

WORKSHOP MANUAL ENGINE 125 4T / 4V 6M EURO 3



INTRODUCTION

This manual has been produced by **Nacional Motor**, **S.A.U.** for use by **DERBI** dealer and sub-agency workshops.

It is assumed that those using this publication for training purposes and for repairing **DERBI** vehicles, have a basic knowledge of mechanics and of the methods inherent in the technique of vehicle repair. Significant variations in the characteristics of the machines or in the specific repair operations will be communicated by means of updates to this manual.

Completely satisfactory work cannot however be carried out without the availability of suitable facilities and tools, which is why we ask you to consult the pages of this manual referring to special tools and implements.

Particularly important items of information in this manual are distinguished by the following anN.B.:tions:

N.B.

KEY INFORMATION FOR PERFORMING THE PROCEDURE IN AN EASIER AND CLEARER WAY, OR ANY ESSENTIAL OPERATION.

NACIONAL MOTOR, S.A.U.

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REGULATIONS

This section describes the machine's general safety and maintenance work rules.

SAFETY REGULATIONS

- In the event of having to carry out work on the engine while this is running, ensure that the area is well ventilated, where possible using extractor fans. Never leave engines running in closed spaces. Exhaust gases are poisonous.

- Petrol is extremely inflammable and in certain conditions may explode. Smoking must not be allowed in the work area, nor should there be naked flames or sparks.

MAINTENANCE REGULATIONS

Use genuine DERBI spare parts and lubricants recommended by DERBI. Non-genuine or unauthorised parts may damage the machine.

Only use the specific tools intended for this machine.

During assembly, always use new gaskets, oil seals, piston rings and keys.

After dismantling, clean the components with solvents that are non-inflammable or with a high flammability point. Grease all working surfaces before assembling, excluding tapered joints.

After assembly, check that all components have been correctly fitted and that they are functioning perfectly.

For dismantling, checking and assembly operations use only tools with metric measurements. Metric screws, nuts and bolts are not interchangeable with imperial measurement joining devices. Using unsuitable tools and joining devices may damage the machine.

In the case of work on the machine's electrical circuitry, check that electrical connections have been correctly fitted, especially the earth connections.

MACHINE IDENTIFICATION

MACHINE	CHASSIS CODE	ENGINE CODE
SENDA TERRA 125 4T 4v	VTHTS1A1A8Hxxxxxx	M541M
MULHACEN 125 4T 4v	VTHMS1A1A7Nxxxxxx	XXXX



ENGINE CODE

The engine code can be found at the back of the engine, in front of the rear wheel.

PREPARATION FOR REMOVAL AND DISMANTLING

Remove all the dirt, grime, dust and other foreign material before removing and dismantling.

Use properly cleaned tools and equipment. See "SPECIAL TOOLS".

On dismantling parts, always keep related items together. This includes gears, cylinders, pistons and other parts submitted to natural wear together. Related parts must always be reassembled or replaced together.

While dismantling the motorcycle, clean all the parts and lay them out on trays in the order dismantled. This speeds up reassembly and ensures the correct fitting of all the parts.

Keep all parts away from any contact with fire.











SPARE PARTS

Use only genuine DERBI spare parts. For all lubrication tasks, use oils and greases recommended by DERBI. Other makes make seem similar in their function and appearance, but are inferior in quality.

SEALS, RETAINING RINGS AND O-RINGS

Renew all seals, retaining rings and O-rings when servicing the engine.

All surfaces receiving seals, retaining ring edges and O-rings must be cleaned.

Apply oil to all paired parts and bearing during reassembly. Apply grease to the retaining ring edges.

TAB/SPACER WASHERS AND SPLIT PINS

After removing them, renew all tab/spacer washers (1) and split pins. Bend the tabs to fit the flat surfaces of the bolt or nut once they have been tightened to the specified torque.





BEARINGS AND RETAINING RINGS

Fit bearings and retaining rings in such a way that the manufacturers marks remain visible. On fitting retaining rings, applying a thin film of light lithium soap based grease to their edges. Where required, apply oil generously when fitting bearings.

WARNING

DO NOT USE COMPRESSED AIR TO DRY BEARINGS. THIS DAMAGES THE BEARING SURFACES.





LOCKING RINGS

Examine all the locking rings carefully before fitting. Always replace the gudgeon pin circlips after every use. Replace distorted locking rings. On fitting a locking ring (1), ensure that the sharp edge (2) is on the opposite side to the force (3) to be applied to it.

See the figure on the side, (4) Shaft.



SPECIAL TOOLS

The following special tools are needed for assembly and for complete and exact adjustments. Only use the proper special tools; thereby avoiding damage caused by the use of unsuitable tools or improvised techniques.



The camshaft sprocket locking tool.



Ref. 865259

Magneto flywheel locking tool.

Ref. 864592

TDC measuring tool.



Ref. 00H05300041

Clutch bell housing fitting tool.



Ref. 864486

Balance shaft locking tool.



Ref. 864567

Set of camshaft locking keys.



Ref. 864487

Crankshaft sprocket locking tool.



Ref. 864868

Magneto flywheel extractor tool.



Piston fitting clamp.



Ref. 865207

Set of tools for 125cc 4-stroke 4 valve engine.



Engine	EURO 2 single cylinder 4-stroke
Diameter x stroke	58x47 mm
Cubic capacity	124.2 cm ³
Cooling	Water
Starter	Electric
Compression ratio	12:1
Maximum nominal power	Cv: 15,5 Kw:11,4 a 9250 at the crankshaft Cv: 14,0 Kw:10,3 a 9250 at the rear wheel
Fuel	Lead-free petrol
Lubrication system	Semi-wet crankcase
Ignition	C.D.I type electronic ignition
Primary transmission	Gearing
Type of oil Engine oil Viscosity Total capacity	AGIP CITY 4T SAE 10W-40 1150 ml
Oil filter Reference	Paper cartridge 874081
Air filter Reference	Laminated paper 861130
Power Supply Carburettor Reference	Keihin CVK 30 CM128218
Spark Plug Type Gap between electrodes	NGK CR8EB 0,7÷0,8 mm
Clutch	6 driving disks and 5 driven disks

Make - Model	KEIHIN CM128218 // MAKE 3006B
Needle valve seat	Diameter 2mm.
Cut-Off device	
Main jet circuit	
Main jet	100 (1 mm)
Reference	СМ129906
Main air jet	50 (0.50 mm)
Atomiser	
Atomiser needle	2.9 mm
Extorior Ø	2.8 mm
Reference	CM144605
Kererence	CM144005
Idlina circuit	
Min. Idling Jet	35.5 (0.355 mm)
Reference	См140101
Slow air jet	130 (1.30 mm)
Fuel needle valve	
Reference	828831
Float height	Float parallel to the base of the fuel bowl
Choke circuit	
Choke device	
Reference	CM142913
Choke jet	
Choke body	
interior Ø	3.4 mm
exterior Ø	3.4 mm
Reference	842519
PTC	20 Ω
Choke travel	10 mm
TRANSMISSION	
Primary transmission ratio	24/73=1/3,04
First gear ratio	12/33=1/2,75
Second gear ratio	15/30=1/2
Third gear ratio	18/27=1/1,5
Fourth gear ratio	20/24=1/1,2
Fifth gear ratio	25/27=1/1,08
Sixth gear ratio	23/22=1,045
Secondary transmission ratio	14/51=1/3,64

TIGHTENING TORQUES

PARTS TO BE TIGHTENED	DESCRIPTION THREAD		OTY TIGHTENING		G TORQUE Obs	
MEASUREMENT		QII.	Kgf.m	N∙m	003.	
Spark plug	-	M10	1	1,2-1,4	12-14	
Rocker cover	Bolt	M6	4	1-1,2	10-12	
Camshaft bridge	Bolt	M6	8	1-1,2	10-12	
Timing crown wheel 1	Bolt	M8	1	2,5-2,7	25-27	
Timing crown wheel 2	Bolt	M8	1	2,5-2,7	25-27	
Cylinder head	Bolt	M8	4	2,7+90°	27+90°	
Cylinder head	Bolt	M6	2	1,1-1,3	11-13	
Carburettor to air filter box pipe	Clamp	-	1	1,2-1,8	12-18	
Inlet pipe	Bolt	M6	3	1,1-1,3	11-13	
Thermostat cover	Bolt	M6	2	1-1,2	10-12	
Coolant temperature sensor	-	M10	1	0,8-1,0	8-10	
Timing chain tensioner	Bolt	M6	2	1,1-1,3	11-13	
Timing chain tensioner spring	Cover	-	1	0,8-1	8-10	
Water pump cover	Bolt	M5	3	0,5-0,6	5-6	
Water pump turbine	-	M5	1	0,4-0,6	4-6	
Clutch control cam	Bolt	M6	1	0,8-1,0	8-10	
Oil filter cover	-	M56x1,5	1	2,4-2,6	24-26	
Oil pressure sensor	-	M10	1	1,2-1,4	12-14	
Clutch cover	Bolt	M6	10	1,1-1,3	11-13	
Clutch spring	Bolt	M5	5	0,35-0,45	3,5-4,5	
Clutch bell housing-ram	Nut	M12	1	3,5-4,5	35-45	
Balance shaft	Nut	M10	1	3,5-4,5	35-45	
Crankshaft-clutch bell housing gear	Nut	M12	1	7,5-8,3	75-83	
Timing chain roller.	Bolt	M6	1	1-1,2	10-12	
Oil pump	Bolt	M5	3	0,5-0,6	5-6	
Selector drum flor.	Bolt	M5	1	0,35-0,45	3,5-4,5	
Selector drum flor. locking cam	Bolt	M6	1	0,8-1,0	8-10	
Starter motor	Bolt	M6	2	1,1-1,3	11-13	
Phase inspection cover	-	M18X1,5	1	0,35-0,45	3,5-4,5	
Magneto side oil filter cover	-	M28X1	1	2,4-3,0	24-30	

TIGHTENING TORQUES

	DESCRIPCIÓN MEDIDA DE	CANIT	TORQUE DE APRIETE		Ohs	
	DESCRIPCION	LA ROSCA		Kgf.m	N∙m	Obs.
Magneto cover	Bolt	M6	10	1,1-1,3	11-13	
Oil sensor cable securing device	Bolt	M4	1	0,3-0,5	3-5	
Neutral sensor indicator	-	M10x1,25	1	0,8-1,0	8-10	
Oil dipstick	-	M12x1,5	1	0,4-0,6	4-6	
Magneto stator	Bolt	M5	2	0,5-0,7	5-7	
Pick-up. (R.P.M. sensor)	Bolt	M5	2	0,3-0,4	3-4	
Starter crown wheel clamp	Bolt	M6	1	0,5-0,6	5-6	
Magneto rotor	Nut	M14x1,5	1	8,3-9,0	83-90	
Magneto rotor- starting clutch	Bolt	M6	6	1,1-1,3	11-13	
Semi crankcases joint	Bolt	M6	12	1,1-1,3	11-13	

SETS IDENTIFICATION

CRANKCASE LOCATION



S/T BALANCE SHAFT GEARINGENGRANAJES

PRIMARY SHAFT GEARING

CRANKSHAFT DIAMETER					
	MIN	MAX	REFERENCE		
CLASS 1	32.480	32.485	8711475001		
CLASS 2	32.485	32.490	8711475002		

Т

Υ

BALANCE SHAFT – GEAR SET

	CRANKSHAFT GEAR	BALANCE GEAR
	REFERENCE	REFERENCE
S SET	8714465001	8711565001
T SET	8714465002	8711565002

N.B.: The crankcases available as spare parts are always of the S kind.

	MIN	MAX
S CLASS	64.00	64.03
T CLASS	63.97	64.00

N.B.: The distances between the balance shaft and the crankshaft are the following.



SETSIDENTIFICATION

PRIMARY SHAFT- GEAR SET

	CRANKSHAFT GEAR	BALANCE GEAR
	REFERENCE	REFERENCE
X CLASS	8714475001	8714605001
Y CLASS	8714475002	8714605002

N.B.: The crankcases available as spare parts are always of the X kind.

	MIN	MAX
X CLASS	86.00	86.04
Y CLASS	85.96	86.00

N.B.: the distances between the primary shaft and the crankshaft are the following.

Distances between gears

With the aim of minimising noise and friction, the crankshaft, primary shaft and balance shaft gears exist as joint assemblies.



SETS IDENTIFICATION

VALVE GUIDES

	REFERENCE	THICKNESS
1	CM222701	2,20
2	CM222702	2,25
3	См222703	2,30
4	CM222704	2,35
5	CM222705	2,40
6	См222706	2,45
7	См222707	2,50
8	CM222708	2,55
9	CM222709	2,60
10	См222710	2,65
11	CM222711	2,70
12	CM222712	2,75



THICKNESS

N.B.: In the markings on the inside of the valve, you will find for example: 20, corresponding to 2.20 in the table.

IRON CYLINDER AND PISTON SETS



CATEGORY

CATEGORY	CYLINDER		PISTON		
	MIN	MAX	MIN MAX		PISTON REFERENCE
M	58.010	58.017	57.953	57.960	8745340001
N	58.017	59.024	57.960	57.967	8745340002
0	58.024	58.031	57.967	57.974	8745340003
Р	58.031	58.038	57.974	57.981	8745340004

N.B.: Clearance on assembling 0.050 - 0.064

The cylinder is only available as a spare part in a kit with the piston. Reference 874533



SETSIDENTIFICATION

HALF-BEARING



CRANKCASE MACHINED DIAMETER (D1)

	MIN	МАХ
CLASS A	36.500	36.508
CLASS B	36.508	36.516

	CRANKSHAFT DIAMETER				
	MIN MAX REFERENCE				
CLASS 1	32.480	32.485	8711475001		
CLASS 2	32.485	32.490	8711475002		

HALF-BEARING THICKNESS						
	MIN MAX Lower Ref. Upper Ref.					
RED	2.005	2.010	864591	864589		
BLUE	2.010	2.015	864590	864588		

CRANKCASE CRANKSHAFT	CLASS A	CLASS B	
CLASE 1	RED+BLUE	BLUE+BLUE	
CLASE 2	RED+RED	RED+BLUE	

Example:

Based on an engine comprising a Class A crankcase (diameter between 36.500 and 36.508 mm), and a Class 2 crankshaft (diameter between 32.485 and 32.490 mm), two RED type bearings should be fitted, Ref. 864591 and 864589.

If the crankcases have mixed bearings, they can be fitted regardless of their initial location.

ELECTRICAL SYSTEM SPECIFICATIONS

GNITION

DESCRIPTION OF THE SYSTEM

System logic

- The fundamental parameter is the rpm reading from the pick-up
- Based on the information from this sensor the ECU calcula tes the moment in which the spark plug should fire.

Components

- Engine rpm sensor (pick-up)

Sensor resistance: 105 -124 at 20° C (magneto side connector between R and B cable).



- Ignition coil

Resistance of primary winding $0,21\Omega + - 0,025\Omega \text{ at } 25 + -5^{\circ} \text{ C}$

Resistance of secondary winding 3,1 KΩ +/- 0,31 KΩ at 25 +/-5° C



Primary winding



Secondary winding



Resistance of spark plug cap 5 K Ω at 20 $^\circ$ C

ELECTRICAL SYSTEM SPECIFICATIONS

CHARGING SYSTEM

COMPONENTS

- Three-phase system with a power rating of 200w.

- Voltage produced at regulator output:

13 – 15 v at 8000 rpm

- Current produced at regulator output: around 14A at 8000 rpm

Resistance of stator between phases: 0,4 Ω +/- 10%.

Check at the magneto side connector between 1, 2 and 3 (3 measurements).







Current leakage

- With the ignition key in the 'OFF' position, connect the ammeter in series between the negative battery terminal and the negative battery cable.

- The readout value must be less than 1mA = 0,001A.





LUBRICATION CIRCUIT



- (1) Crankshaft breather.
- (2) To the gearbox.
- (3) To the gearbox.
- (4) To the filter, lubrication of technical part.

N.B.

THE OIL PUMP IS A DOUBLE ROTOR PUMP THAT PUMPS SEPARATELY.

- The lubrication is the semi-wet crankcase type.
- The gearbox is used as an oil tank.
- The pump is driven by the clutch and fitted with two rotors made of sintered material:
 - One 13mm thick rotor, for oil suction.
 - One 8.5 mm thick rotor, for pumping.
- The maximum pressure is 4.2 bars, and at the top of the engine the pressure is 1 bar.
- The circuit consists of a pre-filter, filter, pressure overload by-pass valve and oil pressure sensor.
- The suction is from:
 - The front of the crankcase (crankshaft housing).
 - The rear of the crankcase (gearbox).

DERBI

- Pumping is:
 - To the oil filter (classic circuit).
 - To the gearbox.

ATTENTION

DO NOT DAMAGE THE CRANKCASE COVER SURFACES, AS THIS WILL LEAD TO OIL LEAKAGES.



LUBRICATION CIRCUIT

To bottom of cylinder



Oil input to filter

Oil to filter





To bottom of cylinder



Oil to supports

Rises for ______ camshafts

Oil input –

Oil input -Rises for camshafts

Oil to supports





0



Rises for camshafts



By-pass

COOLANT CIRCUIT



- There is a small by-pass to heat up the carburettor.

- The pump oil seal is the metal type.
- The thermostat opens at between 80°C and 85°C.
- The radiator is fitted with an electric fan.
- Resistance value of the temperature sensor (NTC):
 - At $60^{\circ}C = 600-470 \ \Omega$ - At $90^{\circ}C = 215-175 \Omega$
 - At 120°C = 93-73 Ω







INTRODUCTION

This chapter contains all the necessary information for carrying out recommended inspections and adjustments. If followed correctly, these preventative maintenance procedures will ensure a reliable operation of the machine and a longer operating life. The need for costly servicing will be significantly reduced. This information applies not only to machines already

in service but also new machines being prepared for sale. All technical assistance staff should familiarise themselves with the whole of this chapter.

Periodical maintenance plan

	ADVICE NOTES	NOTE
Note 1	Carry out checks more frequently when the machine is used intensively at full thro- ttle or in dusty and/or damp areas.	
Note 2	TRANSMISSION SPROCKET, WHEEL SPROCKET AND CHAIN: If any of these com- ponents reaches the end of its useful life, all 3 must be changed together.	

SYSTEM	BEFORE EVERY START-UP	NOTE
Engine/trans.	ENGINE OIL: Check the level - Top up if necessary	
	DRIVE CHAIN: Check the tension - Adjust if necessary	
Cycle	COOLANT: Check the level - Top up if necessary	
	BRAKE PADS: Check the wear – Renew if necessary	
	TYRES: Check condition and pressure	
	BRAKES: Check the correct operation	
	FUEL PIPES: Check for possible cracks	
Electrical	Check for possible fluid leaks (petrol, oil, coolant, brake fluid)	
	CONTROL ELEMENTS: Check the correct operation	
	LIGHTS: Check the operation of the mechanisms and the correct functioning of	
	the bulbs/LEDs	
	HORN: Check that it is working correctly	

SYSTEM	AFTER EVERY WASHING	NOTE
Engine/trans.	DRIVE CHAIN: Clean and lubricate	
Cycle	BRAKE AND CLUTCH LEVERS: Lubricate	
	BRAKES: Check the correct operation	
Electrical	LOCKS AND LIGHT SWITCHES: Apply anti-damp spray	

SYSTEM	EVERY 2 YEARS	NOTE
Engine/trans.	COOLANT: Change	
Cycle	BRAKE FLUID: Change	

SYSTEM	EVERY 500 KM	NOTE
Cycle	DRIVE CHAIN: Clean and lubricate	Note 1

SYSTEM	1ST SERVICE/RUNNING IN	NOTE
Engine/trans.	ENGINE OIL: Change (warm up the engine before draining)	
	OIL FILTER: Change	
	CARBURETTOR: Check tick-over operation and idling rpm – Clean and adjust if	
	necessary	
Cycle	WHEELS: Check the correct tension of the spokes	
Electrical	FINAL CHECK: Carry out an on-road test drive, paying attention to the general	
	operation of the brakes, steering, clutch, suspensions, engine, lights and instru-	
	ment panel indicator lights.	

SYSTEM	INSPECTION TYPE 1	NOTE
Engine/trans.	ENGINE OIL: Change (warm up the engine before draining)	
	OIL FILTER: Change	
	SPARK PLUG: Check the gap between the electrodes - Adjust if necessary	
	CARBURETTOR: Check tick-over operation and idling rpm - Clean and adjust if	Note 1
	SECONDARY TRANSMISSION: Check the chain tension - Adjust if necessary	Note 2
	SECONDARY TRANSMISSION: Check the wear of the sprocket and plate	Note 2
	SECONDARY TRANSMISSION: Check the wear on the roller and chain guides -	
	Change if necessary	
	COOLANT: Check the level – Top up if necessary	
Cycle	BRAKE PADS: Check the wear – Renew if necessary	
	BRAKE LEVER CABLES: Check condition	
	BRAKE LEVERS AND THROTTLE TWIST GRIP: Check the correct operation	
	and free play	
	WHEELS: Check the correct tension of the spokes	
	BRAKE FLUID: Check the level – Top up if necessary	
	FUEL PIPES: Check for possible cracks	
	Check for possible fluid leaks (petrol, oil, coolant, brake fluid)	
Electrical	ELECTRIC FAN: Check operation	
	FRONT HEADLIGHT: Adjust the beam height	
	BATTERY: Check state of charge – Charge if necessary	
	CONTROL ELEMENTS: Check the correct operation	
	LIGHTS: Check the operation of the mechanisms and the correct functioning of the	
	bulbs/LEDs	
	HORN: Check its correct operation	
General	FINAL CHECK: Carry out an on-road test drive, paying attention to the general	
	operation of the brakes, steering, clutch, suspensions, engine, lights and instru-	
	ment panel lights.	

SYSTEM	INSPECTION TYPE 2	ΝΟΤΑ
Engine/trans.	SPARK PLUG: Change	
	EXHAUST SYSTEM: Check the correct tightness of the bolts and clamps	
	ENGINE SUPPORT BOLTS: Check nominal torque tightness	
	SECONDARY TRANSMISSION: Check the condition of the chain, sprocket and	Note 2
	plate - Renew if they have reached the end of their useful life	
	AIR FILTER: Renew	Note 1
Cycle	BRAKE CALLIPERS: Check nominal torque tightness	
	SWINGING ARM SHAFT: Check for absence of play and nominal torque tightness	
	WHEELS: Check bearing play and the nominal torque tightness of the shaft	
	STEERING SHAFT: Check for absence of play – Adjust if necessary	
	PROP STAND AND/OR CENTRE STAND: Grease	
General	FINAL CHECK: Carry out an on road test drive, paying attention to the general	
	operation of the brakes, steering, clutch, suspensions, engine, lights and instru-	
	ment panel lights	

SYSTEM	INSPECCIÓN TIPO 3	NOTE
Engine/trans.	s. RADIATOR: Check external appearance – Clean if necessary	
Cycle	FRONT SUSPENSION: Change fork oil	
	MILOMETER TAKE-OFF: Grease	
General	eneral FINAL CHECK: Carry out an on-road test drive, paying attention to the general operation of the brakes, steering, clutch, suspensions, engines, lights and instru ment panel indicator lights.	

SERVICE NO.	КМ	1 st SERVICE RUNNING IN	INSPECTION TYPE 1	INSPECTION TYPE 2	INSPECTION TYPE 3	VALVE PLAY
1	1000	Х				Х
2	6000		Х			
3	12000		Х	X		Х
4	18000		Х			
5	24000		Х	X	Х	Х
6	30000		Х			
7	36000		Х	X		Х
8	42000		Х			
9	48000		Х	X	Х	Х
10	54000		Х			
11	60000		Х	X		Х
12	66000		Х			
13	72000		Х	X	X	Х
14	78000		Х			
15	84000		Х	X		Х

Adjusting the throttle cable

N.B:

BEFORE ADJUSTING THE THROTTLE CABLE, THE IDLE SPEED MUST BE ADJUSTED.

1. Check:

- Throttle cable play (1).

Outside that specified => Adjust.

Clearance:

2÷6 mm. In the throttle twist-grip plate.

2. Adjust: - Throttle cable play.

Checking steps:

N.B:

NEVER ACCELERATE WHILE THE ENGINE IS STOPPING.

- Loosen the throttle cable locknut (2).

- Turn the adjuster (3) inwards or outwards until the specified play is obtained (1).

Turning inwards => Increasing the clearance. Turning outwards => Reducing the clearance.

- Tighten the lock nut.

N.B.:

IF THE PLAY IS STILL INCORRECT, ADJUST IT USING THE ADJUSTER (3) BELOW THE TWIST GRIP.

WARNING:

AFTER MAKING THE ADJUSTMENT, TURN THE HANDLE-BARS BOTH WAYS TO ENSURE THAT THERE IS NO VARIA-TION IN THE IDLE SPEED.





INSPECTING THE SPARK PLUG

1. Extract:

- Spark plug connector.

- Spark plug.

ATTENTION

BEFORE REMOVING THE SPARK PLUG, BLOW AROUND IT WITH COMPRESSED AIR TO REMOVE ANY DIRT, THEREBY PREVENTING THIS FROM FALLING INTO THE ENGINE.

2. Check:

- Spark plug type

Incorrect => **Renew.**

Standard spark plug: NGK CR8EB

3. Inspect:

- Electrode (1).

Damage/warping/wear => **Renew.**

- Insulator (2).

Abnormal colour => **Renew.** The normal colour is a light brown.

4. Clean:

- Spark plug. (Clean the spark plug with a spark plug cleaner or a wire brush)

5. Measurement: - Gap between the electrodes (a). (using a feeler gauge)

Outside that specified =>Adjust.

Distance between electrodes: 0,7 mm - 0,8 mm

6. Fit: - Spark plug.

Spark plug. 1,2-1,4 kgf.m (12-14 N.m)

N.B.:

- BEFORE FITTING THE SPARK PLUG, CLEAN ITS SEATING AND GASKET.

- IF NO TORQUE WRENCH IS AVAILABLE, A GOOD WAY OF JUDGING THE CORRECT TORQUE IS TO TIGHTEN (1) THE SPARK PLUG BY HAND AND THEN TIGHTEN IT FROM 1/4 TO 1/2 A TURN (2).

- ALWAYS USE A NÉW GASKET.





Adjusting the compression pressure

N.B.:

INSUFFICIENT COMPRESSION PRESSURE LEADS TO A LOSS OF POWER.

Check:

- Valve clearance.

Outside that specified => Adjust.

See "VALVE CLEARANCE ADJUSTMENT" section.

Start the engine and leave to warm up for a few minutes.

Stop the engine.

Extract: - Spark plug.

ATTENTION

BEFORE REMOVING THE SPARK PLUG, BLOW AROUND IT WITH COMPRESSED AIR TO REMOVE ANY DIRT, THEREBY PREVENTING THIS FROM FALLING INTO THE ENGINE.

Fit:

• Compression meter (1).

Measurement:

- Compression pressure.

If it exceeds the permitted maximum pressure => Inspect the cyulinder head, valve surfaces and piston head for carbonisation.

If below the minimum pressure=> Inject a few drops of oil into the cylinder and measure again.

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Follow the table below:

COMPRESSION PRESSURE (WITH OIL INJECTED INTO THE CYLINDER)				
READING	DIAGNOSTIC			
More than without oil	Piston worn or damaged			
The same as without oil	Possibility of defect in the rings, values or seals of the cylinder head or piston => Repair.			



Compression pressure (at sea level): Standard: 1200 kPa (12 kg/cm²)

Minimum: 1040 kPa (10,4 kg/cm²)

Steps for removal:

- Start the engine with the throttle completely open, until the comprension reading stabilises.

WARNING:

BEFORE STARTING THE ENGINE CONNECT THE SPARK PLUG WITH HANDLE TO PREVENT SPARKS.

Fit:

- Spark plug.

INSPECT THE ENGINE OIL LEVEL

Position the motorcycle on a flat surface.

N.B.:

ENSURE THAT THE MOTORCYCLE IS PARALLEL TO THE GROUND IN ORDER TO BE ABLE TO CHECK THE OIL LEVEL CORRECTLY.

Start the engine and leave to warm up for a few minutes.

Stop the engine.

4. Remove the dipstick (1). Clean it with a cloth then replace it in the oil filler hole without screwing in. Remove it again immediately.

Check:

- The engine oil level. The oil level should be between the MAXIMUM and MINI-MUM marks. Oil below the minimum level => **Add oil up to the correct level.**



RECOMMENDED OIL FOR THE ENGINE

Recommended oil for the engine: AGIP CITY 4T (4-STROKE) or equivalent.

Start the engine and leave to warm up for a few minutes.

Stop the engine.

N.B.:

WAIT A FEW MINUTES FOR THE OIL TO PERCOLATE DOWN BEFORE RE-CHECKING THE OIL LEVEL





CHANGING THE ENGINE OIL

Start the engine and leave to warm up for a few minutes.

Stop the engine and place a container under the engine.

Extract:

- Dipstick.
- Drain plug (1).
- The prefilter.

Drain the oil from the crankcase.

Fit:

- El prefiltro.
- Drain plug (1).
- Dipstick.

Pre-filter cap: 2,4-3,0 Kgf.m (24-30 N.m)

Replenish: Oil in the crankcase.

Quantity of oil: 1.150 ml

Type of oil: AGIP CITY 4T (4-STROKE)

Check: - The engine oil level.

See "INSPECT THE ENGINE OIL LEVEL" section

NSPECTING THE EXHAUST SYSTEM

Inspect: - Bolts (1) (exhaust pipe)

Loose/damaged => Tighten/renew.

- Gasket (exhaust pipe). Leaking exhaust fumes => Tighten/renew.

Bolts: 1,7-1,9 kgf.m (17-19 N.m)





DISMANTLING THE ENGINE

Camshaft

Extract:

Extract:

- The spark plug (1).
- The four bolts (2) from the cylinder head.
- The cylinder head (3).









Fit:

- The camshaft sprocket locking tool (5).

The camshaft sprocket locking tool: Ref. 865260

- Bolts (timing chain tensioner):

N.B.:

TIE A PIECE OF WIRE TO THE TIMING CHAIN TO STOP IT FROM FALLING INTO THE CRANKCASE (9).

Extract:

- The 2 bolts (6) and 2 washers (7) from the camshaft crown wheels:
- The camshaft distribution crown wheels (8).

Extract:

- The 8 bolts (10) from the bridge of the camshafts.
- The bridge (11) from the camshafts.
- The inlet camshaft (12) ref.(0906).
- The inlet camshaft (13) ref.(0906).



DISMANTLING THE ENGINE

TIMING CHAIN

Extract:

Extract:

- The spark plug (1).
- The 4 bolts(2) from the cylinder head cover.

- The 4 bolts (4) from the bridge of the camshafts.

- The cylinder head cover (3).

- The bridge (5) of the camshafts.





Extract:

- The 2 bolts (6) securing the starter motor.
- The starter motor (7).

N.B.:

REMOVE THE STARTER MOTOR TO ENABLE EASY EXTRAC-TION OF THE TIMING CHAIN TENSIONER.

Extract:

-The 2 timing chain bolts, the tensioner and the seal (8).

N.B.:

PLACE A CONTAINER UNDER THE ENGINE AND DRAIN THE OIL FROM THE CRANKCASE.

Extract:

- The oil plug and filter (9).
- The coolant pipe (10).
- The 3 water pump bolts (11) and cover(12).







DISMANTLING THE ENGINE

Extract:

- The 10 bolts (13) from the clutch cover.
- The clutch cover (14).
- The clutch cover gasket. (Renew when refitting).









Remove the clutch assembly (see the chapter).

Extract:

- The fixed timing chain roller (15).

Fit:

- The crankshaft sprocket locking tool (16).

Crankshaft sprocket locking tool: Ref. 864487

Extract:

- The nut (17).
- The crankshaft sprocket (18).

Extract:

- The timing chain sprocket (19).
- The timing chain from the top (20).
Cylinder head, cylinder and piston

Extract:

Remove:

- The central plug (3).

- The inlet manifold, by removing the 3 bolts (1).

- The TDC (top dead centre) checking plug (2).









Align:

Use an Allen key (b) to turn the crankshaft in an anti-clockwise direction until the mark (a) is aligned with the stationary point.

N.B.:

GIRE EL CIGÜEÑAL EN SENTIDO ANTIHORARIO.

N.B.:

REMOVE THE STARTER MOTOR TO ENABLE EASY EXTRAC-TION OF THE TIMING CHAIN TENSIONER .

- The 2 bolts (4) securing the starter motor.
- The starter motor (5).



Extract:

Extract:

- The 2 bolts (6) securing the timing chain tensioner.

- The 2 bolts and the thermostat cover (8).

- Bolts (timing chain tensioner):
- The tensioner seal.







-The thermostat (9).

Extract:

- The spark plug (10).
- The 4 cylinder head cover bolts(11).
- Cylinder head side cover (12).





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Extract:

- The two cylinder head cover gaskets(13).
- The 8 bolts (14) from the camshafts cover.
- The bridge (15) from the camshafts.

N.B.:

TIE A PIECE OF WIRE TO THE TIMING CHAIN TO STOP IT FROM FALLING INTO THE ENGINE.

Extract:

- The camshaft (see chapter).

Extract:

- The 6 bolts (16) securing the cylinder head to the cylinder.
- The cylinder head (17).

- The top cylinder gasket (18). (Renew when refitting).
- The timing chain mobile roller(19).
- Coolant pipe (20).
- The cylinder (21).
- The bottom cylinder gasket.(Renew when refitting).











Fit:

- The fork tool for fitting the piston (22).

Piston fitting clamp. Ref. 865261



Extract:

N.B.:

- The 2 circlips (23), one on each side, securing the piston gudgeon pin.

- The piston gudgeon pin (24).
- The piston (25).







Flyweel magneto

N.B.:

PLACE A CONTAINER UNDER THE ENGINE AND DRAIN THE OIL FROM THE CRANKCASE.

Extract:

- The engine oil pre-filter cap (1).
- The engine oil pre-filter.
- The 10 bolts (2) from the magneto flywheel cover.
- Cylinder head side cover (3).
- The cover gasket. (Renew when refitting).

Fit:

- The magneto flywheel (4) locking tool.

Magneto flywheel locking tool: Ref. 865259

Fit:

- The magneto flywheel extractor (5).

Magneto flywheel extractor tool: Ref. 864868

Extract:

- The nut.
- The washer.

- The safety roller(6).
- The 2 starter system sprockets (7).











CLUTCH

Extract:

Extract:

- The coolant pipe (1).

- The water pump turbine (4).

- The 3 bolts (2) from the water pump cover (3).





N.B.:

PLACE A CONTAINER UNDER THE ENGINE AND DRAIN THE OIL FROM THE CRANKCASE.

Extract:

- The engine oil plug (5).
- The spring (6).
- The oil filter (7).

- The 10 bolts (8) from the clutch cover.
- The clutch cover (9).
- The cover gasket. (Renew when refitting).







Extract:

- The 5 bolts (10) with washer and spring from the clutch closing cover.
- The clutch closing cover (11).





- The clutch disks and separators (12).

Abrir:

- The seal tab (13).

Extract:

- The nut(15).
- The seal (13).

Extract:

- Use the clutch housing extraction tool (15) to remove it.

Clutch housing extraction tool: Ref. 00H05300041

Extract:

- The clutch bell housing (16).









OIL PUMP

Remove the clutch assembly (see the chapter).

Extract:

Extract:

- The intermediate starter gear clip and washer(1).
- The intermediate starter gear (2).

- The oil pump gear clip (3). - The oil pump gear (4).









- Extract: - The 3 oil pump bolts (5).
 - The oil pump (6).

Extract:

- The oil pump gasket (7).

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Crankshaft

Removing the cylinder head, piston and clutch (see chapter).

Fit:

- The balance shaft locking tool (1).

Balance shaft locking tool: Ref. 864486

Extract:

- The nut balance shaft nut (2).
- The balance gear (3).

Fit:

- Fit the crankshaft sprocket using the locking tool (4).

Crankshaft sprocket locking tool: Ref. 864487

Extract:

- The nut (5).
- The fitting tool (4).
- The crankshaft sprocket (6).

Extract:

- The timing chain (7) from the top.
- The timing chain sprocket(8).
- The crankshaft sprocket (9).

Remove crankcase (see chapter).

Extract:

- The crankshaft (10) by pulling it upwards.









Crankcases

Remove the cylinder head, cylinder and piston (see the chapter).

Remove the clutch assembly (see the chapter). Remove the magneto (see the chapter). Remove the crankshaft (see the chapter).

Extract:

- The balance shaft (1).

Extract:

- The 6 outer bolts (2) from the left-hand crankcase.
- The outer bolt (3) from the left-hand crankcase (longer).
- The 6 inner bolts (4) from the left-hand crankcase.

Extract:

- Tilt the engine and remove the left-hand crankcase (5) upwards.

Extract:

- The gasket from the crankcases (6).









TRANSMISSION, GEAR SELECTOR, GEARCHANGE SHAFT AND SELECTOR DISTRIBUTOR

Remove the cylinder head, cylinder and piston (see the chapter).

Remove the clutch assembly (see the chapter). Remove the magneto (see the chapter). Remove the crankshaft (see the chapter). Remove the crankcases (see the chapter).

Extract:

- The 2 gear selector fork rods. Long rod (1). Short rod (2).
- The 3 gear selector forks (3).

Extract:

- The gear selector shaft (4) by pulling it out.

N.B.:

THE INTERMEDIATE GEAR MUST BE REMOVED TO BE ABLE TO EXTRACT THE GEAR LEVER.

Extract:

- The gear change spring bolt (5).
- The gear lever (6).

N.B.:

TAP THE ALLEN KEY WITH A PLASTIC HAMMER TO RELEASE IT (TAPERED BOLT).

Extract:

- The gear selector bolt (7) situated on the other side of the right-hand crankcase.

Gear change shaft assembly (8).









Extract:

- The gear selector (9) by pulling it upwards.





Extract: - The main shaft (10).

- The intermediate shaft (11).

N.B.

LENGTH OF SECONDARY SHAFT

92'2mm (+010 -0,18mm).

Cylinder Head

1. Eliminate:

- Carbon sediments (from the combustion chamber) Use a rounded spatula.

N.B.:

AVOID USING ANY SHARP EDGED INSTRUMENT THAT CAN CAUSE DAMAGE AND SCRATCHING. - IN THE SPARK PLUG THREADS - ON THE VALVE SEATS.

2. Inspect:

- Cylinder head

Wear/damage => **Renew.**

Steps for measuring distortion and for rectification:

Place a ruler (1) and a thickness calliper (2) on the head cylinder surface, as in the figure to the side.

- Place a 400 \sim 600 emery paper on a flat surface and rectify the surface of the cylinder head by making figure eight movements.

N.B.: TURN THE CYLINDER HEAD SEVERAL TIMES TO PREVENT EXCESSIVE MATERIAL FROM BEING REMOVED FROM ONE SIDE ONLY.









Adjusting the valves

Remove the camshaft (see chapter)

Valve clearance: Inlet: 0.10-0.15 mm Outlet: 0.15-0.20 mm

Extract:

Remove the tappet and check the numbering of the pad fitted (1).

In the event of the clearance being incorrect, continue by calculating the appropriate pad(s) in accordance with the following calculation:

Thickness of new pad = (A - B) + C (mm)

Where

A= Clearance indicated (inlet or exhaust) B = Value measured with the feeler gauge C= Thickness of pad fitted

Example (exhaust valve):

A= 0,20 B = 0,15C= 2,00

Thickness of new pad = (0,20-0,15)+2,00 = 2,05 mm





VALVE SEATS

Eliminate:
Carbon sediments.
(from the valve face and seat).

2. Inspect:

- Valve seats.

Grooves/wear => Grind the valve.

Steps for removal:

- Apply blue mechanical dye (Dykem) (b) to the valve face.

- Fit the valve into the cylinder head.

- Press the valve against the guide and against the seat to make a visible mark.

- Measure the width of the valve seat.

Where there was contact between the seat and the valve face, the dye will be removed.

- If the valve seat width is large or small, or if the seat is not centred, it has to be redone

3. Grind:

- Valve face.
- Valve seat.

N.B.:

AFTER RECTIFYING THE VALVE SEAT OR REPLACING THE VALVE AND ITS GUIDE, THE SEAT AND FACE MUST BE GROUND.









Steps for seating valves:

- Apply a coarse abrasive paste to the valve face.

ATTENTION

DO NOT ALLOW THE PASTE TO PENETRATE IN THE SPACE BETWEEN THE VALVE STEM AND THE VALVE GUIDE.

- Apply acid with molybdenum disulphate to the valve stem.

- Fit the valve into the cylinder head.

-Twist the valve until its face and its seat are uniformly ground, then remove the paste immediately.

N.B.:

TO OBTAIN THE BEST VALVE SEATING RESULTS, SHAKE SOFTLY IN THE VALVE SEAT WHILE TWISTING BACKWARDS AND FORWARDS BY HAND.

- Apply a coarse abrasive paste to the valve face and repeat the above steps.

N.B.:

MAKE SURE THAT ALL TRACES OF GRINDING PASTE ARE REMOVED FROM THE FACE OF THE VALVE SEAT AFTER EVERY VALVE SEATING OPERATION.

- Apply blue mechanical dye (Dykem) to the valve face (b).

- Fit the valve into the cylinder head.

- Press the valve through the valve guide and against its seat to obtain a good contact.

- Measure the width of the valve seating (c) once again. If it is outside that specified, rectify and grind the valve seat.





VALVES AND VALVE SPRINGS

1. Measurement: - Free length (a) of spring.

Outside that specified => **Renew**.

Valve spring free length: 44,90 mm



2. Measurement: - Spring contact face.

Wear/damage/scratches => **Renew.**



INSPECTING THE CAMSHAFT

1. Check:

- Cam salients.

Grooves/scratches/blue colouring => **Renew.**

2. Inspect:

- Oil passage in the camshaft.

Obstructions => Blow through with compressed air.

TIMING CHAIN, SPROCKET AND GUIDES

1. Inspect:

- Timing chain.

Rigidity/damage => **Renew chain and sprockets.**

2. Inspect: - Drive sprockets

Damage/wear => **Renew the sprockets and the timing chain.**

(1) 1/4 of the tooth

- (2) Correct
- (3) Roller
- (4) Sprocket

3. Inspect: - Timing chain guide (exhaust) (1).

- Timing chain guide (inlet) (2).

Damage/wear => **Renew.**







Cylinder and piston

1. Inspect:

- Cylinder and piston walls.

Vertical scratches => Rectify or replace the cylinder and the piston.

2. Measurement:

- Cylinder-Piston clearance.

Steps for removal:

Step 1: - Measure cylinder diameter "C" with an internal calliper.

N.B.:

MEASURE THE DIAMETER "C" OF THE CYLINDER ACROSS AND AT A RIGHT ANGLE TO THE CRANKSHAFT. NEXT, CAL-CULATE THE AVERAGE OF THE MEASUREMENTS.

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Cylinder and piston: 0,050 - 0,064mm

INSPECTING THE CLUTCH BELL HOUSING

1. Inspect:

- Primary sprocket teeth (1).
- Bell housing sprocket teeth (2).
- Wear/damage => Renew both sprockets.

Excessive noise when functioning => Renew both sprockets.



INSPECTING THE CLUTCH

1. Inspect: - Friction disks

Wear/damage => Renew the friction disks assembly.

2. Inspect:

- Separators

Damage => Renew the separators assembly.

3. Inspections: - Clutch springs.

Damage=> Renew the springs assembly.

4. Inspect:

- Claws (of the bell housing) (1).

Rough edges/wear/damage => Eliminate the rough edges or renew the bell housing.

- Clutch assembly slots (2).

Rough edges/wear/damage => Renew the clutch assembly.

N.B.: ROUGH EDGES ON THE BELL HOUSING CLAWS AND ON THE CLUTCH HUB SLOTS LEAD TO UNEVEN FUNCTIO-NING.





INSPECTION OF THE FORKS AND GEAR SELECTOR

1. Inspect:

- Fork follower (1).
- Ends of the gear change forks (2).

Scoring/warping/wear/damage => **Renew.**

2. Inspect:

Wear/damage/scratches => **Renew.**

- Gear change selector follower.

Wear/damage => **Renew.**

3. Inspect:

- Gear change fork 1 centre right (1).
- Gear change fork 2 top left (2).
- Gear change fork 3 bottom left (3).
- Guide bar (4).
- Gear change selector (5).
- Guide pin (6).

Roll the guide bar on a flat surface.

Warping => **Renew.**

WARNING: DO NOT TRY AND STRAIGHTEN A WARPED BAR.

4. Check:

- Movement of the gear change forks (in the guide bar)

Uneven movement => Renew the fork and the bar.

N.B.:

IF THE GEAR CHANGE FORK AND THE DRIVE SPROCKETS ARE DAMAGED, RENEW THE SPROCKETS TO EITHER SIDE ALL TOGETHER.

5. Measurement:

- Warping of the shafts (drive and driven) Use a support between points and a comparison meter (1).

Outside that specified => **Renew the warped shaft.**

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6. Inspect:

- Gear teeth

Blue colouring/grooves/wear => **Renew.**

- Gear claws

Rounded edges/cracks/pieces missing =>Renew.



7. Inspect: - Gear change shaft (1).

Damage/warping/wear => **Renew.**

- Return spring (gear change shaft) (2).

- Return spring (limiter rod) (3).

Wear/damage => **Renew.**

INSPECTING THE OIL PUMP

Inspect: Rotary filter

Cracks/damage => **Renew.** Contamination => **Clean.**

2. Inspect: - Oil suction device

Cracks/damage => **Renew.** Contamination => **Clean.**





INSPECTING THE OIL PASSAGES (RIGHT HAND SIDE CASING COVER)

1. Inspect:

- Oil passage

Obstructions => **Blow through with compressed air.**

CASING

1. Wash the casings well with petrol.

2. Clean the seal-bearing surfaces and the casing contact surfaces well.

3. Inspect:

- Casings

Cracks/damage => **Renew.**

- Oil passages

Obstructions => Blow through the passages with compressed air.

BEARINGS AND RETAINING RINGS

1. Inspect: - Bearings

Clean and lubricate, then turn the inner ring by hand.

Roughness => Renew

2. Inspect: - Retaining rings.

Damage/wear => **Renew.**

LOCKING RINGS AND WASHERS

1. Inspect:

- Circlips
- Washers

Damage/loose/distorted => Renew.



TRANSMISSION, GEAR SELECTOR, GEAR CHANGE SHAFT AND SELECTOR DISTRIBUTOR

Fit:

- The main shaft (1).
- The intermediate shaft (2).

Fit:

- Gear change shaft assembly (3).







- Gear change shaft assembly (4).

- The gear change selector bolt (5) situated on the other side of the right-hand crankcase.

Fit:

- The 2 gear change forks rods. Long rod (6). Short rod (7).

- The 3 gear change forks (8).







Fit:

- The gear selector lever (9) and the spring, using the bolt (10).



Fit:

- The gear change selector shaft (11).

N.B.:

FIT THE GEAR CHANGE SELECTOR SHAFT, BY ALIGNING THE ENDS OF THE RETURN SPRING WITH THE POSITIO-NING BRACKET (12) ON THE CRANKCASE.

N.B.:

THE INTERMEDIATE GEAR REMOVED IN DISMANTLING MUST BE REFITTED.



TRANSMISSION PARTS



1	Distributor drum
2	Roller
3	Washer
4	Primary fork shaft
5	Cat. 1 gear change fork.
6	Secondary fork shaft
7	Cat. 2 gear change fork
8	Secondary shaft
9	1st secondary gear 1°
10	5th secondary gear 5ª
11	3rd secondary gear 3ª
12	4th secondary gear 4ª
13	6th secondary gear 6ª
14	2nd secondary gear 2ª
15	Adjustment washer
16	Needle bearing assy.
17	Adjustment washer
18	Safety ring
19	Adjustment washer
20	Washer
21	Bush
22	Washer
23	Primary shaft assy.
24	Secondary shaft assembly

26	Gear change greasing tube
27	O-ring
28	Z14 gear change output gear
29	Output gear seal
30	5M80x10 Allen bolt
31	Int. star washer

GEAR CHANGE SELECTOR PARTS



1	Clutch push rod
2	Selector spring stud
3	Clutch lever
4	Bolt
5	Clutch cable securing plate
6	Gear selection lever
7	Selector shaft assembly
8	Spring
9	D12 safety ring
10	Washer
11	Bolt
12	Washer
13	Drum control head
14	Gear selection spring
15	Special bolt
16	Gear lever assy.
17	6M100x25 bolt
18	D6 washer

Crankshaft

Fit:

- Crankshaft (1).

Fit crankcases (see chapter)

ATTENTION

TO PREVENT SCRATCHES TO THE CRANKSHAFT AND TO HELP ITS FITTING, APPLY GREASE TO THE RETAINING RING EDGES AND ENGINE OIL TO THE BEARINGS.

GREASE THE CRANKSHAFT USING THE GREASING HOLES (A).

N.B.:

COVER THE BASE OF THE CYLINDER WITH A CLOTH TO PRE-VENT OBJECT FROM FALLING INTO THE ENGINE.

Fit:

- The crankshaft key.
- The balance shaft gear (2).
- The crankshaft gear (3).

N.B.:

ALIGN THE CRANKSHAFT AND BALANCER GEARS USING THE GUIDE POINTS.

Fit:

- The balance shaft locking tool (4).

Balance shaft locking tool: Ref. 864486

-The balance shaft nut (5).

Balance shaft nut. 3,5-4,5 kgf.m (35-45 N.m)

N.B.:

FIT THE TIMING CHAIN SPROCKET WITH THE GUIDE POINT FACING FORWARDS.

Fit:

- The timing chain sprocket (6).









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Fit:

- The timing chain (7).

N.B.: FIT IT ON THE CENTRAL TEETH.

Fit: - The crankshaft gear (8).

- The fitting tool (9).

Crankshaft sprocket locking tool: Ref. 864487

Fit: -The crankshaft gear nut (10).

Crankshaft gear nut: 7,5-8,3 kgf.m (75-83 N.m)

N.B.: THERE ARE SETS OF BALANCER SHAFTS. - CRANKSHAFT GEARING

N.B. See chapter (identification of sets).









CRANKSHAFT PARTS



1	Crankshaft-connecting rod assy.
2	Counterweight shaft
3	Кеу
4	Intermediate gear counterweight
5	Counterweight gear
6	Nut



CRANKCASES

Fit:

- The engine crankcase gasket (1) (new gasket).





- The left-hand crankcase (2) onto the right-hand crankcase (3), being guided by the centring studs (4).

ATTENTION

MAKE SURE THAT THE GASKET REMAINS IN THE CORRECT POSITION.

N.B.:

TAP THE CRANKCASE LIGHTLY WITH A PLASTIC HAMMER.

IMPORTANT

TIGHTEN THE BOLTS ON THE BLOCK IN SUCCESSION CROSSWISE, GOING FROM ONE TO ANOTHER TWO OR THREE TIMES.

Fit:

- The 6 outer bolts (5) on the left-hand crankcase.
- The (longer) outer bolt (6) on the left-hand crankcase.
- The 6 inner bolts (7) on the left-hand crankcase.

Bolts (crankcases):

1,1-1,3 kgf.m (11-13 N.m)





CRANKCASE PARTS



1	Crankcases assy.
2	Counterweight bearing
3	Crankcase gasket
4	Crankshaft oil seal
5	Secondary shaft bearing
6	Primary shaft needle bearing assy.
7	Neutral switch
8	Gasket
9	Counterweight shaft needle bearing assy.
10	Bolt
11	Кеу
12	M6x75 hex. bolt
13	Кеу
14	m6x60 bolt
15	Clamp
16	Selector lever shaft oil seal
17	Centring stud
18	Secondary shaft needle bearing assy.
19	Primary shaft bearing
20	5.2x15x1.5 washer
21	M5x14 bolt
22	Centring stud
23	5.2x15x1.5 washer

24	M5x14 bolt
25	Top mounting blue semi-bearing
26	Bottom mounting blue semi-bearing

OIL PUMP

- (1) Crankshaft breather.
- (2) To the gearbox.
- (3) To the gearbox.
- (4) To the filter, lubrication technical part.

N.B.:

THE OIL PUMP IS A DOUBLE ROTOR PUMP WHICH PUMPS SEPARATELY.

One 13mm thick rotor, for suction. One 8.5 mm thick rotor, for pumping.

Fit:

- The oil pump gear (5).

Fit:

- The oil pump (6).
- The 3 oil pump bolts (7).

The oil pump bolts:

0,5-0,6 kgf.m (5-6 N.m)

Fit:

- The oil pump gear (8).
- The oil pump gear clip (9).

Fit:

- The intermediate starter gear (10).
- The intermediate starter gear clip and washer (11).

N.B. See chapter (identification of sets).











OIL PUMP ASSEMBLY PARTS



1	Rubber ring.
2	Flat washer
3	Intermediate oil pump gear
4	Bolt
5	Circlip
6	Oil pump gear
7	Oil pump gear
8	Crankcase / oil pump gasket
9	Oil pressure valve spring
10	Oil by-pass valve
11	Oil filter
12	Oil filter gasket
13	Plug gasket
14	Oil filter plug

INSTALLING THE CLUTCH

Fit:

- The clutch bell housing (1).
- The washer (2).

Fit:

- The clutch bell housing (3).
- The seal (4).
- The nut (5).

The clutch housing nut: 3,5-4,5 kgf.m (35-45 N.m)

Closing:

- The seal tab (4).

- Use the clutch housing (7) fitting key (6).

Bell housing extraction tool: Ref. 00H05300041







N.B. See chapter (identification of sets).

Fit:

- The clutch disks and separators (8).

N.B.:

- FIT THE DISKS (BLADES TO THE RIGHT) AND THE SEPARA-TORS (ROUNDED PROFILE INWARDS) ALTERNATELY ONTO THE CLUTCH HUB, BEGINNING WITH A FRICTION DISK AND ENDING WITH A FRICTION DISK.

- LUBRICATE ALL THE DISKS AND SEPARATORS WITH ENGINE OIL BEFORE FITTING.

Fit:

- The clutch closing cover (9).

Fit:

- The 5 clutch closing cover bolts (10) with washer and spring.

The clutch closing cover bolts: 0,35-0,45 kgf.m (3,5-4,5 N.m)

Fit:

- The cover gasket (11) (new gasket).

Fit:

- The clutch cover (12).
- The 10 clutch cover bolts (13).
- The clutch cable support (14).

The clutch cover bolts:

1,1-1,3 kgf.m (11-13 N.m)

N.B.:

TO HELP THE COVER TO FIT, THE WATER PUMP SHOULD BE TURNED UNTIL THE 2 GEARS COINCIDE.

IMPORTANT

TIGHTEN THE BOLTS ON THE BLOCK IN SUCCESSION CROSSWISE, GOING FROM ONE TO ANOTHER TWO OR THREE TIMES.








Fit:

- The oil filter (15).
- The spring (16).
- The oil filter plug (17)

The oil filter plug: 2,4-2,6 kgf.m (24-26 N.m)

Fit:

- The water pump turbine (18).

The water pump turbine: 0,4-0,6 kgf.m (4-6 N.m)

Fit:

The water pump cover (19) and the 3 bolts (20).The coolant pipe (21).

The water pump cover: 0,5-0,6 kgf.m (5-6 N.m)









Clutch bell housing parts



1	Clutch bell housing
2	Clutch casing
3	HZ driving disk
4	HZ driven disk
5	Clutch closing cover
6	Clutch spring
7	Bolt with washer
8	Washer
9	M6 hexagonal nut
10	Clutch bolt
11	Separator
12	Washer
13	Nut with tapered spring
14	Engine gear
15	Кеу
16	Seeger ring
17	Washer
18	Needle bearing assy.
19	Separator bush

Clutch cover parts



1	Clutch cover assy.
2	Clutch cover – crankcase gasket
3	Oil filter cover
4	O-ring
5	Oil filter cartridge spring
6	Oil filter cartridge
7	M5x14 bolt
8	Water pump cover
9	O-ring
10	Complete drive shaft
11	Water pump oil seal
12	Clamp
13	M6x35 bolt
14	Oil seal
15	Pump-cylinder head pipe
16	Oil pressure sensor
17	Washer
18	Water pump shaft assy.
19	20x30x5 oil seal
20	Water pump gear

Magneto

Fit:

- The 2 starter system gears (1).
- The key (2).
- The safety roller (3).

Fit:

- - The rotor (4) - The washer (5).

Fit:

- The rotor nut (6).

Fifar:

- The rotor onto the magneto flywheel, using the magneto fl ywheel locking tool (7).

Magneto flywheel locking tool: Ref. 865259

Magneto flywheel rotor nut: 8,3-9,0 kgf.m (83-90 N.m)

N.B.

POSITION A RUBBER PAD BETWEEN THE TOOL FIXING POINT AND THE MAGNETO FLYWHEEL TO PREVENT THIS FROM BEING DAMAGED.











Fit:

- The cover gasket (8) (new gasket).





Fit:

- Cylinder head side cover (9).
- The 10 bolts (10) on the left-hand crankcase cover.

The crankcase cover bolts:

1,1-1,3 kgf.m (11-13 N.m)

IMPORTANT

TIGHTEN THE BOLTS ON THE BLOCK IN SUCCESSION CROSSWISE, GOING FROM ONE TO ANOTHER TWO OR THREE TIMES.

Fit:

- The engine oil pre-filter.
- The pre-filter plug (11)

The pre-filter plug:

2,4-3,0 kgf.m (24-30 N.m)



Magneto parts



1	Magneto side cover
2	Magneto cover-crankcase gasket
3	O-ring
4	Ignition cover
5	M6x35 bolt
6	O-ring
7	Oil dipstick
8	Nut
9	Flat washer
10	Stator
11	M 5x25 bolt
12	M 5x16 bolt
13	Bolt
14	Washer
15	Rotor
16	Free wheel inner ring
17	Free wheel
18	Electric start crown wheel
19	Starter motor takeoff gear
20	Starter motor
21	M6x25 bolt

22	Starter crown wheel retaining plate
23	M6x14 bolt
24	Кеу
25	6M100 hexagonal nut with clamp

CAMSHAFT

Remove:

- The TDC (top dead centre) checking plug.
- The central plug.

Align:

Turn the crankshaft in an anticlockwise direction with an Allen key (b) until the mark (a) is lined up with the point on the nut, as shown in the photograph.

ATTENTION

DO NOT TURN THE CRANKSHAFT DURING THE FITTING OF THE CAMSHAFT. TO DO SO MAY CAUSE DAMAGE OR THE ENGINE TIMING TO BE INCORRECT.

Fit:

- The inlet camshaft (1) ref.(0906) (A).
- The inlet camshaft (2) ref.(0906) (S).

N.B.:

POSITION THE CAMSHAFT LOCKING HOLES FACING UPWARDS.

Lubricate:

- The camshaft (3) with engine oil.

Fit:

- The camshaft bridge (4).
- The 8 camshaft bridge bolts (5).

The bolts (camshaft bridge): 1-1,2 kgf.m (10-12 N.m)











Position:

- Set of camshaft locking keys (6).

Set of camshaft locking keys: Ref. 864567





- The camshaft crown wheels (7).
- The timing chain (8).
- Apply Loctite before fitting the 2 volts.
- The camshaft crown wheels washer (9) and bolts (10).

N.B.:

DO NOT TIGHTEN THE CROWN WHEEL BOLTS UNTIL THE TIMING CHAIN TENSION HAS FIRSTLY BEEN SET.

Adjust:

- Press the tab (11).
- Push the timing chain tensioner (12).
- Release the tab (11).

Fit:

- The tensioner seal.
- The timing chain tensioner (13).

The timing chain tensioner bolts.

- 1,1-1,3 kgf.m (11-13 N.m)
- The spring (14), by pressing until the bolt is in position.

The timing chain tensioner spring. 0,8-1 kgf.m (8-10 N.m)









Fit:

- The 2 bolts (15) securing the starter motor.
- The starter motor (16).
- The 2 bolts (apply Loctite before fitting).

The starter motor bolts: 1,1-1,3 kgf.m (11-13 N.m)

Fit:

- The camshaft sprocket locking tool (17).

The camshaft sprocket locking tool. Ref. 865260

Fifar:

- Fit the 2 bolts onto the camshaft crown wheels.

The camshaft sprocket bolts: 2,3-2,7 kgf.m (23-27 N.m)

Fit:

- The cylinder head cover (18).
- The 4 rocker cover bolts (19).
- The spark plug (20).

(Rocker cover) bolts:

1-1,2 kgf.m (10-12 N.m)







TIMING CHAIN

N.B.:

FIT THE TIMING CHAIN SPROCKET WITH THE GUIDE POINT FACING FORWARDS.

Fit:

- The timing chain sprocket (1).

N.B.

See chapter (identification of sets).

N.B.:

TIE A PIECE OF WIRE TO THE TIMING CHAIN TO PREVENT IT FROM DETACHING FROM THE SPROCKET.

Fit:

- The timing chain (2) from the top.

Fit:

- The fixed roller (3).

Timing chain fixed roller: 1-1,2 kgf.m (10-12 N.m)

Fit:

- The crankshaft sprocket locking tool (4).

Crankshaft sprocket locking tool: Ref. 864487

Fit:

- The crankshaft gear (5). -The crankshaft gear nut (6).

The crankshaft gear nut. 7,5-8,3 kgf.m (75-83 N.m)

Fit:

The clutch assembly (see chapter).











Fit:

- The clutch cover (7).
- The clutch cable support (8).
- The 10 clutch cover bolts (9).

The clutch cover bolts:

1,1-1,3 kgf.m (11-13 N.m)

N.B.:

TO HELP THE COVER TO FIT, THE WATER PUMP SHOULD BE TURNED UNTIL THE 2 GEARS COINCIDE.

Fit:

- The water pump cover (10) and the 3 bolts (11).
- The coolant pipe (12).

The water pump cover bolts.

0,5-0,6 kgf.m (5-6 N.m)







Fit:

- The camshaft (see chapter).

VALVES AND CAMSHAFT PARTS



1	Cylinder head assy.
2	12x13 centring bush
3	M8x20x1 bolt
4	8x13 centring bush
5	M8x166 bolt
6	8.5x16x1.5 washer
7	M6x130 bolt
8	Distribution gear
9	125cc exhaust valve
10	125cc inlet valve
11	Oil seal
12	Valve spring
13	Valve semi-cone
14	Valve top casing
15	Exhaust camshaft
16	Intake camshaft
17	Seal washer
18	Camshaft cover
19	M6x40 bolt
20	Rocker cover gasket
21	Rocker cover
22	Rocker cover bolt
23	Valve cover rubber washer
24	NGK CR8EB spark plug

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25	Gasket
26	Chain guide fixed roller
27	Chain tensioner mobile roller
28	M6 bolt
29	Timing chain
30	Crown wheel
31	8.25x23x4 washer

INSTALLING THE PISTON RINGS

N.B.:

COVER THE BASE OF THE CYLINDER WITH A CLOTH TO PRE-VENT OBJECT FROM FALLING INTO THE ENGINE.

Fit in accordance with the following sequence:

- Expansion ring (oil ring) (1).
- Secondary ring (scraper) (2).
- Top ring (compression) (3).

N.B.:

- FITTHERINGS IN SUCHA WAY THAT THE MANUFACTURER'S MARK IS TOWARDS THE TOP.

- LUBRICATE THE PISTON AND THE RINGS WELL WITH ENGINE OIL.

Position:

- Rings (1).

N.B.:

POSITION THE ENDS OF THE RINGS AS IN THE FIGURE.

Lubricate:

- External surface of the piston
- Rings
- Inner surface of the cylinder



Cylinder head, cylinder and piston

Fit:

- The piston fitting clamp (1).

Piston fitting clamp: Ref. 865261



N.B.:

BEFORE REMOVING THE CIRCLIP FROM THE GUDGEON PIN, COVER THE BASE OF THE CYLINDER WITH A CLOTH TO PREVENT OBJECTS FROM FALLING INTO THE ENGINE.

N.B.:

- APPLY ENGINE OIL TO THE GUDGEON PIN.

- THE (<) MARK MUST FACE TOWARDS THE EXHAUST SIDE.

Fit:

- The piston (2).
- The piston gudgeon pin (3).

Fit:

- The piston gudgeon pin securing circlip (4).

Fit:

- The cylinder (5).







Fit:

- The comparer (6) onto the TDC measuring tool (7).

N.B.:

PLACE THE COMPARER ON A FLAT SURFACE AND ADJUST CORRECTLY (0).





- The TDC measuring tool (7), using 2 cylinder head bolts.

TDC measuring tool: Ref. 864592

Position:

- The piston at TDC.
- Take a reading of the measurement on the comparer.
- Choose the cylinder gasket (see table).

N.B.:

THE CYLINDER GASKET THICKNESS MUST BE CALCULATED TO ESTABLISH THE APPROPRIATE COMPRESSION RATIO.

THERE ARE THREE THICKNESSES OF GASKET AVAILABLE: 0.3 0.4 AND 0.5 MM.

PERFORM THE CALCULATION WITH THE COMPARER WITHOUT FITTING ANY GASKET.

TDC measurement	Thickness of Gasket	Reference
0.95 / 1.09	0.3 ± 0.05	CM22801
1.1 / 1.25	0.4 ± 0.05	CM222802
1.26 /1.45	0.5 ± 0.05	CM222803





Fit:

- The front timing chain roller (8).
- The top gasket (9) (new gasket).
- The coolant pipe (10).





- The cylinder head.

N.B.:

APPLY OIL TO THE WASHERS OF THE 4 BOLTS JOINING THE CYLINDER HEAD TO THE CRANKCASE.

Fit:

- The 6 bolts (11) and the 4 washers (12) securing the cylinder head to the cylinder.

The bolts securing the cylinder head to the cylinder. 1,1-1,3 kgf.m (11-13 N.m)

Fit:

- The camshaft (see chapter).

Fit:

- The inlet manifold, using the 3 bolts (13).

Inlet manifold bolts: 1,1-1,3 kfg.m (11-13 N.m)









Fit:

- The thermostat (14).



Fit:

- The 2 thermostat cover bolts. - The thermostat cover (15).

The thermostat cover bolts: 1-1,2 kfg.m (10-12 N.m)





Cylinder head and cylinder parts



1	Piston-cylinder assy.
3	1st cat. piston assy.
4	Cylinder – cylinder head gasket
5	Cylinder - crankshaft gasket
6	First piston ring
7	Scraper ring
8	Piston gudgeon pin
9	Piston gudgeon pin circlip
10	Chain tensioner
11	Gasket
12	M6x16 bolt

Thermostat parts



1	Hose joining the carburet. to the inlet manifold
2	Bolt
3	Intake connector
4	O-ring
5	Thermistor
6	Thermostat
7	Thermostat cover
8	6.3x8x6.8 bush
9	M6x20 bolt
10	Studs
11	Carburettor clamp

FUEL SUPPLY

DISMANTLING THE CARBURETTOR

- To dismantle the carburettor from the engine, move the air filter clear and remove the throttle control cable, the automatic choke connection, the carburettor retaining clamps and the filter box and suction collector, the air feed pipe to the membrane and the inlet connector.

- Extract the carburettor and turn it so that the screw with the water connector and pipe can be removed.

N.B.

THIS OPERATION IS NECESSARY TO AVOID DRAINING THE COOLANT SYSTEM.

- Remove the protection, the clamp and the choke, by removing the screw indicated in the figure.

- Remove the 2 screws and the choke support with gasket.

- Remove the clamp and the hood with the ventilation filter from the membrane chamber.

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- Remove the 4 fixing screws indicated in the figure, and the vacuum chamber cover.

WARNING

WHILE REMOVING THE COVER, TAKE SPECIAL CARE TO PRE-VENT THE SPRING FROM SUDDENLY FLYING OUT.





Remove the depression valve together with the membrane.



Unscrew the bayonet fitting 1/8th of a turn and extract it, then remove the spring and the valve needle.



- Remove the 4 screws indicated in the figure.



- Remove the complete bowl with the throttle pump, control and gasket.



- Remove the sealing gasket.

- Remove the throttle pump intake and output valve from the bowl.

N.B.

PROCEED WITH CARE, AS THE VALVES COME APART AND ARE MADE UP OF A JET, SPRING AND SPHERE.

N.B.

AVOID DISMANTLING THE PUMP PISTON AND ITS DRIVE.

- Hold the carburettor suitably and with a punch and hammer tap out the float rod, tapping from the throttle control side.

- Remove the float and needle.





Remove the air jet.









Remove the atomiser by tilting the carburettor body.

N.B.

THIS OPERATION IS NECESSARY TO PREVENT THE ATOMISER FROM BECOMING LOST DURING THE CARBURETTOR BODY CLEANING OPERATIONS. IN THE EVENT OF THE ATOMISER BEING JAMMED IN ITS HOUSING, DO NOT PROCEED WITH DISMANTLING, TO PREVENT DAMAGE TO THE SAME.



Remove the slow jet.



Remove the screw for adjusting the slow jet flow, together with the O-ring, washer and spring.

ATTENTION

DO NOT ATTEMPT TO DISMANTLE THE COMPONENTS FIT-TED INTO THE CARBURETTOR BODY, SUCH AS: FUEL SU-PPLY DUCT, NEEDLE SEAT, CHOKE JET, THROTTLE JET AND BY-PASS COLLECTOR COVER, SLOW AND MAIN AIR CA-LIBRATOR, OPERATING SHAFT OF BUTTERFLY VALVE WITH SHAFT. THE SECURING SCREWS HAVE BEEN RIVETED AF-TER ASSEMBLY.



ASSEMBLING THE CARBURETTOR

- Before proceeding with the assembly, wash the carburettor body carefully with petrol and blow through the channels with jets of compressed air.

- Pay special attention in the duct supplying fuel to the needle seat.

- In the top main jet circuit, check the air calibration carefully, as shown in the figure.





- In the slow jet circuit, take special care with the cleaning of the following points: air calibration, output diameter controlled by the mixture screw, bypass holes near the butterfly valve.

- In the choke circuit, the duct connecting with the jet must be blown through very thoroughly, since the jet support conceals other, non-accessible calibrations in its interior.

- Thoroughly blow through the throttle jet.

N.B.

ITS OUTPUT DIAMETER IS VERY SMALL AND IS AIMED TOWARDS THE BUTTERFLY VALVE. INCORRECT POSITIONING OF THE JET WILL LEAD TO POOR ATOMISING

- Check the presence of the 5 spheres closing off the machined ducts in the carburettor body.

- Check that the flat surfaces joining with the bowl and the membrane have not been damaged or dented.

- Check that the depression valve seat duct is not scratched.



- Check that the butterfly valve and shaft have no unusual wear.

- Check that the needle seat has no unusual wear.

- If any irregularities are found, renew the carburettor.

- Check that the pump rocker arm return spring is not distorted.

N.B.

TO PREVENT DAMAGE, AVOID INSERTING METAL OBJECTS INTO THE CALIBRATED SECTIONS.

- Lavar y soplar cuidadosamente el surtidor del mínimo y montarlo nuevamente.



- Clean and carefully blow through the slow jet and reassemble it.

- Clean and carefully blow through the components of the main jet circuit, atomiser, diffuser and jet.

- Fit the atomiser in the carburettor body with the shorter cylindrical part aimed at the diffuser.

- Fit the diffuser, ensuring that the atomiser is inserted correctly, and lock.

- Fit the main jet.

- Check that the tapered needle has no signs of wear on the sealing surface, on the shock absorbing rod and the return spring.

- If wear is detected, renew the tapered needle.





-Check that the float has no signs of wear on the rod seat, on the plate contacting with the needle, or fuel infiltration.

- If anomalies are detected, renew the float.

- Insert the float with the needle on the fuel input side.

N.B.

ENSURE THAT THE RETURN SPRING IS FITTED ONTO THE FLOAT PLATE CORRECTLY.

- Remove the float bowl drain screw, wash and blow out the bowl carefully, paying special attention in the cleaning of the throttle pump ducts.

- Operate the throttle pump piston several times and blow through with compressed air.

- Refit the throttle pump valves, inserting them in the order:

INTAKE VALVE (A)

- Spring
- Sphere
- Jet

OUTPUT VALVE (M)

- Sphere
- Spring
- Jet

N.B.

THE OUTPUT VALVE JET HAS MILLING.

- Check for leaks at the screw by allowing small mounts of fuel to enter the bowl.

- Fit a new gasket on the bowl.

- Fit the bowl onto the carburettor body and tighten the 4 screws.

- Check that the control roller is free and turns in its own housing.

N.B.

TAKE SPECIAL CARE TO ENSURE THAT THE GASKET IS CO-RRECTLY FITTED.

N.B.

AVOID ANY DISTORTION OF THE THROTTLE PUMP CONTROL ROCKER ARM.





- Wash and carefully blow through the mixture screw.
- Check that the screw is not damaged and/or corroded.
- Fit the spring onto the screw.
- Thread the mixture screw into the carburettor body.

. The final position should be determined by analysing the exhaust gases.

- Prepare the carburettor for adjustment with the screw unscrewed 2 turns from the closed position.



CHECKING LEVEL

- Fit the carburettor tilted as in the figure.

- Check that the reference mark on the float is parallel with the flat joining surface of the bowl.

- If other positions are detected, modify the positioning of the metal needle control plate until the indicated position is obtained.

CHECKING THE VACUUM VALVE AND TAPERED NEEDLE

- Check that the vacuum valve needle is not worn.
- Check that the vacuum valve needle shows no sign of scratching on its outer surface.
- Check that the vacuum supply hole is not obstructed.
- Check that the membrane is not broken or hardened. If it is, renew the whole valve.
- Insert the needle into the valve housing.
- Refit the vacuum fuel valve in the carburettor body, taking care that the needle enters inside the atomiser.

N.B.

THE VALVE CAN ONLY BE INSERTED IN ONE POSITION.







- Refit the needle spring.

filter sponge.

- Refit the vacuum chamber cover, taking care to ensure that the spring is correctly fitted into the housing in this cover.

- Wash and blow through the atmospheric pressure intake

- Tighten the screws to the prescribed torque.







- Refit the filter with the corresponding clamp.

- Wash and blow through the choke support with compressed air.

- Fit a new gasket onto the carburettor body and lock the 2 securing bolts.





CHECKING THE AUTOMATIC CHOKE

- Check that the automatic choke piston is not scratched or corroded.

- Check that the piston slides freely in the support seat.

- Check that the piston sealing gasket is not distorted.

- The choke should insert more or less according to the atmospheric temperature.

- Measure the piston protrusion as indicated in the figure and check the corresponding value.

- Ensure that the choke is adjusted to atmospheric temperature.

- The choke must be disconnected gradually by means of electric heating.

- Check the resistance of the choke when it is stabilised at atmospheric temperature.

- Connect the automatic choke to a 12ν battery and check that the piston reaches the maximum protrusion.

- The effective heating time depends on the atmospheric temperature.

- If protrusions, resistances or times are found to be different to those stipulated, the choke should be renewed.

- Continue with the fitting of the choke in the carburettor, paying attention to the correct positioning of the O-ring, insert the plate with the moulded part resting against the choke, and tighten the 2 securing bolts.

- Position the choke as shown in the figure.

- Fit the protective device.

Technical Characteristics

Checking the automatic choke: Protrusion value 12,5 - 13 mm at around 20°C

Checking the automatic choke: Maximum protrusion 18,5 - 19 mm

Checking the automatic choke: Max. time: 5 min







- Check that the automatic choke piston is not scratched or corroded.

- Check that the piston slides freely.
- Check that the piston sealing gasket is not distorted.

- The choke will be on for more or less time, depending on the atmospheric temperature.

- Measure the piston protrusion as indicated in the figure and check the corresponding value.

- Ensure that the choke is adjusted to atmospheric temperature.

- The choke must be disconnected gradually by means of electric heating.

- Check the resistance of the choke when it is adjusted to atmospheric temperature.

- Connect the automatic choke to a 12v battery and check that the piston reaches the maximum protrusion.

- The effective heating time depends on the atmospheric temperature.

- If protrusions, resistances or times are found to be different to those stipulated, the choke should be renewed.

- Continue with the fitting of the choke in the carburettor, paying attention to the correct positioning of the O-ring, insert the plate with the moulded part resting against the choke, and tighten the 2 securing bolts.

- Position the choke as shown in the figure.

- Fit the protective device.

N.B.

TAKE CARE NOT TO PROVOKE A SHORT CIRCUIT WHEN CARRYING OUT THIS CHECK. TO THIS END, USE A LENGTH OF CABLE WITH A TERMINAL ADAPTED TO THE CONNEC-TION WITH THE CHOKE.

Technical Characteristics

Kehin automatic choke max. time check. 5 min









CARBURETTOR



1	Carburettor assembly
2	Fuel valve cover
3	Fuel valve spring
4	Atomiser needle bush
5	Atomiser needle
6	Membrane piston
7	Slow jet 38
8	Atomiser
9	Main jet 98
10	Fuel needle
11	Float assy.
12	Fuel bowl assy.
13	Throttle pump kit
14	Choke hood
15	Automatic choke device
16	Plate
17	Choke body
18	Carburettor gaskets clearance
19	Heating pipes connectors kit
20	Carburettor pipes kit
21	Carburettor-cylinder head pipe
22	Carburettor pipe-thermostat cover
23	9.8-10.4 rubber clamp
24	D49.5 Oetiker clamp

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25	Air intake hood
26	Securing clamp



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