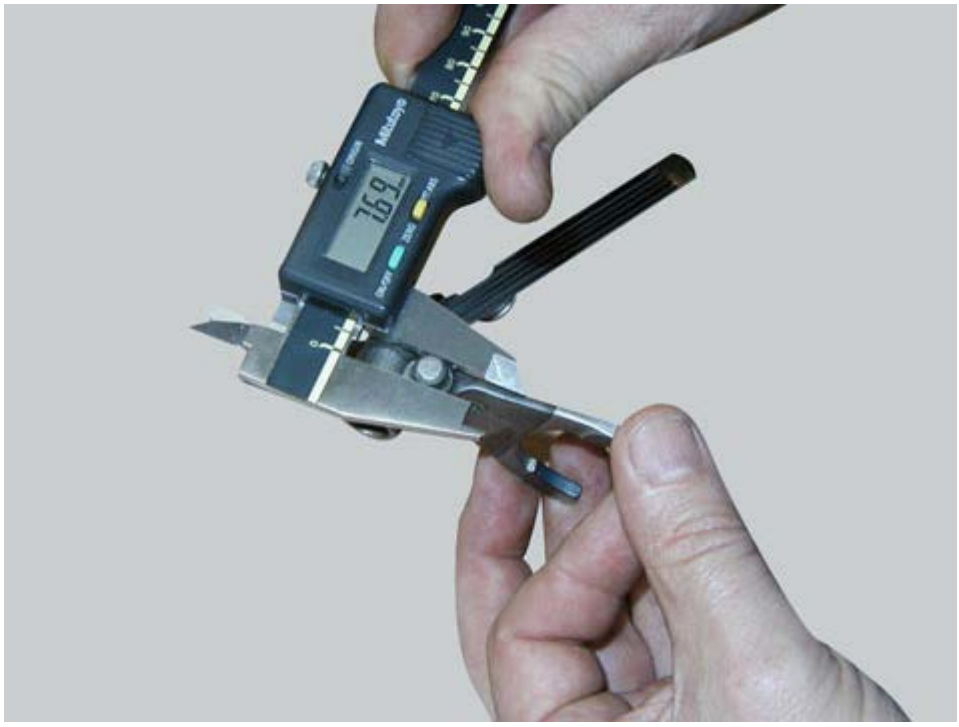


http://www.ducati-manuals.com
no. 140312

Inspection of the gear selector drum

Use a gauge to measure the clearance between fork pin and the slot on the selector drum.
If the service limit is exceeded, determine which part must be replaced by comparing these dimensions with those of new components. Refer to the technical specifications table (Gearbox).
Also check the desmodromic drum support bearings for wear.



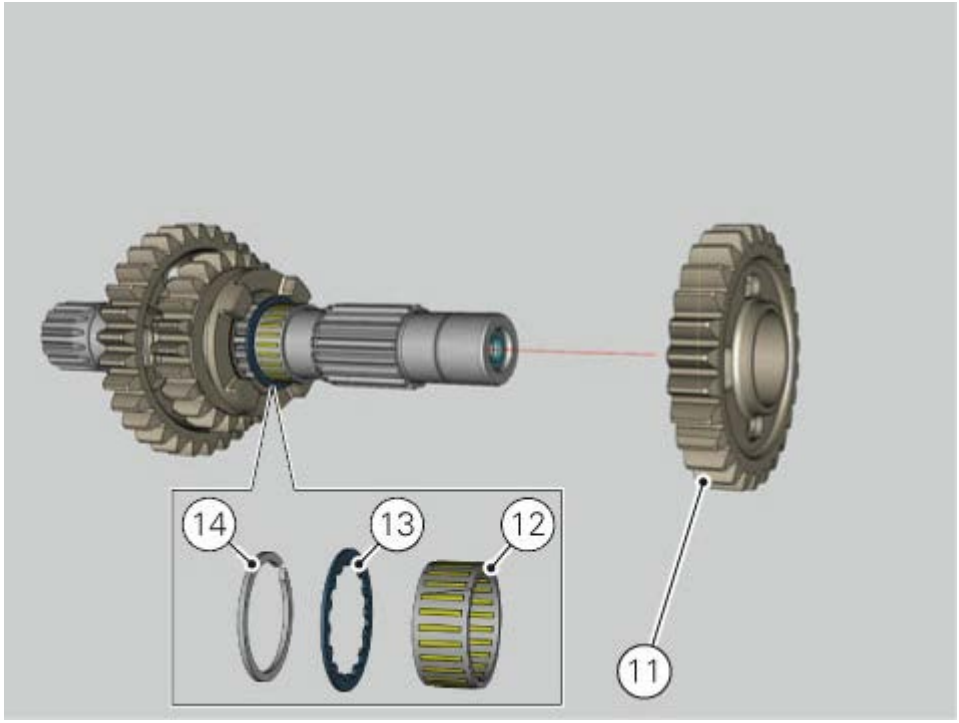


http://www.ducati-manuals.com
no. 140312

Reassembly of the gearbox shafts

Reassemble the gears on the gearbox shafts by reversing the disassembly procedure (Disassembly of the gearbox shafts).
Take particular care when installing the idler gears. 3rd and 4th speed gears and the relevant fixing components on the secondary shaft are given as an example.
Fit the circlip (14), checking that it is fully inserted into its groove on the shaft. Push the circlip into position with a suitable size tubular drift.
Slide the splined washer (13) over the shaft until it locates against the circlip you have just fitted.

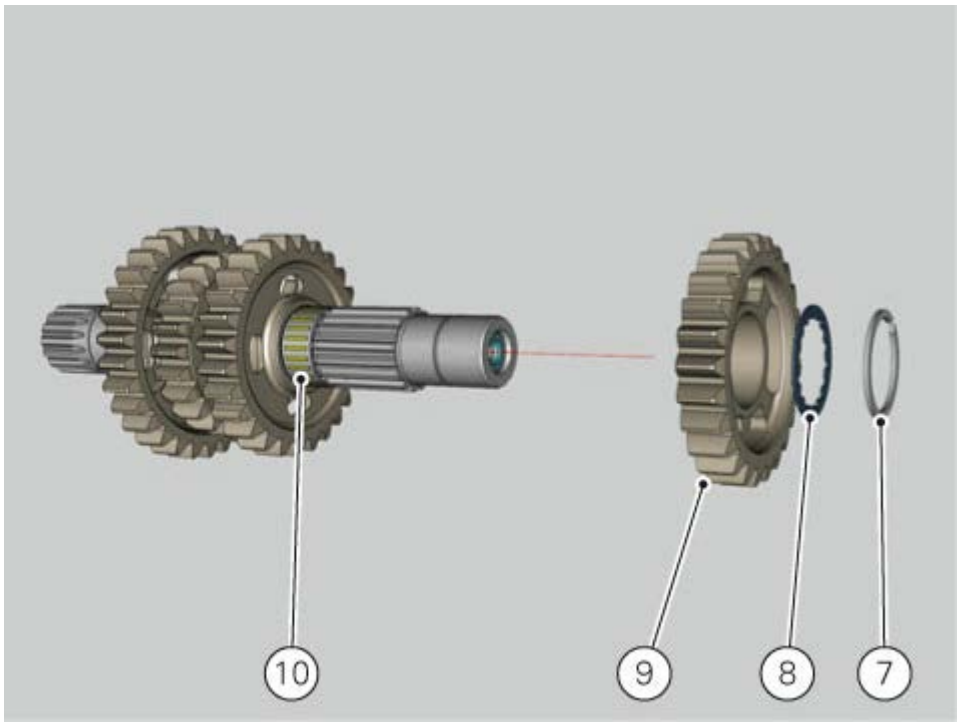
To fit the needle roller cage (12) onto the shaft, first lubricate it with plenty of grease (of recommended type) and then open it slightly to make it easier to slide on to the shaft.
Fit the 3rd speed gear (11).





Fit another needle roller cage (10) using the method already described. Fit the 4th speed gear (9).
Fit a splined washer (8) and another circlip (7) into the shaft Push it inside its seat using the previously used pad.

http://www.ducati-manuals.com
no. 140312



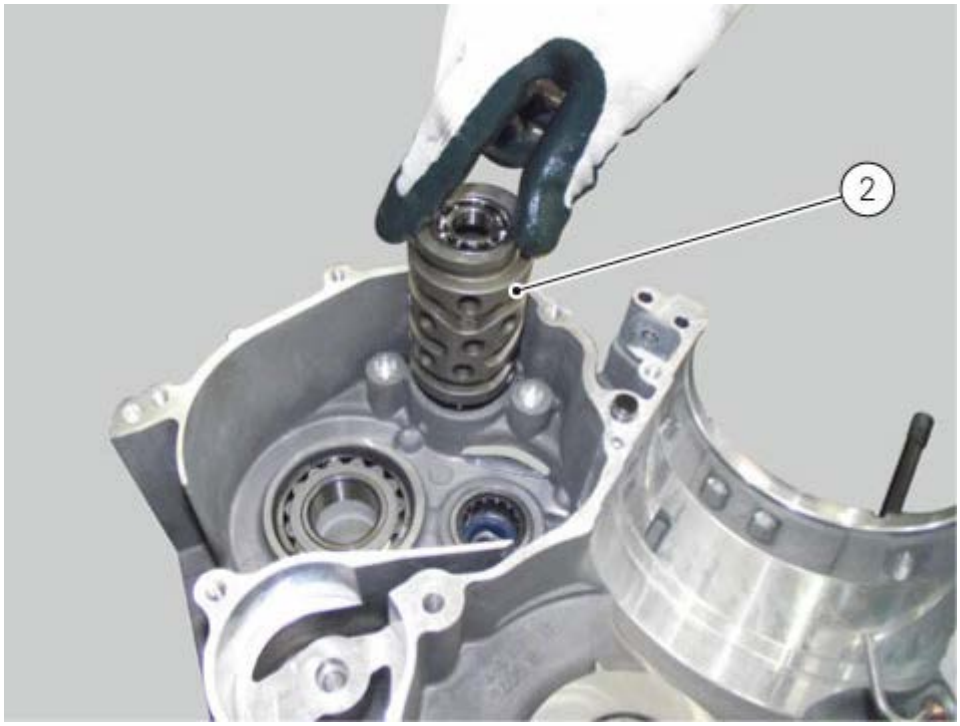
http://www.ducati-manuals.com
no. 140312

Reassembly of the gearbox

Lubricate the secondary and primary shaft and desmodromic drum support bearings with engine oil.

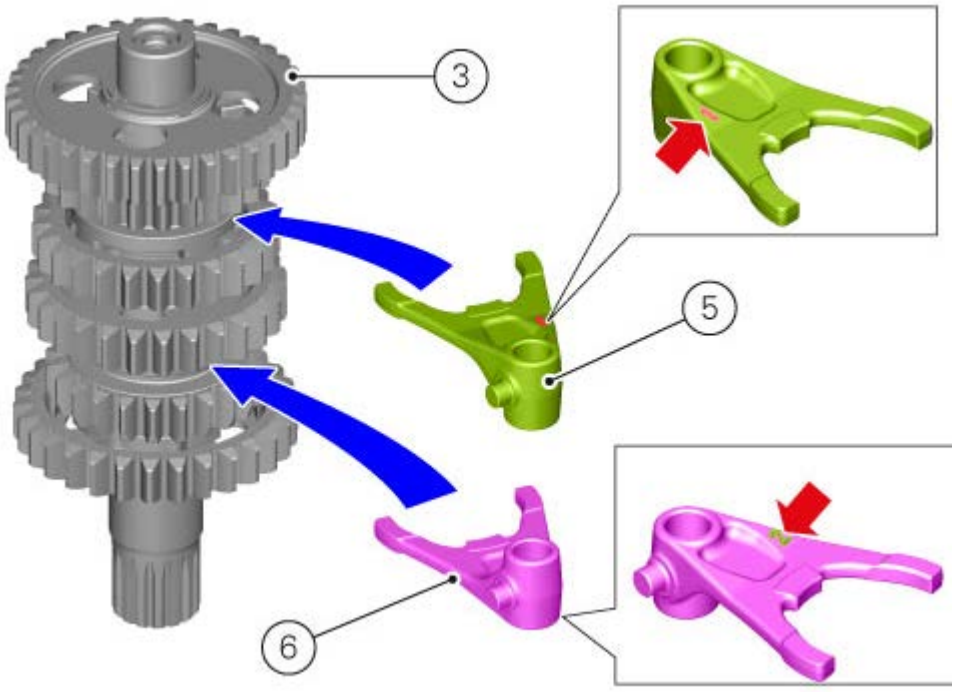


Fit the gearbox desmodromic drum (2) and the gear selector assembly, as indicated in paragraph "Refitting the gear selector lever".

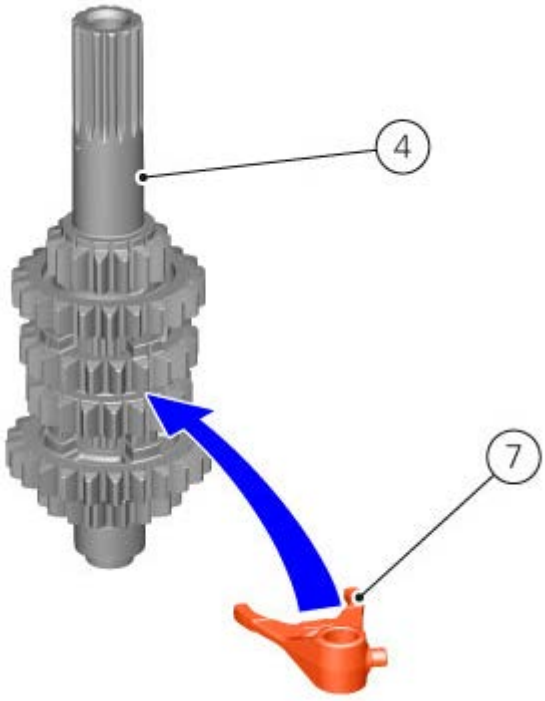


Fit gearbox fork (5), marked with “1", on the 5th speed gear of the secondary shaft (3).
Fit gearbox fork (6), marked with "2", on the 6th speed gear of the secondary shaft (3).

http://www.ducati-manuals.com
no. 140312

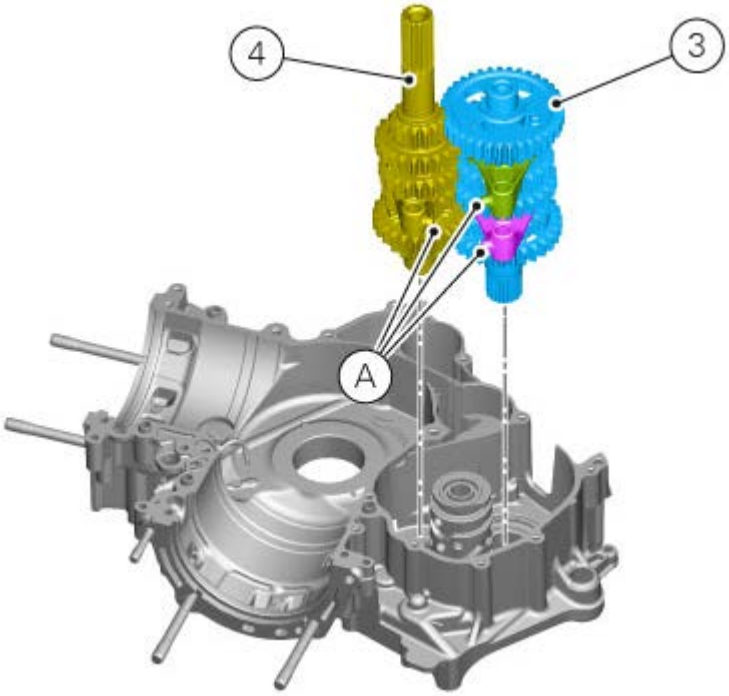


Fit gearbox fork (7), without any mark, on the 3rd / 4th speed gear of the primary shaft (4).

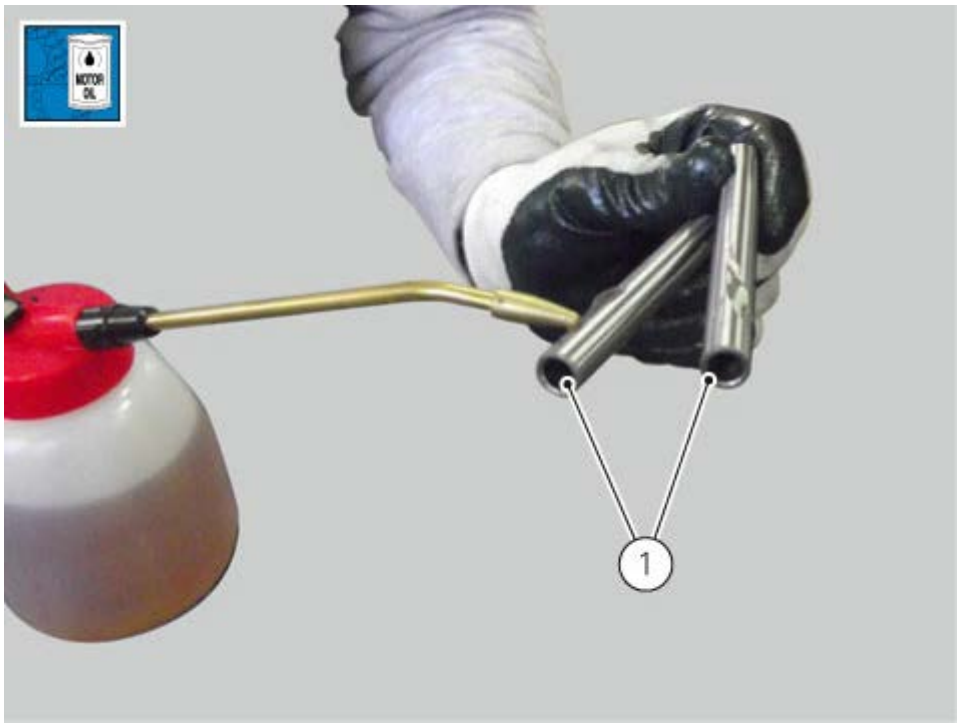


Couple the primary shaft (4) and secondary shaft (3) gears, and install them inside their seats on chain-side crankcase half.
Make sure that shafts are perfectly seated and are free to rotate.
Fit fork pins (A) in their seats on the drum.

http://www.ducati-manuals.com
no. 140312

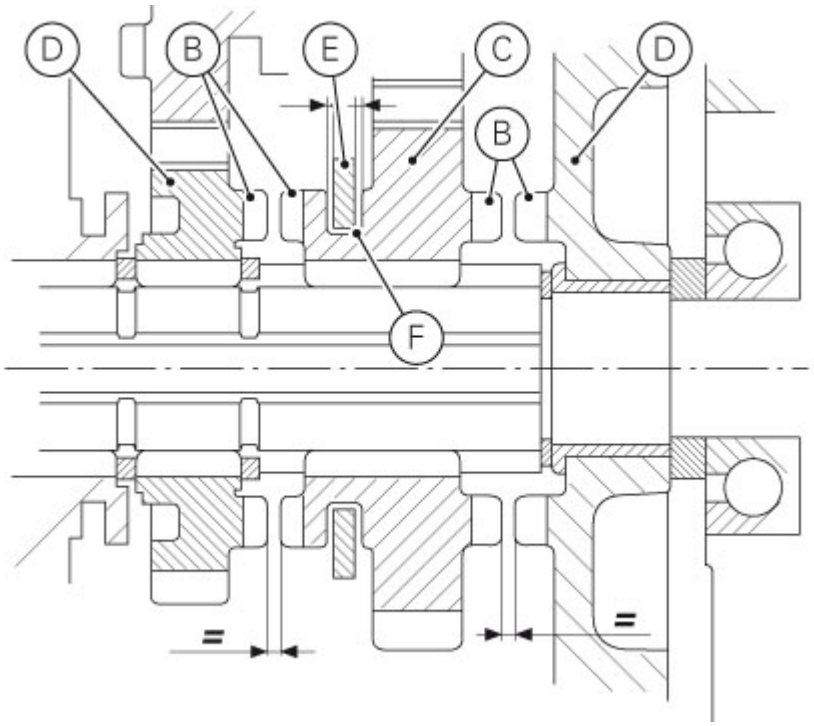


Lubricate pins (1) with engine oil and fit them inside gearbox forks.
Turn drum to make this operation easier (with the 2nd gear engaged).



As a final practical test, ensure that with the gearbox in neutral the front coupling dogs (B) of sliding gears (C) are equidistant on both sides with respect to the corresponding coupling dogs on the fixed gears (D).
Also check that there is always a small amount of clearance between fork (E) and relative groove (F) on sliding gear (C) when engaging the gears.

http://www.ducati-manuals.com
no. 140312



http://www.ducati-manuals.com
no. 140312