



YAMAHA

2017

SERVICE MANUAL

XP530E-A

XP530-A

XP530D-A

TMAX

EAS20002

**XP530E-A/XP530-A/XP530D-A
SERVICE MANUAL
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IMPORTANT

This manual was produced by the Yamaha Motor Company, Ltd. primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual. Therefore, anyone who uses this book to perform maintenance and repairs on Yamaha vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

Yamaha Motor Company, Ltd. is continually striving to improve all of its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

TIP

Designs and specifications are subject to change without notice.

IMPORTANT MANUAL INFORMATION

Particularly important information is distinguished in this manual by the following notations.

	<p>This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.</p>
	<p>A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>
	<p>A NOTICE indicates special precautions that must be taken to avoid damage to the vehicle or other property.</p>
	<p>A TIP provides key information to make procedures easier or clearer.</p>

HOW TO USE THIS MANUAL

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

- The manual is divided into chapters and each chapter is divided into sections. The current section title “1” is shown at the top of each page.
- Sub-section titles “2” appear in smaller print than the section title.
- To help identify parts and clarify procedure steps, there are exploded diagrams “3” at the start of each removal and disassembly section.
- Numbers “4” are given in the order of the jobs in the exploded diagram. A number indicates a disassembly step.
- Symbols “5” indicate parts to be lubricated or replaced.
- Refer to “SYMBOLS”.
- A job instruction chart “6” accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc. This step explains removal and disassembly procedure only. For installation and assembly procedure, reverse the steps.
- Jobs “7” requiring more information (such as special tools and technical data) are described sequentially.

1
OIL PUMP

OIL PUMP

Removing the oil pump assembly

Order	Job/Parts to remove	Qty	Remarks
	Bottom side cowl/Side panel/Bottom center cowl		Refer to “GENERAL CHASSIS (1)” on page 4-1.
	Center cover/Full tank cover assembly/Side cover (left)/Footboard (left)		Refer to “GENERAL CHASSIS (2)” on page 4-11.
	V-belt case air filter element (left)/Generator cover protector/Water pump inlet pipe/Water pump outlet pipe/Water pump assembly		Refer to “WATER PUMP” on page 6-3.
	Generator cover/Generator rotor/Starter clutch gear		Refer to “GENERATOR AND STARTER CLUTCH” on page 5-44.
1	Oil pump assembly	1	
2	Oil pump drive chain	1	
3	Relief valve	2	
4	Oil delivery pipe	1	
5	Oil pipe	1	
6	Relief valve assembly	1	

5-59

OIL PUMP

CHECKING THE OIL PUMP

1. Check:

- Oil pump driven gear “1”
- Oil pump housing 2 “2”
- Oil pump housing 1 “3”
- Cracks/damage/wear → Replace the oil pump assembly.

ASSEMBLING THE OIL PUMP

1. Lubricate:

- Inner rotor
- Outer rotor
- Oil pump shaft

(with the recommended lubricant)

Recommended lubricant
Engine oil

2. Install:

- Inner rotors

TIP
When installing the inner rotor, align the pins “1” in the oil pump shaft with the grooves “a” in the inner rotor.

3. Check:

- Oil pump operation

Refer to “CHECKING THE OIL PUMP” on page 5-61.

INSTALLING THE OIL PUMP

1. Install:

- Oil pump assembly

Oil pump bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)

NOTICE
After tightening the bolts, make sure the oil pump turns smoothly.

5-61

SYMBOLS

The following symbols are used in this manual for easier understanding.

TIP

The following symbols are not relevant to every vehicle.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Serviceable with engine mounted		Gear oil
	Filling fluid		Molybdenum disulfide oil
	Lubricant		Brake fluid
	Special tool		Wheel bearing grease
	Tightening torque		Lithium-soap-based grease
	Wear limit, clearance		Molybdenum disulfide grease
	Engine speed		Silicone grease
	Electrical data		Apply locking agent (LOCTITE®).
	Engine oil		Replace the part with a new one.
	Silicone fluid		

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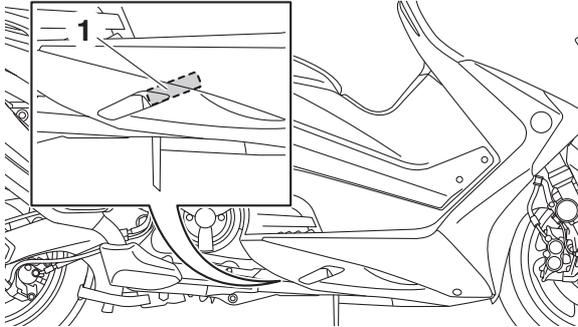
EAS20007

IDENTIFICATION

EAS30002

VEHICLE IDENTIFICATION NUMBER

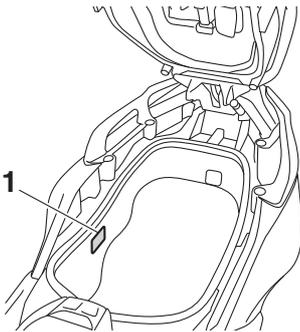
The vehicle identification number "1" is stamped into the right side of the frame.



EAS30003

MODEL LABEL

The model label "1" is affixed to the storage box. This information will be needed to order spare parts.



EAS20008

FEATURES

EAS30852

YCC-T (Yamaha Chip Controlled Throttle)

Mechanism characteristics

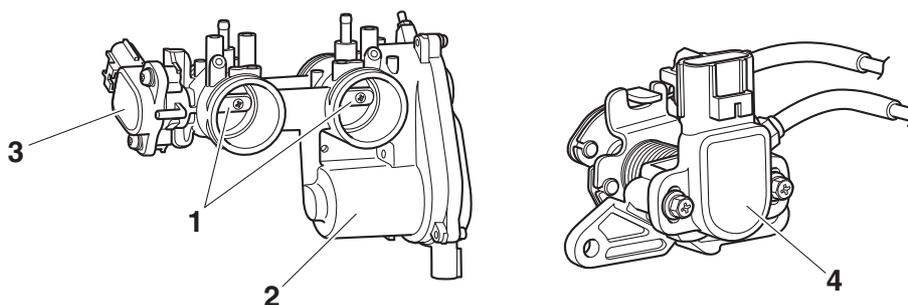
Yamaha developed the YCC-T system employing the most advanced electronic control technologies. Electronic control throttle systems have been used on automobiles, but Yamaha has developed a faster, more compact system specifically for the needs of a sports motorcycle. The Yamaha-developed system has a high-speed calculating capacity that produces computations of running conditions every 1/1000th of a second.

The YCC-T system is designed to respond to the throttle action of the rider by having the ECU instantaneously calculate the ideal throttle valve opening and generate signals to operate the motor-driven throttle valves and thus actively control the intake air volume.

The ECU contains two CPUs with a capacity about five times that of conventional units, making it possible for the system to respond extremely quickly to the slightest adjustments made by the rider. In particular, optimized control of the throttle valve opening provides the optimum volume of intake air for easy-to-use torque, even in a high-revving engine.

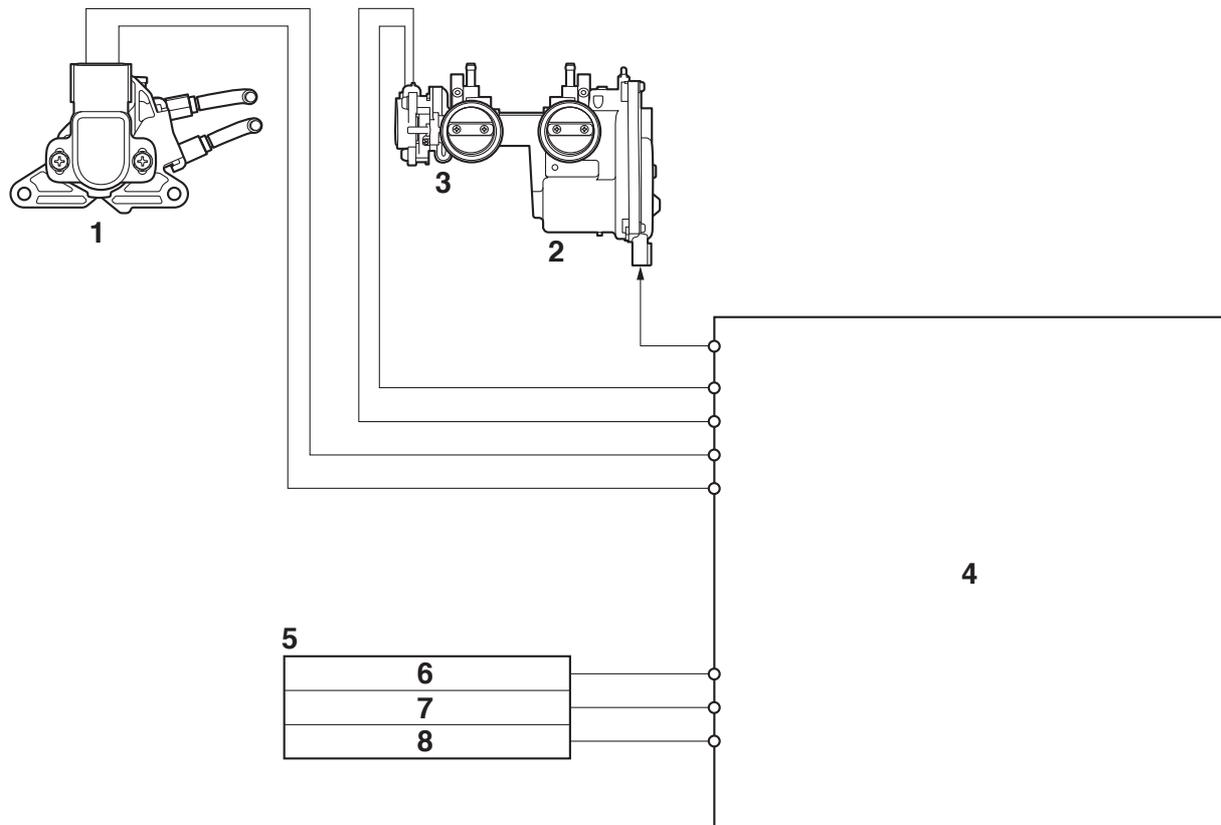
Aims and advantages of using YCC-T

- Increased engine power
By shortening the air intake path, higher engine speed is possible → Increased engine power.
- Improved driveability
Air intake volume is controlled according to the operating conditions → Improved throttle response to meet engine requirement.
Driving force is controlled at the optimal level according to the engine speed → Improved throttle control.
- Engine braking control
Due to the throttle control, optimal engine braking is made possible.
- Simplified idle speed control (ISC) mechanism
The bypass mechanism and ISC actuator are eliminated → A simple mechanism is used to maintain a steady idle speed.
- Reduced weight
Compared to using a sub-throttle mechanism, weight is reduced.



1. Throttle valves
2. Throttle servo motor
3. Throttle position sensor
4. Accelerator position sensor

YCC-T system outline

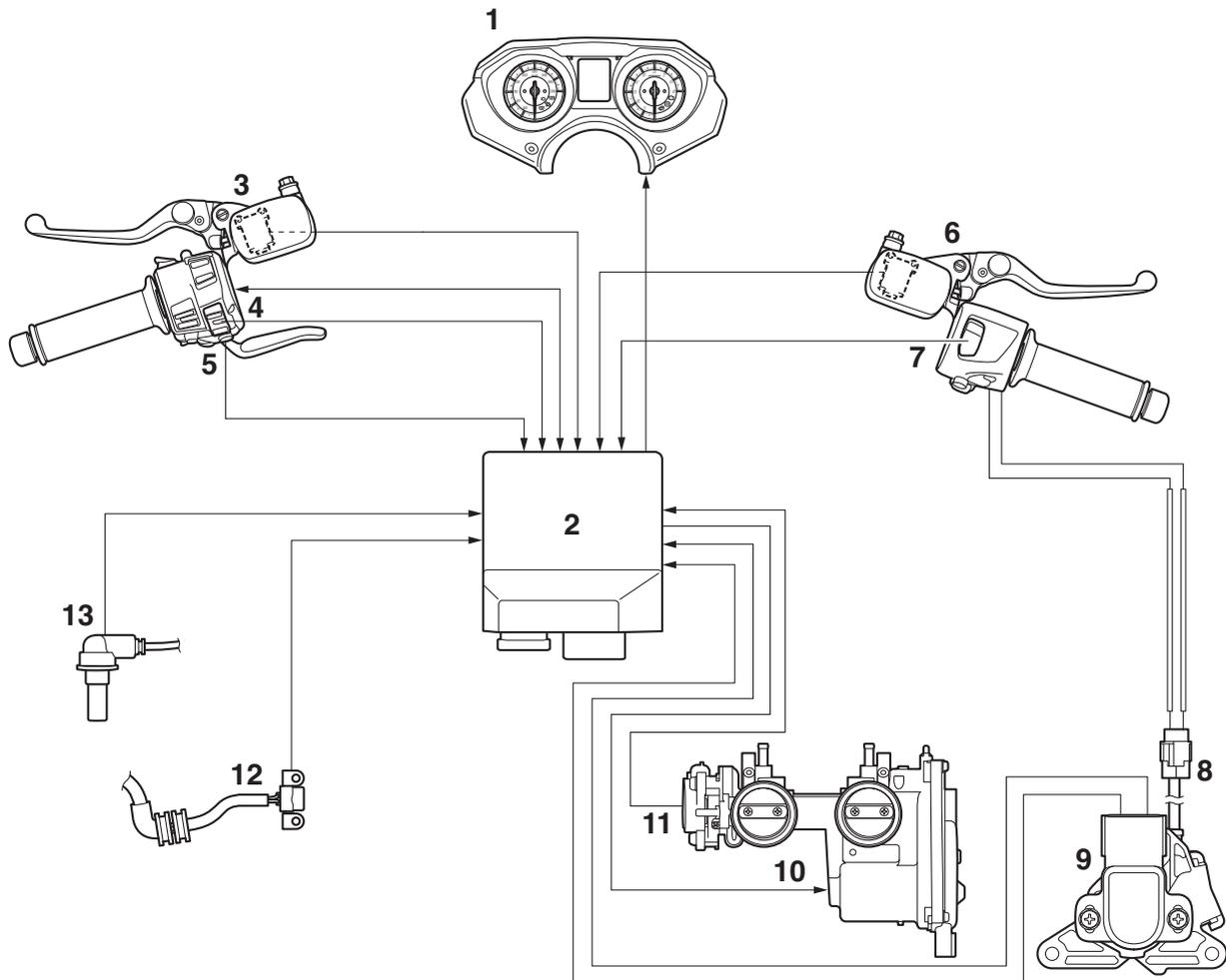


1. Accelerator position sensor
2. Throttle servo motor
3. Throttle position sensor
4. ECU (Engine Control Unit)
5. Sensor input
6. Crankshaft position sensor
7. Rear wheel sensor
8. Coolant temperature sensor

EAS30940

OUTLINE OF THE CRUISE CONTROL SYSTEM (for XP530D-A)

This model is equipped with a cruise control system designed to maintain a set cruising speed. Because the vehicle is equipped with the YCC-T system, the cruise control system can be controlled electronically. Based on the signals that are received from the sensors and switches, the ECU calculates the required throttle valve opening and operates the throttle servo motor to control the throttle valves. Because the system allows the rider to maintain a set cruising speed without operating the throttle, the system reduces the burden of maintaining a constant speed during long-distance touring. In addition, the cruise control system is equipped with a self-diagnosis function.



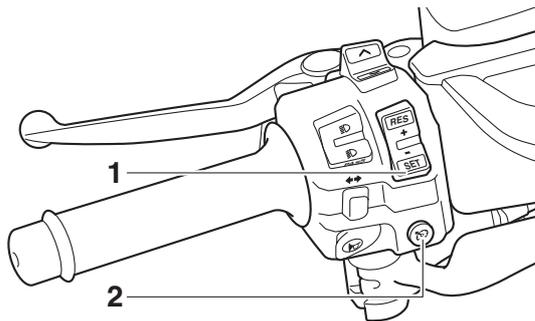
1. Meter assembly
2. ECU (Engine Control Unit)
3. Rear brake light switch
4. Cruise control setting switch
5. Cruise control power switch
6. Front brake light switch
7. Engine stop switch
8. Grip cancel switch
9. Accelerator position sensor
10. Throttle servo motor
11. Throttle position sensor
12. Crankshaft position sensor
13. Rear wheel sensor

The cruise control system is designed to maintain a set cruising speed between about 50 km/h (31 mi/h) and 140 km/h (87 mi/h).

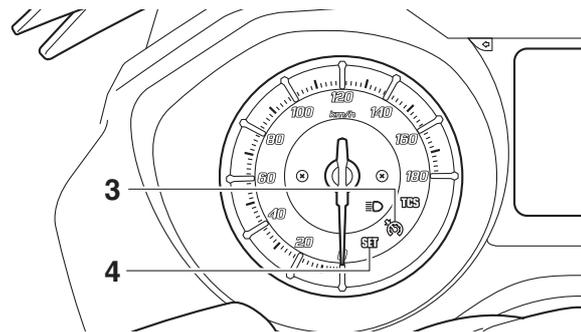
EWA17451

WARNING

- **Improper use of the cruise control system may result in loss of control, which could lead to an accident. Do not activate the cruise control system in heavy traffic, poor weather conditions, or among winding, slippery, hilly, rough or gravel roads.**
- **When traveling uphill or downhill, the cruise control system may not be able to maintain the set cruising speed.**
- **To prevent accidentally activating the cruise control system, turn it off when not in use. Make sure that the cruise control system indicator light is off.**



1. Cruise control setting switch “RES+/SET-”
2. Cruise control power switch “”



3. Cruise control system indicator light “”
4. Cruise control setting indicator light “SET”

Activating and setting the cruise control system

1. Push the cruise control power switch “” to turn on the system. The cruise control system indicator light “” will come on.
2. Push the “SET-” side of the cruise control setting switch to activate the cruise control system. Your current traveling speed will become the set cruising speed. The cruise control setting indicator light “SET” will come on.

Adjusting the set cruising speed

While the cruise control system is operating, push the “RES+” side of the cruise control setting switch to increase the set cruising speed or the “SET-” side to decrease the set speed.

TIP

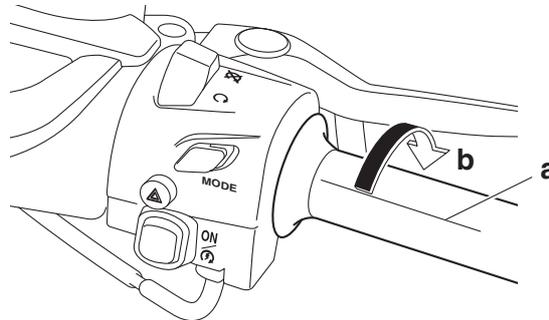
Pushing the setting switch once will change the speed in increments of approximately 2.0 km/h (1.2 mi/h). Holding down the “RES+” or “SET-” side of the cruise control setting switch will increase or decrease the speed continuously until the switch is released.

You can also manually increase your traveling speed using the throttle. After you have accelerated, you can set a new cruising speed by pushing the “SET-” side of the setting switch. If you do not set a new cruising speed, when you return the throttle grip, the vehicle will decelerate to the previously set cruising speed.

Deactivating the cruise control system

Perform one of the following operations to cancel the set cruising speed. The “SET” indicator light will go off.

- Turn the throttle grip past the closed position in the deceleration direction.



a. Closed position

b. Cruise control cancel direction

- Apply the front or rear brake.

TIP

Traveling speed decreases as soon as the cruise control system is deactivated; unless the throttle grip is turned.

Using the resume function

Push the “RES+” side of the cruise control setting switch to reactivate the cruise control system. The traveling speed will return to the previously set cruising speed. The “SET” indicator light will come on.

EWA17460



WARNING

It is dangerous to use the resume function when the previously set cruising speed is too high for current conditions.

Turning off the cruise control system

Push the cruise control power switch “” to turn off the cruise control system. The “” indicator light and the “SET” indicator light will turn off.

TIP

Whenever the cruise control system or the vehicle power is turned off, the previously set cruising speed is erased. You will not be able to use the resume function until a new cruising speed has been set.

Automatic deactivation of the cruise control system

The cruise control system is electronically controlled and linked with other control systems. The cruise control system will automatically deactivate under the following conditions:

- The cruise control system is not able to maintain the set cruising speed (such as when going up a steep hill).
- Wheel slip or wheel spin is detected. (If the traction control system is on, traction control will engage.)
- Engine trouble, etc.

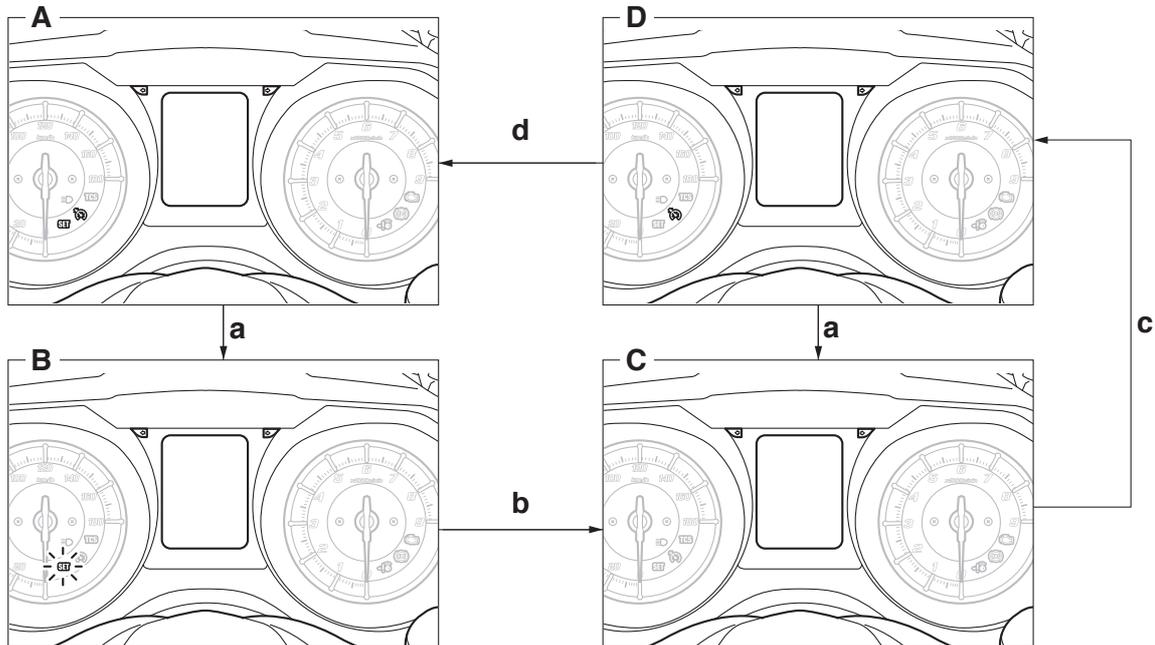
If the cruise control system is automatically deactivated, the “” indicator light will turn off and the “SET” indicator light will flash for 4 seconds.

If the cruise control system was automatically deactivated, please stop and confirm that your vehicle is in good operating condition before continuing on.

When traveling on roads with steep grades, the cruise control system may not be able to maintain the set cruising speed.

- When going uphill, the actual traveling speed may become lower than the set cruising speed. If this occurs, accelerate to the desired traveling speed using the throttle.
- When going downhill, the actual traveling speed may become higher than the set cruising speed. If this occurs, the setting switch cannot be used to adjust the set cruising speed. To reduce the traveling speed, apply the brakes. When the brakes are applied, the cruise control system will deactivate.

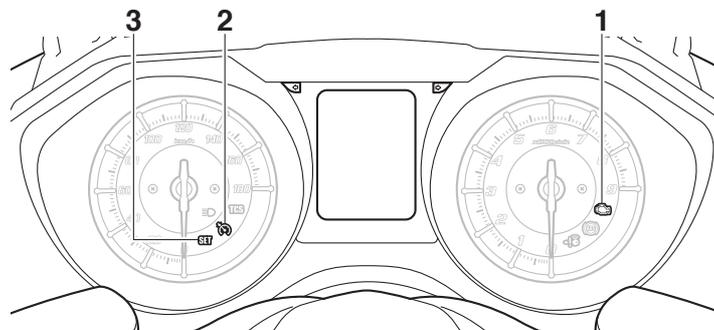
Meter displays during cruise control system operation



- A. Cruise control system is activated (cruising speed is set)
- B. Cruise control system is turned off (cruise control setting indicator light “SET” flashes)
- C. Cruise control system is turned off
- D. Cruise control system is turned on (cruising speed is not set)

- a. Condition for automatically deactivating cruise control system is detected
- b. 4 seconds elapse (during this time, input from the cruise control power switch “” will not be received)
- c. Cruise control power switch “” “ON”
- d. Cruising speed is set

Self-diagnosis device



- 1. Engine trouble warning light “”
- 2. Cruise control system indicator light “”
- 3. Cruise control setting indicator light “SET”

The cruise control system will also become deactivated when an irregularity with any of the vehicle systems is detected. The cruise control setting indicator light “SET” will go off and the cruise control system indicator light “” will flash. You will not be able to use the cruise control system while the engine trouble warning light is on, or while the cruise control system is malfunctioning.

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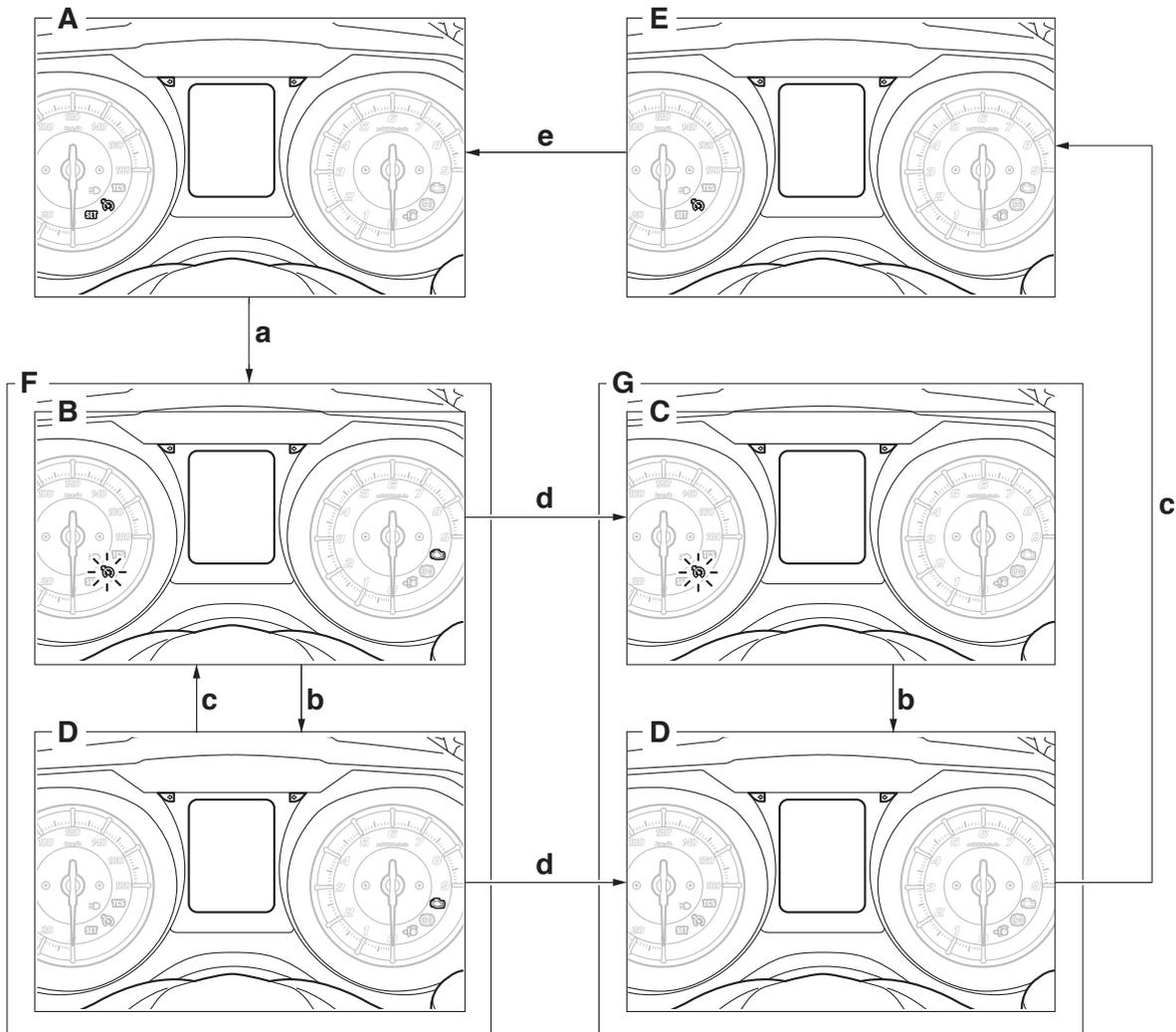
NOTICE

If the engine trouble warning light come on, the vehicle should be checked as soon as possible in order to avoid engine damage.

TIP

- If the cruise control system turned off because a malfunction was detected by the FI self-diagnosis, the cruise control power switch “” must be pushed once before the system can return to the normal operating condition.
- If a switch for the cruise control system is malfunctioning (fault code No. P056C and P0564), the engine trouble warning light will not come on because the normal operation of the vehicle is not affected.

Meter displays during cruise control system operation



- A. Cruise control system is activated (cruising speed is set)
- B. Cruise control system is turned off (engine trouble warning light “” comes on, cruise control system is deactivated, and cruise control system indicator light “” flashes)
- C. Cruise control system is turned off (engine trouble warning light “” goes off, cruise control system is deactivated, and cruise control system indicator light “” flashes)
- D. Cruise control system is turned off
- E. Cruise control system is turned on (cruising speed is not set)
- F. Malfunction detected by FI self-diagnosis
- G. Malfunction not detected by FI self-diagnosis

- a. Malfunction occurs
- b. Cruise control power switch “” “OFF”
- c. Cruise control power switch “” “ON”
- d. After the cause of the malfunction has been repaired, delete the fault code by using the Yamaha diagnostic tool.
- e. Cruising speed is set

TIP

This section explains the operation of the cruise control system according to the meter displays when a malfunction is detected in the fuel injection system.

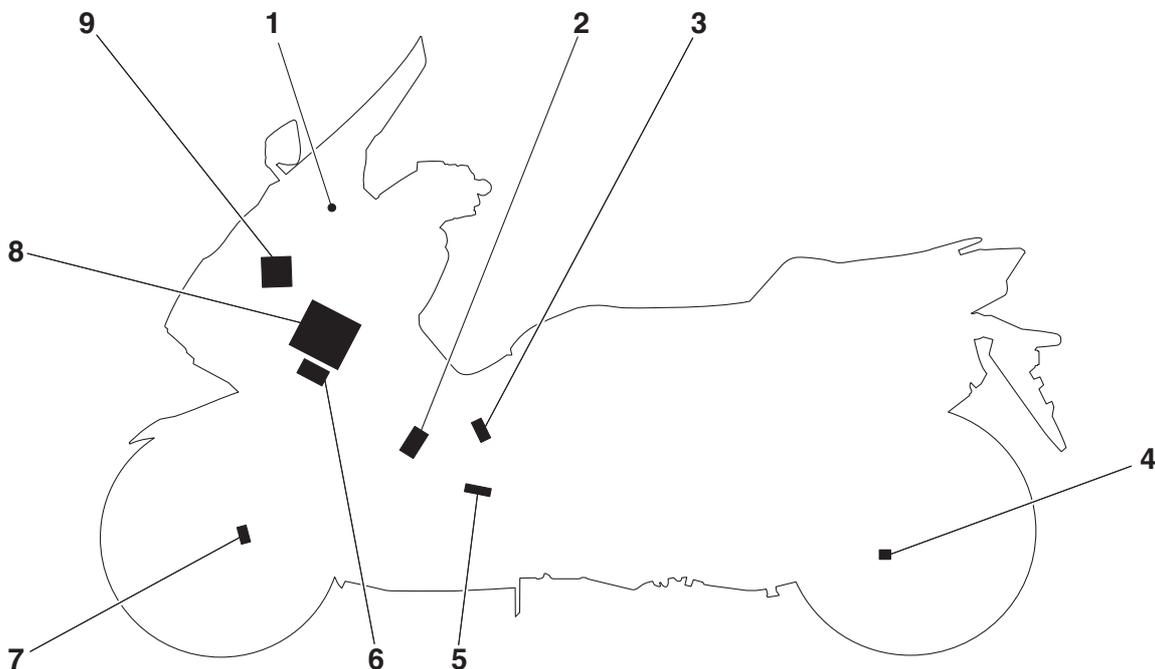
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OUTLINE OF THE TCS (Traction Control System)

The traction control system controls excessive spinning (slipping) of the rear wheel when accelerating on slippery surfaces, such as unpaved or wet roads.

The ECU monitors the front and rear wheel speeds using the signals from the front and rear wheel sensors, and detects rear wheel slipping according to the difference between the wheel speeds. If the slipping exceeds the preset value, the ECU controls the slipping using integrated control of the ignition timing, fuel cut-off, and throttle valve opening of the YCC-T system.

The traction control system can be set to one of three operation modes or turned off.

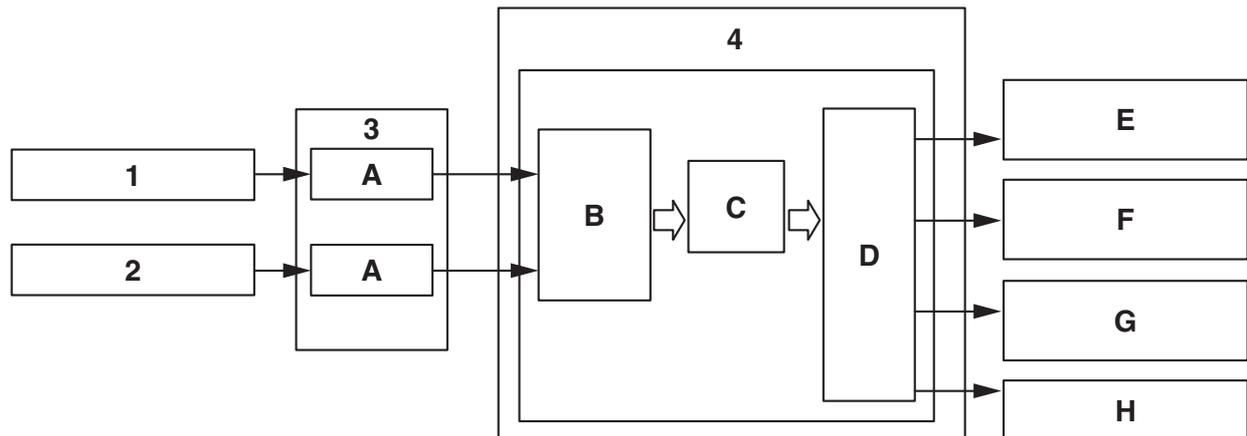
TCS (Traction control system) layout

1. Traction control system indicator light
2. Throttle servo motor
3. Fuel injector
4. Rear wheel sensor
5. Spark plugs
6. Ignition coil
7. Front wheel sensor
8. ECU
9. ABS ECU

TCS (Traction control system) block diagram

The signals from the front and rear wheel sensors are sent to the ECU through the ABS ECU, and the ECU calculates the amount of slip according to the difference between the detected front and rear wheel speeds.

If the amount of slip exceeds the preset value, the ECU controls the ignition timing, fuel cut-off, and throttle valve opening of the YCC-T system so that the amount of slip is less than the preset value. The traction control system indicator light in the meter assembly flashes when the traction control system has activated.



1. Front wheel sensor
 2. Rear wheel sensor
 3. ABS ECU
 4. ECU
- A. Signal conversion
 - B. Slip amount calculation
 - C. Exceeds preset value
 - D. Actuator control
 - E. Fuel cut-off
 - F. Ignition timing (retarded)
 - G. Traction control system indicator light (flashes)
 - H. YCC-T motor throttle valve opening (decreased)

Traction control system

The traction control system (TCS) helps maintain traction when accelerating on slippery surfaces, such as unpaved or wet roads. If sensors detect that the rear wheel is starting to slip (uncontrolled spinning), the traction control system assists by regulating engine power as needed until traction is restored.

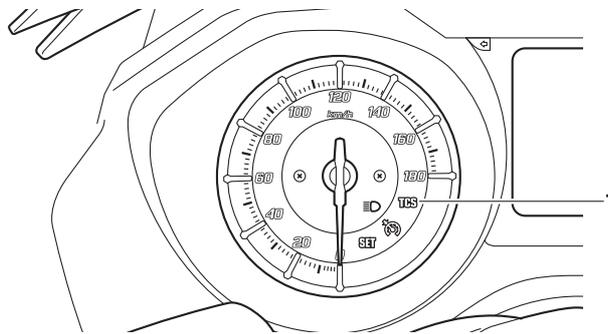
When traction control has engaged, the “TCS” indicator light will flash. You may notice changes in engine response or exhaust sounds.

EWA18860

WARNING

The traction control system is not a substitute for riding appropriately for the conditions. Traction control cannot prevent loss of traction due to excessive speed when entering turns, when accelerating hard at a sharp lean angle, or while braking, and cannot prevent front wheel slipping. As with any vehicle, approach surfaces that may be slippery with caution and avoid especially slippery surfaces.

Setting the traction control system



1. Traction control system indicator light “TCS”

When the vehicle is turned on, traction control is automatically turned on.

To turn the traction control system off, refer to “Setting mode” on page 1-16.

TIP

Turn the traction control system off to help free the rear wheel if the vehicle gets stuck in mud, sand, or other soft surfaces.

ECA19650

NOTICE

Use only the specified tires. Using different sized tires will prevent the traction control system from controlling tire rotation accurately.

Resetting the traction control system

The traction control system will automatically disable under certain conditions; such as when a sensor fault is detected, or when only one wheel is allowed to rotate for more than a few seconds. Should this happen, the “TCS” indicator light will come on, and possibly the “” warning light, too.

TIP

When the vehicle is on the centerstand, do not rev the engine for an extended period of time. Otherwise, the traction control system will automatically disable and need to be reset.

If the traction control system automatically disables, try resetting it as follows.

1. Stop the vehicle and turn it off completely.
2. Wait a few seconds and then turn the vehicle power on.
3. The “TCS” indicator light should turn off and the system be enabled.

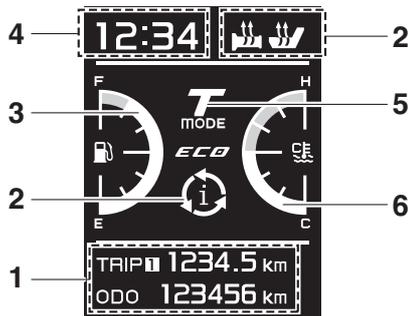
TIP

If the “TCS” indicator light remains on after resetting, check the fuel injection system (Refer to “FUEL INJECTION SYSTEM” on page 8-55).

4. Check the vehicle and turn off the “” warning light.

EAS30618

MULTI-FUNCTION DISPLAY



1. Information display
2. Function display
3. Fuel meter
4. Clock
5. Drive mode display (XP530-A, XP530D-A)
6. Coolant temperature meter



1. Oil change indicator "Oil"
2. V-belt replacement indicator "V-Belt"
3. Eco indicator "ECO"

EWA12313

WARNING

Be sure to stop the vehicle before making any setting changes to the multi-function display. Changing settings while riding can distract the operator and increase the risk of an accident.

Fuel meter



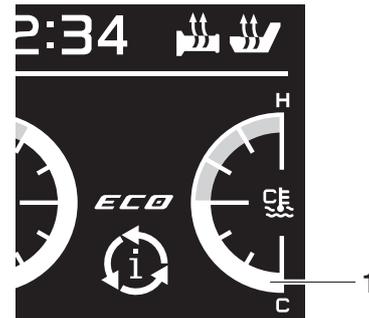
1. Fuel meter

The fuel meter indicates the amount of fuel in the fuel tank. The display segments of the fuel meter disappear from "F" (full) towards "E" (empty) as the fuel level decreases. When the last segment starts flashing, refuel as soon as possible.

TIP

If a problem is detected in the fuel meter electrical circuit, the fuel meter will flash repeatedly. Check the vehicle.

Coolant temperature meter



1. Coolant temperature meter

The coolant temperature varies with changes in the weather and engine load. If the top segment starts flashing, the information display automatically changes to "C-TEMP" and "Hi" flashes. Stop the vehicle and let the engine cool.

TIP

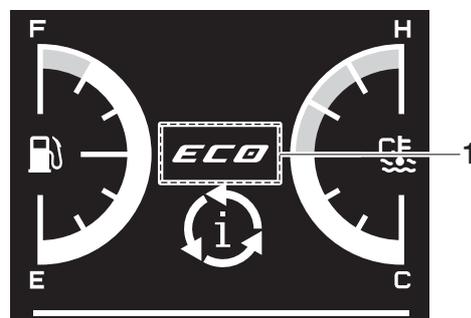
The information display cannot be changed while the engine is overheating.

ECA10022

NOTICE

Do not continue to operate the engine if it is overheating.

Eco indicator



1. Eco indicator "ECO"

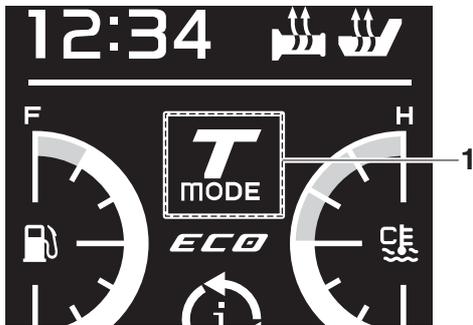
This indicator comes on when the vehicle is being operated in an environmentally friendly, fuel-efficient manner. The indicator goes off when the vehicle is stopped.

TIP

Consider the following tips to reduce fuel consumption:

- Avoid high engine speeds during acceleration.
- Travel at a constant speed.

Drive mode display (XP530-A, XP530D-A)



1. Drive mode display

This display indicates which drive mode has been selected: “S” sporty or “T” touring.

V-belt replacement indicator “V-Belt”



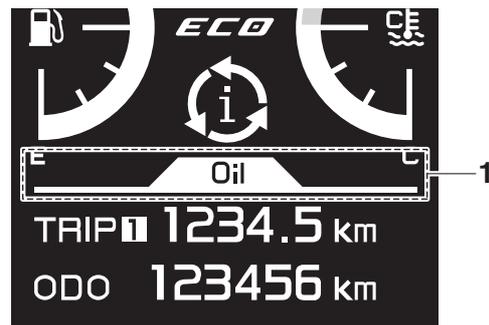
1. V-belt replacement indicator “V-Belt”

This indicator flashes every 20000 km (12500 mi) when the V-belt needs to be replaced.

After changing the V-belt, reset the V-belt replacement indicator. To reset the V-belt replacement indicator, refer to “Setting mode” on page 1-16.

If the V-belt is changed before the V-belt replacement indicator “V-Belt” flashes (i.e. before the periodic V-belt change interval has been reached), the indicator “V-Belt” must be reset after the V-belt change for the next periodic V-belt change to be indicated at the correct time.

Oil change indicator “Oil”



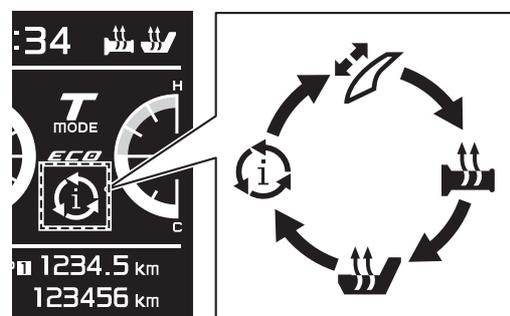
1. Oil change indicator “Oil”

This indicator flashes at the initial 1000 km (600 mi), then at 5000 km (3000 mi) and every 5000 km (3000 mi) thereafter to indicate that the engine oil should be changed.

After changing the engine oil, reset the oil change indicator. To reset the oil change indicator, refer to “Setting mode” on page 1-16.

If the engine oil is changed before the oil change indicator “Oil” flashes (i.e. before the periodic oil change interval has been reached), the indicator “Oil” must be reset after the oil change for the next periodic oil change to be indicated at the correct time.

Function display



Push the “MENU” switch for one second to switch the display between the windshield adjusting function, grip warmer adjusting function, seat heater adjusting function, and information display selection function.

TIP

- For XP530D-A: The windshield adjusting function, grip warmer adjusting function, seat heater adjusting function can be selected.
- For XP530E-A, XP530-A: The grip warmer and seat heater requires an accessory part and cannot be selected.

Adjusting the windshield position

To move the windshield up, push the “^” side of the select switch. To move the windshield down,

push the “∨” side of the select switch.

Adjusting the grip warmer

This vehicle can be equipped with grip warmers, which can only be used when the engine is running. There are 4 grip warmer settings.

Setting	Display
Off	
Low	
Middle	
High	

To increase the grip warmer temperature, push the “∧” side of the select switch. To decrease the grip warmer temperature, push the “∨” side of the select switch.

ECA17931

NOTICE

- Be sure to wear gloves when using the grip warmers.
- If the ambient temperature is 20 °C (68 °F) or higher, do not set the grip warmer to the high setting.
- If the handlebar grip or throttle grip becomes worn or damaged, stop using the grip warmers and replace the grips.

Adjusting the seat heater

This vehicle can be equipped with a seat heater, which can only be used when the engine is running. There are 4 seat heater settings.

Setting	Display
Off	
Low	
Middle	
High	

To increase the seat heater temperature, push the “∧” side of the select switch. To decrease the seat heater temperature, push the “∨” side of the select switch.

ECA23980

NOTICE

- Be sure to wear protective clothing that covers your hip and legs when using the seat heater.
- If the ambient temperature is 20 °C (68 °F)

or higher, do not set the seat heater to the high setting.

- If the seat becomes worn or damaged, stop using the seat heater and replace the seat.

Information display



There are 3 information display pages. The information display page can be switched by using the select switch.

The following items can be shown in the information displays:

- odometer
- tripmeters
- fuel reserve tripmeter
- estimated traveling range
- ambient temperature
- average fuel consumption
- instantaneous fuel consumption

The items shown in each information display page can be customized. (Refer to “Setting mode” on page 1-16.)

Odometer:

ODO 123456 km

The odometer shows the total distance traveled by the vehicle.

Tripmeter(s):

TRIP1 1234.5 km

TRIP2 34.5 km

“TRIP1” and “TRIP2” show the distance traveled since they were last set to zero.

F-TRIP 4.5 km

When approximately 3.0 L (0.79 US gal, 0.66 Imp.gal) of fuel remains in the fuel tank, the last segment of the fuel meter starts flashing. In addition, the information display will automatically change to the fuel reserve tripmeter mode “F-TRIP” and start counting the distance traveled from that point.

In this case, push the select switch to switch the display in the following order:

F-TRIP ↔ Display-1 ↔ Display-2 ↔ Display-3 ↔ F-TRIP

To reset a tripmeter, use the select switch to select the information display page that contains the tripmeter you want to reset. Push the “^” side of the select switch for one second so that the tripmeter flashes, and then push the “^” side of the select switch again for one second while the tripmeter is flashing.

If you do not reset the fuel reserve tripmeter manually, it will reset automatically after refueling and traveling 5 km (3 mi).

TIP

- The odometer will lock at 999999.
- The tripmeters will reset and continue counting after 9999.9 is reached.
- Display cannot switch to setting mode display when the “F-TRIP” indicated.

Estimated traveling range:

RANGE 123 km

The estimated distance that can be traveled with the remaining fuel under the current riding conditions is shown.

Ambient temperature:

A.TEMP 12 °C

This display shows the ambient temperature from -9 °C to 50 °C in 1 °C increments. The temperature displayed may vary from the actual am-

bient temperature.

TIP

- -9 °C will be displayed even if the detected temperature is lower.
- 50 °C will be displayed even if the detected temperature is higher.
- The accuracy of the temperature reading may be affected when riding under 20 km/h (12 mi/h) or when stopped at traffic signals and railroad crossings.

Average fuel consumption:

F.AVE 12.5 km/L

The average fuel consumption mode “km/L”, “L/100km” or for the UK, “MPG” shows the average fuel consumption since the display was last reset.

- “km/L” shows the average distance that can be traveled on 1.0 L of fuel.
- “L/100km” shows the average amount of fuel necessary to travel 100 km.
- For the UK: “MPG” shows the average distance that can be traveled on 1.0 Imp.gal of fuel.

To reset the average fuel consumption, use the select switch to select the information display page that contains the average fuel consumption display. Push the “^” side of the select switch so that the average fuel consumption display flashes, and then push the “^” side of the select switch again for 1 seconds while the display is flashing.

TIP

After resetting the average fuel consumption display, “-.-” will be shown until the vehicle has traveled 1 km (0.6 mi).

ECA25730

NOTICE

If there is a malfunction, “-.-” will be continuously displayed. Check the vehicle.

Instantaneous fuel consumption:

CANT.F 15.5 km/L

The instantaneous fuel consumption display mode “km/L”, “L/100km” or for the UK, “MPG” shows the fuel consumption under current riding conditions.

- “km/L” shows the distance that can be traveled on 1.0 L of fuel.
- “L/100km” shows the amount of fuel necessary to travel 100 km.
- For the UK: “MPG” shows the distance that can be traveled on 1.0 Imp.gal of fuel.

TIP

- Instantaneous fuel consumption cannot be reset.
- If traveling at speeds under 10 km/h (6 mi/h), “-.-” will be displayed.

ECA25730

NOTICE

If there is a malfunction, “-.-” will be continuously displayed. Check the vehicle.

Setting mode



1. Setting mode display

TIP

- The vehicle must be stopped to change settings in this mode.
- Starting off or turning the vehicle power off saves all settings made, then exits the setting mode.

Push the “MENU” switch for 2 seconds to enter the setting mode. To exit the setting mode and

return to the normal display, push the “MENU” switch again for at least 2 seconds.

Display	Description
Grip Warmer	This function allows you to set the low, middle, and high settings to 10 temperature levels.
Seat Heater	This function allows you to set the low, middle, and high settings to 10 temperature levels.
Traction Control	This function allows you to switch the traction control system on or off.
Maintenance	This function allows you to check and reset the “OIL” oil change interval (distance traveled), “V-Belt” V-Belt change interval (distance traveled), and the “FREE” maintenance intervals.
Unit	This function allows you to switch the fuel consumption units can be switched between “L/100km” and “km/L”. For the UK: This function does not indicate on setting mode display.
Display	This function allows you to change the items shown in 3 information displays.
Brightness	This function allows you to adjust the brightness of the speedometer, tachometer and the multi-function display panel to suit the outside lighting conditions.
Clock	This function allows you to set the clock.
All Reset	This function allows you to reset all items to factory preset or default setting, except the odometer, clock, maintenance counter item “Oil” and maintenance counter item “V-Belt”.

TIP

- Using the select switch “^/√” to switch the display items.
- If grip warmer or seat heater is not equipped, the “Grip Warmer” or “Seat Heater” items will not appear.

Grip warmer settings

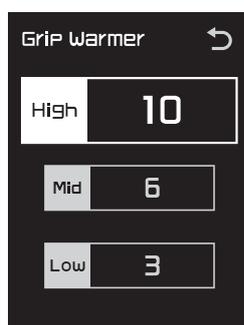
1. Use the select switch to highlight “Grip Warmer”.



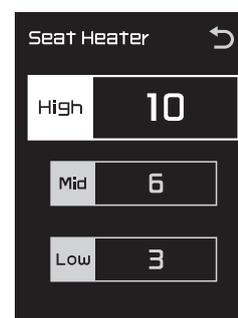
2. Push the “MENU” switch. The grip warmer setting display will be shown and “High” will flash in the display.



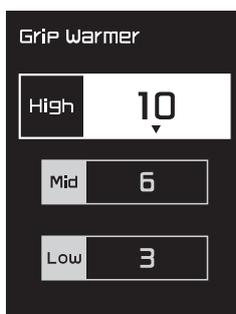
2. Push the “MENU” switch. The seat heater setting display will be shown and “High” will flash in the display.



3. Push the “MENU” switch. The temperature level for the high setting will start flashing. Use the select switch to set the temperature level, and then push the “MENU” switch. “High” will start flashing.



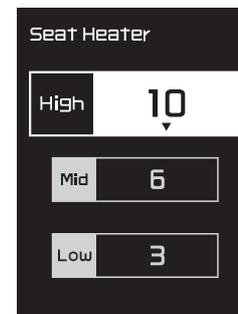
3. Push the “MENU” switch. The temperature level for the high setting will start flashing. Use the select switch to set the temperature level, and then push the “MENU” switch. “High” will start flashing.



4. Use the select switch to highlight “Mid” or “Low”, and then change the setting using the same procedure that was used for the high setting.
5. When you finished changing the settings, use the select switch to highlight “↵”, and then push the “MENU” switch to return to the setting mode menu.

Seat heater settings

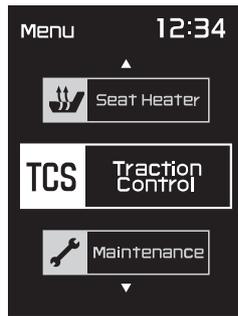
1. Use the select switch to highlight “Seat Heater”.



4. Use the select switch to highlight “Mid” or “Low”, and then change the setting using the same procedure that was used for the high setting.
5. When you finished changing the settings, use the select switch to highlight “↵”, and then push the “MENU” switch to return to the setting mode menu.

Traction control system settings

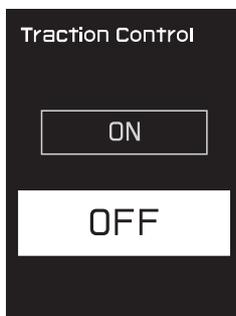
1. Use the select switch to highlight “Traction Control”.



2. Push the "MENU" switch. The traction control system setting display will be shown and "ON" will flash in the display.



3. To set the traction control system to "OFF", push the select switch "∨" side for 2 seconds.



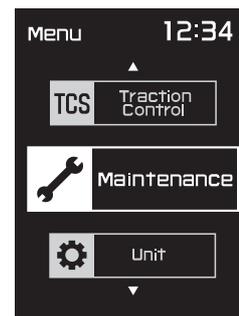
4. To set the traction control system to "ON" again, push the select switch "∧" for at least one second.

TIP _____
When the vehicle is powered on, the traction control system is set to "ON".

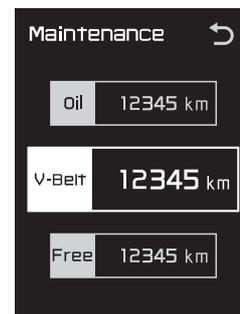
5. When you finished changing the settings, push the "MENU" switch to return to the setting mode menu.

Resetting the maintenance counters

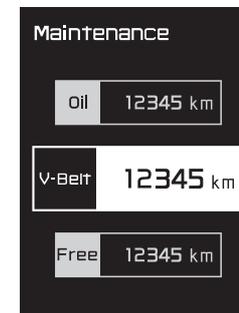
1. Use the select switch to highlight "Maintenance".



2. Push the "MENU" switch, and then use the select switch to select the item to reset.



3. While the selected item is flashing, push the select switch "∧" for one second.

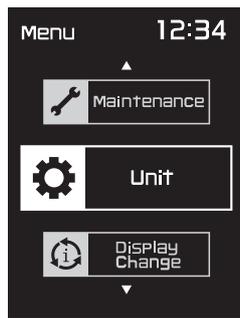


4. When you finished resetting, use the select switch to highlight "↵", and then push the "MENU" switch to return to the setting mode menu.

Selecting the units

TIP _____
For the UK: This function does not indicate on setting mode display and cannot be selected.

1. Use the select switch to highlight "Unit".



2. Push the “MENU” switch. The unit setting display will be shown and “L/100km” will flash in the display.



3. Use the select switch to select “L/100km” or “km/L”, and then push the “MENU” switch again.



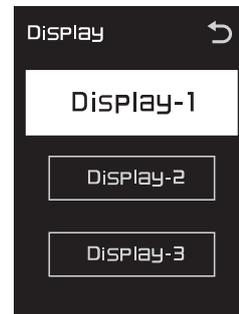
4. Push the “MENU” switch to return to the setting mode menu.

Selecting the display items

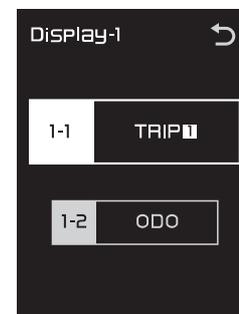
1. Use the select switch to highlight “Display Change”.



2. Push the “MENU” switch, use the select switch to highlight the display to change, and then push the “MENU” switch again.

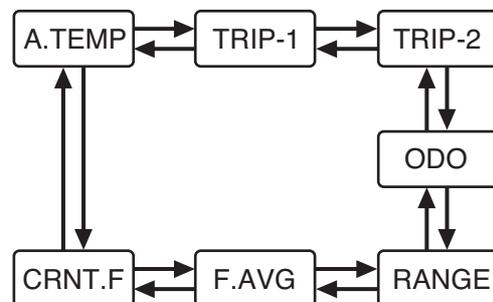


3. Use the select switch to highlight the item to change, and then push the “MENU” switch.



TIP

Display item order is as follows.



4. Use the select switch to select the item to show, and then push the “MENU” switch.



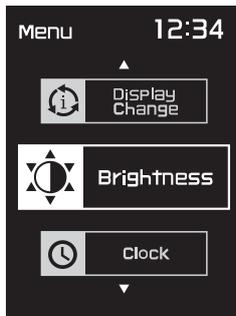
5. When you finished changing the settings, use the select switch to highlight “↵”, and then

push the “MENU” switch to return to the previous display.

- Use the select switch to highlight “☰”, and then push the “MENU” switch to return to the setting mode menu.

Meter panel brightness

- Use the select switch to highlight “Brightness”.



- Push the “MENU” switch.
- Use the select switch to select the desired brightness level.



- Push the “MENU” switch to return to the setting mode menu.

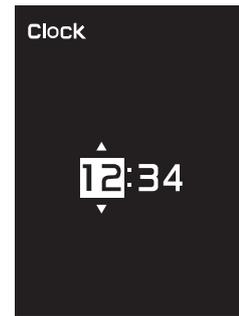
Setting the clock

TIP _____
The clock uses a 12-hour time system.

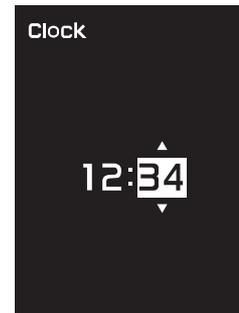
- Use the select switch to highlight “Clock”.



- Push the “MENU” switch.
- When the hour digits start flashing, use the select switch to set the hours.



- Push the “MENU” switch, and the minute digits start flashing.



- Use the select switch to set the minutes.
- Push the “MENU” switch to return to the setting mode menu.

Resetting all of the display items

- Use the select switch to highlight “All Reset”.



- Push the “MENU” switch.
- Use the select switch to highlight “YES”, and then push the “MENU” switch. All items are reset to factory preset or default settings.



TIP

The odometer, clock, maintenance counter item "Oil" and maintenance counter item "V-Belt" will not be reset.

To exit the setting mode

1. Use the select switch to highlight "Return".



2. Push the "MENU" switch to exit the setting mode and return to the standard display mode.

EAS20009

IMPORTANT INFORMATION

EAS30006

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.



2. Use only the proper tools and cleaning equipment. Refer to "SPECIAL TOOLS" on page 1-29.
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been "mated" through normal wear. Mated parts must always be reused or replaced as an assembly.



4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.

EAS30007

REPLACEMENT PARTS

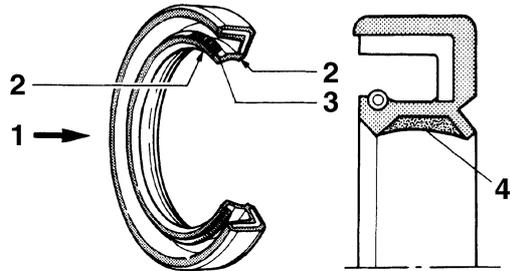
Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.



EAS30008

GASKETS, OIL SEALS AND O-RINGS

1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.

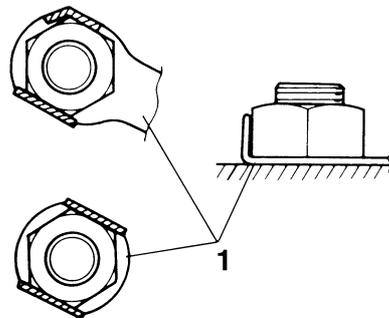


1. Oil
2. Lip
3. Spring
4. Grease

EAS30009

LOCK WASHERS/PLATES AND COTTER PINS

After removal, replace all lock washers/plates "1" and cotter pins. After the bolt or nut has been tightened to specification, bend the lock tabs along a flat of the bolt or nut.



EAS30010

BEARINGS AND OIL SEALS

Install bearings "1" and oil seals "2" so that the manufacturer marks or numbers are visible.

IMPORTANT INFORMATION

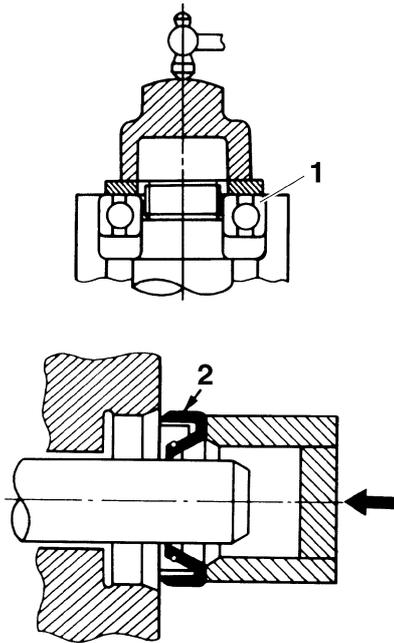
When installing oil seals, lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.

ECA13300

NOTICE

Do not spin the bearing with compressed air because this will damage the bearing surfaces.

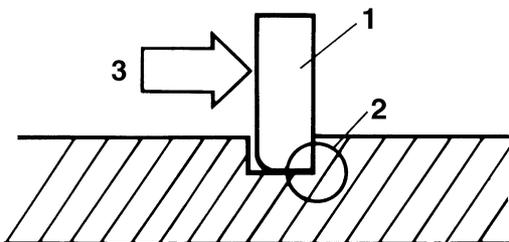
contact the parts.



EAS30011

CIRCLIPS

Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip "1", make sure the sharp-edged corner "2" is positioned opposite the thrust "3" that the circlip receives.



EAS30012

RUBBER PARTS

Check rubber parts for deterioration during inspection. Some of the rubber parts are sensitive to gasoline, flammable oil, grease, etc. Do not allow any items other than the specified one to

EAS20010

BASIC SERVICE INFORMATION

EAS30013

QUICK FASTENERS

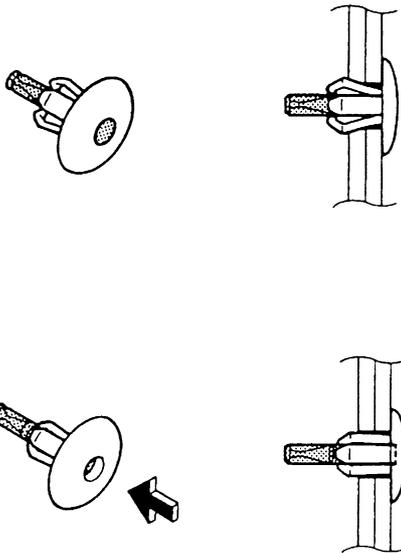
Rivet type

1. Remove:

- Quick fastener

TIP

To remove the quick fastener, push its pin with a screwdriver, then pull the fastener out.

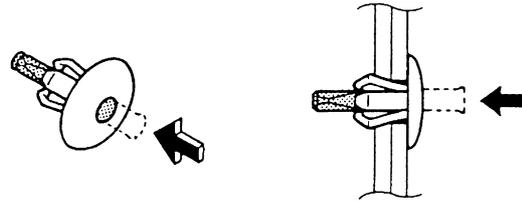
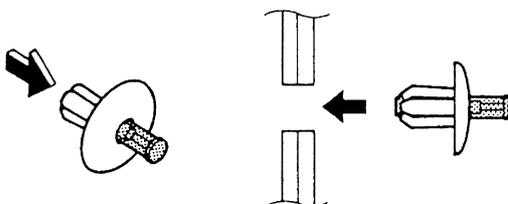


2. Install:

- Quick fastener

TIP

To install the quick fastener, push its pin so that it protrudes from the fastener head, then insert the fastener into the part to be secured and push the pin in with a screwdriver. Make sure that the pin is flush with the fastener's head.



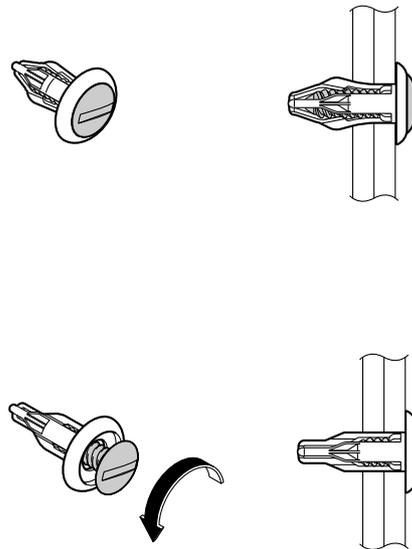
Screw type

1. Remove:

- Quick fastener

TIP

To remove the quick fastener, loosen the screw with a screwdriver, then pull the fastener out.

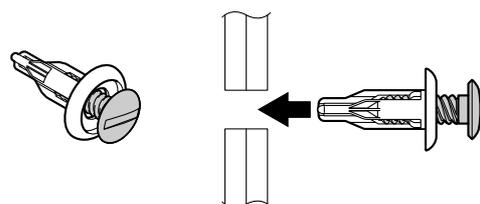


2. Install:

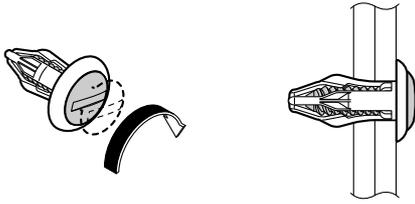
- Quick fastener

TIP

To install the quick fastener, insert the fastener into the part to be secured and tighten the screw.



BASIC SERVICE INFORMATION



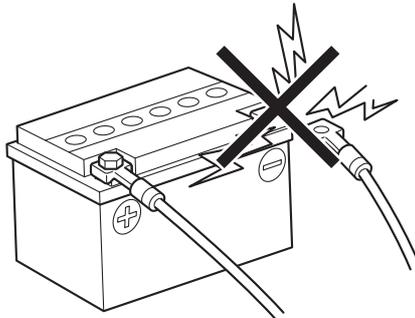
EAS30014

ELECTRICAL SYSTEM Electrical parts handling

ECA16600

NOTICE

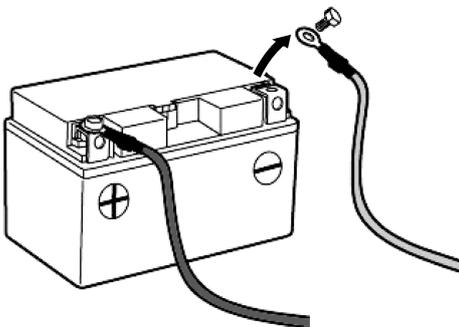
Never disconnect a battery lead while the engine is running; otherwise, the electrical components could be damaged.



ECA16751

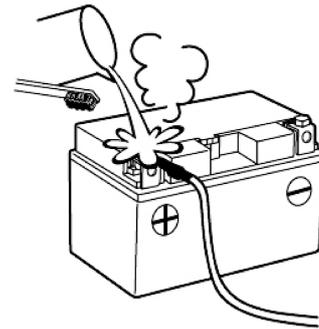
NOTICE

When disconnecting the battery leads from the battery, be sure to disconnect the negative battery lead first, then the positive battery lead. If the positive battery lead is disconnected first and a tool or similar item contacts the vehicle, a spark could be generated, which is extremely dangerous.



TIP

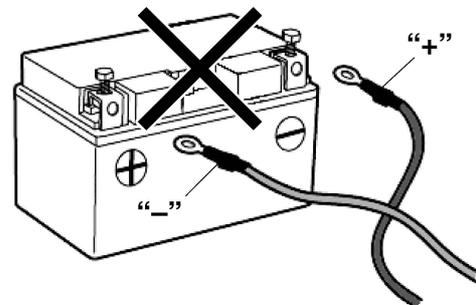
If a battery lead is difficult to disconnect due to rust on the battery terminal, remove the rust using hot water.



ECA16760

NOTICE

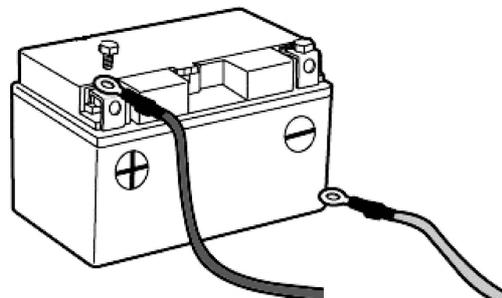
Be sure to connect the battery leads to the correct battery terminals. Reversing the battery lead connections could damage the electrical components.



ECA16771

NOTICE

When connecting the battery leads to the battery, be sure to connect the positive battery lead first, then the negative battery lead. If the negative battery lead is connected first and a tool or similar item contacts the vehicle while the positive battery lead is being connected, a spark could be generated, which is extremely dangerous.

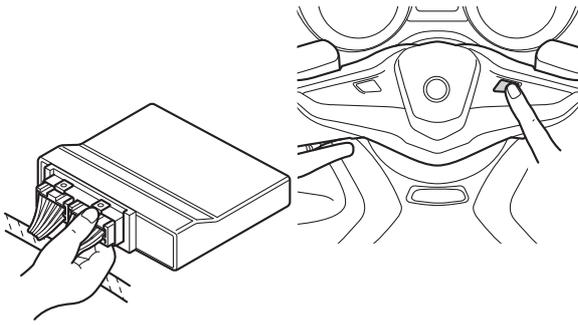


ECA25740

NOTICE

Push the OFF/LOCK switch before disconnecting or connecting an electrical component.

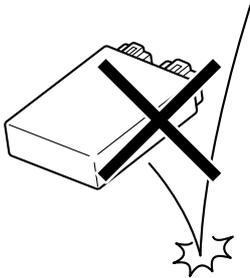
BASIC SERVICE INFORMATION



ECA16620

NOTICE

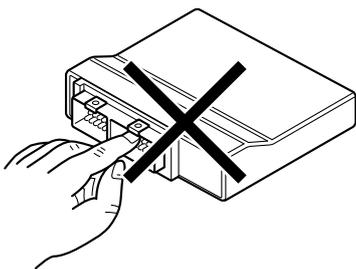
Handle electrical components with special care, and do not subject them to strong shocks.



ECA16630

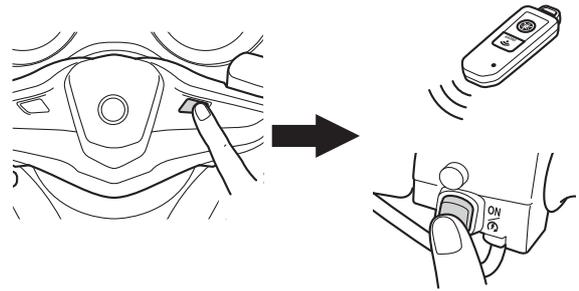
NOTICE

Electrical components are very sensitive to and can be damaged by static electricity. Therefore, never touch the terminals and be sure to keep the contacts clean.



TIP

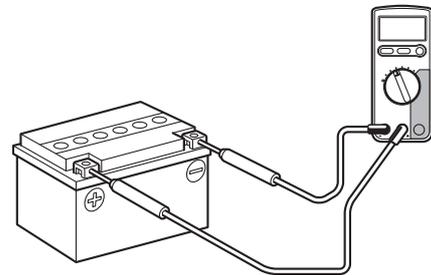
When resetting the ECU by pushing the OFF/LOCK switch, be sure to wait approximately 5 seconds before pushing the ON/start switch.



Checking the electrical system

TIP

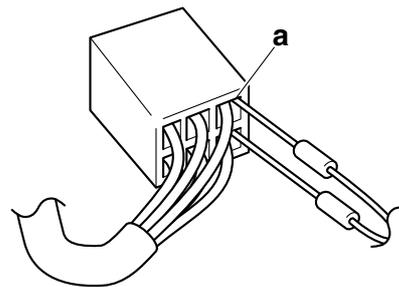
Before checking the electrical system, make sure that the battery voltage is at least 12 V.



ECA14371

NOTICE

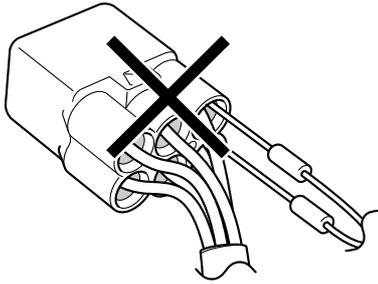
Never insert the tester probes into the coupler terminal slots. Always insert the probes from the opposite end "a" of the coupler, taking care not to loosen or damage the leads.



ECA16640

NOTICE

For waterproof couplers, never insert the tester probes directly into the coupler. When performing any checks using a waterproof coupler, use the specified test harness or a suitable commercially available test harness.



Checking the connections

Check the leads, couplers, and connectors for stains, rust, moisture, etc.

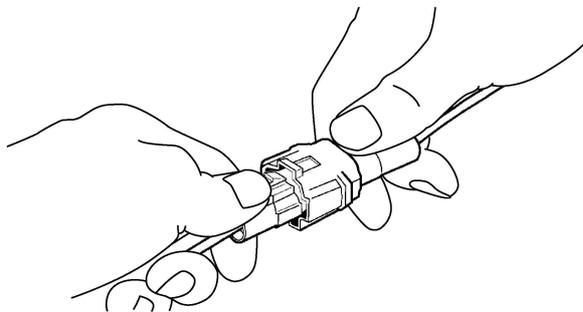
1. Disconnect:

- Lead
- Coupler
- Connector

ECA16780

NOTICE

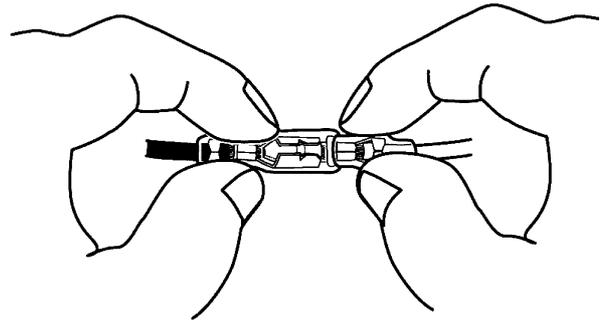
- When disconnecting a coupler, release the coupler lock, hold both sections of the coupler securely, and then disconnect the coupler.
- There are many types of coupler locks; therefore, be sure to check the type of coupler lock before disconnecting the coupler.



ECA16790

NOTICE

When disconnecting a connector, do not pull the leads. Hold both sections of the connector securely, and then disconnect the connector.

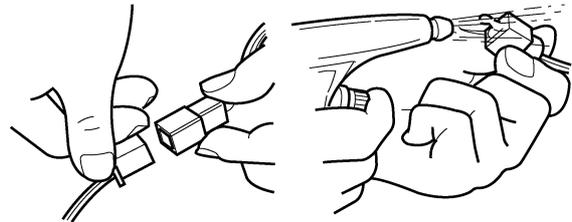


2. Check:

- Lead
- Coupler
- Connector

Moisture → Dry with an air blower.

Rust/stains → Connect and disconnect several times.

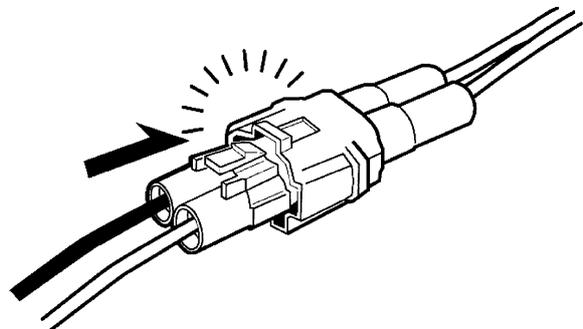


3. Connect:

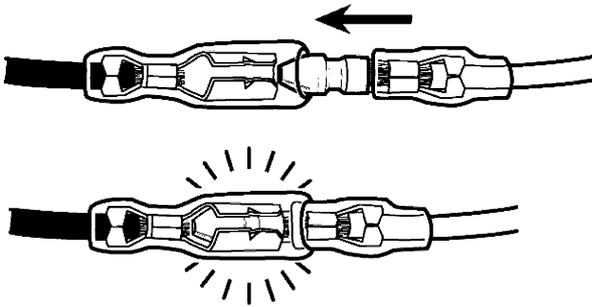
- Lead
- Coupler
- Connector

TIP

- When connecting a coupler or connector, push both sections of the coupler or connector together until they are connected securely.
- Make sure all connections are tight.



BASIC SERVICE INFORMATION



4. Check:

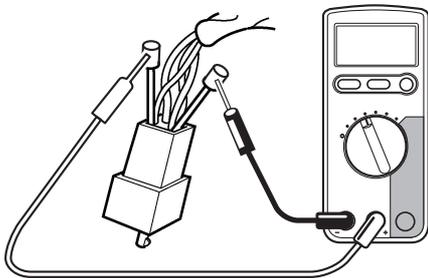
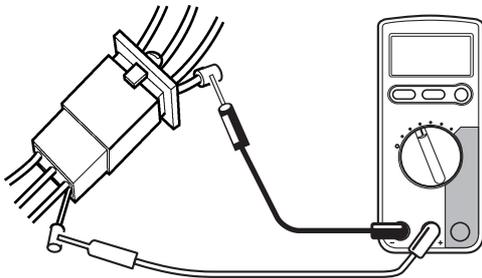
- Continuity
(with the digital circuit tester)



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

TIP

- If there is no continuity, clean the terminals.
- When checking the wire harness, perform steps (1) to (3).
- As a quick remedy, use a contact revitalizer available at most part stores.



5. Check:

- Resistance



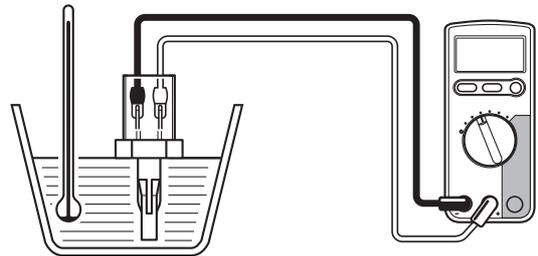
Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

TIP

The resistance values shown were obtained at the standard measuring temperature of 20 °C (68 °F). If the measuring temperature is not 20 °C (68 °F), the specified measuring conditions will be shown.



Intake air temperature sensor resistance
5400–6600 Ω at 0 °C (5400–6600 Ω at 32 °F)
Intake air temperature sensor resistance
289–391 Ω at 80 °C (289–391 Ω at 176 °F)



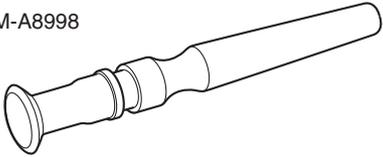
EAS20012

SPECIAL TOOLS

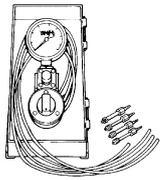
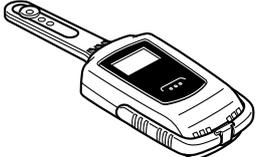
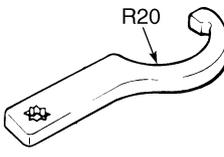
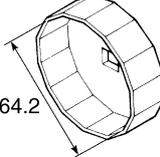
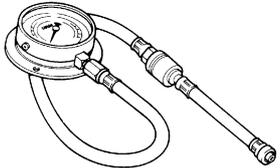
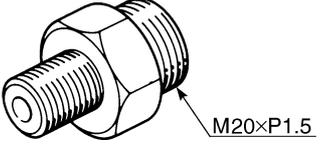
The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country. When placing an order, refer to the list provided below to avoid any mistakes.

TIP

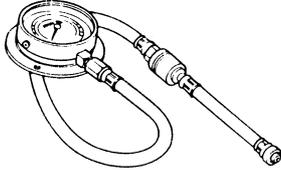
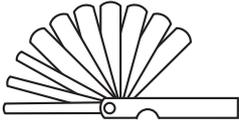
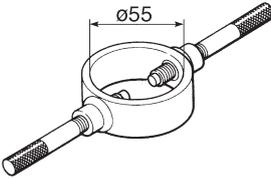
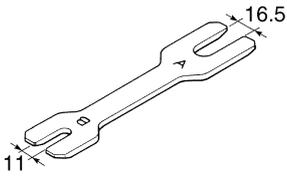
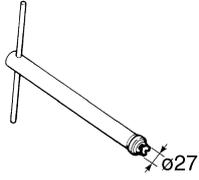
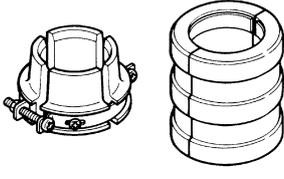
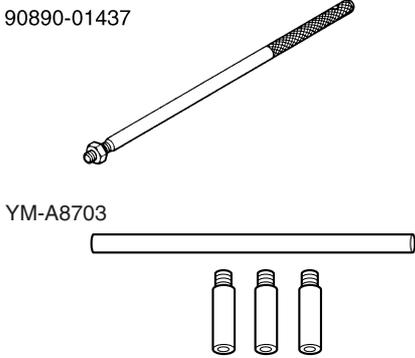
- For U.S.A. and Canada, use part numbers starting with “YM-”, “YU-”, or “ACC-”.
- For others, use part numbers starting with “90890-”.

Tool name/Tool No.	Illustration	Reference pages
Digital circuit tester (CD732) 90890-03243 Model 88 Multimeter with tachometer YU-A1927		1-28, 1-28, 5-32, 8-227, 8-228, 8-228, 8-229, 8-233, 8-239, 8-240, 8-241, 8-241, 8-242, 8-242, 8-243, 8-244, 8-244, 8-245, 8-246, 8-246, 8-248, 8-248, 8-249, 8-249, 8-250, 8-250
Yamaha diagnostic tool USB 90890-03256		3-4, 3-13, 4-75, 4-77, 8-62, 8-171, 8-191
Yamaha diagnostic tool (A/I) 90890-03254		3-4, 3-13, 4-75, 4-77, 8-62, 8-171, 8-191
Valve lapper 90890-04101 Valve lapping tool YM-A8998	90890-04101  YM-A8998 	3-7

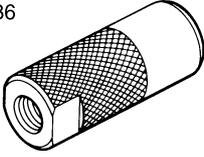
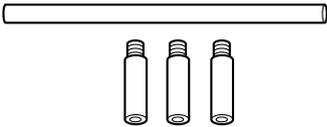
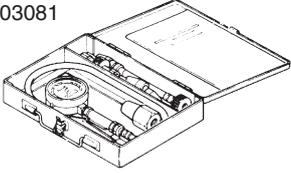
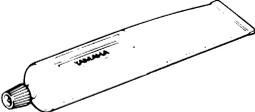
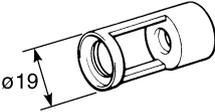
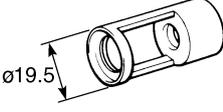
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Vacuum gauge 90890-03094 Vacuummate YU-44456	90890-03094  YU-44456 	3-10
Carburetor angle driver 2 90890-03173		3-10
Tension meter (TEXA) 90890-03258		3-22
Steering nut wrench 90890-01403 Exhaust flange nut wrench YU-A9472		3-24, 4-98
Oil filter wrench 90890-01426 Oil filter wrench YU-38411		3-28, 6-6
Oil pressure gauge set 90890-03120		3-29
Oil pressure adapter B 90890-03124		3-29

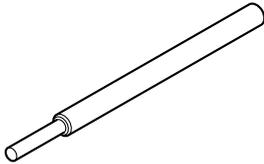
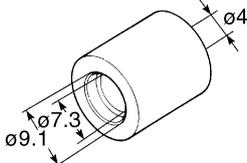
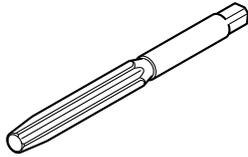
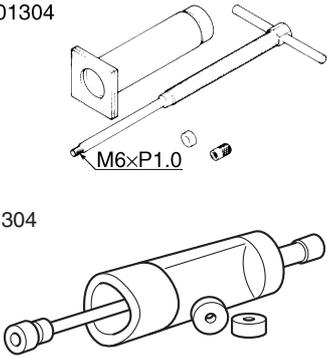
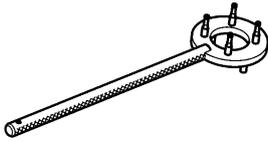
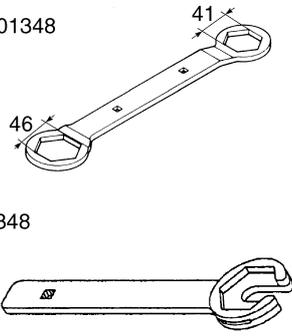
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Pressure gauge 90890-03153 Pressure gauge YU-03153		3-29, 7-12, 7-12
Thickness gauge 90890-03180 Feeler gauge set YU-26900-9		4-30, 4-39, 5-16, 5-55
Fork spring compressor 90890-01441 Fork spring compressor YM-01441		4-89, 4-94
Rod holder 90890-01434 Damper rod holder double ended YM-01434		4-89, 4-94
Damper rod holder (ø27) 90890-01423 Damping rod holder YM-01423		4-90, 4-93
Fork seal driver 90890-01442 Adjustable fork seal driver (36–46 mm) YM-01442		4-92, 4-92, 4-92
Rod puller 90890-01437 Universal damping rod bleeding tool set YM-A8703		4-93

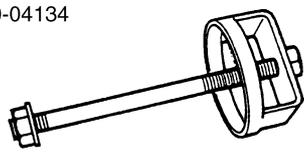
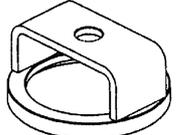
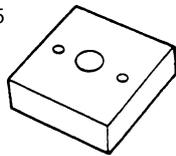
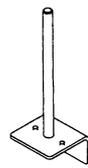
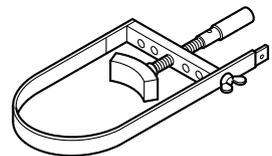
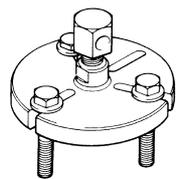
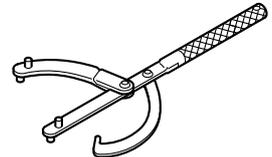
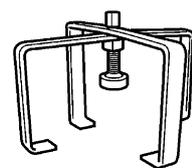
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Rod puller attachment (M10) 90890-01436 Universal damping rod bleeding tool set YM-A8703	90890-01436  YM-A8703 	4-93
Compression gauge 90890-03081 Engine compression tester YU-33223	90890-03081  YU-33223 	5-1
Yamaha bond No. 1215 90890-85505 (Three bond No.1215®)		5-14, 5-41, 5-49, 5-65
Valve spring compressor 90890-04019 Valve spring compressor YM-04019		5-19, 5-24
Valve spring compressor attachment 90890-04114 Valve spring compressor adapter 19.5 mm YM-04114	90890-04114  YM-04114 	5-19, 5-24

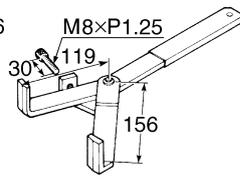
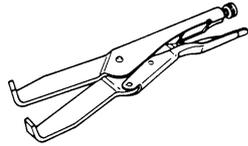
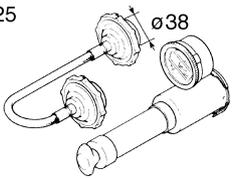
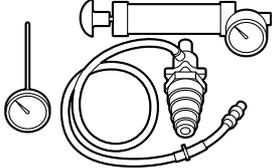
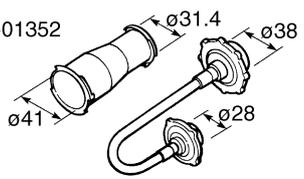
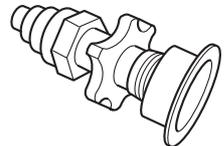
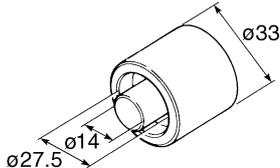
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Valve guide remover (ø4) 90890-04111 Valve guide remover (4.0 mm) YM-04111		5-21
Valve guide installer (ø4) 90890-04112 Valve guide installer (4.0 mm) YM-04112		5-21
Valve guide reamer (ø4) 90890-04113 Valve guide reamer (4.0 mm) YM-04113		5-21
Piston pin puller set 90890-01304 Piston pin puller YU-01304	 <p>90890-01304</p> <p>M6xP1.0</p> <p>YU-01304</p>	5-26
Sheave holder 90890-01481		5-38, 5-38, 5-41, 5-42, 5-42
Locknut wrench 90890-01348 Locknut wrench YM-01348	 <p>90890-01348</p> <p>41</p> <p>46</p> <p>YM-01348</p>	5-38, 5-38, 5-41

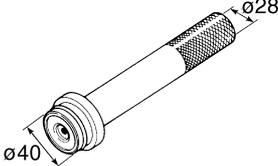
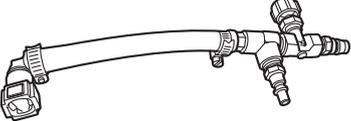
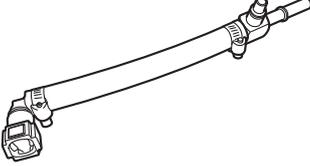
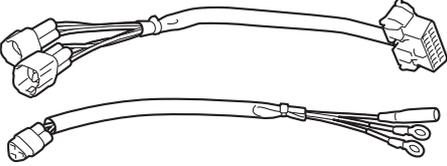
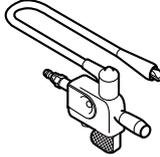
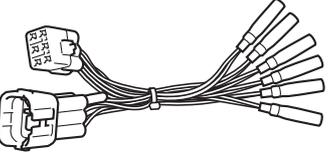
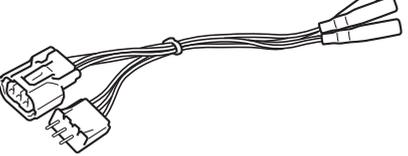
SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Sheave spring compressor 90890-04134 Sheave spring compressor YM-04134	90890-04134  YM-04134 	5-38, 5-41
Sheave fixed block 90890-04135 Sheave fixed bracket YM-04135	90890-04135  YM-04135 	5-38, 5-41
Sheave holder 90890-01701 Primary clutch holder YS-01880-A		5-47, 5-47, 5-48, 5-49
Flywheel puller 90890-01362 Heavy duty puller YU-33270-B		5-47
Rotor holding tool 90890-01235 Universal magneto and rotor holder YU-01235		5-54, 5-58
Clutch spring compressor 90890-01482		5-54, 5-57

SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Universal clutch holder 90890-04086 Universal clutch holder YM-91042	90890-04086  YM-91042 	5-54, 5-57
Plane bearing installer 90890-04139		5-69, 5-73
Radiator cap tester 90890-01325 Mityvac cooling system tester kit YU-24460-A	90890-01325  YU-24460-A 	6-3, 6-3
Radiator cap tester adapter 90890-01352 Pressure tester adapter YU-33984	90890-01352  YU-33984 	6-3, 6-3
Mechanical seal installer 90890-04132 Water pump seal installer YM-33221-A		6-12

SPECIAL TOOLS

Tool name/Tool No.	Illustration	Reference pages
Middle driven shaft bearing driver 90890-04058 Middle drive bearing installer 40 & 50 mm YM-04058		6-12
Fuel injector pressure adapter 90890-03210 Fuel injector pressure adapter YU-03210		7-12
Fuel pressure adapter 90890-03186 Fuel pressure adapter YM-03186		7-12
OBD/ GST Leadwire kit 90890-03249		8-62
Ignition checker 90890-06754 Oppama pet-4000 spark checker YM-34487		8-242
Test harness– lean angle sensor (6P) 90890-03209 Test harness– lean angle sensor (6P) YU-03209		8-242
Test harness S– pressure sensor (3P) 90890-03207 Test harness S– pressure sensor (3P) YU-03207		8-249

SPECIFICATIONS

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GENERAL SPECIFICATIONS

EAS20013

GENERAL SPECIFICATIONS

Model

Model	BC31 (XP530D-A) BV11 (XP530E-A) BX31 (XP530-A)
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Dimensions

Overall length	2200 mm (86.6 in)
Overall width	765 mm (30.1 in)
Overall height	1420/1475 mm (55.9/58.1 in) (XP530-A, XP530E-A)
Wheelbase	1420/1555 mm (55.9/61.2 in) (XP530D-A)
Ground clearance	1575 mm (62.0 in)
Minimum turning radius	125 mm (4.92 in)
	2.8 m (9.19 ft)

Weight

Curb weight	213 kg (470 lb) (XP530-A, XP530E-A) 216 kg (476 lb) (XP530D-A)
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Loading

Maximum load	199 kg (439 lb) (XP530D-A) 202 kg (445 lb) (XP530-A, XP530E-A)
Riding capacity	2 person

ENGINE SPECIFICATIONS

EAS20014

ENGINE SPECIFICATIONS

Engine

Combustion cycle	4-stroke
Cooling system	Liquid cooled
Valve train	DOHC
Displacement	530 cm ³
Cylinder arrangement	Inline
Number of cylinders	2-cylinder
Bore × stroke	68.0 × 73.0 mm (2.68 × 2.87 in)
Compression ratio	10.9 : 1
Compression pressure	1696–2184 kPa/470 r/min (17.0–21.8 kgf/cm ² /470 r/min, 241.3–310.6 psi/470 r/min)
Starting system	Electric starter

Fuel

Recommended fuel	Regular unleaded gasoline (Gasohol [E10] acceptable)
Fuel tank capacity	15 L (4.0 US gal, 3.3 Imp.gal)
Fuel reserve amount	3.0 L (0.79 US gal, 0.66 Imp.gal)

Engine oil

Recommended brand	YAMALUBE
SAE viscosity grades	10W-40
Recommended engine oil grade	API service SG type or higher, JASO standard MA
Lubrication system	Dry sump
Engine oil quantity	
Oil change	2.60 L (2.75 US qt, 2.29 Imp.qt)
With oil filter removal	2.90 L (3.07 US qt, 2.55 Imp.qt)
Quantity (disassembled)	3.50 L (3.70 US qt, 3.08 Imp.qt)

Oil filter

Oil filter type	Cartridge
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Oil pump

Oil pressure	120.0 kPa/1200 r/min (1.20 kgf/cm ² /1200 r/min, 17.4 psi/1200 r/min)
Relief valve operating pressure	450.0–550.0 kPa (4.50–5.50 kgf/cm ² , 65.3–79.8 psi)

Cooling system

Coolant quantity	
Radiator (including all routes)	1.67 L (1.77 US qt, 1.47 Imp.qt)
Coolant reservoir (up to the maximum level mark)	0.25 L (0.26 US qt, 0.22 Imp.qt)
Radiator cap valve opening pressure	107.9–137.3 kPa (1.08–1.37 kgf/cm ² , 15.6–19.9 psi)
Thermostat	
Valve opening temperature	69.0–73.0 °C (156.20–163.40 °F)
Valve full open temperature	85.0 °C (185.00 °F)
Valve lift (full open)	8.0 mm (0.31 in)
Water pump	
Water pump type	Single suction centrifugal pump
Impeller shaft tilt limit	0.15 mm (0.006 in)

ENGINE SPECIFICATIONS

Spark plug(s)

Manufacturer/model	NGK/CR7E
Spark plug gap	0.7–0.8 mm (0.028–0.031 in)

Cylinder head

Warpage limit	0.03 mm (0.0012 in)
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Camshaft

Camshaft cap inside diameter	23.000–23.021 mm (0.9055–0.9063 in)
Camshaft journal diameter	22.959–22.972 mm (0.9039–0.9044 in)
Camshaft-journal-to-camshaft-cap clearance	0.028–0.062 mm (0.0011–0.0024 in)
Limit	0.080 mm (0.0032 in)
Camshaft lobe dimensions	
Lobe height (Intake)	32.490–32.590 mm (1.2791–1.2831 in)
Limit	32.390 mm (1.2752 in)
Lobe height (Exhaust)	32.690–32.790 mm (1.2870–1.2909 in)
Limit	32.590 mm (1.2831 in)
Camshaft runout limit	0.030 mm (0.0012 in)

Valve, valve seat, valve guide

Valve clearance (cold)	
Intake	0.15–0.22 mm (0.0059–0.0087 in)
Exhaust	0.25–0.32 mm (0.0098–0.0126 in)
Valve dimensions	
Valve seat contact width (intake)	0.90–1.10 mm (0.0354–0.0433 in)
Limit	1.6 mm (0.06 in)
Valve seat contact width (exhaust)	0.90–1.10 mm (0.0354–0.0433 in)
Limit	1.6 mm (0.06 in)
Valve stem diameter (intake)	3.975–3.990 mm (0.1565–0.1571 in)
Limit	3.945 mm (0.1553 in)
Valve stem diameter (exhaust)	3.960–3.975 mm (0.1559–0.1565 in)
Limit	3.930 mm (0.1547 in)
Valve guide inside diameter (intake)	4.000–4.012 mm (0.1575–0.1580 in)
Valve guide inside diameter (exhaust)	4.000–4.012 mm (0.1575–0.1580 in)
Valve-stem-to-valve-guide clearance (intake)	0.010–0.037 mm (0.0004–0.0015 in)
Limit	0.080 mm (0.0032 in)
Valve-stem-to-valve-guide clearance (exhaust)	0.025–0.052 mm (0.0010–0.0020 in)
Limit	0.100 mm (0.0039 in)
Valve stem runout	0.040 mm (0.0016 in)

Valve spring

Free length (intake)	36.73 mm (1.45 in)
Limit	34.89 mm (1.37 in)
Free length (exhaust)	36.73 mm (1.45 in)
Limit	34.89 mm (1.37 in)
Spring tilt (intake)	1.6 mm (0.06 in)
Spring tilt (exhaust)	1.6 mm (0.06 in)

Cylinder

Bore	68.000–68.010 mm (2.6772–2.6776 in)
Wear limit	68.060 mm (2.6795 in)

ENGINE SPECIFICATIONS

Piston

Diameter	67.975–67.990 mm (2.6762–2.6768 in)
Measuring point (from piston skirt bottom)	9.0 mm (0.35 in)
Piston-to-cylinder clearance	0.010–0.035 mm (0.0004–0.0014 in)
Piston pin bore inside diameter	16.002–16.013 mm (0.6300–0.6304 in)
Limit	16.043 mm (0.6316 in)
Piston pin outside diameter	15.995–16.000 mm (0.6297–0.6299 in)
Limit	15.975 mm (0.6289 in)
Piston-pin-to-piston-pin-bore clearance	0.002–0.018 mm (0.0001–0.0007 in)

Piston ring

Top ring	
Ring type	Barrel
End gap limit	0.60 mm (0.0236 in)
Ring side clearance	0.030–0.065 mm (0.0012–0.0026 in)
Side clearance limit	0.115 mm (0.0045 in)
2nd ring	
Ring type	Taper
End gap limit	0.85 mm (0.0335 in)
Ring side clearance	0.020–0.055 mm (0.0008–0.0022 in)
Side clearance limit	0.115 mm (0.0045 in)

Connecting rod

Oil clearance	0.036–0.060 mm (0.0014–0.0024 in)
Bearing color code	
Code 1	Blue
Code 2	Black
Code 3	Brown
Code 4	Green

Crankshaft

Runout limit	0.030 mm (0.0012 in)
Crankshaft journal diameter	54.984–55.000 mm (2.1647–2.1654 in)
Journal oil clearance	0.040–0.087 mm (0.0016–0.0034 in)
Bearing color code	
Code 0	White
Code 1	Blue
Code 2	Black
Code 3	Brown
Code 4	Green
Code 5	Yellow

Balancer

Oil clearance	0.036–0.060 mm (0.0014–0.0024 in)
Bearing color code	
Code 1	Blue
Code 2	Black
Code 3	Brown
Code 4	Green

Clutch

Clutch type	Wet, centrifugal, multiple-disc
Friction plate thickness	2.92–3.08 mm (0.115–0.121 in)
Wear limit	2.82 mm (0.111 in)
Plate quantity	6 pcs

ENGINE SPECIFICATIONS

Clutch plate 1 thickness	1.30–1.50 mm (0.051–0.059 in)
Plate quantity	5 pcs
Warpage limit	0.10 mm (0.004 in)
Clutch plate 2 thickness	1.80–2.00 mm (0.071–0.079 in)
Plate quantity	2 pcs
Warpage limit	0.20 mm (0.008 in)
Clutch spring free length	31.90 mm (1.26 in)
Limit	24.80 mm (0.98 in)
Spring quantity	6 pcs
Clutch damper spring height	3.50 mm (0.14 in)
Minimum height	3.10 mm (0.12 in)
Spring quantity	7 pcs
Clutch spring plate height	4.70 mm (0.19 in)
Minimum height	4.40 mm (0.17 in)
Spring quantity	1 pcs
Clutch-in revolution	1650–2250 r/min
Clutch-stall revolution	3800–4800 r/min
V-belt	
V-belt width	32.9 mm (1.30 in)
Limit	31.4 mm (1.24 in)
Drivetrain	
Primary reduction ratio	1.000
Transmission type	V-belt automatic
Transmission ratio	2.041–0.758 : 1
Weight outside diameter	25.0 mm (0.98 in)
Limit	24.5 mm (0.96 in)
Main axle runout limit	0.08 mm (0.0032 in)
Drive axle runout limit	0.08 mm (0.0032 in)
Secondary shaft runout limit	0.12 mm (0.0047 in)
Secondary reduction ratio	6.034 (52/32 x 36/22 x 59/26)
Final drive	Belt
Air filter	
Air filter element	Oil-coated paper element
V-belt filter element	Dry element
Fuel pump	
Pump type	Electrical
Maximum consumption amperage	1.7 A
Fuel injector	
Resistance	12.0 Ω
Throttle body	
ID mark	BC31 00
Throttle position sensor	
Resistance	1.20–2.80 kΩ
Accelerator position sensor	
Resistance	1.08–2.52 kΩ
Idling condition	
Engine idling speed	1100–1300 r/min
O ₂ feedback control	Active
Exhaust gas sampling point	Muffler tail pipe

ENGINE SPECIFICATIONS

Engine oil temperature	60–80 °C (140–176 °F)
Intake vacuum	32.0 kPa (240 mmHg, 9.4 inHg)
Difference in vacuum pressure between the cylinders	0 kPa–1.3 kPa (0 mmHg–10 mmHg, 0 inHg–0.4 inHg)
CO%	0.0–2.0 %
Fuel line pressure (at idle)	220–300 kPa (2.2–3.0 kgf/cm ² , 31.9–43.5 psi)
Throttle grip free play	1.0–3.0 mm (0.04–0.12 in)

CHASSIS SPECIFICATIONS

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CHASSIS SPECIFICATIONS

Chassis

Frame type	Diamond
Caster angle	26.0 °
Trail	98 mm (3.9 in)

Front wheel

Wheel type	Cast wheel
Rim size	15M/C x MT3.5
Rim material	Aluminum
Radial wheel runout limit	1.0 mm (0.04 in)
Lateral wheel runout limit	0.5 mm (0.02 in)

Rear wheel

Wheel type	Cast wheel
Rim size	15M/C x MT4.5
Rim material	Aluminum
Radial wheel runout limit	1.0 mm (0.04 in)
Lateral wheel runout limit	0.5 mm (0.02 in)

Front tire

Type	Tubeless
Size	120/70R15M/C(56H)
Manufacturer/model	BRIDGESTONE/BATTLAXSCF (XP530-A, XP530E-A) DUNLOP/ROADSMART3 (XP530D-A)

Rear tire

Type	Tubeless
Size	160/60R15M/C(67H)
Manufacturer/model	BRIDGESTONE/BATTLAXSCR (XP530-A, XP530E-A) DUNLOP/ROADSMART3 (XP530D-A)

Tire air pressure (measured on cold tires)

1 person	
Front	225 kPa (2.25 kgf/cm ² , 33 psi)
Rear	250 kPa (2.50 kgf/cm ² , 36 psi)
2 persons	
Front	225 kPa (2.25 kgf/cm ² , 33 psi)
Rear	280 kPa (2.80 kgf/cm ² , 41 psi)

Front brake

Type	Hydraulic dual disc brake
Disc outside diameter × thickness	267.0 × 4.0 mm (10.51 × 0.16 in)
Brake disc thickness limit	3.5 mm (0.14 in)
Brake disc runout limit (as measured on wheel)	0.15 mm (0.0059 in)
Brake pad lining thickness	4.0 mm (0.16 in)
Limit	0.5 mm (0.02 in)
Master cylinder inside diameter	15.00 mm (0.59 in)
Caliper cylinder inside diameter (Left)	30.23 mm, 27.00 mm (1.19 in, 1.06 in)
Caliper cylinder inside diameter (Right)	30.23 mm, 27.00 mm (1.19 in, 1.06 in)
Specified brake fluid	DOT 4

CHASSIS SPECIFICATIONS

Rear brake

Type	Hydraulic single disc brake
Disc outside diameter × thickness	282.0 × 5.0 mm (11.10 × 0.20 in)
Brake disc thickness limit	4.5 mm (0.18 in)
Brake disc runout limit (as measured on wheel)	0.15 mm (0.0059 in)
Brake pad lining thickness	8.0 mm (0.31 in)
Limit	0.8 mm (0.03 in)
Master cylinder inside diameter	14.0 mm (0.55 in)
Caliper cylinder inside diameter	38.10 mm (1.50 in)
Specified brake fluid	DOT 4

Rear brake lock

Rear brake lock pad	
Brake pad lining thickness	3.0 mm (0.12 in)
Limit	0.8 mm (0.03 in)

Front suspension

Type	Telescopic fork
Spring	Coil spring
Shock absorber	Hydraulic damper
Wheel travel	120 mm (4.7 in)
Fork spring free length	297.1 mm (11.70 in)
Limit	291.1 mm (11.46 in)
Inner tube bending limit	0.2 mm (0.01 in)
Recommended oil	Yamaha Suspension Oil 01
Quantity (left)	447.0 cm ³ (15.11 US oz, 15.77 Imp.oz)
Quantity (right)	437.0 cm ³ (14.77 US oz, 15.41 Imp.oz)
Level (left)	114 mm (4.5 in)
Level (right)	118 mm (4.6 in)

Rear suspension

Type	Swingarm (link suspension)
Spring	Coil spring
Shock absorber	Gas-hydraulic damper
Wheel travel	117 mm (4.6 in)
Spring preload	
Adjusting system	Mechanical adjustable type (XP530D-A)
Unit for adjustment	Cam position (XP530D-A)
Adjustment value (Soft)	7 (XP530D-A)
Adjustment value (STD)	4 (XP530D-A)
Adjustment value (Hard)	1 (XP530D-A)
Rebound damping	
Adjusting system	Mechanical adjustable type (XP530D-A)
Unit for adjustment	Turn (XP530D-A)
Adjustment value from the start position (Soft)	3 (XP530D-A)
Adjustment value from the start position (STD)	1.25 (XP530D-A)
Adjustment value from the start position (Hard)	0 (XP530D-A)

Drive belt

Drive belt vibration frequency	85–103 Hz
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ELECTRICAL SPECIFICATIONS

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ELECTRICAL SPECIFICATIONS

Voltage

System voltage 12 V

Ignition system

Ignition system TCI
Advancer type Digital
Ignition timing (B.T.D.C.) 5.0 °/1200 r/min

Engine control unit

Model TBDF0H (XP530-A)
TBDF0K (XP530E-A)
TBDF06 (XP530D-A)

Ignition coil

Primary coil resistance 1.87–2.53 Ω
Secondary coil resistance 12.00–18.00 kΩ

Spark plug cap

Resistance 7.50–12.50 kΩ

Lean angle sensor output voltage

Operating angle 65 °
Output voltage up to operating angle 0.4–1.4 V
Output voltage over operating angle 3.7–4.4 V

Charging system

Charging system AC magneto
Standard output 14.0 V, 25.0 A at 5000 r/min
Standard output 14.0 V, 350 W at 5000 r/min
Stator coil resistance 0.224–0.336 Ω

Rectifier/regulator

Regulator type Three-phase
Regulated voltage (DC) 14.1–14.9 V
Rectifier capacity (DC) 25.0 A

Battery

Model YTZ12S
Voltage, capacity 12 V, 11.0 Ah (10 HR)

Bulb wattage

Headlight LED
Brake/tail light LED
Front turn signal light 21.0 W
Rear turn signal light LED
Auxiliary light LED
License plate light 5.0 W
Meter lighting LED

Indicator light

High beam indicator light LED
Turn signal indicator light LED
Engine trouble warning light LED
ABS warning light LED
Cruise control "SET" indicator light LED (XP530D-A)
Cruise control "ON" indicator light LED (XP530D-A)

ELECTRICAL SPECIFICATIONS

Smart key system indicator light	LED
Traction control system indicator/warning light	LED

Starter motor	
Power output	0.70 kW
Armature coil resistance	0.0105–0.0195 Ω
Brush overall length	12.0 mm (0.47 in)
Limit	6.50 mm (0.26 in)
Brush spring force	6.02–6.51 N (614–664 gf, 21.69–23.45 oz)
Mica undercut (depth)	0.70 mm (0.03 in)

Fuel sender unit	
Sender unit resistance (full)	10.0–14.0 Ω
Sender unit resistance (empty)	267.0–273.0 Ω

Grip warmer	
Grip warmer resistance (L)	1.2–1.4 Ω (XP530D-A)
Grip warmer resistance (R)	1.2–1.5 Ω (XP530D-A)
Seat heater resistance	8.8–10.8 Ω (XP530D-A)

Fuel injection sensor	
Crankshaft position sensor resistance	228–342 Ω
Intake air temperature sensor resistance	5400–6600 Ω at 0 °C (5400–6600 Ω at 32 °F)
Intake air temperature sensor resistance	289–391 Ω at 80 °C (289–391 Ω at 176 °F)
Coolant temperature sensor resistance	2512–2777 Ω at 20 °C (2512–2777 Ω at 68 °F)
Coolant temperature sensor resistance	210–220 Ω at 100 °C (210–220 Ω at 212 °F)

Fuse(s)	
Main fuse	40.0 A
Headlight fuse	7.5 A
Taillight fuse	7.5 A
Brake light fuse	1.0 A (XP530D-A)
Signaling system fuse	7.5 A
Ignition fuse	7.5 A
Radiator fan motor fuse	15.0 A
Fuel injection system fuse	7.5 A
ABS control unit fuse	7.5 A
ABS motor fuse	30.0 A
ABS solenoid fuse	15.0 A
Cruise control fuse	1.0 A (XP530D-A)
Auxiliary DC jack fuse	2.0 A
Backup fuse	15.0 A
Windshield motor fuse	20.0 A (XP530D-A)
Electronic throttle valve fuse	7.5 A
Seat lock fuse	7.5 A (XP530-A, XP530E-A)

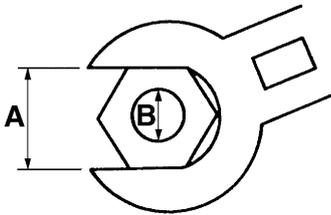
EAS20017

TIGHTENING TORQUES

EAS30015

GENERAL TIGHTENING TORQUE SPECIFICATIONS

This chart specifies tightening torques for standard fasteners with a standard ISO thread pitch. Tightening torque specifications for special components or assemblies are provided for each chapter of this manual. To avoid warpage, tighten multi-fastener assemblies in a crisscross pattern and progressive stages until the specified tightening torque is reached. Unless otherwise specified, tightening torque specifications require clean, dry threads. Components should be at room temperature.



- A. Distance between flats
- B. Outside thread diameter

A (nut)	B (bolt)	General tightening torques		
		N·m	kgf·m	lb·ft
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94

TIGHTENING TORQUES

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ENGINE TIGHTENING TORQUES

Item	Thread size	Q'ty	Tightening torque	Remarks
Exhaust pipe nut	M8	4	20 N·m (2.0 kgf·m, 15 lb·ft)	
Muffler protector bolt	M6	3	8 N·m (0.8 kgf·m, 5.9 lb·ft)	
Front muffler protector bolt	M6	3	7 N·m (0.7 kgf·m, 5.2 lb·ft)	
Spark plug	M10	2	13 N·m (1.3 kgf·m, 9.6 lb·ft)	
Cylinder head cover bolt	M6	10	10 N·m (1.0 kgf·m, 7.4 lb·ft)	
Generator rotor nut	M18	1	See TIP.	
Generator cover bolt	M6	19	10 N·m (1.0 kgf·m, 7.4 lb·ft)	
Clutch assembly nut	M16	1	65 N·m (6.5 kgf·m, 48 lb·ft)	
Oil filter cartridge	M20	1	17 N·m (1.7 kgf·m, 13 lb·ft)	
Oil filter cartridge union bolt	M20	1	40 N·m (4.0 kgf·m, 30 lb·ft)	
Coolant drain bolt	M12	1	1.6 N·m (0.16 kgf·m, 1.2 lb·ft)	
Engine oil drain bolt	M14	1	43 N·m (4.3 kgf·m, 32 lb·ft)	

TIP

Generator rotor nut

Tighten the generator rotor nut to 65 N·m (6.5 kgf·m, 48 lb·ft), and then tighten them further to reach the specified angle 120°.

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CHASSIS TIGHTENING TORQUES

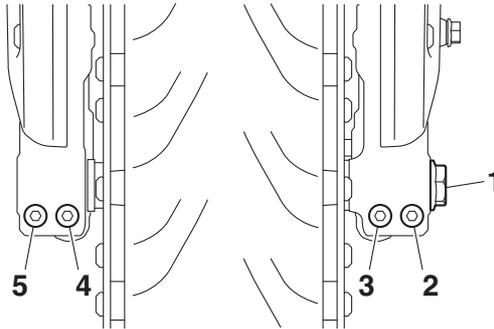
Item	Thread size	Q'ty	Tightening torque	Remarks
Front wheel axle	M14	1	91 N·m (9.1 kgf·m, 67 lb·ft)	
Front wheel axle pinch bolt	M8	4	21 N·m (2.1 kgf·m, 15 lb·ft)	See TIP.
Rear wheel pulley bolt	M10	5	64 N·m (6.4 kgf·m, 47 lb·ft)	
Rear wheel axle nut	M24	1	160 N·m (16 kgf·m, 118 lb·ft)	
Rear brake caliper bolt	M10	2	27 N·m (2.7 kgf·m, 20 lb·ft)	
Front brake caliper bleed screw	M8	2	5 N·m (0.5 kgf·m, 3.7 lb·ft)	
Rear brake caliper bleed screw	M7	1	6 N·m (0.6 kgf·m, 4.4 lb·ft)	
Front brake caliper bolt	M10	4	35 N·m (3.5 kgf·m, 26 lb·ft)	
Upper handlebar holder bolt	M8	4	23 N·m (2.3 kgf·m, 17 lb·ft)	
Lower handlebar holder nut	M10	2	34 N·m (3.4 kgf·m, 25 lb·ft)	
Lower bracket pinch bolt	M8	4	23 N·m (2.3 kgf·m, 17 lb·ft)	
Upper bracket pinch bolt	M8	2	30 N·m (3.0 kgf·m, 22 lb·ft)	
Lower ring nut	M30	1	See TIP.	
Drive pulley assembly bolt	M10	5	48 N·m (4.8 kgf·m, 35 lb·ft)	

TIGHTENING TORQUES

TIP

Front wheel axle pinch bolt

1. Insert the front wheel axle from the right side, temporarily install the front wheel axle bolt "1" from the left side, and then tighten the front wheel axle to 91 N·m (9.1 kgf·m, 67 lb·ft).
 2. Tighten the pinch bolt "3", pinch bolt "2", and pinch bolt "3" to 21 N·m (2.1 kgf·m, 15 lb·ft) in this order.
 3. Check that the right end of the front axle is flush with the front fork. If necessary, manually push the front axle or lightly tap it with a soft hammer until its end is flush with the front fork. However, if the surface of the front axle end is not parallel to the surface of the front fork, align a point on the outer edge of the axle with the fork, making sure that the axle does not protrude past the fork.
 4. Tighten the pinch bolt "5", pinch bolt "4", and pinch bolt "5" to 21 N·m (2.1 kgf·m, 15 lb·ft) in this order.
-



TIP

Lower ring nut

1. Tighten the ring nut to 52 N·m (5.2 kgf·m, 38 lb·ft) with a torque wrench, then loosen the lower ring nut completely.
 2. Tighten the lower ring nut to 16 N·m (1.6 kgf·m, 12 lb·ft).
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LUBRICATION POINTS AND LUBRICANT TYPES

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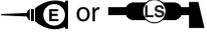
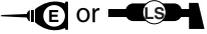
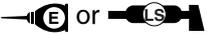
LUBRICATION POINTS AND LUBRICANT TYPES

EAS30018

ENGINE

Lubrication point	Lubricant
Oil seal lips	
O-rings	
Coolant hose insertion part	Water or 
Bearings and bushings	
Cylinder head nut seats and washers	
Camshaft cap bolt seats	
Crankshaft big ends	
Piston surfaces	
Piston pins	
Crankshaft journals	
Balancer piston surface	
Balancer piston pin	
Generator rotor nut	
Camshaft lobes and journals (intake and exhaust)	
Valve stem seals (intake and exhaust)	
Valve stems and stem ends (intake and exhaust)	
Valve lifter outer surface (intake and exhaust)	
Water pump impeller shaft	
O-ring (coolant pipe)	 or 
Oil pump shaft and rotors (inner and outer)	
Oil pump gaskets	
V-belt case air filter case screw bushing	Water or 
V-belt case air filter case cover screw bushing	Water or 
Crankshaft end access cover screw bushing	Water or 
Generator cover protector screw bushing	Water or 
Starter clutch idle gear shaft	
Starter clutch idle gear ends	
Starter clutch and starter clutch gear	
Starter clutch gear ends	
Washer (starter clutch gear)	
Starter clutch gear inner surface and crankshaft	

LUBRICATION POINTS AND LUBRICANT TYPES

Lubrication point	Lubricant
Primary driven gear spline and main axle spline	
1st pinion gear spline and main axle spline	
1st wheel gear spline and drive axle spline	
Swingarm (left) taper roller bearing	
Primary sheave spacer and o-ring	YAMAHA GREASE "G" (Shell Sunlight Grease 3®)
Primary sheave nut	YAMAHA GREASE "G" (Shell Sunlight Grease 3®)
Secondary sheave nut	YAMAHA GREASE "H" (Polyurea Grease®)
Secondary shaft right end bearing	
Pivot shaft taper roller bearing	
Stopper (generator cover and water pump assembly)	Yamaha bond No. 1215 (Three bond No.1215®)
Crankcase mating surface	Yamaha bond No. 1215 (Three bond No.1215®)
Inner V-belt case seal mating surface	Yamaha bond No. 1215 (Three bond No.1215®)
Crankshaft position sensor/stator lead grommet	Yamaha bond No. 1215 (Three bond No.1215®)

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CHASSIS

Lubrication point	Lubricant
Steering bearings (upper and lower)	
Upper bearing cover seal lip and lower bearing dust seal lip	
Tube guide (throttle grip) inner surface and throttle cables	
Moving parts of the grip warmer lead and the inside of the handlebar switch (right) (for XP530D-A)	
Rear brake lock cable end (lever end)	YAMAHA GREASE "F"
Brake lever pivoting point and metal-to-metal moving parts	
Drive axle spline	YAMAHA GREASE "J" (Shell Alvania EP Grease R0®)
Drive pulley assembly pivoting point	YAMAHA GREASE "J" (Shell Alvania EP Grease R0®)
Collar outer surface (relay arm, connecting arm)	
Pivot shaft oil seal and collar	
Seat lock metal-to-metal moving parts	
Seat hinge metal-to-metal moving parts	

LUBRICATION POINTS AND LUBRICANT TYPES

Lubrication point	Lubricant
Passenger footrest pivoting point	
Centerstand pivoting point and metal-to-metal moving parts	
Centerstand hook and spring contact point	
Sidestand pivoting point and metal-to-metal moving parts	
Sidestand hook and spring contact point	
Front wheel oil seal lip	
Rear wheel oil seal lip	
Front wheel axle bolt mating surface	
Brake caliper piston seal	
Master cylinder inside	
Brake caliper piston dust seal	
Rear brake caliper bolts	
Rear brake lock caliper (caliper piston assembly (shaft L, piston adjusting bolt))	
Rear brake lock caliper (slide pin bolt, sleeve)	

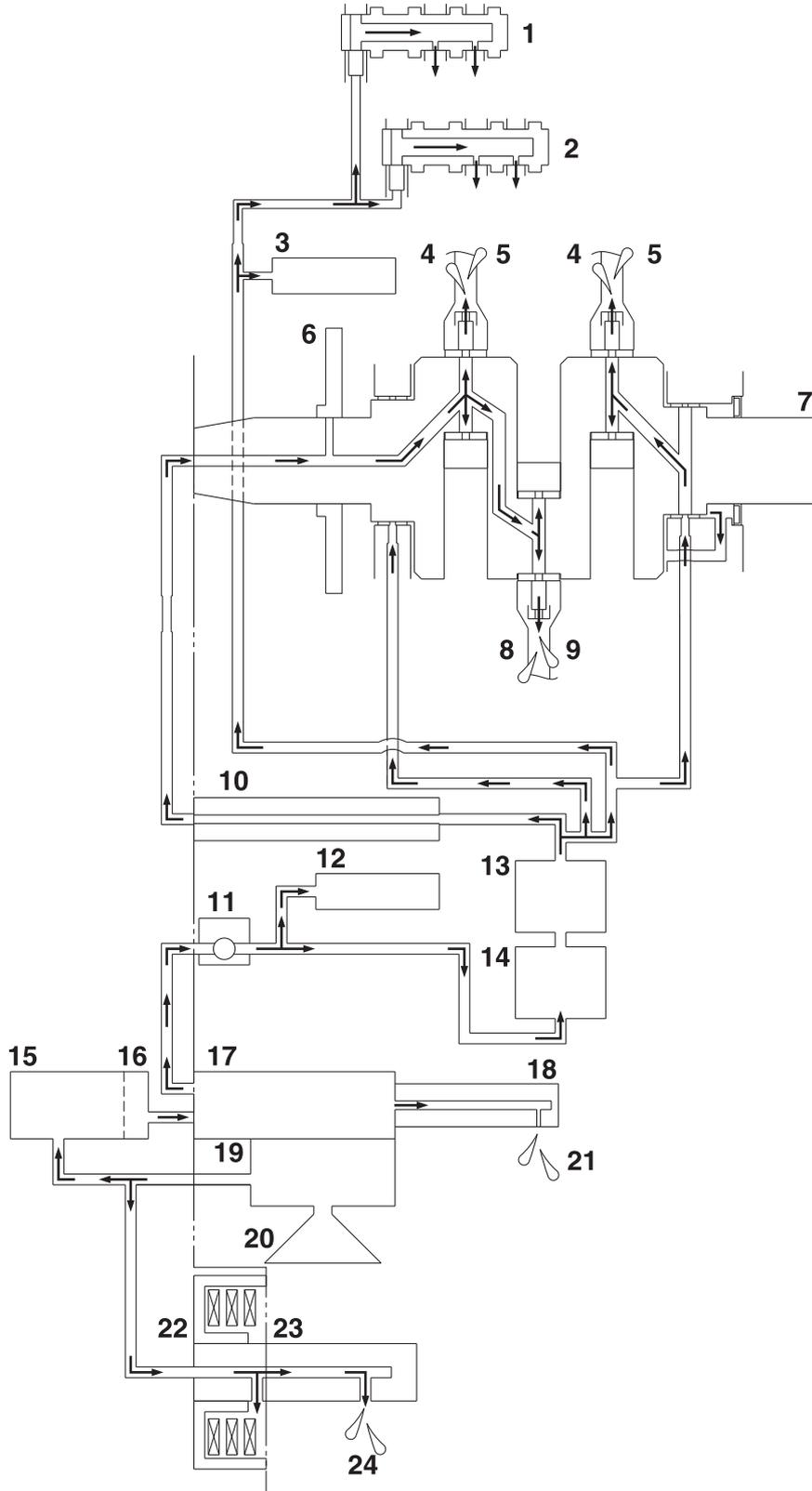
LUBRICATION SYSTEM CHART AND DIAGRAMS

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LUBRICATION SYSTEM CHART AND DIAGRAMS

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ENGINE OIL LUBRICATION CHART



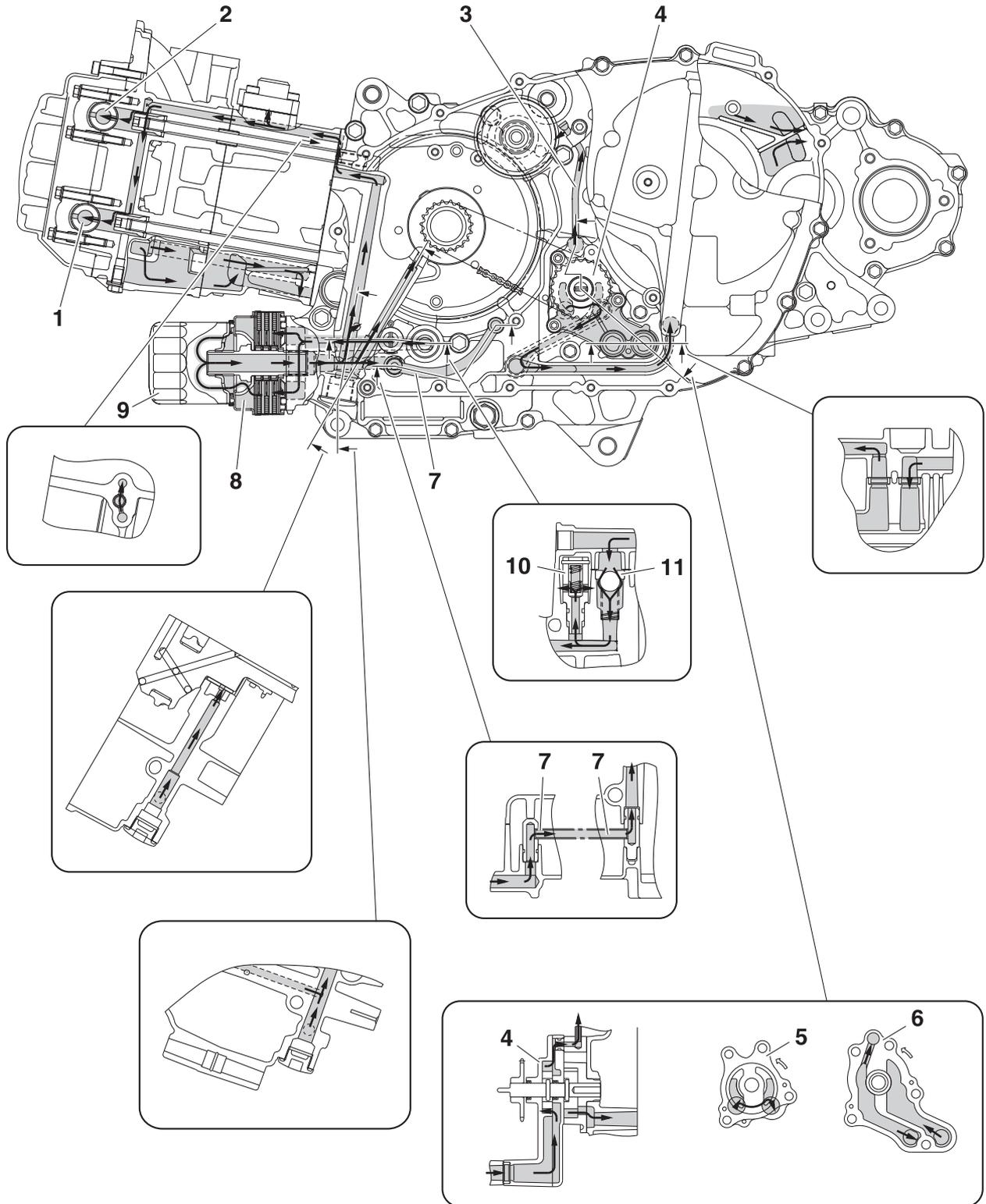
LUBRICATION SYSTEM CHART AND DIAGRAMS

1. Intake camshaft
2. Exhaust camshaft
3. Timing chain tensioner
4. Connecting rod
5. To piston
6. Starter clutch gear
7. Crankshaft
8. Balancer connecting rod
9. To balancer piston
10. Oil pipe
11. Check valve
12. Relief valve
13. Oil filter
14. Oil cooler
15. Oil tank
16. Oil strainer
17. Feed pump
18. Delivery pipe
19. Scavenge pump
20. Oil strainer
21. To starter idle gear
22. Clutch
23. Secondary shaft
24. To transmission

LUBRICATION SYSTEM CHART AND DIAGRAMS

EAS30021

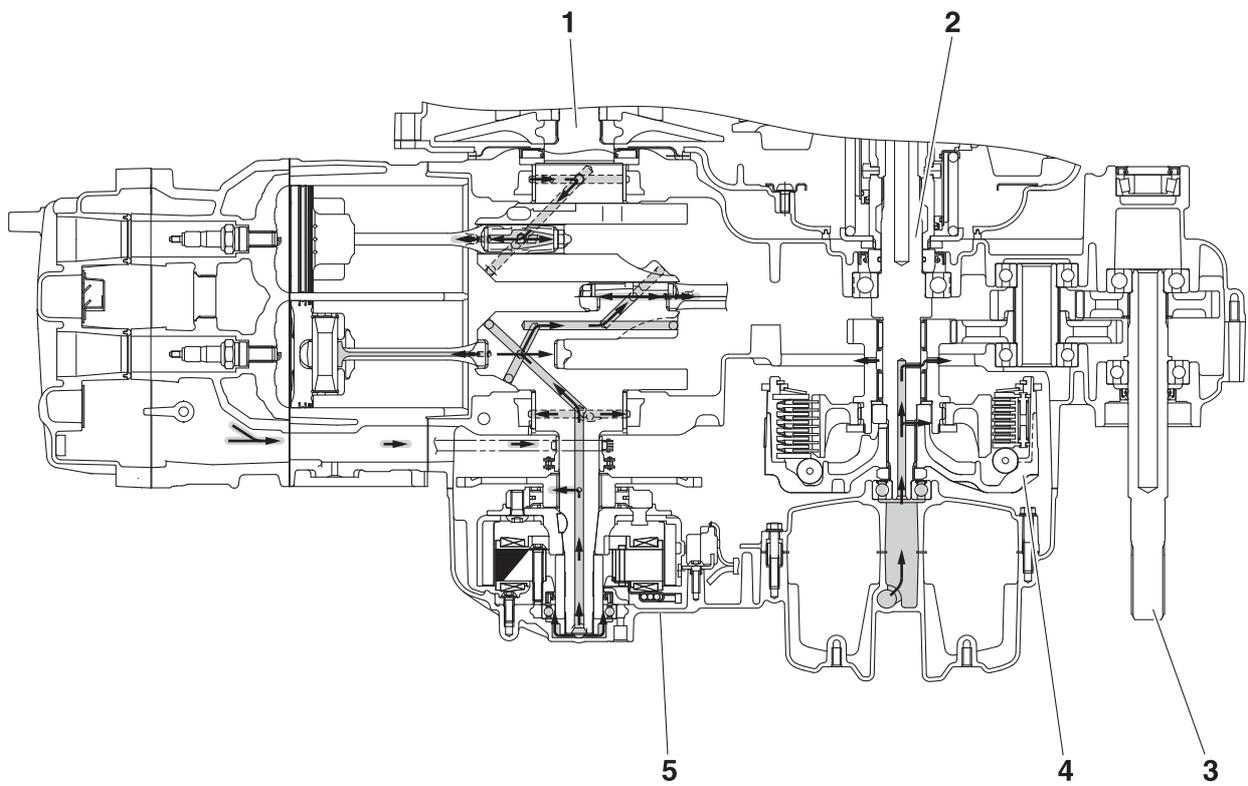
LUBRICATION DIAGRAMS



LUBRICATION SYSTEM CHART AND DIAGRAMS

1. Exhaust camshaft
2. Intake camshaft
3. Delivery pipe
4. Oil pump assembly
5. Scavenge pump
6. Feed pump
7. Oil pipe
8. Oil cooler
9. Oil filter
10. Relief valve
11. Check valve

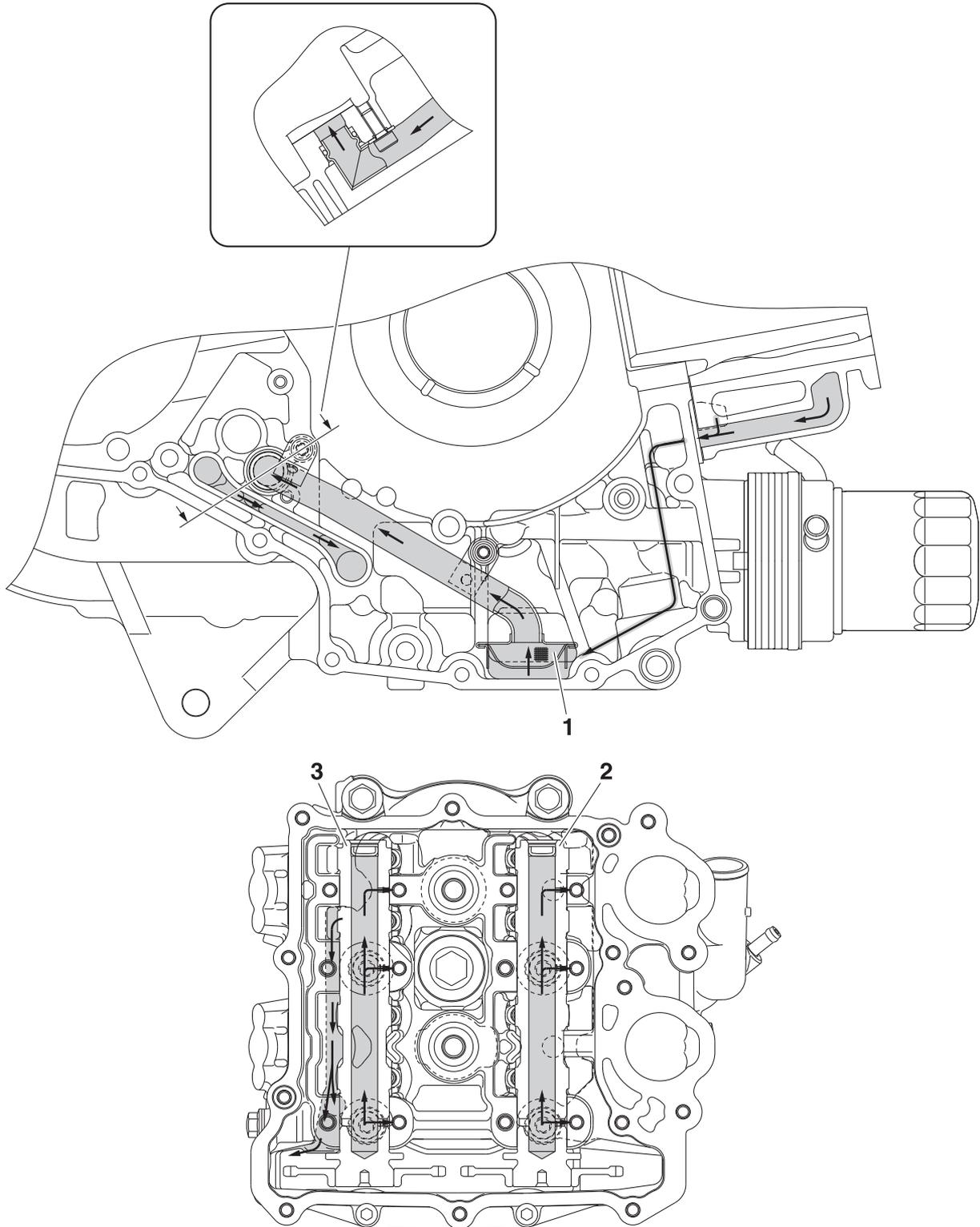
LUBRICATION SYSTEM CHART AND DIAGRAMS



LUBRICATION SYSTEM CHART AND DIAGRAMS

1. Crankshaft
2. Secondary shaft
3. Drive axle
4. Clutch
5. Generator cover

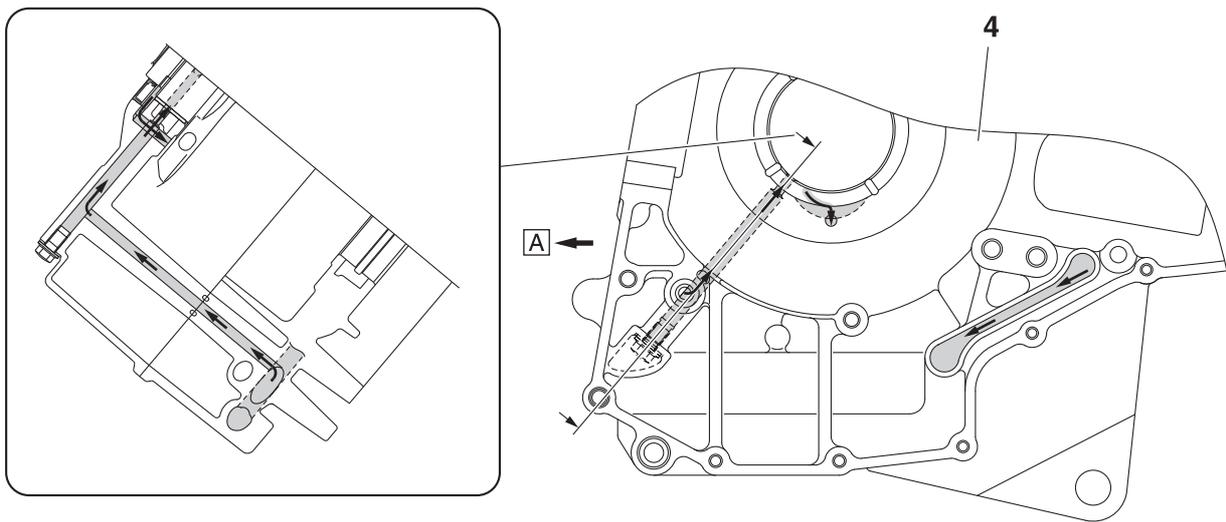
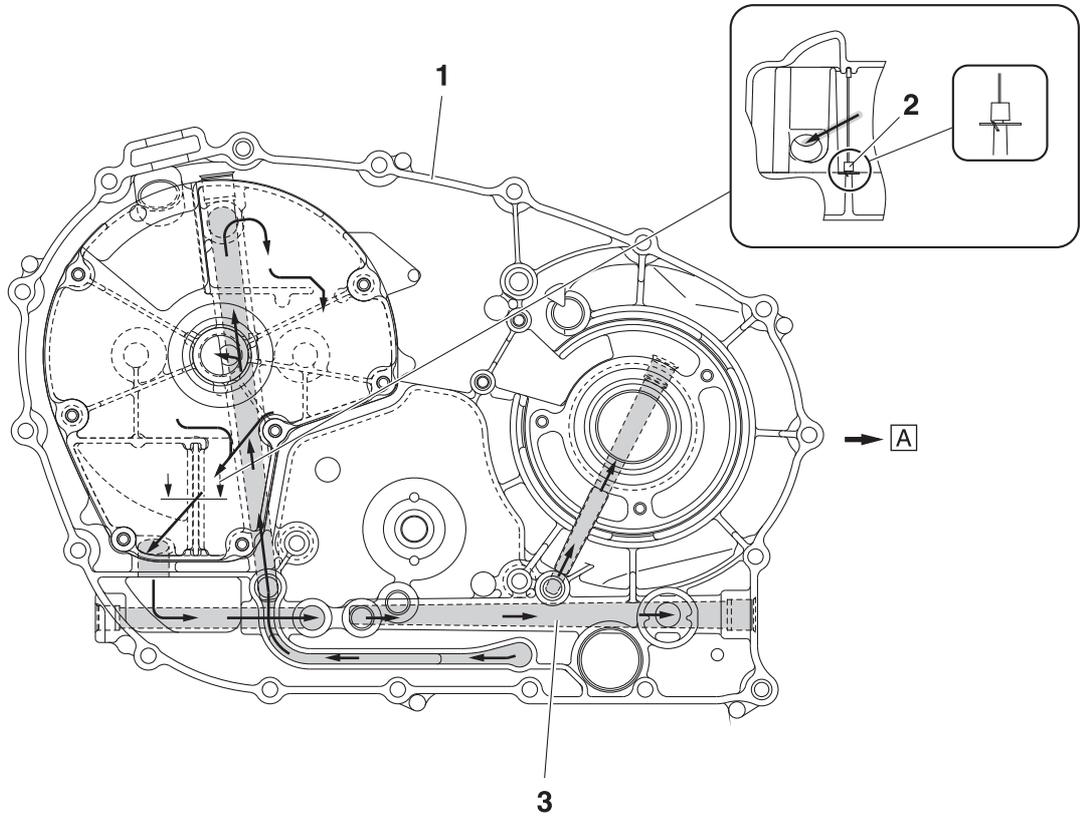
LUBRICATION SYSTEM CHART AND DIAGRAMS



LUBRICATION SYSTEM CHART AND DIAGRAMS

1. Oil strainer
2. Intake camshaft
3. Exhaust camshaft

LUBRICATION SYSTEM CHART AND DIAGRAMS



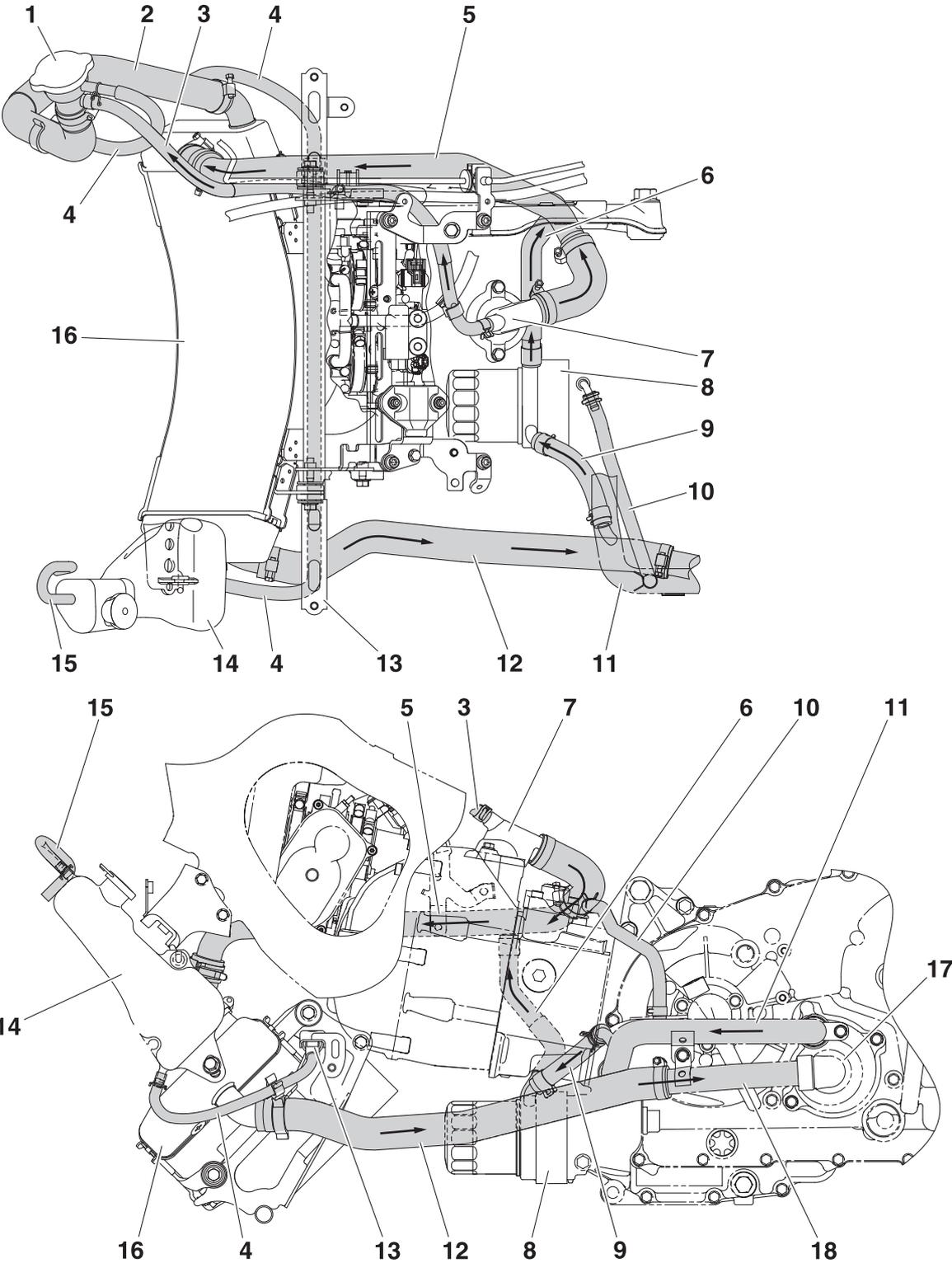
LUBRICATION SYSTEM CHART AND DIAGRAMS

1. Generator cover
 2. Oil strainer
 3. Main gallery
 4. Crankcase (right)
- A. Forward

COOLING SYSTEM DIAGRAMS

EAS20020

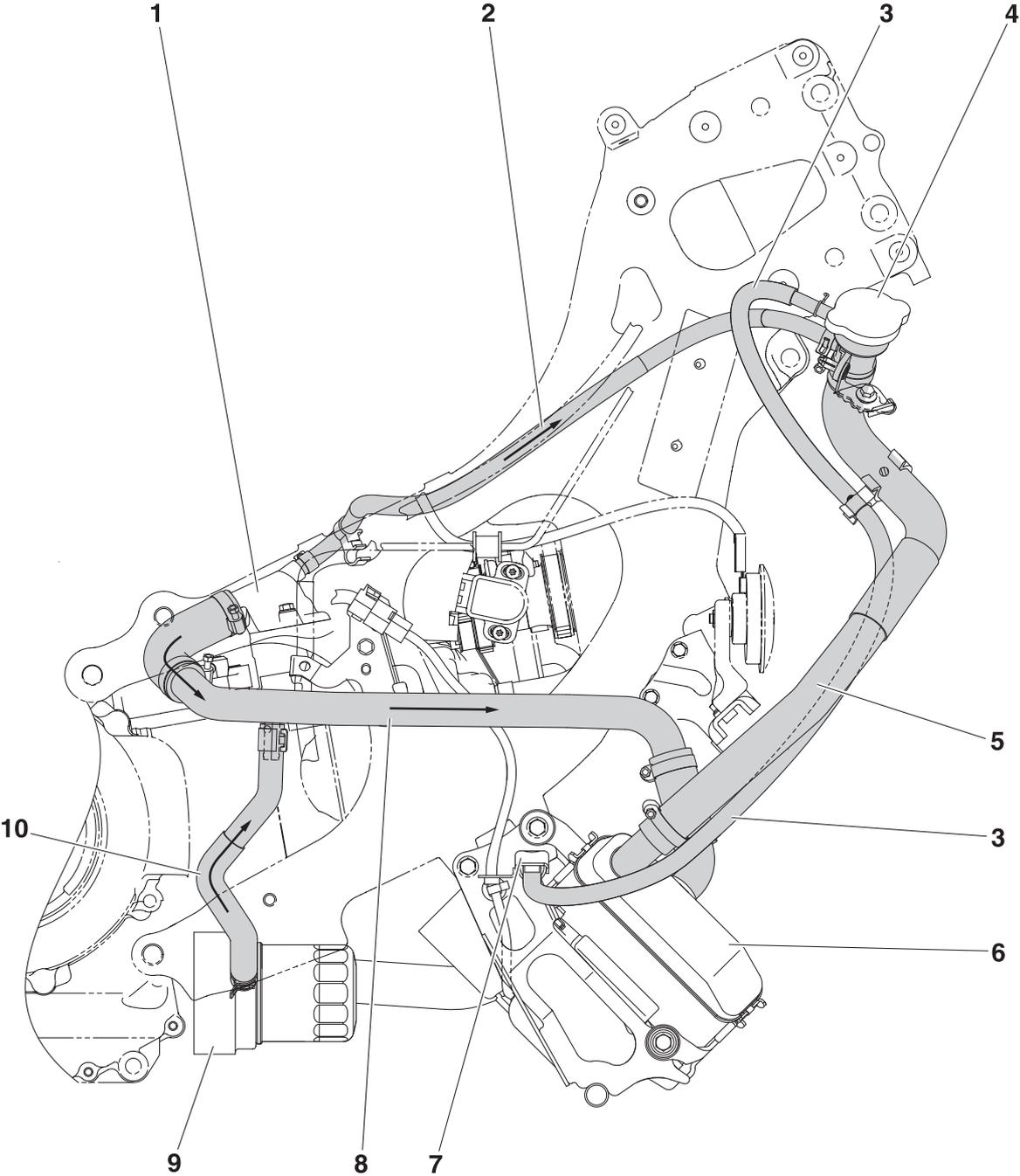
COOLING SYSTEM DIAGRAMS



COOLING SYSTEM DIAGRAMS

1. Radiator cap
2. Radiator filler hose
3. Cooling system air bleed hose
4. Coolant reservoir hose
5. Coolant pipe
6. Oil cooler outlet hose
7. Thermostat
8. Oil cooler
9. Oil cooler inlet hose
10. Coolant hose
11. Water pump outlet pipe
12. Radiator outlet hose
13. Radiator bracket
14. Coolant reservoir
15. Coolant reservoir breather hose
16. Radiator
17. Water pump
18. Water pump inlet pipe

COOLING SYSTEM DIAGRAMS



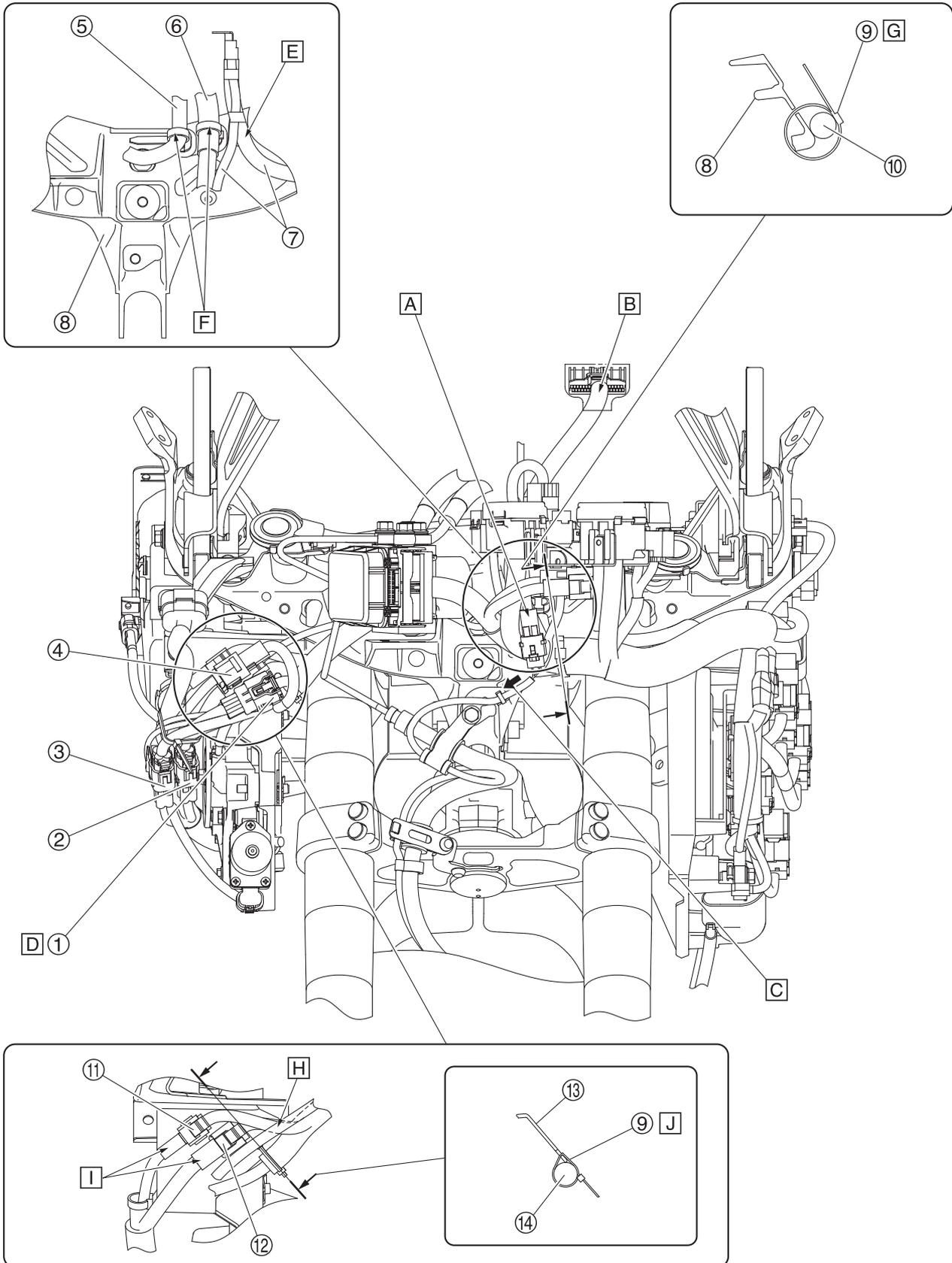
COOLING SYSTEM DIAGRAMS

1. Thermostat
2. Cooling system air bleed hose
3. Coolant reservoir hose
4. Radiator cap
5. Radiator filler hose
6. Radiator
7. Radiator bracket
8. Coolant pipe
9. Oil cooler
10. Oil cooler outlet hose

EAS20021

CABLE ROUTING

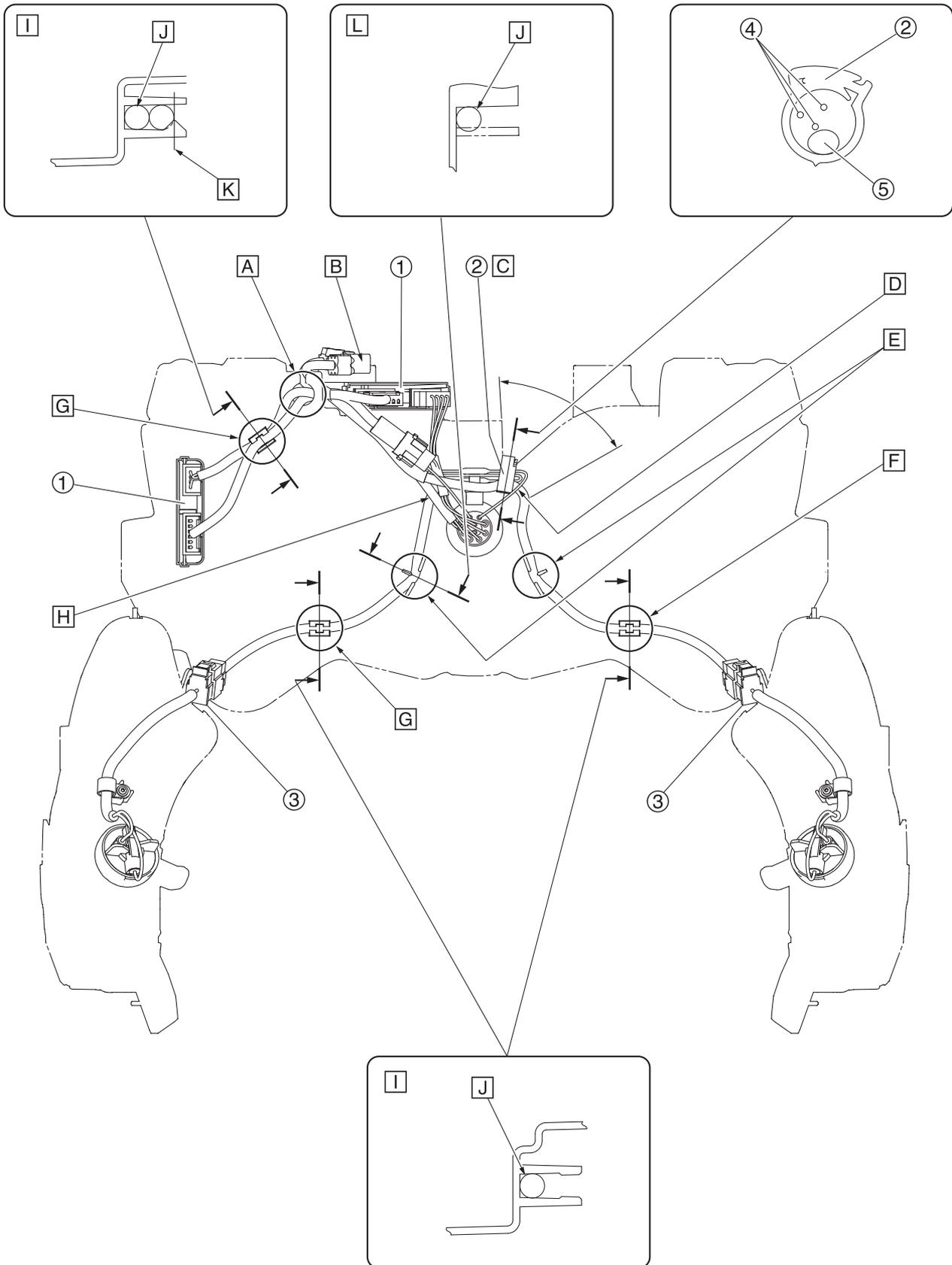
Headlight stay (front view)



1. Handlebar switch coupler 1 (left) (black)
 2. Front brake light switch coupler (black) (for XP530D-A)
 3. Rear brake light switch coupler (white) (for XP530D-A)
 4. Handlebar switch coupler 2 (right) (white)
 5. Handlebar switch lead (left/right)/Grip warmer lead (left/right) (for XP530D-A)/Front brake light switch lead (for XP530D-A)/Rear brake light switch lead (for XP530D-A)
 6. Wire harness (accelerator position sensor lead)
 7. Positive battery lead
 8. Headlight stay
 9. Plastic locking tie
 10. Wire harness
 11. Handlebar switch coupler (right) (white)
 12. Handlebar switch coupler (left) (white)
 13. Electrical components tray
 14. Handlebar switch lead (left/right)/Grip warmer lead (left/right) (for XP530D-A)/Front brake light switch lead (for XP530D-A)/Rear brake light switch lead (for XP530D-A)
- A. Arrange the front wheel sensor coupler in front of the wire harness.
 - B. Lead going to meter assembly
 - C. To front wheel sensor
 - D. Handlebar switch coupler 1 (left) (black), handlebar switch coupler 1 (right) (white), handlebar switch coupler 2 (right) (white), handlebar switch coupler 3 (left) (white), rear brake light switch coupler (white) (for XP530D-A), front brake light switch coupler (black) (for XP530D-A), handlebar switch coupler 3 (right) (black) (except for XP530D-A), handlebar switch coupler 4 (left) (white) (except for XP530D-A)
The order of arrangement of the coupler above does not matter.
 - E. Route the end of the positive battery lead (before the taped section at the bottom) so that it does not go between the wire harness and the headlight stay.
 - F. Install the clamp to the headlight stay.
 - G. Fasten the headlight stay and the white tape section of the wire harness with the plastic locking tie. The end of the plastic locking tie should face upward without being cut.
 - H. Route the handlebar switch lead (left/right) on the inside of the windshield drive unit cable.
 - I. Install the coupler to the electrical components tray.
 - J. Pass the plastic locking tie through the hole of the electrical components tray and fasten the white tape section of the lead. The end of the plastic locking tie should face downward without being cut.

CABLE ROUTING

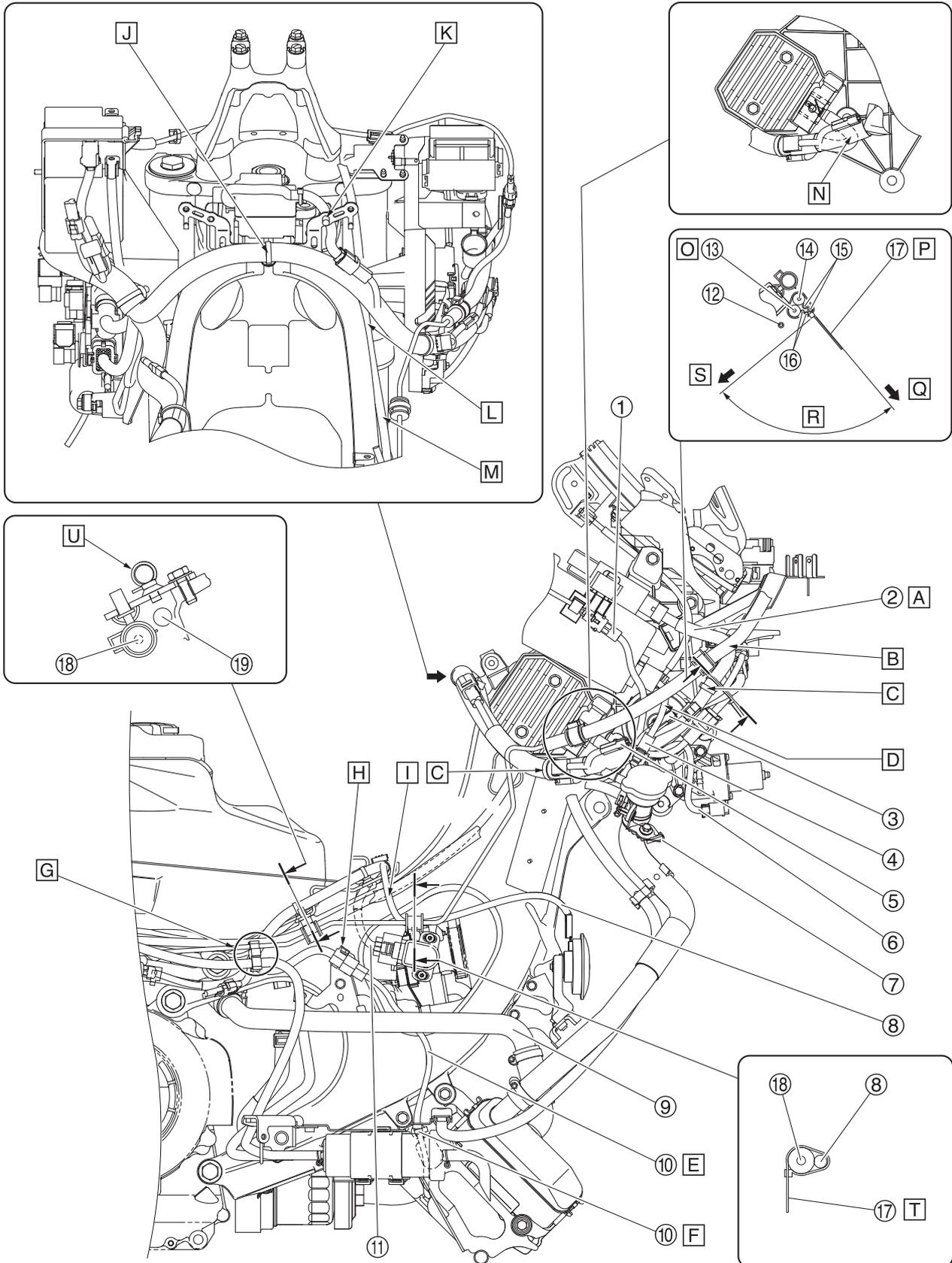
Front cowling assembly (rear view)



1. Headlight control unit
 2. Clamp
 3. Front turn signal light coupler
 4. Headlight assembly lead
 5. Headlight sub-wire harness
-
- A. Route the headlight sub-wire harness so that the blue tape section is aligned with the rib section of the headlight assembly.
 - B. Connect the headlight sub-wire harness coupler to the coupler of the wire harness after assembling the headlight assembly.
 - C. Fasten the headlight sub-wire harness and headlight assembly lead with the clamp between the right cover and the headlight assembly mounting boss (within the range shown in the illustration). The direction of the clamp does not matter.
 - D. Route the headlight sub-wire harness (going to the right turn signal light) in front of the headlight assembly lead.
 - E. Fully push in the blue tape section of the headlight sub-wire harness all the way to the back of the rib section of the headlight assembly.
 - F. Install the green tape section of the headlight sub-wire harness to the rib section of the headlight assembly.
 - G. Install the white tape section of the headlight sub-wire harness to the rib section of the headlight assembly.
 - H. Route the headlight sub-wire harness (going to the left turn signal light) in front of the headlight assembly lead. The number of headlight assembly leads passing behind the headlight sub-wire harness does not matter.
- I. 3 locations
 - J. Push in the lead all the way to the back of the rib.
 - K. The lead should enter on the inside of this line.
 - L. Left and right 2 locations

CABLE ROUTING

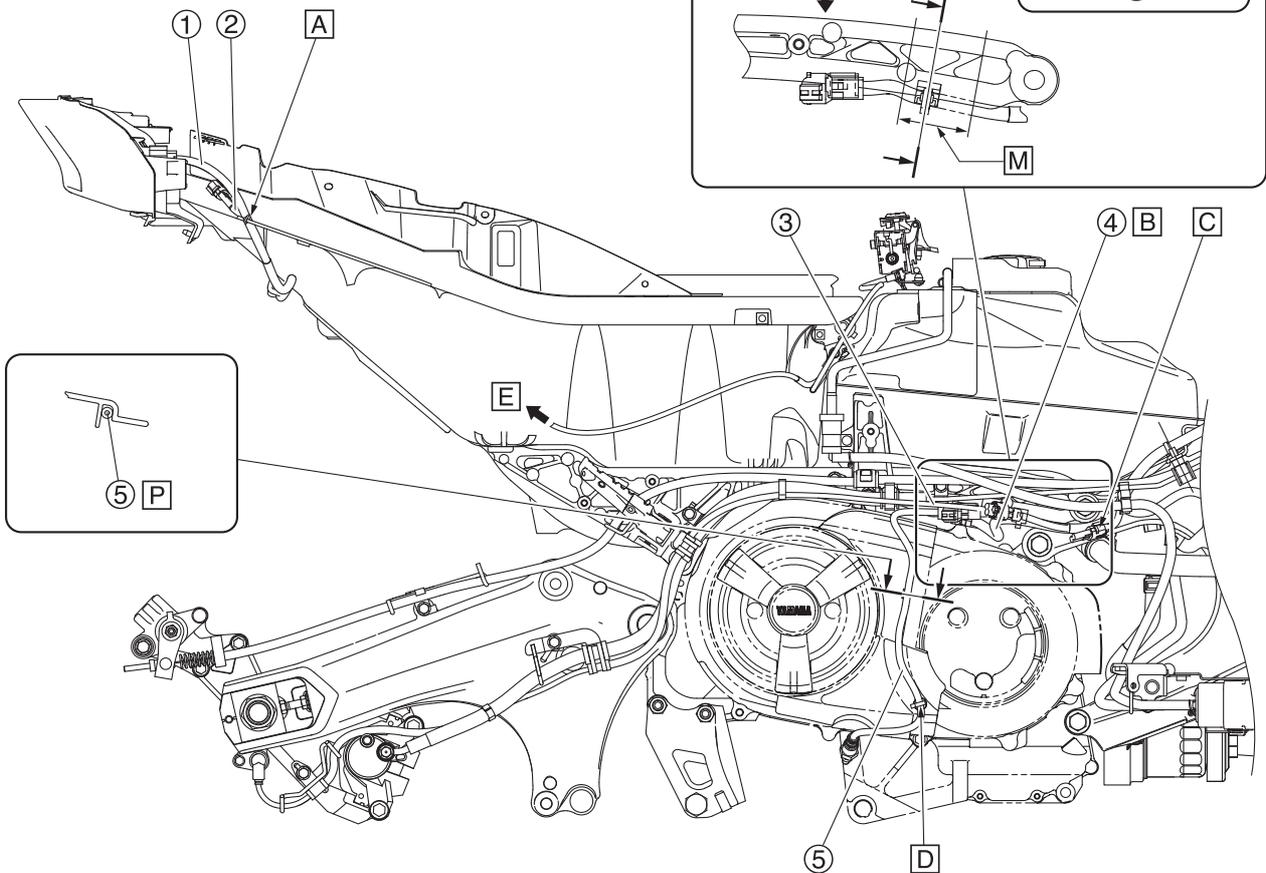
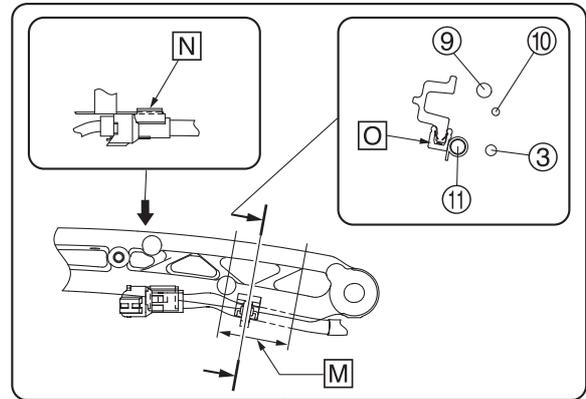
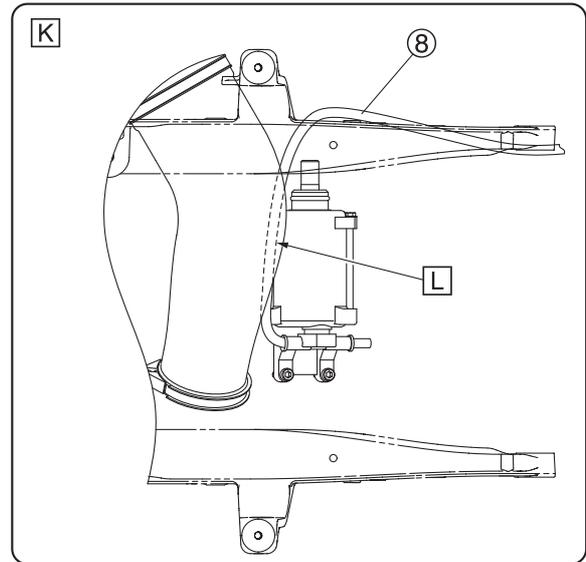
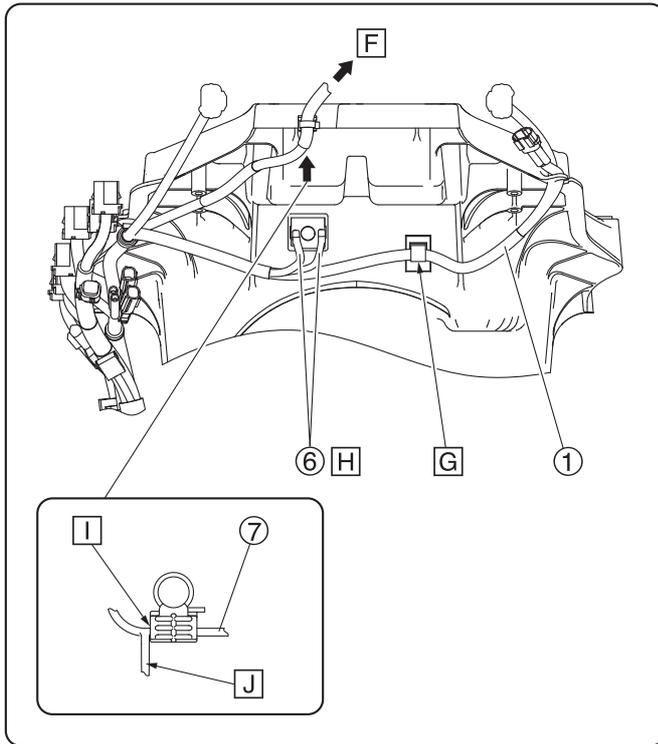
Frame (right side view)



1. Storage compartment lid lock solenoid coupler (except for XP530E-A)
 2. Remote control unit lead
 3. Grip warmer coupler (right) (gray)
 4. Auxiliary DC jack coupler (black)
 5. Grip warmer coupler (left) (black)
 6. Windshield drive unit lead
 7. Leg shield
 8. Horn lead
 9. Coolant pipe
 10. Radiator fan motor lead
 11. Throttle position sensor lead
 12. Windshield drive unit cable
 13. Wire harness (To handlebar switch)
 14. Wire harness (To remote control unit)
 15. Front brake light switch lead/Rear brake light switch lead (for XP530D-A)
 16. Grip warmer lead (for XP530D-A)
 17. Plastic locking tie
 18. Brake hose
 19. Rear brake lock cable
- A. Route the remote control unit lead on the inside of the brake hose.
 - B. Route the brake hose on the outside of all the leads.
 - C. Install the wire harness clamp into the hole in the electrical components tray.
 - D. Route the auxiliary DC jack lead on the inside of the brake hose.
 - E. Route the radiator fan motor lead on the inside of the coolant pipe.
 - F. Fasten the radiator fan motor lead with the clamp and install it into the hole in the radiator bracket.
 - G. Route the wire harness on the inside of the brake hose.
 - H. Install the radiator fan motor coupler (wire harness side) into the hole in the stay.
 - I. Route the horn lead on the outside of the brake hose and rear brake lock cable.
 - J. Install the wire harness clamp into the hole in the stay.
 - K. Install the clamp of the steering lock unit lead into the hole in the stay.
 - L. Route the rear brake lock cable between the frame and the wire harness.
 - M. Route the rear brake lock cable between the frame and the brake hose.
 - N. Route the rectifier/regulator lead between the wire harness and the electrical components tray.
 - O. Number of leads going to the handlebar switch (XP530E-A/XP530-A: 6, XP530D-A: 4)
 - P. Do not fasten the bare wire and coupler directly with the plastic locking tie. The end of the plastic locking tie should face toward the left from the front.
 - Q. Front of the vehicle
 - R. Range of arrangement of the end of the plastic locking tie
 - S. Left side of the vehicle
 - T. Fasten the white tape section of the horn lead and grommet of the brake hose with the plastic locking tie. The end of the plastic locking tie should face downward without being cut.
 - U. Install the wire harness clamp into the hole in the front fuel tank bracket.

CABLE ROUTING

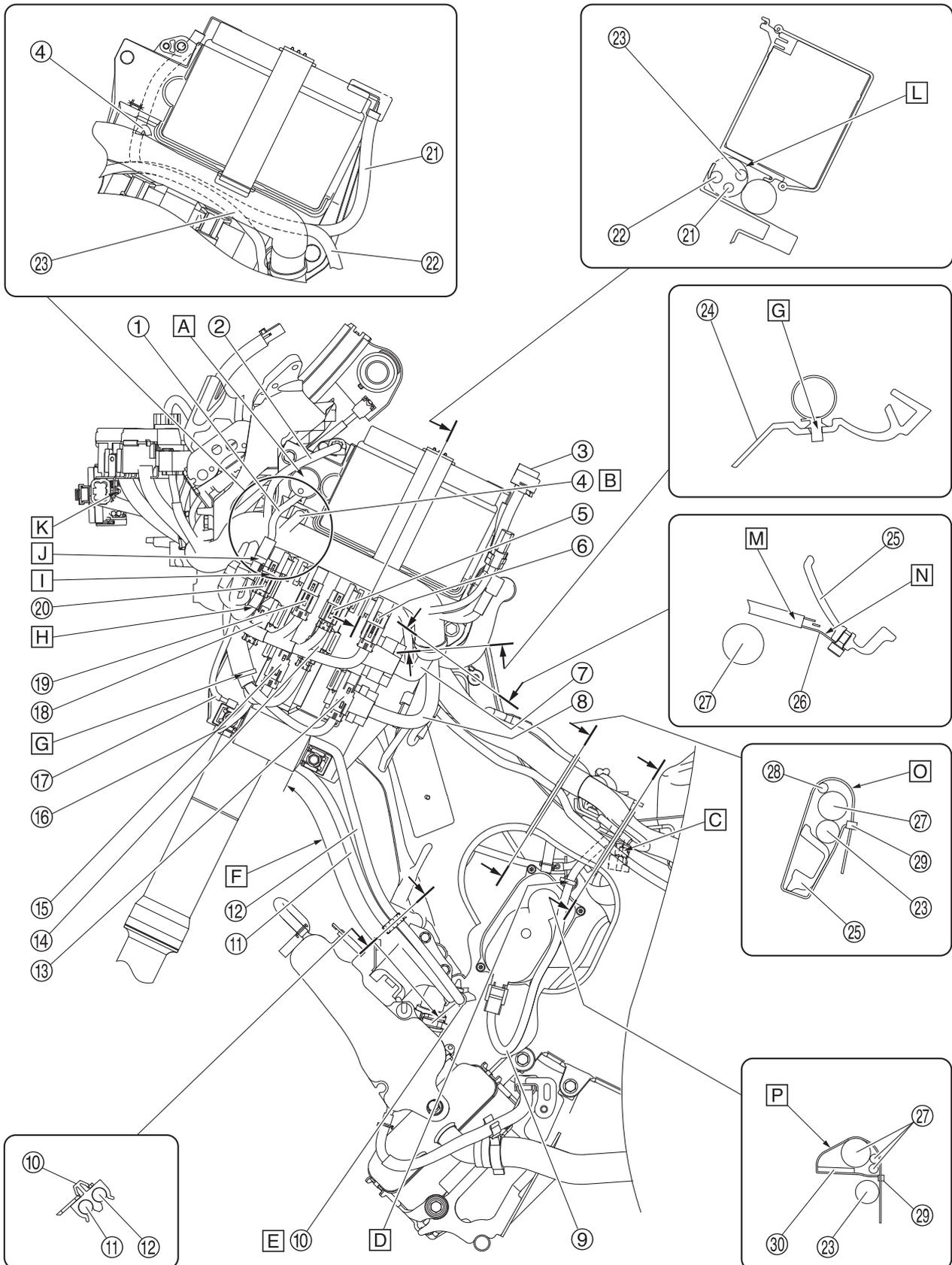
Frame (right side view)



1. Tail/brake light lead (right)
 2. Storage box light switch lead
 3. Rear wheel sensor lead
 4. Fuel pump lead
 5. O₂ sensor lead
 6. Storage box light lead
 7. Storage box
 8. Starter motor lead
 9. Rear brake lock cable
 10. Brake hose
 11. Wire harness
-
- A. Install the white tape section of the wire harness into the notch area of the storage box. After the wire harness is connected to the tail/brake light lead and storage box light switch lead, it is allowed to be detached from the notch area.
 - B. Route the fuel pump lead under the rear frame.
 - C. Coupler for the battery charger (optional)
 - D. Install the clamp of the O₂ sensor lead into the hole of the V-belt case air filter case.
 - E. To seat lock key cylinder
 - F. To seat heater (for XP530D-A)
 - G. Fasten the lead with the clamp.
 - H. It does not matter whether the storage box light leads are installed on the left or right of the storage box light.
 - I. Install the clamp of the seat heater lead against the rib of the storage box.
 - J. Rib of storage box
 - K. Around the starter motor
 - L. Push in the starter motor lead underneath the air duct.
 - M. Install the clamp within the range shown in the illustration.
 - N. Install the O₂ sensor coupler to the rear brake lock cable bracket.
 - O. Fully insert the clamp all the way to the back of the rear frame rib.
 - P. Fasten the O₂ sensor lead to the rib section of the V-belt case air filter case.

CABLE ROUTING

Frame (left side view)



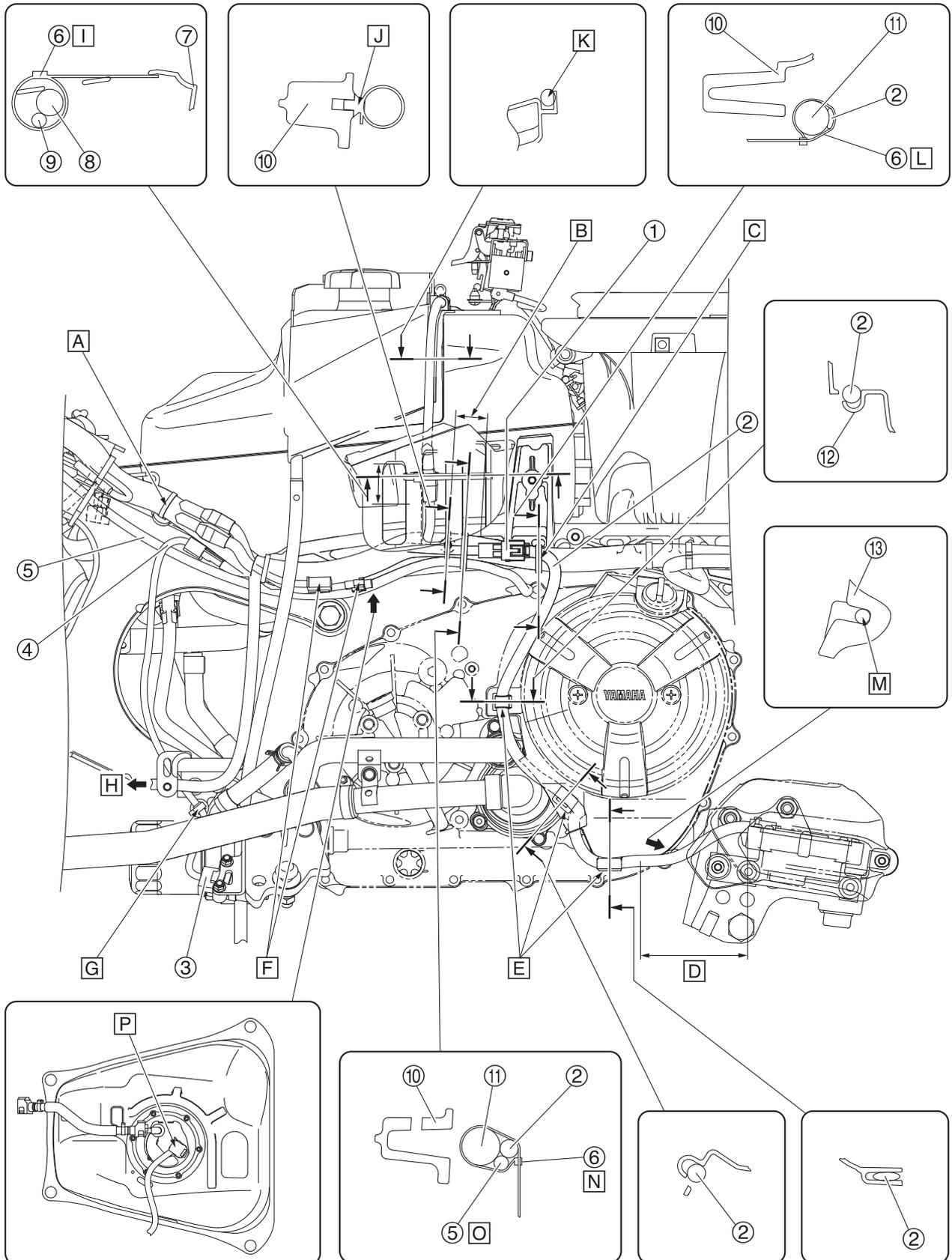
1. Buzzer lead
2. Intake air temperature sensor lead
3. Yamaha diagnostic tool coupler
4. Negative battery lead
5. Headlight relay (dimmer)
6. Brake light relay (for XP530D-A)
7. ECU lead 1
8. ECU lead 2
9. Throttle servo motor lead
10. Clamp
11. Spark plug lead (#2)
12. Spark plug lead (#1)
13. Fuel injection system relay
14. Steering lock relay
15. Starting circuit cut-off relay
16. Ignition coil lead 2 (orange)
17. Ignition coil lead 1 (red/black)
18. Ignition system relay
19. Smart key system relay (lock)
20. Smart key system relay (unlock)
21. Positive battery lead
22. Ground lead
23. Starter motor lead
24. Battery box
25. Frame
26. Ground lead (wire harness)
27. Wire harness
28. Joint connector lead
29. Plastic locking tie
30. Fuel tank bracket

- A. Install the buzzer to the ribs of the battery box with the lead exit facing the bottom.
- B. Push in the negative battery lead between the battery box and wire harness after connecting it to the negative battery lead coupler.
- C. To injector #1
- D. Install the clamp of the throttle servo motor lead into the hole in the motor cover.
- E. Make sure the spark plug leads after this clamp are not twisted.
- F. Make sure there is no slack in the spark plug lead when installed within this range as shown in the illustration.
- G. Install the wire harness clamp into the hole on the battery box.
- H. The end of the cover must be above the relay steps. Make sure the cover does not turn up around the entire circumference.
- I. Relay steps
- J. Push in the buzzer coupler up to the inside of the wire harness branch lead and relay. The coupler is allowed to protrude out after it is pushed in.
- K. Install the wire harness coupler into the hole in the bracket.

- L. The front and back arrangement of the three leads does not matter.
- M. Route the ground lead between the frame and wire harness.
- N. Install the ground lead with the caulked section facing the inside.
- O. Fasten the frame, wire harness and starter motor lead with the plastic locking tie at the white tape section of the wire harness. The end of the plastic locking tie should face downward without being cut.
- P. Fasten the wire harness with the plastic locking tie after routing it on top of the front bolt securing the fuel tank bracket.

CABLE ROUTING

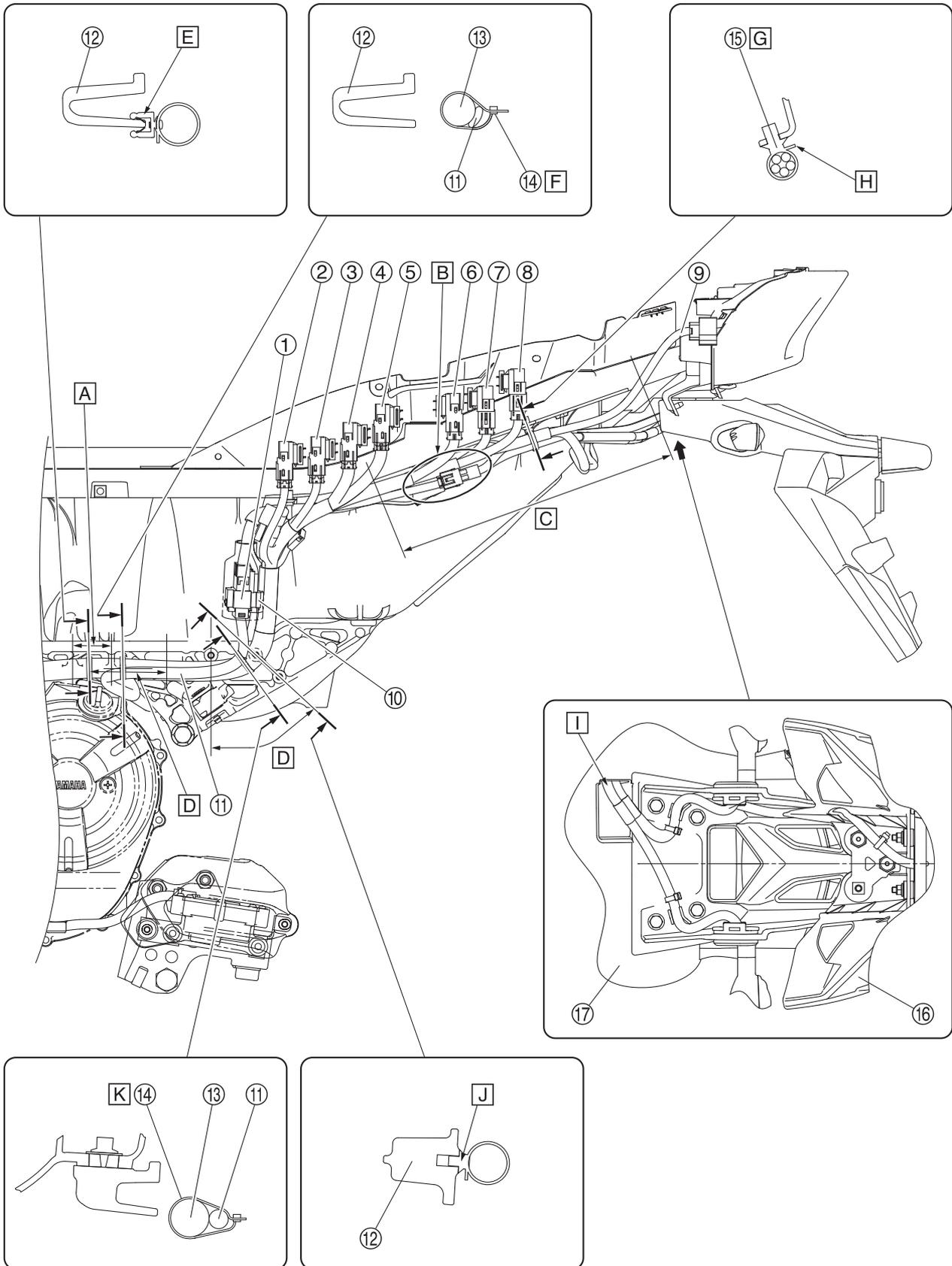
Rear frame (left side view)



1. Centerstand lock solenoid coupler
 2. Centerstand lock solenoid lead
 3. Sidestand switch
 4. Sidestand switch lead
 5. Starter motor lead
 6. Plastic locking tie
 7. Footboard
 8. Joint coupler lead
 9. Wire harness (seat/fuel lid lock solenoid lead)
 10. Rear frame
 11. Wire harness
 12. Generator cover protector
 13. Centerstand lock solenoid cover
-
- A. Install the wire harness clamp into the hole on the fuel tank bracket.
 - B. Install the plastic locking tie within this range.
 - C. Install the plastic locking tie so that the centerstand lock solenoid lead does not go slack in the space between the centerstand lock solenoid coupler and the guide of the generator cover protector.
 - D. Make sure that the centerstand lock solenoid lead does not slacken in this range.
 - E. Install the centerstand lock solenoid lead to the rib of the generator cover protector. (3 locations)
 - F. Anti-theft alarm coupler (no connection)
 - G. Install the clamp of the sidestand switch lead to the bracket.
 - H. To the tracking system control unit (except for XP530E-A)
 - I. Fasten the wire harness to the footboard with the plastic locking tie. Position the plastic locking tie within the range shown in the illustration. Point the end of the plastic locking tie rearward and place it inside of the footboard.
 - J. Install the wire harness clamp into the hole in the rear frame.
 - K. Route the seat/fuel lid lock solenoid lead through the rib portion of the filler cover.
 - L. The end of the plastic locking tie should face the inside without being cut.
 - M. Route the centerstand lock solenoid lead through the notch section of the centerstand lock solenoid cover.
 - N. Install the plastic locking tie between the wire harness clamp and the centerstand lock solenoid coupler. Make sure the plastic locking tie does not come into contact with the bare wire. The end of the plastic locking tie should face downward without being cut.
 - O. Fasten the white tape section of the starter motor lead with the plastic locking tie.
 - P. Connect the fuel pump coupler securely to the fuel pump.

CABLE ROUTING

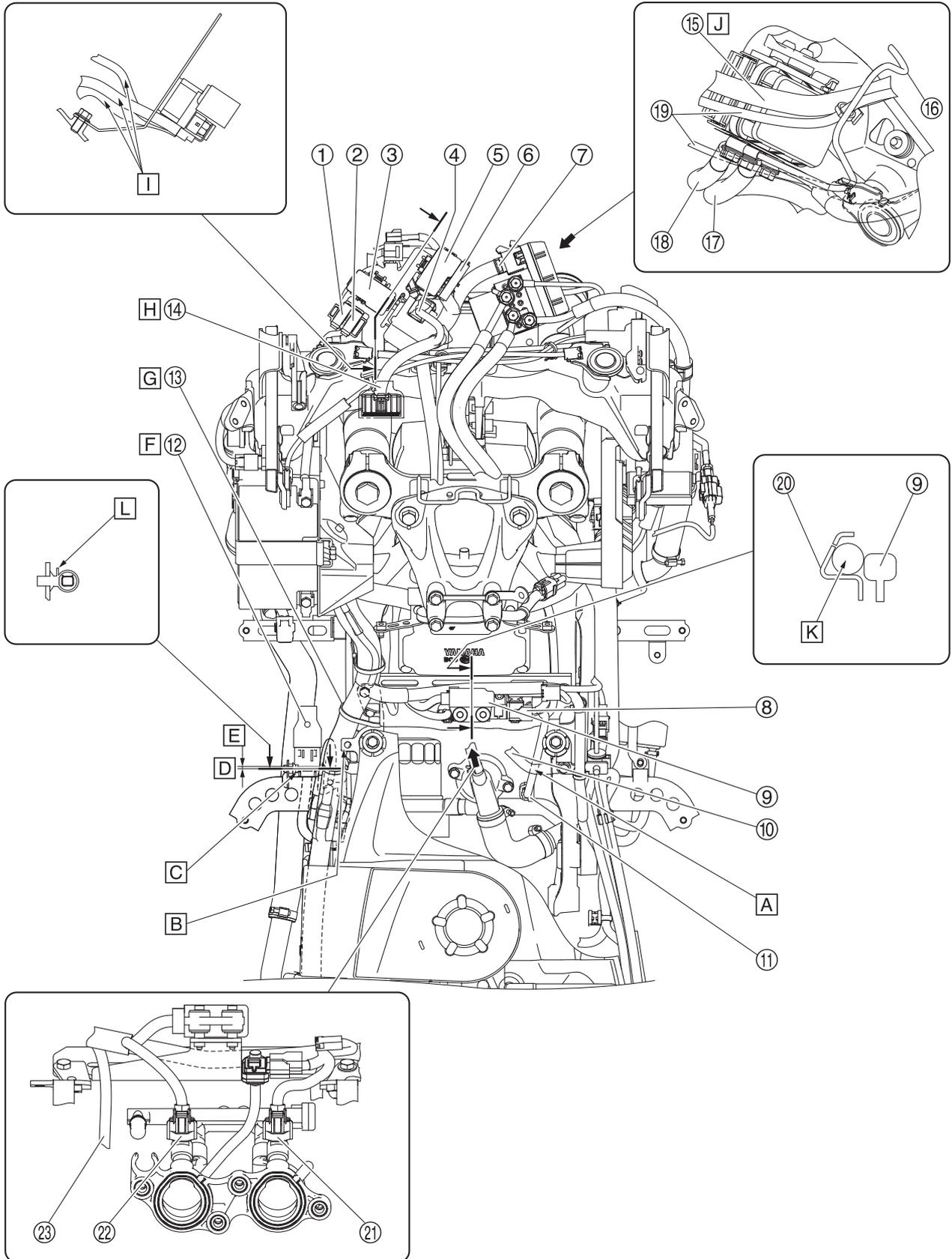
Frame (left side view)



1. Stator coil coupler
 2. Sidestand relay
 3. Turn signal/hazard relay
 4. Radiator fan motor relay
 5. Seat heater relay (power) (for XP530D-A)
 6. Seat heater relay (control) (for XP530D-A)
 7. Windshield drive unit relay (down) (for XP530D-A)
 8. Windshield drive unit relay (up) (for XP530D-A)
 9. Tail/brake light lead (left)
 10. Crankshaft position sensor coupler
 11. Stator coil assembly lead
 12. Rear frame
 13. Wire harness
 14. Plastic locking tie
 15. Clamp
 16. Mudguard assembly
 17. Tail/brake light cover
- A. Install the wire harness clamp within this range.
 - B. Connect the rear turn signal light lead by matching the colors of the coupler (left: black, right: white).
Connect the license plate light lead (blue-black). (Color does not matter.)
 - C. The order of arrangement of the lead does not matter as long as it is installed within this range.
 - D. Install the plastic locking tie within this range.
 - E. Install the wire harness clamp to the rounded end of the rib.
 - F. Fasten the white tape section of the stator coil assembly lead and wire harness with the plastic locking tie. The end of the plastic locking tie should be cut facing the outside.
 - G. Fasten the tape portion of each lead with the clamp.
White tape: Wire harness, seat heater lead (for XP530D-A)
Yellow tape: Mudguard assembly lead
It should be okay as long as the clamp is aligned roughly to the tape section of each lead.
 - H. The end of the plastic locking tie should face the inside without being cut.
 - I. Route the rear turn signal light lead (left/right) and license plate light lead through the hole in the tail/brake light cover.
 - J. Install the wire harness clamp into the hole in the rear frame.
 - K. Adjust the stator coil assembly lead and wire harness to the position of the wire harness clamp and fasten them with the plastic locking tie.

CABLE ROUTING

Frame (top view)

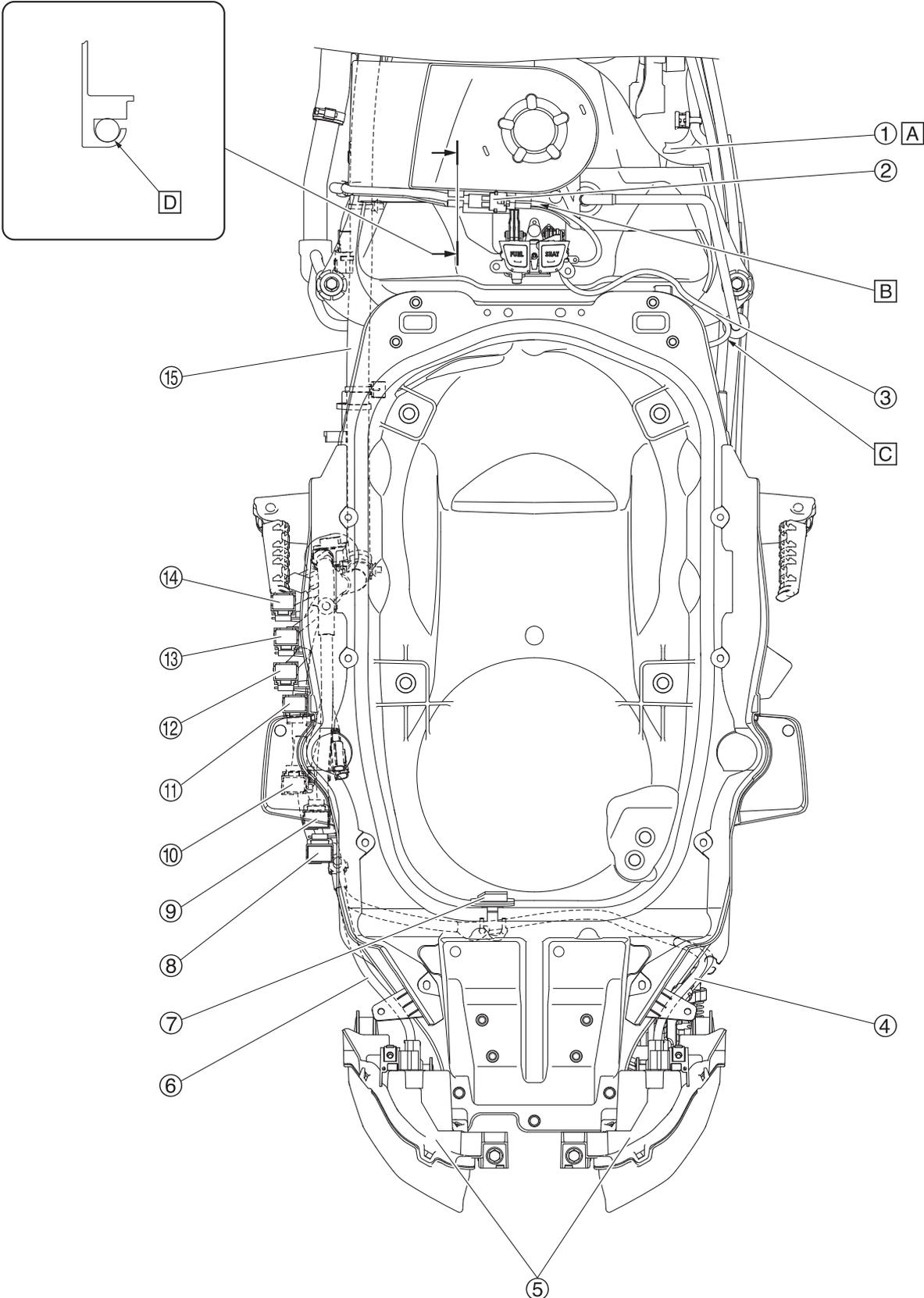


1. Fuse box 4 (for XP530D-A)
2. Fuse box 5 (for XP530D-A)
3. Fuse box 2
4. Starter relay lead
5. Fuse box 1
6. Fuse box 3
7. ABS ECU coupler
8. Intake air pressure sensor
9. Lean angle sensor
10. Canister purge hose
11. Coolant temperature sensor
12. Coupler cover
13. Plastic locking tie
14. Meter assembly lead
15. Handlebar switch lead (left/right)/Grip warmer lead (left/right) (for XP530D-A)/Front brake light switch lead (for XP530D-A)/Rear brake light switch lead (for XP530D-A)
16. Front brake hose (hydraulic unit to front brake caliper)
17. Rear brake hose (rear brake master cylinder to hydraulic unit)
18. Front brake hose (front brake master cylinder to hydraulic unit)
19. Windshield drive unit cable
20. Fuel tank fitting bracket
21. Injector #2
22. Injector #1
23. Throttle servo motor lead

- A. Route the coolant temperature sensor lead below the canister purge hose.
- B. Route the wire harness below the protruding portion of the fuel tank bracket.
- C. Install the clamp into the screw hole in the bracket. (except for XP530E-A)
- D. Install the clamp so that it touches the coupler side within the range shown in the illustration.
- E. 0–10 mm (0–0.39 in)
- F. Install the coupler cover so that the white paint mark is on top.
- G. Make sure the plastic locking tie does not come into contact with the fuel tank.
- H. After connecting the coupler to the meter, insert it until the coupler cover contacts the bottom of the meter.
- I. Route the leads on the inside of the bracket.
- J. Route these leads between the steel tube of the front brake hose (hydraulic unit to front brake caliper) and the headlight stay.
- K. Route the wire harness between the lean angle sensor and the fuel tank fitting bracket.
- L. The end of the clamp should face the bottom without being cut.

CABLE ROUTING

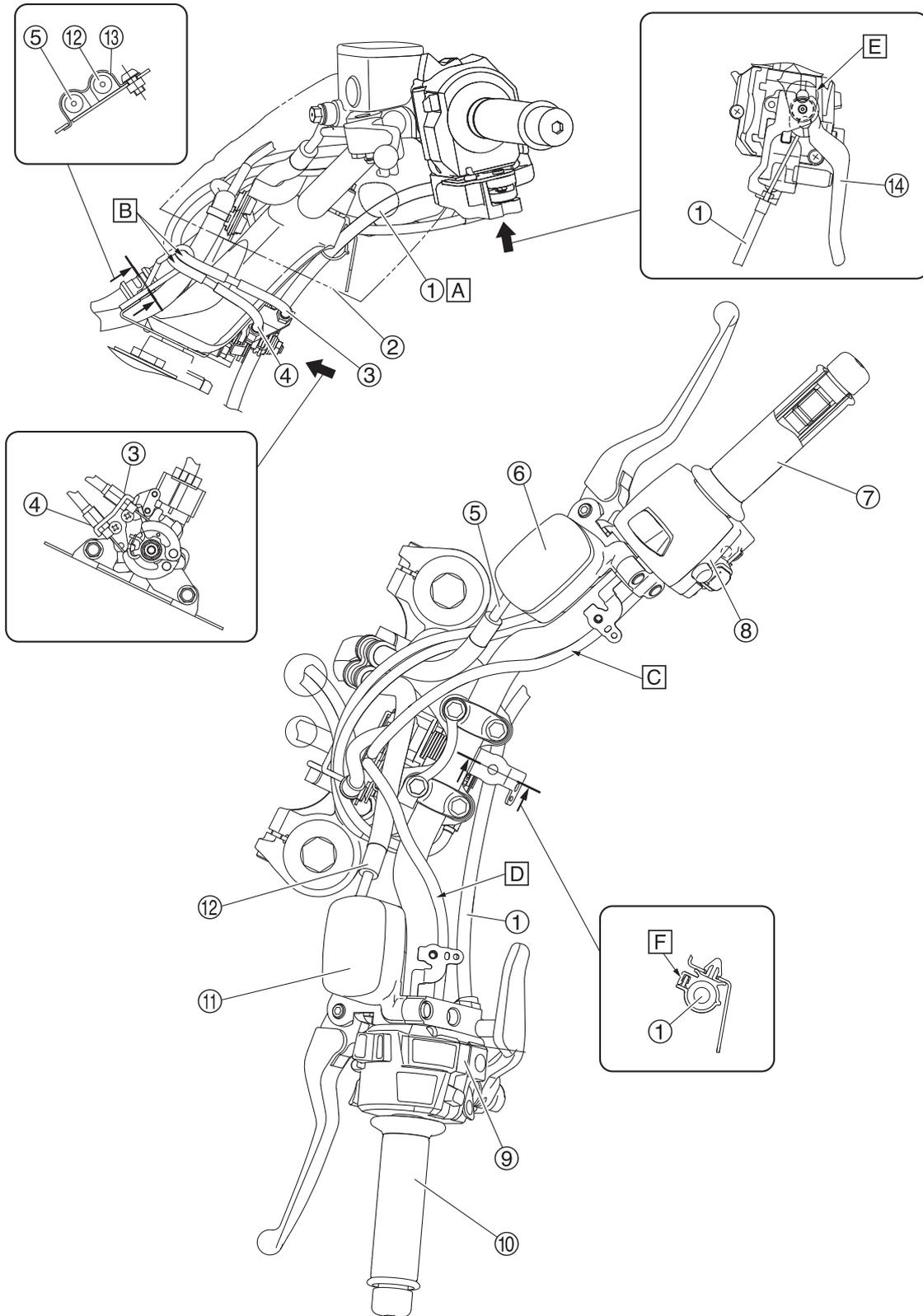
Frame (top view)



1. Fuel pump lead
 2. Seat/fuel lid lock solenoid coupler
 3. Seat lock cable
 4. Tail/brake light lead (right)
 5. Tail/brake light
 6. Tail/brake light lead (left)
 7. Storage box light
 8. Windshield drive unit relay (up) (for XP530D-A)
 9. Windshield drive unit relay (down) (for XP530D-A)
 10. Seat heater relay (control) (for XP530D-A)
 11. Seat heater relay (power) (for XP530D-A)
 12. Radiator fan motor relay
 13. Turn signal/hazard relay
 14. Sidestand relay
 15. Wire harness
- A. To fuel pump
 - B. Route the lead along the edge of the filler cover.
 - C. Make sure the seat lock cable does not get caught.
 - D. Install the seat/fuel lid lock solenoid lead to the rib of the filler cover.

CABLE ROUTING

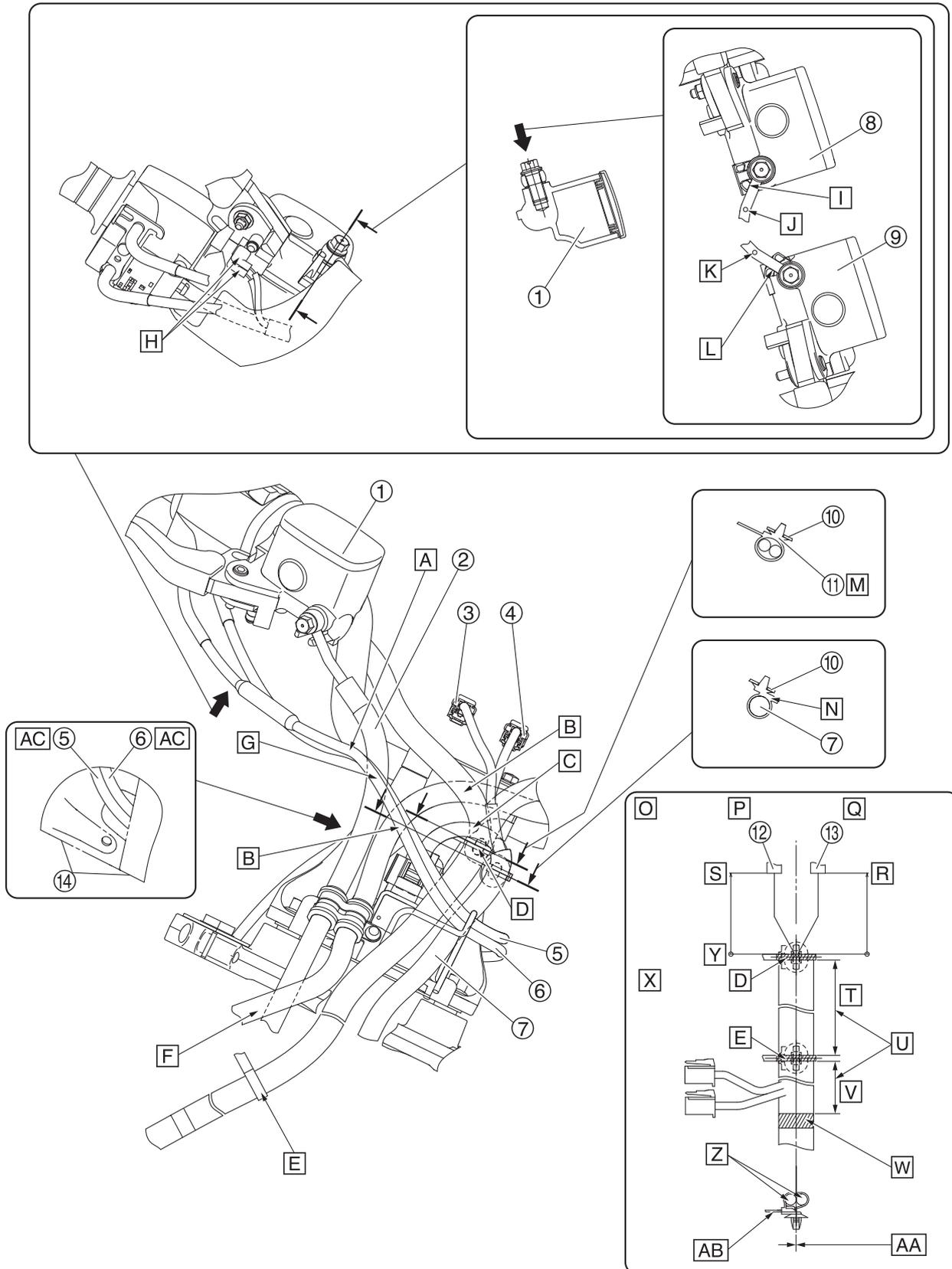
Handlebar (top and left side view) (for XP530E-A/XP530-A)



1. Rear brake lock cable
 2. Handlebar cover
 3. Throttle cable (decelerator cable)
 4. Throttle cable (accelerator cable)
 5. Front brake hose (front brake master cylinder to hydraulic unit)
 6. Front brake master cylinder
 7. Throttle grip
 8. Handlebar switch (right)
 9. Handlebar switch (left)
 10. Handlebar grip
 11. Rear brake master cylinder
 12. Rear brake hose (rear brake master cylinder to hydraulic unit)
 13. Brake hose holder
 14. Rear brake lock lever
- A. Route the rear brake lock cable through the hole in the handlebar cover.
 - B. Route through the cable guide in the order of the throttle cable (decelerator cable) followed by throttle cable (accelerator cable).
 - C. Route the handlebar switch lead (right) on top of and at the back of the handlebar.
 - D. Route the handlebar switch lead (left) on top of and at the back of the handlebar.
 - E. Turn the rear brake lock lever up to the position shown in the illustration before installing the rear brake lock cable.
 - F. The opening of the clamp should face the front.

CABLE ROUTING

Handlebar (front view) (for XP530E-A/XP530-A)



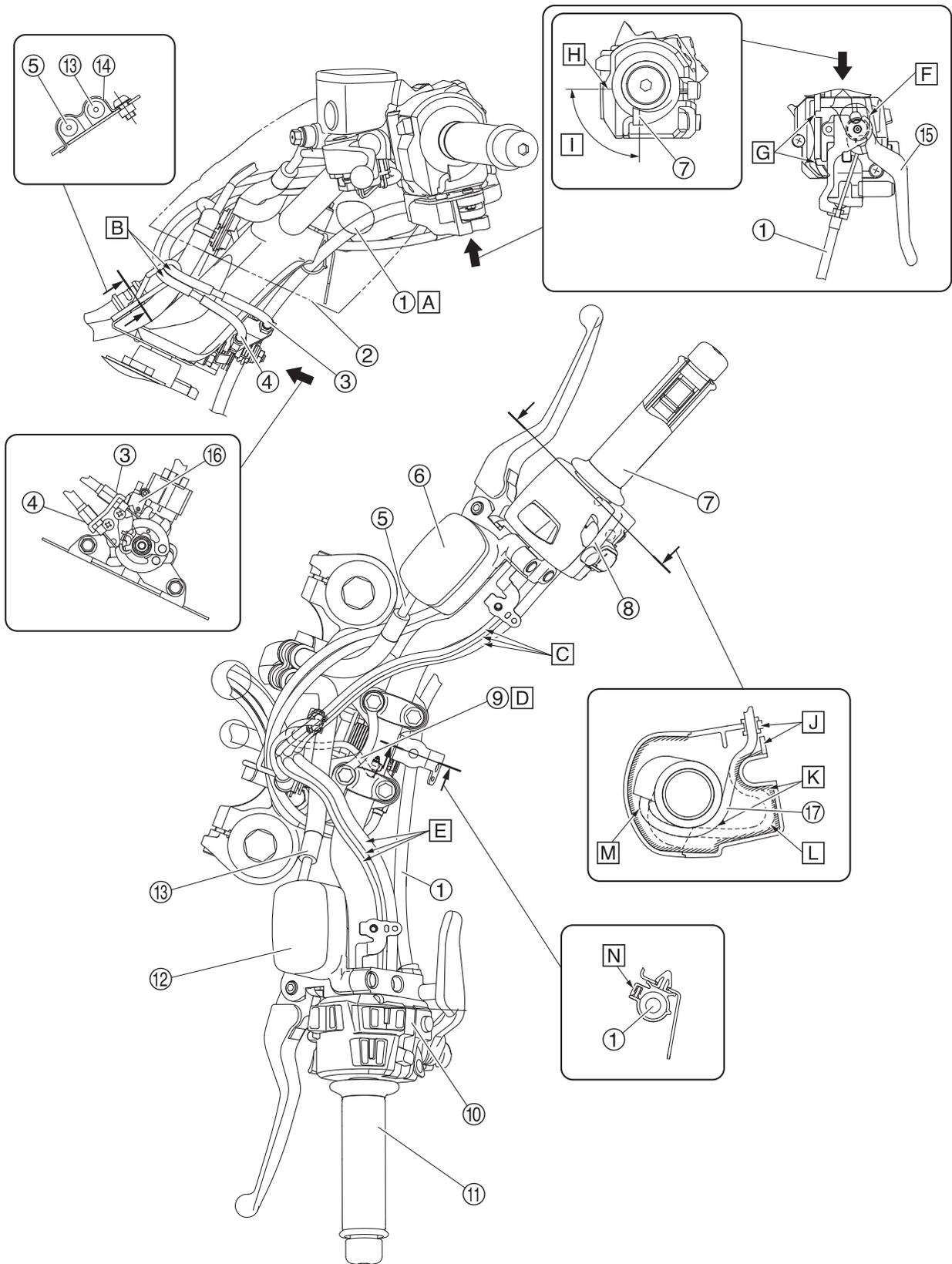
1. Brake master cylinder
2. Front brake hose (front brake master cylinder to hydraulic unit)
3. OFF/LOCK switch coupler
4. Parking/Unlock switch coupler
5. Throttle cable (decelerator cable)
6. Throttle cable (accelerator cable)
7. Wire harness
8. Front brake master cylinder
9. Rear brake master cylinder
10. Bracket
11. Clamp
12. Handlebar switch lead (right)
13. Handlebar switch lead (left)
14. Handlebar cover

- A. Route the throttle cable (accelerator cable) in front of the throttle cable (decelerator cable).
- B. Route the rear brake hose behind the leads around the handlebar and throttle cables.
- C. Route the wire harness in front of the leads around the handlebar.
- D. Clamp A
- E. Clamp B
- F. Route the rear brake hose on top of the front brake hose.
- G. Route the front brake hose behind the throttle cables.
- H. Connect the brake light switch from the inside. (left/right)
- I. The metal part of the front brake hose should come into contact with the guide section of the brake master cylinder.
- J. Attach the front brake hose with the white paint mark on the metal part facing the front.
- K. Attach the rear brake hose with the yellow paint mark on the metal part facing the front.
- L. Route the metal part of the rear brake hose between the guides of the brake master cylinder.
- M. Consolidate the leads around the handlebar and fasten them with the clamp. See the clamp A fixed position details for more details.
- N. Face the end of the wire harness clamp toward the left.
- O. Clamp A fixed position details
- P. Right side of the vehicle
- Q. Left side of the vehicle
- R. 245–255 mm (9.65–10.04 in): Case end face
- S. 285–295 mm (11.22–11.61 in): Case end face
- T. Interval between the clamp A end and the clamp B end: 275–285 mm (10.83–11.22 in)
- U. Make sure there is no slack, break, entangling, etc., within this interval for each harness.
- V. 205–215 mm (8.07–8.46 in)
- W. Positioning white tape

- X. Clamp installing procedure
 1. Mark the reference point on the lead of each component.
 2. Align the marking of each lead and fasten with the clamp A.
 3. Fasten the wire harness with the clamp B at a position that is located 275–285 mm (10.83–11.22 in) from the end of clamp A.
- Y. Reference point
- Z. Fasten the handlebar switch lead (left) and handlebar switch lead (right) with the clamp.
- AA. Relative angle between clamp A and clamp B: -15° – 15°
- AB. The end of the clamp should face the right without being cut.
- AC. Route the throttle cables through the right side opening in the handlebar cover as shown in the illustration.

CABLE ROUTING

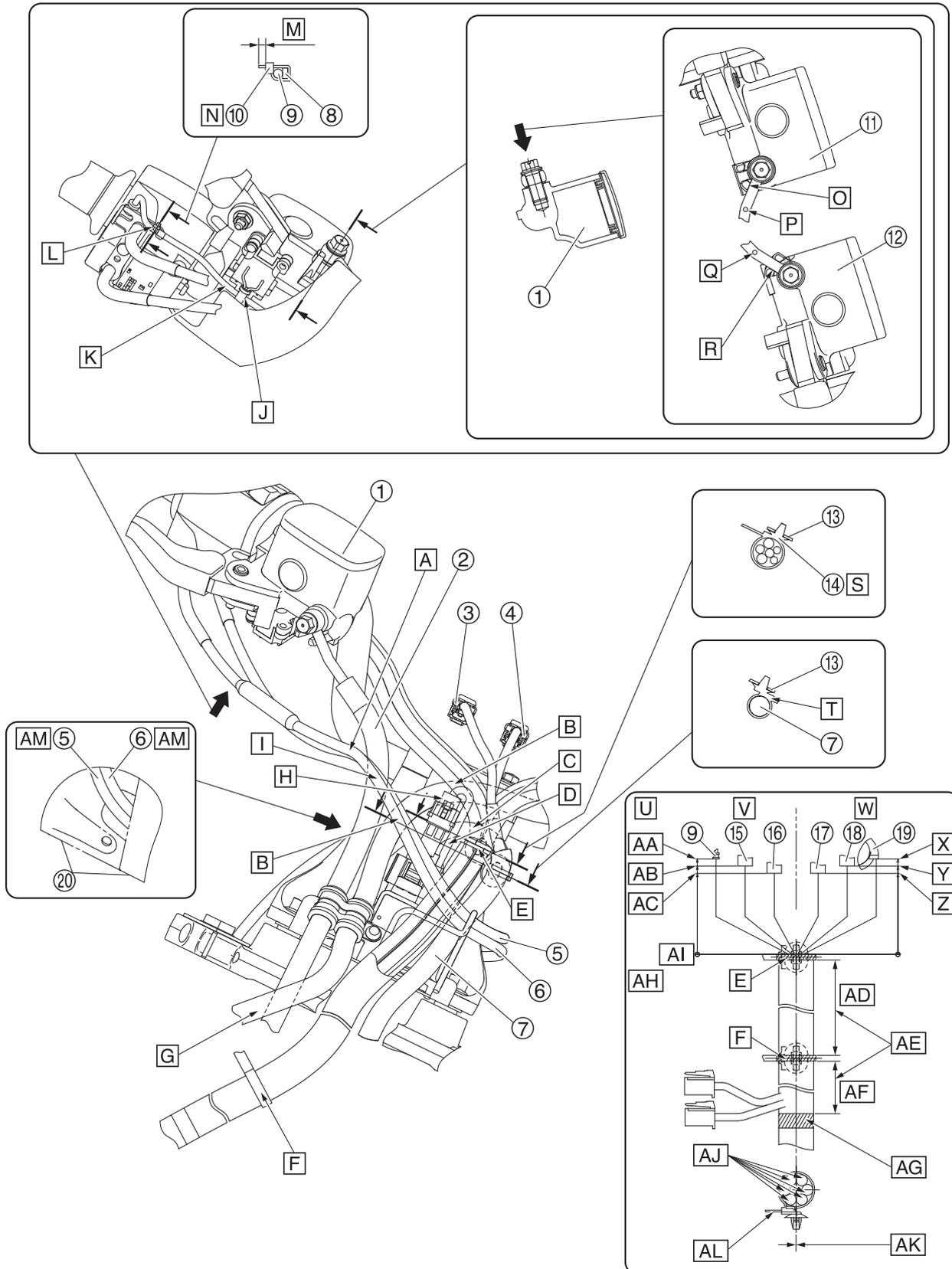
Handlebar (top and left side view) (for XP530D-A)



1. Rear brake lock cable
 2. Handlebar cover
 3. Throttle cable (decelerator cable)
 4. Throttle cable (accelerator cable)
 5. Front brake hose (front brake master cylinder to hydraulic unit)
 6. Front brake master cylinder
 7. Throttle grip
 8. Handlebar switch (right)
 9. Grip cancel switch lead
 10. Handlebar switch (left)
 11. Handlebar grip
 12. Rear brake master cylinder
 13. Rear brake hose (rear brake master cylinder to hydraulic unit)
 14. Brake hose holder
 15. Rear brake lock lever
 16. Grip cancel switch
 17. Grip warmer lead
- A. Route the rear brake lock cable through the hole in the handlebar cover.
 - B. Route through the cable guide in the order of the throttle cable (decelerator cable) followed by throttle cable (accelerator cable).
 - C. Route the grip warmer lead, handlebar switch lead (right), and front brake light switch lead on top of and behind the handlebar.
 - D. Route the grip cancel switch lead between the lower handlebar holder and the upper bracket.
 - E. Route the grip warmer lead (left), handlebar switch lead (left), and rear brake light switch lead on top of and behind the handlebar.
 - F. Turn the rear brake lock lever up to the position shown in the illustration before installing the rear brake lock cable.
 - G. Install the grip warmer lead (left) into the slot in the handlebar switch.
 - H. Case mating surface of the handlebar switch
 - I. $90^{\circ} \pm 3^{\circ}$
 - J. Install the grommet of the grip warmer lead (right) into the slot in the handlebar switch, and then hold and fasten it with the plate of the throttle cable (accelerator cable).
 - K. Apply lithium-soap-based grease to the moving parts of the grip warmer lead (right) and the inside of the handlebar switch (shaded area in the illustration).
 - L. Fully open position
 - M. Fully closed position
 - N. The opening of the clamp should face the front.

CABLE ROUTING

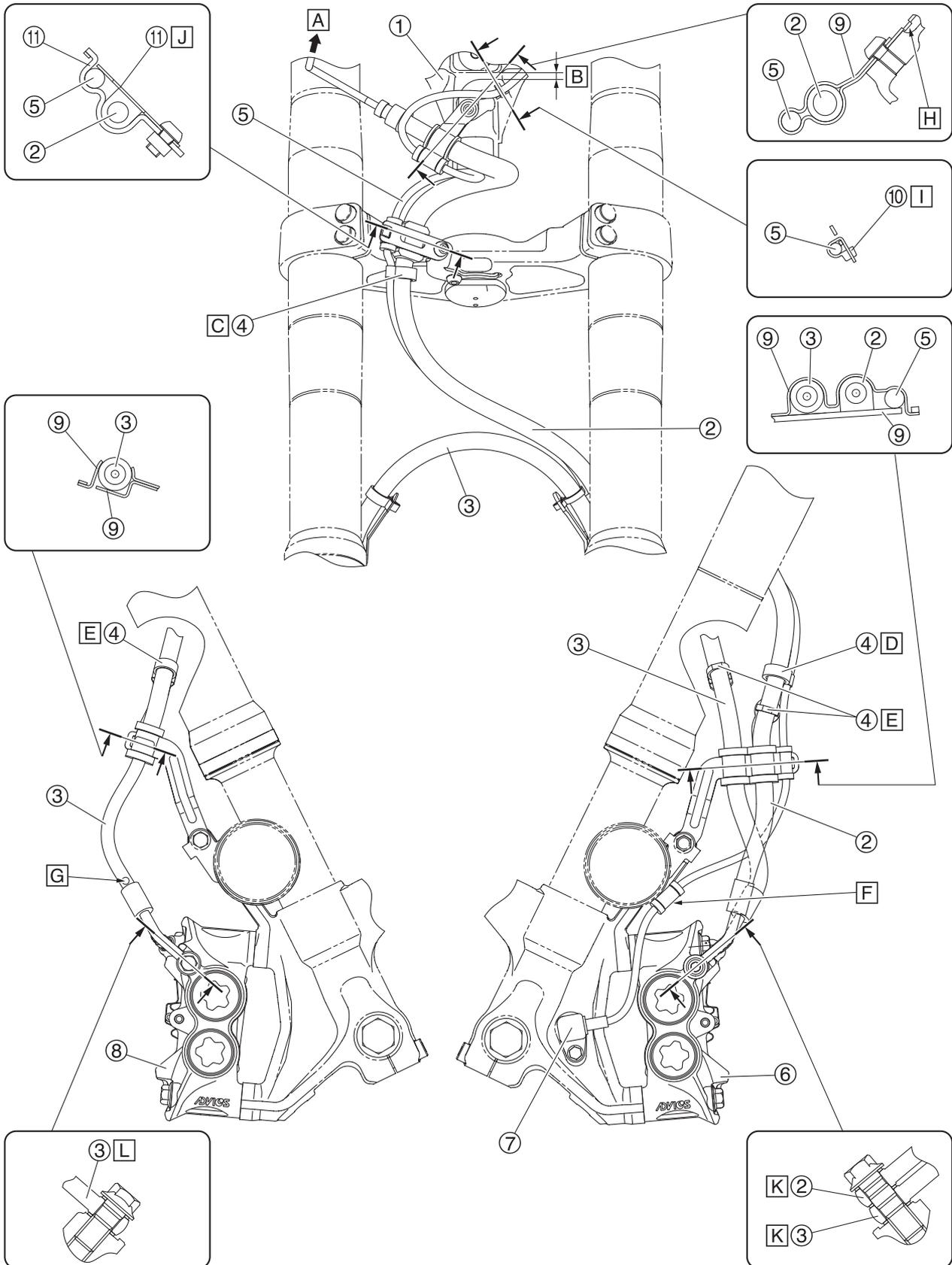
Handlebar (front view) (for XP530D-A)



1. Brake master cylinder
 2. Front brake hose (front brake master cylinder to hydraulic unit)
 3. OFF/LOCK switch coupler
 4. Parking/Unlock switch coupler
 5. Throttle cable (decelerator cable)
 6. Throttle cable (accelerator cable)
 7. Wire harness
 8. Plate (throttle cable)
 9. Grip warmer lead (right)
 10. Plastic locking tie
 11. Front brake master cylinder
 12. Rear brake master cylinder
 13. Bracket
 14. Clamp
 15. Handlebar switch lead (right)
 16. Front brake light switch lead
 17. Rear brake light switch lead
 18. Handlebar switch lead (left)
 19. Grip warmer lead (left)
 20. Handlebar cover
- A. Route the throttle cable (accelerator cable) in front of the throttle cable (decelerator cable).
 - B. Route the rear brake hose behind the leads around the handlebar and throttle cables.
 - C. Route the wire harness in front of the leads around the handlebar.
 - D. Route the grip cancel switch lead between the accelerator position sensor coupler and the wire harness.
 - E. Clamp A
 - F. Clamp B
 - G. Route the rear brake hose on top of the front brake hose.
 - H. Arrange the grip cancel switch coupler in front of the brake hose and leads around the handlebar.
 - I. Route the front brake hose behind the throttle cables.
 - J. Route the grip warmer lead so that it does not get caught between the front brake light switch lead and the handlebar cover.
 - K. Route the grip warmer lead inside the handlebar cover while routing it behind the front brake light switch.
 - L. Align the blue tape end of the grip warmer lead with the end of the plastic locking tie to fasten it.
 - M. 3 mm (0.12 in) or less
 - N. The plastic locking tie should face downward with the end cut to 3 mm (0.12 in) or less.
 - O. The metal part of the front brake hose should come into contact with the guide section of the brake master cylinder.
 - P. Install the front brake hose with the white paint mark on the metal part facing the front.
 - Q. Install the rear brake hose with the yellow paint mark on the metal part facing the front.
 - R. Route the metal part of the rear brake hose between the guides of the brake master cylinder.
 - S. Consolidate the leads around the handlebar and fasten them with the clamp. See the clamp A fixed position details for more details.
 - T. Face the end of the wire harness clamp toward the left.
 - U. Clamp A fixed position details
 - V. Right side of the vehicle
 - W. Left side of the vehicle
 - X. 330–340 mm (12.99–13.39 in): Collar end face
 - Y. 245–255 mm (9.65–10.04 in): Case end face
 - Z. 215–225 mm (8.46–8.86 in): Case end face
 - AA. 360–370 mm (14.17–14.57 in): Grommet end face
 - AB. 285–295 mm (11.22–11.61 in): Case end face
 - AC. 255–265 mm (10.04–10.43 in): Case end face
 - AD. Interval between the clamp A end and the clamp B end: 275–285 mm (10.83–11.22 in)
 - AE. Make sure there is no slack, break, entangling, etc., within this interval for each harness.
 - AF. 205–215 mm (8.07–8.46 in)
 - AG. Positioning white tape
 - AH. Clamp installing procedure
 1. Mark the reference point on the lead of each component.
 2. Align the marking of each lead and fasten with the clamp A.
 3. Fasten the wire harness with the clamp B at a position that is located 275–285 mm (10.83–11.22 in) from the end of clamp A.
 - AI. Reference point
 - AJ. Fasten the grip warmer lead (left), grip warmer lead (right), handlebar switch lead (left), handlebar switch lead (right), front brake light switch lead, and rear brake light switch lead with the clamp.
 - AK. Relative angle between clamp A and clamp B: -15° – 15°
 - AL. The end of the clamp should face the right without being cut.
 - AM. Route the throttle cables through the right side opening in the handlebar cover as shown in the illustration.

CABLE ROUTING

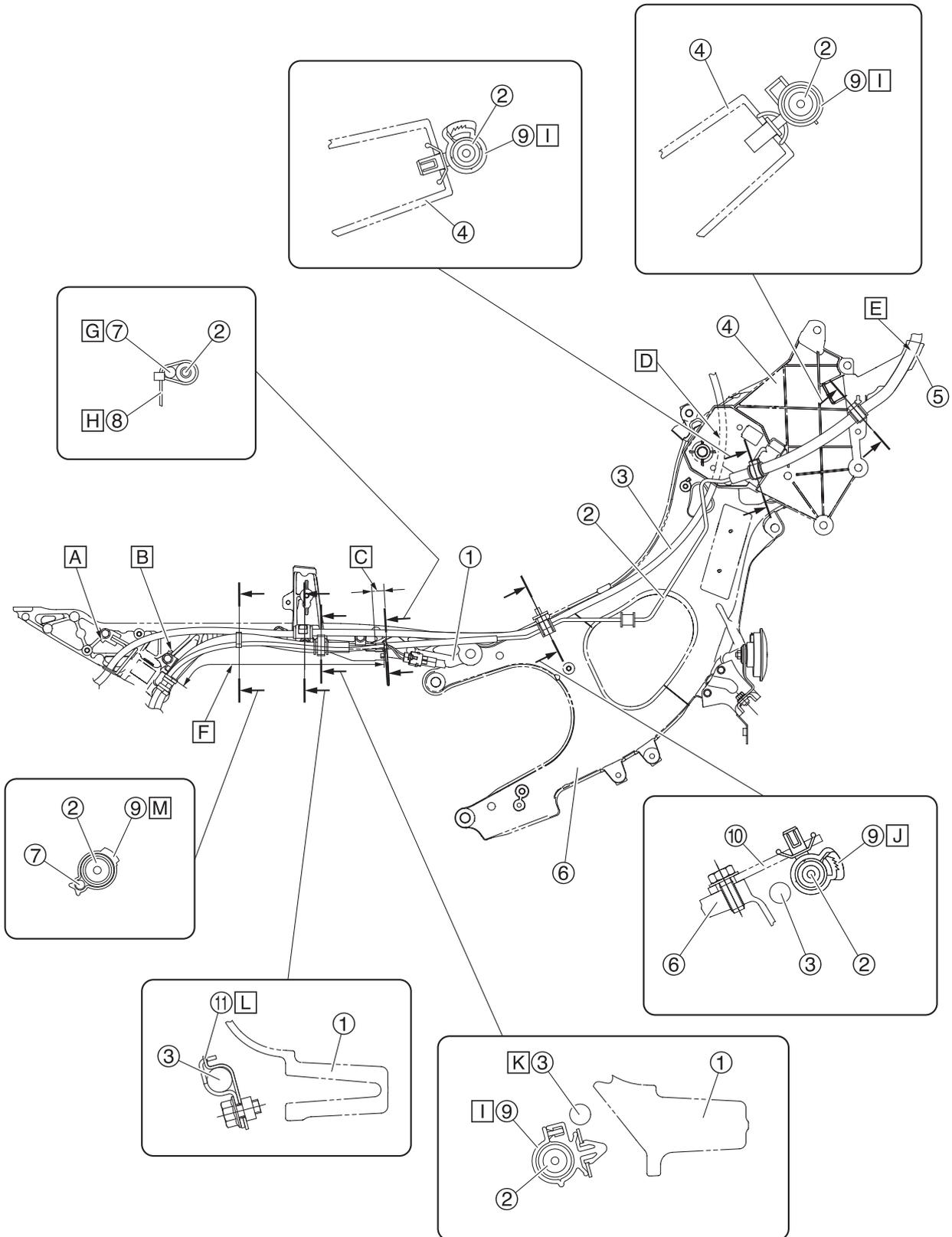
Front brake (front, left side and right side view)



1. Headlight stay
 2. Front brake hose (hydraulic unit to front brake caliper)
 3. Front brake hose (left brake caliper to right brake caliper)
 4. Clamp
 5. Front wheel sensor lead
 6. Front brake caliper (left)
 7. Front wheel sensor
 8. Front brake caliper (right)
 9. Brake hose holder
 10. Plastic locking tie
 11. Stay
- A. To hydraulic unit
 - B. 4.7–4.9 mm (0.185–0.193 in)
 - C. Fasten the white tape section of the front wheel sensor lead and front brake hose with the clamp. Install the clamp so that the front wheel sensor lead is located on the right side.
 - D. Fasten the white tape section of the front wheel sensor lead and front brake hose with a clamp. Install the clamp so that the front wheel sensor lead is located on the back.
 - E. Install the clamp into the hole in the brake hose holder.
 - F. Route the front wheel sensor lead through the brake hose holder.
 - G. Install the front brake hose with the paint mark on the outside.
 - H. Install the brake hose holder with the rotation stopper in contact with the headlight stay. When using the dimension “B”, it is not necessary to let the stopper touch the headlight stay.
 - I. Fasten the white tape section of the front wheel sensor lead with the plastic locking tie. The plastic locking tie should face downward with the end cut to 5 mm (0.2 in) or less.
 - J. Install the stay with the identification mark facing the front.
 - K. Install the front brake hose (left brake caliper to right brake caliper) with the metal part in contact with the positioning stopper of the brake caliper. Install the front brake hose (hydraulic unit to front brake caliper) by aligning the metal part to the direction of the metal part of the front brake hose (left brake caliper to right brake caliper).
 - L. Install the front brake hose (left brake caliper to right brake caliper) with the metal part in contact with the positioning stopper of the brake caliper.

CABLE ROUTING

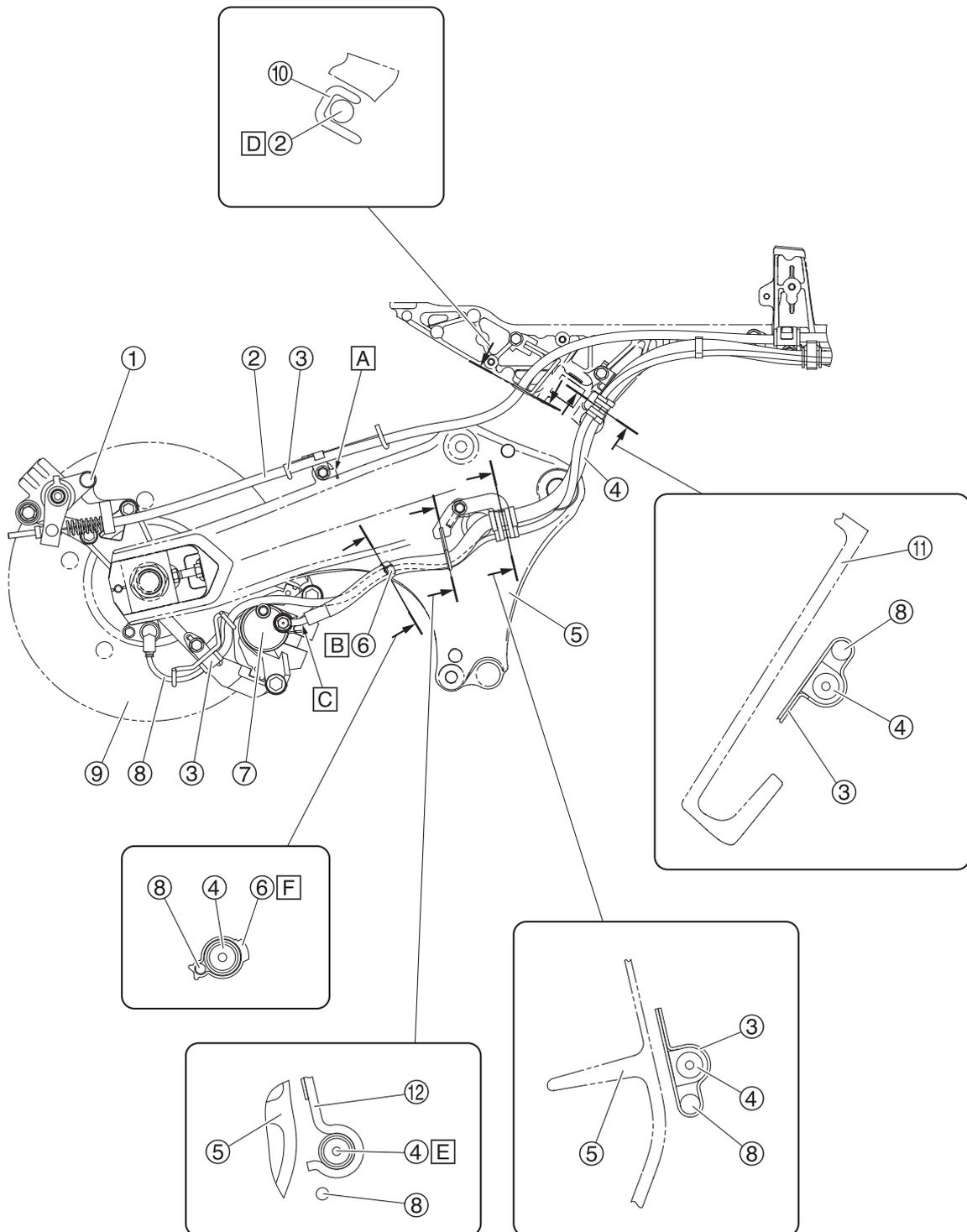
Frame (right side view)



1. Rear frame
 2. Rear brake hose (hydraulic unit to rear brake caliper)
 3. Rear brake lock cable
 4. Electrical components tray
 5. Guide
 6. Frame
 7. Rear wheel sensor lead
 8. Plastic locking tie
 9. Clamp
 10. Fuel tank bracket
 11. Cable guide
-
- A. Install the bracket with the rotation stopper in contact with the rib of the rear frame.
 - B. Install the brake hose holder with the rotation stopper in contact with the ribs of the rear frame.
 - C. Fasten the protector portion of the rear brake hose and the protector portion of the rear wheel sensor lead with the plastic locking tie. Fasten the protector end of the rear wheel sensor lead (anywhere within a range of 0–10 mm (0–0.39 in) from the end) with the plastic locking tie. Make sure the plastic locking tie will not detach from the protector part of the brake hose and rear wheel sensor lead.
 - D. Route the rear brake lock cable in front of the section where the electrical components tray and frame are fastened.
 - E. Route the rear brake hose along the guide of the electrical components tray.
 - F. Make sure there is no slack in the rear wheel sensor lead within this interval.
 - G. Arrange the rear wheel sensor lead either on top of, below, or outside the rear brake hose.
 - H. The end of the plastic locking tie should face downward without being cut.
 - I. The opening of the clamp should face the top.
 - J. The opening of the clamp should face the right.
 - K. Route the rear brake lock cable between the rear frame and the rear brake hose.
 - L. Fasten the grommet portion of the rear brake lock cable with the cable guide.
 - M. Fasten the rear brake hose and white tape section of the rear wheel sensor lead with the clamp. Fasten the brake hose and rear wheel sensor lead so that the rear wheel sensor lead is located on the right side.

CABLE ROUTING

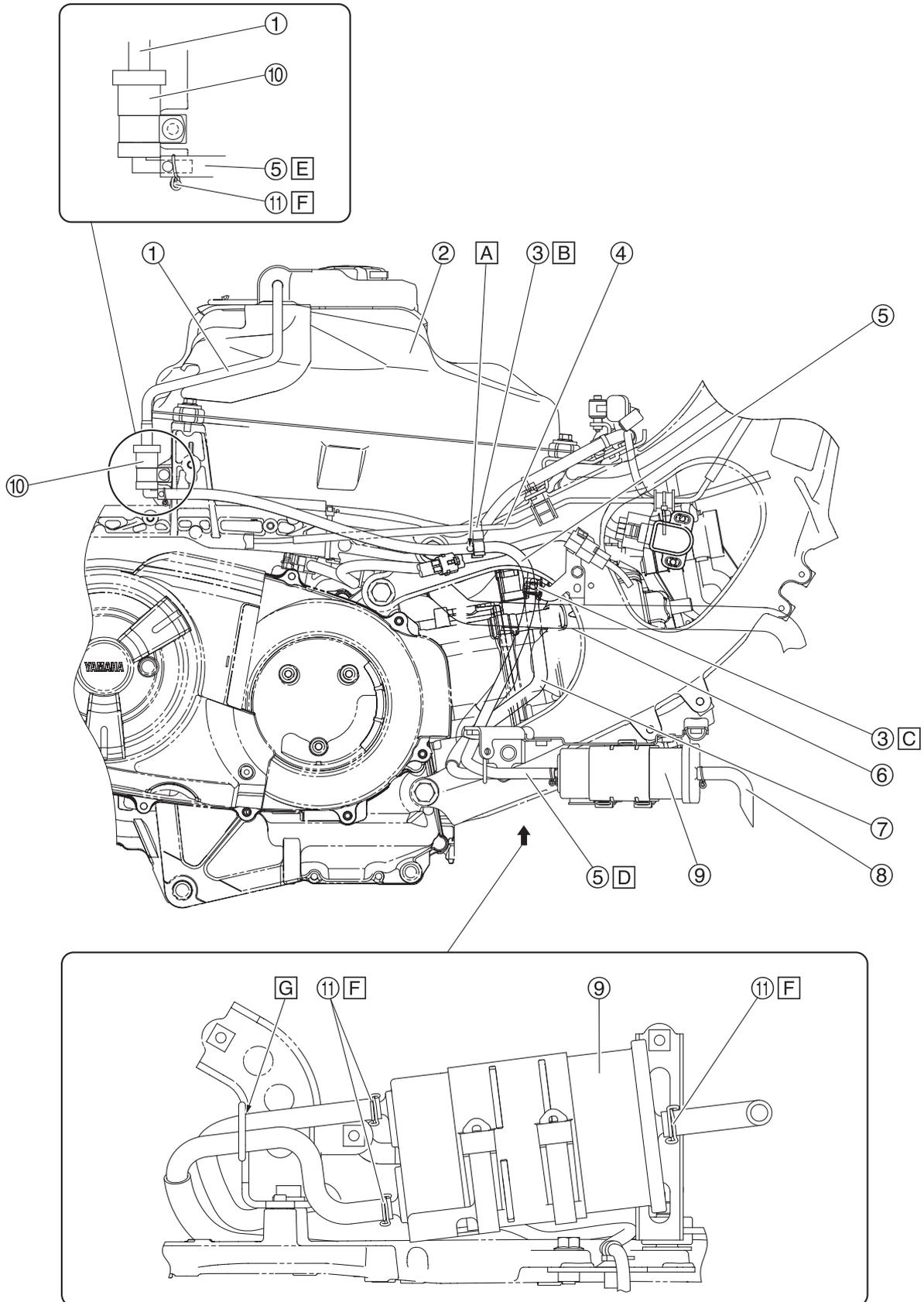
Rear brake (right side view)



1. Rear brake lock caliper
 2. Rear brake lock cable
 3. Holder
 4. Rear brake hose (hydraulic unit to rear brake caliper)
 5. Swingarm (right)
 6. Clamp
 7. Rear brake caliper
 8. Rear wheel sensor lead
 9. Rear brake disc
 10. Bracket
 11. Rear frame
 12. Stay
- A. Install the holder with the rotation stopper in contact with the swingarm.
 - B. Install the clamp with the clamp in contact with the protector end of the rear wheel sensor lead.
 - C. Install the rear brake hose with the rear brake hose in contact with the stopper of the rear brake caliper.
 - D. Route the rear brake lock cable between the brackets.
 - E. Route the rear brake hose through the guide portion of the stay.
 - F. Fasten the rear brake hose and rear wheel sensor lead with the clamp so that the rear wheel sensor is located on the left side.

CABLE ROUTING

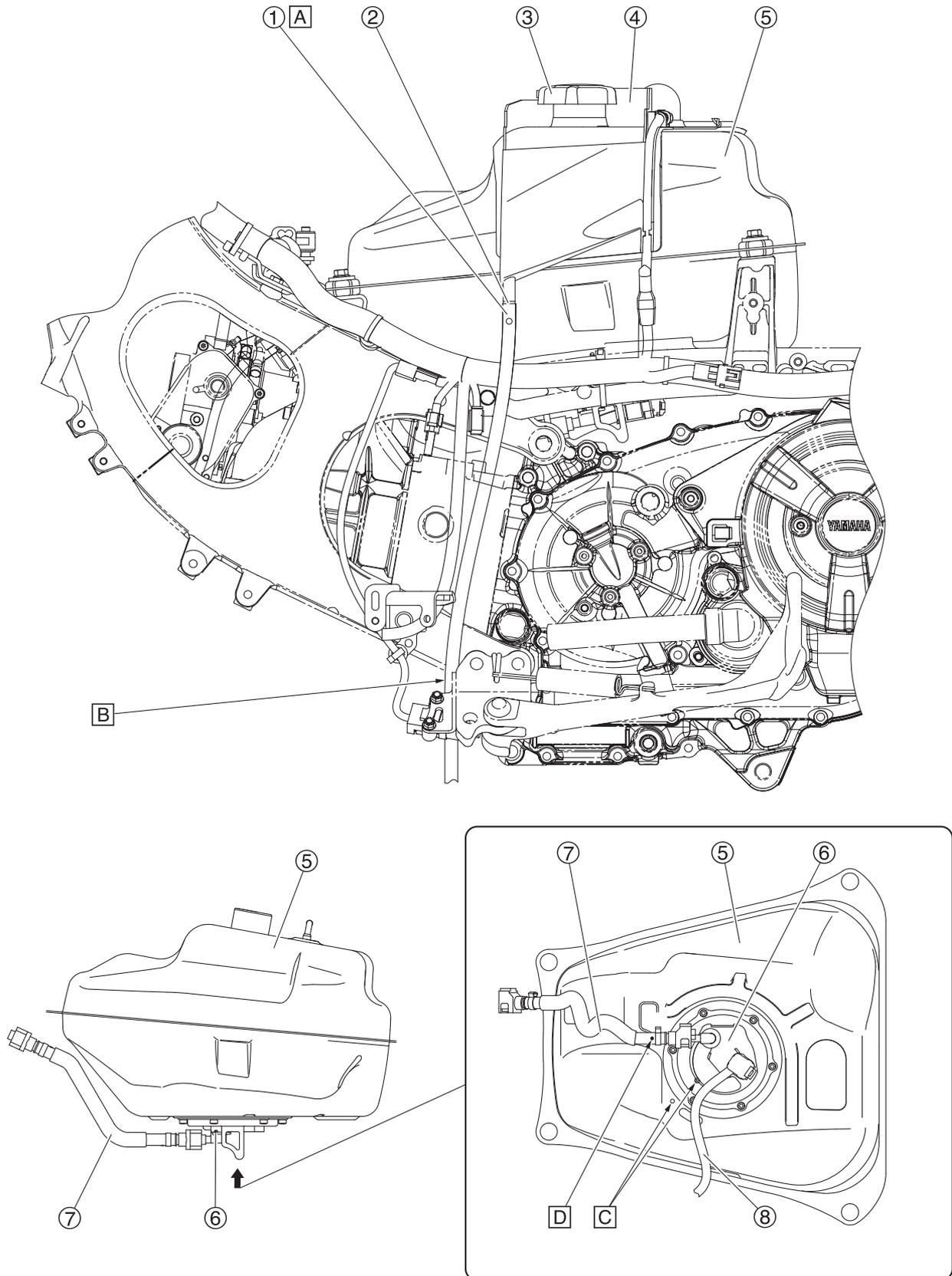
Fuel tank (right side view)



1. Fuel tank breather hose (fuel tank to rollover valve)
 2. Fuel tank
 3. Clamp
 4. Rear brake hose (hydraulic unit to rear brake caliper)
 5. Fuel tank breather hose (rollover valve to canister)
 6. Coolant pipe
 7. Canister purge hose (hose joint to canister)
 8. Canister breather hose
 9. Canister
 10. Rollover valve
 11. Clip
- A. Install the fuel tank breather hose with the mark facing the outside. Align the mark on the hose with the back end of the clamp.
 - B. Fasten the rear brake hose and fuel tank breather hose with the clamp. Install the clamp with the longer side of the fixed section facing downward, and adjust the position so that the intersection of the rear brake hose and fuel tank breather hose is in contact with the clamp.
 - C. Install the clamp into the hole in the stay of the coolant pipe. Fasten the canister purge hose with the clamp.
 - D. For the hoses to be installed to the canister, install the fuel tank breather hose on the outside and the canister purge hose on the inside.
 - E. Install the fuel tank breather hose with the mark facing the outside. The end of the fuel tank breather hose should come into contact with the rollover valve.
 - F. The end of the clip should face downward. Make sure the clip does not ride on top of the bulge in the hose installing area.
 - G. Route the fuel tank breather hose and canister purge hose on the inside of the guide section of the bracket.

CABLE ROUTING

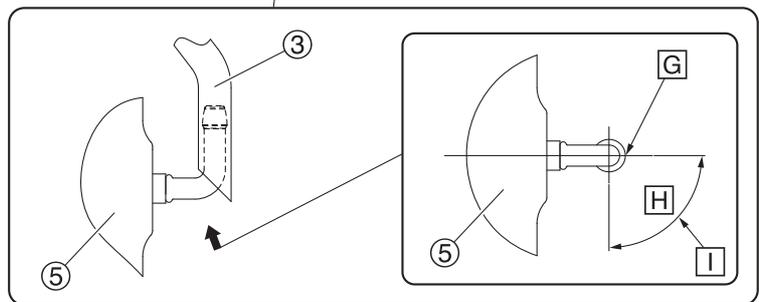
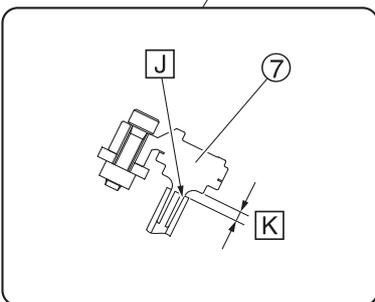
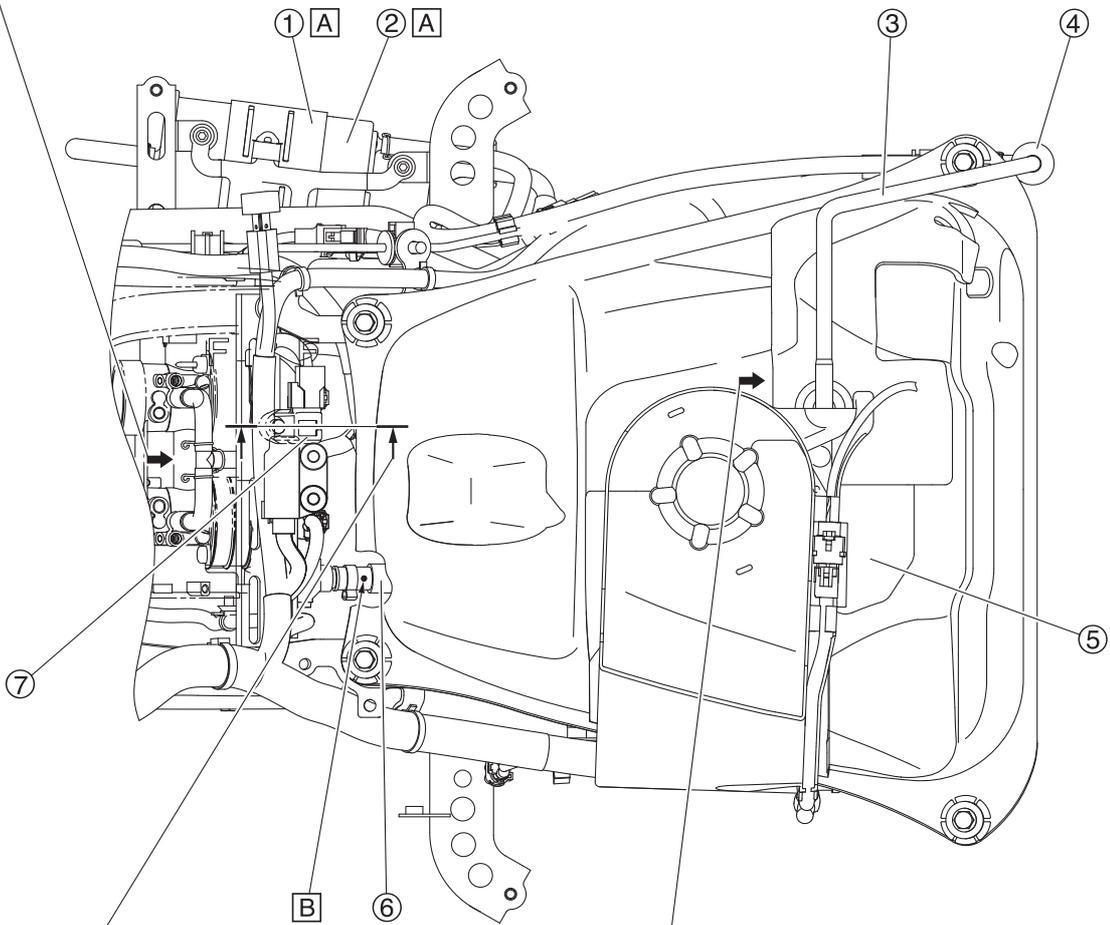
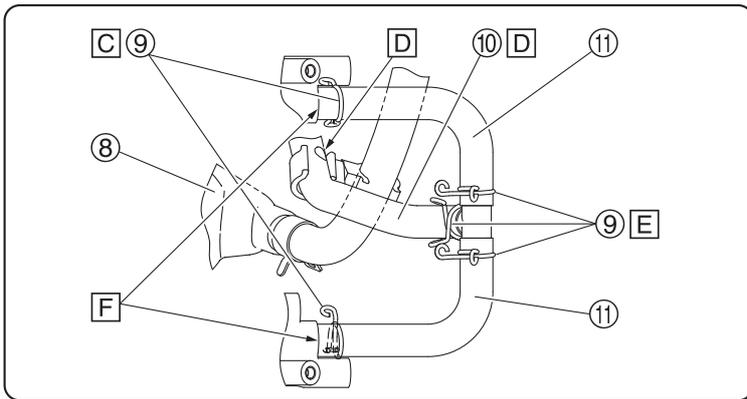
Fuel tank (left side view)



1. Fuel tank overflow hose
 2. Hose joint
 3. Fuel tank cap
 4. Filler cover
 5. Fuel tank
 6. Fuel pump
 7. Fuel hose
 8. Fuel pump lead
-
- A. Install the fuel tank overflow hose with the mark facing the outside.
 - B. Route the fuel tank overflow hose between the sidestand bracket and the frame.
 - C. Align the mark on the fuel tank with the mark on the fuel pump to install the fuel pump.
 - D. Hold the fuel hose with its paint mark facing to the right and install the hose to the fuel tank. After installing the fuel hose to the tank, the paint mark should face downward.

CABLE ROUTING

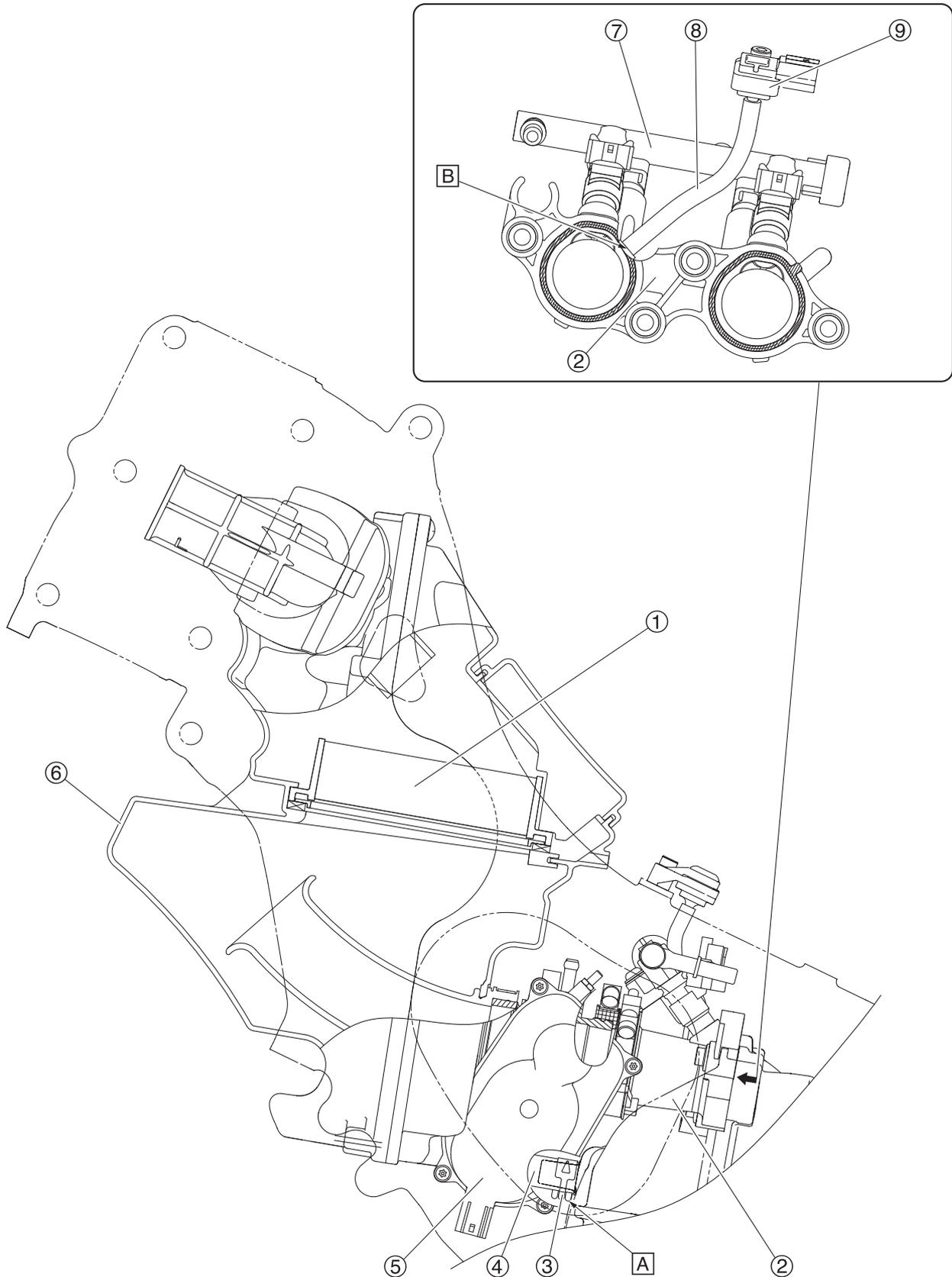
Fuel tank (top view)



1. Canister holder
 2. Canister
 3. Fuel tank breather hose (fuel tank to rollover valve)
 4. Rollover valve
 5. Fuel tank
 6. Fuel hose
 7. Intake air pressure sensor
 8. Thermostat cover
 9. Clip
 10. Canister purge hose (hose joint to canister)
 11. Canister purge hose (throttle body to hose joint)
-
- A. Install the canister holder and canister with the marks facing the top.
 - B. Install the fuel hose to the fuel rail so that the paint mark on the fuel hose is facing upward.
 - C. The end of the clip should face the rear. Place the clip at a distance of 3 mm (0.12 in) or more from the hose end. Make sure the clip does not ride on top of the bulge in the hose mounting area.
 - D. Install the canister purge hose to the hose joint with the longer side facing the rear and the paint mark facing the right side.
 - E. The end of the clip should face the rear. Place the clip at a distance of 2–4 mm (0.08–0.16 in) from the hose end.
 - F. Install the canister purge hose with the end in contact with the throttle body.
 - G. Fuel tank breather hose end portion
 - H. 90°
 - I. Install the fuel tank breather hose with the end portion is aligned within this range.
 - J. Install the intake air pressure sensor hose with the intake air pressure sensor base unit in contact with it.
 - K. 0–3 mm (0–0.12 in)

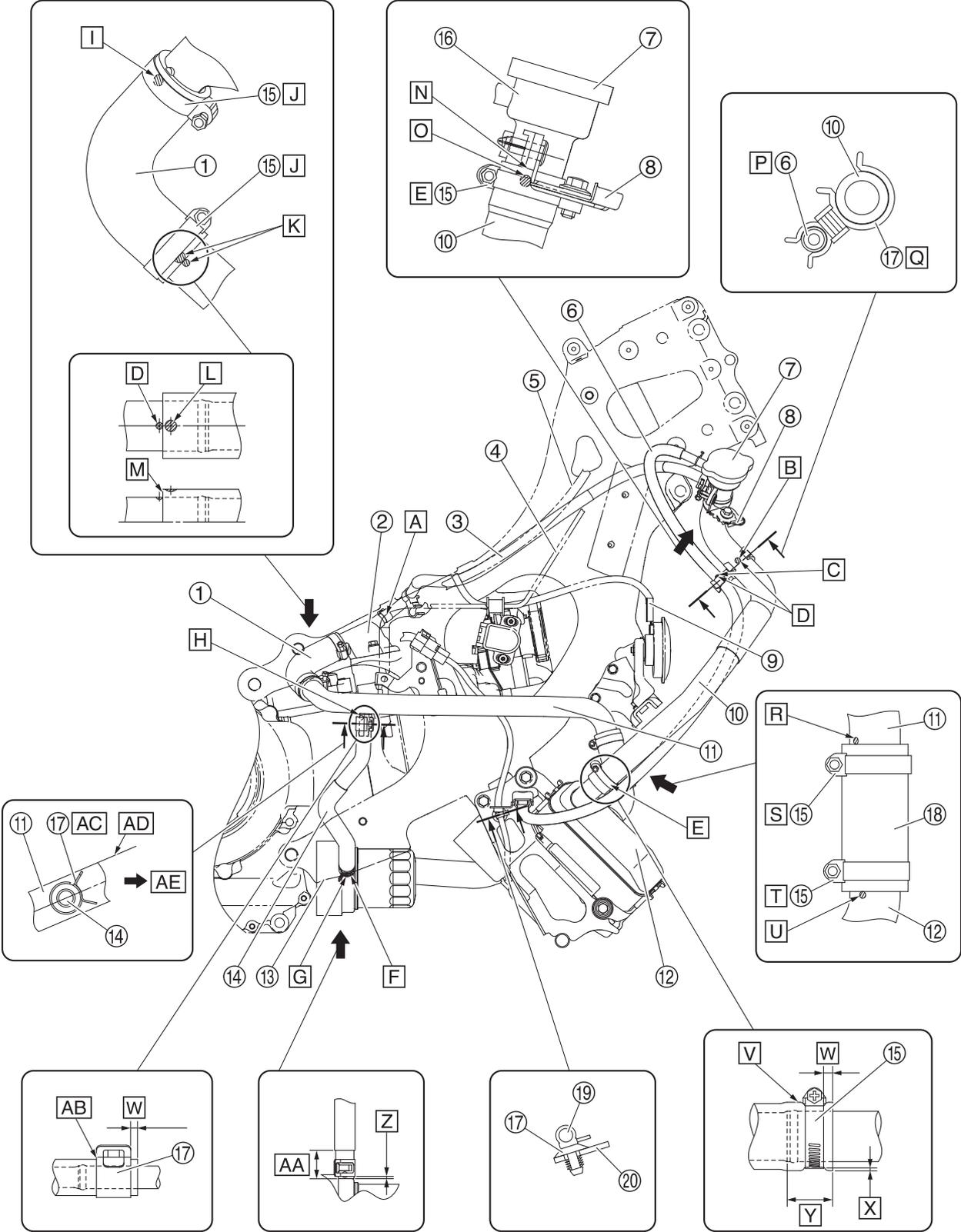
CABLE ROUTING

Air filter case and throttle body (left side view)



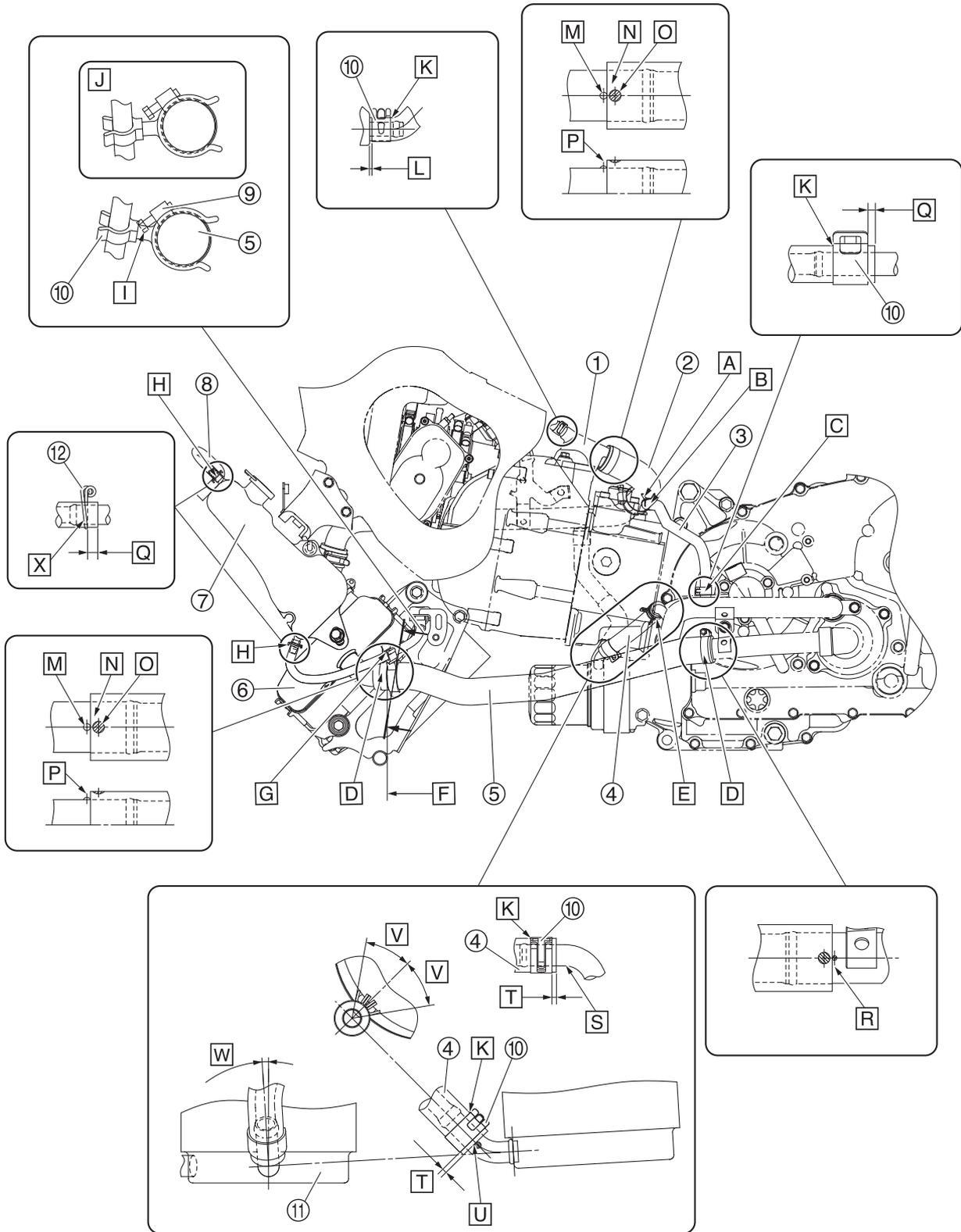
1. Air filter element
 2. Intake manifold
 3. Clamp
 4. Cylinder head breather hose
 5. Throttle body assembly
 6. Air filter case
 7. Fuel rail
 8. Intake air pressure sensor hose
 9. Intake air pressure sensor
- A. Place the clamp at a distance of 1–4 mm (0.04–0.16 in) from the hose end. The end of the clamp should face downward.
 - B. Insert the intake air pressure sensor hose until it comes into contact with the throttle body.

Radiator (right side view)



1. Thermostat outlet hose
 2. Thermostat
 3. Cooling system air bleed hose
 4. Rear brake hose (hydraulic unit to rear brake caliper)
 5. Rear brake lock cable
 6. Coolant reservoir hose
 7. Radiator cap
 8. Leg shield
 9. Horn connector
 10. Radiator filler hose
 11. Coolant pipe
 12. Radiator
 13. Oil cooler
 14. Oil cooler outlet hose
 15. Hose clamp
 16. Radiator filler pipe
 17. Clamp
 18. Radiator inlet hose
 19. Radiator fan motor lead
 20. Radiator bracket
- A. Install the clamp with its end facing the left.
 - B. Install the clamp so that the paint mark on the radiator filler hose is visible.
 - C. Install the clamp so that the end section of the paint mark on the coolant reservoir hose is visible.
 - D. Paint mark
 - E. Install the hose clamp with the screw head facing the right.
 - F. Install the clamp with its end facing downward.
 - G. Install the oil cooler outlet hose with the white paint mark facing downward.
 - H. Install the oil cooler outlet hose with the yellow paint mark facing the outside.
 - I. Blue paint mark
 - J. Install the hose clamp with the screw head facing the top.
 - K. Green paint mark
 - L. Green paint mark. Align the paint marks.
 - M. Insert the thermostat outlet hose until it reaches the end of the paint mark on the coolant pipe.
 - N. Insert the radiator filler hose until it comes into contact with the stay of the radiator filler pipe.
 - O. Align the stay of the radiator filler pipe with the paint mark on the radiator filler hose.
 - P. Install the coolant reservoir hose to the bottom of the radiator filler hose.
 - Q. The opening of the clamp should face the right.
 - R. Insert the radiator inlet hose up to the end of the blue paint mark on the coolant pipe.
 - S. Install the hose clamp with the screw head facing the outside.
 - T. Install the hose clamp with the screw head facing the front at an angle of 45° from the right side.
 - U. Insert the radiator inlet hose into the radiator until it reaches the end of the punch mark.
 - V. Make sure the hose clamp does not ride on top of the bulge in the hose mounting area.
 - W. 3 mm (0.12 in) or more
 - X. 0–1 mm (0–0.04 in)
 - Y. Hose plug-in section
 - Z. Install the clamp at a distance of 2 mm (0.08 in) or more from the hose end.
 - AA. After connecting the oil cooler outlet hose to the oil cooler, position the end of the hose protector so that it is 20–30 mm (0.79–1.18 in) from the hose end. It does not matter if the adhesive agent is removed.
 - AB. Make sure the clamp does not ride on top of the bulge in the hose mounting area.
 - AC. The end of the clamp should face the front of the vehicle in the direction parallel to the coolant pipe.
 - AD. The end of the clamp should not protrude out of this line.
 - AE. Front of the vehicle

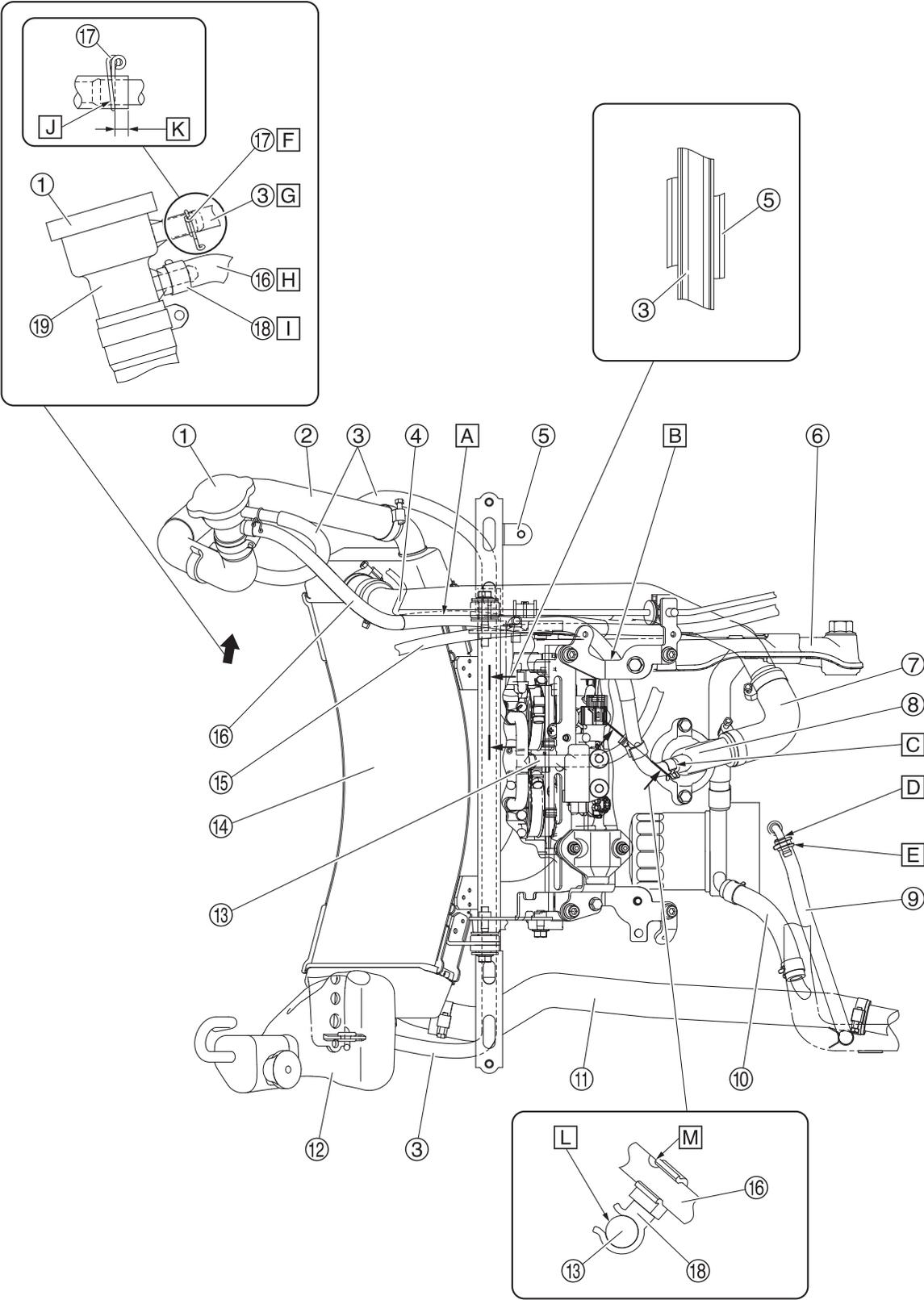
Radiator (left side view)



1. Thermostat
 2. Thermostat outlet hose
 3. Coolant hose
 4. Oil cooler inlet hose
 5. Radiator outlet hose
 6. Radiator
 7. Coolant reservoir
 8. Coolant reservoir breather hose
 9. Hose clamp
 10. Clamp
 11. Oil cooler
 12. Clip
-
- A. Install the clamp with its end facing the top.
 - B. Insert the coolant hose until it reaches the rounded end of the pipe. Install the coolant hose with the yellow paint mark facing the top.
 - C. Install the clamp with its end facing the front.
 - D. Install the hose clamp with the screw head facing the left.
 - E. Install the clamp with the end facing forward and downward at an angle of 45° from the horizontal direction.
 - F. Install the clamp with the hose clamp in contact with it. 0–10 mm (0–0.39 in)
 - G. Install the coolant reservoir hose to the clamp so that the paint mark is visible.
 - H. Install the clip with its end facing the left.
 - I. Install the clamp so that the joint section is at a position relative to the screw head of the hose clamp as shown in the illustration when viewed from the rear of the vehicle.
 - J. Example of bad clamp installing position
 - K. Make sure the clamp does not ride on top of the bulge in the hose installing area.
 - L. 0–1 mm (0–0.04 in)
 - M. Protrusion shape
 - N. Align the paint mark with the protrusion shape.
 - O. Paint mark
 - P. Insert the hose until it comes into contact with the protrusion shape.
 - Q. 3 mm (0.12 in) or more
 - R. Align the white paint mark on the radiator outlet hose with the paint mark on the water pump inlet pipe.
 - S. Make sure the hose does not contact the rounded end of the water pump outlet pipe.
 - T. 2 mm (0.08 in) or more
 - U. Insert the hose until it reaches the end of the paint mark.
 - V. 35°
 - W. 2.9–3.9°
 - X. Make sure the clip does not ride on top of the bulge in the hose installing area.

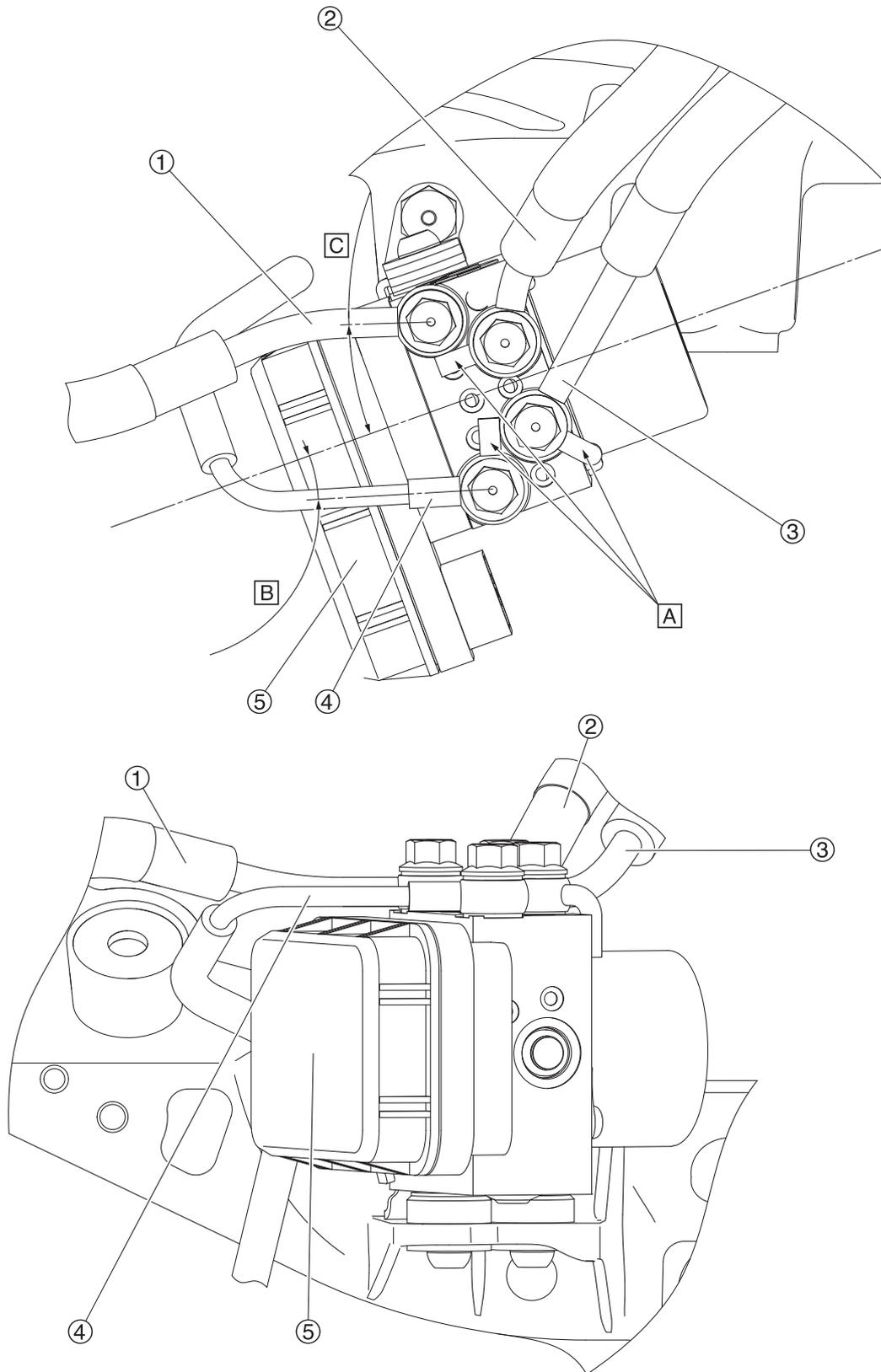
CABLE ROUTING

Radiator (top view)



1. Radiator cap
 2. Radiator filler hose
 3. Coolant reservoir hose
 4. Rear brake hose (hydraulic unit to rear brake caliper)
 5. Radiator bracket
 6. Frame
 7. Thermostat outlet hose
 8. Thermostat
 9. Coolant hose
 10. Oil cooler inlet hose
 11. Radiator outlet hose
 12. Coolant reservoir
 13. Canister purge hose (hose joint to canister)
 14. Radiator
 15. Rear brake lock cable
 16. Cooling system air bleed hose
 17. Clip
 18. Clamp
 19. Radiator filler pipe
- A. Route the cooling system air bleed hose between the rear brake hose and the rear brake lock cable.
 - B. Route the cooling system air bleed hose between the fuel tank bracket and the frame.
 - C. Install the cooling system air bleed hose with the paint mark facing the top, and then put on the thermostat cover.
 - D. Insert the coolant hose until it reaches the rounded end of the pipe.
 - E. Install the clamp at a distance of at least 1 mm (0.04 in) or more from the hose end. Make sure the hose clamp does not ride on top of the bulge in the hose mounting area.
 - F. Install the clip with its end facing the left.
 - G. Insert the coolant reservoir hose until it comes into contact with the rib of the radiator filler pipe.
 - H. Insert the cooling system air bleed hose until it comes into contact with the rib of the radiator filler pipe.
 - I. Install the clamp with its end facing the right.
 - J. Make sure the clip does not ride on top of the bulge in the hose mounting area.
 - K. 3 mm (0.12 in) or more
 - L. Install the clamp so that the paint mark on the canister purge hose is visible.
 - M. Install the clamp by aligning it with the end of the paint mark on the cooling system air bleed hose.

Hydraulic unit assembly (top and front view)



1. Rear brake hose (hydraulic unit to rear brake caliper)
 2. Rear brake hose (rear brake master cylinder to hydraulic unit)
 3. Front brake hose (front brake master cylinder to hydraulic unit)
 4. Front brake hose (hydraulic unit to front brake caliper)
 5. Hydraulic unit
- A. Brake hose installation order
1. Install rear brake hose "1" at the indicated angle. Install front brake hose "3" with the L-shaped pin in contact with the side of the hydraulic unit. (The installation order of rear brake hose "1" and front brake hose "3" of rear brake hose "2" does not matter.)
 2. Install front brake hose "4" with the protrusion in contact with the metal part of front brake hose "3". Install rear brake hose "2" with the protrusion in contact with the metal part of rear brake hose "1". (The installation order of front brake hose "4" and rear brake hose "2" does not matter.)
 3. Tighten the mounting bolts of each brake hose to the specified torque. (In no particular order)
- B. 16.4–16.8°
- C. 16–20°

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PERIODIC MAINTENANCE

EAS20022

PERIODIC MAINTENANCE

EAS30022

INTRODUCTION

This chapter includes all information necessary to perform recommended checks and adjustments. If followed, these preventive maintenance procedures will ensure more reliable vehicle operation, a longer service life and reduce the need for costly overhaul work. This information applies to vehicles already in service as well as to new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

TIP

- **The annual checks must be performed every year, except if a distance-based maintenance is performed instead.**
- From 50000 km (30000 mi), repeat the maintenance intervals starting from 10000 km (6000 mi).
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

EAS30614

PERIODIC MAINTENANCE CHART FOR THE EMISSION CONTROL SYSTEM

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READINGS					ANNUAL CHECK
			1000 km (600 mi)	10000 km (6000 mi)	20000 km (12000 mi)	30000 km (18000 mi)	40000 km (24000 mi)	
1	* Fuel line	<ul style="list-style-type: none"> • Check fuel hoses for cracks or damage. • Replace if necessary. 		√	√	√	√	√
2	* Spark plugs	<ul style="list-style-type: none"> • Check condition. • Adjust gap and clean. 		√		√		
		<ul style="list-style-type: none"> • Replace. 			√		√	
3	* Valve clearance	<ul style="list-style-type: none"> • Check and adjust. 	Every 40000 km (24000 mi)					
4	* Fuel injection	<ul style="list-style-type: none"> • Check engine idle speed. 	√	√	√	√	√	√
		<ul style="list-style-type: none"> • Check and adjust synchronization. 		√	√	√	√	√
5	* Exhaust system	<ul style="list-style-type: none"> • Check for leakage. • Tighten if necessary. • Replace gaskets if necessary. 	√	√	√	√	√	
6	* Evaporative emission control system	<ul style="list-style-type: none"> • Check control system for damage. • Replace if necessary. 			√		√	

EAS30615

GENERAL MAINTENANCE AND LUBRICATION CHART

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READINGS					ANNUAL CHECK
			1000 km (600 mi)	10000 km (6000 mi)	20000 km (12000 mi)	30000 km (18000 mi)	40000 km (24000 mi)	
1	* Diagnostic system check	<ul style="list-style-type: none"> • Perform dynamic inspection using Yamaha diagnostic tool. • Check the fault codes. 	√	√	√	√	√	√
2	* Air filter element	<ul style="list-style-type: none"> • Replace. 			√		√	
3	* V-belt case air filter elements	<ul style="list-style-type: none"> • Clean. 		√		√		
		<ul style="list-style-type: none"> • Replace. 			√		√	
4	* Front brake	<ul style="list-style-type: none"> • Check operation, fluid level, and for fluid leakage. • Replace brake pads if necessary. 	√	√	√	√	√	√

PERIODIC MAINTENANCE

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READINGS					ANNUAL CHECK
			1000 km (600 mi)	10000 km (6000 mi)	20000 km (12000 mi)	30000 km (18000 mi)	40000 km (24000 mi)	
5 *	Rear brake	<ul style="list-style-type: none"> Check operation, fluid level, and for fluid leakage. Replace brake pads if necessary. 	√	√	√	√	√	√
6 *	Brake hoses	<ul style="list-style-type: none"> Check for cracks or damage. 		√	√	√	√	√
		<ul style="list-style-type: none"> Replace. 	Every 4 years					
7 *	Brake fluid	<ul style="list-style-type: none"> Change. 	Every 2 years					
8	Rear brake lock cable	<ul style="list-style-type: none"> Check cable length. Adjust if necessary. 	At the initial interval and 4000 km (2400 mi) after the initial 1000 km (600 mi) and every 5000 km (3000 mi) thereafter.					
9 *	Rear brake lock	<ul style="list-style-type: none"> Check operation. Adjust. 	√	√	√	√	√	√
10 *	Wheels	<ul style="list-style-type: none"> Check runout and for damage. Replace if necessary. 		√	√	√	√	
11 *	Tires	<ul style="list-style-type: none"> Check tread depth and for damage. Replace if necessary. Check air pressure. Correct if necessary. 		√	√	√	√	√
12 *	Wheel bearings	<ul style="list-style-type: none"> Check bearing for looseness or damage. 		√	√	√	√	
13 *	Drive belt	<ul style="list-style-type: none"> Check belt condition. Replace if damaged. Check belt tension. Adjust if necessary. 	At the initial interval and every 10000 km (6000 mi) until 40000 km (24000 mi), and every 5000 km (3000 mi) thereafter.					
14 *	Drive pulley and drive axle	<ul style="list-style-type: none"> Lubricate. 			√		√	
15 *	Steering bearings	<ul style="list-style-type: none"> Check bearing assemblies for looseness. 	√	√		√		
		<ul style="list-style-type: none"> Moderately repack with lithium-soap-based grease. 			√		√	
16 *	Chassis fasteners	<ul style="list-style-type: none"> Make sure that all nuts, bolts and screws are properly tightened. 		√	√	√	√	√
17	Front and rear brake lever pivot shaft	<ul style="list-style-type: none"> Lubricate with silicone grease. 		√	√	√	√	√
18	Sidestand, centerstand	<ul style="list-style-type: none"> Check operation. Lubricate with lithium-soap-based grease. 		√	√	√	√	√
19 *	Sidestand switch	<ul style="list-style-type: none"> Check operation and replace if necessary. 	√	√	√	√	√	√
20 *	Front fork	<ul style="list-style-type: none"> Check operation and for oil leakage. Replace if necessary. 		√	√	√	√	
21 *	Shock absorber assembly	<ul style="list-style-type: none"> Check operation and for oil leakage. Replace if necessary. 		√	√	√	√	
22 *	Rear suspension relay arm and connecting arm pivoting points	<ul style="list-style-type: none"> Check operation. 		√	√	√	√	
23	Engine oil	<ul style="list-style-type: none"> Change (warm engine before draining). Check oil level and vehicle for oil leakage. 	At the initial interval and when the oil change indicator flashes or comes on.					√
24	Engine oil filter cartridge	<ul style="list-style-type: none"> Replace. 	√		√		√	

PERIODIC MAINTENANCE

NO.	ITEM	CHECK OR MAINTENANCE JOB	ODOMETER READINGS					ANNUAL CHECK
			1000 km (600 mi)	10000 km (6000 mi)	20000 km (12000 mi)	30000 km (18000 mi)	40000 km (24000 mi)	
25 *	Cooling system	• Check coolant level and vehicle for coolant leakage.		√	√	√	√	√
		• Change.	Every 3 years					
26 *	V-belt	• Replace.	When the V-belt replacement indicator flashes [every 20000 km (12000 mi)]					
27 *	Front and rear brake switches	• Check operation.	√	√	√	√	√	√
28 *	Moving parts and cables	• Lubricate.		√	√	√	√	√
29 *	Throttle grip housing and cable	• Check operation and free play. • Adjust the throttle cable free play if necessary. • Lubricate the throttle grip housing, cable and grip warmer wire.		√	√	√	√	√
30 *	Lights, signals and switches	• Check operation. • Adjust headlight beam.	√	√	√	√	√	√

TIP

- Engine air filter and V-belt air filters
 - This model's engine air filter is equipped with a disposable oil-coated paper element, which must not be cleaned with compressed air to avoid damaging it.
 - The engine air filter element needs to be replaced and the V-belt air filter elements need to be serviced more frequently when riding in unusually wet or dusty areas.
- Hydraulic brake service
 - After disassembling the brake master cylinders and calipers, always change the fluid. Regularly check the brake fluid levels and fill the reservoirs as required.
 - Every two years replace the internal components of the brake master cylinders and calipers, and change the brake fluid.
 - Replace the brake hoses every four years and if cracked or damaged.

EAS32024

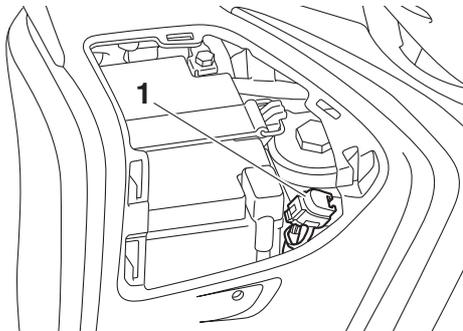
CHECKING THE VEHICLE USING THE YAMAHA DIAGNOSTIC TOOL

Use the Yamaha diagnostic tool and check the vehicle according to the following procedure.

1. Remove:
 - Battery cover
Refer to “GENERAL CHASSIS (1)” on page 4-1.
2. Remove the protective cap “1”, and then connect the Yamaha diagnostic tool to the coupler.



Yamaha diagnostic tool USB
90890-03256
Yamaha diagnostic tool (A/I)
90890-03254



3. Check:
 - Fault codes

TIP

Use the “Diagnosis of malfunction” function of the Yamaha diagnostic tool to check the fault codes. For information about using the Yamaha diagnostic tool, refer to the operation manual that is included with the tool.

Fault code number is displayed → Check and repair the probable cause of the malfunction. Refer to “TROUBLESHOOTING DETAILS (FAULT CODE)” on page 8-63.

4. Perform:
 - Dynamic inspection

TIP

Use the “Dynamic inspection” function of the Yamaha diagnostic tool version 3.0 and after to perform the dynamic inspection. For information about using the Yamaha diagnostic tool, refer to the operation manual that is included with the tool.

5. Install:
 - Battery cover
Refer to “GENERAL CHASSIS (1)” on page 4-1.

EAS30619

CHECKING THE FUEL LINE

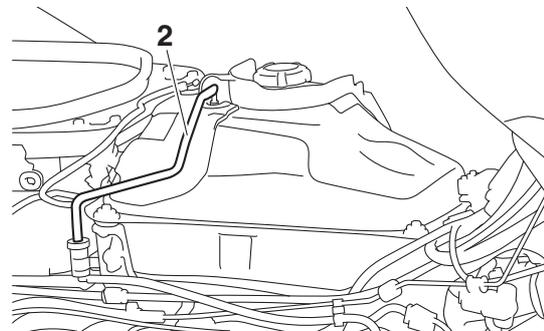
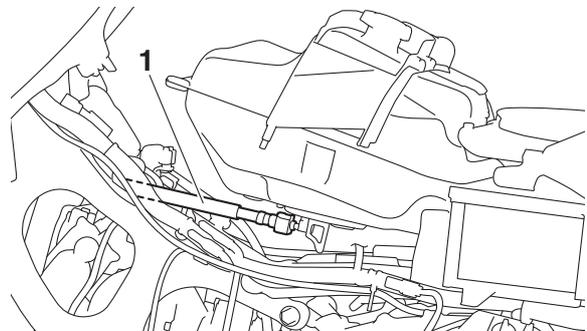
The following procedure applies to all of the fuel, breather and overflow hoses.

1. Remove:
 - Bottom side cowling
 - Side panel
 - Bottom center cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.
 - Center cover
 - Fuel tank cover assembly
 - Side cover
 - Footboard
Refer to “GENERAL CHASSIS (2)” on page 4-11.
 - Fuel tank
Refer to “FUEL TANK” on page 7-1.
2. Check:
 - Fuel hose “1”
 - Fuel tank breather hose “2”
 - Fuel tank overflow hose “3”
Cracks/damage → Replace.
Loose connection → Connect properly.

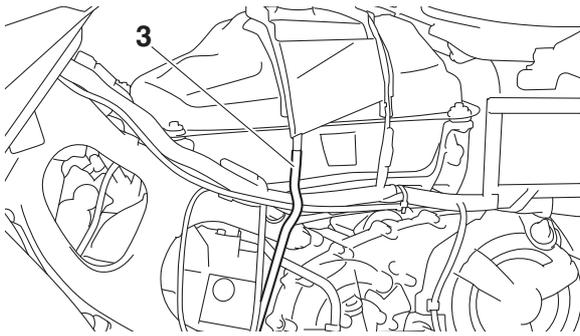
ECA14940

NOTICE

Make sure the fuel tank breather hose is routed correctly.



PERIODIC MAINTENANCE



3. Install:

- Fuel tank
Refer to "FUEL TANK" on page 7-1.
- Footboard
- Side cover
- Fuel tank cover assembly
- Center cover
Refer to "GENERAL CHASSIS (2)" on page 4-11.
- Bottom center cowling
- Side panel
- Bottom side cowling
Refer to "GENERAL CHASSIS (1)" on page 4-1.

EAS30620

CHECKING THE SPARK PLUGS

The following procedure applies to all of the spark plugs.

1. Remove:
 - Bottom side cowling
 - Side panel
 - Radiator cover
Refer to "GENERAL CHASSIS (1)" on page 4-1.
2. Disconnect:
 - Spark plug cap
3. Remove:
 - Spark plug

ECA13320

NOTICE

Before removing the spark plugs, blow away any dirt accumulated in the spark plug wells with compressed air to prevent it from falling into the cylinders.

4. Check:

- Spark plug type
Incorrect → Change.



Manufacturer/model
NGK/CR7E

5. Check:

- Electrode "1"

Damage/wear → Replace the spark plug.

- Insulator "2"

Abnormal color → Replace the spark plug.

Normal color is medium-to-light tan.

6. Clean:

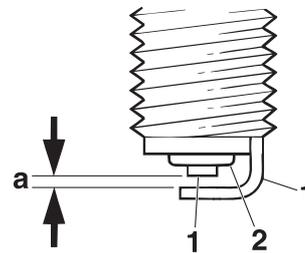
- Spark plug
(with a spark plug cleaner or wire brush)

7. Measure:

- Spark plug gap "a"
(with a wire thickness gauge)
Out of specification → Regap.



Spark plug gap
0.7–0.8 mm (0.028–0.031 in)



8. Install:

- Spark plug



Spark plug
13 N·m (1.3 kgf·m, 9.6 lb·ft)

TIP

Before installing the spark plug, clean the spark plug and gasket surface.

9. Connect:

- Spark plug cap

10. Install:

- Radiator cover
- Bottom side cowling
- Side panel

Refer to "GENERAL CHASSIS (1)" on page 4-1.

EAS30622

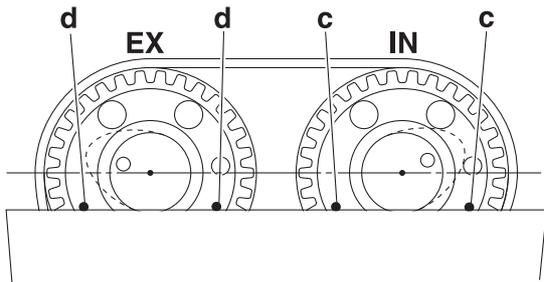
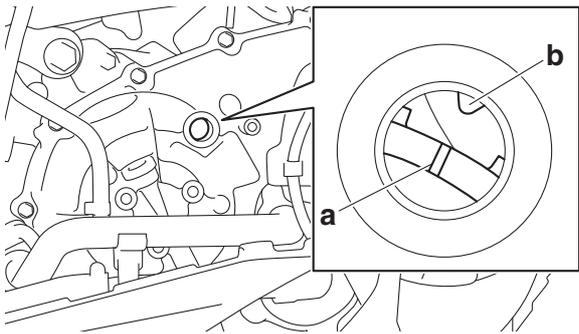
ADJUSTING THE VALVE CLEARANCE

The following procedure applies to all of the valves.

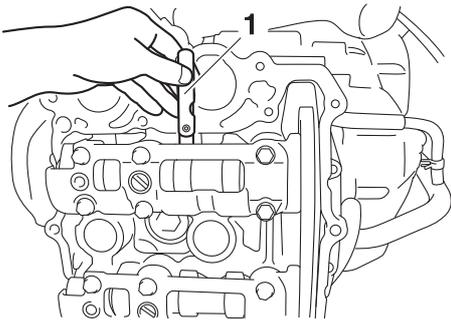
TIP

- Valve clearance adjustment should be made on a cold engine, at room temperature.
- When the valve clearance is to be measured or adjusted, the piston must be at top dead center (TDC) on the compression stroke.

PERIODIC MAINTENANCE



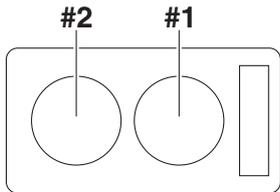
c. Measure the valve clearance with a thickness gauge "1".



TIP

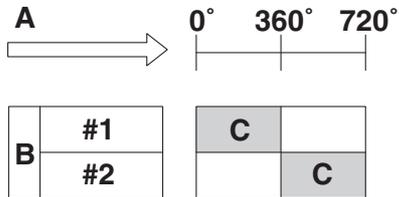
- If the valve clearance is incorrect, record the measured reading.
- Measure the valve clearance in the following sequence.

Valve clearance measuring sequence
Cylinder #1 → #2



A. Front

d. To measure the valve clearances of the other cylinders, starting with cylinder #1 at TDC, turn the crankshaft clockwise as specified in the following table.



- A. Degrees that the crankshaft is turned clockwise
- B. Cylinder
- C. Combustion cycle

Cylinder #2	360°
-------------	------



7. Remove:

- Camshafts

TIP

- Refer to "CAMSHAFTS" on page 5-7.
- When removing the timing chain and camshafts, fasten the timing chain with a wire to retrieve it if it falls into the crankcase.

8. Adjust:

- Valve clearance



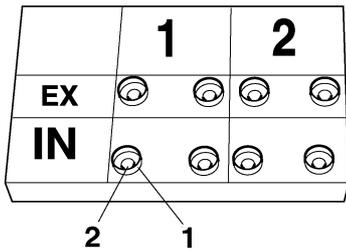
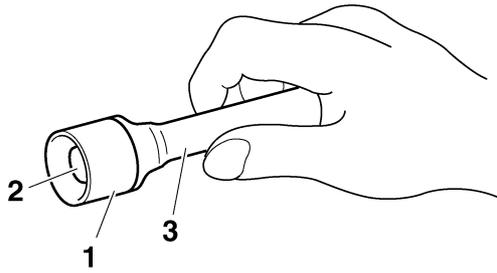
a. Remove the valve lifter "1" and the valve pad "2" with a valve lapper "3".

Valve lapper
90890-04101
Valve lapping tool
YM-A8998

TIP

- Cover the timing chain opening with a rag to prevent the valve pad from falling into the crankcase.
- Make a note of the position of each valve lifter "1" and valve pad "2" so that they can be installed in the correct place.

PERIODIC MAINTENANCE



- b. Calculate the difference between the specified valve clearance and the measured valve clearance.

Example:

Specified valve clearance = 0.15–0.22 mm (0.0059–0.0087 in)

Measured valve clearance = 0.25 mm (0.0098 in)

$0.25 \text{ mm (0.0098 in)} - 0.22 \text{ mm (0.0087 in)} = 0.03 \text{ mm (0.001 in)}$

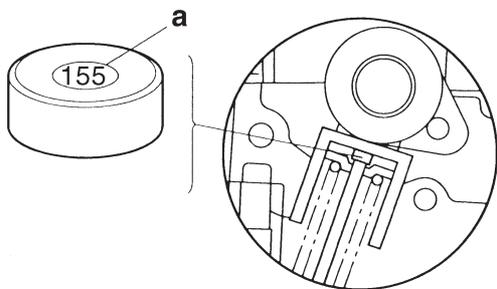
- c. Check the thickness of the current valve pad.

TIP

The thickness “a” of each valve pad is marked in hundredths of millimeters on the side that touches the valve lifter.

Example:

If the valve pad is marked “155”, the pad thickness is 1.55 mm (0.061 in).



- d. Calculate the sum of the values obtained in steps (b) and (c) to determine the required valve pad thickness and the valve pad number.

Example:

$1.55 \text{ mm (0.061 in)} + 0.03 \text{ mm (0.001 in)} = 1.58 \text{ mm (0.062 in)}$

The valve pad number is 158.

- e. Round off the valve pad number according to the following table, and then select the suitable valve pad.

Last digit	Rounded value
0, 1, 2	0
3, 4, 5, 6	5
7, 8, 9	10

TIP

Refer to the following table for the available valve pads.

Valve pad range	Nos. 120–240
Valve pad thickness	1.20–2.40 mm (0.047–0.094 in)
Available valve pads	25 thicknesses in 0.05 mm (0.002 in) increments

Example:

Valve pad number = 158

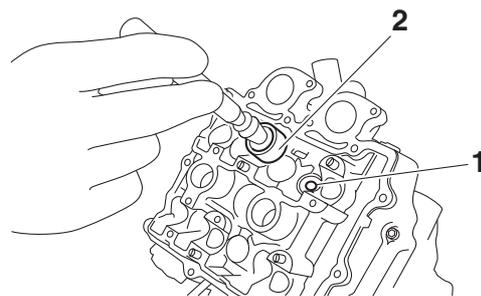
Rounded value = 160

New valve pad number = 160

- f. Install the new valve pad “1” and the valve lifter “2”.

TIP

- Lubricate the valve pad with molybdenum disulfide oil.
- Lubricate the valve lifter (Top side) with molybdenum disulfide oil.
- Lubricate the valve lifter (Outer side) with engine oil.
- The valve lifter must turn smoothly when rotated by hand.
- Install the valve lifter and the valve pad in the correct place.



PERIODIC MAINTENANCE

- g. Install the exhaust and intake camshafts, timing chain and camshaft caps.

	Camshaft cap bolt 10 N·m (1.0 kgf·m, 7.4 lb-ft)
---	--

TIP

- Refer to “CAMSHAFTS” on page 5-7.
- Lubricate the camshaft lobes and camshaft journals with molybdenum disulfide oil.
- First, install the exhaust camshaft.
- Turn the crankshaft clockwise several full turns to seat the parts.

h. Measure the valve clearance again.

- i. If the valve clearance is still out of specification, repeat all of the valve clearance adjustment steps until the specified clearance is obtained.

9. Install:

- All removed parts

TIP

For installation, reverse the removal procedure.

10. Adjust:

- Throttle grip free play
Refer to “CHECKING THE THROTTLE GRIP” on page 3-33.

EAS31017

CHECKING THE ENGINE IDLING SPEED

TIP

Prior to checking the engine idling speed, the throttle body synchronization should be adjusted properly, the air filter element should be clean, and the engine should have adequate compression.

1. Start the engine and let it warm up for several minutes.
2. Check:
 - Engine idling speed
Out of specification → Go to next step.

	Engine idling speed 1100–1300 r/min
---	--

3. Check:

- ISC (Idle Speed Control) learning value “00” or “01” → Check the intake system. “02” → Clean the throttle bodies.
Refer to “CHECKING AND CLEANING THE THROTTLE BODIES” on page 7-9.

- a. Connect the Yamaha diagnostic tool.

Use the diagnostic code number “67”.

Refer to “SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)” on page 9-5.

- b. Check the ISC (Idle Speed Control) learning value.



EAS30797

SYNCHRONIZING THE THROTTLE BODIES

TIP

Before synchronizing the throttle bodies, check the following items:

- Valve clearance
- Spark plugs
- Air filter element
- Throttle body joints
- Fuel hose
- Exhaust system
- Breather hoses

Checking the throttle body synchronization

1. Stand the vehicle on a level surface.

TIP

Place the vehicle on a maintenance stand.

2. Remove:

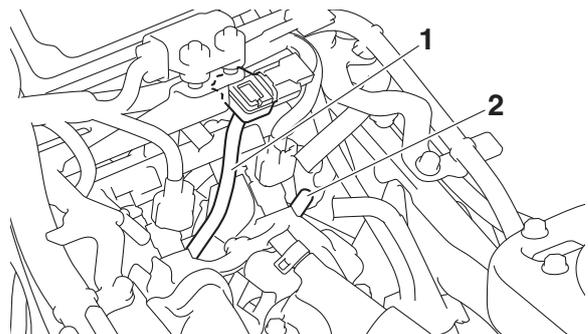
- Bottom side cowling
- Side panel
- Bottom center cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.
- Center cover
- Fuel tank cover assembly
- Side cover
- Footboard
Refer to “GENERAL CHASSIS (2)” on page 4-11.

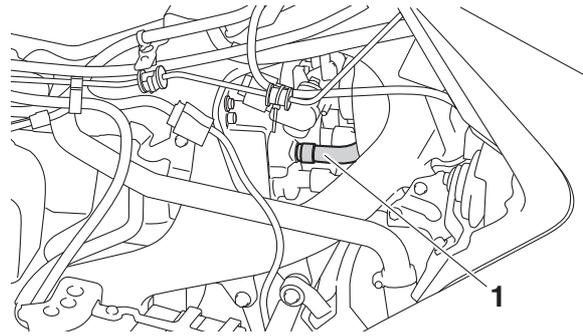
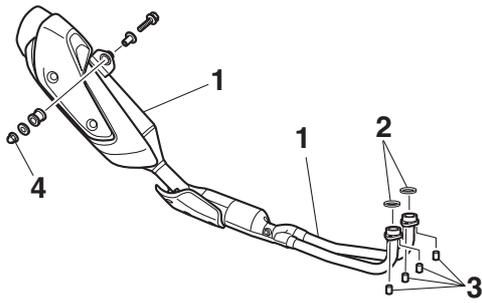
Refer to “GENERAL CHASSIS (2)” on page 4-11.

- Fuel tank
Refer to “FUEL TANK” on page 7-1.

3. Remove:

- Intake air pressure sensor hose “1”
- Cap “2”





4. Install:

- Footboard (right)
- Side cover (right)
- Fuel tank cover assembly
- Center cover
Refer to “GENERAL CHASSIS (2)” on page 4-11.
- Bottom center cowling
- Side panel
- Bottom side cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.

EAS30623

CHECKING THE CYLINDER HEAD BREATHER HOSE

1. Remove:

- Bottom side cowling
- Side panel
- Bottom center cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.
- Center cover
- Fuel tank cover assembly
- Side cover (right)
- Footboard (right)
Refer to “GENERAL CHASSIS (2)” on page 4-11.

2. Check:

- Cylinder head breather hose “1”
Cracks/damage → Replace.
Loose connection → Connect properly.

ECA14920

NOTICE

Make sure the cylinder head breather hose is routed correctly.

3. Install:

- All removed parts

EAS30626

CHECKING THE CANISTER

1. Remove:

- Bottom side cowling
- Side panel
- Bottom center cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.
- Center cover
- Fuel tank cover assembly
- Side cover
- Footboard
Refer to “GENERAL CHASSIS (2)” on page 4-11.
- Fuel tank
Refer to “FUEL TANK” on page 7-1.

2. Check:

- Canister
- Canister purge hose
- Fuel tank breather hose
- Canister breather hose
Cracks/damage → Replace.

3. Install:

- Fuel tank
Refer to “FUEL TANK” on page 7-1.
- Footboard
- Side cover
- Fuel tank cover assembly
- Center cover
Refer to “GENERAL CHASSIS (2)” on page 4-11.
- Bottom center cowling
- Side panel
- Bottom side cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.

EAS30799

ADJUSTING THE EXHAUST GAS VOLUME

TIP

- Be sure to set the CO density level to standard,

and then adjust the exhaust gas volume.

- To adjust the exhaust gas volume, use the CO adjustment mode of the Yamaha diagnostic tool. For more information, refer to the operation manual of the Yamaha diagnostic tool.

1. Connect the Yamaha diagnostic tool to the coupler. For information about connecting the Yamaha diagnostic tool, refer to “YAMAHA DIAGNOSTIC TOOL” on page 8-62.

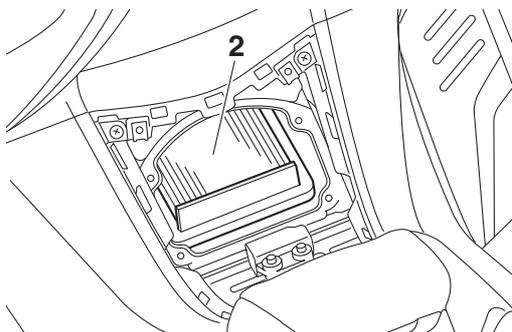
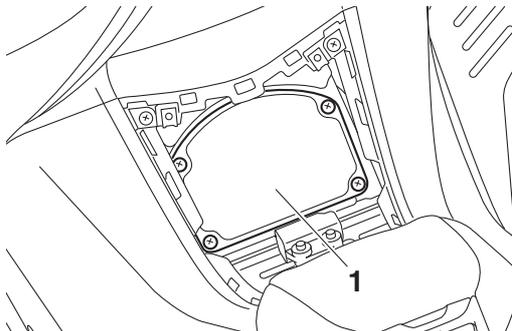


Yamaha diagnostic tool USB
90890-03256
Yamaha diagnostic tool (A/I)
90890-03254

EAS30628

REPLACING THE AIR FILTER ELEMENT

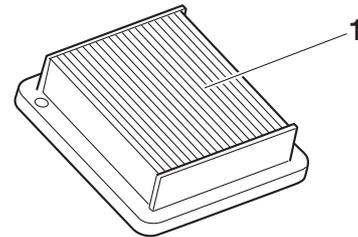
1. Remove:
 - Center cover
Refer to “GENERAL CHASSIS (2)” on page 4-11.
2. Remove:
 - Air filter case cover “1”
 - Air filter element “2”



3. Check:
 - Air filter element “1”
Damage → Replace.

TIP

- Replace the air filter element every 20000 km (12000 mi) of operation.
- The air filter needs more frequent service if you are riding in unusually wet or dusty areas.



4. Install:
 - Air filter case cover

ECA20710

NOTICE

Never operate the engine without the air filter element installed. Unfiltered air will cause rapid wear of engine parts and may damage the engine. Operating the engine without the air filter element will also affect throttle body synchronization, leading to poor engine performance and possible overheating.

TIP

When installing the air filter element into the air filter case cover, make sure that the sealing surfaces are aligned to prevent any air leaks.

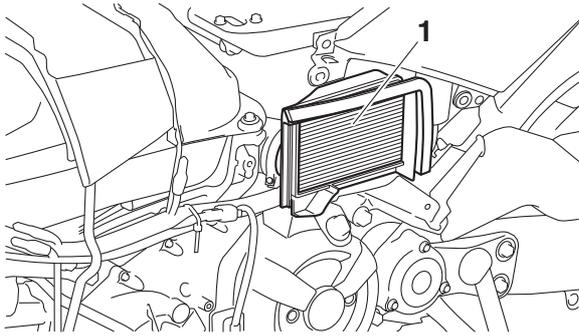
5. Install:
 - Center cover
Refer to “GENERAL CHASSIS (2)” on page 4-11.

EAS31181

CLEANING THE V-BELT CASE AIR FILTER ELEMENT

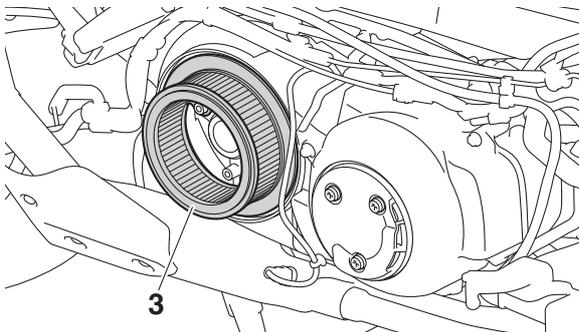
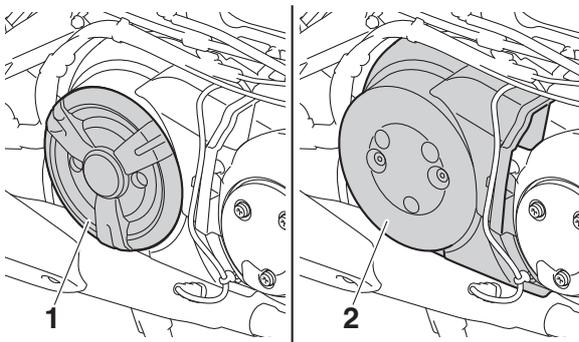
1. Remove:
 - Bottom side cowling
 - Side panel
 - Bottom center cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.
 - Center cover
 - Fuel tank cover assembly
 - Side cover
 - Footboard
Refer to “GENERAL CHASSIS (2)” on page 4-11.
2. Remove:
 - V-belt case air filter element (left) “1”

PERIODIC MAINTENANCE



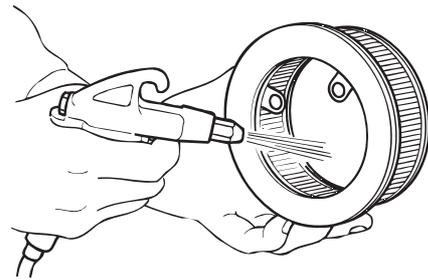
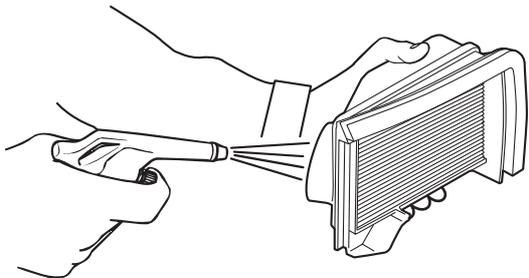
3. Remove:

- V-belt case air filter case cover “1”
- V-belt case air filter case “2”
- V-belt case air filter element (right) “3”



4. Clean:

- V-belt case air filter elements
Blow the compressed air to the outer surface of the V-belt case air filter element.



5. Check:

- V-belt case air filter elements
Damage → Replace.

ECA13441

NOTICE

Since the V-belt case air filter element is a dry type, do not let grease or water contact it.

6. Install:

- V-belt case air filter element (right)
- V-belt case air filter case
- V-belt case air filter case cover



V-belt case air filter case screw
7 N·m (0.7 kgf·m, 5.2 lb·ft)
V-belt case air filter case cover screw
7 N·m (0.7 kgf·m, 5.2 lb·ft)

7. Install:

- V-belt case air filter element (left)



V-belt case air filter element joint clamp (left side)
3.0 N·m (0.30 kgf·m, 2.2 lb·ft)

8. Install:

- Footboard
- Side cover
- Fuel tank cover assembly
- Center cover
Refer to “GENERAL CHASSIS (2)” on page 4-11.
- Bottom center cowling
- Side panel
- Bottom side cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.

EAS30801

CHECKING THE BRAKE OPERATION

1. Check:

- Brake operation
Brake not working properly → Check the brake system.
Refer to “FRONT BRAKE” on page 4-40 and

PERIODIC MAINTENANCE

“REAR BRAKE” on page 4-53.

TIP

Drive on the road, operate the front and rear brakes separately and check to see if the brakes are operating properly.

EAS30632

CHECKING THE BRAKE FLUID LEVEL

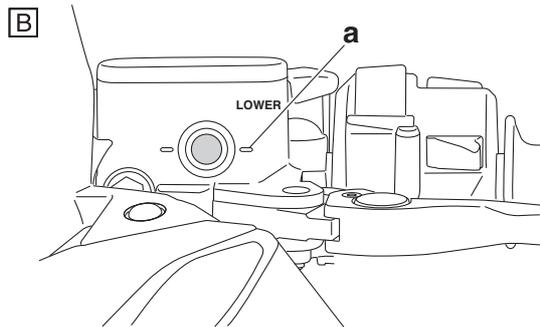
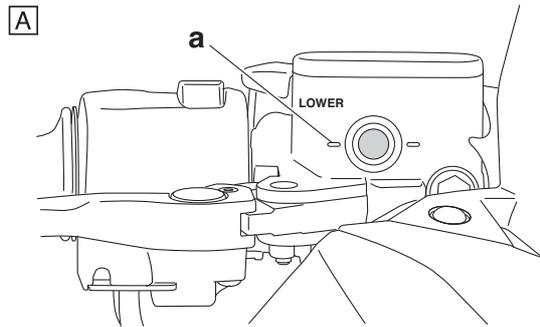
1. Stand the vehicle on a level surface.

TIP

- Place the vehicle on the centerstand.
- Make sure the vehicle is upright.

2. Check:

- Brake fluid level
Below the minimum level mark “a” → Add the specified brake fluid to the proper level.



- A. Front brake
B. Rear brake

EWA13540

⚠ WARNING

- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.

- When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

ECA13540

NOTICE

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilled brake fluid immediately.

TIP

In order to ensure a correct reading of the brake fluid level, make sure the top of the brake master cylinder reservoir is horizontal.

EAS30630

ADJUSTING THE FRONT DISC BRAKE

1. Adjust:

- Brake lever position
(distance “a” from the throttle grip to the brake lever)

TIP

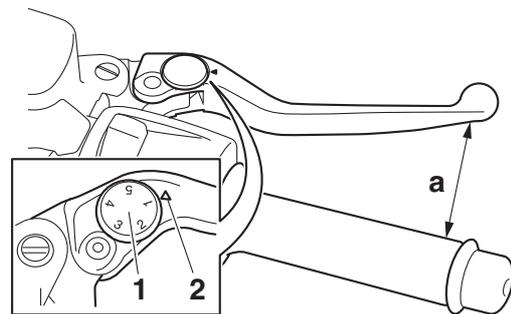
- While pushing the brake lever forward, turn the adjusting dial “1” until the brake lever is in the desired position.
- Be sure to align the setting on the adjusting dial with the arrow mark “2” on the brake lever.

Position #1

Distance “a” is the largest.

Position #5

Distance “a” is the smallest.



EWA13060

⚠ WARNING

- After adjusting the brake lever position, make sure the pin on the brake lever holder is firmly inserted in the hole in the adjusting dial.
- A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. Before the vehicle is operated, the

air must be removed by bleeding the brake system. Air in the brake system will considerably reduce in loss of control and possibly an accident. Therefore, check and if necessary, bleed the brake system.

ECA13490

NOTICE

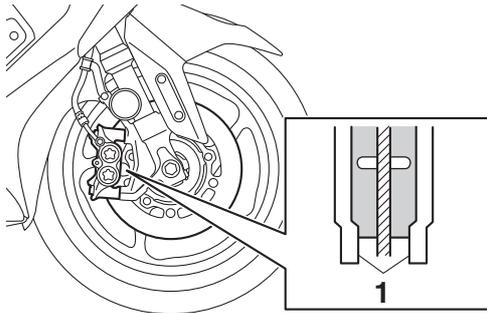
After adjusting the brake lever position, make sure there is no brake drag.

EAS30633

CHECKING THE FRONT BRAKE PADS

The following procedure applies to all of the brake pads.

1. Operate the brake.
2. Check:
 - Front brake pad
Wear indicators "1" almost touch the brake disc → Replace the brake pads as a set. Refer to "FRONT BRAKE" on page 4-40.



EAS30631

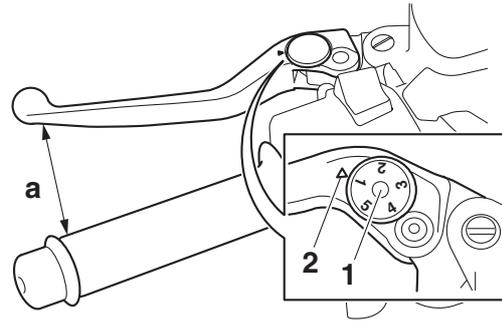
ADJUSTING THE REAR DISC BRAKE

1. Adjust:
 - Brake lever position
(distance "a" from the left side grip to the brake lever)

TIP

- While pushing the brake lever forward, turn the adjusting dial "1" until the brake lever is in the desired position.
- Be sure to align the setting on the adjusting dial with the arrow mark "2" on the brake lever holder.

Position #1
Distance "a" is the largest.
Position #5
Distance "a" is the smallest.



EWA13060

WARNING

- After adjusting the brake lever position, make sure the pin on the brake lever holder is firmly inserted in the hole in the adjusting dial.
- A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. Before the vehicle is operated, the air must be removed by bleeding the brake system. Air in the brake system will considerably reduce in loss of control and possibly an accident. Therefore, check and if necessary, bleed the brake system.

ECA13490

NOTICE

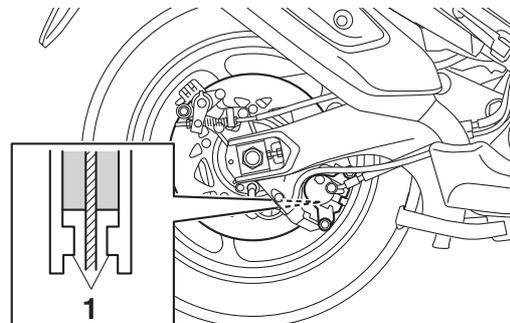
After adjusting the brake lever position, make sure there is no brake drag.

EAS30634

CHECKING THE REAR BRAKE PADS

The following procedure applies to all of the brake pads.

1. Operate the brake.
2. Check:
 - Rear brake pad
Wear indicators "1" almost touch the brake disc → Replace the brake pads as a set. Refer to "REAR BRAKE" on page 4-53.



EAS30635

CHECKING THE FRONT BRAKE HOSES

The following procedure applies to all of the

PERIODIC MAINTENANCE

brake hoses and brake hose holders.

1. Check:
 - Brake hose
Cracks/damage/wear → Replace.
2. Check:
 - Brake hose holder
Loose → Tighten the holder bolt.
3. Hold the vehicle upright and apply the front brake several times.
4. Check:
 - Brake hose
Brake fluid leakage → Replace the damaged hose.
Refer to "FRONT BRAKE" on page 4-40.

EAS30636

CHECKING THE REAR BRAKE HOSE

1. Check:
 - Brake hose
Cracks/damage/wear → Replace.
2. Check:
 - Brake hose holders
Loose connection → Tighten the holder bolt.
3. Hold the vehicle upright and apply the rear brake several times.
4. Check:
 - Brake hose
Brake fluid leakage → Replace the damaged hose.
Refer to "REAR BRAKE" on page 4-53.

EAS30893

BLEEDING THE HYDRAULIC BRAKE SYSTEM

EWA14000

WARNING

Always bleed the brake system when the brake related parts are removed.

ECA18050

NOTICE

- Bleed the brake system in the following order.
- 1st step: Front brake calipers
- 2nd step: Rear brake caliper

EWA15740

WARNING

Bleed the ABS whenever:

- the system is disassembled.
- a brake hose is loosened, disconnected or replaced.
- the brake fluid level is very low.
- brake operation is faulty.

TIP

- Be careful not to spill any brake fluid or allow

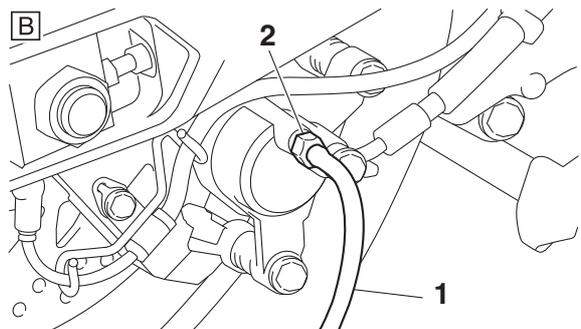
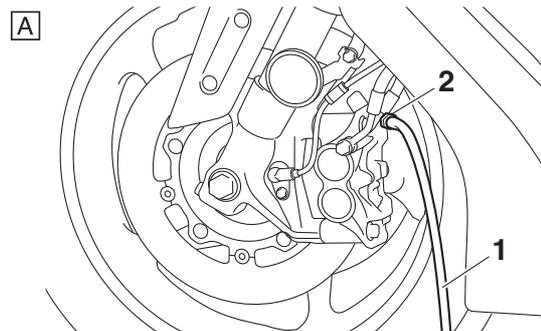
the brake master cylinder reservoir to overflow.

- When bleeding the ABS, make sure that there is always enough brake fluid before applying the brake. Ignoring this precaution could allow air to enter the ABS, considerably lengthening the bleeding procedure.
- If bleeding is difficult, it may be necessary to let the brake fluid settle for a few hours. Repeat the bleeding procedure when the tiny bubbles in the hose have disappeared.

1. Bleed:

- ABS

- a. Fill the brake master cylinder reservoir to the proper level with the specified brake fluid.
- b. Install the brake master cylinder reservoir diaphragm.
- c. Connect a clear plastic hose "1" tightly to the bleed screw "2".



- A. Front brake caliper
- B. Rear brake caliper

- d. Place the other end of the hose into a container.
- e. Slowly apply the brake several times.
- f. Fully squeeze the brake lever and hold it in position.
- g. Loosen the bleed screw.

TIP

Loosening the bleed screw will release the pressure and cause the brake lever to contact the

PERIODIC MAINTENANCE

throttle grip or handlebar grip.

- h. Tighten the bleed screw and then release the brake lever.
- i. Repeat steps (e) to (h) until all of the air bubbles have disappeared from the brake fluid in the plastic hose.
- j. Check the operation of the hydraulic unit. Refer to "HYDRAULIC UNIT OPERATION TEST" on page 4-75.

ECA25780

NOTICE

Before checking the operation of the hydraulic unit, always push the OFF/LOCK switch.

- k. After operating the ABS, repeat steps (e) to (i), and then fill the brake master cylinder reservoir to the proper level with the specified brake fluid.
- l. Tighten the bleed screw to specification.



**Front brake caliper bleed screw
5 N·m (0.5 kgf·m, 3.7 lb-ft)
Rear brake caliper bleed screw
6 N·m (0.6 kgf·m, 4.4 lb-ft)**

- m. Fill the brake master cylinder reservoir to the proper level with the specified brake fluid. Refer to "CHECKING THE BRAKE FLUID LEVEL" on page 3-15.

EWA13110

WARNING

After bleeding the hydraulic brake system, check the brake operation.



EAS31425

ADJUSTING THE REAR BRAKE LOCK CABLE

EWA18100

WARNING

Do not use the rear brake lock lever while driving.

TIP

Place the vehicle on the centerstand.

- 1. Measure:
 - Rear brake lock cable length "a"
 - Out of specification → Adjust.

TIP

Measure while the rear brake lock lever is released.



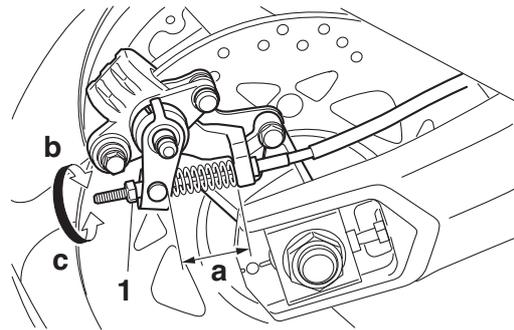
**Rear brake lock cable length
43–45 mm (1.69–1.77 in)**

- 2. Adjust:
 - Rear brake lock cable length



- a. Turn the rear brake lock cable adjusting nut "1" in direction "b" or "c" until the specified rear brake lock cable free play is obtained.

**Direction "b"
Rear brake lock cable length increased.
Direction "c"
Rear brake lock cable length decreased.**

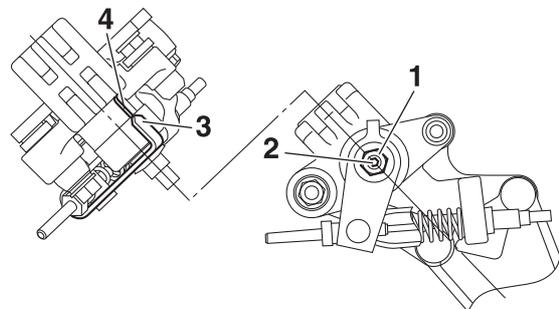


- 3. Adjust:
 - Clearance between the brake pad and brake disc.



- a. Remove the cap of the rear brake lock adjusting nut.
- b. Loosen the rear brake lock adjusting nut "1" slightly.
- c. Adjust the piston adjusting bolt "2" so that the wear indicator "3" is placed within the width of the wear indicator groove "4" when the rear brake lock is activated.

Recommended procedure:
Tighten the piston adjusting bolt to 3.0 N·m (0.30 kgf·m, 2.2 lb-ft) and then loosen the bolt 1–1/2 turn.



- d. Tighten the rear brake lock adjusting nut while holding the piston adjusting bolt so as not to turn the bolt.



Rear brake lock adjusting nut 15 N·m (1.5 kgf·m, 11 lb-ft)

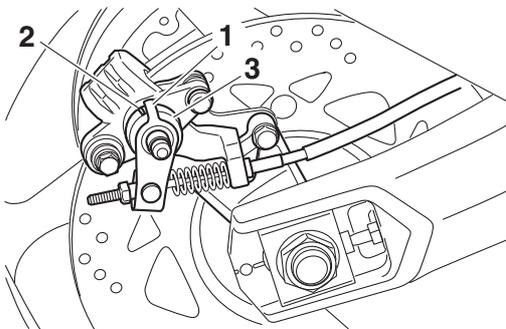
- e. Make sure that the tire can be turned by hand when the rear brake lock is deactivated.
- f. Make sure that the wear indicator is placed within the width of the wear indicator groove when the rear brake lock is activated.
- g. Install the cap of the rear brake lock adjusting nut.



EAS31426

CHECKING THE REAR BRAKE LOCK

1. Check:
 - Rear brake lock operation
Apply the rear brake lock, and then pushing the vehicle for properly locks the rear brake lock.
Rear brake lock not working properly → Check the rear brake lock cable and rear brake lock pads.
Refer to “ADJUSTING THE REAR BRAKE LOCK CABLE” on page 3-18 and “CHECKING THE REAR BRAKE LOCK PADS” on page 3-19.
2. Check:
 - Rear brake lock cable length
Out of specification → Adjust.
Refer to “ADJUSTING THE REAR BRAKE LOCK CABLE” on page 3-18.
3. Check:
 - Wear indicator “1”
Check the position of the indicator while applying the rear brake lock lever.
Passed the wear indicator groove “2” → Adjust the rear brake lock cable length.
Refer to “ADJUSTING THE REAR BRAKE LOCK CABLE” on page 3-18.



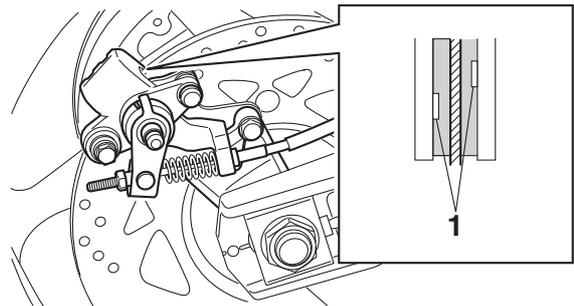
4. Check:
 - Rear brake lock caliper boot “3”
Cracks/damage → Replace.
Refer to “REAR BRAKE” on page 4-53.

EAS31427

CHECKING THE REAR BRAKE LOCK PADS

The following procedure applies to all of the brake pads.

1. Operate the rear brake lock.
2. Check:
 - Rear brake lock pad
Wear indicators “1” almost touch the brake disc → Replace the brake pads as a set.
Refer to “REPLACING THE REAR BRAKE LOCK PADS” on page 4-67.



EAS31428

CHECKING THE WHEELS

The following procedure applies to both of the wheels.

1. Check:
 - Wheel
Damage/out-of-round → Replace.

EWA13260



WARNING
Never attempt to make any repairs to the wheel.

TIP

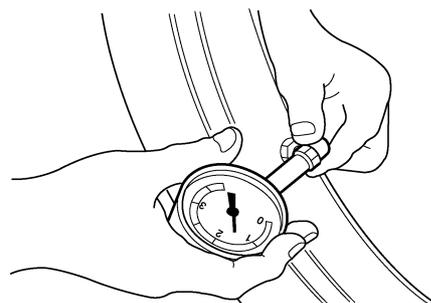
After a tire or wheel has been changed or replaced, always balance the wheel.

EAS31429

CHECKING THE TIRES

The following procedure applies to both of the tires.

1. Check:
 - Tire pressure
Out of specification → Regulate.



PERIODIC MAINTENANCE

EWA13181

WARNING

- The tire pressure should only be checked and regulated when the tire temperature equals the ambient air temperature.
- The tire pressure and the suspension must be adjusted according to the total weight (including cargo, rider, passenger and accessories) and the anticipated riding speed.
- Operation of an overloaded vehicle could cause tire damage, an accident or an injury. **NEVER OVERLOAD THE VEHICLE.**



Tire air pressure (measured on cold tires)

1 person

Front

225 kPa (2.25 kgf/cm², 33 psi)

Rear

250 kPa (2.50 kgf/cm², 36 psi)

2 persons

Front

225 kPa (2.25 kgf/cm², 33 psi)

Rear

280 kPa (2.80 kgf/cm², 41 psi)

Maximum load

199 kg (439 lb) (XP530D-A)

202 kg (445 lb) (XP530-A,

XP530E-A)

*Total weight of rider, passenger, cargo and accessories

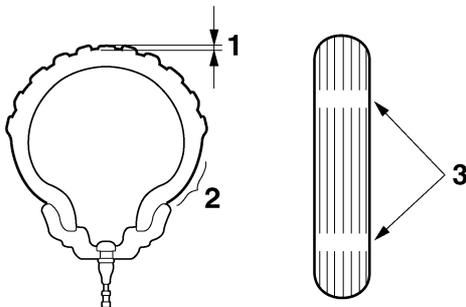
EWA13190

WARNING

It is dangerous to ride with a worn-out tire. When the tire tread reaches the wear limit, replace the tire immediately.

2. Check:

- Tire surfaces
Damage/wear → Replace the tire.



1. Tire tread depth
2. Side wall
3. Wear indicator



Wear limit (front)

1.6 mm (0.06 in)

Wear limit (rear)

1.6 mm (0.06 in)

EWA14090

WARNING

After extensive tests, the tires listed below have been approved by Yamaha Motor Co., Ltd. for this model. The front and rear tires should always be by the same manufacturer and of the same design. No guarantee concerning handling characteristics can be given if a tire combination other than one approved by Yamaha is used on this vehicle.



Front tire

Size

120/70R15M/C(56H)

Manufacturer/model

BRIDGESTONE/BATTLAXSCF

(XP530-A, XP530E-A)

DUNLOP/ROADSMART3

(XP530D-A)



Rear tire

Size

160/60R15M/C(67H)

Manufacturer/model

BRIDGESTONE/BATTLAXSCR

(XP530-A, XP530E-A)

DUNLOP/ROADSMART3

(XP530D-A)

EWA13210

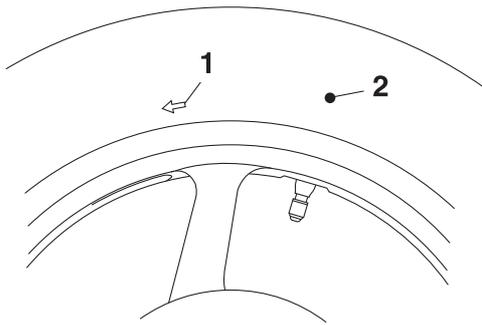
WARNING

New tires have a relatively low grip on the road surface until they have been slightly worn. Therefore, approximately 100 km should be traveled at normal speed before any high-speed riding is done.

TIP

For tires with a direction of rotation mark "1":

- Install the tire with the mark pointing in the direction of wheel rotation.
- Align the mark "2" with the valve installation point.



EAS30641

CHECKING THE WHEEL BEARINGS

The following procedure applies to all of the wheel bearings.

1. Check:
 - Wheel bearings
Refer to "FRONT WHEEL" on page 4-22 and "REAR WHEEL" on page 4-31.

EAS30802

CHECKING THE SWINGARM OPERATION

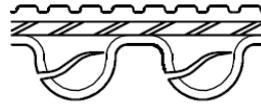
1. Check:
 - Swingarm operation
Swingarm not working properly → Check the swingarm.
Refer to "REMOVING THE SWINGARM" on page 4-108.
2. Check:
 - Swingarm excessive play
Refer to "REMOVING THE SWINGARM" on page 4-108.

EAS31431

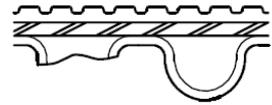
CHECKING THE DRIVE BELT

1. Remove:
 - Drive belt upper guard and lower guard
Refer to "REAR WHEEL" on page 4-31.
 2. Check:
 - Drive belt
 - External tooth cracks "A" → Replace.
 - Missing teeth "B" → Replace.
 - Hook wear "C" → Replace.
 - Stone damage "D" → Replace if damage is on the edge.
 - Internal tooth cracks (hairline) "E" → OK to run, but monitor condition.
 - Chipping (not serious) "F" → OK to run, but monitor condition.
 - Fuzzy edge cord "G" → OK to run, but monitor condition
 - Bevel wear (outboard edge only) "H" → OK to run, but monitor condition.
- Refer to "BELT DRIVE" on page 4-100.

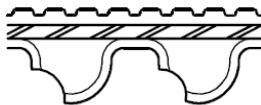
A



B



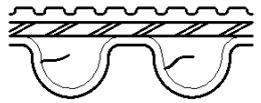
C



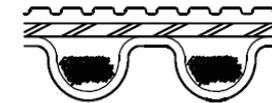
D



E



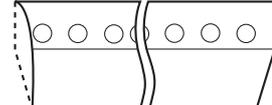
F



G



H



3. Install:
 - Drive belt upper guard and lower guard
Refer to "REAR WHEEL" on page 4-31.

EAS32399

DRIVE BELT TENSION

Checking the drive belt tension

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

PERIODIC MAINTENANCE

ECA25750

NOTICE

A drive belt that is too tight will overload the engine and other vital parts, and one that is too loose can skip and damage the swing-arm or cause an accident. Therefore, keep the drive belt tension within the specified limits.

TIP

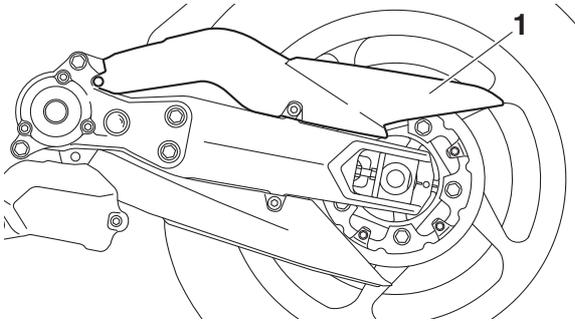
Measure the drive belt tension when the drive belt is at room temperature, and when the drive belt is dry.

1. Stand the vehicle on a level surface.

TIP

Place the vehicle on the centerstand.

2. Remove the drive belt upper guard "1".



3. Tap the drive belt and measure the vibration frequency.
 - Drive belt tension (vibration frequency)
Out of specification → Adjust.

	Tension meter (TEXA) 90890-03258
--	--

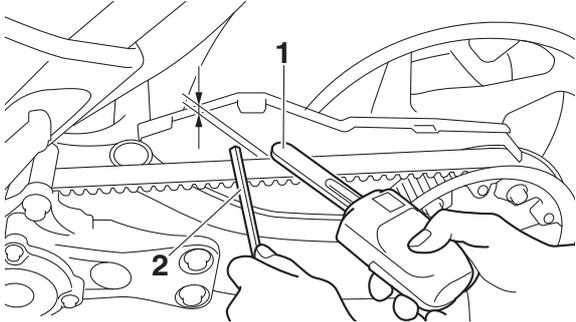
	Drive belt vibration frequency 85–103 Hz
--	--

TIP

Before using the tension meter, read the instruction manual.

- a. Face the microphone part "1" of the tension meter to the drive belt.
- b. Position the microphone part of the tension meter on the belt within 10 mm (0.39 in).
- c. Set the microphone part of the tension meter at the intermediate distance between the drive pulley and the rear wheel pulley.
- d. Tap with the suitable stick "2" to vibrate the belt.
- e. Repeat the measurement 3 times at different

part, and calculate the average of the read values.



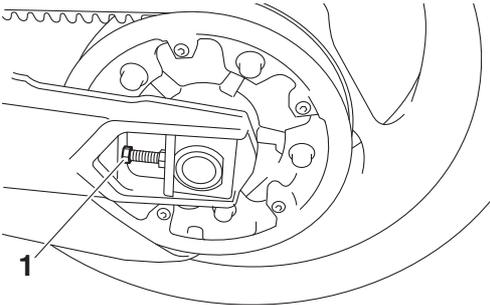
Adjusting the drive belt tension

EWA13120

WARNING

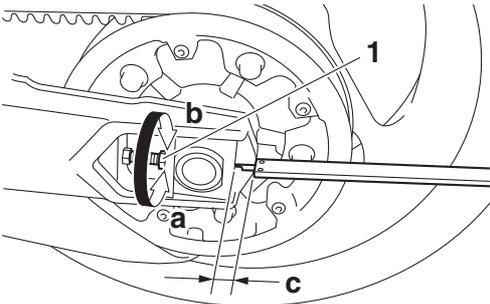
Securely support the vehicle so that there is no danger of it falling over.

1. Loosen the wheel axle nut and both left and right locknuts "1".



2. Turn both left and right adjusting bolts "1" in direction "a" or "b" equivalently and adjust until proper drive belt tension within specified value is obtained.

Direction "a" Drive belt tension vibration frequency value is increased.
Direction "b" Drive belt tension vibration frequency value is decreased.



PERIODIC MAINTENANCE

3. Check the difference in the distance “c” between the left and right sides should be 0.8 mm (0.03 in) or less.
4. Tighten the wheel axle nut to specification.

	Rear wheel axle nut 160 N·m (16 kgf·m, 118 lb·ft)
---	--

5. Tighten the locknuts to specification.

	Drive belt adjusting locknut 16 N·m (1.6 kgf·m, 12 lb·ft)
---	--

6. Check the difference in the distance “c” between the left and right sides is within 0.8 mm (0.03 in).
7. Use the tension meter and measure the drive belt tension again.
8. Measure and adjust until proper drive belt tension within specification value is obtained.

EAS31433

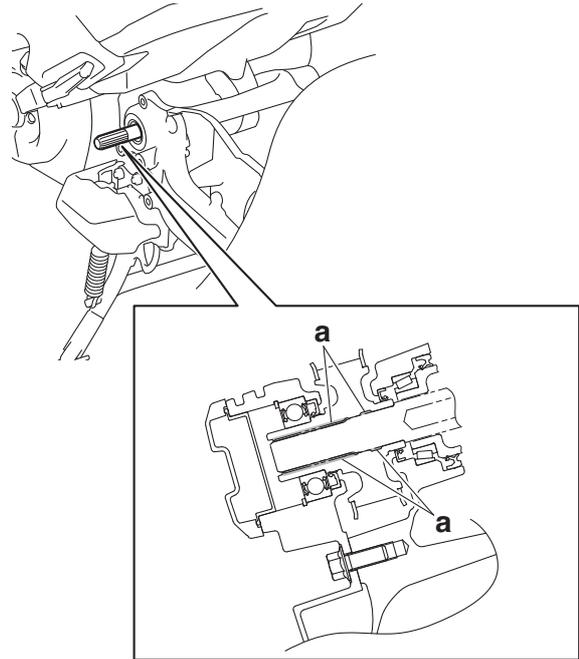
LUBRICATING THE DRIVE PULLEY AND DRIVE AXLE

1. Remove:
 - Drive belt upper guard and lower guard
Refer to “REAR WHEEL” on page 4-31.
2. Remove:
 - Drive belt
Refer to “BELT DRIVE” on page 4-100.
3. Remove:
 - Drive pulley cover
Refer to “BELT DRIVE” on page 4-100.
 - Dust cover
Refer to “BELT DRIVE” on page 4-100.
 - Drive pulley assembly
Refer to “BELT DRIVE” on page 4-100.
4. Clean:
 - Drive axle
 - Drive pulley assembly inner part
5. Lubricate:
 - Drive axle

TIP

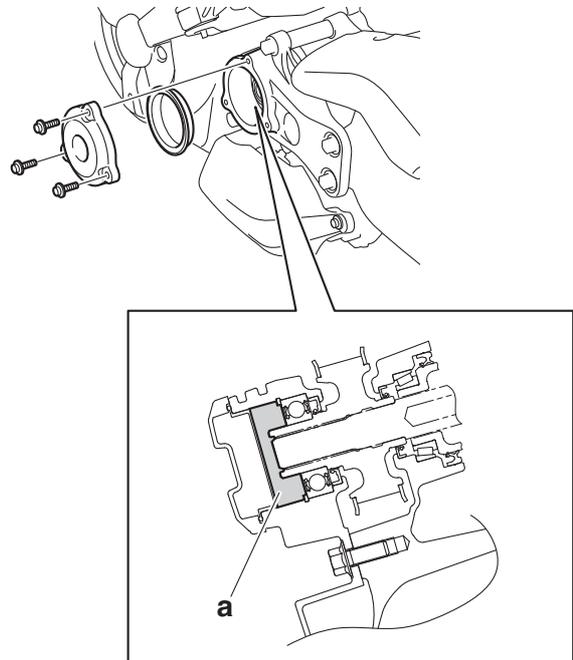
Lubricate portion “a” of the drive axle with grease.

	Recommended lubricant YAMAHA GREASE “J” (Shell Alvania EP Grease R0®)
---	--



6. Lubricate:
 - Drive pulley assembly inner part “a”

	Recommended lubricant YAMAHA GREASE “J” (Shell Alvania EP Grease R0®)
---	--



7. Install:
 - All removed parts
8. Adjust:
 - Drive belt tension
Refer to “DRIVE BELT TENSION” on page 3-21.

PERIODIC MAINTENANCE

EAS30645

CHECKING AND ADJUSTING THE STEERING HEAD

1. Stand the vehicle on a level surface.

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

TIP

Place the vehicle on a maintenance stand so that the front wheel is elevated.

2. Check:

- Steering head
Grasp the bottom of the front fork legs and gently rock the front fork.
Binding/looseness → Adjust the steering head.

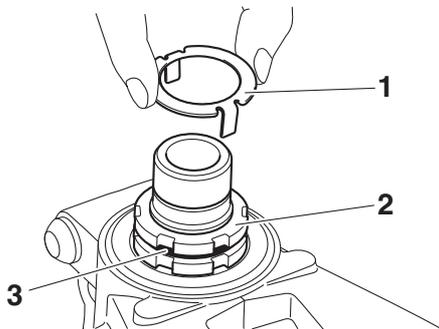
3. Remove:

- Upper bracket
Refer to “STEERING HEAD” on page 4-96.

4. Adjust:

- Steering head

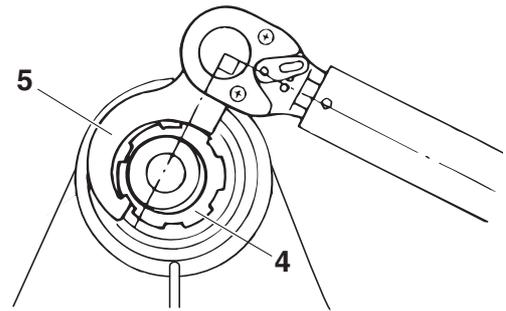
a. Remove the lock washer “1”, the upper ring nut “2”, and the rubber washer “3”.



b. Loosen the lower ring nut “4” and then tighten it to specification with a steering nut wrench “5”.

TIP

- Set a torque wrench at a right angle to the steering nut wrench.
- Move the steering to the left and right a couple of times to check that it moves smoothly.



Steering nut wrench
90890-01403
Exhaust flange nut wrench
YU-A9472



Lower ring nut (initial tightening torque)
52 N·m (5.2 kgf·m, 38 lb·ft)

c. Loosen the lower ring nut completely, then tighten it to specification.

EWA13140

WARNING

Do not overtighten the lower ring nut.



Lower ring nut (final tightening torque)
16 N·m (1.6 kgf·m, 12 lb·ft)

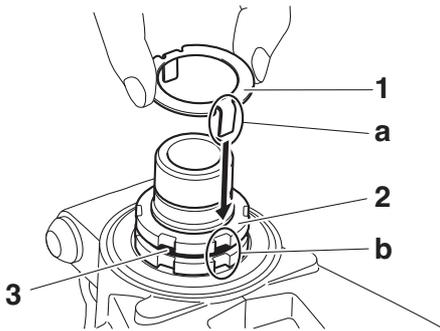
d. Check the steering head for looseness or binding by turning the front fork all the way in both directions. If any binding is felt, remove the lower bracket and check the upper and lower bearings.

Refer to “STEERING HEAD” on page 4-96.

- e. Install the rubber washer “3”.
- f. Install the upper ring nut “2”.
- g. Finger tighten the upper ring nut “2”, then align the slots of both ring nuts. If necessary, hold the lower ring nut and tighten the upper ring nut until their slots are aligned.
- h. Install the lock washer “1”.

TIP

Make sure the lock washer tabs “a” sit correctly in the ring nut slots “b”.



5. Install:
- Upper bracket
- Refer to “STEERING HEAD” on page 4-96.

EAS30646
LUBRICATING THE STEERING HEAD

1. Lubricate:
- Upper bearing
 - Lower bearing
 - Bearing race

	Recommended lubricant Lithium-soap-based grease
--	--

EAS31186
CHECKING THE CHASSIS FASTENERS

Make sure that all nuts, bolts, and screws are properly tightened.
 Refer to “CHASSIS TIGHTENING TORQUES” on page 2-12.

EAS30648
LUBRICATING THE LEVERS

Lubricate the pivoting point and metal-to-metal moving parts of the levers.

	Recommended lubricant Silicone grease
--	--

EAS30650
CHECKING THE SIDESTAND

1. Check:
- Sidestand operation
- Check that the sidestand moves smoothly.
 Rough movement → Repair or replace.

EAS30651
LUBRICATING THE SIDESTAND

Lubricate the pivoting point, metal-to-metal moving parts and spring contact point of the sidestand.

	Recommended lubricant Lithium-soap-based grease
--	--

EAS30856
CHECKING THE CENTERSTAND

1. Check:
- Centerstand operation
- Check that the centerstand moves smoothly.
 Rough movement → Repair or replace.

EAS30857
LUBRICATING THE CENTERSTAND

Lubricate the pivoting point, metal-to-metal moving parts and spring contact point of the centerstand.

	Recommended lubricant Lithium-soap-based grease
--	--

EAS30652
CHECKING THE SIDESTAND SWITCH

Refer to “CHECKING THE SWITCHES” on page 8-221.

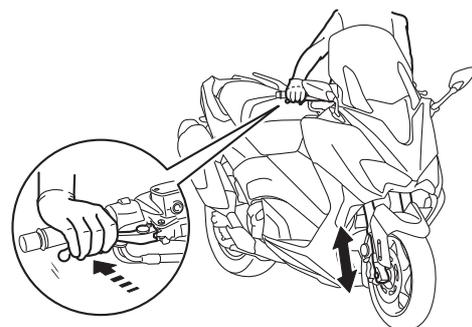
EAS30653
CHECKING THE FRONT FORK

1. Stand the vehicle on a level surface.

EWA13120
WARNING

Securely support the vehicle so that there is no danger of it falling over.

2. Check:
- Inner tube
- Damage/scratches → Replace.
- Front fork leg
- Oil leaks between inner tube and outer tube → Replace the oil seal.
3. Hold the vehicle upright and apply the front brake.
4. Check:
- Front fork operation
- Push down hard on the handlebar several times and check if the front fork rebounds smoothly.
 Rough movement → Repair.
 Refer to “FRONT FORK” on page 4-87.



EAS30808

CHECKING THE REAR SHOCK ABSORBER ASSEMBLY

1. Check:
 - Rear shock absorber assembly operation
Push down hard on the seat several times and check if the rear shock absorber rebound smoothly.
Rough movement → Replace.
Refer to “REAR SHOCK ABSORBER ASSEMBLY” on page 4-102.
2. Check:
 - Rear shock absorber assembly
Gas leaks/oil leaks → Replace.
Refer to “REAR SHOCK ABSORBER ASSEMBLY” on page 4-102.

EAS30655

ADJUSTING THE REAR SHOCK ABSORBER ASSEMBLY (for XP530D-A)

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

Spring preload

ECA13590

NOTICE

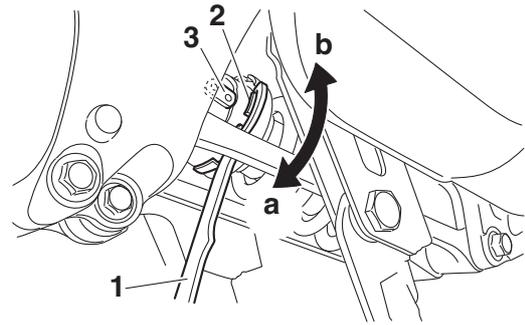
Never go beyond the maximum or minimum adjustment positions.

1. Adjust:
 - Spring preload

- a. Adjust the spring preload with the special wrench “1” included in the owner’s tool kit.
- b. Turn the adjusting ring “2” in direction “a” or “b”.
- c. Align the desired position on the adjusting ring with the stopper “3”.

Direction “a”
Spring preload is increased (suspension is harder).
Direction “b”
Spring preload is decreased (suspension is softer).

 **Spring preload**
Adjustment value (Soft)
7 (XP530D-A)
Adjustment value (STD)
4 (XP530D-A)
Adjustment value (Hard)
1 (XP530D-A)



Rebound damping

ECA13590

NOTICE

Never go beyond the maximum or minimum adjustment positions.

1. Adjust:
 - Rebound damping



- a. Turn the adjusting screw “1” in direction “a” or “b”.

Direction “a”
Rebound damping is increased (suspension is harder).
Direction “b”
Rebound damping is decreased (suspension is softer).



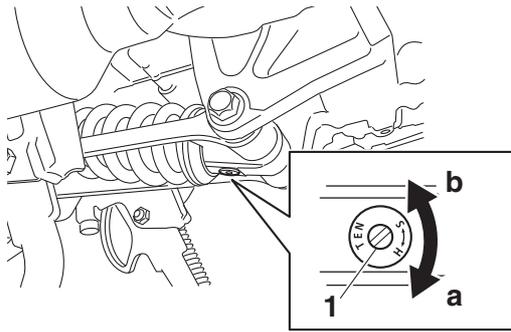
Rebound damping
Minimum (soft)
3 turn(s) in direction “b”^{*}
Standard
1.25 turn(s) in direction “b”^{*}
Maximum (hard)
Adjusting screw fully turned in direction “a”

^{*} With the adjusting screw fully turned in direction “a”

TIP

To obtain a precise adjustment, it is advisable to check the actual total number of turns of the damping force adjusting mechanism. This adjustment range may not exactly match the specifications listed due to small differences in production.

PERIODIC MAINTENANCE



EAS30809

CHECKING THE CONNECTING ARM AND RELAY ARM

1. Check:
 - Rear shock absorber assembly operation
Rough movement → Repair.
Refer to “REAR SHOCK ABSORBER ASSEMBLY” on page 4-102.

EAS30656

CHECKING THE ENGINE OIL LEVEL

1. Stand the vehicle on a level surface.

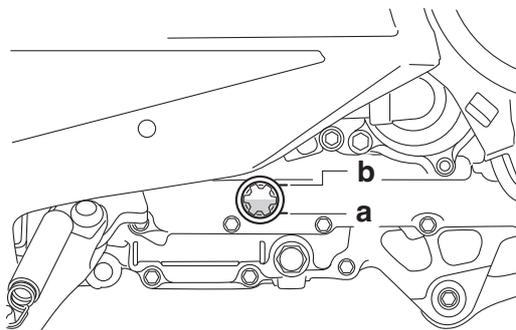
TIP

- Place the vehicle on the centerstand.
- Make sure the vehicle is upright.

2. Start the engine, warm it up for several minutes, and then turn it off.

3. Check:

- Engine oil level
The engine oil level should be between the minimum level mark “a” and maximum level mark “b”.
Below the minimum level mark → Add the recommended engine oil to the proper level.



Recommended brand
YAMALUBE
SAE viscosity grades
10W-40
Recommended engine oil grade
API service SG type or higher,
JASO standard MA

ECA13361

NOTICE

- Engine oil also lubricates the clutch and the wrong oil types or additives could cause clutch slippage. Therefore, do not add any chemical additives or use engine oils with a grade of “CD” or higher and do not use oils labeled “ENERGY CONSERVING II”.
- Do not allow foreign materials to enter the crankcase.

TIP

Before checking the engine oil level, wait a few minutes until the oil has settled.

4. Start the engine, warm it up for several minutes, and then turn it off.

5. Check the engine oil level again.

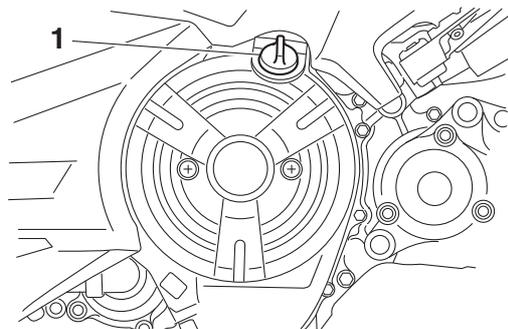
TIP

Before checking the engine oil level, wait a few minutes until the oil has settled.

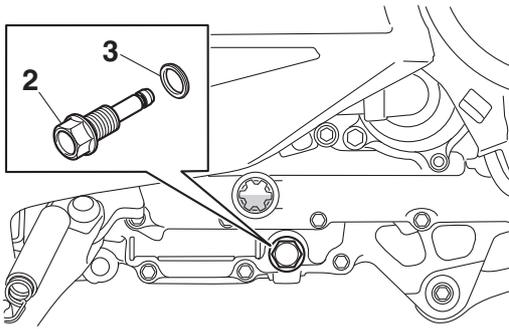
EAS30657

CHANGING THE ENGINE OIL

1. Start the engine, warm it up for several minutes, and then turn it off.
2. Place a container under the engine oil drain bolt.
3. Remove:
 - Engine oil filler cap “1”
(along with the O-ring)
 - Engine oil drain bolt “2”
(along with the O-ring)
 - Gasket “3”



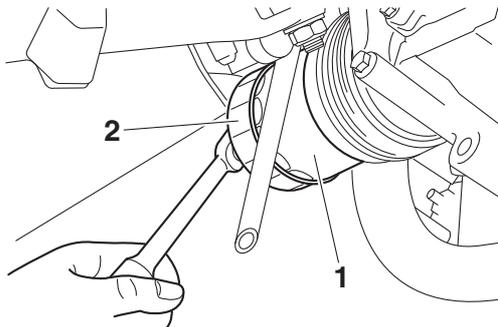
PERIODIC MAINTENANCE



4. Drain:
 - Engine oil (completely from the crankcase)
5. If the oil filter cartridge is also to be replaced, perform the following procedure.

- a. Remove the oil filter cartridge “1” with an oil filter wrench “2”.

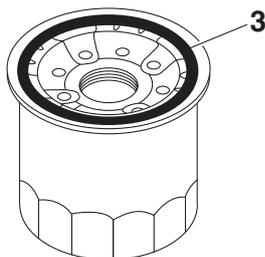
	<p>Oil filter wrench 90890-01426 Oil filter wrench YU-38411</p>
---	--



- b. Lubricate the O-ring “3” of the new oil filter cartridge with a thin coat of lithium-soap-based grease.

ECA13390

NOTICE
Make sure the O-ring “3” is positioned correctly in the groove of the oil filter cartridge.



- c. Tighten the new oil filter cartridge to speci-

cation with an oil filter wrench.

	<p>Oil filter cartridge 17 N·m (1.7 kgf·m, 13 lb·ft)</p>
---	---

6. Install:
 - Gasket **New**
 - Engine oil drain bolt (along with the O-ring)

TIP
 Lubricate the O-ring of the engine oil drain bolt with a thin coat of lithium-soap-based grease.

	<p>Engine oil drain bolt 43 N·m (4.3 kgf·m, 32 lb·ft)</p>
---	--

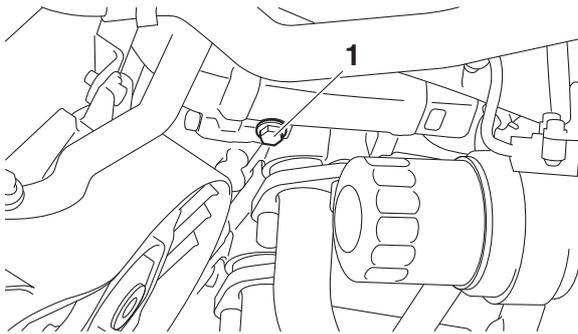
7. Fill:
 - Crankcase (with the specified amount of the recommended engine oil)

	<p>Engine oil quantity Quantity (disassembled) 3.50 L (3.70 US qt, 3.08 Imp.qt) Oil change 2.60 L (2.75 US qt, 2.29 Imp.qt) With oil filter removal 2.90 L (3.07 US qt, 2.55 Imp.qt)</p>
--	---

8. Install:
 - Engine oil filler cap (along with the O-ring **New**)
9. Start the engine, warm it up for several minutes, and then turn it off.
10. Check:
 - Engine (for engine oil leaks)
11. Check:
 - Engine oil level
 Refer to “CHECKING THE ENGINE OIL LEVEL” on page 3-27.
12. Check:
 - Engine oil pressure

- a. Remove the bottom side cowling and bottom center cowling.
 Refer to “GENERAL CHASSIS (2)” on page 4-11.
- b. Slightly loosen the oil check bolt “1”.

PERIODIC MAINTENANCE



- c. Start the engine and keep it idling until engine oil starts to seep from the oil check bolt. If no engine oil comes out after one minute, turn the engine off so that it will not seize.
- d. Check the engine oil passages, the oil filter cartridge and the oil pump for damage or leakage.
Refer to "OIL PUMP" on page 5-59.
- e. Start the engine after solving the problem(s) and check the engine oil pressure again.
- f. Tighten the oil check bolt to specification.

	Engine oil check bolt 15 N·m (1.5 kgf·m, 11 lb·ft)
--	---

- g. Install the bottom side cowling and bottom center cowling.
Refer to "GENERAL CHASSIS (2)" on page 4-11.



EAS30810

MEASURING THE ENGINE OIL PRESSURE

1. Check:
 - Engine oil level
Below the minimum level mark → Add the recommended engine oil to the proper level.
2. Start the engine, warm it up for several minutes, and then turn it off.

ECA13410

NOTICE

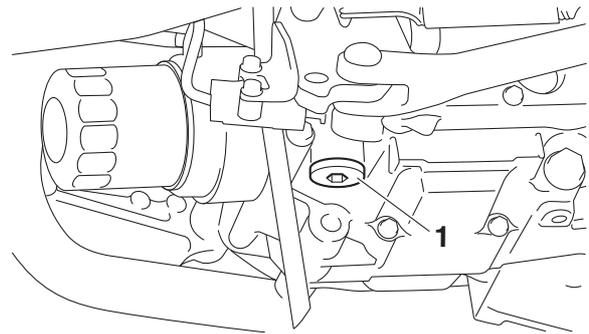
When the engine is cold, the engine oil will have a higher viscosity, causing the engine oil pressure to increase. Therefore, be sure to measure the engine oil pressure after warming up the engine.

3. Remove:
 - Engine oil pressure check point plug "1"
(Bottom of the crankcase)

EWA12980

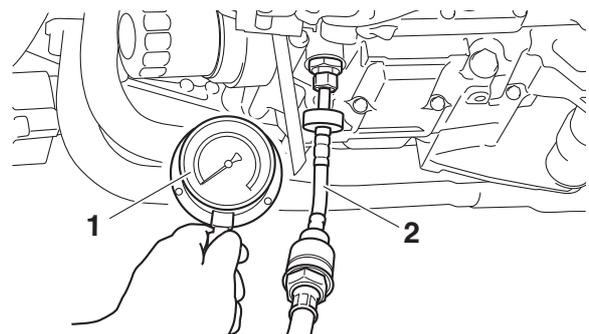
WARNING

The engine, muffler and engine oil are extremely hot.



4. Install:
 - Oil pressure gauge "1"
 - Adapter "2"

	Oil pressure gauge set 90890-03120 Oil pressure adapter B 90890-03124 Pressure gauge 90890-03153 Pressure gauge YU-03153
---	---



5. Measure:
 - Engine oil pressure
(at the following conditions)

	Oil pressure 120.0 kPa/1200 r/min (1.20 kgf/cm²/1200 r/min, 17.4 psi/1200 r/min)
---	--

Out of specification → Adjust.

Engine oil pressure	Possible causes
Below specification	<ul style="list-style-type: none"> • Faulty oil pump • Clogged oil filter • Leaking oil passage • Broken or damaged oil seal
Above specification	<ul style="list-style-type: none"> • Leaking oil passage • Faulty oil filter • Oil viscosity too high

PERIODIC MAINTENANCE

6. Install:

- Engine oil pressure check point plug

TIP

Lubricate the O-ring of the engine oil pressure check point plug with a thin coat of lithium-soap-based grease.



Engine oil pressure check point plug
12 N·m (1.2 kgf·m, 8.9 lb·ft)

EAS30811

CHECKING THE COOLANT LEVEL

1. Stand the vehicle on a level surface.

TIP

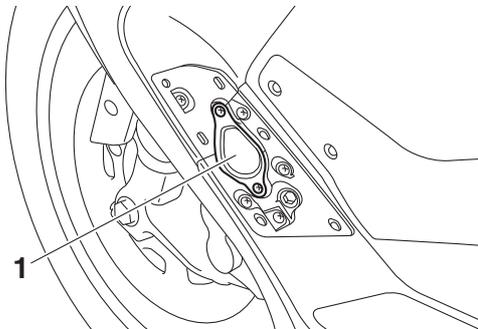
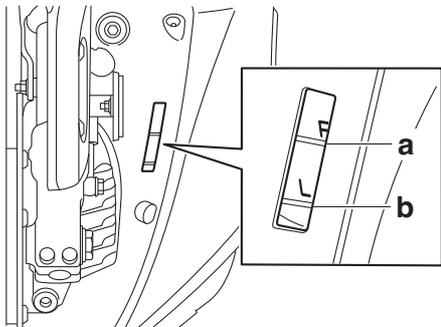
- Place the vehicle on the centerstand.
- Make sure the vehicle is upright.

2. Check:

- Coolant level

The coolant level should be between the maximum level mark “a” and minimum level mark “b”.

Below the minimum level mark → Remove the left footboard mat, coolant reservoir cap access panel “1”, and coolant reservoir cap, and then add the recommended coolant to the proper level.



ECA13470

NOTICE

- Adding water instead of coolant lowers the antifreeze content of the coolant. If water is used instead of coolant check, and if nec-

essary, correct the antifreeze concentration of the coolant.

- Use only distilled water. However, if distilled water is not available, soft water may be used.

3. Start the engine, warm it up for several minutes, and then turn it off.

4. Check:

- Coolant level

TIP

Before checking the coolant level, wait a few minutes until it settles.

EAS30812

CHECKING THE COOLING SYSTEM

1. Remove:

- Bottom side cowling
- Side panel
- Bottom center cowling

Refer to “GENERAL CHASSIS (1)” on page 4-1.

- Center cover
- Fuel tank cover assembly
- Side cover
- Footboard

Refer to “GENERAL CHASSIS (2)” on page 4-11.

- Fuel tank

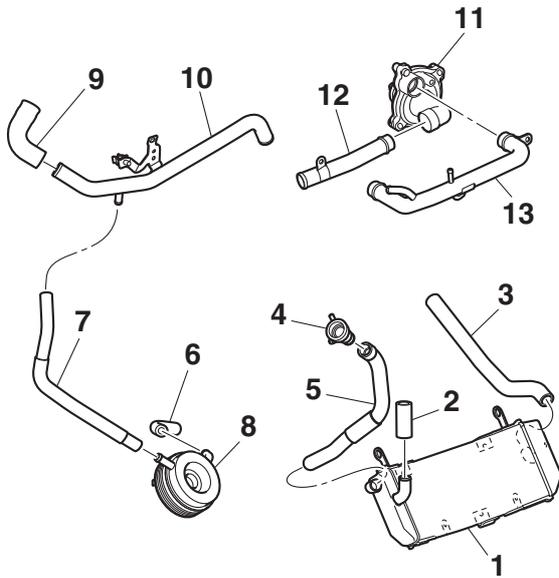
Refer to “FUEL TANK” on page 7-1.

2. Check:

- Radiator “1”
- Radiator inlet hose “2”
- Radiator outlet hose “3”
- Radiator filler pipe “4”
- Radiator filler hose “5”
- Oil cooler inlet hose “6”
- Oil cooler outlet hose “7”
- Oil cooler “8”
- Thermostat outlet hose “9”
- Coolant pipe “10”
- Water pump “11”
- Water pump inlet pipe “12”
- Water pump outlet pipe “13”

Cracks/damage → Replace.

Refer to “RADIATOR” on page 6-1, “THERMOSTAT” on page 6-7 and “WATER PUMP” on page 6-9.

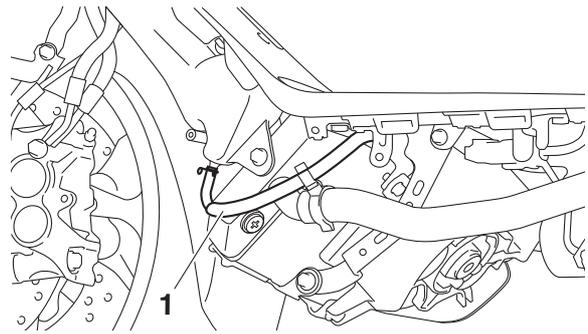


3. Install:
- Fuel tank
Refer to "FUEL TANK" on page 7-1.
 - Footboard
 - Side cover
 - Fuel tank cover assembly
 - Center cover
Refer to "GENERAL CHASSIS (2)" on page 4-11.
 - Bottom center cowling
 - Side panel
 - Bottom side cowling
Refer to "GENERAL CHASSIS (1)" on page 4-1.

EAS30813

CHANGING THE COOLANT

1. Remove:
- Bottom side cowling
 - Side panel
 - Bottom center cowling
Refer to "GENERAL CHASSIS (1)" on page 4-1.
 - Center cover
 - Fuel tank cover assembly
 - Side cover
 - Footboard
Refer to "GENERAL CHASSIS (2)" on page 4-11.
2. Disconnect:
- Coolant reservoir hose "1"



3. Drain:
- Coolant
(from the coolant reservoir)
4. Remove:
- Radiator cap "1"

EWA13030

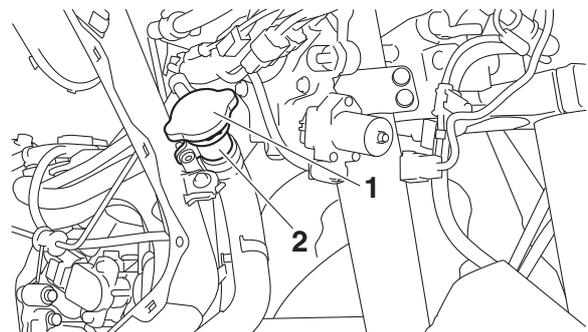
WARNING

A hot radiator is under pressure. Therefore, do not remove the radiator cap when the engine is hot. Scalding hot fluid and steam may be blown out, which could cause serious injury. When the engine has cooled, open the radiator cap as follows:

Place a thick rag or a towel over the radiator cap and slowly turn the radiator cap counterclockwise toward the detent to allow any residual pressure to escape. When the hissing sound has stopped, press down on the radiator cap and turn it counterclockwise to remove.

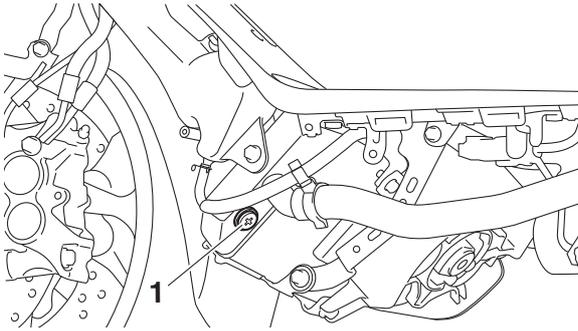
TIP

When removing the radiator cap, hold the radiator filler pipe "2".



5. Remove:
- Coolant drain bolt "1"
(along with the O-ring)

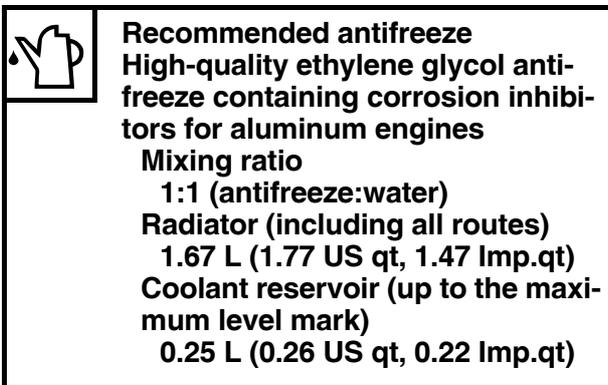
PERIODIC MAINTENANCE



6. Drain:
 - Coolant
(from the engine and radiator)
7. Install:
 - Coolant drain bolt
(along with the O-ring **New**)



8. Connect:
 - Coolant reservoir hose
9. Fill:
 - Cooling system
(with the specified amount of the recommended coolant)



Handling notes for coolant
Coolant is potentially harmful and should be handled with special care.

EWA13040

WARNING

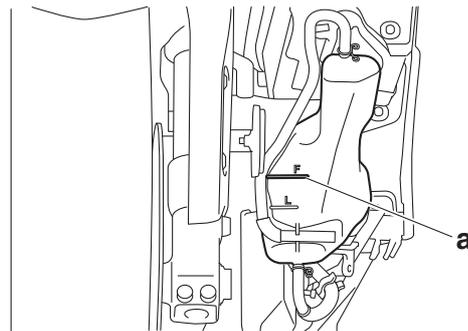
- If coolant splashes in your eyes, thoroughly wash them with water and consult a doctor.
- If coolant splashes on your clothes, quickly wash it away with water and then with soap and water.
- If coolant is swallowed, induce vomiting and get immediate medical attention.

ECA13481

NOTICE

- Adding water instead of coolant lowers the antifreeze content of the coolant. If water is used instead of coolant, check, and if necessary, correct the antifreeze concentration of the coolant.
- Use only distilled water. However, if distilled water is not available, soft water may be used.
- If coolant comes into contact with painted surfaces, immediately wash them with water.
- Do not mix different types of antifreeze.

10. Install:
 - Radiator cap
11. Fill:
 - Coolant reservoir
(with the recommended coolant to the maximum level mark "a")



12. Install:
 - Coolant reservoir cap
13. Start the engine, warm it up for several minutes, and then stop it.
14. Check:
 - Coolant level
Refer to "CHECKING THE COOLANT LEVEL" on page 3-30.

TIP

Before checking the coolant level, wait a few minutes until the coolant has settled.

15. Install:
 - Footboard
 - Side cover
 - Fuel tank cover assembly
 - Center cover
Refer to "GENERAL CHASSIS (2)" on page 4-11.
 - Bottom center cowling
 - Side panel
 - Bottom side cowling
Refer to "GENERAL CHASSIS (1)" on page 4-1.

EAS31188

REPLACING THE V-BELT

1. Remove:
 - Bottom side cowling
 - Side panel
 - Bottom center cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.
 - Center cover
 - Fuel tank cover assembly
 - Side cover (right)
 - Footboard (right)
Refer to “GENERAL CHASSIS (2)” on page 4-11.
 - Outer V-belt case
Refer to “V-BELT AUTOMATIC TRANSMISSION” on page 5-34.
2. Check:
 - V-belt
Cracks/damage/wear → Replace.
Grease/oil → Clean the primary and secondary pulleys.
Refer to “V-BELT AUTOMATIC TRANSMISSION” on page 5-34.

TIP

Replace the V-belt every 20000 km (12000 mi) of operation.

3. Install:
 - Outer V-belt case
Refer to “V-BELT AUTOMATIC TRANSMISSION” on page 5-34.
 - Footboard (right)
 - Side cover (right)
 - Fuel tank cover assembly
 - Center cover
Refer to “GENERAL CHASSIS (2)” on page 4-11.
 - Bottom center cowling
 - Side panel
 - Bottom side cowling
Refer to “GENERAL CHASSIS (1)” on page 4-1.

EAS30658

CHECKING THE BRAKE LIGHT SWITCHES

1. Check:
 - Front brake light switch operation
 - Rear brake light switch operation
When operating the brake lever, confirm that the brake light comes on.
Faulty → Refer to “CHECKING THE SWITCHES” on page 8-221.

EAS31147

CHECKING AND LUBRICATING THE CABLES

The following procedure applies to all of the inner and outer cables.

EWA13270



Damaged outer cable may cause the cable to corrode and interfere with its movement. Replace damaged outer cable and inner cables as soon as possible.

1. Check:
 - Outer cable
Damage → Replace.
2. Check:
 - Cable operation
Rough movement → Lubricate.



Recommended lubricant
Engine oil or a suitable cable lubricant

TIP

Hold the cable end upright and pour a few drops of lubricant into the cable sheath or use a suitable lubricating device.

EAS30815

CHECKING THE THROTTLE GRIP

1. Check:
 - Throttle cables
Damage/deterioration → Replace.
 - Throttle cable installation
Incorrect → Reinstall the throttle cables.
Refer to “HANDLEBAR” on page 4-79.
2. Check:
 - Throttle grip movement
Rough movement → Lubricate or replace the defective part(s).



Recommended lubricant
Suitable cable lubricant

TIP

With the engine stopped, turn the throttle grip slowly and release it. Make sure that the throttle grip turns smoothly and returns properly when released.

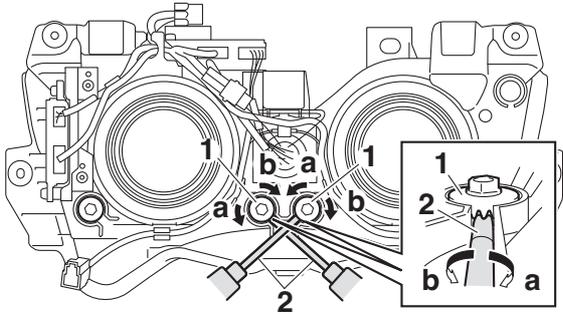
Repeat this check with the handlebar turned all the way to the left and right.

3. Check:
 - Throttle grip free play “a”
Out of specification → Adjust.

PERIODIC MAINTENANCE

Right headlight

Direction "a"
Headlight beam moves to the left.
Direction "b"
Headlight beam moves to the right.



PERIODIC MAINTENANCE

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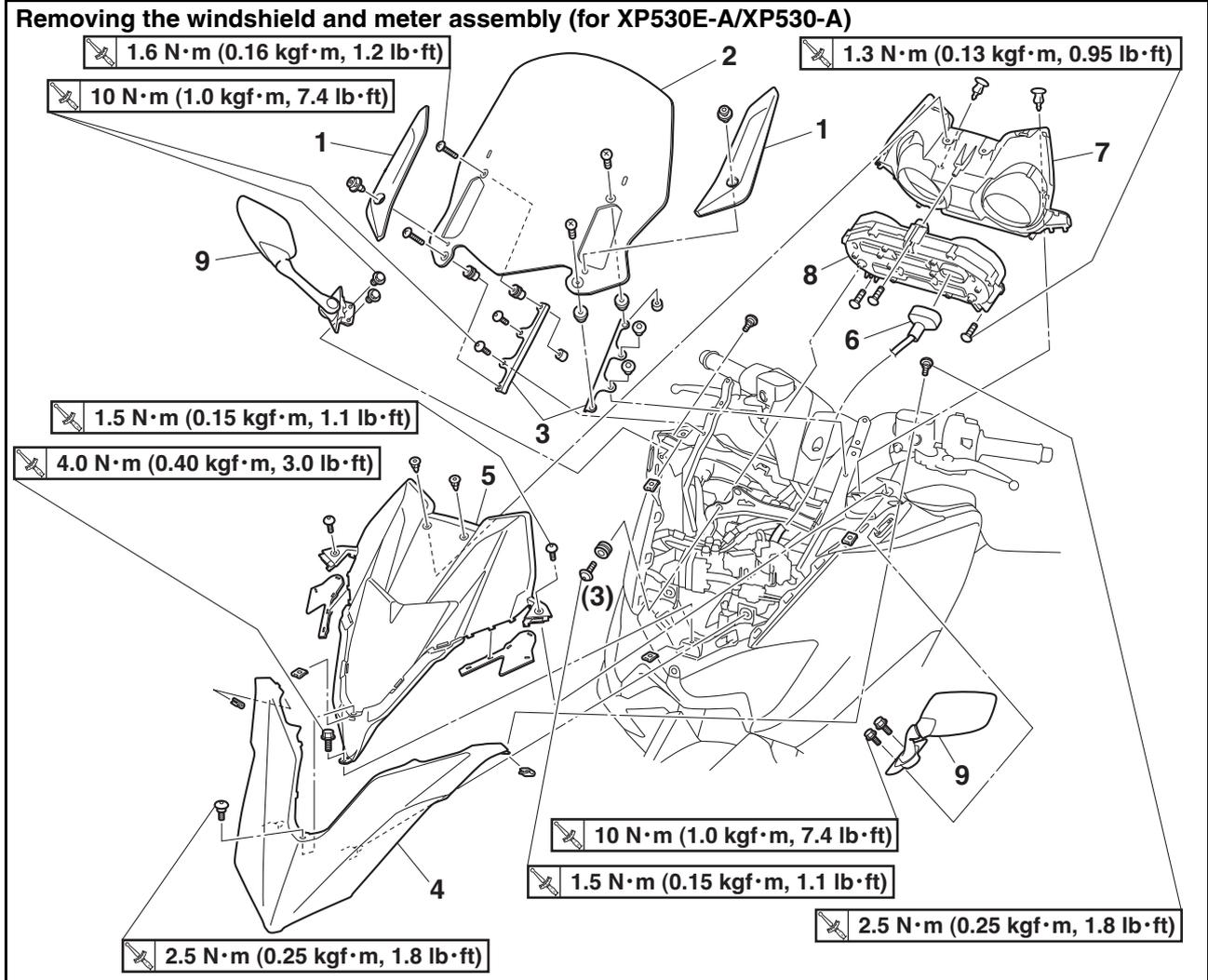
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GENERAL CHASSIS (1)

EAS20026

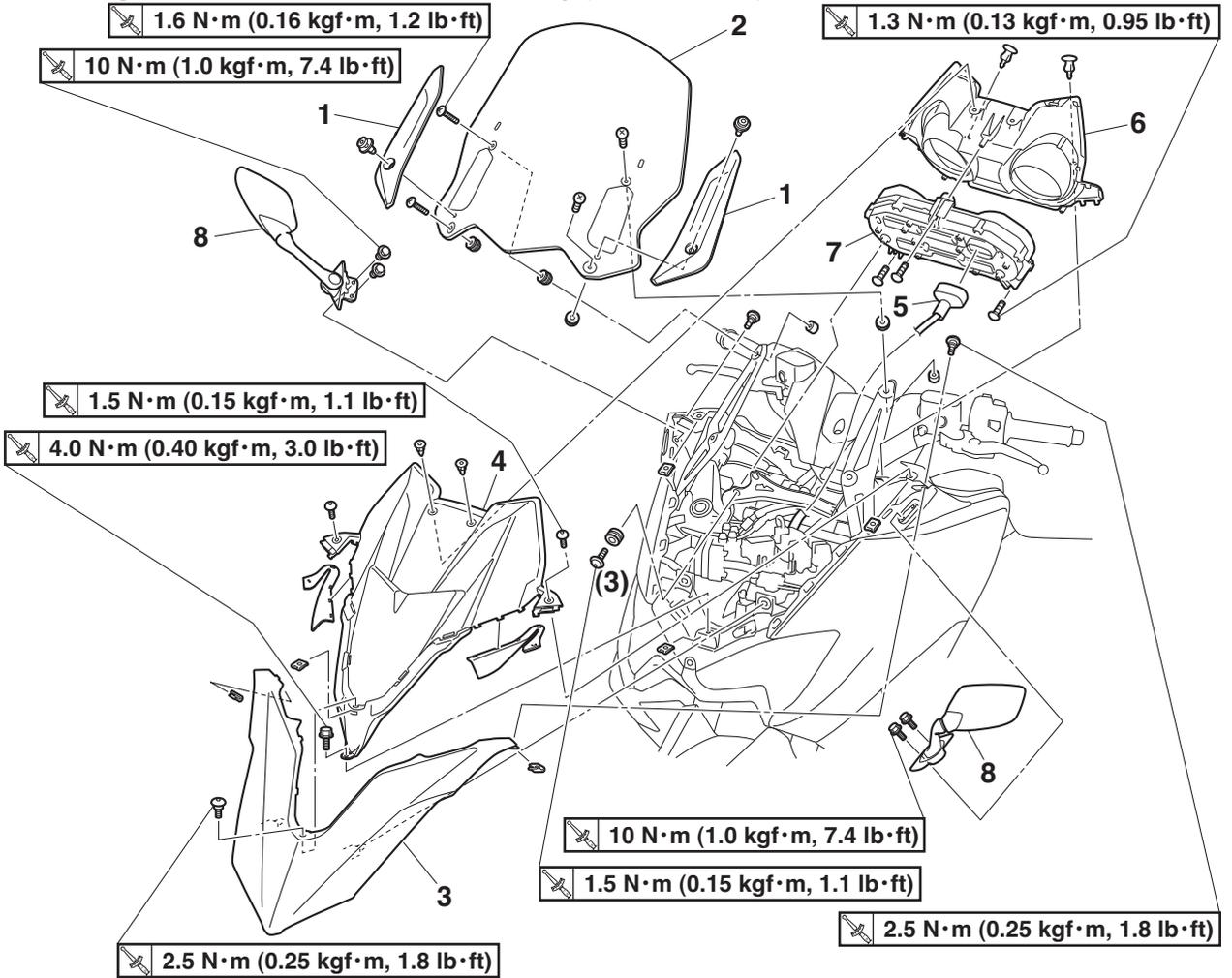
GENERAL CHASSIS (1)



Order	Job/Parts to remove	Q'ty	Remarks
1	Windshield cover	2	
2	Windshield	1	
3	Windshield bracket	2	
4	Front cover	1	
5	Windshield inner panel	1	
6	Meter assembly coupler	1	Disconnect.
7	Meter panel assembly	1	
8	Meter assembly	1	
9	Rearview mirror	2	

GENERAL CHASSIS (1)

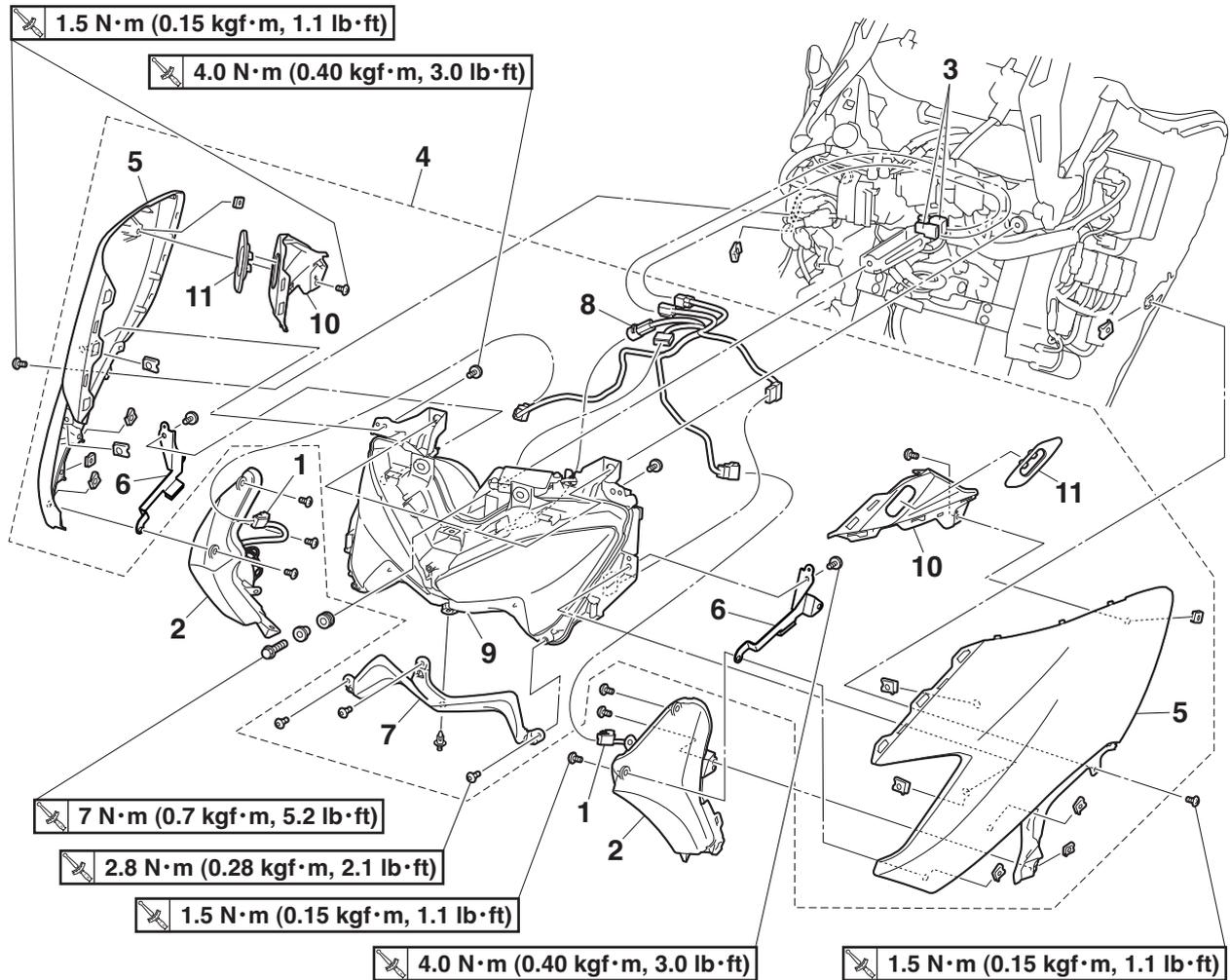
Removing the windshield and meter assembly (for XP530D-A)



Order	Job/Parts to remove	Q'ty	Remarks
1	Windshield cover	2	
2	Windshield	1	
3	Front cover	1	
4	Windshield inner panel	1	
5	Meter assembly coupler	1	Disconnect.
6	Meter panel assembly	1	
7	Meter assembly	1	
8	Rearview mirror	2	

GENERAL CHASSIS (1)

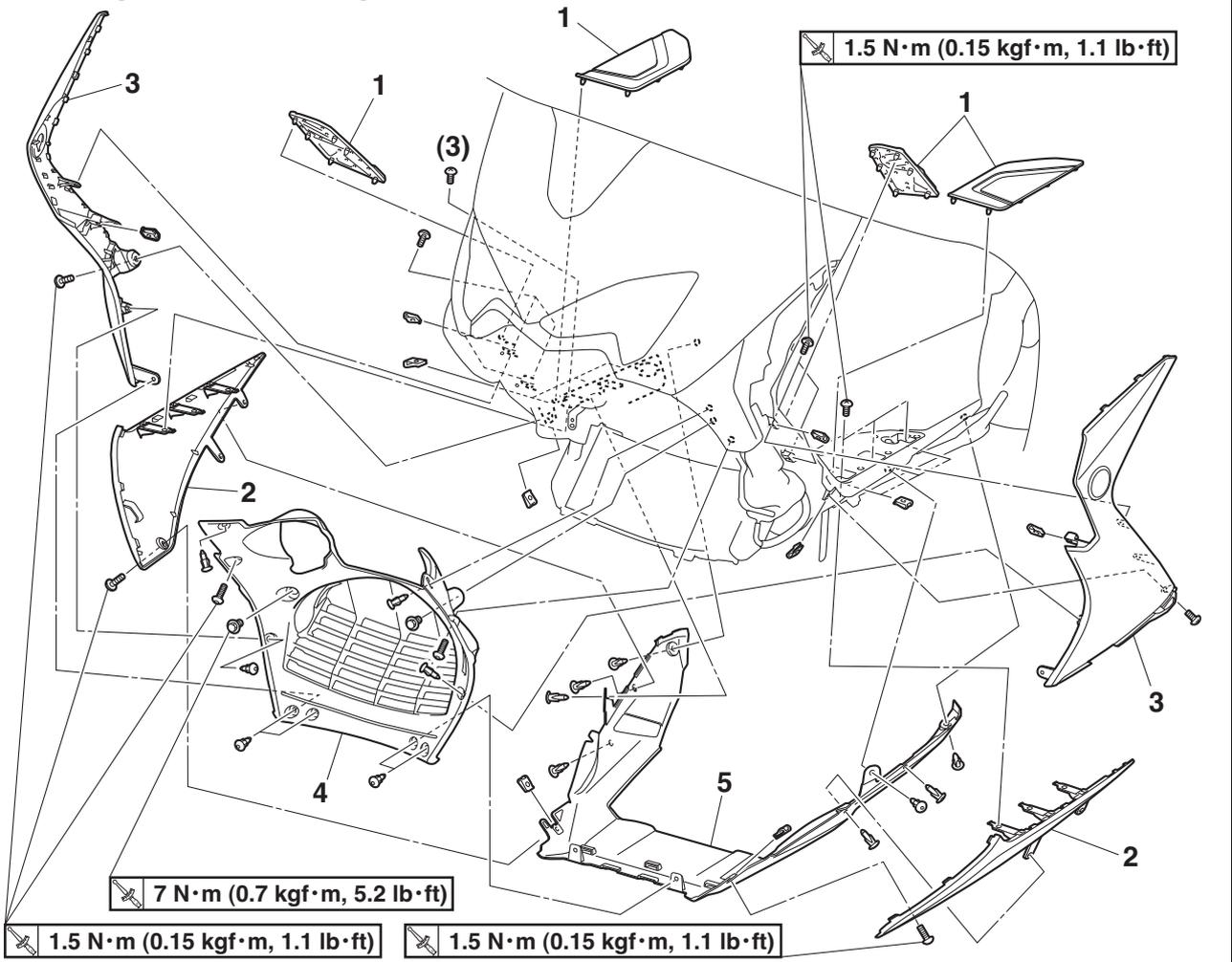
Removing the front turn signal light and front cowling assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Rearview mirror/Bottom side cowling/Side panel		Refer to "GENERAL CHASSIS (1)" on page 4-1.
1	Front turn signal light coupler	2	Disconnect.
2	Front turn signal light	2	
3	Headlight assembly coupler	2	Disconnect.
4	Front cowling assembly	1	
5	Side cowling	2	
6	Front turn signal light bracket	2	
7	Headlight under panel	1	
8	Headlight sub-wire harness	1	
9	Headlight	1	
10	Plate	2	
11	Rearview mirror adaptor	2	

GENERAL CHASSIS (1)

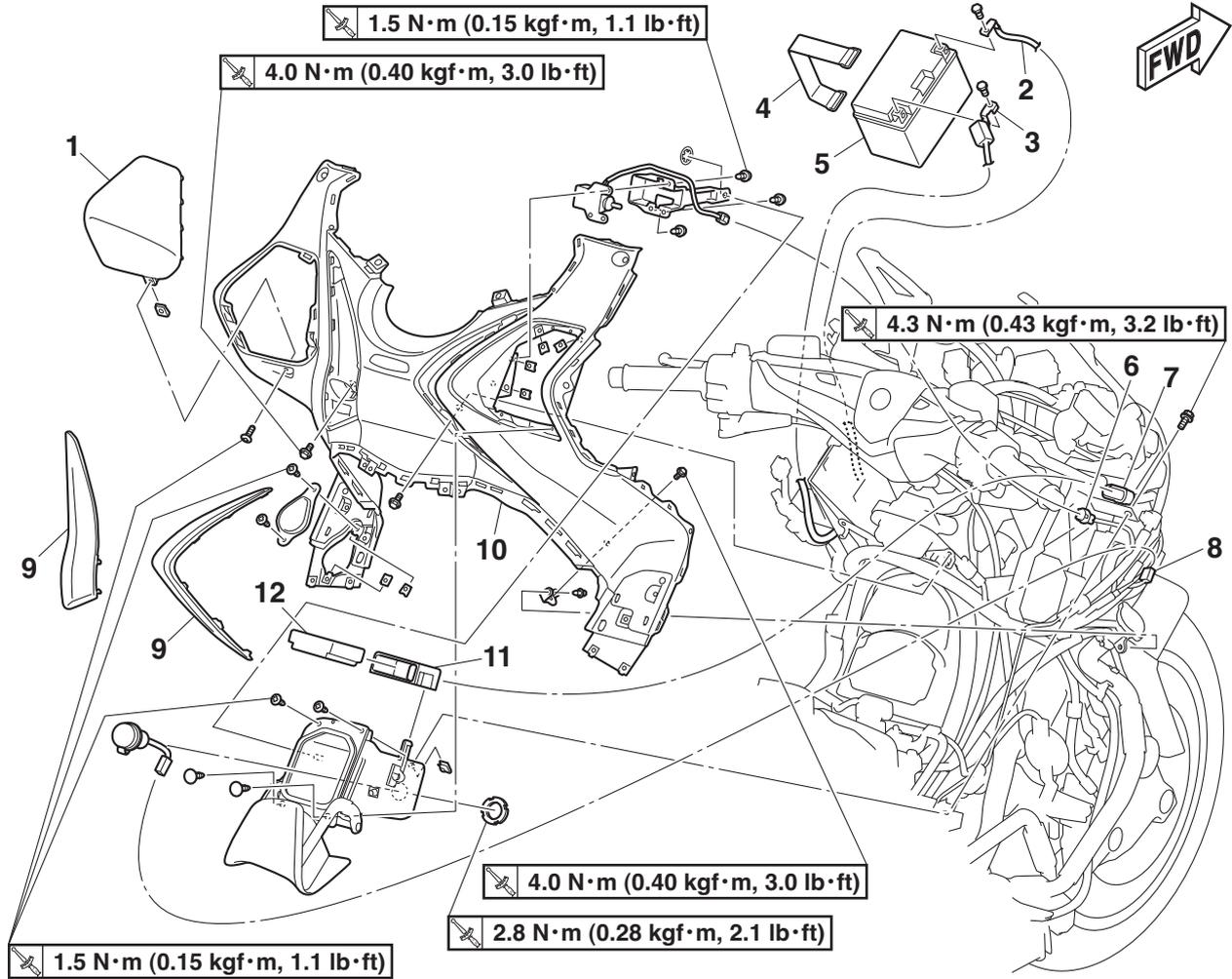
Removing the bottom cowling



Order	Job/Parts to remove	Q'ty	Remarks
1	Footboard mat	4	
2	Bottom side cowling	2	
3	Side panel	2	
4	Radiator cover	1	
5	Bottom center cowling	1	

GENERAL CHASSIS (1)

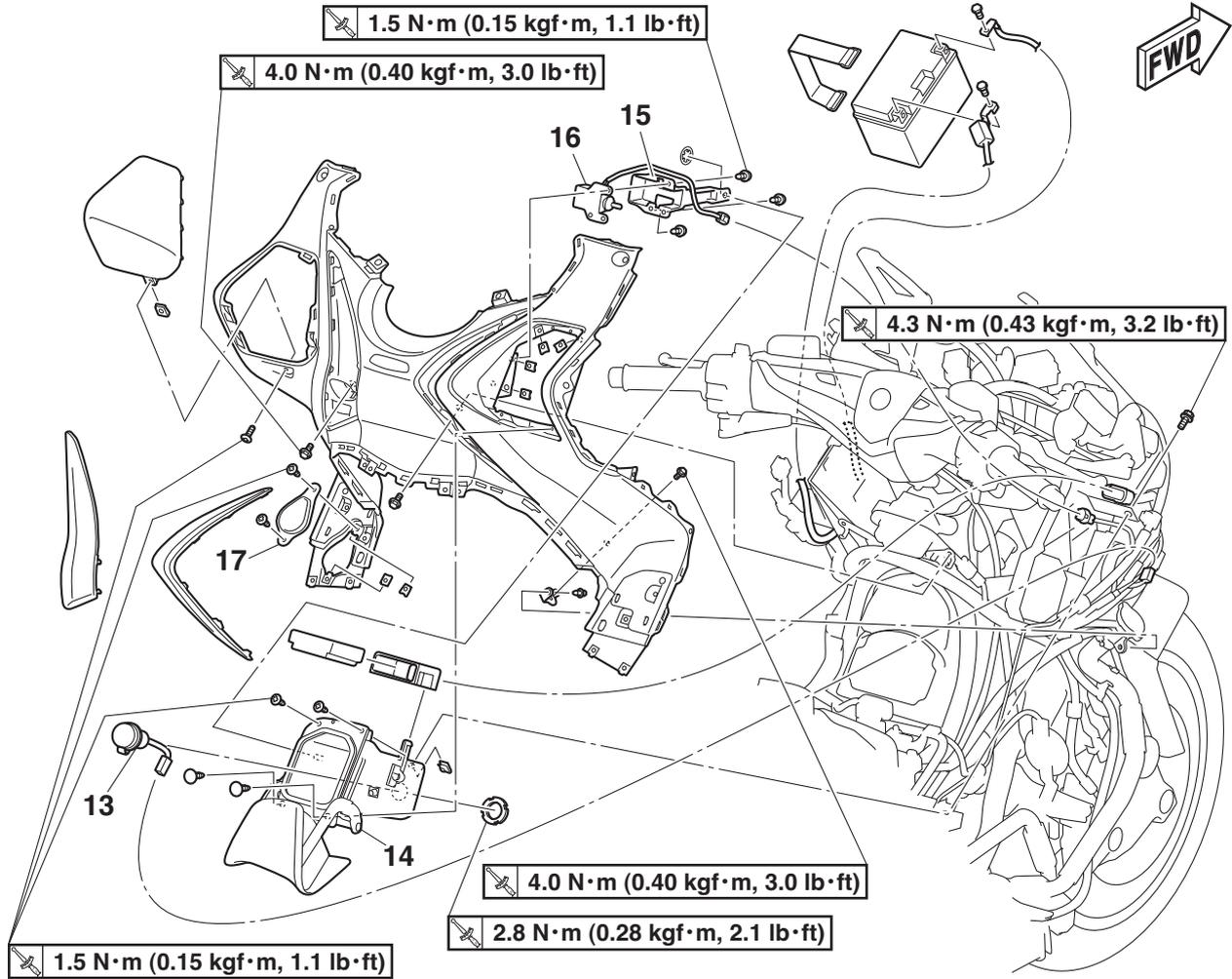
Removing the battery and leg shield assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Battery cover	1	
2	Negative battery lead	1	Disconnect.
3	Positive battery lead	1	Disconnect.
4	Battery band	1	
5	Battery	1	
6	Storage compartment lid lock solenoid coupler	1	Disconnect. (for XP530-A/XP530D-A)
7	Remote control unit coupler	1	Disconnect.
8	Auxiliary DC jack coupler	1	Disconnect.
9	Inner panel	2	
10	Leg shield assembly	1	
11	Band	1	
12	Remote control unit	1	

GENERAL CHASSIS (1)

Removing the battery and leg shield assembly



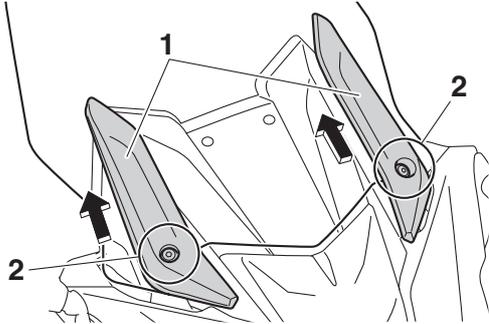
Order	Job/Parts to remove	Q'ty	Remarks
13	Auxiliary DC jack	1	
14	Storage box	1	
15	Protector	1	
16	Storage compartment lid lock solenoid	1	
17	Cover	1	

EAS31397

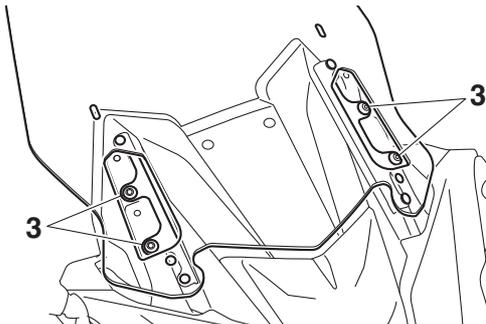
ADJUSTING THE WINDSHIELD HEIGHT (for XP530E-A/XP530-A)

1. Adjust:
 - Windshield height

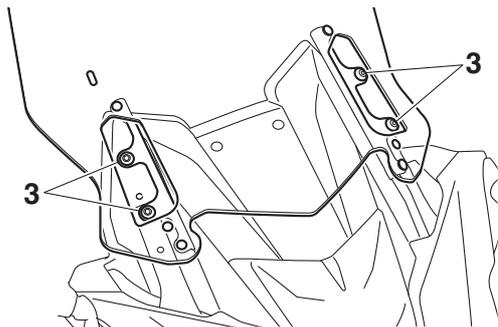
- a. Remove the windshield covers "1" by removing the quick fasteners "2".



- b. Remove the windshield by removing the screws "3".



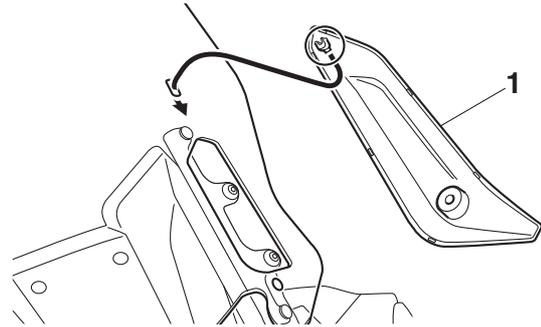
- c. Install the windshield to the desired position by installing the screws "3".



- d. Tighten the screws to the specified torque.

	<p>Windshield screw 10 N·m (1.0 kgf·m, 7.4 lb·ft)</p>
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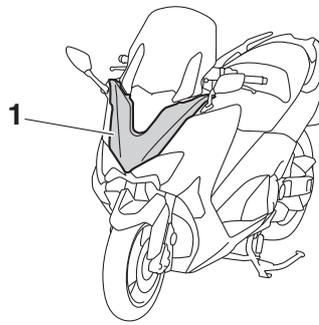
- e. Place the windshield covers "1", and then install the quick fasteners.



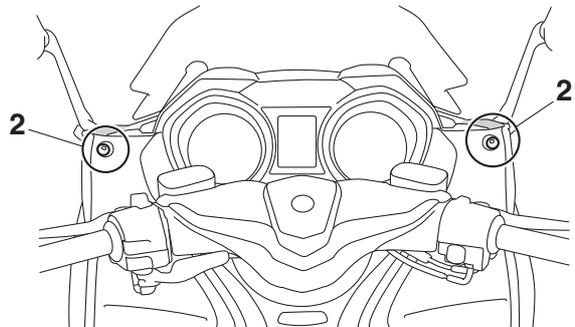
EAS31398

REMOVING THE FRONT COVER

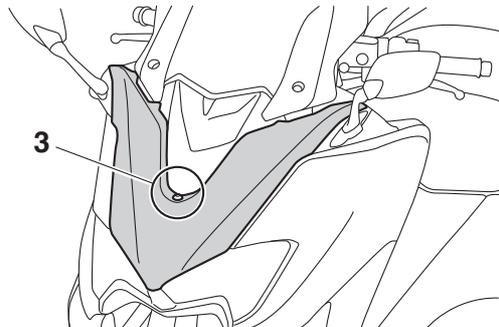
1. Remove:
 - Front cover "1"



- a. Remove the front cover bolts "2".



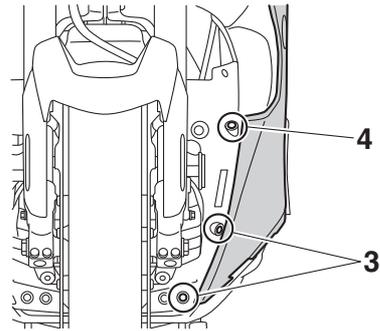
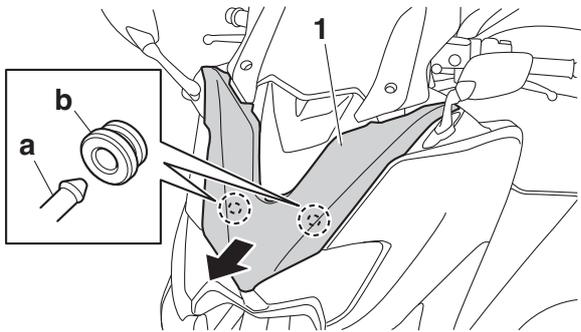
- b. Remove the front cover bolt "3".



- c. Remove the front cover "1" by sliding it forward.

GENERAL CHASSIS (1)

TIP
Remove projections “a” on the front cover from grommets “b”.



c. Remove the side panel “1”.

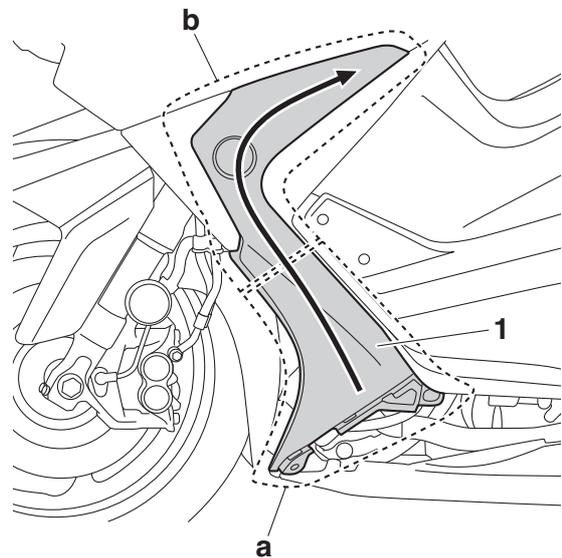
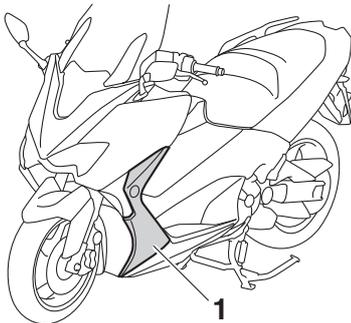
TIP
Remove the side panel by removing the lower part “a” and upper part “b”.

EAS30821

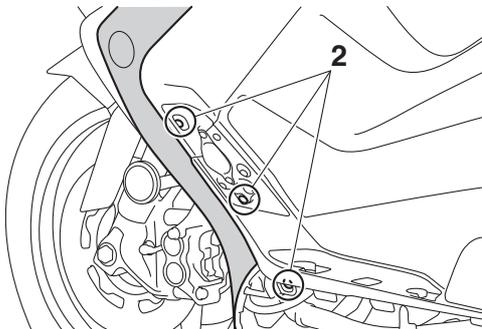
REMOVING THE SIDE PANEL

The following procedure applies to both of the side panels.

1. Remove:
 - Bottom side cowling
2. Remove:
 - Side panel “1”



a. Remove the side panel screws “2”.



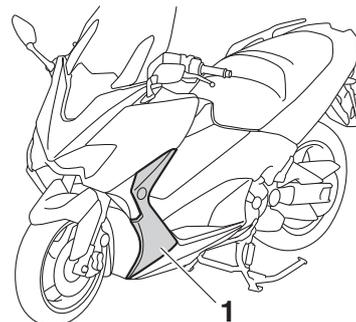
b. Remove the quick fasteners “3” and the side panel bolt “4”.

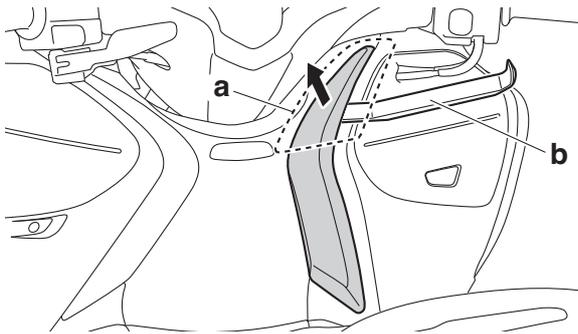
EAS30822

INSTALLING THE SIDE PANEL

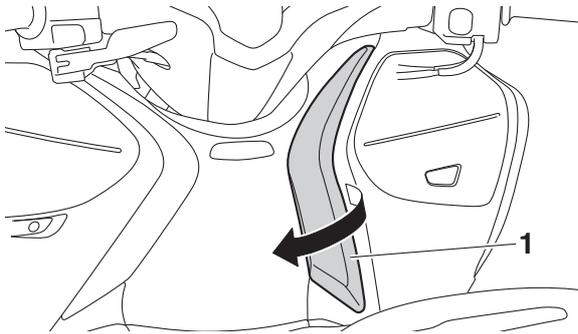
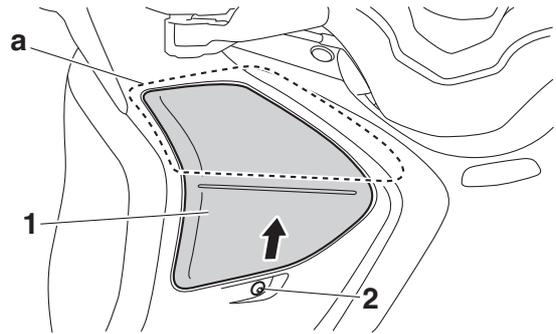
The following procedure applies to both of the side panels.

1. Install:
 - Side panel “1”





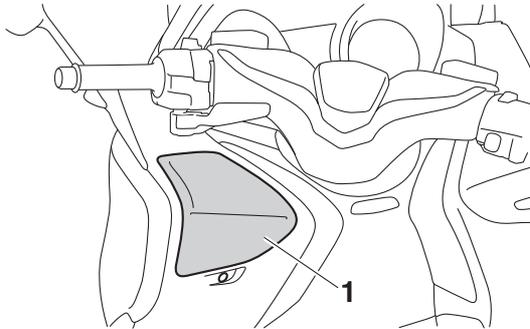
b. Remove the inner panel "1" by moving it in the arrow direction.



EAS31677

REMOVING THE BATTERY COVER

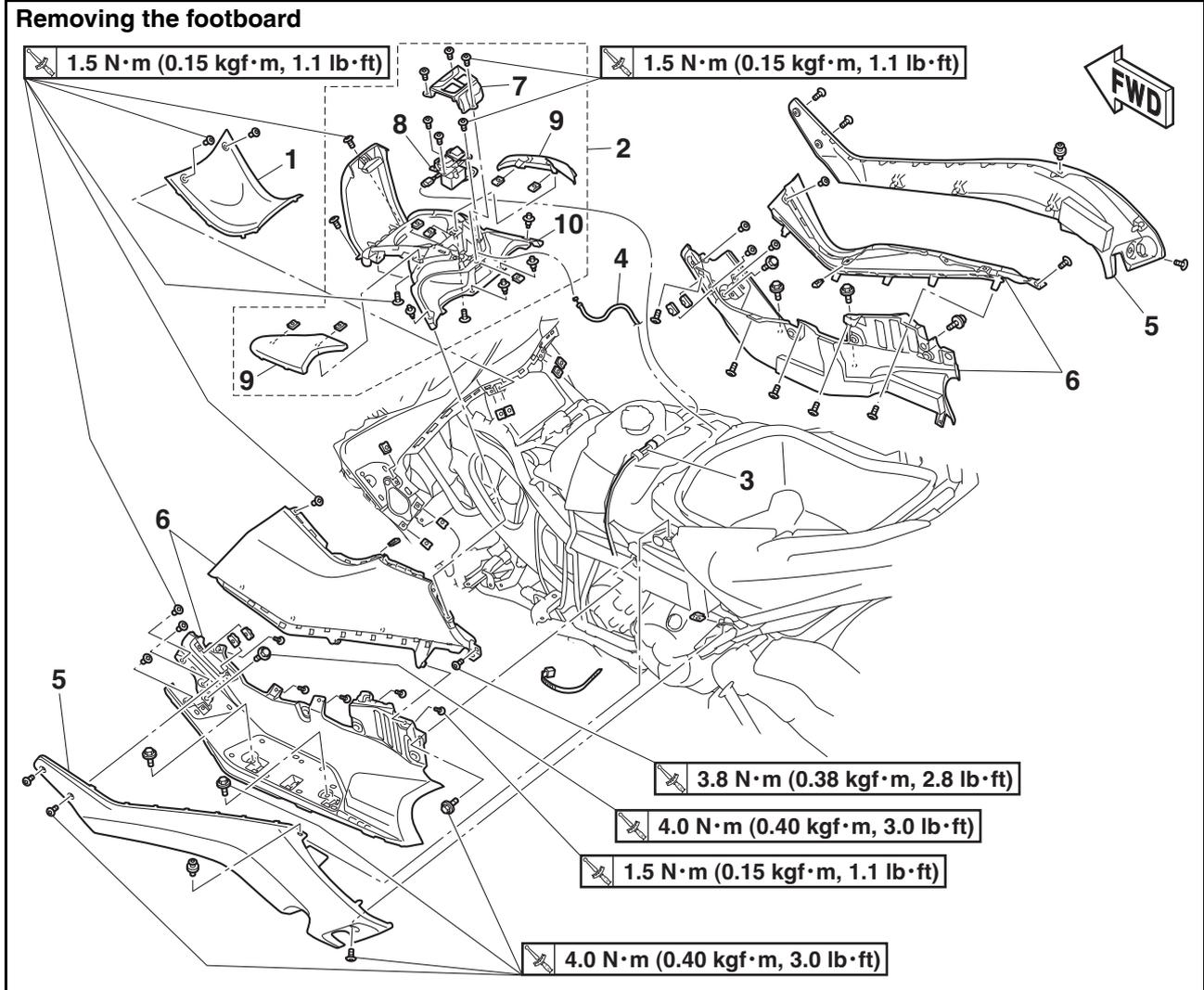
1. Remove:
 - Battery cover "1"



- a. Remove the battery cover screw "2".
- b. Remove the part "a" of the battery cover.
- c. Remove the battery cover "1" by sliding it to the upper side.

EAS20155

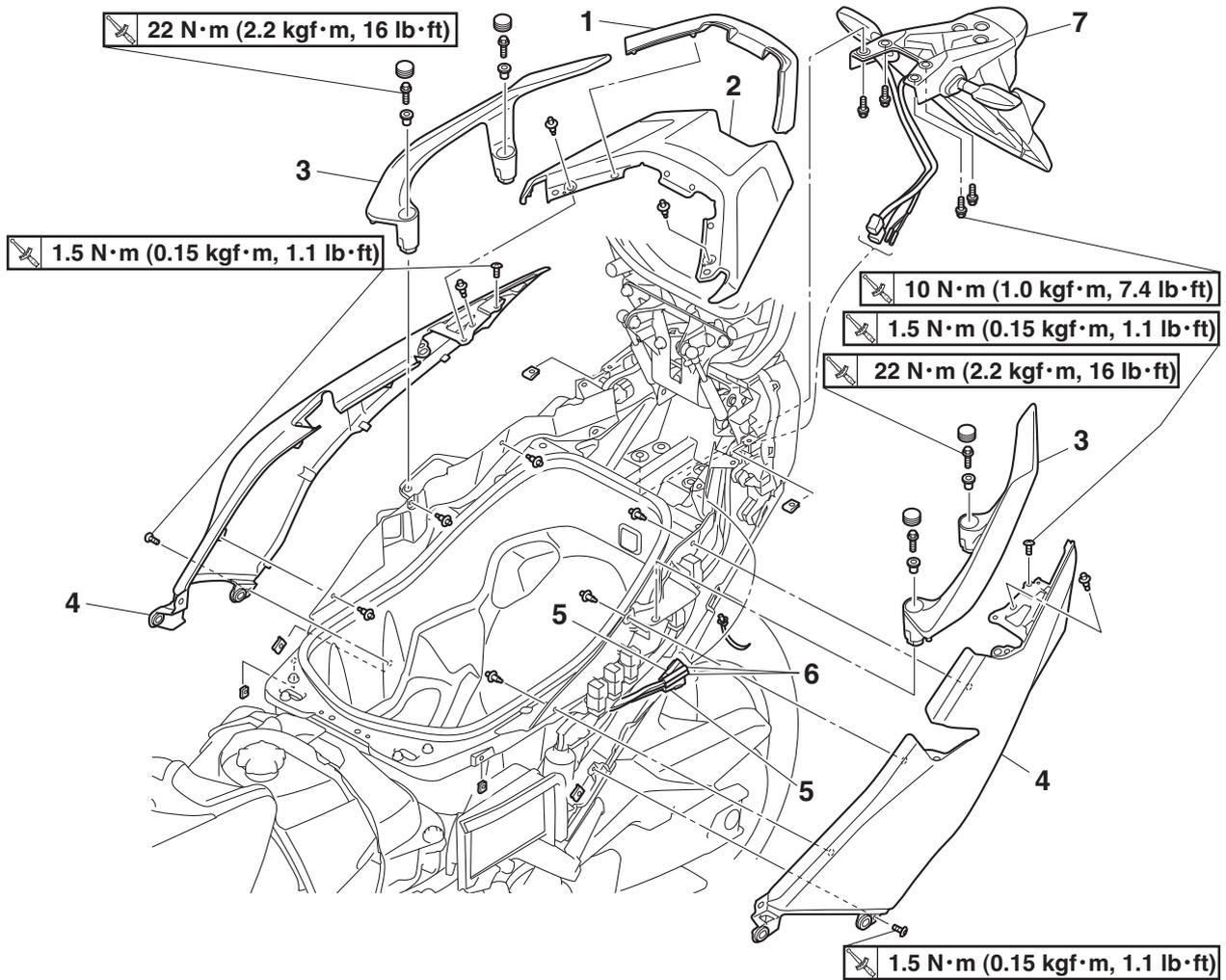
GENERAL CHASSIS (2)



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
1	Center cover	1	
2	Fuel tank cover assembly	1	
3	Seat/fuel lid lock solenoid coupler	1	Disconnect.
4	Seat lock cable	1	Disconnect.
5	Side cover	2	
6	Footboard	4	
7	Cover	1	
8	Seat/fuel lid lock solenoid	1	
9	Cover	2	
10	Fuel tank cover	1	

GENERAL CHASSIS (2)

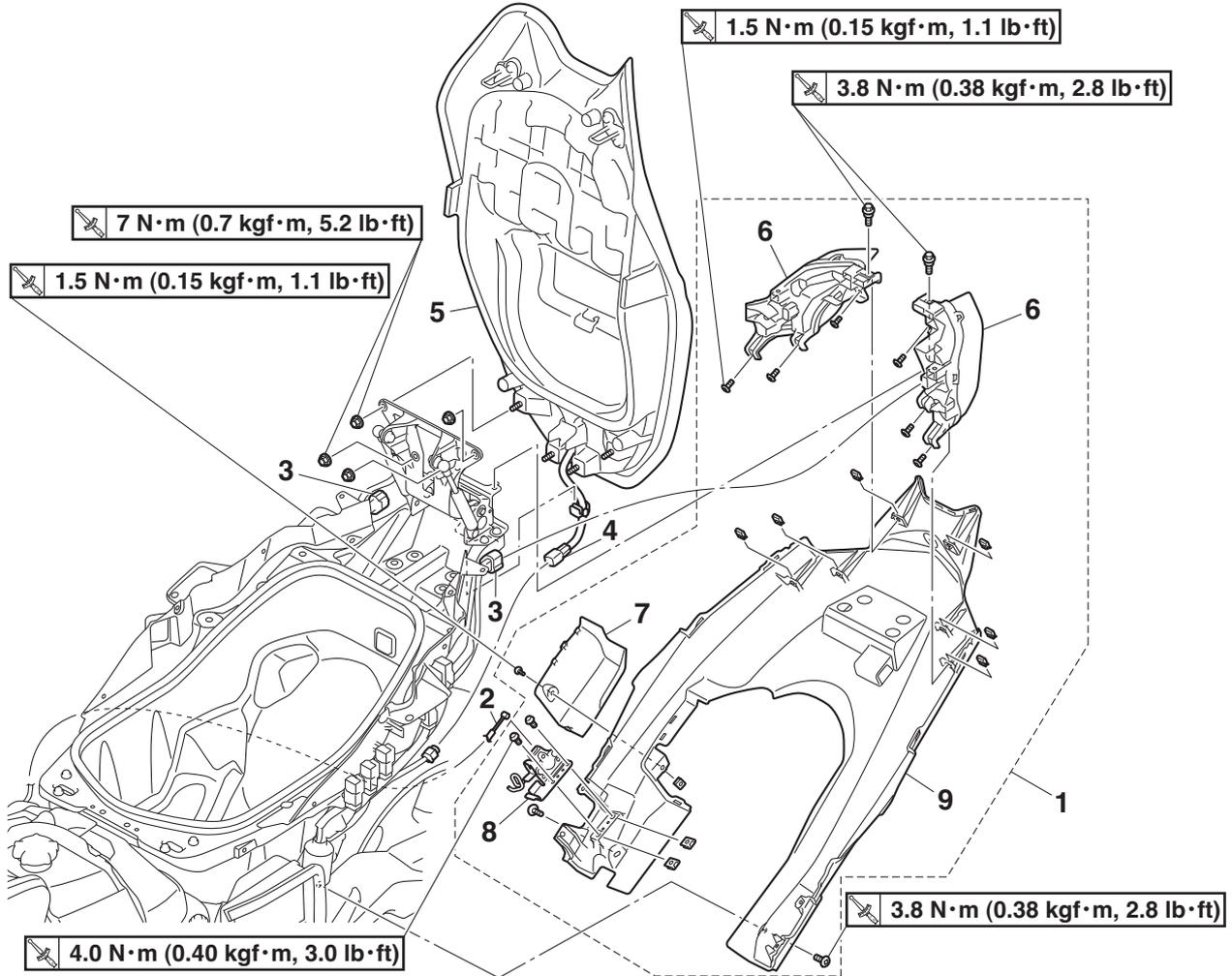
Removing the rear cowling and mudguard assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Cover	1	
2	Rear cover	1	
3	Grab bar	2	
4	Rear cowling	2	
5	Rear turn signal light coupler	2	Disconnect.
6	License plate light connector	2	Disconnect.
7	Mudguard assembly	1	

GENERAL CHASSIS (2)

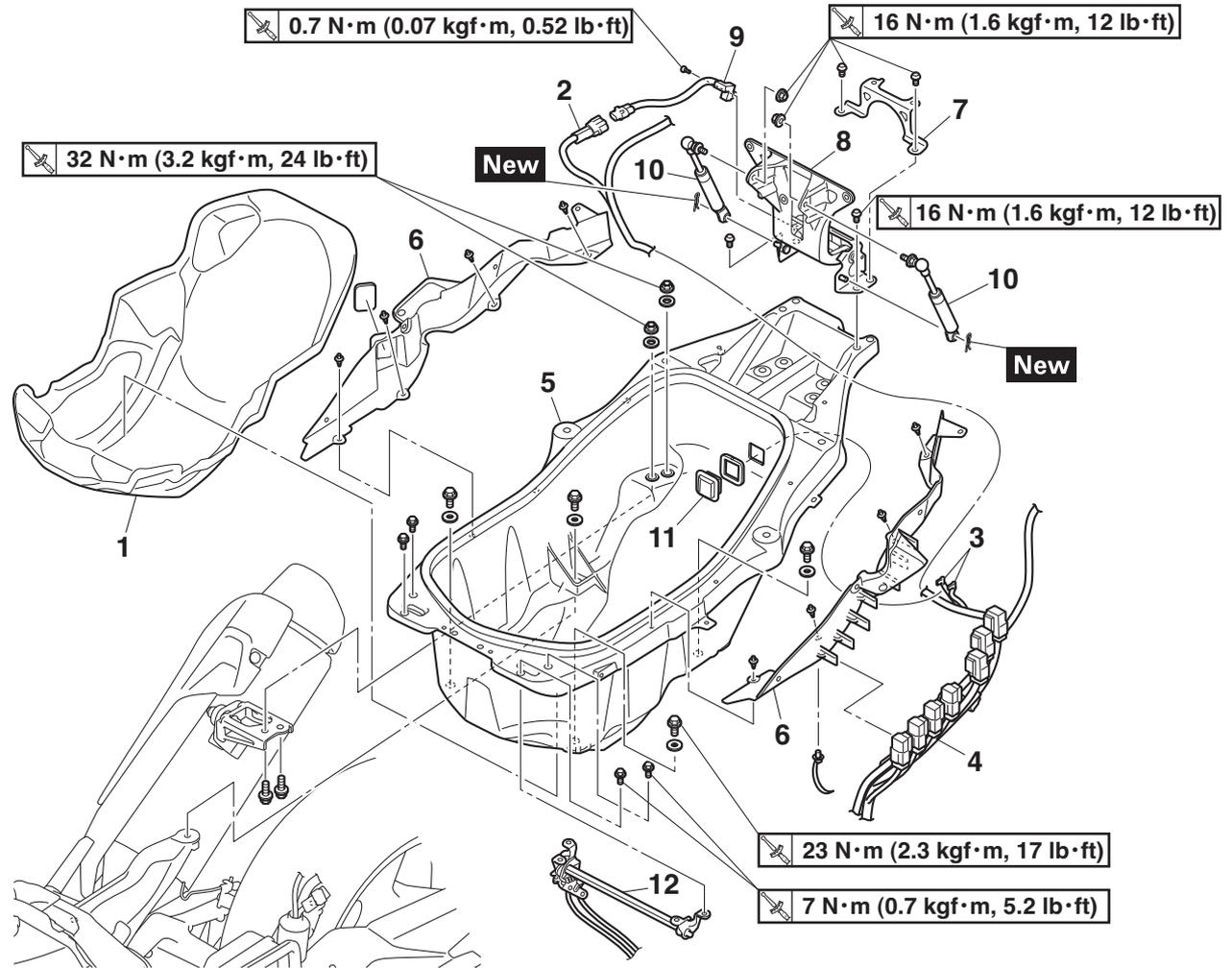
Removing the rear cowling assembly and seat assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard/Rear cowling/Mudguard assembly		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Rear cowling assembly	1	
2	Seat lock cable	1	Disconnect.
3	Tail/brake light coupler	2	Disconnect.
4	Seat heater coupler	1	Disconnect. (for XP530D-A)
5	Seat assembly	1	
6	Tail/brake light	2	
7	Lid	1	
8	Seat lock key cylinder	1	
9	Tail/brake light cover	1	

GENERAL CHASSIS (2)

Removing the storage box

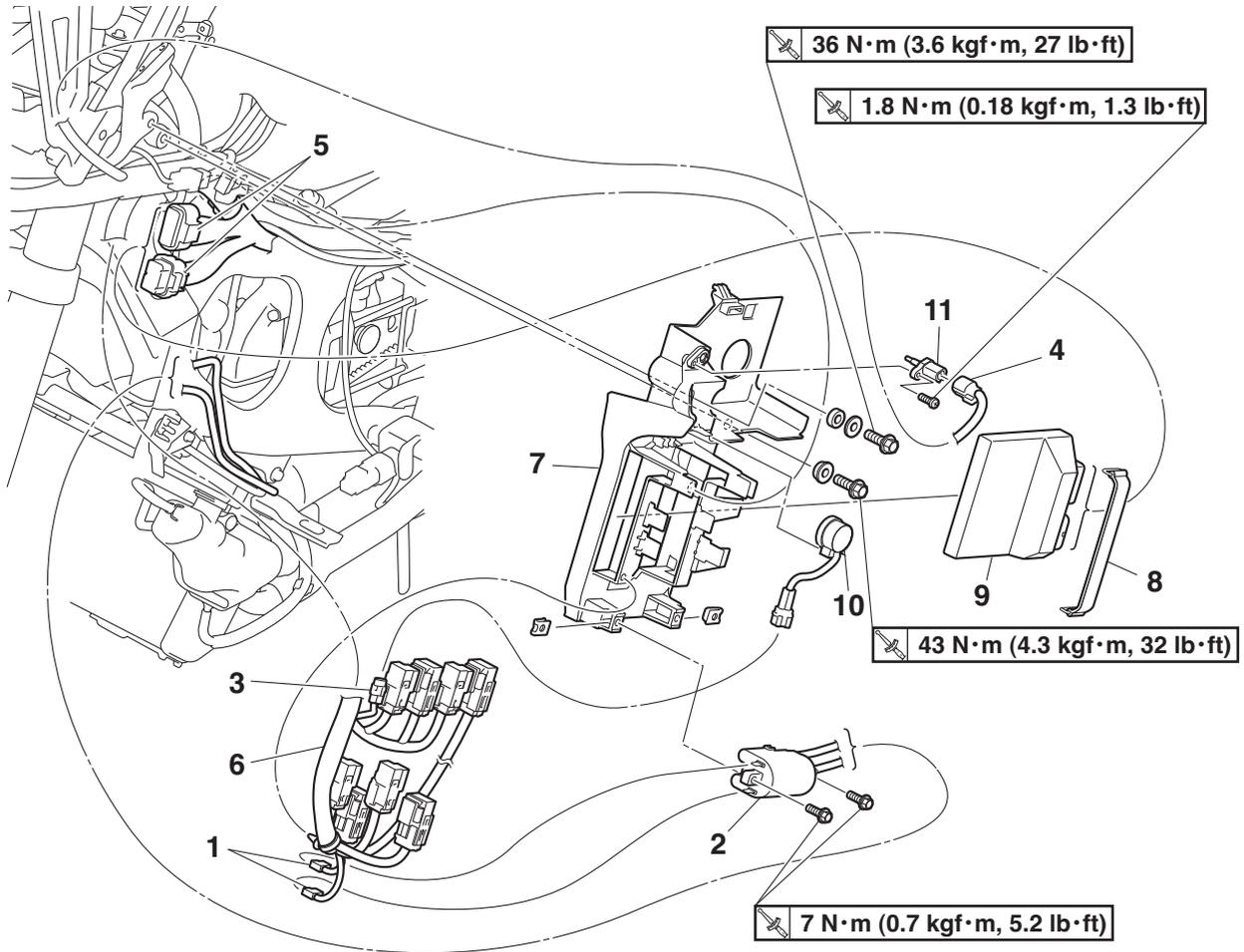


Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard/Rear cowling/Mudguard assembly/Rear cowling assembly/Seat assembly		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Storage box inner mat	1	
2	Storage box light switch coupler	1	Disconnect.
3	Storage box light connector	2	Disconnect.
4	Wire harness	1	
5	Storage box	1	
6	Rear panel	2	
7	Bracket	1	
8	Seat hinge assembly	1	
9	Storage box light switch	1	
10	Stopper	2	
11	Storage box light	1	
12	Seat lock assembly	1	

EAS20156

GENERAL CHASSIS (3)

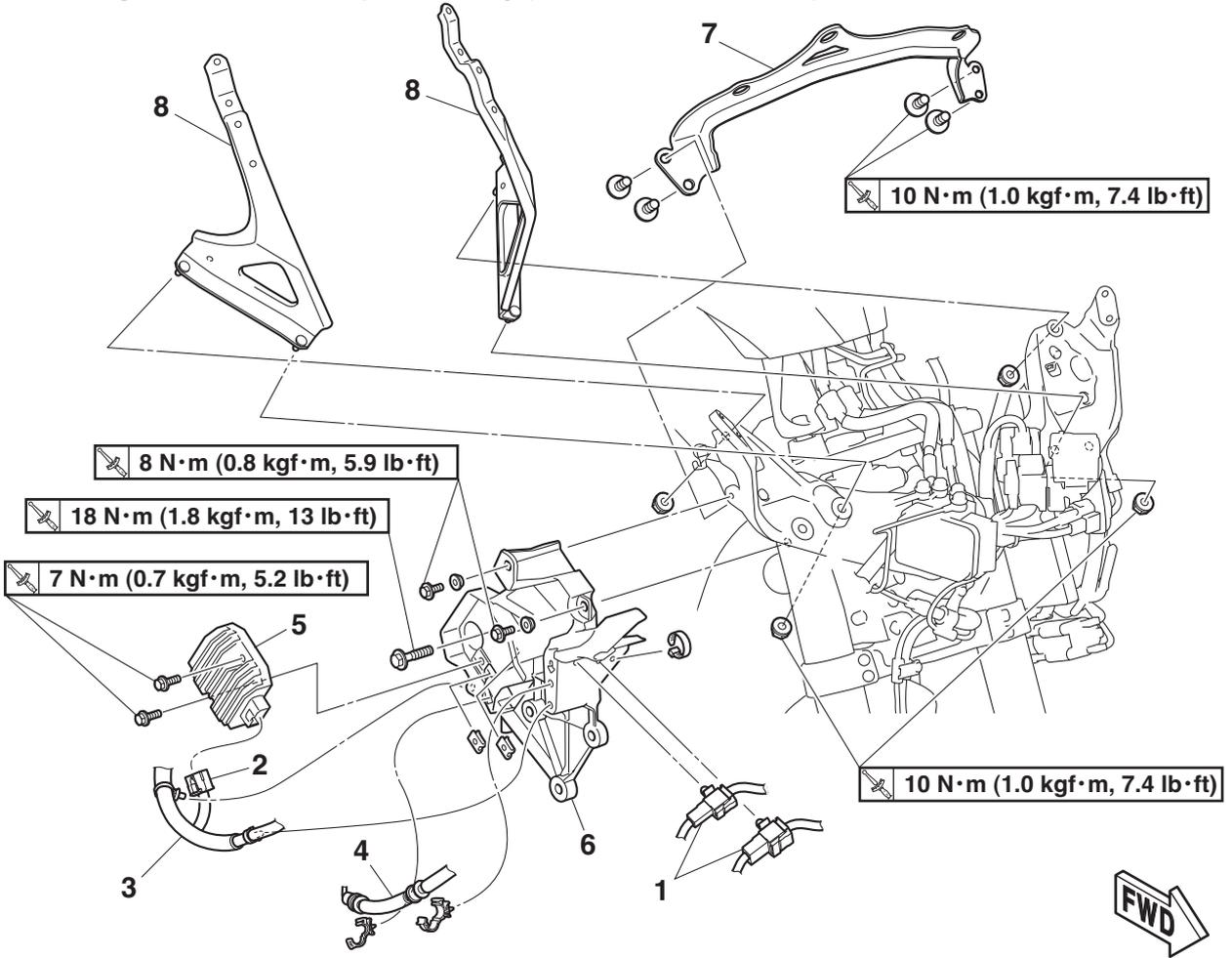
Removing the battery box and ECU (Engine Control Unit)



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly/Battery		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Ignition coil connector	2	Disconnect.
2	Ignition coil	1	
3	Buzzer coupler	1	Disconnect.
4	Intake air temperature sensor coupler	1	Disconnect.
5	ECU coupler	2	Disconnect.
6	Wire harness	1	
7	Battery box	1	
8	Battery band	1	
9	ECU (Engine Control Unit)	1	
10	Buzzer	1	
11	Intake air temperature sensor	1	

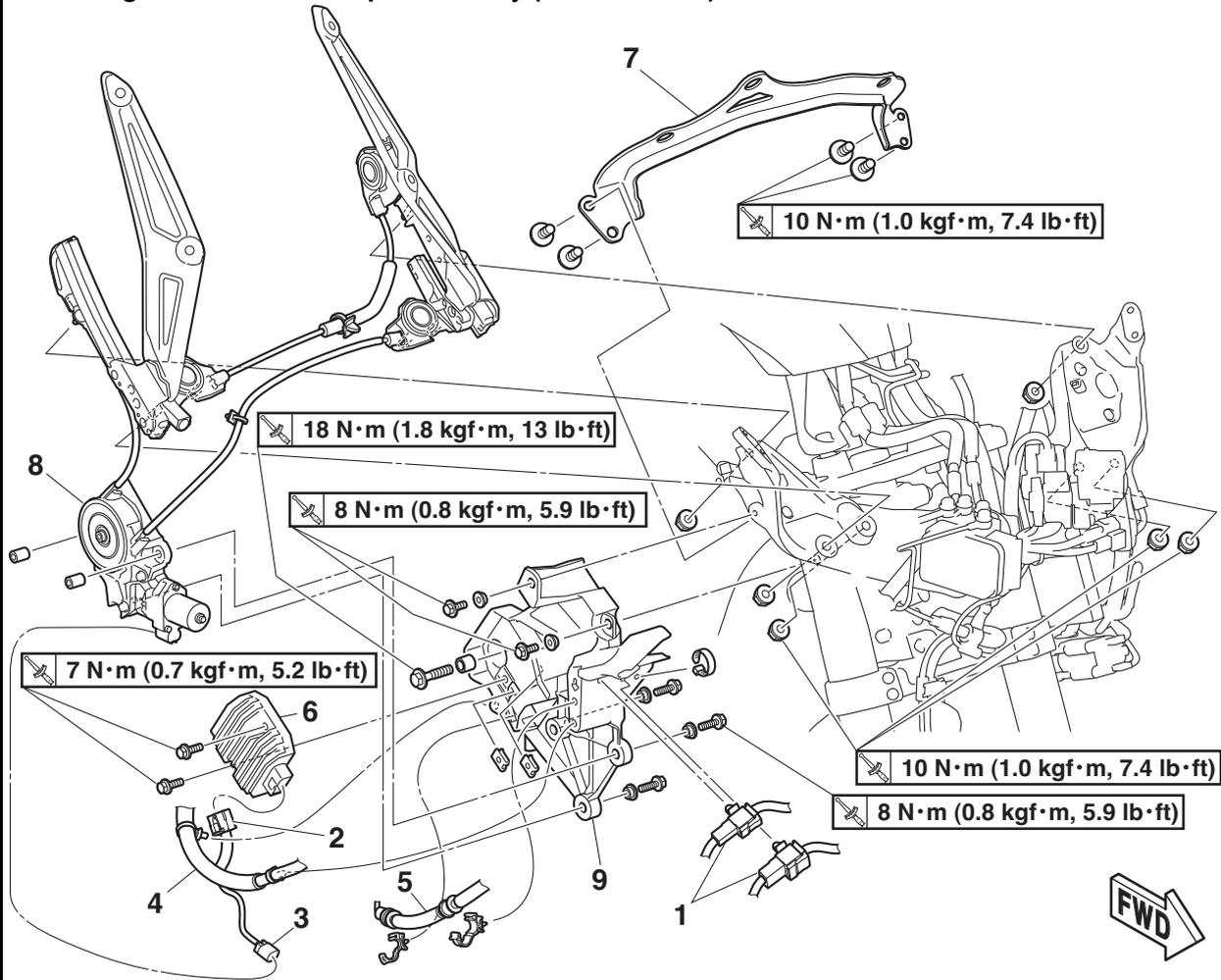
GENERAL CHASSIS (3)

Removing the electrical components tray (for XP530E-A/XP530-A)



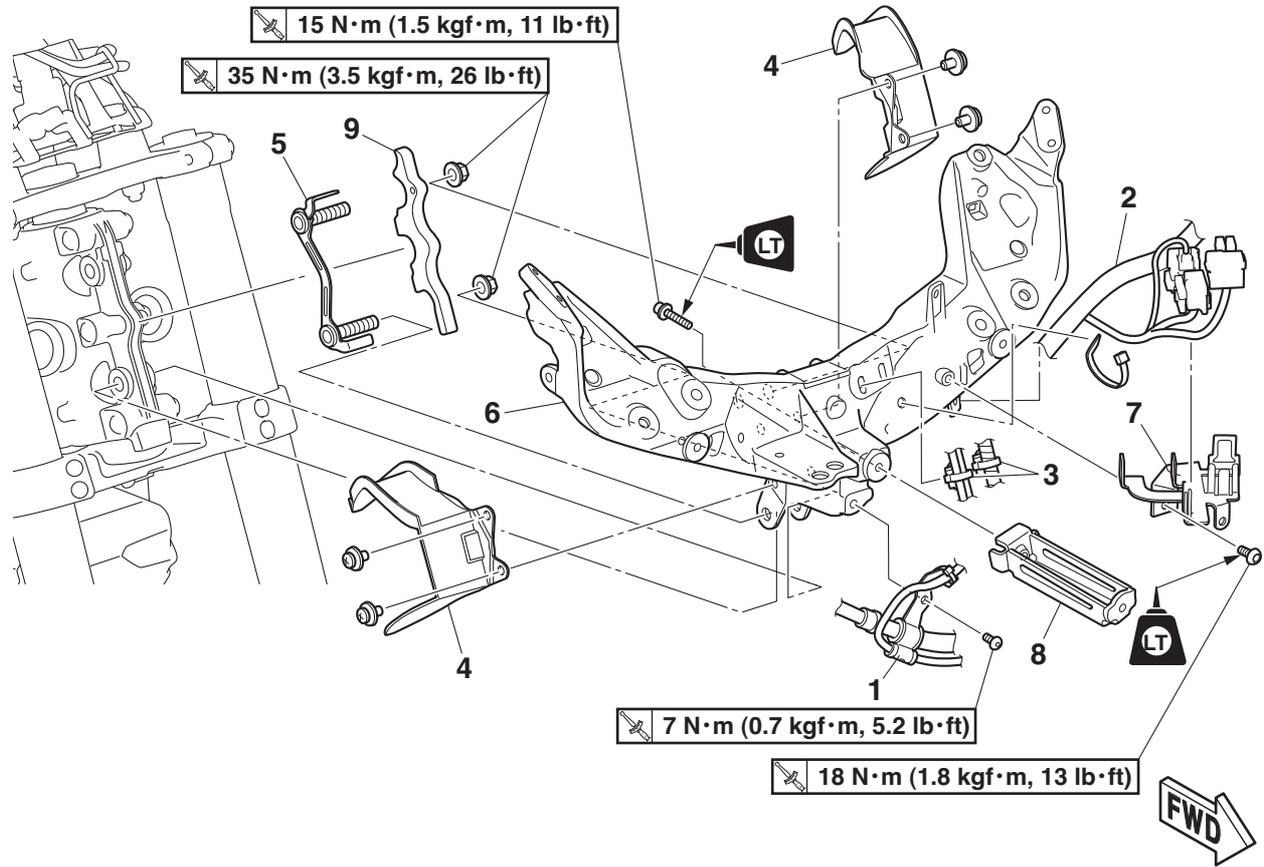
Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Handlebar switch coupler	2	
2	Rectifier/regulator coupler	1	Disconnect.
3	Wire harness	1	
4	Rear brake hose	1	
5	Rectifier/regulator	1	
6	Electrical components tray	1	
7	Meter bracket	1	
8	Windshield bracket	2	

Removing the electrical components tray (for XP530D-A)



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Brake hose holder		Refer to "HANDLEBAR" on page 4-79.
1	Handlebar switch coupler	2	
2	Rectifier/regulator coupler	1	Disconnect.
3	Windshield drive unit coupler	1	Disconnect.
4	Wire harness	1	
5	Rear brake hose	1	
6	Rectifier/regulator	1	
7	Meter bracket	1	
8	Windshield drive unit	1	
9	Electrical components tray	1	

Removing the headlight stay

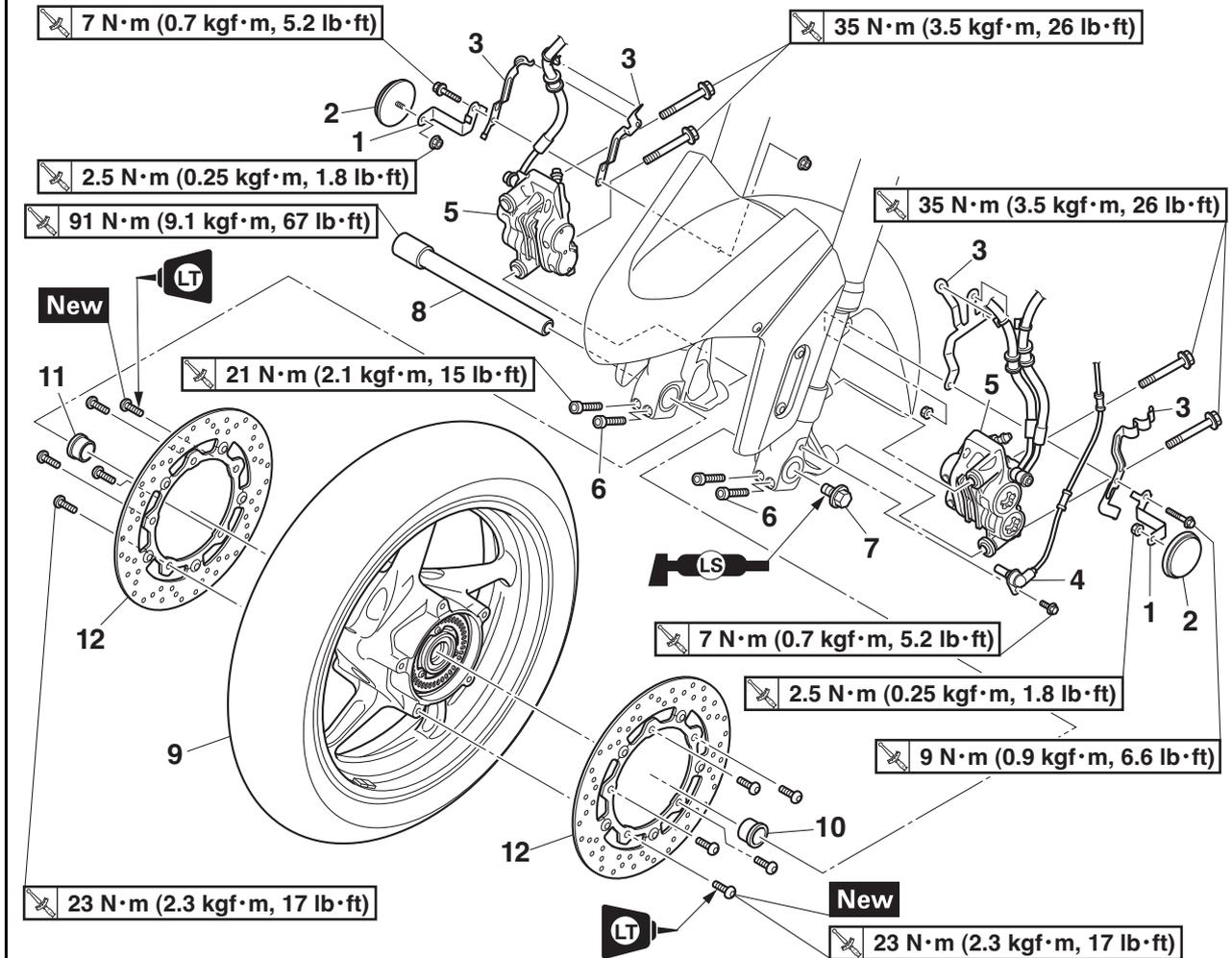


Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Battery box/Electrical components tray/Meter bracket/Windshield bracket (XP530E-A/XP530-A)/Windshield drive unit (XP530D-A)		Refer to "GENERAL CHASSIS (3)" on page 4-17.
	Hydraulic unit		Refer to "ABS (Anti-lock Brake System)" on page 4-71.
1	Brake hose holder	1	
2	Wire harness	1	
3	Clamp	2	
4	Cover	2	
5	Plate	1	
6	Headlight stay 1	1	
7	Wire harness bracket	1	
8	Headlight stay 2	1	
9	Damper	1	

EAS20028

FRONT WHEEL

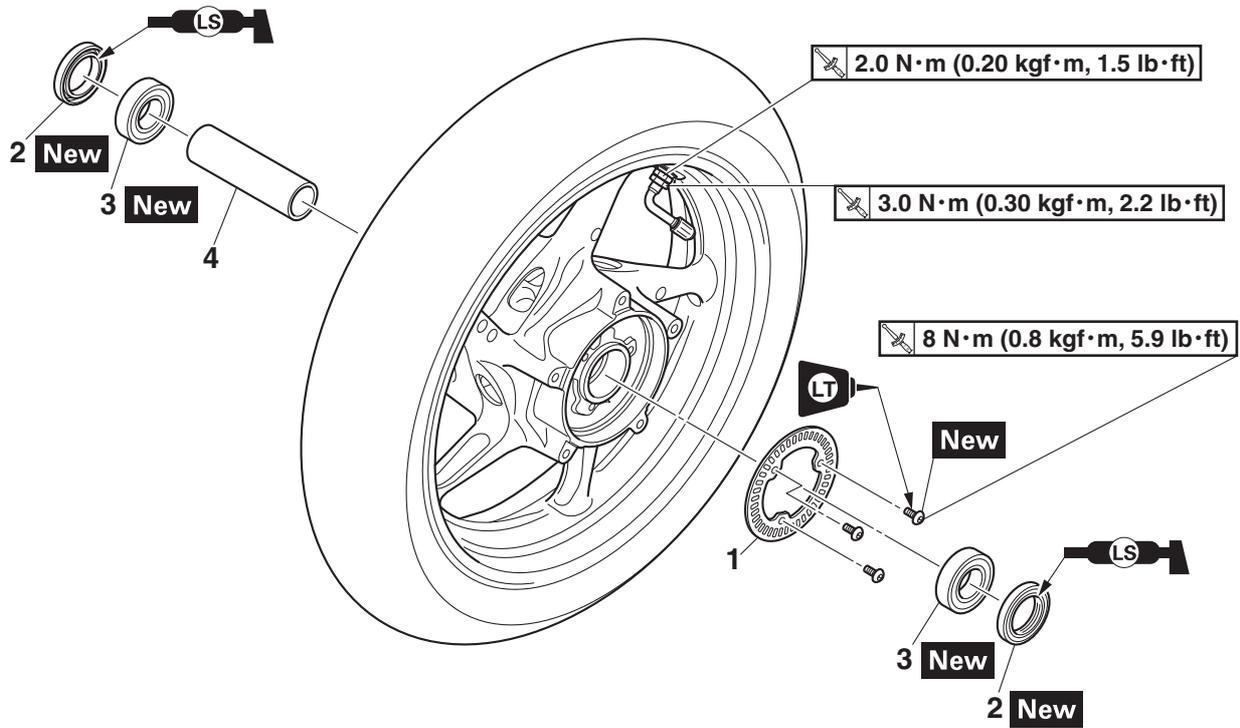
Removing the front wheel and brake discs



Order	Job/Parts to remove	Q'ty	Remarks
1	Reflector bracket	2	
2	Front reflector	2	
3	Front brake hose holder	4	
4	Front wheel sensor	1	
5	Front brake caliper	2	
6	Front wheel axle pinch bolt	4	Loosen.
7	Front wheel axle bolt	1	
8	Front wheel axle	1	
9	Front wheel	1	
10	Collar	1	Length: 22 mm (0.87 in)
11	Collar	1	Length: 18 mm (0.71 in)
12	Front brake disc	2	

FRONT WHEEL

Disassembling the front wheel



Order	Job/Parts to remove	Q'ty	Remarks
1	Front wheel sensor rotor	1	
2	Oil seal	2	
3	Wheel bearing	2	
4	Collar	1	

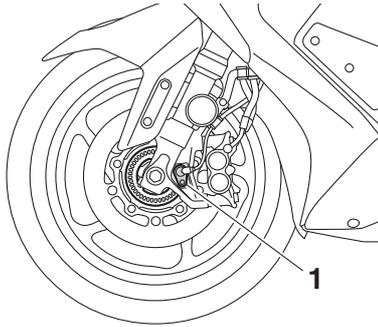
EAS30145

REMOVING THE FRONT WHEEL

ECA21380

NOTICE

Keep magnets (including magnetic pick-up tools, magnetic screwdrivers, etc.) away from the front wheel sensor "1", otherwise the wheel sensor may be damaged, resulting in improper performance of the ABS.



1. Stand the vehicle on a level surface.

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

2. Remove:
 - Front brake caliper (left)
 - Front brake caliper (right)
 - Front wheel sensor

ECA21440

NOTICE

- Do not apply the brake lever when removing the brake calipers.
- Be sure not to contact the sensor electrode to any metal part when removing the front wheel sensor from the sensor housing.

3. Elevate:
 - Front wheel

TIP

Place the vehicle on a maintenance stand so that the front wheel is elevated.

4. Loosen:
 - Wheel axle pinch bolt
5. Remove:
 - Front wheel axle bolt
 - Front wheel axle
 - Front wheel

EAS30146

DISASSEMBLING THE FRONT WHEEL

ECA21340

NOTICE

- Do not drop the wheel sensor rotor or sub-

ject it to shocks.

- If any solvent gets on the wheel sensor rotor, wipe it off immediately.

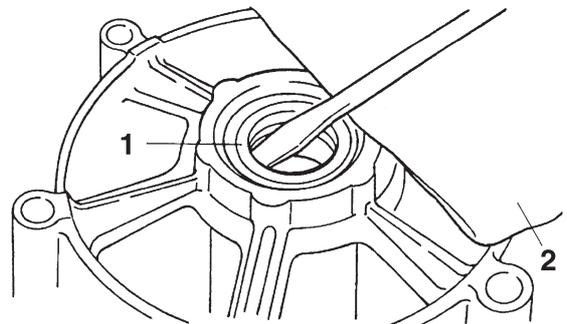
1. Remove:
 - Oil seals
 - Wheel bearings



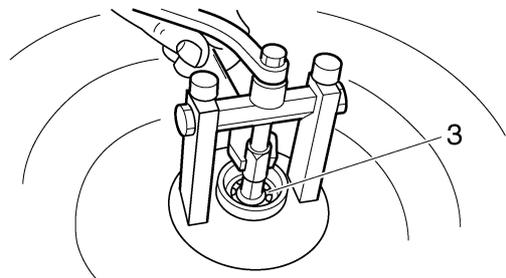
- a. Clean the surface of the front wheel hub.
- b. Remove the oil seals "1" with a flat-head screwdriver.

TIP

To prevent damaging the wheel, place a rag "2" between the screwdriver and the wheel surface.



- c. Remove the wheel bearings "3" with a general bearing puller.



EAS30147

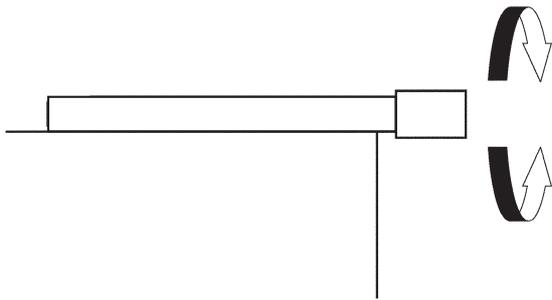
CHECKING THE FRONT WHEEL

1. Check:
 - Wheel axle
 Roll the wheel axle on a flat surface.
 Bends → Replace.

EWA13460

WARNING

Do not attempt to straighten a bent wheel axle.



2. Check:

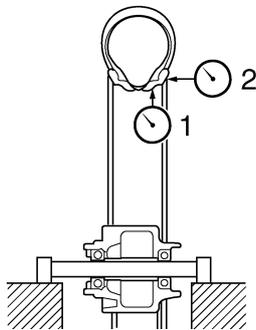
- Tire
- Front wheel
Damage/wear → Replace.
Refer to “CHECKING THE TIRES” on page 3-19 and “CHECKING THE WHEELS” on page 3-19.

3. Measure:

- Radial wheel runout “1”
- Lateral wheel runout “2”
Over the specified limits → Replace.

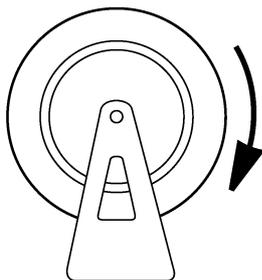


**Radial wheel runout limit
1.0 mm (0.04 in)**
**Lateral wheel runout limit
0.5 mm (0.02 in)**



4. Check:

- Wheel bearings
Front wheel turns roughly or is loose → Replace the wheel bearings.
- Oil seals
Damage/wear → Replace.



EAS30151

ASSEMBLING THE FRONT WHEEL

ECA21340

NOTICE

- Do not drop the wheel sensor rotor or subject it to shocks.
- If any solvent gets on the wheel sensor rotor, wipe it off immediately.

1. Install:

- Wheel bearings **New**
- Oil seals **New**

a. Install the new wheel bearing (right side).

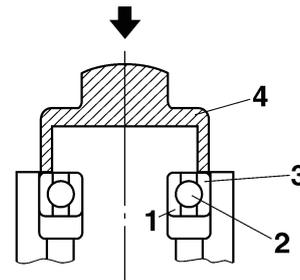
ECA18110

NOTICE

Do not contact the wheel bearing inner race “1” or balls “2”. Contact should be made only with the outer race “3”.

TIP

Use a socket “4” that matches the diameter of the wheel bearing outer race.

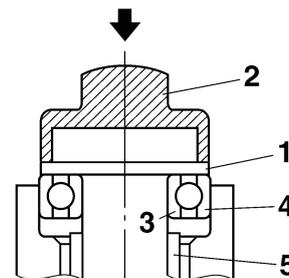


b. Install the spacer.

c. Install the new wheel bearing (left side).

TIP

Place a suitable washer “1” between the socket “2” and the bearing so that both the inner race “3” and outer race “4” are pressed at the same time, and then press the bearing until the inner race makes contact with the spacer “5”.



d. Install the new oil seals.

2. Install:

- Front wheel sensor rotor

	Wheel sensor rotor bolt 8 N·m (0.8 kgf·m, 5.9 lb·ft) LOCTITE®
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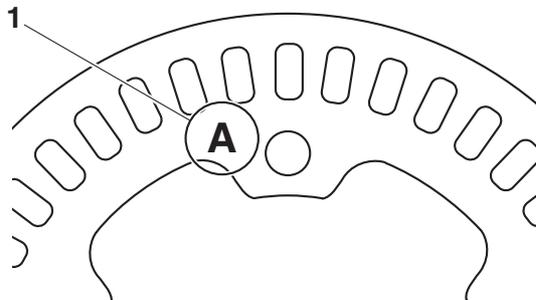
ECA17200

NOTICE

Replace the wheel sensor rotor bolts with new ones.

TIP

Install the wheel sensor rotor with the stamped mark “1” facing outward.



3. Install:

- Air valve

TIP

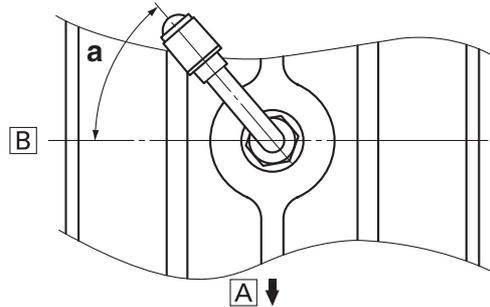
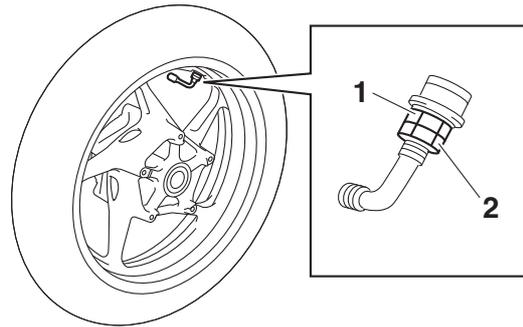
- Fasten air valve nut “1” and tighten air valve locknut “2” to 3.0 N·m (0.30 kgf·m, 2.2 lb·ft).
- When installing the air valve, orient the air valve referring to the illustration.

a. Tighten the air valve nut “1”.

	Front wheel air valve nut 2.0 N·m (0.20 kgf·m, 1.5 lb·ft)
---	--

b. Tighten the air valve locknut “2” while holding the air valve nut so as not to turn the nut.

	Front wheel air valve locknut 3.0 N·m (0.30 kgf·m, 2.2 lb·ft)
---	--



a. 45°–55°

A. Wheel rotation direction

B. Left side

4. Measure:

- Wheel sensor rotor runout

Out of specification → Correct the wheel sensor rotor runout or replace the wheel sensor rotor.

Refer to “MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR” on page 4-26.

	Wheel sensor rotor runout limit 0.25 mm (0.01 in)
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EAS30155

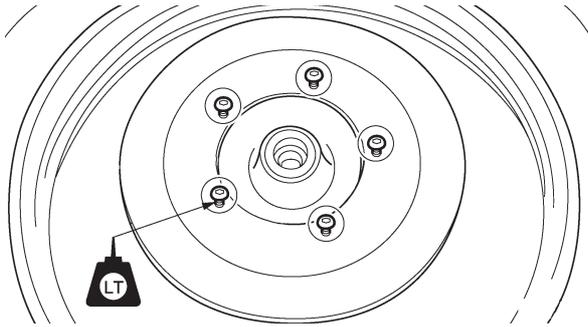
MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR

ECA21070

NOTICE

- Handle the ABS components with care since they have been accurately adjusted. Keep them away from dirt and do not subject them to shocks.
- The front wheel sensor cannot be disassembled. Do not attempt to disassemble it. If faulty, replace with a new one.
- Keep any type of magnets (including magnetic pick-up tools, magnetic screwdrivers, etc.) away from the front wheel sensor or front wheel sensor rotor.

FRONT WHEEL



2. Check:
 - Front brake discs
Refer to “CHECKING THE FRONT BRAKE DISCS” on page 4-45.
3. Lubricate:
 - Oil seal lips

	Recommended lubricant Lithium-soap-based grease
---	--

4. Install:
 - Collar
 - Front wheel
 - Front wheel axle
 - Front wheel axle bolt

TIP
Apply lithium soap-based grease onto the mating surface of the front wheel axle bolt.

5. Tighten:
 - Front wheel axle
 - Front wheel axle pinch bolt

	Front wheel axle 91 N·m (9.1 kgf·m, 67 lb·ft) Front wheel axle pinch bolt 21 N·m (2.1 kgf·m, 15 lb·ft)
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ECA19760

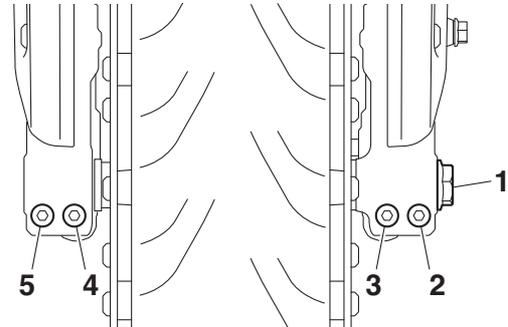
NOTICE
Before tightening the wheel axle, push down hard on the handlebars several times and check if the front fork rebounds smoothly.

TIP
First, tighten the wheel axle, then the wheel axle pinch bolt.

- a. Insert the front wheel axle from the right side, temporarily install the front wheel axle bolt “1” from the left side, and then tighten the front wheel axle to 91 N·m (9.1 kgf·m, 67 lb·ft).
- b. Temporarily install the pinch bolts “2” and “3”, and then tighten the pinch bolts to 21 N·m (2.1 kgf·m, 15 lb·ft) in the order of pinch bolt

“3” → pinch bolt “2” → pinch bolt “3”.

- c. Temporarily install the pinch bolts “4” and “5”, and then tighten the pinch bolts to 21 N·m (2.1 kgf·m, 15 lb·ft) in the order of pinch bolt “5” → pinch bolt “4” → pinch bolt “5”.



6. Install:
 - Front wheel sensor

	Front wheel sensor bolt 7 N·m (0.7 kgf·m, 5.2 lb·ft)
---	---

ECA21020

NOTICE

Make sure there are no foreign materials in the front wheel sensor rotor and front wheel sensor. Foreign materials cause damage to the front wheel sensor rotor and front wheel sensor.

- TIP**
- When installing the front wheel sensor, check the front wheel sensor lead for twists.
 - To route the front wheel sensor lead, refer to “CABLE ROUTING” on page 2-31.

7. Measure:
 - Distance “a”
(between the wheel sensor rotor “1” and front wheel sensor “2”)
Out of specification → Check the wheel bearing for looseness, and the front wheel sensor and sensor rotor installation conditions (warpage caused by overtorque, wrong installation direction, rotor decentering, LOCTITE® on the mounting surface of the rotor, deformation caused by an impact during service and caught foreign materials). If there is any defective part, repair or replace the defective part.



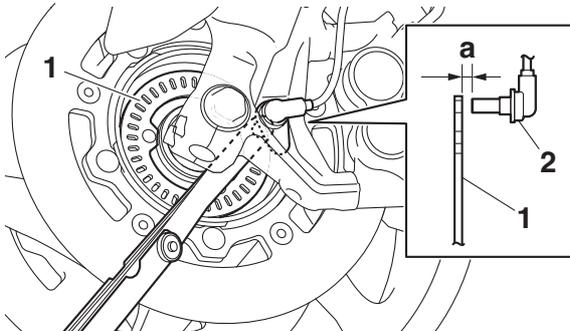
Distance “a” (between the front wheel sensor rotor and front wheel sensor)
0.3–1.1 mm (0.01–0.04 in)

TIP

Measure the distance between the front wheel sensor rotor and front wheel sensor in several places in one rotation of the front wheel. Do not turn the front wheel while the thickness gauge is installed. This may damage the front wheel sensor rotor and the front wheel sensor.



Thickness gauge
90890-03180
Feeler gauge set
YU-26900-9



8. Install:

- Front brake calipers
- Front brake hose holder



Front brake caliper bolt
35 N·m (3.5 kgf·m, 26 lb·ft)
Front brake hose holder bolt (left)
9 N·m (0.9 kgf·m, 6.6 lb·ft)
Front brake hose holder bolt (right)
7 N·m (0.7 kgf·m, 5.2 lb·ft)

EWA13500



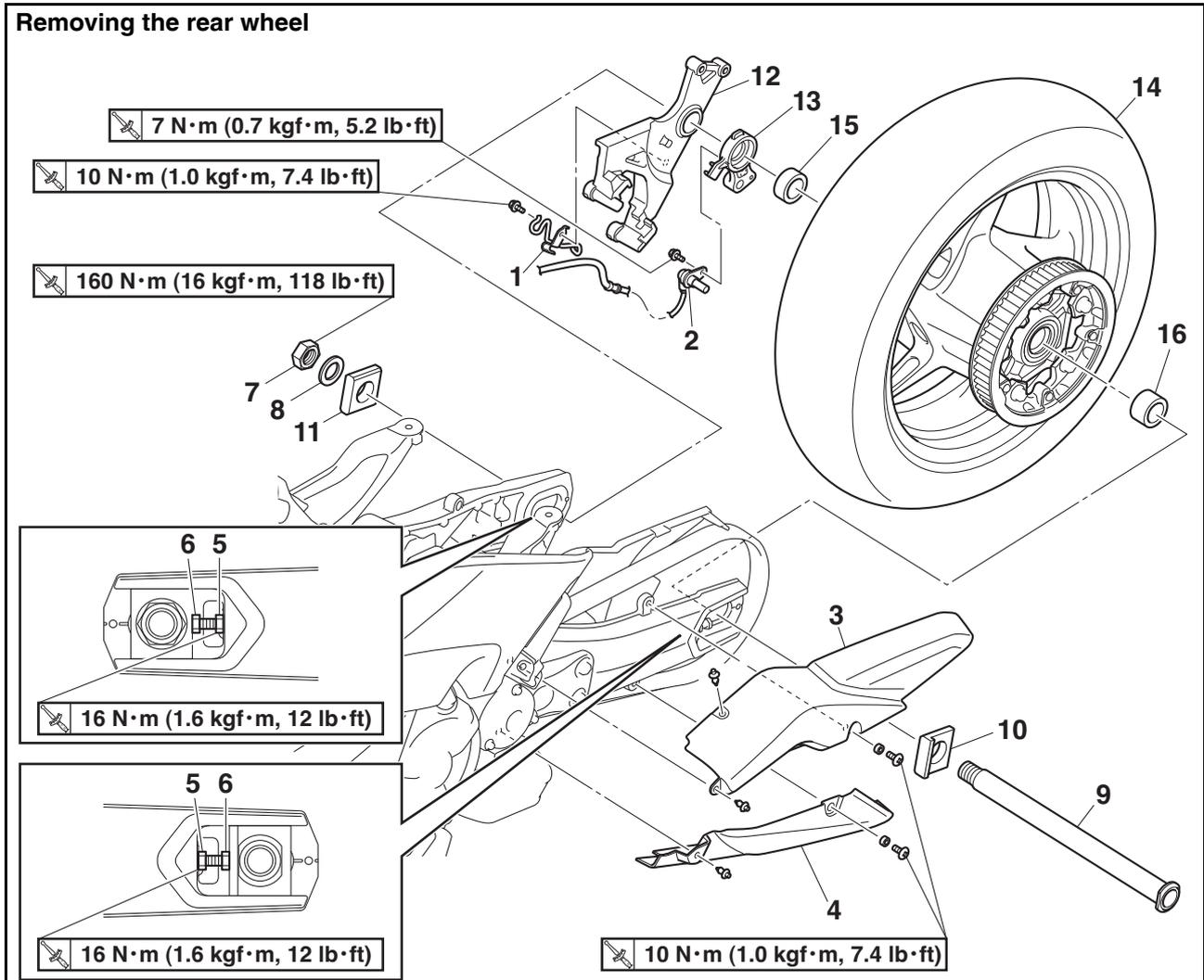
WARNING

Make sure the brake hose is routed properly.

EAS20029

REAR WHEEL

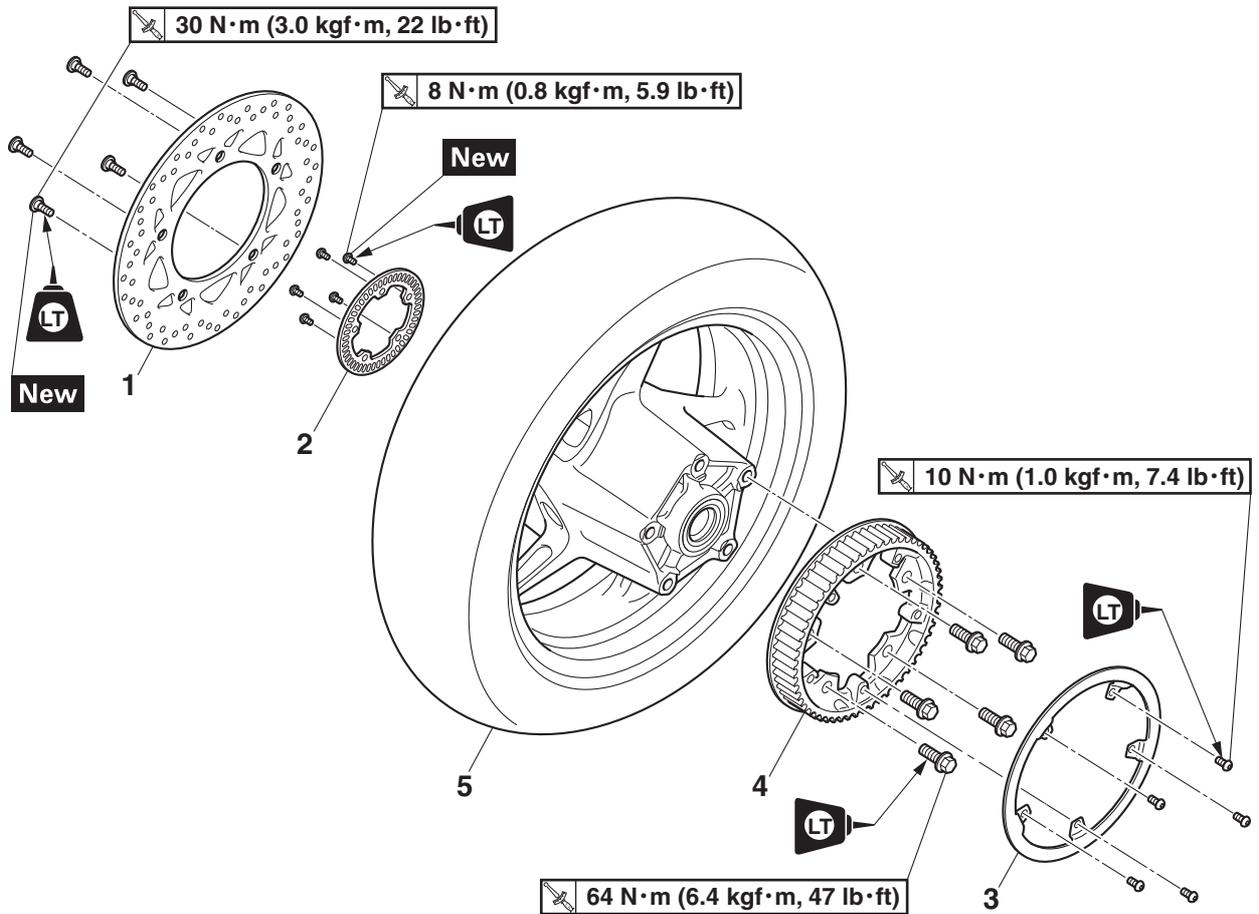
Removing the rear wheel



Order	Job/Parts to remove	Q'ty	Remarks
	Rear brake caliper/Rear brake lock caliper		Refer to "REAR BRAKE" on page 4-53.
1	Rear wheel sensor lead holder	1	
2	Rear wheel sensor	1	
3	Drive belt upper guard	1	
4	Drive belt lower guard	1	
5	Locknut	2	Loosen.
6	Adjusting bolt	2	Loosen.
7	Rear wheel axle nut	1	
8	Washer	1	
9	Rear wheel axle	1	
10	Adjusting block (left)	1	
11	Adjusting block (right)	1	
12	Brake caliper bracket	1	
13	Rear wheel sensor housing	1	
14	Rear wheel	1	
15	Collar (right)	1	
16	Collar (left)	1	

REAR WHEEL

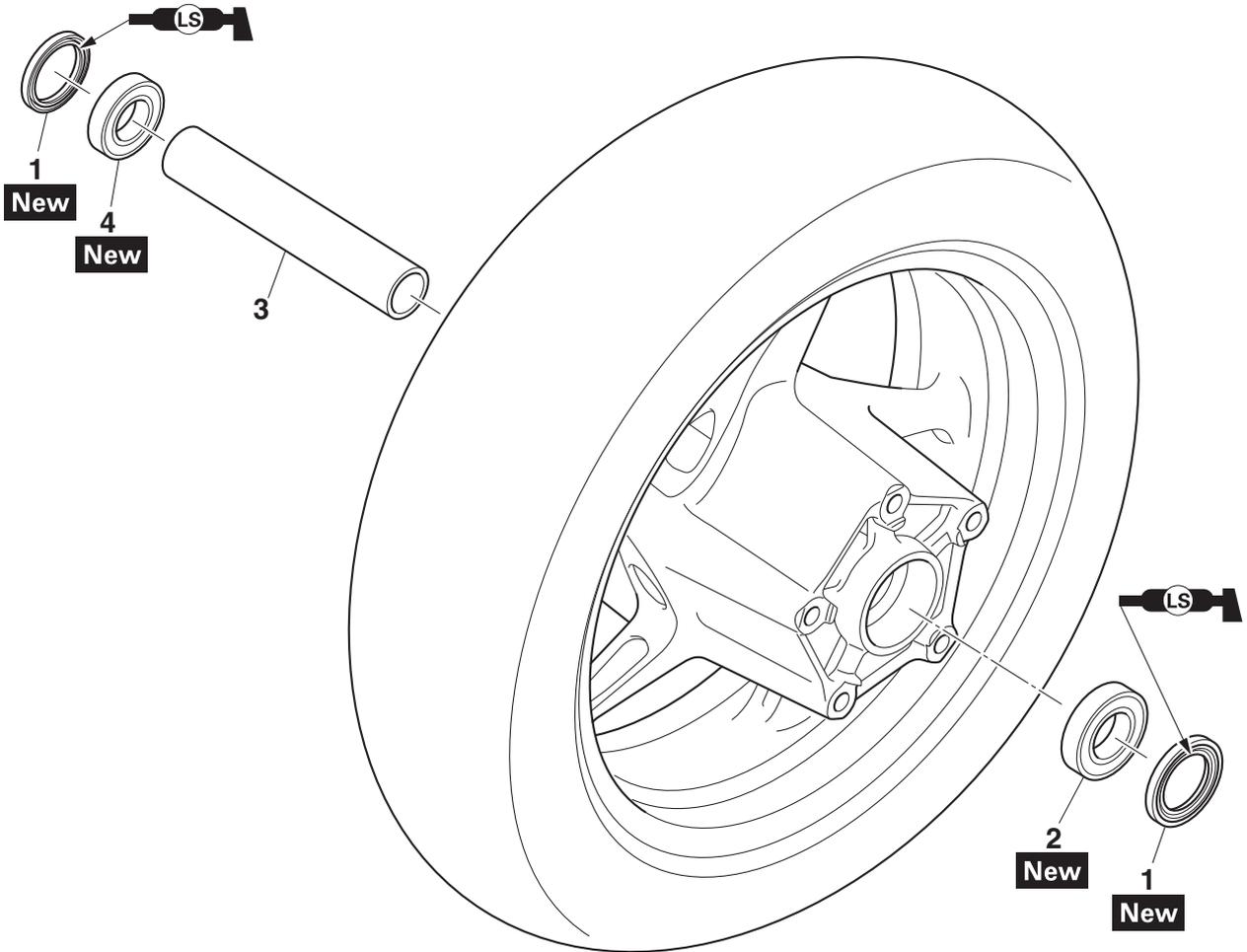
Removing the rear brake disc and rear wheel pulley



Order	Job/Parts to remove	Q'ty	Remarks
1	Rear brake disc	1	
2	Rear wheel sensor rotor	1	
3	Drive belt guide	1	
4	Rear wheel pulley	1	
5	Rear wheel	1	

REAR WHEEL

Disassembling the rear wheel assembly



Order	Job/Parts to remove	Q'ty	Remarks
1	Oil seal	2	
2	Wheel bearing (left)	1	
3	Collar	1	
4	Wheel bearing (right)	1	

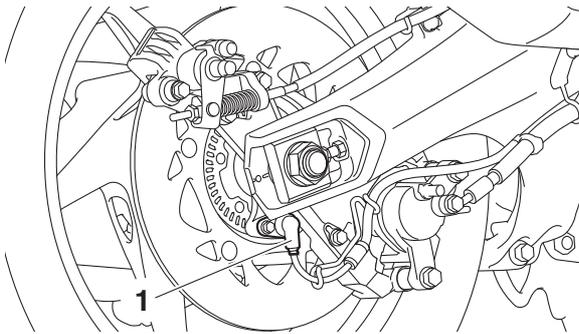
EAS30910

REMOVING THE REAR WHEEL

ECA21390

NOTICE

Keep magnets (including magnetic pick-up tools, magnetic screwdrivers, etc.) away from the rear wheel sensor "1", otherwise the wheel sensor may be damaged, resulting in improper performance of the ABS.



1. Stand the vehicle on a level surface.

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

TIP

Place the vehicle on the centerstand so that the rear wheel is elevated.

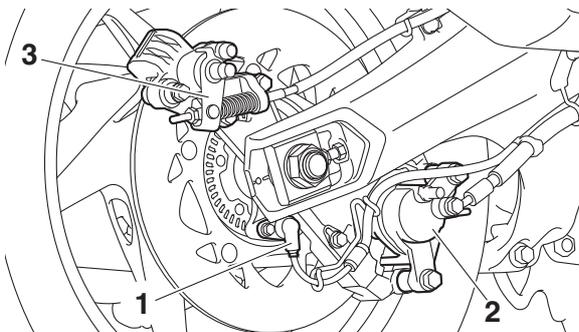
2. Remove:

- Rear wheel sensor "1"
- Rear brake caliper "2"
- Rear brake lock caliper "3"

ECA25760

NOTICE

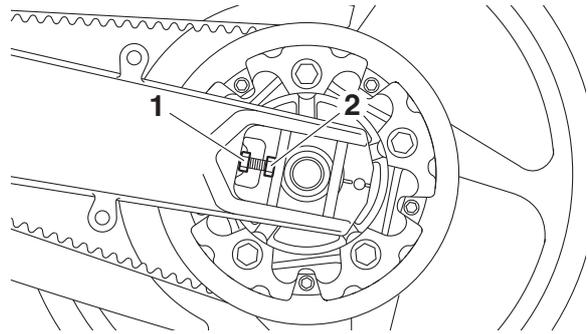
- Do not apply the brake lever when removing the brake caliper.
- Be sure not to contact the sensor electrode to any metal part when removing the rear wheel sensor from the rear brake caliper bracket.



3. Loosen:

- Locknuts "1"
- Adjusting bolts "2"

(left side and right side)



4. Remove:

- Wheel axle nut "1"
- Washer
- Rear wheel axle "2"
- Rear wheel
- Rear brake caliper bracket
- Rear wheel sensor housing
- Collars

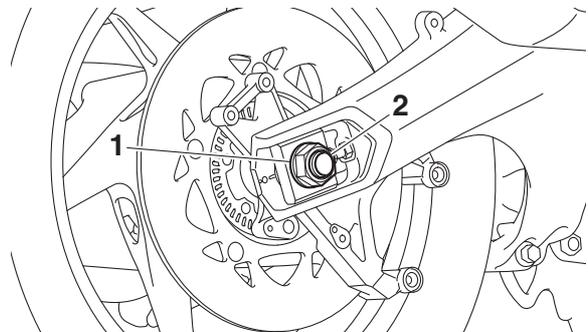
ECA21400

NOTICE

Be sure to remove the rear wheel sensor before removing the brake caliper bracket, otherwise the sensor could be damaged.

TIP

Push the rear wheel forward and remove the drive belt from the rear wheel pulley.



EAS31154

DISASSEMBLING THE REAR WHEEL

ECA21340

NOTICE

- Do not drop the wheel sensor rotor or subject it to shocks.
- If any solvent gets on the wheel sensor rotor, wipe it off immediately.

1. Remove:

- Rear wheel sensor rotor
- Oil seals
- Wheel bearings

Refer to "DISASSEMBLING THE FRONT WHEEL" on page 4-24.

Refer to “ASSEMBLING THE FRONT WHEEL” on page 4-25.

EAS30167

MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR

ECA21060

NOTICE

- Handle the ABS components with care since they have been accurately adjusted. Keep them away from dirt and do not subject them to shocks.
- The rear wheel sensor cannot be disassembled. Do not attempt to disassemble it. If faulty, replace with a new one.
- Keep any type of magnets (including magnetic pick-up tools, magnetic screwdrivers, etc.) away from the rear wheel sensor or rear wheel sensor rotor.
- Do not drop or shock the wheel sensor or the wheel sensor rotor.

1. Check:

- Rear wheel sensor
Refer to “MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR” on page 4-26.

2. Check:

- Rear wheel sensor rotor
Refer to “MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR” on page 4-26.

3. Measure:

- Wheel sensor rotor runout
Refer to “MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR” on page 4-26.

EAS30164

ADJUSTING THE REAR WHEEL STATIC BALANCE

TIP

- After replacing the tire, wheel or both, the rear wheel static balance should be adjusted.
- Adjust the rear wheel static balance with the brake disc and rear wheel pulley installed.

Adjust:

- Rear wheel static balance
Refer to “ADJUSTING THE FRONT WHEEL STATIC BALANCE” on page 4-27.

EAS30165

INSTALLING THE REAR WHEEL (DISC BRAKE)

1. Install:

- Rear wheel sensor rotor
- Rear brake disc



Rear wheel sensor bolt
7 N·m (0.7 kgf·m, 5.2 lb·ft)
Rear brake disc bolt
30 N·m (3.0 kgf·m, 22 lb·ft)
LOCTITE®

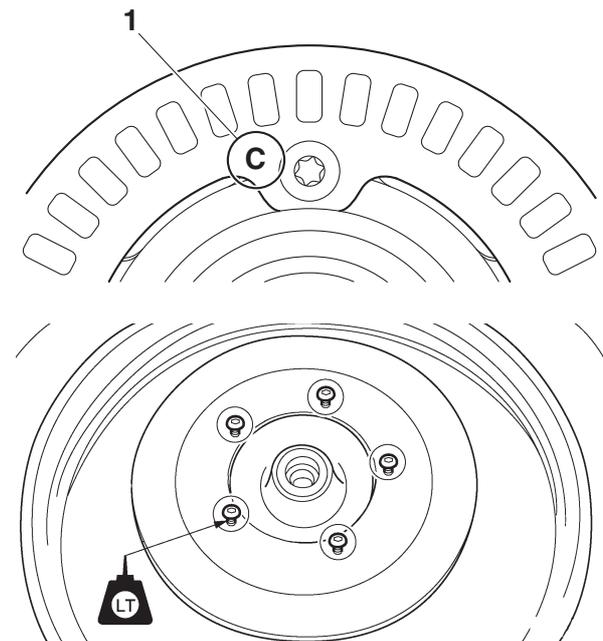
ECA19150

NOTICE

Replace the brake disc bolts with new ones.

TIP

- Install the wheel sensor rotor with the stamped mark “1” facing outward.
- Tighten the brake disc bolts in stages and in a crisscross pattern.



2. Check:

- Rear brake disc
Refer to “CHECKING THE REAR BRAKE DISC” on page 4-61.

3. Install:

- Drive belt guide
- Rear wheel pulley

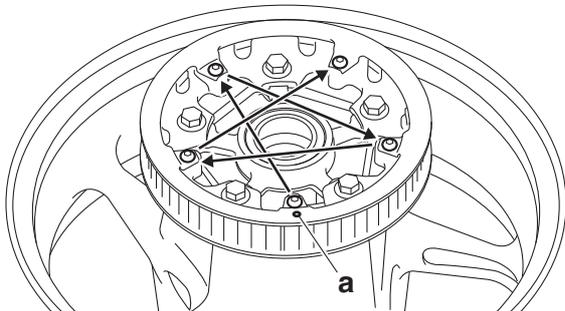
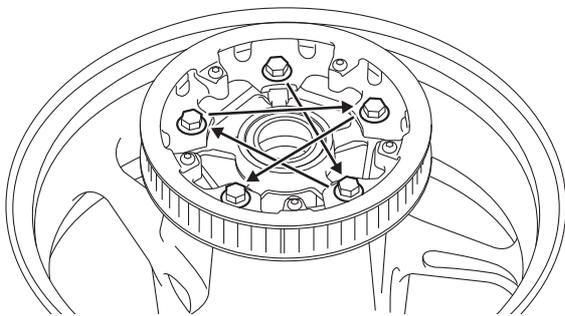
REAR WHEEL



Rear wheel pulley bolt
64 N·m (6.4 kgf·m, 47 lb·ft)
LOCTITE®
Drive belt guide bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)
LOCTITE®

TIP

- Tighten the rear wheel pulley bolts in stages and in a crisscross pattern.
- When tightening the drive belt guide bolts, tighten the bolt at the punch mark “a” first and then other bolts in stages and in a crisscross pattern.



4. Lubricate:
- Oil seal lips



Recommended lubricant
Lithium-soap-based grease

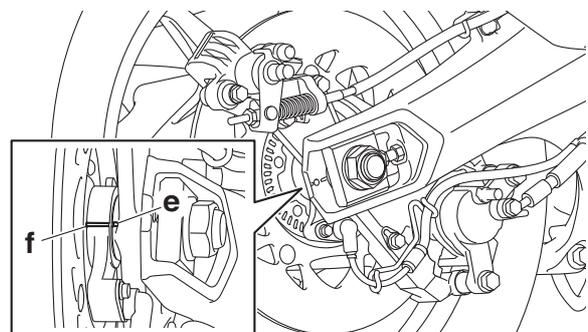
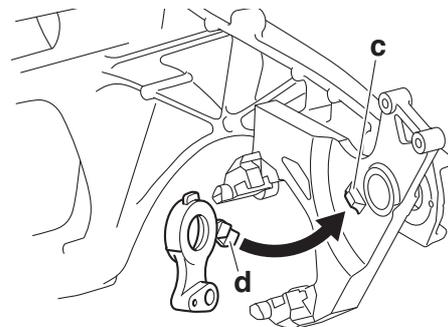
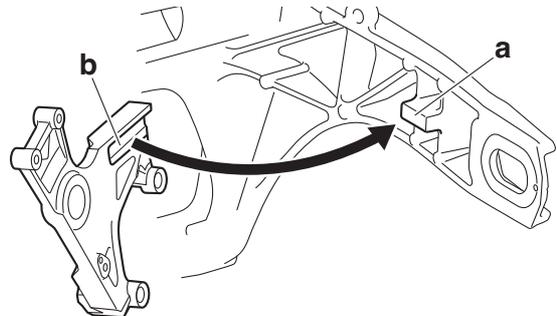
5. Install:

- Collars
- Rear wheel sensor housing
- Rear brake caliper bracket
- Rear wheel
- Adjusting blocks
- Rear wheel axle
- Washer
- Wheel axle nut

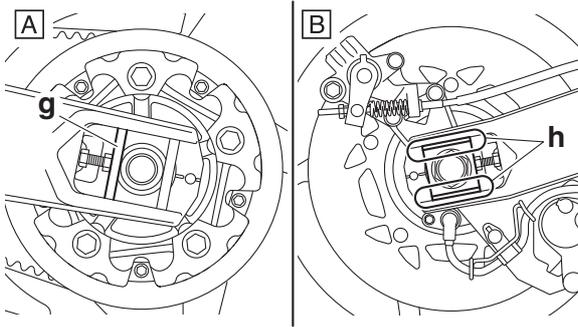
TIP

- Do not install the brake caliper and brake lock caliper.

- Fit the brake torque stop pin “a” on the swing-arm into the slot “b” on the rear brake caliper bracket.
- When installing the rear brake caliper bracket and the rear wheel sensor housing, align the projection “c” on the rear brake caliper bracket with the slot “d” of the rear wheel sensor housing.
- After installing the rear wheel to the vehicle, make sure that the projection “e” on the brake caliper bracket and the projection “f” on the rear wheel sensor housing are aligned.
- Install the left adjusting block so that projection “g” faces to the front of the vehicle.
- Install the right adjusting block so that upper chamfer “h” faces to the top of the vehicle and lower chamfer “h” faces to the bottom of the vehicle.



REAR WHEEL



- A. Left side
B. Right side

6. Install:
- Rear brake caliper
 - Rear brake lock caliper (temporarily)
7. Adjust:
- Drive belt tension
Refer to “DRIVE BELT TENSION” on page 3-21.
8. Tighten:
- Wheel axle nut
 - Rear brake caliper bolts
 - Rear brake lock caliper bolts



Rear wheel axle nut
160 N·m (16 kgf·m, 118 lb·ft)
Rear brake caliper bolt
27 N·m (2.7 kgf·m, 20 lb·ft)
Rear brake lock caliper bolt
23 N·m (2.3 kgf·m, 17 lb·ft)

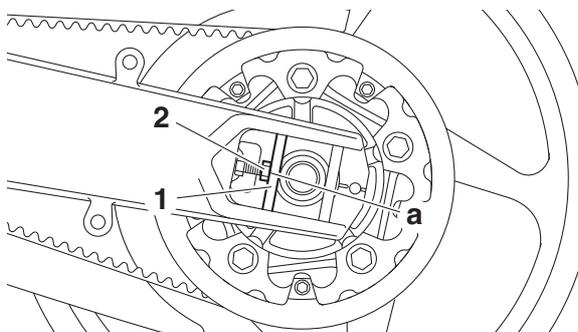
EWA13500



WARNING
Make sure the brake hose is routed properly.

TIP

When tightening the wheel axle nut, there should be no clearance “a” between the adjusting block “1” and adjusting bolt “2”.



9. Install:
- Rear wheel sensor “1”



Rear wheel sensor bolt
7 N·m (0.7 kgf·m, 5.2 lb·ft)

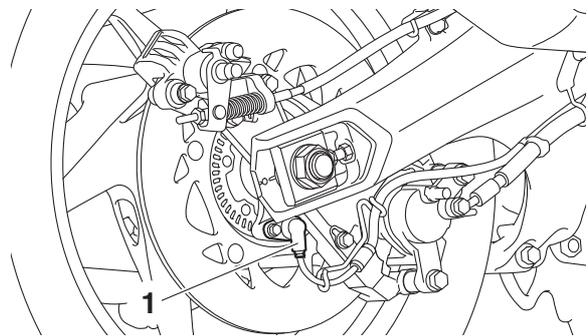
ECA21080

NOTICE

Make sure there are no foreign materials in the rear wheel sensor rotor and rear wheel sensor. Foreign materials cause damage to the rear wheel sensor rotor and rear wheel sensor.

TIP

When installing the rear wheel sensor, check the rear wheel sensor lead for twists.



TIP

To route the rear wheel sensor lead, refer to “CABLE ROUTING” on page 2-31.

10. Measure:

- Distance “a”
(between the rear wheel sensor rotor “1” and rear wheel sensor “2”)
Out of specification → Check the wheel bearing for looseness, and the rear wheel sensor and sensor rotor installation conditions (warpage caused by overtorque, wrong installation direction, rotor decentering, LOC-TITE® on the mounting surface of the rotor, deformation caused by an impact during service and caught foreign materials). If there is any defective part, repair or replace the defective part.

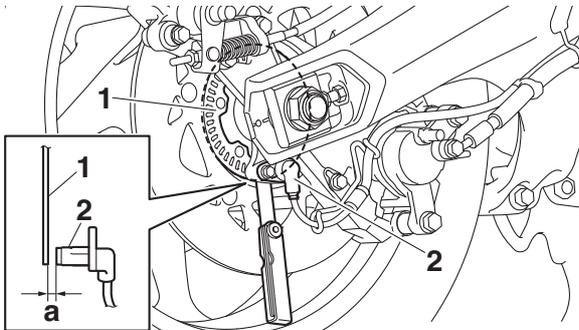


Distance “a” (between the rear wheel sensor rotor and rear wheel sensor)
0.5–1.4 mm (0.02–0.06 in)

TIP

Measure the distance between the rear wheel sensor rotor and rear wheel sensor in several places in one rotation of the rear wheel. Do not turn the rear wheel while the thickness gauge is installed. This may damage the rear wheel sen-

sor rotor and the rear wheel sensor.



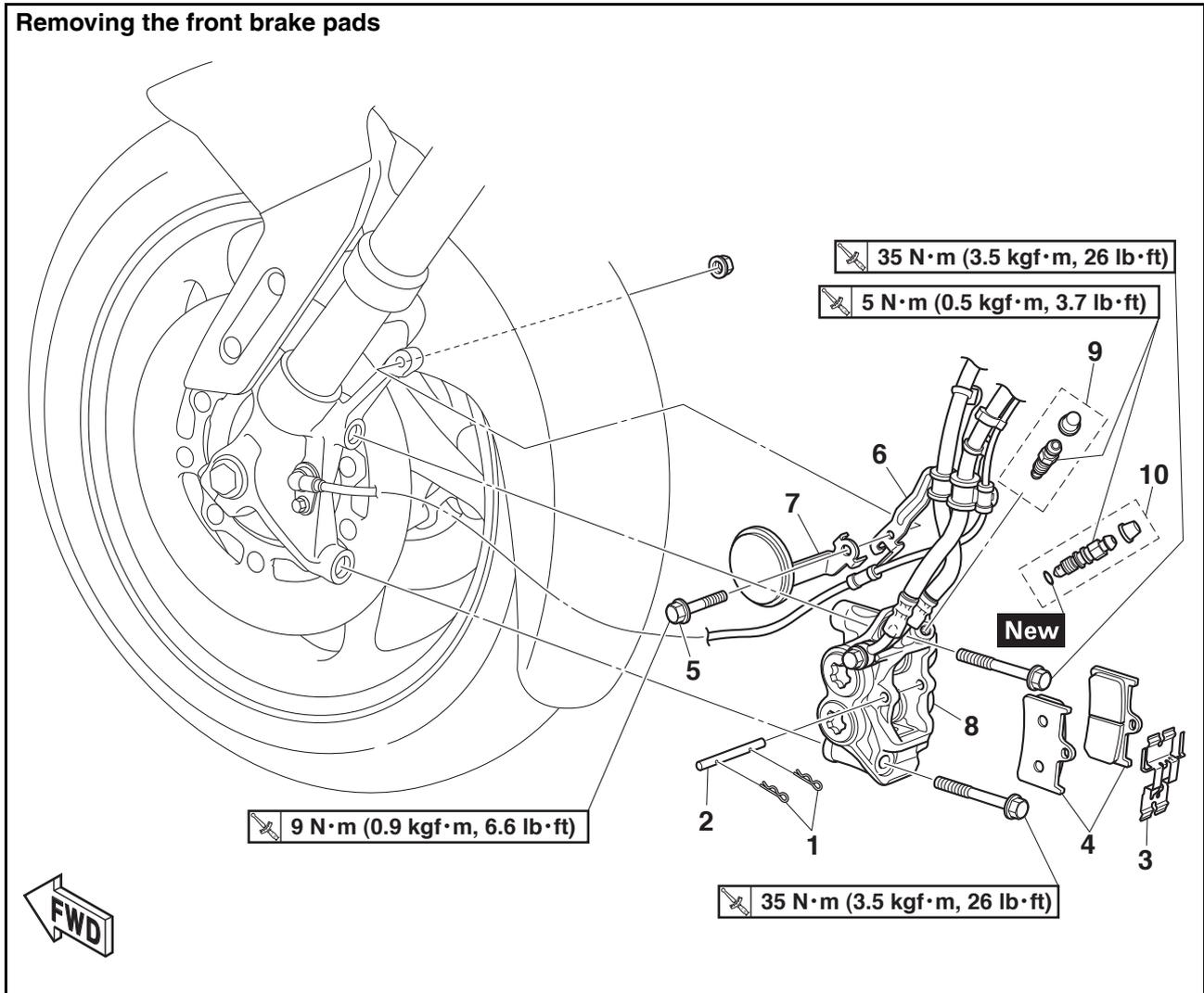
11.Adjust:

- Rear brake lock cable length
Refer to “ADJUSTING THE REAR BRAKE
LOCK CABLE” on page 3-18.

EAS20030

FRONT BRAKE

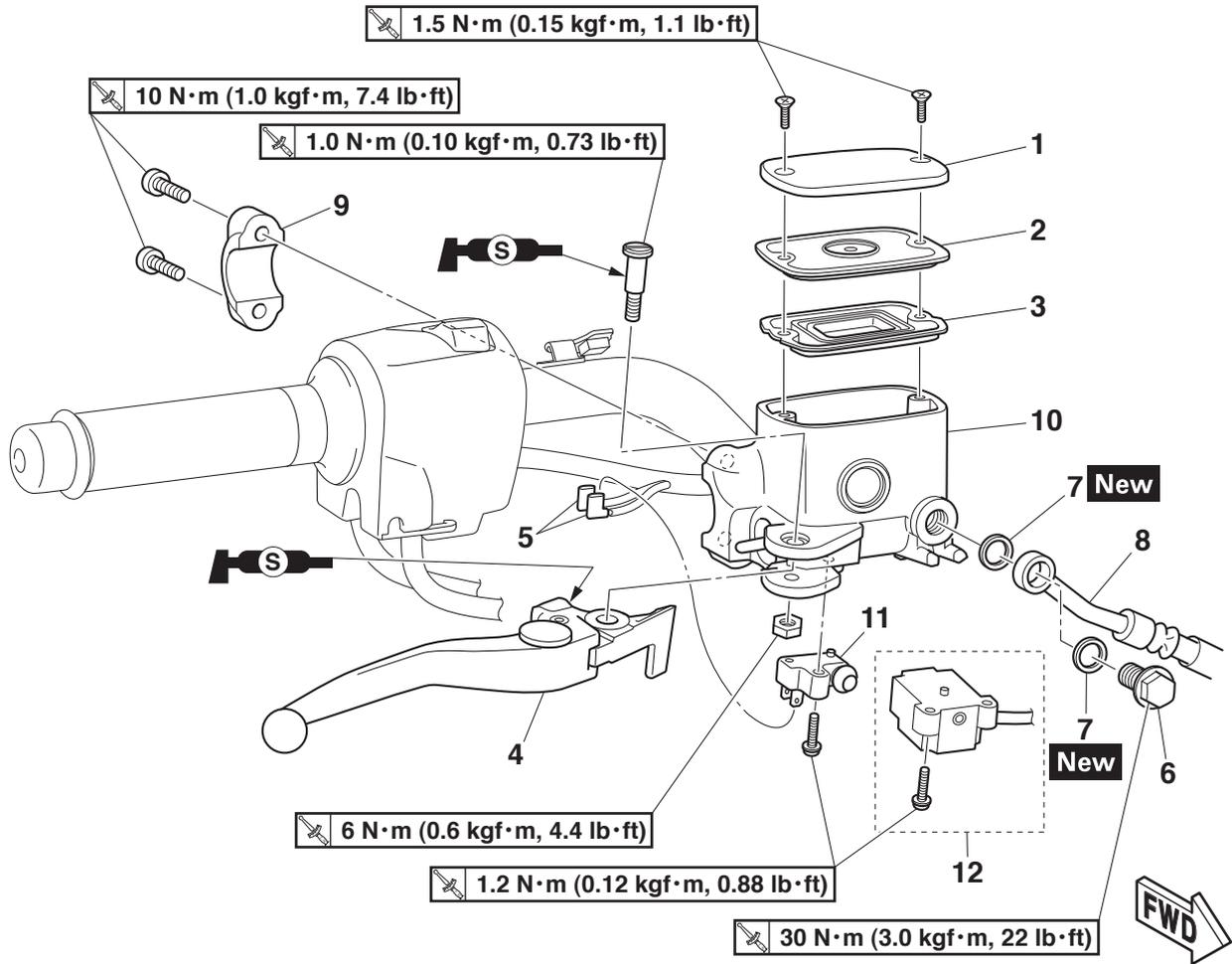
Removing the front brake pads



Order	Job/Parts to remove	Q'ty	Remarks
			The following procedure applies to both of the front brake calipers.
1	Brake pad clip	2	
2	Brake pad pin	1	
3	Brake pad spring	1	
4	Brake pad	2	
5	Front brake hose holder bolt	1	The tightening torque of the front brake hose holder bolt on the right side is 7 N·m (0.7 kgf·m, 5.2 lb·ft).
6	Front brake hose holder	1	
7	Front reflector	1	
8	Front brake caliper	1	
9	Bleed screw	1	Left brake caliper side
10	Bleed screw	1	Right brake caliper side

FRONT BRAKE

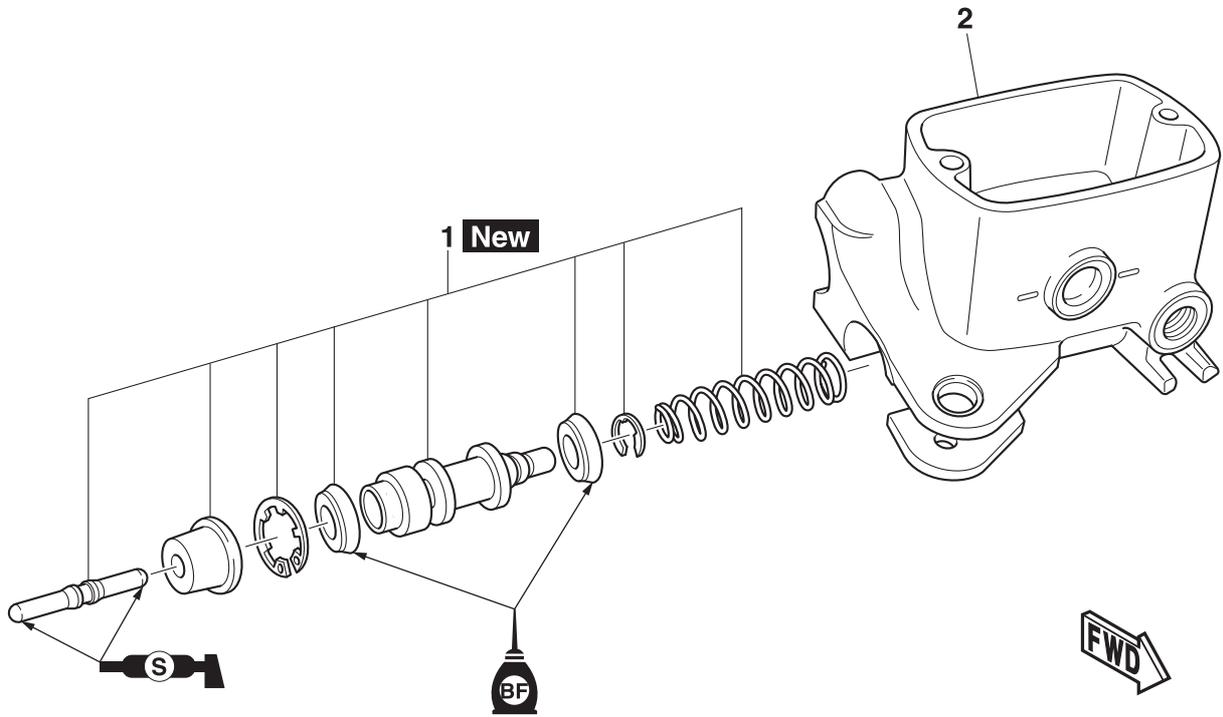
Removing the front brake master cylinder



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Handlebar cover		Refer to "HANDLEBAR" on page 4-79.
	Brake fluid		Drain. Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" on page 3-17.
1	Brake master cylinder reservoir cap	1	
2	Brake master cylinder reservoir diaphragm holder	1	
3	Brake master cylinder reservoir diaphragm	1	
4	Front brake lever	1	
5	Front brake light switch connector	2	Disconnect. For XP530E-A/XP530-A
6	Brake hose union bolt	1	
7	Brake hose gasket	2	
8	Front brake hose	1	
9	Front brake master cylinder holder	1	
10	Front brake master cylinder	1	
11	Front brake light switch	1	For XP530E-A/XP530-A
12	Front brake light switch	1	For XP530D-A

FRONT BRAKE

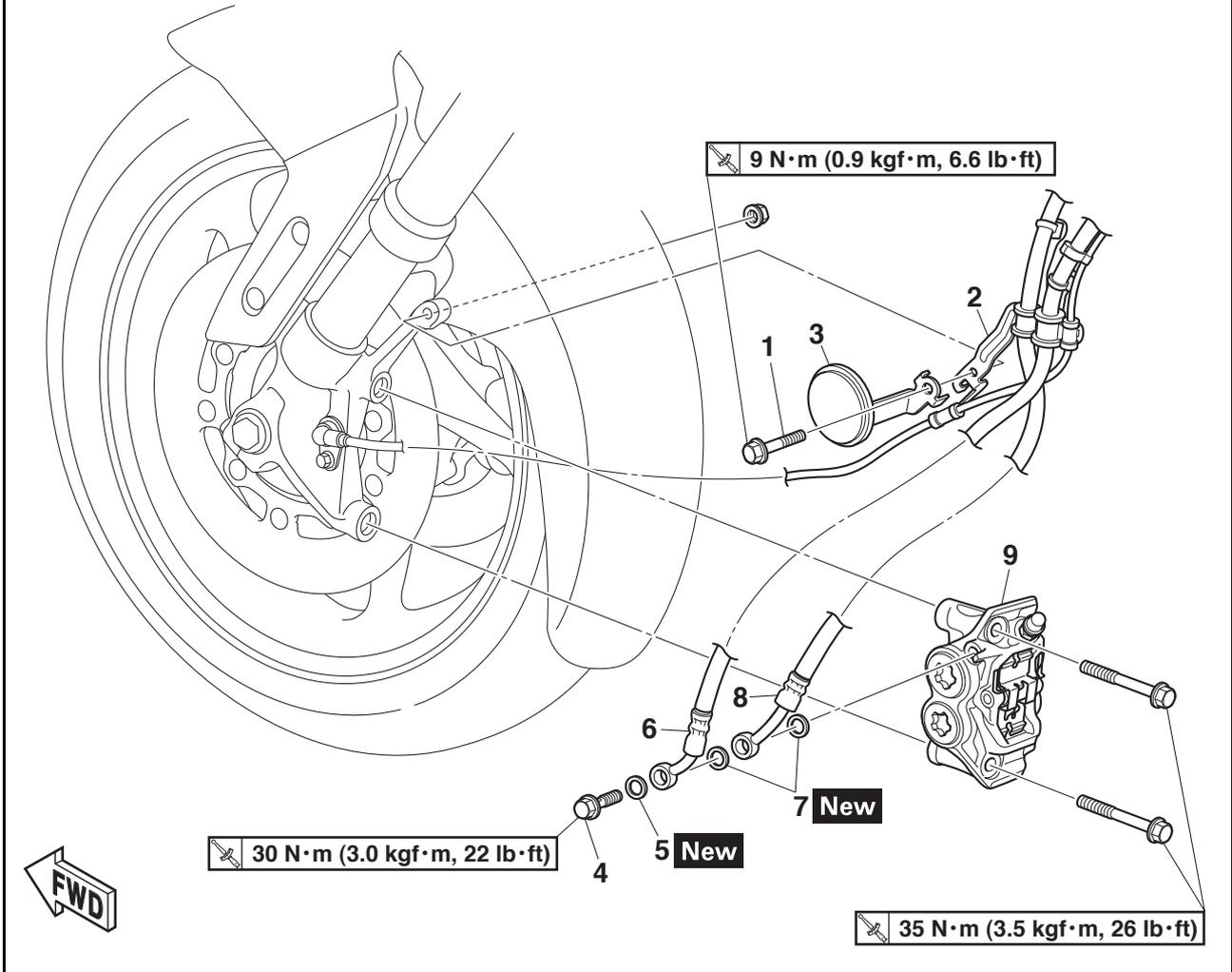
Disassembling the front brake master cylinder



Order	Job/Parts to remove	Q'ty	Remarks
1	Brake master cylinder kit	1	
2	Brake master cylinder body	1	

FRONT BRAKE

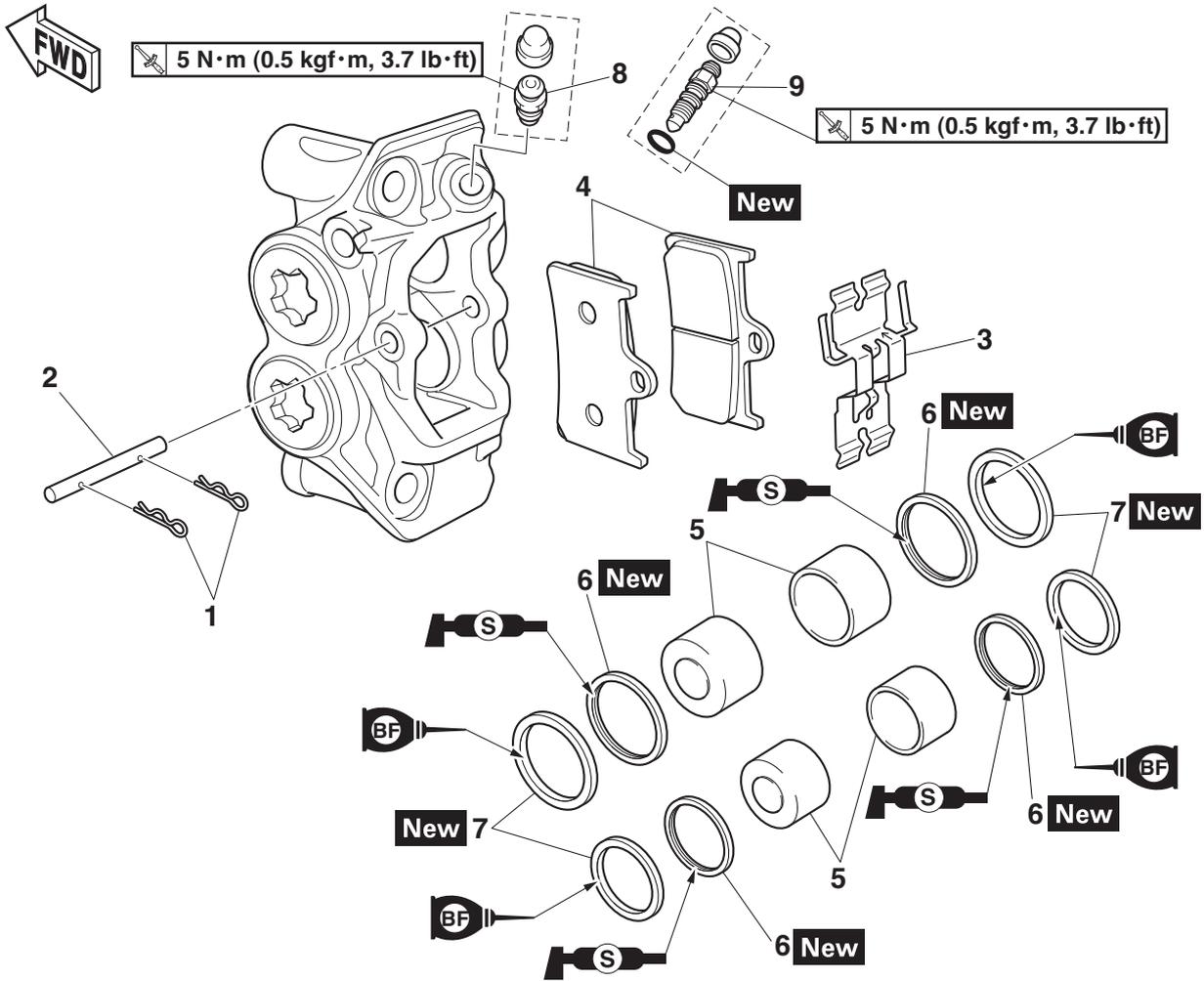
Removing the front brake calipers



Order	Job/Parts to remove	Q'ty	Remarks
			The following procedure applies to both of the front brake calipers.
	Brake fluid		Drain. Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" on page 3-17.
1	Front brake hose holder bolt	1	The tightening torque of the front brake hose holder bolt on the right side is 7 N·m (0.7 kgf·m, 5.2 lb·ft).
2	Front brake hose holder	1	
3	Front reflector	1	
4	Brake hose union bolt	1	
5	Brake hose gasket	1	Left side only
6	Front brake hose	1	Left side only
7	Brake hose gasket	2	
8	Brake hose	1	
9	Front brake caliper	1	

FRONT BRAKE

Disassembling the front brake calipers



Order	Job/Parts to remove	Q'ty	Remarks
			The following procedure applies to both of the front brake calipers.
1	Brake pad clip	2	
2	Brake pad pin	1	
3	Brake pad spring	1	
4	Front brake pad	2	
5	Brake caliper piston	4	
6	Brake caliper piston dust seal	4	
7	Brake caliper piston seal	4	
8	Bleed screw	1	Left brake caliper side
9	Bleed screw	1	Right brake caliper side

EAS30168

INTRODUCTION

EWA14101



WARNING

Disc brake components rarely require disassembly. Therefore, always follow these preventive measures:

- Never disassemble brake components unless absolutely necessary.
- If any connection on the hydraulic brake system is disconnected, the entire brake system must be disassembled, drained, cleaned, properly filled, and bled after reassembly.
- Never use solvents on internal brake components.
- Use only clean or new brake fluid for cleaning brake components.
- Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilled brake fluid immediately.
- Avoid brake fluid coming into contact with the eyes as it can cause serious injury.

FIRST AID FOR BRAKE FLUID ENTERING THE EYES:

- Flush with water for 15 minutes and get immediate medical attention.

EAS30169

CHECKING THE FRONT BRAKE DISCS

The following procedure applies to both brake discs.

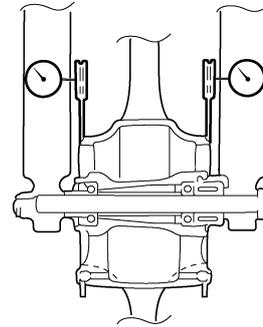
1. Remove:
 - Front wheel
Refer to "FRONT WHEEL" on page 4-22.
2. Check:
 - Front brake disc
Damage/galling → Replace.
3. Measure:
 - Brake disc runout
Out of specification → Correct the brake disc runout or replace the brake disc.



Brake disc runout limit (as measured on wheel)
0.15 mm (0.0059 in)

- a. Place the vehicle on a maintenance stand so that the front wheel is elevated.
- b. Before measuring the brake disc runout, turn the handlebar to the left or right to ensure that the front wheel is stationary.
- c. Remove the brake caliper.

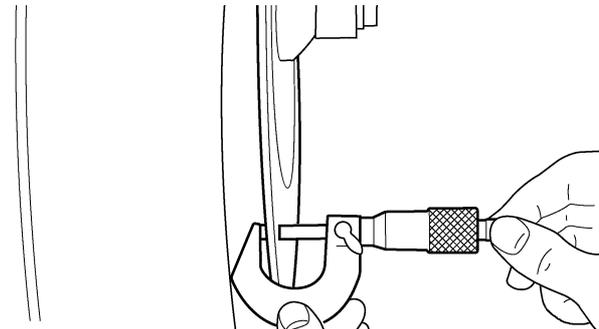
- d. Hold the dial gauge at a right angle against the brake disc surface.
- e. Measure the runout 1.5 mm (0.06 in) below the edge of the brake disc.



4. Measure:
 - Brake disc thickness
Measure the brake disc thickness at a few different locations.
Out of specification → Replace.



Brake disc thickness limit
3.5 mm (0.14 in)



5. Adjust:
 - Brake disc runout

- a. Remove the brake disc.
- b. Rotate the brake disc by one bolt hole.
- c. Install the brake disc.



Front brake disc bolt
23 N·m (2.3 kgf·m, 17 lb·ft)
LOCTITE®

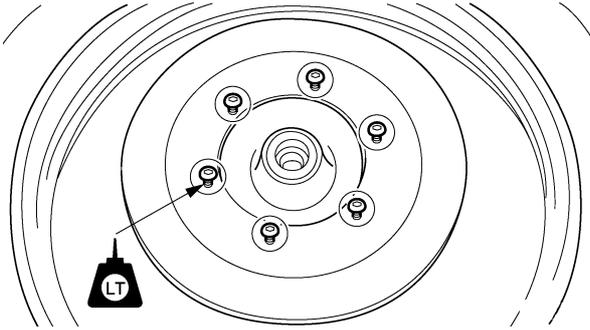
ECA19150

NOTICE

Replace the brake disc bolts with new ones.

TIP

Tighten the brake disc bolts in stages and in a crisscross pattern.



- d. Measure the brake disc runout.
- e. If out of specification, repeat the adjustment steps until the brake disc runout is within specification.
- f. If the brake disc runout cannot be brought within specification, replace the brake disc.



- 6. Install:
 - Front wheel
 Refer to "FRONT WHEEL" on page 4-22.

EAS30170

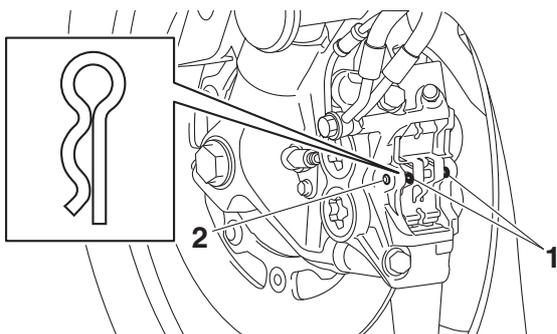
REPLACING THE FRONT BRAKE PADS

The following procedure applies to both brake calipers.

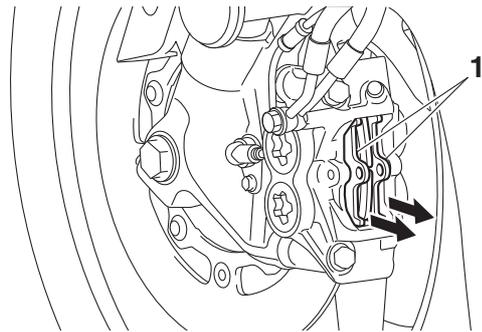
TIP

When replacing the brake pads, it is not necessary to disconnect the brake hose or disassemble the brake caliper.

- 1. Remove:
 - Brake pad clips "1"
 - Brake pad pin "2"
 - Brake pad spring

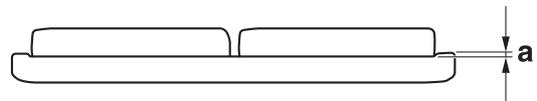


- 2. Remove:
 - Brake pads "1"



- 3. Measure:
 - Brake pad wear limit "a"
 Out of specification → Replace the brake pads as a set.

	Brake pad lining thickness
	4.0 mm (0.16 in)
	Limit
	0.5 mm (0.02 in)



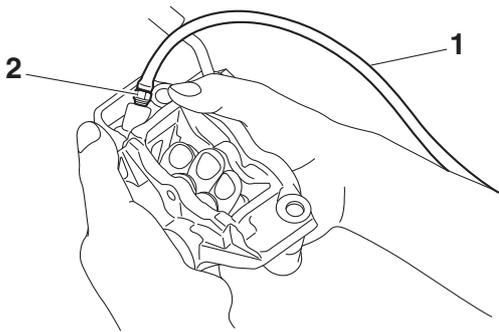
- 4. Remove:
 - Brake caliper bolts
- 5. Install:
 - Brake pads
 - Brake pad spring

TIP

Always install new brake pads and new brake pad spring as a set.



- a. Connect a clear plastic hose "1" tightly to the bleed screw "2". Put the other end of the hose into an open container.
- b. Loosen the bleed screw and push the brake caliper pistons into the brake caliper with your finger.



c. Tighten the bleed screw.

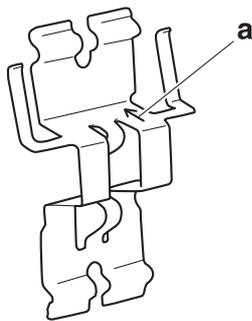


Brake caliper bleed screw
5 N·m (0.5 kgf·m, 3.7 lb·ft)

d. Install the brake pads and brake pad spring.

TIP

The arrow mark “a” on the brake pad spring must point in the direction of disc rotation.



6. Install:

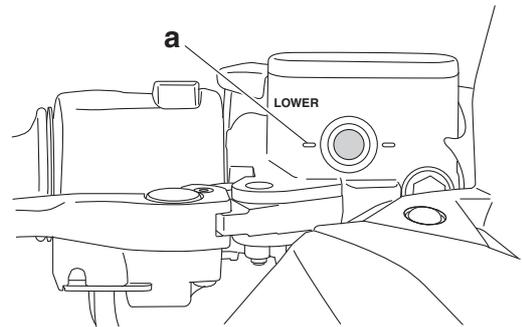
- Brake pad pin
- Brake pad clips
- Front brake caliper



Front brake caliper bolt
35 N·m (3.5 kgf·m, 26 lb·ft)

7. Check:

- Brake fluid level
 Below the minimum level mark “a” → Add the specified brake fluid to the proper level.
 Refer to “CHECKING THE BRAKE FLUID LEVEL” on page 3-15.



8. Check:

- Brake lever operation
 Soft or spongy feeling → Bleed the brake system.
 Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

EAS30724

REMOVING THE FRONT BRAKE CALIPERS

The following procedure applies to both of the brake calipers.

TIP

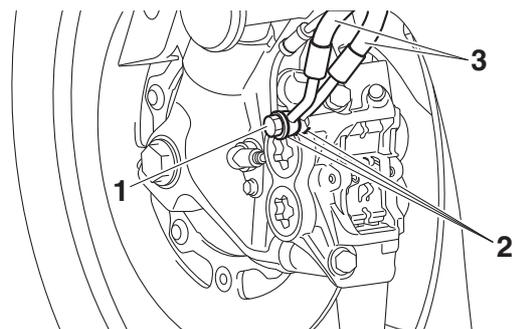
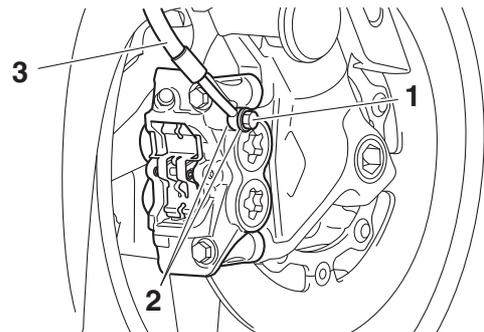
Before removing the brake caliper, drain the brake fluid from the entire brake system.

1. Remove:

- Brake hose union bolts “1”
- Brake hose gaskets “2”
- Brake hoses “3”

TIP

Put the end of the brake hose into a container and pump out the brake fluid carefully.



replace the brake caliper piston dust seals and brake caliper piston seals.



**Specified brake fluid
DOT 4**

EAS30175

INSTALLING THE FRONT BRAKE CALIPERS

The following procedure applies to both of the brake calipers.

1. Install:

- Front brake caliper “1” (temporarily)
- Brake hose gaskets **New**
- Brake hose “2”
- Brake hose union bolt “3”



**Front brake hose union bolt
30 N·m (3.0 kgf·m, 22 lb-ft)**

EWA13531

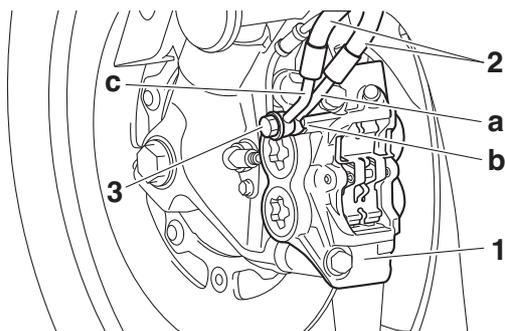
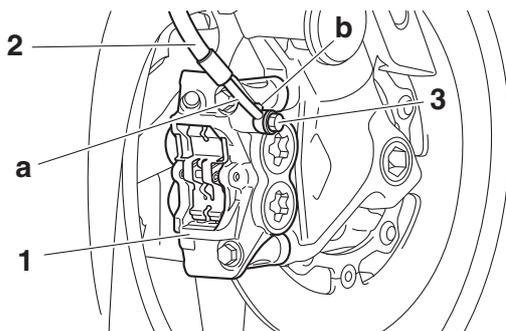
WARNING

Proper brake hose routing is essential to insure safe vehicle operation.

ECA21410

NOTICE

- When installing the brake hose onto the brake caliper “1”, make sure the brake pipe “a” touches the projection “b” on the brake caliper.
- Install the brake pipe “c” so that it is aligned with the brake pipe “a”.



2. Remove:

- Front brake caliper

3. Install:

- Brake pads
- Brake pad spring
- Brake pad pin
- Brake pad clips
- Front brake caliper



**Front brake caliper bolt
35 N·m (3.5 kgf·m, 26 lb-ft)**

Refer to “REPLACING THE FRONT BRAKE PADS” on page 4-46.

4. Fill:

- Brake master cylinder reservoir (with the specified amount of the specified brake fluid)



**Specified brake fluid
DOT 4**

EWA13090

WARNING

- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the brake fluid reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

ECA13540

NOTICE

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

5. Bleed:

- Brake system

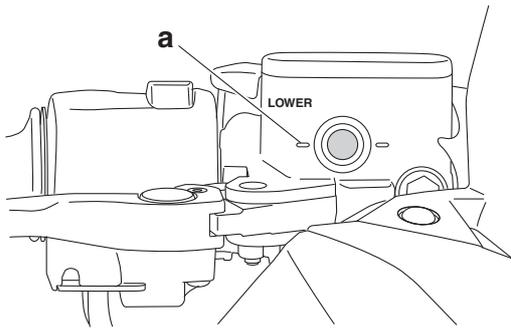
Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

6. Check:

- Brake fluid level

Below the minimum level mark “a” → Add the specified brake fluid to the proper level.

Refer to “CHECKING THE BRAKE FLUID LEVEL” on page 3-15.



7. Check:
- Brake lever operation
Soft or spongy feeling → Bleed the brake system.
Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

EAS30179

REMOVING THE FRONT BRAKE MASTER CYLINDER

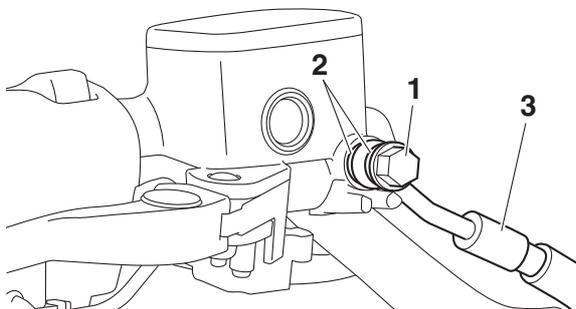
TIP

Before removing the front brake master cylinder, drain the brake fluid from the entire brake system.

1. Disconnect:
 - Brake light switch connectors (from the front brake light switch)
2. Remove:
 - Brake hose union bolt “1”
 - Brake hose gaskets “2”
 - Brake hose “3”

TIP

To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.



EAS30725

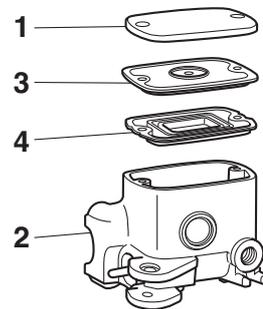
CHECKING THE FRONT BRAKE MASTER CYLINDER

1. Check:
 - Brake master cylinder
Damage/scratches/wear → Replace.
 - Brake fluid delivery passages

(brake master cylinder body)

Obstruction → Blow out with compressed air.

2. Check:
 - Brake master cylinder kit
Damage/scratches/wear → Replace.
3. Check:
 - Brake master cylinder reservoir cap “1”
 - Brake master cylinder reservoir “2”
 - Brake master cylinder reservoir diaphragm holder “3”
Cracks/damage → Replace.
 - Brake master cylinder reservoir diaphragm “4”
Damage/wear → Replace.



4. Check:
 - Brake hoses
Cracks/damage/wear → Replace.

EAS30181

ASSEMBLING THE FRONT BRAKE MASTER CYLINDER

EWA13520

WARNING

- Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.
- Never use solvents on internal brake components.



Specified brake fluid
DOT 4

EAS30182

INSTALLING THE FRONT BRAKE MASTER CYLINDER

1. Install:
 - Front brake master cylinder “1”
 - Front brake master cylinder holder “2”



Front brake master cylinder holder bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)

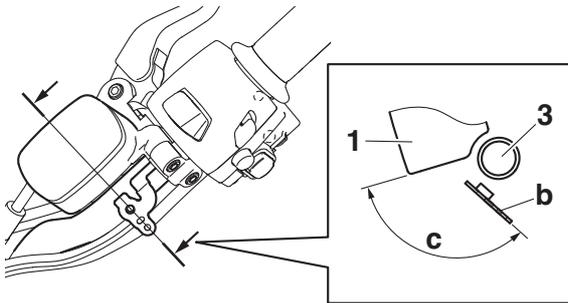
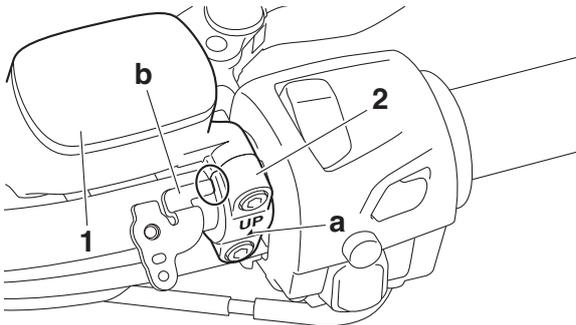
FRONT BRAKE

TIP

- Install the front brake master cylinder holder with the “△” mark “a” facing up.
- Make sure that brake master cylinder assembly touches the end of handlebar bracket “b”.
- Install the brake master cylinder assembly to the handlebar “3” at the specified angle “c”.
- First, tighten the upper bolt, then the lower bolt.



Angle “c” (brake master cylinder and handlebar bracket)
120.1–122.7°



2. Install:

- Brake hose gaskets “1” **New**
- Brake hose “2”
- Brake hose union bolt “3”



Front brake hose union bolt
30 N·m (3.0 kgf·m, 22 lb·ft)

EWA13531

WARNING

Proper brake hose routing is essential to insure safe vehicle operation.

ECA14160

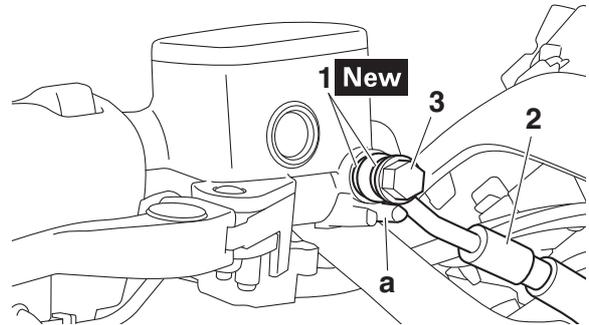
NOTICE

When installing the brake hose onto the brake master cylinder, make sure the brake pipe touches the projection “a” as shown.

TIP

Turn the handlebar to the left and right to make

sure the brake hose does not touch other parts (e.g., wire harness, cables, leads). Correct if necessary.



3. Fill:

- Brake master cylinder reservoir (with the specified amount of the specified brake fluid)



Specified brake fluid
DOT 4

EWA13540

WARNING

- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

ECA13540

NOTICE

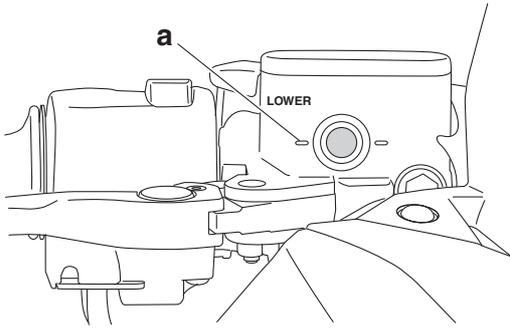
Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

4. Bleed:

- Brake system
Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

5. Check:

- Brake fluid level
Below the minimum level mark “a” → Add the specified brake fluid to the proper level.
Refer to “CHECKING THE BRAKE FLUID LEVEL” on page 3-15.



6. Check:

- Brake lever operation

Soft or spongy feeling → Bleed the brake system.

Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

EAS20031

REAR BRAKE

Removing the rear brake pads

6 N·m (0.6 kgf·m, 4.4 lb·ft)

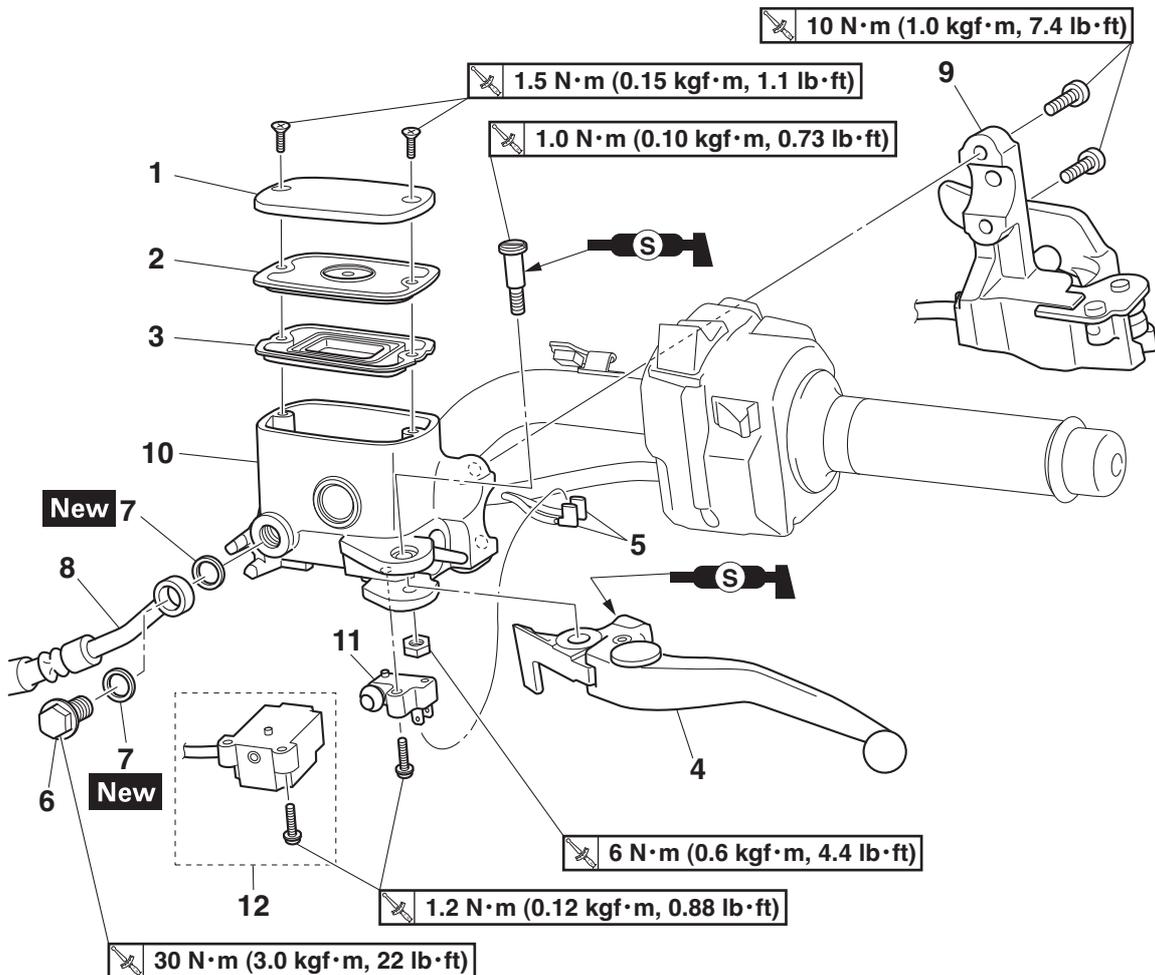
27 N·m (2.7 kgf·m, 20 lb·ft)

FWD

Order	Job/Parts to remove	Q'ty	Remarks
1	Rear brake caliper bolt	2	
2	Rear brake caliper	1	
3	Rear brake pad	2	
4	Brake pad support	2	
5	Bleed screw	1	

REAR BRAKE

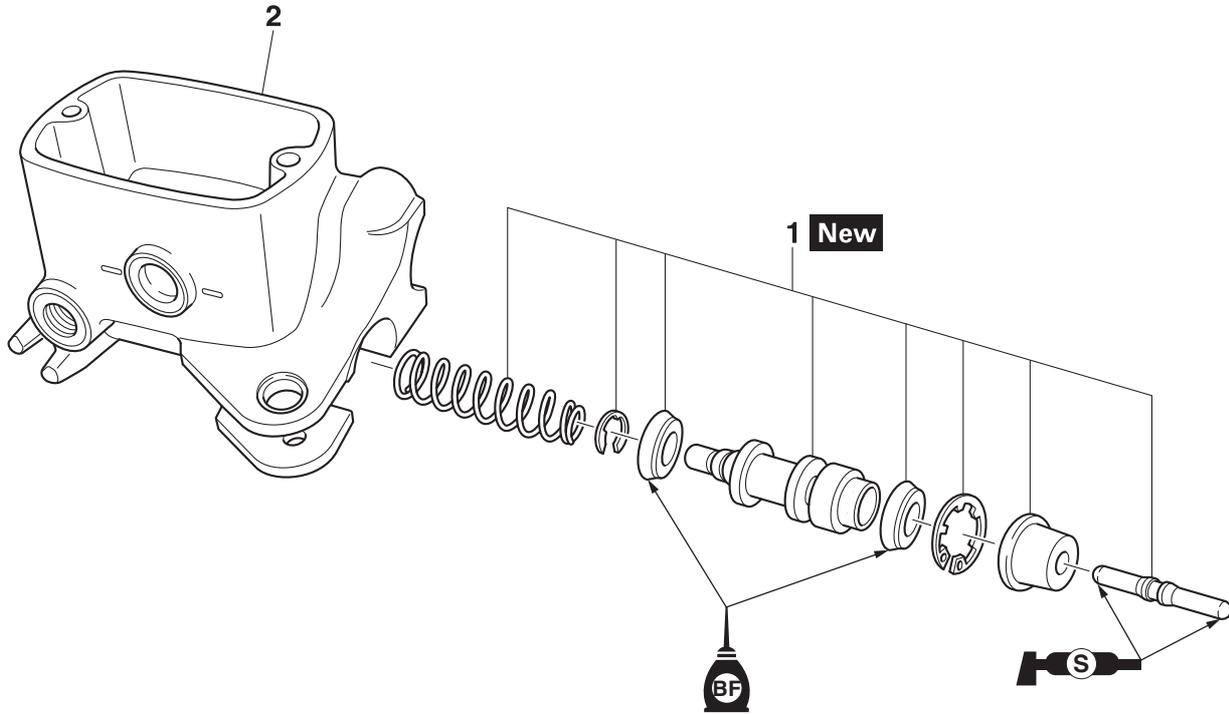
Removing the rear brake master cylinder



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Handlebar cover		Refer to "HANDLEBAR" on page 4-79.
	Brake fluid		Drain. Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" on page 3-17.
1	Brake master cylinder reservoir cap	1	
2	Brake master cylinder reservoir diaphragm holder	1	
3	Brake master cylinder reservoir diaphragm	1	
4	Rear brake lever	1	
5	Rear brake light switch connector	2	Disconnect. For XP530E-A/XP530-A
6	Brake hose union bolt	1	
7	Brake hose gasket	2	
8	Rear brake hose	1	
9	Rear brake master cylinder holder	1	
10	Rear brake master cylinder	1	
11	Rear brake light switch	1	For XP530E-A/XP530-A
12	Rear brake light switch	1	For XP530D-A

REAR BRAKE

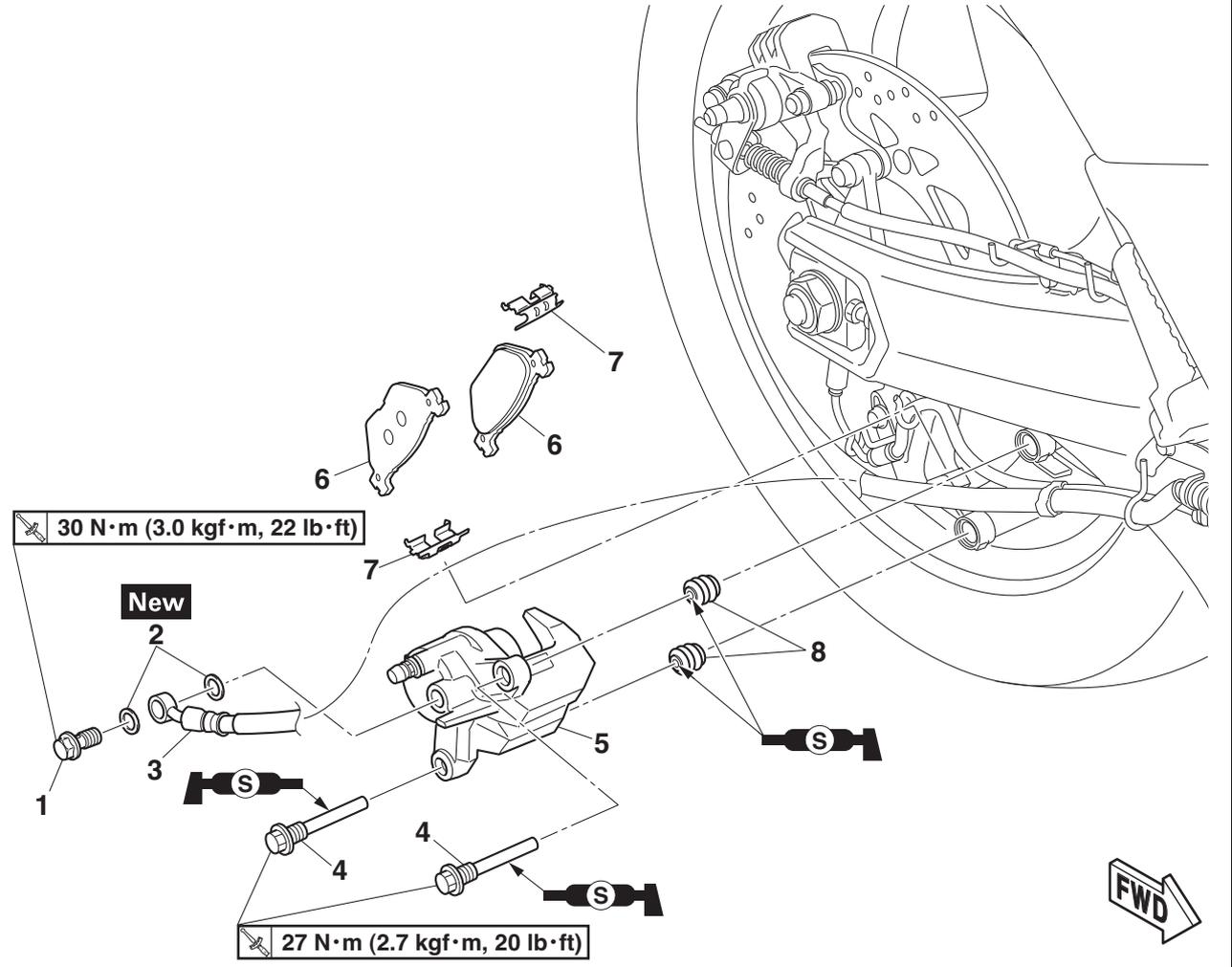
Disassembling the rear brake master cylinder



Order	Job/Parts to remove	Q'ty	Remarks
1	Brake master cylinder kit	1	
2	Brake master cylinder body	1	

REAR BRAKE

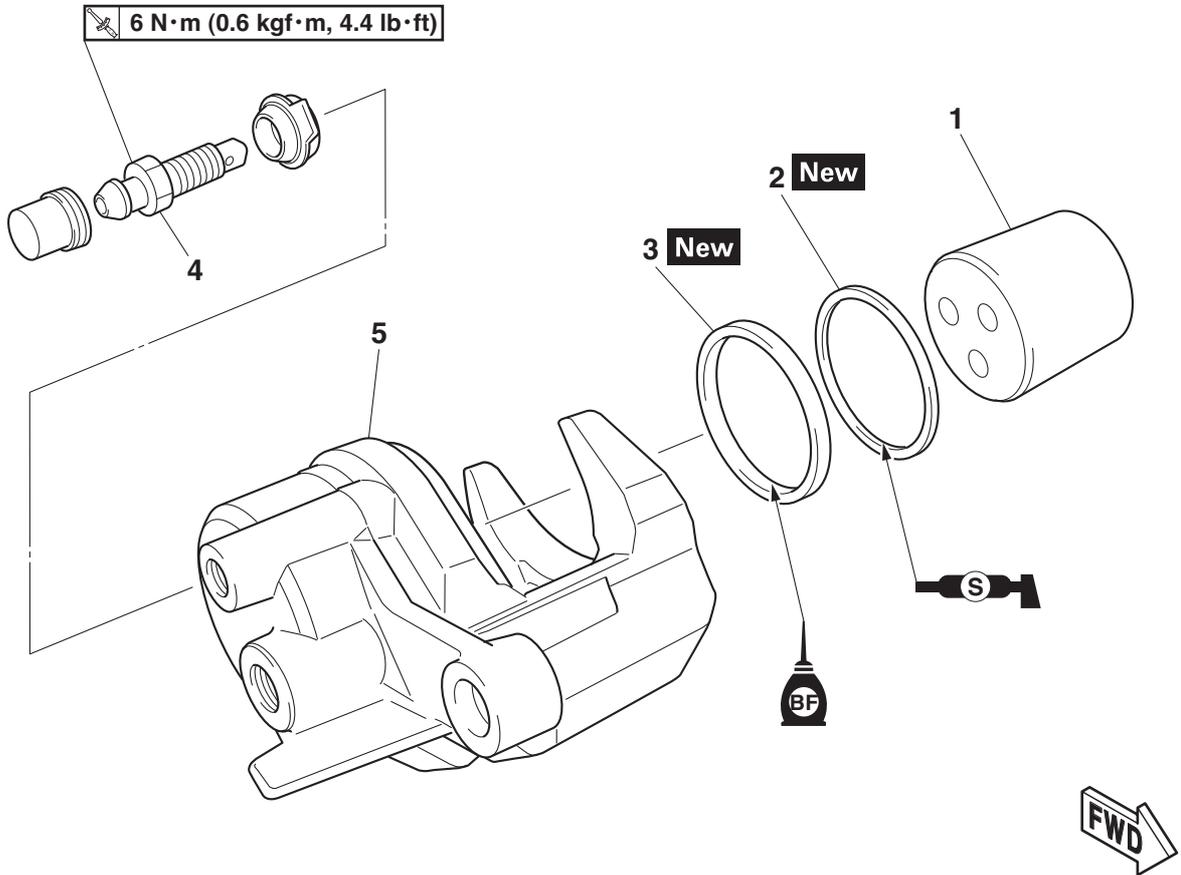
Removing the rear brake caliper



Order	Job/Parts to remove	Q'ty	Remarks
	Brake fluid		Drain. Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" on page 3-17.
1	Brake hose union bolt	1	
2	Brake hose gasket	2	
3	Rear brake hose	1	
4	Rear brake caliper bolt	2	
5	Rear brake caliper	1	
6	Rear brake pad	2	
7	Brake pad support	2	
8	Caliper bolt boot	2	

REAR BRAKE

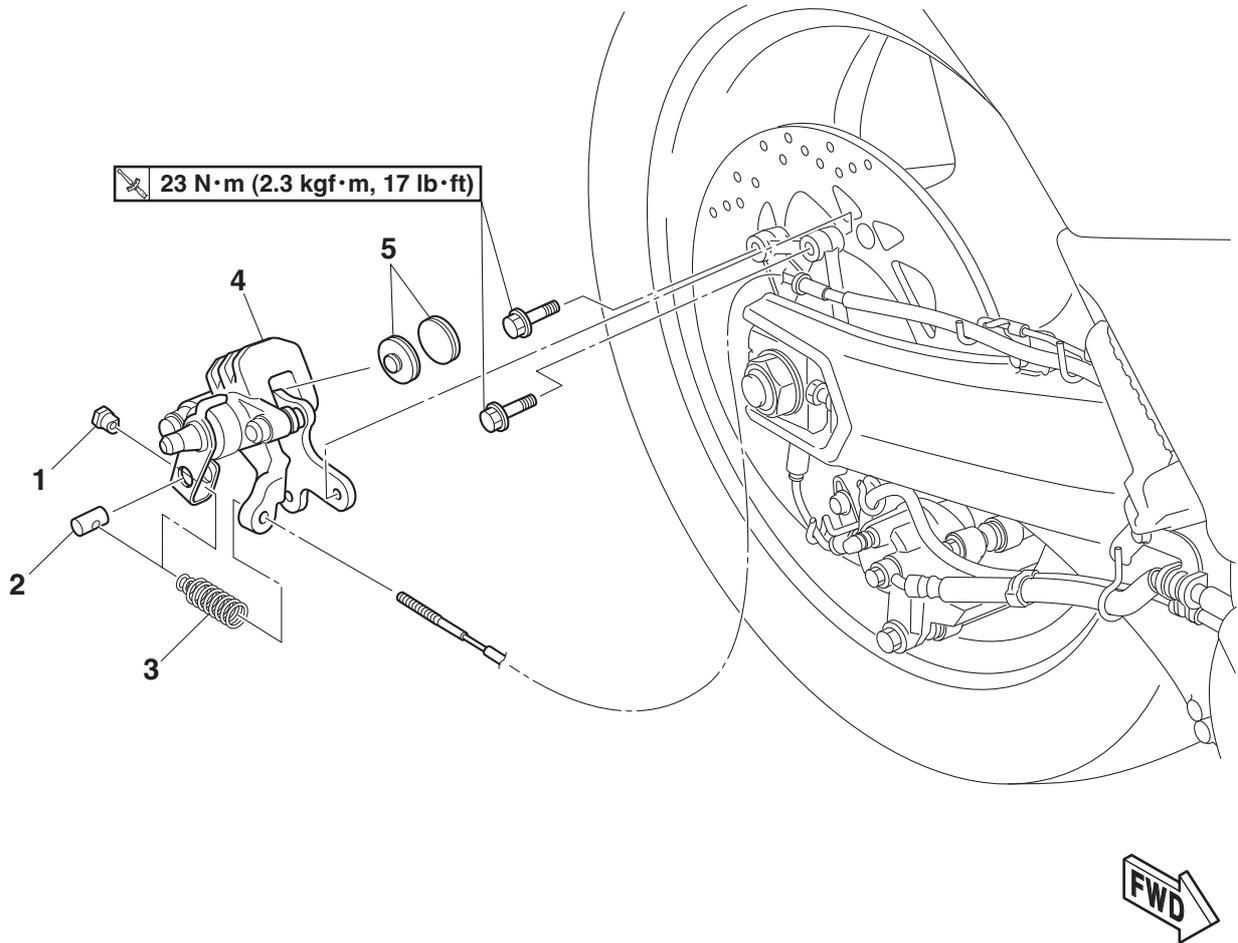
Disassembling the rear brake caliper



Order	Job/Parts to remove	Q'ty	Remarks
1	Brake caliper piston	1	
2	Brake caliper piston dust seal	1	
3	Brake caliper piston seal	1	
4	Bleed screw	1	
5	Brake caliper body	1	

REAR BRAKE

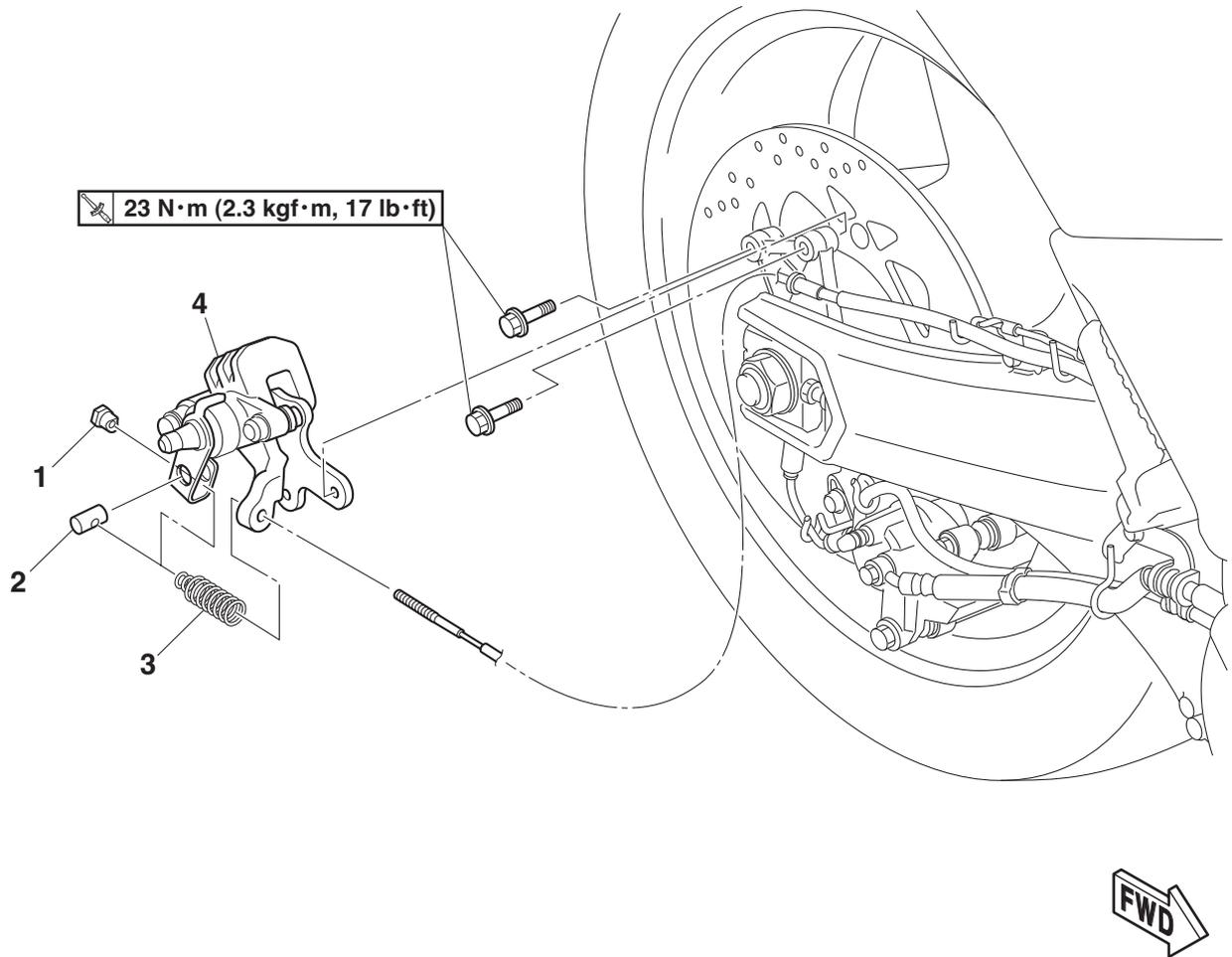
Removing the rear brake lock pads



Order	Job/Parts to remove	Q'ty	Remarks
1	Rear brake lock cable adjusting nut	1	
2	Pin	1	
3	Rear brake lock spring	1	
4	Rear brake lock caliper	1	
5	Rear brake lock pad	2	

REAR BRAKE

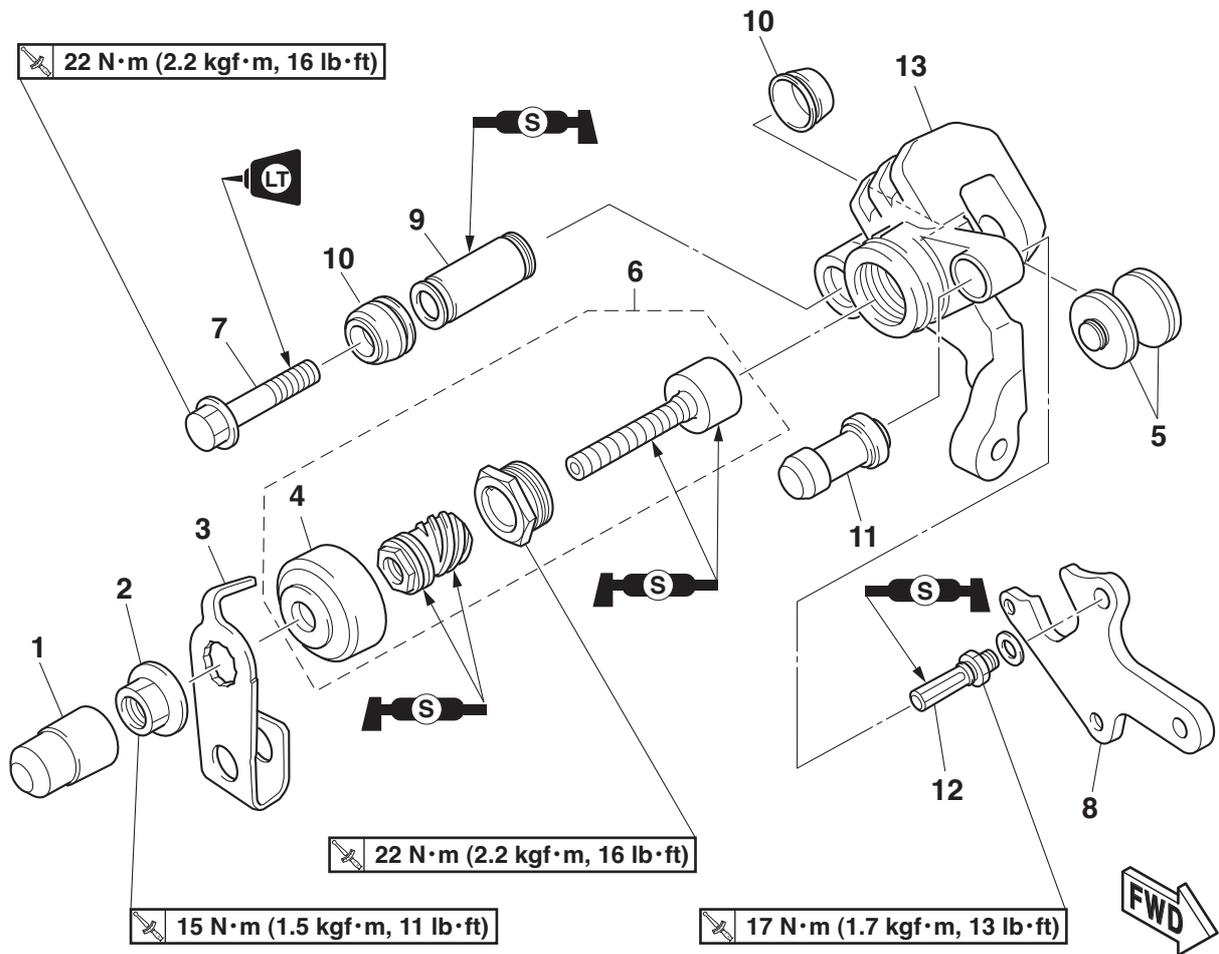
Removing the rear brake lock caliper



Order	Job/Parts to remove	Q'ty	Remarks
1	Rear brake lock cable adjusting nut	1	
2	Pin	1	
3	Rear brake lock spring	1	
4	Rear brake lock caliper	1	

REAR BRAKE

Disassembling the rear brake lock caliper



Order	Job/Parts to remove	Q'ty	Remarks
1	Cap	1	
2	Rear brake lock adjusting nut	1	
3	Rear brake lock caliper arm	1	
4	Boot	1	
5	Rear brake lock pad	2	
6	Caliper piston assembly	1	
7	Rear brake lock caliper bracket bolt	1	
8	Rear brake lock caliper bracket	1	
9	Sleeve	1	
10	Boot	2	
11	Boot	1	
12	Slide pin bolt	1	
13	Rear brake lock caliper	1	

EAS30183

INTRODUCTION

EWA14101



WARNING

Disc brake components rarely require disassembly. Therefore, always follow these preventive measures:

- Never disassemble brake components unless absolutely necessary.
- If any connection on the hydraulic brake system is disconnected, the entire brake system must be disassembled, drained, cleaned, properly filled, and bled after reassembly.
- Never use solvents on internal brake components.
- Use only clean or new brake fluid for cleaning brake components.
- Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilled brake fluid immediately.
- Avoid brake fluid coming into contact with the eyes as it can cause serious injury.

FIRST AID FOR BRAKE FLUID ENTERING THE EYES:

- Flush with water for 15 minutes and get immediate medical attention.

EAS30184

CHECKING THE REAR BRAKE DISC

1. Remove:
 - Rear wheel
Refer to "REAR WHEEL" on page 4-31.
2. Check:
 - Rear brake disc
Damage/galling → Replace.
3. Measure:
 - Brake disc runout
Out of specification → Correct the brake disc deflection or replace the brake disc.
Refer to "CHECKING THE FRONT BRAKE DISCS" on page 4-45.



Brake disc runout limit (as measured on wheel)
0.15 mm (0.0059 in)

4. Measure:
 - Brake disc thickness
Measure the brake disc thickness at a few different locations.
Out of specification → Replace.
Refer to "CHECKING THE FRONT BRAKE DISCS" on page 4-45.



Brake disc thickness limit
4.5 mm (0.18 in)

5. Adjust:
 - Brake disc deflection
Refer to "CHECKING THE FRONT BRAKE DISCS" on page 4-45.



Rear brake disc bolt
30 N·m (3.0 kgf·m, 22 lb·ft)
LOCTITE®

6. Install:
 - Rear wheel
Refer to "REAR WHEEL" on page 4-31.

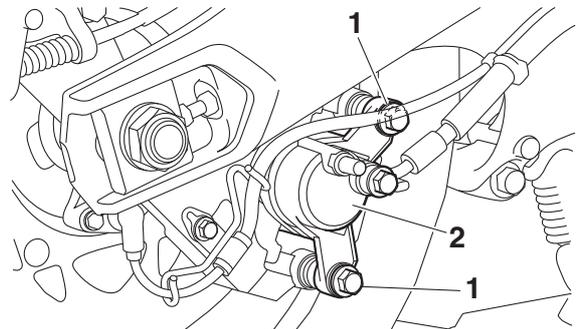
EAS30185

REPLACING THE REAR BRAKE PADS

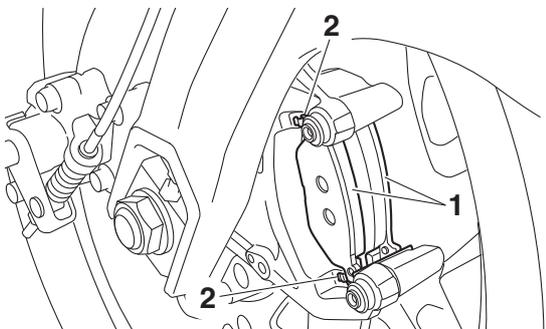
TIP

When replacing the brake pads, it is not necessary to disconnect the brake hose or disassemble the brake caliper.

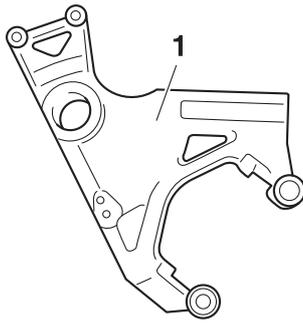
1. Remove:
 - Rear brake caliper bolts "1"
 - Rear brake caliper "2"



2. Remove:
 - Rear brake pads "1"
 - Brake pad supports "2"



3. Measure:
 - Brake pad wear limit "a"
Out of specification → Replace the brake pads as a set.



EAS30189

ASSEMBLING THE REAR BRAKE CALIPER

EWA17080

WARNING

- Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.
- Never use solvents on internal brake components as they will cause the brake caliper piston dust seal and brake caliper piston seal to swell and distort.
- Whenever a brake caliper is disassembled, replace the brake caliper piston dust seal and brake caliper piston seal.



**Specified brake fluid
DOT 4**

EAS30190

INSTALLING THE REAR BRAKE CALIPER

1. Install:

- Rear brake caliper “1” (temporarily)
- Brake hose gaskets **New**
- Rear brake hose “2”
- Brake hose union bolt “3”



**Rear brake hose union bolt
30 N·m (3.0 kgf·m, 22 lb·ft)**

EWA13531

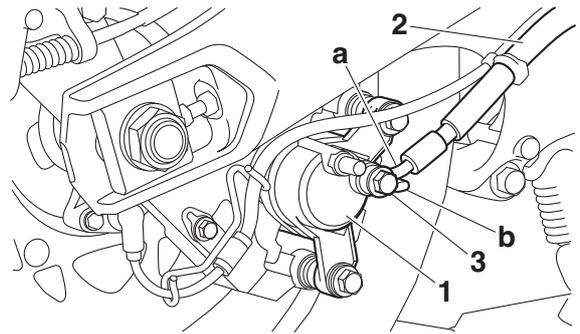
WARNING

Proper brake hose routing is essential to insure safe vehicle operation.

ECA14170

NOTICE

When installing the brake hose onto the brake caliper “1”, make sure the brake pipe “a” touches the projection “b” on the brake caliper.



2. Remove:

- Rear brake caliper

3. Install:

- Brake pad supports
- Rear brake pads
- Rear brake caliper
- Rear brake caliper bolt

Refer to “REPLACING THE REAR BRAKE PADS” on page 4-61.



**Rear brake caliper bolt
27 N·m (2.7 kgf·m, 20 lb·ft)**

4. Fill:

- Brake master cylinder reservoir (with the specified amount of the specified brake fluid)



**Specified brake fluid
DOT 4**

EWA13540

WARNING

- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

ECA13540

NOTICE

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

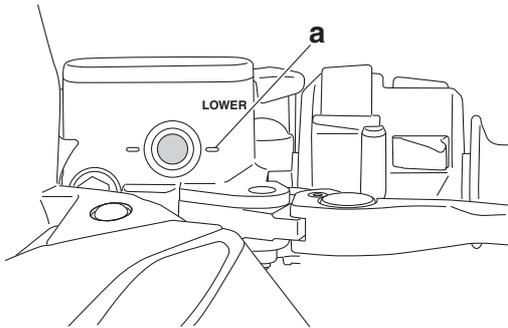
5. Bleed:

- Brake system

Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

6. Check:

- Brake fluid level
Below the minimum level mark “a” → Add the specified brake fluid to the proper level.
Refer to “CHECKING THE BRAKE FLUID LEVEL” on page 3-15.



7. Check:

- Brake lever operation
Soft or spongy feeling → Bleed the brake system.
Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

EAS30193

REMOVING THE REAR BRAKE MASTER CYLINDER

TIP

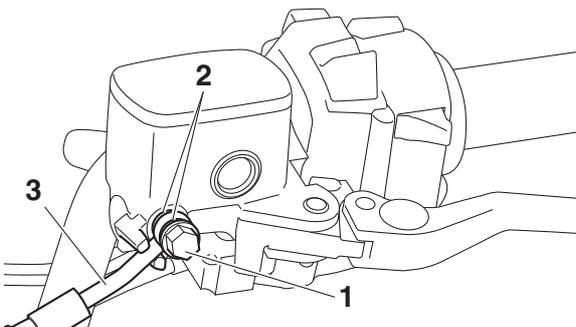
Before removing the rear brake master cylinder, drain the brake fluid from the entire brake system.

1. Remove:

- Brake hose union bolt “1”
- Brake hose gaskets “2”
- Rear brake hose “3”

TIP

To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.



EAS30194

CHECKING THE REAR BRAKE MASTER CYLINDER

1. Check:

- Brake master cylinder
Damage/scratches/wear → Replace.
- Brake fluid delivery passages (brake master cylinder body)
Obstruction → Blow out with compressed air.

2. Check:

- Brake master cylinder kit
Damage/scratches/wear → Replace.

3. Check:

- Brake master cylinder reservoir cap
- Brake master cylinder reservoir
- Brake master cylinder reservoir diaphragm holder
Cracks/damage → Replace.

4. Check:

- Brake hose
Cracks/damage/wear → Replace.

EAS30195

ASSEMBLING THE REAR BRAKE MASTER CYLINDER

EWA13520

WARNING

- Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.
- Never use solvents on internal brake components.

	Specified brake fluid DOT 4
---	--

1. Install:

- Brake master cylinder kit **New**

EAS30196

INSTALLING THE REAR BRAKE MASTER CYLINDER

1. Install:

- Brake master cylinder “1”
- Rear brake master cylinder holder “2”

	Brake master cylinder holder bolt 10 N·m (1.0 kgf·m, 7.4 lb·ft)
---	--

TIP

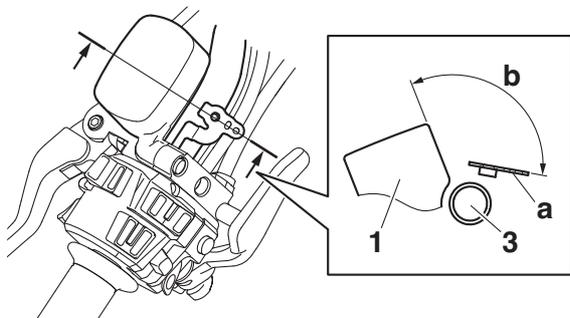
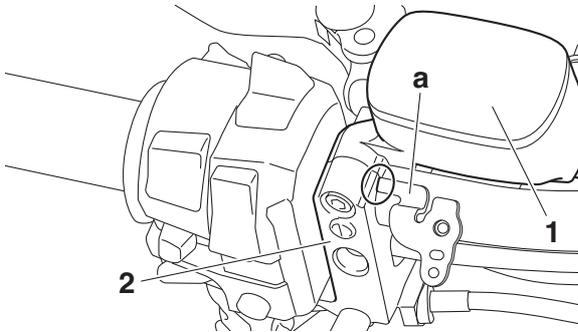
- Make sure that the brake master cylinder assembly touches the end of handlebar bracket “a”.
- Install the brake master cylinder assembly to the handlebar “3” at the specified angle “b”.

REAR BRAKE

- First, tighten the upper bolt, then the lower bolt.



Angle “b” (brake master cylinder and handlebar bracket)
120.1–122.7°



2. Install:

- Brake hose gaskets “1” **New**
- Rear brake hose “2”
- Brake hose union bolt “3”



Rear brake hose union bolt
30 N·m (3.0 kgf·m, 22 lb·ft)

EWA13531

WARNING

Proper brake hose routing is essential to insure safe vehicle operation.

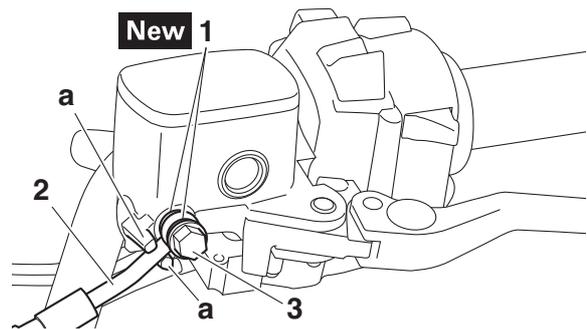
ECA14160

NOTICE

When installing the brake hose onto the brake master cylinder, make sure the brake pipe touches the projection “a” as shown.

TIP

Turn the handlebar to the left and right to make sure that the brake hose does not touch other parts (e.g., wire harness, cables, leads). Correct if necessary.



3. Fill:

- Brake master cylinder reservoir (with the specified amount of the specified brake fluid)



Specified brake fluid
DOT 4

EWA13540

WARNING

- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

ECA13540

NOTICE

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilled brake fluid immediately.

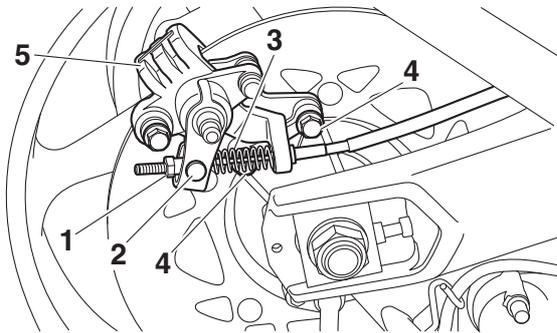
4. Bleed:

- Brake system
Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” on page 3-17.

5. Check:

- Brake fluid level
Below the minimum level mark “a” → Add the specified brake fluid to the proper level.
Refer to “CHECKING THE BRAKE FLUID LEVEL” on page 3-15.

- Rear brake lock spring “3”
- Rear brake lock caliper bolts “4”
- Rear brake lock caliper “5”



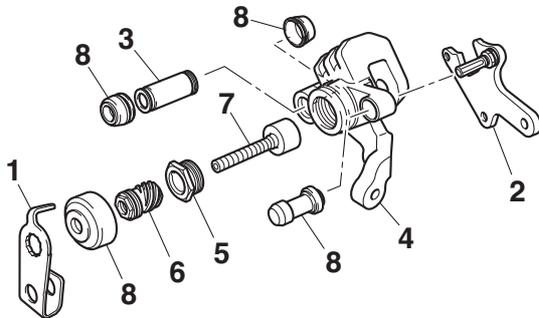
EAS31420

CHECKING THE REAR BRAKE LOCK CALIPER

1. Check:

- Rear brake lock caliper arm “1”
- Rear brake lock caliper bracket “2”
- Sleeve “3”
- Rear brake lock caliper “4”
- Locknut “5”
- Shaft L “6”
- Piston adjusting bolt “7”
- Boots “8”

Cracks/damage → Replace.



EAS31421

ASSEMBLING THE REAR BRAKE LOCK CALIPER

1. Install:

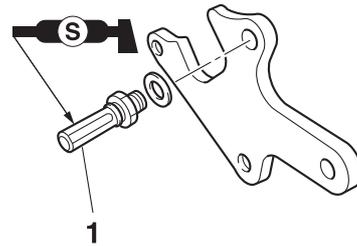
- Slide pin bolt “1”
(to the rear brake lock caliper bracket)



Rear brake lock caliper slide pin bolt
17 N·m (1.7 kgf·m, 13 lb·ft)



Recommended lubricant
Silicone grease



2. Install:

- Rear brake lock caliper bracket



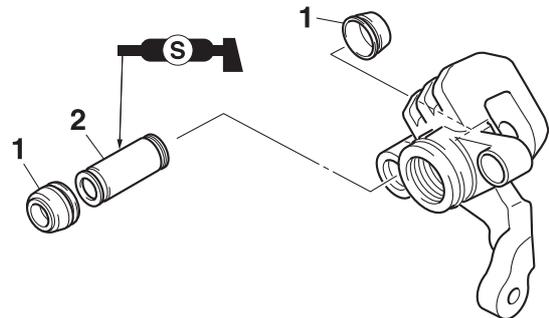
Rear brake lock caliper bracket bolt
22 N·m (2.2 kgf·m, 16 lb·ft)
LOCTITE®

3. Install:

- Boots “1”
- Sleeve “2”

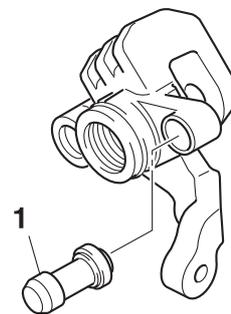


Recommended lubricant
Silicone grease



4. Install:

- Boot “1”



5. Install:

- Shaft L “1”
- Piston adjusting bolt “2”
- Locknut “3”



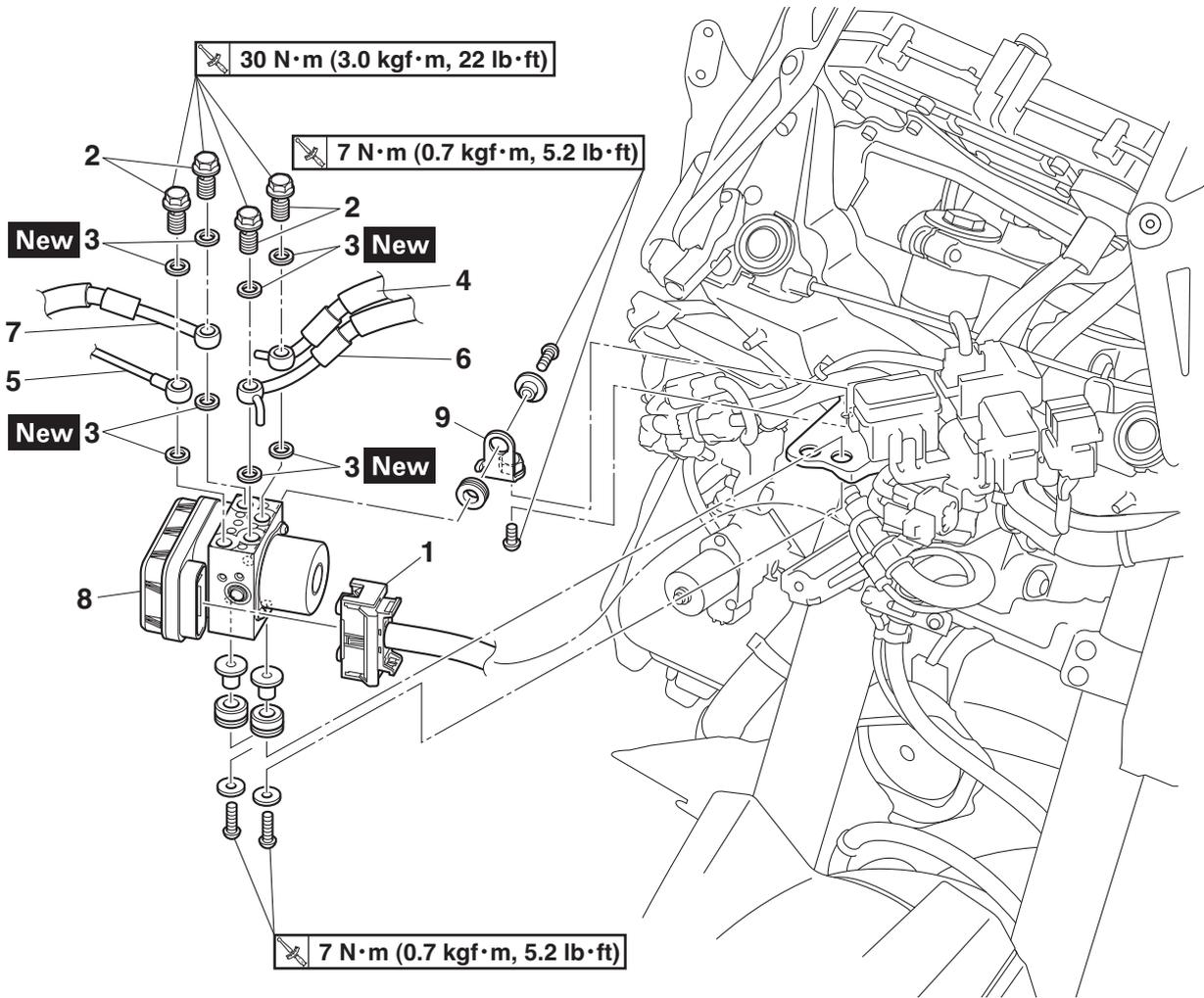
Recommended lubricant
Silicone grease

ABS (Anti-lock Brake System)

EAS20032

ABS (Anti-lock Brake System)

Removing the hydraulic unit assembly

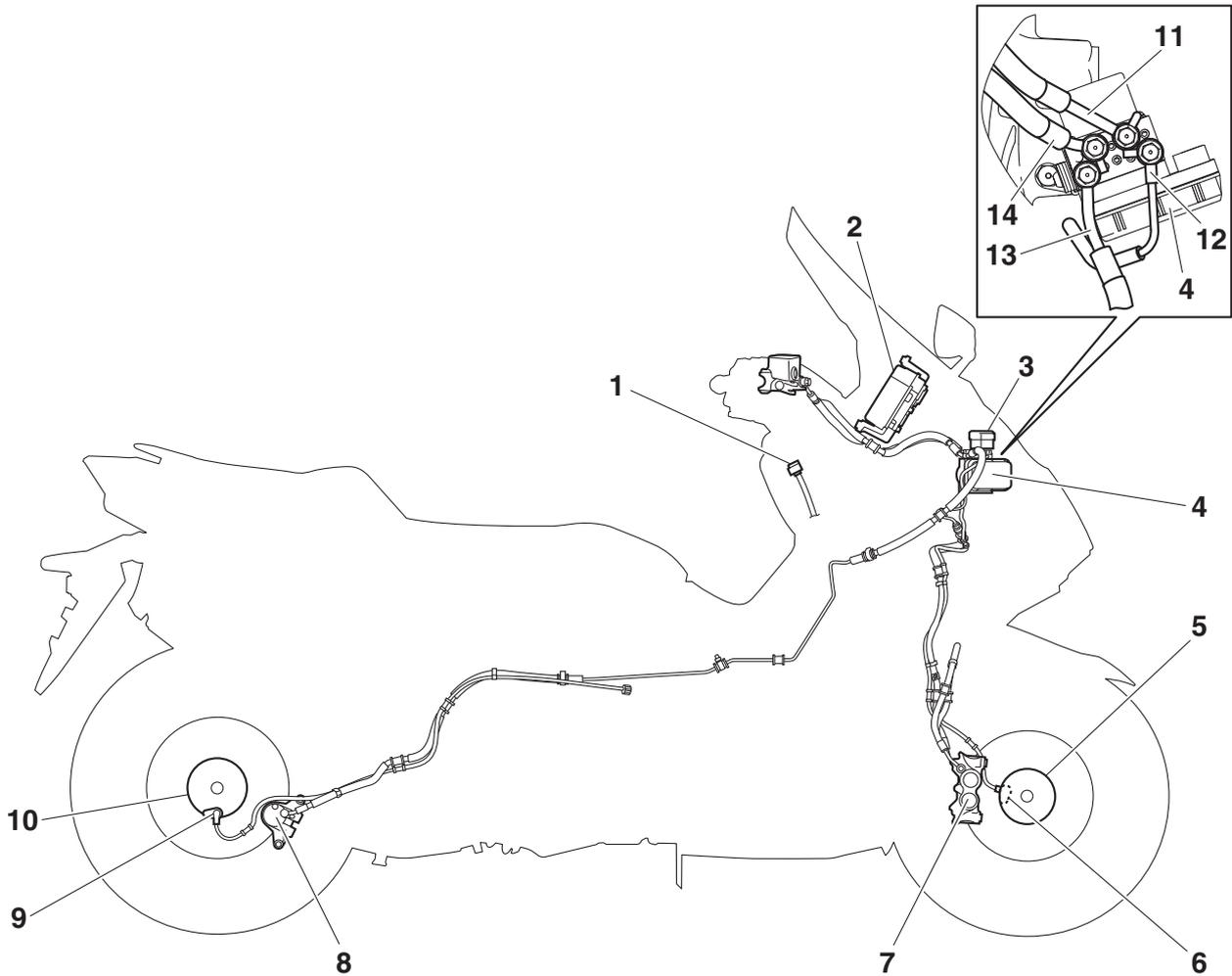


Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Brake fluid		Drain. Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" on page 3-17.
1	ABS ECU coupler	1	Disconnect.
2	Brake hose union bolt	4	
3	Brake hose gasket	8	
4	Rear brake hose (rear brake master cylinder to hydraulic unit)	1	Disconnect.
5	Front brake hose (hydraulic unit to front brake caliper)	1	Disconnect.
6	Front brake hose (front brake master cylinder to hydraulic unit)	1	Disconnect.
7	Rear brake hose (hydraulic unit to rear brake caliper)	1	Disconnect.
8	Hydraulic unit assembly	1	
9	Hydraulic unit assembly bracket	1	

ABS (Anti-lock Brake System)

EAS30728

ABS COMPONENTS CHART



1. Yamaha diagnostic tool coupler
2. ABS warning light
3. ABS ECU fuse/ABS solenoid fuse/ABS motor fuse
4. Hydraulic unit assembly
5. Front wheel sensor rotor
6. Front wheel sensor
7. Front brake caliper
8. Rear brake caliper
9. Rear wheel sensor
10. Rear wheel sensor rotor
11. Front brake hose (front brake master cylinder to hydraulic unit)
12. Front brake hose (hydraulic unit to front brake caliper)
13. Rear brake hose (hydraulic unit to rear brake caliper)
14. Rear brake hose (rear brake master cylinder to hydraulic unit)

ABS (Anti-lock Brake System)

EAS30197

REMOVING THE HYDRAULIC UNIT ASSEMBLY

ECA18230

NOTICE

Unless necessary, avoid removing and installing the brake pipes of the hydraulic unit assembly.

EWA13930

WARNING

Refill with the same type of brake fluid that is already in the system. Mixing fluids may result in a harmful chemical reaction, leading to poor braking performance.

ECA22100

NOTICE

- Handle the ABS components with care since they have been accurately adjusted. Keep them away from dirt and do not subject them to shocks.
- Do not push the ON/start switch when removing the hydraulic unit assembly.
- Do not clean with compressed air.
- Do not reuse the brake fluid.
- Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.
- Do not allow any brake fluid to contact the couplers. Brake fluid may damage the couplers and cause bad contacts.
- If the union bolts for the hydraulic unit assembly have been removed, be sure to tighten them to the specified torque and bleed the brake system.

1. Disconnect:
 - ABS ECU coupler "1"

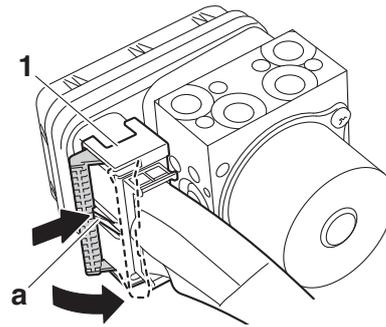
TIP

While pushing the portion "a" of the ABS ECU coupler, pull the lock lever up to release the lock.

ECA20080

NOTICE

Do not use a tool to disconnect the ABS ECU coupler.



2. Remove:
 - Brake hoses

TIP

Do not operate the front brake lever and rear brake lever while removing the brake hoses.

ECA18251

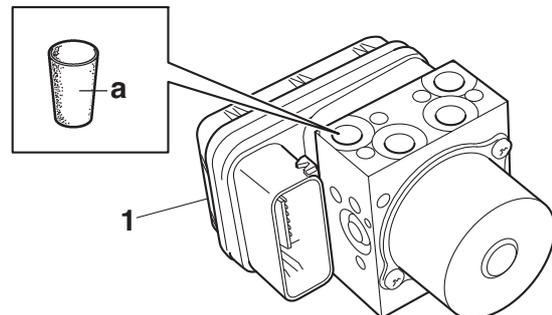
NOTICE

When removing the brake hoses, cover the area around the hydraulic unit assembly to catch any spilt brake fluid. Do not allow the brake fluid to contact other parts.

3. Remove:
 - Hydraulic unit assembly "1"

TIP

- To avoid brake fluid leakage and to prevent foreign materials from entering the hydraulic unit assembly, insert a rubber plug "a" or a bolt (M10 × 1.00) into each brake hose union bolt hole.
- When using a bolt, do not tighten the bolt until the bolt head touches the hydraulic unit. Otherwise, the brake hose union bolt seating surface could be deformed.



EAS30198

CHECKING THE HYDRAULIC UNIT ASSEMBLY

1. Check:
 - Hydraulic unit assembly
Cracks/damage → Replace the hydraulic unit assembly and the brake hoses that are connected to the assembly as a set.

ABS (Anti-lock Brake System)

EAS30200

INSTALLING THE HYDRAULIC UNIT ASSEMBLY

1. Install:
 - Hydraulic unit assembly

ECA21371

NOTICE

Do not remove the rubber plugs or bolts (M10 × 1.0) installed in the brake hose union bolt holes before installing the hydraulic unit assembly.

TIP

Do not allow any foreign materials to enter the hydraulic unit assembly or the brake hoses when installing the hydraulic unit assembly.

2. Remove:
 - Rubber plugs or bolts (M10 × 1.0)
3. Install:
 - Rear brake hose (hydraulic unit to rear brake caliper) "1"
 - Front brake hose (front brake master cylinder to hydraulic unit) "2"
 - Front brake hose (hydraulic unit to front brake caliper) "3"
 - Rear brake hose (rear brake master cylinder to hydraulic unit) "4"
 - Gasket **New**
 - Brake hose union bolts



Brake hose union bolt
30 N·m (3.0 kgf·m, 22 lb·ft)

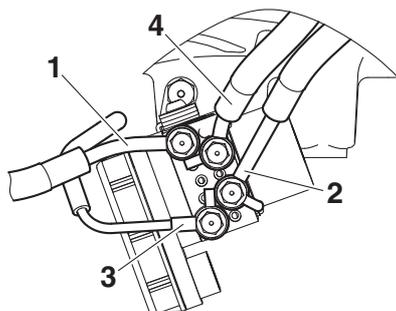
ECA21121

NOTICE

If the brake hose union bolt does not turn easily, replace the hydraulic unit assembly, brake hoses, and related parts as a set.

TIP

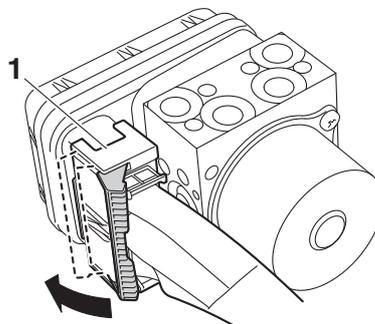
To route the brake hose, refer to "CABLE ROUTING" on page 2-31.



4. Connect:
 - ABS ECU coupler "1"

TIP

Connect the ABS ECU coupler, and then push the lock lever of the coupler in the direction of the arrow shown.



5. Fill:
 - Brake master cylinder reservoir
 - Brake fluid reservoir (with the specified amount of the specified brake fluid)



Specified brake fluid
DOT 4

EWA13090

WARNING

- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the brake fluid reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

ECA13540

NOTICE

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

6. Bleed:
 - Brake system
Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" on page 3-17.
7. Check the operation of the hydraulic unit according to the front brake lever and the rear brake lever response. (Refer to "HYDRAULIC UNIT OPERATION TEST" on page 4-75.)

ABS (Anti-lock Brake System)

ECA14550

NOTICE

Always check the operation of the hydraulic unit according to the brake lever response.

8. Delete the fault codes. (Refer to “[B-3] DELETING THE FAULT CODES” on page 8-191.)
9. Perform a trial run. (Refer to “CHECKING THE ABS WARNING LIGHT” on page 4-78.)

EAS30201

HYDRAULIC UNIT OPERATION TEST

The reaction-force pulsating action generated in the front brake lever and rear brake lever when the ABS is activated can be tested when the vehicle is stopped.

The hydraulic unit operation can be tested using the following two methods.

- Brake line routing confirmation: this test checks the function of the ABS after the system was disassembled, adjusted, or serviced.
- ABS reaction-force confirmation: this test generates the same reaction-force pulsating action that is generated in the front brake lever and rear brake lever when the ABS is activated.

Brake line routing confirmation

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

TIP

- For the brake line routing confirmation, use the diagnosis of function of the Yamaha diagnostic tool.
- Before performing the brake line routing confirmation, make sure that no malfunctions have been detected in the ABS ECU and that the wheels are not rotating.

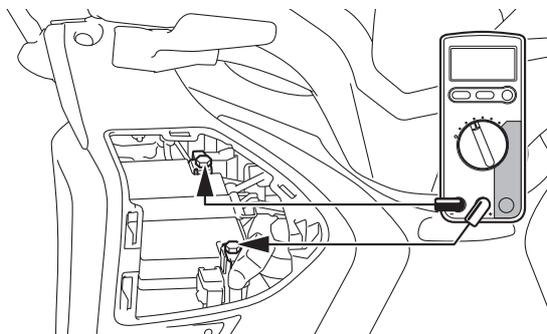
1. Place the vehicle on a maintenance stand.
2. Push the OFF/LOCK switch.
3. Remove:
 - Battery cover
Refer to “GENERAL CHASSIS (1)” on page 4-1.
4. Check:
 - Battery voltage
Lower than 12.8 V → Charge or replace the battery.



**Battery voltage
Higher than 12.8 V**

TIP

If the battery voltage is lower than 12.8 V, charge the battery, and then perform brake line routing confirmation.

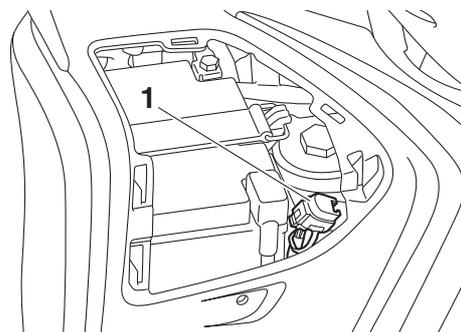


5. Removing the protective cap “1”, and then connect the Yamaha diagnostic tool to the Yamaha diagnostic tool coupler (4P).



**Yamaha diagnostic tool USB
90890-03256**

**Yamaha diagnostic tool (A/I)
90890-03254**

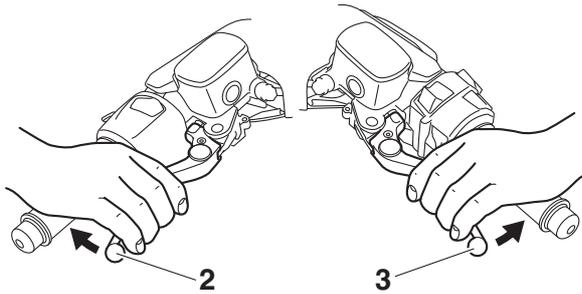


6. Start the Yamaha diagnostic tool and display the diagnosis of function screen.
7. Select code No. 2, “Brake line routing confirmation”.
8. Click “Actuator Check” “1”, and then operate the front brake lever “2” and rear brake lever “3” simultaneously.

TIP

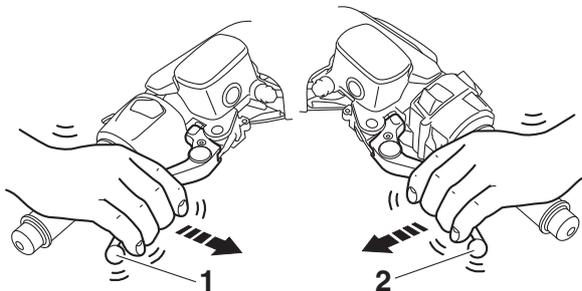
- The hydraulic unit operates 1 second after the front brake lever and rear brake lever are operated simultaneously and continues for approximately 5 seconds.
- The operation of the hydraulic unit can be confirmed using the indicator.
On: The hydraulic unit is operating.
Flashing: The conditions for operating the hydraulic unit have not been met.
Off: The front brake lever and rear brake lever are not being operated.

ABS (Anti-lock Brake System)



9. Check:

- Hydraulic unit operation
Click “Actuator Check”, a single pulse will be generated in the front brake lever “1”, rear brake lever “2”, and again in the front brake lever “1”, in this order.



TIP

“ON” and “OFF” on the tool screen indicate when the brakes are being applied and released respectively.

ECA22080

NOTICE

- Check that the pulse is felt in the front brake lever, rear brake lever, and again in the front brake lever, in this order.
- If the pulse is felt in the rear brake lever before it is felt in the front brake lever, check that the brake hoses and brake pipes are connected correctly to the hydraulic unit assembly.
- If the pulse is hardly felt in either the front brake lever or rear brake lever, check that

the brake hoses and brake pipes are connected correctly to the hydraulic unit assembly.

10. If the operation of the hydraulic unit is normal, delete all of the fault codes.

ABS reaction-force confirmation

EWA13120

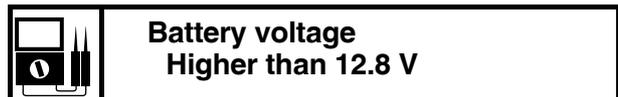
WARNING

Securely support the vehicle so that there is no danger of it falling over.

TIP

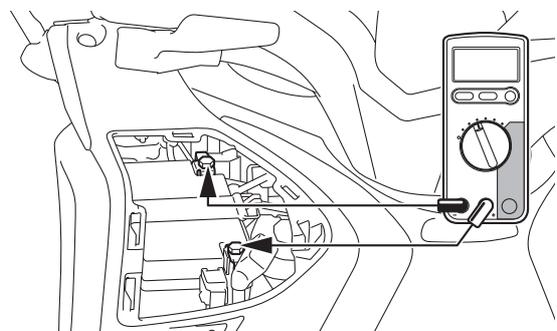
- For the ABS reaction-force confirmation, use the diagnosis of function of the Yamaha diagnostic tool. For more information, refer to the operation manual of the Yamaha diagnostic tool.
- Before performing the ABS reaction-force confirmation, make sure that no malfunctions have been detected in the ABS ECU and that the wheels are not rotating.

1. Place the vehicle on a maintenance stand.
2. Push the OFF/LOCK switch.
3. Remove:
 - Battery cover
Refer to “GENERAL CHASSIS (1)” on page 4-1.
4. Check:
 - Battery voltage
Lower than 12.8 V → Charge or replace the battery.



TIP

If the battery voltage is lower than 12.8 V, charge the battery, and then perform ABS reaction-force confirmation.

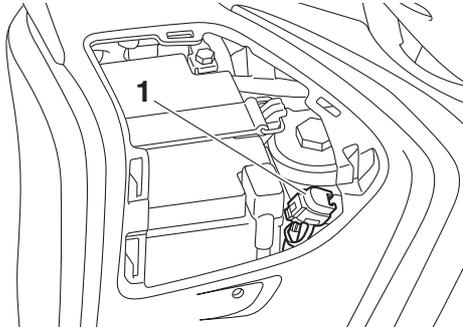


5. Removing the protective cap “1”, and then connect the Yamaha diagnostic tool to the Yamaha diagnostic tool coupler (4P).

ABS (Anti-lock Brake System)



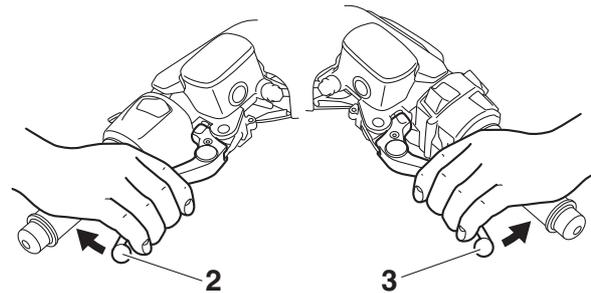
Yamaha diagnostic tool USB
90890-03256
Yamaha diagnostic tool (A/I)
90890-03254



6. Start the Yamaha diagnostic tool and display the diagnosis of function screen.
7. Select code No. 1, "ABS reaction-force confirmation".
8. Click "Actuator Check" "1", and then operate the front brake lever "2" and rear brake lever "3" simultaneously.

TIP

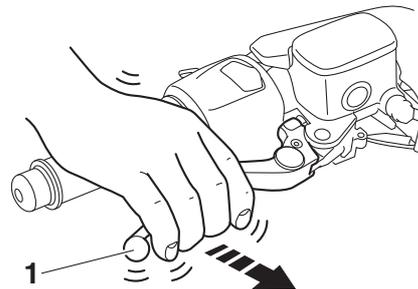
- The hydraulic unit operates 1 second after the front brake lever and rear brake lever are operated simultaneously and continues for approximately 5 seconds.
- The operation of the hydraulic unit can be confirmed using the indicator.
On: The hydraulic unit is operating.
Flashing: The conditions for operating the hydraulic unit have not been met.
Off: The front brake lever and rear brake lever are not being operated.



9. A reaction-force pulsating action is generated in the front brake lever "1" and continues for a few seconds.

TIP

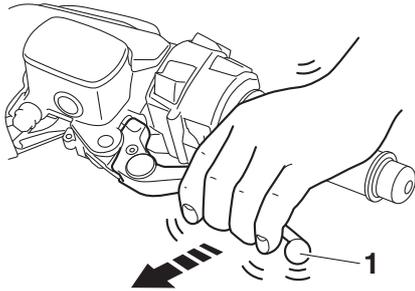
- The reaction-force pulsating action consists of quick pulses.
- Be sure to continue operating the front brake lever and rear brake lever even after the pulsating action has stopped.
- "ON" and "OFF" on the tool screen indicate when the brakes are being applied and released respectively.



10. After the pulsating action has stopped in the front brake lever, it is generated in the rear brake lever "1" and continues for a few seconds.

TIP

- The reaction-force pulsating action consists of quick pulses.
- Be sure to continue operating the front brake lever and rear brake lever even after the pulsating action has stopped.
- "ON" and "OFF" on the tool screen indicate when the brakes are being applied and released respectively.



11. After the pulsating action has stopped in the rear brake lever, it is generated in the front brake lever and continues for a few seconds.

TIP

- The reaction-force pulsating action consists of quick pulses.
- “ON” and “OFF” on the tool screen indicate when the brakes are being applied and released respectively.

ECA22080

NOTICE

- **Check that the pulse is felt in the front brake lever, rear brake lever, and again in the front brake lever, in this order.**
- **If the pulse is felt in the rear brake lever before it is felt in the front brake lever, check that the brake hoses and brake pipes are connected correctly to the hydraulic unit assembly.**
- **If the pulse is hardly felt in either the front brake lever or rear brake lever, check that the brake hoses and brake pipes are connected correctly to the hydraulic unit assembly.**

12. Push the OFF/LOCK switch.

13. Remove the Yamaha diagnostic tool from the Yamaha diagnostic tool coupler, and then install the protective cap.

14. Push the ON/start switch.

15. Set the engine stop switch to “○”.

16. Check for brake fluid leakage around the hydraulic unit.

Brake fluid leakage → Replace the hydraulic unit, brake pipes, and related parts as a set.

17. If the operation of the hydraulic unit is normal, delete all of the fault codes.

EAS30202

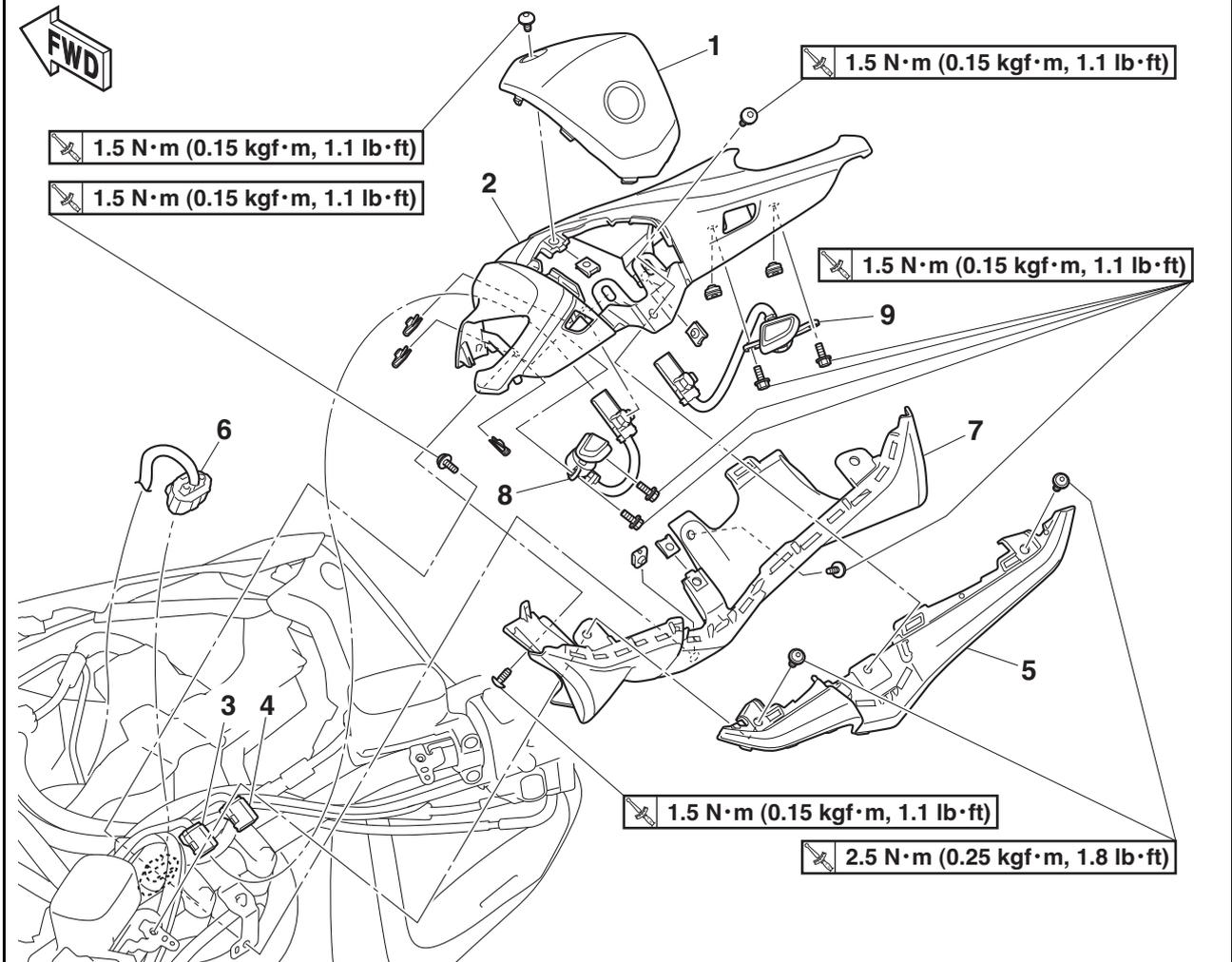
CHECKING THE ABS WARNING LIGHT

After all checks and servicing are completed, ensure that the ABS warning light goes off by walking the vehicle at a speed of faster than 7 km/h (4.4 mi/h) or performing a trial run.

EAS20033

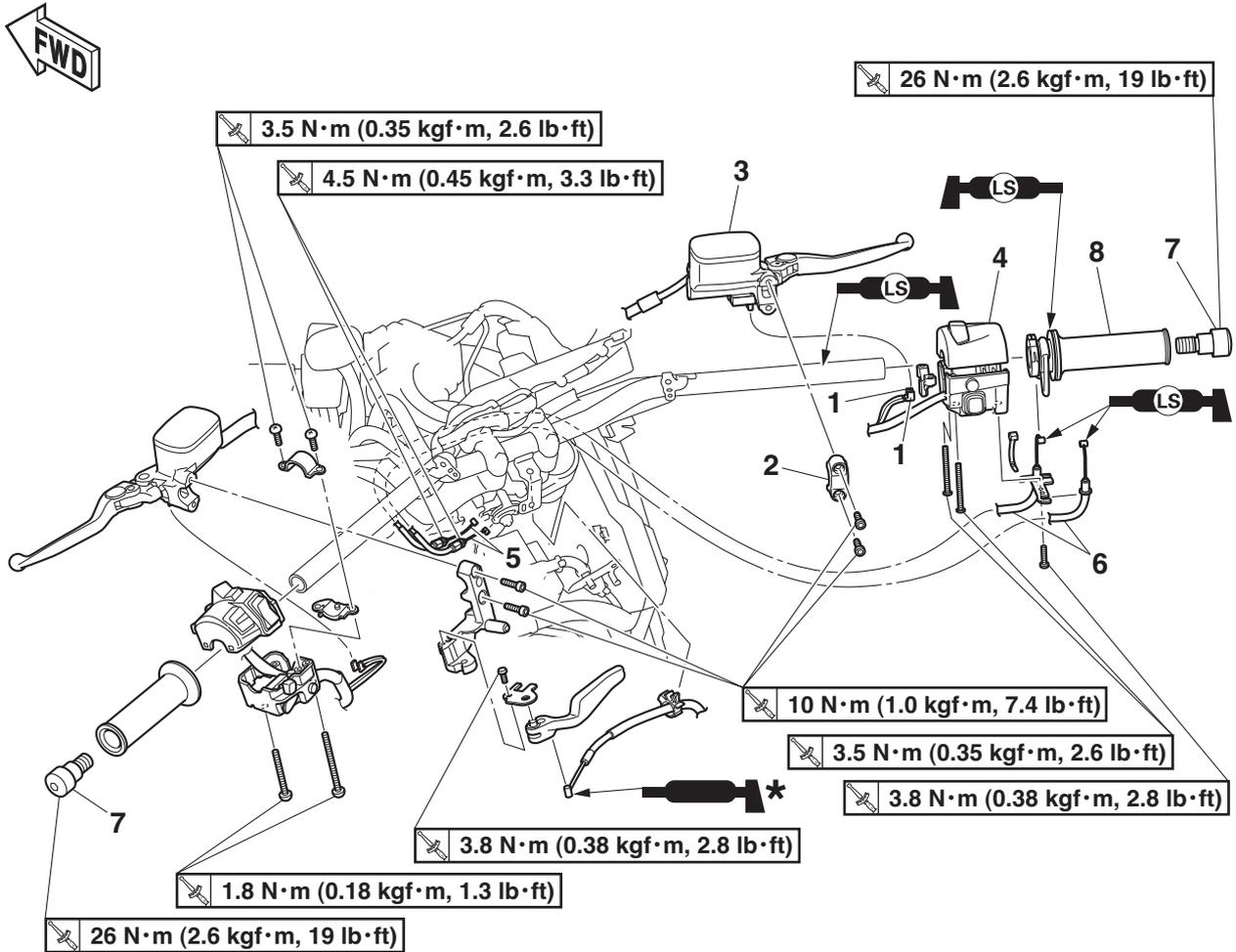
HANDLEBAR

Removing the handlebar cover



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
1	Upper handlebar cover	1	
2	Handlebar cover (front)	1	
3	Parking/Unlock switch coupler	1	Disconnect.
4	OFF/LOCK switch coupler	1	Disconnect.
5	Lower handlebar cover	1	
6	Accelerator position sensor coupler	1	Disconnect.
7	Handlebar cover (rear)	1	
8	Parking/Unlock switch	1	
9	OFF/LOCK switch	1	

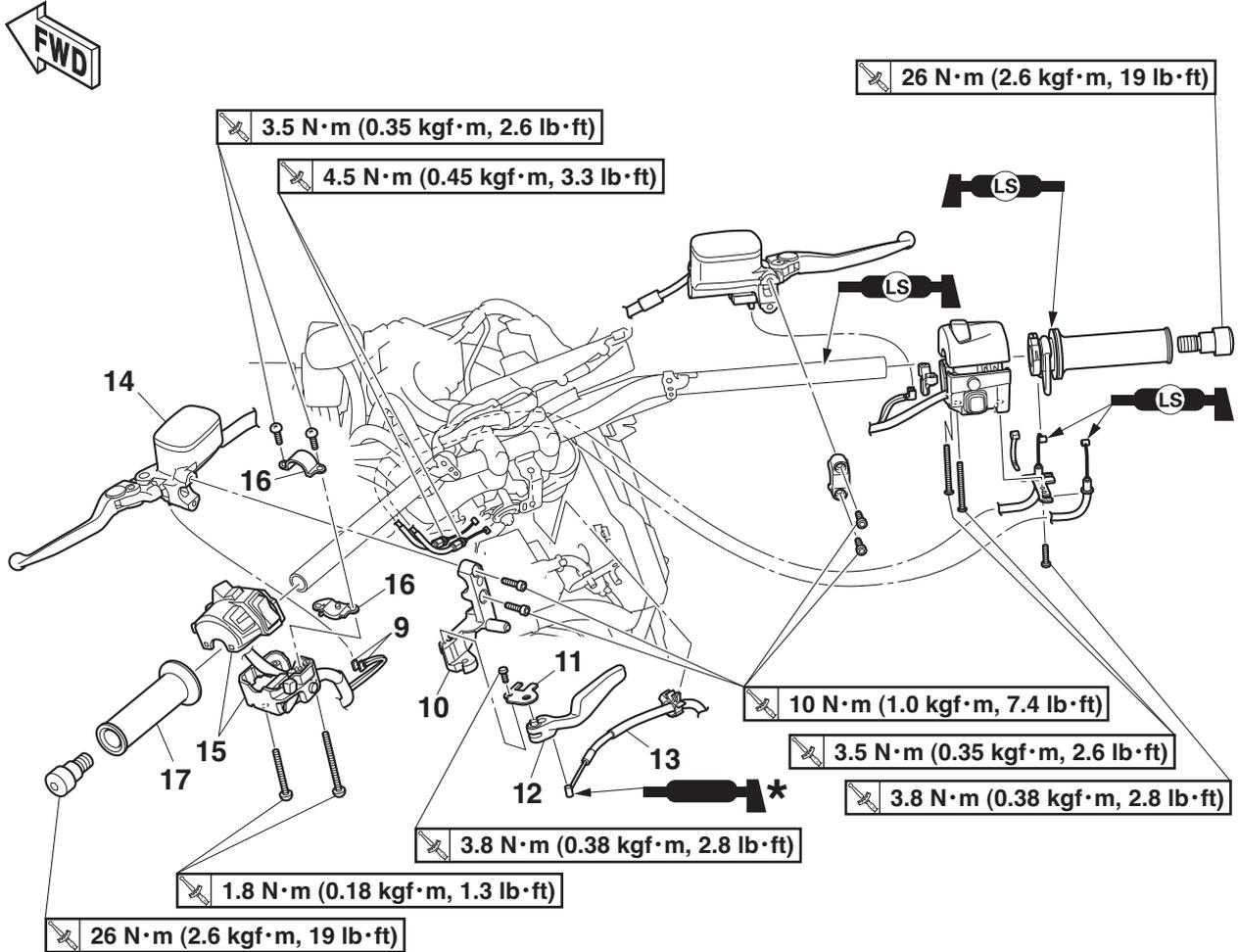
Removing the handlebar switch and throttle grip



* YAMAHA GREASE "F"

Order	Job/Parts to remove	Q'ty	Remarks
	Rear brake lock cable adjusting nut		Loosen. Refer to "REAR BRAKE" on page 4-53.
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Handlebar cover		Refer to "HANDLEBAR" on page 4-79.
1	Front brake light switch connector	2	Disconnect. (for XP530E-A/XP530-A)
2	Front brake master cylinder holder	1	
3	Front brake master cylinder assembly	1	
4	Handlebar switch (right)	1	
5	Throttle cable	2	Disconnect.
6	Throttle cable (throttle grip side)	2	Disconnect.
7	Grip end	2	
8	Throttle grip	1	

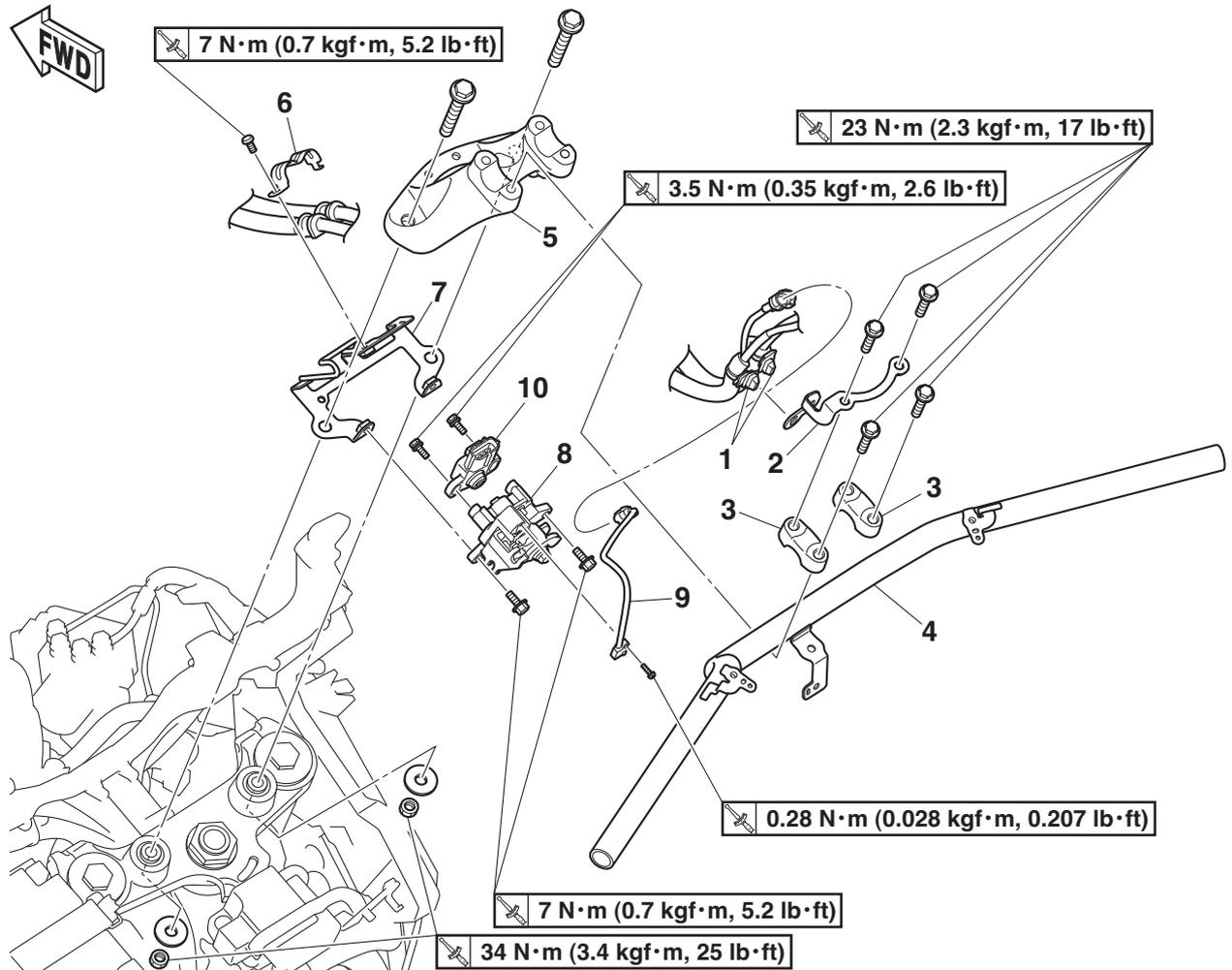
Removing the handlebar switch and throttle grip



* YAMAHA GREASE "F"

Order	Job/Parts to remove	Q'ty	Remarks
9	Rear brake light switch connector	2	Disconnect. (for XP530E-A/XP530-A)
10	Rear brake master cylinder holder	1	
11	Bracket	1	
12	Rear brake lock lever	1	
13	Rear brake lock cable	1	Disconnect.
14	Rear brake master cylinder assembly	1	
15	Handlebar switch (left)	1	
16	Handlebar switch holder	2	
17	Handlebar grip	1	

Removing the handlebar



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Handlebar cover/Brake master cylinder/Handlebar switch		Refer to "HANDLEBAR" on page 4-79.
1	Clamp	2	
2	Bracket	1	
3	Upper handlebar holder	2	
4	Handlebar	1	
5	Lower handlebar holder	1	
6	Brake hose holder	1	
7	Brake hose bracket	1	
8	Throttle cable pulley	1	
9	Grip cancel switch	1	
10	Accelerator position sensor	1	

EAS30203

REMOVING THE HANDLEBAR

1. Stand the vehicle on a level surface.

EWA13120

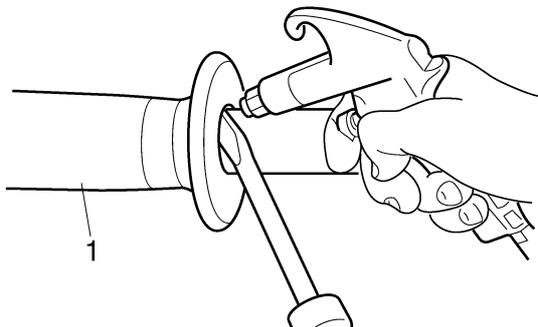
WARNING

Securely support the vehicle so that there is no danger of it falling over.

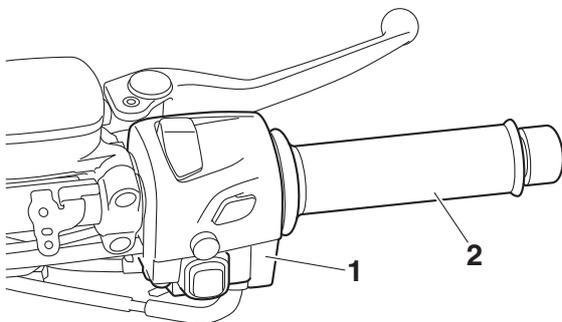
2. Remove:
 - Handlebar grip "1"

TIP

Blow compressed air between the handlebar and the handlebar grip, and gradually push the grip off the handlebar.



3. Remove:
 - Handlebar switch (right) "1"
 - Throttle grip "2"



EAS30204

CHECKING THE HANDLEBAR

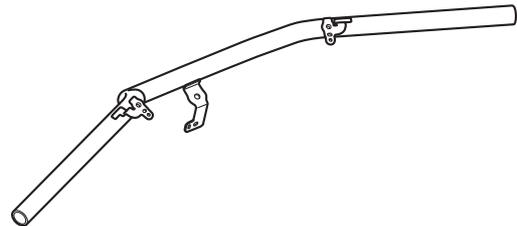
1. Check:
 - Handlebar

Bends/cracks/damage → Replace.

EWA13690

WARNING

Do not attempt to straighten a bent handlebar as this may dangerously weaken it.



EAS30205

INSTALLING THE HANDLEBAR

1. Stand the vehicle on a level surface.

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

2. Install:
 - Brake hose bracket
 - Lower handlebar holder
 - Handlebar "1"
 - Upper handlebar holders "2"
 - Bracket "3"



Lower handlebar holder nut
 34 N·m (3.4 kgf·m, 25 lb·ft)
Upper handlebar holder bolt
 23 N·m (2.3 kgf·m, 17 lb·ft)

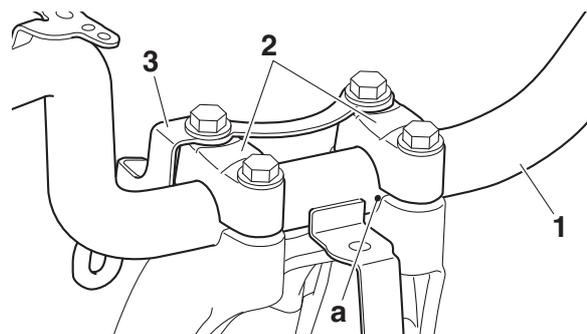
ECA19130

NOTICE

- First, tighten the bolts on the front side of the upper handlebar holder, and then on the rear side.
- Turn the handlebar all the way to the left and right. If there is any contact with the fuel tank, adjust the handlebar position.

TIP

Align the punch mark "a" on the handlebar with the right side upper surface of the lower handlebar holder.



HANDLEBAR

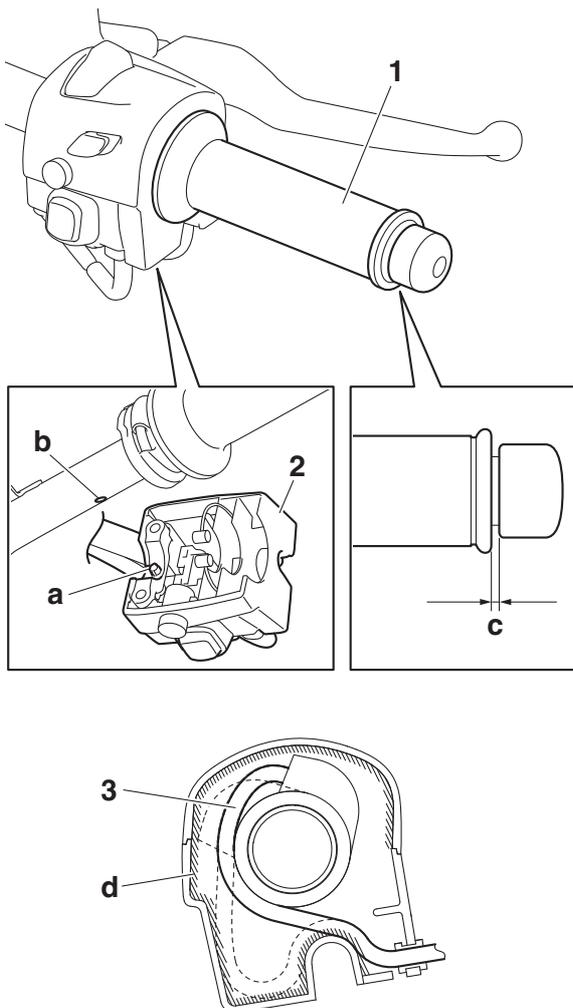
3. Install:

- Throttle grip "1"
- Throttle cables
- Handlebar switch (right) "2"
- Grip end

	Handlebar switch screw (right)
	3.5 N·m (0.35 kgf·m, 2.6 lb-ft)
	Grip end
	26 N·m (2.6 kgf·m, 19 lb-ft)

TIP

- Align the projection "a" on the handlebar switch (right) with the hole "b" in the handlebar.
- There should be 1–3 mm (0.04–0.12 in) of clearance "c" between the throttle grip and the grip end.
- Apply lithium-soap-based grease to the moving parts of the grip warmer lead "3" and the inside of the handlebar switch (shaded area "d" in the illustration). (for XP530D-A)



4. Install:

- Front brake master cylinder assembly

Refer to "INSTALLING THE FRONT BRAKE MASTER CYLINDER" on page 4-50.

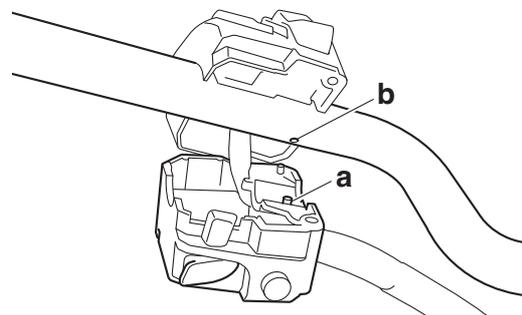
5. Install:

- Handlebar switch holder
- Handlebar switch (left)

	Handlebar switch holder screw
	3.5 N·m (0.35 kgf·m, 2.6 lb-ft)
	Handlebar switch screw (left)
	1.8 N·m (0.18 kgf·m, 1.3 lb-ft)

TIP

Align the projection "a" on the handlebar switch (left) with the hole "b" in the handlebar.



6. Lubricate:

- Rear brake lock cable (to cable end)

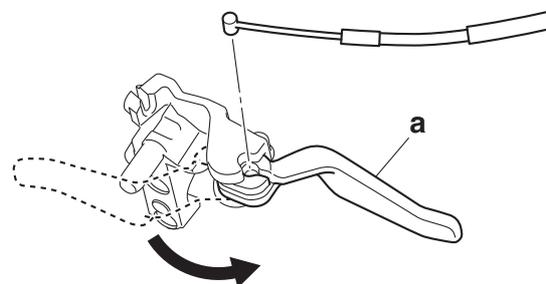
	Recommended lubricant
	YAMAHA GREASE "F"

7. Connect:

- Rear brake lock cable (to rear brake lock lever)

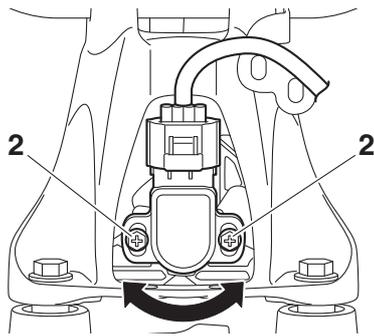
TIP

Rotate the lever to the position "a", and then install the rear brake lock cable.



8. Install:

- Rear brake master cylinder assembly
Refer to "INSTALLING THE REAR BRAKE MASTER CYLINDER" on page 4-65.



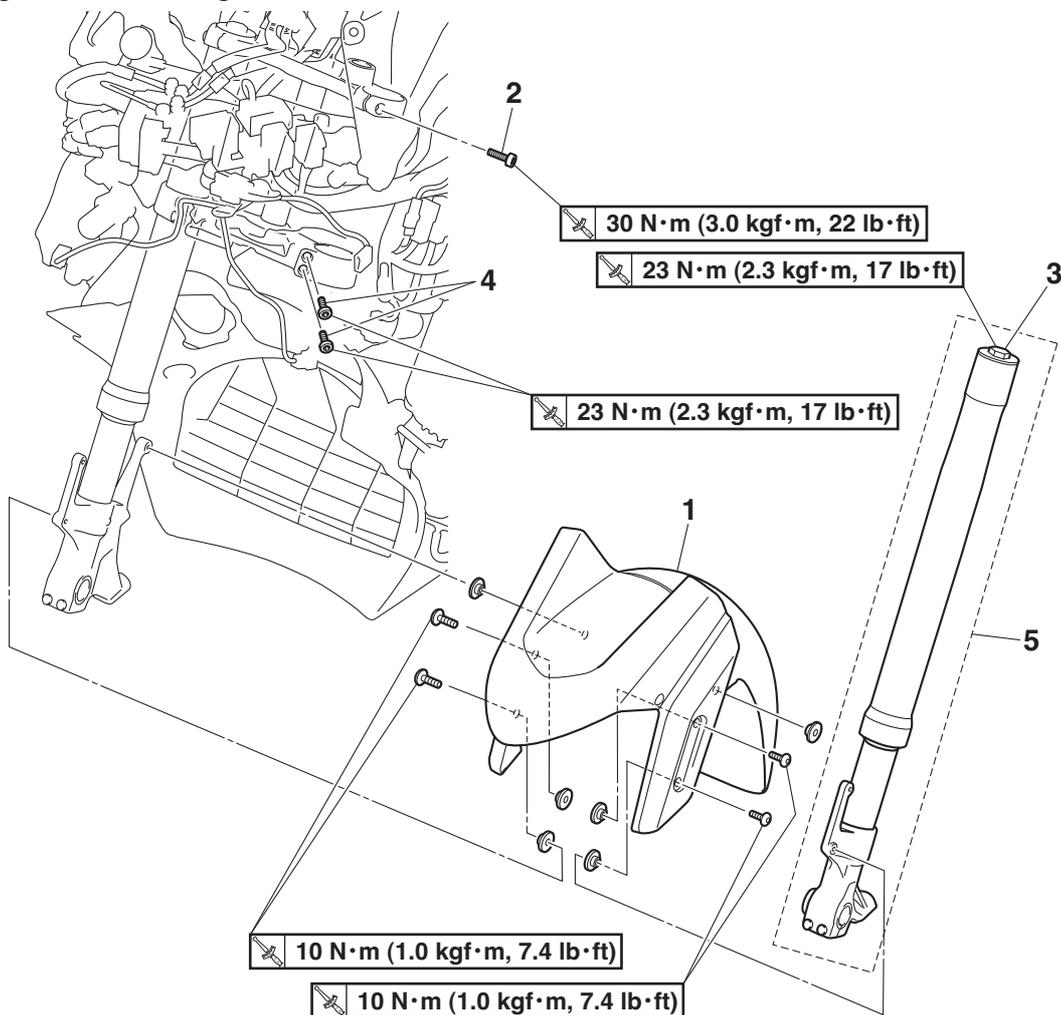
- j. Turn the throttle grip to the fully open position.
- k. Check the Yamaha diagnostic tool screen value. If the Yamaha diagnostic tool screen value is not 95–106, adjust the accelerator position sensor angle.
- l. Select the diagnostic code number “15”.
- m. Turn the throttle grip to the fully closed position.
- n. Check the Yamaha diagnostic tool screen value. If the Yamaha diagnostic tool screen value is not 9–23, adjust the accelerator position sensor angle.
- o. Turn the throttle grip to the fully open position.
- p. Check the Yamaha diagnostic tool screen value. If the Yamaha diagnostic tool screen value is not 93–109, adjust the accelerator position sensor angle.
- q. Repeat steps (f) to (p) until the Yamaha diagnostic tool screen values are within the specified ranges.
- r. If the Yamaha diagnostic tool screen values are not within the specified ranges after repeating steps (f) to (p) several times, replace the accelerator position sensor.



EAS20034

FRONT FORK

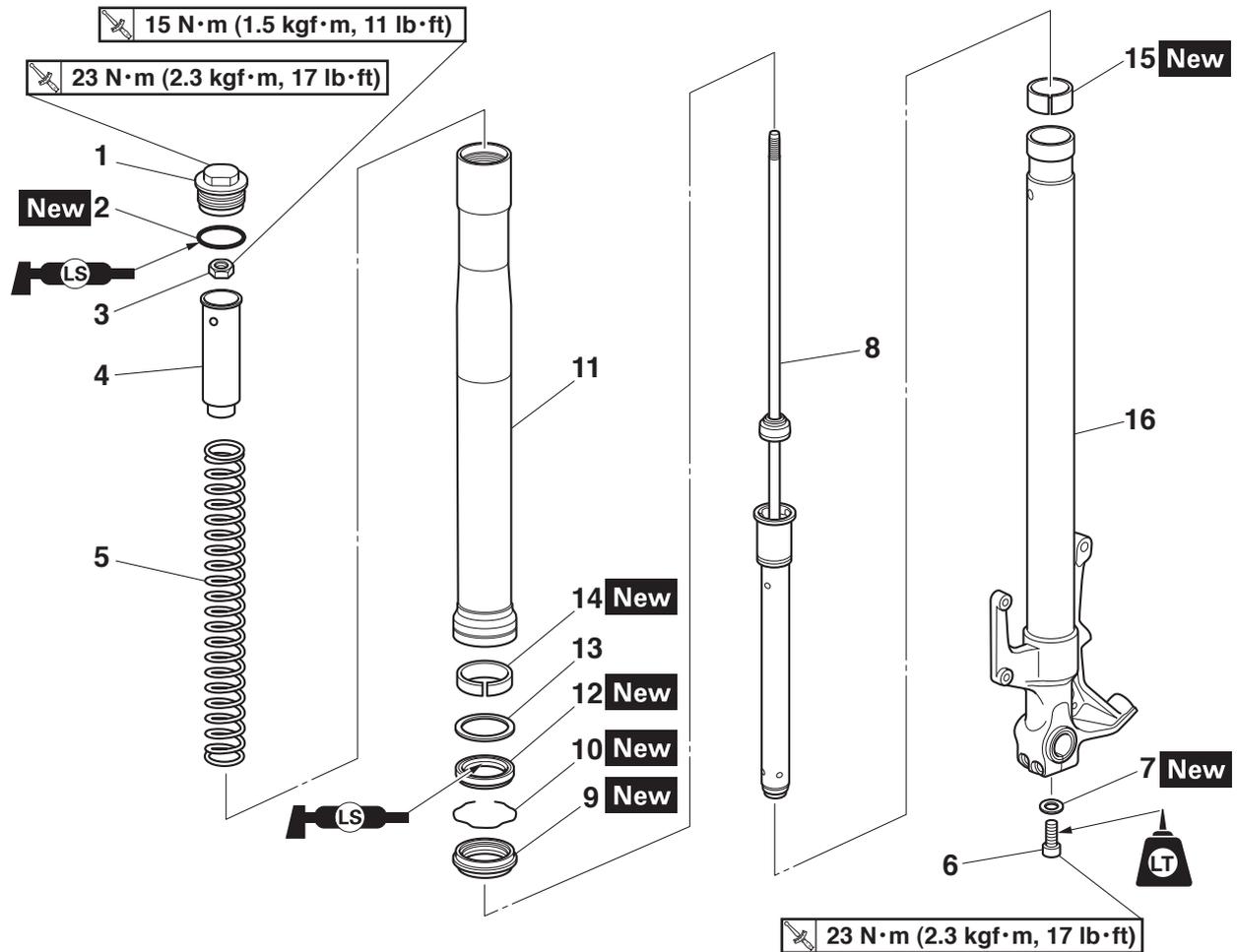
Removing the front fork legs



Order	Job/Parts to remove	Q'ty	Remarks
			The following procedure applies to both of the front fork legs.
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Front wheel		Refer to "FRONT WHEEL" on page 4-22.
1	Front fender	1	
2	Upper bracket pinch bolt	1	Loosen.
3	Cap bolt	1	Loosen.
4	Lower bracket pinch bolt	2	Loosen.
5	Front fork leg	1	

FRONT FORK

Disassembling the front fork legs



Order	Job/Parts to remove	Q'ty	Remarks
			The following procedure applies to both of the front fork legs.
1	Cap bolt	1	
2	O-ring	1	
3	Damper rod locknut	1	
4	Spacer	1	
5	Fork spring	1	
6	Damper rod assembly bolt	1	
7	Copper washer	1	
8	Damper rod assembly	1	
9	Dust seal	1	
10	Oil seal clip	1	
11	Outer tube	1	
12	Oil seal	1	
13	Washer	1	
14	Outer tube bushing	1	
15	Inner tube bushing	1	
16	Inner tube	1	

EAS30206

REMOVING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

1. Stand the vehicle on a level surface.

EWA13120

WARNING

Securely support the vehicle so that there is no danger of it falling over.

TIP

Place the vehicle on a maintenance stand so that the front wheel is elevated.

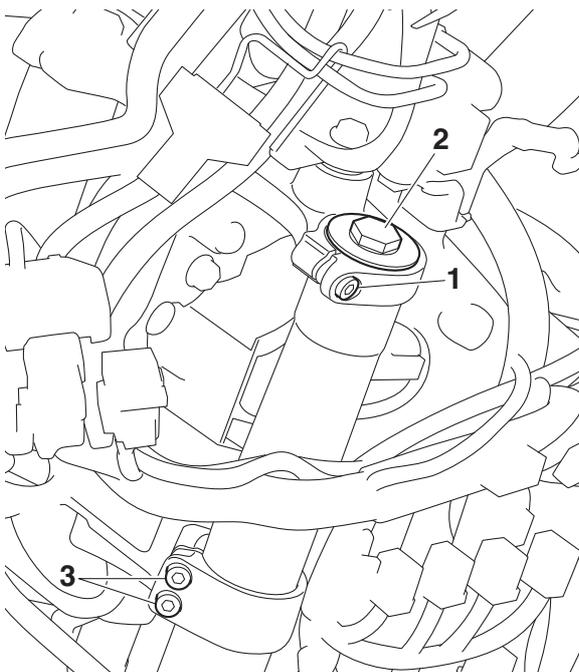
2. Loosen:

- Upper bracket pinch bolt "1"
- Cap bolt "2"
- Lower bracket pinch bolts "3"

EWA13640

WARNING

Before loosening the upper and lower bracket pinch bolts, support the front fork leg.



3. Remove:

- Front fork leg

EAS30207

DISASSEMBLING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

ECA22020

NOTICE

Because the left and right damper rod assemblies are different, be sure to install them in the correct positions.

1. Remove:

- Cap bolt "1"
- Spacer "2"
- Damper rod locknut "3"



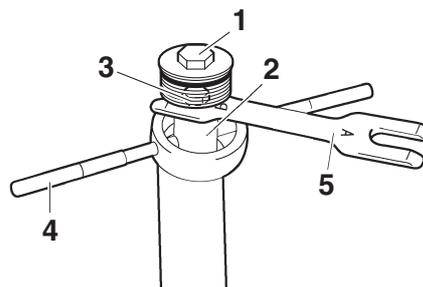
- a. Press down on the spacer with the fork spring compressor "4".
- b. Install the rod holder "5" between the damper rod locknut "3" and the spacer "2".

	<p>Fork spring compressor 90890-01441</p> <p>Fork spring compressor YM-01441</p> <p>Rod holder 90890-01434</p> <p>Damper rod holder double ended YM-01434</p>
--	---

TIP

Use the side of the rod holder that is marked "B".

- c. Hold the cap bolt "1" and loosen the damper rod locknut "3".



- d. Remove the cap bolt.
- e. Remove the rod holder and fork spring compressor.
- f. Remove the spacer and damper rod locknut.

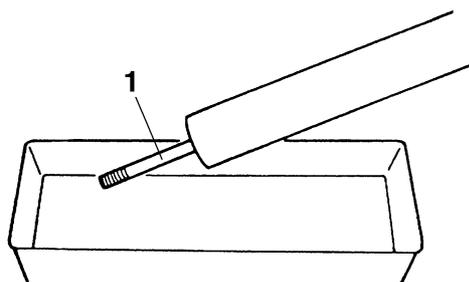


2. Drain:

- Fork oil

TIP

Stroke the damper rod assembly "1" several times while draining the fork oil.



3. Remove:

- Damper rod assembly bolt
- Damper rod assembly

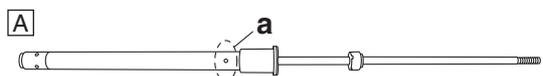
ECA17401

NOTICE

For the damper rod assembly, the right side is used for the rebound operation and left side for the compression. Pay attention not to mistake the right and left.

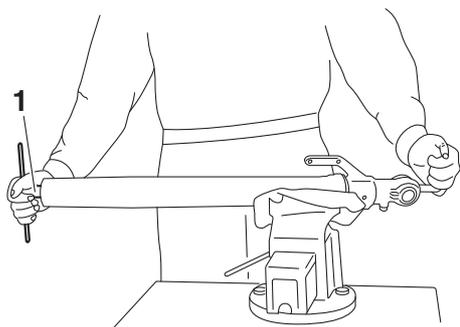
TIP

- While holding the damper rod assembly with the damper rod holder "1", loosen the damper rod assembly bolt.
- The left side (for the compression) damper rod assembly has the holes "a" of oil path, unlike the right side.



- A. Compression side
- B. Rebound side

	<p>Damper rod holder (ø27) 90890-01423 Damping rod holder YM-01423</p>
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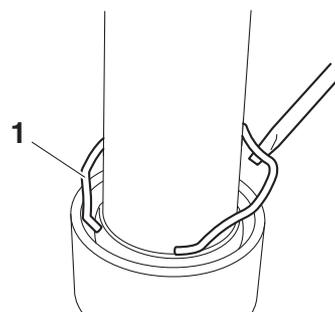
4. Remove:

- Dust seal
- Oil seal clip "1"
(with a flat-head screwdriver)

ECA14180

NOTICE

Do not scratch the inner tube.



5. Remove:

- Outer tube

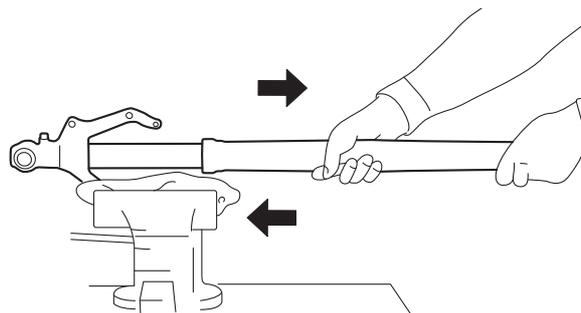


- Hold the front fork leg horizontally.
- Securely clamp the brake caliper bracket in a vise with soft jaws.
- Separate the outer tube from the inner tube by pulling the outer tube forcefully but carefully.

ECA19880

NOTICE

Excessive force will damage the bushings. Damaged bushings must be replaced.



EAS30208

CHECKING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

1. Check:

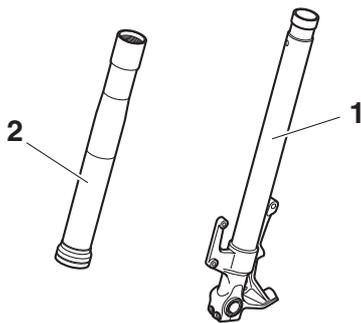
- Inner tube "1"
- Outer tube "2"

Bends/damage/scratches → Replace.

EWA13650

WARNING

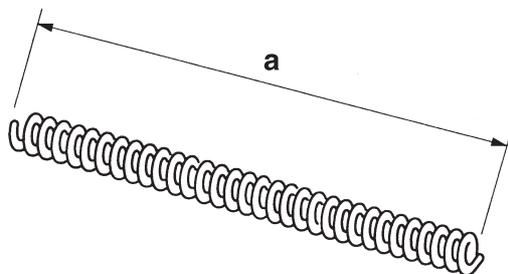
Do not attempt to straighten a bent inner tube as this may dangerously weaken it.



2. Measure:

- Spring free length "a"
Out of specification → Replace.

	Fork spring free length
	297.1 mm (11.70 in)
	Limit
	291.1 mm (11.46 in)



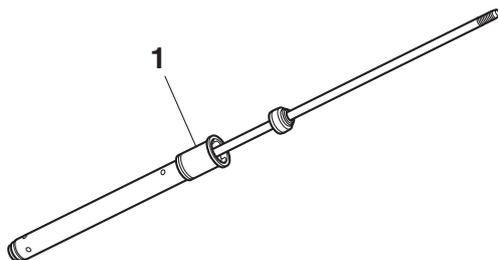
3. Check:

- Damper rod assembly "1"
Damage/wear → Replace.
Obstruction → Blow out all of the oil passages with compressed air.

ECA19110

NOTICE

- **The front fork leg has a very sophisticated internal construction, which are particularly sensitive to foreign material.**
- **When disassembling and assembling the front fork leg, do not allow any foreign material to enter the front fork.**



EAS30209

ASSEMBLING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

EWA13660

⚠ WARNING

- **Make sure the oil levels in both front fork legs are equal.**
- **Uneven oil levels can result in poor handling and a loss of stability.**

TIP

- When assembling the front fork leg, be sure to replace the following parts:
 - Inner tube bushing
 - Outer tube bushing
 - Oil seal
 - Dust seal
 - Oil seal clip
 - O-ring
 - Copper washer
- Before assembling the front fork leg, make sure all of the components are clean.

1. Lubricate:

- Inner tube outer surface



Recommended oil
Suspension oil 01 or equivalent

2. Install:

- Dust seal "1" **New**
- Oil seal clip "2" **New**
- Oil seal "3" **New**
- Washer "4"
- Outer tube bushing "5" **New**
- Inner tube bushing "6" **New**

ECA14220

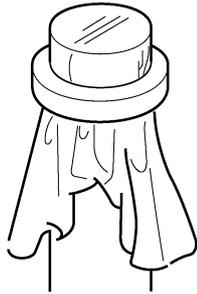
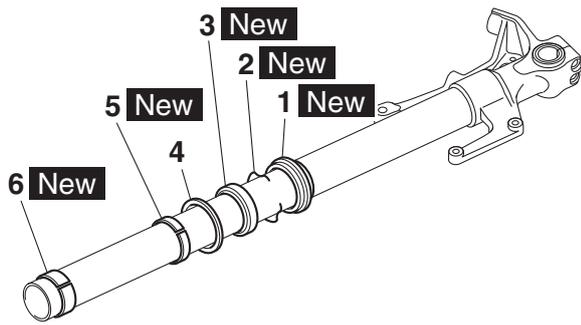
NOTICE

Make sure the numbered side of the oil seal faces up.

TIP

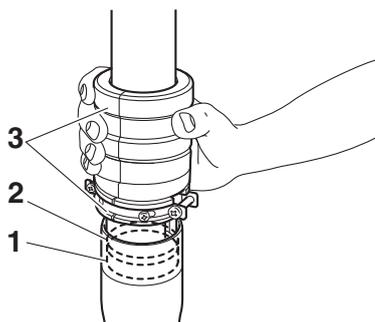
- Before installing the oil seal, lubricate its lips with lithium-soap-based grease.
- Lubricate the outer surface of the inner tube with fork oil.
- Before installing the oil seal, cover the top of the front fork leg with a plastic bag to protect the oil seal during installation.

FRONT FORK



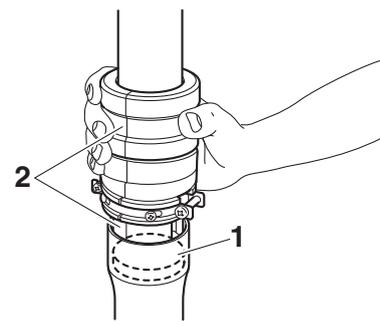
3. Install:
- Outer tube (to the inner tube)
4. Install:
- Outer tube bushing "1"
 - Washer "2" (with the fork seal driver "3")

	<p>Fork seal driver 90890-01442 Adjustable fork seal driver (36–46 mm) YM-01442</p>
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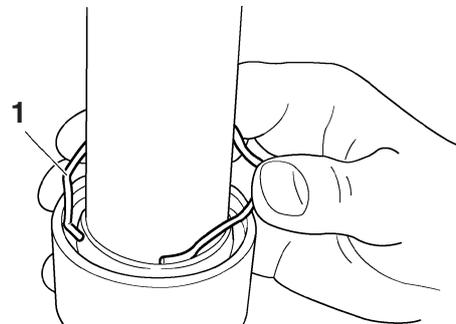
5. Install:
- Oil seal "1" (with the fork seal driver "2")

	<p>Fork seal driver 90890-01442 Adjustable fork seal driver (36–46 mm) YM-01442</p>
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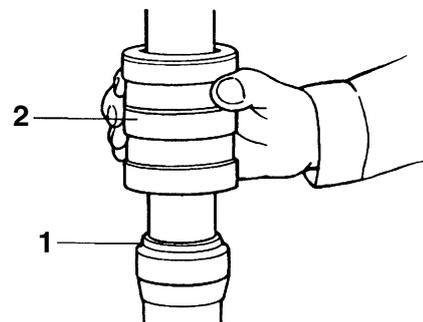
6. Install:
- Oil seal clip "1"

TIP Adjust the oil seal clip so that it fits into the outer tube groove.



7. Install:
- Dust seal "1" (with the fork seal driver "2")

	<p>Fork seal driver 90890-01442 Adjustable fork seal driver (36–46 mm) YM-01442</p>
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8. Install:
- Damper rod assembly "1" (to inner tube "2")
 - Copper washer **New**
 - Damper rod assembly bolt

ECA17401

NOTICE

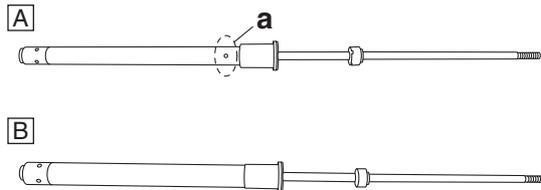
For the damper rod assembly, the right side

FRONT FORK

is used for the rebound operation and left side for the compression. Pay attention not to mistake the right and left.

TIP

The left side (for the compression) damper rod assembly has the holes "a" of oil path, unlike the right side.

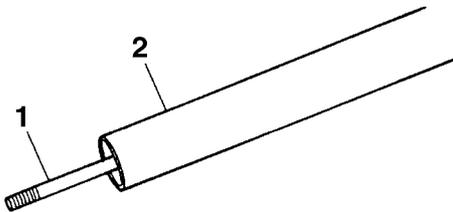


- A. Compression side
- B. Rebound side

ECA14210

NOTICE

Allow the damper rod assembly to slide slowly down the inner tube until it protrudes from the bottom of the inner tube. Be careful not to damage the inner tube.



9. Tighten:

- Damper rod assembly bolt "1"



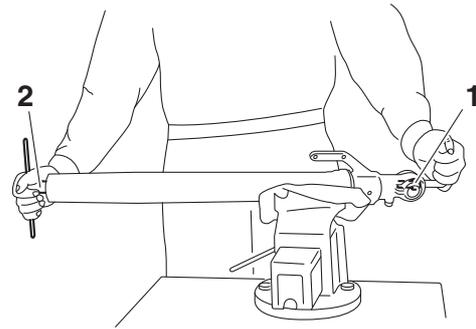
Damper rod assembly bolt
23 N·m (2.3 kgf·m, 17 lb·ft)
LOCTITE®

TIP

While holding the damper rod assembly with the damper rod holder "2", tighten the damper rod assembly bolt.



Damper rod holder (ø27)
90890-01423
Damping rod holder
YM-01423

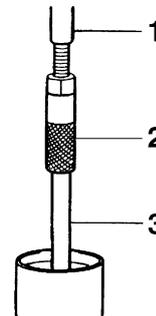


10. Install:

- Rod puller "1"
- Rod puller attachment (M10) "2"
(onto the damper rod "3")



Rod puller
90890-01437
Universal damping rod bleeding tool set
YM-A8703
Rod puller attachment (M10)
90890-01436
Universal damping rod bleeding tool set
YM-A8703



11. Fill:

- Front fork leg
(with the specified amount of the recommended fork oil)



Recommended oil
Yamaha Suspension Oil 01
Quantity (left)
447.0 cm³ (15.11 US oz, 15.77 Imp.oz)
Quantity (right)
437.0 cm³ (14.77 US oz, 15.41 Imp.oz)

ECA14230

NOTICE

- Be sure to use the recommended fork oil. Other oils may have an adverse effect on front fork performance.

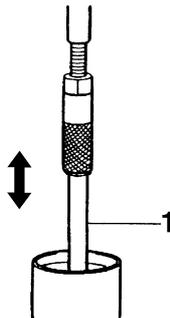
FRONT FORK

- When disassembling and assembling the front fork leg, do not allow any foreign material to enter the front fork.

12. After filling the front fork leg, slowly stroke the damper rod assembly "1" up and down (at least ten times) to distribute the fork oil.

TIP

Be sure to stroke the damper rod assembly slowly because the fork oil may spurt out.



13. Before measuring the fork oil level, wait ten minutes until the oil has settled and the air bubbles have dispersed.

TIP

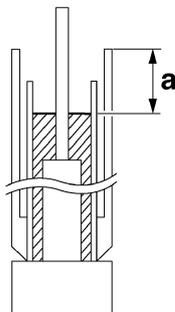
Be sure to bleed the front fork leg of any residual air.

14. Measure:

- Front fork leg oil level "a" (from the top of the outer tube, with the outer tube fully compressed and without the fork spring)
Out of specification → Correct.



Level (left)
114 mm (4.5 in)
Level (right)
118 mm (4.6 in)



15. Install:

- Damper rod locknut "1"
- Fork spring "2"
- Spacer "3"
- Cap bolt "4"

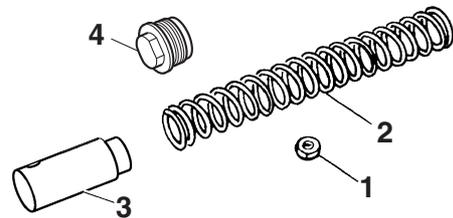
(along with the O-ring **New**)

EWA12850



WARNING

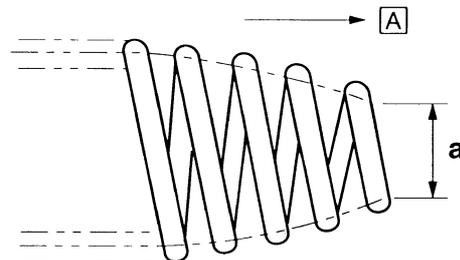
Always use a new O-ring.



- Remove the rod puller and rod puller attachment.
- Install the damper rod locknut.
- Install the fork spring and spacer.

TIP

Install the spring with the smaller diameter "a" facing up "A".



- Press down in the spacer with the fork spring compressor "5".
- Pull up the rod puller and install the rod holder "6" between the damper rod locknut "1" and the spacer "3".

TIP

Use the side of the rod holder that is marked "B".



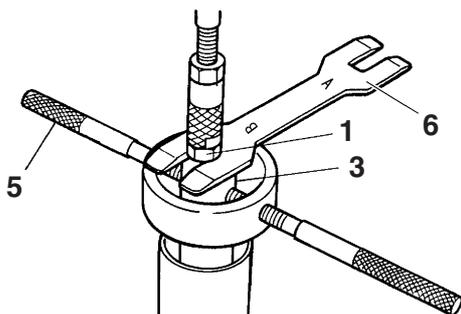
Fork spring compressor
90890-01441

Fork spring compressor
YM-01441

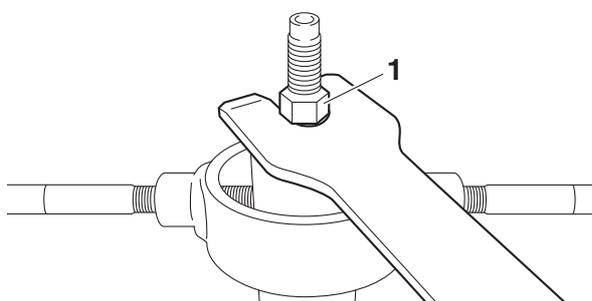
Rod holder
90890-01434

Damper rod holder double ended
YM-01434

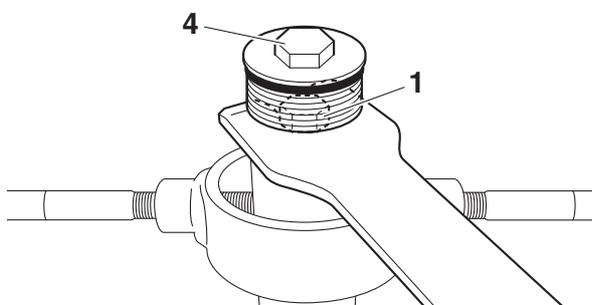
FRONT FORK



- f. Remove the rod puller and the rod puller attachment.
- g. Install the damper rod locknut "1" onto the damper rod and turn it until it stops.



- h. Install the cap bolt "4", and then tighten the damper rod locknut "1" until it contacts the bolt.



- i. Hold the cap bolt and tighten the damper rod locknut to specification.

	Damper rod locknut 15 N·m (1.5 kgf·m, 11 lb-ft)
---	--

- j. Remove the rod holder and fork spring compressor.



EAS30210

INSTALLING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

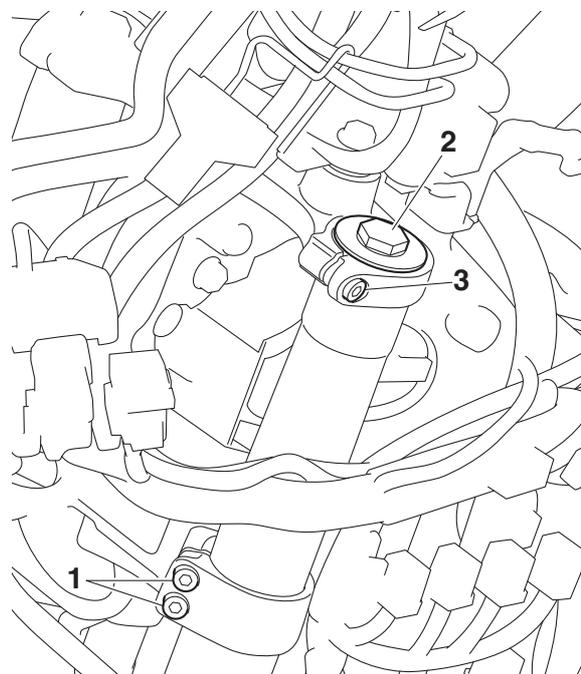
1. Install:
 - Front fork leg
 Temporarily tighten the upper and lower

bracket pinch bolts.

TIP
 Make sure the outer tube is flush with the top of the upper bracket.

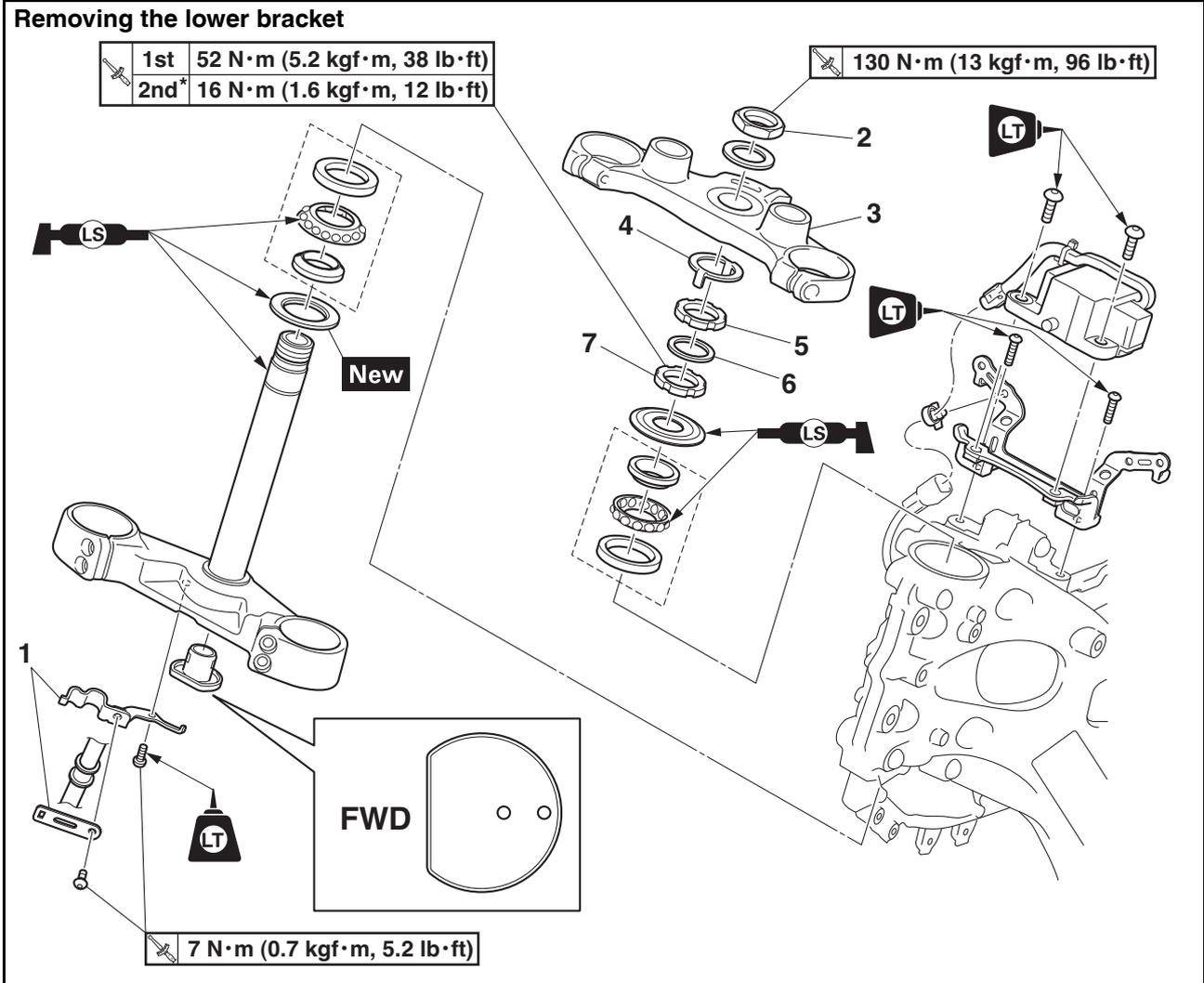
2. Tighten:
 - Lower bracket pinch bolts "1"
 - Cap bolt "2"
 - Upper bracket pinch bolt "3"

	Lower bracket pinch bolt 23 N·m (2.3 kgf·m, 17 lb-ft) Front fork cap bolt 23 N·m (2.3 kgf·m, 17 lb-ft) Upper bracket pinch bolt 30 N·m (3.0 kgf·m, 22 lb-ft)
---	---



EAS20035

STEERING HEAD

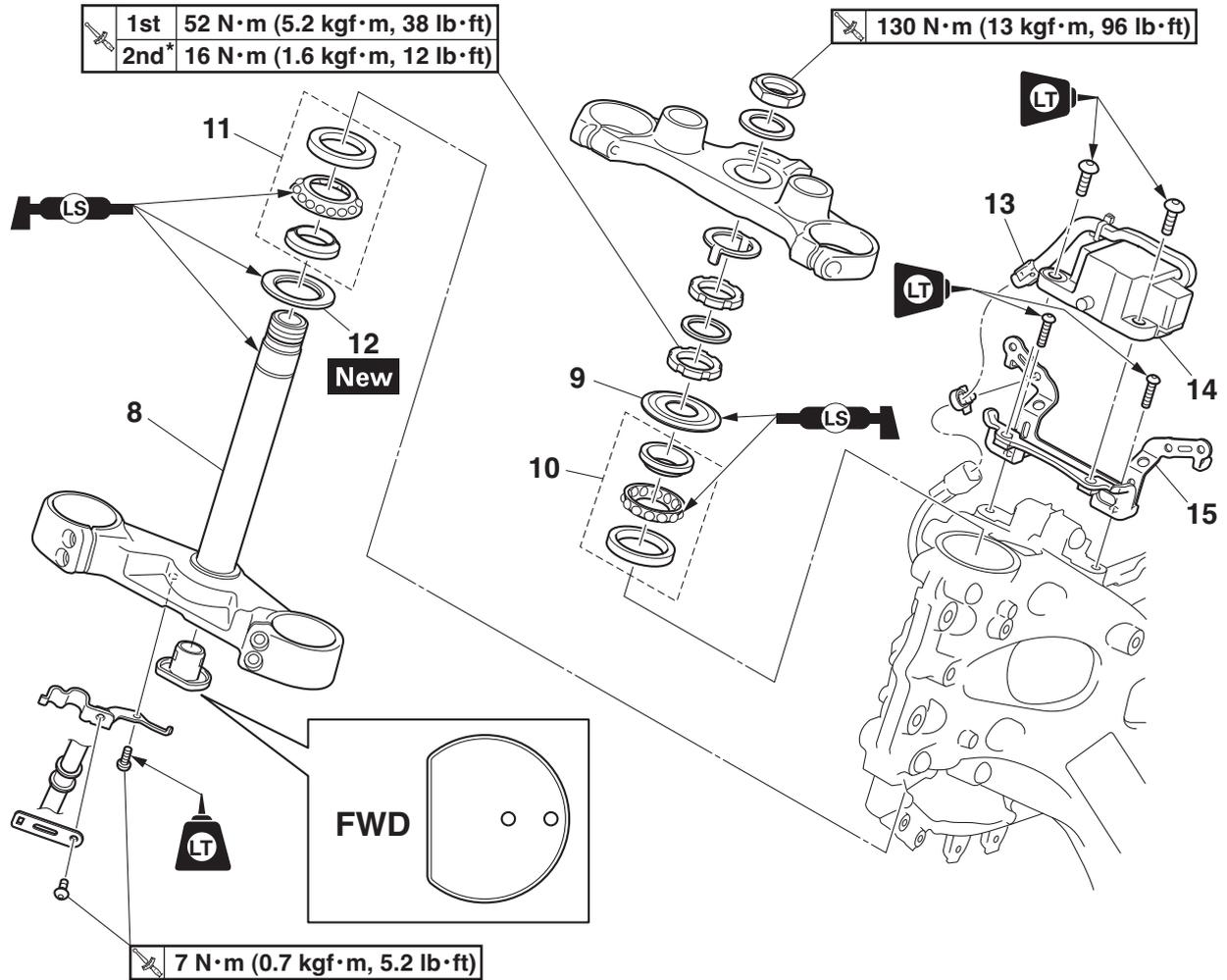


*Loosen the lower ring nut completely, and then tighten it to specification.

Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Handlebar cover/Handlebar/Lower handlebar holder		Refer to "HANDLEBAR" on page 4-79.
	Front wheel		Refer to "FRONT WHEEL" on page 4-22.
1	Stay	2	
2	Steering stem nut	1	
3	Upper bracket	1	
4	Lock washer	1	
5	Upper ring nut	1	
6	Rubber washer	1	
7	Lower ring nut	1	

STEERING HEAD

Removing the lower bracket



*Loosen the lower ring nut completely, and then tighten it to specification.

Order	Job/Parts to remove	Q'ty	Remarks
8	Lower bracket	1	
9	Upper bearing cover	1	
10	Upper bearing	1	
11	Lower bearing	1	
12	Dust seal	1	
13	Steering lock unit coupler	1	Disconnect.
14	Steering lock unit	1	
15	Stay	1	

4. Check:

- Upper bracket
- Lower bracket
(along with the steering stem)
Bends/cracks/damage → Replace.

EAS30216

INSTALLING THE STEERING HEAD

1. Lubricate:

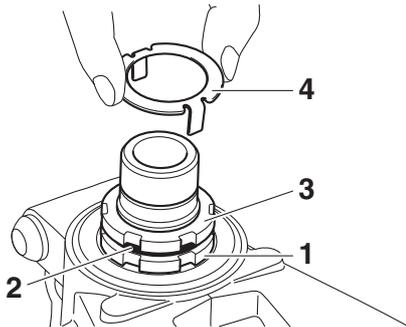
- Upper bearing
- Lower bearing



2. Install:

- Lower ring nut “1”
- Rubber washer “2”
- Upper ring nut “3”
- Lock washer “4”

Refer to “CHECKING AND ADJUSTING THE STEERING HEAD” on page 3-24.



3. Install:

- Upper bracket
- Washer
- Steering stem nut

TIP

Temporarily tighten the steering stem nut.

4. Install:

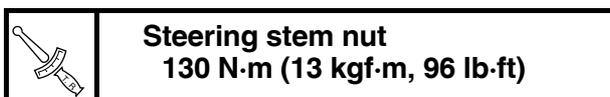
- Front fork legs
Refer to “FRONT FORK” on page 4-87.

TIP

Temporarily tighten the upper and lower bracket pinch bolts.

5. Tighten:

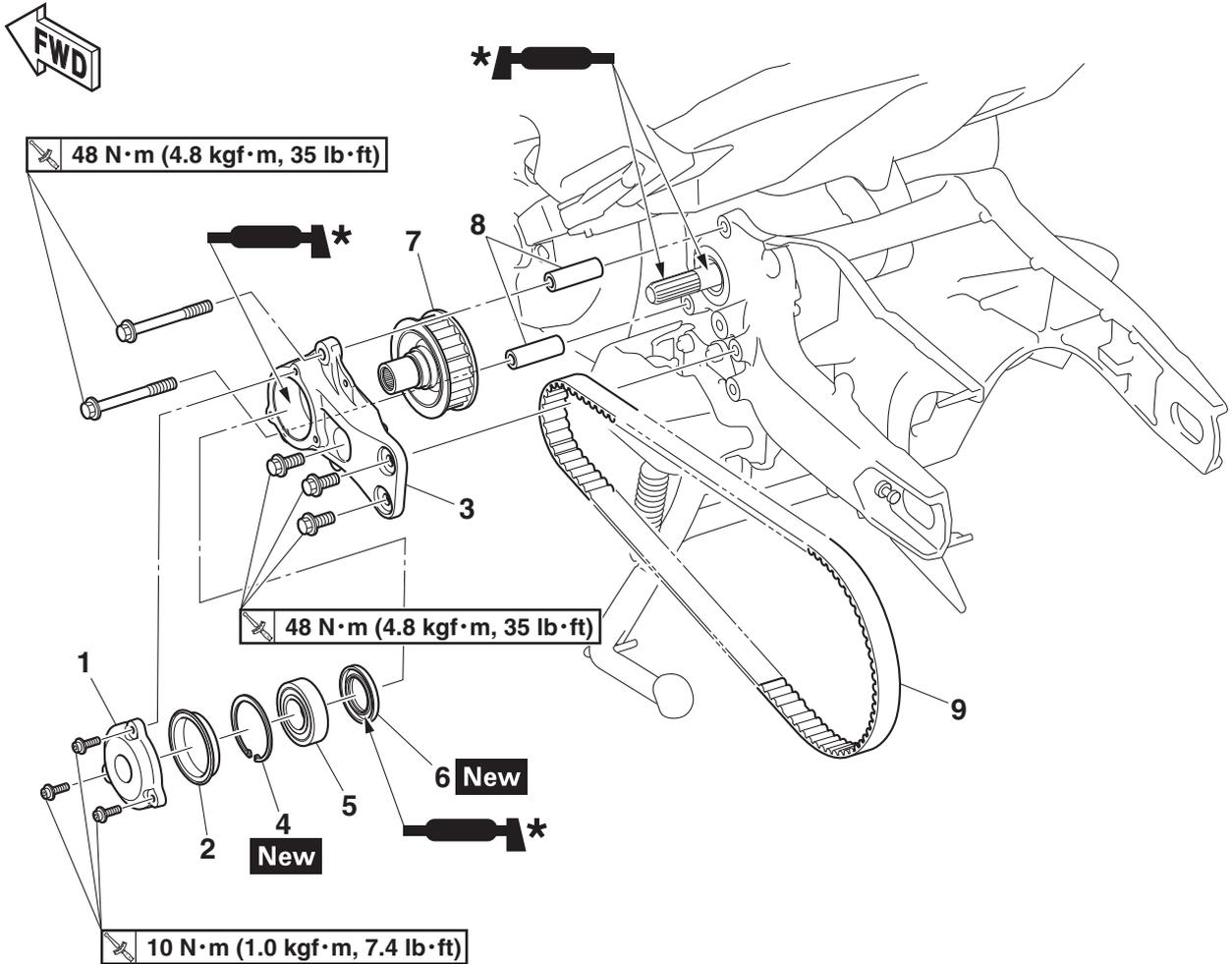
- Steering stem nut



EAS20039

BELT DRIVE

Removing the drive belt



* Filling the YAMAHA GREASE "J" (Shell Alvania EP Grease R0®).

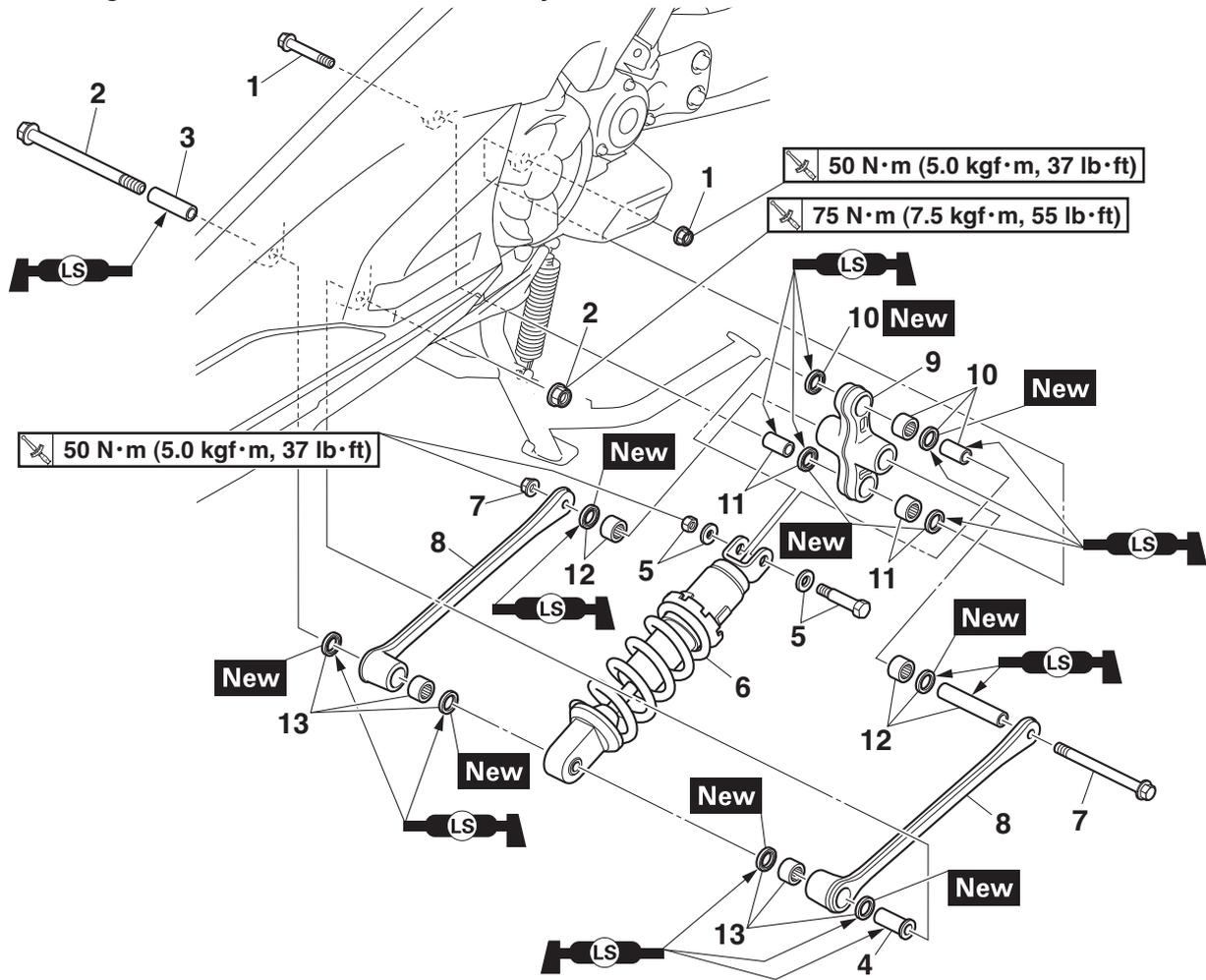
Order	Job/Parts to remove	Q'ty	Remarks
	Rear brake caliper/Rear brake lock caliper		Refer to "REAR BRAKE" on page 4-53.
	Rear wheel		Refer to "REAR WHEEL" on page 4-31.
1	Drive pulley cover	1	
2	Dust cover	1	
3	Holder	1	
4	Circlip	1	
5	Bearing	1	
6	Oil seal	1	
7	Drive pulley	1	
8	Collar	2	
9	Drive belt	1	

REAR SHOCK ABSORBER ASSEMBLY

EAS20036

REAR SHOCK ABSORBER ASSEMBLY

Removing the rear shock absorber assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Rear brake caliper/Rear brake lock caliper		Refer to "REAR BRAKE" on page 4-53.
	Rear wheel		Refer to "REAR WHEEL" on page 4-31.
1	Relay arm nut/Relay arm bolt	1/1	
2	Rear shock absorber assembly lower nut/Rear shock absorber assembly lower bolt	1/1	
3	Collar	1	
4	Collar	1	
5	Rear shock absorber assembly upper nut/Washer/Rear shock absorber assembly upper bolt	1/2/1	
6	Rear shock absorber assembly	1	
7	Connecting arm bolt/Connecting arm nut	1/1	
8	Connecting arm	2	
9	Relay arm	1	
10	Collar/Oil seal/Bearing	1/2/1	
11	Collar/Oil seal/Bearing	1/2/1	
12	Collar/Oil seal/Bearing	1/2/2	
13	Oil seal/Bearing	4/2	

REAR SHOCK ABSORBER ASSEMBLY

EAS30826

HANDLING THE REAR SHOCK ABSORBER

EWA13740

⚠ WARNING

This rear shock absorber contains highly compressed nitrogen gas. Before handling the rear shock absorber, read and make sure you understand the following information. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling of the rear shock absorber.

- Do not tamper or attempt to open the rear shock absorber.
- Do not subject the rear shock absorber to an open flame or any other source of high heat. High heat can cause an explosion due to excessive gas pressure.
- Do not deform or damage the rear shock absorber in any way. Rear shock absorber damage will result in poor damping performance.

EAS30729

DISPOSING OF A REAR SHOCK ABSORBER

1. Gas pressure must be released before disposing of a rear shock absorber. To release the gas pressure, drill a 2–3 mm (0.08–0.12 in) hole through the rear shock absorber as shown.

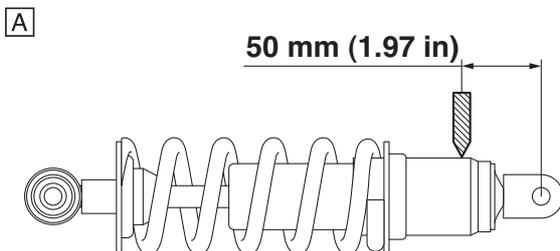
EWA13760

⚠ WARNING

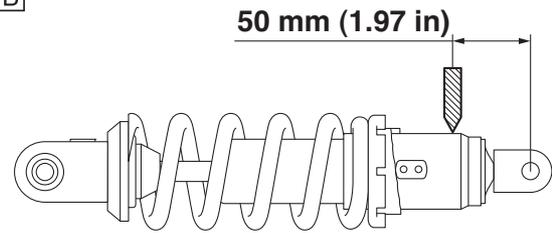
Wear eye protection to prevent eye damage from released gas or metal chips.

TIP

Drill a hole at a point 50 mm (1.97 in) from the center of the installation hole.



B



- A. XP530E-A/XP530-A
- B. XP530D-A

EAS30219

REMOVING THE REAR SHOCK ABSORBER ASSEMBLY

1. Stand the vehicle on a level surface.

EWA13120

⚠ WARNING

Securely support the vehicle so that there is no danger of it falling over.

TIP

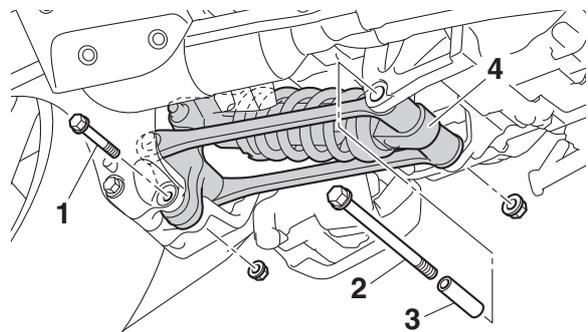
Place the vehicle on a maintenance stand so that the rear wheel is elevated.

2. Remove:

- Relay arm bolt “1”
- Relay arm nut
- Rear shock absorber assembly lower bolt “2”
- Rear shock absorber assembly lower nut
- Collar “3”

TIP

- When removing the bolt, hold the swingarm so that it does not drop down.
- Pull out the collar “3” from the right side of the vehicle.



3. Remove:

- Rear shock absorber assembly “4”

REAR SHOCK ABSORBER ASSEMBLY

EAS30220

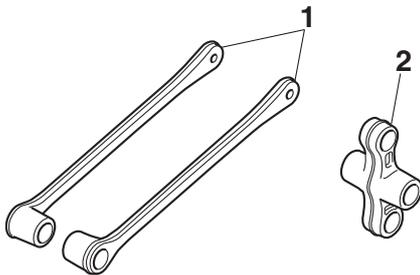
CHECKING THE REAR SHOCK ABSORBER ASSEMBLY

- Check:
 - Rear shock absorber rod
Bends/damage → Replace the rear shock absorber assembly.
 - Rear shock absorber assembly
Gas leaks/oil leaks → Replace the rear shock absorber assembly.
 - Spring
Damage/wear → Replace the rear shock absorber assembly.
 - Bearing
 - Bolts
Bends/damage/wear → Replace.

EAS30221

CHECKING THE CONNECTING ARM AND RELAY ARM

- Check:
 - Connecting arms "1"
 - Relay arm "2"
Damage/wear → Replace.



- Check:
 - Bearings
 - Oil seals
Damage/pitting → Replace.
- Check:
 - Collars
Damage/scratches → Replace.

EAS32420

ASSEMBLING THE CONNECTING ARM

- Lubricate:
 - Collars
 - Oil seals



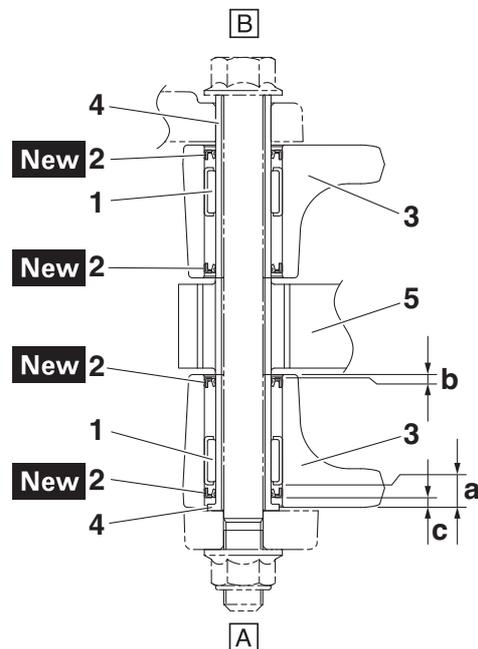
- Install:
 - Bearings "1"
 - Oil seals "2" **New**

TIP

- When installing the oil seals "2" to the connecting arms "3", face the character stamp of the oil seals outside.
- Install the bearing to the connecting arm by pressing the character stamped side.



Installed depth "a"
7 mm (0.28 in)
Installed depth "b"
0.5–1.5 mm (0.02–0.06 in)
Installed depth "c"
2.5–3.5 mm (0.10–0.14 in)



- Collar
- Rear shock absorber assembly

- A. Left side
B. Right side

EAS30222

INSTALLING THE RELAY ARM

- Lubricate:
 - Collars
 - Oil seals



- Install:
 - Bearings "1"
(to the relay arm)
 - Oil seals "2" **New**
(to the relay arm)

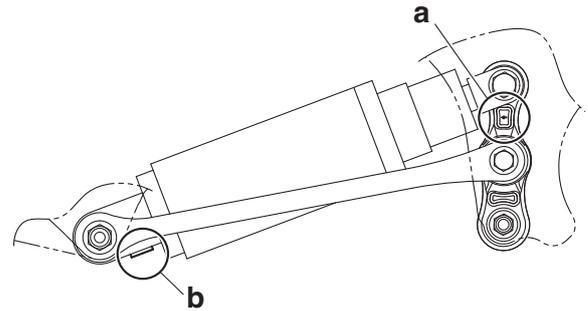
REAR SHOCK ABSORBER ASSEMBLY



Installed depth "a"
6.5 mm (0.26 in)
Installed depth "b"
6 mm (0.24 in)
Installed depth "c"
1.0–2.0 mm (0.04–0.08 in)

TIP

- When installing the oil seals "2" to the relay arm, face the character stamp of the oil seals outside.
- Press in the oil seal so it does not protrude from the end surface of the relay arm.
- Install the connecting arm so that the stamp mark "B67" is facing outward. The stamp mark can be facing either up or down.



EAS30225

INSTALLING THE REAR SHOCK ABSORBER ASSEMBLY

1. Install:

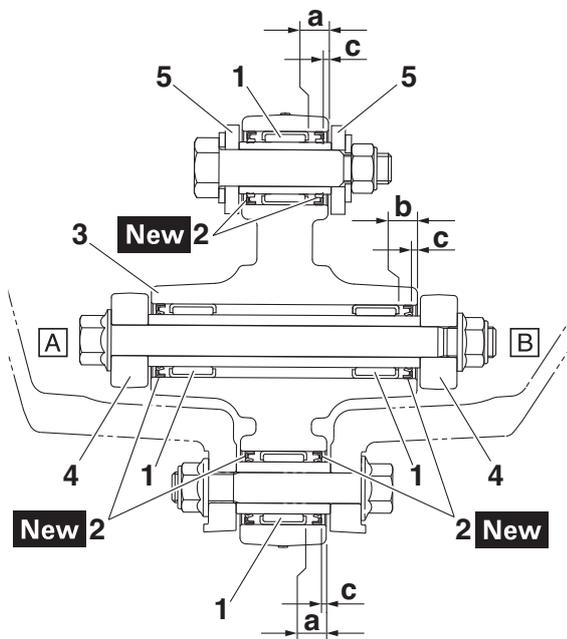
- Rear shock absorber assembly

TIP

- Install the rear shock absorber assembly lower bolt and relay arm bolt from the right.
- Install the rear shock absorber assembly with the swingarm down.

2. Tighten:

- Rear shock absorber assembly lower nut
- Relay arm nut



3. Relay arm
4. Connecting arm
5. Rear shock absorber assembly

- A. Left side
- B. Right side

TIP

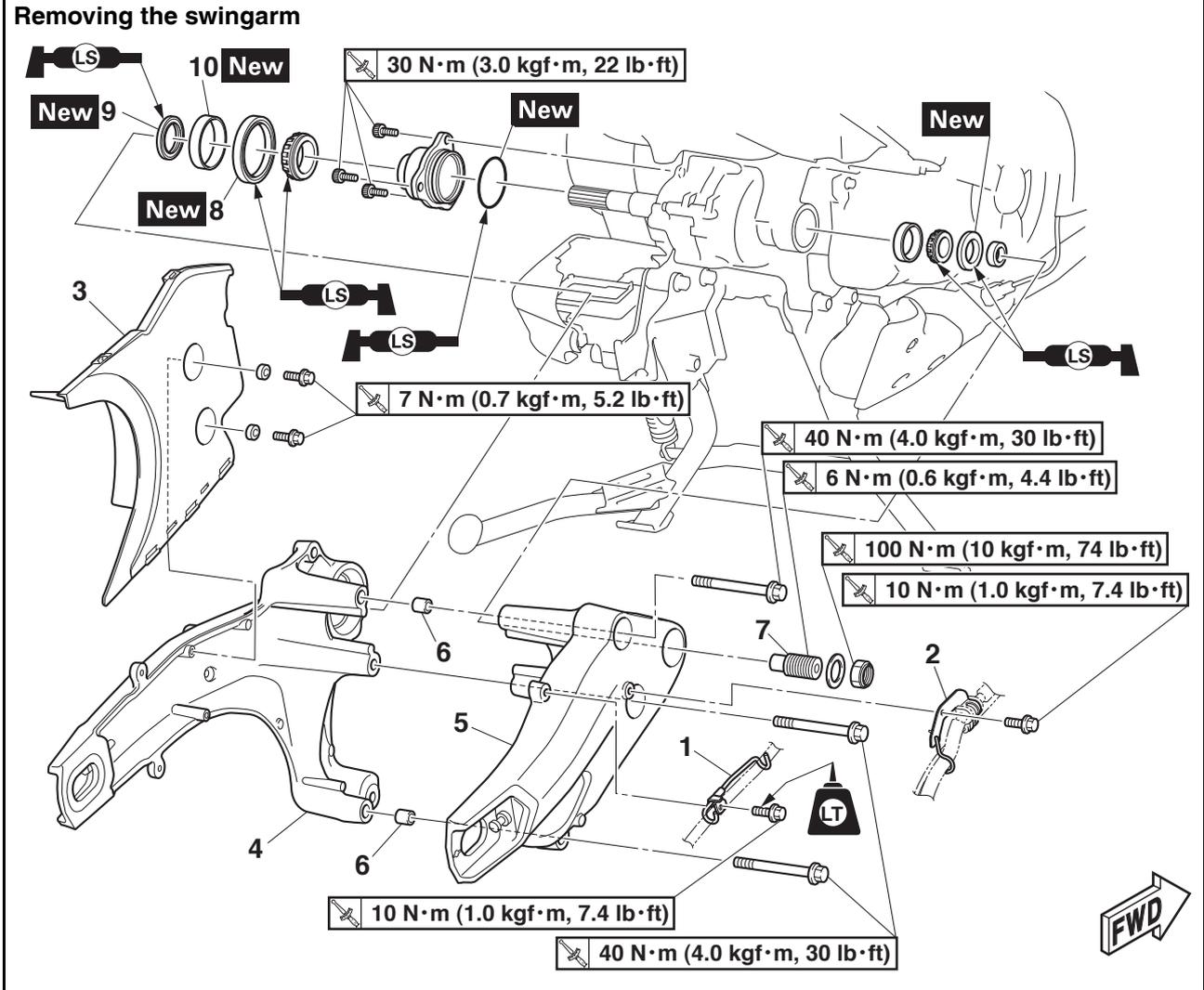
- Install the rear shock absorber assembly upper bolt and connecting arm bolt from the left.
- Install the relay arm so that stamped mark "a" is positioned as shown in the illustration.
- Install the rear shock absorber assembly so that the label is facing downward.
- Install the rear shock absorber assembly so that the rebound damping adjusting screw "b" is facing downward. (for XP530D-A)



Rear shock absorber assembly lower nut
75 N·m (7.5 kgf·m, 55 lb-ft)
Relay arm nut
50 N·m (5.0 kgf·m, 37 lb-ft)

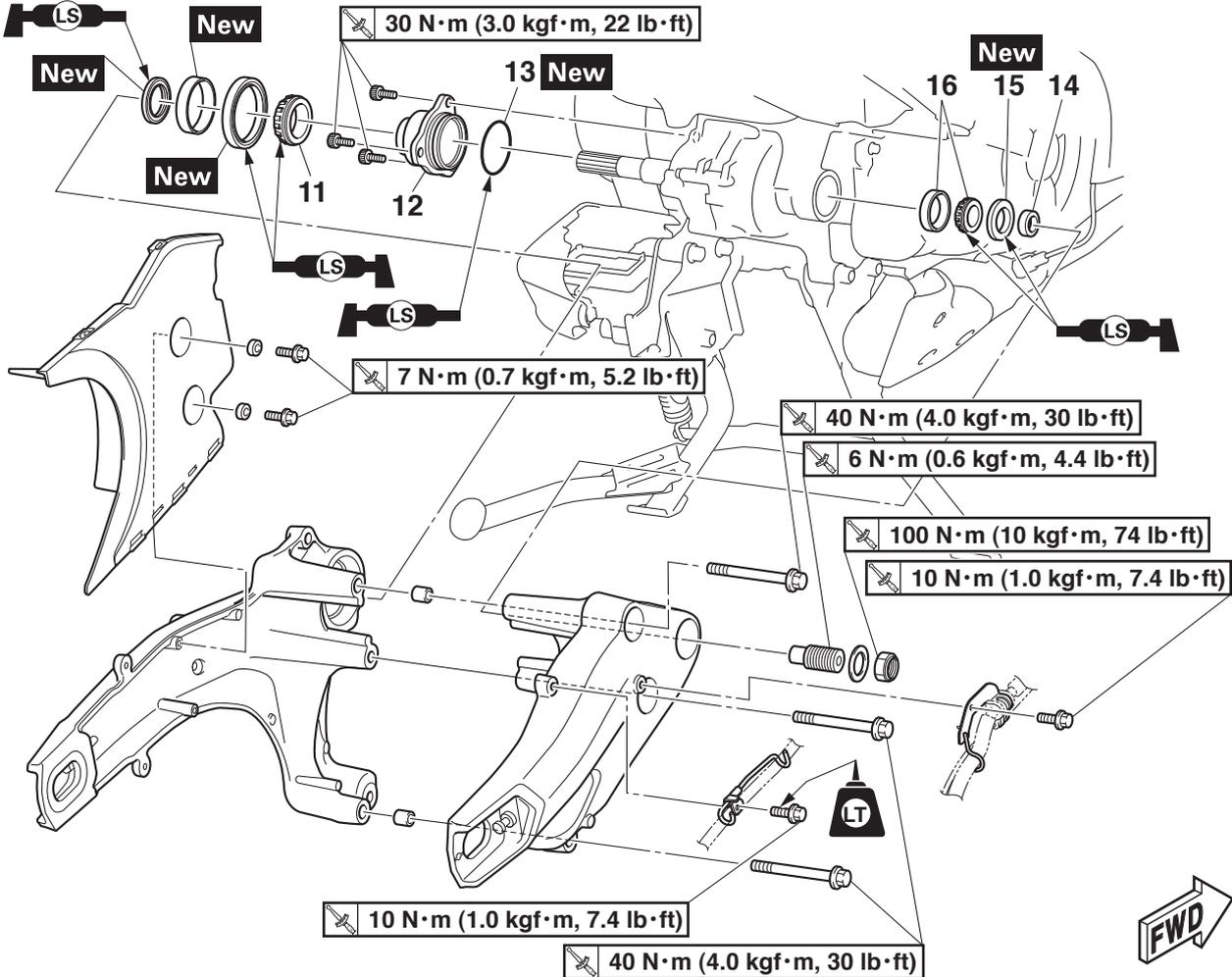
EAS20037

SWINGARM



Order	Job/Parts to remove	Q'ty	Remarks
	Rear brake caliper/Rear brake lock caliper		Refer to "REAR BRAKE" on page 4-53.
	Rear wheel		Refer to "REAR WHEEL" on page 4-31.
	Rear shock absorber assembly		Refer to "REAR SHOCK ABSORBER ASSEMBLY" on page 4-102.
	Drive belt		Refer to "BELT DRIVE" on page 4-100.
1	Holder	1	
2	Holder	1	
3	Drive belt inner guard	1	
4	Swingarm (left)	1	
5	Swingarm (right)	1	
6	Dowel pin	2	
7	Pivot shaft	1	
8	Oil seal	1	
9	Oil seal	1	
10	Outer race	1	

Removing the swingarm



Order	Job/Parts to remove	Q'ty	Remarks
11	Bearing	1	
12	Bearing housing	1	
13	O-ring	1	
14	Collar	1	
15	Oil seal	1	
16	Bearing	1	

ENGINE

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EAS20041

ENGINE INSPECTION

EAS30249

MEASURE THE COMPRESSION PRESSURE

The following procedure applies to all of the cylinders.

TIP

Insufficient compression pressure will result in a loss of performance.

1. Measure:

- Valve clearance

Out of specification → Adjust.

Refer to “ADJUSTING THE VALVE CLEARANCE” on page 3-5.

2. Start the engine, warm it up for several minutes, and then turn it off.

3. Remove:

- Bottom side cowling
- Side panel
- Radiator cover

Refer to “GENERAL CHASSIS (1)” on page 4-1.

4. Disconnect:

- Spark plug caps

5. Remove:

- Spark plugs

ECA13340

NOTICE

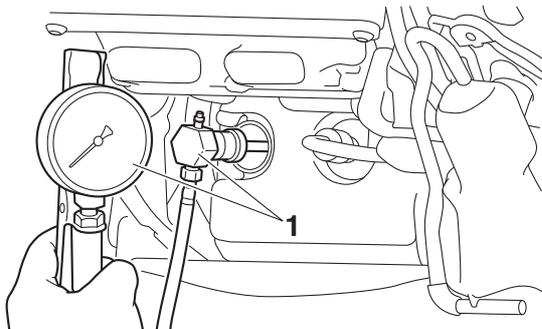
Before removing the spark plugs, use compressed air to blow away any dirt accumulated in the spark plug wells to prevent it from falling into the cylinders.

6. Install:

- Compression gauge “1”



**Compression gauge
90890-03081
Engine compression tester
YU-33223**



7. Measure:

- Compression pressure

Out of specification → Refer to steps (c) and (d).



**Compression pressure
1696–2184 kPa/470 r/min (17.0–
21.8 kgf/cm²/470 r/min, 241.3–
310.6 psi/470 r/min)**



a. Push the ON/start switch.

b. With the throttle wide open, crank the engine until the reading on the compression gauge stabilizes.

TIP

The difference in compression pressure between cylinders should not exceed 100 kPa (1 kgf/cm², 14 psi).

c. If the compression pressure is above the maximum specification, check the cylinder head, valve surfaces and piston crown for carbon deposits. Carbon deposits → Eliminate.

d. If the compression pressure is below the minimum specification, pour a teaspoonful of engine oil into the spark plug bore and measure again.

Refer to the following table.

Compression pressure (with oil applied into the cylinder)	
Reading	Diagnosis
Higher than without oil	Piston ring(s) wear or damage → Replace.
Same as without oil	Piston, valves or cylinder head gasket possibly defective → Replace.



8. Install:

- Spark plugs



**Spark plug
13 N·m (1.3 kgf·m, 9.6 lb·ft)**

9. Connect:

- Spark plug caps

10. Install:

- Radiator cover
- Side panel
- Bottom side cowling

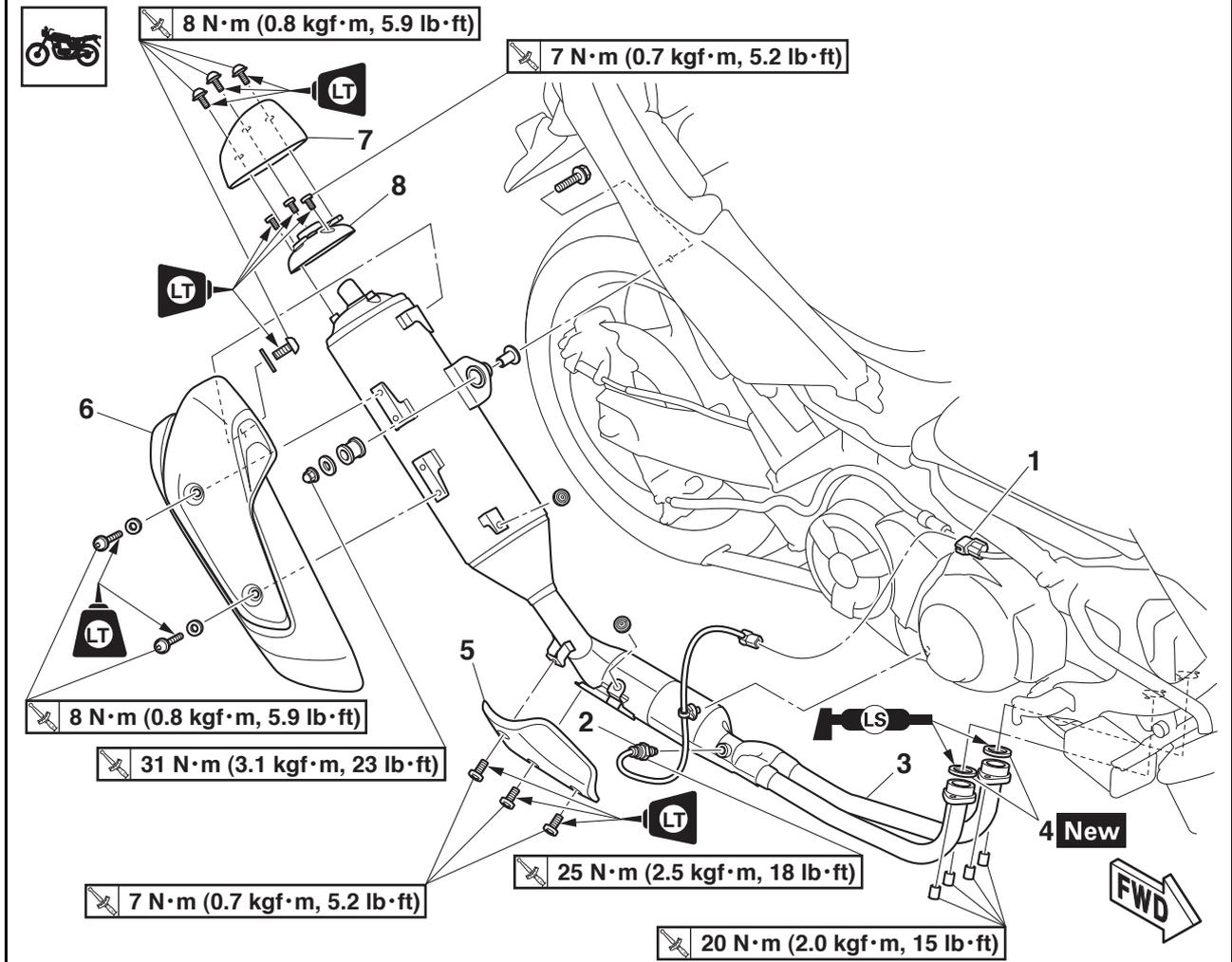
Refer to “GENERAL CHASSIS (1)” on page 4-1.

ENGINE REMOVAL

EAS20042

ENGINE REMOVAL

Removing the exhaust assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
1	O ₂ sensor coupler	1	Disconnect.
2	O ₂ sensor	1	
3	Exhaust assembly	1	
4	Gasket	2	
5	Front muffler protector	1	
6	Muffler protector	1	
7	Muffler end	1	
8	Muffler end bracket	1	

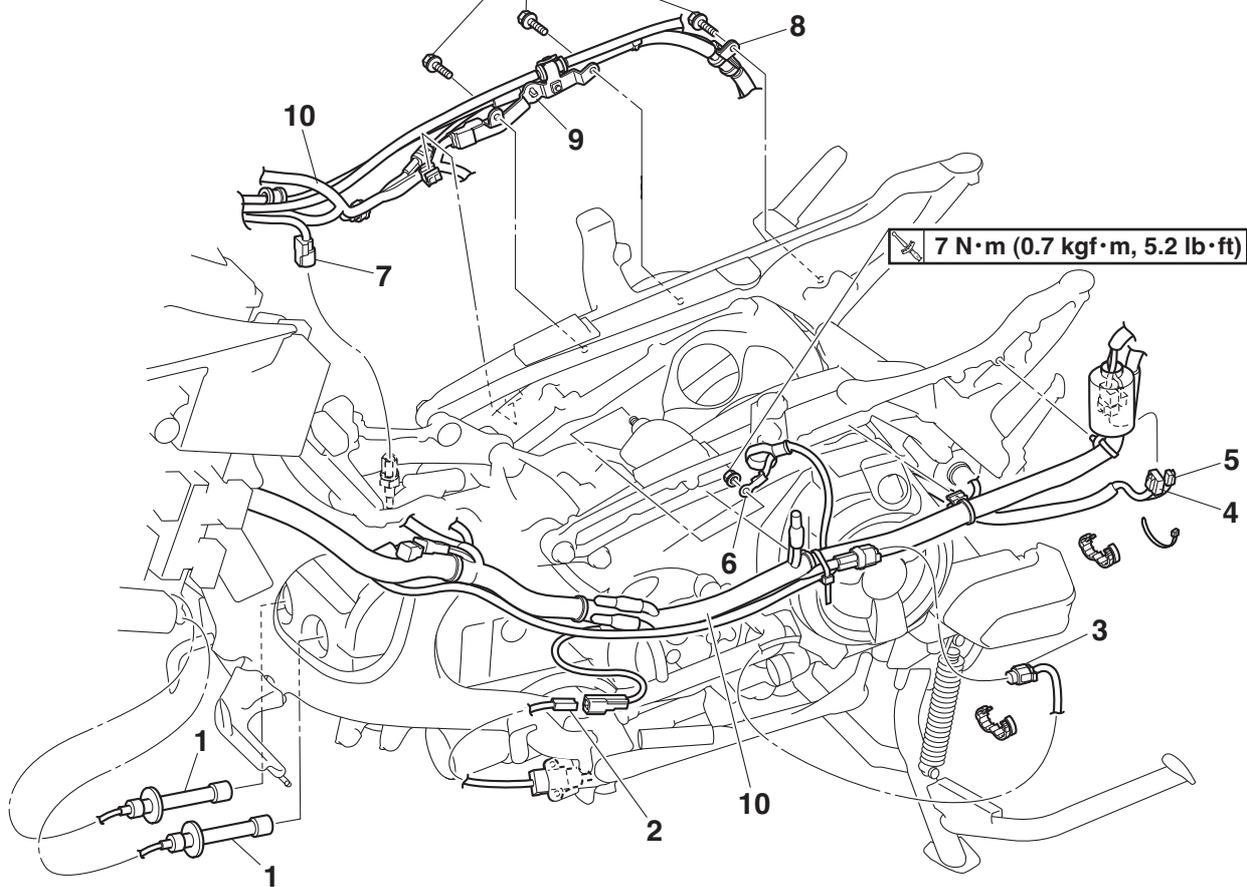
ENGINE REMOVAL

Disconnecting the leads



10 N·m (1.0 kgf·m, 7.4 lb·ft)

7 N·m (0.7 kgf·m, 5.2 lb·ft)



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard/Rear cowling/Mudguard assembly/Rear cowling assembly/Seat assembly/Storage box		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 3-27.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-31.
	Exhaust assembly		Refer to "ENGINE REMOVAL" on page 5-2.
	Fuel tank/Rollover valve		Refer to "FUEL TANK" on page 7-1.
	Front wheel		Refer to "FRONT WHEEL" on page 4-22.
	Front fender		Refer to "FRONT FORK" on page 4-87.
	Rear wheel		Refer to "REAR WHEEL" on page 4-31.
	Rear shock absorber assembly		Refer to "REAR SHOCK ABSORBER ASSEMBLY" on page 4-102.

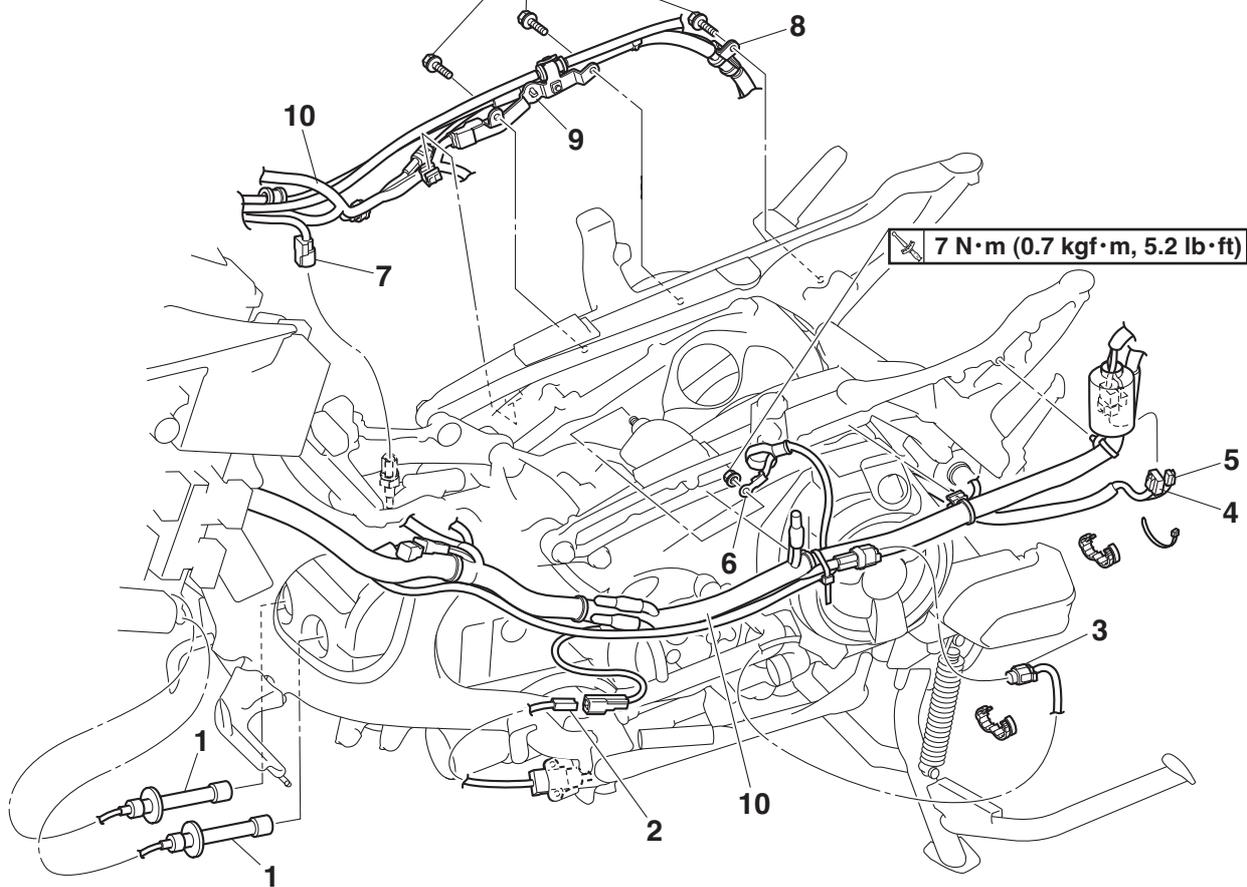
ENGINE REMOVAL

Disconnecting the leads



10 N·m (1.0 kgf·m, 7.4 lb·ft)

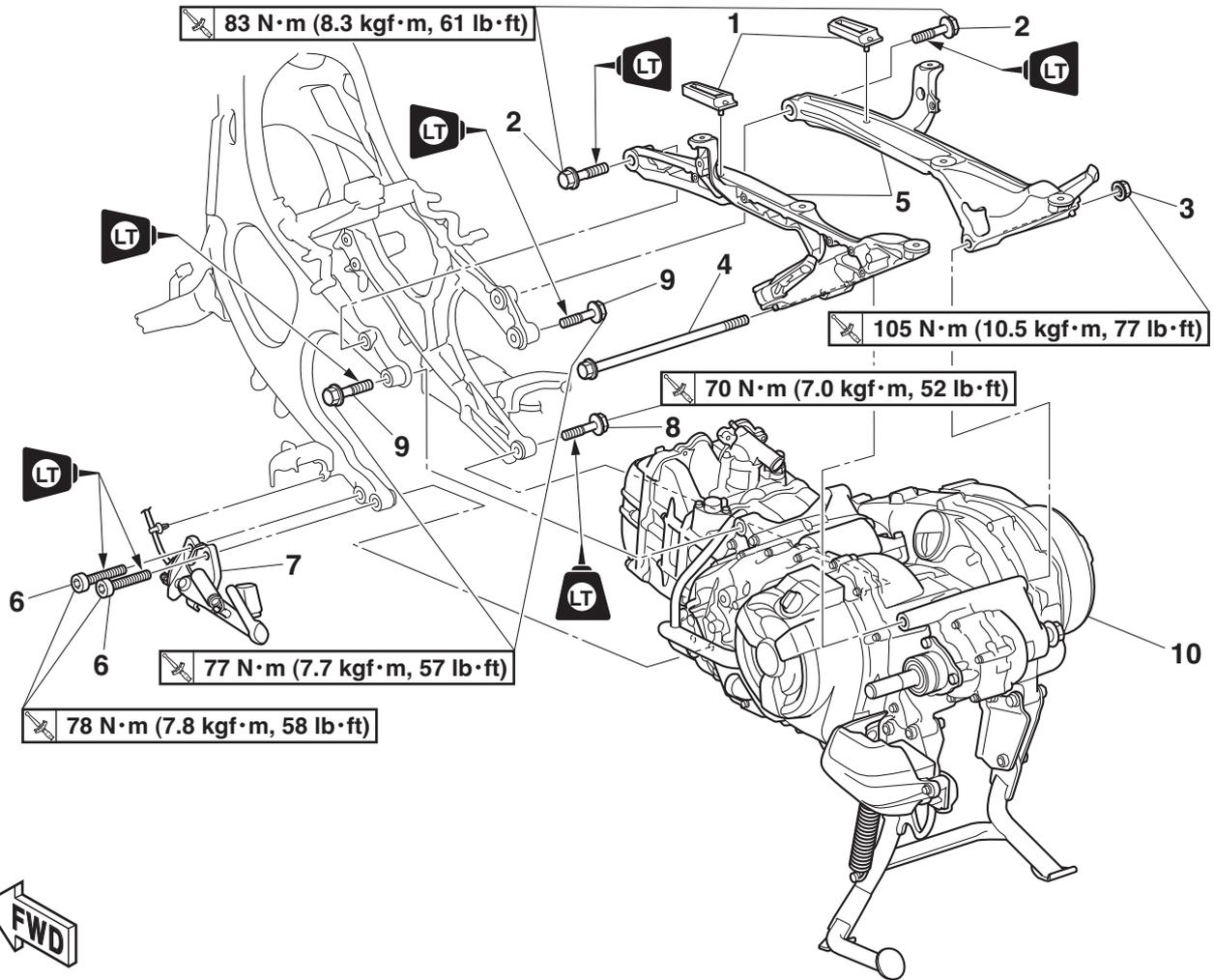
7 N·m (0.7 kgf·m, 5.2 lb·ft)



Order	Job/Parts to remove	Q'ty	Remarks
	Swingarm		Refer to "SWINGARM" on page 4-106.
	Air filter case/Throttle body assembly/Intake manifold		Refer to "THROTTLE BODY" on page 7-5.
	V-belt case air filter element (left)/Water pump inlet pipe		Refer to "WATER PUMP" on page 6-9.
	V-belt case air duct		Refer to "V-BELT AUTOMATIC TRANSMISSION" on page 5-34.
	Oil cooler outlet hose		Refer to "OIL COOLER" on page 6-5.
	Cooling system air bleed hose/Thermostat outlet hose		Refer to "THERMOSTAT" on page 6-7.
1	Spark plug cap	2	Disconnect.
2	Sidestand switch coupler	1	Disconnect.
3	Centerstand lock solenoid coupler	1	Disconnect.
4	Stator coil coupler	1	Disconnect.
5	Crankshaft position sensor coupler	1	Disconnect.
6	Starter motor lead	1	Disconnect.
7	Coolant temperature sensor coupler	1	Disconnect.
8	Brake hose holder	1	
9	Cable guide	1	
10	Wire harness	1	

ENGINE REMOVAL

Removing the engine



Order	Job/Parts to remove	Q'ty	Remarks
1	Damper	2	
2	Rear frame bolt	2	
3	Engine mounting nut (rear side)	1	
4	Engine mounting bolt (rear side)	1	
5	Rear frame	2	
6	Engine mounting bolt (front left lower side)	2	
7	Sidestand	1	
8	Engine mounting bolt (front right lower side)	1	
9	Engine mounting bolt (front upper side)	2	
10	Engine	1	

EAS30251

INSTALLING THE ENGINE

1. Install:

- All removed parts

TIP

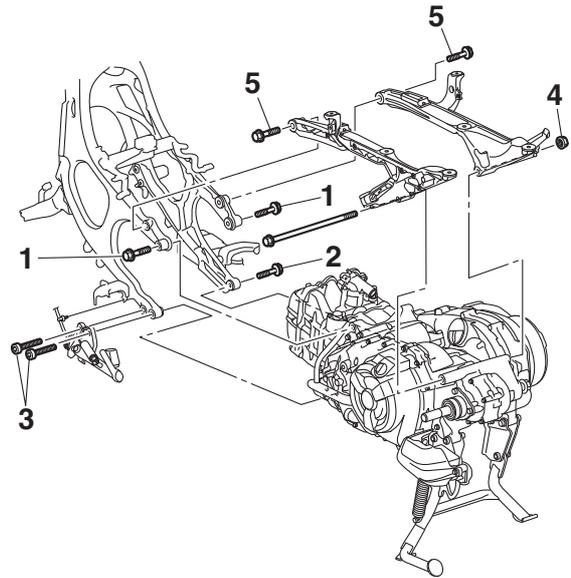
- Apply locking agent (LOCTITE®) to engine mounting bolt (front upper side) “1”, engine mounting bolt (front right lower side) “2”, engine mounting bolts (front left lower side) “3”, and rear frame bolts “5”.
- For installation, reverse the removal procedure.
- Do not fully tighten the bolts and nuts.

2. Tighten:

- Engine mounting bolts (front upper side) “1”
- Engine mounting bolt (front right lower side) “2”
- Engine mounting bolts (front left lower side) “3”
- Engine mounting nut (rear side) “4”
- Rear frame bolts “5”

TIP

When tightening the engine mounting nuts and engine mounting bolts, do not apply an upward load to the frame, such as supporting the area around steering head of the frame upwards. Also, do not apply an upward or downward load on the rear frame, such as supporting the rear end of the rear frame upwards or pushing it downwards.



Engine mounting bolt (front upper side)

77 N·m (7.7 kgf·m, 57 lb-ft)

LOCTITE®

Engine mounting bolt (front right lower side)

70 N·m (7.0 kgf·m, 52 lb-ft)

LOCTITE®

Engine mounting bolt (front left lower side)

78 N·m (7.8 kgf·m, 58 lb-ft)

LOCTITE®

Engine mounting nut (rear side)

105 N·m (10.5 kgf·m, 77 lb-ft)

Rear frame bolt

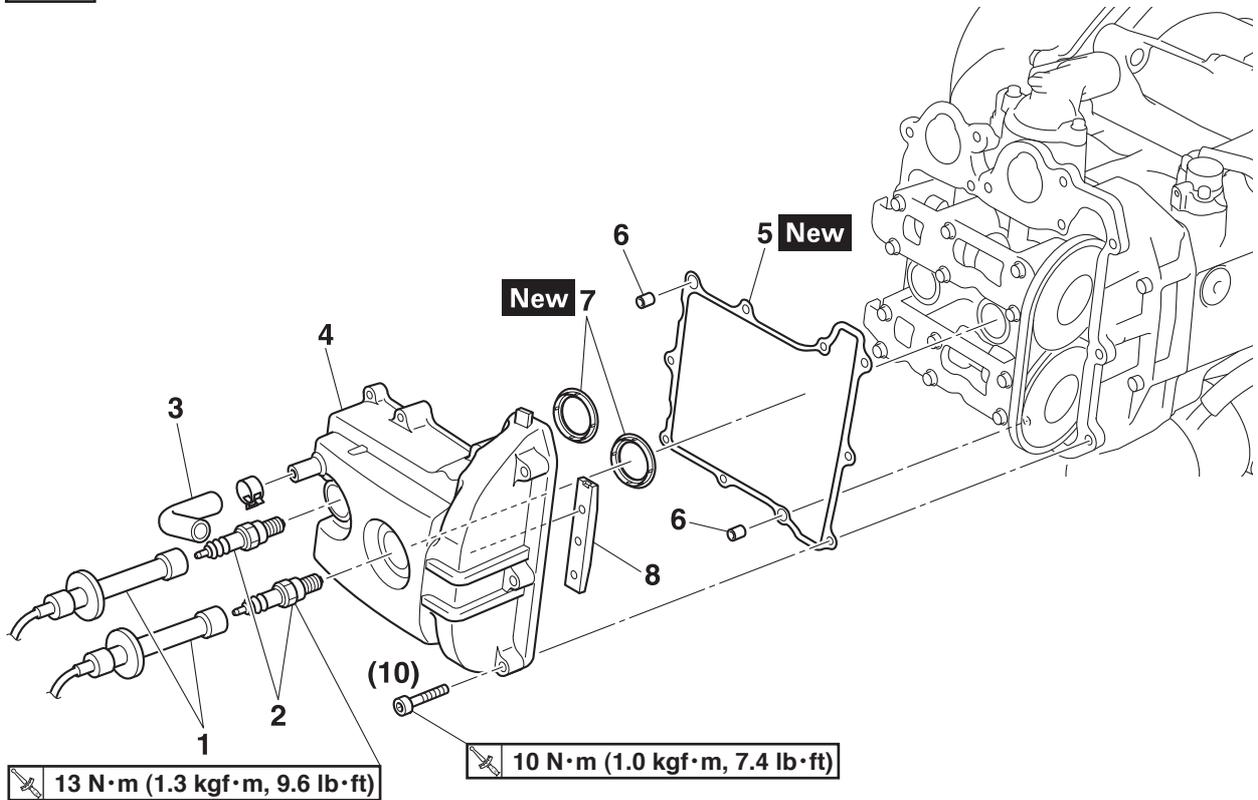
83 N·m (8.3 kgf·m, 61 lb-ft)

LOCTITE®

EAS20043

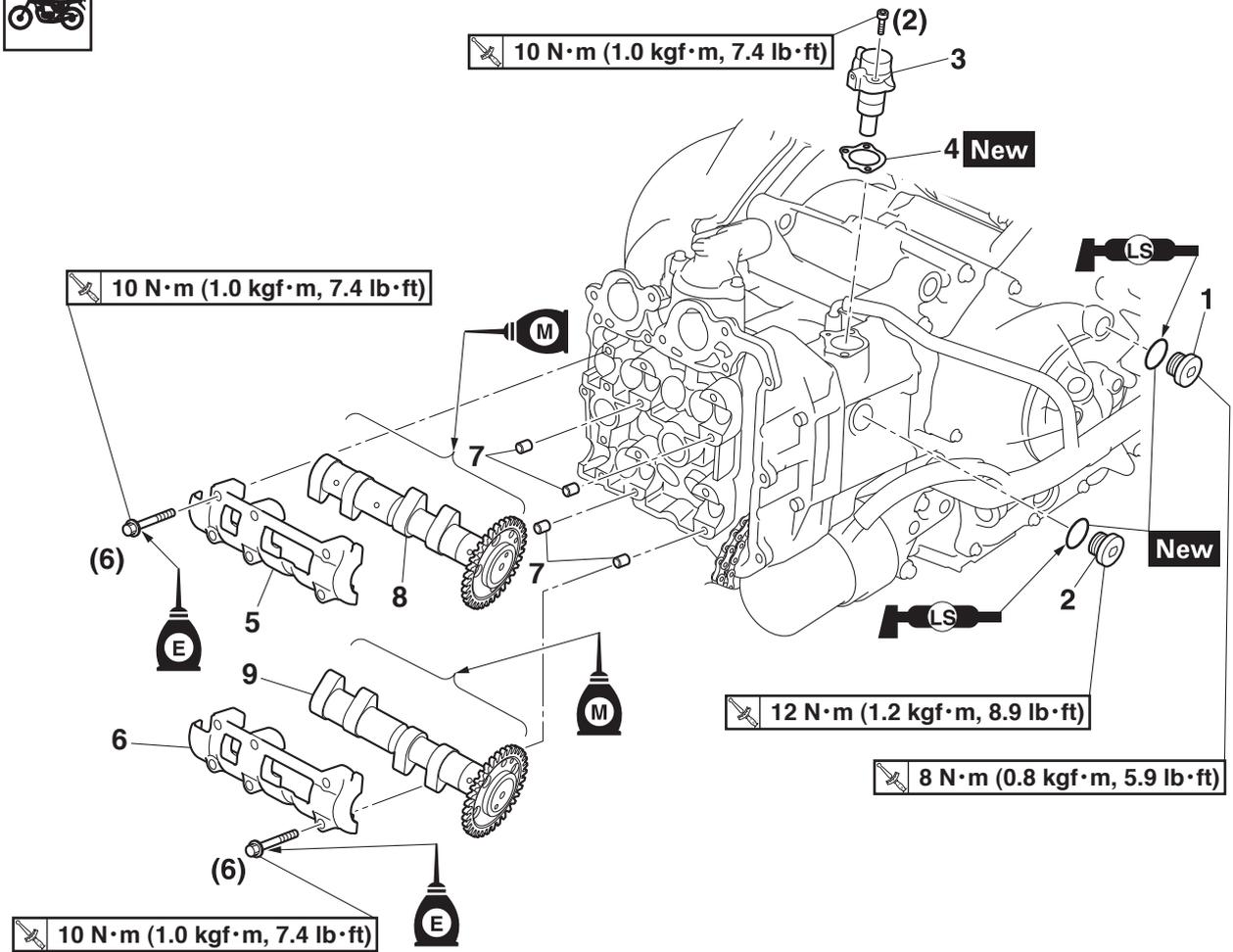
CAMSHAFTS

Removing the cylinder head cover



Order	Job/Parts to remove	Q'ty	Remarks
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 3-27.
	Air filter case		Refer to "THROTTLE BODY" on page 7-5.
1	Spark plug cap	2	Disconnect.
2	Spark plug	2	
3	Cylinder head breather hose	1	
4	Cylinder head cover	1	
5	Cylinder head cover gasket	1	
6	Dowel pin	2	
7	Gasket	2	
8	Timing chain guide (upper side)	1	

Removing the camshafts



Order	Job/Parts to remove	Q'ty	Remarks
	Crankshaft end access cover		Refer to "V-BELT AUTOMATIC TRANSMISSION" on page 5-34.
	Fuel tank		Refer to "FUEL TANK" on page 7-1.
	Intake manifold		Refer to "THROTTLE BODY" on page 7-5.
	Cylinder head cover		Refer to "CAMSHAFTS" on page 5-7.
1	Timing mark accessing plug	1	
2	Timing chain tensioner rod accessing plug	1	
3	Timing chain tensioner	1	
4	Timing chain tensioner gasket	1	
5	Intake camshaft cap	1	
6	Exhaust camshaft cap	1	
7	Dowel pin	4	TIP _____ During removal, the dowel pins may still be connected to the camshaft caps.
8	Intake camshaft	1	
9	Exhaust camshaft	1	

EAS30256

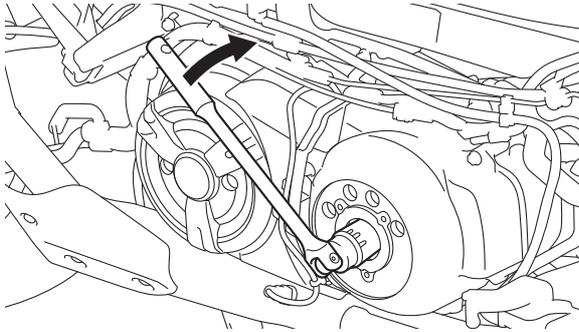
REMOVING THE CAMSHAFTS

1. Align:

- “I” mark “a” on the generator rotor (with the stationary pointer “b” on the generator cover)



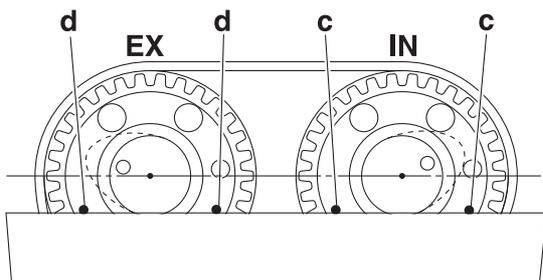
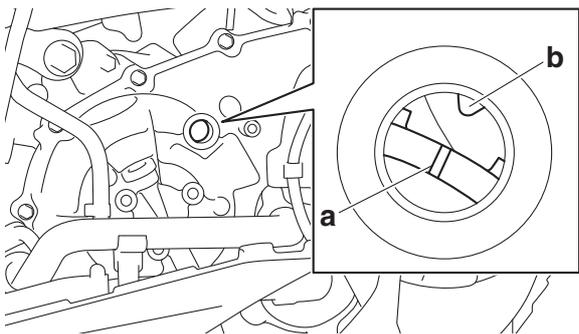
a. Turn the crankshaft clockwise.



- b. When piston #1 is at TDC on the compression stroke, align the “I” mark “a” on the generator rotor with the stationary pointer “b” on the generator cover.

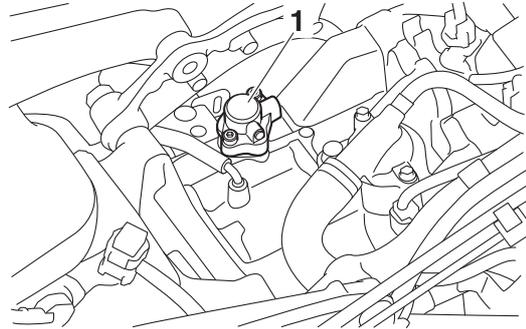
TIP

- TDC on the compression stroke can be found when the cylinder #1 camshaft lobes are turned away from each other.
- In order to be sure that the piston is at TDC, the alignment marks “c” on the intake camshaft sprocket and the alignment marks “d” on the exhaust camshaft sprocket must align with the cylinder head mating surface as shown in the illustration.



2. Remove:

- Timing chain tensioner “1”
- Timing chain tensioner gasket



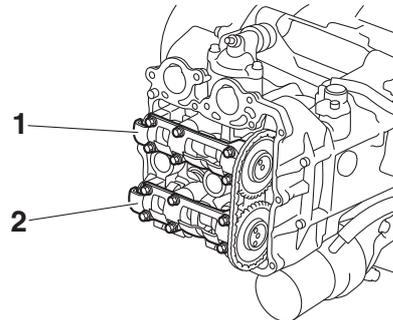
3. Remove:

- Intake camshaft cap “1”
- Exhaust camshaft cap “2”
- Dowel pins

ECA13720

NOTICE

To prevent damage to the cylinder head, camshafts or camshaft caps, loosen the camshaft cap bolts in stages and in a criss-cross pattern, working from the outside in.

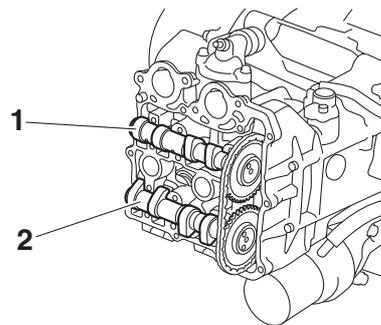


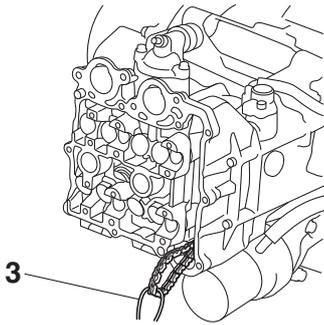
4. Remove:

- Intake camshaft “1”
- Exhaust camshaft “2”

TIP

To prevent the timing chain from falling into the crankcase, fasten with a wire “3”.





EAS30257

CHECKING THE CAMSHAFTS

1. Check:

- Camshaft lobes
Blue discoloration/pitting/scratches → Replace the camshaft.

2. Measure:

- Camshaft lobe dimensions “a”
Out of specification → Replace the camshaft.



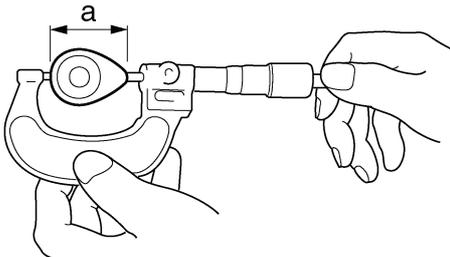
Camshaft lobe dimensions

Lobe height (Intake)
32.490–32.590 mm (1.2791–1.2831 in)

Limit
32.390 mm (1.2752 in)

Lobe height (Exhaust)
32.690–32.790 mm (1.2870–1.2909 in)

Limit
32.590 mm (1.2831 in)

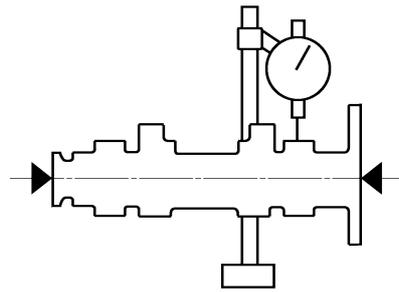


3. Measure:

- Camshaft runout
Out of specification → Replace.



Camshaft runout limit
0.030 mm (0.0012 in)



4. Measure:

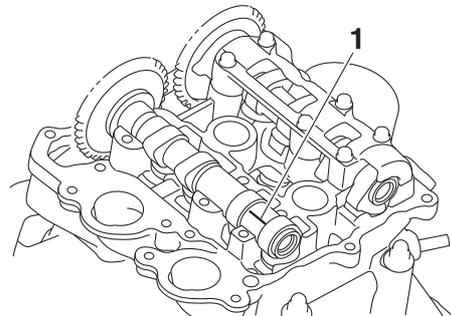
- Camshaft-journal-to-camshaft-cap clearance
Out of specification → Measure the camshaft journal diameter.



Camshaft-journal-to-camshaft-cap clearance
0.028–0.062 mm (0.0011–0.0024 in)
Limit
0.080 mm (0.0032 in)



- Install the camshaft into the cylinder head (without the dowel pins and camshaft caps).
- Position a strip of Plastigauge® “1” onto the camshaft journal as shown.



- Install the dowel pins and camshaft caps.

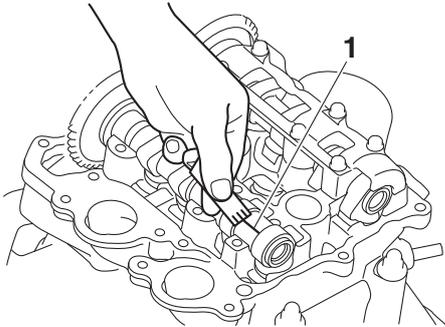
TIP

- When tightening the camshaft cap, tighten the four bolts on the both ends of the cap temporarily to lower the entire cap, while paying attention not to twist the dowel pins and camshaft journal. After the camshaft cap touches the cylinder head, tighten the two bolts in the middle to the specified torque and then the remaining four bolts to the specified torque.
- To prevent the camshaft cap from cracking, tighten the camshaft cap carefully by tapping the camshaft using a soft-face hammer (both for temporary and final tightening).
- Do not turn the camshaft when measuring the camshaft journal-to-camshaft cap clearance

with the Plastigauge®.

	Camshaft cap bolt 10 N·m (1.0 kgf·m, 7.4 lb·ft)
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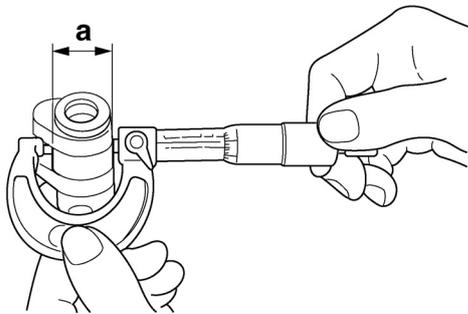
d. Remove the camshaft caps and then measure the width of the Plastigauge® "1".



5. Measure:

- Camshaft journal diameter "a"
Out of specification → Replace the camshaft.
Within specification → Replace the cylinder head and the camshaft caps as a set.

	Camshaft journal diameter 22.959–22.972 mm (0.9039–0.9044 in)
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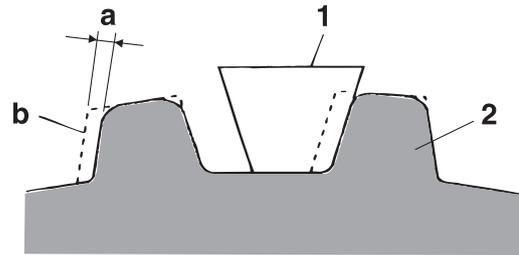
EAS30936

CHECKING THE CAMSHAFT SPROCKETS

The following procedure applies to both of the camshaft sprockets.

1. Check:

- Camshaft sprocket
More than 1/4 tooth wear "a" → Replace the camshafts and the timing chain as a set.



- a. 1/4 tooth
- b. Correct

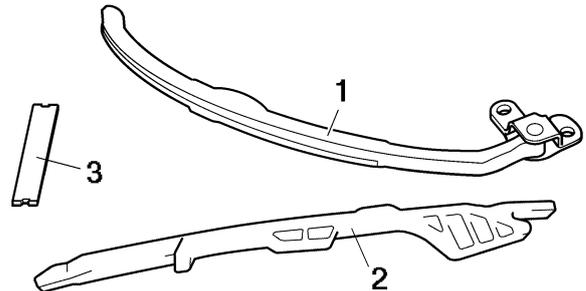
- 1. Timing chain
- 2. Camshaft sprocket

EAS30265

CHECKING THE TIMING CHAIN GUIDES

1. Check:

- Timing chain guide (intake side) "1"
 - Timing chain guide (exhaust side) "2"
 - Timing chain guide (upper side) "3"
- Damage/wear → Replace the defective part(s).



EAS30266

CHECKING THE TIMING CHAIN TENSIONER

1. Check:

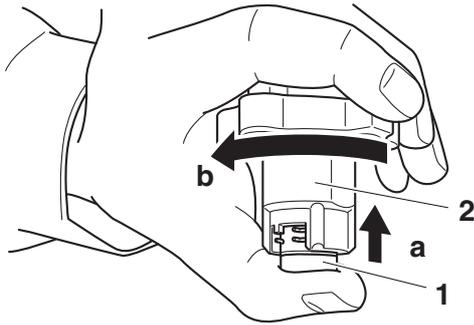
- Timing chain tensioner
Cracks/damage → Replace.



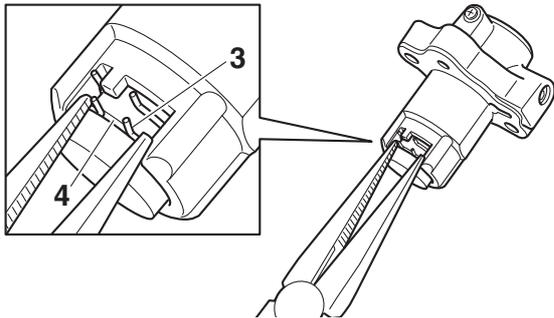
- a. Push the timing chain tensioner rod "1" into the timing chain tensioner housing by hand.

TIP

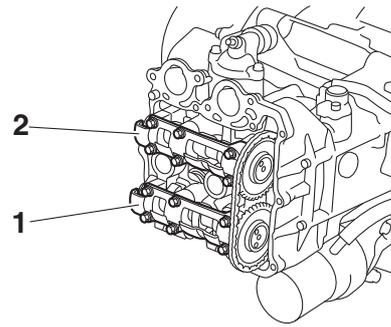
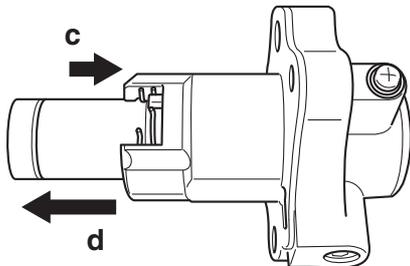
While pushing the timing chain tensioner rod "a", turn it clockwise "b" with the timing chain tensioner body "2" until it stops.



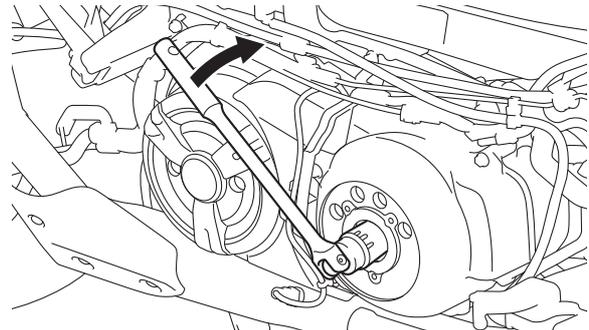
- b. Lock the timing chain tensioner rod by setting the circlip "3" to groove "4" while pushing the timing chain tensioner rod.



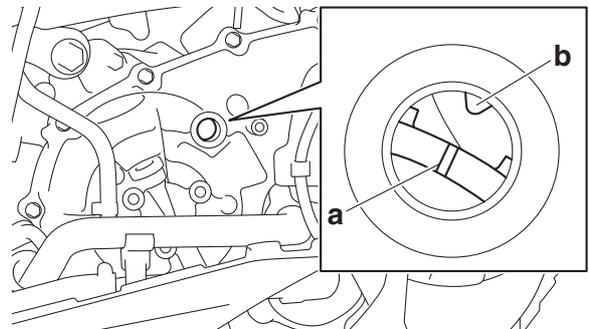
- c. Push the timing chain tensioner rod "c".
 d. Make sure that the timing chain tensioner rod comes out "d" of the timing chain tensioner housing smoothly. If there is rough movement, replace the timing chain tensioner.



- a. Turn the crankshaft clockwise.



- b. When piston #1 is at TDC on the compression stroke, align the "I" mark "a" on the generator rotor with the stationary pointer "b" on the generator cover.



- c. Install the timing chain onto both camshaft sprockets, and then install the camshafts onto the cylinder head.

TIP

- Lubricate the camshaft journal with the molybdenum disulfide oil.
- When installing the timing chain, start with the exhaust camshaft and be sure to keep the timing chain as tight as possible on the exhaust side.
- The camshafts should be installed onto the cylinder head so that the alignment marks "c" on the intake camshaft sprocket and the alignment marks "d" on the exhaust camshaft sprocket align with the cylinder head mating

EAS30269

INSTALLING THE CAMSHAFTS

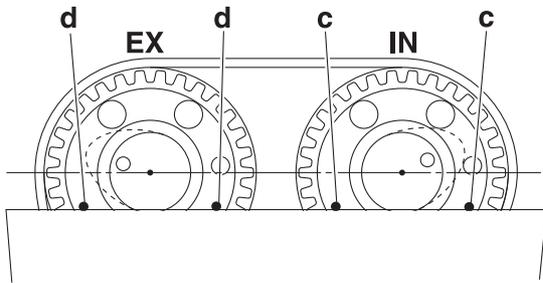
1. Install:
- Exhaust camshaft "1"
 - Intake camshaft "2"

surface, as shown in the illustration.

ECA13740

NOTICE

Do not turn the crankshaft when installing the camshaft(s) to avoid damage or improper valve timing.



2. Install:

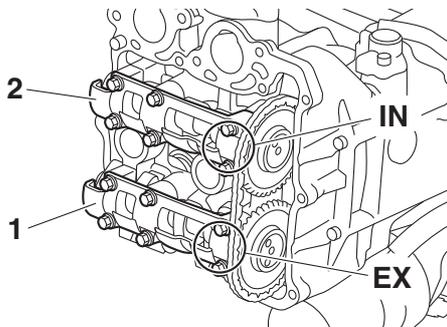
- Dowel pins
- Exhaust camshaft cap "1"
- Intake camshaft cap "2"

TIP

Make sure each camshaft cap is installed in its original place. Refer to the identification marks as follows:

"IN": Intake

"EX": Exhaust



3. Install:

- Camshaft cap bolts

	<p>Camshaft cap bolt 10 N·m (1.0 kgf·m, 7.4 lb·ft)</p>
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ECA13730

NOTICE

The camshaft cap bolts must be tightened evenly or damage to the cylinder head, camshaft caps, and camshafts will result.

TIP

- Lubricate the camshaft cap bolt seats with the engine oil.

- When tightening the camshaft cap, tighten the four bolts on the both ends of the cap temporarily to lower the entire cap, while paying attention not to twist the dowel pins and camshaft journal. After the camshaft cap touches the cylinder head, tighten the two bolts in the middle to the specified torque and then the remaining four bolts to the specified torque.
- To prevent the camshaft cap from cracking, tighten the camshaft cap carefully by tapping the camshaft using a soft-face hammer (both for temporary and final tightening).

4. Install:

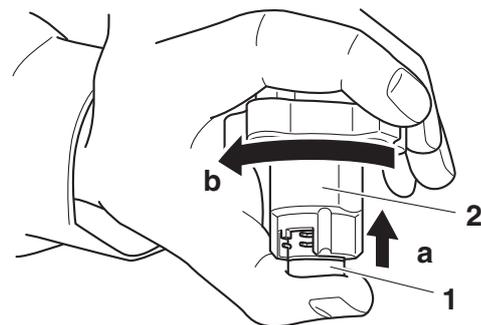
- Timing chain tensioner gasket **New**
- Timing chain tensioner



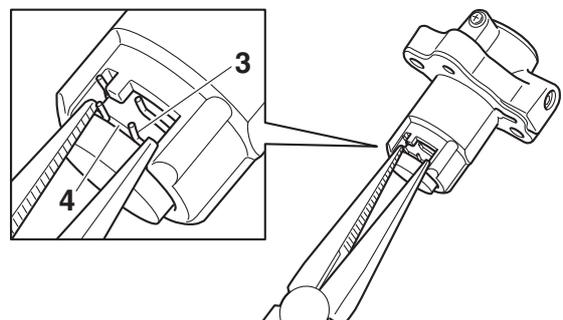
a. Push the timing chain tensioner rod "1" into the timing chain tensioner housing by hand.

TIP

While pushing the timing chain tensioner rod "a", turn it clockwise "b" with the timing chain tensioner body "2" until it stops.



b. Lock the timing chain tensioner rod by setting the circlip "3" into groove "4" while pushing the timing chain tensioner rod.



c. Install the timing chain tensioner to the cylinder block.

TIP

Always use a new gasket.

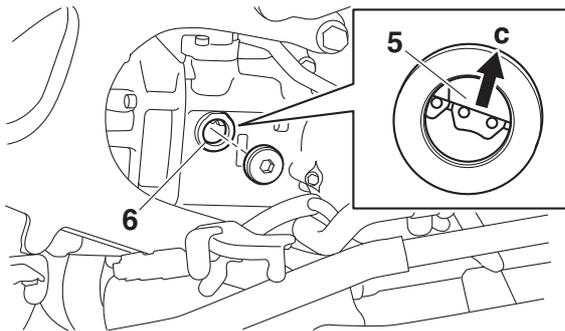


Timing chain tensioner bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)

d. Release the timing chain tensioner rod by pushing up the timing chain guide "5" from the hole "6".

TIP

Do not push up the timing chain.
 Push up the timing chain guide "5" in the direction "c" shown.



5. Turn:

- Crankshaft (several turns clockwise)

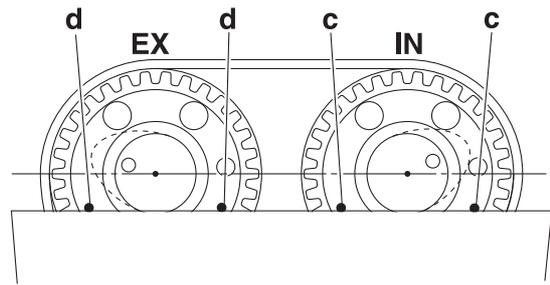
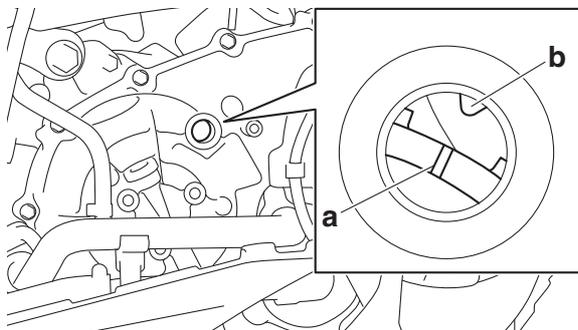
6. Check:

- "I" mark "a"
- Make sure that the "I" mark is aligned with the stationary pointer "b" on the generator cover.
- Camshaft sprocket alignment marks "c" and "d"

Make sure that the camshaft sprocket alignment marks are aligned with the cylinder head mating surface.

Out of alignment → Correct.

Refer to the installation steps above.



7. Measure:

- Valve clearance
 Out of specification → Adjust.
 Refer to "ADJUSTING THE VALVE CLEARANCE" on page 3-5.

8. Install:

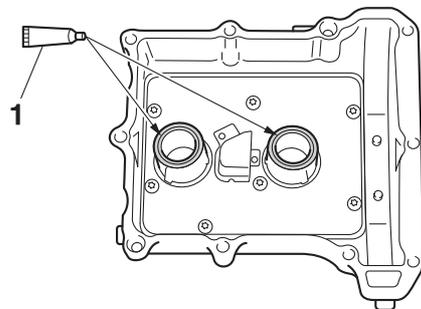
- Timing chain guide (upper side)
- Gaskets **New** (to the cylinder head cover)

TIP

Apply Yamaha bond No. 1215 "1" onto the mating surfaces of the cylinder head cover and gaskets.



Yamaha bond No. 1215
90890-85505
(Three bond No.1215®)



9. Install:

- Cylinder head cover gasket **New**
- Cylinder head cover



Cylinder head cover bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)

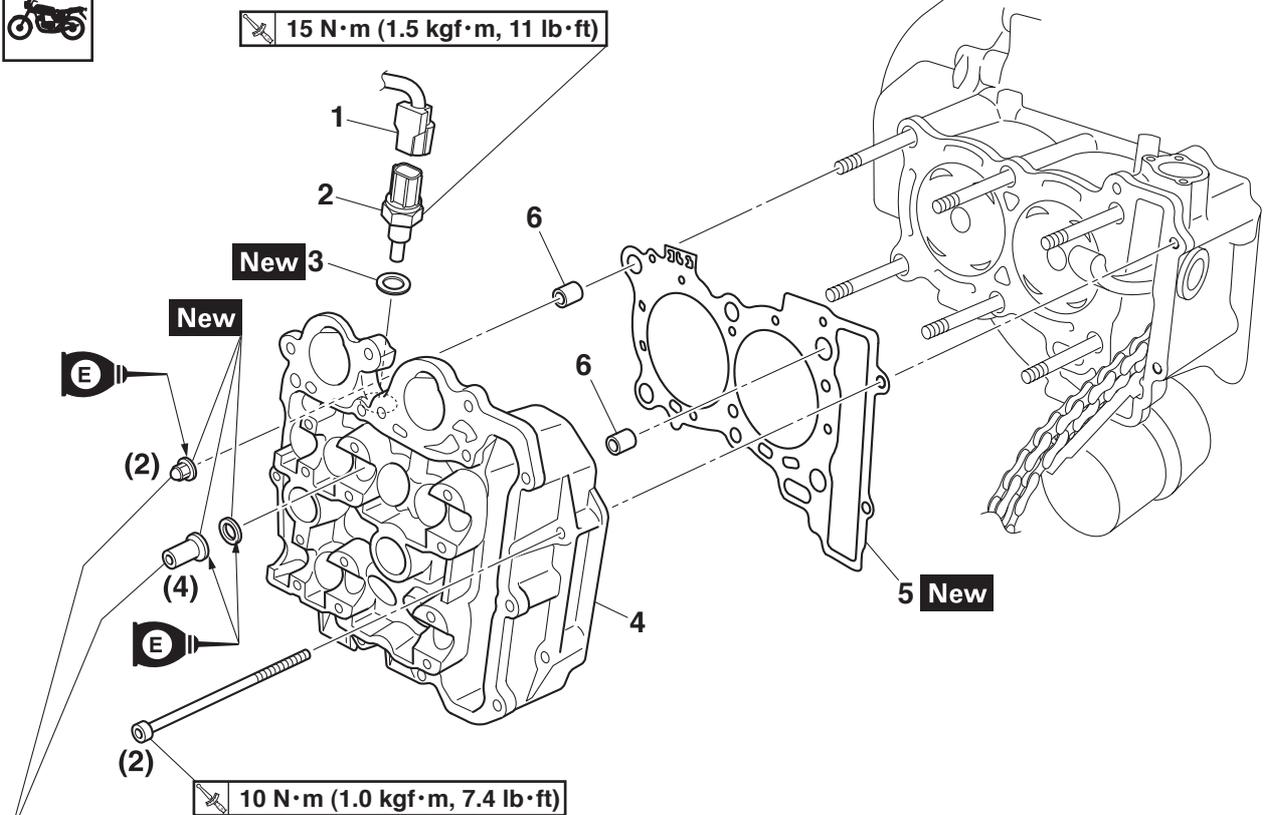
TIP

Tighten the cylinder head cover bolts in stages and in a crisscross pattern.

EAS20044

CYLINDER HEAD

Removing the cylinder head



1st	10 N·m (1.0 kgf·m, 7.4 lb·ft)
2nd	20 N·m (2.0 kgf·m, 15 lb·ft)
3rd	Specified angle 120°

Order	Job/Parts to remove	Q'ty	Remarks
	Camshafts		Refer to "CAMSHAFTS" on page 5-7.
	Exhaust assembly		Refer to "ENGINE REMOVAL" on page 5-2.
	Thermostat		Refer to "THERMOSTAT" on page 6-7.
1	Coolant temperature sensor coupler	1	Disconnect.
2	Coolant temperature sensor	1	
3	Gasket	1	
4	Cylinder head	1	
5	Cylinder head gasket	1	
6	Dowel pin	2	

CYLINDER HEAD

- Lubricate the cylinder head nuts and washers with engine oil.

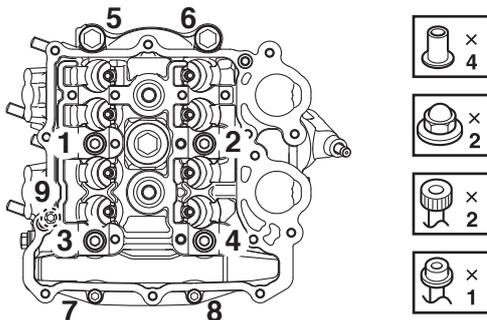
3. Tighten:

- Cylinder head nuts “1”–“6”
- Cylinder head bolts “7”, “8”
- Cylinder bolt “9”

	Cylinder head nut 1st: 10 N·m (1.0 kgf·m, 7.4 lb·ft) 2nd: 20 N·m (2.0 kgf·m, 15 lb·ft) 3rd: 120°
	Cylinder head bolt 10 N·m (1.0 kgf·m, 7.4 lb·ft)
	Cylinder bolt 10 N·m (1.0 kgf·m, 7.4 lb·ft)

TIP

- Using the indicated tightening sequence, tighten the cylinder head nuts, cylinder head bolts, and cylinder bolt when the cylinder head and cylinder are cold.
- Use three steps to tighten the cylinder head nuts.



4. Install:

- Exhaust camshaft
- Intake camshaft

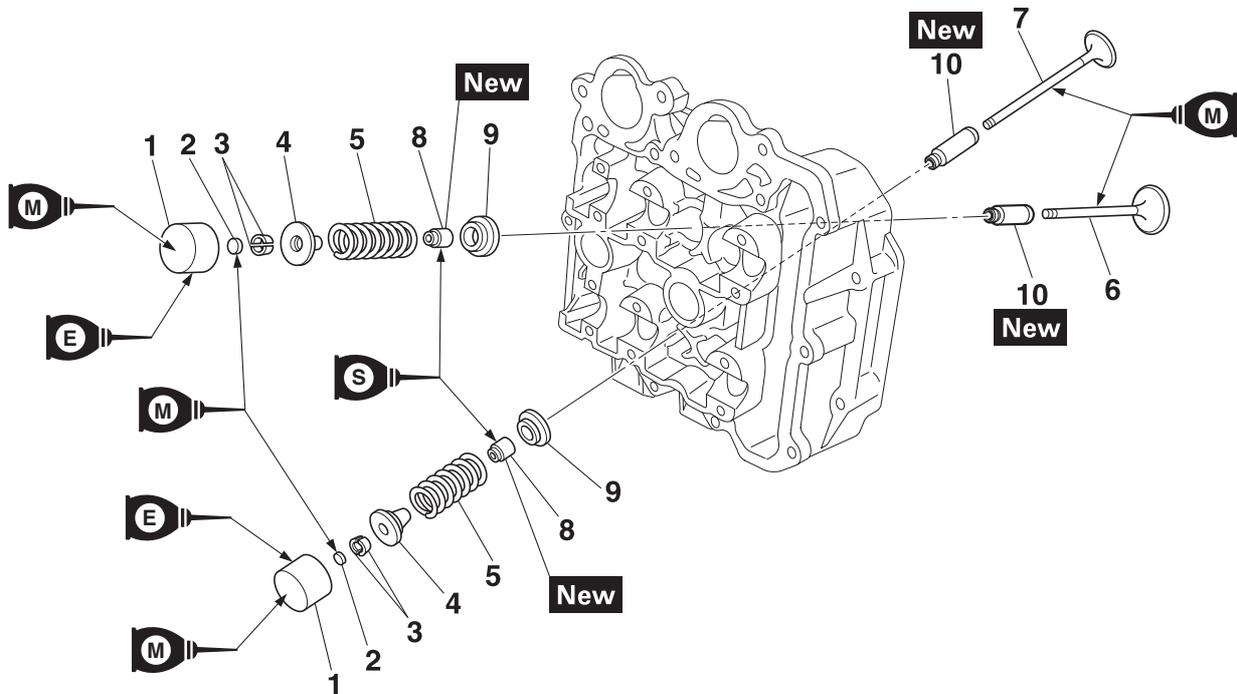
Refer to “INSTALLING THE CAMSHAFTS” on page 5-12.

VALVES AND VALVE SPRINGS

EAS20045

VALVES AND VALVE SPRINGS

Removing the valves and valve springs



Order	Job/Parts to remove	Q'ty	Remarks
	Cylinder head		Refer to "CYLINDER HEAD" on page 5-15.
1	Valve lifter	8	
2	Valve pad	8	
3	Valve cotter	16	
4	Valve spring retainer	8	
5	Valve spring	8	
6	Intake valve	4	
7	Exhaust valve	4	
8	Valve stem seal	8	
9	Valve spring seat	8	
10	Valve guide	8	

VALVES AND VALVE SPRINGS

EAS30283

REMOVING THE VALVES

The following procedure applies to all of the valves and related components.

TIP

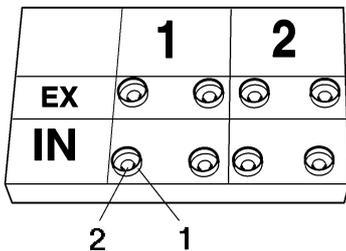
Before removing the internal parts of the cylinder head (e.g., valves, valve springs, valve seats), make sure the valves properly seal.

1. Remove:

- Valve lifter "1"
- Valve pad "2"

TIP

Make a note of the position of each valve lifter and valve pad so that they can be reinstalled in their original place.



2. Check:

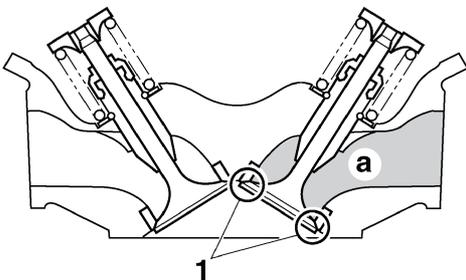
- Valve sealing
Leakage at the valve seat → Check the valve face, valve seat, and valve seat width. Refer to "CHECKING THE VALVE SEATS" on page 5-21.



- Pour a clean solvent "a" into the intake and exhaust ports.
- Check that the valves properly seal.

TIP

There should be no leakage at the valve seat "1".



3. Remove:

- Valve cotters

TIP

Remove the valve cotters by compressing the valve spring with the valve spring compressor "1" and the valve spring compressor attachment "2".

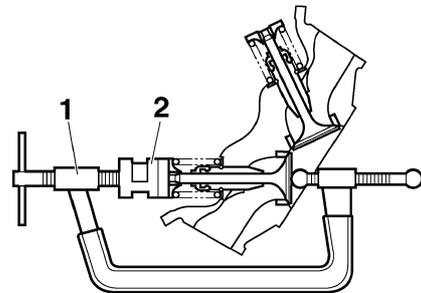


Valve spring compressor
90890-04019

Valve spring compressor
YM-04019

Valve spring compressor attach-
ment
90890-04114

Valve spring compressor adapter
19.5 mm
YM-04114

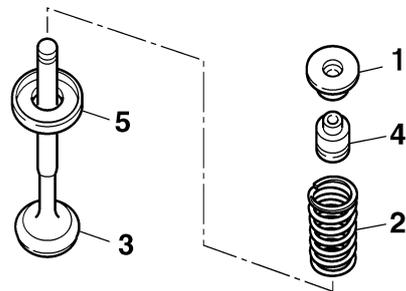


4. Remove:

- Valve spring retainer "1"
- Valve spring "2"
- Valve "3"
- Valve stem seal "4"
- Valve spring seat "5"

TIP

Identify the position of each part very carefully so that it can be reinstalled in its original place.



EAS30284

CHECKING THE VALVES AND VALVE GUIDES

The following procedure applies to all of the valves and valve guides.

1. Measure:

- Valve-stem-to-valve-guide clearance

VALVES AND VALVE SPRINGS



Valve guide remover (ø4)
90890-04111
Valve guide remover (4.0 mm)
YM-04111
Valve guide installer (ø4)
90890-04112
Valve guide installer (4.0 mm)
YM-04112
Valve guide reamer (ø4)
90890-04113
Valve guide reamer (4.0 mm)
YM-04113

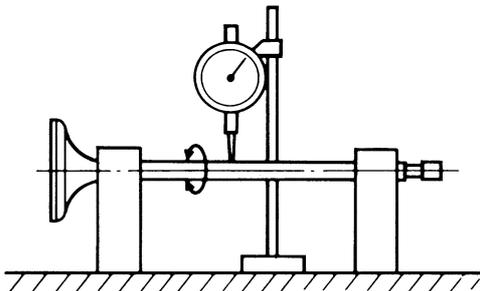
3. Eliminate:
- Carbon deposits (from the valve face and valve seat)
4. Check:
- Valve face
Pitting/wear → Grind the valve face.
 - Valve stem end
Mushroom shape or diameter larger than the body of the valve stem → Replace the valve.
5. Measure:
- Valve stem runout
Out of specification → Replace the valve.

TIP

- When installing a new valve, always replace the valve guide.
- If the valve is removed or replaced, always replace the valve stem seal.



Valve stem runout
0.040 mm (0.0016 in)



EAS30285

CHECKING THE VALVE SEATS

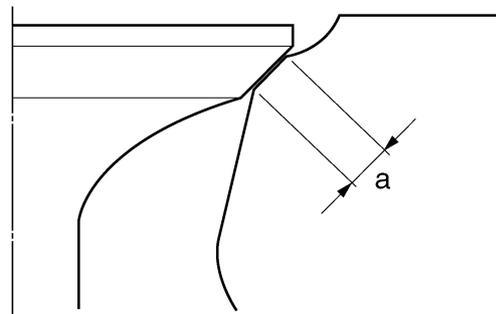
The following procedure applies to all of the valves and valve seats.

1. Eliminate:
- Carbon deposits (from the valve face and valve seat)

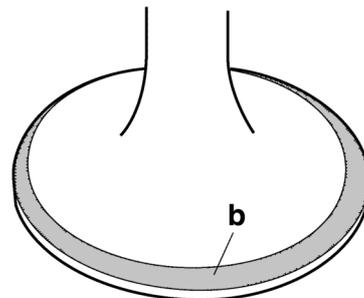
2. Check:
- Valve seat
Pitting/wear → Replace the cylinder head.
3. Measure:
- Valve seat width “a”
Out of specification → Replace the cylinder head.



Valve seat contact width (intake)
0.90–1.10 mm (0.0354–0.0433 in)
Limit
1.6 mm (0.06 in)
Valve seat contact width (exhaust)
0.90–1.10 mm (0.0354–0.0433 in)
Limit
1.6 mm (0.06 in)



- a. Apply blue layout fluid “b” onto the valve face.



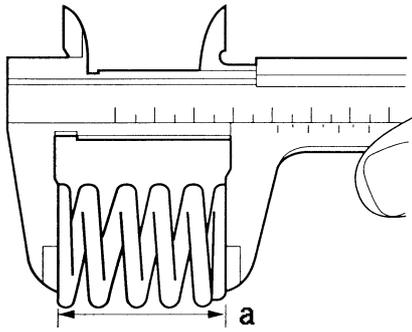
- b. Install the valve into the cylinder head.
 c. Press the valve through the valve guide and onto the valve seat to make a clear impression.
 d. Measure the valve seat width.

TIP

Where the valve seat and valve face contacted one another, the blue layout fluid will have been removed.

4. Lap:
- Valve face
 - Valve seat

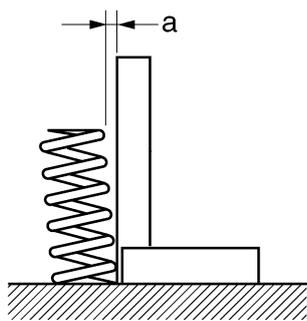
VALVES AND VALVE SPRINGS



2. Measure:

- Valve spring tilt "a"
Out of specification → Replace the valve spring.

	Spring tilt (intake) 1.6 mm (0.06 in) Spring tilt (exhaust) 1.6 mm (0.06 in)
--	---



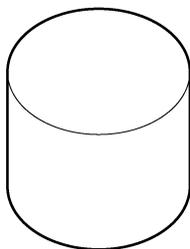
EAS30287

CHECKING THE VALVE LIFTERS

The following procedure applies to all of the valve lifters.

1. Check:

- Valve lifter
Damage/scratches → Replace the valve lifters and cylinder head.



EAS30288

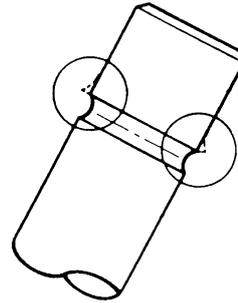
INSTALLING THE VALVES

The following procedure applies to all of the valves and related components.

1. Deburr:

- Valve stem end

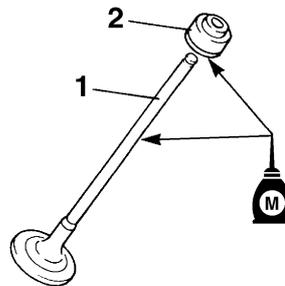
(with an oil stone)



2. Lubricate:

- Valve stem "1"
- Valve stem seal "2"
(with the recommended lubricant)

	Recommended lubricant Molybdenum disulfide oil
--	--

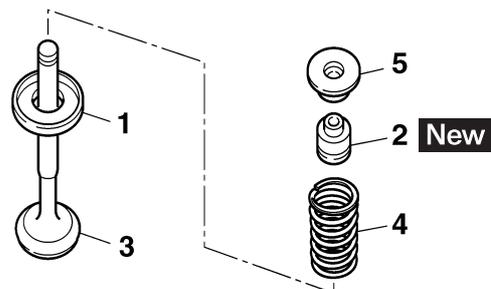


3. Install:

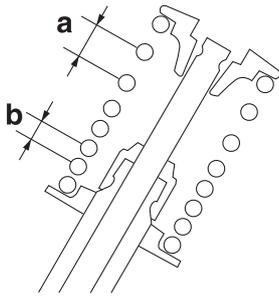
- Valve spring seat "1"
- Valve stem seal "2" **New**
- Valve "3"
- Valve spring "4"
- Valve spring retainer "5"
(into the cylinder head)

TIP

- Make sure each valve is installed in its original place.
- Install the valve springs with the larger pitch "a" facing up.



VALVES AND VALVE SPRINGS



b. Smaller pitch

4. Install:

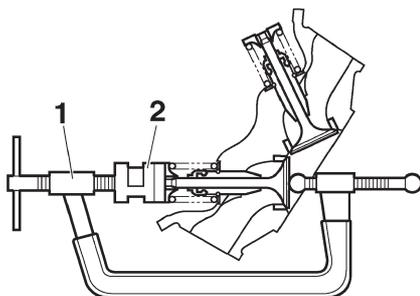
- Valve cotters

TIP _____

Install the valve cotters by compressing the valve spring with the valve spring compressor "1" and the valve spring compressor attachment "2".



Valve spring compressor
90890-04019
Valve spring compressor
YM-04019
Valve spring compressor attach-
ment
90890-04114
Valve spring compressor adapter
19.5 mm
YM-04114

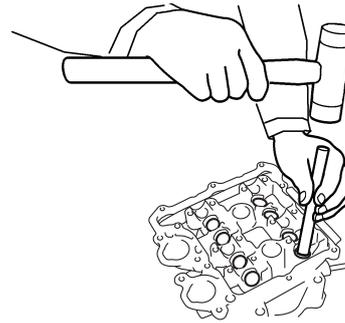


5. To secure the valve cotters onto the valve stem, lightly tap the valve tip with a soft-face hammer.

ECA13800

NOTICE _____

Hitting the valve tip with excessive force could damage the valve.



6. Lubricate:

- Valve pad
(with the recommended lubricant)



Recommended lubricant
Molybdenum disulfide oil

7. Lubricate:

- Valve lifter
(with the recommended lubricant)



Recommended lubricant
Engine oil

8. Install:

- Valve pad
- Valve lifter

ECA22150

NOTICE _____

After making sure that the valve pads are fully inserted, install the valve lifter taking care so that the pads do not fall.

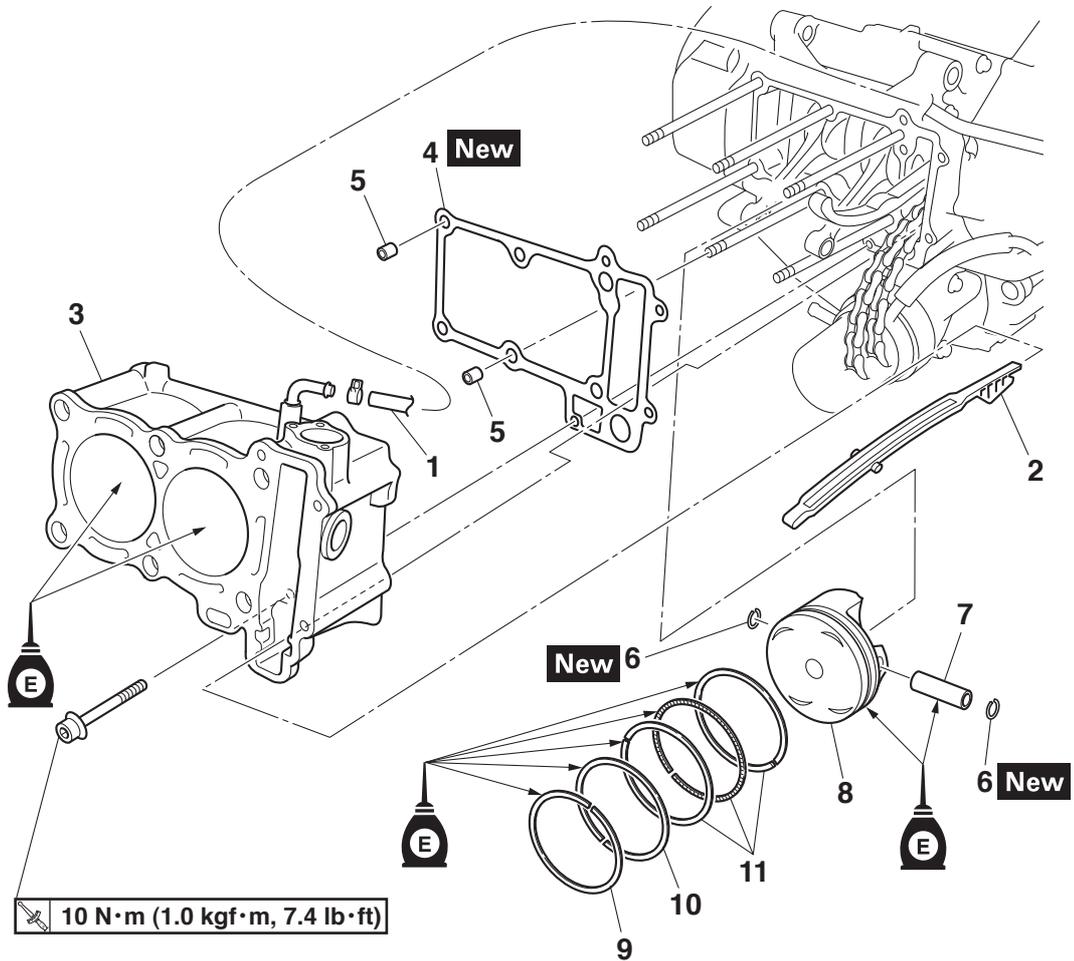
TIP _____

- The valve lifter must move smoothly when rotated with a finger.
- Each valve lifter and valve pad must be reinstalled in its original position.

EAS20046

CYLINDER AND PISTONS

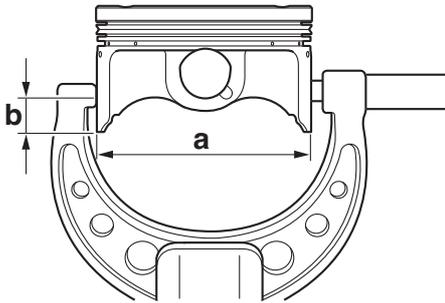
Removing the cylinder and pistons



Order	Job/Parts to remove	Q'ty	Remarks
	Cylinder head		Refer to "CYLINDER HEAD" on page 5-15.
1	Coolant hose	1	Disconnect.
2	Timing chain guide (exhaust side)	1	
3	Cylinder	1	
4	Cylinder gasket	1	
5	Dowel pin	2	
6	Piston pin clip	4	
7	Piston pin	2	
8	Piston	2	
9	Top ring	2	
10	2nd ring	2	
11	Oil ring	2	

CYLINDER AND PISTONS

c. Measure piston skirt diameter “a” with the micrometer.



b. 9.0 mm (0.35 in) from the bottom edge of the piston

	Piston Diameter
	67.975–67.990 mm (2.6762–2.6768 in)

d. If out of specification, replace the piston and piston rings as a set.

e. Calculate the piston-to-cylinder clearance with the following formula.

$\text{Piston-to-cylinder clearance} = \text{Cylinder bore} - \text{Piston skirt diameter}$

	Piston-to-cylinder clearance
	0.010–0.035 mm (0.0004–0.0014 in)

f. If out of specification, replace the cylinder, piston and piston rings as a set.



EAS30292

CHECKING THE PISTON RINGS

1. Measure:

- Piston ring side clearance
Out of specification → Replace the piston and piston rings as a set.

TIP

Before measuring the piston ring side clearance, eliminate any carbon deposits from the piston ring grooves and piston rings.



Piston ring

Top ring

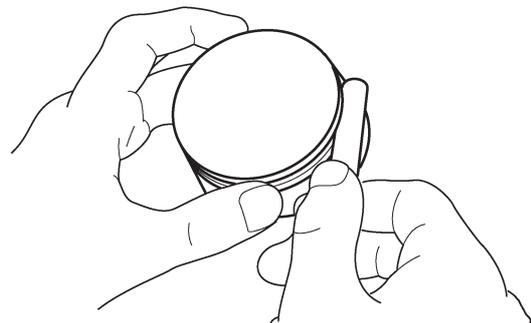
Ring side clearance
0.030–0.065 mm (0.0012–0.0026 in)

Side clearance limit
0.115 mm (0.0045 in)

2nd ring

Ring side clearance
0.020–0.055 mm (0.0008–0.0022 in)

Side clearance limit
0.115 mm (0.0045 in)



2. Install:

- Piston ring
(into the cylinder)

TIP

Use the piston crown to level the piston ring near the bottom of the cylinder where the cylinder wear is lowest.

3. Measure:

- Piston ring end gap
Out of specification → Replace the piston ring set.

TIP

The oil ring expander spacer's end gap cannot be measured. If the oil ring rail's gap is excessive, replace all three piston rings.



Piston ring

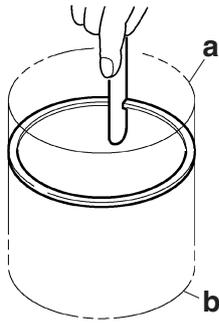
Top ring

End gap limit
0.60 mm (0.0236 in)

2nd ring

End gap limit
0.85 mm (0.0335 in)

CYLINDER AND PISTONS



- a. Bottom of cylinder
- b. Upper of cylinder

EAS30293

CHECKING THE PISTON PINS

The following procedure applies to both of the piston pins.

1. Check:

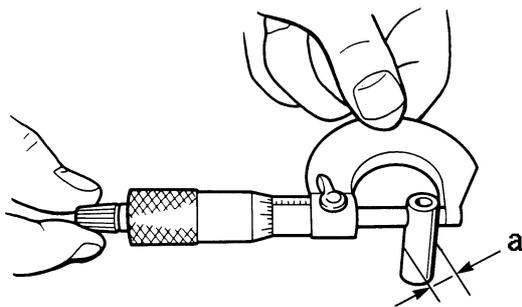
- Piston pin
Blue discoloration/grooves → Replace the piston pin and then check the lubrication system.

2. Measure:

- Piston pin outside diameter “a”
Out of specification → Replace the piston pin.



Piston pin outside diameter
15.995–16.000 mm (0.6297–0.6299 in)
Limit
15.975 mm (0.6289 in)

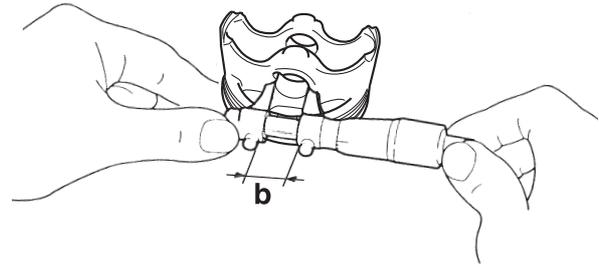


3. Measure:

- Piston pin bore inside diameter “b”
Out of specification → Replace the piston.



Piston pin bore inside diameter
16.002–16.013 mm (0.6300–0.6304 in)
Limit
16.043 mm (0.6316 in)



4. Calculate:

- Piston-pin-to-piston-pin-bore clearance
Out of specification → Replace the piston pin and piston as a set.

Piston-pin-to-piston-pin-bore clearance =
Piston pin bore inside diameter -
Piston pin outside diameter



Piston-pin-to-piston-pin-bore clearance

0.002–0.018 mm (0.0001–0.0007 in)

EAS30294

INSTALLING THE PISTON AND CYLINDER

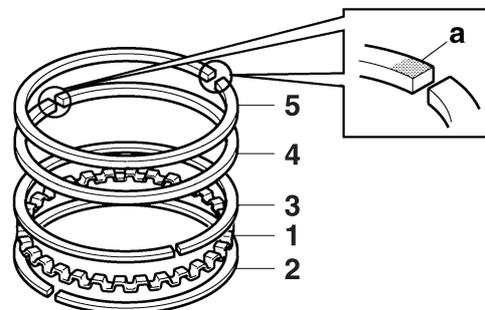
The following procedure applies to all of the pistons and cylinders.

1. Install:

- Oil ring expander “1”
- Lower oil ring rail “2”
- Upper oil ring rail “3”
- 2nd ring “4”
- Top ring “5”
(into the piston)

TIP

Be sure to install the top and 2nd rings so that the manufacturer marks or numbers “a” face up.



2. Install:

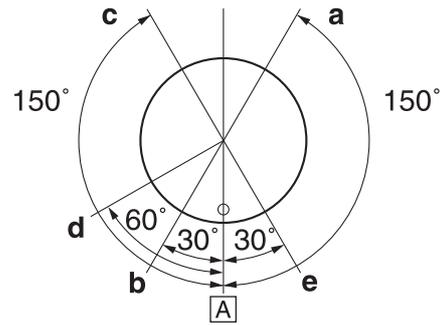
- Piston “1”
- Piston pin “2”
- Piston pin clips “3” **New**

TIP

- Apply engine oil onto the piston pin.

CYLINDER AND PISTONS

- Make sure the mark “a” on the piston points towards the exhaust side of the cylinder.
- Reinstall each piston into its original cylinder.
- Before installing the piston pin clip, cover the crankcase opening with a clean rag to prevent the piston pin clip from falling into the crankcase.
- Make sure that the clip ends “b” are positioned away from the cutout “c” in the piston as shown in the illustration.



- a. Top ring
- b. 2nd ring
- c. Upper oil ring rail
- d. Oil ring expander
- e. Lower oil ring rail

A. Exhaust side

6. Install:
- Cylinder
 - Cylinder bolt

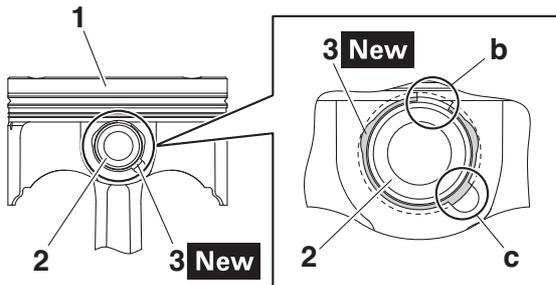
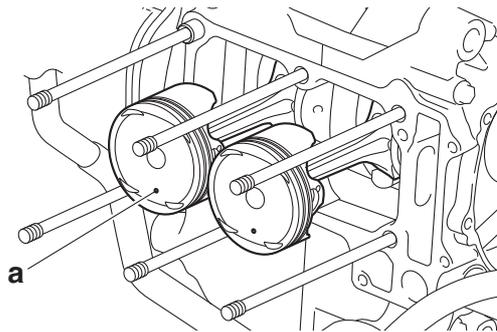
TIP

- While compressing the piston rings, install the cylinder.
- Pass the timing chain and timing chain guide (intake side) through the timing chain cavity.

7. Tighten:
- Cylinder bolt



Cylinder bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)



3. Install:
- Dowel pins
 - Cylinder gasket **New**
4. Lubricate:
- Piston
 - Piston rings
 - Cylinder
(with the recommended lubricant)

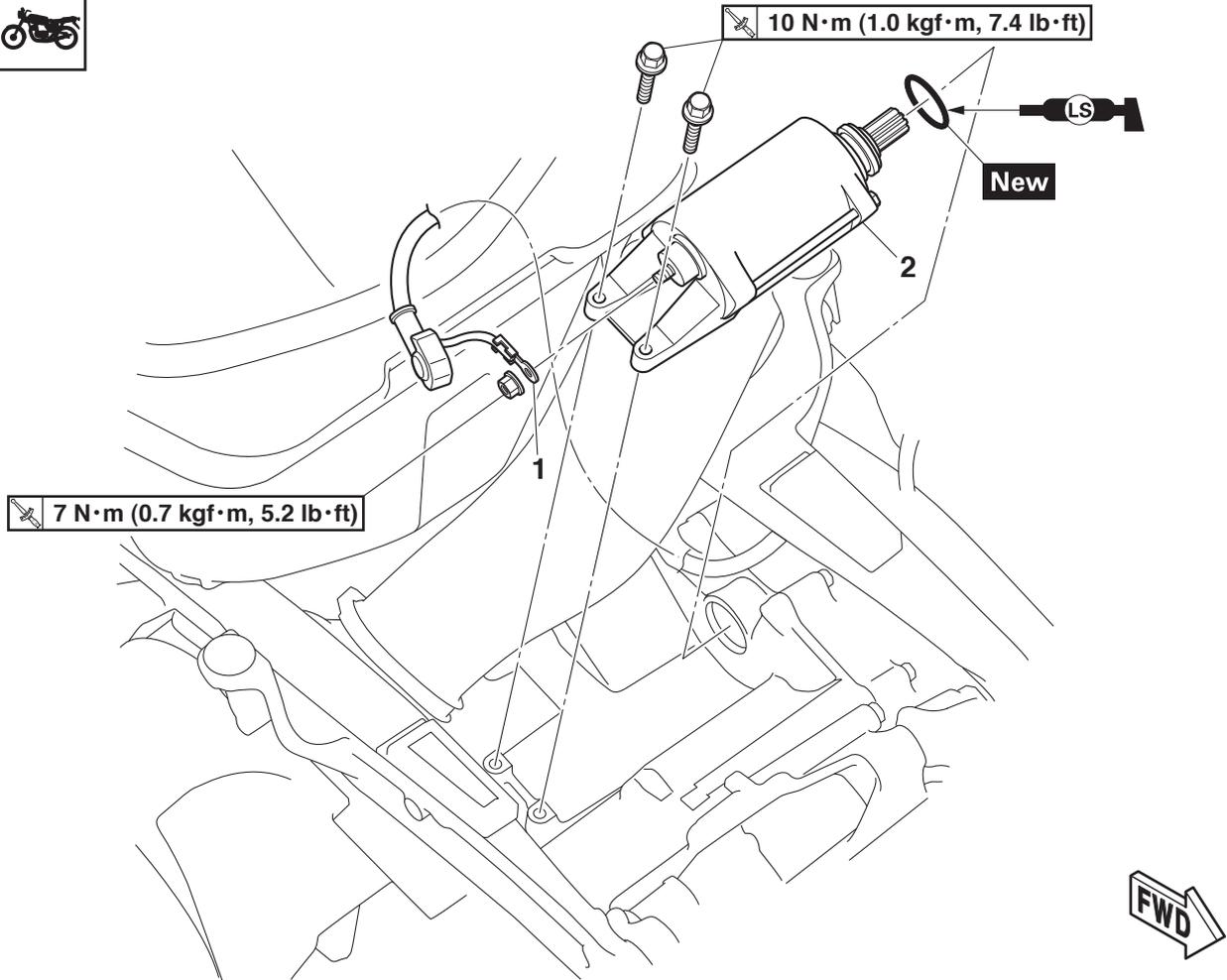


5. Offset:
- Piston ring end gaps

EAS20052

ELECTRIC STARTER

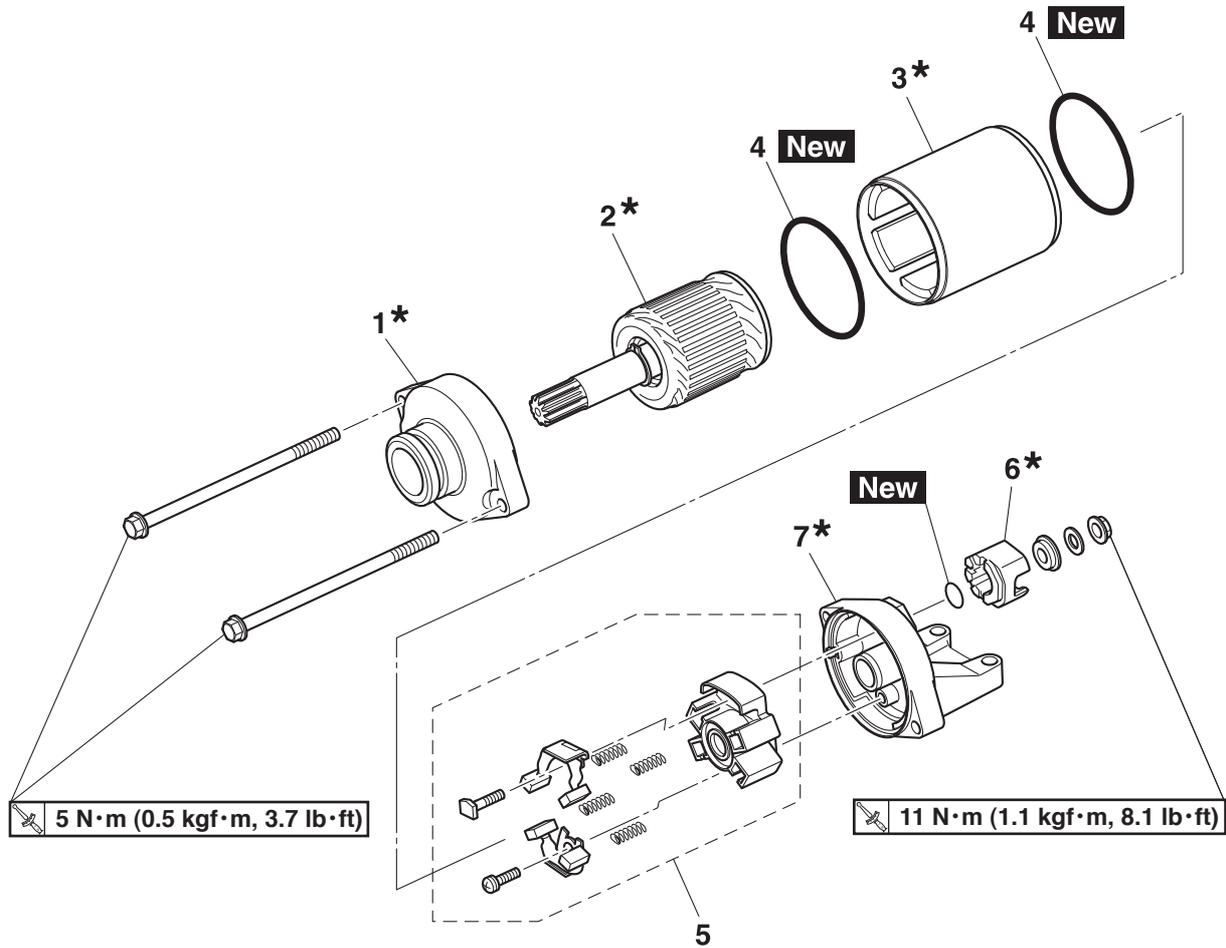
Removing the starter motor



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Fuel tank		Refer to "FUEL TANK" on page 7-1.
1	Starter motor lead	1	Disconnect.
2	Starter motor assembly	1	

ELECTRIC STARTER

Disassembling the starter motor



* When replacing any of the starter motor front cover, armature assembly, starter motor yoke, insulator, and starter motor rear cover, replace the starter motor assembly.

Order	Job/Parts to remove	Q'ty	Remarks
1	Starter motor front cover	1	
2	Armature assembly	1	
3	Starter motor yoke	1	
4	O-ring	2	
5	Brush holder set	1	
6	Insulator	1	
7	Starter motor rear cover	1	

ELECTRIC STARTER

6. Check:

- Gear teeth
Damage/wear → Replace the starter motor assembly.

7. Check:

- Bearing
Damage/pitting → Replace the starter motor assembly.

EAS30326

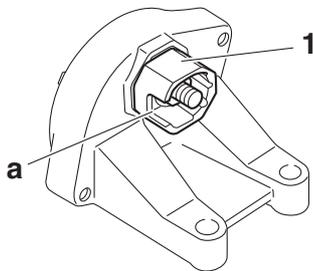
ASSEMBLING THE STARTER MOTOR

1. Install:

- Insulator "1"

TIP

Install the insulator so that the slot "a" is positioned as shown in the illustration.

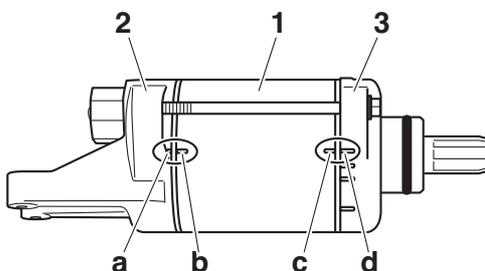


2. Install:

- Starter motor yoke "1"
- Starter motor rear cover "2"
- Starter motor front cover "3"

TIP

- Align the match mark "a" on the starter motor rear cover with the match mark "b" on the starter motor yoke.
- Align the match mark "c" on the starter motor yoke with the match mark "d" on the starter motor front cover.



EAS30327

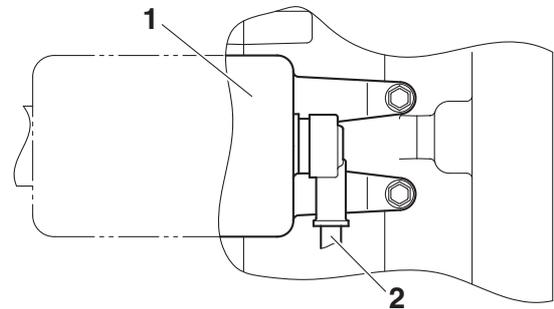
INSTALLING THE STARTER MOTOR

1. Install:

- Starter motor "1"
- Starter motor lead "2"

TIP

Connect the starter motor lead to the starter motor in the direction shown in the illustration.

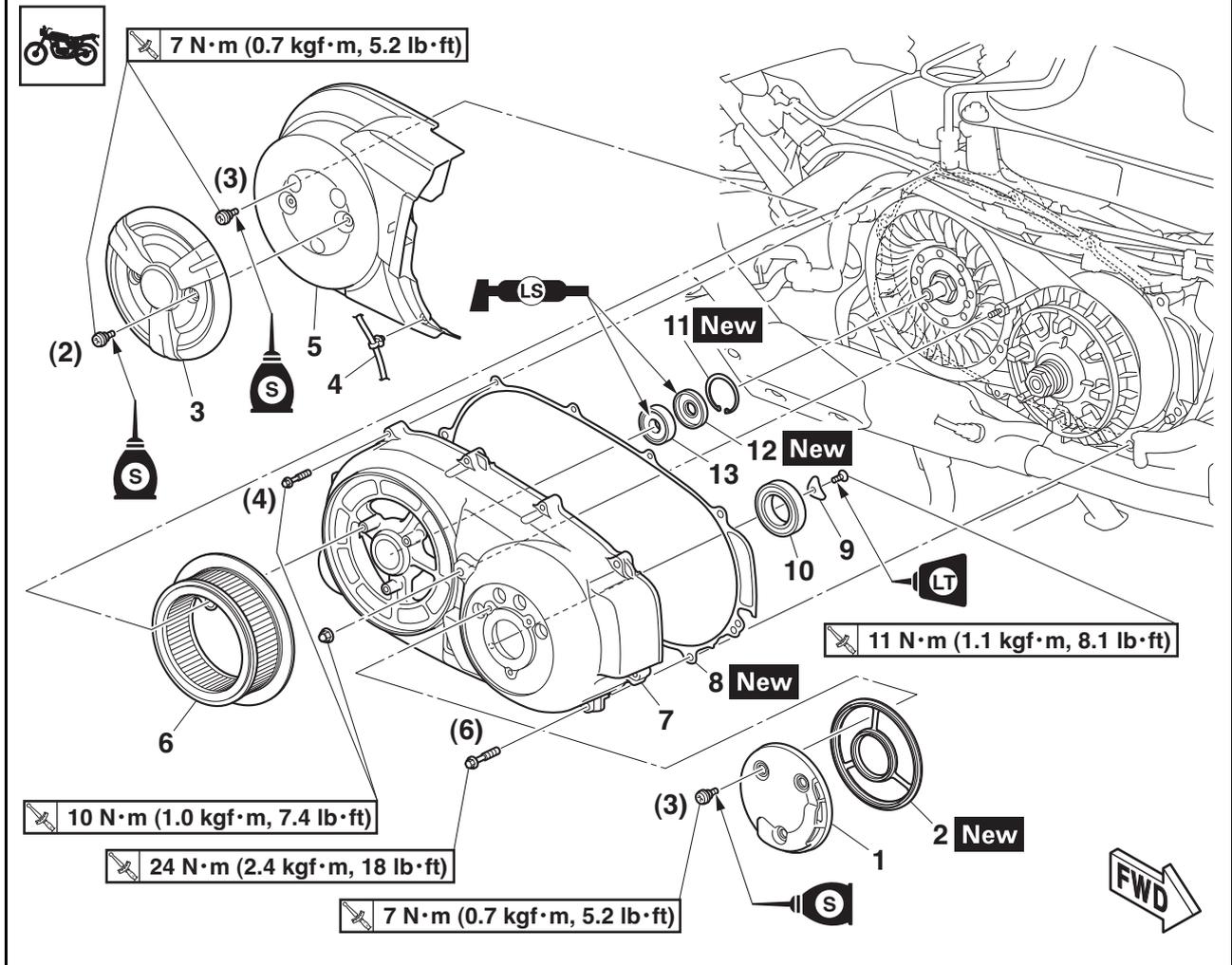


V-BELT AUTOMATIC TRANSMISSION

EAS20050

V-BELT AUTOMATIC TRANSMISSION

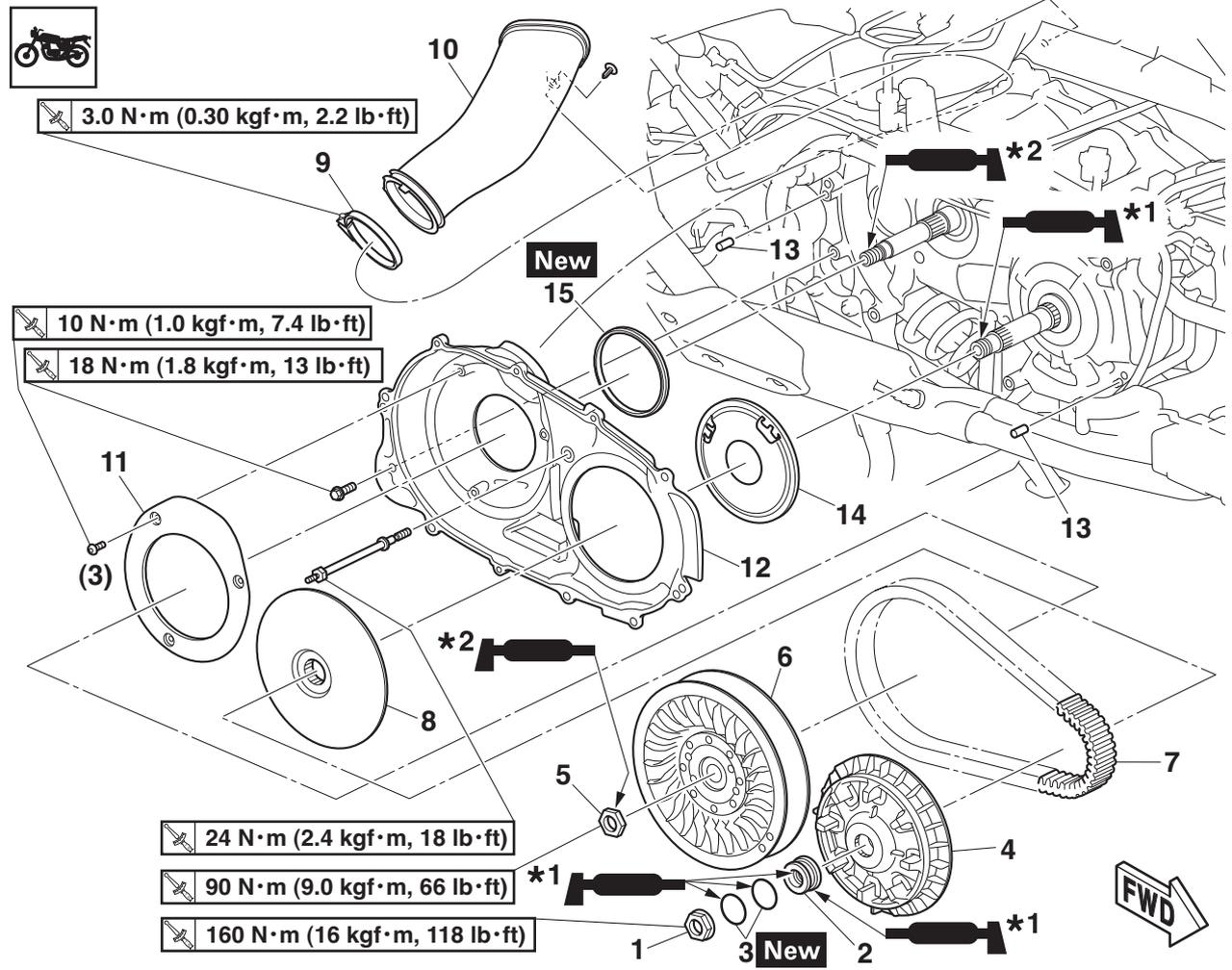
Removing the V-belt case cover



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover (right)/Footboard (right)		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Crankshaft end access cover	1	
2	Damper	1	
3	V-belt case air filter case cover	1	
4	O ₂ sensor lead	1	
5	V-belt case air filter case	1	
6	V-belt case air filter element (right)	1	
7	Outer V-belt case	1	
8	Outer V-belt case gasket	1	
9	Bearing retainer	1	
10	Bearing	1	
11	Circlip	1	
12	Oil seal	1	
13	Bearing	1	

V-BELT AUTOMATIC TRANSMISSION

Removing the V-belt and primary/secondary sheave



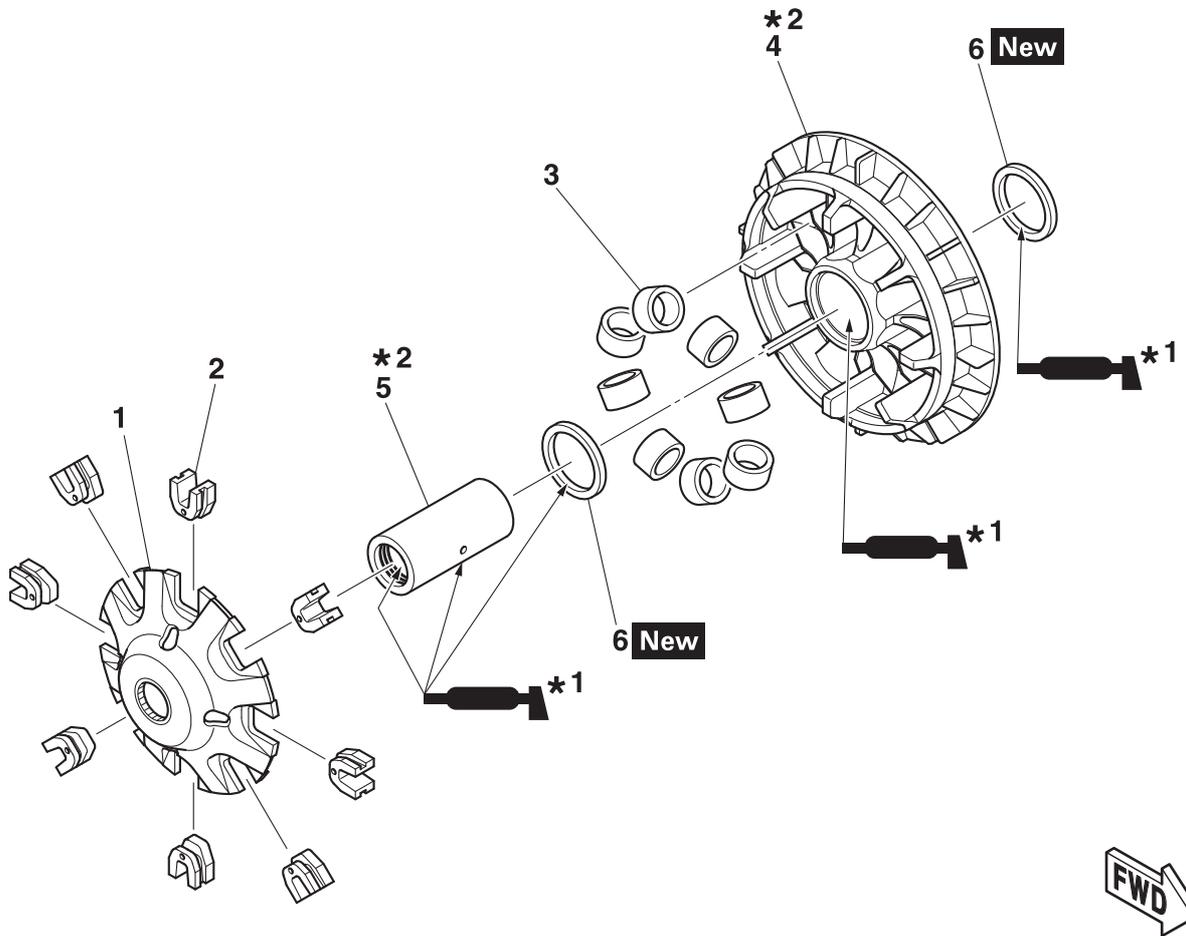
*1 Apply YAMAHA GREASE "G" (Shell Sunlight Grease 3®).

*2 Apply YAMAHA GREASE "H" (Polyurea Grease®).

Order	Job/Parts to remove	Q'ty	Remarks
1	Primary sheave nut	1	
2	Spacer	1	
3	O-ring	2	
4	Primary sheave assembly	1	
5	Secondary sheave nut	1	
6	Secondary sheave assembly	1	
7	V-belt	1	
8	Primary fixed sheave	1	
9	V-belt case air duct joint clamp	1	Loosen.
10	V-belt case air duct	1	
11	Inner V-belt case plate	1	
12	Inner V-belt case	1	
13	Dowel pin	2	
14	Plate	1	
15	Inner V-belt case seal	1	

V-BELT AUTOMATIC TRANSMISSION

Disassembling the primary sheave



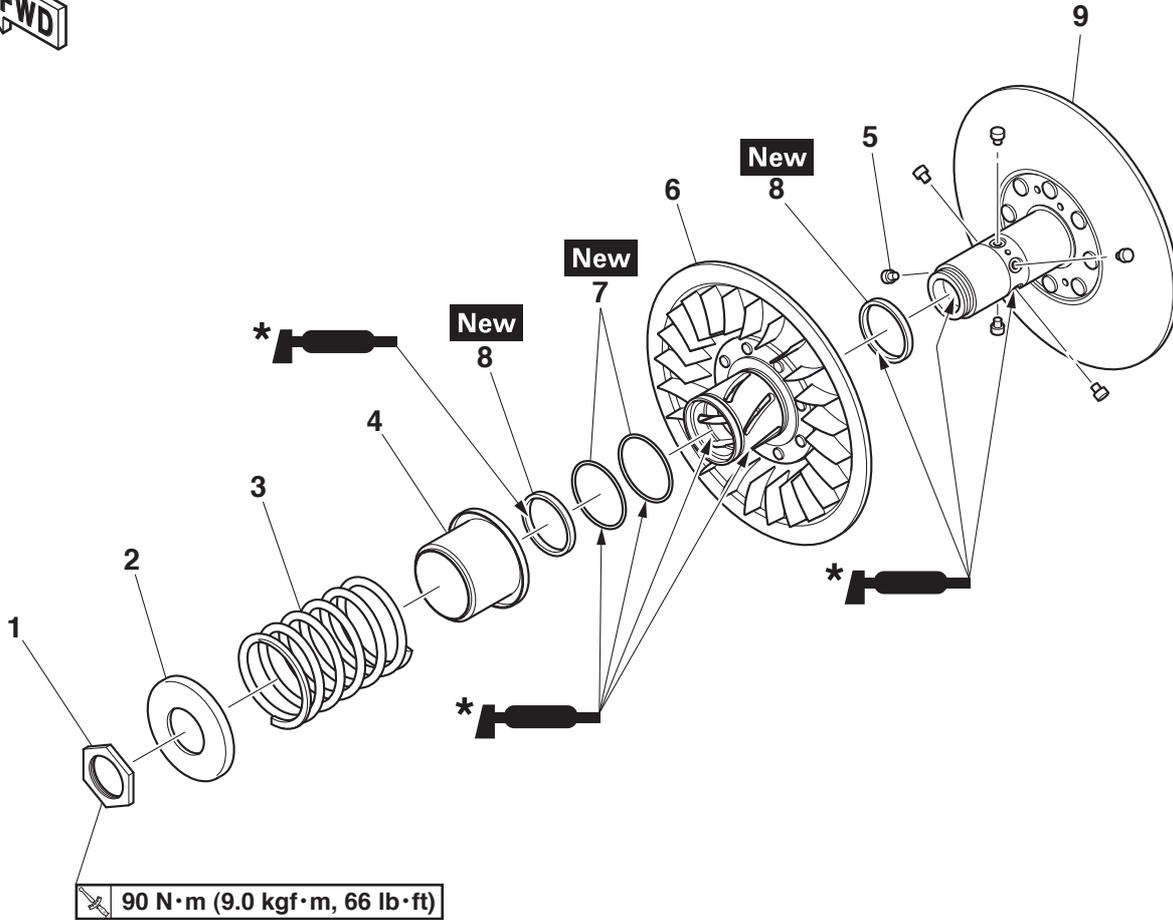
*1 Apply YAMAHA GREASE "H" (Polyurea Grease®).

*2 When replacing the primary sliding sheave or collar, replace them as a set.

Order	Job/Parts to remove	Q'ty	Remarks
1	Cam	1	
2	Slider	8	
3	Primary sheave weight	8	
4	Primary sliding sheave	1	
5	Collar	1	
6	Oil seal	2	

V-BELT AUTOMATIC TRANSMISSION

Disassembling the secondary sheave



* Apply YAMAHA GREASE "H" (Polyurea Grease®).

Order	Job/Parts to remove	Q'ty	Remarks
1	Secondary sheave spring seat nut	1	
2	Upper spring seat	1	
3	Secondary sheave compression spring	1	
4	Spring seat	1	
5	Guide pin	6	
6	Secondary sliding sheave	1	
7	O-ring	2	
8	Oil seal	2	
9	Secondary fixed sheave	1	

V-BELT AUTOMATIC TRANSMISSION

EAS31435

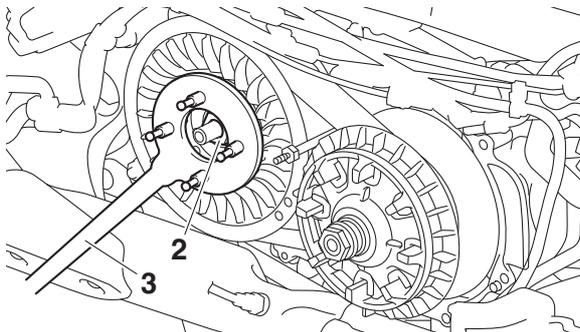
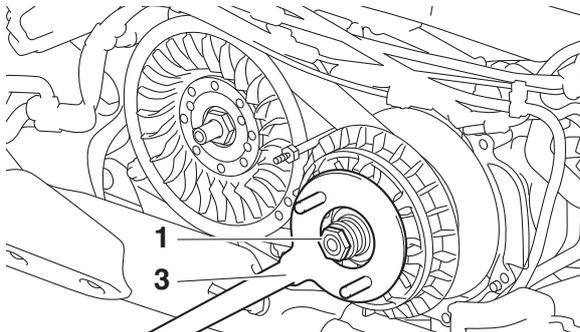
REMOVING THE PRIMARY SHEAVE AND SECONDARY SHEAVE

1. Remove:

- Primary sheave nut "1"
- Secondary sheave nut "2"

TIP

While holding the primary and secondary sheave with the sheave holder "3", loosen the nut.

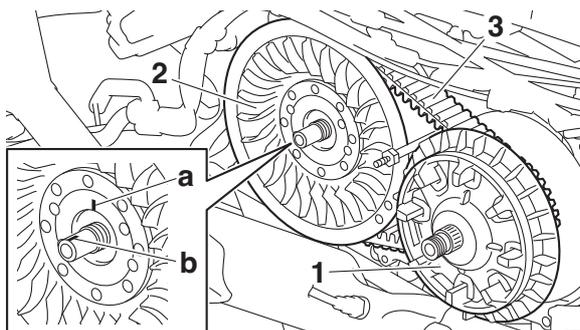


2. Remove:

- Primary sheave assembly "1"
- Secondary sheave assembly "2"
- V-belt "3"

TIP

- Before removal, put alignment marks "a" and "b" as shown.
- Align these marks during reassembly.



EAS30312

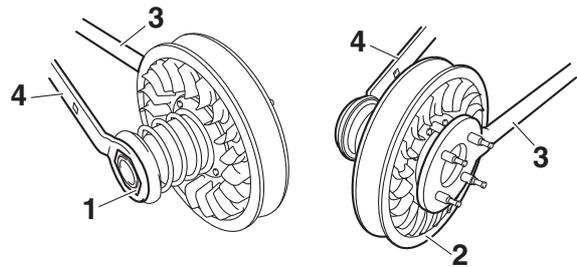
DISASSEMBLY THE SECONDARY SHEAVE

1. Loosen:

- Secondary sheave spring seat nut "1"

TIP

- While holding the secondary fixed sheave "2" with the sheave holder "3", loosen the secondary sheave spring seat nut with the locknut wrench "4".
- Do not loosen the secondary sheave spring seat nut "1" more than 1/4 turn.

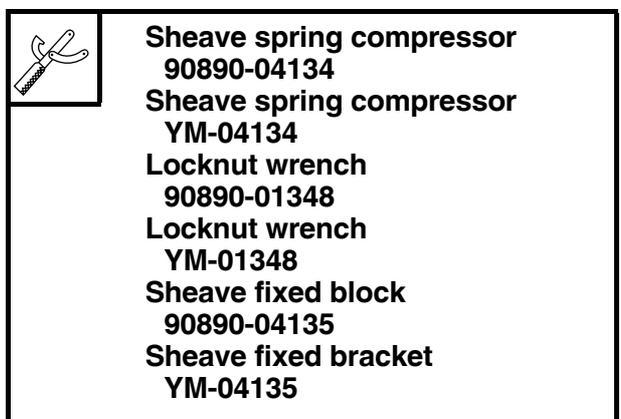


2. Remove:

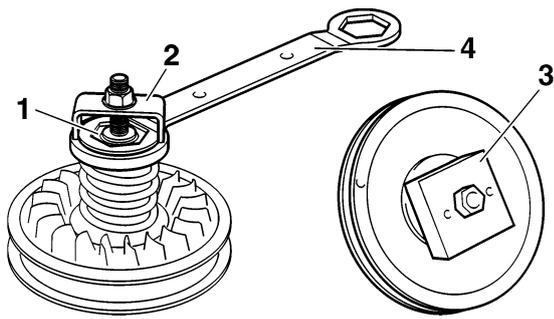
- Secondary sheave spring seat nut "1"

TIP

Install the sheave spring compressor "2" and sheave fixed block "3" onto the secondary sheave assembly as shown. Then, compress the spring, and remove the secondary sheave spring seat nut with locknut wrench "4".



V-BELT AUTOMATIC TRANSMISSION



EAS30315

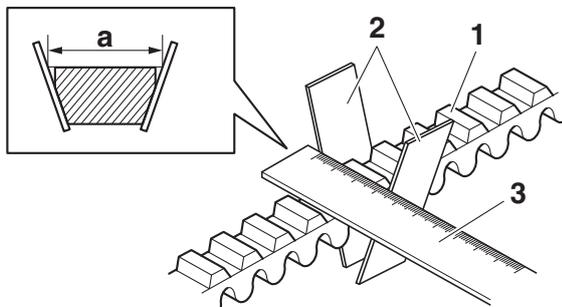
CHECKING THE V-BELT

1. Check:
 - V-belt "1"
 - Cracks/damage/wear → Replace.
 - Grease/oil → Clean the primary and secondary sheave.
2. Measure:
 - V-belt width "a"
 - Out of specification → Replace.

TIP

Measure the V-belt width as illustration.

	V-belt
	V-belt width
	32.9 mm (1.30 in)
	Limit
	31.4 mm (1.24 in)



2. Plastic board
3. Ruler

EAS30316

CHECKING THE PRIMARY SHEAVE

1. Check:
 - Primary sliding sheave
 - Primary fixed sheave
 - Cracks/damage/wear → Replace the primary sliding sheave and primary fixed sheave as a set.

EAS31436

CHECKING THE V-BELT CASE AIR DUCT

1. Check:
 - V-belt case air duct

Cracks/damage → Replace.

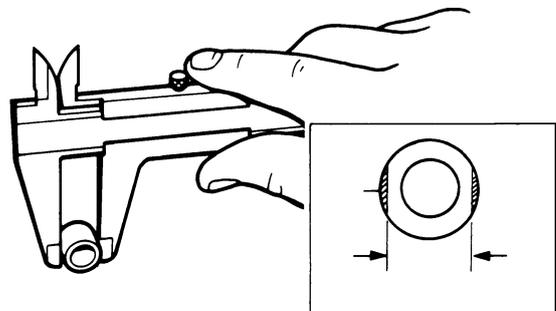
EAS30317

CHECKING THE PRIMARY SHEAVE WEIGHTS

The following procedure applies to all of the primary sheave weights.

1. Check:
 - Primary sheave weight
 - Cracks/damage/wear → Replace.
2. Measure:
 - Primary sheave weight outside diameter
 - Out of specification → Replace.

	Weight outside diameter
	25.0 mm (0.98 in)
	Limit
	24.5 mm (0.96 in)



EAS30318

CHECKING THE SLIDERS

The following procedure applies to all of the sliders.

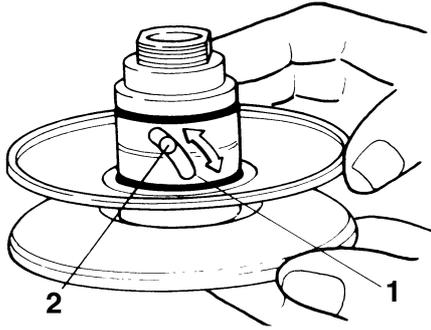
1. Check:
 - Slider
 - Cracks/damage/wear → Replace.

EAS30319

CHECKING THE SECONDARY SHEAVE

1. Check:
 - Secondary fixed sheave
 - Secondary sliding sheave
 - Cracks/damage/wear → Replace the secondary fixed and sliding sheaves as a set.
2. Check:
 - Torque cam groove "1"
 - Damage/wear → Replace the secondary fixed and sliding sheaves as a set.
3. Check:
 - Guide pin "2"
 - Damage/wear → Replace the secondary fixed and sliding sheaves as a set.

V-BELT AUTOMATIC TRANSMISSION



EAS30320

ASSEMBLING THE PRIMARY SHEAVE

1. Clean:

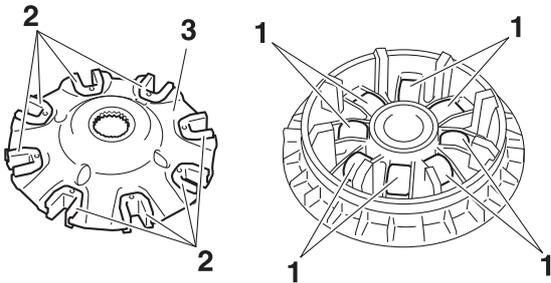
- Primary fixed sheave
- Primary sliding sheave
- Collar
- Cam
- Primary sheave weights

2. Install:

- Primary sheave weights "1"
- Sliders "2"
- Cam "3"

TIP

Do not apply the grease inside of the primary sheave.



EAS30321

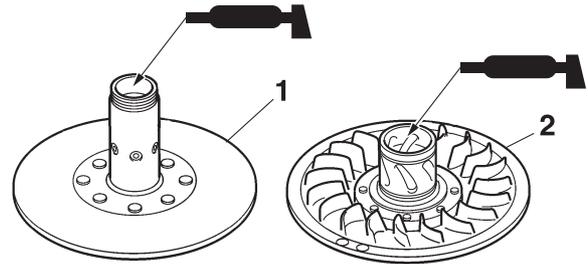
ASSEMBLING THE SECONDARY SHEAVE

1. Lubricate:

- Secondary fixed sheave inner surface "1"
- Secondary sliding sheave inner surface "2"
- Oil seals **New**
(with the recommended lubricant)



Recommended lubricant
YAMAHA GREASE "H" (Poly-urea Grease®)

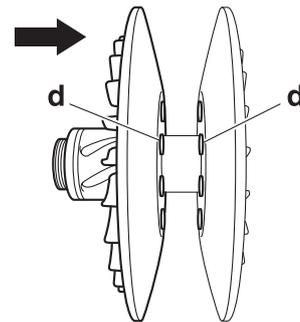
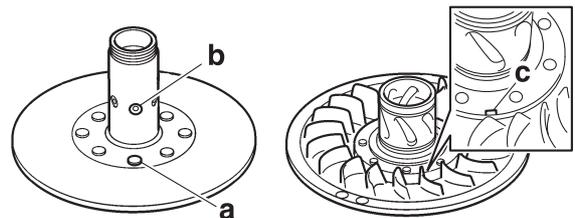


2. Install:

- Guide pins

TIP

Before installing the guide pin, align the position (where fixed sheave rivet head "a" and guide pin hole "b" are in alignment with each other) with alignment mark "c" of the sliding sheave. Install the guide pin. Then, make sure that the sliding sheave slides to the LOW side without an interference of rivet head "d".



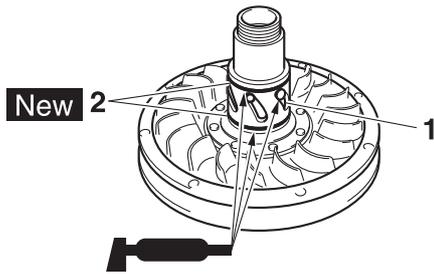
3. Lubricate:

- Guide pin groove "1"
- O-rings "2" **New**
(with the recommended lubricant)



Recommended lubricant
YAMAHA GREASE "H" (Poly-urea Grease®)

V-BELT AUTOMATIC TRANSMISSION



4. Install:

- Secondary sheave spring seat nut "1"

TIP

- Install the secondary sheave spring seat nut with its beveled side "a" facing the spring seat.
- Attach the sheave spring compressor "2" and sheave fixed block "3" onto the secondary sheave as shown.

Then compress the spring, and temporarily tighten the secondary sheave spring seat nut.



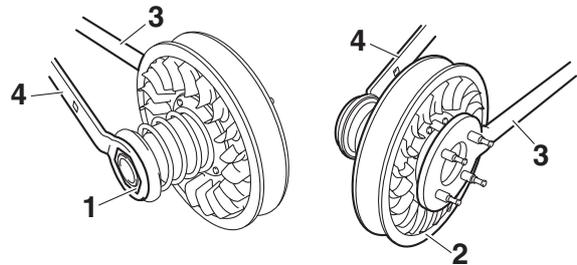
Sheave spring compressor
90890-04134
Sheave spring compressor
YM-04134
Sheave fixed block
90890-04135
Sheave fixed bracket
YM-04135



Sheave holder
90890-01481
Locknut wrench
90890-01348
Locknut wrench
YM-01348



Secondary sheave spring seat nut
90 N·m (9.0 kgf·m, 66 lb·ft)



EAS31437

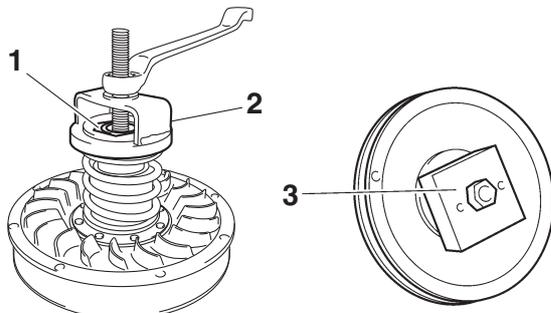
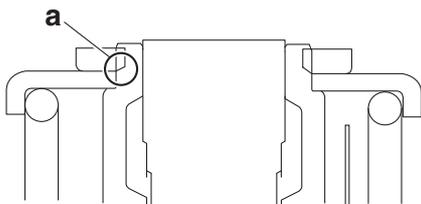
INSTALLING THE PRIMARY SHEAVE ASSEMBLY, SECONDARY SHEAVE ASSEMBLY AND V-BELT

1. Apply:

- Sealant
(onto the inner V-belt case seal)

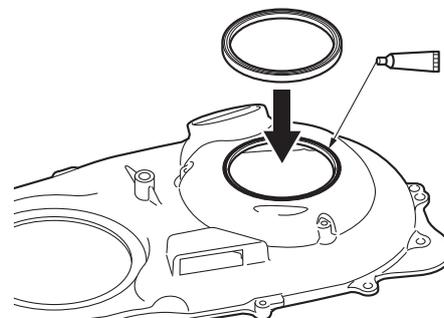


Yamaha bond No. 1215
90890-85505
(Three bond No.1215®)



5. Tighten:

- Secondary sheave spring seat nut "1"



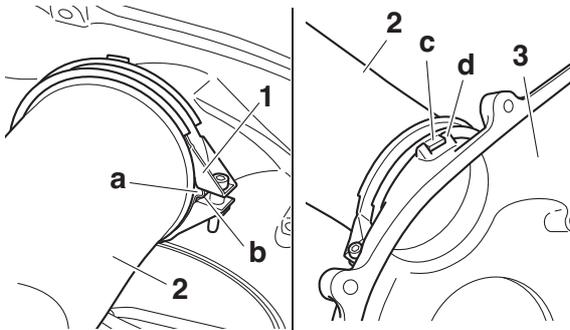
2. Install:

- V-belt case air duct joint clamp "1"
- V-belt case air duct "2"

V-BELT AUTOMATIC TRANSMISSION

TIP

- Align the projection “a” in the V-belt case air duct “2” with the slot “b” on the V-belt case air duct joint clamp “1”.
- Align the projection “c” in the V-belt case air duct “2” with the slot “d” in the inner V-belt case “3”.



3. Install:

- Primary fixed sheave “1”
- V-belt “2”
- Secondary sheave assembly “3”

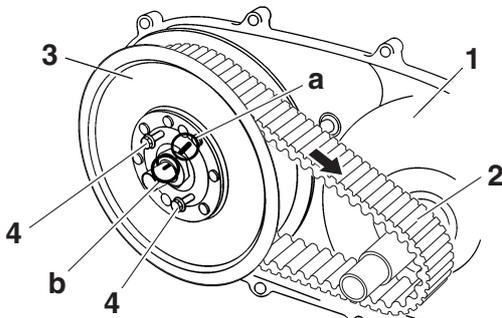
ECA22160

NOTICE

Do not allow grease to contact the V-belt, primary and secondary sheave.

TIP

- When installing the belt, screw M6 (more than 45 mm (1.77 in)) bolts “4” to spread apart the secondary sheave and then install the V-belt. Make sure to install the V-belt with the arrow facing in the direction shown.
- Install the V-belt and secondary sheave assembly then pass the V-belt the primary sheave side.
- Align the “a” and “b” during reassembly.



4. Tighten:

- Secondary sheave nut “1”

TIP

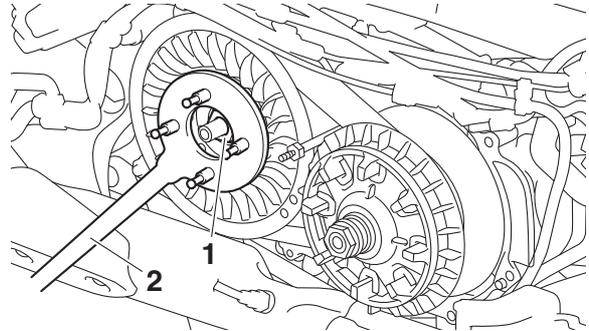
While holding the secondary sheave with the sheave holder “2”, tighten the secondary sheave nut.



Secondary sheave nut
90 N·m (9.0 kgf·m, 66 lb·ft)



Sheave holder
90890-01481



5. Tighten:

- Primary sheave nut “1”

ECA22200

NOTICE

- Before tightening the nut to remount the primary sheave, make sure that the serrations of the cam are fitted firmly into the serrations of the crankshaft.
- Also, make sure that cam is properly seated.
- Apply grease to the thread and seat of the primary sheave nut.



Recommended lubricant
YAMAHA GREASE “G” (Shell
Sunlight Grease 3®)

TIP

While holding the primary sheave with the sheave holder “2”, tighten the primary sheave nut.

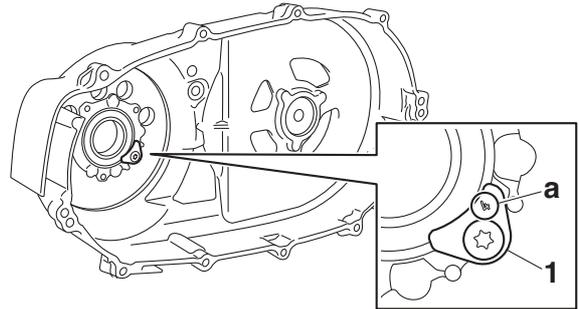
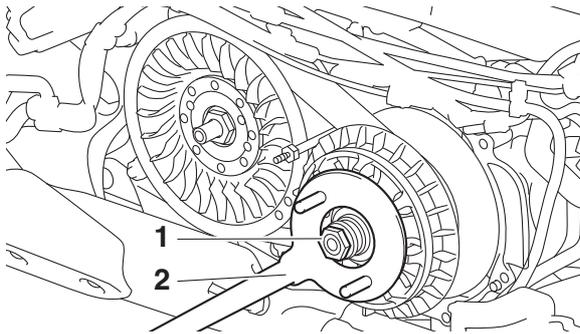


Primary sheave nut
160 N·m (16 kgf·m, 118 lb·ft)



Sheave holder
90890-01481

V-BELT AUTOMATIC TRANSMISSION



EAS31235

INSTALLING THE V-BELT CASE

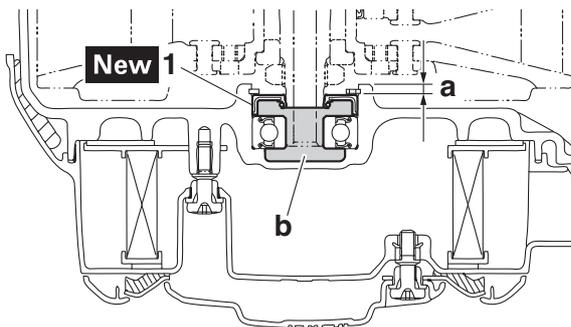
1. Install:

- Oil seal “1” **New**
(into outer V-belt case)



**Installed depth of oil seal “a”
4.0–4.3 mm (0.16–0.17 in)**

- ### 2. Fill the space “b” shown in the illustration with 10 g (0.35 oz) or more of lithium-soap-based grease.

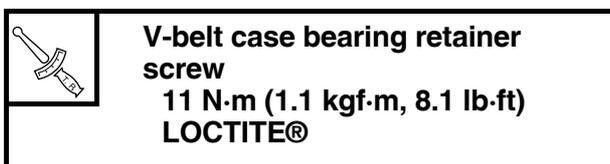


3. Install:

- Bearing retainer “1”

TIP

- Install the bearing retainer “1” with its mark “a” facing outward.
- Apply locking agent (LOCTITE®) to the threads of the bearing retainer screw.



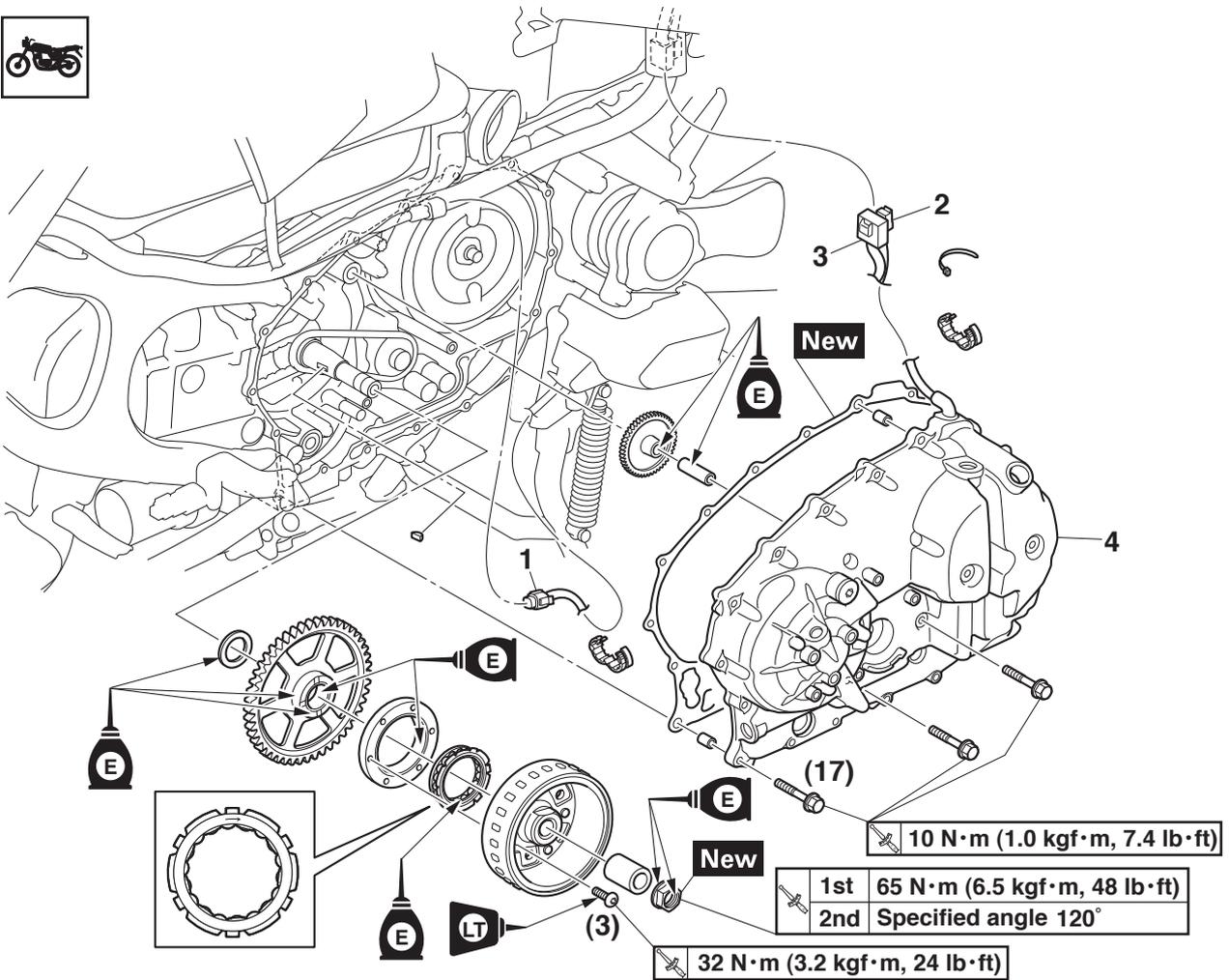
**V-belt case bearing retainer
screw
11 N·m (1.1 kgf·m, 8.1 lb·ft)
LOCTITE®**

GENERATOR AND STARTER CLUTCH

EAS20140

GENERATOR AND STARTER CLUTCH

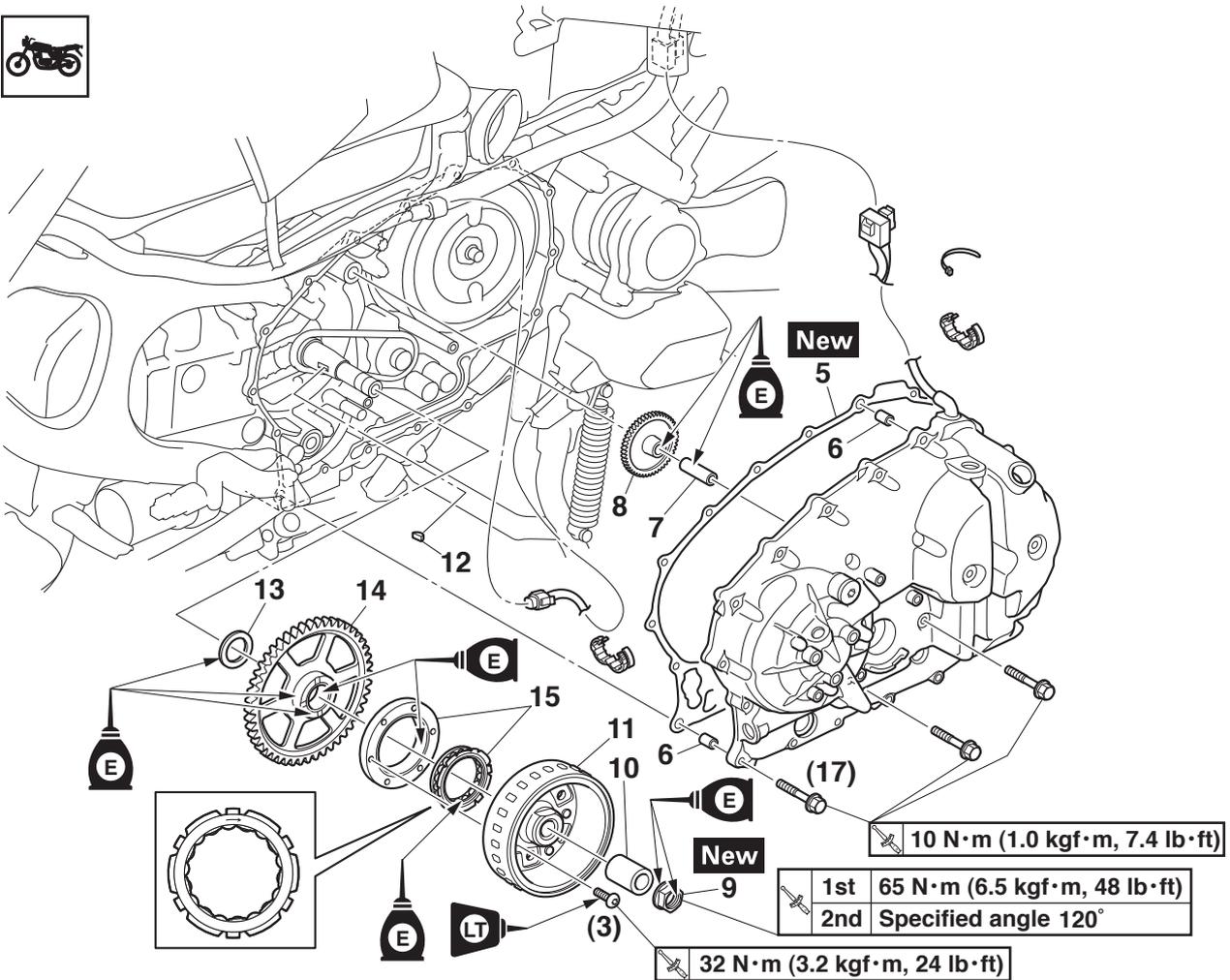
Removing the generator rotor and starter clutch



Order	Job/Parts to remove	Q'ty	Remarks
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 3-27.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-31.
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover (left)/Footboard (left)		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	V-belt case air filter element (left)/Generator cover protector/Water pump inlet pipe/Water pump outlet pipe/Water pump assembly		Refer to "WATER PUMP" on page 6-9.
1	Centerstand lock solenoid coupler	1	Disconnect.
2	Crankshaft position sensor coupler	1	Disconnect.
3	Stator coil coupler	1	Disconnect.
4	Generator cover	1	

GENERATOR AND STARTER CLUTCH

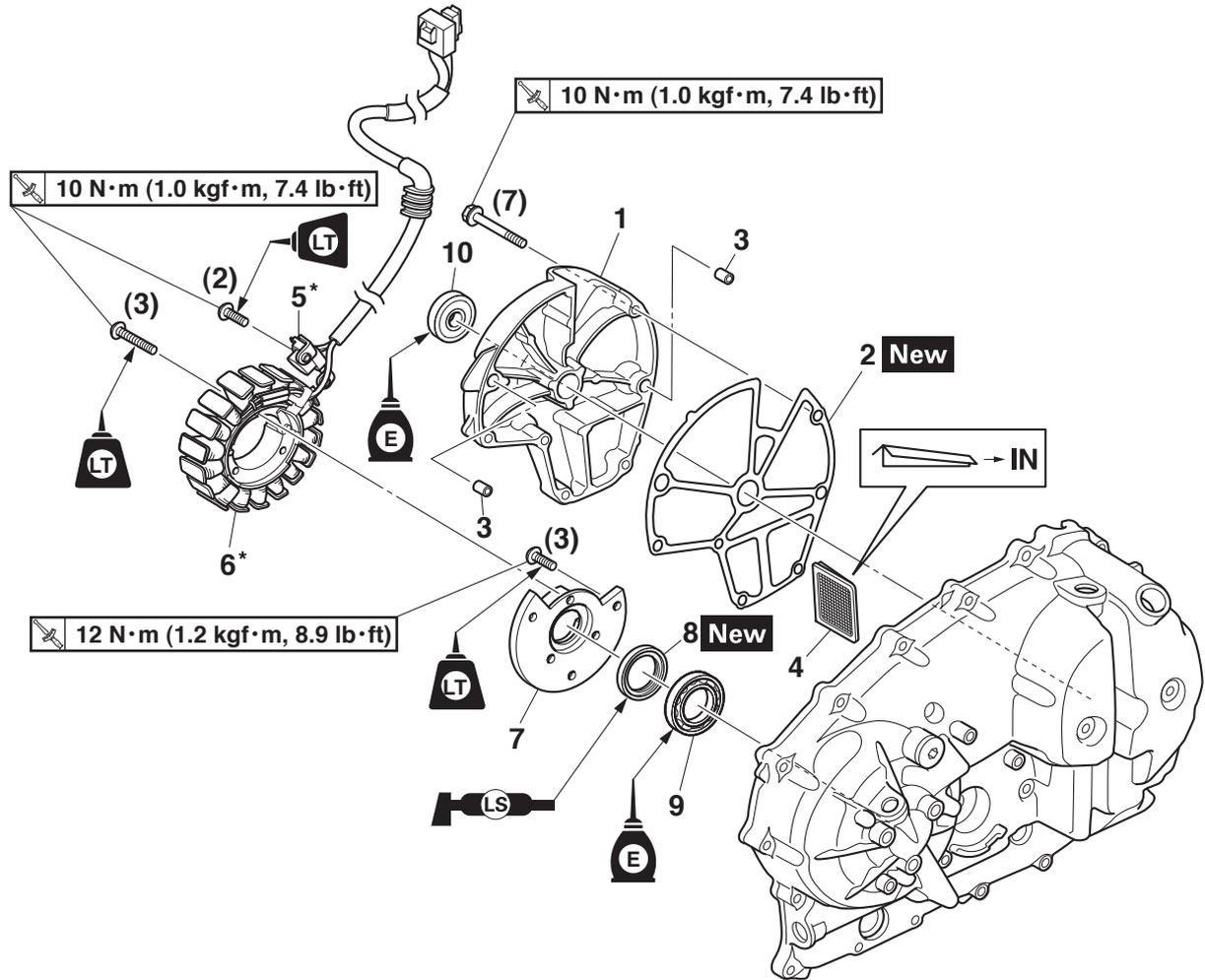
Removing the generator rotor and starter clutch



Order	Job/Parts to remove	Q'ty	Remarks
5	Generator cover gasket	1	
6	Dowel pin	2	
7	Starter clutch idle gear shaft	1	
8	Starter clutch idle gear	1	
9	Generator rotor nut	1	
10	Spacer	1	
11	Generator rotor	1	
12	Woodruff key	1	
13	Washer	1	
14	Starter clutch gear	1	
15	Starter clutch	1	

GENERATOR AND STARTER CLUTCH

Removing the stator coil and oil tank



* When replacing the crankshaft position sensor or stator coil, replace them as a set.

Order	Job/Parts to remove	Q'ty	Remarks
1	Oil tank	1	
2	Oil tank gasket	1	
3	Dowel pin	2	
4	Oil strainer	1	
5	Crankshaft position sensor	1	
6	Stator coil	1	
7	Bearing cover	1	
8	Oil seal	1	
9	Bearing	1	
10	Bearing	1	

GENERATOR AND STARTER CLUTCH

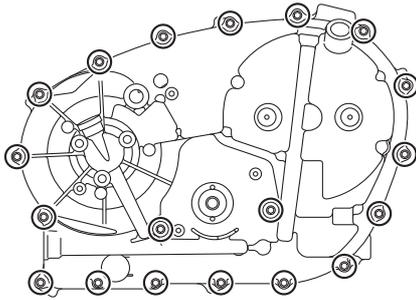
EAS30867

REMOVING THE GENERATOR

1. Remove:
 - Generator cover

TIP

Loosen each bolt 1/4 of a turn at a time, in stages and in a crisscross pattern.
After all of the bolts are fully loosened, remove them.



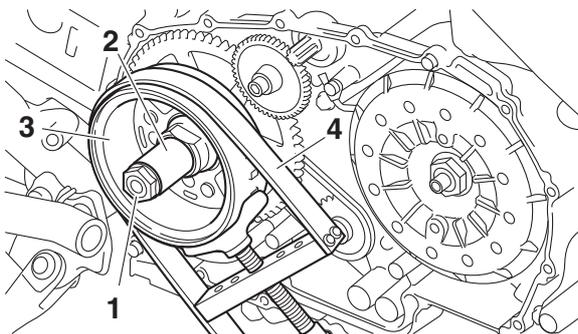
2. Remove:
 - Generator rotor nut "1"
 - Spacer "2"

TIP

- While holding the generator rotor "3" with the sheave holder "4", loosen the generator rotor nut.
- Do not allow the sheave holder to touch the projection on the generator rotor.



Sheave holder
90890-01701
Primary clutch holder
YS-01880-A



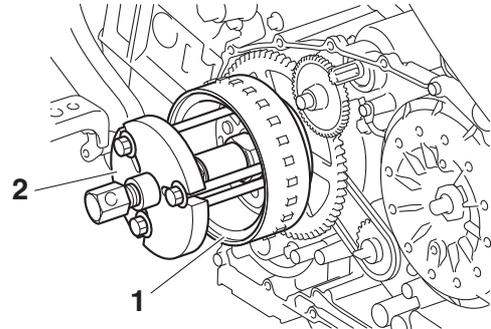
3. Remove:
 - Generator rotor "1"
(with the flywheel puller "2")
 - Woodruff key

TIP

Make sure the flywheel puller is centered over the generator rotor.



Flywheel puller
90890-01362
Heavy duty puller
YU-33270-B



EAS30868

REMOVING THE STARTER CLUTCH

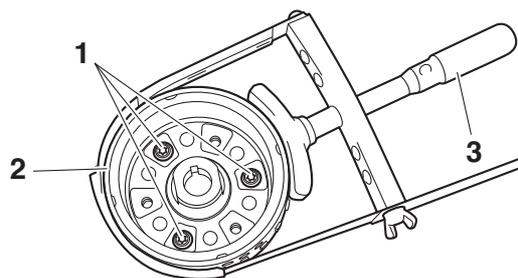
1. Remove:
 - Starter clutch bolts "1"
 - Starter clutch

TIP

- While holding the generator rotor "2" with the sheave holder "3", remove the starter clutch bolts.
- Do not allow the sheave holder to touch the projection on the generator rotor.



Sheave holder
90890-01701
Primary clutch holder
YS-01880-A

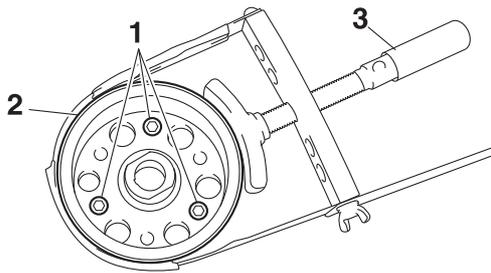


EAS30869

CHECKING THE STARTER CLUTCH

1. Check:
 - Starter clutch rollers "1"
Damage/wear → Replace.

GENERATOR AND STARTER CLUTCH



EAS30872

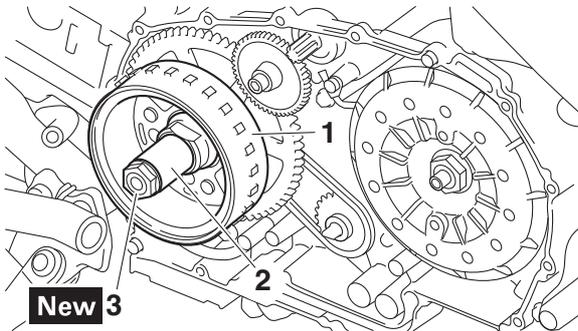
INSTALLING THE GENERATOR

1. Install:

- Woodruff key
- Generator rotor "1"
- Spacer "2"
- Generator rotor nut "3" **New**

TIP

- Clean the tapered portion of the crankshaft and the generator rotor hub.
- When installing the generator rotor, make sure the woodruff key is properly sealed in the keyway of the crankshaft.
- Lubricate the generator rotor nut seats and threads with engine oil.



2. Tighten:

- Generator rotor nut "1"



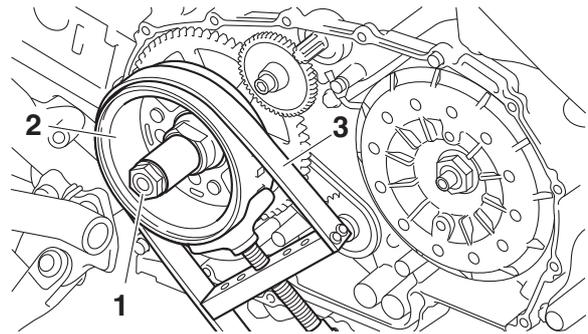
Generator rotor nut (1st)
65 N·m (6.5 kgf·m, 48 lb·ft)

TIP

- While holding the generator rotor "2" with the sheave holder "3", tighten the generator rotor nut.
- Do not allow the sheave holder to touch the projection on the generator rotor.



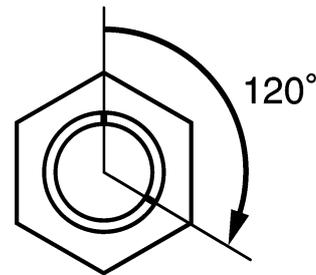
Sheave holder
90890-01701
Primary clutch holder
YS-01880-A



Generator rotor nut (2nd)
Specified angle 120°

TIP

- When tightening the generator rotor nut, be sure to use a beam type torque wrench.
- Tighten the nut until it is at the specified angle.

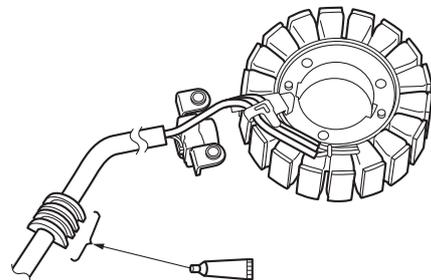


3. Apply:

- Sealant
(onto the crankshaft position sensor/stator lead grommet)



Yamaha bond No. 1215
90890-85505
(Three bond No.1215®)



4. Install:

- Generator cover



Generator cover bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)

GENERATOR AND STARTER CLUTCH

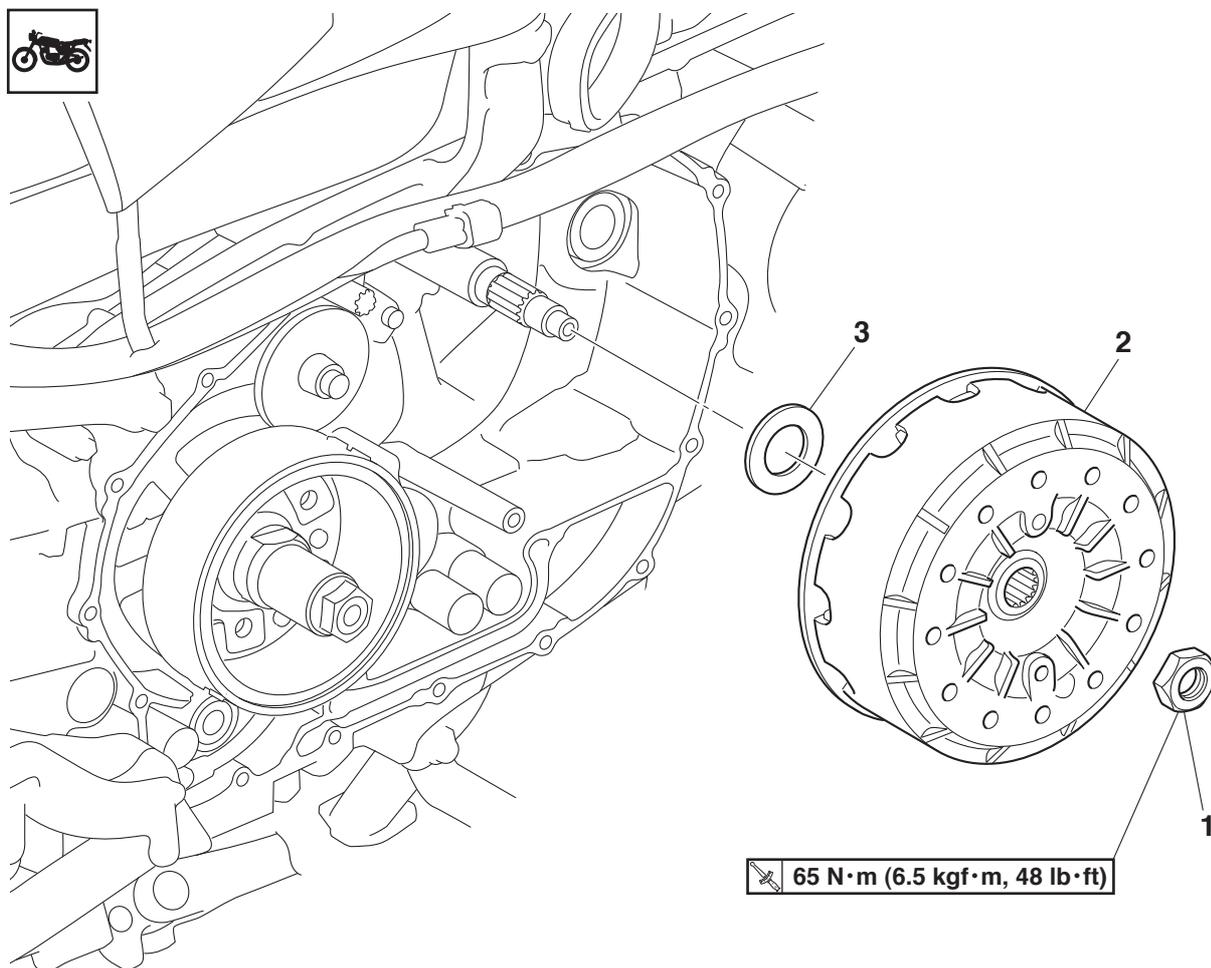
TIP

Tighten the generator cover bolts in stages and in a crisscross pattern.

EAS20055

CLUTCH

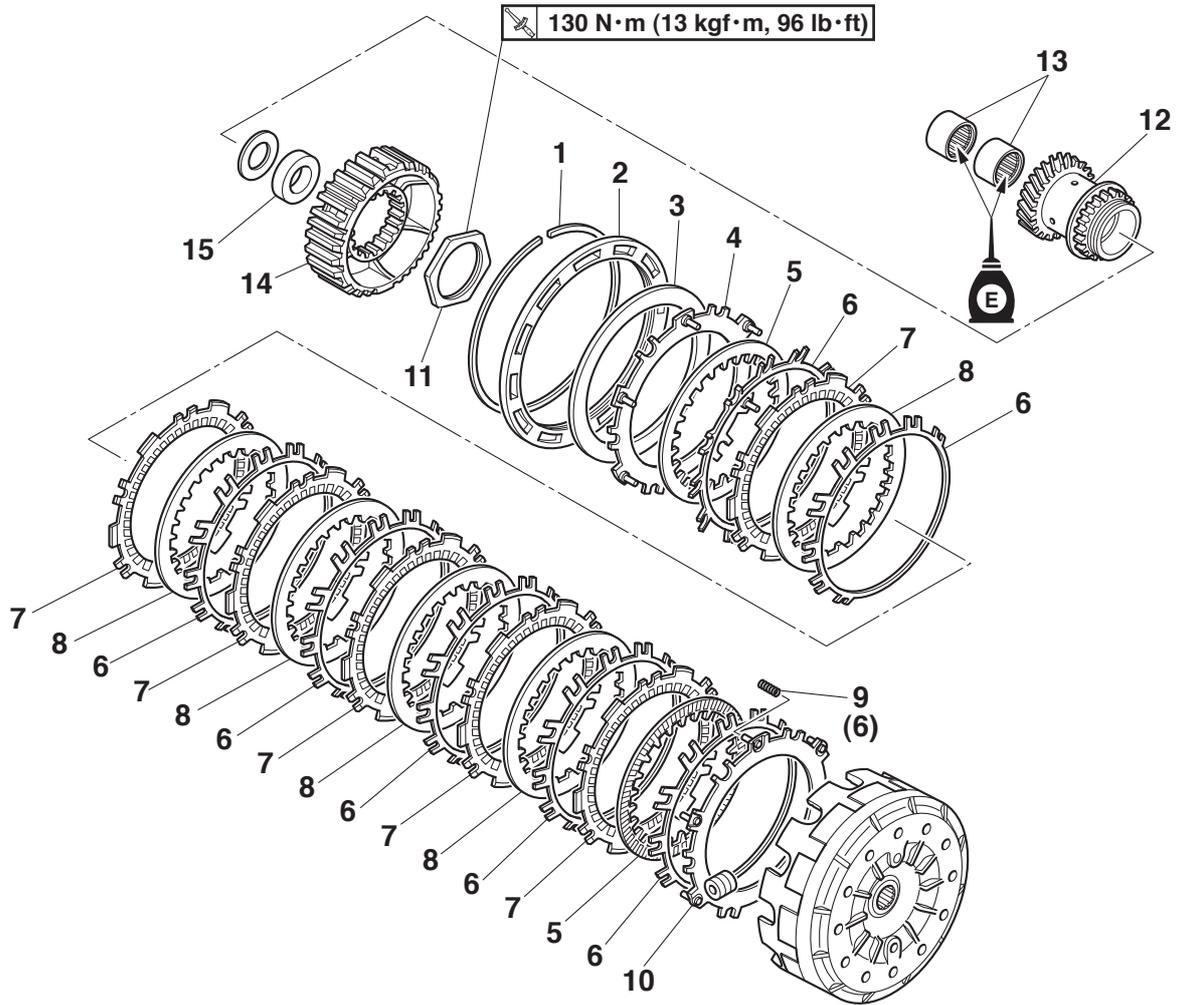
Removing the clutch



65 N·m (6.5 kgf·m, 48 lb·ft)

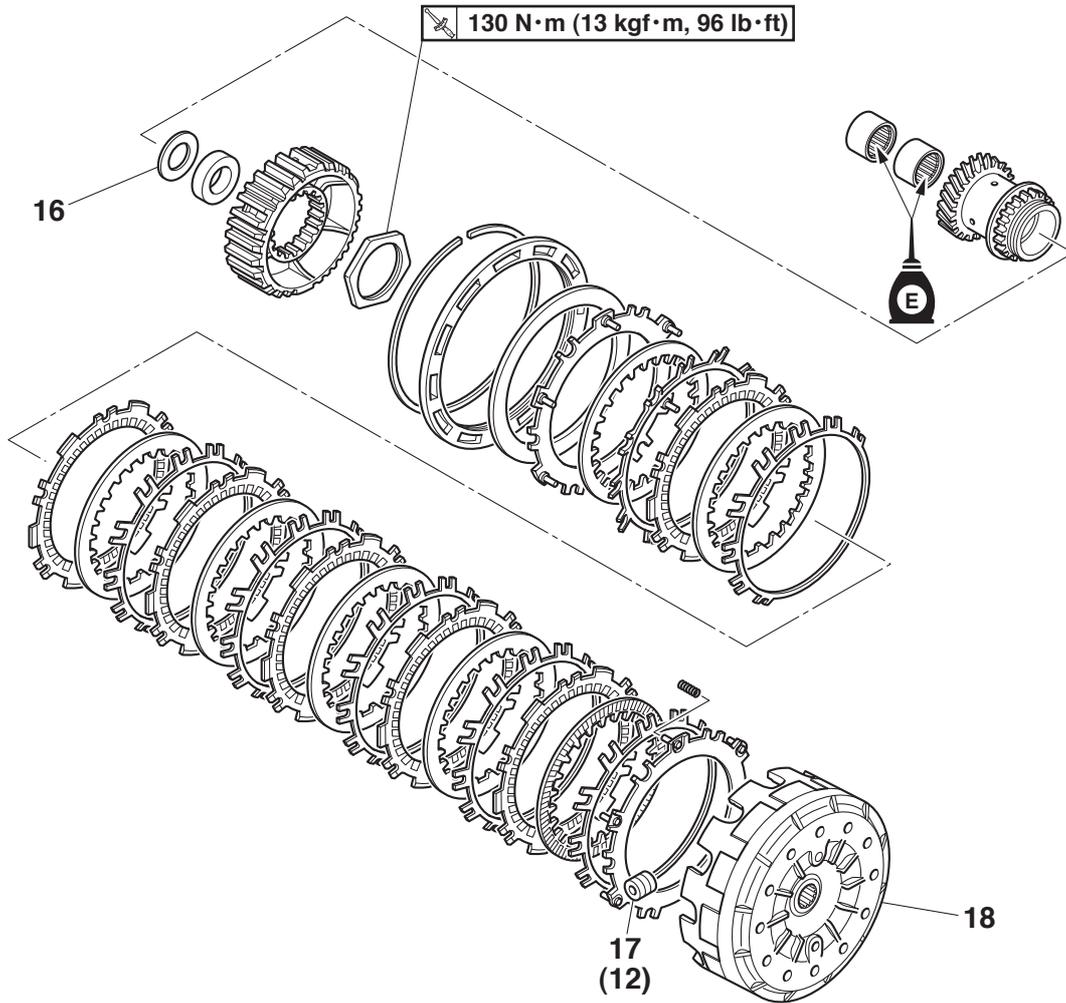
Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover (left)/Footboard (left)		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 3-27.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-31.
	V-belt case air filter element (left)/Generator cover protector/Water pump inlet pipe/Water pump outlet pipe/Water pump assembly		Refer to "WATER PUMP" on page 6-9.
	Generator cover		Refer to "GENERATOR AND STARTER CLUTCH" on page 5-44.
1	Clutch assembly nut	1	
2	Clutch assembly	1	
3	Washer	1	

Disassembling the clutch



Order	Job/Parts to remove	Q'ty	Remarks
1	Clip	1	
2	Spring stopper plate	1	
3	Clutch spring plate	1	
4	Pressure plate	1	
5	Clutch plate 2	2	
6	Clutch damper spring	7	
7	Friction plate	6	
8	Clutch plate 1	5	
9	Clutch spring	6	
10	Thrust plate	1	
11	Clutch boss nut	1	
12	Primary drive gear	1	
13	Bearing	2	
14	Clutch boss	1	
15	Collar	1	

Disassembling the clutch



Order	Job/Parts to remove	Q'ty	Remarks
16	Thrust plate	1	
17	Clutch weight	12	
18	Clutch housing	1	

EAS30346

REMOVING THE CLUTCH

1. Remove:

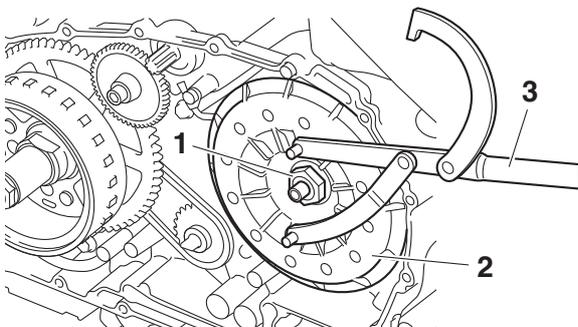
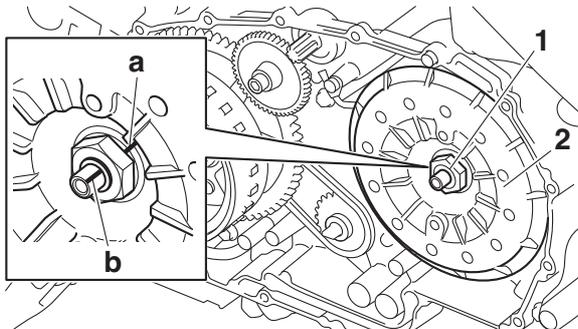
- Clutch assembly nut "1"
- Clutch assembly "2"

TIP

- Before removal, put alignment marks "a" and "b" as shown.
- While holding the clutch assembly with the rotor holding tool "3", loosen the clutch assembly nut.
- Align these marks during reassembly.



Rotor holding tool
90890-01235
Universal magneto and rotor holder
YU-01235



EAS31441

DISASSEMBLING THE CLUTCH

1. Remove:

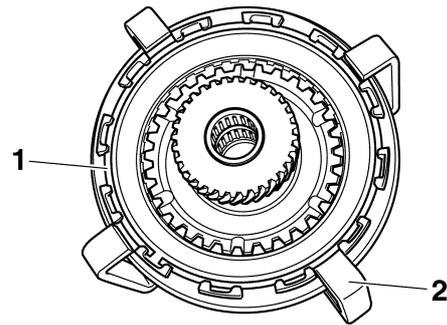
- Clip "1"

TIP

While compressing the clutch springs with the clutch spring compressor "2", remove the clip.



Clutch spring compressor
90890-01482

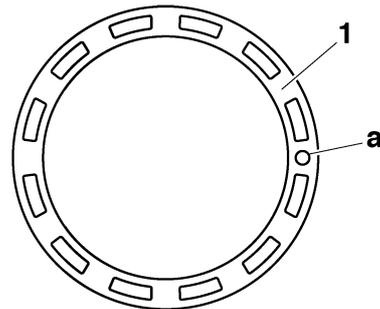


2. Remove:

- Spring stopper plate "1"

TIP

To ensure proper balance of the clutch assembly, one to three holes "a", or no hole at all, may have been drilled in the spring stopper plate. Before removing the spring stopper plate, make alignment marks on both the plate and the clutch housing so that the plate can be reinstalled in its original position.



3. Loosen:

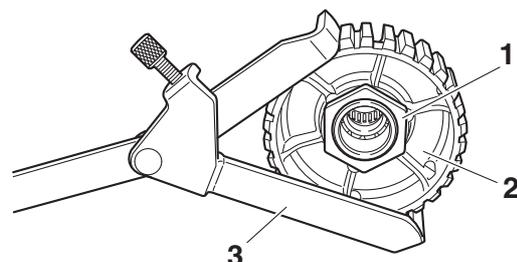
- Clutch boss nut "1"

TIP

While holding the clutch boss "2" with the universal clutch holder "3", loosen the clutch boss nut.



Universal clutch holder
90890-04086
Universal clutch holder
YM-91042



EAS30348

CHECKING THE FRICTION PLATES

The following procedure applies to all of the friction plates.

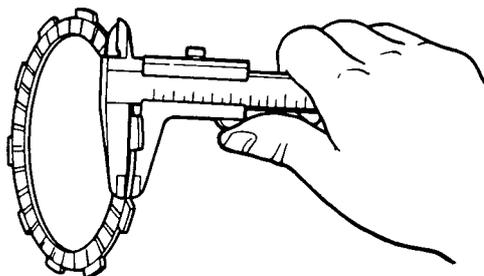
1. Check:
 - Friction plate
Damage/wear → Replace the friction plates as a set.
2. Measure:
 - Friction plate thickness
Out of specification → Replace the friction plates as a set.

TIP

Measure the friction plate at four places.



Friction plate thickness
2.92–3.08 mm (0.115–0.121 in)
Wear limit
2.82 mm (0.111 in)



EAS30349

CHECKING THE CLUTCH PLATES

The following procedure applies to all of the clutch plates.

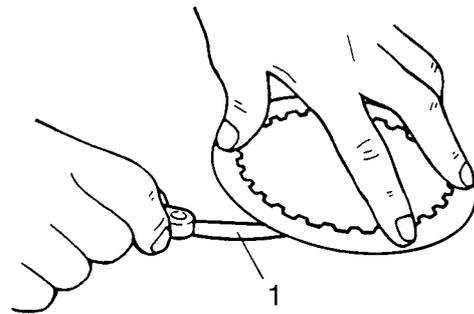
1. Check:
 - Clutch plate
Damage → Replace the clutch plates as a set.
2. Measure:
 - Clutch plate warpage
(with a surface plate and thickness gauge “1”)
Out of specification → Replace the clutch plates as a set.



Thickness gauge
90890-03180
Feeler gauge set
YU-26900-9



Clutch plate 1 thickness
1.30–1.50 mm (0.051–0.059 in)
Warpage limit
0.10 mm (0.004 in)
Clutch plate 2 thickness
1.80–2.00 mm (0.071–0.079 in)
Warpage limit
0.20 mm (0.008 in)



EAS31442

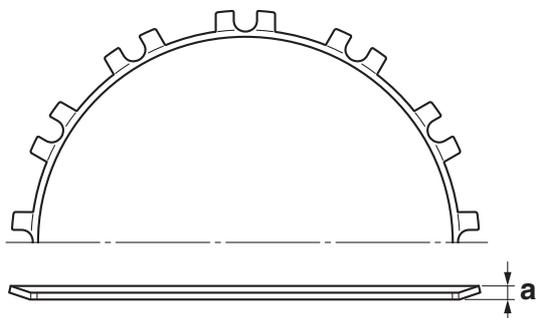
CHECKING THE CLUTCH DAMPER SPRINGS

The following procedure applies to all of the clutch damper springs.

1. Check:
 - Clutch damper spring
Damage → Replace.
2. Measure:
 - Clutch damper spring free height “a”
Out of specification → Replace the clutch damper springs as a set.



Clutch damper spring height
3.50 mm (0.14 in)
Minimum height
3.10 mm (0.12 in)



EAS30350

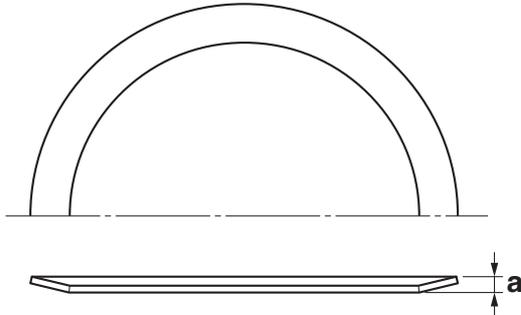
CHECKING THE CLUTCH SPRING PLATE

1. Check:
 - Clutch spring plate
Damage → Replace.
2. Measure:
 - Clutch spring plate free height “a”

Out of specification → Replace the clutch spring plate.



Clutch spring plate height
4.70 mm (0.19 in)
Minimum height
4.40 mm (0.17 in)



EAS30351

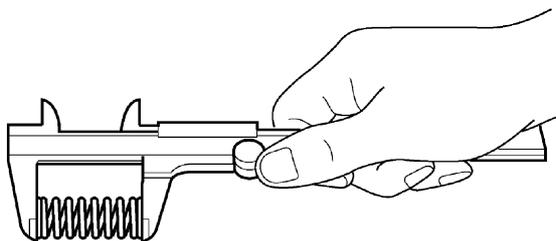
CHECKING THE CLUTCH SPRINGS

The following procedure applies to all of the clutch springs.

1. Check:
 - Clutch spring
Damage → Replace the clutch springs as a set.
2. Measure:
 - Clutch spring free length
Out of specification → Replace the clutch springs as a set.



Clutch spring free length
31.90 mm (1.26 in)
Limit
24.80 mm (0.98 in)



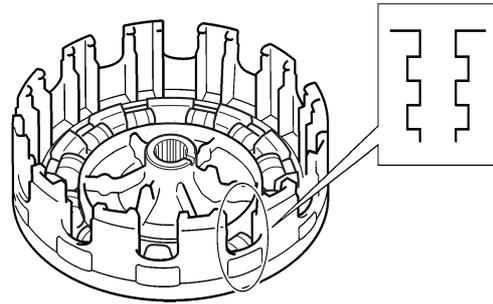
EAS30352

CHECKING THE CLUTCH HOUSING

1. Check:
 - Clutch housing dogs
Damage/pitting/wear → Deburr the clutch housing dogs or replace the clutch housing.

TIP _____
Pitting on the clutch housing dogs will cause er-

atic clutch operation.

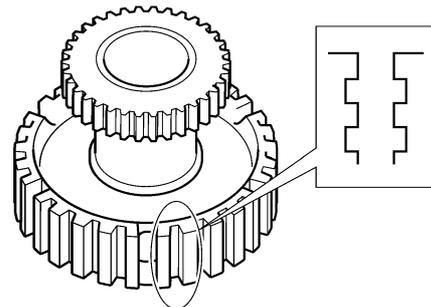


EAS30353

CHECKING THE CLUTCH BOSS

1. Check:
 - Clutch boss splines
Damage/pitting/wear → Replace the clutch boss.

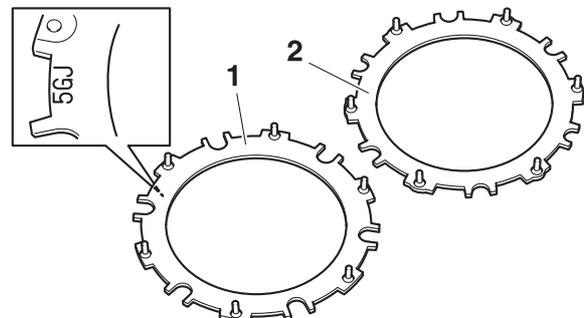
TIP _____
Pitting on the clutch boss splines will cause erratic clutch operation.



EAS31443

CHECKING THE PRESSURE PLATE AND THRUST PLATE

1. Check:
 - Pressure plate "1"
 - Thrust plate "2"
 - Cracks/damage → Replace.



EAS31444

ASSEMBLING THE CLUTCH

1. Install:
 - Clutch boss
 - Primary drive gear

- Clutch boss nut
2. Tighten:
- Clutch boss nut "1"



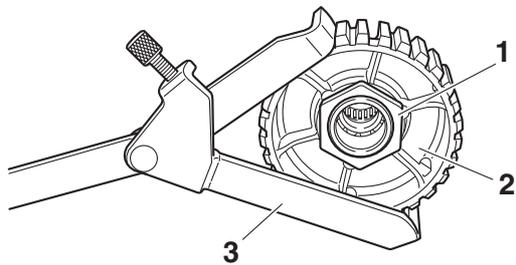
Clutch boss nut
130 N·m (13 kgf·m, 96 lb·ft)

TIP

While holding the clutch boss "2" with the universal clutch holder "3", tighten the clutch boss nut.



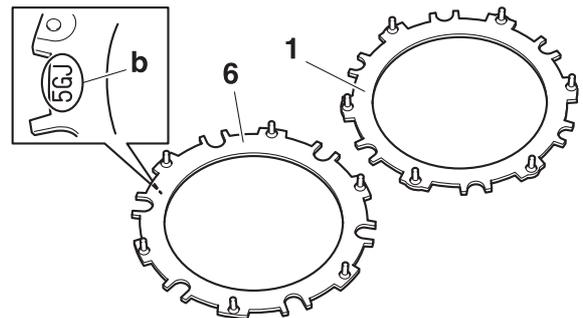
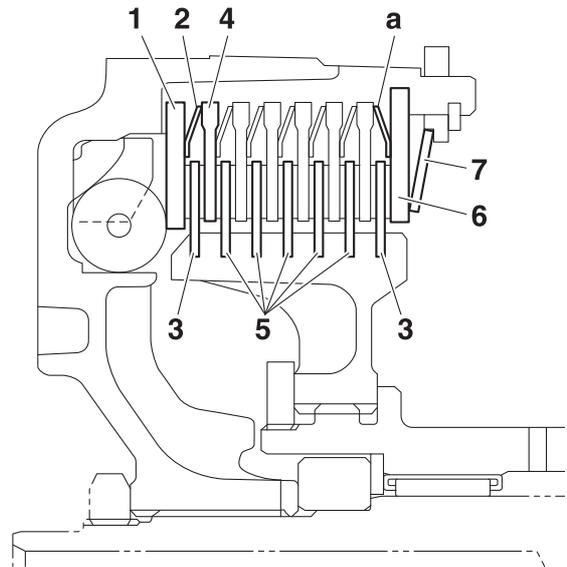
Universal clutch holder
90890-04086
Universal clutch holder
YM-91042



3. Install:
- Clutch weights
 - Thrust plate "1"
 - Clutch springs
 - Clutch damper springs "2"
 - Clutch plates 2 "3"
 - Friction plates "4"
 - Clutch plates 1 "5"
 - Pressure plate "6"
 - Clutch spring plate "7"

TIP

- Clutch damper spring "a" installed at the end must be installed backwards.
- The pressure plate "6" and thrust plate "1" can be identified by punch mark "b" on the pressure plate.



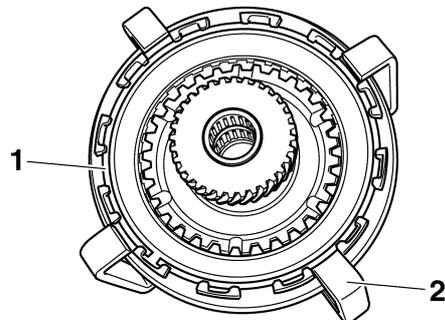
4. Install:
- Clip "1"

TIP

While compressing the clutch springs with the clutch spring compressor "2", install the clip.



Clutch spring compressor
90890-01482



EAS30363

INSTALLING THE CLUTCH

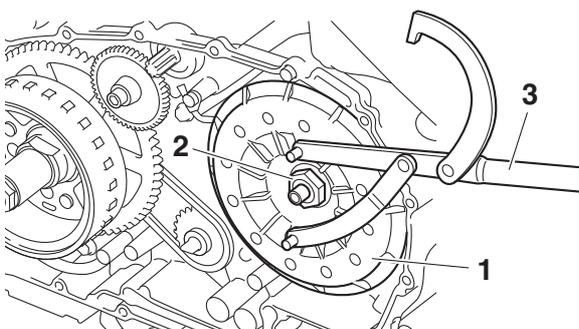
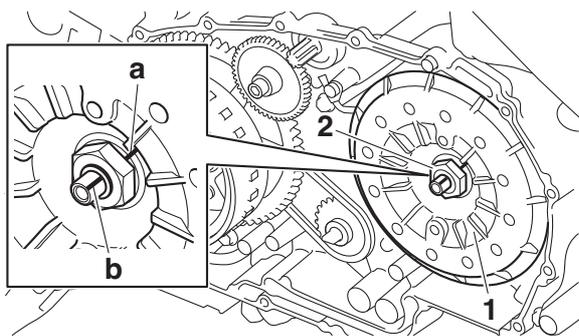
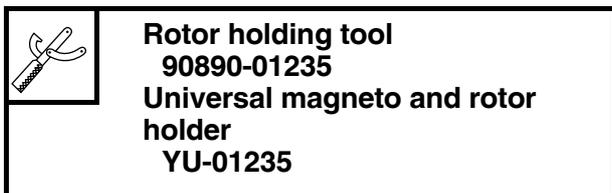
1. Install:

- Clutch assembly "1"
- Clutch assembly nut "2"



TIP

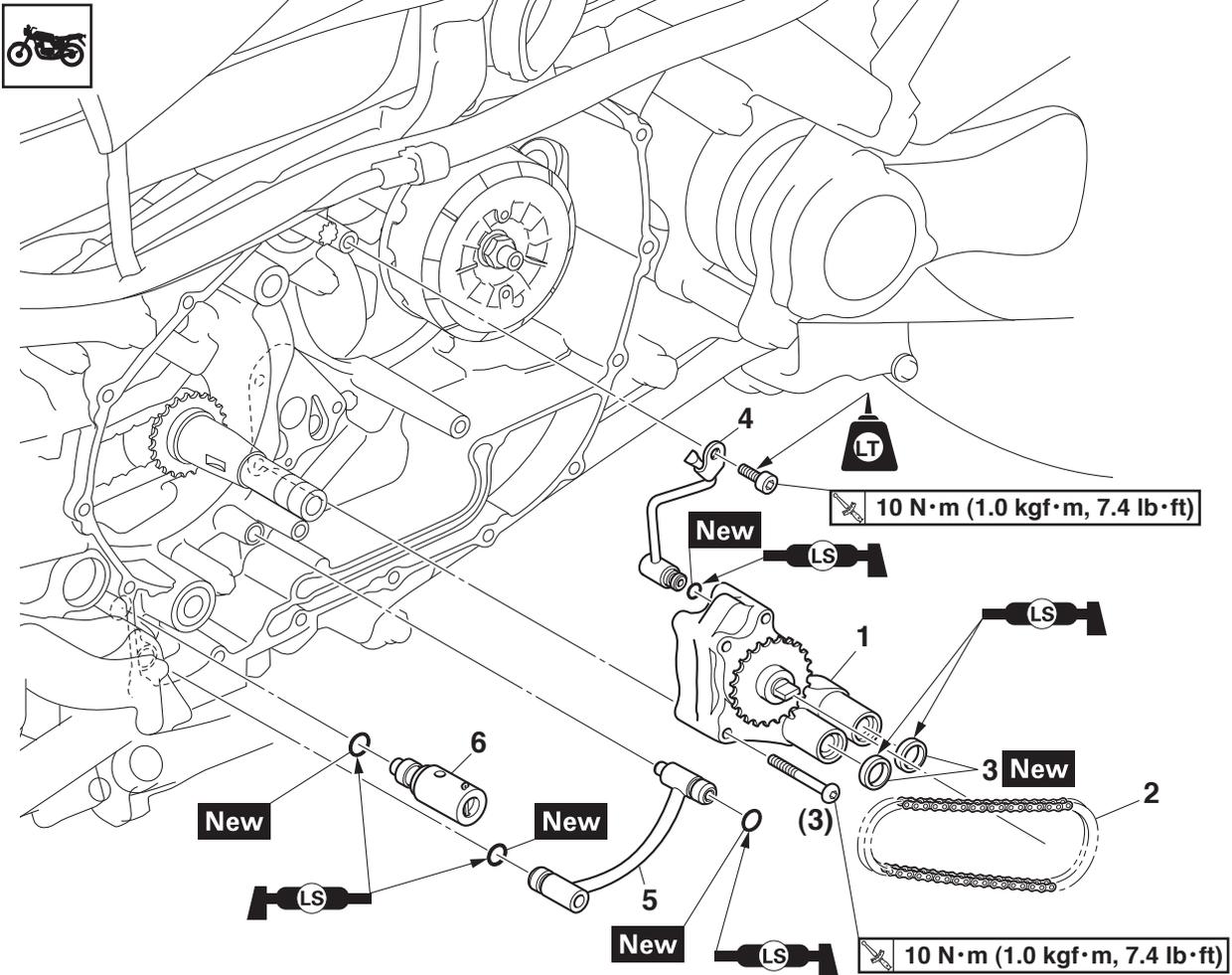
- Align the "a" and "b" during reassembly.
- While holding the clutch assembly with the rotor holding tool "3", tighten the clutch assembly nut.



EAS20054

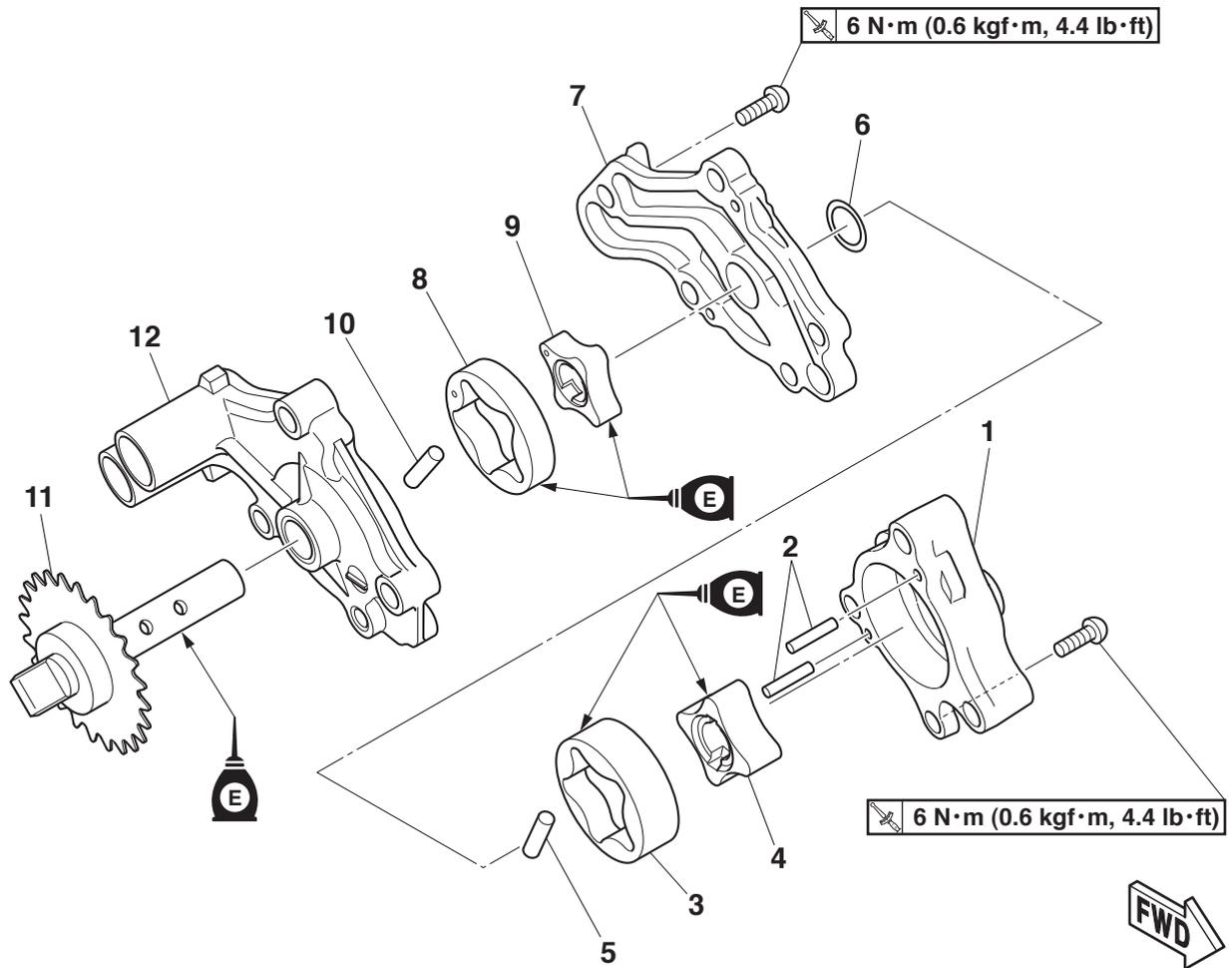
OIL PUMP

Removing the oil pump assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover (left)/Footboard (left)		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	V-belt case air filter element (left)/Generator cover protector/Water pump inlet pipe/Water pump outlet pipe/Water pump assembly		Refer to "WATER PUMP" on page 6-9.
	Generator cover/Generator rotor/Starter clutch gear		Refer to "GENERATOR AND STARTER CLUTCH" on page 5-44.
1	Oil pump assembly	1	
2	Oil pump drive chain	1	
3	Gasket	2	
4	Oil delivery pipe	1	
5	Oil pipe	1	
6	Relief valve assembly	1	

Disassembling the oil pump assembly



* When replacing any of the part, replace the oil pump assembly.

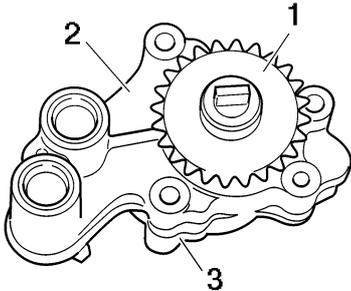
Order	Job/Parts to remove	Q'ty	Remarks
1	Oil pump housing 1	1	
2	Dowel pin	2	
3	Oil pump outer rotor 1	1	
4	Oil pump inner rotor 1	1	
5	Pin	1	
6	Washer	1	
7	Oil pump housing center	1	
8	Oil pump outer rotor 2	1	
9	Oil pump inner rotor 2	1	
10	Pin	1	
11	Oil pump driven gear	1	
12	Oil pump housing 2	1	

EAS30337

CHECKING THE OIL PUMP

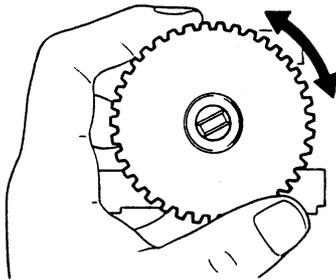
1. Check:

- Oil pump driven gear "1"
 - Oil pump housing 2 "2"
 - Oil pump housing 1 "3"
- Cracks/damage/wear → Replace the oil pump assembly.



2. Check:

- Oil pump operation
- Rough movement → Repeat steps (1) and (2) or replace the oil pump assembly.



EAS30338

CHECKING THE RELIEF VALVE

1. Check:

- Relief valve body
- Damage/wear → Replace.

EAS30742

CHECKING THE OIL PIPES

1. Check:

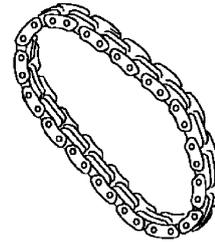
- Oil pipe
 - Oil delivery pipe
- Damage → Replace.
Obstruction → Wash and blow out with compressed air.

EAS30785

CHECKING THE OIL PUMP DRIVE CHAIN

1. Check:

- Oil pump drive chain
- Cracks/stiffness → Replace the oil pump chain and oil pump assembly as a set.



EAS30342

ASSEMBLING THE OIL PUMP

1. Lubricate:

- Inner rotor
 - Outer rotor
 - Oil pump shaft
- (with the recommended lubricant)

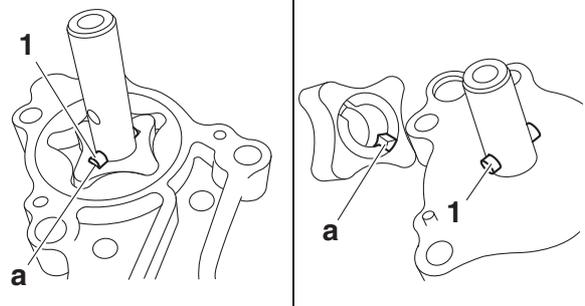


2. Install:

- Inner rotors

TIP

When installing the inner rotor, align the pins "1" in the oil pump shaft with the grooves "a" in the inner rotor.



3. Check:

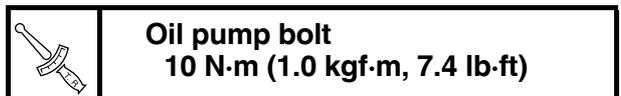
- Oil pump operation
- Refer to "CHECKING THE OIL PUMP" on page 5-61.

EAS30343

INSTALLING THE OIL PUMP

1. Install:

- Oil pump assembly



ECA13890

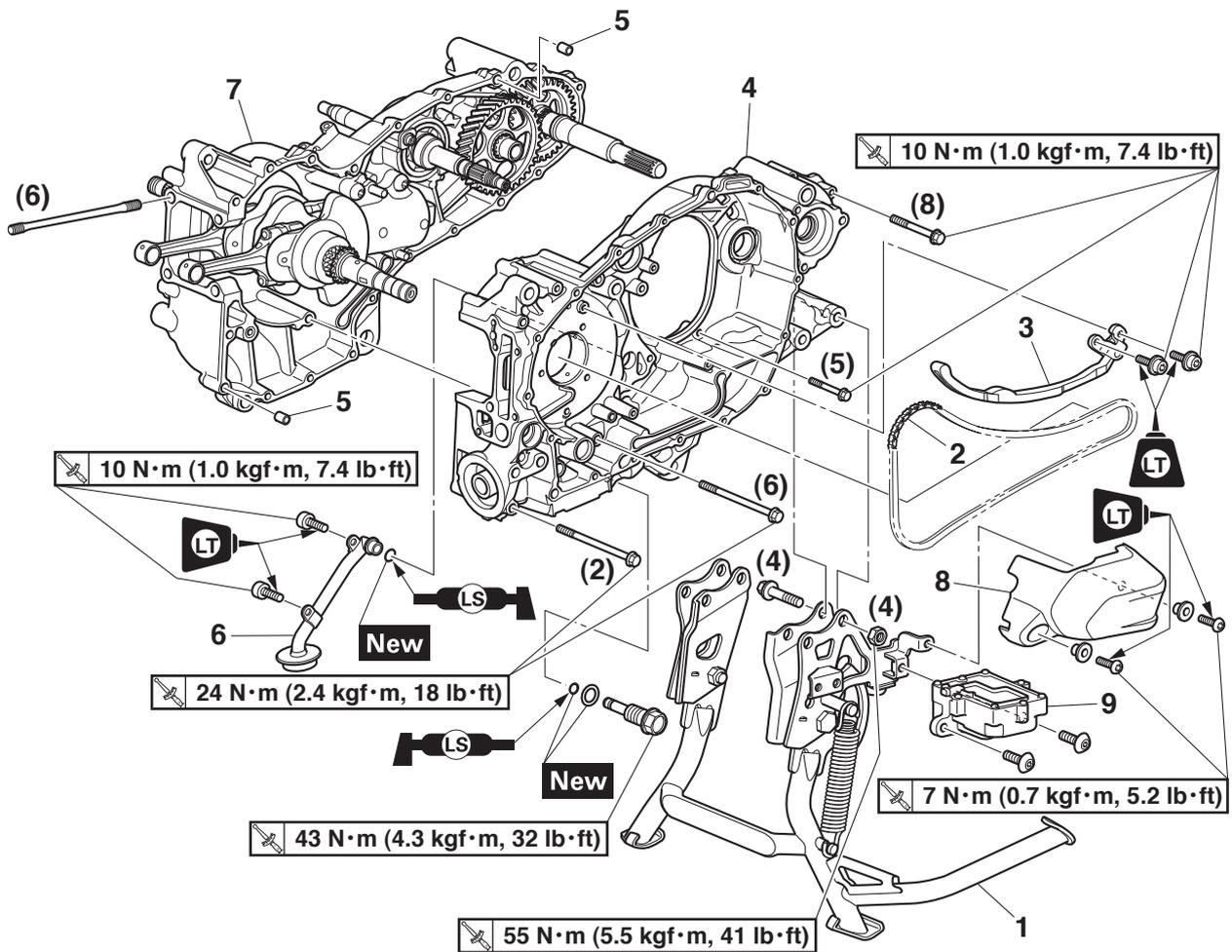
NOTICE

After tightening the bolts, make sure the oil pump turns smoothly.

EAS20059

CRANKCASE

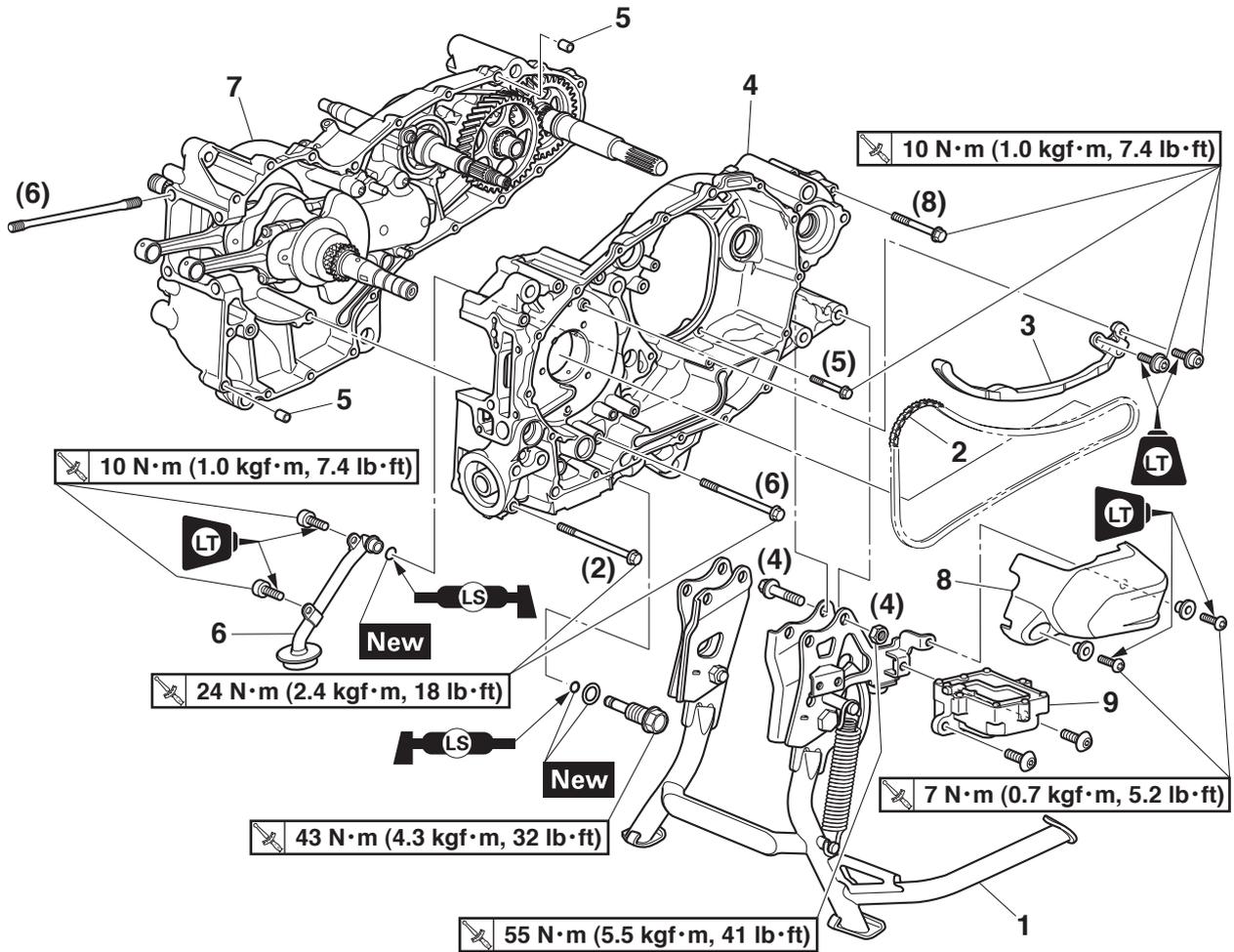
Separating the crankcase



Order	Job/Parts to remove	Q'ty	Remarks
	Engine		Refer to "ENGINE REMOVAL" on page 5-2.
	Cylinder head		Refer to "CYLINDER HEAD" on page 5-15.
	Cylinder/Pistons		Refer to "CYLINDER AND PISTONS" on page 5-25.
	Oil cooler		Refer to "OIL COOLER" on page 6-5.
	Starter motor		Refer to "ELECTRIC STARTER" on page 5-30.
	Water pump assembly		Refer to "WATER PUMP" on page 6-9.
	Generator cover/Generator rotor/Starter clutch gear		Refer to "GENERATOR AND STARTER CLUTCH" on page 5-44.
	Clutch assembly		Refer to "CLUTCH" on page 5-51.
	Oil pump assembly		Refer to "OIL PUMP" on page 5-59.
	Outer V-belt case/Primary sheave assembly/Secondary sheave assembly/Inner V-belt case		Refer to "V-BELT AUTOMATIC TRANSMISSION" on page 5-34.
	Bearing housing		Refer to "SWINGARM" on page 4-106.

CRANKCASE

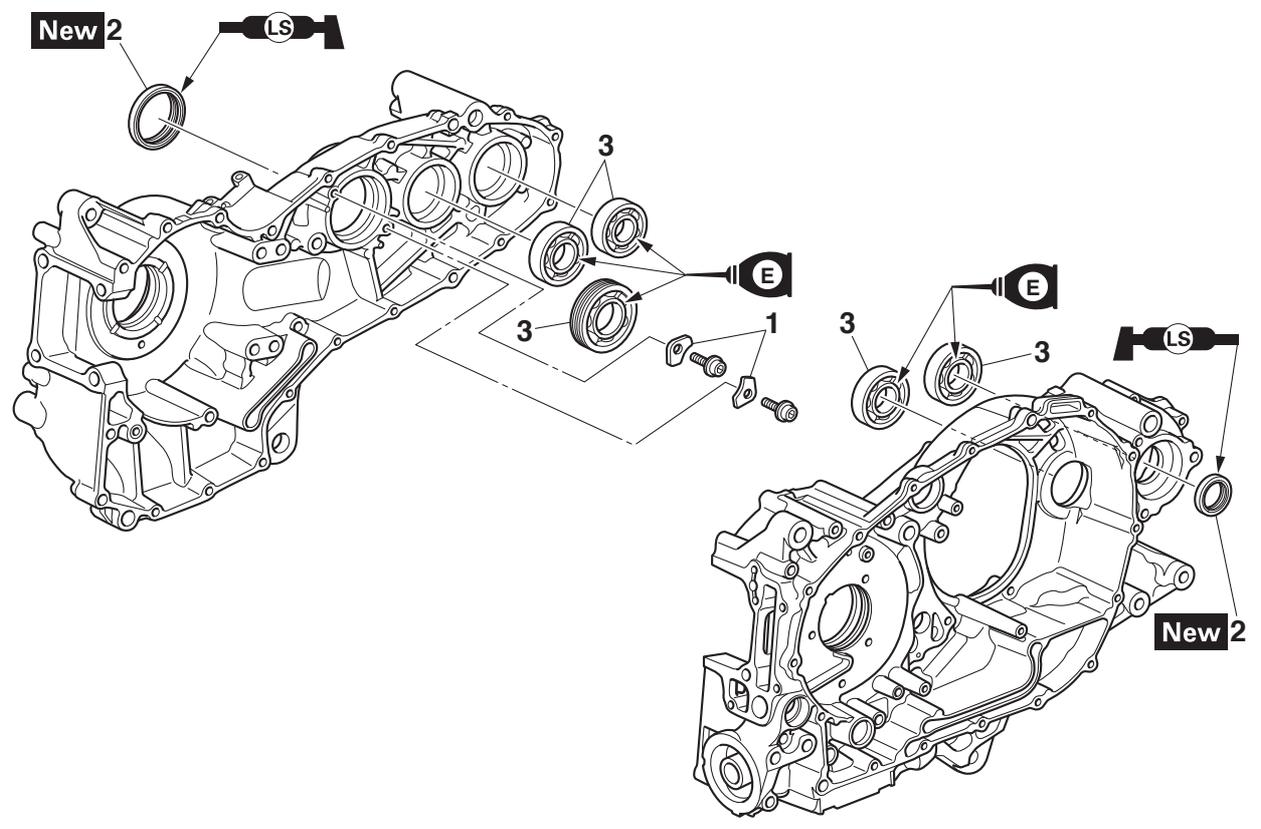
Separating the crankcase



Order	Job/Parts to remove	Q'ty	Remarks
1	Centerstand assembly	1	
2	Timing chain	1	
3	Timing chain guide (intake side)	1	
4	Crankcase (left)	1	
5	Dowel pin	2	
6	Oil strainer	1	
7	Crankcase (right)	1	
8	Centerstand lock solenoid cover	1	
9	Centerstand lock solenoid	1	

CRANKCASE

Removing the oil seals and bearings



Order	Job/Parts to remove	Q'ty	Remarks
	Crankshaft assembly		Refer to "CRANKSHAFT" on page 5-67.
	Transmission		Refer to "TRANSMISSION" on page 5-77.
1	Bearing retainer	2	
2	Oil seal	2	
3	Bearing	5	

CRANKCASE

EAS30389

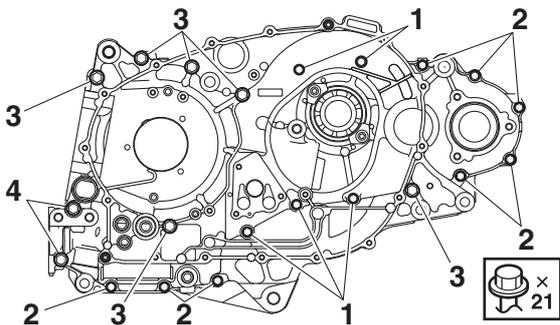
DISASSEMBLING THE CRANKCASE

1. Remove:
 - Crankcase bolts

TIP

Loosen each bolt 1/4 of a turn at a time, in stages and in a crisscross pattern. After all of the bolts are fully loosened, remove them.

- M6 × 35 mm (1.38 in) bolts "1"
- M6 × 50 mm (1.97 in) bolts "2"
- M8 × 110 mm (4.33 in) bolts "3"
- M8 × 120 mm (4.72 in) bolts "4"



2. Remove:
 - Crankcase (left)

ECA13900

NOTICE

Tap on one side of the crankcase with a soft-face hammer. Tap only on reinforced portions of the crankcase, not on the crankcase mating surfaces. Work slowly and carefully and make sure the crankcase halves separate evenly.

EAS30390

CHECKING THE CRANKCASE

1. Thoroughly wash the crankcase halves in a mild solvent.
2. Thoroughly clean all the gasket surfaces and crankcase mating surfaces.
3. Check:
 - Crankcase
Cracks/damage → Replace.
 - Oil delivery passages
Obstruction → Blow out with compressed air.

EAS31445

CHECKING THE TIMING CHAIN

1. Check:
 - Timing chain
Damage/stiffness → Replace the timing chain, camshafts and crankshaft assembly as a set.

EAS30397

ASSEMBLING THE CRANKCASE

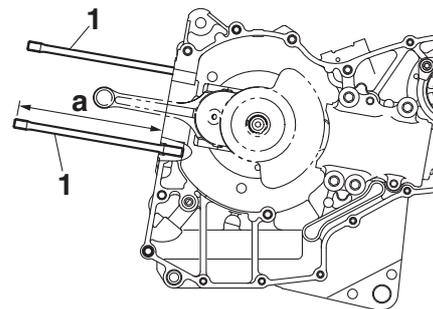
1. Install:
 - Cylinder stud bolts "1"

TIP

For the cylinder stud bolt, embedded height "a" is the standard value and the tightening torque is the reference value.



Cylinder stud bolt
13 N·m (1.3 kgf·m, 9.6 lb-ft)



- a. 150.2–152.2 mm (5.91–5.99 in)

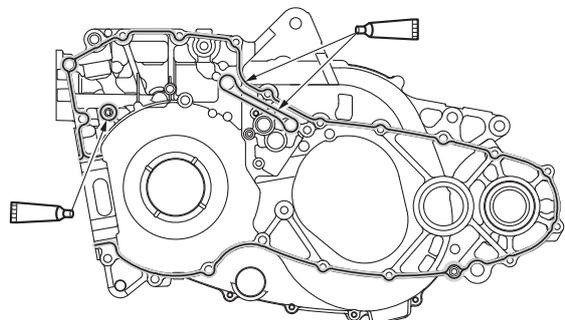
2. Thoroughly clean all the gasket mating surfaces and crankcase mating surfaces.
3. Apply:
 - Sealant
(onto the crankcase mating surfaces)



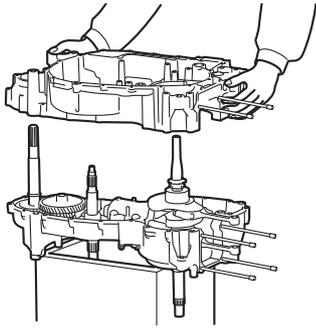
Yamaha bond No. 1215
90890-85505
(Three bond No.1215®)

TIP

Do not allow any sealant to come into contact with the oil gallery.



4. Install:
 - Dowel pins
 - Crankcase (left)



5. Install:

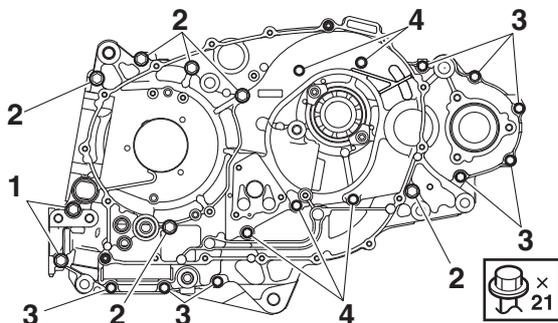
- Crankcase bolts (M8)
- Crankcase bolts (M6)

	Crankcase bolt (M8)
	10 N·m (1.0 kgf·m, 7.4 lb·ft)
	Crankcase bolt (M6)
	24 N·m (2.4 kgf·m, 18 lb·ft)

TIP

Tighten each bolt 1/4 of a turn at a time, in stages and in a crisscross pattern.

- M8 × 120 mm (4.72 in) bolts “1”
- M8 × 110 mm (4.33 in) bolts “2”
- M6 × 50 mm (1.97 in) bolts “3”
- M6 × 35 mm (1.38 in) bolts “4”



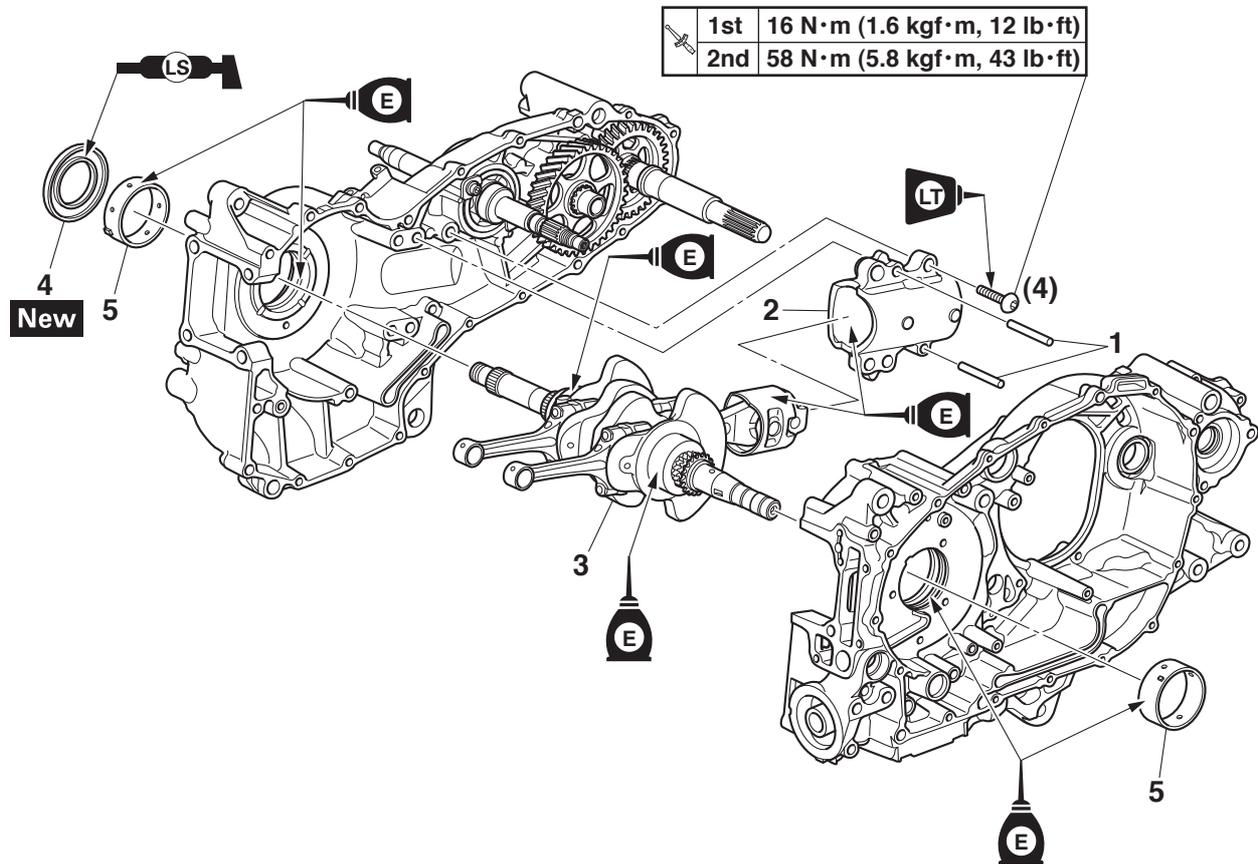
6. Check:

- Crankshaft and transmission operation
Rough movement → Repair.

EAS20061

CRANKSHAFT

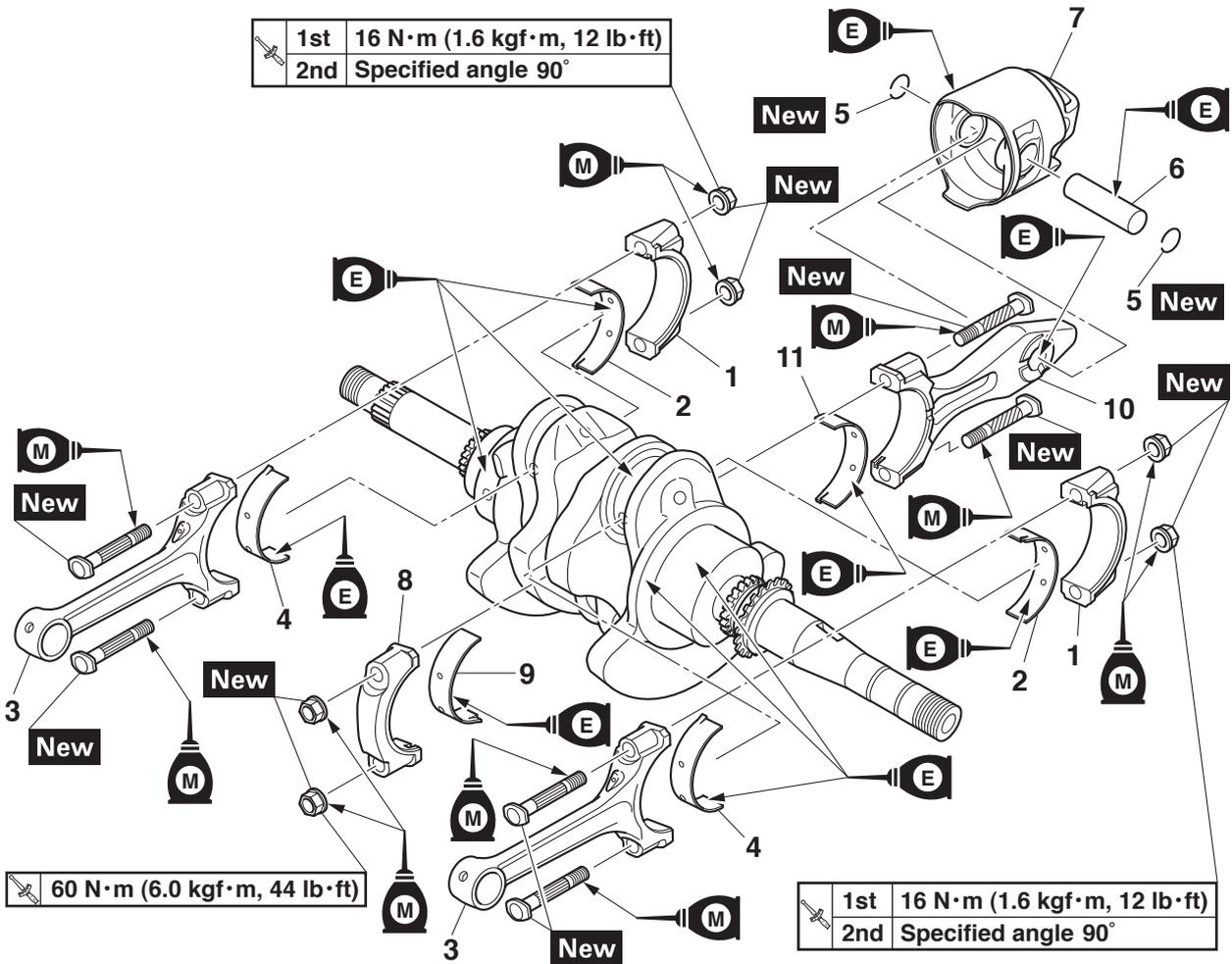
Removing the crankshaft assembly



Order	Job/Parts to remove	Q'ty	Remarks
	Crankcase		Separate. Refer to "CRANKCASE" on page 5-62.
1	Dowel pin	2	
2	Balancer cylinder	1	
3	Crankshaft assembly	1	
4	Oil seal	1	
5	Crankshaft journal bearing	2	

CRANKSHAFT

Removing the connecting rods



Order	Job/Parts to remove	Q'ty	Remarks
1	Connecting rod cap	2	
2	Big end lower bearing	2	
3	Connecting rod	2	
4	Big end upper bearing	2	
5	Piston pin clip	2	
6	Balancer piston pin	1	
7	Balancer piston	1	
8	Balancer connecting rod cap	1	
9	Balancer big end lower bearing	1	
10	Balancer connecting rod	1	
11	Balancer big end upper bearing	1	

EAS30415

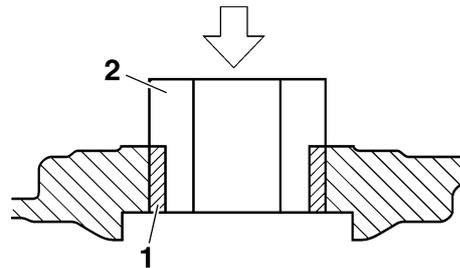
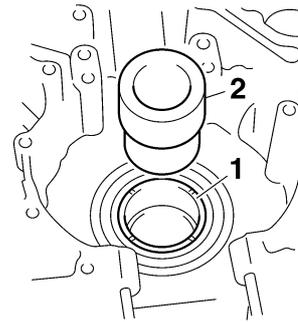
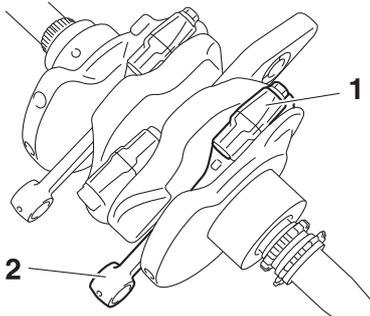
REMOVING THE CONNECTING RODS

The following procedure applies to all of the connecting rods.

1. Remove:
 - Connecting rod cap "1"
 - Connecting rod "2"
 - Big end bearings

TIP

Identify the position of each big end bearing so that it can be reinstalled in its original place.



EAS30419

REMOVING THE CRANKSHAFT JOURNAL BEARINGS

The following procedure applies to both of the crankshaft journal bearings.

1. Remove:
 - Crankshaft assembly
 - Crankshaft journal bearing "1"

TIP

Remove the crankshaft journal bearing using the plane bearing installer "2".



Plane bearing installer
90890-04139

TIP

Identify the position of each crankshaft journal bearing so that it can be reinstalled in its original place.

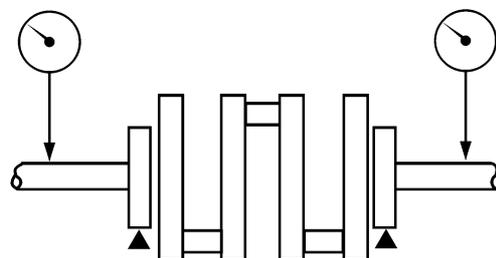
EAS30423

CHECKING THE CRANKSHAFT AND CONNECTING RODS

1. Measure:
 - Crankshaft runout
Out of specification → Replace the crankshaft.

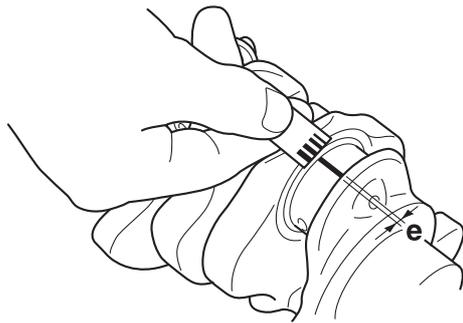


Runout limit
0.030 mm (0.0012 in)



2. Check:
 - Crankshaft journal surfaces
 - Crankshaft pin surfaces
 - Bearing surfaces
Scratches/wear → Replace the crankshaft.
3. Measure:
 - Crankshaft-pin-to-big-end-bearing clearance

CRANKSHAFT



spectively, then the bearing size for P_1 is:

$$P_1 \text{ (connecting rod)} - P_1 \text{ (crankshaft)} \\ = 5 - 1 \\ = 4 \text{ (green)}$$



4. Select:

- Big end bearings (P_1 – P_3)

TIP

- The numbers “A” stamped into the crankshaft web and the numbers “B” on the connecting rods are used to determine the replacement big end bearing sizes.
- P_1 – P_3 refer to the bearings shown in the crankshaft illustration.



Bearing color code

- Code 1
Blue
- Code 2
Black
- Code 3
Brown
- Code 4
Green

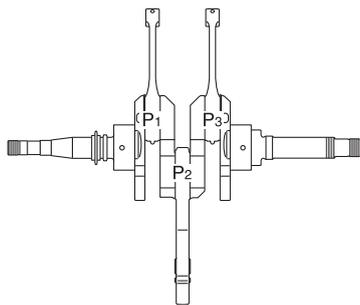
5. Measure:

- Crankshaft-journal-to-crankshaft-journal bearing clearance
Out of specification → Replace the crankshaft journal bearings.



Journal oil clearance

0.040–0.087 mm (0.0016–0.0034 in)



TIP

On the journal, the larger value is used as a basis for calculation of the oil clearance, and on the journal bearing, the smaller value is used.

The following procedure applies to all of the crankshaft journal bearings.

ECA13920

NOTICE

Do not interchange the crankshaft journal bearings. To obtain the correct crankshaft-journal-to-crankshaft-journal-bearing clearance and prevent engine damage, the crankshaft journal bearings must be installed in their original positions.



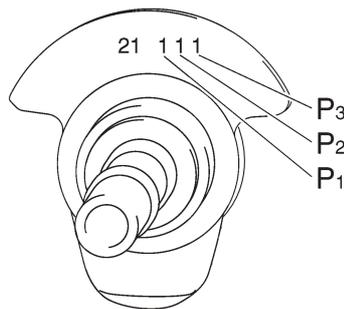
- Clean the crankshaft journal bearings, crankshaft journals, and bearing portions of the crankcase.
- Check the bearing surface. If the bearing surface is worn or scratched, both bearings should be replaced.

TIP

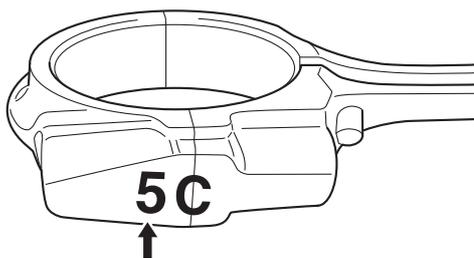
If either of the right or left journal bearing is worn or scratched, both bearings should be replaced as a set.

- Measure the crankshaft journal diameter “a” of each crankshaft journal at two places. If it is out of specification, replace the crankshaft.

A

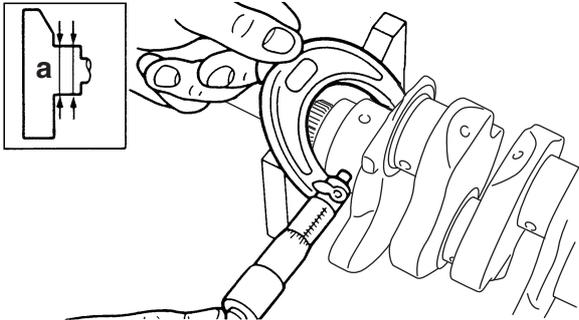


B

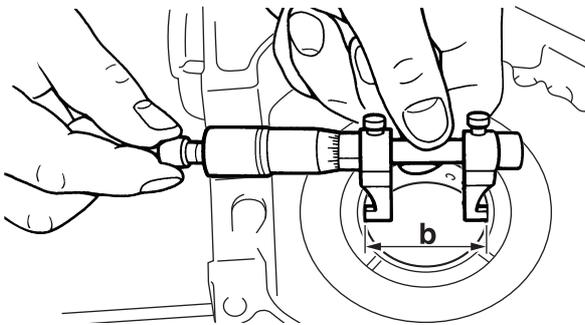


For example, if the connecting rod P_1 and the crankshaft web P_1 numbers are 5 and 1 re-

 **Crankshaft journal diameter**
54.984-55.000 mm (2.1647-2.1654 in)



d. Measure the crankshaft journal bearing inside diameter "b" of each crankshaft journal bearing at two places.



e. If crankshaft journal bearing inside diameter is "55.03" and crankshaft journal diameter is "54.98", then the journal oil clearance is:

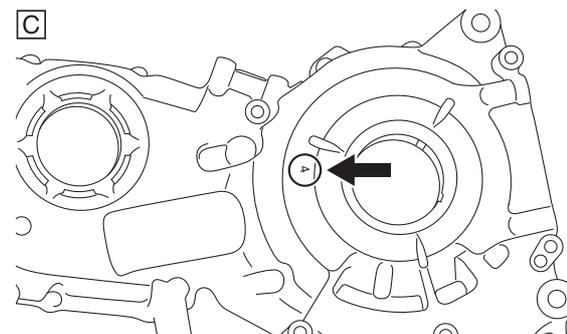
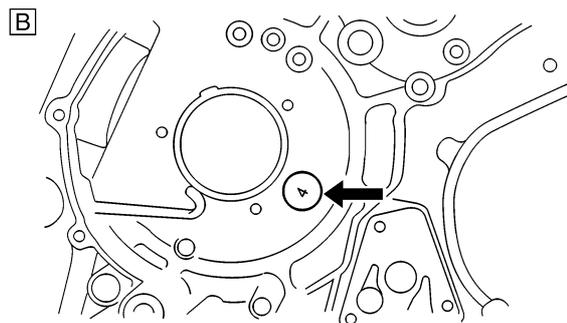
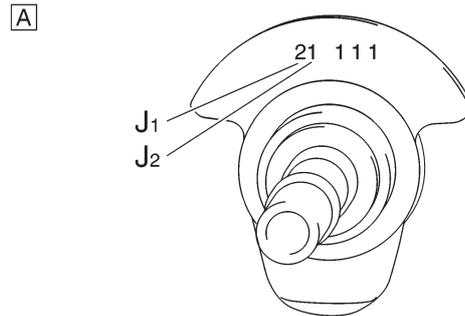
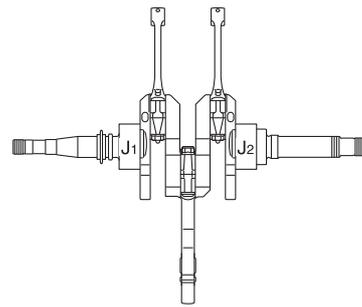
Journal oil clearance:
Crankshaft journal bearing inside diameter -
Crankshaft journal diameter
= 55.03 - 54.98
= 0.05 mm

If the oil clearance is out of specification, select replacement bearings.



6. Select:
• Crankshaft journal bearings (J₁-J₂)

- TIP**
- The numbers "A" is stamped into the crankshaft web, the number "B" on the left crankcase, and the number "C" on the right crankcase.
 - The numbers "A", "B", and "C" are used to determine the replacement crankshaft journal bearing size.
 - J₁-J₂ refer to the bearings shown in the crankshaft illustration.



For example, if the crankcase J₁ and the crankshaft web J₁ numbers are 4 and 2 respectively, then the bearing size for J₁ is:

J₁ (crankcase) - J₁ (crankshaft web)
= 4 - 2
= 2 (black)

	Bearing color code Code 0 White Code 1 Blue Code 2 Black Code 3 Brown Code 4 Green Code 5 Yellow
---	---

EAS31446

INSTALLING THE CRANKSHAFT JOURNAL BEARINGS

The following procedure applies to both of the crankshaft journal bearings.

1. Attach:

- Crankshaft journal bearing “1”

TIP

Attach the crankshaft journal bearing to the plane bearing installer “2”.

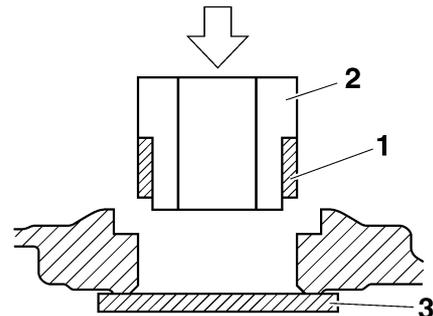
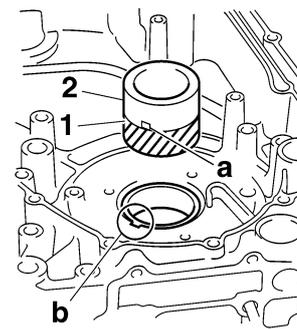
	Plane bearing installer 90890-04139
---	--

2. Install:

- Crankshaft journal bearing

TIP

- Align the projection “a” on the bearing with the projection “b” on the crankcase.
- Place an iron plate “3” beneath the crankcase and press fit until the end of the plain bearing installer touches the iron plate.



EAS30426

INSTALLING THE CONNECTING RODS

1. Lubricate:

- Bolt threads **New**
- Nut seats **New**
(with the recommended lubricant)

	Recommended lubricant Molybdenum disulfide oil
---	---

2. Lubricate:

- Crankshaft pins
- Big end bearings inner surface
- Balancer big end bearings inner surface
(with the recommended lubricant)

	Recommended lubricant Engine oil
---	---

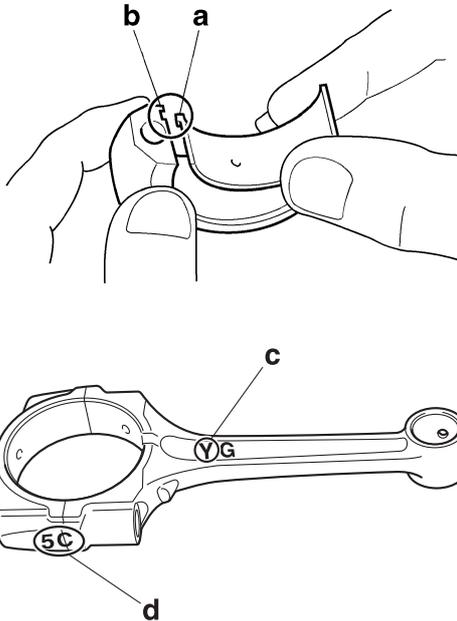
3. Install:

- Big end bearings
- Connecting rods
- Connecting rod caps
(onto the crankshaft pins)

TIP

- Align the projections “a” on the big end bearings with the notches “b” in the connecting rods and connecting rod caps.
- Be sure to reinstall each big end bearing in its original place.
- Make sure the “Y” marks “c” on the connecting rods face towards the left side of the crankshaft.

- Make sure the characters “d” on both the connecting rod and connecting rod cap are aligned.



4. Tighten:
- Connecting rod nuts



EWA13390

WARNING

- Replace the connecting rod bolts and nuts with new ones.
- Clean the connecting rod bolts and nuts.

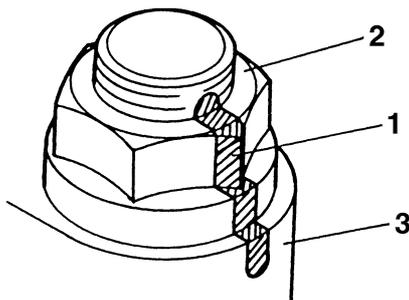
TIP

Tighten the connecting rod nuts using the following procedure.

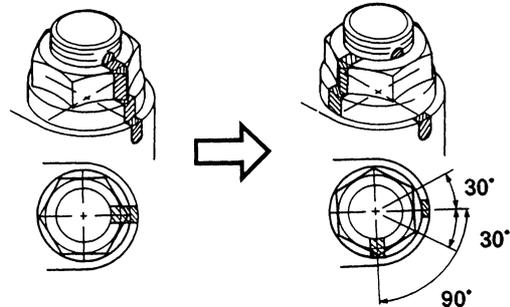
- a. Tighten the connecting rod nuts with a torque wrench.



- b. Put a mark “1” on the corner of the connecting rod nut “2” and the connecting rod cap “3”.



- c. Tighten the connecting rod nuts further to reach the specified angle 90°.



EWA13400

WARNING

If the connecting rod nut is tightened more than the specified angle, do not loosen the nut and then retighten it. Instead, replace the connecting rod bolt and nut with a new one and perform the procedure again.

ECA19930

NOTICE

- Do not use a torque wrench to tighten the connecting rod nut to the specified angle.
- Tighten the nut until it is at the specified angle.

TIP

On a hexagonal nut, note that the angle from one corner to another is 60°.

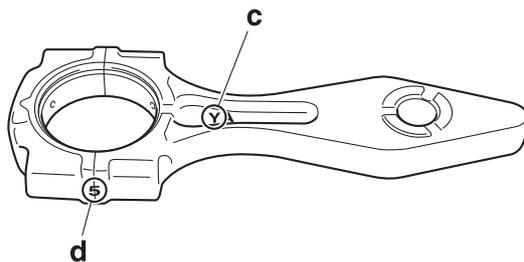
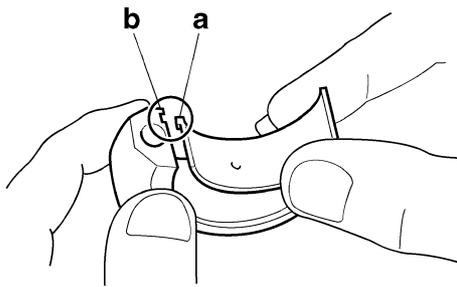


5. Install:

- Balancer big end bearings
- Balancer connecting rod
- Balancer connecting rod cap (onto the crankshaft pin)

TIP

- Align the projections “a” on the balancer big end bearings with the notches “b” in the balancer connecting rod and balancer connecting rod cap.
- Be sure to reinstall each balancer big end bearing in its original place.
- Make sure the “Y” marks “c” on the balancer connecting rod face towards the left side of the crankshaft.
- Make sure the characters “d” on both the balancer connecting rod and balancer connecting rod cap are aligned.



6. Tighten:

- Balancer connecting rod nuts

	Balancer connecting rod nut 60 N·m (6.0 kgf·m, 44 lb·ft)
---	---

ECA22190

NOTICE

When tightening the nuts, be sure to use an F-type torque wrench.

TIP

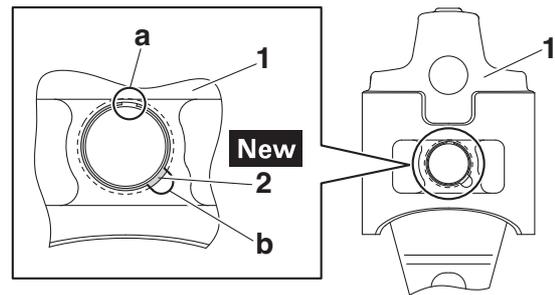
Tighten the nuts to the specified torque. Apply continuous torque between 30 N·m (3.0 kgf·m, 22 lb·ft) and 60 N·m (6.0 kgf·m, 44 lb·ft) without pausing. After reaching 30 N·m (3.0 kgf·m, 22 lb·ft), do not stop tightening until the specified torque is achieved. If the tightening is interrupted between 30 N·m (3.0 kgf·m, 22 lb·ft) and 60 N·m (6.0 kgf·m, 44 lb·ft), loosen the nut to less than 30 N·m (3.0 kgf·m, 22 lb·ft) and start again.

7. Install:

- Balancer piston “1”
- Balancer piston pin
- Piston pin clip “2” **New**

TIP

- Apply engine oil onto the balancer piston pin.
- Make sure that the clip ends “a” are positioned away from the cutout “b” in the balancer piston as shown in the illustration.



EAS30428

INSTALLING THE CRANKSHAFT ASSEMBLY

1. Install:

- Crankshaft assembly “1”
- Balancer cylinder “2”
- Balancer cylinder bolt

ECA13970

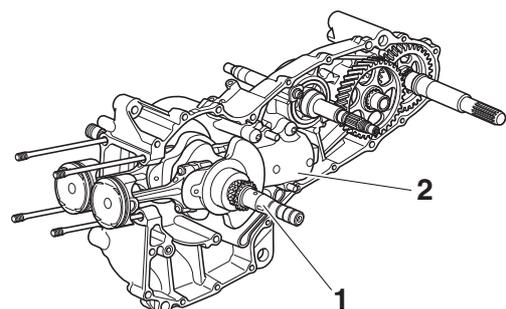
NOTICE

To avoid scratching the crankshaft and to ease the installation procedure, lubricate the oil seal lips with lithium-soap-based grease and each bearing with engine oil.

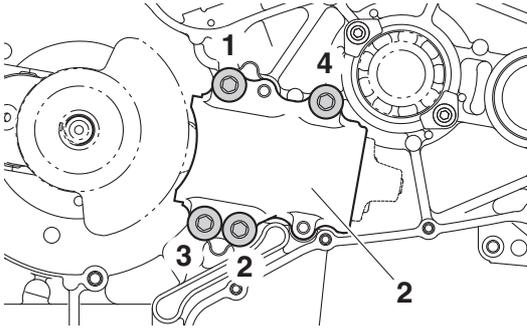
TIP

Tighten the balancer cylinder bolts in the tightening sequence as shown and torque them in 2 stages.

	Balancer cylinder bolt 1st: 16 N·m (1.6 kgf·m, 12 lb·ft) 2nd: 58 N·m (5.8 kgf·m, 43 lb·ft) LOCTITE®
---	--



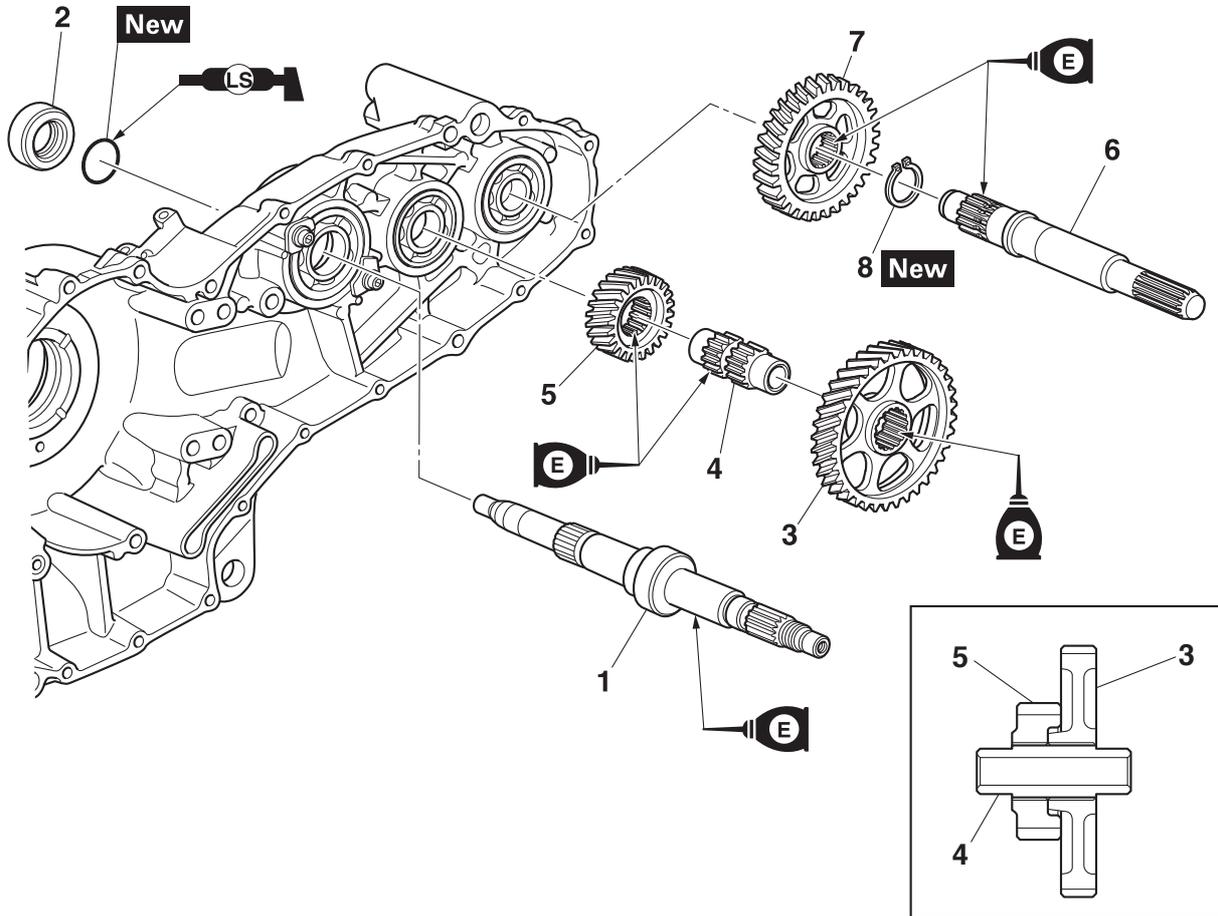
CRANKSHAFT



EAS20062

TRANSMISSION

Removing the transmission



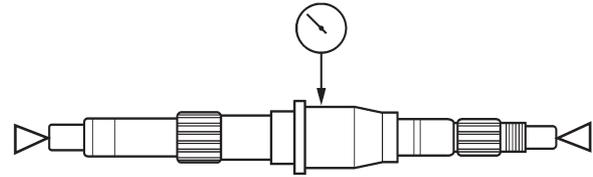
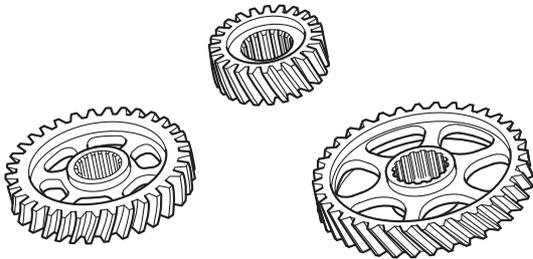
Order	Job/Parts to remove	Q'ty	Remarks
	Crankcase		Separate. Refer to "CRANKCASE" on page 5-62.
1	Secondary shaft	1	
2	Collar	1	
3	Primary driven gear	1	
4	Main axle	1	
5	1st pinion gear	1	
6	Drive axle	1	
7	1st wheel gear	1	
8	Circlip	1	

EAS30433

CHECKING THE TRANSMISSION

1. Check:

- Transmission gears
Blue discoloration/pitting/wear → Replace.



2. Check:

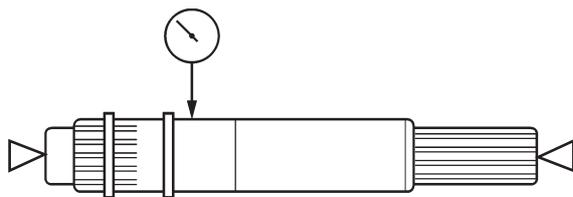
- Transmission gear movement
Rough movement → Replace the defective part(s).

3. Check:

- Main axle
Cracks/damage/wear → Replace the main axle.

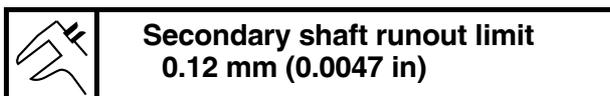
4. Measure:

- Drive axle runout
(with a centering device and dial gauge)
Out of specification → Replace the drive axle.



5. Measure:

- Secondary shaft runout
(with a centering device and dial gauge)
Out of specification → Replace the secondary shaft.



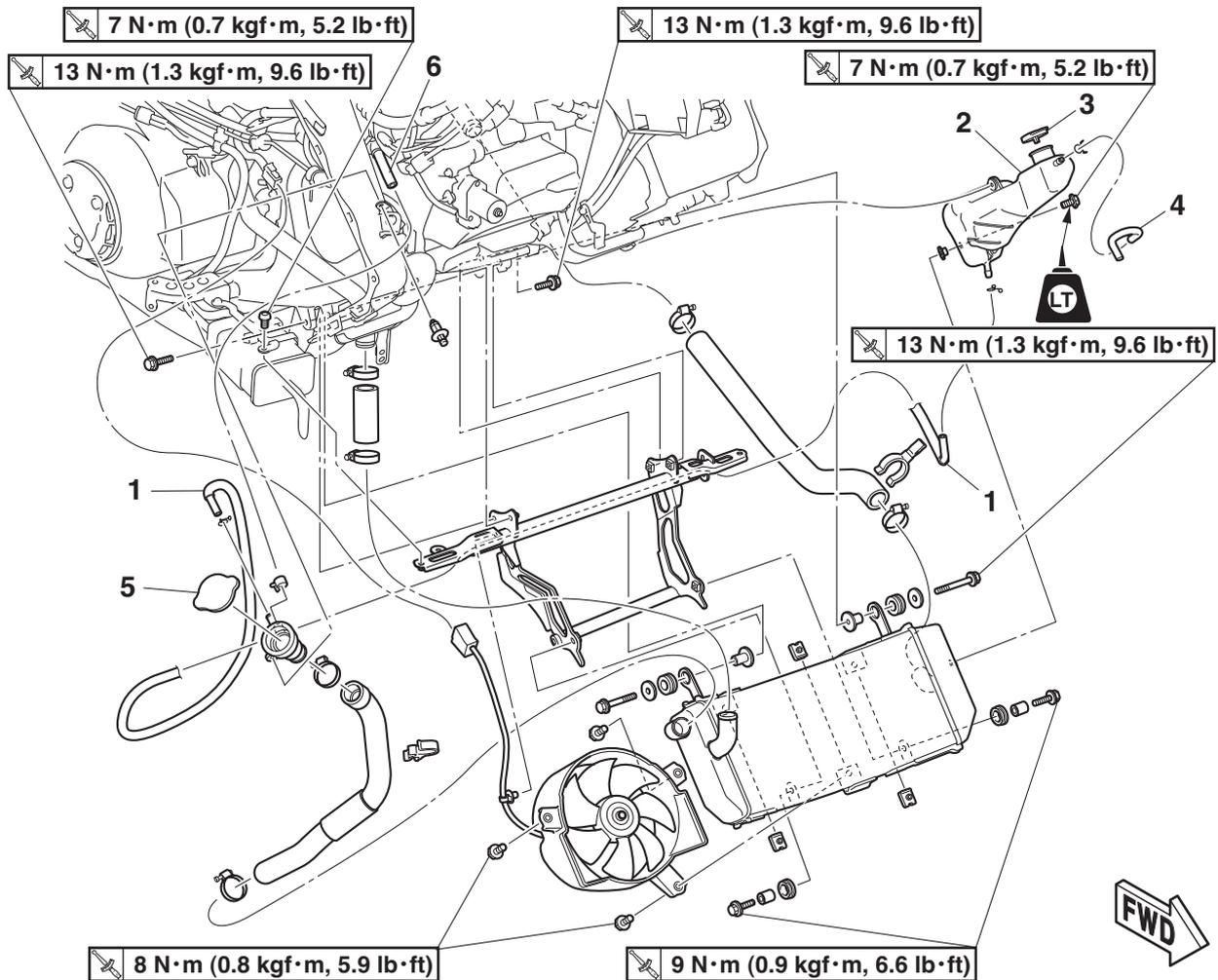
COOLING SYSTEM

RADIATOR	6-1
CHECKING THE RADIATOR.....	6-3
INSTALLING THE RADIATOR.....	6-3
OIL COOLER	6-5
CHECKING THE OIL COOLER	6-6
INSTALLING THE OIL COOLER	6-6
THERMOSTAT	6-7
CHECKING THE THERMOSTAT.....	6-8
INSTALLING THE THERMOSTAT ASSEMBLY	6-8
WATER PUMP	6-9
DISASSEMBLING THE WATER PUMP.....	6-11
CHECKING THE WATER PUMP	6-11
ASSEMBLING THE WATER PUMP.....	6-11
INSTALLING THE WATER PUMP	6-12

EAS20063

RADIATOR

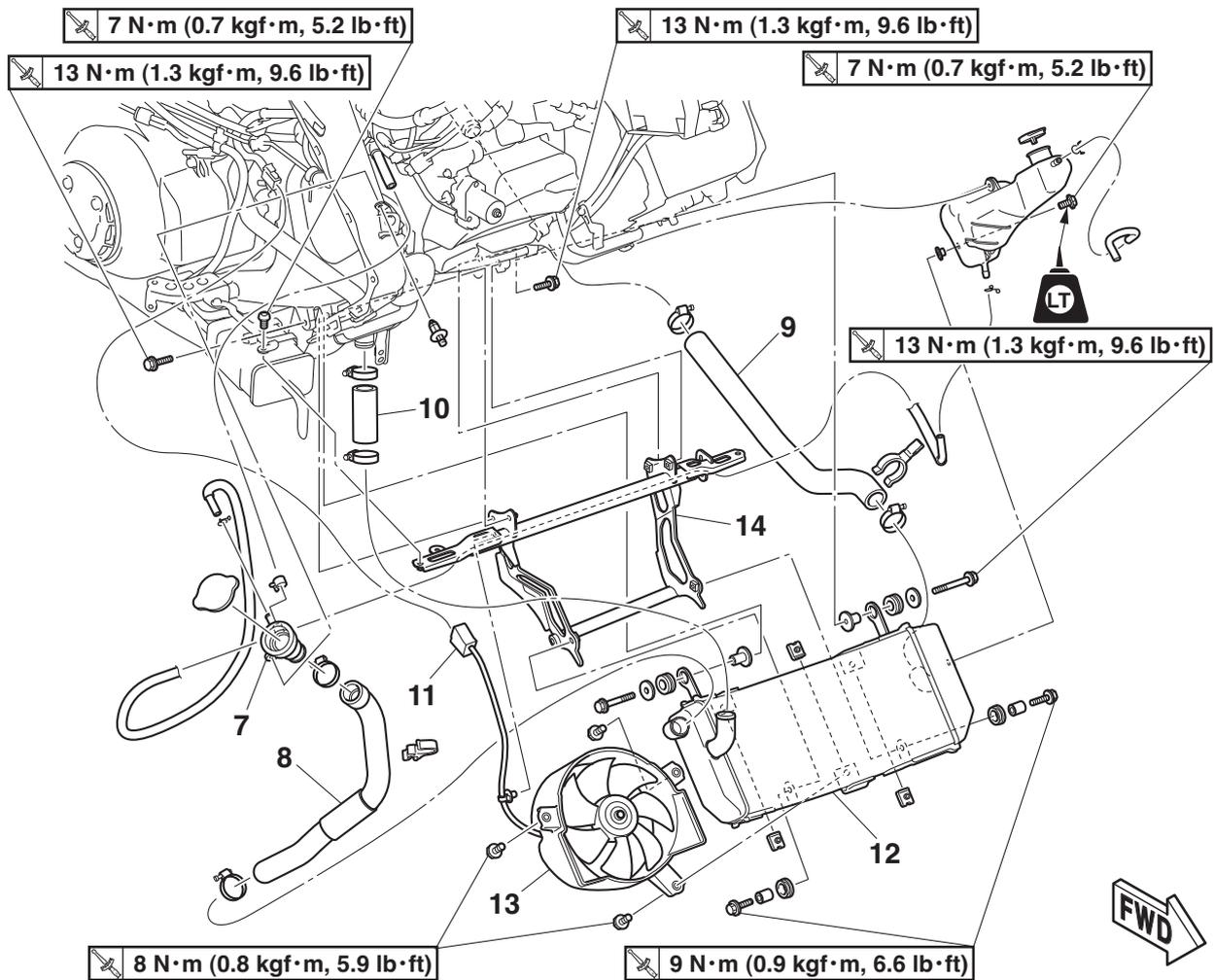
Removing the radiator



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-31.
1	Coolant reservoir hose	1	
2	Coolant reservoir	1	
3	Coolant reservoir cap	1	
4	Coolant reservoir breather hose	1	
5	Radiator cap	1	TIP Remove/Install it with the radiator filler pipe held.
6	Cooling system air bleed hose	1	Disconnect.

RADIATOR

Removing the radiator



Order	Job/Parts to remove	Q'ty	Remarks
7	Radiator filler pipe	1	
8	Radiator filler hose	1	
9	Radiator outlet hose	1	Disconnect.
10	Radiator inlet hose	1	
11	Radiator fan motor coupler	1	Disconnect.
12	Radiator	1	
13	Radiator fan	1	
14	Radiator bracket	1	

pressure.

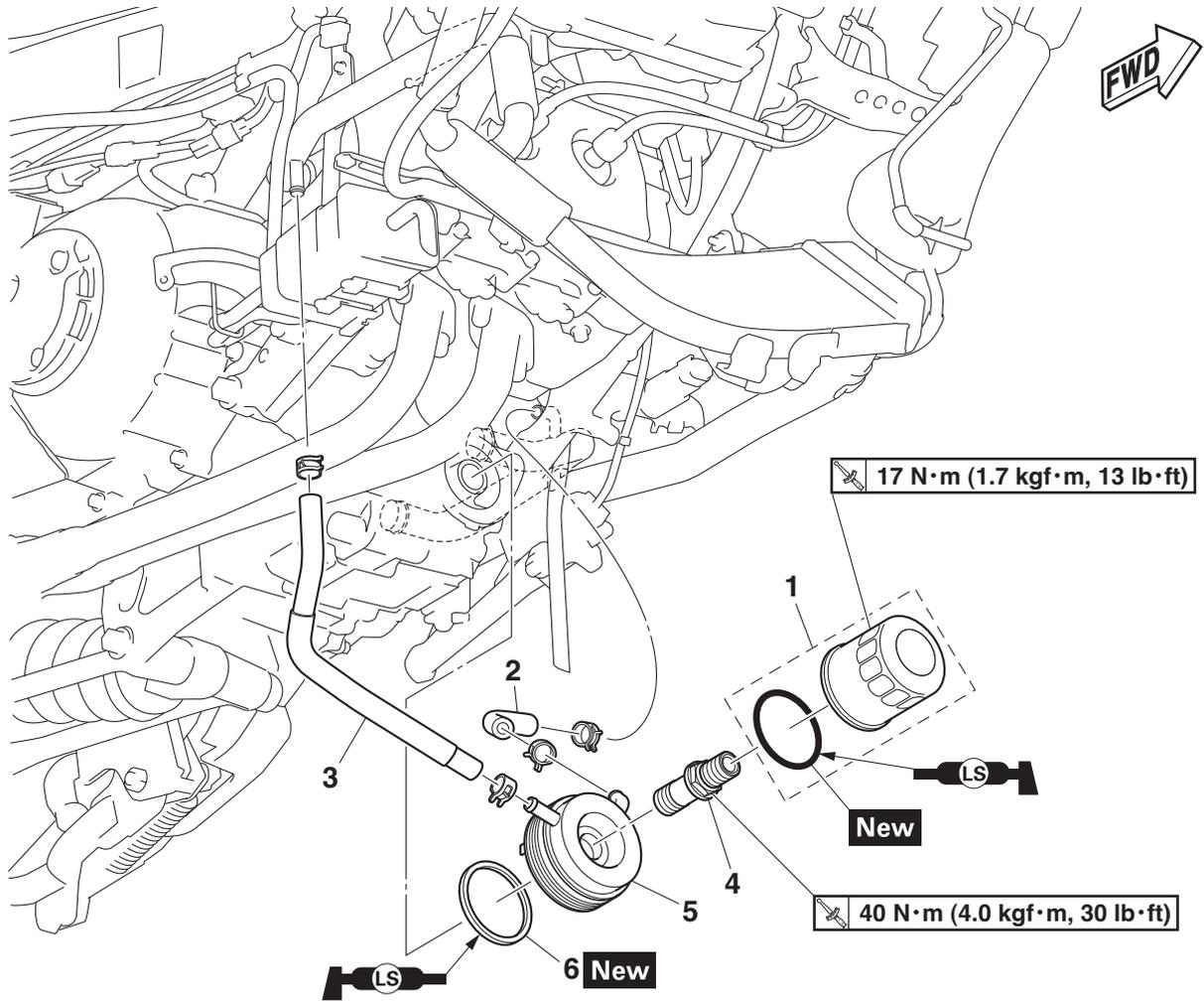
- c. Measure the indicated pressure with the gauge.



EAS20064

OIL COOLER

Removing the oil cooler



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Radiator cover/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Engine oil		Drain. Refer to "CHANGING THE ENGINE OIL" on page 3-27.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-31.
1	Oil filter cartridge	1	
2	Oil cooler inlet hose	1	
3	Oil cooler outlet hose	1	
4	Oil filter cartridge union bolt	1	
5	Oil cooler	1	
6	Gasket	1	

EAS30441

CHECKING THE OIL COOLER

1. Check:
 - Oil cooler
Cracks/damage → Replace.
2. Check:
 - Oil cooler inlet hose
 - Oil cooler outlet hose
Cracks/damage/wear → Replace.

EAS30442

INSTALLING THE OIL COOLER

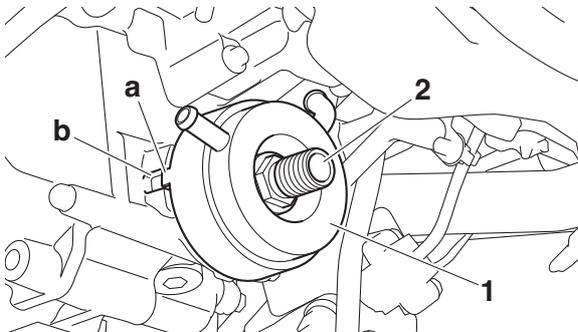
1. Clean:
 - Mating surfaces of the oil cooler and the crankcase
(with a cloth dampened with lacquer thinner)
2. Install:
 - Gasket **New**
 - Oil cooler "1"
 - Oil filter cartridge union bolt "2"



Oil filter cartridge union bolt
40 N·m (4.0 kgf·m, 30 lb·ft)

TIP

- Make sure that the gasket is positioned properly.
- Align the projection "a" on the oil cooler with the slot "b" in the crankcase.



3. Install:
 - Oil filter cartridge



Oil filter wrench
90890-01426
Oil filter wrench
YU-38411



Oil filter cartridge
17 N·m (1.7 kgf·m, 13 lb·ft)

Refer to "CHANGING THE ENGINE OIL" on page 3-27.

4. Fill:
 - Cooling system

(with the specified amount of the recommended coolant)

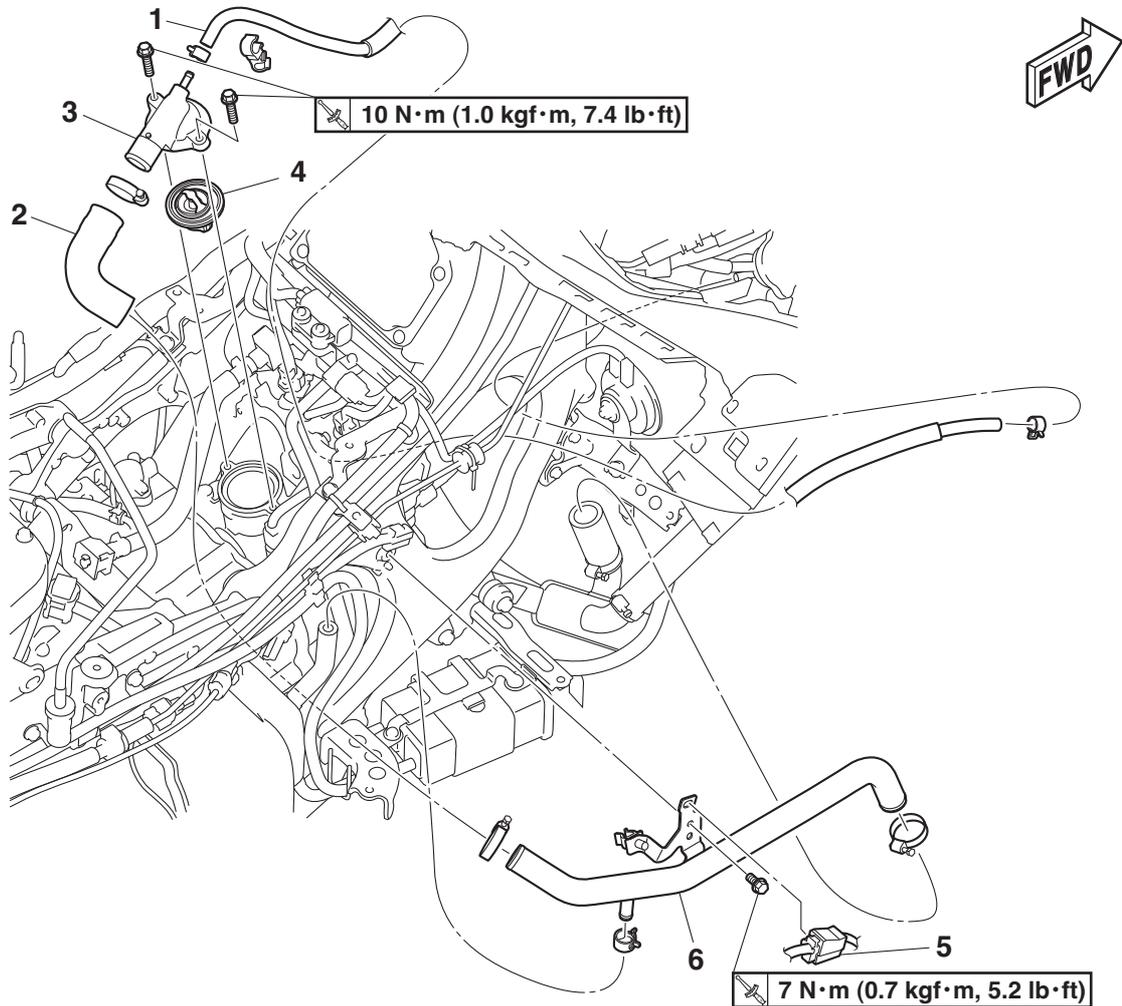
Refer to "CHANGING THE COOLANT" on page 3-31.

- Crankcase
(with the specified amount of the recommended engine oil)
Refer to "CHANGING THE ENGINE OIL" on page 3-27.
5. Check:
 - Cooling system
Leaks → Repair or replace any faulty part.
Refer to "INSTALLING THE RADIATOR" on page 6-3.
 6. Measure:
 - Radiator cap valve opening pressure
Below the specified pressure → Replace the radiator cap.
Refer to "CHECKING THE RADIATOR" on page 6-3.

EAS20065

THERMOSTAT

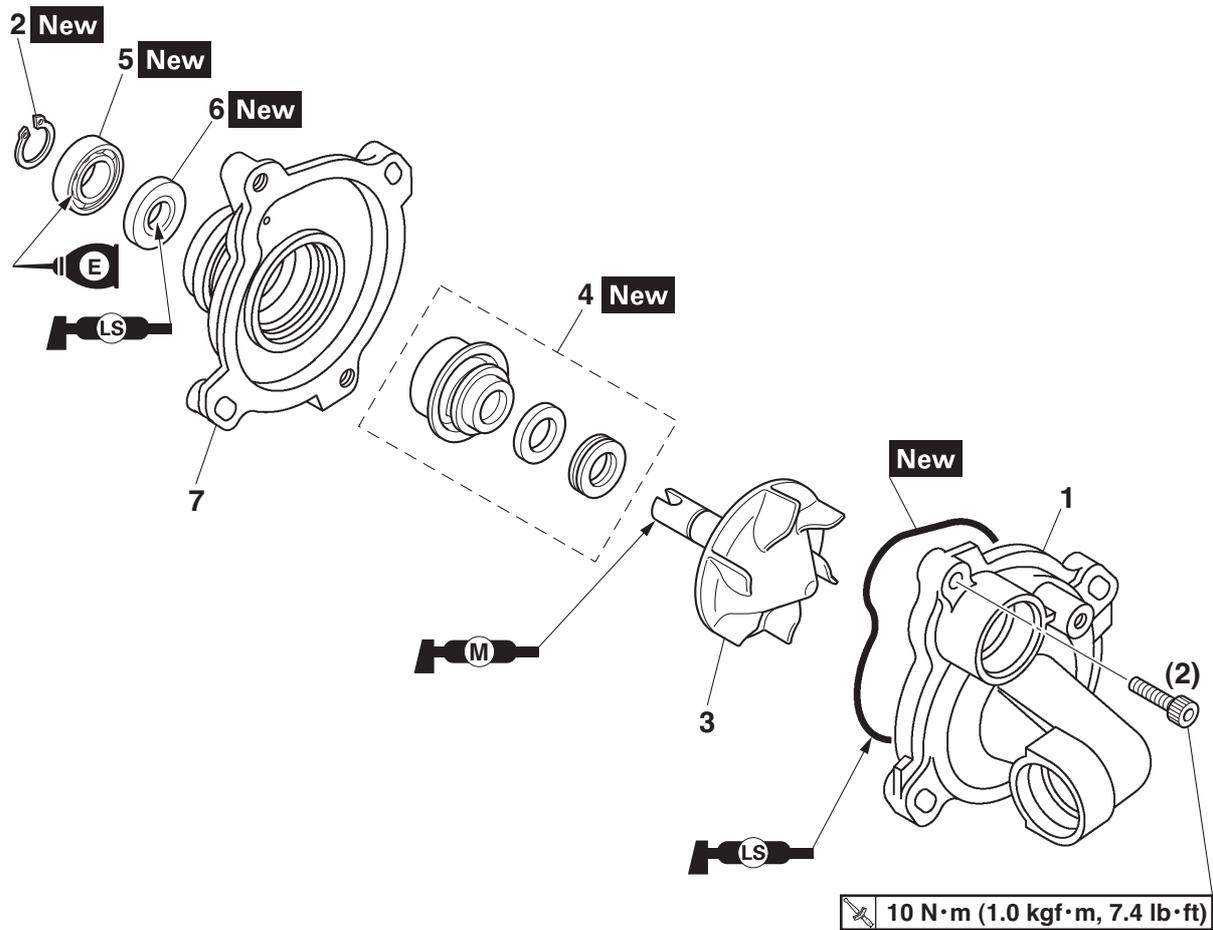
Removing the thermostat



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Fuel tank		Refer to "FUEL TANK" on page 7-1.
	Coolant		Drain. Refer to "CHANGING THE COOLANT" on page 3-31.
1	Cooling system air bleed hose	1	Disconnect.
2	Thermostat outlet hose	1	Disconnect.
3	Thermostat cover	1	
4	Thermostat	1	
5	Radiator fan motor coupler	1	
6	Coolant pipe	1	

WATER PUMP

Disassembling the water pump



Order	Job/Parts to remove	Q'ty	Remarks
1	Water pump housing cover	1	
2	Circlip	1	
3	Impeller shaft	1	
4	Mechanical seal	1	
5	Bearing	1	
6	Oil seal	1	
7	Water pump housing	1	

WATER PUMP

EAS30446

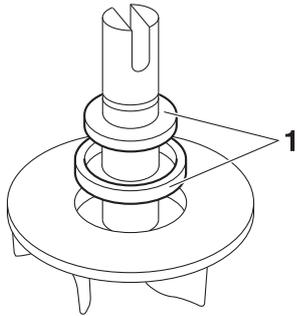
DISASSEMBLING THE WATER PUMP

1. Remove:

- Mechanical seal (impeller side) "1"
(from the impeller, with a thin, flathead screwdriver)

TIP

Do not scratch the impeller shaft.

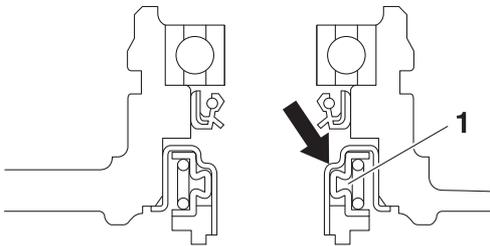


2. Remove:

- Mechanical seal (housing side) "1"

TIP

Remove the mechanical seal (housing side) from the inside of the water pump housing.

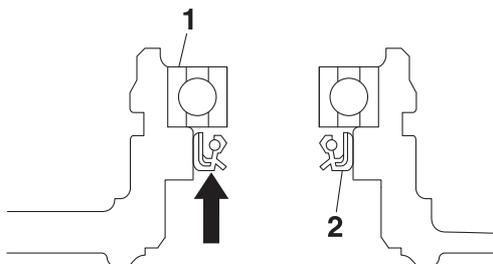


3. Remove:

- Bearing "1"
- Oil seal "2"

TIP

Remove the bearing and oil seal from the outside of the water pump housing.

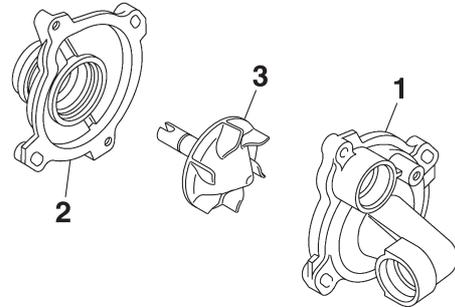


EAS30447

CHECKING THE WATER PUMP

1. Check:

- Water pump housing cover "1"
 - Water pump housing "2"
 - Impeller shaft "3"
- Cracks/damage/wear → Replace.



2. Check:

- Water pump inlet pipe
 - Water pump outlet pipe
- Cracks/damage/wear → Replace.

EAS30448

ASSEMBLING THE WATER PUMP

1. Install:

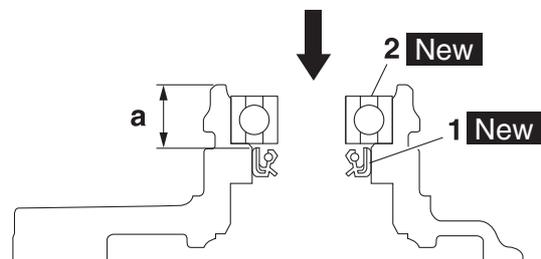
- Oil seal "1" **New**
- Bearing "2" **New**
(into the water pump housing)

TIP

- Before installing the oil seal, apply tap water or coolant onto its outer surface.
- Install the oil seal with a socket that matches its outside diameter.
- Install the oil seal from the inside of the water pump housing.



Installed depth of oil seal "a"
11.5 mm (0.45 in)



2. Install:

- Mechanical seal (housing side) "1" **New**
(into the water pump housing "2")

WATER PUMP

ECA20330

NOTICE

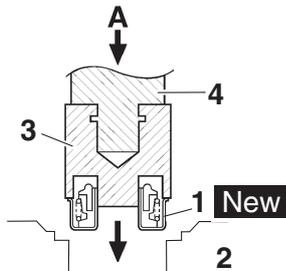
Never lubricate the mechanical seal (housing side) surface with oil or grease.

TIP

Use the special tool and a press to press the mechanical seal (housing side) straight in until it touches the water pump housing.



Mechanical seal installer
90890-04132
Water pump seal installer
YM-33221-A
Middle driven shaft bearing driver
90890-04058
Middle drive bearing installer 40 & 50 mm
YM-04058



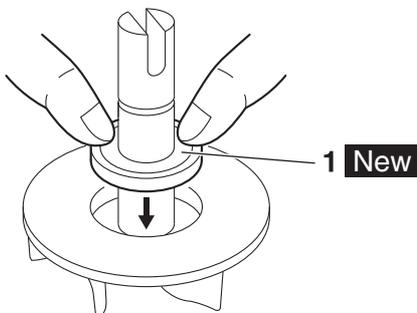
- A. Push down
- 3. Mechanical seal installer
- 4. Middle driven shaft bearing driver

3. Install:

- Mechanical seal (impeller side) "1" **New**

TIP

Before installing the mechanical seal (impeller side), apply tap water or coolant onto its outer surface.



4. Measure:

- Impeller shaft tilt
Out of specification → Repeat step (3) and (4).

ECA20340

NOTICE

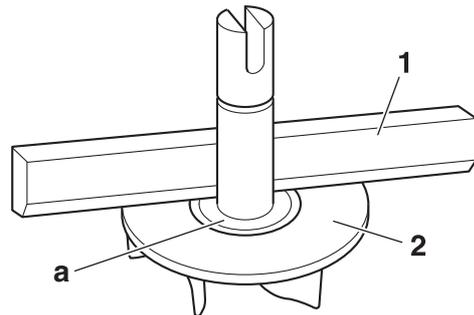
Make sure the mechanical seal (impeller side) is flush with the impeller.

TIP

If the surface "a" of the mechanical seal (impeller side) that contacts the mechanical seal (housing side) is dirty, clean it.



Impeller shaft tilt limit
0.15 mm (0.006 in)



- 1. Straightedge
- 2. Impeller shaft

EAS30449

INSTALLING THE WATER PUMP

1. Install:

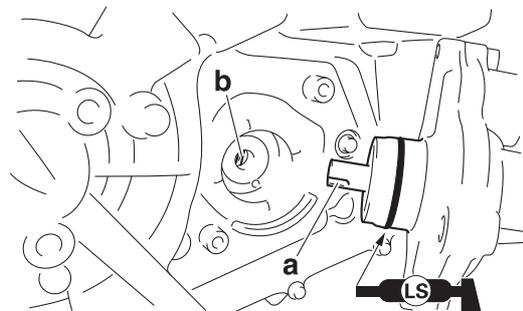
- O-ring **New**
- Water pump assembly

TIP

- Align the slit "a" on the impeller shaft with the projection "b" on the oil pump shaft.
- Lubricate the O-ring with a thin coat of lithium-soap-based grease.



Water pump assembly bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)



2. Fill:

- Cooling system
(with the specified amount of the recommended coolant)

Refer to "CHANGING THE COOLANT" on page 3-31.

3. Check:

- Cooling system

Leaks → Repair or replace any faulty part.

Refer to "INSTALLING THE RADIATOR" on page 6-3.

4. Measure:

- Radiator cap valve opening pressure

Below the specified pressure → Replace the radiator cap.

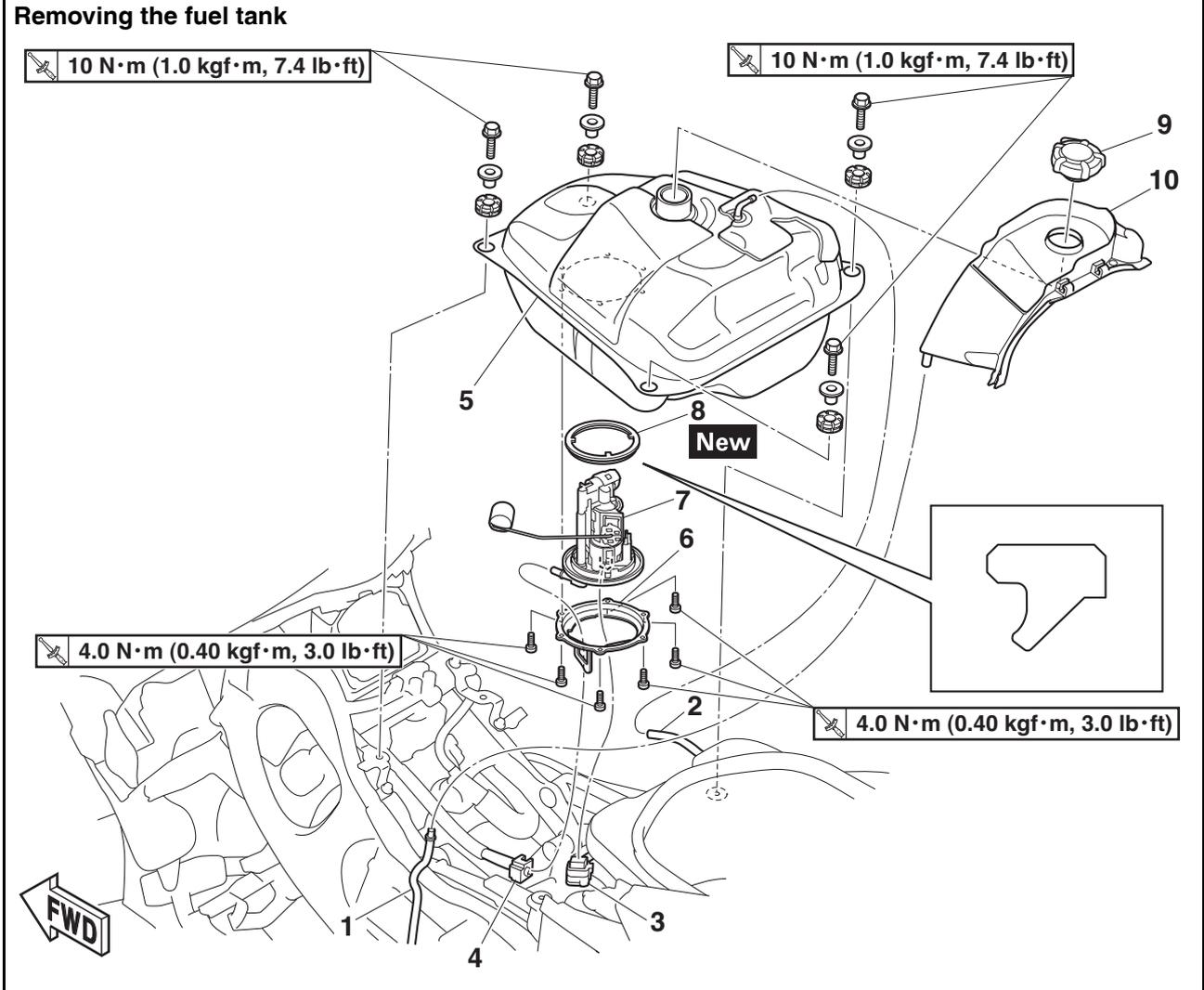
Refer to "CHECKING THE RADIATOR" on page 6-3.

FUEL SYSTEM

FUEL TANK	7-1
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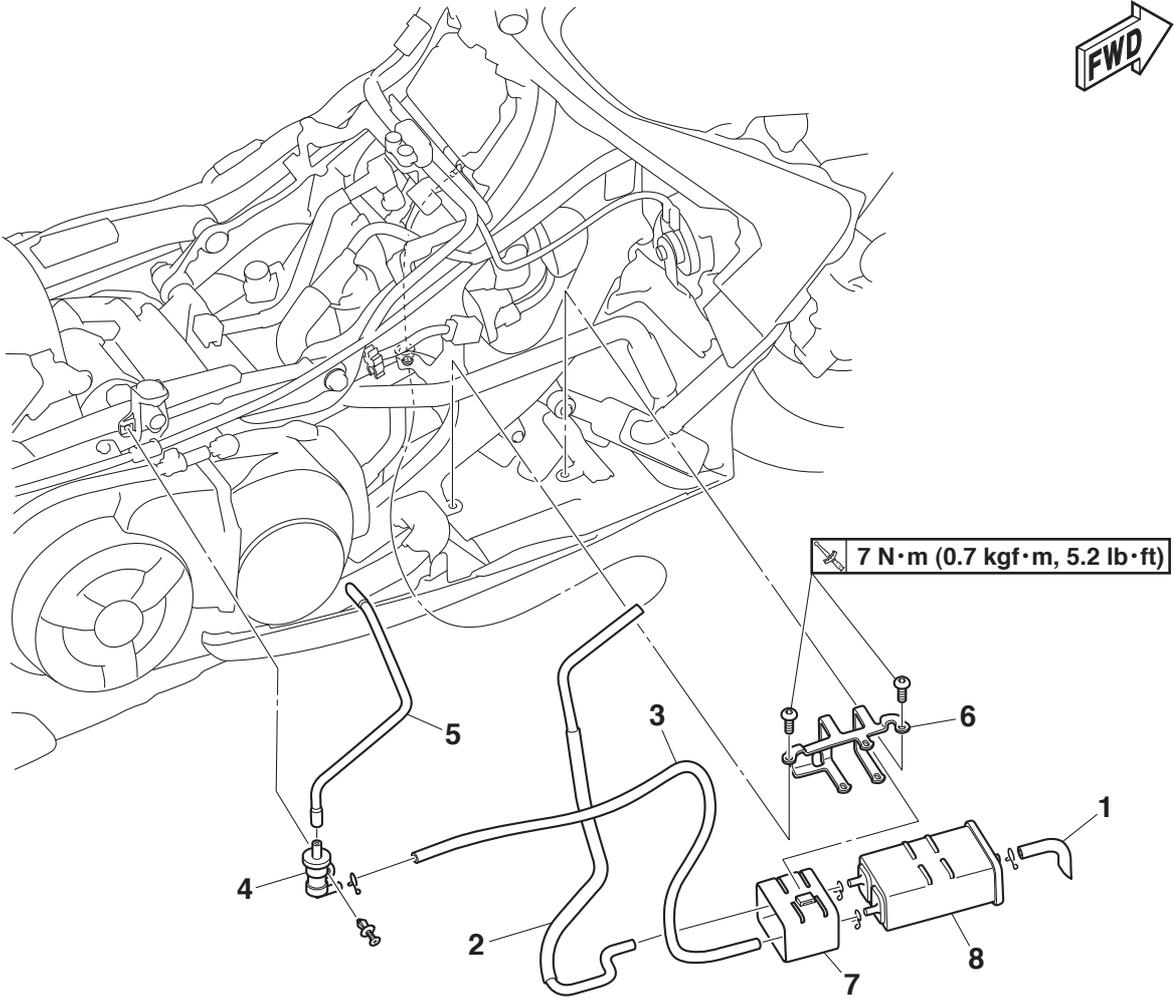
EAS20067

FUEL TANK



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footerboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
1	Fuel tank overflow hose	1	
2	Fuel tank breather hose	1	Disconnect.
3	Fuel pump coupler	1	Disconnect.
4	Fuel hose connector	1	Disconnect.
5	Fuel tank	1	
6	Fuel pump bracket	1	
7	Fuel pump	1	
8	Fuel pump gasket	1	
9	Fuel tank cap	1	
10	Filler cover	1	

Removing the rollover valve and canister



Order	Job/Parts to remove	Q'ty	Remarks
	Bottom side cowling/Side panel/Bottom center cowling		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Fuel tank		Refer to "FUEL TANK" on page 7-1.
1	Canister breather hose	1	
2	Canister purge hose (hose joint to canister)	1	
3	Fuel tank breather hose (rollover valve to canister)	1	
4	Rollover valve	1	
5	Fuel tank breather hose (fuel tank to rollover valve)	1	
6	Canister bracket	1	
7	Canister holder	1	
8	Canister	1	

EAS30450

REMOVING THE FUEL TANK

1. Extract the fuel in the fuel tank through the fuel tank cap with a pump.
2. Remove:
 - Bottom side cowling
 - Side panel
 - Bottom center cowling
 Refer to “GENERAL CHASSIS (1)” on page 4-1.
 - Center cover
 - Fuel tank cover assembly
 - Side cover
 - Footboard
 Refer to “GENERAL CHASSIS (2)” on page 4-11.
3. Disconnect:
 - Fuel tank overflow hose
 - Fuel tank breather hose
 - Fuel hose (fuel tank side)
 - Fuel pump coupler

EWA17320

WARNING

Cover fuel hose connections with a cloth when disconnecting them. Residual pressure in the fuel lines could cause fuel to spurt out when removing the hose.

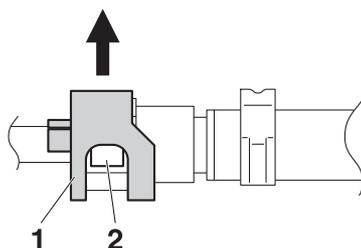
ECA17490

NOTICE

Be sure to disconnect the fuel hose by hand. Do not forcefully disconnect the hose with tools.

TIP

- To remove the fuel hose from the fuel pump, slide the fuel hose connector cover “1” on the end of the hose in the direction of the arrow shown, press the two buttons “2” on the sides of the connector, and then remove the hose.
- Before removing the hose, place a few rags in the area under where it will be removed.
- It is prohibited to wear the cotton work gloves or equivalent coverings.



4. Remove:
 - Fuel tank

TIP

Do not set the fuel tank down so that the installation surface of the fuel pump is directly under the tank. Be sure to lean the fuel tank in an upright position.

EAS30451

REMOVING THE FUEL PUMP

1. Remove:
 - Fuel pump bracket
 - Fuel pump
 - Fuel pump gasket

ECA14721

NOTICE

- Do not drop the fuel pump or give it a strong shock.
- Do not touch the base section of the fuel sender.

EAS30454

CHECKING THE FUEL PUMP BODY

1. Check:
 - Fuel pump body
 - Obstruction → Clean.
 - Cracks/damage → Replace the fuel pump assembly.

EAS30455

CHECKING THE FUEL PUMP OPERATION

1. Check:
 - Fuel pump operation
 - Refer to “CHECKING THE FUEL PRESSURE” on page 7-12.

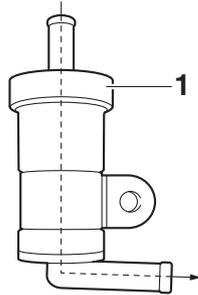
EAS30699

CHECKING THE ROLLOVER VALVE

1. Check:
 - Rollover valve “1”
 - Damage/faulty → Replace.

TIP

- Check that air flows smoothly only in the direction of the arrow shown in the illustration.
- The rollover valve must be in an upright position when checking the airflow.



TIP

- Install the fuel hose securely onto the fuel pump until a distinct “click” is heard.
- To install the fuel hose onto the fuel pump, slide the fuel hose connector cover “1” on the end of the hose in the direction of the arrow shown.
- It is prohibited to wear the cotton work gloves or equivalent coverings.

EAS30456

INSTALLING THE FUEL PUMP

1. Install:

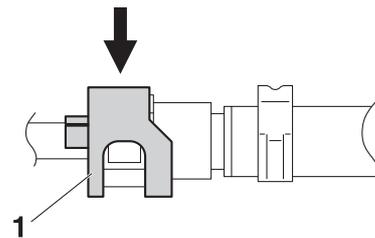
- Fuel pump gasket **New**
- Fuel pump
- Fuel pump bracket



Fuel pump bolt
4.0 N·m (0.40 kgf·m, 3.0 lb·ft)

TIP

- Do not damage the installation surfaces of the fuel tank when installing the fuel pump.
- Always use a new fuel pump gasket.
- Install the fuel pump as shown in the illustration.
- Align projection “a” on the fuel pump with mark “b” of the fuel tank.
- Tighten the fuel pump bolts in the proper tightening sequence as shown.



2. Connect:

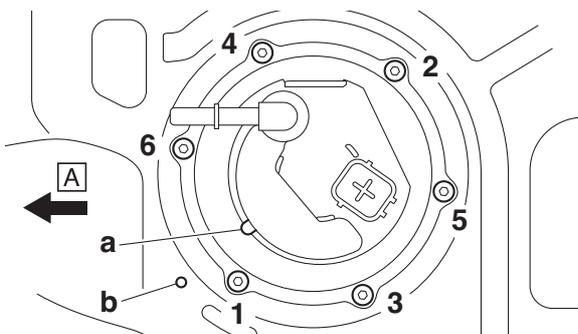
- Fuel pump coupler
- Fuel tank breather hose
- Fuel tank overflow hose

3. Install:

- Fuel tank



Fuel tank bolt
10 N·m (1.0 kgf·m, 7.4 lb·ft)



A. Forward

EAS30457

INSTALLING THE FUEL TANK

1. Connect:

- Fuel hose (fuel tank side)

ECA17500

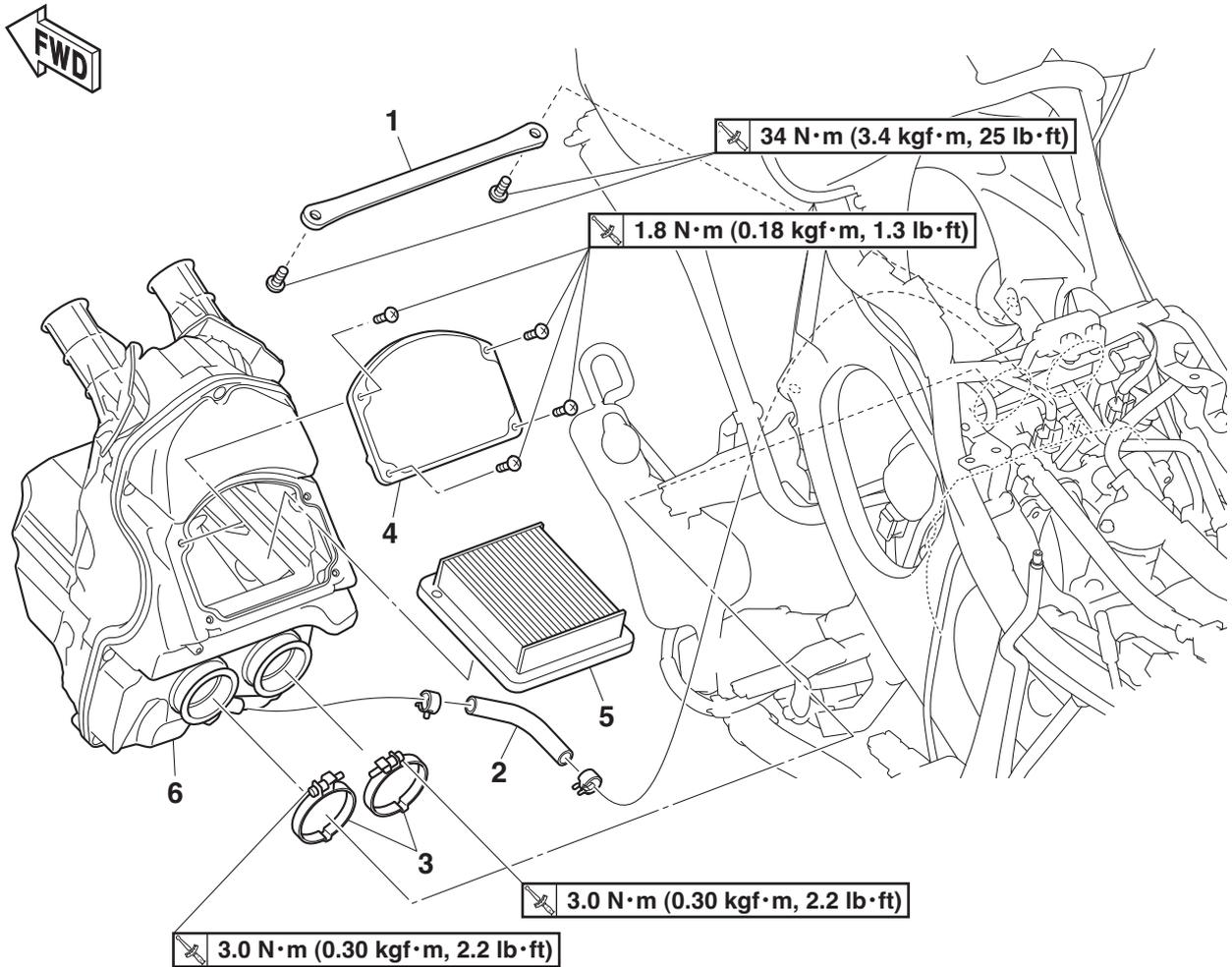
NOTICE

When installing the fuel hose, make sure that it is securely connected, and that the fuel hose connector cover on the fuel hose is in the correct position, otherwise the fuel hose will not be properly installed.

EAS20070

THROTTLE BODY

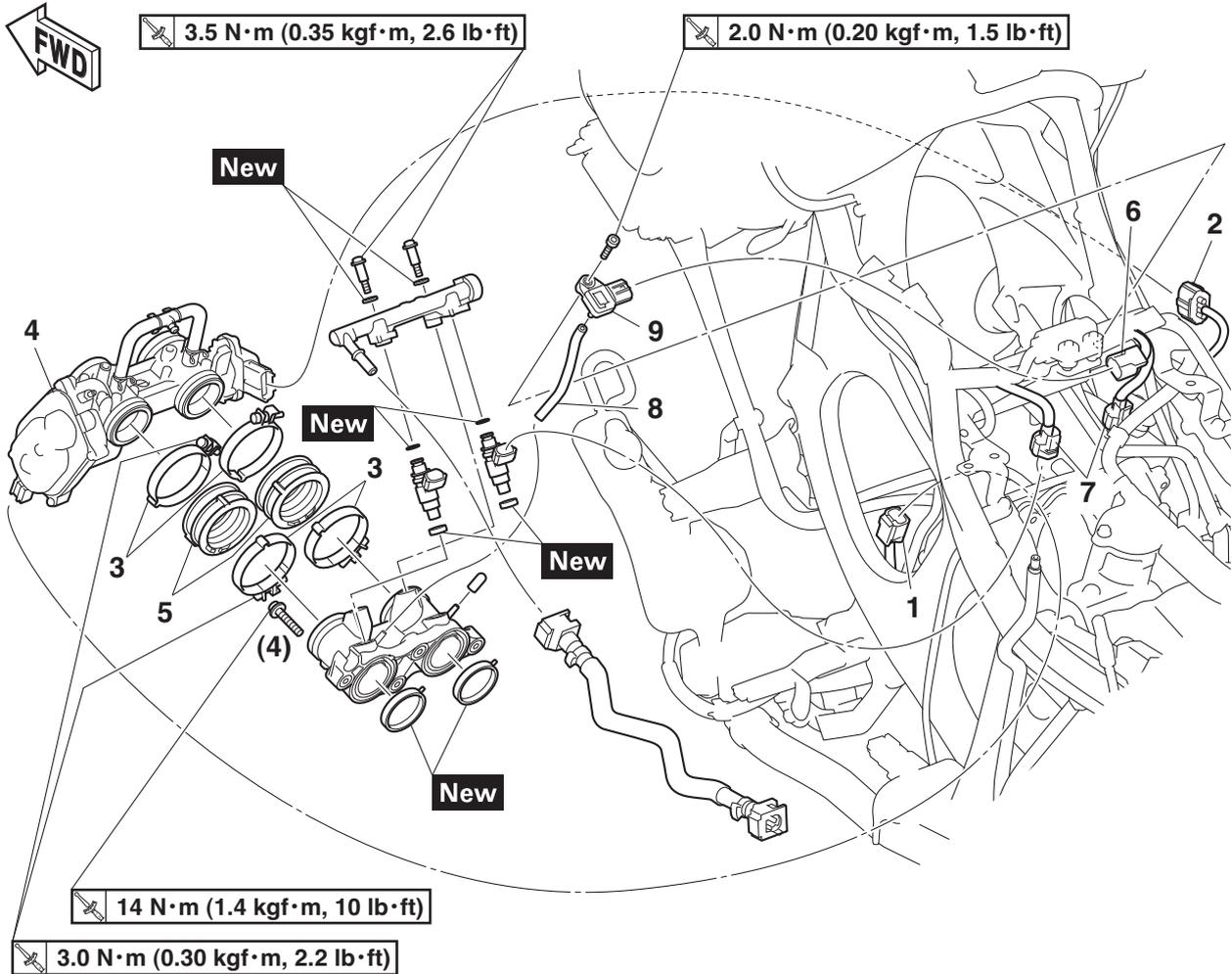
Removing the air filter case



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Fuel tank		Refer to "FUEL TANK" on page 7-1.
	Throttle body assembly		Refer to "THROTTLE BODY" on page 7-5.
	Front wheel		Refer to "FRONT WHEEL" on page 4-22.
	Front fender		Refer to "FRONT FORK" on page 4-87.
1	Plate	1	
2	Cylinder head breather hose	1	
3	Air filter case joint clamp	2	Loosen.
4	Air filter case cover	1	
5	Air filter element	1	
6	Air filter case	1	

THROTTLE BODY

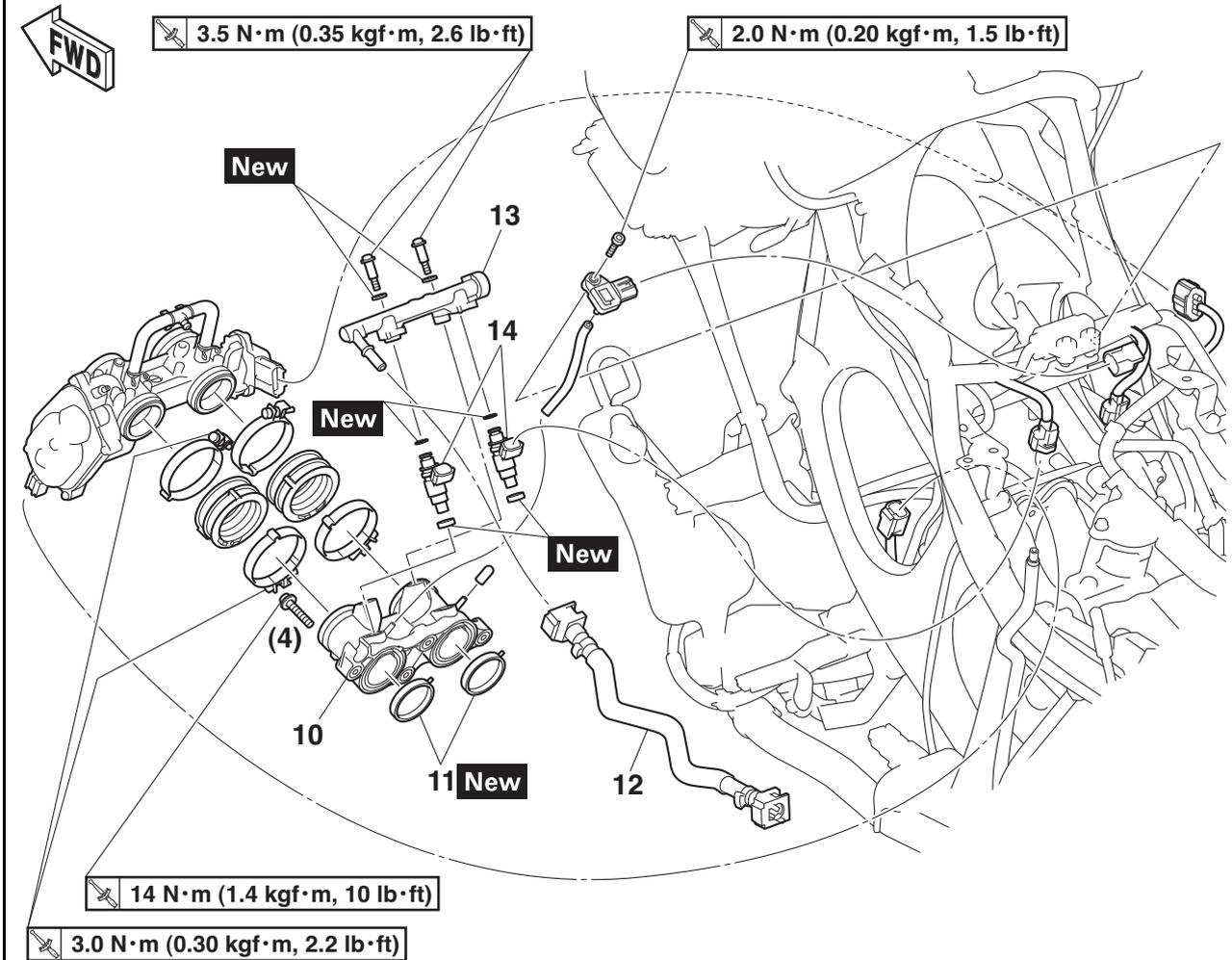
Removing the throttle body



Order	Job/Parts to remove	Q'ty	Remarks
	Windshield/Front cover/Windshield inner panel/Meter assembly/Rearview mirror/Bottom side cowling/Side panel/Front cowling assembly/Leg shield assembly		Refer to "GENERAL CHASSIS (1)" on page 4-1.
	Center cover/Fuel tank cover assembly/Side cover/Footboard		Refer to "GENERAL CHASSIS (2)" on page 4-11.
	Fuel tank		Refer to "FUEL TANK" on page 7-1.
	Air filter case		Disconnect. Refer to "THROTTLE BODY" on page 7-5.
1	Throttle servo motor coupler	1	Disconnect.
2	Throttle position sensor coupler	1	Disconnect.
3	Throttle body joint clamp screw	4	Loosen.
4	Throttle body assembly	1	
5	Throttle body joint	2	
6	Intake air pressure sensor coupler	1	Disconnect.
7	Injector coupler	2	Disconnect.
8	Intake air pressure sensor hose	1	
9	Intake air pressure sensor	1	

THROTTLE BODY

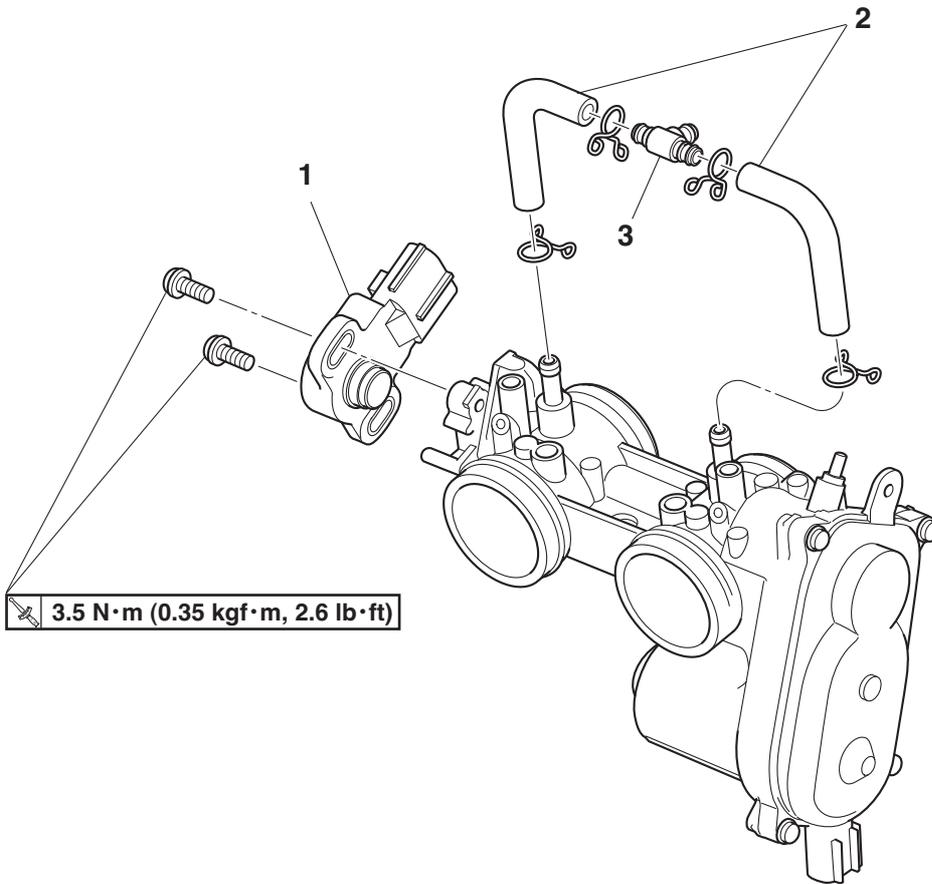
Removing the throttle body



Order	Job/Parts to remove	Q'ty	Remarks
10	Intake manifold	1	
11	Gasket	2	
12	Fuel hose	1	
13	Fuel rail	1	
14	Injector	2	

THROTTLE BODY

Disassembling the throttle body assembly

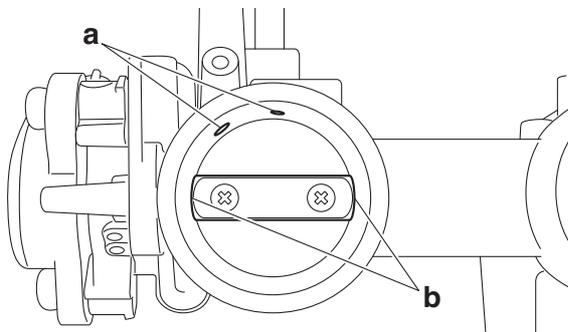


Order	Job/Parts to remove	Q'ty	Remarks
1	Throttle position sensor	1	
2	Canister purge hose	2	
3	Hose joint	1	

aged.

- Do not allow carbon deposits or other foreign materials to enter any of the passages in each throttle body or in the space between the throttle valve shaft and the throttle body.

- After removing the carbon deposits, clean the inside of the throttle bodies with the recommended cleaning solvent, and then dry the throttle bodies using compressed air.
- Make sure that there are no carbon deposits or other foreign materials in any of the passages "a" in each throttle body or in the space "b" between the throttle valve shaft and the throttle body.



- Install the throttle bodies.
- Reset:
 - ISC (idle speed control) learning values
Use the diagnostic code number "67".
Refer to "SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)" on page 9-5.
- Adjust:
 - Throttle bodies synchronizing
Out of specification → Replace the throttle bodies.
Refer to "SYNCHRONIZING THE THROTTLE BODIES" on page 3-9.

EAS31160

REPLACING THE THROTTLE BODIES

- Remove the throttle bodies from the vehicle.
- Install a new throttle bodies to the vehicle.
- Reset:
 - ISC (idle speed control) learning values
Use the diagnostic code number "67".
Refer to "SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)" on page 9-5.
- Adjust:
 - Throttle bodies synchronizing
Refer to "SYNCHRONIZING THE THROT-

TLE BODIES" on page 3-9.

- Place the vehicle on a maintenance stand so that the rear wheel is elevated.
- Check:
 - Engine idling speed
Start the engine, warm it up, and then measure the engine idling speed.

	Engine idling speed 1100–1300 r/min
---	--

EAS30480

INSTALLING THE INJECTORS

ECA21550

NOTICE

- Always use new O-rings.
- When installing the injectors, do not allow any foreign material to enter or adhere to the injectors, fuel rails, or O-rings.
- Be careful not to twist or pinch the O-rings when installing the injectors.
- When installing the injector, install it at the same position as the removed cylinder.
- If an injector is subject to strong shocks or excessive force, replace it.
- If installing the original fuel rail and bolts, remove the white paint marks using a cleaning solvent. Otherwise, paint chips on the bolt seats could prevent the bolts from being tightened to the specified torque.

- Install a new seal onto the end of each injector.
- Install the injectors to the fuel rail, making sure to install them in the correct direction.
- Install the injector assembly to the intake manifold.

	Fuel rail bolt 3.5 N·m (0.35 kgf·m, 2.6 lb-ft)
---	---

- Check the injector pressure after the injectors are installed.
Refer to "CHECKING THE INJECTOR PRESSURE" on page 7-11.

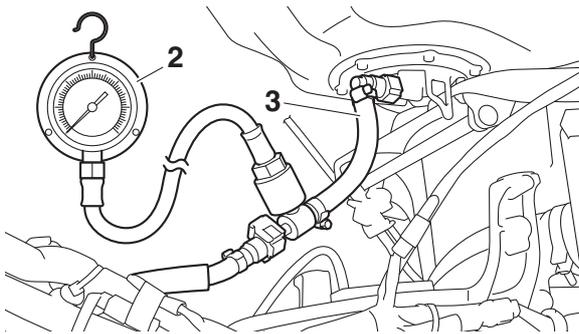
EAS30481

CHECKING THE INJECTOR PRESSURE

TIP

- After installing the injectors, perform the following steps to check the injector pressure.
- Do not allow any foreign materials to enter the fuel lines.

- Check:
 - Injector pressure



- f. Start the engine.
- g. Measure the fuel pressure.
Faulty → Replace the fuel pump.



Fuel line pressure (at idle)
220–300 kPa (2.2–3.0 kgf/cm²,
31.9–43.5 psi)



EAS31159

INSTALLING THE FUEL HOSE (FUEL RAIL SIDE)

- 1. Connect:
 - Fuel hose (fuel rail side)

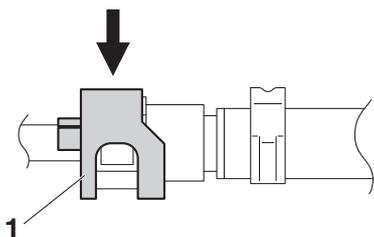
ECA17500

NOTICE

When installing the fuel hose, make sure that it is securely connected, and that the fuel hose connector cover on the fuel hose is in the correct position, otherwise the fuel hose will not be properly installed.

TIP

- Install the fuel hose securely onto the fuel rail joint until a distinct “click” is heard.
- To install the fuel hose onto the fuel rail joint, slide the fuel hose connector cover “1” on the end of the hose in the direction of the arrow shown.
- It is prohibited to wear the cotton work gloves or equivalent coverings.



EAS30485

ADJUSTING THE THROTTLE POSITION SENSOR

ECA17540

NOTICE

- Handle the throttle position sensor with special care.
- Never subject the throttle position sensor to strong shocks. If the throttle position sensor is dropped, replace it.

1. Check:

- Throttle position sensor
Refer to “CHECKING THE THROTTLE POSITION SENSOR” on page 8-246.

2. Adjust:

- Throttle position sensor angle

TIP

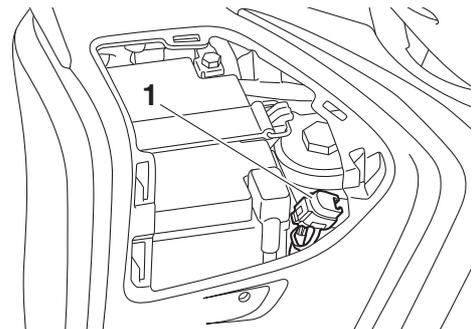
Before adjusting the throttle position sensor, the throttle bodies must be removed.



- a. Temporarily tighten the throttle position sensor screws.
- b. Check that the throttle valves are fully closed.
- c. Connect the throttle position sensor to the wire harness.
- d. Remove the protective cap “1”, and then connect the Yamaha diagnostic tool to coupler.

TIP

For information about using the Yamaha diagnostic tool, refer to the operation manual that is included with the tool.

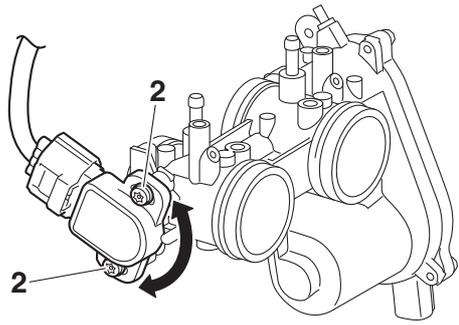


- e. Diagnostic code number “01” is selected.
- f. Adjust the position of the throttle position sensor angle so that 11–20 can appear in the Yamaha diagnostic tool screen.
- g. After adjusting the throttle position sensor angle, tighten the throttle position sensor screws “2”.



Throttle position sensor screw
3.5 N·m (0.35 kgf·m, 2.6 lb·ft)

THROTTLE BODY



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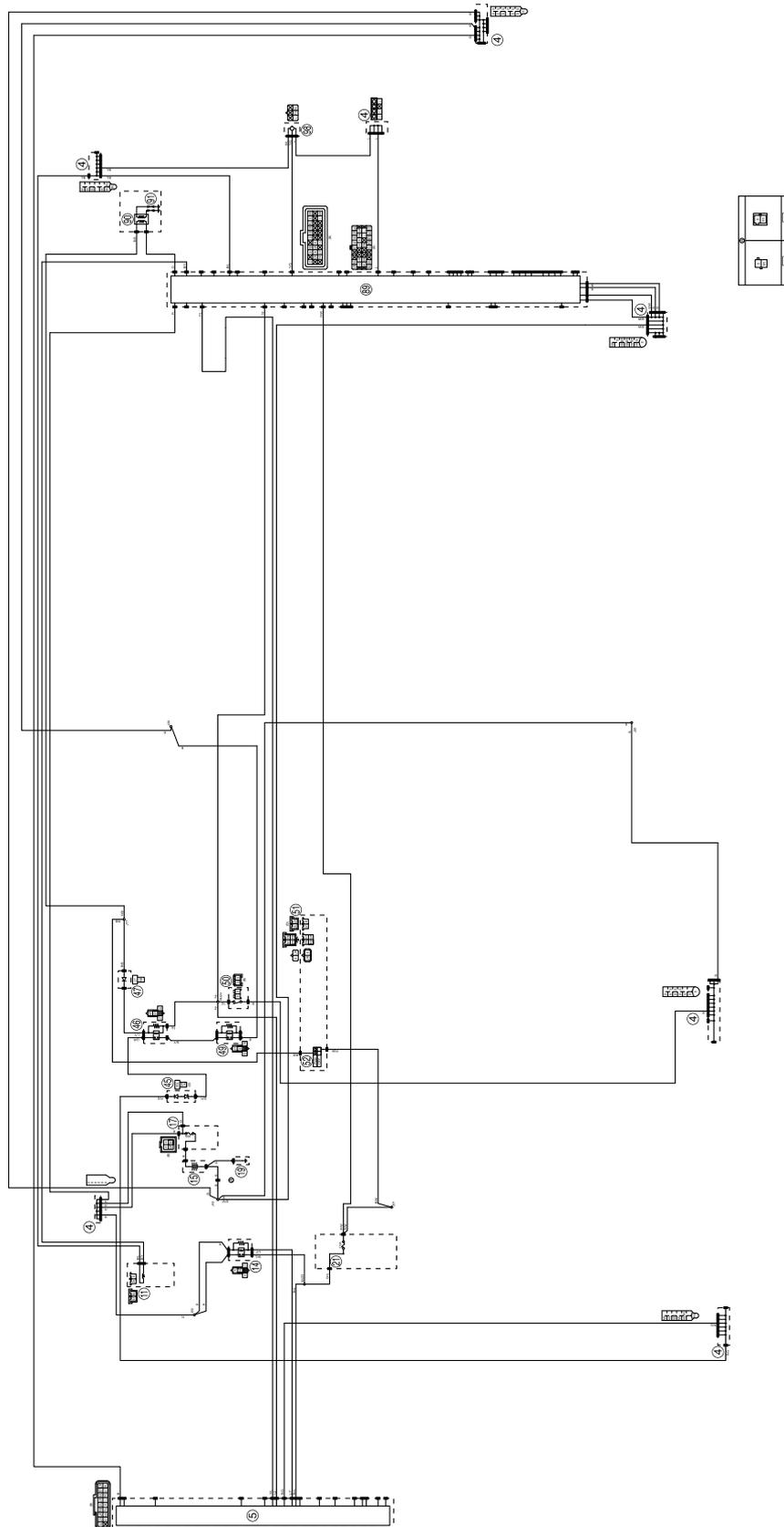
EAS20072

IGNITION SYSTEM

EAS30490

CIRCUIT DIAGRAM

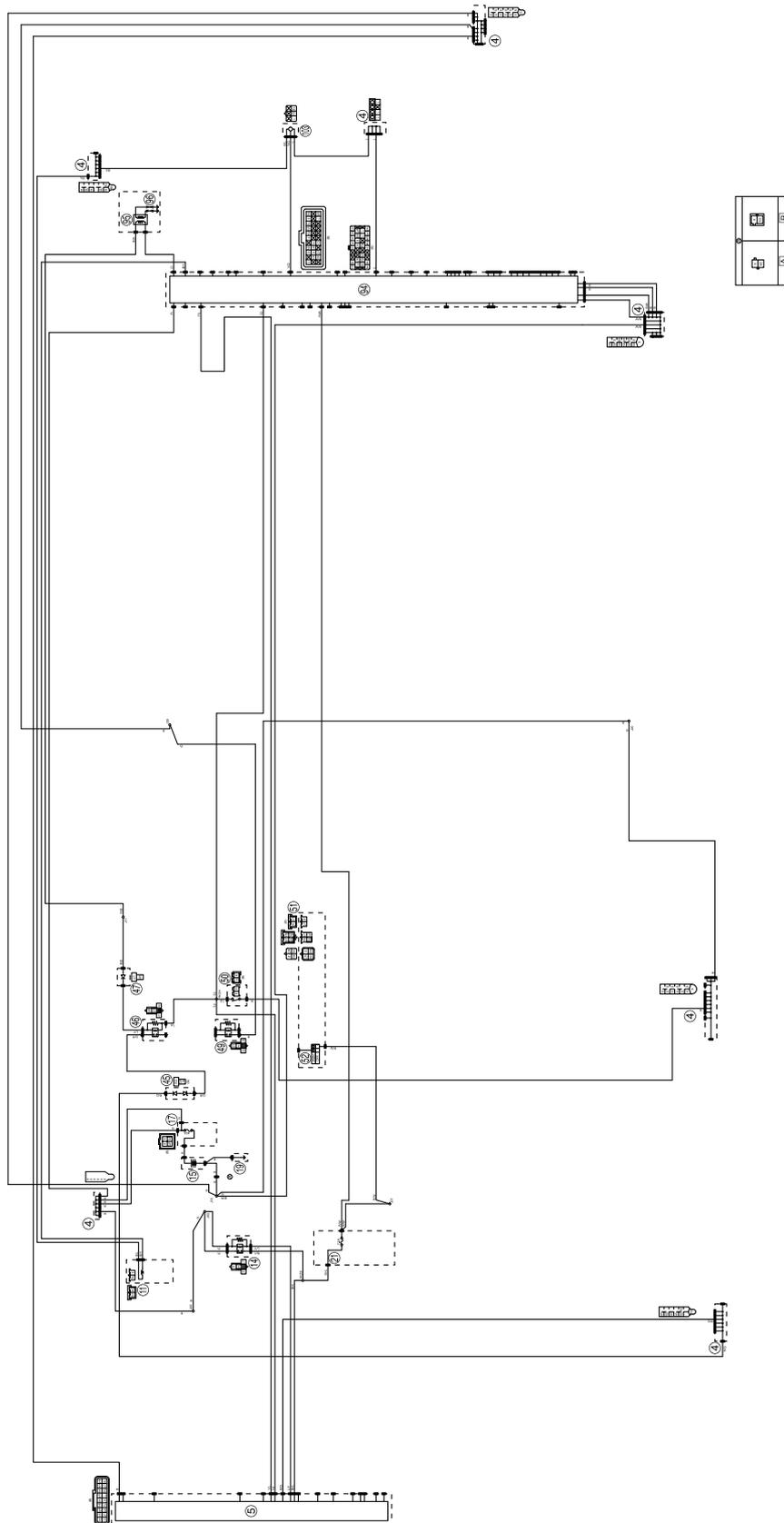
XP530E-A



- 4. Joint coupler
- 5. Remote control unit
- 11. Crankshaft position sensor
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 21. Ignition fuse
- 45. Diode 1
- 46. Sidestand relay
- 47. Diode 2
- 49. Starting circuit cut-off relay
- 50. Sidestand switch
- 51. Handlebar switch (right)
- 52. Engine stop switch
- 89. ECU (Engine Control Unit)
- 90. Ignition coil
- 91. Spark plug
- 98. Lean angle sensor

- A. Wire harness
- B. Negative battery sub-wire harness

XP530-A

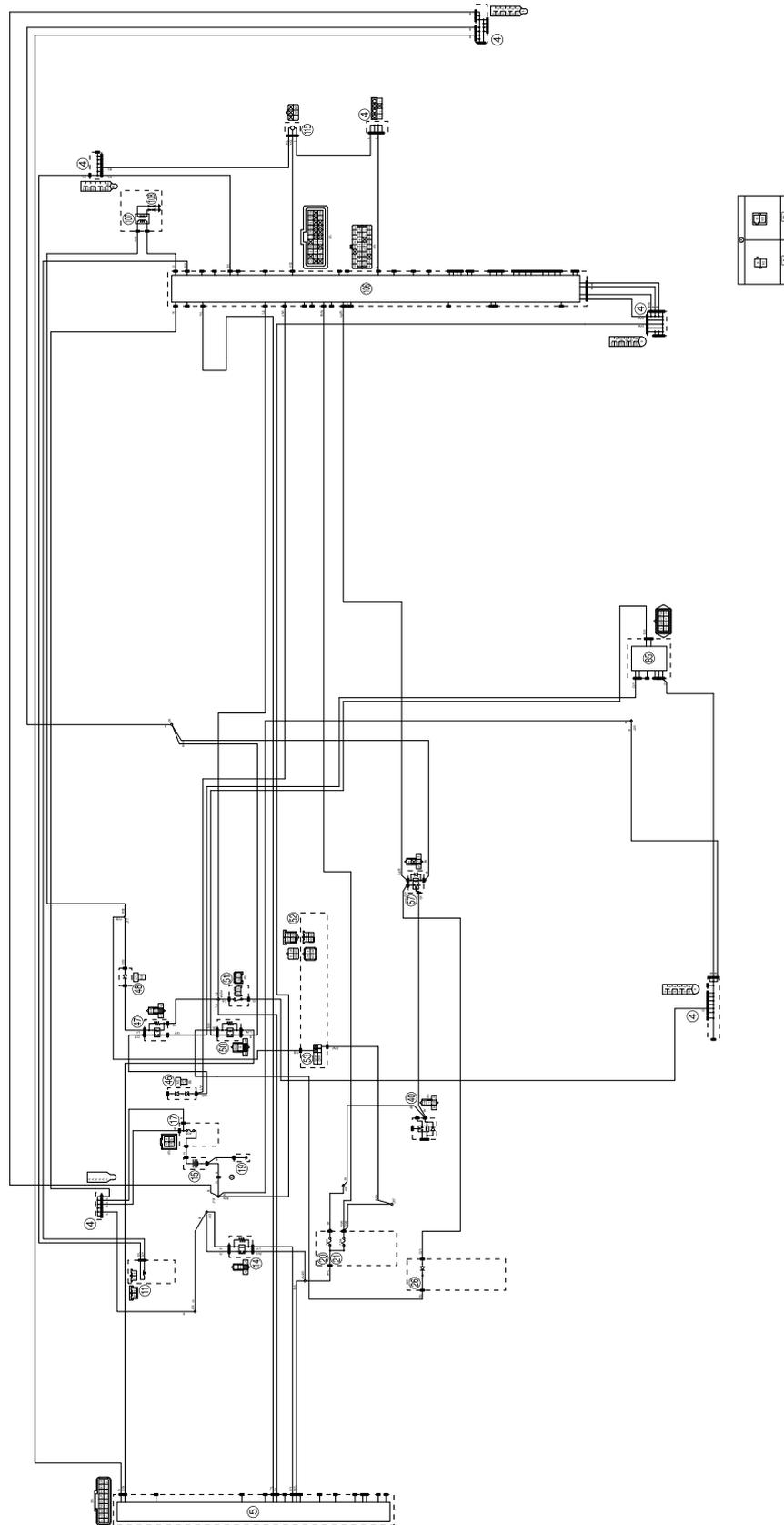


- 4. Joint coupler
- 5. Remote control unit
- 11. Crankshaft position sensor
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 21. Ignition fuse
- 45. Diode 1
- 46. Sidestand relay
- 47. Diode 2
- 49. Starting circuit cut-off relay
- 50. Sidestand switch
- 51. Handlebar switch (right)
- 52. Engine stop switch
- 94. ECU (Engine Control Unit)
- 95. Ignition coil
- 96. Spark plug
- 103. Lean angle sensor

- A. Wire harness
- B. Negative battery sub-wire harness

IGNITION SYSTEM

XP530D-A



- 4. Joint coupler
 - 5. Remote control unit
 - 11.Crankshaft position sensor
 - 14.Ignition system relay
 - 15.Battery
 - 17.Main fuse
 - 19.Engine ground
 - 20.Signaling system fuse
 - 21.Ignition fuse
 - 26.Diode (fuse box)
 - 40.Headlight relay (dimmer)
 - 46.Diode 1
 - 47.Sidestand relay
 - 48.Diode 2
 - 50.Starting circuit cut-off relay
 - 51.Sidestand switch
 - 52.Handlebar switch (right)
 - 53.Engine stop switch
 - 57.Brake light relay
 - 85.Tracking system control unit
 - 106.ECU (Engine Control Unit)
 - 107.Ignition coil
 - 108.Spark plug
 - 115.Lean angle sensor
- A. Wire harness
- B. Negative battery sub-wire harness

EAS30492

TROUBLESHOOTING

The ignition system fails to operate (no spark or intermittent spark).

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowling assembly/Side panels
2. Center cover
3. Footboards/Side covers
4. Rear cowling (right)

<p>1. Check the fuses. (Main and ignition) Refer to "CHECKING THE FUSES" on page 8-229.</p>	NG→	<p>Replace the fuse(s).</p>
OK↓		
<p>2. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.</p>	NG→	<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
OK↓		
<p>3. Check the spark plugs. Refer to "CHECKING THE SPARK PLUGS" on page 3-5.</p>	NG→	<p>Re-gap or replace the spark plugs.</p>
OK↓		
<p>4. Check the ignition spark gap. Refer to "CHECKING THE IGNI- TION SPARK GAP" on page 8-241.</p>	OK→	<p>Ignition system is OK.</p>
NG↓		
<p>5. Check the spark plug caps. Refer to "CHECKING THE SPARK PLUG CAPS" on page 8-240.</p>	NG→	<p>Replace the spark plug caps.</p>
OK↓		
<p>6. Check the ignition coil. Refer to "CHECKING THE IGNI- TION COIL" on page 8-241.</p>	NG→	<p>Replace the ignition coil.</p>
OK↓		
<p>7. Check the ignition system relay. Refer to "CHECKING THE RE- LAYS" on page 8-233.</p>	NG→	<p>Replace the ignition system relay.</p>
OK↓		
<p>8. Check the diodes. (Diode (fuse box) (for XP530D-A), diode 1 and diode 2) Refer to "CHECKING THE DI- ODES" on page 8-239.</p>	NG→	<p>Replace the diode(s).</p>
OK↓		

IGNITION SYSTEM

9. Check the starting circuit cut-off relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the starting circuit cut-off relay.
OK↓		
10. Check the sidestand relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the sidestand relay.
OK↓		
11. Check the sidestand switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	Replace the sidestand switch.
OK↓		
12. Check the engine stop switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	The engine stop switch is faulty. Replace the handlebar switch (right).
OK↓		
13. Check the lean angle sensor. Refer to "CHECKING THE LEAN ANGLE SENSOR" on page 8-242.	NG→	Replace the lean angle sensor.
OK↓		
14. Check the crankshaft position sensor. Refer to "CHECKING THE CRANKSHAFT POSITION SENSOR" on page 8-242.	NG→	Replace the stator coil.
OK↓		
15. Check the entire ignition system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-1.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the ECU or remote control unit.		

ELECTRIC STARTING SYSTEM

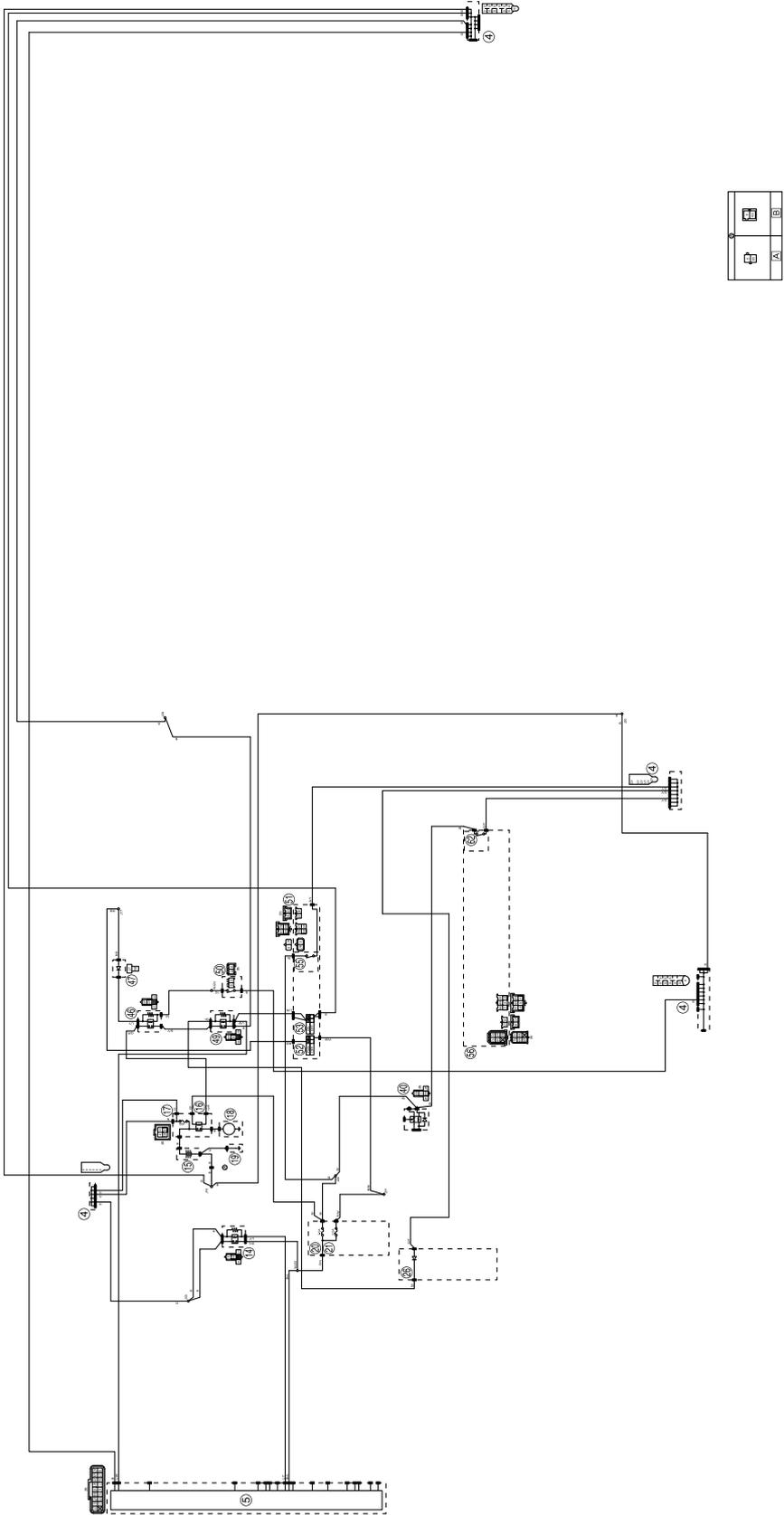
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ELECTRIC STARTING SYSTEM

EAS30493

CIRCUIT DIAGRAM

XP530E-A

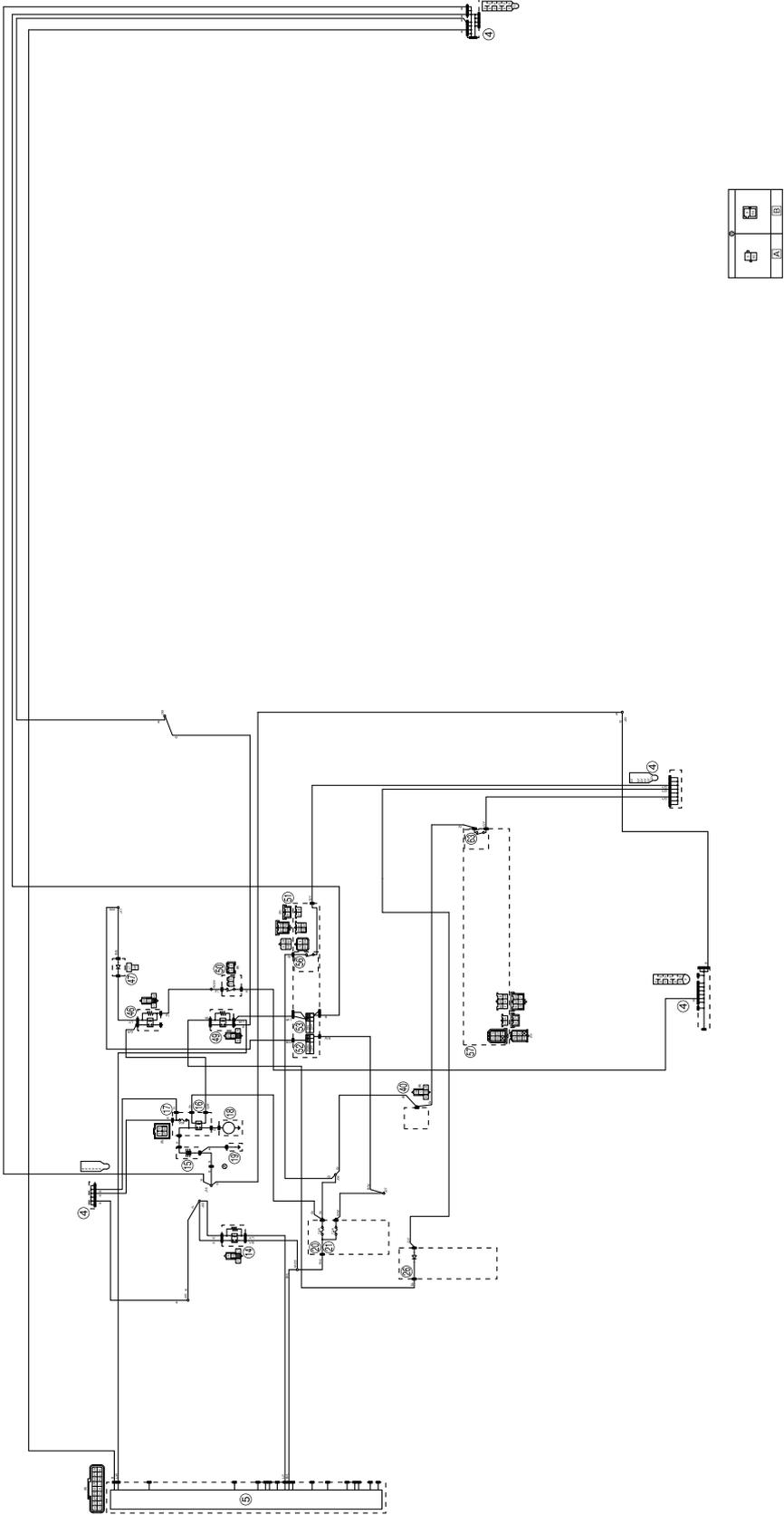


ELECTRIC STARTING SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 16. Starter relay
 - 17. Main fuse
 - 18. Starter motor
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 26. Diode (fuse box)
 - 40. Headlight relay (dimmer)
 - 46. Sidestand relay
 - 47. Diode 2
 - 49. Starting circuit cut-off relay
 - 50. Sidestand switch
 - 51. Handlebar switch (right)
 - 52. Engine stop switch
 - 53. ON/start switch
 - 55. Front brake light switch
 - 56. Handlebar switch (left)
 - 62. Rear brake light switch
- A. Wire harness
B. Negative battery sub-wire harness

ELECTRIC STARTING SYSTEM

XP530-A

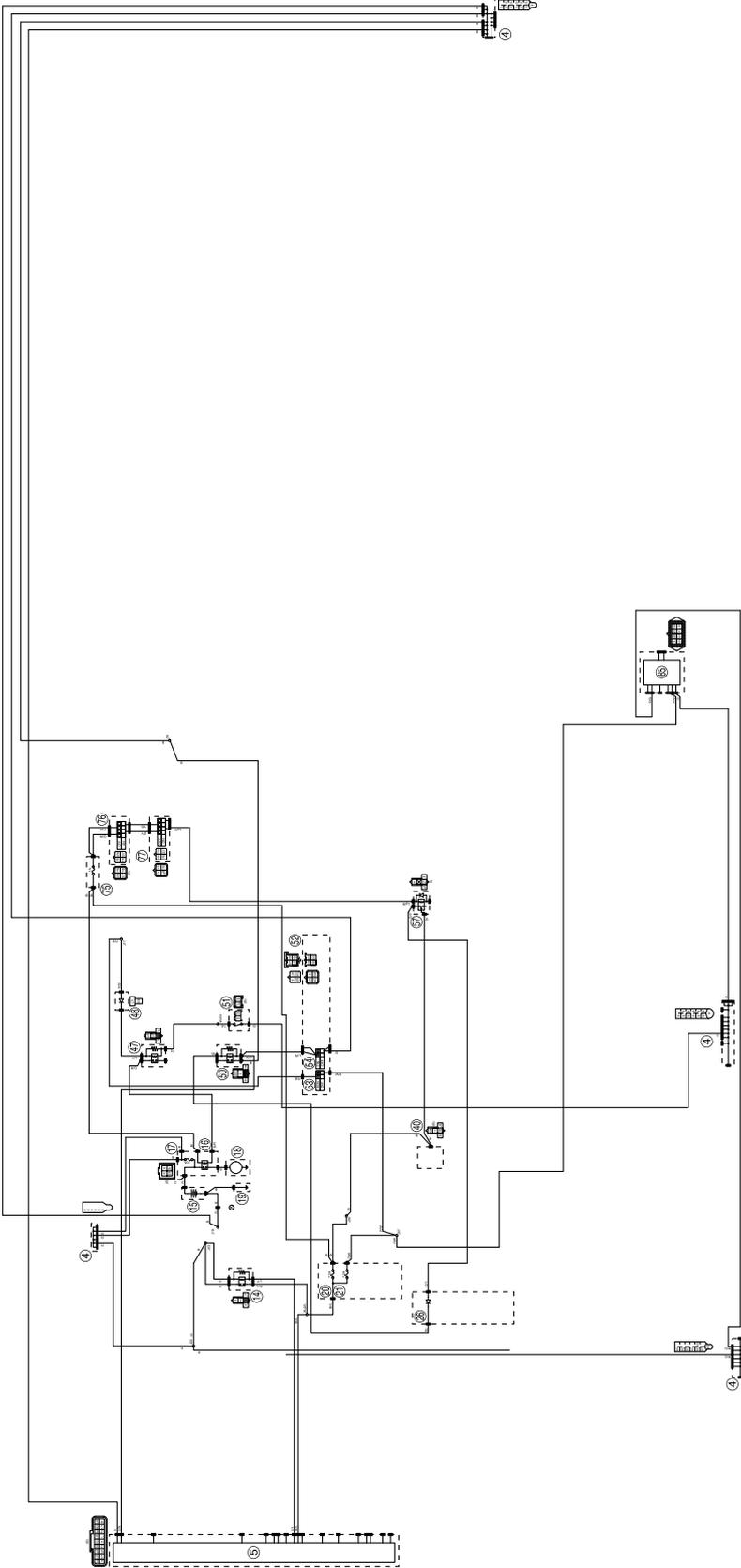


ELECTRIC STARTING SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 16. Starter relay
 - 17. Main fuse
 - 18. Starter motor
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 26. Diode (fuse box)
 - 40. Headlight relay (dimmer)
 - 46. Sidestand relay
 - 47. Diode 2
 - 49. Starting circuit cut-off relay
 - 50. Sidestand switch
 - 51. Handlebar switch (right)
 - 52. Engine stop switch
 - 53. ON/start switch
 - 56. Front brake light switch
 - 57. Handlebar switch (left)
 - 63. Rear brake light switch
- A. Wire harness
- B. Negative battery sub-wire harness

ELECTRIC STARTING SYSTEM

XP530D-A



ELECTRIC STARTING SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 16. Starter relay
 - 17. Main fuse
 - 18. Starter motor
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 26. Diode (fuse box)
 - 40. Headlight relay (dimmer)
 - 47. Sidestand relay
 - 48. Diode 2
 - 50. Starting circuit cut-off relay
 - 51. Sidestand switch
 - 52. Handlebar switch (right)
 - 53. Engine stop switch
 - 54. ON/start switch
 - 57. Brake light relay
 - 75. Brake light fuse
 - 76. Front brake light switch
 - 77. Rear brake light switch
 - 85. Tracking system control unit
-
- A. Wire harness
 - B. Negative battery sub-wire harness

ELECTRIC STARTING SYSTEM

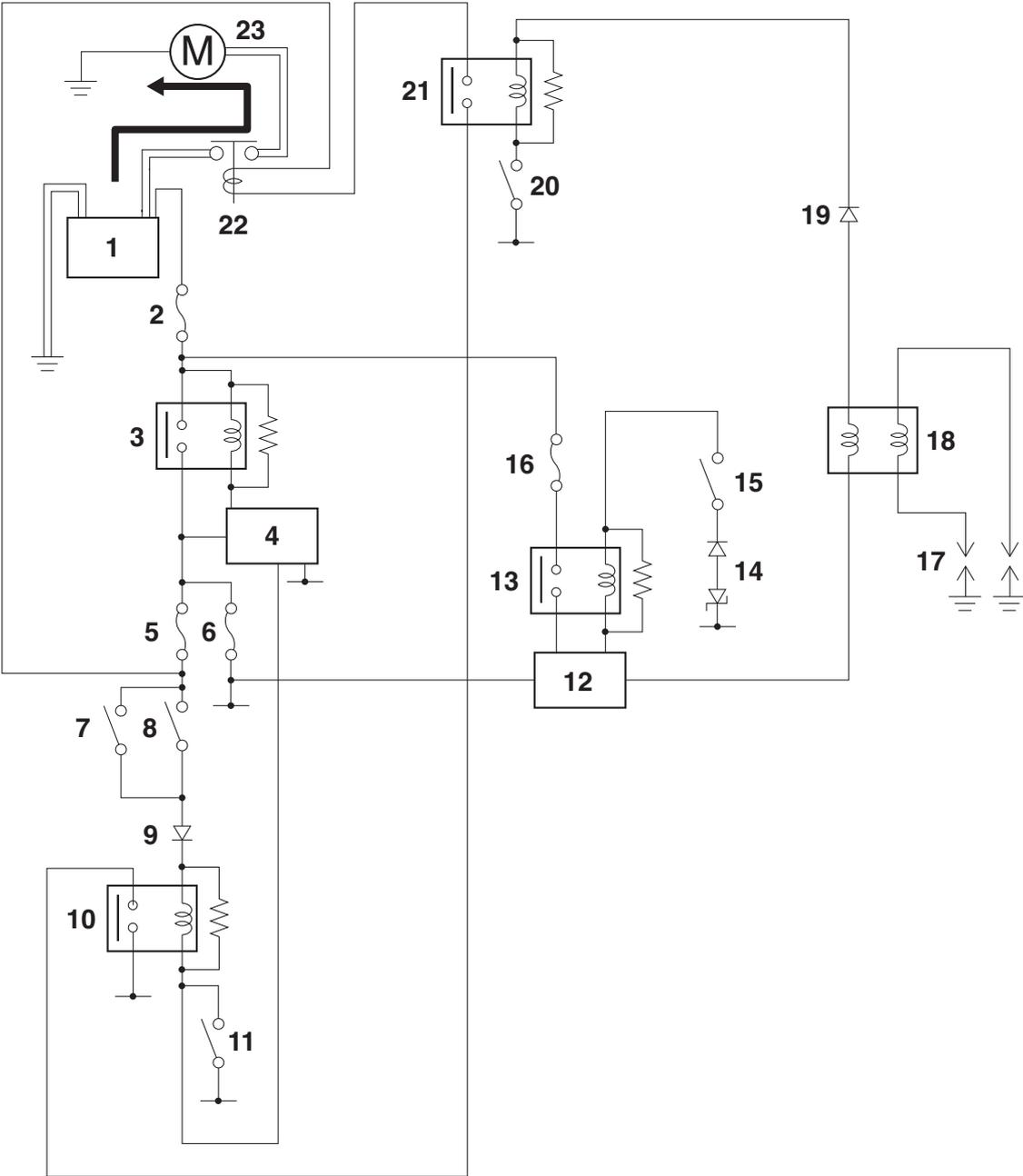
EAS30494

STARTING CIRCUIT CUT-OFF SYSTEM OPERATION

If the engine stop switch is set to “○” and pressing the ON/start switch for one second, the starter motor can only operate if at least one of the following conditions is met:

- The front brake lever is pulled to the handlebar (the front brake light switch is closed) and the sidestand is up (the sidestand switch is closed).
- The rear brake lever is pulled to the handlebar (the rear brake light switch is closed) and the sidestand is up (the sidestand switch is closed).

The starting circuit cut-off relay prevents the starter motor from operating when neither of these conditions has been met. In this instance, the starting circuit cut-off relay is open so current cannot reach the starter motor. When at least one of the above conditions has been met, the starting circuit cut-off relay is closed and the engine can be started by pressing the ON/start switch.



ELECTRIC STARTING SYSTEM

1. Battery
2. Main fuse
3. Ignition system relay
4. Remote control unit
5. Signaling system fuse
6. Ignition fuse
7. Front brake light switch
8. Rear brake light switch
9. Diode (fuse box)
10. Starting circuit cut-off relay
11. ON/start switch
12. ECU (Engine Control Unit)
13. Fuel injection system relay
14. Diode 3
15. Engine stop switch
16. Fuel injection system fuse
17. Spark plug
18. Ignition coil
19. Diode 1
20. Sidestand switch
21. Sidestand relay
22. Starter relay
23. Starter motor

ELECTRIC STARTING SYSTEM

EAS30495

TROUBLESHOOTING

The starter motor fails to turn.

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowling assembly
2. Storage box
3. Fuel tank
4. Rear cover (right)

1. Check the fuses. (Main, ignition and signaling system) Refer to "CHECKING THE FUSES" on page 8-229.	NG→	Replace the fuse(s).
OK↓		
2. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.	NG→	<ul style="list-style-type: none">• Clean the battery terminals.• Recharge or replace the battery.
OK↓		
3. Check the starter motor operation. Refer to "CHECKING THE STARTER MOTOR OPERATION" on page 8-243.	OK→	Starter motor is OK. Perform the electric starting system troubleshooting, starting with step (5).
NG↓		
4. Check the starter motor. Refer to "CHECKING THE STARTER MOTOR" on page 5-32.	NG→	Repair or replace the starter motor.
OK↓		
5. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the ignition system relay.
OK↓		
6. Check the diodes. (Diode (fuse box) and diode 2) Refer to "CHECKING THE DIODES" on page 8-239.	NG→	Replace the diode(s).
OK↓		
7. Check the starting circuit cut-off relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the starting circuit cut-off relay.
OK↓		
8. Check the sidestand relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the sidestand relay.
OK↓		

ELECTRIC STARTING SYSTEM

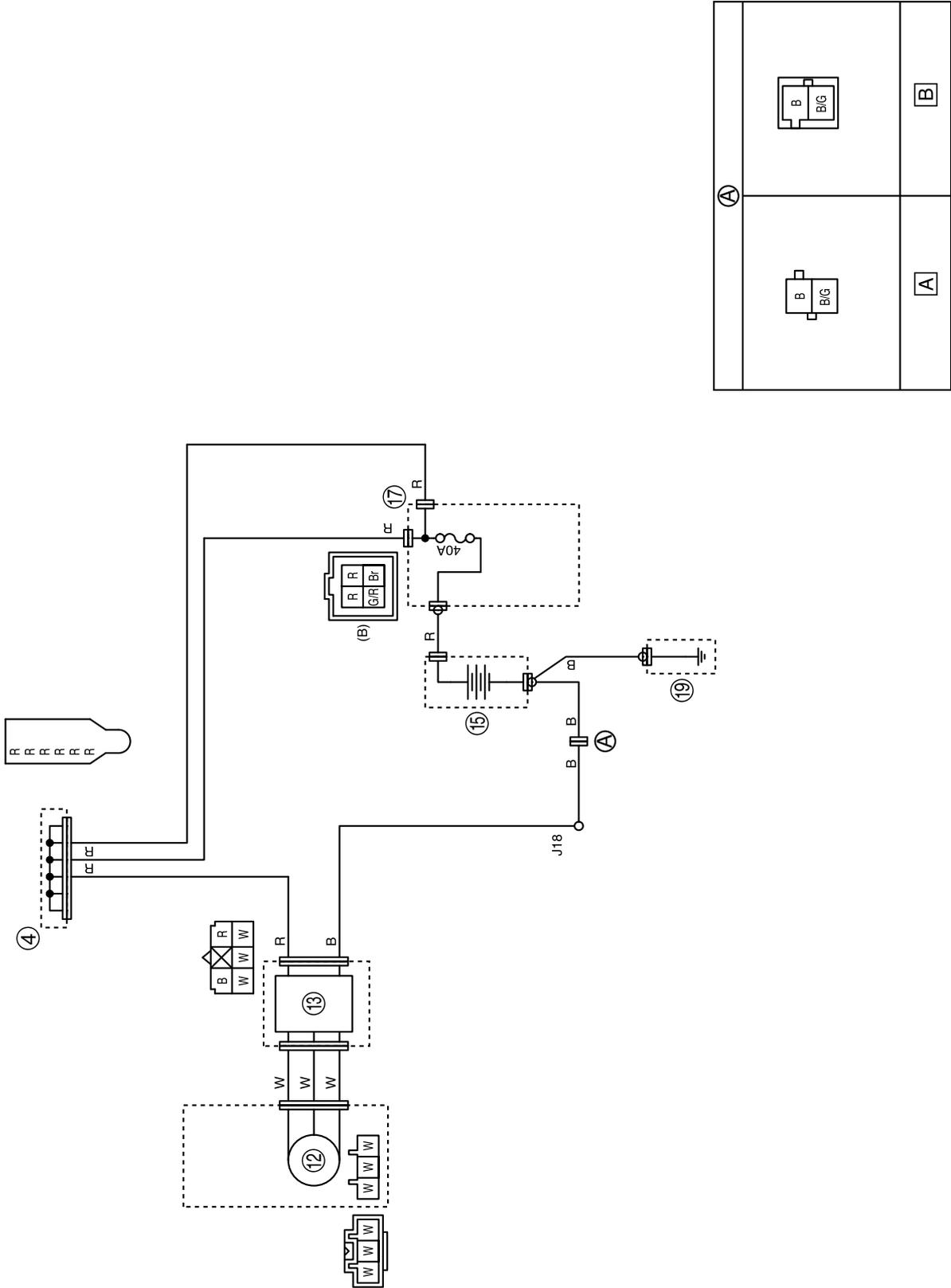
9. Check the starter relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the starter relay.
OK↓		
10. Check the engine stop switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	The engine stop switch is faulty. Replace the handlebar switch (right).
OK↓		
11. Check the sidestand switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	Replace the sidestand switch.
OK↓		
12. Check the front brake light switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	Replace the front brake light switch.
OK↓		
13. Check the rear brake light switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	Replace the rear brake light switch.
OK↓		
14. Check the ON/start switch. Refer to "CHECKING THE SWITCHES" on page 8-221.	NG→	The ON/start switch is faulty. Replace the handlebar switch (right).
OK↓		
15. Check the start diodes. (Diode 1 and 3, and diode (fuse box) for XP530D-A) Refer to "CHECKING THE DIODES" on page 8-239.	NG→	Replace the diode(s).
OK↓		
16. Check the entire starting system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-9.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the remote control unit. Refer to "SMART KEY SYSTEM" on page 8-193.		

EAS20074

CHARGING SYSTEM

EAS30496

CIRCUIT DIAGRAM XP530E-A



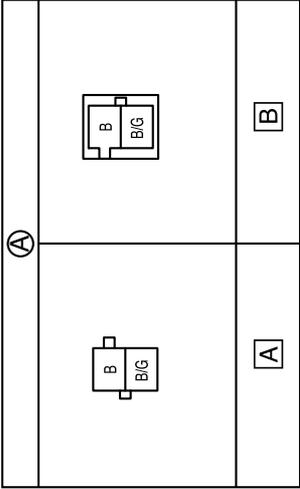
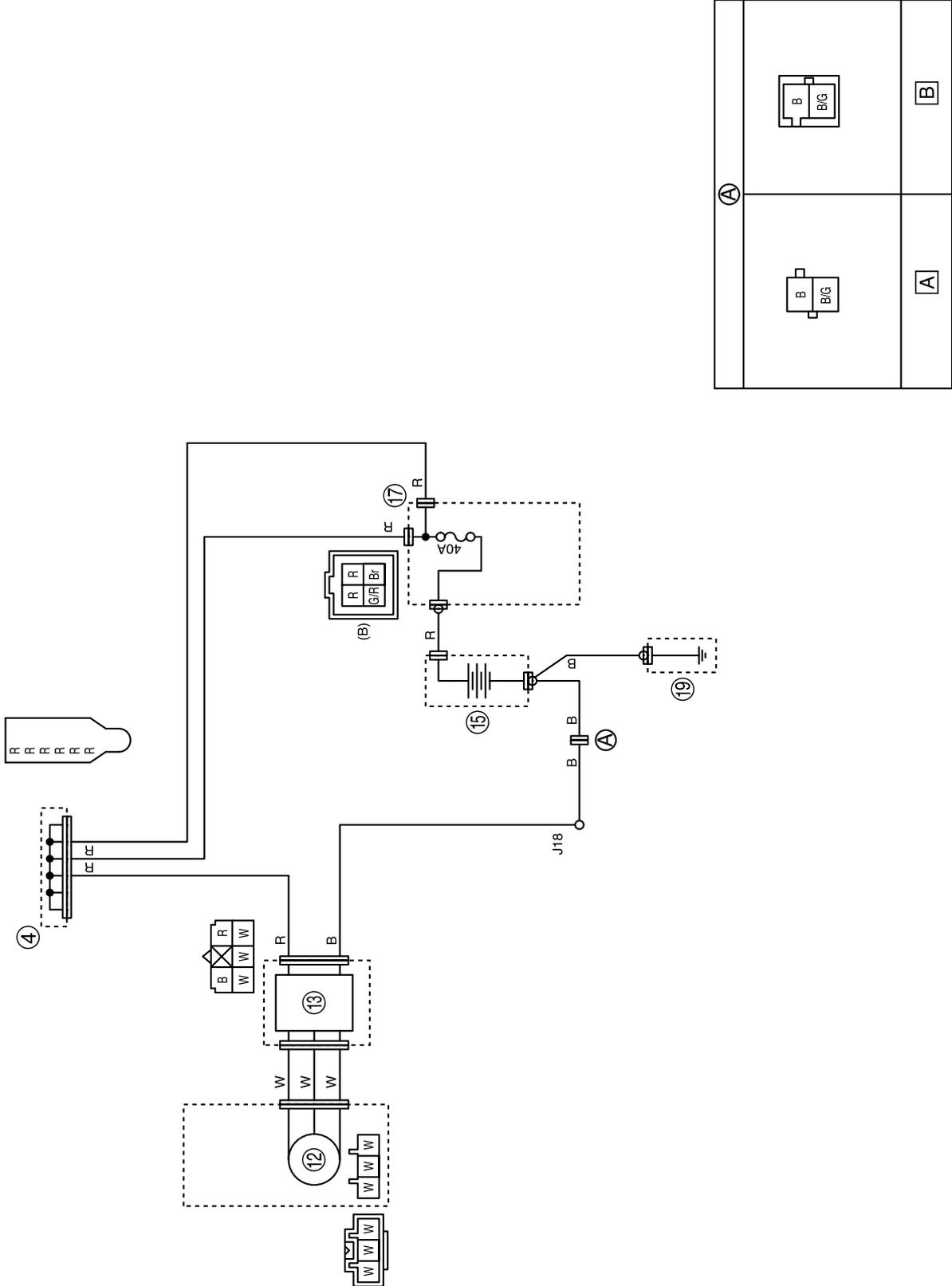
CHARGING SYSTEM

- 4. Joint coupler
- 12.AC magneto
- 13.Rectifier/regulator
- 15.Battery
- 17.Main fuse
- 19.Engine ground

- A. Wire harness
- B. Negative battery sub-wire harness

CHARGING SYSTEM

XP530-A



- 4. Joint coupler
- 12.AC magneto
- 13.Rectifier/regulator
- 15.Battery
- 17.Main fuse
- 19.Engine ground

- A. Wire harness
- B. Negative battery sub-wire harness

- 4. Joint coupler
- 12.AC magneto
- 13.Rectifier/regulator
- 15.Battery
- 17.Main fuse
- 19.Engine ground

- A. Wire harness
- B. Negative battery sub-wire harness

CHARGING SYSTEM

EAS30497

TROUBLESHOOTING

The battery is not being charged.

TIP

- Before troubleshooting, remove the following part(s):
 1. Front cowling assembly
 2. Storage box
 3. Fuel tank
 4. Rear cover (right)

1. Check the fuse. (Main) Refer to "CHECKING THE FUSES" on page 8-229.	NG→	Replace the fuse.
OK↓		
2. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.	NG→	<ul style="list-style-type: none">• Clean the battery terminals.• Recharge or replace the battery.
OK↓		
3. Check the stator coil. Refer to "CHECKING THE STA- TOR COIL" on page 8-243.	NG→	Replace the stator coil.
OK↓		
4. Check the rectifier/regulator. Refer to "CHECKING THE RECTI- FIER/REGULATOR" on page 8-243.	NG→	Replace the rectifier/regulator.
OK↓		
5. Check the entire charging system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-19.	NG→	Properly connect or replace the wire har- ness.
OK↓		
The charging system circuit is OK.		

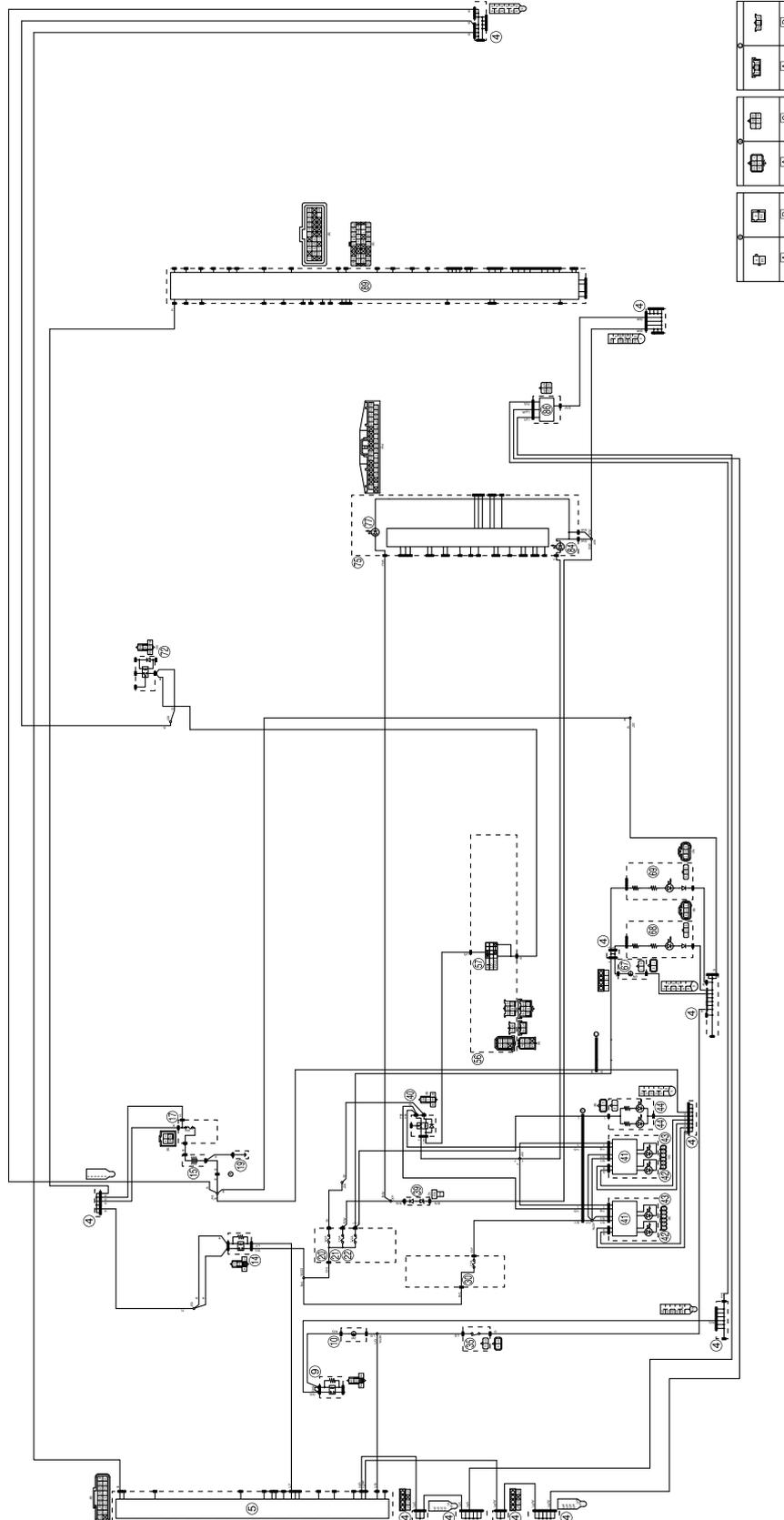
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LIGHTING SYSTEM

EAS30498

CIRCUIT DIAGRAM

XP530E-A

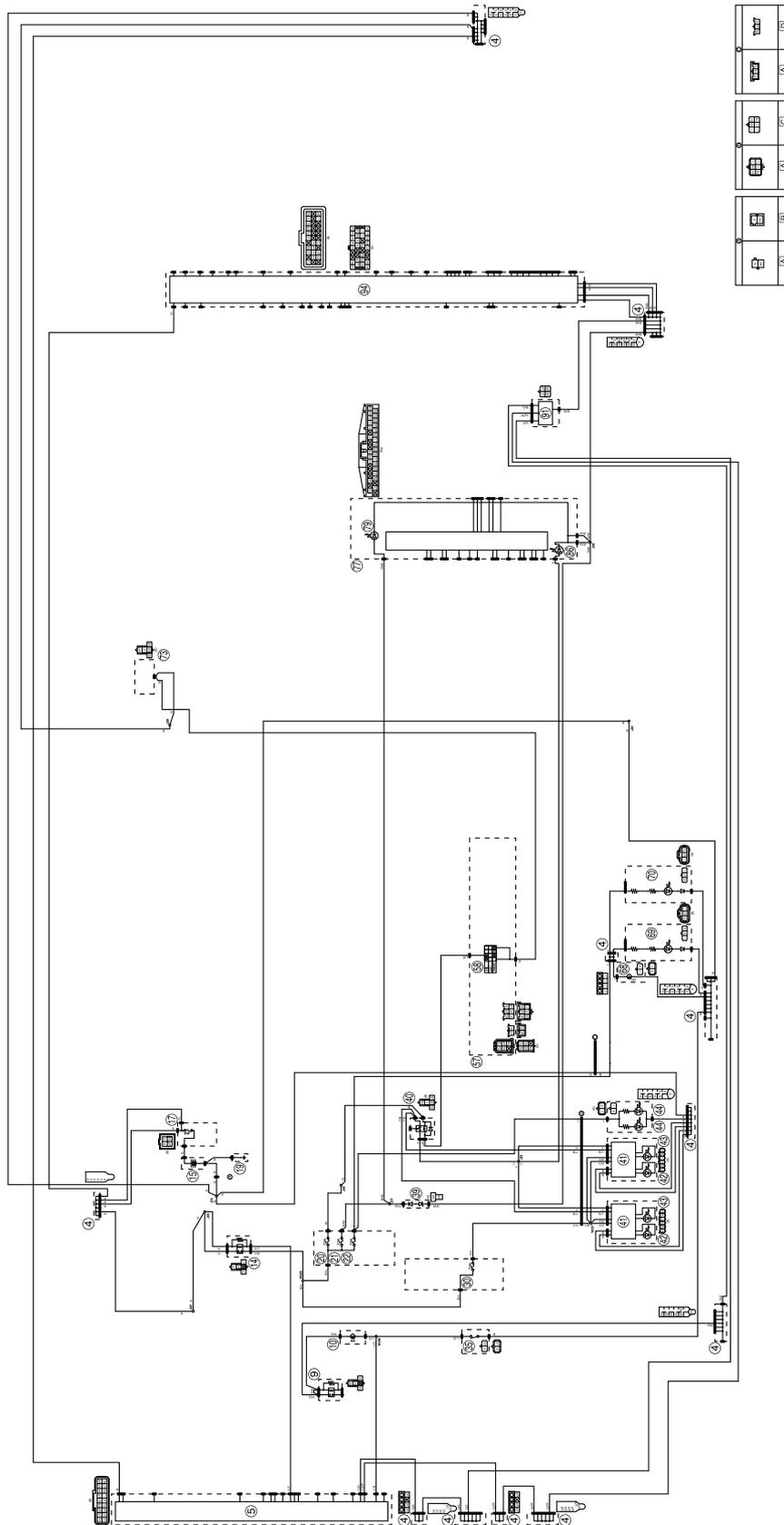


	D
	A
	C
	A
	B
	A

- 4. Joint coupler
- 5. Remote control unit
- 9. Turn signal/hazard relay
- 10. Storage box light
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 20. Signaling system fuse
- 21. Ignition fuse
- 22. Taillight fuse
- 30. Headlight fuse
- 35. Storage box light switch
- 39. Diode 3
- 40. Headlight relay (dimmer)
- 41. Headlight control unit
- 42. Headlight (low)
- 43. Headlight (high)
- 44. Auxiliary light
- 56. Handlebar switch (left)
- 57. Dimmer/pass switch
- 67. License plate light
- 68. Tail/brake light (left)
- 69. Tail/brake light (right)
- 72. Smart key system relay (unlock)
- 75. Meter assembly
- 77. Meter light
- 84. High beam indicator light
- 86. Yamaha diagnostic tool coupler
- 89. ECU (Engine Control Unit)

- A. Wire harness
- B. Negative battery sub-wire harness
- C. Headlight sub-wire harness (headlight harness)
- D. Headlight sub-wire harness (front turn signal light harness)

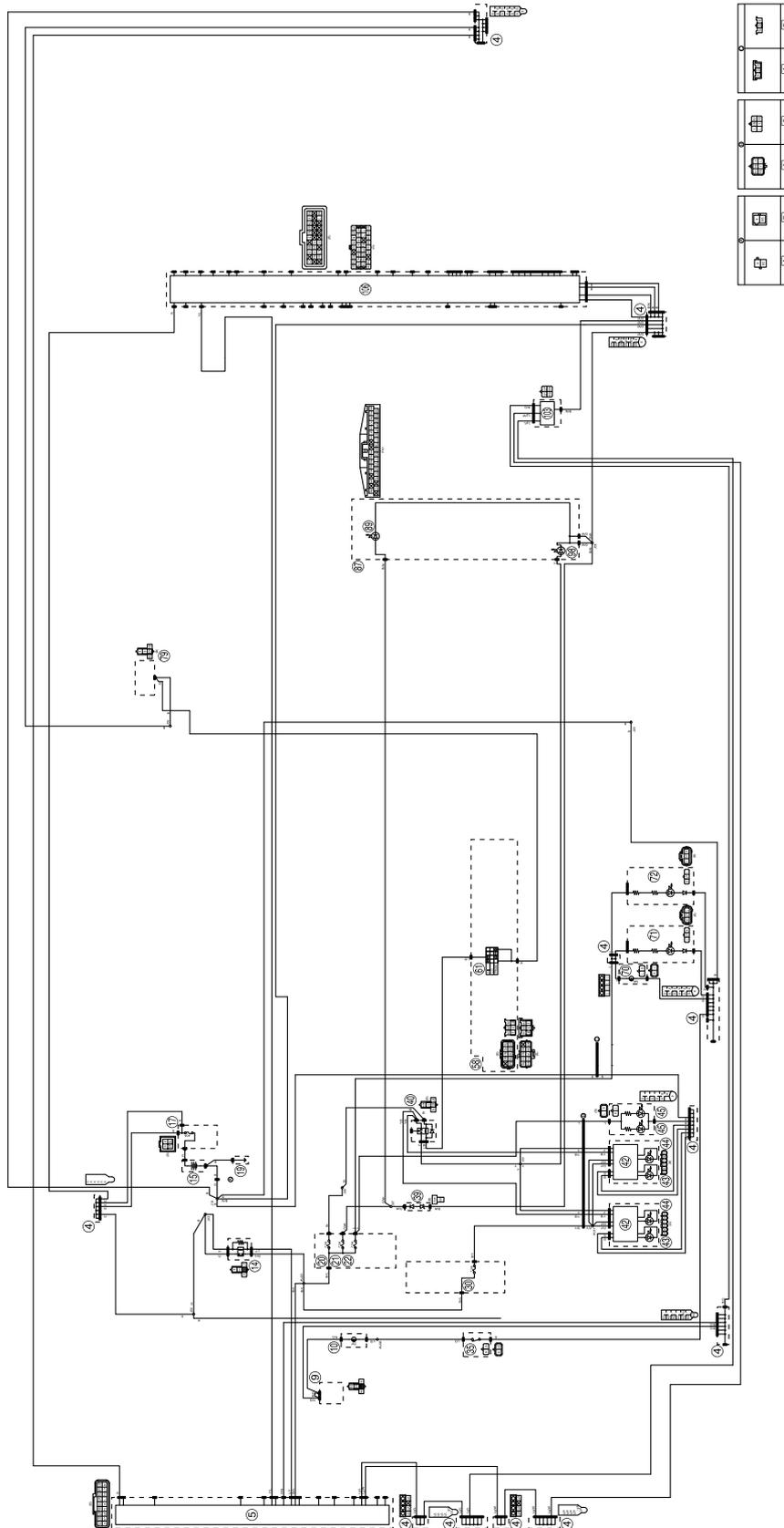
XP530-A



	A	B
	A	B
	A	B
	A	B
	A	B
	A	B
	A	B
	A	B
	A	B
	A	B

- 4. Joint coupler
 - 5. Remote control unit
 - 9. Turn signal/hazard relay
 - 10. Storage box light
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 22. Taillight fuse
 - 30. Headlight fuse
 - 35. Storage box light switch
 - 39. Diode 3
 - 40. Headlight relay (dimmer)
 - 41. Headlight control unit
 - 42. Headlight (low)
 - 43. Headlight (high)
 - 44. Auxiliary light
 - 57. Handlebar switch (left)
 - 58. Dimmer/pass switch
 - 68. License plate light
 - 69. Tail/brake light (left)
 - 70. Tail/brake light (right)
 - 73. Smart key system relay (unlock)
 - 77. Meter assembly
 - 79. Meter light
 - 86. High beam indicator light
 - 91. Yamaha diagnostic tool coupler
 - 94. ECU (Engine Control Unit)
- A. Wire harness
 - B. Negative battery sub-wire harness
 - C. Headlight sub-wire harness (headlight harness)
 - D. Headlight sub-wire harness (front turn signal light harness)

XP530D-A



- 4. Joint coupler
 - 5. Remote control unit
 - 9. Turn signal/hazard relay
 - 10. Storage box light
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 22. Taillight fuse
 - 30. Headlight fuse
 - 35. Storage box light switch
 - 39. Diode 3
 - 40. Headlight relay (dimmer)
 - 42. Headlight control unit
 - 43. Headlight (low)
 - 44. Headlight (high)
 - 45. Auxiliary light
 - 58. Handlebar switch (left)
 - 61. Dimmer/pass switch
 - 70. License plate light
 - 71. Tail/brake light (left)
 - 72. Tail/brake light (right)
 - 79. Smart key system relay (unlock)
 - 87. Meter assembly
 - 89. Meter light
 - 98. High beam indicator light
 - 103. Yamaha diagnostic tool coupler
 - 106. ECU (Engine Control Unit)
- A. Wire harness
 - B. Negative battery sub-wire harness
 - C. Headlight sub-wire harness (headlight harness)
 - D. Headlight sub-wire harness (front turn signal light harness)

EAS30499

TROUBLESHOOTING

Any of the following fail to light: headlight, auxiliary light, high beam indicator light, tail/brake light, license plate light, meter light or storage box light.

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowling assembly
2. Mudguard

<p>1. Check the each bulbs and bulb sockets condition. Refer to "CHECKING THE BULBS AND BULB SOCKETS" on page 8-228.</p>	NG→	<p>Replace the bulb(s) and bulb socket.</p>
OK↓		
<p>2. Check the fuses. (Main, headlight, ignition, signaling system and taillight) Refer to "CHECKING THE FUSES" on page 8-229.</p>	NG→	<p>Replace the fuse(s).</p>
OK↓		
<p>3. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.</p>	NG→	<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
OK↓		
<p>4. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the ignition system relay.</p>
OK↓		
<p>5. Check the diode. (Diode 3) Refer to "CHECKING THE DIODES" on page 8-239.</p>	NG→	<p>Replace the diode.</p>
OK↓		
<p>6. Check the dimmer switch. Refer to "CHECKING THE SWITCHES" on page 8-221.</p>	NG→	<p>The dimmer switch is faulty. Replace the handlebar switch (left).</p>
OK↓		
<p>7. Check the pass switch. Refer to "CHECKING THE SWITCHES" on page 8-221.</p>	NG→	<p>The pass switch is faulty. Replace the handlebar switch (left).</p>
OK↓		
<p>8. Check the headlight relay (dimmer). Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the headlight relay (dimmer).</p>
OK↓		

LIGHTING SYSTEM

9. Check the storage box light switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

OK↓

NG→

Replace the storage box light switch.

10. Check the entire lighting system's wiring.
Refer to "CIRCUIT DIAGRAM" on page 8-27.

OK↓

NG→

Properly connect or replace the wire harness.

Replace the ECU, headlight assembly, remote control unit or meter assembly.

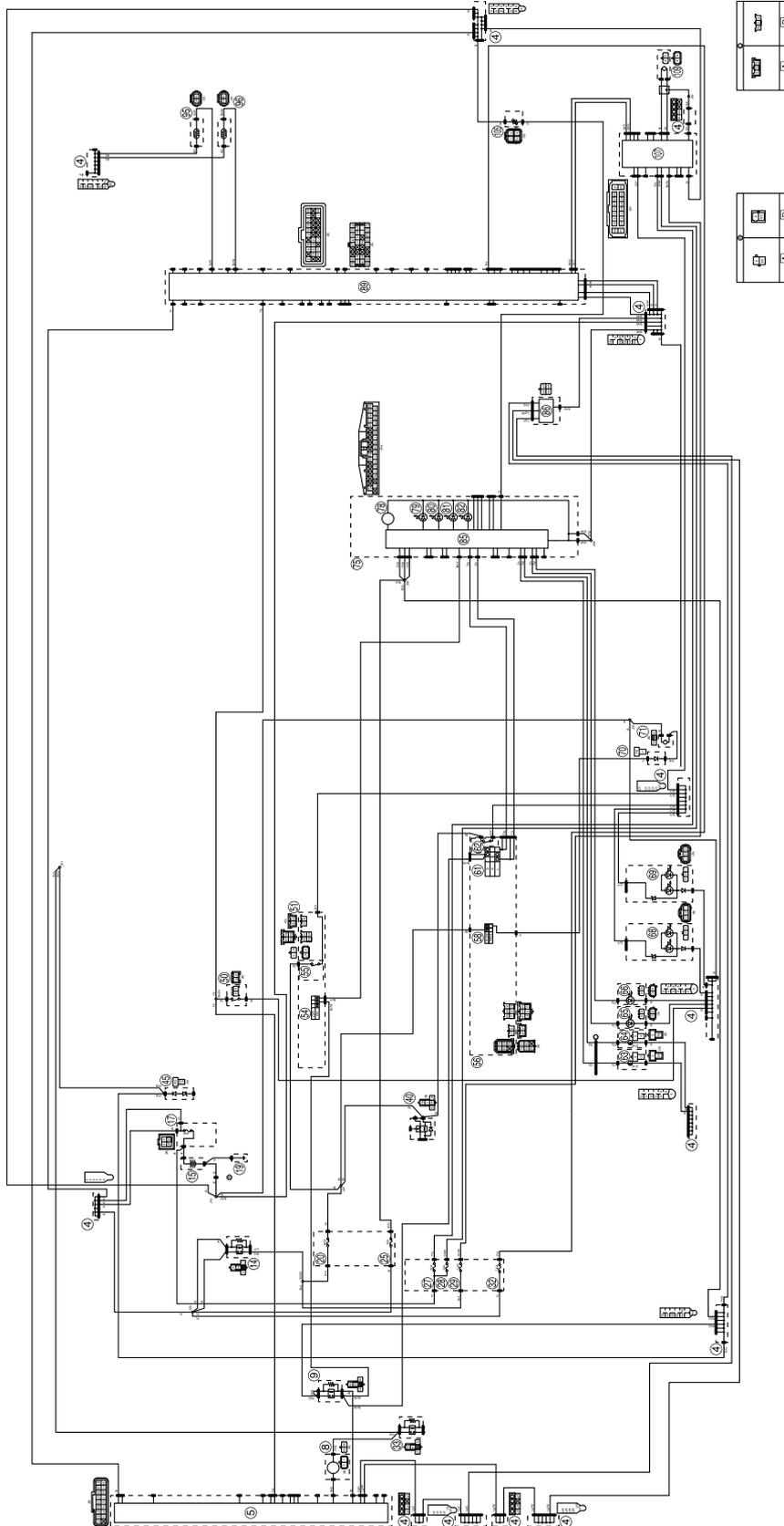
EAS20076

SIGNALING SYSTEM

EAS30500

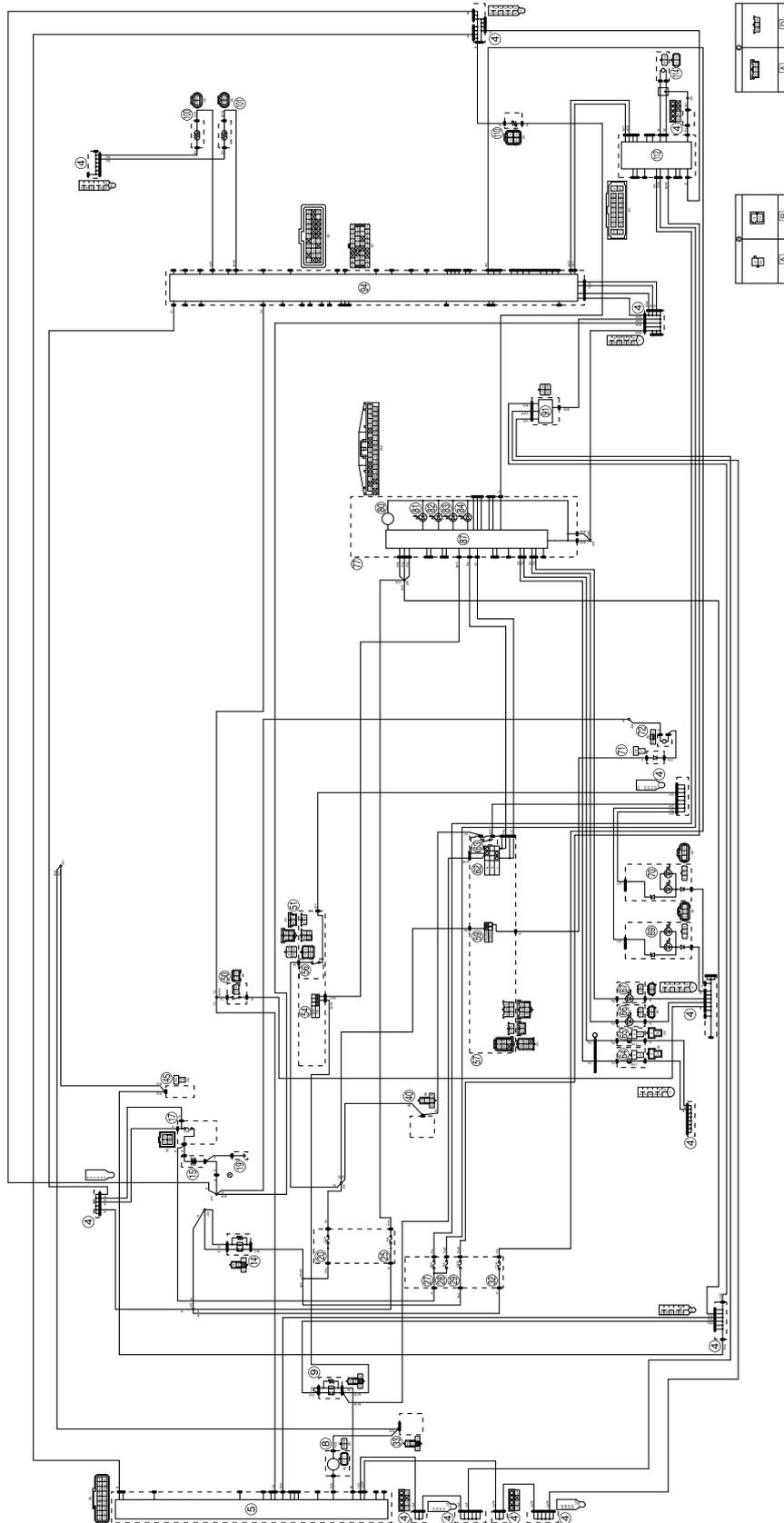
CIRCUIT DIAGRAM

XP530E-A



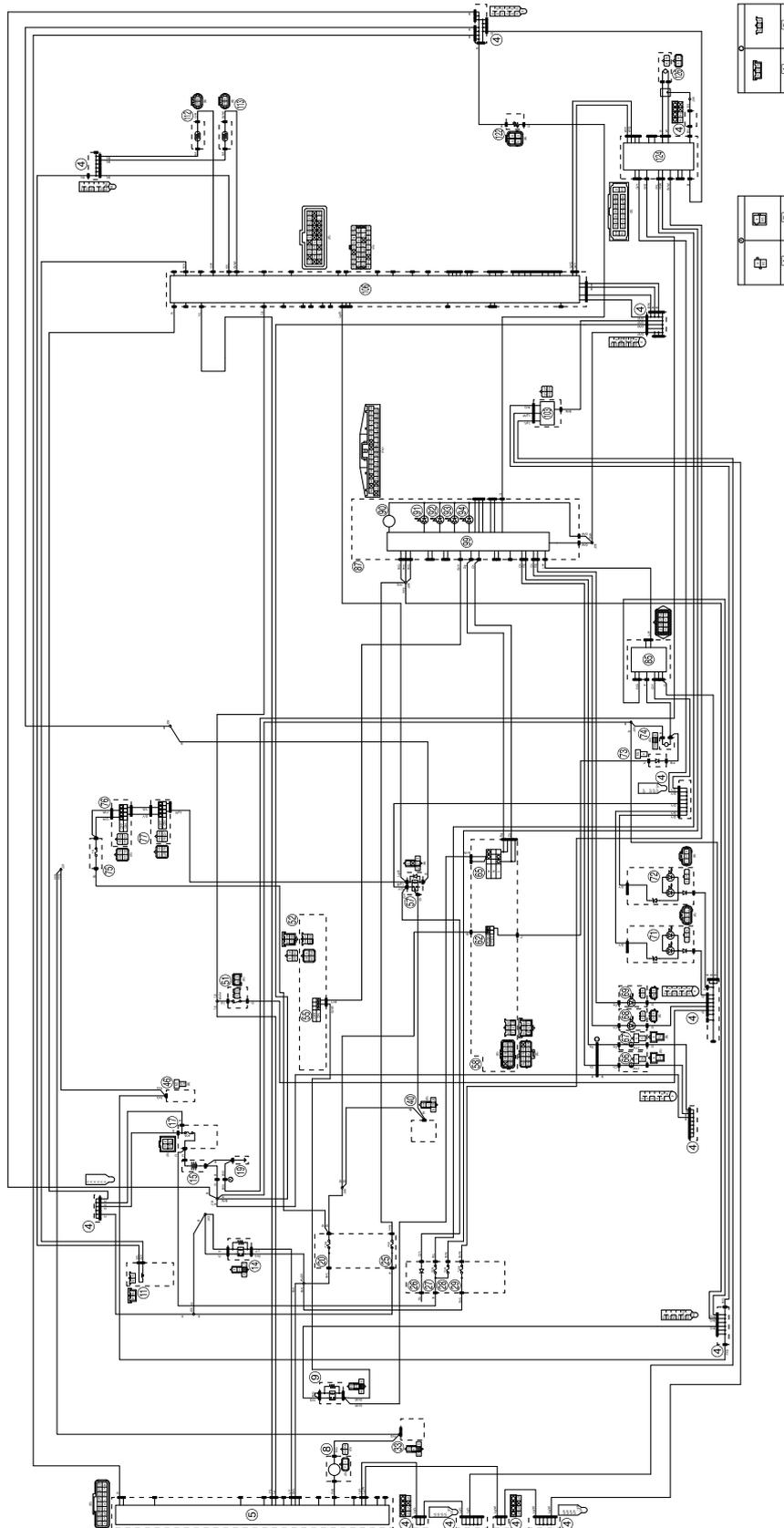
4. Joint coupler
 5. Remote control unit
 8. Buzzer
 9. Turn signal/hazard relay
 14. Ignition system relay
 15. Battery
 17. Main fuse
 19. Engine ground
 20. Signaling system fuse
 25. Backup fuse
 27. ABS motor fuse
 28. ABS solenoid fuse
 29. ABS ECU fuse
 32. Electronic throttle valve fuse
 33. Steering lock relay
 40. Headlight relay (dimmer)
 45. Diode 1
 50. Sidestand switch
 51. Handlebar switch (right)
 54. Hazard switch
 55. Front brake light switch
 56. Handlebar switch (left)
 58. Horn switch
 61. Turn signal switch
 62. Rear brake light switch
 63. Front turn signal light (left)
 64. Front turn signal light (right)
 65. Rear turn signal light (left)
 66. Rear turn signal light (right)
 68. Tail/brake light (left)
 69. Tail/brake light (right)
 70. Diode 5
 71. Horn
 75. Meter assembly
 78. Tachometer
 79. Engine trouble warning light
 80. Traction control system indicator light
 81. Turn signal indicator light (left)
 82. Turn signal indicator light (right)
 85. Multi-function display
 86. Yamaha diagnostic tool coupler
 89. ECU (Engine Control Unit)
 95. Coolant temperature sensor
 96. Intake air temperature sensor
 105. Fuel sender
 107. ABS ECU (Electronic Control Unit)
 109. Rear wheel sensor
- A. Wire harness
B. Negative battery sub-wire harness
D. Headlight sub-wire harness (front turn signal light harness)

XP530-A



4. Joint coupler
 5. Remote control unit
 8. Buzzer
 9. Turn signal/hazard relay
 14. Ignition system relay
 15. Battery
 17. Main fuse
 19. Engine ground
 20. Signaling system fuse
 25. Backup fuse
 27. ABS motor fuse
 28. ABS solenoid fuse
 29. ABS ECU fuse
 32. Electronic throttle valve fuse
 33. Steering lock relay
 40. Headlight relay (dimmer)
 45. Diode 1
 50. Sidestand switch
 51. Handlebar switch (right)
 54. Hazard switch
 56. Front brake light switch
 57. Handlebar switch (left)
 59. Horn switch
 62. Turn signal switch
 63. Rear brake light switch
 64. Front turn signal light (left)
 65. Front turn signal light (right)
 66. Rear turn signal light (left)
 67. Rear turn signal light (right)
 69. Tail/brake light (left)
 70. Tail/brake light (right)
 71. Diode 5
 72. Horn
 77. Meter assembly
 80. Tachometer
 81. Engine trouble warning light
 82. Traction control system indicator light
 83. Turn signal indicator light (left)
 84. Turn signal indicator light (right)
 87. Multi-function display
 91. Yamaha diagnostic tool coupler
 94. ECU (Engine Control Unit)
 100. Coolant temperature sensor
 101. Intake air temperature sensor
 110. Fuel sender
 112. ABS ECU (Electronic Control Unit)
 114. Rear wheel sensor
- A. Wire harness
B. Negative battery sub-wire harness
D. Headlight sub-wire harness (front turn signal light harness)

XP530D-A



SIGNALING SYSTEM

- 4. Joint coupler
- 5. Remote control unit
- 8. Buzzer
- 9. Turn signal/hazard relay
- 11. Crankshaft position sensor
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 20. Signaling system fuse
- 25. Backup fuse
- 26. Diode (fuse box)
- 27. ABS motor fuse
- 28. ABS solenoid fuse
- 29. ABS ECU fuse
- 33. Steering lock relay
- 40. Headlight relay (dimmer)
- 46. Diode 1
- 51. Sidestand switch
- 52. Handlebar switch (right)
- 55. Hazard switch
- 57. Brake light relay
- 58. Handlebar switch (left)
- 62. Horn switch
- 65. Turn signal switch
- 66. Front turn signal light (left)
- 67. Front turn signal light (right)
- 68. Rear turn signal light (left)
- 69. Rear turn signal light (right)
- 71. Tail/brake light (left)
- 72. Tail/brake light (right)
- 73. Diode 5
- 74. Horn
- 75. Brake light fuse
- 76. Front brake light switch
- 77. Rear brake light switch
- 85. Tracking system control unit
- 87. Meter assembly
- 90. Tachometer
- 91. Engine trouble warning light
- 92. Traction control system indicator light
- 93. Turn signal indicator light (left)
- 94. Turn signal indicator light (right)
- 99. Multi-function display
- 103. Yamaha diagnostic tool coupler
- 106. ECU (Engine Control Unit)
- 112. Coolant temperature sensor
- 113. Intake air temperature sensor
- 122. Fuel sender
- 124. ABS ECU (Electronic Control Unit)
- 126. Rear wheel sensor

- B. Negative battery sub-wire harness
- D. Headlight sub-wire harness (front turn signal light harness)

A. Wire harness

EAS30501

TROUBLESHOOTING

- Any of the following fail to light: turn signal light, brake light or an indicator light.
- The horn fails to sound.
- The fuel meter fails to operate.
- The speedometer fails to operate.
- The buzzer fails to sound.
- The V-belt replacement meter fails to operate.
- The ambient temperature meter fails to operate.
- The coolant temperature meter fails to operate.
- The oil change meter fails to operate.

TIP

- Before troubleshooting, remove the following part(s):
 1. Front cowling assembly
 2. Storage box
 3. Fuel tank
 4. Footboards
 5. Rear cowling (right)

<p>1. Check the fuses. (Main, signaling system, ABS motor, ABS solenoid, ABS ECU and backup) Refer to "CHECKING THE FUSES" on page 8-229.</p>	<p>NG→</p>	<p>Replace the fuse(s).</p>
<p>OK↓</p>		
<p>2. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.</p>	<p>NG→</p>	<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
<p>OK↓</p>		
<p>3. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233.</p>	<p>NG→</p>	<p>Replace the ignition system relay.</p>
<p>OK↓</p>		
<p>4. Check the diodes. (Diode 1 and diode 5) Refer to "CHECKING THE DIODES" on page 8-239.</p>	<p>NG→</p>	<p>Replace the diode(s).</p>
<p>OK↓</p>		
<p>5. Check the entire signaling system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-35.</p>	<p>NG→</p>	<p>Properly connect or replace the wire harness.</p>
<p>OK↓</p>		
<p>This circuit is OK.</p>		

Checking the signaling system

The horn fails to sound.

1. Check the horn switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

The horn switch is faulty. Replace the handlebar switch (left).

OK↓

2. Check the entire signaling system's wiring.
Refer to "CIRCUIT DIAGRAM" on page 8-35.

NG→

Properly connect or replace the wire harness.

OK↓

Replace the horn or remote control unit.

The tail/brake light fails to come on.

1. Check the front brake light switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

Replace the front brake light switch.

OK↓

2. Check the rear brake light switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

Replace the rear brake light switch.

OK↓

3. Check the entire signaling system's wiring.
Refer to "CIRCUIT DIAGRAM" on page 8-35.

NG→

Properly connect or replace the wire harness.

OK↓

Replace the tail/brake light assembly or remote control unit.

The turn signal light, turn signal indicator light or both fail to blink.

1. Check the turn signal switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

The turn signal switch is faulty. Replace the handlebar switch (left).

OK↓

2. Check the hazard switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

The hazard switch is faulty. Replace the handlebar switch (right).

OK↓

3. Check the turn signal/hazard relay.
Refer to "CHECKING THE RELAYS" on page 8-233.

NG→

Replace the turn signal/hazard relay.

OK↓

SIGNALING SYSTEM

4. Check the entire signaling system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-35.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the meter assembly or remote control unit.		
<u>The fuel meter fails to operate.</u>		
1. Check the fuel sender. Refer to "CHECKING THE FUEL SENDER" on page 8-244.	NG→	Replace the fuel pump assembly.
OK↓		
2. Check the entire signaling system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-35.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the meter assembly.		
<u>The coolant temperature meter fails to operate.</u>		
1. Check the coolant temperature sensor. Refer to "CHECKING THE COOLANT TEMPERATURE SENSOR" on page 8-245.	NG→	Replace the coolant temperature sensor.
OK↓		
2. Check the entire signaling system wiring. Refer to "CIRCUIT DIAGRAM" on page 8-35.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the ECU or meter assembly.		
<u>The speedometer fails to operate.</u>		
1. Check the rear wheel sensor. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.	NG→	Replace the rear wheel sensor.
OK↓		
2. Check the entire wheel sensor wiring. Refer to TIP.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the hydraulic unit assembly, ECU or meter assembly.		

TIP

Replace if there is an open or short circuit.

- Between rear wheel sensor coupler and ABS ECU coupler.
(Black–Black)
(White–White)
- Between ABS ECU coupler and ECU (engine control unit) coupler.
(White/Yellow–White/Yellow)
- Between ECU coupler and meter assembly coupler.
(Light green/Blue–Light green/Blue)
(Light green/White–Light green/White)

The tachometer fails to operate.

<p>1. Check the crankshaft position sensor. Refer to “CHECKING THE CRANKSHAFT POSITION SENSOR” on page 8-242.</p> <p style="text-align: center;">OK↓</p>	NG→	<p>Replace the stator coil.</p>
<p>2. Check the entire signaling system wiring. Refer to “CIRCUIT DIAGRAM” on page 8-35.</p> <p style="text-align: center;">OK↓</p>	NG→	<p>Properly connect or replace the wire harness.</p>
<p>Replace the ECU or meter assembly.</p>		

The ambient temperature meter fails to operate.

<p>1. Check the air temperature sensor. Refer to “CHECKING THE INTAKE AIR TEMPERATURE SENSOR” on page 8-249.</p> <p style="text-align: center;">OK↓</p>	NG→	<p>Replace the intake air temperature sensor.</p>
<p>2. Check the entire signaling system wiring. Refer to “CIRCUIT DIAGRAM” on page 8-35.</p> <p style="text-align: center;">OK↓</p>	NG→	<p>Properly connect or replace the wire harness.</p>
<p>Replace the ECU or meter assembly.</p>		

The V-belt replacement indicator fails to come on.

<p>1. Check the entire signaling system wiring. Refer to “CIRCUIT DIAGRAM” on page 8-35.</p> <p style="text-align: center;">OK↓</p>	NG→	<p>Properly connect or replace the wire harness.</p>
<p>Replace the meter assembly.</p>		

SIGNALING SYSTEM

The oil change indicator fails to come on.

1. Check the entire signaling system wiring.
Refer to "CIRCUIT DIAGRAM" on page 8-35.

NG→

Properly connect or replace the wire harness.

OK↓

Replace the meter assembly.

The buzzer does not sound.

1. Check the buzzer.
Refer to "CHECKING THE BUZZER" on page 8-250.

NG→

Replace the buzzer.

OK↓

2. Check the entire signaling system wiring.
Refer to "CIRCUIT DIAGRAM" on page 8-35.

NG→

Properly connect or replace the wire harness.

OK↓

Replace the remote control unit or ECU.

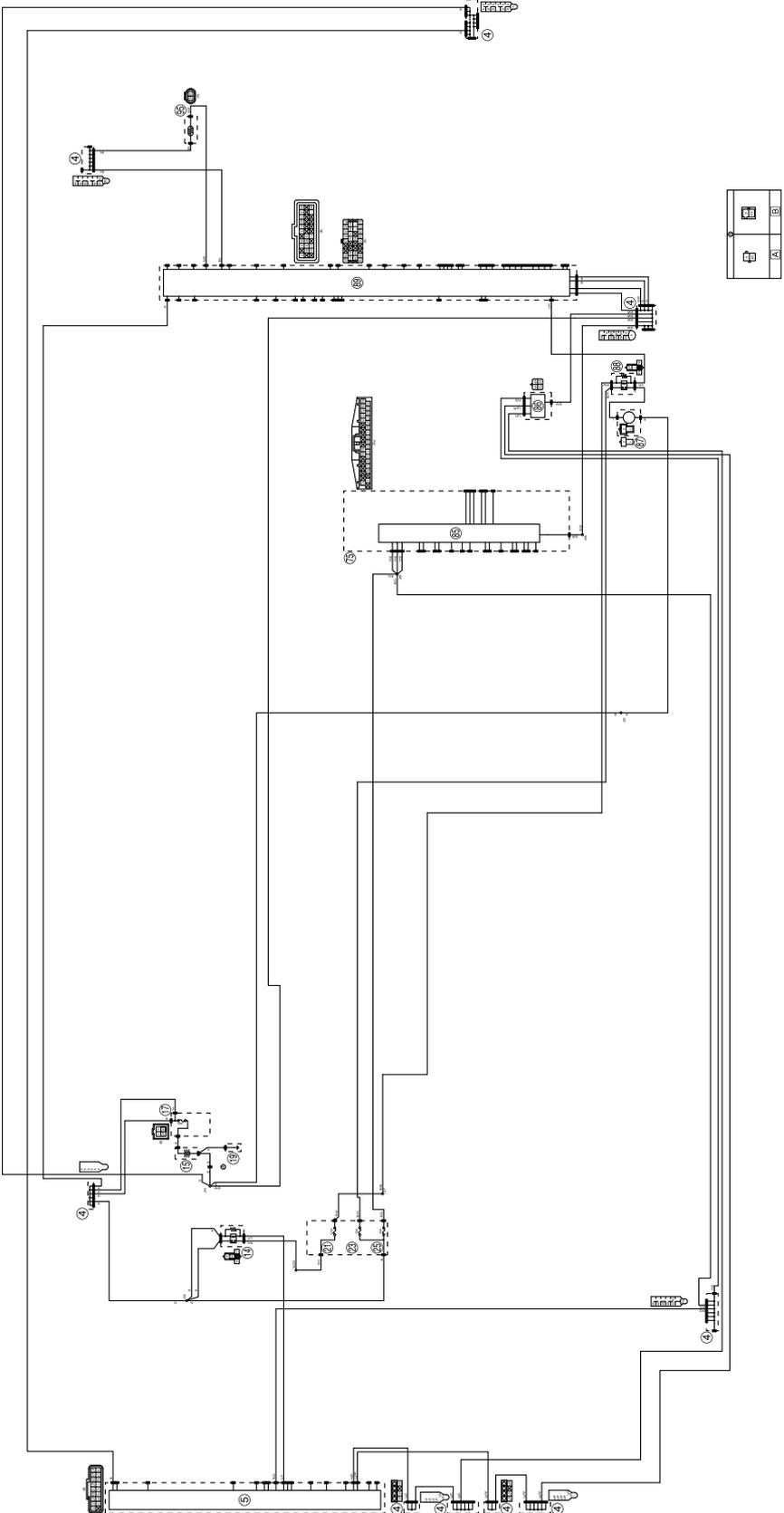
EAS20077

COOLING SYSTEM

EAS30502

CIRCUIT DIAGRAM

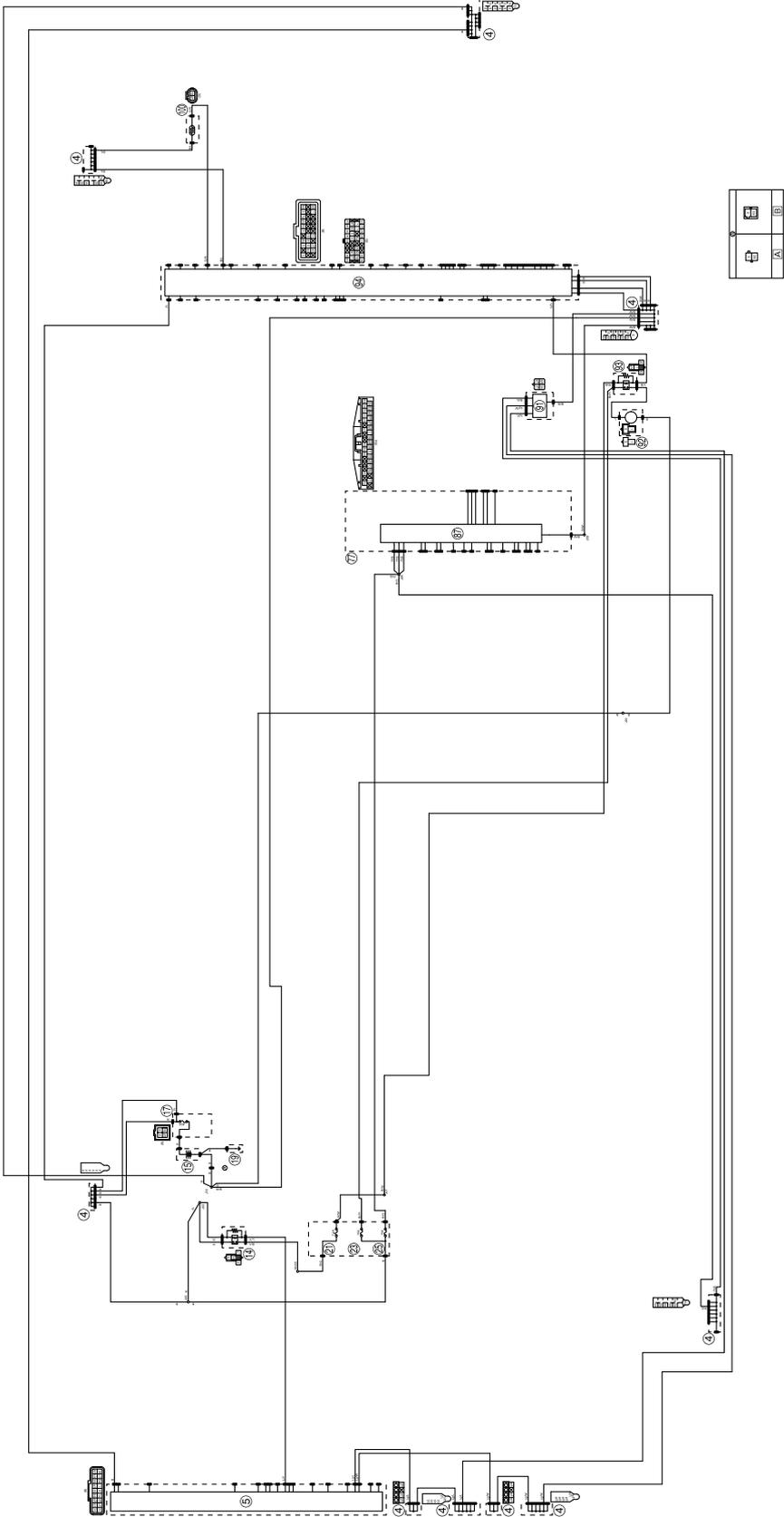
XP530E-A



- 4. Joint coupler
- 5. Remote control unit
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 21. Ignition fuse
- 23. Radiator fan motor fuse
- 25. Backup fuse
- 75. Meter assembly
- 85. Multi-function display
- 86. Yamaha diagnostic tool coupler
- 87. Radiator fan motor
- 88. Radiator fan motor relay
- 89. ECU (Engine Control Unit)
- 95. Coolant temperature sensor

- A. Wire harness
- B. Negative battery sub-wire harness

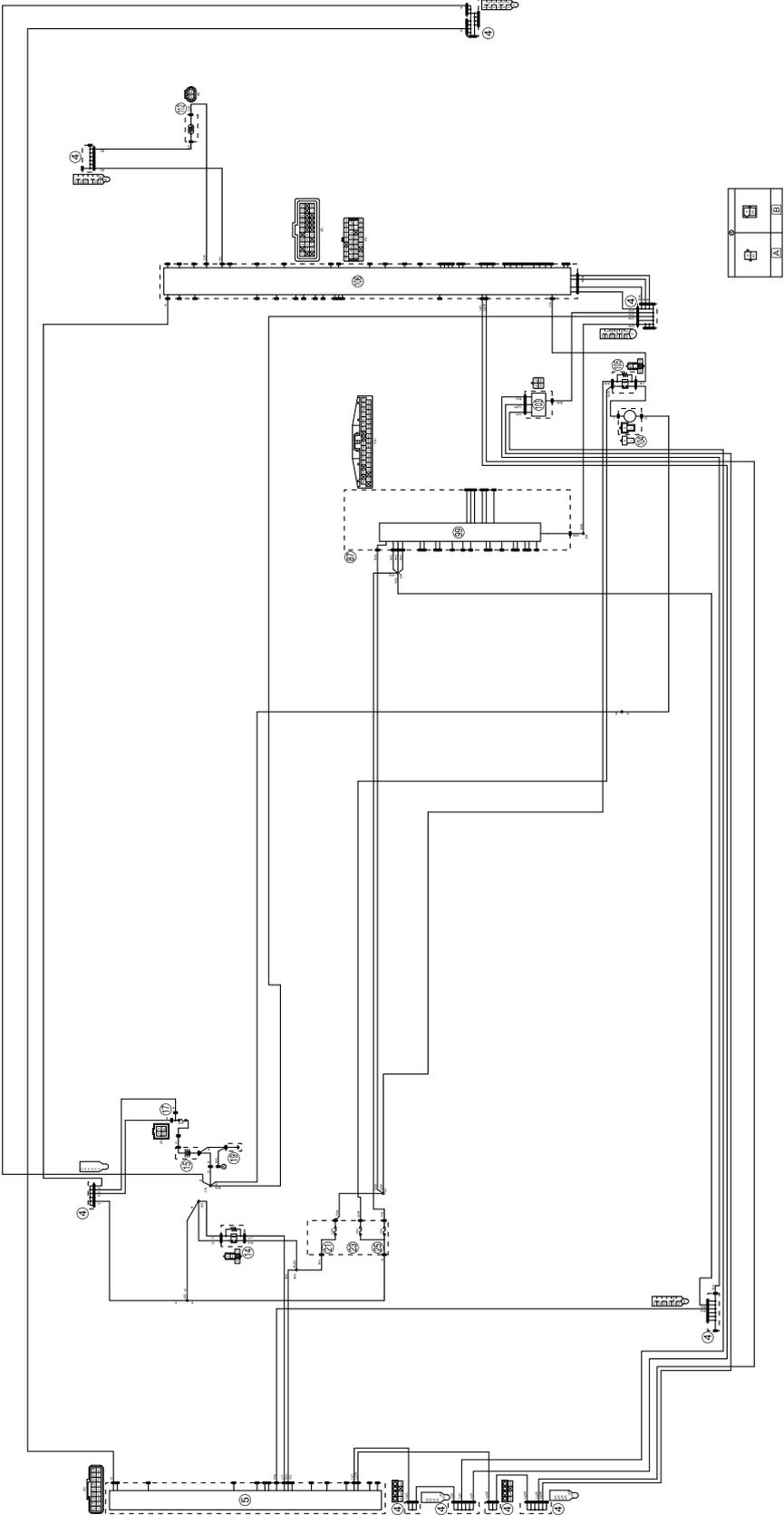
XP530-A



- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 21. Ignition fuse
 - 23. Radiator fan motor fuse
 - 25. Backup fuse
 - 77. Meter assembly
 - 87. Multi-function display
 - 91. Yamaha diagnostic tool coupler
 - 92. Radiator fan motor
 - 93. Radiator fan motor relay
 - 94. ECU (Engine Control Unit)
 - 100. Coolant temperature sensor
- A. Wire harness
 - B. Negative battery sub-wire harness

COOLING SYSTEM

XP530D-A



- 4. Joint coupler
- 5. Remote control unit
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 21. Ignition fuse
- 23. Radiator fan motor fuse
- 25. Backup fuse
- 87. Meter assembly
- 99. Multi-function display
- 103. Yamaha diagnostic tool coupler
- 104. Radiator fan motor
- 105. Radiator fan motor relay
- 106. ECU (Engine Control Unit)
- 112. Coolant temperature sensor

- A. Wire harness
- B. Negative battery sub-wire harness

EAS30503

TROUBLESHOOTING

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowling assembly
2. Storage box
3. Fuel tank
4. Footboard (right)
5. Rear cowling (right)

<p>1. Check the fuses. (Main, ignition, radiator fan motor and backup) Refer to "CHECKING THE FUSES" on page 8-229.</p>	NG→	<p>Replace the fuse(s).</p>
OK↓		
<p>2. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.</p>	NG→	<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
OK↓		
<p>3. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the ignition system relay.</p>
OK↓		
<p>4. Check the radiator fan motor. Refer to "CHECKING THE RADIATOR FAN MOTOR" on page 8-245.</p>	NG→	<p>Replace the radiator fan motor.</p>
OK↓		
<p>5. Check the radiator fan motor relay. Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the radiator fan motor relay.</p>
OK↓		
<p>6. Check the coolant temperature sensor. Refer to "CHECKING THE COOLANT TEMPERATURE SENSOR" on page 8-245.</p>	NG→	<p>Replace the coolant temperature sensor.</p>
OK↓		
<p>7. Check the entire cooling system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-47.</p>	NG→	<p>Properly connect or replace the wire harness.</p>
OK↓		
<p>Replace the ECU or meter assembly.</p>		

FUEL INJECTION SYSTEM

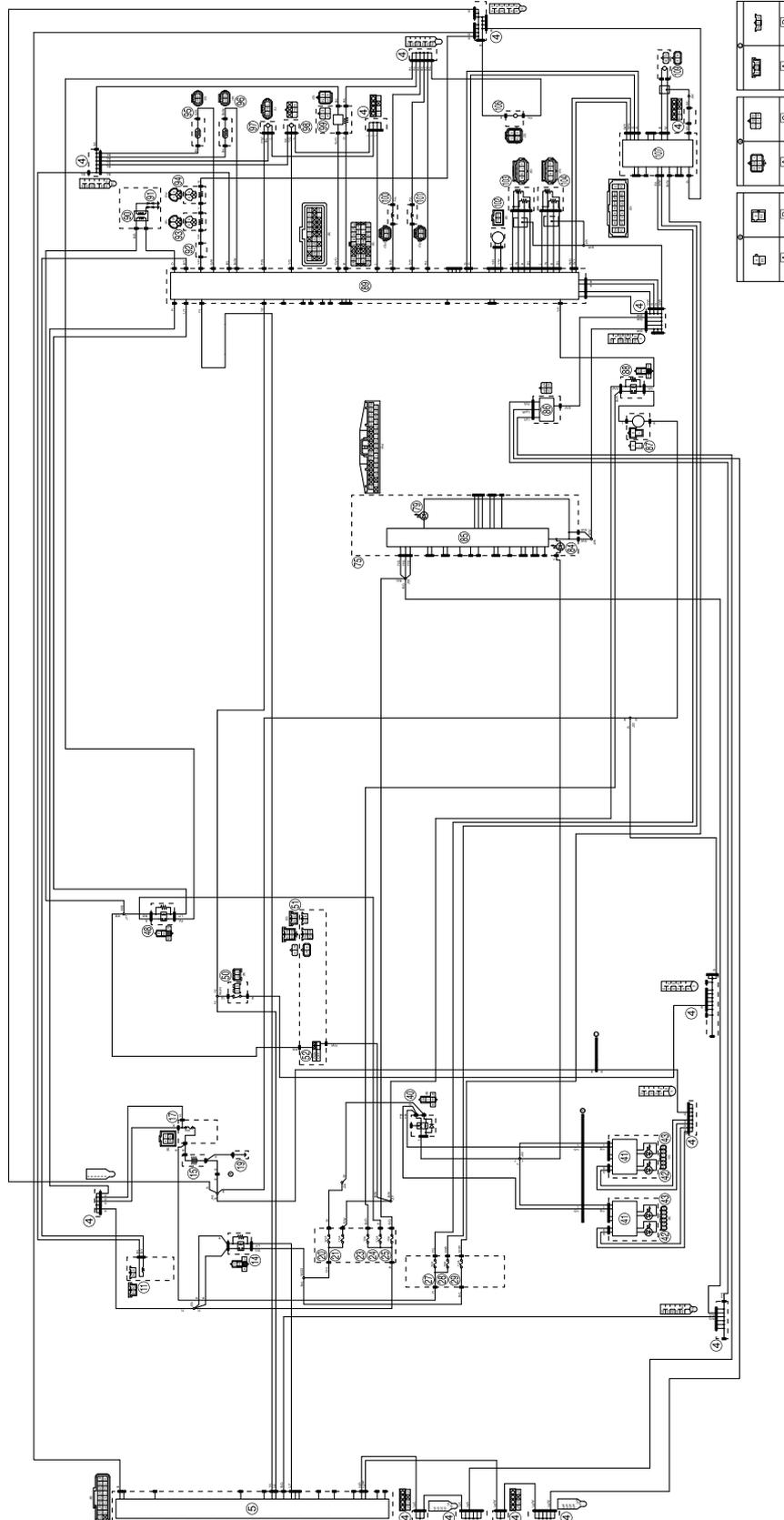
EAS20078

FUEL INJECTION SYSTEM

EAS30504

CIRCUIT DIAGRAM

XP530E-A

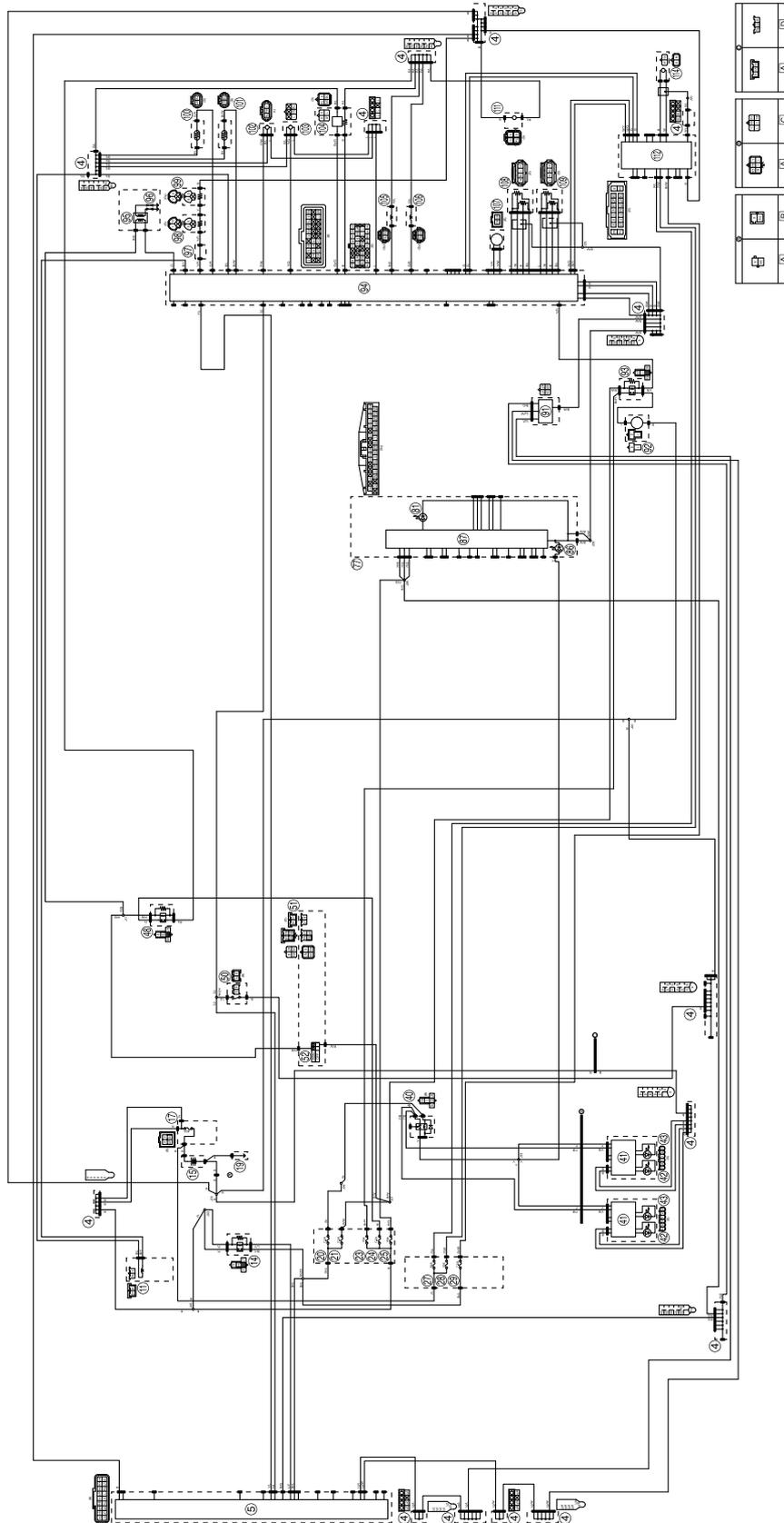


FUEL INJECTION SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 11. Crankshaft position sensor
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 23. Radiator fan motor fuse
 - 24. Fuel injection system fuse
 - 25. Backup fuse
 - 27. ABS motor fuse
 - 28. ABS solenoid fuse
 - 29. ABS ECU fuse
 - 40. Headlight relay (dimmer)
 - 41. Headlight control unit
 - 42. Headlight (low)
 - 43. Headlight (high)
 - 48. Fuel injection system relay
 - 50. Sidestand switch
 - 51. Handlebar switch (right)
 - 52. Engine stop switch
 - 75. Meter assembly
 - 79. Engine trouble warning light
 - 84. High beam indicator light
 - 85. Multi-function display
 - 86. Yamaha diagnostic tool coupler
 - 87. Radiator fan motor
 - 88. Radiator fan motor relay
 - 89. ECU (Engine Control Unit)
 - 90. Ignition coil
 - 91. Spark plug
 - 92. Grip warmer connector
 - 93. Grip warmer (left) (OPTION)
 - 94. Grip warmer (right) (OPTION)
 - 95. Coolant temperature sensor
 - 96. Intake air temperature sensor
 - 97. Intake air pressure sensor
 - 98. Lean angle sensor
 - 99. O₂ sensor
 - 100. Injector #1
 - 101. Injector #2
 - 102. Throttle servo motor
 - 103. Accelerator position sensor
 - 104. Throttle position sensor
 - 106. Fuel pump
 - 107. ABS ECU (Electronic Control Unit)
 - 109. Rear wheel sensor
- A. Wire harness
- B. Negative battery sub-wire harness
- C. Headlight sub-wire harness (headlight harness)
- D. Headlight sub-wire harness (front turn signal light harness)

FUEL INJECTION SYSTEM

XP530-A

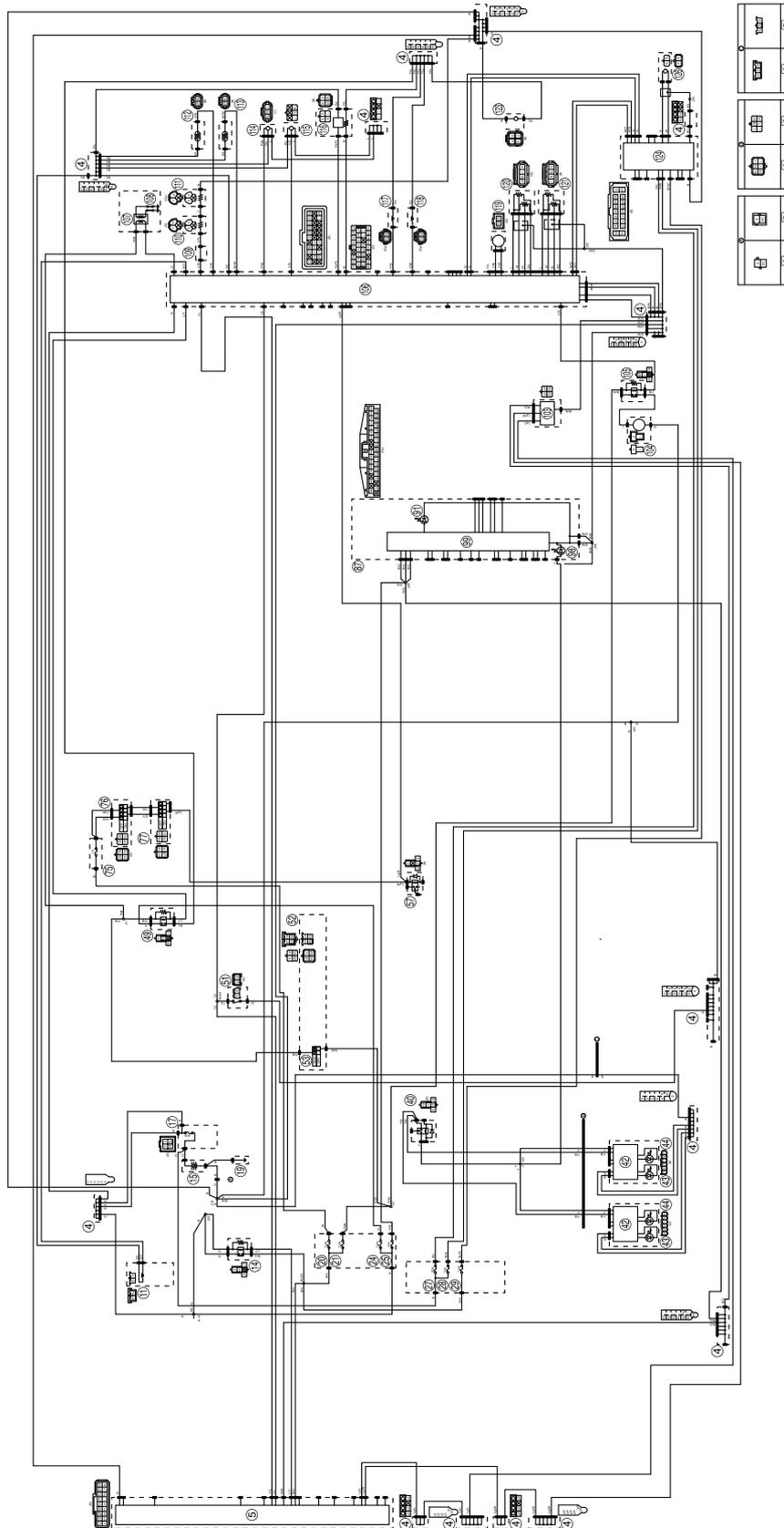


FUEL INJECTION SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 11. Crankshaft position sensor
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 23. Radiator fan motor fuse
 - 24. Fuel injection system fuse
 - 25. Backup fuse
 - 27. ABS motor fuse
 - 28. ABS solenoid fuse
 - 29. ABS ECU fuse
 - 40. Headlight relay (dimmer)
 - 41. Headlight control unit
 - 42. Headlight (low)
 - 43. Headlight (high)
 - 48. Fuel injection system relay
 - 50. Sidestand switch
 - 51. Handlebar switch (right)
 - 52. Engine stop switch
 - 77. Meter assembly
 - 81. Engine trouble warning light
 - 86. High beam indicator light
 - 87. Multi-function display
 - 91. Yamaha diagnostic tool coupler
 - 92. Radiator fan motor
 - 93. Radiator fan motor relay
 - 94. ECU (Engine Control Unit)
 - 95. Ignition coil
 - 96. Spark plug
 - 97. Grip warmer connector
 - 98. Grip warmer (left) (OPTION)
 - 99. Grip warmer (right) (OPTION)
 - 100. Coolant temperature sensor
 - 101. Intake air temperature sensor
 - 102. Intake air pressure sensor
 - 103. Lean angle sensor
 - 104. O₂ sensor
 - 105. Injector #1
 - 106. Injector #2
 - 107. Throttle servo motor
 - 108. Accelerator position sensor
 - 109. Throttle position sensor
 - 111. Fuel pump
 - 112. ABS ECU (Electronic Control Unit)
 - 114. Rear wheel sensor
- A. Wire harness
 - B. Negative battery sub-wire harness
 - C. Headlight sub-wire harness (headlight harness)
 - D. Headlight sub-wire harness (front turn signal light harness)

FUEL INJECTION SYSTEM

XP530D-A



	A	D
	A	C
	A	B
	A	A

FUEL INJECTION SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 11. Crankshaft position sensor
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 24. Fuel injection system fuse
 - 25. Backup fuse
 - 27. ABS motor fuse
 - 28. ABS solenoid fuse
 - 29. ABS ECU fuse
 - 40. Headlight relay (dimmer)
 - 42. Headlight control unit
 - 43. Headlight (low)
 - 44. Headlight (high)
 - 49. Fuel injection system relay
 - 51. Sidestand switch
 - 52. Handlebar switch (right)
 - 53. Engine stop switch
 - 57. Brake light relay
 - 75. Brake light fuse
 - 76. Front brake light switch
 - 77. Rear brake light switch
 - 87. Meter assembly
 - 91. Engine trouble warning light
 - 98. High beam indicator light
 - 99. Multi-function display
 - 103. Yamaha diagnostic tool coupler
 - 104. Radiator fan motor
 - 105. Radiator fan motor relay
 - 106. ECU (Engine Control Unit)
 - 107. Ignition coil
 - 108. Spark plug
 - 109. Grip warmer connector
 - 110. Grip warmer (left)
 - 111. Grip warmer (right)
 - 112. Coolant temperature sensor
 - 113. Intake air temperature sensor
 - 114. Intake air pressure sensor
 - 115. Lean angle sensor
 - 116. O₂ sensor
 - 117. Injector #1
 - 118. Injector #2
 - 119. Throttle servo motor
 - 120. Accelerator position sensor
 - 121. Throttle position sensor
 - 123. Fuel pump
 - 124. ABS ECU (Electronic Control Unit)
 - 126. Rear wheel sensor
- A. Wire harness
 - B. Negative battery sub-wire harness
 - C. Headlight sub-wire harness (headlight harness)
 - D. Headlight sub-wire harness (front turn signal light harness)

FUEL INJECTION SYSTEM

01: Throttle position sensor signal 1
(throttle angle)
13: Throttle position sensor signal 2
(throttle angle)
14: Accelerator position sensor signal 1
(throttle angle)
15: Accelerator position sensor signal 2
(throttle angle)
30: Ignition coil
36: Injector #1
37: Injector #2

If a malfunction is detected in the sensors or actuators, repair or replace all faulty parts.

If no malfunction is detected in the sensors and actuators, check and repair the inner parts of the engine.

EAS30951

YAMAHA DIAGNOSTIC TOOL

This model uses the Yamaha diagnostic tool to identify malfunctions.

For information about using the Yamaha diagnostic tool, refer to the operation manual that is included with the tool.



Yamaha diagnostic tool USB
90890-03256
Yamaha diagnostic tool (A/I)
90890-03254

TIP

A generic scan tool can also be used to identify malfunctions.



OBD/ GST Leadwire kit
90890-03249

Features of the Yamaha diagnostic tool

You can use the Yamaha diagnostic tool to identify malfunctions quicker than with conventional methods.

By connecting the adapter interface, which is connected to the USB port of a computer, to a vehicle's ECU using the communication cable, you can display information that is necessary for identifying malfunctions and for maintenance to display on the computer. The displayed information includes the sensor output data and information recorded in the ECU.

Functions of the Yamaha diagnostic tool

Diagnosis of malfunction:	Fault codes recorded on the ECU are read, and the contents are displayed. The freeze frame data (FFD) is the operation data when a malfunction was detected. This data can be used to identify when the malfunction occurred and check the engine conditions and running conditions when it occurred.
Diagnosis of function:	Check the operation of the output value of each sensor and actuator.
Dynamic inspection:	Check the electric component condition automatically.
Active test:	Manually adjust injection duration and/or switch some actuators for troubleshooting.
Maintenance record:	Store the inspection history into the Yamaha diagnostic tool application.
Recall search:	Search the recall campaign information.
Monitoring:	Displays a graph of sensor output values for actual operating conditions.

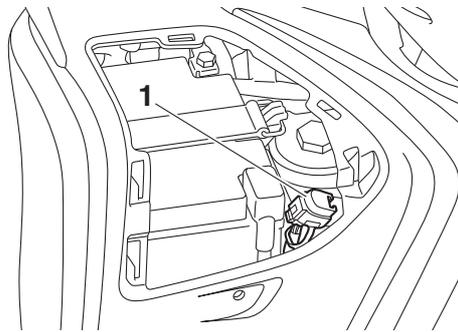
FUEL INJECTION SYSTEM

Logging:	Records and saves the sensor output value in actual driving conditions.
CO adjustment:	Adjust the concentration of CO admissions during idling.
Reprogram ECU:	If necessary, the ECU is rewritten using ECU rewrite data provided by Yamaha. Ignition timing adjustment, etc. cannot be changed from the vehicle's original state.
Writing VIN/frame number:	Write the VIN/frame number in the ECU.
View logs:	Displays the logging data.

However, the Yamaha diagnostic tool cannot be used to freely change the basic vehicle functions, such as adjusting the ignition timing.

Connecting the Yamaha diagnostic tool

Remove the protective cap "1", and then connect the Yamaha diagnostic tool to the coupler.



EAS31791

TROUBLESHOOTING DETAILS (FAULT CODE)

This section describes the measures per fault code number displayed on the Yamaha diagnostic tool. Check and service the items or components that are the probable cause of the malfunction following the order given.

After the check and service of the malfunctioning part have been completed, delete the fault codes displayed on the Yamaha diagnostic tool according to the reinstatement method.

Fault code No.:

Fault code number displayed on the Yamaha diagnostic tool when the engine failed to work normally.

Diagnostic code No.:

Diagnostic code number to be used when the diagnostic mode is operated. Refer to "SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)" on page 9-5.

Parts connected to the ECU

The following parts are connected to the ECU.

When checking for a power short circuit, the couplers must be disconnected from all of the following parts beforehand.

- Crankshaft position sensor
- Fuel injector #1
- Fuel injector #2
- Ignition coil
- Throttle position sensor
- Accelerator position sensor
- Intake air pressure sensor
- Coolant temperature sensor
- Intake air temperature sensor
- O₂ sensor
- Lean angle sensor
- ABS ECU (Electronic Control Unit)
- Throttle servo motor
- Ignition system relay
- Brake light relay
- Radiator fan motor relay
- Meter assembly

FUEL INJECTION SYSTEM

Fault code No. P0030

TIP

- If fault code numbers “P0030” and “P0112” are both indicated, take the actions specified for fault code number “P0112” first.
- If fault code numbers “P0030” and “P0113” are both indicated, take the actions specified for fault code number “P0113” first.
- If fault code numbers “P0030” and “P0122” are both indicated, take the actions specified for fault code number “P0122” first.
- If fault code numbers “P0030” and “P0123” are both indicated, take the actions specified for fault code number “P0123” first.
- If fault code numbers “P0030” and “P0222” are both indicated, take the actions specified for fault code number “P0222” first.
- If fault code numbers “P0030” and “P0223” are both indicated, take the actions specified for fault code number “P0223” first.
- If fault code numbers “P0030” and “P2135” are both indicated, take the actions specified for fault code number “P2135” first.

Fault code No.		P0030	
Item		O₂ sensor heater: defective heater controller detected.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		—	
Tool display		—	
Procedure		—	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of O ₂ sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Start the engine, and then check the condition of the fault code. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Go to item 2. TIP For this check, also set the engine stop switch to “ON”.

FUEL INJECTION SYSTEM

Fault code No.		P0030	
Item		O ₂ sensor heater: defective heater controller detected.	
2	<p>Connection of wire harness ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).</p>	<p>Improperly connected → Connect the coupler securely or replace the wire harness.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Start the engine, and then check the condition of the fault code. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Go to item 3.</p> <p>TIP</p> <p>For this check, also set the engine stop switch to "ON".</p>
3	<p>Wire harness continuity.</p>	<p>Open or short circuit → Properly connect or replace the wire harness. Between O₂ sensor coupler and ECU coupler. black-black Between joint coupler and fuel injection system relay. red/blue-red/blue</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Start the engine, and then check the condition of the fault code. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Go to item 4.</p> <p>TIP</p> <p>For this check, also set the engine stop switch to "ON".</p>
4	<p>Defective O₂ sensor heater.</p>	<p>Replace the O₂ sensor.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Start the engine, and then check the condition of the fault code. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Go to item 5.</p> <p>TIP</p> <p>For this check, also set the engine stop switch to "ON".</p>
5	<p>Malfunction in ECU.</p>	<p>Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.</p>	<p>Service is finished.</p>

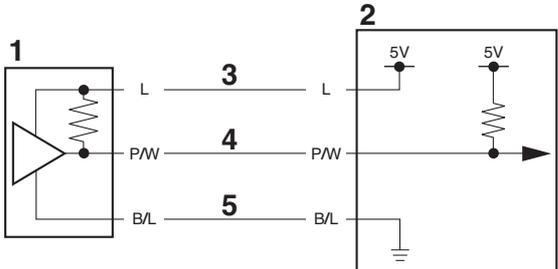
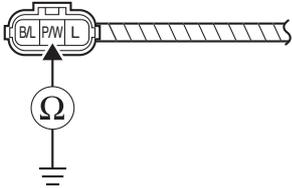
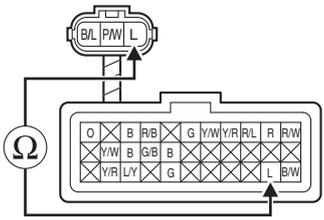
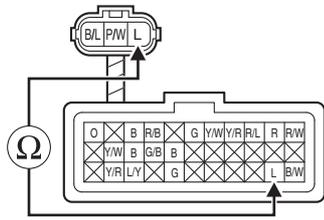
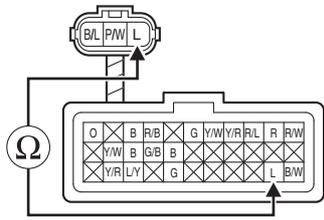
FUEL INJECTION SYSTEM

Fault code No.		P0030	
Item		O₂ sensor heater: defective heater controller detected.	
6	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0107, P0108

Fault code No.		P0107, P0108	
Item		[P0107] Intake air pressure sensor: ground short circuit detected. [P0108] Intake air pressure sensor: open or power short circuit detected.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		03	
Tool display		Displays the intake air pressure.	
Procedure		Operate the throttle while pushing the "⊗" side of the engine stop switch. (If the display value changes, the performance is OK.)	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of intake air pressure sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.

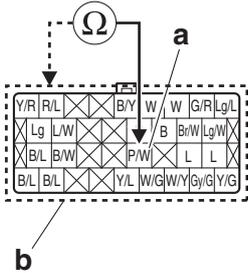
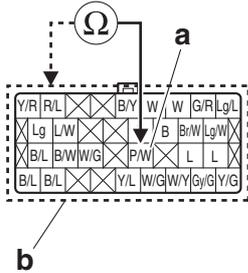
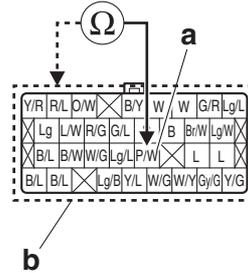
FUEL INJECTION SYSTEM

Fault code No.	P0107, P0108
Item	<p>[P0107] Intake air pressure sensor: ground short circuit detected.</p> <p>[P0108] Intake air pressure sensor: open or power short circuit detected.</p>
3-1	 <p>1. Intake air pressure sensor 2. ECU 3. Sensor input lead 4. Sensor output lead 5. Sensor ground lead</p>
3-2	<p>Disconnect the ECU coupler from the ECU. Disconnect the intake air pressure sensor coupler from the intake air pressure sensor.</p>
3-3	<p>[For P0107] Ground short circuit Between intake air pressure sensor coupler and ground: pink/white–ground If there is continuity, replace the wire harness.</p> 
3-4	<p>[For P0108] Open circuit Between intake air pressure sensor coupler and ECU coupler: blue–blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div> <p>A</p>  </div> <div> <p>B</p>  </div> <div> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>

FUEL INJECTION SYSTEM

Fault code No.	P0107, P0108
Item	<p>[P0107] Intake air pressure sensor: ground short circuit detected.</p> <p>[P0108] Intake air pressure sensor: open or power short circuit detected.</p>
3-5	<p>[For P0108] Open circuit Between intake air pressure sensor coupler and ECU coupler: pink/white–pink/white If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p> </div> <div style="text-align: center;"> <p>B</p> </div> <div style="text-align: center;"> <p>C</p> </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-6	<p>[For P0108] Open circuit Between intake air pressure sensor coupler and ECU coupler: black/blue–black/blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p> </div> <div style="text-align: center;"> <p>B</p> </div> <div style="text-align: center;"> <p>C</p> </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-7	<p>Disconnect the couplers from the parts that are connected to the ECU. Refer to “Parts connected to the ECU” on page 8-63.</p>

FUEL INJECTION SYSTEM

Fault code No.	P0107, P0108		
Item	<p>[P0107] Intake air pressure sensor: ground short circuit detected. [P0108] Intake air pressure sensor: open or power short circuit detected.</p>		
3-8	<p>[For P0107/P0108] Short circuit Between intake air pressure sensor output terminal (pink/white) "a" of ECU coupler and any other ECU coupler terminal "b". If there is continuity, replace the wire harness.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>	
4	<p>Installed condition of intake air pressure sensor.</p>	<p>Check for looseness or pinching. Improperly installed sensor → Reinstall or replace the sensor.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.</p>

FUEL INJECTION SYSTEM

Fault code No.		P0107, P0108	
Item		[P0107] Intake air pressure sensor: ground short circuit detected. [P0108] Intake air pressure sensor: open or power short circuit detected.	
5	Defective intake air pressure sensor.	<p>Execute the diagnostic mode. (Code No. 03)</p> <p>When engine is stopped: Atmospheric pressure at the current altitude and weather conditions is indicated. At sea level: Approx. 101 kPa (757.6 mmHg, 29.8 inHg), approx. 3.64 V 1000 m (3300 ft) above sea level: Approx. 90 kPa (675.1 mmHg, 26.6 inHg), approx. 3.30 V 2000 m (6700 ft) above sea level: Approx. 80 kPa (600.0 mmHg, 23.6 inHg), approx. 3.00 V 3000 m (9800 ft) above sea level: Approx. 70 kPa (525.0 mmHg, 20.7 inHg), approx. 2.70 V</p> <p>When engine is cranking: Make sure that the indication value changes. The value does not change when engine is cranking → Check the intake air pressure sensor. Replace if defective. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.</p>	<p>Crank the engine, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.</p>
6	Malfunction in ECU.	<p>Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.</p>	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	<p>Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.</p>	

FUEL INJECTION SYSTEM

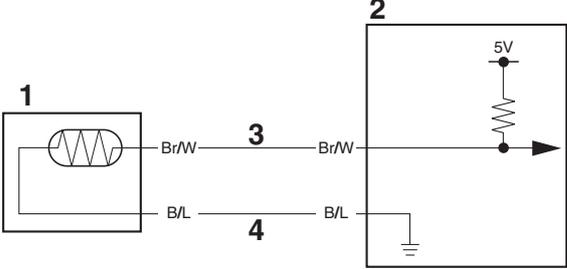
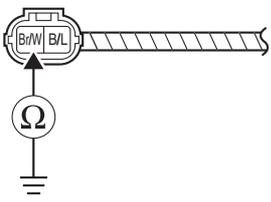
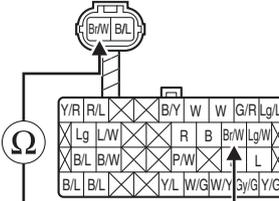
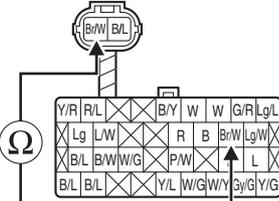
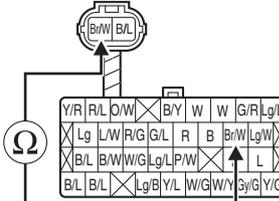
Fault code No. P0112, P0113

TIP

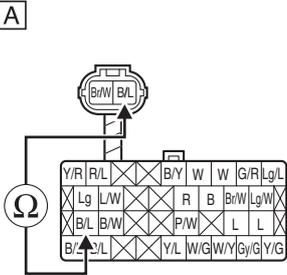
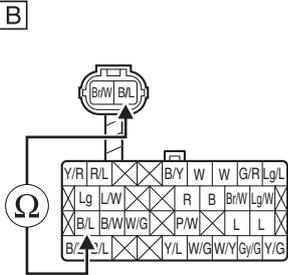
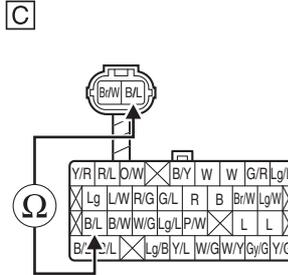
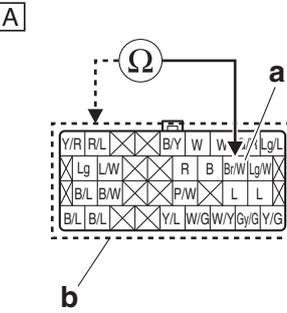
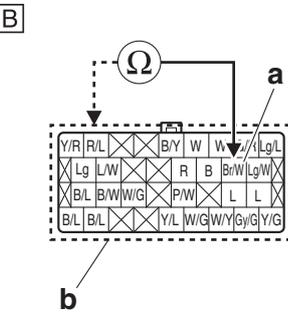
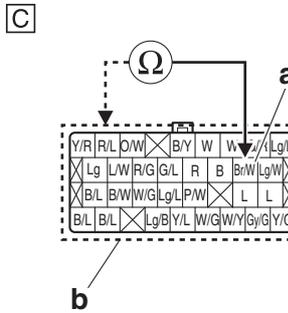
Perform this procedure when the engine is cold.

Fault code No.	P0112, P0113		
Item	[P0112] Intake air temperature sensor: ground short circuit detected. [P0113] Intake air temperature sensor: open or power short circuit detected.		
Fail-safe system	Able to start engine		
	Able to drive vehicle		
Diagnostic code No.	05		
Tool display	Displays the air temperature.		
Procedure	Compare the actually measured air temperature with the tool display value.		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of intake air temperature sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.

FUEL INJECTION SYSTEM

Fault code No.	P0112, P0113
Item	<p>[P0112] Intake air temperature sensor: ground short circuit detected.</p> <p>[P0113] Intake air temperature sensor: open or power short circuit detected.</p>
3-1	 <p>1. Intake air temperature sensor 2. ECU 3. Sensor output lead 4. Sensor ground lead</p>
3-2	<p>Disconnect the ECU coupler from the ECU. Disconnect the intake air temperature sensor coupler from the intake air temperature sensor.</p>
3-3	<p>[For P0112] Ground short circuit Between intake air temperature sensor coupler and ground: brown/white–ground If there is continuity, replace the wire harness.</p> 
3-4	<p>[For P0113] Open circuit Between intake air temperature sensor coupler and ECU coupler: brown/white–brown/white If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div> <p>A</p>  </div> <div> <p>B</p>  </div> <div> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>

FUEL INJECTION SYSTEM

Fault code No.	P0112, P0113		
Item	[P0112] Intake air temperature sensor: ground short circuit detected. [P0113] Intake air temperature sensor: open or power short circuit detected.		
3-5	<p>[For P0113] Open circuit Between intake air temperature sensor coupler and ECU coupler: black/blue–black/blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>		
3-6	<p>Disconnect the couplers from the parts that are connected to the ECU. Refer to “Parts connected to the ECU” on page 8-63.</p>		
3-7	<p>[For P0112/P0113] Short circuit Between intake air temperature sensor output terminal (brown/white) “a” of ECU coupler and any other ECU coupler terminal “b”. If there is continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>		
4	<p>Installed condition of intake air temperature sensor.</p>	<p>Check for looseness or pinching. Improperly installed sensor → Reinstall or replace the sensor.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 7 and finish the service. Condition is “Detected” → Go to item 5.</p>

FUEL INJECTION SYSTEM

Fault code No.		P0112, P0113	
Item		[P0112] Intake air temperature sensor: ground short circuit detected. [P0113] Intake air temperature sensor: open or power short circuit detected.	
5	Defective intake air temperature sensor.	Execute the diagnostic mode. (Code No. 05) When engine is cold: Displayed temperature is close to the ambient temperature. The displayed temperature is not close to the ambient temperature → Check the intake air temperature sensor. Replace if defective. Refer to "CHECKING THE INTAKE AIR TEMPERATURE SENSOR" on page 8-249.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.
6	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

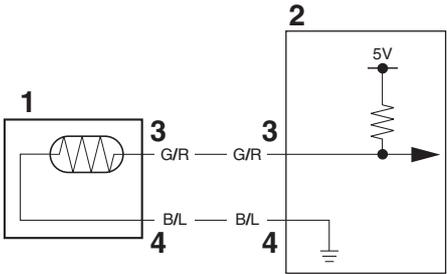
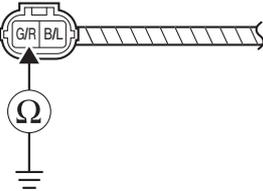
Fault code No. P0117, P0118

TIP

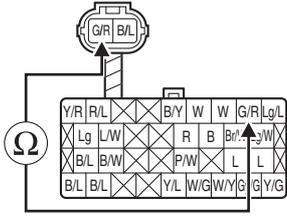
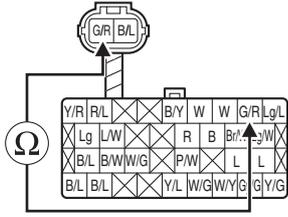
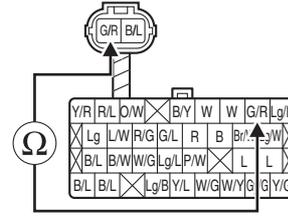
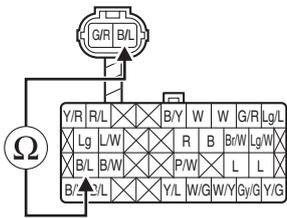
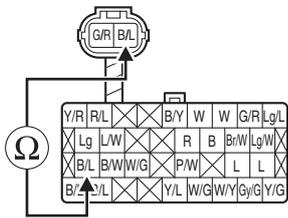
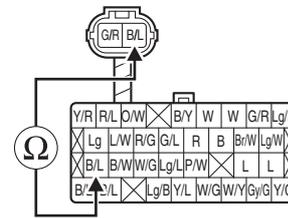
Perform this procedure when the engine is cold.

Fault code No.		P0117, P0118	
Item		[P0117] Coolant temperature sensor: ground short circuit detected. [P0118] Coolant temperature sensor: open or power short circuit detected.	
Fail-safe system		Able to start engine Able to drive vehicle	
Diagnostic code No.		06	
Tool display		When engine is cold: Displays temperature closer to air temperature. When engine is hot: Displays current coolant temperature.	
Procedure		Compare the actually measured coolant temperature with the tool display value.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of coolant temperature sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.

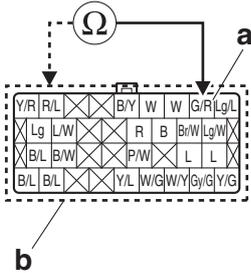
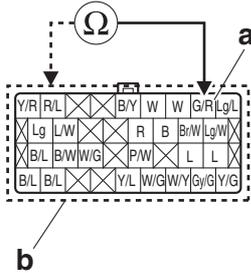
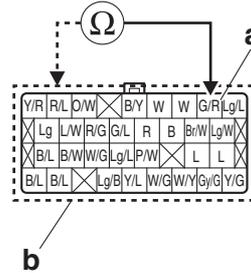
FUEL INJECTION SYSTEM

Fault code No.		P0117, P0118	
Item		<p>[P0117] Coolant temperature sensor: ground short circuit detected.</p> <p>[P0118] Coolant temperature sensor: open or power short circuit detected.</p>	
2	<p>Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).</p>	<p>Improperly connected → Connect the coupler securely or replace the wire harness.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.</p>
3	<p>Wire harness continuity.</p>	<p>Open or short circuit → Replace the wire harness.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.</p>
3-1	<div style="text-align: center;">  </div> <p>1. Coolant temperature sensor 2. ECU 3. Sensor output lead 4. Sensor ground lead</p>		
3-2	<p>Disconnect the ECU coupler from the ECU. Disconnect the coolant temperature sensor coupler from the coolant temperature sensor.</p>		
3-3	<p>[For P0117] Ground short circuit Between wire harness coupler (ECU side) and ground: green/red-ground If there is continuity, replace the wire harness.</p> <div style="text-align: center;">  </div>		

FUEL INJECTION SYSTEM

Fault code No.	P0117, P0118
Item	<p>[P0117] Coolant temperature sensor: ground short circuit detected.</p> <p>[P0118] Coolant temperature sensor: open or power short circuit detected.</p>
3-4	<p>[For P0118] Open circuit Between wire harness coupler (ECU side) and ECU coupler: green/red–green/red If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-5	<p>[For P0118] Open circuit Between wire harness coupler (ECU side) and ECU coupler: black/blue–black/blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-6	<p>Disconnect the couplers from the parts that are connected to the ECU. Refer to “Parts connected to the ECU” on page 8-63.</p>

FUEL INJECTION SYSTEM

Fault code No.	P0117, P0118		
Item	<p>[P0117] Coolant temperature sensor: ground short circuit detected. [P0118] Coolant temperature sensor: open or power short circuit detected.</p>		
3-7	<p>[For P0117/P0118] Short circuit Between wire harness (ECU side) output terminal (green/red) "a" of ECU coupler and any other ECU coupler terminal "b". If there is continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>[A]</p>  <p>A. XP530E-A</p> </div> <div style="text-align: center;"> <p>[B]</p>  <p>B. XP530-A</p> </div> <div style="text-align: center;"> <p>[C]</p>  <p>C. XP530D-A</p> </div> </div>		
4	Installed condition of coolant temperature sensor.	Check for looseness or pinching. Improperly installed sensor → Reinstall or replace the sensor.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.
5	Defective coolant temperature sensor.	Execute the diagnostic mode. (Code No. 06) When engine is cold: Displayed temperature is close to the ambient temperature. The displayed temperature is not close to the ambient temperature → Check the coolant temperature sensor. Replace if defective. Refer to "CHECKING THE COOLANT TEMPERATURE SENSOR" on page 8-245.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.
6	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

FUEL INJECTION SYSTEM

Fault code No. P0122, P0123, P0222, P0223, P2135

TIP

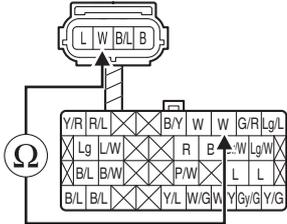
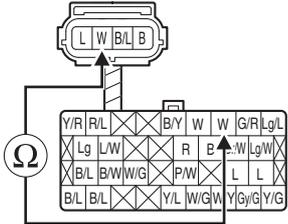
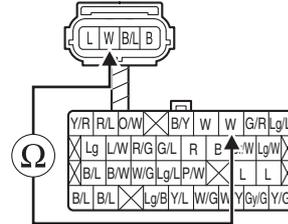
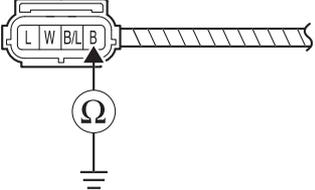
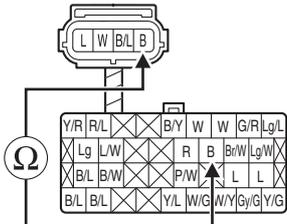
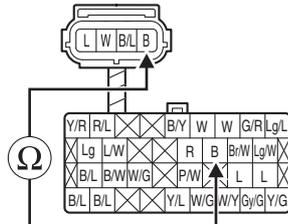
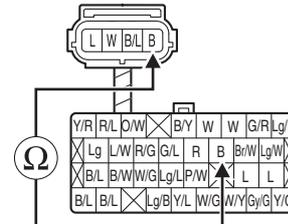
If a fault code other than No. "P2135" ("P0122, P0123, P0222, P0223") is detected, perform troubleshooting first.

Fault code No.		P0122, P0123, P0222, P0223, P2135	
Item		<p>[P0122] Throttle position sensor: ground short circuit detected. [P0123] Throttle position sensor: open or power short circuit detected. [P0222] Throttle position sensor: ground short circuit detected. [P0223] Throttle position sensor: open or power short circuit detected. [P2135] Throttle position sensor: output voltage deviation error.</p>	
Fail-safe system		Able/Unable to start engine	
		Able/Unable to drive vehicle	
Diagnostic code No.		01, 13	
01	Tool display	Throttle position sensor signal 1 • 11–20 (fully closed position) • 95–106 (fully open position)	
	Procedure	• Check with throttle valves fully closed. • Check with throttle valves fully open.	
13	Tool display	Throttle position sensor signal 2 • 8–22 (fully closed position) • 92–108 (fully open position)	
	Procedure	• Check with throttle valves fully closed. • Check with throttle valves fully open.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of throttle position sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 4.

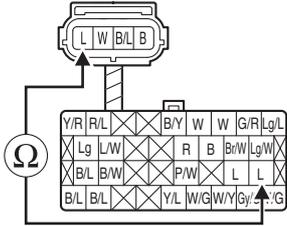
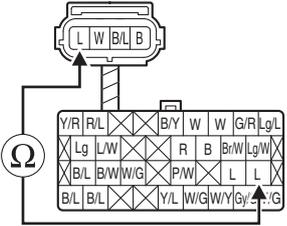
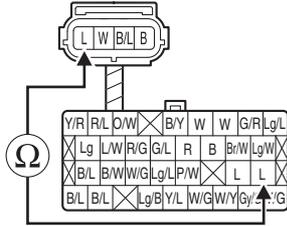
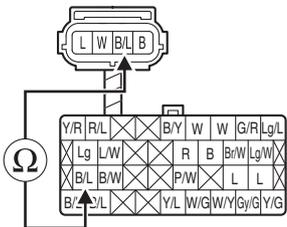
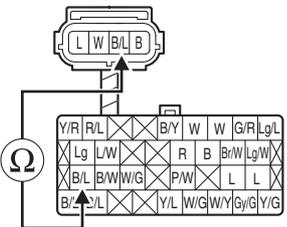
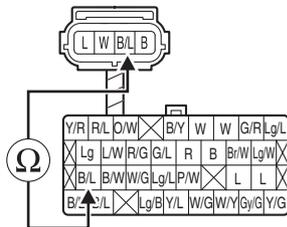
FUEL INJECTION SYSTEM

Fault code No.	P0122, P0123, P0222, P0223, P2135
Item	<p>[P0122] Throttle position sensor: ground short circuit detected. [P0123] Throttle position sensor: open or power short circuit detected. [P0222] Throttle position sensor: ground short circuit detected. [P0223] Throttle position sensor: open or power short circuit detected. [P2135] Throttle position sensor: output voltage deviation error.</p>
3-1	<div style="text-align: center;"> </div> <p>1. Throttle position sensor 2. ECU 3. Sensor input lead 4. Sensor output lead 1 5. Sensor output lead 2 6. Sensor ground lead</p>
3-2	<p>Disconnect the ECU coupler from the ECU. Disconnect the throttle position sensor coupler from the throttle position sensor.</p>
3-3	<p>[For P0122] Ground short circuit Between throttle position sensor coupler and ground: white-ground If there is continuity, replace the wire harness.</p> <div style="text-align: center;"> </div>

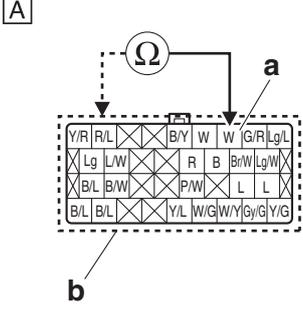
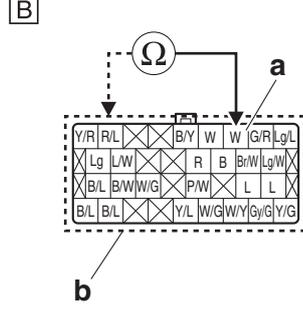
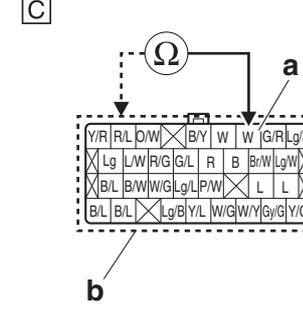
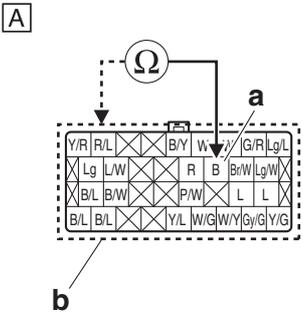
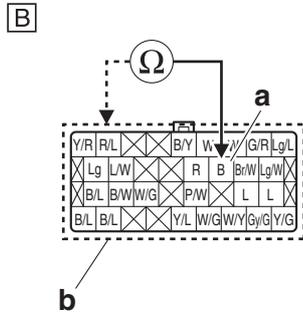
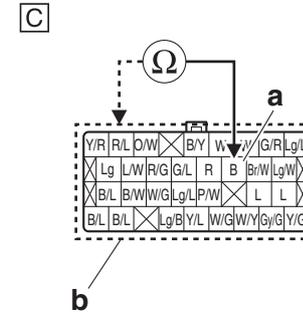
FUEL INJECTION SYSTEM

Fault code No.	P0122, P0123, P0222, P0223, P2135
Item	<p>[P0122] Throttle position sensor: ground short circuit detected. [P0123] Throttle position sensor: open or power short circuit detected. [P0222] Throttle position sensor: ground short circuit detected. [P0223] Throttle position sensor: open or power short circuit detected. [P2135] Throttle position sensor: output voltage deviation error.</p>
<p>3-4</p>	<p>[For P0123] Open circuit Between throttle position sensor coupler and ECU coupler: white–white If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
<p>3-5</p>	<p>[For P0222] Ground short circuit Between throttle position sensor coupler and ground: black–ground If there is continuity, replace the wire harness.</p> <div style="text-align: center;">  </div>
<p>3-6</p>	<p>[For P0223] Open circuit Between throttle position sensor coupler and ECU coupler: black–black If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>

FUEL INJECTION SYSTEM

Fault code No.	P0122, P0123, P0222, P0223, P2135
Item	<p>[P0122] Throttle position sensor: ground short circuit detected. [P0123] Throttle position sensor: open or power short circuit detected. [P0222] Throttle position sensor: ground short circuit detected. [P0223] Throttle position sensor: open or power short circuit detected. [P2135] Throttle position sensor: output voltage deviation error.</p>
3-7	<p>[For P0123/P0223] Open circuit Between throttle position sensor coupler and ECU coupler: blue–blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-8	<p>[For P0123/P0223] Open circuit Between throttle position sensor coupler and ECU coupler: black/blue–black/blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-9	<p>Disconnect the couplers from the parts that are connected to the ECU. Refer to “Parts connected to the ECU” on page 8-63.</p>

FUEL INJECTION SYSTEM

Fault code No.	P0122, P0123, P0222, P0223, P2135		
Item	<p>[P0122] Throttle position sensor: ground short circuit detected. [P0123] Throttle position sensor: open or power short circuit detected. [P0222] Throttle position sensor: ground short circuit detected. [P0223] Throttle position sensor: open or power short circuit detected. [P2135] Throttle position sensor: output voltage deviation error.</p>		
3-10	<p>[For P0122/P0123] Short circuit Between throttle position sensor output terminal (white) "a" of ECU coupler and any other ECU coupler terminal "b". If there is continuity, replace the wire harness.</p>	  	<p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-11	<p>[For P0222/P0223] Short circuit Between throttle position sensor output terminal (black) "a" of ECU coupler and any other ECU coupler terminal "b". If there is continuity, replace the wire harness.</p>	  	<p>A. XP530E-A B. XP530-A C. XP530D-A</p>
4	<p>Installed condition of throttle position sensor.</p>	<p>Check for looseness or pinching. Improperly installed sensor → Reinstall or adjust the sensor. Refer to "ADJUSTING THE THROTTLE POSITION SENSOR" on page 7-13.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 5.</p>

FUEL INJECTION SYSTEM

Fault code No.		P0122, P0123, P0222, P0223, P2135	
Item		<p>[P0122] Throttle position sensor: ground short circuit detected. [P0123] Throttle position sensor: open or power short circuit detected. [P0222] Throttle position sensor: ground short circuit detected. [P0223] Throttle position sensor: open or power short circuit detected. [P2135] Throttle position sensor: output voltage deviation error.</p>	
5	Defective throttle position sensor (resistance).	Measure the throttle position sensor resistance. Refer to "CHECKING THE THROTTLE POSITION SENSOR" on page 8-246.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 6.
6	Defective throttle position sensor.	Check throttle position sensor signal 1. Execute the diagnostic mode. (Code No. 01) When the throttle valves are fully closed: A value of 11–20 is indicated. When throttle valves are fully open: A value of 95–106 is indicated. Check throttle position sensor signal 2. Execute the diagnostic mode. (Code No. 13) When the throttle valves are fully closed: A value of 8–22 is indicated. When the throttle valves are fully open: A value of 92–108 is indicated. An indicated value is out of the specified range → Replace the throttle position sensor.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 7.
7	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
8	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

FUEL INJECTION SYSTEM

Fault code No. P0132

Fault code No.	P0132		
Item	O₂ sensor: short circuit detected (power short circuit).		
Fail-safe system	Able to start engine		
	Able to drive vehicle		
Diagnostic code No.	—		
Tool display	—		
Procedure	—		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Installed condition of O ₂ sensor.	Check for looseness or pinching. Improperly installed sensor → Reinstall or replace the sensor.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of O ₂ sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.
3	Connection of wire harness ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.
4	Wire harness continuity.	Open or short circuit → Properly connect or replace the wire harness. Between O ₂ sensor coupler and joint connector. black/blue–black/blue Between joint connector and ECU coupler. black/blue–black/blue Between O ₂ sensor coupler and ECU coupler. gray/green–gray/green	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.

FUEL INJECTION SYSTEM

Fault code No.		P0132	
Item		O₂ sensor: short circuit detected (power short circuit).	
5	Defective O ₂ sensor.	Check the O ₂ sensor. Defective → Replace the O ₂ sensor. Refer to “ENGINE REMOVAL” on page 5-2.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 7 and finish the service. Condition is “Detected” → Go to item 6.
6	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0201

Fault code No.		P0201	
Item		Fuel injector #1: malfunction in fuel injector #1.	
Fail-safe system		Able to start engine (depending on the number of faulty cylinders)	
		Able to drive vehicle (depending on the number of faulty cylinders)	
Diagnostic code No.		36	
Actuation		Actuates fuel injector #1 five times at one-second intervals. The “check” indicator on the Yamaha diagnostic tool screen comes on each time the fuel injector is actuated.	
Procedure		Disconnect the fuel pump coupler. Check that fuel injector #1 is actuated five times by listening for the operating sound.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of fuel injector #1 coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 36) Operating sound → Go to item 6. No operating sound → Go to item 2.
2	Defective fuel injector #1.	Measure the fuel injector resistance. Replace if out of specification. Refer to “CHECKING THE FUEL INJECTOR” on page 8-249.	Execute the diagnostic mode. (Code No. 36) Operating sound → Go to item 6. No operating sound → Go to item 3.

FUEL INJECTION SYSTEM

Fault code No.		P0201	
Item		Fuel injector #1: malfunction in fuel injector #1.	
3	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 36) Operating sound → Go to item 6. No operating sound → Go to item 4.
4	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between fuel injector coupler and ECU coupler. red/black–red/black Between fuel injector coupler and starting circuit cut-off relay coupler. red/blue–red/blue	Execute the diagnostic mode. (Code No. 36) Operating sound → Go to item 6. No operating sound → Go to item 5.
5	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	
6	Delete the fault code and check that the engine trouble warning light goes off.	Start the engine and let it idle for approximately 5 seconds. Confirm that the fault code has a condition of “Recovered” using the malfunction mode of the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0202

Fault code No.		P0202	
Item		Fuel injector #2: malfunction in fuel injector #2.	
Fail-safe system		Able to start engine (depending on the number of faulty cylinders)	
		Able to drive vehicle (depending on the number of faulty cylinders)	
Diagnostic code No.		37	
Actuation		Actuates fuel injector #2 five times at one-second intervals. The “check” indicator on the Yamaha diagnostic tool screen comes on each time the fuel injector is actuated.	
Procedure		Disconnect the fuel pump coupler. Check that fuel injector #2 is actuated five times by listening for the operating sound.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of fuel injector #2 coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 37) Operating sound → Go to item 6. No operating sound → Go to item 2.

FUEL INJECTION SYSTEM

Fault code No.		P0202	
Item		Fuel injector #2: malfunction in fuel injector #2.	
2	Defective fuel injector #2.	Measure the fuel injector resistance. Replace if out of specification. Refer to "CHECKING THE FUEL INJECTOR" on page 8-249.	Execute the diagnostic mode. (Code No. 37) Operating sound → Go to item 6. No operating sound → Go to item 3.
3	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 37) Operating sound → Go to item 6. No operating sound → Go to item 4.
4	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between fuel injector coupler and ECU coupler. green/black–green/black Between fuel injector coupler and starting circuit cut-off relay coupler. red/blue–red/blue	Execute the diagnostic mode. (Code No. 37) Operating sound → Go to item 6. No operating sound → Go to item 5.
5	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	
6	Delete the fault code and check that the engine trouble warning light goes off.	Start the engine and let it idle for approximately 5 seconds. Confirm that the fault code has a condition of "Recovered" using the malfunction mode of the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0335

Fault code No.		P0335	
Item		Crankshaft position sensor: no normal signals are received from the crankshaft position sensor.	
Fail-safe system		Unable to start engine	
		Unable to drive vehicle	
Diagnostic code No.		—	
Tool display		—	
Procedure		—	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion

FUEL INJECTION SYSTEM

Fault code No.		P0335	
Item		Crankshaft position sensor: no normal signals are received from the crankshaft position sensor.	
1	Connection of crankshaft position sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Crank the engine, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Crank the engine, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between crankshaft position sensor coupler and ECU coupler. black/yellow–black/yellow Between crankshaft position sensor coupler and joint connector. black/blue–black/blue Between joint connector and ECU coupler. black/blue–black/blue	Crank the engine, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.
4	Installed condition of crankshaft position sensor. Check for looseness or pinching. Check the gap between the crankshaft position sensor and the generator rotor.	Improperly installed sensor → Reinstall or replace the sensor. Refer to "GENERATOR AND STARTER CLUTCH" on page 5-44.	Crank the engine, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.
5	Defective crankshaft position sensor.	Check the crankshaft position sensor. Refer to "CHECKING THE CRANKSHAFT POSITION SENSOR" on page 8-242. Replace if defective.	Crank the engine, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.
6	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

FUEL INJECTION SYSTEM

Fault code No. P0351

Fault code No.	P0351		
Item	Ignition coil: open or short circuit detected in the primary lead of the ignition coil.		
Fail-safe system	Able to start engine (depending on the number of faulty cylinders)		
	Able to drive vehicle (depending on the number of faulty cylinders)		
Diagnostic code No.	30		
Actuation	Actuates the ignition coil five times at one-second intervals. The "check" indicator on the Yamaha diagnostic tool screen comes on each time the ignition coil is actuated.		
Procedure	Check that a spark is generated five times. • Connect an ignition checker.		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of ignition coil coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between ignition coil coupler and ECU coupler. orange–orange Between ignition coil coupler and diode switch coupler. red/black–red/black	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.
4	Installed condition of ignition coil.	Check for looseness or pinching. Improperly installed ignition coil → Reinstall or replace the ignition coil.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.

FUEL INJECTION SYSTEM

Fault code No.		P0351	
Item		Ignition coil: open or short circuit detected in the primary lead of the ignition coil.	
5	Defective ignition coil.	Measure the primary coil resistance of the ignition coil. Replace if out of specification. Refer to "CHECKING THE IGNITION COIL" on page 8-241.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.
6	Malfunction in ECU.	Execute the diagnostic mode. (Code No. 30) No spark → Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0500

Fault code No.		P0500	
Item		Rear wheel sensor: no normal signals are received from the rear wheel sensor.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		07	
Tool display		Rear wheel speed pulse 0-999	
Procedure		Check that the number increases when the rear wheel is rotated. The number is cumulative and does not reset each time the wheel is stopped.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of rear wheel sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 07) Rotate the rear wheel by hand and check that the indicated value increases. Value increases → Go to item 7. Value does not increase → Go to item 2.
2	Connection of ABS ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 07) Rotate the rear wheel by hand and check that the indicated value increases. Value increases → Go to item 7. Value does not increase → Go to item 3.

FUEL INJECTION SYSTEM

Fault code No.		P0500	
Item		Rear wheel sensor: no normal signals are received from the rear wheel sensor.	
3	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 07) Rotate the rear wheel by hand and check that the indicated value increases. Value increases → Go to item 7. Value does not increase → Go to item 4.
4	Rear wheel sensor lead continuity, or defective rear wheel sensor.	Open or short circuit, or defective sensor → Replace the rear wheel sensor. Between rear wheel sensor coupler and ABS ECU coupler. black–black white–white Between ABS ECU coupler and ECU coupler. white/green–white/green	Execute the diagnostic mode. (Code No. 07) Rotate the rear wheel by hand and check that the indicated value increases. Value increases → Go to item 7. Value does not increase → Go to item 5.
5	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Execute the diagnostic mode. (Code No. 07) Rotate the rear wheel by hand and check that the indicated value increases. Value increases → Go to item 7. Value does not increase → Go to item 6.
6	Malfunction in ABS ECU.	Replace the ABS ECU.	Go to item 7.
7	Delete the fault code and check that the engine trouble warning light goes off.	Push the ON/start switch, and then rotate the rear wheel by hand. Start the engine, and input the vehicle speed signals by operating the vehicle at 20 to 30 km/h (12 to 19 mph). Confirm that the fault code has a condition of “Recovered” using the malfunction mode of the Yamaha diagnostic tool, and then delete the fault code. Delete this fault code even if it has a condition of “Detected”.	

FUEL INJECTION SYSTEM

Fault code No. P0507

TIP

- If fault code numbers “P0507” and “P0560” are both indicated, take the actions specified for fault code number “P0560” first.
- If fault code numbers “P0507” and “P0638” are both indicated, take the actions specified for fault code number “P0638” first.
- If fault code numbers “P0507” and “P0500” are both indicated, take the actions specified for fault code number “P0500” first.

Fault code No.	P0507		
Item	Engine idling speed is too high.		
Fail-safe system	Able to start engine		
	Able to drive vehicle		
Diagnostic code No.	67		
Tool display	—		
Procedure	—		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Intake system abnormal (intake of secondary air supply).	Check the throttle bodies. Replace if defective. Refer to “THROTTLE BODY” on page 7-5.	Start the engine and let it idle for approximately 5 minutes. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 4 and finish the service. Condition is “Detected” → Go to item 2.
2	ISC learning overcompensated.	Check the intake system and clean the throttle body. Refer to “CHECKING AND CLEANING THE THROTTLE BODIES” on page 7-9. Execute the diagnostic mode. (Code No. 67) Execute clearing of the ISC learning data.	Start the engine and let it idle for approximately 5 minutes. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 4 and finish the service. Condition is “Detected” → Go to item 3.
3	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Service is finished.
4	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.	

FUEL INJECTION SYSTEM

Fault code No. P0560

Fault code No.		P0560	
Item		Charging voltage is abnormal.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		—	
Tool display		—	
Procedure		—	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Malfunction in charging system.	Check the charging system. Refer to "CHARGING SYSTEM" on page 8-19. Defective rectifier/regulator or AC magneto → Replace. Defective connection in the charging system circuit → Properly connect or replace the wire harness.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 2 and finish the service. Condition is "Detected" → Repeat item 1.
2	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0601, P0606

Fault code No.		P0601, P0606	
Item		Internal malfunction in ECU. (When this malfunction is detected in the ECU, the fault code number might not appear on the tool display.)	
Fail-safe system		Able/Unable to start engine	
		Able/Unable to drive vehicle	
Diagnostic code No.		—	
Tool display		—	
Procedure		—	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Push the ON/start switch. Check that the engine trouble warning light does not come on.

FUEL INJECTION SYSTEM

Fault code No. P062F

Fault code No.	P062F		
Item	EEPROM fault code number: an error is detected while reading or writing on EEPROM.		
Fail-safe system	Able/Unable to start engine		
	Able/Unable to drive vehicle		
Diagnostic code No.	60		
Tool display	00 • No malfunctions detected (If the self-diagnosis fault code P062F is indicated, the ECU is defective.) 01, 02 (CO adjustment value) • (If more than one cylinder is defective, the display alternates every two seconds to show all the detected cylinder numbers. When all cylinder numbers are shown, the display repeats the same process.) 11 (Data error for ISC (idle speed control) learning values) 12 (O ₂ feedback learning value) 13 (OBD memory value)		
Procedure	—		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Locate the malfunction.	Execute the diagnostic mode. (Code No. 60) 00: Go to item 5. 01: Go to item 2. 02: Go to item 3. 11–13: Go to item 4.	
2	“01” is indicated in diagnostic mode. (Code No. 60) EEPROM data error for adjustment of CO concentration of cylinder #1.	Change the CO concentration of cylinder #1, and rewrite in EEPROM. Refer to “ADJUSTING THE EXHAUST GAS VOLUME” on page 3-12. After this adjustment is made, push the OFF/LOCK switch.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Repeat item 1. If the same number is indicated, go to item 5.
3	“02” is indicated in diagnostic mode. (Code No. 60) EEPROM data error for adjustment of CO concentration of cylinder #2.	Change the CO concentration of cylinder #2, and rewrite in EEPROM. Refer to “ADJUSTING THE EXHAUST GAS VOLUME” on page 3-12. After this adjustment is made, push the OFF/LOCK switch.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Repeat item 1. If the same number is indicated, go to item 5.

FUEL INJECTION SYSTEM

Fault code No.		P062F	
Item		EEPROM fault code number: an error is detected while reading or writing on EEPROM.	
4	<p>“11” is indicated in diagnostic mode. (Code No. 60) EEPROM data error for ISC (idle speed control) learning values.</p> <p>“12” is indicated in the diagnostic mode. (Code No. 60) EEPROM data error for O₂ feedback learning values.</p> <p>“13” is indicated in the diagnostic mode. (Code No. 60) EEPROM data error for OBD memory values.</p>	Push the OFF/LOCK switch.	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Repeat item 1. If the same number is indicated, go to item 5.</p>
5	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Service is finished.
6	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0638

Fault code No.		P0638	
Item		YCC-T drive system: malfunction detected.	
Fail-safe system		Able/Unable to start engine	
		Able/Unable to drive vehicle	
Diagnostic code No.		—	
Tool display		—	
Procedure		—	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	<p>Connection of throttle servo motor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).</p>	Improperly connected → Connect the coupler securely or replace the wire harness.	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is “Recovered” → Go to item 8 and finish the service. Condition is “Detected” → Go to item 2.</p>
2	<p>Connection of wire harness ECU coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).</p>	Improperly connected → Connect the coupler securely or replace the wire harness.	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is “Recovered” → Go to item 8 and finish the service. Condition is “Detected” → Go to item 3.</p>

FUEL INJECTION SYSTEM

Fault code No.		P0638	
Item		YCC-T drive system: malfunction detected.	
3	Check the electronic throttle valve fuse.	Abnormality → Replace the electronic throttle valve fuse.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 4.
4	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between throttle servo motor coupler and ECU coupler. yellow/red–yellow/red yellow/red–yellow/red Between ECU coupler and fuse box (electronic throttle valve fuse). red/blue–red/blue	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 5.
5	Defective throttle servo motor.	Check the throttle servo motor. Replace the throttle bodies if defective. Refer to "CHECKING THE THROTTLE SERVO MOTOR" on page 8-247.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 6.
6	Defective throttle bodies.	Check the throttle bodies. Replace if defective. Refer to "CHECKING THE THROTTLE SERVO MOTOR" on page 8-247.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 7.
7	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU" on page 8-211.	Service is finished.
8	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

FUEL INJECTION SYSTEM

Fault code No. P0657

Fault code No.		P0657	
Item		Fuel system voltage: incorrect voltage supplied to the fuel injector and fuel pump.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		09, 50	
09	Tool display	Fuel system voltage (battery voltage) Approximately 12.0	
	Procedure	Set the engine stop switch to "○", and then compare the actually measured battery voltage with the tool display value. (If the actually measured battery voltage is low, recharge the battery.)	
50	Actuation	Actuates the starting circuit cut-off relay five times at one-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the relay is actuated.	
	Procedure	Check that the starting circuit cut-off relay is actuated five times by listening for the operating sound.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of fuel injection system relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Start the engine and let it idle for approximately 5 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.

FUEL INJECTION SYSTEM

Fault code No.		P0657	
Item		Fuel system voltage: incorrect voltage supplied to the fuel injector and fuel pump.	
3	Wire harness continuity.	<p>Open or short circuit → Replace the wire harness.</p> <p>Between starter relay and ignition system relay coupler. red-red</p> <p>Between ignition system relay coupler and remote control unit coupler. yellow/blue-yellow/blue</p> <p>Between ignition system relay coupler and ignition fuse. brown/blue-brown/blue</p> <p>Between ignition fuse and handlebar switch (right) coupler. red/white-red/white</p> <p>Between handlebar switch (right) coupler and fuel injection system relay coupler. red/black-red/black</p> <p>Between starter relay and fuel injection system fuse. red-red</p> <p>Between fuel injection system fuse and fuel injection system relay coupler. red-red</p> <p>Between fuel injection system relay coupler and ECU coupler. red/blue-red/blue</p> <p>blue/yellow-blue/yellow</p>	<p>Start the engine and let it idle for approximately 5 seconds.</p> <p>Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is "Recovered" → Go to item 7 and finish the service.</p> <p>Condition is "Detected" → Go to item 4.</p>
4	Defective fuel injection system relay.	<p>Execute the diagnostic mode. (Code No. 50)</p> <p>No operating sound → Replace the fuel injection system relay and ignition system relay.</p>	<p>Start the engine and let it idle for approximately 5 seconds.</p> <p>Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is "Recovered" → Go to item 7 and finish the service.</p> <p>Condition is "Detected" → Go to item 5.</p>
5	Defective fuel injection system relay.	<p>Execute the diagnostic mode. (Code No. 09)</p> <p>Fuel system voltage is below 3 V → Replace the fuel injection system relay and ignition system relay.</p>	<p>Start the engine and let it idle for approximately 5 seconds.</p> <p>Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is "Recovered" → Go to item 7 and finish the service.</p> <p>Condition is "Detected" → Go to item 6.</p>
6	Malfunction in ECU.	<p>Replace the ECU.</p> <p>Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.</p>	<p>Service is finished.</p>
7	Delete the fault code and check that the engine trouble warning light goes off.	<p>Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.</p>	

FUEL INJECTION SYSTEM

Fault code No. P1601

Fault code No.	P1601		
Item	Sidestand switch: open or short circuit of the light green lead of the ECU is detected.		
Fail-safe system	Unable to start engine		
	Unable to drive vehicle		
Diagnostic code No.	20		
Tool display	Sidestand switch <ul style="list-style-type: none"> • "ON" (sidestand retracted) • "OFF" (sidestand extended) 		
Procedure	Extend and retract the sidestand (with the transmission in gear).		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of sidestand switch coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then extend and retract the sidestand. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then extend and retract the sidestand. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.
3	Connection of sidestand switch coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then extend and retract the sidestand. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.
4	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between sidestand switch coupler and ECU coupler. light green–light green Between sidestand switch coupler and ground. black–black	Push the ON/start switch, and then extend and retract the sidestand. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.

FUEL INJECTION SYSTEM

Fault code No.		P1601	
Item		Sidestand switch: open or short circuit of the light green lead of the ECU is detected.	
5	Defective sidestand switch.	Execute the diagnostic mode. (Code No. 20) Sidestand retracted: "ON" Sidestand extended: "OFF" Replace if defective.	Push the ON/start switch, and then extend and retract the sidestand. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.
6	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P1602

Fault code No.		P1602	
Item		Malfunction in ECU internal circuit (malfunction of ECU power cut-off function).	
Fail-safe system		Able/Unable to start engine	
		Able/Unable to drive vehicle	
Diagnostic code No.		—	
Tool display		—	
Procedure		—	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Installed condition of battery leads. Check the installed condition of the battery and battery leads (loose bolts).	Improperly installed battery or battery leads → Reinstall or replace the battery leads.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of starter relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.

FUEL INJECTION SYSTEM

Fault code No.		P1602	
Item		Malfunction in ECU internal circuit (malfunction of ECU power cut-off function).	
3	Check the main fuse.	Blown fuse → Replace the fuse.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 4.
4	Wire harness continuity between starter relay and ECU coupler.	Open or short circuit → Replace the wire harness. Between starter relay and ECU coupler. red-red	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.
5	Wire harness continuity between starter relay and battery.	Open or short circuit → Replace the wire harness. Between starter relay and battery. red-red	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.
6	Malfunction in ECU.	Replace the ECU.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

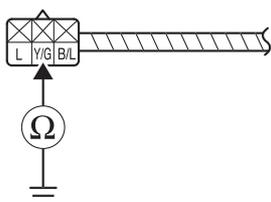
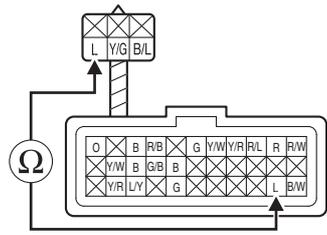
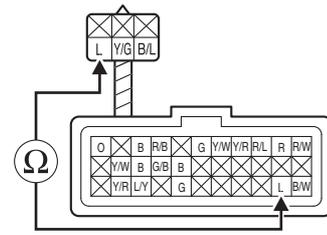
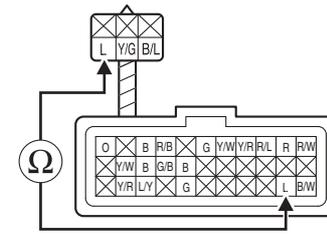
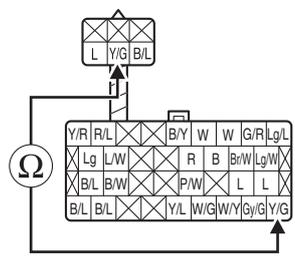
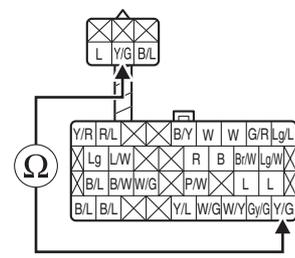
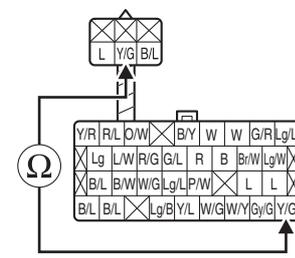
Fault code No. P1604, P1605

Fault code No.		P1604, P1605	
Item		[P1604] Lean angle sensor: ground short circuit detected. [P1605] Lean angle sensor: open or power short circuit.	
Fail-safe system		Unable to start engine	
		Unable to drive vehicle	
Diagnostic code No.		08	
Tool display		Lean angle sensor output voltage • 0.4–1.4 (upright) • 3.7–4.4 (overturned)	
Procedure		Remove the lean angle sensor and incline it more than 65 degrees.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion

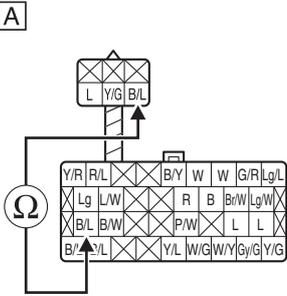
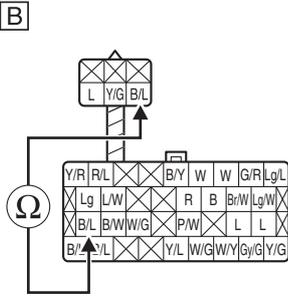
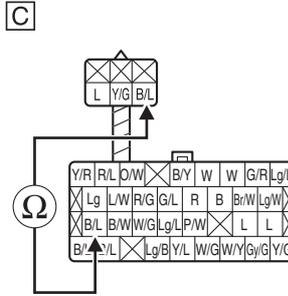
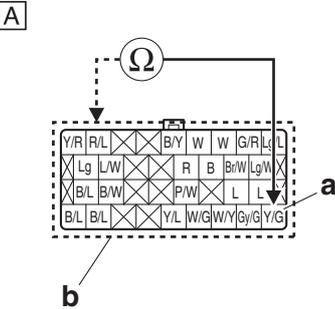
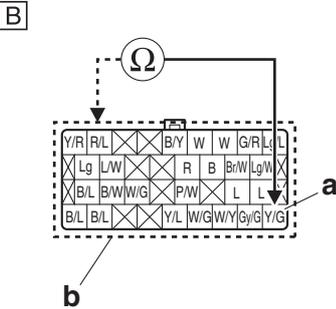
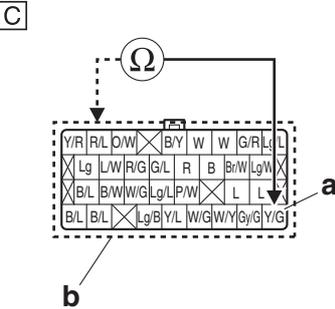
FUEL INJECTION SYSTEM

Fault code No.		P1604, P1605	
Item		[P1604] Lean angle sensor: ground short circuit detected. [P1605] Lean angle sensor: open or power short circuit.	
1	Connection of lean angle sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, then to "OFF", and then back to "ON". Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, then to "OFF", and then back to "ON". Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness.	Push the ON/start switch, then to "OFF", and then back to "ON". Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 6 and finish the service. Condition is "Detected" → Go to item 4.
3-1	<p>1. Lean angle sensor 2. ECU 3. Sensor input lead 4. Sensor output lead 5. Sensor ground lead</p>		
3-2	Disconnect the ECU coupler from the ECU. Disconnect the lean angle sensor coupler from the lean angle sensor.		

FUEL INJECTION SYSTEM

Fault code No.	P1604, P1605
Item	<p>[P1604] Lean angle sensor: ground short circuit detected.</p> <p>[P1605] Lean angle sensor: open or power short circuit.</p>
3-3	<p>[For P1604] Ground short circuit Between lean angle sensor coupler and ground: yellow/green–ground If there is continuity, replace the wire harness.</p> 
3-4	<p>[For P1605] Open circuit Between lean angle sensor coupler and ECU coupler: blue–blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div> <p>A</p>  </div> <div> <p>B</p>  </div> <div> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-5	<p>[For P1605] Open circuit Between lean angle sensor coupler and ECU coupler: yellow/green–yellow/green If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div> <p>A</p>  </div> <div> <p>B</p>  </div> <div> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>

FUEL INJECTION SYSTEM

Fault code No.	P1604, P1605		
Item	[P1604] Lean angle sensor: ground short circuit detected. [P1605] Lean angle sensor: open or power short circuit.		
3-6	<p>[For P1605] Open circuit Between lean angle sensor coupler and ECU coupler: black/blue–black/blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>		
3-7	Disconnect the couplers from the parts that are connected to the ECU. Refer to “Parts connected to the ECU” on page 8-63.		
3-8	<p>[For P1604/P1605] Short circuit Between lean angle sensor output terminal (yellow/green) “a” of ECU coupler and any other ECU coupler terminal “b”. If there is continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>		
4	Defective lean angle sensor.	Refer to “CHECKING THE LEAN ANGLE SENSOR” on page 8-242.	Push the ON/start switch, then to “OFF”, and then back to “ON”. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Go to item 5.
5	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Service is finished.

FUEL INJECTION SYSTEM

Fault code No.		P1604, P1605	
Item		[P1604] Lean angle sensor: ground short circuit detected. [P1605] Lean angle sensor: open or power short circuit.	
6	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

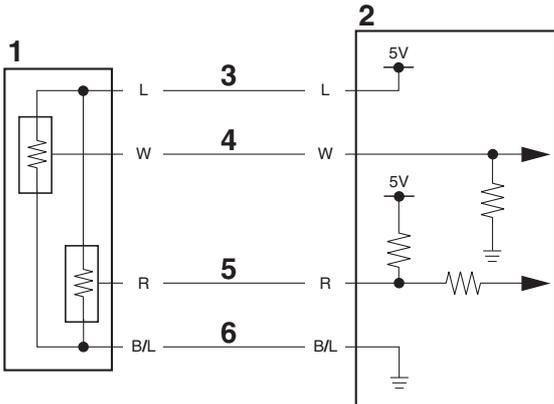
Fault code No. P2122, P2123, P2127, P2128, P2138

TIP

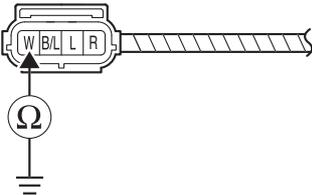
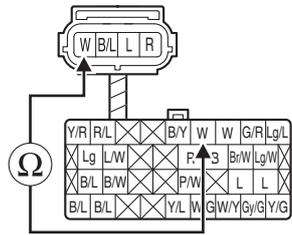
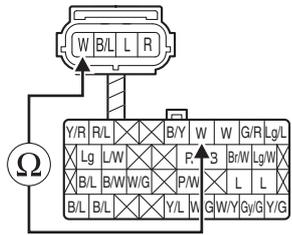
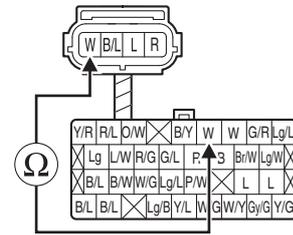
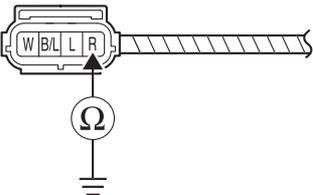
If a fault code other than No. "P2138" ("P2122, P2123, P2127, P2128") is detected, perform troubleshooting first.

Fault code No.		P2122, P2123, P2127, P2128, P2138	
Item		[P2122] Accelerator position sensor: open or ground short circuit detected. [P2123] Accelerator position sensor: power short circuit detected. [P2127] Accelerator position sensor: ground short circuit detected. [P2128] Accelerator position sensor: open or power short circuit detected. [P2138] Accelerator position sensor: output voltage deviation error.	
Fail-safe system		Able/Unable to start engine	
		Able/Unable to drive vehicle	
Diagnostic code No.		14, 15	
14	Tool display	Accelerator position sensor signal 1 • 11–20 (fully closed position) • 95–106 (fully open position)	
	Procedure	<ul style="list-style-type: none"> • Check with throttle grip in fully closed position. • Check with throttle grip in fully open position. 	
15	Tool display	Accelerator position sensor signal 2 • 9–23 (fully closed position) • 93–109 (fully open position)	
	Procedure	<ul style="list-style-type: none"> • Check with throttle grip in fully closed position. • Check with throttle grip in fully open position. 	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of accelerator position sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 3.

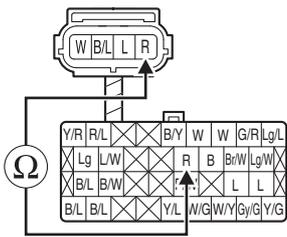
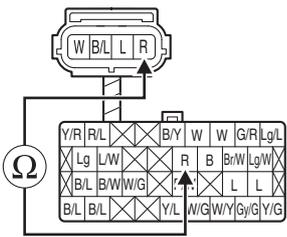
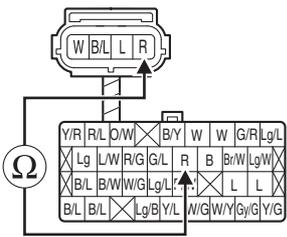
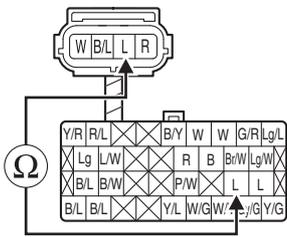
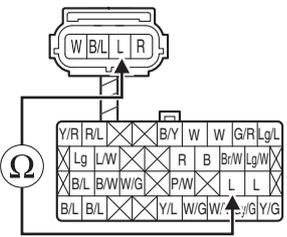
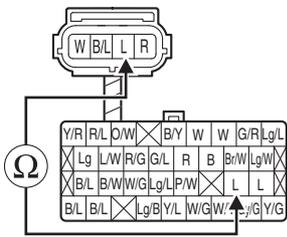
FUEL INJECTION SYSTEM

Fault code No.	P2122, P2123, P2127, P2128, P2138		
Item	<p>[P2122] Accelerator position sensor: open or ground short circuit detected.</p> <p>[P2123] Accelerator position sensor: power short circuit detected.</p> <p>[P2127] Accelerator position sensor: ground short circuit detected.</p> <p>[P2128] Accelerator position sensor: open or power short circuit detected.</p> <p>[P2138] Accelerator position sensor: output voltage deviation error.</p>		
3	Wire harness continuity.	Open or short circuit → Replace the wire harness.	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is "Recovered" → Go to item 7 and finish the service.</p> <p>Condition is "Detected" → Go to item 4.</p>
3-1	<div style="text-align: center;">  </div> <p>1. Accelerator position sensor 2. ECU 3. Sensor input lead 4. Sensor output lead 1 5. Sensor output lead 2 6. Sensor ground lead</p>		
3-2	<p>Disconnect the ECU coupler from the ECU.</p> <p>Disconnect the accelerator position sensor coupler from the accelerator position sensor.</p>		

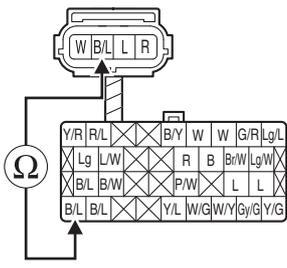
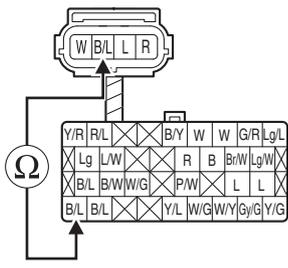
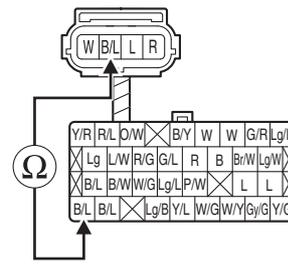
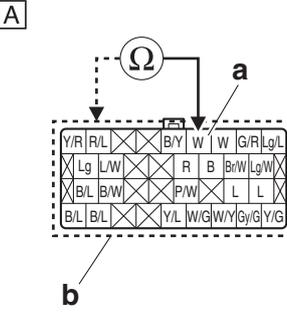
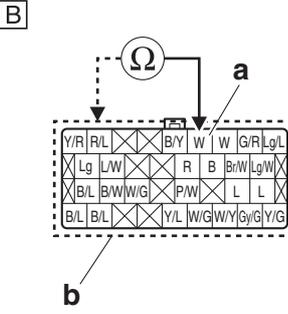
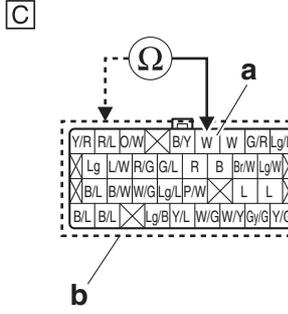
FUEL INJECTION SYSTEM

Fault code No.	P2122, P2123, P2127, P2128, P2138
Item	<p>[P2122] Accelerator position sensor: open or ground short circuit detected.</p> <p>[P2123] Accelerator position sensor: power short circuit detected.</p> <p>[P2127] Accelerator position sensor: ground short circuit detected.</p> <p>[P2128] Accelerator position sensor: open or power short circuit detected.</p> <p>[P2138] Accelerator position sensor: output voltage deviation error.</p>
3-3	<p>[For P2122] Ground short circuit Between accelerator position sensor coupler and ground: white-ground If there is continuity, replace the wire harness.</p> 
3-4	<p>[For P2122] Open circuit Between accelerator position sensor coupler and ECU coupler: white-white If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div> <p>A</p>  </div> <div> <p>B</p>  </div> <div> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-5	<p>[For P2127] Ground short circuit Between accelerator position sensor coupler and ground: red-ground If there is continuity, replace the wire harness.</p> 

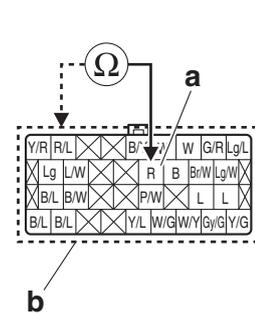
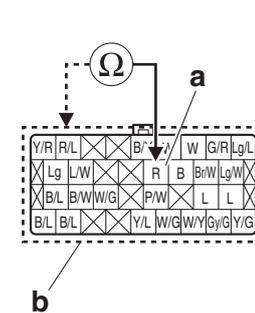
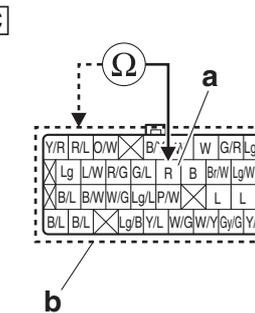
FUEL INJECTION SYSTEM

Fault code No.	P2122, P2123, P2127, P2128, P2138
Item	<p>[P2122] Accelerator position sensor: open or ground short circuit detected. [P2123] Accelerator position sensor: power short circuit detected. [P2127] Accelerator position sensor: ground short circuit detected. [P2128] Accelerator position sensor: open or power short circuit detected. [P2138] Accelerator position sensor: output voltage deviation error.</p>
<p>3-6</p>	<p>[For P2128] Open circuit Between accelerator position sensor coupler and ECU coupler: red-red If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
<p>3-7</p>	<p>[For P2122/P2128] Open circuit Between accelerator position sensor coupler and ECU coupler: blue-blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>

FUEL INJECTION SYSTEM

Fault code No.	P2122, P2123, P2127, P2128, P2138
Item	<p>[P2122] Accelerator position sensor: open or ground short circuit detected.</p> <p>[P2123] Accelerator position sensor: power short circuit detected.</p> <p>[P2127] Accelerator position sensor: ground short circuit detected.</p> <p>[P2128] Accelerator position sensor: open or power short circuit detected.</p> <p>[P2138] Accelerator position sensor: output voltage deviation error.</p>
3-8	<p>[For P2122/P2128] Open circuit Between accelerator position sensor coupler and ECU coupler: black/blue–black/blue If there is no continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>
3-9	<p>Disconnect the couplers from the parts that are connected to the ECU. Refer to “Parts connected to the ECU” on page 8-63.</p>
3-10	<p>[For P2122/P2123] Short circuit Between accelerator position sensor output terminal (white) “a” of ECU coupler and any other ECU coupler terminal “b”. If there is continuity, replace the wire harness.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>

FUEL INJECTION SYSTEM

Fault code No.	P2122, P2123, P2127, P2128, P2138		
Item	<p>[P2122] Accelerator position sensor: open or ground short circuit detected. [P2123] Accelerator position sensor: power short circuit detected. [P2127] Accelerator position sensor: ground short circuit detected. [P2128] Accelerator position sensor: open or power short circuit detected. [P2138] Accelerator position sensor: output voltage deviation error.</p>		
3-11	<p>[For P2127/P2128] Short circuit Between accelerator position sensor output terminal (red) "a" of ECU coupler and any other ECU coupler terminal "b". If there is continuity, replace the wire harness.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> </div> <p>A. XP530E-A B. XP530-A C. XP530D-A</p>	
4	<p>Installed condition of accelerator position sensor.</p>	<p>Check for looseness or pinching. Improperly installed sensor → Reinstall or adjust the sensor. Refer to "ADJUSTING THE THROTTLE POSITION SENSOR" on page 7-13.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 5.</p>
5	<p>Defective accelerator position sensor.</p>	<p>Check accelerator position sensor signal 1. Execute the diagnostic mode. (Code No. 14) When the throttle grip is fully closed: A value of 11–20 is indicated. When the throttle grip is fully open: A value of 95–106 is indicated.</p> <p>Check accelerator position sensor signal 2. Execute the diagnostic mode. (Code No. 15) When the throttle grip is fully closed: A value of 9–23 is indicated. When the throttle grip is fully open: A value of 93–109 is indicated.</p> <p>An indicated value is out of the specified range → Replace the accelerator position sensor.</p>	<p>Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 7 and finish the service. Condition is "Detected" → Go to item 6.</p>

FUEL INJECTION SYSTEM

Fault code No.		P2122, P2123, P2127, P2128, P2138	
Item		<p>[P2122] Accelerator position sensor: open or ground short circuit detected. [P2123] Accelerator position sensor: power short circuit detected. [P2127] Accelerator position sensor: ground short circuit detected. [P2128] Accelerator position sensor: open or power short circuit detected. [P2138] Accelerator position sensor: output voltage deviation error.</p>	
6	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.
7	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P2158

Fault code No.		P2158	
Item		Front wheel sensor: no normal signals are received from the front wheel sensor.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		16	
Tool display		Front wheel speed pulse 0-999	
Procedure		Check that the number increases when the front wheel is rotated. The number is cumulative and does not reset each time the wheel is stopped.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of front wheel sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 16) Rotate the front wheel by hand and check that the indicated value increases. Value increases → Go to item 7 and finish the service. Value does not increase → Go to item 2.
2	Connection of ABS ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 16) Rotate the front wheel by hand and check that the indicated value increases. Value increases → Go to item 7 and finish the service. Value does not increase → Go to item 3.

FUEL INJECTION SYSTEM

Fault code No.		P2158	
Item		Front wheel sensor: no normal signals are received from the front wheel sensor.	
3	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Execute the diagnostic mode. (Code No. 16) Rotate the front wheel by hand and check that the indicated value increases. Value increases → Go to item 7 and finish the service. Value does not increase → Go to item 4.
4	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between front wheel sensor coupler and ABS ECU coupler. black–black white–white Between ABS ECU coupler and ECU coupler. white/yellow–white/yellow	Execute the diagnostic mode. (Code No. 16) Rotate the front wheel by hand and check that the indicated value increases. Value increases → Go to item 7 and finish the service. Value does not increase → Go to item 5.
5	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Execute the diagnostic mode. (Code No. 16) Rotate the front wheel by hand and check that the indicated value increases. Value increases → Go to item 7 and finish the service. Value does not increase → Go to item 6.
6	Malfunction in ABS ECU.	Replace the ABS ECU.	Go to item 7.
7	Delete the fault code and check that the engine trouble warning light goes off.	Push the ON/start switch, and then rotate the front wheel by hand. Start the engine, and input the vehicle speed signals by operating the vehicle at 20 to 30 km/h (12 to 19 mph). Confirm that the fault code has a condition of “Recovered” using the malfunction mode of the Yamaha diagnostic tool, and then delete the fault code. Delete this fault code even if it has a condition of “Detected”.	

FUEL INJECTION SYSTEM

Fault code No. P2195

TIP

If fault code numbers "P0657", "P2195" and "P0030", two or more numbers are indicated, take the actions specified for fault code number "P0657", "P0030" and "P2195" in the order.

Fault code No.	P2195		
Item	O₂ sensor: open circuit detected.		
Fail-safe system	Able to start engine		
	Able to drive vehicle		
Diagnostic code No.	—		
Tool display	—		
Procedure	—		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Installed condition of O ₂ sensor.	Check for looseness or pinching. Improperly installed sensor → Reinstall or replace the sensor.	Start the engine and let it idle for approximately 10 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 2. Also, delete this fault code, which has a condition of "Detected".
2	Connection of O ₂ sensor coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Start the engine and let it idle for approximately 10 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 3. Also, delete this fault code, which has a condition of "Detected".
3	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Start the engine and let it idle for approximately 10 seconds. Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item 8 and finish the service. Condition is "Detected" → Go to item 4. Also, delete this fault code, which has a condition of "Detected".

FUEL INJECTION SYSTEM

Fault code No.		P2195	
Item		O ₂ sensor: open circuit detected.	
4	Wire harness continuity.	<p>Open or short circuit → Replace the wire harness.</p> <p>Between O₂ sensor coupler and ECU coupler. gray/green–gray/green pink/black–pink/black</p> <p>Between O₂ sensor coupler and joint connector. black/blue–black/blue</p> <p>Between O₂ sensor coupler and ECU coupler. black–black</p> <p>Between O₂ sensor coupler and joint coupler. red/blue–red/blue</p> <p>Between joint connector and ECU coupler. black/blue–black/blue</p> <p>Between O₂ sensor and fuel injection system relay. red/blue–red/blue</p>	<p>Start the engine and let it idle for approximately 10 seconds.</p> <p>Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is “Recovered” → Go to item 8 and finish the service.</p> <p>Condition is “Detected” → Go to item 5.</p> <p>Also, delete this fault code, which has a condition of “Detected”.</p>
5	Check fuel pressure.	<p>Refer to “CHECKING THE FUEL PRESSURE” on page 7-12.</p>	<p>Start the engine and let it idle for approximately 10 seconds.</p> <p>Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is “Recovered” → Go to item 8 and finish the service.</p> <p>Condition is “Detected” → Go to item 6.</p> <p>Also, delete this fault code, which has a condition of “Detected”.</p>
6	Defective O ₂ sensor.	<p>Check the O₂ sensor.</p> <p>Replace if defective.</p> <p>Refer to “ENGINE REMOVAL” on page 5-2.</p>	<p>Start the engine and let it idle for approximately 10 seconds.</p> <p>Check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool.</p> <p>Condition is “Recovered” → Go to item 8 and finish the service.</p> <p>Condition is “Detected” → Go to item 7.</p> <p>Also, delete this fault code, which has a condition of “Detected”.</p>
7	Malfunction in ECU.	<p>Replace the ECU.</p> <p>Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.</p>	<p>Service is finished.</p>
8	Delete the fault code and check that the engine trouble warning light goes off.	<p>Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.</p>	

FUEL INJECTION SYSTEM

Fault code No. U0155 or “Err”

TIP

“Err” is displayed on the clock display of the multi-function meter, but the engine trouble warning light does not come on.

Fault code No.		U0155 or “Err”	
Item		Multi-function meter: signals cannot be transmitted between the ECU and the multi-function meter.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Connection of meter assembly coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Go to item 2.
2	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Go to item 3.
3	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between meter assembly coupler and joint coupler. light green/blue–light green/blue light green/white–light green/white Between joint coupler and ECU coupler. light green/blue–light green/blue light green/white–light green/white	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Go to item 4.
4	Defective meter assembly.	Replace the meter assembly.	Push the ON/start switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item 6 and finish the service. Condition is “Detected” → Go to item 5.
5	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	Service is finished.
6	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.	

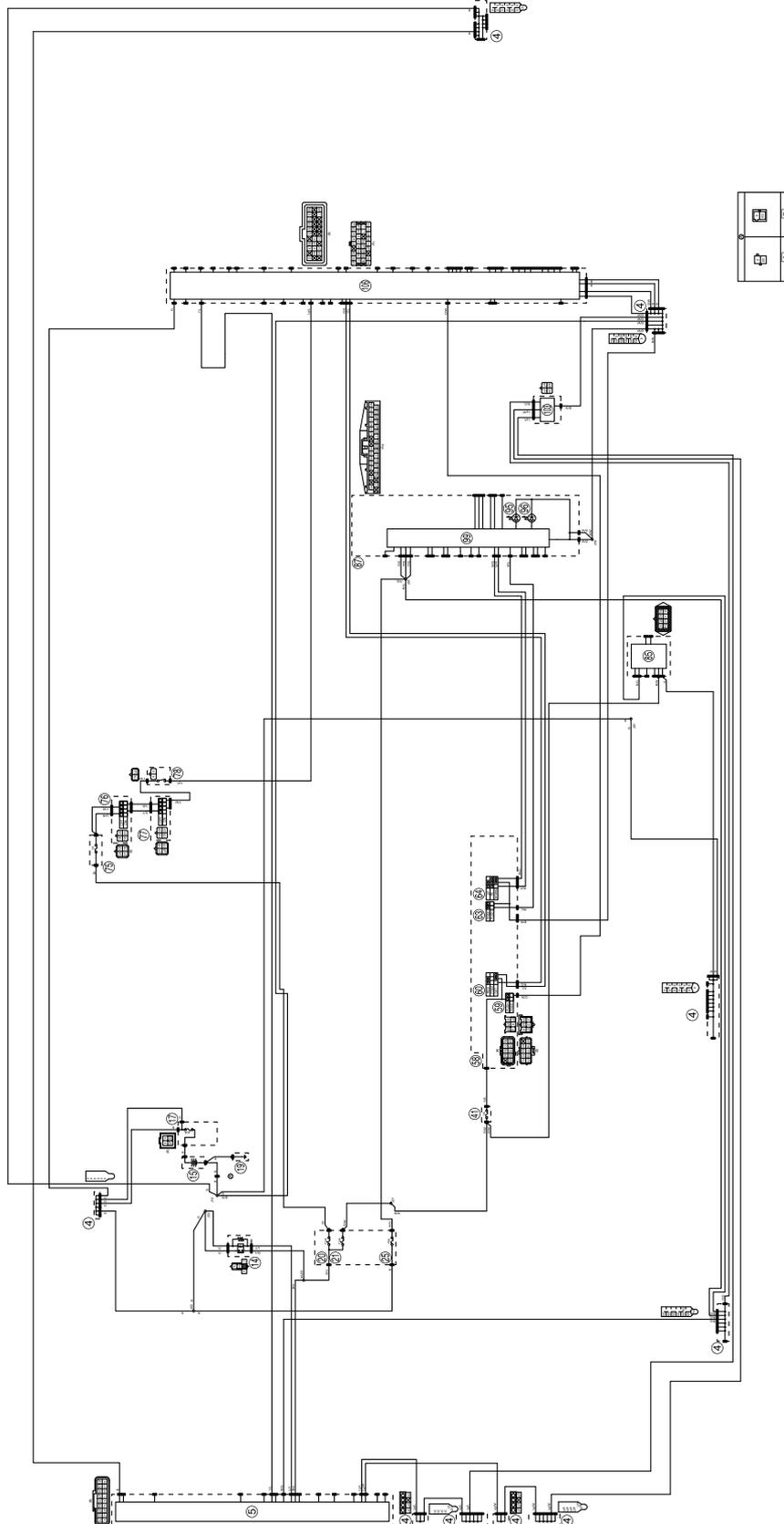
CRUISE CONTROL SYSTEM (for XP530D-A)

EAS20087

CRUISE CONTROL SYSTEM (for XP530D-A)

EAS30544

CIRCUIT DIAGRAM



CRUISE CONTROL SYSTEM (for XP530D-A)

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 25. Backup fuse
 - 41. Cruise control fuse
 - 58. Handlebar switch (left)
 - 59. Cruise control power switch
 - 60. Cruise control setting switch
 - 63. Menu switch
 - 64. Select switch
 - 75. Brake light fuse
 - 76. Front brake light switch
 - 77. Rear brake light switch
 - 78. Grip cancel switch
 - 85. Tracking system control unit
 - 87. Meter assembly
 - 95. Cruise control system indicator light
 - 96. Cruise control setting indicator light
 - 99. Multi-function display
 - 103. Yamaha diagnostic tool coupler
 - 106. ECU (Engine Control Unit)
- A. Wire harness
- B. Negative battery sub-wire harness

CRUISE CONTROL SYSTEM (for XP530D-A)

1. Battery
2. Main fuse
3. Ignition system relay
4. Backup fuse
5. Fuel injection system fuse
6. Signaling system fuse
7. Brake light fuse
8. Ignition fuse
9. Cruise control system fuse
10. Cruise control power switch
11. Cruise control setting switch
12. Front brake light switch
13. Rear brake light switch
14. Grip cancel switch
15. Brake light relay
16. Fuel injection system relay
17. ECU (Engine Control Unit)
18. Multi-function meter
19. Cruise control system indicator light
20. Cruise control setting indicator light

CRUISE CONTROL SYSTEM (for XP530D-A)

EAS30667

BASIC INSTRUCTIONS FOR TROUBLESHOOTING

EWA17420



- Perform the troubleshooting [A]→[B]→[C] in order. Be sure to follow the order since a wrong diagnosis could result if the steps are followed in a different order or omitted.
 - Use sufficiently charged regular batteries only.
-

[A] Malfunction check using the cruise control system indicator light

[B] Use the Yamaha diagnostic tool to determine the cause of the malfunction for the stored fault code from the condition and place where the malfunction occurred.

TIP

For information about using the Yamaha diagnostic tool, refer to “YAMAHA DIAGNOSTIC TOOL” on page 8-62.

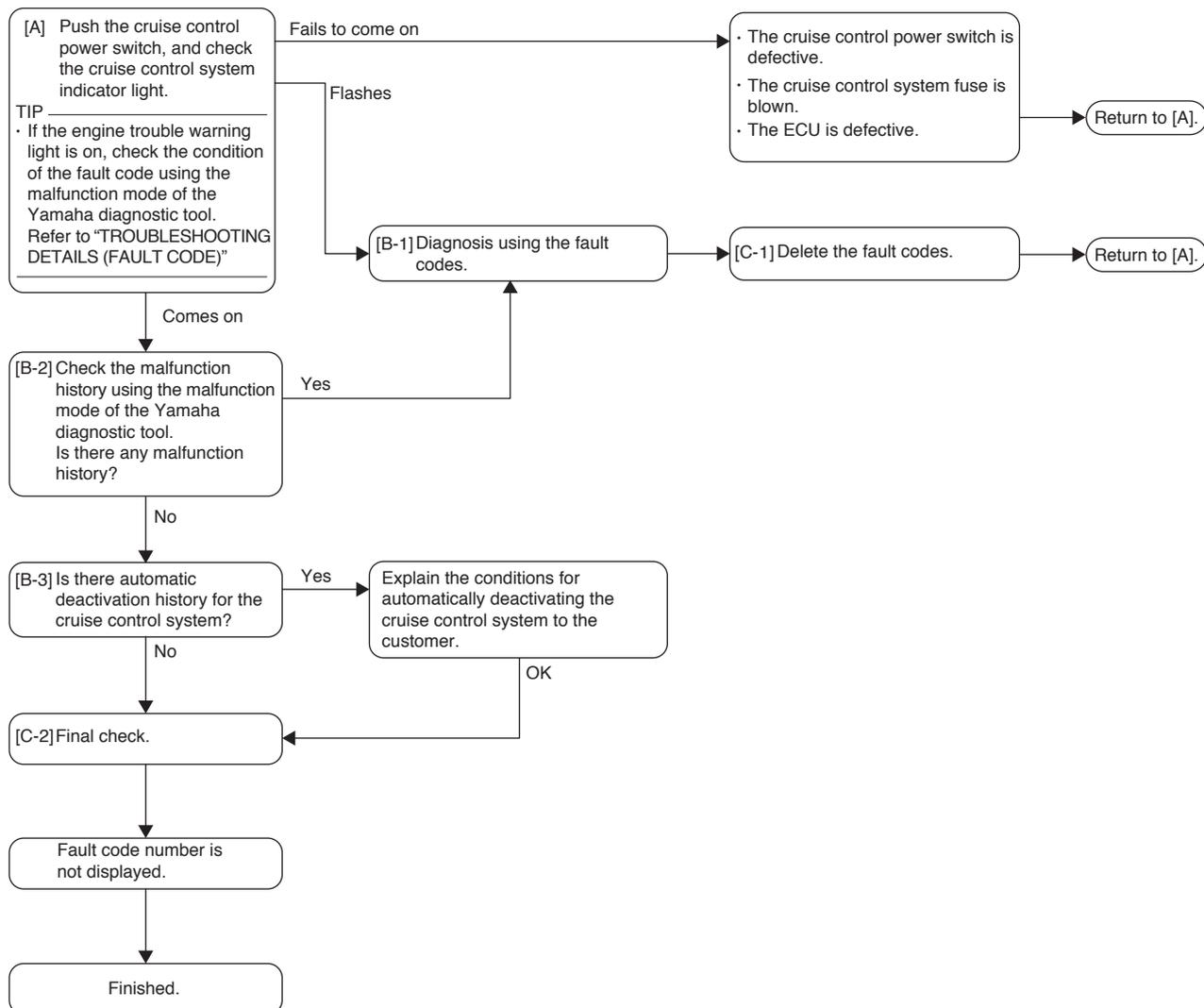
[C] Servicing the cruise control system

Execute the final check after disassembly and assembly.

CRUISE CONTROL SYSTEM (for XP530D-A)

EAS30668

BASIC PROCESS FOR TROUBLESHOOTING



CRUISE CONTROL SYSTEM (for XP530D-A)

EWA17441



When maintenance or checks have been performed on components related to the cruise control system, be sure to perform a final check before delivering the vehicle to the customer.

Refer to “[C-2] FINAL CHECK” on page 8-133.

EAS30669

[A] CHECKING THE CRUISE CONTROL SYSTEM INDICATOR LIGHT

Push the ON/start switch, and then push the cruise control power switch.

1. The cruise control system indicator light does not come on.
 - Check the control power switch for continuity. Refer to “CHECKING THE SWITCHES” on page 8-221. If there is no continuity, replace the handlebar switch (left).
 - Check the fuse for continuity. Refer to “CHECKING THE FUSES” on page 8-229. If the cruise control system fuse is blown, replace the fuse.
 - Check for continuity between the orange/white terminal of the handlebar switch coupler (left) and orange/white terminal of the ECU (engine control unit) coupler. If there is no continuity, the wire harness is defective. Replace the wire harness.
2. The cruise control system indicator light flashes. [B-1]
3. The cruise control system indicator light come on. [B-2]

EAS30670

[B-1] DIAGNOSIS USING THE FAULT CODES

1. Information for the fault codes from the cruise control system is contained in the following table. Refer to this table for troubleshooting.

Fault code table

Fault code No.	Symptom	Check point
P056C	No normal signals from the switch are received by the ECU.	<ul style="list-style-type: none"> • Wire harness (ECU coupler and front or rear brake light switch coupler) • Signaling system fuse and brake light fuses • Connection of the brake light relay coupler • Connection of the ignition system relay coupler • Front brake light switch • Rear brake light switch
P0564	No normal signals from the switch are received by the ECU.	<ul style="list-style-type: none"> • Wire harness (ECU coupler and handlebar switch coupler (left)) • Ignition fuse and cruise control system fuse • Connection of the ignition system relay coupler • Cruise control setting switch

Fault code No. P056C

Fault code No.	P056C		
Item	A	Front brake light switch: open or short circuit is detected.	
	B	Rear brake light switch: open or short circuit is detected.	
Fail-safe system	Able to start engine		
	Able to drive vehicle		
Diagnostic code No.	82, 83		
Tool display	“ON” (when the brakes are applied) “OFF” (when the brakes are not applied)		
Procedure	Operate the brake lever.		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P056C	
Item		A	Front brake light switch: open or short circuit is detected.
		B	Rear brake light switch: open or short circuit is detected.
A-1	Locate the malfunction.	Execute the diagnostic mode. (Code No. 82, 83) When the front brake is applied: "ON" When the front brake is not applied: "OFF" When the rear brake is applied: "ON" When the rear brake is not applied: "OFF"	Malfunction → Go to item A-2. Malfunction → Go to item B-2 for the rear brake light switch.
A-2	Connection of front brake light switch coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-3.
A-3	Connection of brake light relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-4.
A-4	Connection of ignition system relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-5.
A-5	Connection of wire harness ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-6.

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P056C	
Item		A	Front brake light switch: open or short circuit is detected.
		B	Rear brake light switch: open or short circuit is detected.
A-6	Check the fuse. (signaling system fuse, brake light fuse)	Abnormality → Replace the fuse. (signaling system fuse, brake light fuse)	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-7.
A-7	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between battery and ignition system relay coupler. red-red Between ignition system relay coupler and fuse box. brown/blue-brown/blue Between fuse box and front brake light switch. brown-green/white Between front brake light switch coupler and brake light relay coupler. green/yellow-light green/black Between brake light relay coupler and ECU coupler. light green/black-light green/black Between brake light relay coupler and battery. black-black	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-8.
A-8	Defective front brake light switch.	Replace the front brake light switch.	Push the ON/start switch. Operate the front brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-10 and finish the service. Condition is "Detected" → Go to item A-9.
A-9	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	
A-10	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P056C	
Item	A	Front brake light switch: open or short circuit is detected.	
	B	Rear brake light switch: open or short circuit is detected.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		82, 83	
Tool display		"ON" (when the brakes are applied) "OFF" (when the brakes are not applied)	
Procedure		Operate the rear brake lever.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
B-1	Locate the malfunction.	Execute the diagnostic mode. (Code No. 82, 83) When the front brake is applied: "ON" When the front brake is not applied: "OFF" When the rear brake is applied: "ON" When the rear brake is not applied: "OFF"	Malfunction → Go to item A-2 for the front brake light switch. Malfunction → Go to item B-2.
B-2	Connection of rear brake light switch coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-3.
B-3	Connection of brake light relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-4.
B-4	Connection of ignition system relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-5.

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P056C	
Item	A	Front brake light switch: open or short circuit is detected.	
	B	Rear brake light switch: open or short circuit is detected.	
B-5	Connection of wire harness ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-6.
B-6	Check the fuse. (signaling system fuse, brake light fuse)	Abnormality → Replace the fuse. (signaling system fuse, brake light fuse)	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-7.
B-7	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between ignition system relay coupler and fuse box. brown/blue–brown/blue Between fuse box and rear brake light switch. brown–green/yellow Between rear brake light switch coupler and brake light relay coupler. light green/black–light green/black Between brake light relay coupler and ECU coupler. light green/black–light green/black Between brake light relay coupler and battery. black–black	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-8.
B-8	Defective rear brake light switch.	Replace the rear brake light switch.	Push the ON/start switch. Operate the rear brake lever, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item B-10 and finish the service. Condition is "Detected" → Go to item B-9.
B-9	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P056C	
Item	A	Front brake light switch: open or short circuit is detected.	
	B	Rear brake light switch: open or short circuit is detected.	
B-10	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of "Recovered" using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No. P0564

Fault code No.		P0564	
Item	A	Cruise control setting switch "RES+": open or short circuit is detected.	
	B	Cruise control setting switch "SET-": open or short circuit is detected.	
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		80, 81	
Tool display		"ON" (when the switch is pushed) "OFF" (when the switch is released)	
Procedure		Push and release the "RES+" side of the cruise control setting switch.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
A-1	Locate the malfunction.	Execute the diagnostic mode. (Code No. 80) When the cruise control setting switch "RES+" is pushed: "ON" When the cruise control setting switch is released: "OFF" Execute the diagnostic mode. (Code No. 81) When the cruise control setting switch "SET-" is pushed: "ON" When the cruise control setting switch is released: "OFF"	Malfunction → Go to item A-2. Malfunction → Go to item B-2 for the cruise control setting switch "SET-".
A-2	Connection of handlebar switch coupler (left). Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Push and release the "RES+" side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is "Recovered" → Go to item A-9 and finish the service. Condition is "Detected" → Go to item A-3.

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P0564	
Item		A	Cruise control setting switch “RES+”: open or short circuit is detected.
		B	Cruise control setting switch “SET-”: open or short circuit is detected.
A-3	Connection of ignition system relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Push and release the “RES+” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item A-9 and finish the service. Condition is “Detected” → Go to item A-4.
A-4	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Push and release the “RES+” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item A-9 and finish the service. Condition is “Detected” → Go to item A-5.
A-5	Check the fuse. (ignition fuse, cruise control system fuse)	Abnormality → Replace the fuse. (ignition fuse, cruise control system fuse)	Push the ON/start switch. Push and release the “RES+” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item A-9 and finish the service. Condition is “Detected” → Go to item A-6.
A-6	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between ignition system relay coupler and fuse box. brown/blue–brown/blue Between fuse box and handlebar switch coupler (left). red/white–yellow/black Between handlebar switch coupler (left) and ECU coupler. red/green–red/green	Push the ON/start switch. Push and release the “RES+” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item A-9 and finish the service. Condition is “Detected” → Go to item A-7.

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P0564	
Item		A	Cruise control setting switch “RES+”: open or short circuit is detected.
		B	Cruise control setting switch “SET-”: open or short circuit is detected.
A-7	Defective cruise control setting switch.	Replace the handlebar switch (left).	Push the ON/start switch. Push the “RES+” side and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item A-9 and finish the service. Condition is “Detected” → Go to item A-8.
A-8	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	
A-9	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.	

Fault code No.		P0564	
Item		A	Cruise control setting switch “RES+”: open or short circuit is detected.
		B	Cruise control setting switch “SET-”: open or short circuit is detected.
Fail-safe system		Able to start engine	
		Able to drive vehicle	
Diagnostic code No.		80, 81	
Tool display		“ON” (when the switch is pushed) “OFF” (when the switch is released)	
Procedure		Push the “SET-” side of the cruise control setting switch.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
B-1	Locate the malfunction.	Execute the diagnostic mode. (Code No. 80) When the cruise control setting switch “RES+” is pushed: “ON” When the cruise control setting switch is released: “OFF” Execute the diagnostic mode. (Code No. 81) When the cruise control setting switch “SET-” is pushed: “ON” When the cruise control setting switch is released: “OFF”	Malfunction → Go to item A-2 for the cruise control setting switch “RES+”. Malfunction → Go to item B-2.

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P0564	
Item	A	Cruise control setting switch “RES+”: open or short circuit is detected.	
	B	Cruise control setting switch “SET-”: open or short circuit is detected.	
B-2	Connection of handlebar switch coupler (left). Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Push and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item B-9 and finish the service. Condition is “Detected” → Go to item B-3.
B-3	Connection of ignition system relay coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Push and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item B-9 and finish the service. Condition is “Detected” → Go to item B-4.
B-4	Connection of ECU coupler. Check the locking condition of the coupler. Disconnect the coupler and check the pins (bent or broken terminals and locking condition of the pins).	Improperly connected → Connect the coupler securely or replace the wire harness.	Push the ON/start switch. Push and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item B-9 and finish the service. Condition is “Detected” → Go to item B-5.
B-5	Check the fuse. (ignition fuse, cruise control system fuse)	Abnormality → Replace the fuse. (ignition fuse, cruise control system fuse)	Push the ON/start switch. Push and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item B-9 and finish the service. Condition is “Detected” → Go to item B-6.

CRUISE CONTROL SYSTEM (for XP530D-A)

Fault code No.		P0564	
Item		A	Cruise control setting switch “RES+”: open or short circuit is detected.
		B	Cruise control setting switch “SET-”: open or short circuit is detected.
B-6	Wire harness continuity.	Open or short circuit → Replace the wire harness. Between ignition system relay coupler and fuse box. brown/blue–brown/blue Between fuse box and handlebar switch coupler (left). red/white–yellow/black Between handlebar switch coupler (left) and ECU coupler. green/blue–green/blue	Push the ON/start switch. Push and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item B-9 and finish the service. Condition is “Detected” → Go to item B-7.
B-7	Defective cruise control setting switch.	Replace the handlebar switch (left).	Push the ON/start switch. Push the “RES+” side and “SET-” side of the cruise control setting switch, and then check the condition of the fault code using the malfunction mode of the Yamaha diagnostic tool. Condition is “Recovered” → Go to item B-9 and finish the service. Condition is “Detected” → Go to item B-8.
B-8	Malfunction in ECU.	Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.	
B-9	Delete the fault code and check that the engine trouble warning light goes off.	Confirm that the fault code has a condition of “Recovered” using the Yamaha diagnostic tool, and then delete the fault code.	

CRUISE CONTROL SYSTEM (for XP530D-A)

EAS30671

[B-2] DIAGNOSIS USING THE MALFUNCTION HISTORY CODES

Check the malfunction history using the malfunction mode of the Yamaha diagnostic tool.

- Malfunction history is displayed on the Yamaha diagnostic tool. [B-1]
- Malfunction history is not displayed on the Yamaha diagnostic tool. [B-3]

EAS31924

[B-3] MALFUNCTION HISTORY IS NOT DISPLAYED

Use the Yamaha diagnostic tool to check whether automatic deactivation history for the cruise control system exists.

1. There is automatic deactivation history for the cruise control system.
 - Explain the conditions for automatically deactivating the cruise control system to the customer.
 - For information about the conditions for automatically deactivating the cruise control system. Refer to “OUTLINE OF THE CRUISE CONTROL SYSTEM (for XP530D-A)” on page 1-4.

TIP

If you do not have a Yamaha diagnostic tool, the automatic deactivation history cannot be checked. Therefore, explain the automatic deactivation function of the cruise control system to the customer and explain that this is not a malfunction.

EAS30674

[C-1] DELETING THE FAULT CODES

1. Delete the fault code using the malfunction of the Yamaha diagnostic tool, and check that the engine trouble warning light goes off.

EAS30675

[C-2] FINAL CHECK

1. Check the front brake lever and rear brake lever operation.
2. Check the rear brake light switches.
Refer to “CHECKING THE BRAKE LIGHT SWITCHES” on page 3-33.
3. Execute the diagnostic mode (code Nos. 82 and 83) to check the operation of the front brake light switch, rear brake light switch, and grip cancel switch.
Refer to “SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)” on page 9-5.
4. Execute the diagnostic mode (code Nos. 80 and 81) to check the operation of the cruise control setting switch.
Refer to “SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)” on page 9-5.
5. Delete the fault codes.
Refer to “SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)” on page 9-5.
6. Check the operation of the cruise control system.
Test ride the vehicle and confirm that the cruise control system is operating normally.

CRUISE CONTROL SYSTEM (for XP530D-A)

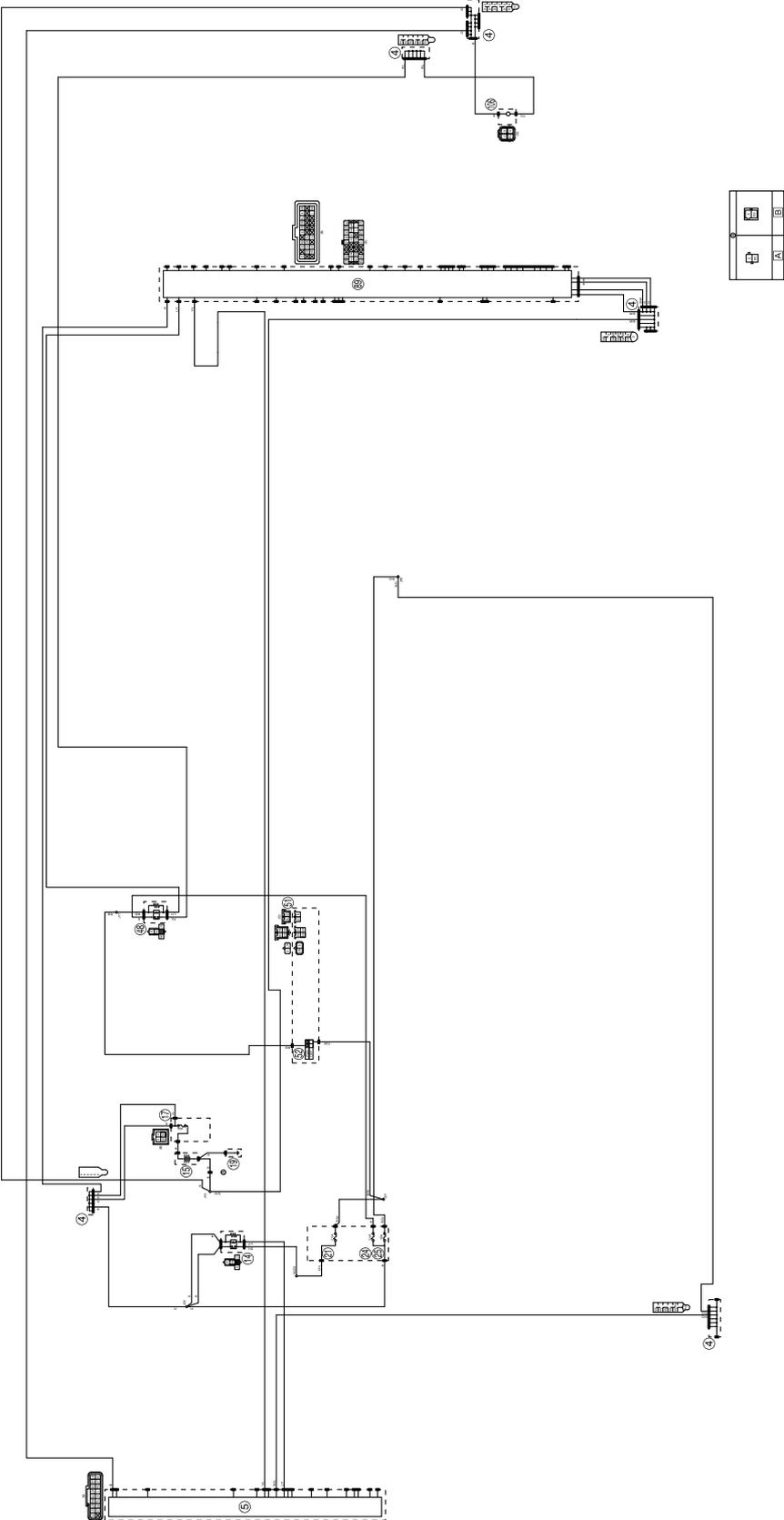
EAS20081

FUEL PUMP SYSTEM

EAS30513

CIRCUIT DIAGRAM

XP530E-A

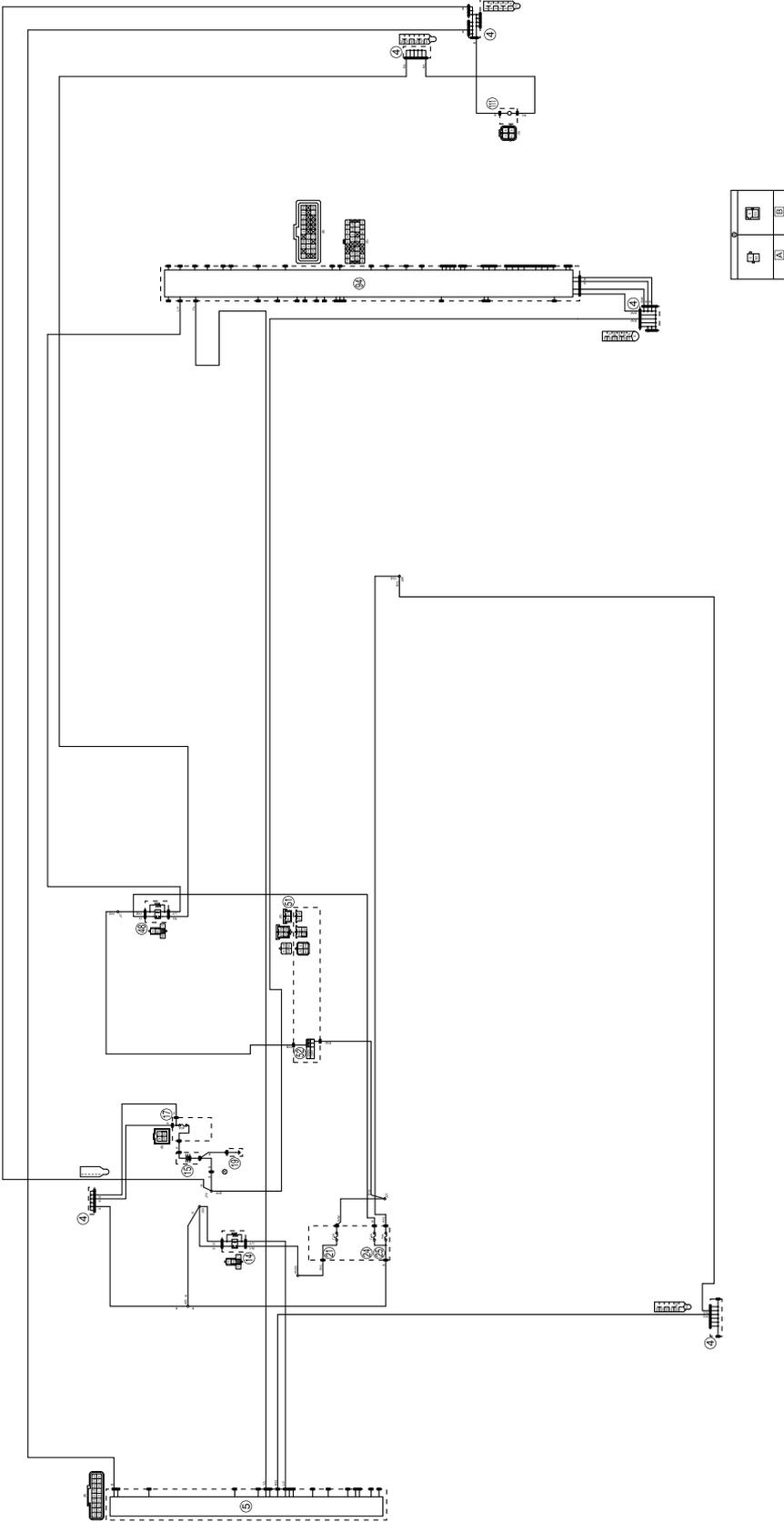


FUEL PUMP SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 21. Ignition fuse
 - 24. Fuel injection system fuse
 - 25. Backup fuse
 - 48. Fuel injection system relay
 - 51. Handlebar switch (right)
 - 52. Engine stop switch
 - 89. ECU (Engine Control Unit)
 - 106. Fuel pump
-
- A. Wire harness
 - B. Negative battery sub-wire harness

FUEL PUMP SYSTEM

XP530-A

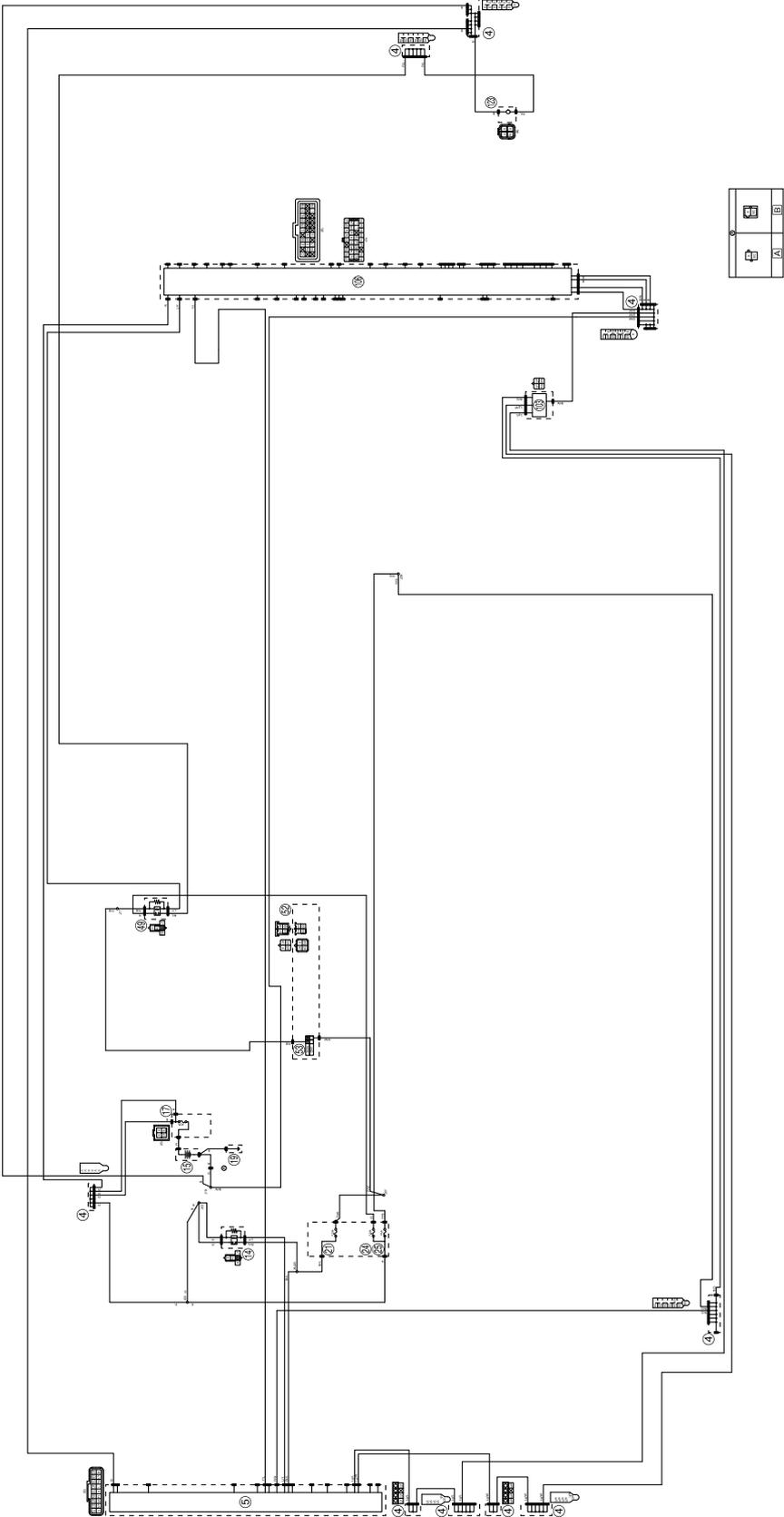


FUEL PUMP SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 21. Ignition fuse
 - 24. Fuel injection system fuse
 - 25. Backup fuse
 - 48. Fuel injection system relay
 - 51. Handlebar switch (right)
 - 52. Engine stop switch
 - 94. ECU (Engine Control Unit)
 - 111. Fuel pump
-
- A. Wire harness
 - B. Negative battery sub-wire harness

FUEL PUMP SYSTEM

XP530D-A



FUEL PUMP SYSTEM

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 21. Ignition fuse
 - 24. Fuel injection system fuse
 - 25. Backup fuse
 - 49. Fuel injection system relay
 - 52. Handlebar switch (right)
 - 53. Engine stop switch
 - 103. Yamaha diagnostic tool coupler
 - 106. ECU (Engine Control Unit)
 - 123. Fuel pump
- A. Wire harness
 - B. Negative battery sub-wire harness

EAS30514

TROUBLESHOOTING

If the fuel pump fails to operate.

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowling assembly
2. Storage box
3. Fuel tank

<p>1. Check the fuses. (Main, ignition, backup and fuel injection system) Refer to "CHECKING THE FUSES" on page 8-229.</p>	NG→	<p>Replace the fuse(s).</p>
OK↓		
<p>2. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.</p>	NG→	<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
OK↓		
<p>3. Check the engine stop switch. Refer to "CHECKING THE SWITCHES" on page 8-221.</p>	NG→	<p>The engine stop switch is faulty. Replace the handlebar switch (right).</p>
OK↓		
<p>4. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the ignition system relay.</p>
OK↓		
<p>5. Check the fuel injection system relay. Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the fuel injection system relay.</p>
OK↓		
<p>6. Check the fuel pump. Refer to "CHECKING THE FUEL PRESSURE" on page 7-12.</p>	NG→	<p>Replace the fuel pump assembly.</p>
OK↓		
<p>7. Check the entire fuel pump system's wiring. Refer to "CIRCUIT DIAGRAM" on page 8-135.</p>	NG→	<p>Properly connect or replace the wire harness.</p>
OK↓		
<p>Replace the ECU and/or remote control unit.</p>		

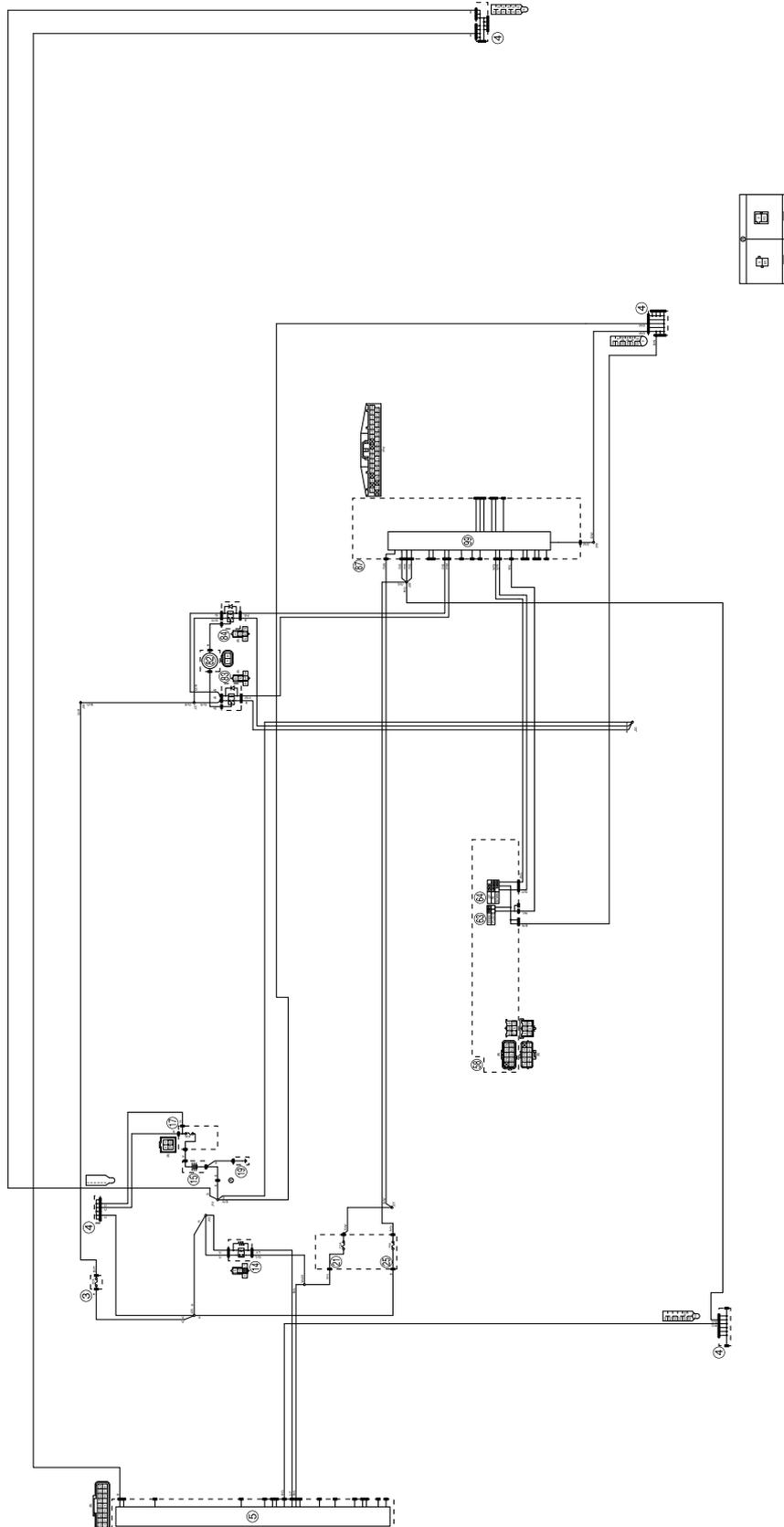
WINDSHIELD DRIVE SYSTEM (for XP530D-A)

EAS20083

WINDSHIELD DRIVE SYSTEM (for XP530D-A)

EAS30517

CIRCUIT DIAGRAM



WINDSHIELD DRIVE SYSTEM (for XP530D-A)

- 3. Windshield motor fuse
- 4. Joint coupler
- 5. Remote control unit
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 21. Ignition fuse
- 25. Backup fuse
- 58. Handlebar switch (left)
- 63. Menu switch
- 64. Select switch
- 82. Windshield drive unit
- 83. Windshield drive unit relay (down)
- 84. Windshield drive unit relay (up)
- 87. Meter assembly
- 99. Multi-function display

- A. Wire harness
- B. Negative battery sub-wire harness

WINDSHIELD DRIVE SYSTEM (for XP530D-A)

EAS30518

TROUBLESHOOTING

The windshield fails to move.

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowling assembly
2. Leg shield
3. Rear cowling (right)

1. Check that there are no rocks or other foreign material in the windshield drive unit side rails. OK↓	NG→	Remove the foreign material.
2. Check that there is no foreign material between the cable and the pulley. OK↓	NG→	Remove the foreign material.
3. Check the fuses. (Main, ignition, backup, and windshield motor) Refer to "CHECKING THE FUSES" on page 8-229. OK↓	NG→	Replace the fuse(s).
4. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230. OK↓	NG→	<ul style="list-style-type: none">• Clean the battery terminals.• Recharge or replace the battery.
5. Check the ignition system relay. Refer to "CHECKING THE SWITCHES" on page 8-221. OK↓	NG→	Replace the ignition system relay.
6. Check the menu switch. Refer to "CHECKING THE SWITCHES" on page 8-221. OK↓	NG→	<ul style="list-style-type: none">• The menu switch is faulty.• Replace the handlebar switch (left).
7. Check the select switch. Refer to "CHECKING THE SWITCHES" on page 8-221. OK↓	NG→	<ul style="list-style-type: none">• The select switch is faulty.• Replace the handlebar switch (left).
8. Check the windshield drive unit relay (up). Refer to "CHECKING THE RELAYS" on page 8-233. OK↓	NG→	Replace the windshield drive unit relay (up).

WINDSHIELD DRIVE SYSTEM (for XP530D-A)

9. Check the windshield drive unit relay (down). Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the windshield drive unit relay (down).
OK↓		
10. Check the windshield drive motor. Refer to "CHECKING THE WINDSHIELD DRIVE UNIT (for XP530D-A)" on page 8-247.	NG→	Replace the windshield drive unit.
OK↓		
11. Check the entire windshield drive system wiring. Refer to "CIRCUIT DIAGRAM" on page 8-143.	NG→	Properly connect or replace the wire harness.
OK↓		
Replace the meter assembly.		

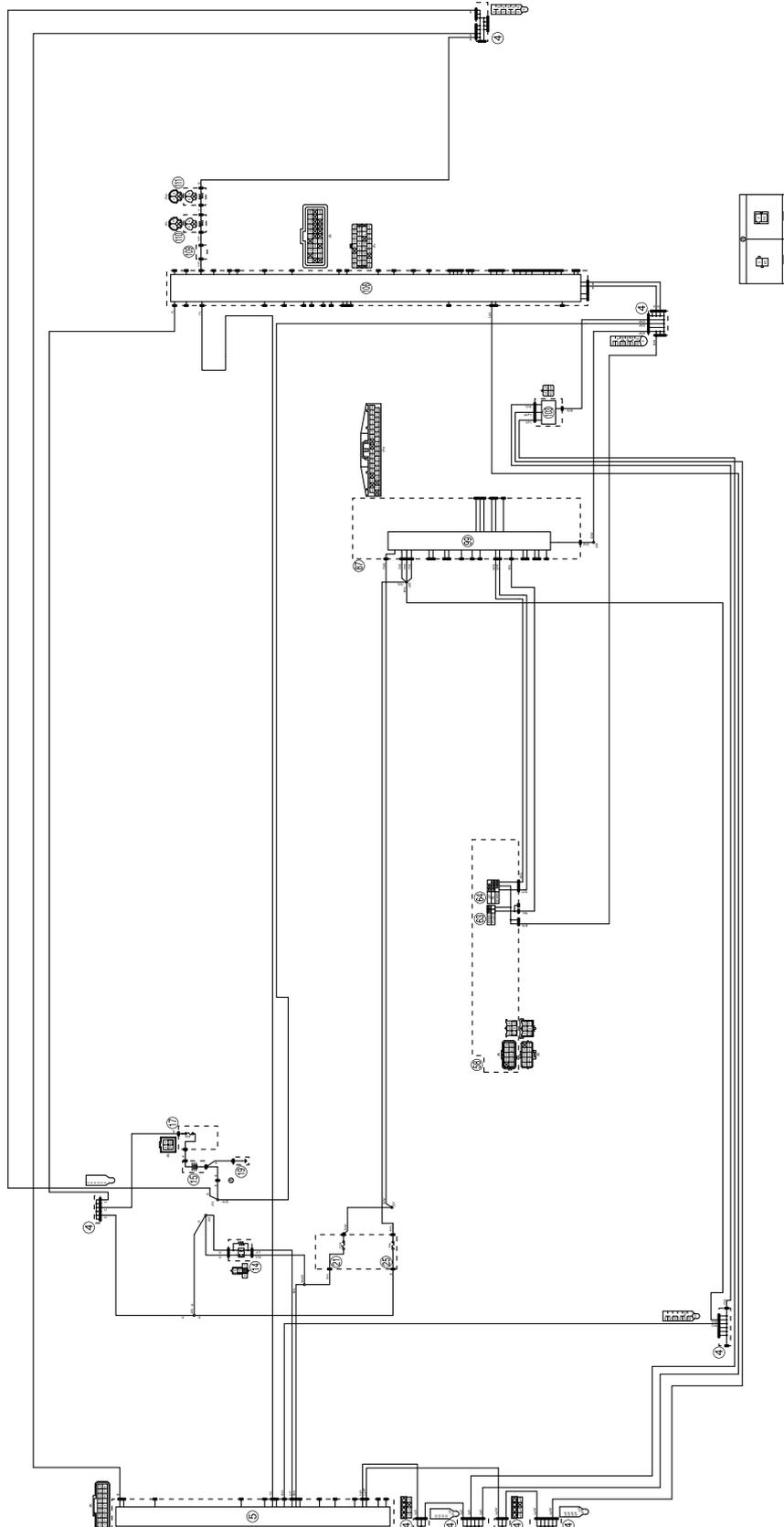
GRIP WARMER SYSTEM (for XP530D-A)

EAS20167

GRIP WARMER SYSTEM (for XP530D-A)

EAS31007

CIRCUIT DIAGRAM



GRIP WARMER SYSTEM (for XP530D-A)

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 21. Ignition fuse
 - 25. Backup fuse
 - 58. Handlebar switch (left)
 - 63. Menu switch
 - 64. Select switch
 - 87. Meter assembly
 - 99. Multi-function display
 - 103. Yamaha diagnostic tool coupler
 - 106. ECU (Engine Control Unit)
 - 109. Grip warmer connector
 - 110. Grip warmer (left)
 - 111. Grip warmer (right)
- A. Wire harness
B. Negative battery sub-wire harness

GRIP WARMER SYSTEM (for XP530D-A)

EAS31008

TROUBLESHOOTING

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowlings
2. Leg shield
3. Footboards

The grip warmers do not become warm at all.

1. Check that the engine trouble warning light is on and that "Err" is displayed in the multi-function meter display.	NG→	Perform the troubleshooting for fault code No. U0155. Refer to "TROUBLESHOOTING DETAILS (FAULT CODE)" on page 8-63.
OK↓		
2. Check that the grip warmers are not turned off.	NG→	Adjust the temperature levels of the grip warmer settings.
OK↓		
3. Check the fuses. (Main, ignition, and backup) Refer to "CHECKING THE FUSES" on page 8-229.	NG→	Replace the fuse(s).
OK↓		
4. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.	NG→	<ul style="list-style-type: none">• Clean the battery terminals.• Recharge or replace the battery.
OK↓		
5. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233.	NG→	Replace the ignition system relay.
OK↓		
6. Check that the engine is started.	NG→	Start the engine.
OK↓		
7. Check the grip warmers. Refer to "CHECKING THE GRIP WARMERS (for XP530D-A)" on page 8-248.	NG→	Replace the grip warmer(s).
OK↓		
8. Check the entire grip warmer system wiring. Refer to "CIRCUIT DIAGRAM" on page 8-147.	NG→	Properly connect or replace the wiring harness.
OK↓		

GRIP WARMER SYSTEM (for XP530D-A)

<p>9. Execute the diagnostic mode (code No. 57) to turn on the grip warmers, and then check that they become warm.</p>	NG→	<p>Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.</p>
--	-----	---

OK↓

Replace the meter assembly.

The grip warmers are abnormally hot while the engine is idling.

<p>1. Check that the temperature level of the low grip warmer setting is set to lowest temperature.</p>	NG→	<p>Adjust the temperature levels of the grip warmer settings.</p>
---	-----	---

OK↓

Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.

The grip warmers do not become very warm while the vehicle is traveling.

<p>1. Check that the temperature level of the high grip warmer setting is set to highest temperature.</p>	NG→	<p>Adjust the temperature levels of the grip warmer settings.</p>
---	-----	---

OK↓

2. Check that the engine trouble warning light is on and that fault code No. P0500 is displayed in the Yamaha diagnostic tool display.

NG→

Perform the troubleshooting for fault code No. P0500. Refer to “TROUBLESHOOTING DETAILS (FAULT CODE)” on page 8-63.

OK↓

Replace the ECU. Refer to “REPLACING THE ECU (Engine Control Unit)” on page 8-230.

The temperature levels of the grip warmer settings cannot be changed.

<p>1. Check the menu switch. Refer to “CHECKING THE SWITCHES” on page 8-221.</p>	NG→	<ul style="list-style-type: none"> The menu switch is faulty. Replace the handlebar switch (left).
--	-----	--

OK↓

2. Check the select switch. Refer to “CHECKING THE SWITCHES” on page 8-221.

NG→

- The select switch is faulty.
- Replace the handlebar switch (left).

OK↓

3. Check the wire harness between the handlebar switch (left) and the meter assembly.

NG→

Properly connect or replace the wiring harness.

OK↓

Replace the meter assembly.

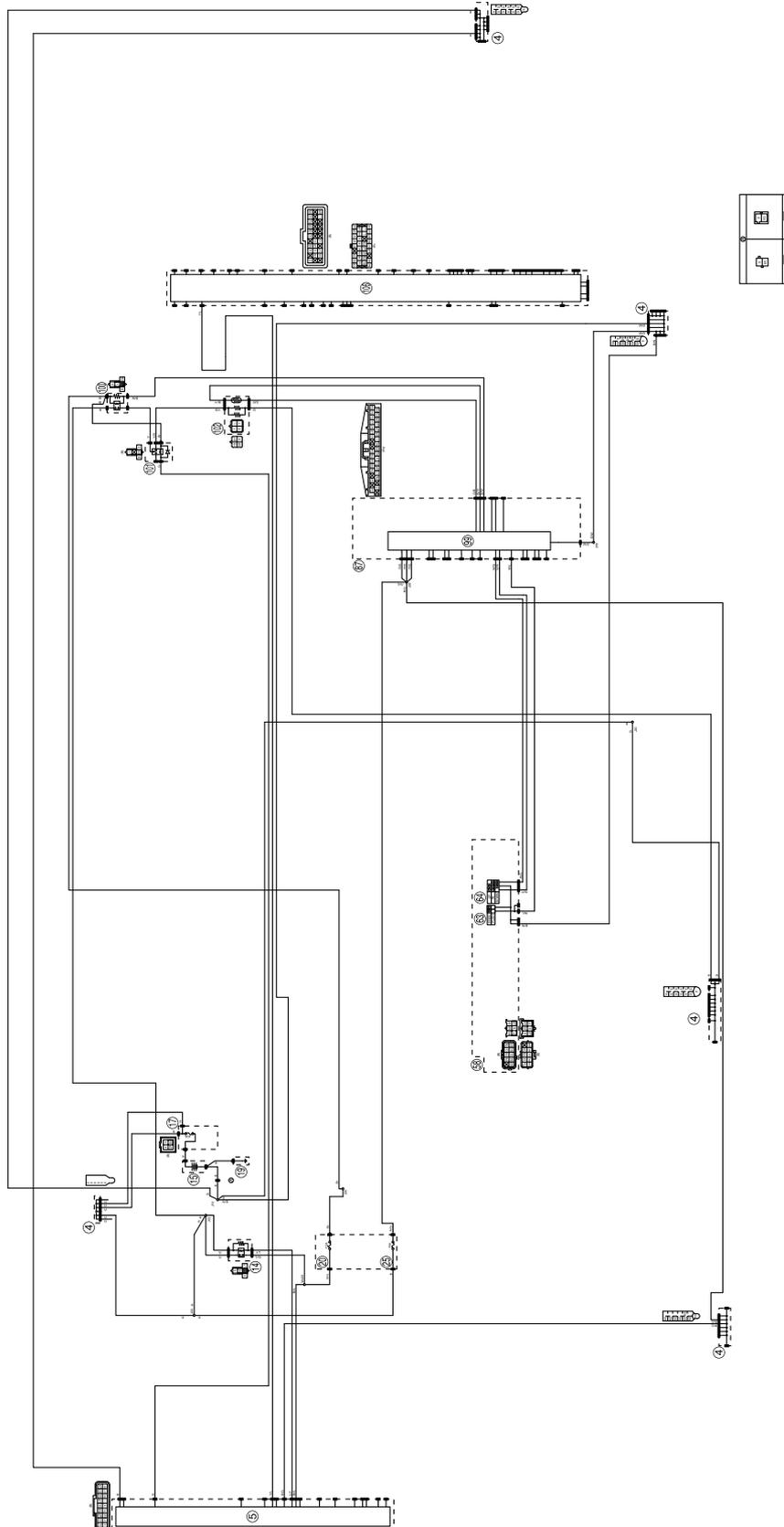
SEAT HEATER SYSTEM (for XP530D-A)

EAS20312

SEAT HEATER SYSTEM (for XP530D-A)

EAS32438

CIRCUIT DIAGRAM



SEAT HEATER SYSTEM (for XP530D-A)

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 25. Backup fuse
 - 58. Handlebar switch (left)
 - 63. Menu switch
 - 64. Select switch
 - 87. Meter assembly
 - 99. Multi-function display
 - 100. Seat heater relay (power)
 - 101. Seat heater relay (control)
 - 102. Seat heater
 - 106. ECU (Engine Control Unit)
- A. Wire harness
 - B. Negative battery sub-wire harness

SEAT HEATER SYSTEM (for XP530D-A)

EAS32439

TROUBLESHOOTING

TIP

• Before troubleshooting, remove the following part(s):

1. Front cowlings
2. Footboards
3. Rear cowling (right)

The seat heater do not become warm at all.

1. Check that the seat heater is not turned off. OK↓	NG→	Adjust the temperature levels of the seat heater settings.
2. Check the fuses. (Main, signaling system, and back-up) Refer to "CHECKING THE FUSES" on page 8-229. OK↓	NG→	Replace the fuse(s).
3. Check that the engine is started. OK↓	NG→	Start the engine.
4. Check the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230. OK↓	NG→	<ul style="list-style-type: none">• Clean the battery terminals.• Recharge or replace the battery.
5. Check the ignition system relay. Refer to "CHECKING THE RELAYS" on page 8-233. OK↓	NG→	Replace the ignition system relay.
6. Check the seat heater relay (power). Refer to "CHECKING THE RELAYS" on page 8-233. OK↓	NG→	Replace the seat heater relay (power).
7. Check the seat heater relay (control). Refer to "CHECKING THE RELAYS" on page 8-233. OK↓	NG→	Replace the seat heater relay (control).
8. Check the seat heater. Refer to "CHECKING THE SEAT HEATER (for XP530D-A)" on page 8-248. OK↓	NG→	Replace the seat heater.

SEAT HEATER SYSTEM (for XP530D-A)

<p>9. Check the entire seat heater system wiring. Refer to "CIRCUIT DIAGRAM" on page 8-151.</p>	NG→	<p>Properly connect or replace the wiring harness.</p>
---	-----	--

OK↓

Replace the meter assembly.

The seat heater is abnormally hot while the engine is idling.

<p>1. Check that the temperature level of the low seat heater setting is set to lowest temperature.</p>	NG→	<p>Adjust the temperature levels of the seat heater settings.</p>
---	-----	---

OK↓

<p>2. Check the seat heater relay (power). Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the seat heater relay (power).</p>
--	-----	---

OK↓

<p>3. Check the seat heater. Refer to "CHECKING THE SEAT HEATER (for XP530D-A)" on page 8-248.</p>	NG→	<p>Replace the seat assembly.</p>
--	-----	-----------------------------------

OK↓

Replace the meter assembly.

The seat heater do not become very warm while the vehicle is traveling.

<p>1. Check that the temperature level of the high seat heater setting is set to highest temperature.</p>	NG→	<p>Adjust the temperature levels of the seat heater settings.</p>
---	-----	---

OK↓

<p>2. Check the seat heater relay (power). Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the seat heater relay (power).</p>
--	-----	---

OK↓

<p>3. Check the seat heater relay (control). Refer to "CHECKING THE RELAYS" on page 8-233.</p>	NG→	<p>Replace the seat heater relay (control).</p>
--	-----	---

OK↓

<p>4. Check the seat heater. Refer to "CHECKING THE SEAT HEATER (for XP530D-A)" on page 8-248.</p>	NG→	<p>Replace the seat assembly.</p>
--	-----	-----------------------------------

OK↓

Replace the meter assembly.

SEAT HEATER SYSTEM (for XP530D-A)

The temperature levels of the seat heater settings cannot be changed.

1. Check the menu switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

- The menu switch is faulty.
- Replace the handlebar switch (left).

OK↓

2. Check the select switch.
Refer to "CHECKING THE SWITCHES" on page 8-221.

NG→

- The select switch is faulty.
- Replace the handlebar switch (left).

OK↓

3. Check the wire harness between the handlebar switch (left) and the meter assembly.

NG→

Properly connect or replace the wiring harness.

OK↓

Replace the meter assembly.

SEAT HEATER SYSTEM (for XP530D-A)

ABS (Anti-lock Brake System)

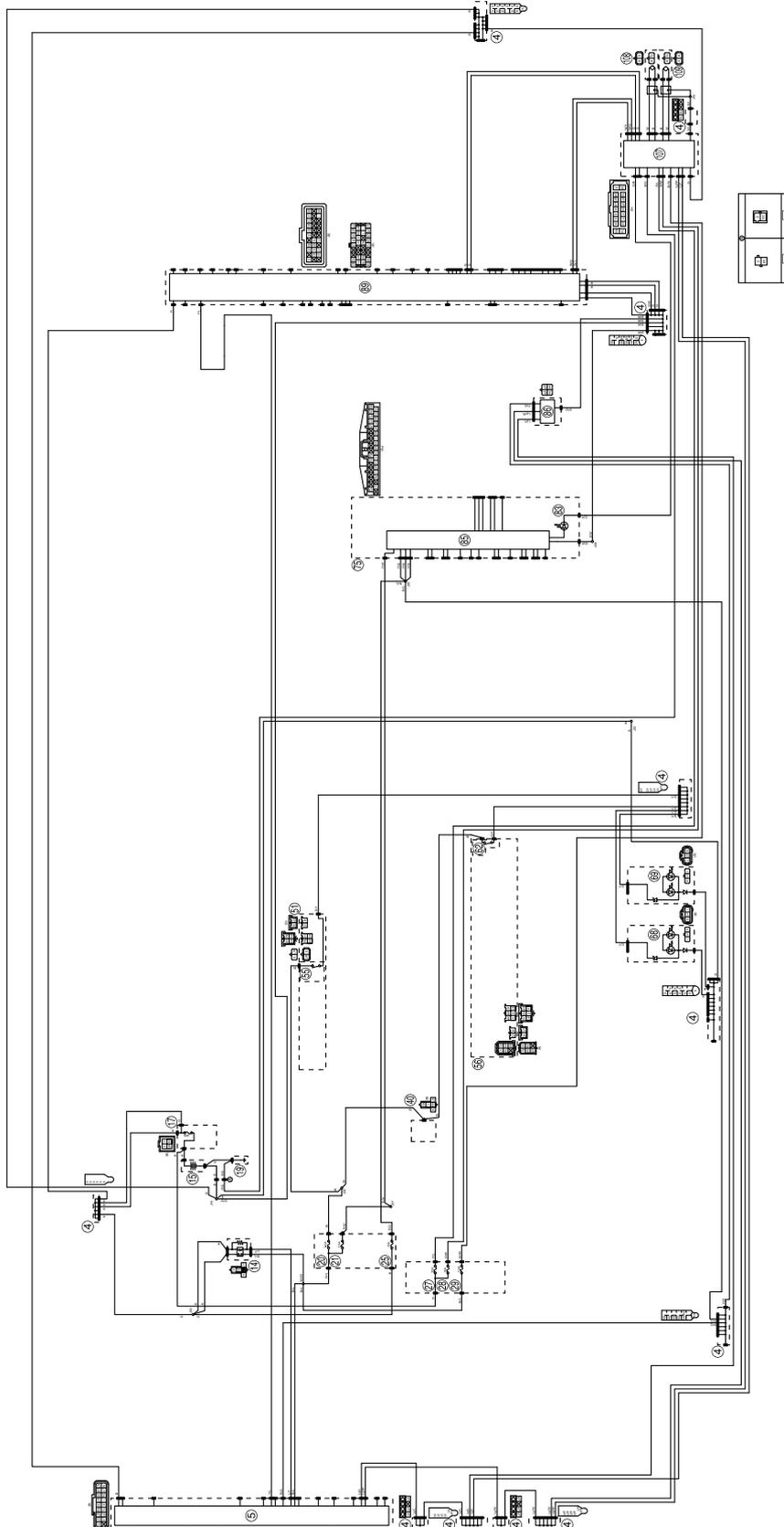
EAS20085

ABS (Anti-lock Brake System)

EAS30843

CIRCUIT DIAGRAM

XP530E-A

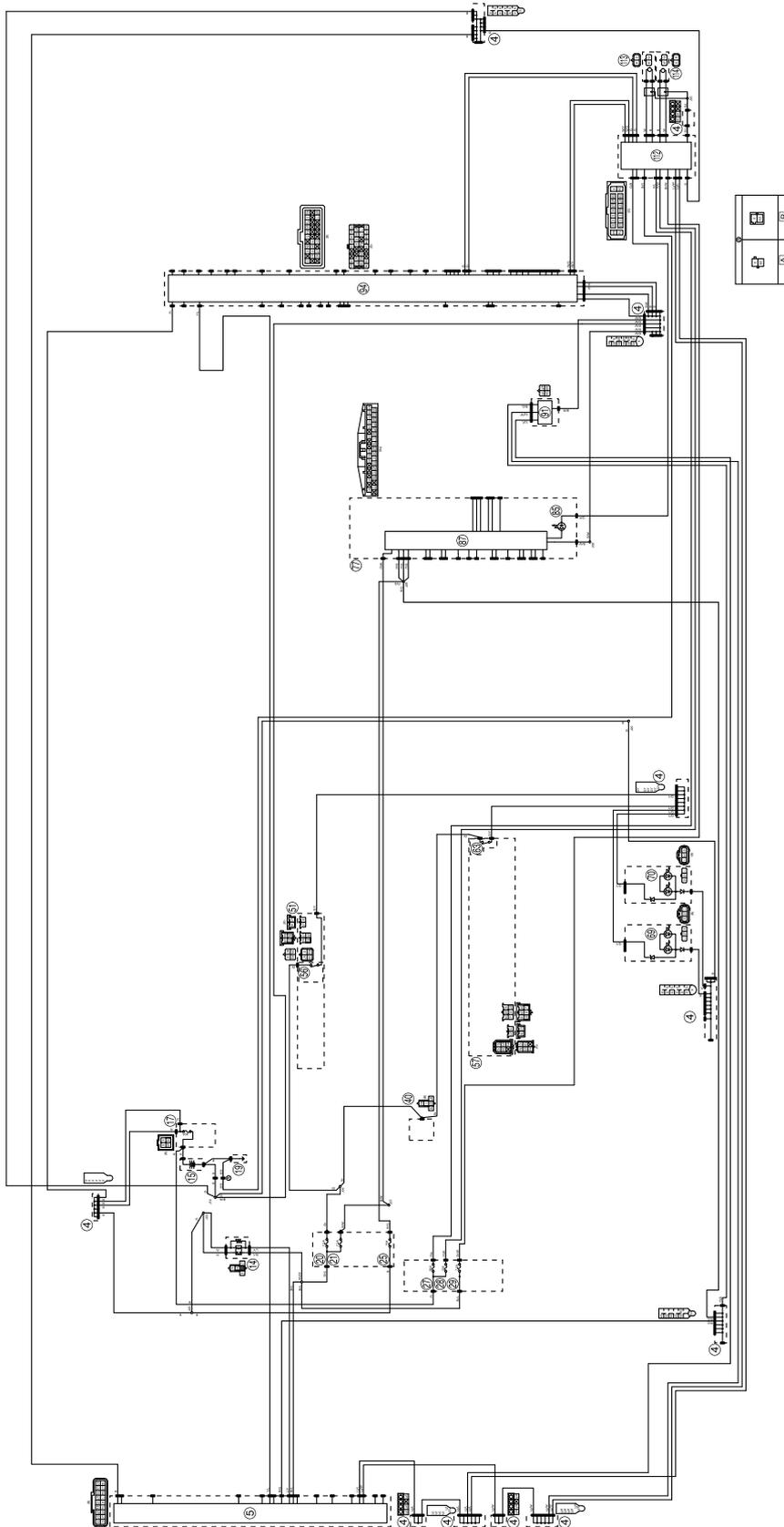


ABS (Anti-lock Brake System)

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 25. Backup fuse
 - 27. ABS motor fuse
 - 28. ABS solenoid fuse
 - 29. ABS ECU fuse
 - 40. Headlight relay (dimmer)
 - 51. Handlebar switch (right)
 - 55. Front brake light switch
 - 56. Handlebar switch (left)
 - 62. Rear brake light switch
 - 68. Tail/brake light (left)
 - 69. Tail/brake light (right)
 - 75. Meter assembly
 - 83. ABS warning light
 - 85. Multi-function display
 - 86. Yamaha diagnostic tool coupler
 - 89. ECU (Engine Control Unit)
 - 107. ABS ECU (Electronic Control Unit)
 - 108. Front wheel sensor
 - 109. Rear wheel sensor
- A. Wire harness
- B. Negative battery sub-wire harness

ABS (Anti-lock Brake System)

XP530-A

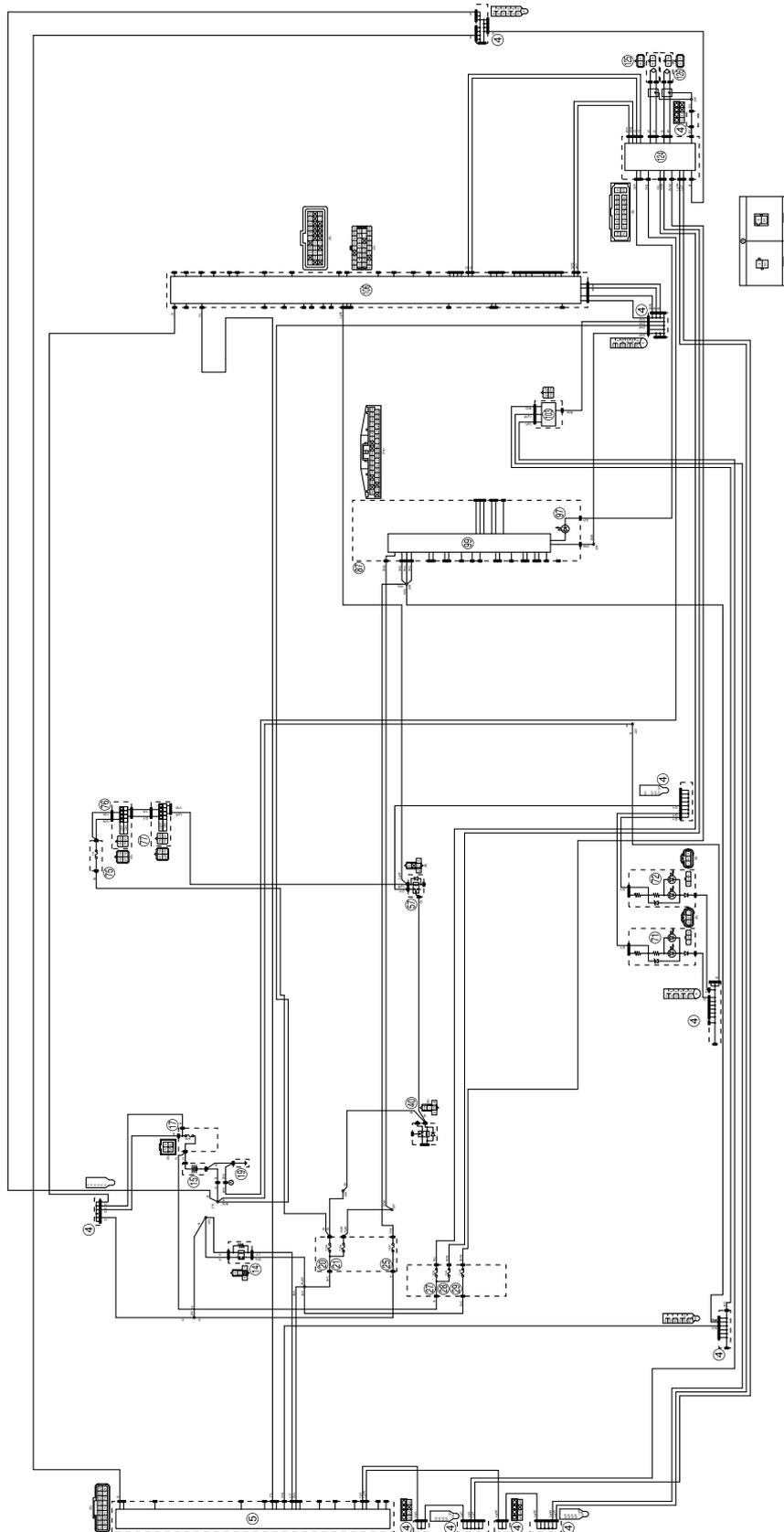


ABS (Anti-lock Brake System)

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 25. Backup fuse
 - 27. ABS motor fuse
 - 28. ABS solenoid fuse
 - 29. ABS ECU fuse
 - 40. Headlight relay (dimmer)
 - 51. Handlebar switch (right)
 - 56. Front brake light switch
 - 57. Handlebar switch (left)
 - 63. Rear brake light switch
 - 69. Tail/brake light (left)
 - 70. Tail/brake light (right)
 - 77. Meter assembly
 - 85. ABS warning light
 - 87. Multi-function display
 - 91. Yamaha diagnostic tool coupler
 - 94. ECU (Engine Control Unit)
 - 112. ABS ECU (Electronic Control Unit)
 - 113. Front wheel sensor
 - 114. Rear wheel sensor
- A. Wire harness
B. Negative battery sub-wire harness

ABS (Anti-lock Brake System)

XP530D-A



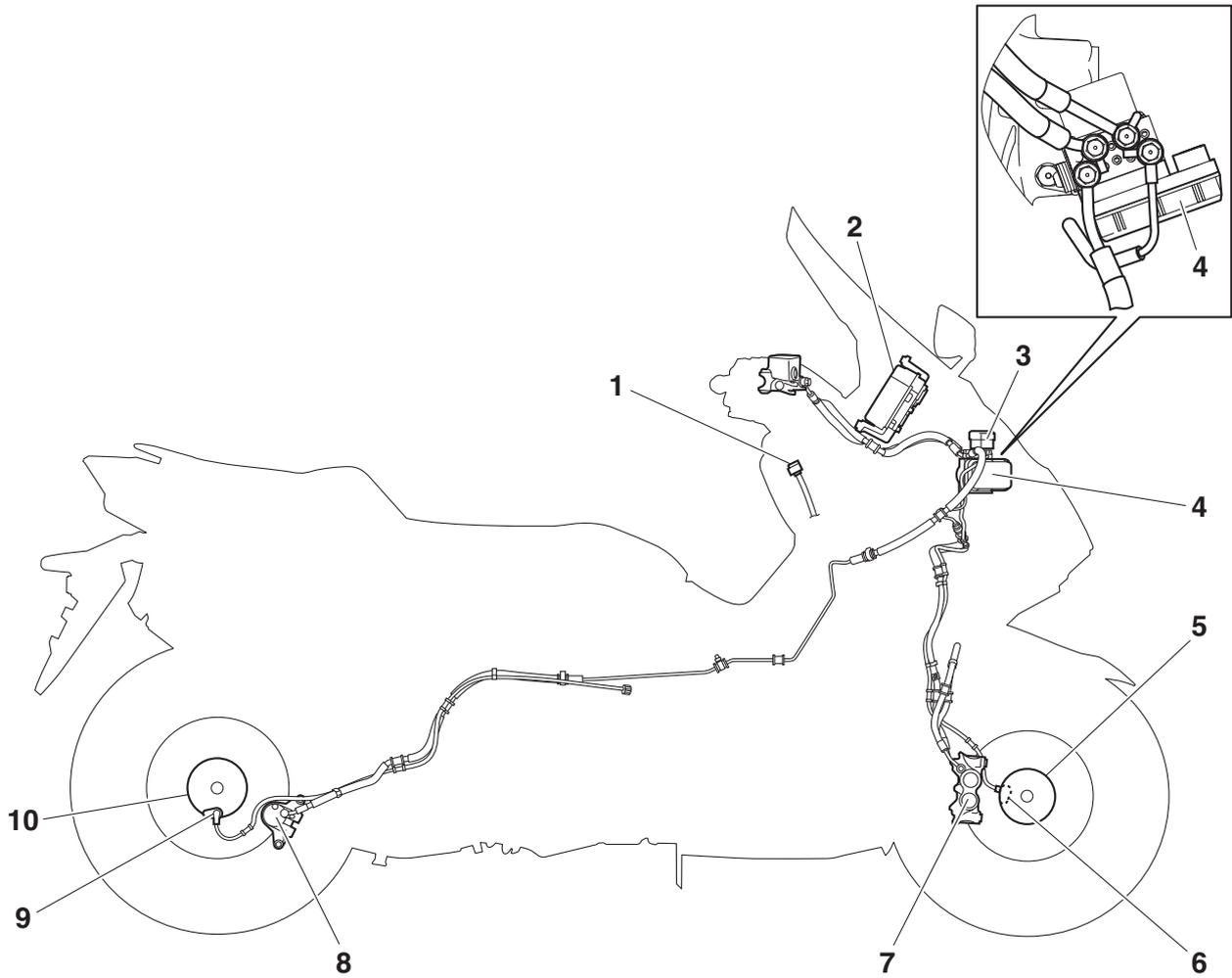
ABS (Anti-lock Brake System)

- 4. Joint coupler
 - 5. Remote control unit
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 25. Backup fuse
 - 27. ABS motor fuse
 - 28. ABS solenoid fuse
 - 29. ABS ECU fuse
 - 40. Headlight relay (dimmer)
 - 57. Brake light relay
 - 71. Tail/brake light (left)
 - 72. Tail/brake light (right)
 - 75. Brake light fuse
 - 76. Front brake light switch
 - 77. Rear brake light switch
 - 87. Meter assembly
 - 97. ABS warning light
 - 99. Multi-function display
 - 103. Yamaha diagnostic tool coupler
 - 106. ECU (Engine Control Unit)
 - 124. ABS ECU (Electronic Control Unit)
 - 125. Front wheel sensor
 - 126. Rear wheel sensor
- A. Wire harness
- B. Negative battery sub-wire harness

ABS (Anti-lock Brake System)

EAS30525

ABS COMPONENTS CHART



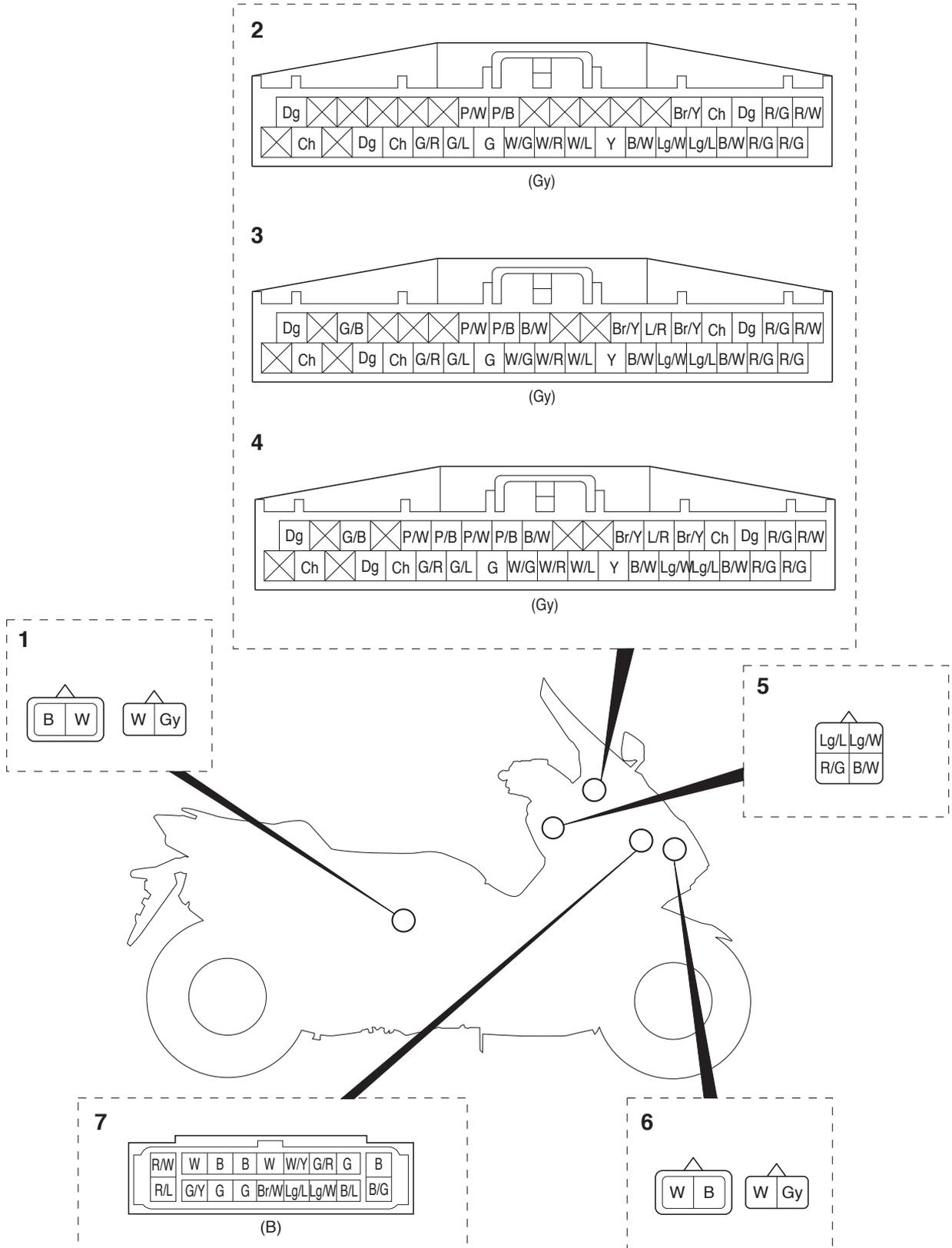
ABS (Anti-lock Brake System)

1. Yamaha diagnostic tool coupler
2. ABS warning light
3. Fuse box (ABS motor fuse, ABS solenoid fuse, and ABS ECU fuse)
4. ABS ECU
5. Front wheel sensor rotor
6. Front wheel sensor
7. Front brake caliper
8. Rear brake caliper
9. Rear wheel sensor
10. Rear wheel sensor rotor

ABS (Anti-lock Brake System)

EAS30844

ABS COUPLER LOCATION CHART



ABS (Anti-lock Brake System)

1. Rear wheel sensor coupler
2. Meter assembly coupler (for XP530E-A)
3. Meter assembly coupler (for XP530-A)
4. Meter assembly coupler (for XP530D-A)
5. Yamaha diagnostic tool coupler
6. Front wheel sensor coupler
7. ABS ECU coupler

ABS (Anti-lock Brake System)

EAS30845

MAINTENANCE OF THE ABS ECU

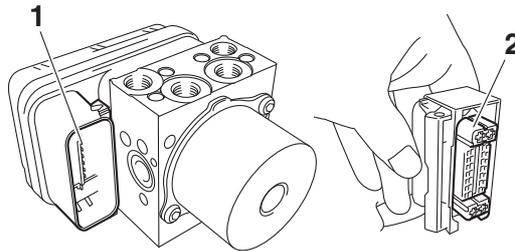
Checking the ABS ECU

1. Check:

- Terminals “1” of the ABS ECU
Cracks/damages → Replace the hydraulic unit assembly, brake hoses, and brake pipes that are connected to the assembly as a set.
- Terminals “2” of the ABS ECU coupler
Connection defective, contaminated, come-off → Correct or clean.

TIP

If the ABS ECU coupler is clogged with mud or dirt, clean with compressed air.



EAS30528

ABS TROUBLESHOOTING OUTLINE

This section describes the troubleshooting for the ABS in detail. Read this service manual carefully and make sure you fully understand the information provided before repairing any malfunctions or performing service.

The ABS ECU has a self-diagnosis function. When failures occur in the system, the ABS warning light on the meter assembly indicates a malfunction.

The following troubleshooting describes the problem identification and service method using the Yamaha diagnostic tool. For information about using the Yamaha diagnostic tool, refer to “[B-2] DIAGNOSIS USING THE FAULT CODES” on page 8-171. For troubleshooting items other than the following items, follow the normal service method.

EWA16710

WARNING

When maintenance or checks have been performed on components related to the ABS, be sure to perform a final check before delivering the vehicle to the customer.

TIP

To final check, refer to “[C-1] FINAL CHECK” on page 8-191.

ABS operation when the ABS warning light comes on

1. The ABS warning light remains on → ABS operates as a normal brake system.
 - A malfunction was detected using the ABS self-diagnosis function.
 - The ABS self-diagnosis has not been completed.
The ABS self-diagnosis starts when the ON/start switch is pushed and finishes when the vehicle has traveled at a speed of approximately 10 km/h (6 mi/h).
2. The ABS warning light comes on after the engine starts, and then goes off when the vehicle starts moving (traveling at a speed of approximately 10 km/h (6 mi/h)) → ABS operation is normal.
3. The ABS warning light flashes → ABS operation is normal.
 - Refer to “BASIC INSTRUCTIONS FOR TROUBLESHOOTING” on page 8-168.

ABS (Anti-lock Brake System)

Self-diagnosis and servicing

The ABS ECU has a self-diagnosis function. By utilizing this function, quick problem identification and service are possible. Previous malfunctions can be checked since the ABS ECU also stores the malfunction history.

The fault codes recorded in the ABS ECU can be checked using the Yamaha diagnostic tool. When the service is finished, check the normal operation of the vehicle, and then delete the fault code(s). For information about deleting the fault codes, refer to “[B-3] DELETING THE FAULT CODES” on page 8-191. By deleting the fault codes stored in the ABS ECU memory, it is possible to pursue the cause correctly if another malfunction occurs.

TIP

The ABS performs a self-diagnosis test for a few seconds each time the vehicle first starts off after the ON/start switch was pushed. During this test, a “clicking” noise can be heard from front side of the vehicle, and if the front brake lever and rear brake lever are even slightly applied, a vibration can be felt at the levers, but these do not indicate a malfunction.

Self-diagnosis using the ABS ECU

The ABS ECU performs a static check of the entire system when the ON/start switch is pushed. It also checks for malfunctions while the vehicle is ridden. Since all malfunctions are recorded after they are detected, it is possible to check the recorded malfunction data by utilizing the Yamaha diagnostic tool when the ABS ECU has entered the self-diagnosis mode.

Special precautions for handling and servicing a vehicle equipped with ABS

ECA18490

NOTICE

Care should be taken not to damage components by subjecting them to shocks or pulling on them with too much force since the ABS components are precisely adjusted.

- The ABS ECU and hydraulic unit are united assemblies and cannot be disassembled.
- The malfunction history is stored in the memory of the ABS ECU. Delete the fault codes when the service is finished. (This is because the past fault codes will be displayed again if another malfunction occurs.)

EAS30529

BASIC INSTRUCTIONS FOR TROUBLESHOOTING

EWA17420

WARNING

- **Perform the troubleshooting [A]→[B]→[C] in order. Be sure to follow the order since a wrong diagnosis could result if the steps are followed in a different order or omitted.**
- **Use sufficiently charged regular batteries only.**

[A] Malfunction check using the ABS warning light

[B] Use the Yamaha diagnostic tool and determine the location of the malfunction and the cause from the recorded fault code.

Determine the cause of the malfunction from the condition and place where the malfunction occurred.

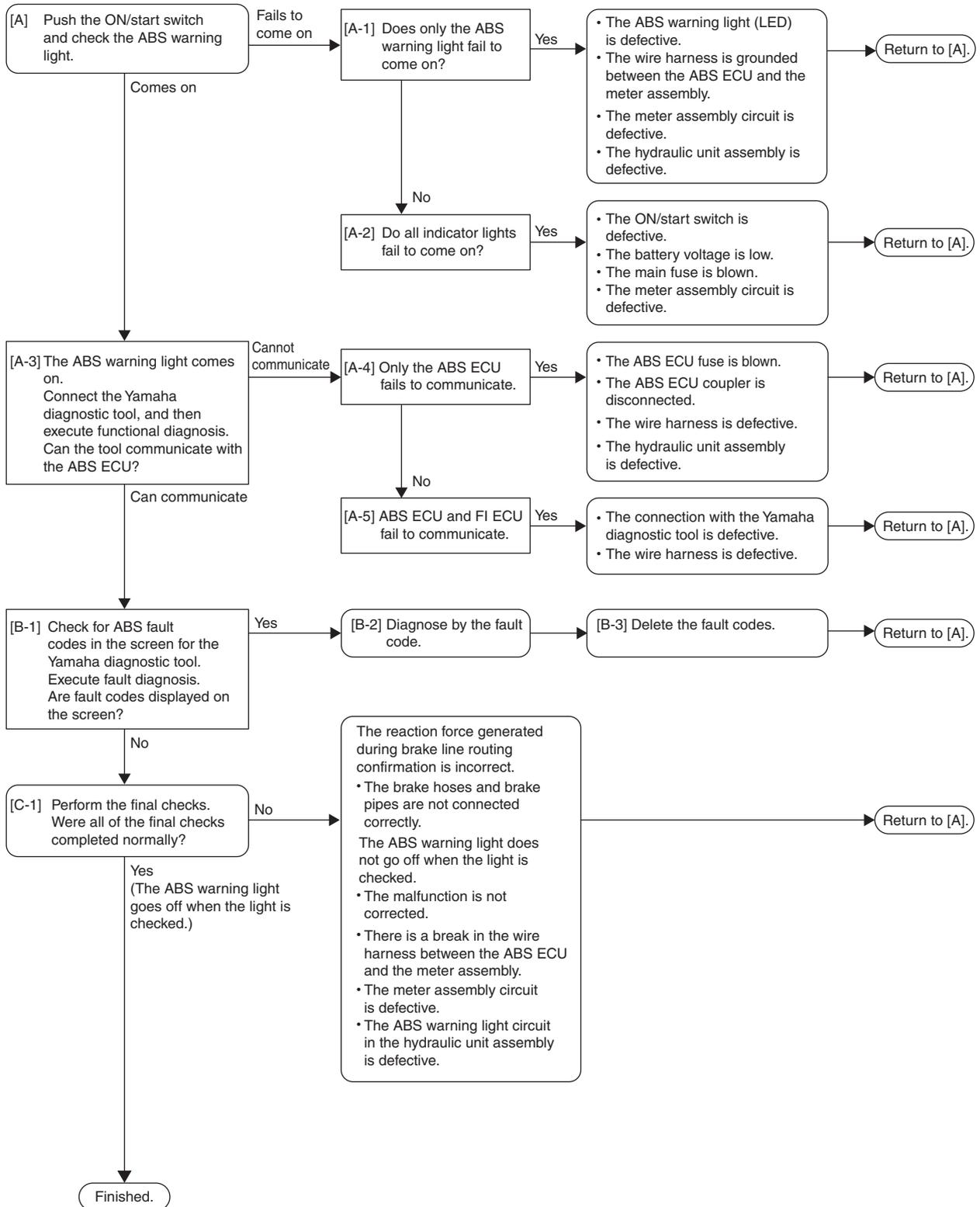
[C] Servicing the ABS

Execute the final check after disassembly and assembly.

ABS (Anti-lock Brake System)

EAS30530

BASIC PROCESS FOR TROUBLESHOOTING



ABS (Anti-lock Brake System)

EWA16710



When maintenance or checks have been performed on components related to the ABS, be sure to perform a final check before delivering the vehicle to the customer.

TIP

To final check, refer to “[C-1] FINAL CHECK” on page 8-191.

EAS30531

[A] CHECKING THE ABS WARNING LIGHT

Push the ON/start switch. (Do not start the engine.)

1. The ABS warning light does not come on.
 - Only the ABS warning light fails to come on. [A-1]
 - The ABS warning light and all other indicator lights fail to come on. [A-2]
2. The ABS warning light comes on. [A-3]

EAS30532

[A-1] ONLY THE ABS WARNING LIGHT FAILS TO COME ON

1. Check for a short circuit to the ground between the green/red terminal of the ABS ECU coupler and green/red terminal of the meter assembly.
 - If there is short circuit to the ground, the wire harness is defective. Replace the wire harness.
2. Disconnect the ABS ECU coupler and check that the ABS warning light comes on when the ON/start switch is pushed.
 - If the ABS warning light does not come on, the meter assembly circuit (including the ABS warning light [LED]) is defective. Replace the meter assembly.
 - If the ABS warning light comes on, the ABS ECU is defective. Replace the hydraulic unit assembly.

EAS30964

[A-2] ALL INDICATOR LIGHTS FAIL TO COME ON

1. ON/start switch
 - Check the ON/start switch for continuity.
Refer to “CHECKING THE SWITCHES” on page 8-221.
 - If there is no continuity, replace the handlebar switch (right).
2. Battery
 - Check the condition of the battery.
Refer to “CHECKING AND CHARGING THE BATTERY” on page 8-230.
 - If the battery is defective, clean the battery terminals and recharge it, or replace the battery.
3. Main fuse
 - Check the fuse for continuity.
Refer to “CHECKING THE FUSES” on page 8-229.
 - If the main fuse is blown, replace the fuse.
4. Circuit
 - Check the meter assembly circuit.
Refer to “CIRCUIT DIAGRAM” on page 8-157.
 - If the meter assembly circuit is open, replace the wire harness.

EAS31162

[A-3] THE ABS WARNING LIGHT COMES ON

Connect the Yamaha diagnostic tool to the Yamaha diagnostic tool coupler and execute functional diagnosis. (For information about how to execute functional diagnosis, refer to the operation manual that is included with the tool.)

Check that communication with the ABS ECU is possible.

- Only the ABS ECU fails to communicate. [A-4]
- ABS ECU and FI ECU fail to communicate. [A-5]
- Communication is possible with the ABS ECU. [B-1] (The ABS is displayed on the select unit screen.)

ABS (Anti-lock Brake System)

EAS31163

[A-4] ONLY THE ABS ECU FAILS TO COMMUNICATE (The select unit screen does not appear.)

1. ABS ECU fuse
 - Check the ABS ECU fuse for continuity.
Refer to “CHECKING THE FUSES” on page 8-229.
 - If the ABS ECU fuse is blown, replace the fuse.
2. ABS ECU coupler
 - Check that the ABS ECU coupler is connected properly.
For information about connecting the ABS ECU coupler properly, refer to “INSTALLING THE HYDRAULIC UNIT ASSEMBLY” on page 4-74.
3. Wire harness
 - Open circuit between the battery and the ABS ECU, or between the ABS ECU and the ground.
Check for continuity between positive battery terminal and brown/white terminal of the ABS ECU coupler.
Check for continuity between black/green terminal of the ABS ECU coupler and the ground, and between the black terminal of the ABS ECU coupler and ground.
If there is no continuity, the wire harness is defective. Replace the wire harness.
 - Open circuit in the wire harness between the ABS ECU coupler and the Yamaha diagnostic tool coupler.
Check for continuity between blue/red terminal of the ABS ECU coupler and blue/red terminal of the Yamaha diagnostic tool coupler. (CANH)
Check for continuity between blue/black terminal of the ABS ECU coupler and blue/black terminal of the Yamaha diagnostic tool coupler. (CANL)
4. ABS ECU malfunction
 - Replace the hydraulic unit assembly.

EAS31164

[A-5] ABS ECU AND FI ECU FAIL TO COMMUNICATE

1. Yamaha diagnostic tool
 - Check that the Yamaha diagnostic tool is properly connected.
2. Wire harness
 - Open circuit in the wire harness between the ABS ECU coupler and the Yamaha diagnostic tool coupler.
Check for continuity between blue/red terminal of the ABS ECU coupler and blue/red terminal of the Yamaha diagnostic tool coupler. (CANH)
Check for continuity between blue/black terminal of the ABS ECU coupler and blue/black terminal of the Yamaha diagnostic tool coupler. (CANL)

EAS31165

[B-1] MALFUNCTION ARE CURRENTLY DETECTED

When the Yamaha diagnostic tool is connected to the Yamaha diagnostic tool coupler, the fault codes will be displayed on the computer screen.

- A fault code is displayed. [B-2]
- A fault code is not displayed. [C-1]

EAS31166

[B-2] DIAGNOSIS USING THE FAULT CODES

This model uses the Yamaha diagnostic tool to identify malfunctions.

For information about using the Yamaha diagnostic tool, refer to the operation manual that is included with the tool.



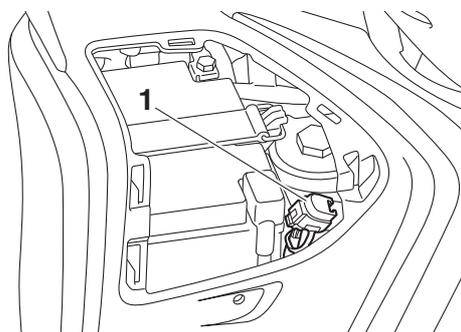
Yamaha diagnostic tool USB
90890-03256
Yamaha diagnostic tool (A/I)
90890-03254

ABS (Anti-lock Brake System)

Connecting the Yamaha diagnostic tool

Removing the battery cover. Refer to "REMOVING THE BATTERY COVER" on page 4-10.

Removing the protective cap, and then connect the Yamaha diagnostic tool to the coupler "1".



Details about the displayed fault codes are shown in the following chart. Refer to this chart and check the vehicle.

Once all the work is complete, delete the fault codes. [B-3]

TIP

Check the inspection points after terminating the connection with the Yamaha diagnostic tool and pressing the OFF/LOCK switch.

Fault code table

TIP

Record all of the fault codes displayed and inspect the check points.

Fault code No.	Item	Symptom	Check point
11* 25*	Front wheel sensor (intermittent pulses or no pulses)	Front wheel sensor signal is not received properly. (Pulses are not received or are received intermittently while the vehicle is traveling.)	<ul style="list-style-type: none"> Foreign material adhered around the front wheel sensor Incorrect installation of the front wheel Defective sensor rotor or incorrect installation of the rotor Defective front wheel sensor or incorrect installation of the sensor
12	Rear wheel sensor (intermittent pulses or no pulses)	Rear wheel sensor signal is not received properly. (Pulses are not received or are received intermittently while the vehicle is traveling.)	<ul style="list-style-type: none"> Foreign material adhered around the rear wheel sensor Incorrect installation of the rear wheel Defective sensor rotor or incorrect installation of the rotor Defective rear wheel sensor or incorrect installation of the sensor
13* 26*	Front wheel sensor (abnormal pulse period)	Front wheel sensor signal is not received properly. (The pulse period is abnormal while the vehicle is traveling.)	<ul style="list-style-type: none"> Foreign material adhered around the front wheel sensor Incorrect installation of the front wheel Defective sensor rotor or incorrect installation of the rotor Defective front wheel sensor or incorrect installation of the sensor

ABS (Anti-lock Brake System)

Fault code No.	Item	Symptom	Check point
14* 27*	Rear wheel sensor (abnormal pulse period)	Rear wheel sensor signal is not received properly. (The pulse period is abnormal while the vehicle is traveling.)	<ul style="list-style-type: none"> • Foreign material adhered around the rear wheel sensor • Incorrect installation of the rear wheel • Defective sensor rotor or incorrect installation of the rotor • Defective rear wheel sensor or incorrect installation of the sensor
15	Front wheel sensor (open or short circuit)	Open or short circuit is detected in the front wheel sensor.	<ul style="list-style-type: none"> • Defective coupler between the front wheel sensor and the hydraulic unit assembly • Open or short circuit in the wire harness between the front wheel sensor and the hydraulic unit assembly • Defective front wheel sensor or hydraulic unit assembly
16	Rear wheel sensor (open or short circuit)	Open or short circuit is detected in the rear wheel sensor.	<ul style="list-style-type: none"> • Defective coupler between the rear wheel sensor and the hydraulic unit assembly • Open or short circuit in the wire harness between the rear wheel sensor and the hydraulic unit assembly • Defective rear wheel sensor or hydraulic unit assembly
17* 45*	Front wheel sensor (missing pulses)	Front wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)	<ul style="list-style-type: none"> • Foreign material adhered around the front wheel sensor • Incorrect installation of the front wheel • Defective sensor rotor or incorrect installation of the rotor • Defective front wheel sensor or incorrect installation of the sensor
18* 46*	Rear wheel sensor (missing pulses)	Rear wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)	<ul style="list-style-type: none"> • Foreign material adhered around the rear wheel sensor • Incorrect installation of the rear wheel • Defective sensor rotor or incorrect installation of the rotor • Defective rear wheel sensor or incorrect installation of the sensor
21	Hydraulic unit assembly (defective solenoid drive circuit)	Solenoid drive circuit in the hydraulic unit assembly is open or short-circuited.	<ul style="list-style-type: none"> • Defective hydraulic unit assembly

ABS (Anti-lock Brake System)

Fault code No.	Item	Symptom	Check point
24	Brake light switch or tail/brake light	Brake light signal is not received properly while the vehicle is traveling. (Brake light circuit, or front or rear brake light switch circuit.)	<ul style="list-style-type: none"> • Defective signaling system (tail/brake light or brake light switch) • Defective coupler between the signaling system (tail/brake light or brake light switch) and the hydraulic unit assembly • Open or short circuit in the wire harness between the signaling system (tail/brake light or brake light switch) and the hydraulic unit assembly • Defective hydraulic unit assembly
31	Hydraulic unit assembly (abnormal ABS solenoid power supply)	Power is not supplied to the solenoid circuit in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Blown ABS solenoid fuse • Defective coupler between the battery and the hydraulic unit assembly • Open or short circuit in the wire harness between the battery and the hydraulic unit assembly • Defective hydraulic unit assembly
32	Hydraulic unit assembly (short circuit in ABS solenoid power supply circuit)	Short circuit is detected in the solenoid power supply circuit in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Defective hydraulic unit assembly
33	Hydraulic unit assembly (abnormal ABS motor power supply)	Power is not supplied to the motor circuit in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Blown ABS motor fuse • Defective coupler between the battery and the hydraulic unit assembly • Open or short circuit in the wire harness between the battery and the hydraulic unit assembly • Defective hydraulic unit assembly
34	Hydraulic unit assembly (short circuit in ABS motor power supply circuit)	Short circuit is detected in the motor power supply circuit in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Defective hydraulic unit assembly
41	Front wheel ABS (intermittent wheel speed pulses or incorrect depressurization)	<ul style="list-style-type: none"> • Pulses from the front wheel sensor are received intermittently while the vehicle is traveling. • Front wheel will not recover from the locking tendency even though the signal is transmitted from the ABS ECU to reduce the hydraulic pressure. 	<ul style="list-style-type: none"> • Incorrect installation of the front wheel sensor • Incorrect rotation of the front wheel • Front brake dragging • Defective hydraulic unit assembly

ABS (Anti-lock Brake System)

Fault code No.	Item	Symptom	Check point
42 47	Rear wheel ABS (intermittent wheel speed pulses or incorrect depressurization)	<ul style="list-style-type: none"> • Pulses from the rear wheel sensor are received intermittently while the vehicle is traveling. (for fault code No. 42) • Rear wheel will not recover from the locking tendency even though the signal is transmitted from the ABS ECU to reduce the hydraulic pressure. 	<ul style="list-style-type: none"> • Incorrect installation of the rear wheel sensor (for fault code No. 42) • Incorrect rotation of the rear wheel • Rear brake dragging • Defective hydraulic unit assembly
43	Front wheel sensor (missing pulses)	Front wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)	<ul style="list-style-type: none"> • Foreign material adhered around the front wheel sensor • Incorrect installation of the front wheel • Defective sensor rotor or incorrect installation of the rotor • Defective front wheel sensor or incorrect installation of the sensor
44	Rear wheel sensor (missing pulses)	Rear wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)	<ul style="list-style-type: none"> • Foreign material adhered around the rear wheel sensor • Incorrect installation of the rear wheel • Defective sensor rotor or incorrect installation of the rotor • Defective rear wheel sensor or incorrect installation of the sensor
51 52	<ul style="list-style-type: none"> • Vehicle system power supply (voltage of ABS ECU power supply is high) (for fault code No. 51) • Vehicle system power supply (voltage of wheel sensor power supply is high) (for fault code No. 52) 	<ul style="list-style-type: none"> • Power voltage supplied to the ABS ECU in the hydraulic unit assembly is too high. (for fault code No. 51) • Power voltage supplied to the wheel sensor is too high. (for fault code No. 52) 	<ul style="list-style-type: none"> • Defective battery • Disconnected battery terminal • Defective charging system
53	Vehicle system power supply (voltage of ABS ECU power supply is low)	Power voltage supplied to the ABS ECU in the hydraulic unit assembly is too low.	<ul style="list-style-type: none"> • Defective battery • Defective coupler between the battery and the hydraulic unit assembly • Open or short circuit in the wire harness between the battery and the hydraulic unit assembly • Defective charging system
54	Hydraulic unit assembly (defective ABS solenoid and ABS motor power supply circuits)	Abnormality is detected in the solenoid or motor power supply circuit in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Defective battery • Defective coupler between the battery and the hydraulic unit assembly • Open or short circuit in the wire harness between the battery and the hydraulic unit assembly • Defective charging system • Defective hydraulic unit assembly

ABS (Anti-lock Brake System)

Fault code No.	Item	Symptom	Check point
55	Hydraulic unit assembly (defective ABS ECU)	Abnormal data is detected in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Defective hydraulic unit assembly
56	Hydraulic unit assembly (abnormal internal power supply)	Abnormality is detected in the power supply circuit in the hydraulic unit assembly.	<ul style="list-style-type: none"> • Defective hydraulic unit assembly
63	Front wheel sensor power supply (voltage of power supply is low)	Power voltage supplied from the ABS ECU to the front wheel sensor is too low.	<ul style="list-style-type: none"> • Short circuit in the wire harness between the front wheel sensor and the hydraulic unit assembly • Defective front wheel sensor • Defective hydraulic unit assembly
64	Rear wheel sensor power supply (voltage of power supply is low)	Power voltage supplied from the ABS ECU to the rear wheel sensor is too low.	<ul style="list-style-type: none"> • Short circuit in the wire harness between the rear wheel sensor and the hydraulic unit assembly • Defective rear wheel sensor • Defective hydraulic unit assembly

* The fault code number varies according to the vehicle conditions.

Fault code No. 11, 25

TIP

With the front wheel stopped, the rear wheel was rotated for longer than about 20 seconds (fault code No. 11) or for longer than about 2 seconds (fault code No. 25).

Fault code No.	11 25	
Item	Front wheel sensor (intermittent pulses or no pulses)	
Symptom	Front wheel sensor signal is not received properly. (Pulses are not received or are received intermittently while the vehicle is traveling.)	
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the front wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the front wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE FRONT WHEEL" on page 4-24.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.
4	Defective front wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.

ABS (Anti-lock Brake System)

Fault code No. 12

Fault code No.		12
Item		Rear wheel sensor (intermittent pulses or no pulses)
Symptom		Rear wheel sensor signal is not received properly. (Pulses are not received or are received intermittently while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the rear wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the rear wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE REAR WHEEL" on page 4-35.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.
4	Defective rear wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.

Fault code No. 13, 26

TIP

- If the front brake ABS operates continuously for 20 seconds or more, fault code No. 26 will be recorded. If the front brake ABS operates continuously for 36 seconds or more, fault code No. 13 will be recorded.
- Vehicle possibly ridden on uneven roads.

Fault code No.		13 26
Item		Front wheel sensor (abnormal pulse period)
Symptom		Front wheel sensor signal is not received properly. (The pulse period is abnormal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the front wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the front wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE FRONT WHEEL" on page 4-24.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.

ABS (Anti-lock Brake System)

Fault code No.		13 26
Item		Front wheel sensor (abnormal pulse period)
Symptom		Front wheel sensor signal is not received properly. (The pulse period is abnormal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
4	Defective front wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.

Fault code No. 14, 27

TIP

- If the rear brake ABS operates continuously for 20 seconds or more, fault code No. 27 will be recorded. If the rear brake ABS operates continuously for 36 seconds or more, fault code No. 14 will be recorded.
- Vehicle possibly ridden on uneven roads.

Fault code No.		14 27
Item		Rear wheel sensor (abnormal pulse period)
Symptom		Rear wheel sensor signal is not received properly. (The pulse period is abnormal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the rear wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the rear wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE REAR WHEEL" on page 4-35.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.
4	Defective rear wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.

ABS (Anti-lock Brake System)

Fault code No. 15

TIP

Push the OFF/LOCK switch before disconnecting or connecting a coupler.

Fault code No.		15
Item		Front wheel sensor (open or short circuit)
Symptom		Open or short circuit is detected in the front wheel sensor.
Order	Item/components and probable cause	Check or maintenance job
1	Defective coupler between the front wheel sensor and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the coupler for any pins that may be pulled out. • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely. See TIP.
2	Open or short circuit in the wire harness between the front wheel sensor and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check for continuity between the white terminal "1" and the white terminal "4" and between the black terminal "2" and the black terminal "5". • If there is no continuity, the wire harness is defective. Replace the wire harness. • Check that there is no short circuit between the white terminal "1" and the black terminal "2" and between the white terminal "4" and the black terminal "5". • If there is short circuit, the wire harness is defective. Replace the wire harness. • Check that there is no short circuit between the black terminal "3" and the white terminal "4" and between the black terminal "3" and the black terminal "5". • If there is short circuit, the wire harness is defective. Replace the wire harness. <div style="text-align: center;"> <p>6. ABS ECU 7. Front wheel sensor</p> </div>
3	Defective front wheel sensor or hydraulic unit assembly	<p>If the above items were performed and no malfunctions were found, the wheel sensor or hydraulic unit assembly is defective. Replace the wheel sensor or hydraulic unit assembly.</p> <p>Refer to "FRONT WHEEL" on page 4-22 and "ABS (Anti-lock Brake System)" on page 4-71.</p>

ABS (Anti-lock Brake System)

Fault code No. 16

TIP

Push the OFF/LOCK switch before disconnecting or connecting a coupler.

Fault code No.		16
Item		Rear wheel sensor (open or short circuit)
Symptom		Open or short circuit is detected in the rear wheel sensor.
Order	Item/components and probable cause	Check or maintenance job
1	Defective coupler between the rear wheel sensor and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the coupler for any pins that may be pulled out. • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely. See TIP.
2	Open or short circuit in the wire harness between the rear wheel sensor and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check for continuity between the white terminal “1” and the white terminal “4” and between the black terminal “2” and the black terminal “5”. • If there is no continuity, the wire harness is defective. Replace the wire harness. • Check that there is no short circuit between the white terminal “1” and the black terminal “2” and between the white terminal “4” and the black terminal “5”. • If there is short circuit, the wire harness is defective. Replace the wire harness. • Check that there is no short circuit between the black terminal “3” and the white terminal “4” and between the black terminal “3” and the black terminal “5”. • If there is short circuit, the wire harness is defective. Replace the wire harness. <div style="text-align: center;"> <p>6. ABS ECU 7. Rear wheel sensor</p> </div>
3	Defective rear wheel sensor or hydraulic unit assembly	<p>If the above items were performed and no malfunctions were found, the wheel sensor or hydraulic unit assembly is defective. Replace the wheel sensor or hydraulic unit assembly.</p> <p>Refer to “REAR WHEEL” on page 4-31 and “ABS (Anti-lock Brake System)” on page 4-71.</p>

ABS (Anti-lock Brake System)

Fault code No. 17, 45

TIP

If pulse gaps are detected when the vehicle is traveling at a speed of 30 km/h (19 mi/h) or more, fault code No. 17 will be recorded. If the vehicle is traveling at a speed of 29 km/h (18 mi/h) or less, fault code No. 45 will be recorded first and fault code No. 17 will be recorded if the condition continues.

Fault code No.		17 45
Item		Front wheel sensor (missing pulses)
Symptom		Front wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the front wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the front wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE FRONT WHEEL" on page 4-24.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.
4	Defective front wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.

Fault code No. 18, 46

TIP

If pulse gaps are detected when the vehicle is traveling at a speed of 30 km/h (19 mi/h) or more, fault code No. 18 will be recorded. If the vehicle is traveling at a speed of 29 km/h (18 mi/h) or less, fault code No. 46 will be recorded first and fault code No. 18 will be recorded if the condition continues.

Fault code No.		18 46
Item		Rear wheel sensor (missing pulses)
Symptom		Rear wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the rear wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the rear wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE REAR WHEEL" on page 4-35.

ABS (Anti-lock Brake System)

Fault code No.		18 46
Item		Rear wheel sensor (missing pulses)
Symptom		Rear wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.
4	Defective rear wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.

Fault code No. 21

Fault code No.		21
Item		Hydraulic unit assembly (defective solenoid drive circuit)
Symptom		Solenoid drive circuit in the hydraulic unit assembly is open or short-circuited.
Order	Item/components and probable cause	Check or maintenance job
1	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

Fault code No. 24

Fault code No.		24
Item		Brake light switch or tail/brake light
Symptom		Brake light signal is not received properly while the vehicle is traveling. (Brake light circuit, or front or rear brake light switch circuit.)
Order	Item/components and probable cause	Check or maintenance job
1	Defective signaling system (tail/brake light or brake light switch)	Check the brake light switches. Refer to "CHECKING THE SWITCHES" on page 8-221.
2	Defective coupler between the signaling system (tail/brake light or brake light switch) and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the coupler for any pins that may be pulled out. • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely.
3	Open or short circuit in the wire harness between the signaling system (tail/brake light or brake light switch) and the hydraulic unit assembly	<ul style="list-style-type: none"> • Between ABS ECU coupler and joint coupler. (Green–Yellow) • Between joint coupler and front brake light switch coupler. (Green–Yellow) • Between joint coupler and rear brake light switch coupler. (Green–Yellow)
4	Defective hydraulic unit assembly	If the above items were performed and no malfunctions were found, replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

ABS (Anti-lock Brake System)

Fault code No. 31

TIP

Push the OFF/LOCK switch before disconnecting or connecting a coupler.

Fault code No.		31
Item		Hydraulic unit assembly (abnormal ABS solenoid power supply)
Symptom		Power is not supplied to the solenoid circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Blown ABS solenoid fuse	Check the ABS solenoid fuse. If the ABS solenoid fuse is blown, replace the fuse and check the wire harness. Refer to "CHECKING THE FUSES" on page 8-229.
2	Defective coupler between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely. See TIP.
3	Open or short circuit in the wire harness between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Replace if there is an open or short circuit. • Between ABS ECU coupler and ABS solenoid fuse. (Red/White-Red/White)
4	Defective hydraulic unit assembly	If the above items were performed and no malfunctions were found, replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

Fault code No. 32

Fault code No.		32
Item		Hydraulic unit assembly (short circuit in ABS solenoid power supply circuit)
Symptom		Short circuit is detected in the solenoid power supply circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

Fault code No. 33

TIP

Push the OFF/LOCK switch before disconnecting or connecting a coupler.

Fault code No.		33
Item		Hydraulic unit assembly (abnormal ABS motor power supply)
Symptom		Power is not supplied to the motor circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Blown ABS motor fuse	Check the ABS motor fuse. If the ABS motor fuse is blown, replace the fuse and check the wire harness. Refer to "CHECKING THE FUSES" on page 8-229.

ABS (Anti-lock Brake System)

Fault code No.		33
Item		Hydraulic unit assembly (abnormal ABS motor power supply)
Symptom		Power is not supplied to the motor circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
2	Defective coupler between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the coupler for any pins that may be pulled out. • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely. See TIP.
3	Open or short circuit in the wire harness between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Replace if there is an open or short circuit. • Between ABS ECU coupler and ABS motor fuse. (Red/Blue–Red/Blue) • Between ABS ECU coupler and ground. (Black/Green–Black/Green)
4	Defective hydraulic unit assembly	If the above items were performed and no malfunctions were found, replace the hydraulic unit assembly. Refer to “ABS (Anti-lock Brake System)” on page 4-71.

Fault code No. 34

Fault code No.		34
Item		Hydraulic unit assembly (short circuit in ABS motor power supply circuit)
Symptom		Short circuit is detected in the motor power supply circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to “ABS (Anti-lock Brake System)” on page 4-71.

Fault code No. 41

Fault code No.		41
Item		Front wheel ABS (intermittent wheel speed pulses or incorrect depressurization)
Symptom		<ul style="list-style-type: none"> • Pulses from the front wheel sensor are received intermittently while the vehicle is traveling. • Front wheel will not recover from the locking tendency even though the signal is transmitted from the ABS ECU to reduce the hydraulic pressure.
Order	Item/components and probable cause	Check or maintenance job
1	Incorrect installation of the front wheel sensor	Check the components for looseness, distortion, and bends. Refer to “CHECKING THE FRONT WHEEL” on page 4-24.
2	Incorrect rotation of the front wheel	Check that there is no brake disc drag on the front wheel and make sure that it rotates smoothly. Refer to “CHECKING THE FRONT WHEEL” on page 4-24 and “CHECKING THE FRONT BRAKE DISCS” on page 4-45.

ABS (Anti-lock Brake System)

Fault code No.		41
Item		Front wheel ABS (intermittent wheel speed pulses or incorrect depressurization)
Symptom		<ul style="list-style-type: none"> • Pulses from the front wheel sensor are received intermittently while the vehicle is traveling. • Front wheel will not recover from the locking tendency even though the signal is transmitted from the ABS ECU to reduce the hydraulic pressure.
Order	Item/components and probable cause	Check or maintenance job
3	Front brake dragging	Check that the brake fluid pressure is correctly transmitted to the brake caliper when the front brake lever is operated and that the pressure decreases when the lever is released. Refer to "CHECKING THE FRONT BRAKE DISCS" on page 4-45.
4	Defective hydraulic unit assembly	If the above items were performed and no malfunctions were found, replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

Fault code No. 42, 47

Fault code No.		42 47
Item		Rear wheel ABS (intermittent wheel speed pulses or incorrect depressurization)
Symptom		<ul style="list-style-type: none"> • Pulses from the rear wheel sensor are received intermittently while the vehicle is traveling. (for fault code No. 42) • Rear wheel will not recover from the locking tendency even though the signal is transmitted from the ABS ECU to reduce the hydraulic pressure.
Order	Item/components and probable cause	Check or maintenance job
1	Incorrect installation of the rear wheel sensor (for fault code No. 42)	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE REAR WHEEL" on page 4-35.
2	Incorrect rotation of the rear wheel	Check that there is no brake disc drag on the wheel and make sure that it rotates smoothly. Refer to "CHECKING THE REAR WHEEL" on page 4-35.
3	Rear brake dragging	Check that the brake fluid pressure is correctly transmitted to the brake caliper when the rear brake lever is operated and that the pressure decreases when the lever is released. Refer to "CHECKING THE REAR BRAKE DISC" on page 4-61.
4	Defective hydraulic unit assembly	If the above items were performed and no malfunctions were found, replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

ABS (Anti-lock Brake System)

Fault code No. 43

Fault code No.		43
Item		Front wheel sensor (missing pulses)
Symptom		Front wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the front wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the front wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE FRONT WHEEL" on page 4-24.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.
4	Defective front wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE FRONT WHEEL SENSOR AND SENSOR ROTOR" on page 4-26.

Fault code No. 44

Fault code No.		44
Item		Rear wheel sensor (missing pulses)
Symptom		Rear wheel sensor signal is not received properly. (Missing pulses are detected in the signal while the vehicle is traveling.)
Order	Item/components and probable cause	Check or maintenance job
1	Foreign material adhered around the rear wheel sensor	Check the surface of the sensor rotor and wheel sensor for foreign material, such as metal particles. Clean the sensor rotor and wheel sensor if necessary.
2	Incorrect installation of the rear wheel	Check the components for looseness, distortion, and bends. Refer to "CHECKING THE REAR WHEEL" on page 4-35.
3	Defective sensor rotor or incorrect installation of the rotor	Check the surface of the sensor rotor for damage. Replace the sensor rotor if there is visible damage. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.
4	Defective rear wheel sensor or incorrect installation of the sensor	Check the wheel sensor for damage and the installed condition of the sensor. Repair or replace the wheel sensor if necessary. Refer to "MAINTENANCE OF THE REAR WHEEL SENSOR AND SENSOR ROTOR" on page 4-36.

ABS (Anti-lock Brake System)

Fault code No. 51, 52

Fault code No.		51 52
Item		<ul style="list-style-type: none"> • Vehicle system power supply (voltage of ABS ECU power supply is high) (for fault code No. 51) • Vehicle system power supply (voltage of wheel sensor power supply is high) (for fault code No. 52)
Symptom		<ul style="list-style-type: none"> • Power voltage supplied to the ABS ECU in the hydraulic unit assembly is too high. (for fault code No. 51) • Power voltage supplied to the wheel sensor is too high. (for fault code No. 52)
Order	Item/components and probable cause	Check or maintenance job
1	Defective battery	Recharge or replace the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.
2	Disconnected battery terminal	Check the connection. Replace or reconnect the terminal if necessary.
3	Defective charging system	Check the charging system. Refer to "CHARGING SYSTEM" on page 8-19.

Fault code No. 53

TIP

Push the OFF/LOCK switch before disconnecting or connecting a coupler.

Fault code No.		53
Item		Vehicle system power supply (voltage of ABS ECU power supply is low)
Symptom		Power voltage supplied to the ABS ECU in the hydraulic unit assembly is too low.
Order	Item/components and probable cause	Check or maintenance job
1	Defective battery	Recharge or replace the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.
2	Defective coupler between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the coupler for any pins that may be pulled out. • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely. See TIP.
3	Open or short circuit in the wire harness between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Replace if there is an open or short circuit. • Between ABS ECU coupler and ABS ECU fuse. (Brown/White–Brown/White)
4	Defective charging system	Check the charging system. Refer to "CHARGING SYSTEM" on page 8-19.

ABS (Anti-lock Brake System)

Fault code No. 54

TIP

Push the OFF/LOCK switch before disconnecting or connecting a coupler.

Fault code No.		54
Item		Hydraulic unit assembly (defective ABS solenoid and ABS motor power supply circuits)
Symptom		Abnormality is detected in the solenoid or motor power supply circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Defective battery	Recharge or replace the battery. Refer to "CHECKING AND CHARGING THE BATTERY" on page 8-230.
2	Defective coupler between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check the coupler for any pins that may be pulled out. • Check the locking condition of the coupler. • If there is a malfunction, repair it and connect the coupler securely. See TIP.
3	Open or short circuit in the wire harness between the battery and the hydraulic unit assembly	<ul style="list-style-type: none"> • Replace if there is an open or short circuit. • Between ABS ECU coupler and ABS motor fuse. (Red/Blue–Red/Blue) • Between ABS ECU coupler and ABS solenoid fuse. (Red/White–Red/White)
4	Defective charging system	Check the charging system. Refer to "CHARGING SYSTEM" on page 8-19.
5	Defective hydraulic unit assembly	If the above items were performed and no malfunctions were found, replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

Fault code No. 55

Fault code No.		55
Item		Hydraulic unit assembly (defective ABS ECU)
Symptom		Abnormal data is detected in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

Fault code No. 56

Fault code No.		56
Item		Hydraulic unit assembly (abnormal internal power supply)
Symptom		Abnormality is detected in the power supply circuit in the hydraulic unit assembly.
Order	Item/components and probable cause	Check or maintenance job
1	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to "ABS (Anti-lock Brake System)" on page 4-71.

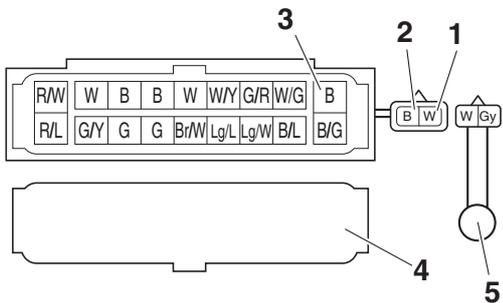
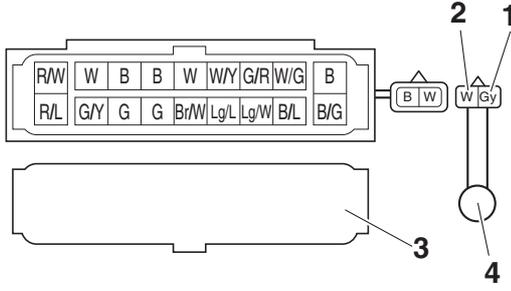
ABS (Anti-lock Brake System)

Fault code No. 63

Fault code No.	63	
Item	Front wheel sensor power supply (voltage of power supply is low)	
Symptom	Power voltage supplied from the ABS ECU to the front wheel sensor is too low.	
Order	Item/components and probable cause	Check or maintenance job
1	Short circuit in the wire harness between the front wheel sensor and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check that there is no short circuit between the white terminal “1” and the black terminal “2”. • Check that there is no short circuit between the black terminal “3” and the white terminal “1”. • If there is a short circuit, the wire harness is defective. Replace the wire harness. <p>4. ABS ECU 5. Front wheel sensor</p>
2	Defective front wheel sensor	<ul style="list-style-type: none"> • Check that there is no short circuit between the gray terminal “1” and the white terminal “2”. • If there is a short circuit, the wheel sensor is defective. Repair or replace the wheel sensor. <p>3. ABS ECU 4. Front wheel sensor</p>
3	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to “ABS (Anti-lock Brake System)” on page 4-71.

ABS (Anti-lock Brake System)

Fault code No. 64

Fault code No.	64	
Item	Rear wheel sensor power supply (voltage of power supply is low)	
Symptom	Power voltage supplied from the ABS ECU to the rear wheel sensor is too low.	
Order	Item/components and probable cause	Check or maintenance job
1	Short circuit in the wire harness between the rear wheel sensor and the hydraulic unit assembly	<ul style="list-style-type: none"> • Check that there is no short circuit between the white terminal “1” and the black terminal “2”. • Check that there is no short circuit between the black terminal “3” and the white terminal “1”. • If there is a short circuit, the wire harness is defective. Replace the wire harness.  <p>4. ABS ECU 5. Rear wheel sensor</p>
2	Defective rear wheel sensor	<ul style="list-style-type: none"> • Check that there is no short circuit between the gray terminal “1” and the white terminal “2”. • If there is a short circuit, the wheel sensor is defective. Repair or replace the wheel sensor.  <p>3. ABS ECU 4. Rear wheel sensor</p>
3	Defective hydraulic unit assembly	Replace the hydraulic unit assembly. Refer to “ABS (Anti-lock Brake System)” on page 4-71.

ABS (Anti-lock Brake System)

EAS31167

[B-3] DELETING THE FAULT CODES

To delete the fault codes, use the Yamaha diagnostic tool. For information about deleting the fault codes, refer to the operation manual of the Yamaha diagnostic tool.

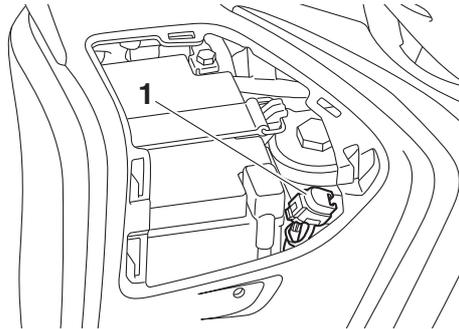
Check that all the displayed fault codes are deleted.



Yamaha diagnostic tool USB
90890-03256
Yamaha diagnostic tool (A/I)
90890-03254

Connecting the Yamaha diagnostic tool

Remove the protective cap, and then connect the Yamaha diagnostic tool to the coupler "1".



EAS31168

[C-1] FINAL CHECK

Check all the following items to complete the inspection.

If the process is not completed properly, start again from the beginning.

Checking procedures

1. Check the brake fluid level in the brake master cylinder reservoir and brake fluid reservoir.
Refer to "CHECKING THE BRAKE FLUID LEVEL" on page 3-15.
2. Check the wheel sensors for proper installation.
Refer to "INSTALLING THE FRONT WHEEL (DISC BRAKE)" on page 4-28 and "INSTALLING THE REAR WHEEL (DISC BRAKE)" on page 4-36.
3. Perform brake line routing confirmation.
Refer to "HYDRAULIC UNIT OPERATION TEST" on page 4-75.
If it does not have reaction-force properly, the brake hose is not properly routed or connected.
4. Delete the fault codes.
Refer to "[B-3] DELETING THE FAULT CODES" on page 8-191.
5. Checking the ABS warning light.
Refer to "CHECKING THE ABS WARNING LIGHT" on page 4-78.
If the ABS warning light does not turn off, the possible causes are following:
 - The problem is not solved.
 - Open circuit between the ABS ECU and the meter assembly.
Check for continuity between green/red terminal of the ABS ECU coupler and green/red terminal of the meter assembly coupler.
 - Malfunction in the meter assembly circuit.
 - Malfunction in the ABS warning light circuit in the hydraulic unit assembly.

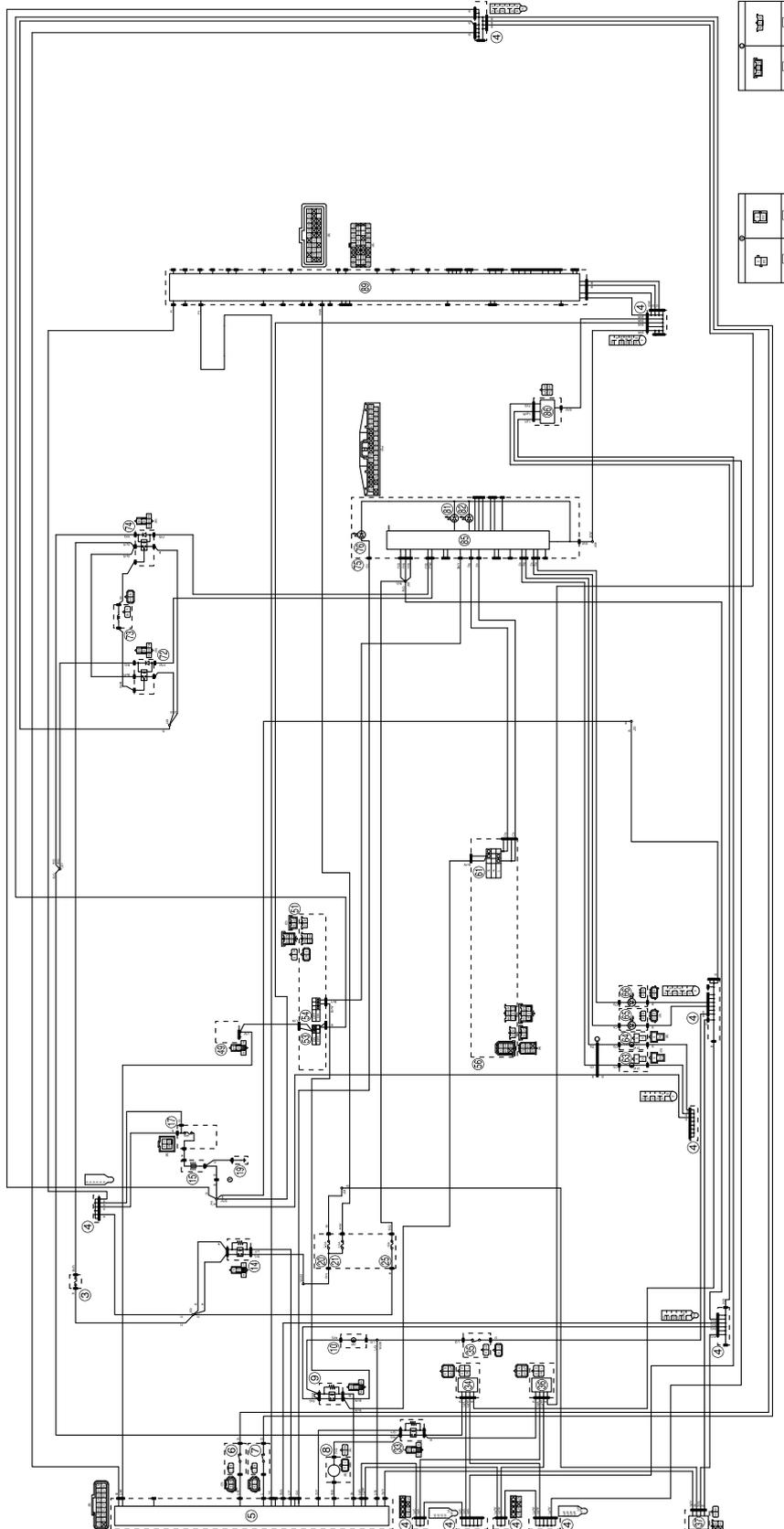
EAS20201

SMART KEY SYSTEM

EAS31452

CIRCUIT DIAGRAM

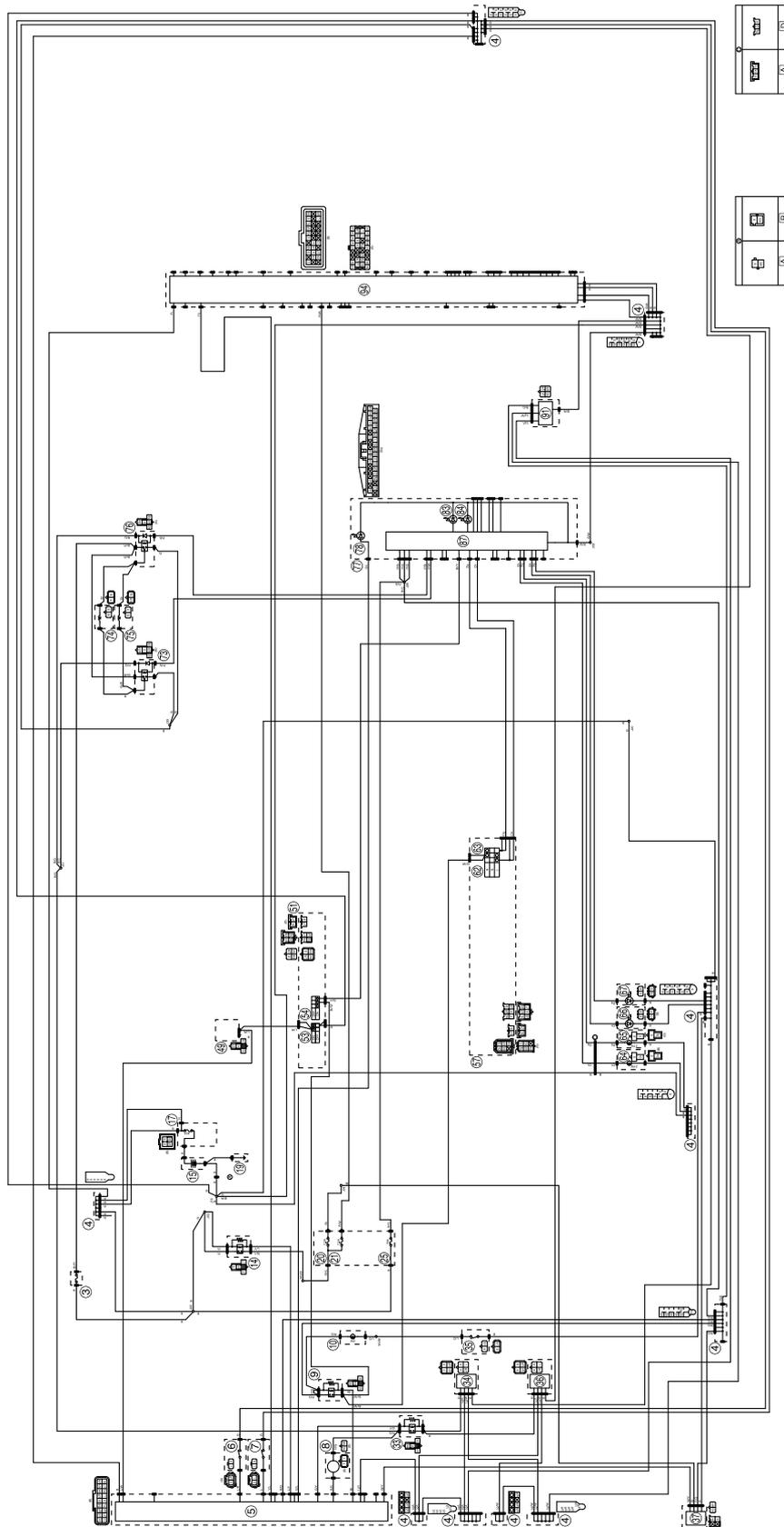
XP530E-A



- 3. Seat lock fuse
- 4. Joint coupler
- 5. Remote control unit
- 6. OFF/LOCK switch
- 7. Parking/Unlock switch
- 8. Buzzer
- 9. Turn signal/hazard relay
- 10. Storage box light
- 14. Ignition system relay
- 15. Battery
- 17. Main fuse
- 19. Engine ground
- 20. Signaling system fuse
- 21. Ignition fuse
- 25. Backup fuse
- 33. Steering lock relay
- 34. Centerstand lock solenoid
- 35. Storage box light switch
- 36. Steering lock unit
- 37. Anti-theft alarm (OPTION)
- 49. Starting circuit cut-off relay
- 51. Handlebar switch (right)
- 53. ON/start switch
- 54. Hazard switch
- 56. Handlebar switch (left)
- 61. Turn signal switch
- 63. Front turn signal light (left)
- 64. Front turn signal light (right)
- 65. Rear turn signal light (left)
- 66. Rear turn signal light (right)
- 72. Smart key system relay (unlock)
- 73. Seat/fuel lid lock solenoid
- 74. Smart key system relay (lock)
- 75. Meter assembly
- 76. Smart key system indicator light
- 81. Turn signal indicator light (left)
- 82. Turn signal indicator light (right)
- 85. Multi-function display
- 86. Yamaha diagnostic tool coupler
- 89. ECU (Engine Control Unit)

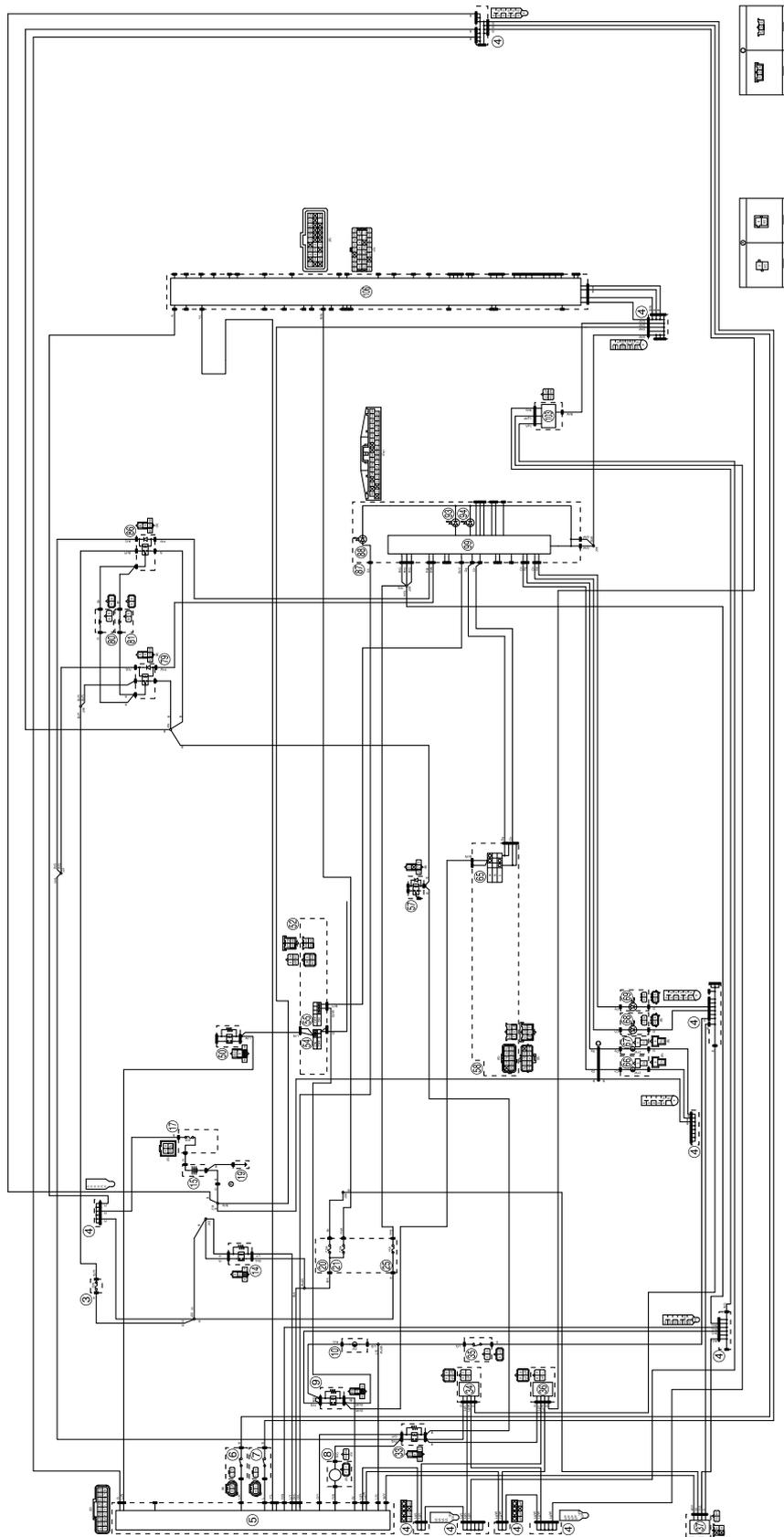
- A. Wire harness
- B. Negative battery sub-wire harness
- D. Headlight sub-wire harness (headlight harness)

XP530-A



- 3. Seat lock fuse
 - 4. Joint coupler
 - 5. Remote control unit
 - 6. OFF/LOCK switch
 - 7. Parking/Unlock switch
 - 8. Buzzer
 - 9. Turn signal/hazard relay
 - 10. Storage box light
 - 14. Ignition system relay
 - 15. Battery
 - 17. Main fuse
 - 19. Engine ground
 - 20. Signaling system fuse
 - 21. Ignition fuse
 - 25. Backup fuse
 - 33. Steering lock relay
 - 34. Centerstand lock solenoid
 - 35. Storage box light switch
 - 36. Steering lock unit
 - 37. Anti-theft alarm (OPTION)
 - 49. Starting circuit cut-off relay
 - 51. Handlebar switch (right)
 - 53. ON/start switch
 - 54. Hazard switch
 - 57. Handlebar switch (left)
 - 62. Turn signal switch
 - 63. Rear brake light switch
 - 64. Front turn signal light (left)
 - 65. Front turn signal light (right)
 - 66. Rear turn signal light (left)
 - 67. Rear turn signal light (right)
 - 73. Smart key system relay (unlock)
 - 74. Storage compartment lid lock solenoid
 - 75. Seat/fuel lid lock solenoid
 - 76. Smart key system relay (lock)
 - 77. Meter assembly
 - 78. Smart key system indicator light
 - 83. Turn signal indicator light (left)
 - 84. Turn signal indicator light (right)
 - 87. Multi-function display
 - 91. Yamaha diagnostic tool coupler
 - 94. ECU (Engine Control Unit)
-
- A. Wire harness
 - B. Negative battery sub-wire harness
 - D. Headlight sub-wire harness (headlight harness)

XP530D-A



- 3. Windshield motor fuse
 - 4. Joint coupler
 - 5. Remote control unit
 - 6. OFF/LOCK switch
 - 7. Parking/Unlock switch
 - 8. Buzzer
 - 9. Turn signal/hazard relay
 - 10.Storage box light
 - 14.Ignition system relay
 - 15.Battery
 - 17.Main fuse
 - 19.Engine ground
 - 20.Signaling system fuse
 - 21.Ignition fuse
 - 25.Backup fuse
 - 33.Steering lock relay
 - 34.Centerstand lock solenoid
 - 35.Storage box light switch
 - 36.Steering lock unit
 - 37.Anti-theft alarm (OPTION)
 - 50.Starting circuit cut-off relay
 - 52.Handlebar switch (right)
 - 54.ON/start switch
 - 55.Hazard switch
 - 57.Brake light relay
 - 58.Handlebar switch (left)
 - 65.Turn signal switch
 - 66.Front turn signal light (left)
 - 67.Front turn signal light (right)
 - 68.Rear turn signal light (left)
 - 69.Rear turn signal light (right)
 - 79.Smart key system relay (unlock)
 - 80.Storage compartment lid lock solenoid
 - 81.Seat/fuel lid lock solenoid
 - 86.Smart key system relay (lock)
 - 87.Meter assembly
 - 88.Smart key system indicator light
 - 93.Turn signal indicator light (left)
 - 94.Turn signal indicator light (right)
 - 99.Multi-function display
 - 103.Yamaha diagnostic tool coupler
 - 106.ECU (Engine Control Unit)
-
- A. Wire harness
 - B. Negative battery sub-wire harness
 - D. Headlight sub-wire harness (headlight harness)

EAS31453

TROUBLESHOOTING

Vehicle power does not turn on. (Meter light and tail/brake light do not come on.)

Engine does not start even though vehicle power is turned on.

Seat/fuel lid or storage compartment lid (for XP530-A/XP530D-A) does not open. (Vehicle power is turned on.)

TIP

Before troubleshooting, remove the following part(s):

1. Front cowling assembly
2. Handlebar cover (front)
3. Storage box

Checking the vehicle power

<p>1. Check the smart key. → The smart key indicator light comes on when the ON/OFF switch “” is pushed. → Check the button cell battery. Refer to “CHECKING THE SMART KEY BATTERY” on page 8-250.</p>	NG→	<p>Replace the button cell battery of the smart key. Standard battery: CR2025</p>
OK↓		
<p>2. Check the fuses. (Main, backup, and ignition) Refer to “CHECKING THE FUSES” on page 8-229.</p>	NG→	<p>Replace the fuse(s).</p>
OK↓		
<p>3. Check the battery. Refer to “CHECKING AND CHARGING THE BATTERY” on page 8-230.</p>	NG→	<ul style="list-style-type: none"> • Clean the battery terminals. • Recharge or replace the battery.
OK↓		
<p>4. Check the ON/start switch. Refer to “CHECKING THE SWITCHES” on page 8-221.</p>	NG→	<p>The ON/start switch is faulty. Replace the handlebar switch (right).</p>
OK↓		
<p>5. Check the ignition system relay. Refer to “CHECKING THE RELAYS” on page 8-233.</p>	NG→	<p>Replace the ignition system relay.</p>
OK↓		
<p>6. Check the entire smart key system’s wiring. Refer to “CIRCUIT DIAGRAM” on page 8-193.</p>	NG→	<p>Properly connect or replace the wire harness.</p>
OK↓		
<p>Replace the remote control unit.</p>		

Checking the smart key system

Before checking the smart key system, make sure that the smart key is located within the operating range of the smart key system and that the key is turned on.

Vehicle power does not turn on. (Meter light and tail/brake light do not come on.)

TIP

- Before performing this procedure, make sure that there are no sources of strong electromagnetic waves in the vicinity. (Because the amount of electromagnetic waves will change if the vehicle is moved a short distance, move the vehicle away from sources of strong electromagnetic waves before performing the procedure.)
- Use the smart key that is registered to the vehicle.

<p>1. Check the vehicle power. Refer to “Checking the vehicle power”.</p>	NG→	<p>Repair or replace any defective parts.</p>
OK↓		
<p>2. Check that the smart key system indicator light “YES→</p>	<ul style="list-style-type: none"> • The vehicle can be operated in the emergency mode. → Replace the smart key or remote control unit. • The vehicle cannot be turned on in the emergency mode, but the storage box light comes on when the seat is opened. → Replace the remote control unit. • The storage box light does not come on when the seat is opened. → Replace the seat or storage box light. 	
NO↓		
<p>3. The smart key system indicator light “YES→</p>	<ul style="list-style-type: none"> • The steering lock is stuck and cannot be released. • Release the steering lock. → Try moving the handlebar gently to the left or right. • The steering lock is not stuck. → Replace the steering lock unit. 	
NO↓		
<p>4. The smart key system indicator light “YES→</p>	<ul style="list-style-type: none"> • A steering lock communication error has occurred. • Check for an open or short circuit between the steering lock unit and the remote control unit (Light green/Blue–Light green/Blue). → Repair or replace any defective parts. 	
NO↓		

SMART KEY SYSTEM

<p>5. The smart key system indicator light “” flashes. (The indicator light repeatedly flashes 3 times, and then goes off after approximately 20 seconds.) Refer to “SMART KEY SYSTEM SELF-DIAGNOSIS” on page 8-205.</p>	<p>YES→</p>	<p>Steering lock unit data error or malfunction → Replace the steering lock unit.</p>
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NO↓

<ul style="list-style-type: none"> • The smart key system indicator light “” does not flash. • There are sources of strong electromagnetic waves in the vicinity → Move the vehicle. • Smart key malfunction → Register and use a different smart key. • Remote control unit malfunction → Replace the remote control unit.
--

Engine does not start even though vehicle power is turned on.

<p>1. When the vehicle power is turned on, the smart key system indicator light “” flashes. Refer to “SMART KEY SYSTEM SELF-DIAGNOSIS” on page 8-205.</p>	<p>NO→</p>	<p>Check and repair the electric starting system. Refer to “ELECTRIC STARTING SYSTEM” on page 8-9.</p>
--	------------	--

YES↓

<p>2. Check for continuity in the communication line between the ECU and the remote control unit (Yellow/Blue).</p>	<p>NG→</p>	<p>Replace the wire harness.</p>
---	------------	----------------------------------

OK↓

<ul style="list-style-type: none"> • Check the engine. Refer to “FUEL INJECTION SYSTEM” on page 8-55. • Replace the ECU. • Replace the remote control unit.
--

Seat/fuel lid does not open. (Vehicle power is turned on.)

TIP

If the smart key system indicator light “” comes on for 0.3 second, goes off for 1.0 second, and this pattern continues for 20 seconds (error) when the seat/fuel lid is opened, the seat/fuel lid cannot be opened unless the vehicle power is turned off and then on.

<p>1. Check the vehicle power. Refer to “Checking the vehicle power”.</p>	<p>NG→</p>	<p>Repair or replace any defective parts.</p>
---	------------	---

OK↓

SMART KEY SYSTEM

<p>2. Check the OFF/LOCK switch and Parking/Unlock switch. Refer to "CHECKING THE SWITCHES" on page 8-221.</p>	NG→	<p>Replace the OFF/LOCK switch and/or Parking/Unlock switch.</p>
OK↓		
<p>3. Check that the smart key system indicator light "⚡" flashes when the Parking/Unlock switch on the vehicle is operated. (Comes on for 0.3 second, goes off for 1.0 second, and this pattern continues for 20 seconds.) Refer to "SMART KEY SYSTEM SELF-DIAGNOSIS" on page 8-205.</p>	YES→	<p>Communication between the remote control unit and meter is not possible. → Check the wire harness (Light green/Green–Light green/White) and/or replace the remote control unit and/or meter.</p>
NO↓		
<ul style="list-style-type: none"> • The seat/fuel lid cannot be opened. • Check the mechanical components of the lock for malfunctions. Repair or replace any defective parts. • Check the seat/fuel lid lock solenoid. Refer to "CHECKING THE SEAT/FUEL LID LOCK SOLENOID" on page 8-250. → Replace the remote control unit and/or meter. 		

Storage compartment lid (for XP530-A/XP530D-A) does not open. (Vehicle power is turned on.)

TIP

If the smart key system indicator light "⚡" comes on for 0.3 second, goes off for 1.0 second, and this pattern continues for 20 seconds (error) when the storage compartment is opened, the storage compartment cannot be opened unless the vehicle power is turned off and then on.

<p>1. Check the vehicle power. Refer to "Checking the vehicle power".</p>	NG→	<p>Repair or replace any defective parts.</p>
OK↓		
<p>2. Check the OFF/LOCK switch and Parking/Unlock switch. Refer to "CHECKING THE SWITCHES" on page 8-221.</p>	NG→	<p>Replace the OFF/LOCK switch and Parking/Unlock switch.</p>
OK↓		

SMART KEY SYSTEM

<p>3. Check that the smart key system indicator light “ <p>YES→</p> </p>	<p>Communication between the remote control unit and meter is not possible. → Check the wire harness (Light green/Green–Light green/White) and/or replace the remote control unit and/or meter.</p>
---	---

NO↓

- The storage compartment cannot be opened.
- Check the mechanical components of the lock for malfunctions. Repair or replace any defective parts.
- Check the storage compartment lid solenoid (for XP530-A/XP530D-A). Refer to “CHECKING THE STORAGE COMPARTMENT LID LOCK SOLENOID (for XP530-A/XP530D-A)” on page 8-251. → Replace the remote control unit and/or meter.

The turn signal light fails to blink (parking mode operation).

<p>1. Check the turn signal/hazard relay. Refer to “CHECKING THE RELAYS” on page 8-233.</p>	<p>NG→</p>	<p>Replace the turn signal/hazard relay.</p>
---	------------	--

OK↓

<p>2. Check for open or short circuit between the remote control unit and turn signal/hazard relay (Brown).</p>	<p>NG→</p>	<p>Replace the wire harness.</p>
---	------------	----------------------------------

OK↓

Replace the remote control unit.

Centerstand does not unlock. (Vehicle power is turned on.)

TIP

If the smart key system indicator light “

<p>1. Check the vehicle power. Refer to “Checking the vehicle power”.</p>	<p>NG→</p>	<p>Repair or replace any defective parts.</p>
---	------------	---

OK↓

<p>2. Check the OFF/LOCK switch and ON/start switch. Refer to “CHECKING THE SWITCHES” on page 8-221.</p>	<p>NG→</p>	<p>Replace the OFF/LOCK switch and ON/start switch.</p>
--	------------	---

OK↓

SMART KEY SYSTEM

3. Check that the smart key system indicator light “” flashes when the ON/start switch on the vehicle is operated.
(Refer to “SMART KEY SYSTEM SELF-DIAGNOSIS” on page 8-205.)

YES→

Communication between the remote control unit and centerstand lock unit is not possible. → Check the wire harness (Light green/Green–Light green/White) and/or replace the remote control unit and/or centerstand lock unit.

NO↓

- The centerstand cannot be unlocked.
- Check the mechanical components of the lock for malfunctions. Repair or replace any defective parts. → Replace the remote control unit and/or centerstand lock unit.

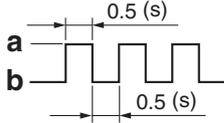
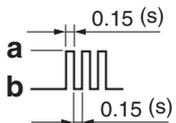
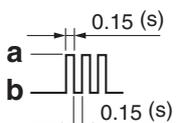
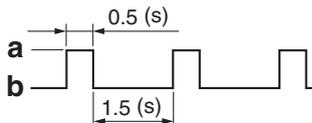
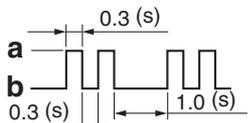
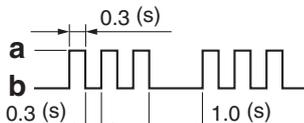
EAS31534

SMART KEY SYSTEM SELF-DIAGNOSIS

The smart key system is equipped with a self-diagnostic function. If a malfunction is detected in the system, the malfunction will be indicated by the flash pattern of the smart key system indicator light “”.

TIP

The smart key system indicator light “” comes on for 1 second when the ON/start switch is pushed. If one of the following malfunctions is detected, the indicator light starts flashing.

Item	Flash pattern	Flashing time/number of flashes	Malfunction and check point
Low voltage of smart key button cell battery	 <p>a. LED on b. LED off</p>	20 (seconds)	Replace the button cell battery of the smart key. Refer to “SMART KEY SYSTEM” on page 8-193.
Vehicle power off verification error	 <p>a. LED on b. LED off</p>	10 (seconds)	The smart key cannot be recognized. Check that there are no sources of strong electromagnetic waves in the vicinity, the smart key is not lost, and the battery is not discharged.
Running detection error*	 <p>a. LED on b. LED off</p>	Flashes continuously until the error is resolved.	The smart key cannot be recognized. Check that there are no sources of strong electromagnetic waves in the vicinity, the smart key is not lost, and the battery is not discharged.
<ul style="list-style-type: none"> Steering lock is stuck Steering lock cannot be released 	 <p>a. LED on b. LED off</p>	20 (seconds)/10 times	Check whether the steering lock is stuck.
Steering lock or centerstand lock communication error	 <p>a. LED on b. LED off</p>	20 (seconds)/flashes 2 times in a repeating cycle	Check the wire harness.
<ul style="list-style-type: none"> Steering lock data error Steering lock unit malfunction 	 <p>a. LED on b. LED off</p>	20 (seconds)/flashes 3 times in a repeating cycle	Check the wire harness. Check the steering lock unit.

SMART KEY SYSTEM

Item	Flash pattern	Flashing time/number of flashes	Malfunction and check point
<ul style="list-style-type: none"> ECU communication error Data error ECU malfunction 	<p>a. LED on b. LED off</p>	Flashes continuously until the error is resolved/flashes 4 times in a repeating cycle.	Check the wire harness. Check the ECU. Check the remote control unit.
Steering lock abnormal or centerstand lock abnormal (end position contact)	<p>a. LED on b. LED off</p>	10 seconds	Check whether the steering lock is stuck.
Steering lock abnormal or centerstand lock abnormal (others)	<p>a. LED on b. LED off</p>	20 (seconds)/flashes 5 times in a repeating cycle.	Check the steering lock unit or centerstand lock unit. Error continues → Replace the steering lock unit, centerstand lock unit, and/or remote control unit.
Communication error between remote control unit and meter	<p>a. LED on b. LED off</p>	20 seconds	Check the wire harness.

*** The running detection error**

If the smart key is dropped or can no longer be recognized while the vehicle is traveling. If the vehicle travels 1 km or more while the smart key cannot be recognized, the smart key system indicator light “” flashes in 0.15-second intervals.

The vehicle can be ridden, but the vehicle power cannot be turned off.

Although a forced shutdown can be performed to turn off the vehicle power (the OFF/LOCK switch is pushed briefly while the smart key system indicator light “” is flashing in 0.15 second intervals), the vehicle power cannot be turned back on.

EAS31535

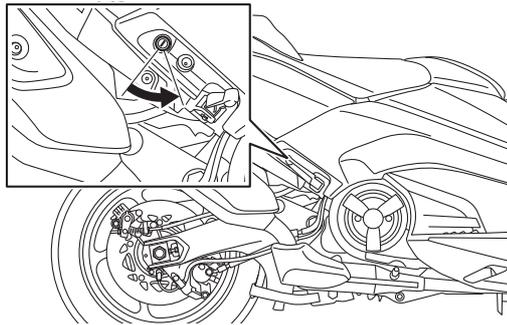
SMART KEY SYSTEM EMERGENCY MODE

When the smart key is lost, damaged, or its battery has discharged, the vehicle can still be turned on and the engine started. You will need a mechanical key and the smart key system identification number. To operate the vehicle in emergency mode, carry out the following steps.

TIP

Emergency mode operation will be cancelled if the respective steps are not carried out within the time set for each operation or if the OFF/LOCK switch is pushed.

1. Stop the vehicle in a safe place.
2. Unlock the seat by inserting the mechanical key into the lock located right side of body and turn it counter clockwise.

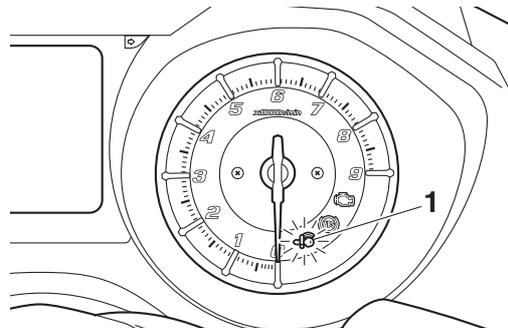


3. Open the seat and check that the trunk light comes on.
4. Push the ON/start switch once.
5. Without completely shutting the seat, raise and lower it three times within 10 seconds.

TIP

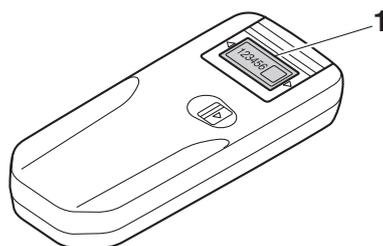
Use the rear storage compartment light as a guide when raising and lowering the seat.

The smart key system indicator light “” on the speedometer will come on for three seconds to indicate the transition to emergency mode.



1. Smart key system indicator light “”

6. After the smart key system indicator light “” goes off, use the Parking/Unlock switch to enter the identification number. Refer to the following procedure on how to input the identification number.



1. Identification number

7. Inputting the identification number is done by counting the number of flashes of the smart key system indicator light “”.

For example, if the identification number is 123456:

Push and hold the Parking/Unlock switch.



The smart key system indicator light “” will start to flash.



Release the Parking/Unlock switch after the smart key system indicator light “” flashes once.



The first digit of the identification number has been set as “1”.



Push and hold the Parking/Unlock switch again.



Release the Parking/Unlock switch after the smart key system indicator light “” flashes twice.



The second digit has been set as “2”.



Repeat the above procedure until all digits of the identification number have been set. The smart key system indicator light “” will flash for 10 seconds if the correct identification number was entered.

TIP

Emergency mode will be terminated when either one of the following situations apply. In this case, start over again from step (4).

- When there are no Parking/Unlock switch operations for 10 seconds during the identification number input process.
- When the smart key system indicator light “” is allowed to flash 10 or more times.

8. Push the ON/start switch while the smart key system indicator light “” is flashing to turn on the power to the vehicle. The engine can now be started.

TIP

- If the identification number is not correctly entered, the smart key system indicator light “” will flash rapidly for 3 seconds and emergency mode is terminated. In this case, start over again from step (4).
 - To lock the handlebar after turning on the vehicle in emergency mode, turn the vehicle power off, wait 30 seconds, and then turn the handlebar to the left and push the OFF/LOCK switch.
-

EAS31536

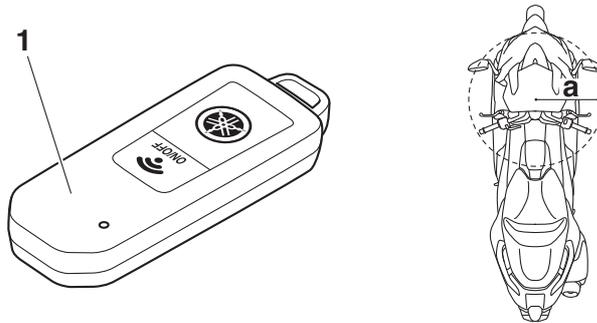
REGISTERING A SMART KEY

The following procedure can be used to register additional smart keys or a new smart key in case the original smart key is lost.

TIP

- A maximum of 6 smart keys can be registered to the remote control unit.
- Be sure to register the smart keys one at a time. Do not register multiple smart keys at the same time.

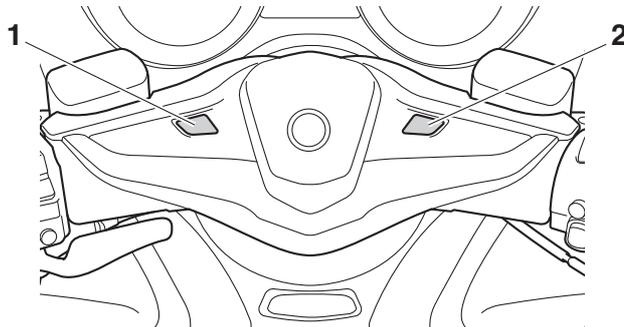
1. Place the smart key "1" that will be registered within 80 cm (31.5 in) "a" of the remote control unit.



2. Perform steps (1) to (7) in "SMART KEY SYSTEM EMERGENCY MODE" on page 8-207.
3. While the smart key system indicator light "☼" is on for 10 seconds, push the Parking/Unlock switch "1" and OFF/LOCK switch "2" alternately 3 times (total of 6 times).

TIP

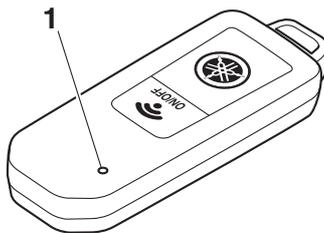
Either switch can be pushed first.



4. The smart key indicator light (red) "1" on the new smart key comes on for 10 seconds.

TIP

While the smart key indicator light on the smart key is on, the smart key system indicator light "☼" flashes according to the number of currently registered smart keys. (For example, if 5 smart keys are registered, the indicator light flashes 5 times.)



5. While the smart key indicator light is on for 10 seconds, push the ON/OFF switch "☼" on the smart key to transmit a signal from the smart key to the remote control unit.

-
7. Push the OFF/LOCK switch and Parking/Unlock switch simultaneously for 2 seconds. The use of only the verified smart keys will be enabled. The use of all other smart keys will be disabled.

TIP

If the procedure was not completed successfully, repeat the procedure from step (1).

EAS32446

REPLACING THE REMOTE CONTROL UNIT, STEERING LOCK, AND ECU

TIP

The remote control unit, steering lock, and ECU cannot be replaced at the same time.

EAS32447

REPLACING THE REMOTE CONTROL UNIT

1. Replace the remote control unit, and then place only 1 previously used smart key within 80 cm (31.5 in) of the remote control unit.
2. Push the ON/start switch.
3. Push the OFF/LOCK switch, and then push the ON/start switch to check that the operation is correct.
4. Register any additional smart keys.

TIP

- If multiple smart keys were registered to the previous remote control unit, perform the preceding procedure for only 1 smart key. Do not perform the procedure for multiple smart keys at the same time.
 - If the smart key identification number matches, it can be determined that the replacement procedure is being performed for a legitimate user. Write the remote control unit identification number and smart key identification number to the remote control unit and overwrite the smart identification number on the smart key with the new number.
-

EAS31556

REPLACING THE STEERING LOCK UNIT

1. Replace the steering lock unit, and then place the previously used smart key within 80 cm (31.5 in) of the remote control unit.
2. Push the ON/start switch.
3. Push the OFF/LOCK switch, and then push the ON/start switch to check that the operation is correct.

TIP

An identification number is not written to the steering lock unit when it is shipped from the factory. When the vehicle system is turned on for the first time, the remote control unit identification number and smart key identification number are automatically registered from the remote control unit to the steering lock unit.

EAS31541

REPLACING THE ECU

1. Replace the ECU, and then place the previously used smart key within 80 cm (31.5 in) of the remote control unit.
2. Push the ON/start switch.
3. Push the OFF/LOCK switch, and then push the ON/start switch to check that the operation is correct.

TIP

An identification number is not written to the ECU when it is shipped from the factory. When the vehicle system is turned on for the first time, the remote control unit identification number is automatically written from the remote control unit to the ECU.

EAS31719

REPLACEMENT PARTS LIST

TIP

When replacing the parts, refer to the following sections.

- Refer to “SMART KEY SYSTEM EMERGENCY MODE” on page 8-207.
- Refer to “REGISTERING A SMART KEY” on page 8-209.
- Refer to “REPLACING THE REMOTE CONTROL UNIT, STEERING LOCK, AND ECU” on page 8-211.
- Refer to “REPLACING THE REMOTE CONTROL UNIT” on page 8-211.
- Refer to “REPLACING THE STEERING LOCK UNIT” on page 8-211.
- Refer to “REPLACING THE ECU” on page 8-211.

Faulty part	Required item when replacing parts		Replacement parts (when an item is required in order to replace parts)				Remarks
	○ : Required.	△ : Smart key identification number or smart key is required.	○ : Replace.	× : Do not replace.	* : This part must be replaced even if it is not faulty.		
	Smart key identification number	Smart key	Smart key	Remote control unit	Steering lock unit	ECU	
Smart key	○	×	○	×	×	×	Register the smart key identification number in the emergency mode.
Remote control unit	×	○	×	○	×	×	When the vehicle system is turned on, the smart key identification number is automatically registered to the remote control unit.
Steering lock unit	△	△	×	×	○	×	When the vehicle system is turned on, the smart key identification number is automatically registered to the steering lock unit.
ECU	△	△	×	×	×	○	When the vehicle system is turned on, the smart key identification number is automatically registered to the ECU.
Steering lock unit/ECU	△	△	×	×	○	○	When the vehicle system is turned on, the smart key identification number is automatically registered to the steering lock unit and ECU.
Remote control unit/ECU	×	○	×	○	×	○	When the vehicle system is turned on, the smart key identification number is automatically registered to the remote control unit and ECU.
Remote control unit/Steering lock unit	×	×	○*	○	○	○*	The original smart keys can be used if they are registered as additional smart keys. Replace the smart key, remote control unit, steering lock unit, and ECU as a set.
Smart key/Remote control unit	×	×	○	○	○*	○*	Replace the smart key, remote control unit, steering lock unit, and ECU as a set.

SMART KEY SYSTEM

Faulty part	Required item when replacing parts		Replacement parts (when an item is required in order to replace parts)				Remarks
	Smart key identification number	Smart key	Smart key	Remote control unit	Steering lock unit	ECU	
Smart key/Steering lock unit	○	×	○	×	○	×	Register the smart key identification number in the emergency mode. When the vehicle system is turned on, the smart key identification number is automatically registered to the steering lock unit.
Smart key/ECU	○	×	○	×	×	○	Register the smart key identification number in the emergency mode. When the vehicle system is turned on, the smart key identification number is automatically registered to the ECU.
Remote control unit/Steering lock unit/ECU/(Smart key)	×	×	○	○	○	○	Replace the smart key, remote control unit, steering lock unit, and ECU as a set.
Smart key/Remote control unit/Steering lock unit	×	×	○	○	○	○*	Replace the smart key, remote control unit, steering lock unit, and ECU as a set.
Smart key/Remote control unit/ECU	×	×	○	○	○*	○	Replace the smart key, remote control unit, steering lock unit, and ECU as a set.
Smart key/Steering lock unit/ECU	○	×	○	×	○	○	Register the smart key identification number in the emergency mode. When the vehicle system is turned on, the smart key identification number is automatically registered to the steering lock unit and ECU.

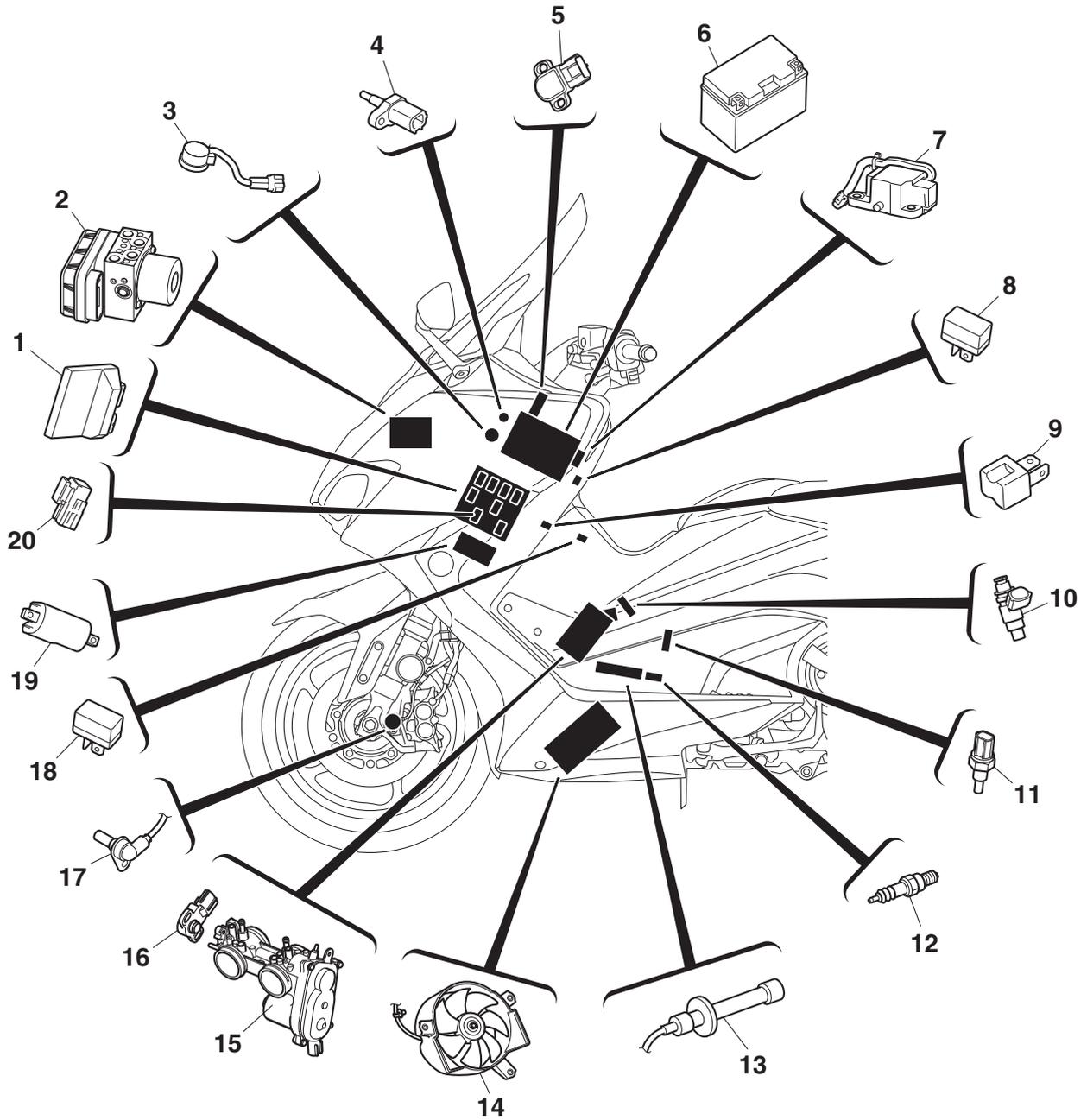
TIP

When replacing the centerstand lock unit, it is not necessary to replace the other parts at the same time.

ELECTRICAL COMPONENTS

EAS20089

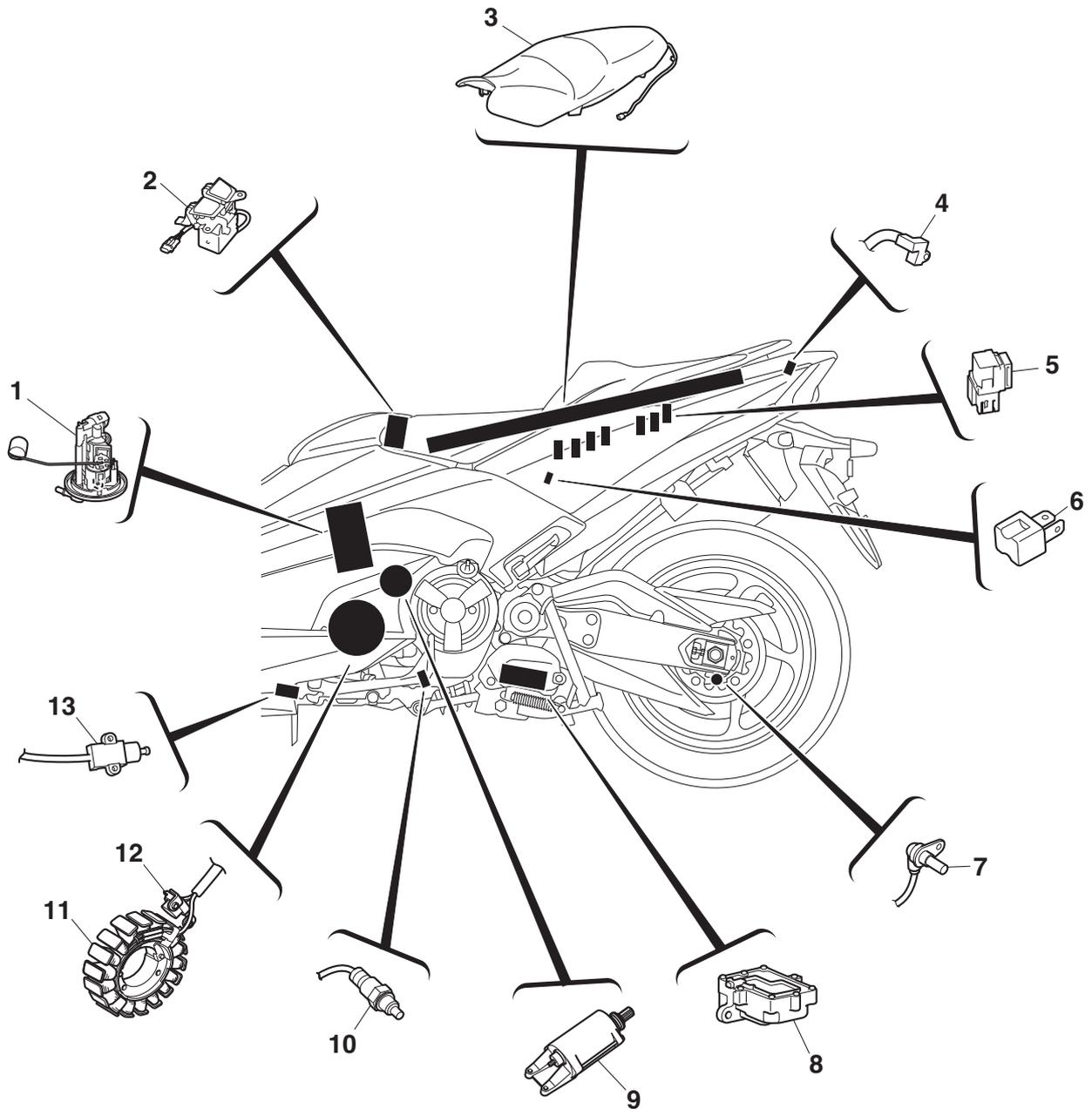
ELECTRICAL COMPONENTS



ELECTRICAL COMPONENTS

1. ECU (Engine Control Unit)
2. Hydraulic unit assembly
3. Buzzer
4. Intake air temperature sensor
5. Accelerator position sensor
6. Battery
7. Steering lock unit
8. Diode 3
9. Diode 5
10. Injector
11. Coolant temperature sensor
12. Spark plug
13. Spark plug cap
14. Radiator fan motor
15. Throttle servo motor
16. Throttle position sensor
17. Front wheel sensor
18. Diode 1
19. Ignition coil
20. Smart key system relay (unlock)/Smart key system relay (lock)/Headlight relay (dimmer)/Brake light relay (for XP530D-A)/Fuel injection system relay/Steering lock relay/Starting circuit cut-off relay/Ignition system relay

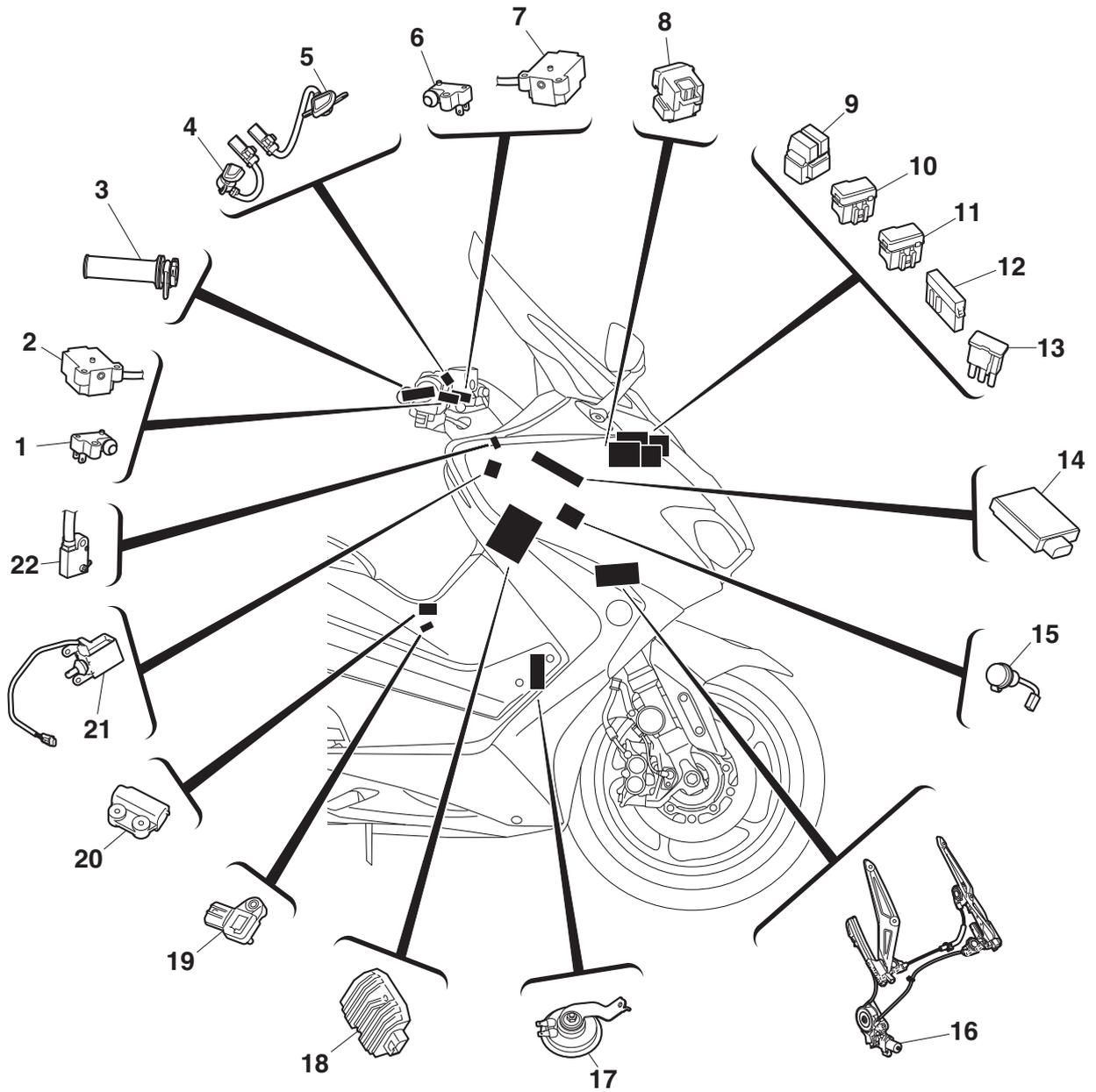
ELECTRICAL COMPONENTS



ELECTRICAL COMPONENTS

1. Fuel pump
2. Seat/fuel lid lock solenoid
3. Seat heater (for XP530D-A)
4. Storage box light switch
5. Sidestand relay/Turn signal/hazard relay/Radiator fan motor relay/Seat heater relay (power) (for XP530D-A)/Seat heater relay (control) (for XP530D-A)/Windshield drive unit relay (down) (for XP530D-A)/Windshield drive unit relay (up) (for XP530D-A)
6. Diode 2
7. Rear wheel sensor
8. Centerstand lock solenoid
9. Starter motor
10. O₂ sensor
11. Stator coil
12. Crankshaft position sensor
13. Sidestand switch

ELECTRICAL COMPONENTS



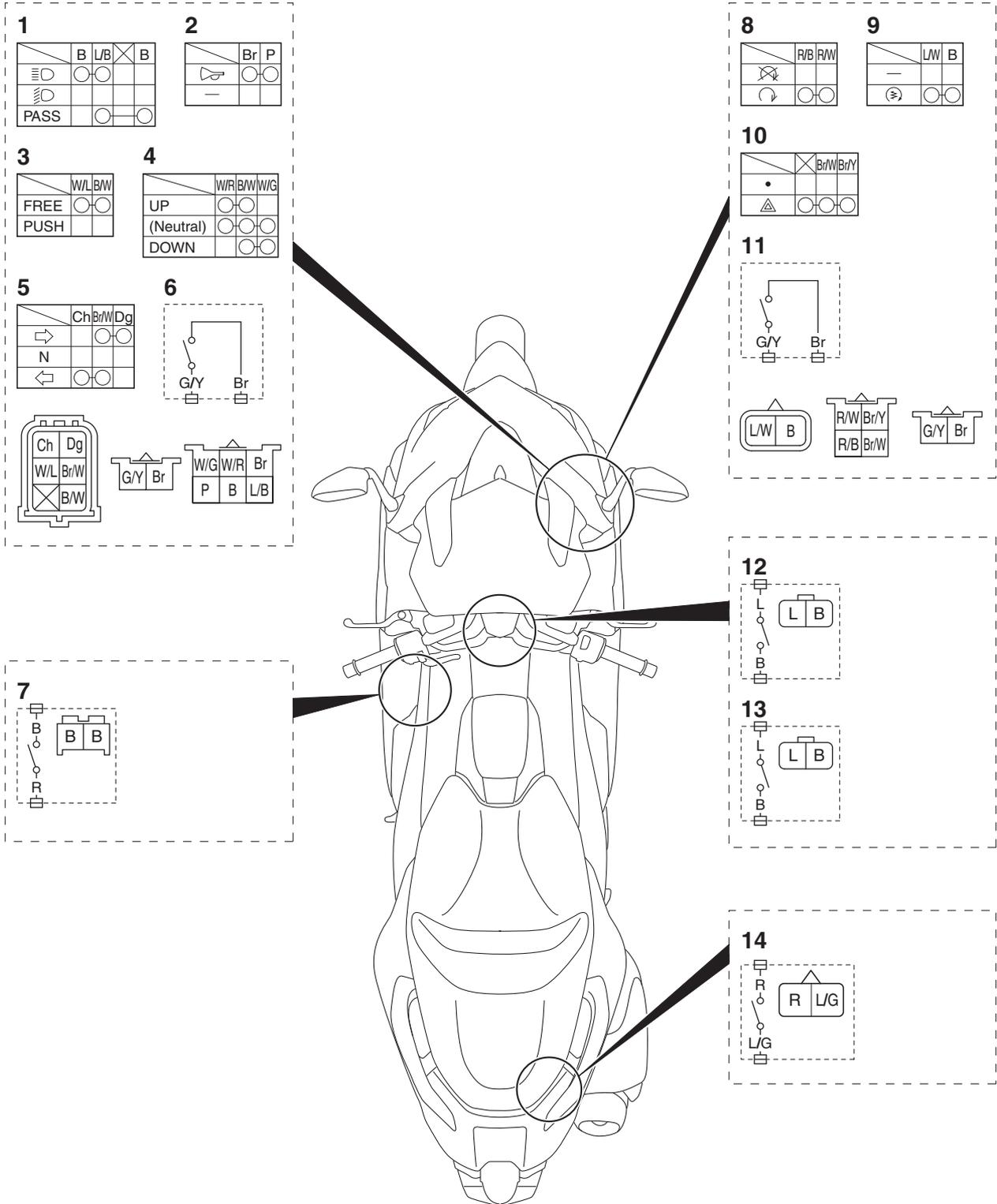
ELECTRICAL COMPONENTS

1. Front brake light switch (for XP530E-A/XP530-A)
2. Front brake light switch (for XP530D-A)
3. Grip warmer (for XP530D-A)
4. Parking/Unlock switch
5. OFF/LOCK switch
6. Rear brake light switch (for XP530E-A/XP530-A)
7. Rear brake light switch (for XP530D-A)
8. Starter relay
9. Fuse box 4 (Brake light fuse) (for XP530D-A)
/Fuse box 5 (Cruise control fuse) (for XP530D-A)
10. Fuse box 1
11. Fuse box 2
12. Fuse box 3
13. Diode (fuse box 2)
14. Remote control unit
15. Auxiliary DC jack
16. Windshield drive unit
17. Horn
18. Rectifier/regulator
19. Intake air pressure sensor
20. Lean angle sensor
21. Storage compartment lid lock solenoid (for XP530-A/XP530D-A)
22. Grip cancel switch

ELECTRICAL COMPONENTS

EAS30549

CHECKING THE SWITCHES XP530E-A

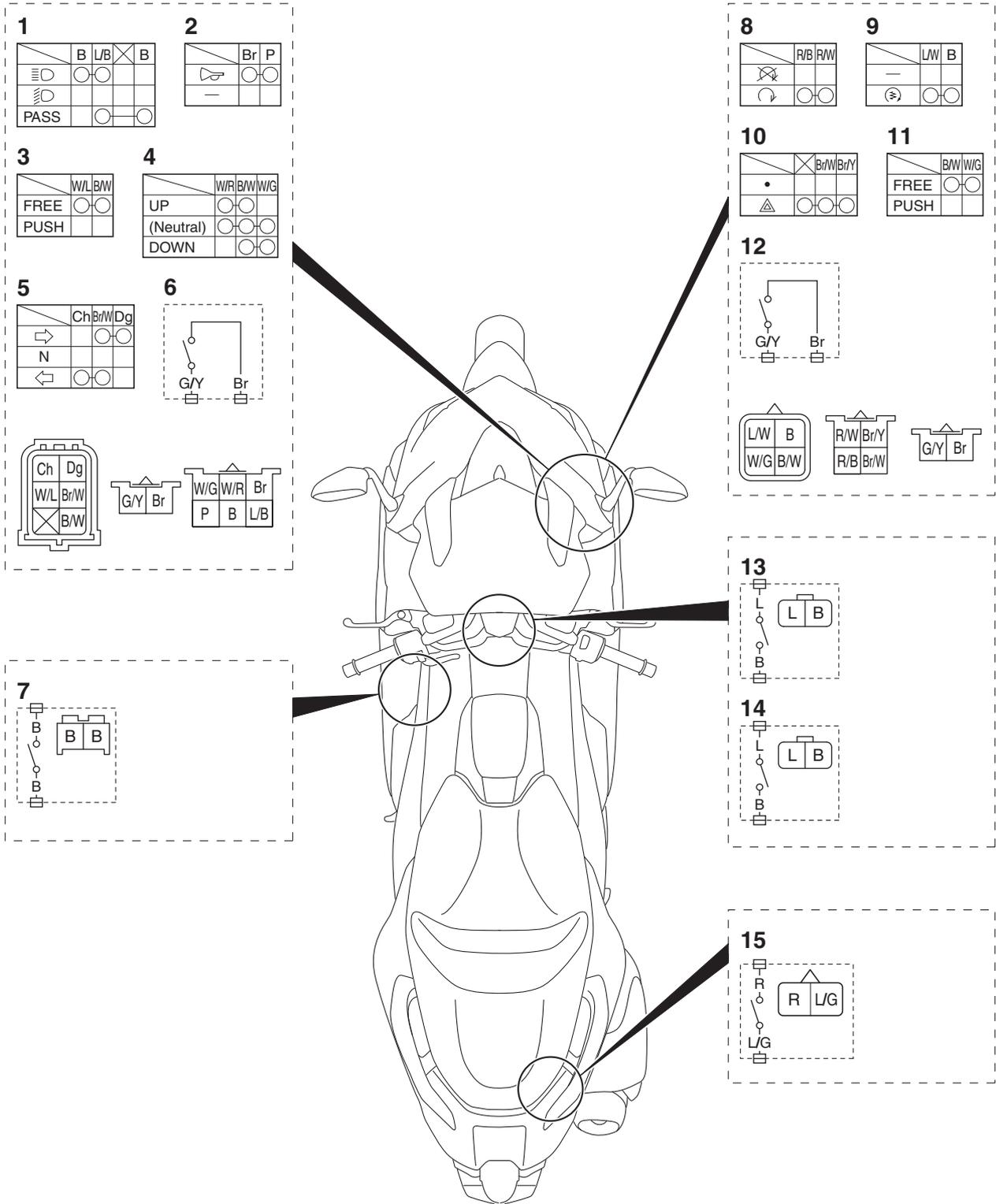


ELECTRICAL COMPONENTS

1. Dimmer/pass switch
2. Horn switch
3. Menu switch
4. Select switch
5. Turn signal switch
6. Rear brake light switch
7. Sidestand switch
8. Engine stop switch
9. ON/start switch
10. Hazard switch
11. Front brake light switch
12. OFF/LOCK switch
13. Parking/Unlock switch
14. Storage box light switch

ELECTRICAL COMPONENTS

XP530-A

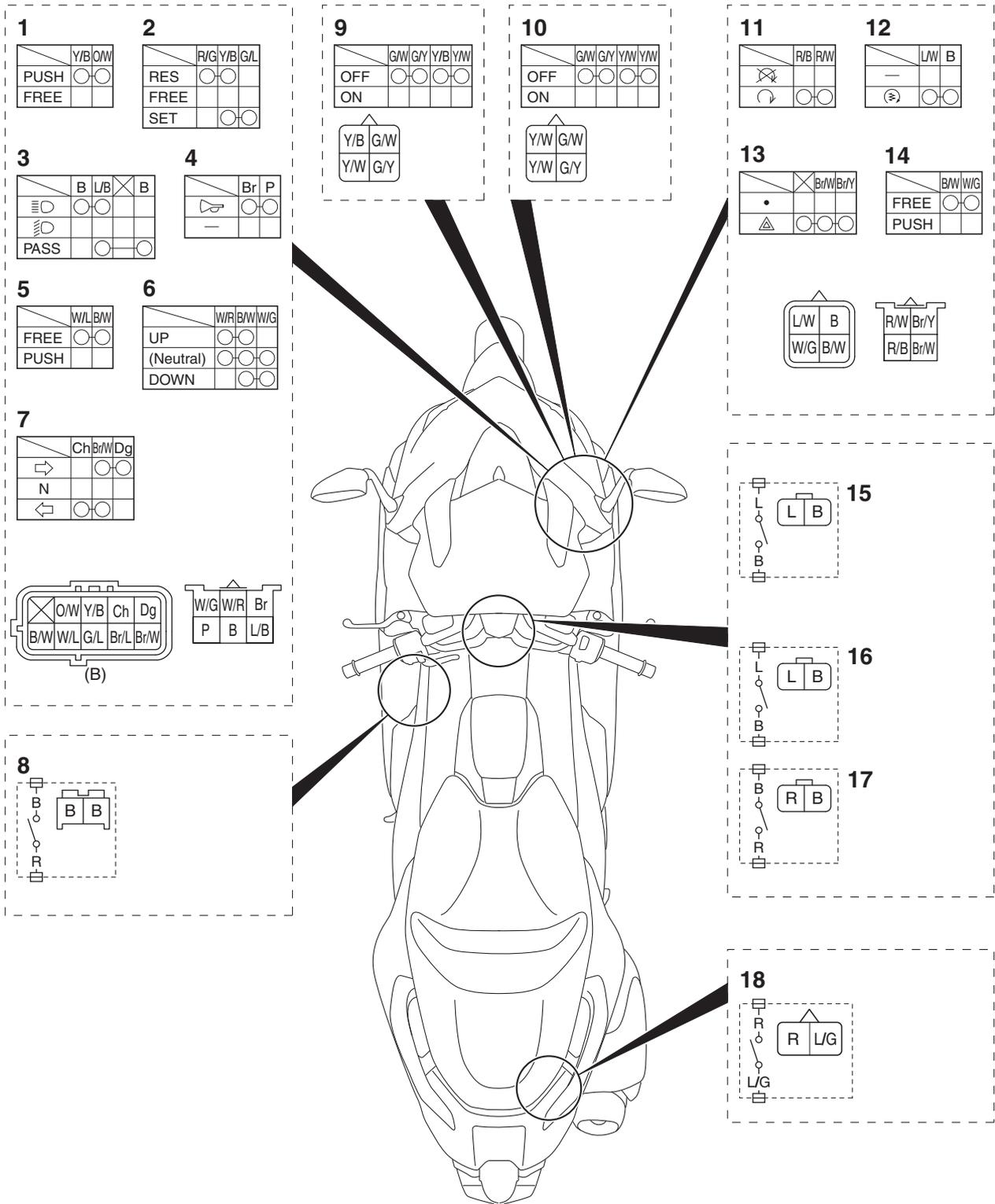


ELECTRICAL COMPONENTS

1. Dimmer/pass switch
2. Horn switch
3. Menu switch
4. Select switch
5. Turn signal switch
6. Rear brake light switch
7. Sidestand switch
8. Engine stop switch
9. ON/start switch
10. Hazard switch
11. Mode switch
12. Front brake light switch
13. OFF/LOCK switch
14. Parking/Unlock switch
15. Storage box light switch

ELECTRICAL COMPONENTS

XP530D-A



ELECTRICAL COMPONENTS

1. Cruise control power switch
2. Cruise control setting switch
3. Dimmer/pass switch
4. Horn switch
5. Menu switch
6. Select switch
7. Turn signal switch
8. Sidestand switch
9. Front brake light switch
10. Rear brake light switch
11. Engine stop switch
12. ON/start switch
13. Hazard switch
14. Mode switch
15. OFF/LOCK switch
16. Parking/Unlock switch
17. Grip cancel switch
18. Storage box light switch

ELECTRICAL COMPONENTS

Check each switch for continuity with the digital circuit tester. If the continuity reading is incorrect, check the wiring connections and if necessary, replace the switch.

ECA18520

NOTICE

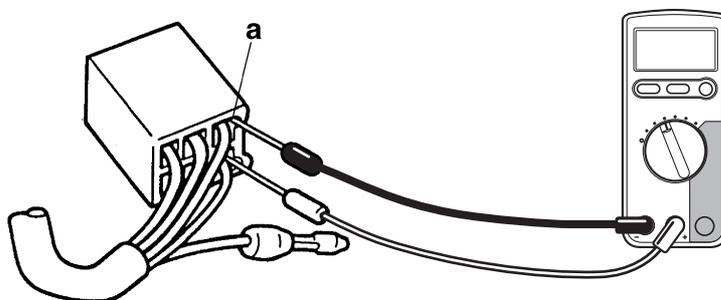
Never insert the tester probes into the coupler terminal slots “a”. Always insert the probes from the opposite end of the coupler, taking care not to loosen or damage the leads.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

TIP

- Before checking for continuity, set the digital circuit tester to “0” and to the “ Ω ” range.
- When checking for continuity, switch back and forth between the switch positions a few times.



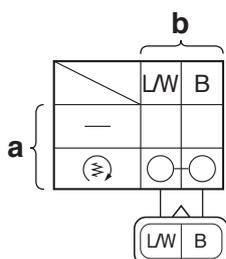
The switches and their terminal connections are illustrated as in the following example of the ON/start switch.

The switch positions “a” are shown in the far left column and the switch lead colors “b” are shown in the top row.

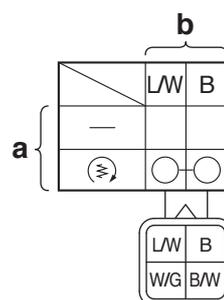
The continuity (i. e., a closed circuit) between switch terminals at a given switch position is indicated by “ \bigcirc — \bigcirc ”.

There is continuity between Blue/White and Black when the switch is set to “ON”.

[A]



[B]



A. XP530E-A

B. XP530-A/XP530D-A

ELECTRICAL COMPONENTS

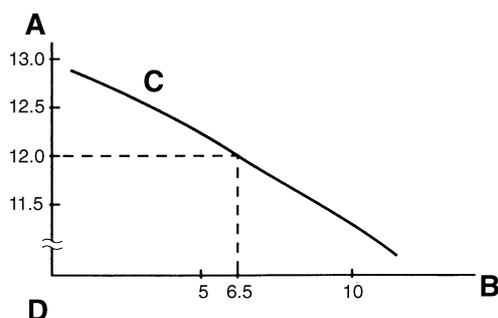
- Positive tester probe → positive battery terminal
- Negative tester probe → negative battery terminal

TIP

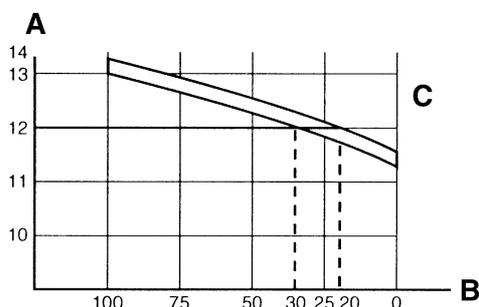
- The charge state of a VRLA (Valve Regulated Lead Acid) battery can be checked by measuring its open-circuit voltage (i.e., the voltage when the positive battery terminal is disconnected).
- No charging is necessary when the open-circuit voltage equals or exceeds 12.8 V.

b. Check the charge of the battery, as shown in the charts and the following example.

Example
 Open-circuit voltage = 12.0 V
 Charging time = 6.5 hours
 Charge of the battery = 20–30 %



- A. Open-circuit voltage (V)
 B. Charging time (hours)
 C. Relationship between the open-circuit voltage and the charging time at 20 °C (68 °F)
 D. These values vary with the temperature, the condition of the battery plates, and the electrolyte level.



- A. Open-circuit voltage (V)
 B. Charging condition of the battery (%)
 C. Ambient temperature 20 °C (68 °F)



5. Charge:
- Battery

(refer to the appropriate charging method)

EWA13300



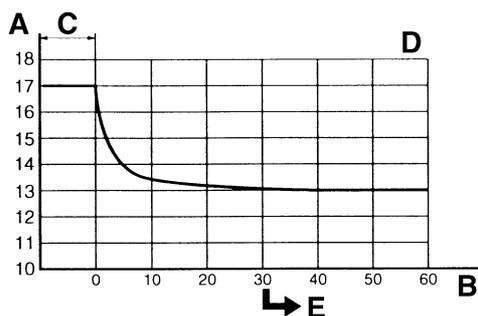
WARNING

Do not quick charge a battery.

ECA13671

NOTICE

- **Do not use a high-rate battery charger since it forces a high-amperage current into the battery quickly and can cause battery overheating and battery plate damage.**
- **If it is impossible to regulate the charging current on the battery charger, be careful not to overcharge the battery.**
- **When charging a battery, be sure to remove it from the vehicle. (If charging has to be done with the battery mounted on the vehicle, disconnect the negative battery lead from the battery terminal.)**
- **To reduce the chance of sparks, do not plug in the battery charger until the battery charger leads are connected to the battery.**
- **Before removing the battery charger lead clips from the battery terminals, be sure to turn off the battery charger.**
- **Make sure the battery charger lead clips are in full contact with the battery terminal and that they are not shorted. A corroded battery charger lead clip may generate heat in the contact area and a weak clip spring may cause sparks.**
- **If the battery becomes hot to the touch at any time during the charging process, disconnect the battery charger and let the battery cool before reconnecting it. Hot batteries can explode!**
- **As shown in the following illustration, the open-circuit voltage of a VRLA (Valve Regulated Lead Acid) battery stabilizes about 30 minutes after charging has been completed. Therefore, wait 30 minutes after charging is completed before measuring the open-circuit voltage.**



- A. Open-circuit voltage (V)
- B. Time (minutes)
- C. Charging
- D. Ambient temperature 20 °C (68 °F)
- E. Check the open-circuit voltage.

Charging method using a variable-current (voltage) charger

- a. Measure the open-circuit voltage prior to charging.

TIP _____
Voltage should be measured 30 minutes after the engine is stopped.

- b. Connect a charger and ammeter to the battery and start charging.

TIP _____
Set the charging voltage to 16–17 V. If the setting is lower, charging will be insufficient. If too high, the battery will be over-charged.

- c. Make sure that the current is higher than the standard charging current written on the battery.

TIP _____
If the current is lower than the standard charging current written on the battery, set the charging voltage adjust dial at 20–24 V and monitor the amperage for 3–5 minutes to check the battery.

- Standard charging current is reached
Battery is good.
- Standard charging current is not reached
Replace the battery.

- d. Adjust the voltage so that the current is at the standard charging level.
- e. Set the time according to the charging time suitable for the open-circuit voltage.
- f. If charging requires more than 5 hours, it is advisable to check the charging current after a lapse of 5 hours. If there is any change in the amperage, readjust the voltage to obtain the standard charging current.

- g. Measure the battery open-circuit voltage after leaving the battery unused for more than 30 minutes.

12.8 V or more --- Charging is complete.
12.7 V or less --- Recharging is required.
Under 12.0 V --- Replace the battery.

Charging method using a constant voltage charger

- a. Measure the open-circuit voltage prior to charging.

TIP _____
Voltage should be measured 30 minutes after the engine is stopped.

- b. Connect a charger and ammeter to the battery and start charging.

- c. Make sure that the current is higher than the standard charging current written on the battery.

TIP _____
If the current is lower than the standard charging current written on the battery, this type of battery charger cannot charge the VRLA (Valve Regulated Lead Acid) battery. A variable voltage charger is recommended.

- d. Charge the battery until the battery's charging voltage is 15 V.

TIP _____
Set the charging time at 20 hours (maximum).

- e. Measure the battery open-circuit voltage after leaving the battery unused for more than 30 minutes.

12.8 V or more --- Charging is complete.
12.7 V or less --- Recharging is required.
Under 12.0 V --- Replace the battery.

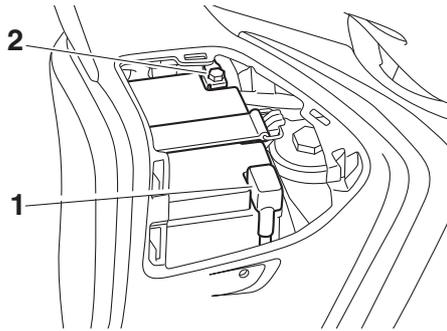
6. Install:
 - Battery
 Refer to "GENERAL CHASSIS (1)" on page 4-1.

7. Connect:
 - Battery leads
(to the battery terminals)

ECA13630
NOTICE _____

First, connect the positive battery lead "1", and then the negative battery lead "2".

ELECTRICAL COMPONENTS



8. Check:

- Battery terminals
Dirt → Clean with a wire brush.
Loose connection → Connect properly.

9. Lubricate:

- Battery terminals



10. Install:

- Battery cover
Refer to "GENERAL CHASSIS (1)" on page 4-1.

EAS30553

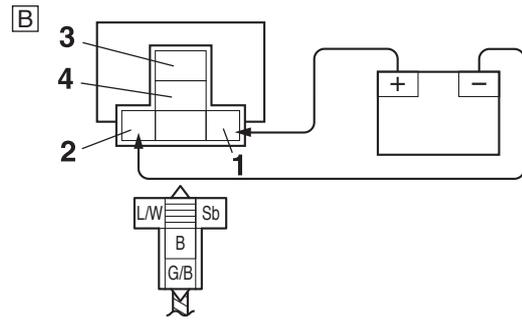
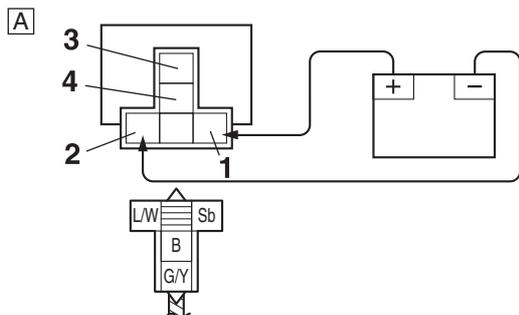
CHECKING THE RELAYS

Check each switch for continuity with the digital circuit tester. If the continuity reading is incorrect, replace the relay.



1. Disconnect the relay from the wire harness.
2. Connect the digital circuit tester (Ω) and battery (12 V) to the relay terminal as shown.
Check the relay operation.
Out of specification → Replace.

Starting circuit cut-off relay



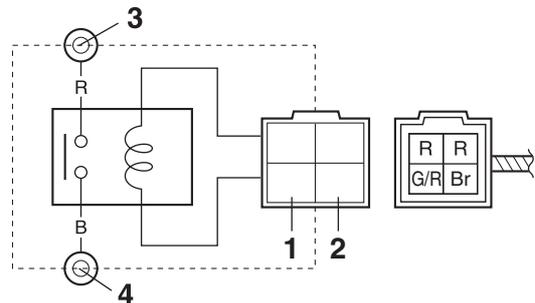
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe

A. XP530E-A/XP530-A

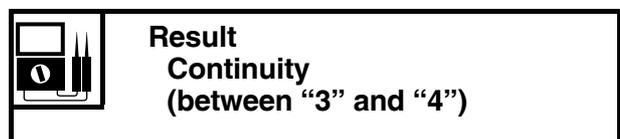
B. XP530D-A



Starter relay



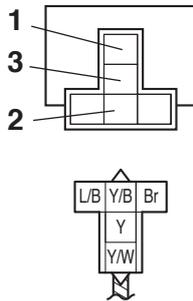
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



ELECTRICAL COMPONENTS

Headlight relay (dimmer)

First step:

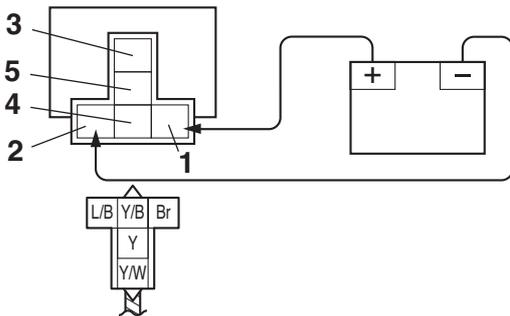


1. Positive tester probe
2. Negative tester probe
3. Negative tester probe



Result
Continuity
 (between "1" and "2")
No continuity
 (between "1" and "3")

Second step:

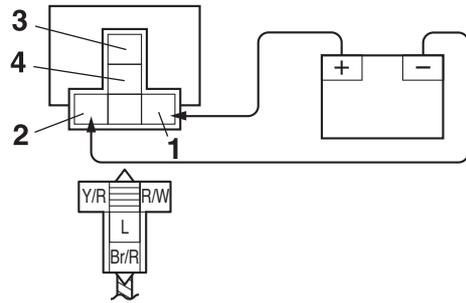


1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe
5. Negative tester probe



Result
Continuity
 (between "3" and "5")
No continuity
 (between "3" and "4")

Radiator fan motor relay

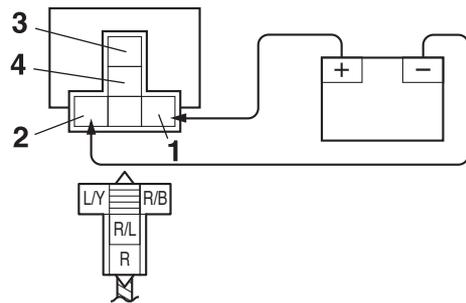


1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
 (between "3" and "4")

Fuel injection system relay



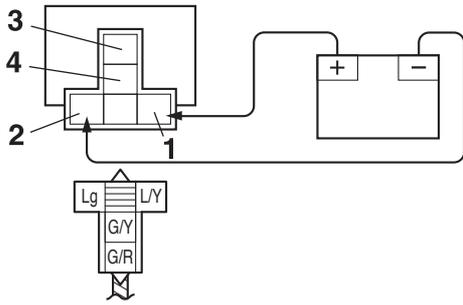
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
 (between "3" and "4")

ELECTRICAL COMPONENTS

Sidestand relay

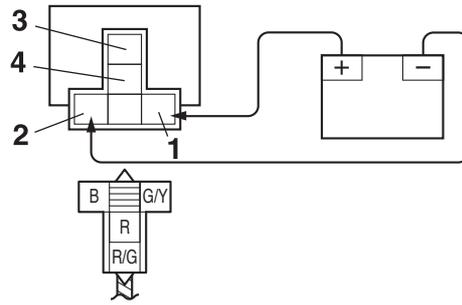


1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
(between "3" and "4")

Steering lock relay

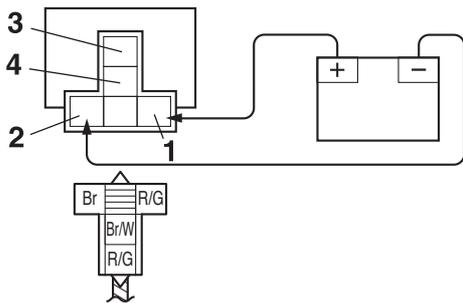


1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
(between "3" and "4")

Turn signal/hazard relay

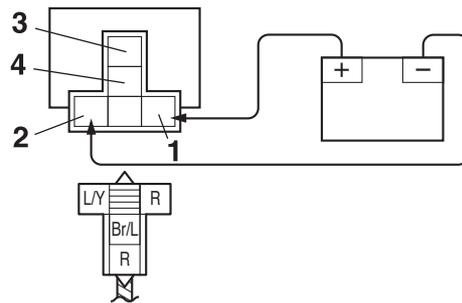


1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
(between "3" and "4")

Ignition system relay



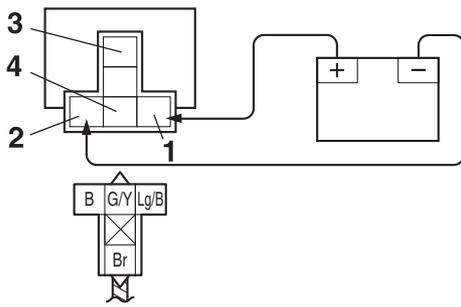
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
(between "3" and "4")

ELECTRICAL COMPONENTS

Brake light relay (for XP530D-A)



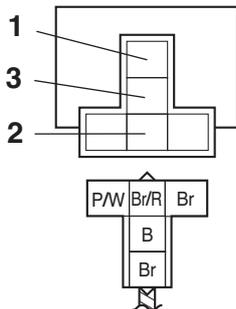
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
No continuity
(between "3" and "4")

Windshield drive unit relay (down) (for XP530D-A)

First step:

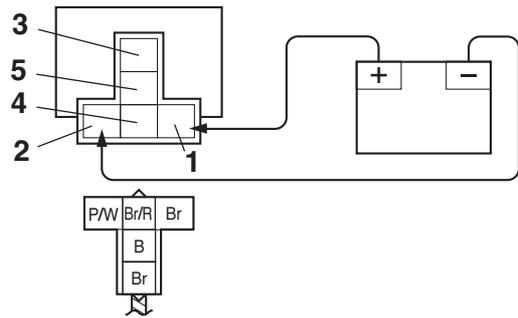


1. Positive tester probe
2. Negative tester probe
3. Negative tester probe



Result
Continuity
(between "1" and "2")
No continuity
(between "1" and "3")

Second step:



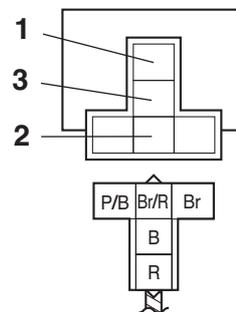
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe
5. Negative tester probe



Result
No continuity
(between "3" and "4")
Continuity
(between "3" and "5")

Windshield drive unit relay (up) (for XP530D-A)

First step:



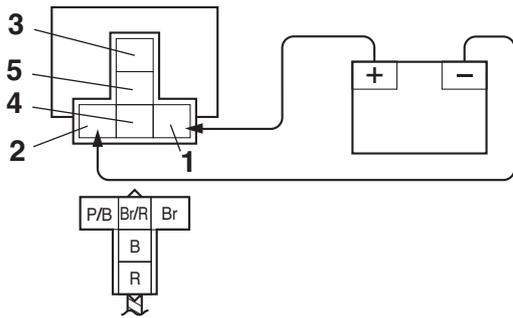
1. Positive tester probe
2. Negative tester probe
3. Negative tester probe



Result
Continuity
(between "1" and "2")
No continuity
(between "1" and "3")

ELECTRICAL COMPONENTS

Second step:

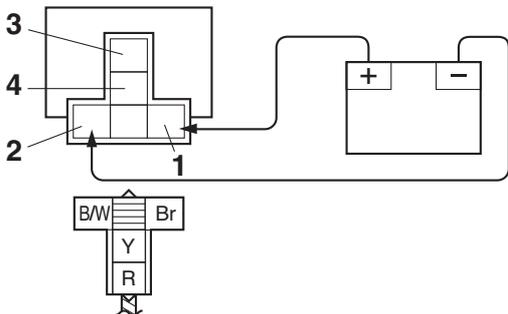


1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe
5. Negative tester probe



Result
No continuity
 (between "3" and "4")
Continuity
 (between "3" and "5")

Seat heater relay (power) (for XP530D-A)



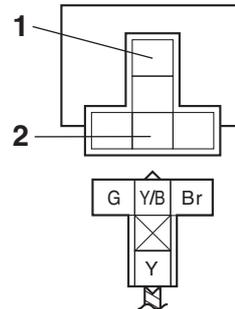
1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe



Result
Continuity
 (between "3" and "4")

Seat heater relay (control) (for XP530D-A)

First step:

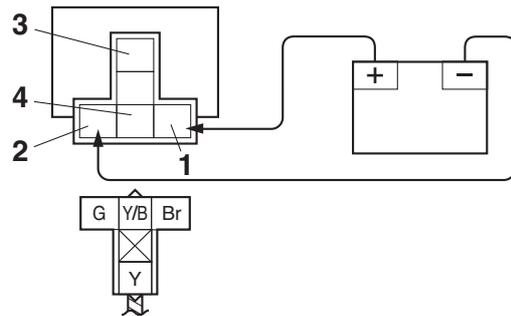


1. Positive tester probe
2. Negative tester probe



Result
Continuity
 (between "1" and "2")

Second step:



1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe

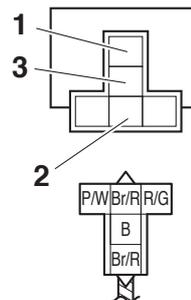


Result
No continuity
 (between "3" and "4")

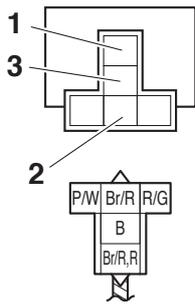
Smart key system relay (unlock)

First step:

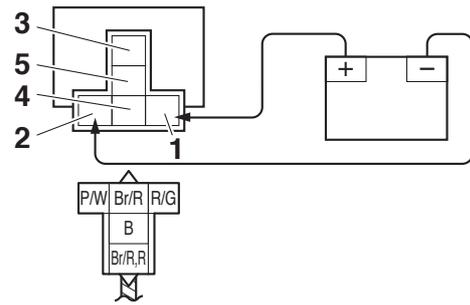
A



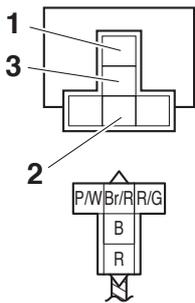
B



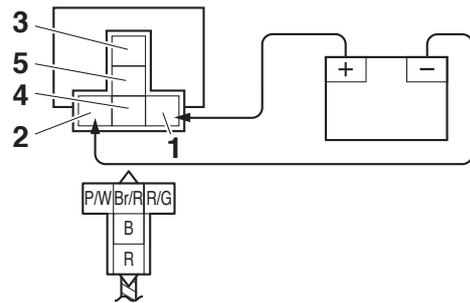
B



C



C



1. Positive tester probe
2. Negative tester probe
3. Negative tester probe

- A. XP530E-A
- B. XP530-A
- C. XP530D-A

1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe
5. Negative tester probe

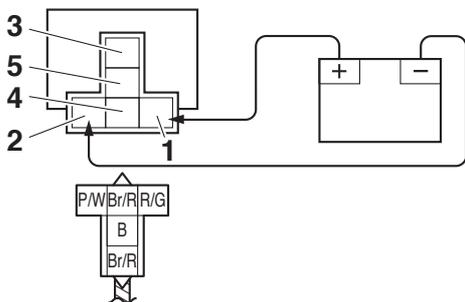
- A. XP530E-A
- B. XP530-A
- C. XP530D-A



Result
Continuity
 (between "1" and "2")
No continuity
 (between "1" and "3")

Second step:

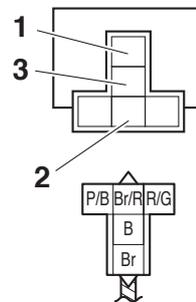
A



Result
No continuity
 (between "3" and "4")
Continuity
 (between "3" and "5")

Smart key system relay (lock)

First step:

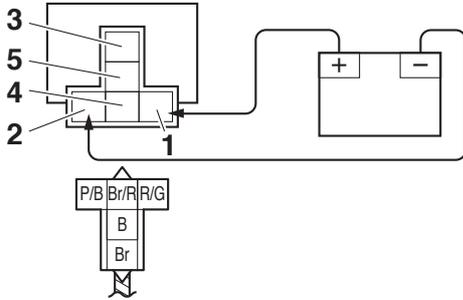


1. Positive tester probe
2. Negative tester probe
3. Negative tester probe



Result
Continuity
 (between "1" and "2")
No continuity
 (between "1" and "3")

Second step:



1. Positive battery terminal
2. Negative battery terminal
3. Positive tester probe
4. Negative tester probe
5. Negative tester probe



Result
No continuity
 (between "3" and "4")
Continuity
 (between "3" and "5")

EAS30555

CHECKING THE DIODES

1. Check:
 - Diodes
 Out of specification → Replace.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

TIP

The digital circuit tester reading are shown in the following table.



Diode 1
Continuity
 Positive tester probe →
 Green/Red, Blue/White "1"
 Negative tester probe →
 Red/Green "2"

No continuity
 Positive tester probe →
 Red/Green "2"
 Negative tester probe →
 Green/Red, Blue/White "1"

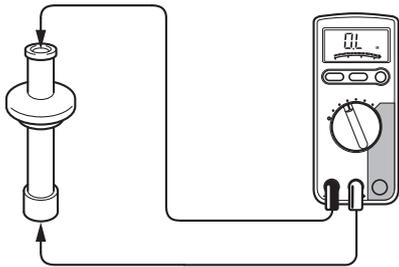
Diode 2
Continuity
 Positive tester probe →
 Red/Black "3"
 Negative tester probe →
 Blue/Yellow "4"

No continuity
 Positive tester probe →
 Blue/Yellow "4"
 Negative tester probe →
 Red/Black "3"

Diode 3
Continuity
 Positive tester probe →
 Black/White "5"
 Negative tester probe →
 Red/White "6"
No continuity
 Positive tester probe →
 Red/White "6"
 Negative tester probe →
 Black/White "5"

Diode 5
Continuity
 Positive tester probe → Pink "7"
 Negative tester probe →
 Pink/Black "8"
No continuity
 Positive tester probe →
 Pink/Black "8"
 Negative tester probe → Pink
 "7"

Diode (fuse box)
Continuity
 Positive tester probe →
 Green/Yellow "9"
 Negative tester probe → Sky
 blue "10"
No continuity
 Positive tester probe → Sky blue
 "10"
 Negative tester probe →
 Green/Yellow "9"



c. Measure the spark plug cap resistance.



EAS30558

CHECKING THE IGNITION COIL

1. Check:

- Primary coil resistance
Out of specification → Replace.



Primary coil resistance
1.87–2.53 Ω

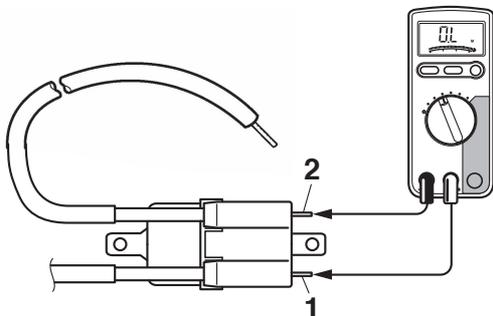


- Disconnect the ignition coil connectors from the ignition coil terminals.
- Connect the digital circuit tester (Ω) to the ignition coil as shown.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Positive tester probe → Orange “1”
- Negative tester probe → Red/Black “2”



c. Measure the primary coil resistance.



2. Check:

- Secondary coil resistance
Out of specification → Replace.



Secondary coil resistance
12.00–18.00 kΩ

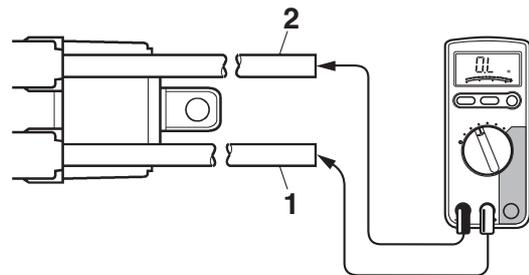


- Disconnect the spark plug cap from the ignition coil.
- Connect the digital circuit tester (Ω) to the ignition coil as shown.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Positive tester probe → Spark plug lead “1”
- Negative tester probe → Spark plug lead “2”



c. Measure the secondary coil resistance.



EAS30556

CHECKING THE IGNITION SPARK GAP

1. Check:

- Ignition spark gap
Out of specification → Perform the ignition system troubleshooting, starting with step (5). Refer to “TROUBLESHOOTING” on page 8-7.



Minimum ignition spark gap
6.0 mm (0.24 in)

TIP

If the ignition spark gap is within specification, the ignition system circuit is operating normally.



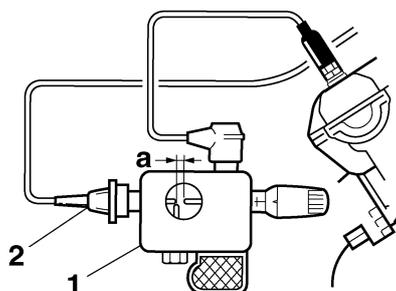
- Disconnect the spark plug cap from the spark plug.
- Connect the ignition checker “1” as shown.

ELECTRICAL COMPONENTS



Ignition checker
90890-06754
Oppama pet-4000 spark checker
YM-34487

- c. Push the ON/start switch and the engine stop switch to "○".
- d. Measure the ignition spark gap "a".



2. Spark plug cap

- e. Crank the engine by pushing the ON/start switch and gradually increase the spark gap until a misfire occurs.



EAS30560

CHECKING THE CRANKSHAFT POSITION SENSOR

1. Disconnect:
 - Crankshaft position sensor coupler (from the wire harness)
2. Check:
 - Crankshaft position sensor resistance
 Out of specification → Replace the crankshaft position sensor/stator assembly.



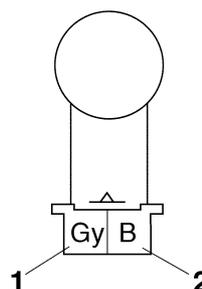
Crankshaft position sensor resistance
228–342 Ω

- a. Connect the digital circuit tester (Ω) to the crankshaft position sensor coupler as shown.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Positive tester probe → Gray "1"
- Negative tester probe → Black "2"



- b. Measure the crankshaft position sensor resistance.



EAS30561

CHECKING THE LEAN ANGLE SENSOR

1. Remove:
 - Lean angle sensor (from the bracket.)
2. Check:
 - Lean angle sensor output voltage
 Out of specification → Replace.



Operating angle
65 °
Output voltage up to operating angle
0.4–1.4 V
Output voltage over operating angle
3.7–4.4 V

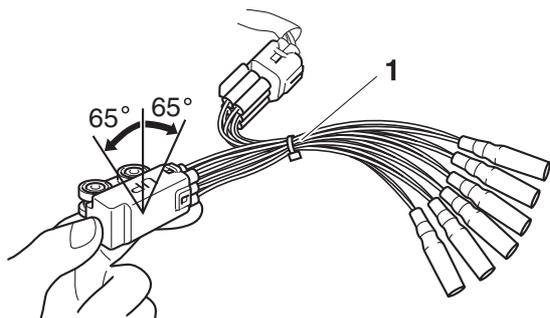


- a. Connect the test harness– lean angle sensor (6P) "1" to the lean angle sensor and wire harness as shown.
- b. Connect the digital circuit tester (DC V) to the test harness– lean angle sensor (6P).



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927
Test harness– lean angle sensor (6P)
90890-03209
Test harness– lean angle sensor (6P)
YU-03209

- Positive tester probe → Yellow/Green (wire harness color)
- Negative tester probe → Black/Blue (wire harness color)



- c. Push the ON/start switch.
- d. When turn the lean angle sensor to 65°.
- e. Measure the lean angle sensor output voltage.



EAS30562

CHECKING THE STARTER MOTOR OPERATION

1. Check:
 - Starter motor operation
Does not operate → Perform the electric starting system troubleshooting, starting with step (4).
Refer to “TROUBLESHOOTING” on page 8-17.

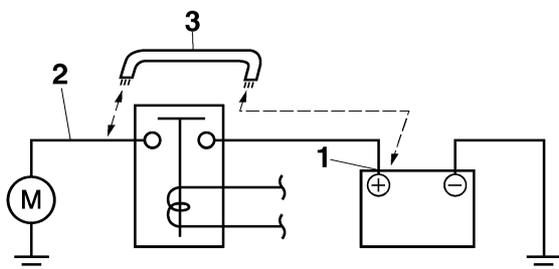


- a. Connect the positive battery terminal “1” and starter motor lead “2” with a jumper lead “3”.

EWA13810

⚠ WARNING

- **A wire that is used as a jumper lead must have at least the same capacity of the battery lead, otherwise the jumper lead may burn.**
- **This check is likely to produce sparks, therefore, make sure no flammable gas or fluid is in the vicinity.**



- b. Check the starter motor operation.



EAS30566

CHECKING THE STATOR COIL

1. Disconnect:
 - Stator coil coupler (from the wire harness)
2. Check:
 - Stator coil resistance
Out of specification → Replace the stator coil.



Stator coil resistance
0.224–0.336 Ω



- a. Connect the digital circuit tester (Ω) to the stator coil coupler as shown.

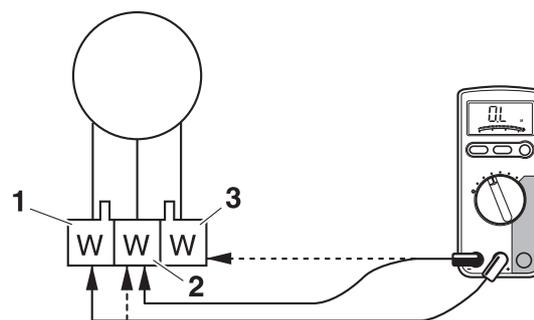


Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Positive tester probe → White “1”
- Negative tester probe → White “2”

- Positive tester probe → White “1”
- Negative tester probe → White “3”

- Positive tester probe → White “2”
- Negative tester probe → White “3”



- b. Measure the stator coil resistance.



EAS30680

CHECKING THE RECTIFIER/REGULATOR

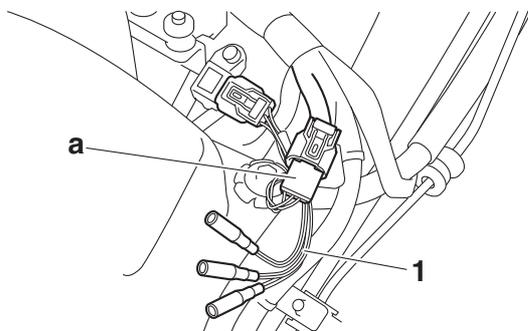
1. Check:
 - Battery charging voltage
Out of specification → Check the stator coil condition. If the stator coil does not have a problem, replace the rectifier/regulator.

ELECTRICAL COMPONENTS



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927
Test harness S- pressure sensor (3P)
90890-03207
Test harness S- pressure sensor (3P)
YU-03207

- Positive tester probe → Pink/White (wire harness color)
- Negative tester probe → Black/Blue (wire harness color)



- Push the ON/start switch.
- Measure the intake air pressure sensor output voltage.

EAS30594

CHECKING THE INTAKE AIR TEMPERATURE SENSOR

- Remove:
 - Intake air temperature sensor (from the air filter case.)

EWA14110

WARNING

- Handle the intake air temperature sensor with special care.
- Never subject the intake air temperature sensor to strong shocks. If the intake air temperature sensor is dropped, replace it.

- Check:
 - Intake air temperature sensor resistance
 Out of specification → Replace.



Intake air temperature sensor resistance
5400–6600 Ω at 0 °C (5400–6600 Ω at 32 °F)
Intake air temperature sensor resistance
289–391 Ω at 80 °C (289–391 Ω at 176 °F)

- Connect the digital circuit tester (Ω) to the intake air temperature sensor terminal as shown.



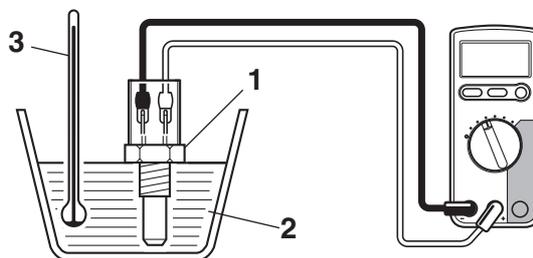
Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Immerse the intake air temperature sensor "1" in a container filled with water "2".

TIP

Make sure that the intake air temperature sensor terminals do not get wet.

- Place a thermometer "3" in the water.



- Heat the water or let it cool down to the specified temperatures.
- Measure the intake air temperature sensor resistance.

- Install:
 - Intake air temperature sensor



Intake air temperature sensor bolt
2.5 N·m (0.25 kgf·m, 1.8 lb·ft)

EAS30681

CHECKING THE FUEL INJECTOR

- Check:
 - Fuel injector resistance
 Out of specification → Replace the fuel injector.

ELECTRICAL COMPONENTS



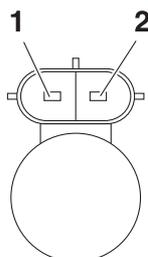
Resistance
12.0 Ω

- a. Disconnect the fuel injector coupler from wire harness.
- b. Connect the digital circuit tester (Ω) to the fuel injector coupler.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Positive tester probe → Injector terminal “1”
- Negative tester probe → Injector terminal “2”



- c. Measure the fuel injector resistance.

EAS31553

CHECKING THE SMART KEY BATTERY

1. Check:
 - Smart key battery voltage
 Out of specification → Replace the smart key battery.



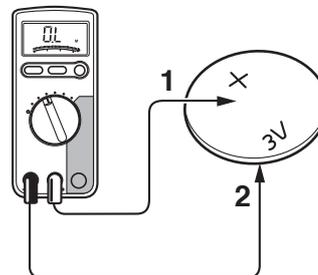
Smart key battery voltage
2.7–3.2 V

- a. Remove the smart key battery from the smart key.
- b. Connect the digital circuit tester (DC V) to the smart key battery as shown.



Digital circuit tester (CD732)
90890-03243
Model 88 Multimeter with tachometer
YU-A1927

- Positive tester probe → positive battery terminal “1”
- Negative tester probe → negative battery terminal “2”



- c. Measure the smart key battery voltage.

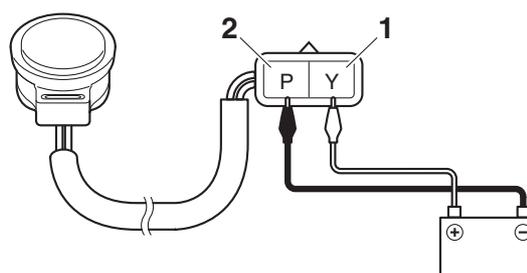
EAS31555

CHECKING THE BUZZER

1. Check:
 - Buzzer operation
 Buzzer does not sound → Replace.

- a. Disconnect the buzzer coupler from the wire harness.
- b. Connect the battery (12 V) to the buzzer coupler as shown.

- Positive battery lead → Yellow “1”
- Negative battery lead → Pink “2”



- c. Check that the buzzer sounds.

EAS32440

CHECKING THE SEAT/FUEL LID LOCK SOLENOID

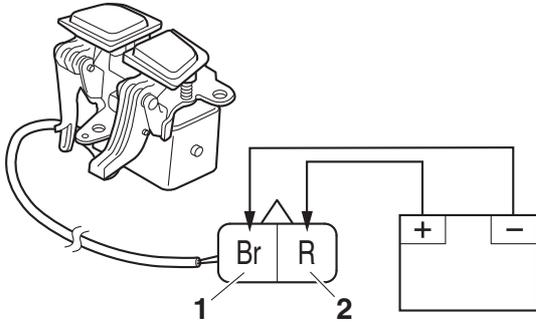
1. Check:
 - Seat/fuel lid lock solenoid
 Faulty/rough movement → Replace.

- a. Disconnect the seat/fuel lid lock solenoid

from the wire harness.

b. Connect the battery (DC 12 V) as shown.

- Positive battery terminal → Brown "1"
- Negative battery terminal → Red "2"



c. Check the seat/fuel lid lock solenoid movement.



EAS32450

CHECKING THE STORAGE COMPARTMENT LID LOCK SOLENOID (for XP530-A/XP530D-A)

1. Check:

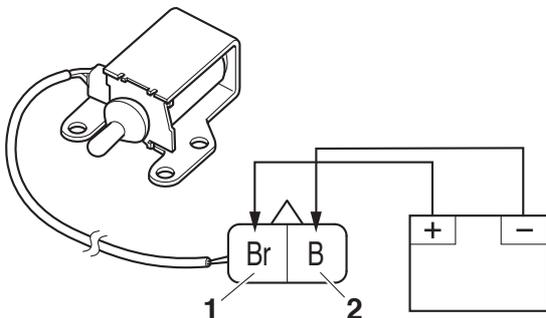
- Storage compartment lid lock solenoid
Faulty/rough movement → Replace.



a. Disconnect the storage compartment lid lock solenoid from the wire harness.

b. Connect the battery (DC 12 V) as shown.

- Positive battery terminal → Brown "1"
- Negative battery terminal → Black "2"



c. Check the storage compartment lid lock solenoid movement.



TROUBLESHOOTING

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EAS20090

TROUBLESHOOTING

EAS30599

GENERAL INFORMATION

TIP

The following guide for troubleshooting does not cover all the possible causes of trouble. It should be helpful, however, as a guide to basic troubleshooting. Refer to the relative procedure in this manual for checks, adjustments, and replacement of parts.

EAS31258

STARTING FAILURE/HARD STARTING

Engine

1. Cylinder(s) and cylinder head
 - Loose spark plug
 - Loose cylinder head or cylinder
 - Damaged cylinder head gasket
 - Damaged cylinder gasket
 - Worn or damaged cylinder
 - Incorrect valve clearance
 - Improperly sealed valve
 - Incorrect valve-to-valve-seat contact
 - Incorrect valve timing
 - Faulty valve spring
 - Seized valve
2. Piston(s) and piston ring(s)
 - Improperly installed piston ring
 - Damaged, worn or fatigued piston ring
 - Seized piston ring
 - Seized or damaged piston
3. Air filter
 - Improperly installed air filter
 - Clogged air filter element
4. Crankcase and crankshaft
 - Improperly assembled crankcase
 - Seized crankshaft

Fuel system

1. Fuel tank
 - Empty fuel tank
 - Clogged rollover valve
 - Clogged fuel tank breather hose
 - Deteriorated or contaminated fuel
 - Clogged or damaged fuel hose
2. Fuel pump
 - Faulty fuel pump
 - Faulty fuel injection system relay
 - Damaged vacuum hose
 - Improperly routed hose
3. Throttle body (-ies)
 - Deteriorated or contaminated fuel
 - Sucked-in air

Electrical system

1. Battery
 - Discharged battery
 - Faulty battery
2. Fuse(s)
 - Blown, damaged or incorrect fuse
 - Improperly installed fuse
3. Spark plug(s)
 - Incorrect spark plug gap
 - Incorrect spark plug heat range
 - Fouled spark plug
 - Worn or damaged electrode
 - Worn or damaged insulator
 - Faulty spark plug cap
4. Ignition coil
 - Cracked or broken ignition coil body
 - Broken or shorted primary or secondary coils
 - Faulty spark plug lead
5. Ignition system
 - Faulty ECU (engine control unit)
 - Faulty crankshaft position sensor
 - Broken generator rotor woodruff key
6. Switches and wiring
 - Faulty engine stop switch
 - Broken or shorted wiring
 - Faulty front, rear or both brake light switches
 - Faulty ON/start switch
 - Faulty sidestand switch
 - Improperly grounded circuit
 - Loose connections
7. Starting system
 - Faulty starter motor
 - Faulty starter relay
 - Faulty starting circuit cut-off relay
 - Faulty starter clutch

EAS30601

INCORRECT ENGINE IDLING SPEED

Engine

1. Cylinder(s) and cylinder head
 - Incorrect valve clearance
 - Damaged valve train components
2. Air filter
 - Clogged air filter element

Fuel system

1. Throttle body (-ies)
 - Damaged or loose throttle body joint
 - Improperly synchronized throttle bodies
 - Improperly adjusted engine idling speed (idle adjusting screw)
 - Improper throttle grip free play
 - Flooded throttle body

Electrical system

1. Battery
 - Discharged battery
 - Faulty battery
2. Spark plug(s)
 - Incorrect spark plug gap
 - Incorrect spark plug heat range
 - Fouled spark plug
 - Worn or damaged electrode
 - Worn or damaged insulator
 - Faulty spark plug cap
3. Ignition coil
 - Broken or shorted primary or secondary coils
 - Faulty spark plug lead
 - Cracked or broken ignition coil
4. Ignition system
 - Faulty ECU (engine control unit)
 - Faulty crankshaft position sensor
 - Broken generator rotor woodruff key

EAS30602

POOR MEDIUM-AND-HIGH-SPEED PERFORMANCE

Refer to “STARTING FAILURE/HARD STARTING” on page 9-1.

Engine

1. Air filter
 - Clogged air filter element

Fuel system

1. Throttle body
 - Faulty throttle body
2. Fuel pump
 - Faulty fuel pump

EAS30849

FAULTY CLUTCH

Engine operates but scooter will not move

1. V-belt
 - Bent, damaged or worn V-belt
 - Slipping V-belt
2. Primary pulley cam and primary pulley slider
 - Damaged or worn primary pulley cam
 - Damaged or worn primary pulley slider
3. Clutch spring(s)
 - Damaged clutch spring
4. Transmission gear(s)
 - Damaged transmission gear

Clutch slips

1. Clutch
 - Improperly assembled clutch
 - Fatigued clutch spring
 - Worn clutch weight
 - Worn friction plate
 - Worn clutch plate

2. Engine oil
 - Incorrect oil level
 - Incorrect oil viscosity (low)
 - Deteriorated oil
3. Primary sliding sheave
 - Seized primary sliding sheave

Poor starting performance

1. V-belt
 - V-belt slips
 - Oil or grease on the V-belt
2. Primary sliding sheave
 - Faulty operation
 - Worn pin groove
 - Worn pin

Poor speed performance

1. V-belt
 - Oil or grease on the V-belt
2. Primary pulley weight(s)
 - Faulty operation
 - Worn primary pulley weight
3. Primary fixed sheave
 - Worn primary fixed sheave
4. Primary sliding sheave
 - Worn primary sliding sheave
5. Secondary fixed sheave
 - Worn secondary fixed sheave
6. Secondary sliding sheave
 - Worn secondary sliding sheave

EAS30607

OVERHEATING

Engine

1. Clogged coolant passages
 - Cylinder head and piston(s)
 - Heavy carbon buildup
2. Engine oil
 - Incorrect oil level
 - Incorrect oil viscosity
 - Inferior oil quality

Cooling system

1. Coolant
 - Low coolant level
2. Radiator
 - Damaged or leaking radiator
 - Faulty radiator cap
 - Bent or damaged radiator fin
3. Water pump
 - Damaged or faulty water pump
4. Thermostat
 - Thermostat stays closed
5. Oil cooler
 - Clogged or damaged oil cooler
6. Hose(s) and pipe(s)
 - Damaged hose

- Improperly connected hose
- Damaged pipe
- Improperly connected pipe

Fuel system

1. Throttle body (-ies)
 - Damaged or loose throttle body joint
2. Air filter
 - Clogged air filter element

Chassis

1. Brake(s)
 - Dragging brake

Electrical system

1. Spark plug(s)
 - Incorrect spark plug gap
 - Incorrect spark plug heat range
2. Ignition system
 - Faulty ECU

EAS30608

OVERCOOLING

Cooling system

1. Thermostat
 - Thermostat stays open

EAS30609

POOR BRAKING PERFORMANCE

- Worn brake pad
- Worn brake disc
- Air in hydraulic brake system
- Leaking brake fluid
- Faulty brake caliper kit
- Faulty brake caliper seal
- Loose union bolt
- Damaged brake hose
- Oil or grease on the brake disc
- Oil or grease on the brake pad
- Incorrect brake fluid level

EAS30610

FAULTY FRONT FORK LEGS

Leaking oil

- Bent, damaged or rusty inner tube
- Cracked or damaged outer tube
- Improperly installed oil seal
- Damaged oil seal lip
- Incorrect oil level (high)
- Loose damper rod bolt
- Damaged damper rod bolt copper washer
- Cracked or damaged cap bolt O-ring

Malfunction

- Bent or damaged inner tube
- Bent or damaged outer tube
- Damaged fork spring
- Worn or damaged outer tube bushing
- Bent or damaged damper rod

- Incorrect oil viscosity
- Incorrect oil level

EAS30611

UNSTABLE HANDLING

1. Handlebar
 - Bent or improperly installed handlebar
2. Steering head components
 - Improperly installed upper bracket
 - Improperly installed lower bracket (improperly tightened ring nut)
 - Bent steering stem
 - Damaged ball bearing or bearing race
3. Front fork leg(s)
 - Uneven oil levels (both front fork legs)
 - Unevenly tensioned fork spring (both front fork legs)
 - Broken fork spring
 - Bent or damaged inner tube
 - Bent or damaged outer tube
4. Swingarm
 - Worn bearing or bushing
 - Bent or damaged swingarm
5. Rear shock absorber assembly
 - Faulty rear shock absorber spring
 - Leaking oil or gas
6. Tire(s)
 - Uneven tire pressures (front and rear)
 - Incorrect tire pressure
 - Uneven tire wear
7. Wheel(s)
 - Incorrect wheel balance
 - Deformed cast wheel
 - Damaged wheel bearing
 - Bent or loose wheel axle
 - Excessive wheel runout
8. Frame
 - Bent frame
 - Damaged steering head pipe
 - Improperly installed bearing race

EAS30612

FAULTY LIGHTING OR SIGNALING SYSTEM

Headlight does not come on

- Faulty headlight assembly
- Too many electrical accessories
- Hard charging
- Incorrect connection
- Improperly grounded circuit
- Poor contacts (dimmer switch)
- Faulty headlight relay (dimmer)
- Faulty ignition system relay
- Faulty remote control unit

Tail/brake light does not come on

- Faulty brake light switch
- Too many electrical accessories
- Incorrect connection
- Faulty tail/brake light
- Faulty ignition system relay
- Faulty remote control unit

Turn signal does not come on

- Faulty turn signal switch
- Faulty turn signal/hazard relay
- Burnt-out turn signal bulb
- Incorrect connection
- Damaged or faulty wire harness
- Improperly grounded circuit
- Faulty battery
- Blown, damaged or incorrect fuse

Turn signal blinks slowly

- Faulty turn signal/hazard relay
- Faulty remote control unit
- Faulty turn signal switch
- Incorrect turn signal bulb

Turn signal remains lit

- Faulty turn signal/hazard relay
- Burnt-out turn signal bulb

Turn signal blinks quickly

- Incorrect turn signal bulb
- Faulty turn signal/hazard relay
- Burnt-out turn signal bulb

Horn does not sound

- Improperly adjusted horn
- Damaged or faulty horn
- Faulty remote control unit
- Faulty horn switch
- Faulty battery
- Blown, damaged or incorrect fuse
- Faulty wire harness

EAS30848

TROUBLESHOOTING AT THE ABS

WARNING LIGHT

Refer to “BASIC PROCESS FOR TROUBLESHOOTING” on page 8-169.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

EAS20162

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

EAS31794

SELF-DIAGNOSTIC FUNCTION TABLE (FOR FUEL INJECTION SYSTEM)

TIP

For details of the fault code, refer to "TROUBLESHOOTING METHOD" on page 8-61.

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P0030	O ₂ sensor heater (defective heater controller detected)	<ul style="list-style-type: none"> • Open or short circuit in wire harness. • Disconnected coupler. • Defective O₂ sensor heater controller (Malfunction in ECU). • Broken or disconnected lead in O₂ sensor heater. 	(When the O ₂ sensor does not operate because the exhaust temperature is low) Increased exhaust emissions. Fuel learning cannot be carried out.	Display only (If the O ₂ sensor does not operate, O ₂ feedback is not carried out). Cruise control system cannot be operated.
P0107 P0108	[P0107] Intake air pressure sensor (ground short circuit detected) [P0108] Intake air pressure sensor (open or power short circuit detected)	<p>[P0107] Low voltage of the intake air pressure sensor circuit (0.5 V or less) [P0108] High voltage of the intake air pressure sensor circuit (4.8 V or more)</p> <ul style="list-style-type: none"> • Defective coupler between intake air pressure sensor and ECU. • Open or short circuit in wire harness between intake air pressure sensor and ECU. • Defective intake air pressure sensor. • Malfunction in ECU. 	Engine idling speed is unstable. Engine response is poor. Loss of engine power. Increased exhaust emissions.	α-N is fixed. Fuel is not cut off due to the intake air pressure difference. Intake air pressure is fixed to 101.3 [kPa]. O ₂ feedback is not carried out. ISC feedback is not carried out. ISC learning is not carried out. Cruise control system cannot be operated.
P0112 P0113	[P0112] Intake air temperature sensor (ground short circuit detected) [P0113] Intake air temperature sensor (open or power short circuit detected)	<p>[P0112] Low voltage of the intake air temperature sensor circuit (0.1 V or less) [P0113] High voltage of the intake air temperature sensor circuit (4.8 V or more)</p> <ul style="list-style-type: none"> • Defective coupler between intake air temperature sensor and ECU. • Open or short circuit in wire harness between intake air temperature sensor and ECU. • Improperly installed intake air temperature sensor. • Defective intake air temperature sensor. • Malfunction in ECU. 	Engine is difficult to start. Increased exhaust emissions. Engine idling speed is unstable.	The intake air temperature is fixed to 20 [°C]. O ₂ feedback is not carried out. ISC feedback is not carried out. ISC learning is not carried out.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P0117 P0118	[P0117] Coolant temperature sensor (ground short circuit detected) [P0118] Coolant temperature sensor (open or power short circuit detected)	[P0117] Low voltage of the coolant temperature sensor circuit (0.1 V or less) [P0118] High voltage of the coolant temperature sensor circuit (4.9 V or more) <ul style="list-style-type: none"> • Defective coupler between coolant temperature sensor and ECU. • Open or short circuit in wire harness between coolant temperature sensor and ECU. • Improperly installed coolant temperature sensor. • Defective coolant temperature sensor. • Malfunction in ECU. 	Engine is difficult to start. Increased exhaust emissions. Engine idling speed is unstable.	The radiator fan motor relay is on only when the vehicle is traveling at low speeds. O ₂ feedback is not carried out. ISC feedback is not carried out. ISC learning is not carried out. The coolant temperature is fixed to 60 [°C]. Cruise control system cannot be operated.
P0122 P0123 P0222 P0223 P2135	[P0122] Throttle position sensor (ground short circuit detected) [P0123] Throttle position sensor (open or power short circuit detected) [P0222] Throttle position sensor (ground short circuit detected) [P0223] Throttle position sensor (open or power short circuit detected) [P2135] Throttle position sensor (output voltage deviation error)	[P0122, P0222] Low voltage of the throttle position sensor circuit (0.25 V or less) [P0123, P0223] High voltage of the throttle position sensor circuit (4.75 V or more) [P2135] Difference in output voltage 1 and output voltage 2 of the throttle position sensor <ul style="list-style-type: none"> • Defective coupler between throttle position sensor and ECU. • Open or short circuit in wire harness between throttle position sensor and ECU. • Improperly installed throttle position sensor. • Defective throttle position sensor. • Malfunction in ECU. 	Engine idling speed is high. Engine idling speed is unstable. Engine response is poor. Loss of engine power. Deceleration is poor. Increased exhaust emissions. Vehicle cannot be driven.	Change in the throttle opening is 0 (transient control is not carried out). D-j is fixed. Throttle opening is fixed to 125[°]. Intake air pressure is fixed to 101.3 [kPa]. O ₂ feedback is not carried out. Fuel is not cut off due to the throttle opening. Output is restricted. ISC feedback is not carried out. ISC learning is not carried out. Cruise control system cannot be operated.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P0132	O ₂ sensor (short circuit detected (power short circuit)) No normal signals are received from the O ₂ sensor.	[P0132] High voltage of the O ₂ sensor circuit (4.8 V or more) <ul style="list-style-type: none"> • Improperly installed O₂ sensor. • Defective coupler between O₂ sensor and ECU. • Open or short circuit in wire harness between O₂ sensor and ECU. • Incorrect fuel pressure. • Defective O₂ sensor. • Malfunction in ECU. 	Increased exhaust emissions.	O ₂ feedback is not carried out. O ₂ feedback learning is not carried out. Cruise control system cannot be operated.
P0201 P0202	[P0201] Fuel injector #1 (malfunction in fuel injector #1) [P0202] Fuel injector #2 (malfunction in fuel injector #2)	<ul style="list-style-type: none"> • Defective coupler between injector and ECU. • Open or short circuit in wire harness between injector and ECU. • Defective injector. • Malfunction in ECU. • Improperly installed injector. 	Loss of engine power. Engine is difficult to start. Engine cannot be started. Engine stops. Engine idling speed is unstable. Increased exhaust emissions.	O ₂ feedback is not carried out. ISC feedback is not carried out. ISC learning is not carried out. Cruise control system cannot be operated.
P0335	Crankshaft position sensor (no normal signals are received from the crankshaft position sensor)	<ul style="list-style-type: none"> • Defective coupler between crankshaft position sensor and ECU. • Open or short circuit in wire harness between crankshaft position sensor and ECU. • Improperly installed crankshaft position sensor. • Malfunction in generator rotor. • Defective crankshaft position sensor. • Malfunction in ECU. 	Engine cannot be started.	Does not operate. ISC feedback is not carried out. ISC learning is not carried out.
P0351	Ignition coil (open or short circuit detected in the primary lead of the ignition coil.)	<ul style="list-style-type: none"> • Defective coupler between ignition coil and ECU. • Open or short circuit in wire harness between ignition coil and ECU. • Improperly installed ignition coil. • Defective ignition coil. • Malfunction in ECU. 	Engine stops. Loss of engine power. Engine is difficult to start. Engine cannot be started. Engine idling speed is unstable. Increased exhaust emissions.	Injection to the applicable cylinder group is cut off. O ₂ feedback is not carried out. ISC feedback is not carried out. ISC learning is not carried out. Cruise control system cannot be operated.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P0500	Rear wheel sensor (no normal signals are received from the rear wheel sensor)	<ul style="list-style-type: none"> • Open or short circuit in wire harness between rear wheel sensor and ABS unit. • Open or short circuit in wire harness between ABS unit and ECU. • Open or short circuit in wire harness between neutral switch and ECU. • Open or short circuit in wire harness between clutch switch and ECU. • Defective rear wheel sensor. • Defective neutral switch. • Defective clutch switch. • Improper adjustment of clutch lever. • Malfunction in ECU. 	<p>Vehicle speed is not displayed on the meter.</p> <p>Engine stalls when the vehicle is decelerating to a stop.</p> <p>Engine idling speed is high.</p> <p>Indication of the neutral indicator light is incorrect.</p> <p>Engine cannot be restarted when the transmission is in gear even with the clutch lever squeezed.</p> <p>Engine idling speed is unstable.</p> <p>Increased exhaust emissions.</p> <p>Traction control does not work.</p>	<p>Vehicle speed displayed on the meter = 0 [km/h]</p> <p>O₂ feedback is not carried out.</p> <p>Fuel cut-off control when the rear wheel sensor or neutral switch malfunctions is carried out.</p> <p>ISC feedback is not carried out.</p> <p>ISC learning is not carried out.</p> <p>Traction control does not work.</p> <p>Cruise control system cannot be operated.</p>
P0507	Engine idling speed is too high.	<ul style="list-style-type: none"> • Malfunction when writing the ISC learning values. • Air leak in the intake passage. • Defective throttle valve. • Malfunction in ECU. 	Engine idling speed is too high.	<p>O₂ feedback is not carried out.</p> <p>ISC learning is not carried out.</p>
P0560	Rectifier/regulator: malfunction detected. Charging voltage is abnormal.	<ul style="list-style-type: none"> • Battery overcharging (defective rectifier/regulator). • Battery overcharging (broken or disconnected lead in rectifier/regulator wire harness). • Battery over-discharging (broken or disconnected lead in charging system). • Battery over-discharging (defective rectifier/regulator). 	<p>Engine is difficult to start.</p> <p>Increased exhaust emissions.</p> <p>Battery performance has deteriorated or battery is defective.</p>	<p>O₂ feedback is not carried out.</p> <p>Cruise control system cannot be operated.</p>
P0564	Cruise control setting switch "RES+" (no normal signals are received from the front wheel sensor)	<ul style="list-style-type: none"> • Open or short circuit in wire harness. • Defective cruise control setting switch. • Malfunction in ECU. 	Cruise control system cannot be operated.	Cruise control system cannot be operated.
	Cruise control setting switch "SET-" (no normal signals are received from the front wheel sensor)			

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P056C	Cruise control cancel switch (open or short circuit detected)	<ul style="list-style-type: none"> • Open or short circuit in wire harness. • Defective cruise control setting switch. • Malfunction in ECU. 	Cruise control system cannot be operated.	Cruise control system cannot be operated.
P0601	Faulty ECU memory. (When this malfunction is detected in the ECU, the fault code number might not appear on the tool display.)	<ul style="list-style-type: none"> • Malfunction in ECU. 	Engine cannot be started.	Engine cannot be started.
P0606	Internal malfunction in ECU (When this malfunction is detected in the ECU, the fault code number might not appear on the tool display.)	<ul style="list-style-type: none"> • Malfunction in ECU. 	Engine cannot be started. Engine response is poor. Loss of engine power.	Engine cannot be started. Ignition and injection are not carried out. Judgment for other fault codes is not carried out. Load control is not carried out. (The fuel injection system relay, headlight relay (dimmer), and other relays are all turned off.) The CO adjustment mode and diagnostic mode cannot be activated. Output is restricted. Cruise control system cannot be operated.
P062F	EEPROM fault code number (an error is detected while reading or writing on EEPROM)	<ul style="list-style-type: none"> • CO adjustment value is not properly written. • ISC learning value is not properly written. • OBD memory value is not properly written. • Malfunction in ECU. 	Increased exhaust emissions. Engine cannot be started or is difficult to start. Engine idling speed is unstable. OBD memory value is not correct.	CO adjustment value for the faulty cylinder = 0 (default value) ISC learning values = Default values OBD memory value is initialized. Initialization of O ₂ feedback learning value. Cruise control system cannot be operated.
P0638	YCC-T drive system: open or short circuit. YCC-T drive system: malfunction detected.	<ul style="list-style-type: none"> • Defective coupler between throttle servo motor and ECU. • Open or short circuit in wire harness between throttle servo motor and ECU. • Defective throttle servo motor. • Throttle servo motor is stuck (mechanism or motor). • Malfunction in ECU. • Blown electric throttle valve fuse. 	Engine response is poor. Loss of engine power. Engine idling speed is unstable.	O ₂ feedback is not carried out. YCC-T evacuation is activated. Output is restricted. ISC feedback is not carried out. ISC learning is not carried out. Cruise control system cannot be operated.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P0657	Fuel system voltage (incorrect voltage supplied to the fuel injector, fuel pump and fuel injection system relay)	<ul style="list-style-type: none"> • Open or short circuit in wire harness between fuel injector system relay and ECU. • Open circuit in wire harness between battery and ECU. • Defective fuel injection system relay. • Malfunction in ECU. 	Engine is difficult to start. Increased exhaust emissions.	Monitor voltage = 12 [V] O ₂ feedback is not carried out.
P1601	Sidestand switch (no normal signals are received from the sidestand switch)	<ul style="list-style-type: none"> • Defective coupler between starting circuit cut-off relay and ECU. • Open or short circuit in wire harness between starting circuit cut-off relay and ECU. • Defective coupler between sidestand switch and starting circuit cut-off relay. • Open or short circuit in wire harness between sidestand switch and starting circuit cut-off relay. • Defective sidestand switch. • Malfunction in ECU. 	Engine cannot be started.	Engine is forcefully stopped (the injector output is stopped).
P1602	Malfunction in ECU internal circuit (malfunction of ECU power cut-off function)	<ul style="list-style-type: none"> • Open or short circuit in wire harness between ECU and battery. • Open or short circuit in wire harness between ECU and ignition system relay. • Blown backup fuse. • Malfunction in ECU. 	Engine idling speed is unstable. Engine idling speed is high. Increased exhaust emissions. Engine is difficult to start.	O ₂ feedback learning is not carried out. O ₂ feedback learning value is not written. Cruise control system cannot be operated.
P1604 P1605	[P1604] Lean angle sensor (ground short circuit detected) [P1605] Lean angle sensor (open or power short circuit detected)	<p>[P1604] Low voltage of the lean angle sensor circuit (0.2 V or less) [P1605] High voltage of the lean angle sensor circuit (4.8 V or more)</p> <ul style="list-style-type: none"> • Open or short circuit in wire harness between lean angle sensor and ECU. • Defective lean angle sensor. • Malfunction in ECU. 	Engine cannot be started.	Engine cannot be started.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
P2122 P2123 P2127 P2128 P2138	[P2122] Accelerator position sensor (open or ground short circuit detected) [P2123] Accelerator position sensor (power short circuit detected) [P2127] Accelerator position sensor (ground short circuit detected) [P2128] Accelerator position sensor (open or power short circuit detected) [P2138] Accelerator position sensor (output voltage deviation error)	[P2122, P2127] Low voltage of the accelerator position sensor circuit (0.25 V or less) [P2123, P2128] High voltage of the accelerator position sensor circuit (4.75 V or more) [P2138] Difference in output voltage 1 and output voltage 2 of the accelerator position sensor. <ul style="list-style-type: none"> • Defective coupler between accelerator position sensor and ECU. • Open or short circuit in wire harness between accelerator position sensor and ECU. • Improperly installed accelerator position sensor. • Defective accelerator position sensor. • Malfunction in ECU. 	Engine response is poor. Loss of engine power. Engine idling speed is unstable.	No change in accelerator opening. (Transient control is not carried out.) Accelerator opening is fixed to 0[°]. O ₂ feedback is not carried out. YCC-T evacuation is activated. Fuel cut is prohibited by accelerator opening. Output is restricted. ISC feedback is not carried out. ISC learning is not carried out. Cruise control system cannot be operated.
P2158	Front wheel sensor (no normal signals are received from the front wheel sensor)	<ul style="list-style-type: none"> • Open or short circuit in wire harness between front wheel sensor and ECU. • Defective front wheel sensor. • Malfunction in ECU. 	Engine response is poor. Loss of engine power. Engine idling speed is unstable. Traction control does not work. Traction control system indicator on the meter comes on. Traction control system switch is disabled. (Traction control system indicator on the meter goes OFF)	Traction control does not work. Cruise control system cannot be operated.
P2195	O ₂ sensor (no signals are received from the O ₂ sensor.)	<ul style="list-style-type: none"> • Signal voltage is 0.25–0.53 V. • Improperly installed O₂ sensor. • Defective coupler between O₂ sensor and ECU. • Open or short circuit in wire harness between O₂ sensor and ECU. • Defective O₂ sensor. • Malfunction in ECU. 	Increased exhaust emissions.	O ₂ feedback is not carried out. O ₂ feedback learning is not carried out. Cruise control system cannot be operated.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

EAS31119

COMMUNICATION ERROR WITH THE METER

Fault code No.	Item	Probable cause of malfunction	Vehicle symptom	Fail-safe system operation
U0155 (Yamaha diagnostic tool) Err (multi-function meter display)	CAN communication error (with the meter)	Communication between the ECU and the meter is not possible <ul style="list-style-type: none"> Defective meter coupler and ECU coupler. Open or short circuit in the wire harness between the meter and the ECU. Defective meter. Defective ECU. 	Defective meter display. Traction control does not work.	Grip warmer output: OFF is fixed. MAP changeover: State is fixed. Traction control does not work. Meter switch input: OFF is fixed. Cruise control system cannot be operated.

EAS31057

DIAGNOSTIC CODE: SENSOR OPERATION TABLE

Diagnostic code No.	Item	Meter display	Procedure
01	Throttle position sensor signal 1 <ul style="list-style-type: none"> Fully closed position Fully open position 	11–20 95–106	Check with throttle valves fully closed. Check with throttle valves fully open.
03	Intake air pressure	Displays the intake air pressure.	Operate the throttle while pushing the ON/start switch. (If the display value changes, the performance is OK.)
05	Air temperature	Displays the air temperature.	Compare the actually measured air temperature with the meter display value.
06	Coolant temperature	When engine is cold: Displays temperature closer to air temperature. When engine is hot: Displays current coolant temperature.	Compare the actually measured coolant temperature with the meter display value.
07	Rear wheel vehicle speed pulses	Rear wheel speed pulse 0–999	Check that the number increases when the rear wheel is rotated. The number is cumulative and does not reset each time the wheel is stopped.
08	Lean angle sensor <ul style="list-style-type: none"> Upright Overturned 	Lean angle sensor output voltage 0.4–1.4 3.7–4.4	Remove the lean angle sensor and incline it more than 65 degrees.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Diagnostic code No.	Item	Meter display	Procedure
09	Fuel system voltage (battery voltage)	Fuel system voltage Approximately 12.0	Set the engine stop switch to “○”, and then compare the actually measured battery voltage with the tool display value. (If the actually measured battery voltage is low, recharge the battery.)
13	Throttle position sensor signal 2 <ul style="list-style-type: none"> • Fully closed position • Fully open position 	8–22 92–108	Check with throttle valves fully closed. Check with throttle valves fully open.
14	Accelerator position sensor signal 1 <ul style="list-style-type: none"> • Fully closed position • Fully open position 	11–20 95–106	Check with throttle grip fully closed position. Check with throttle grip fully open position.
15	Accelerator position sensor signal 2 <ul style="list-style-type: none"> • Fully closed position • Fully open position 	9–23 93–109	Check with throttle grip fully closed position. Check with throttle grip fully open position.
16	Front wheel vehicle speed pulses	Front wheel speed pulse 0–999	Check that the number increases when the front wheel is rotated. The number is cumulative and does not reset each time the wheel is stopped.
20	Sidestand switch <ul style="list-style-type: none"> • Sidestand retracted • Sidestand extended 	ON OFF	Extend and retract the sidestand (with the transmission in gear).

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Diagnostic code No.	Item	Meter display	Procedure
60	EEPROM fault code display <ul style="list-style-type: none"> • No history • History exists 	00 <ul style="list-style-type: none"> • No malfunctions detected (If the self-diagnosis fault code P062F is indicated, the ECU is defective.) 01–02 (CO adjustment value) <ul style="list-style-type: none"> • (If more than one cylinder is defective, the display alternates every two seconds to show all the detected cylinder numbers. When all cylinder numbers are shown, the display repeats the same process.) 11 (Data error for ISC (Idle Speed Control) learning values) 12 (O ₂ feedback learning value) 13 (OBD memory value)	—
67	ISC (Idle Speed Control) learning condition display ISC (Idle Speed Control) learning data erasure	00 ISC (Idle Speed Control) learning data has been erased. 01 It is not necessary to erase the ISC (Idle Speed Control) learning data. 02 It is necessary to erase the ISC (Idle Speed Control) learning data.	To erase the ISC (Idle Speed Control) learning data, set the engine stop switch from “” to “” 3 times in 5 seconds.
70	Control number	0–254 [-]	—
80	Cruise control setting switch “RES+” <ul style="list-style-type: none"> • Switch is pushed • Switch is released 	ON OFF	Push and release the “RES+” side of the cruise control setting switch.
81	Cruise control setting switch “SET-” <ul style="list-style-type: none"> • Switch is pushed • Switch is released 	ON OFF	Push and release the “SET-” side of the cruise control setting switch.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Diagnostic code No.	Item	Meter display	Procedure
82	Cruise control cancel circuit <ul style="list-style-type: none"> • Front brake lever is squeezed • Front brake lever is released • Rear brake lever is squeezed • Rear brake lever is released • Throttle grip is turned past the closed position in the deceleration direction • Throttle grip is released 	ON OFF ON OFF ON OFF	Operate the front brake lever, rear brake lever, and throttle grip.
83	Front brake light switch and rear brake light switch <ul style="list-style-type: none"> • Front brake lever is squeezed • Front brake lever is released • Rear brake lever is squeezed • Rear brake lever is released 	ON OFF ON OFF	Operate the front brake lever and rear brake lever.
87	O ₂ feedback learning data erasure	00 O ₂ feedback learning data has been erased. 01 O ₂ feedback learning data has not been erased.	To erase the O ₂ feedback learning data, set the engine stop switch from "⊗" to "○" 3 times in 5 seconds.

EAS31058

DIAGNOSTIC CODE: ACTUATOR OPERATION TABLE

Diagnostic code No.	Item	Actuation	Procedure
30	Ignition coil	Actuates the ignition coil five times at one-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the ignition coil is actuated.	Check that a spark is generated five times. <ul style="list-style-type: none"> • Connect an ignition checker.
36	Injector #1	Actuates the injector #1 five times at one-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the fuel injector is actuated.	Disconnect the fuel pump coupler. Check that injector #1 is actuated five times by listening for the operating sound.

SELF-DIAGNOSTIC FUNCTION AND DIAGNOSTIC CODE TABLE (ECU)

Diagnostic code No.	Item	Actuation	Procedure
37	Injector #2	Actuates the injector #2 five times at one-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the fuel injector is actuated.	Disconnect the fuel pump coupler. Check that injector #2 is actuated five times by listening for the operating sound.
50	Fuel injection system relay	Actuates the fuel injection system relay five times at one-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the relay is actuated.	Check that the fuel injection system relay is actuated five times by listening for the operating sound.
51	Radiator fan motor relay	Actuates the radiator fan motor relay five times at five-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the relay is actuated.	Check that the radiator fan motor relay is actuated five times by listening for the operating sound.
52	Headlight relay (dimmer)	Actuates the headlight relay (dimmer) five times at five-second intervals. The "check" indicator on the Yamaha diagnostic tool screen come on each time the headlight is actuated.	Check that the headlight relay (dimmer) is actuated five times by listening for the operating sound.
57	Grip warmer	Turns on the grip warmers for 2 minutes.	Check that the grip warmers become warm.

EVENT CODE TABLE

EAS20164

EVENT CODE TABLE

TIP

The event code numbers listed below cannot be displayed on the meter. To display the event code numbers, use the Yamaha diagnostic tool.

No.	Item	Symptom	Possible causes	Note
192	Intake air pressure sensor	Brief abnormality detected in the intake air pressure sensor	Same as for fault code number P0107 and P0108	Perform the inspection items listed for fault code number P0107 and P0108.
193	Throttle position sensor	Brief abnormality detected in the throttle position sensor	Same as for fault code number P0122, P0123, P0222 and P0223	Perform the inspection items listed for fault code number P0122, P0123, P0222 and P0223.
195	Sidestand switch	Brief abnormality detected in the ECU (blue/yellow) input line	Same as for fault code number P1601	Perform the inspection items listed for fault code number P1601.
196	Coolant temperature sensor	Brief abnormality detected in the coolant temperature sensor	Same as for fault code number P0117 and P0118	Perform the inspection items listed for fault code number P0117 and P0118.
197	Intake air temperature sensor	Brief abnormality detected in the intake air temperature sensor	Same as for fault code number P0112 and P0113	Perform the inspection items listed for fault code number P0112 and P0113.
203	Lean angle sensor	Brief abnormality detected in the lean angle sensor	Same as for fault code number P1604 and P1605	Perform the checks and maintenance jobs for fault code number P1604 and P1605.
207	Accelerator position sensor	Brief abnormality detected in the accelerator position sensor	Same as for fault code number P2122, P2123, P2127 and P2128	Perform the inspection items listed for fault code number P2122, P2123, P2127 and P2128.
240	O ₂ sensor (Stuck at the upper limit for adjustment)	During O ₂ feedback, the adjustment is maintained at the upper limit	<ul style="list-style-type: none"> • Open or short circuit in the wire harness between the sensor and ECU • Drop in fuel pressure • Clogged fuel injector • Fault in sensor • Malfunction in ECU • Malfunction in the fuel injection system 	<ul style="list-style-type: none"> • If a fault code is occurring, respond to that first. * Rarely, Code 240 occurs even when the system is functioning properly.
241	O ₂ sensor (Stuck at the lower limit for adjustment)	During O ₂ feedback, the adjustment is maintained at the lower limit	<ul style="list-style-type: none"> • Open or short circuit in the wire harness between the sensor and ECU • Drop in fuel pressure • Clogged fuel injector • Fault in sensor • Malfunction in ECU • Malfunction in the fuel injection system 	<ul style="list-style-type: none"> • If a fault code is occurring, respond to that first. * Rarely, Code 241 occurs even when the system is functioning properly.

EVENT CODE TABLE

No.	Item	Symptom	Possible causes	Note
242	ISC (Stuck at the upper limit for adjustment)	During idling, the adjustment is maintained at the upper limit	Idling engine speed is slow <ul style="list-style-type: none"> • Clogged throttle body • Poorly adjusted throttle cable • Poorly adjusted clutch cable • Malfunction in the fuel injection system • Dirty or worn spark plug • Malfunction in the battery • Malfunction in ECU 	<ul style="list-style-type: none"> • Implement diagnostic code 67, and check the ISC maintenance request. • If a fault code is occurring, respond to that first. * Rarely, Code 242 occurs even when the system is functioning properly.
243	ISC (Stuck at the lower limit for adjustment)	During idling, the adjustment is maintained at the lower limit	Idling engine speed is fast <ul style="list-style-type: none"> • Poorly adjusted throttle cable • Poorly adjusted clutch cable • Malfunction in the fuel injection system • Dirty or worn spark plug • Malfunction in the battery • Malfunction in ECU 	<ul style="list-style-type: none"> • If a fault code is occurring, respond to that first. * Rarely, Code 243 occurs even when the system is functioning properly.
244	Poor starting/inability to start	Poor starting/inability to start detected	<ul style="list-style-type: none"> • No gasoline • Malfunction in the fuel injection system • Dirty or worn spark plug • Malfunction in the battery • Malfunction in ECU 	<ul style="list-style-type: none"> • If a fault code is occurring, respond to that first. * Rarely, Code 244 occurs even when the system is functioning properly.
245	Engine stop	Engine stop detected	<ul style="list-style-type: none"> • No gasoline • Poorly adjusted throttle cable • Poorly adjusted clutch cable • Malfunction in the fuel injection system • Dirty or worn spark plug • Malfunction in the battery • Malfunction in ECU 	<ul style="list-style-type: none"> • If a fault code is occurring, respond to that first. * Rarely, Code 245 occurs even when the system is functioning properly.
246	Cruise control	Automatic turning off of the cruise control system detected	The cruise control system will automatically turn off under the following conditions: <ul style="list-style-type: none"> • Unable to maintain the set cruising speed when traveling up a steep slope • Wheel slip detected • Engine stalls • Sidestand is extended • Engine stop switch is set to the "⌘" position 	The automatic turning off of the cruise control system does not indicate a malfunction in the system.

EVENT CODE TABLE

EAS32023

TROUBLESHOOTING DETAILS (EVENT CODE)

Event code No. 30

Event code No.	30		
Item	Latch up detected.		
Fail-safe system	Unable to start engine		
	Unable to drive vehicle		
Diagnostic code No.	08		
Tool display	Lean angle sensor output voltage <ul style="list-style-type: none"> • 0.4–1.4 (upright) • 3.7–4.4 (overturned) 		
Procedure	Remove the lean angle sensor and incline it more than 65 degrees.		
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	The vehicle has overturned.	Raise the vehicle upright.	Push the ON/start switch, then push the OFF/LOCK switch, and then push the ON/start switch. Engine trouble warning light does not come on → Service is finished. Engine trouble warning light comes on → Go to item 2.
2	Installed condition of lean angle sensor.	Check the installed direction and condition of the sensor.	Push the ON/start switch, then push the OFF/LOCK switch, and then push the ON/start switch. Engine trouble warning light does not come on → Service is finished. Engine trouble warning light comes on → Go to item 3.
3	Defective lean angle sensor.	Execute the diagnostic mode. (Code No. 08) Replace if defective. Refer to "CHECKING THE LEAN ANGLE SENSOR" on page 8-242.	Push the ON/start switch, then push the OFF/LOCK switch, and then push the ON/start switch. Engine trouble warning light does not come on → Service is finished. Engine trouble warning light comes on → Go to item 4.
4	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU (Engine Control Unit)" on page 8-230.	Service is finished.

EVENT CODE TABLE

Event code No. 70

TIP

If another error code is displayed at the same time, check the other error code first and repair it.

Event code No.		70	
Item		Engine forcibly stops when the vehicle is left idling for a long period of time.	
Item	Probable cause of malfunction and check	Maintenance job	Confirmation of service completion
1	Allow to idle for a long period of time.	Push the OFF/LOCK switch.	Check whether it is possible to start the engine. Able to start the engine → Service is finished. Unable to start the engine → Go to item 2.
2	Malfunction in ECU.	Replace the ECU. Refer to "REPLACING THE ECU" on page 8-211.	Service is finished.

EVENT CODE TABLE

WIRING DIAGRAM

XP530E-A 2017

1. Battery charger terminal (OPTION)
2. D-AIR® terminal (OPTION)
3. Seat lock fuse
4. Joint coupler
5. Remote control unit
6. OFF/LOCK switch
7. Parking/Unlock switch
8. Buzzer
9. Turn signal/hazard relay
10. Storage box light
11. Crankshaft position sensor
12. AC magneto
13. Rectifier/regulator
14. Ignition system relay
15. Battery
16. Starter relay
17. Main fuse
18. Starter motor
19. Engine ground
20. Signaling system fuse
21. Ignition fuse
22. Taillight fuse
23. Radiator fan motor fuse
24. Fuel injection system fuse
25. Backup fuse
26. Diode (fuse box)
27. ABS motor fuse
28. ABS solenoid fuse
29. ABS ECU fuse
30. Headlight fuse
31. Auxiliary DC jack fuse
32. Electronic throttle valve fuse
33. Steering lock relay
34. Centerstand lock solenoid
35. Storage box light switch
36. Steering lock unit
37. Anti-theft alarm (OPTION)
38. Auxiliary DC jack
39. Diode 3
40. Headlight relay (dimmer)
41. Headlight control unit
42. Headlight (low)
43. Headlight (high)
44. Auxiliary light
45. Diode 1
46. Sidestand relay
47. Diode 2
48. Fuel injection system relay
49. Starting circuit cut-off relay
50. Sidestand switch
51. Handlebar switch (right)
52. Engine stop switch
53. ON/start switch
54. Hazard switch
55. Front brake light switch
56. Handlebar switch (left)
57. Dimmer/pass switch
58. Horn switch
59. Menu switch
60. Select switch
61. Turn signal switch
62. Rear brake light switch
63. Front turn signal light (left)
64. Front turn signal light (right)
65. Rear turn signal light (left)
66. Rear turn signal light (right)
67. License plate light
68. Tail/brake light (left)
69. Tail/brake light (right)
70. Diode 5
71. Horn
72. Smart key system relay (unlock)
73. Seat/fuel lid lock solenoid
74. Smart key system relay (lock)
75. Meter assembly
76. Smart key system indicator light
77. Meter light
78. Tachometer
79. Engine trouble warning light
80. Traction control system indicator light
81. Turn signal indicator light (left)
82. Turn signal indicator light (right)
83. ABS warning light
84. High beam indicator light
85. Multi-function display
86. Yamaha diagnostic tool coupler
87. Radiator fan motor
88. Radiator fan motor relay
89. ECU (Engine Control Unit)
90. Ignition coil
91. Spark plug
92. Grip warmer connector
93. Grip warmer (left) (OPTION)
94. Grip warmer (right) (OPTION)
95. Coolant temperature sensor
96. Intake air temperature sensor
97. Intake air pressure sensor
98. Lean angle sensor
99. O₂ sensor
100. Injector #1
101. Injector #2
102. Throttle servo motor
103. Accelerator position sensor
104. Throttle position sensor
105. Fuel sender
106. Fuel pump
107. ABS ECU (Electronic Control Unit)
108. Front wheel sensor
109. Rear wheel sensor
- A. Wire harness
- B. Negative battery sub-wire harness
- C. Headlight sub-wire harness (headlight harness)
- D. Headlight sub-wire harness (front turn signal light harness)

XP530-A 2017

1. Battery charger terminal (OPTION)
 2. D-AIR® terminal (OPTION)
 3. Seat lock fuse
 4. Joint coupler
 5. Remote control unit
 6. OFF/LOCK switch
 7. Parking/Unlock switch
 8. Buzzer
 9. Turn signal/hazard relay
 10. Storage box light
 11. Crankshaft position sensor
 12. AC magneto
 13. Rectifier/regulator
 14. Ignition system relay
 15. Battery
 16. Starter relay
 17. Main fuse
 18. Starter motor
 19. Engine ground
 20. Signaling system fuse
 21. Ignition fuse
 22. Taillight fuse
 23. Radiator fan motor fuse
 24. Fuel injection system fuse
 25. Backup fuse
 26. Diode (fuse box)
 27. ABS motor fuse
 28. ABS solenoid fuse
 29. ABS ECU fuse
 30. Headlight fuse
 31. Auxiliary DC jack fuse
 32. Electronic throttle valve fuse
 33. Steering lock relay
 34. Centerstand lock solenoid
 35. Storage box light switch
 36. Steering lock unit
 37. Anti-theft alarm (OPTION)
 38. Auxiliary DC jack
 39. Diode 3
 40. Headlight relay (dimmer)
 41. Headlight control unit
 42. Headlight (low)
 43. Headlight (high)
 44. Auxiliary light
 45. Diode 1
 46. Sidestand relay
 47. Diode 2
 48. Fuel injection system relay
 49. Starting circuit cut-off relay
 50. Sidestand switch
 51. Handlebar switch (right)
 52. Engine stop switch
 53. ON/start switch
 54. Hazard switch
 55. Mode switch
 56. Front brake light switch
 57. Handlebar switch (left)
 58. Dimmer/pass switch
 59. Horn switch
 60. Menu switch
 61. Select switch
 62. Turn signal switch
 63. Rear brake light switch
 64. Front turn signal light (left)
 65. Front turn signal light (right)
 66. Rear turn signal light (left)
 67. Rear turn signal light (right)
 68. License plate light
 69. Tail/brake light (left)
 70. Tail/brake light (right)
 71. Diode 5
 72. Horn
 73. Smart key system relay (unlock)
 74. Storage compartment lid lock solenoid
 75. Seat/fuel lid lock solenoid
 76. Smart key system relay (lock)
 77. Meter assembly
 78. Smart key system indicator light
 79. Meter light
 80. Tachometer
 81. Engine trouble warning light
 82. Traction control system indicator light
 83. Turn signal indicator light (left)
 84. Turn signal indicator light (right)
 85. ABS warning light
 86. High beam indicator light
 87. Multi-function display
 88. Seat heater relay (power) (OPTION)
 89. Seat heater relay (control) (OPTION)
 90. Seat heater (OPTION)
 91. Yamaha diagnostic tool coupler
 92. Radiator fan motor
 93. Radiator fan motor relay
 94. ECU (Engine Control Unit)
 95. Ignition coil
 96. Spark plug
 97. Grip warmer connector
 98. Grip warmer (left) (OPTION)
 99. Grip warmer (right) (OPTION)
 100. Coolant temperature sensor
 101. Intake air temperature sensor
 102. Intake air pressure sensor
 103. Lean angle sensor
 104. O₂ sensor
 105. Injector #1
 106. Injector #2
 107. Throttle servo motor
 108. Accelerator position sensor
 109. Throttle position sensor
 110. Fuel sender
 111. Fuel pump
 112. ABS ECU (Electronic Control Unit)
 113. Front wheel sensor
 114. Rear wheel sensor
 115. Tracking system control unit
- A. Wire harness
B. Negative battery sub-wire harness
C. Headlight sub-wire harness (headlight harness)
D. Headlight sub-wire harness (front turn signal light harness)

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1. Battery charger terminal (OPTION)
 2. D-AIR® terminal (OPTION)
 3. Windshield motor fuse
 4. Joint coupler
 5. Remote control unit
 6. OFF/LOCK switch
 7. Parking/Unlock switch
 8. Buzzer
 9. Turn signal/hazard relay
 10. Storage box light
 11. Crankshaft position sensor
 12. AC magneto
 13. Rectifier/regulator
 14. Ignition system relay
 15. Battery
 16. Starter relay
 17. Main fuse
 18. Starter motor
 19. Engine ground
 20. Signaling system fuse
 21. Ignition fuse
 22. Taillight fuse
 23. Radiator fan motor fuse
 24. Fuel injection system fuse
 25. Backup fuse
 26. Diode (fuse box)
 27. ABS motor fuse
 28. ABS solenoid fuse
 29. ABS ECU fuse
 30. Headlight fuse
 31. Auxiliary DC jack fuse
 32. Electronic throttle valve fuse
 33. Steering lock relay
 34. Centerstand lock solenoid
 35. Storage box light switch
 36. Steering lock unit
 37. Anti-theft alarm (OPTION)
 38. Auxiliary DC jack
 39. Diode 3
 40. Headlight relay (dimmer)
 41. Cruise control fuse
 42. Headlight control unit
 43. Headlight (low)
 44. Headlight (high)
 45. Auxiliary light
 46. Diode 1
 47. Sidestand relay
 48. Diode 2
 49. Fuel injection system relay
 50. Starting circuit cut-off relay
 51. Sidestand switch
 52. Handlebar switch (right)
 53. Engine stop switch
 54. ON/start switch
 55. Hazard switch
 56. Mode switch
 57. Brake light relay
 58. Handlebar switch (left)
 59. Cruise control power switch
 60. Cruise control setting switch
 61. Dimmer/pass switch
 62. Horn switch
 63. Menu switch
 64. Select switch
 65. Turn signal switch
 66. Front turn signal light (left)
 67. Front turn signal light (right)
 68. Rear turn signal light (left)
 69. Rear turn signal light (right)
 70. License plate light
 71. Tail/brake light (left)
 72. Tail/brake light (right)
 73. Diode 5
 74. Horn
 75. Brake light fuse
 76. Front brake light switch
 77. Rear brake light switch
 78. Grip cancel switch
 79. Smart key system relay (unlock)
 80. Storage compartment lid lock solenoid
 81. Seat/fuel lid lock solenoid
 82. Windshield drive unit
 83. Windshield drive unit relay (down)
 84. Windshield drive unit relay (up)
 85. Tracking system control unit
 86. Smart key system relay (lock)
 87. Meter assembly
 88. Smart key system indicator light
 89. Meter light
 90. Tachometer
 91. Engine trouble warning light
 92. Traction control system indicator light
 93. Turn signal indicator light (left)
 94. Turn signal indicator light (right)
 95. Cruise control system indicator light
 96. Cruise control setting indicator light
 97. ABS warning light
 98. High beam indicator light
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 101. Seat heater relay (control)
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- A. Wire harness
 - B. Negative battery sub-wire harness
 - C. Headlight sub-wire harness (headlight harness)
 - D. Headlight sub-wire harness (front turn signal light harness)

COLOR CODE

B	Black
Br	Brown
Ch	Chocolate
Dg	Dark green
G	Green
Gy	Gray
L	Blue
Lg	Light green
O	Orange
P	Pink
R	Red
Sb	Sky blue
W	White
Y	Yellow
B/G	Black/Green
B/L	Black/Blue
B/W	Black/White
B/Y	Black/Yellow
Br/B	Brown/Black
Br/L	Brown/Blue
Br/R	Brown/Red
Br/W	Brown/White
Br/Y	Brown/Yellow
G/B	Green/Black
G/L	Green/Blue
G/R	Green/Red
G/W	Green/White
G/Y	Green/Yellow
Gy/G	Gray/Green
L/B	Blue/Black
L/G	Blue/Green
L/R	Blue/Red
L/W	Blue/White
L/Y	Blue/Yellow
Lg/B	Light green/Black
Lg/L	Light green/Blue
Lg/W	Light green/White
O/W	Orange/White
P/B	Pink/Black
P/W	Pink/White
R/B	Red/Black
R/G	Red/Green
R/L	Red/Blue
R/W	Red/White
R/Y	Red/Yellow
W/G	White/Green
W/L	White/Blue
W/R	White/Red
W/Y	White/Yellow
Y/B	Yellow/Black
Y/G	Yellow/Green
Y/L	Yellow/Blue
Y/R	Yellow/Red
Y/W	Yellow/White



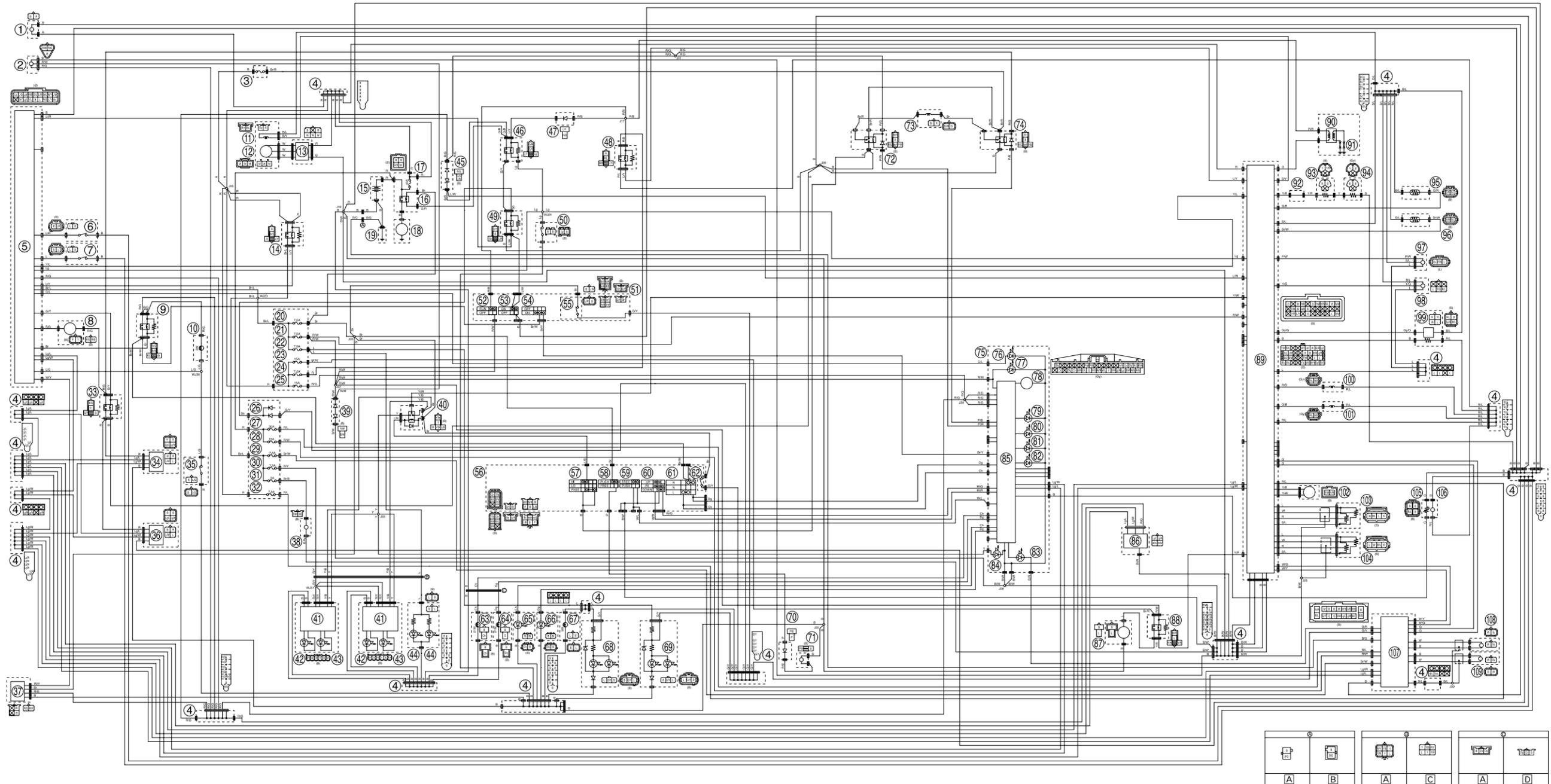
XP530E-A 2017
WIRING DIAGRAM

XP530E-A 2017
SCHEMA DE CÂBLAGE

XP530E-A 2017
SCHALTPLAN

XP530E-A 2017
SCHEMA ELETTRICO

XP530E-A 2017
DIAGRAMA ELÉCTRICO



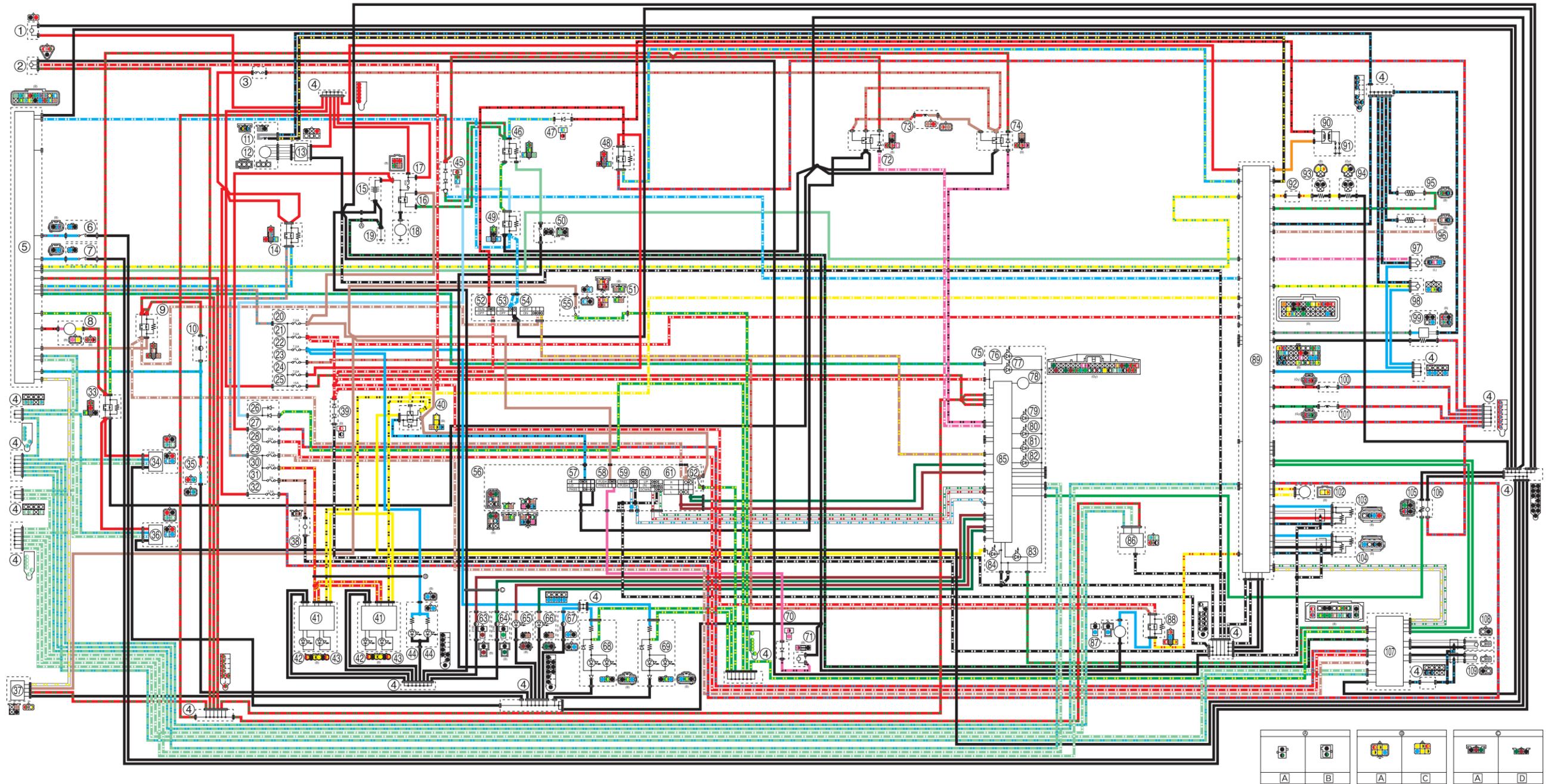
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WIRING DIAGRAM

XP530E-A 2017
SCHEMA DE CÂBLAGE

XP530E-A 2017
SCHALTPLAN

XP530E-A 2017
SCHEMA ELETTRICO

XP530E-A 2017
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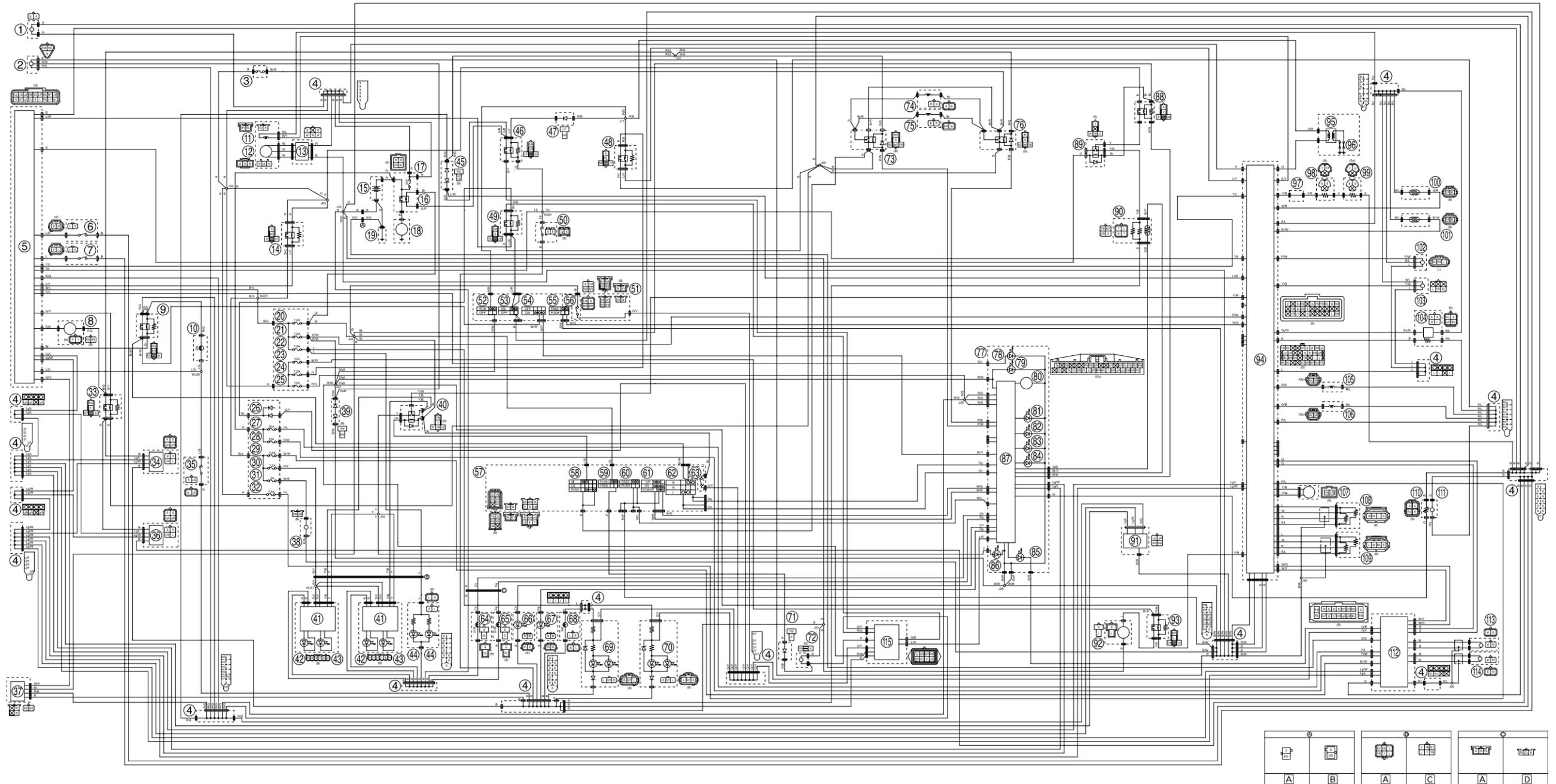
XP530-A 2017
WIRING DIAGRAM

XP530-A 2017
SCHÉMA DE CÂBLAGE

XP530-A 2017
SCHALTPLAN

XP530-A 2017
SCHEMA ELETTRICO

XP530-A 2017
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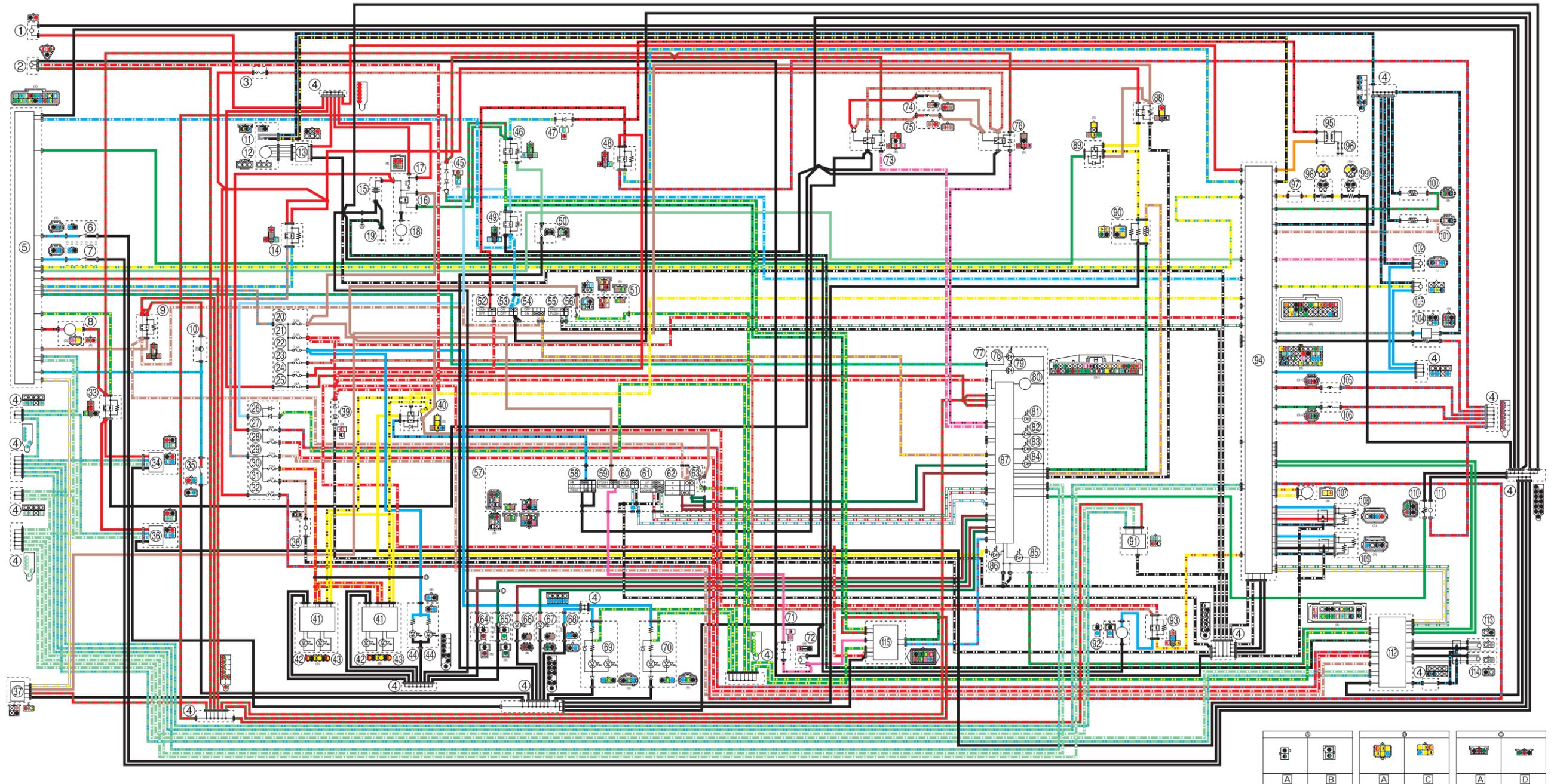
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SCHALTPLAN

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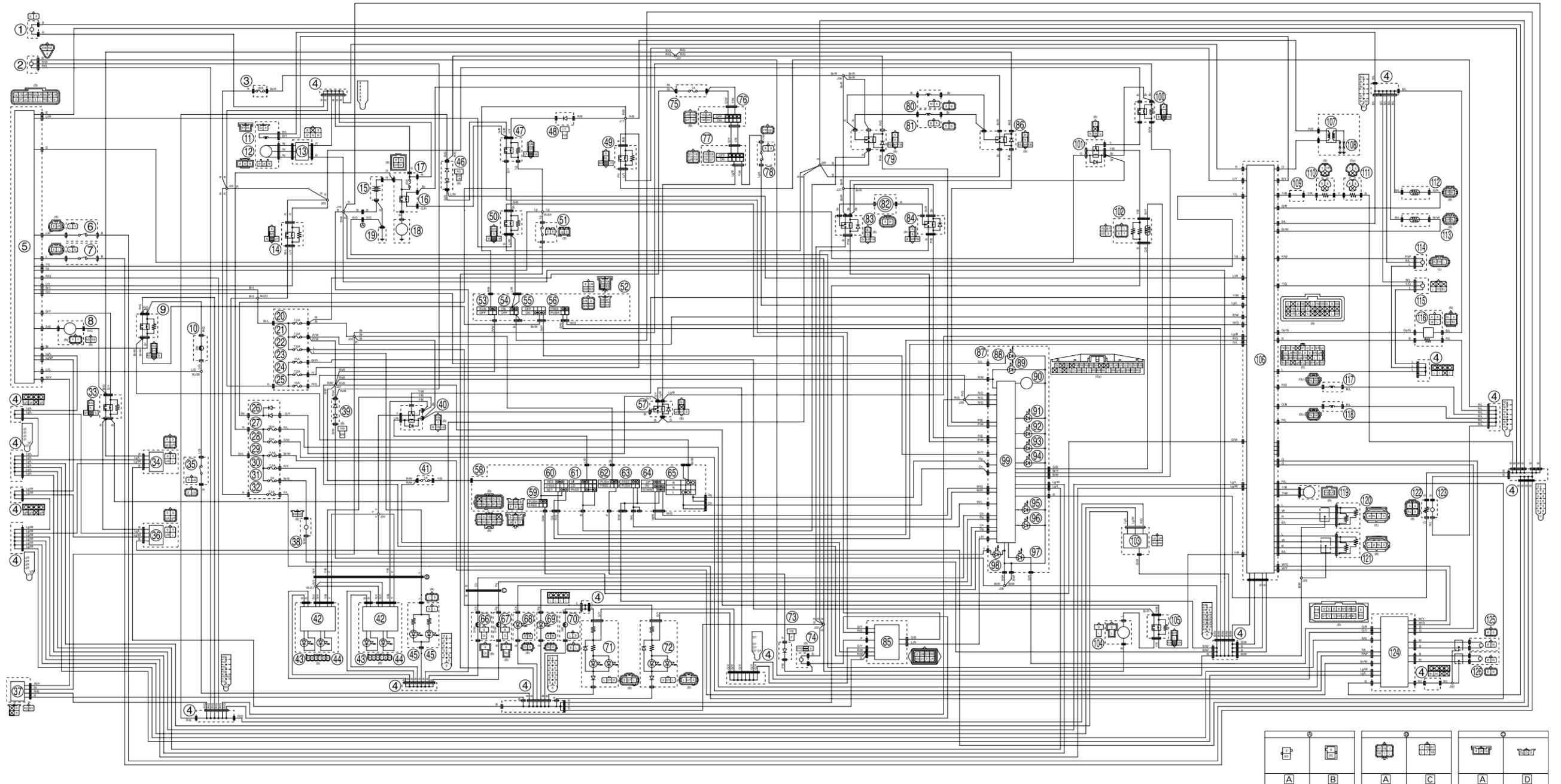
XP530D-A 2017
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SCHALTPLAN

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