YAMAHA

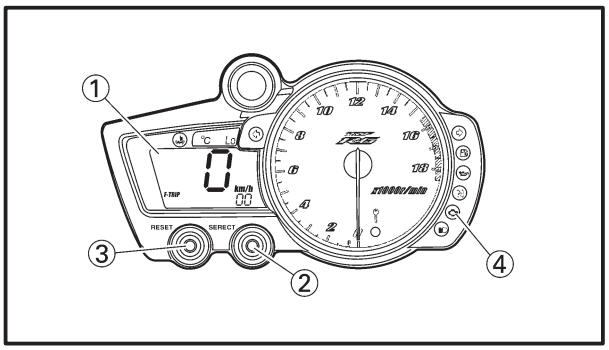
YZF-R6R
YZF-R6SR
YZF-R6RC
YZF-R6SRC

SERVICE MANUAL

LIT-11616-16-45

5SL-28197-10

CHAPTER 5
OVERHAULING THE ENGINE



① Multi-function display
② "SELECT" button
③ "RESET" button
④ Engine trouble warning light

INSTRUMENT FUNCTION

Multi-function display

The multi-function display is equipped with the following:

- a speedometer (which shows the riding speed)
- an odometer (which shows the total distance traveled)
- two tripmeters (which show the distance traveled since they were last set to zero)
- a fuel reserve tripmeter (which shows the distance traveled since the fuel level warning light came on)
- a clock
- a self-diagnosis device
- a display brightness and engine speed warning light control mode

NOTE:

- Be sure to turn the key to "ON" before using the "SELECT" and "RESET" buttons.
- For the U.K. only: To switch the speedometer and odometer/tripmeter display between kilometers and miles, press the "SELECT" button and "RESET" button together for at least two seconds.

Odometer and tripmeter modes

Pushing the "SELECT" button switches the display between the odometer mode "ODO" and the tripmeter modes "TRIP 1" and "TRIP 2" in the following order:

ODO → TRIP 1 → TRIP 2 → ODO

If the fuel level warning light comes on, the odometer display will automatically change to the fuel reserve tripmeter mode "F-TRIP" and start counting the distance traveled from that point. In that case, pushing the "SELECT" button switches the display between the various tripmeter and odometer modes in the following order:

F-TRIP → TRIP 1 → TRIP 2 → ODO → F-TRIP

To reset a tripmeter, select it by pushing the "SELECT" button, and then push the "RESET" button for at least one second. If you do not reset the fuel reserve tripmeter manually, it will reset itself automatically and the display will return to the prior mode after refueling and traveling 5 km (3.1 mi).

Clock mode

Turn the key to "ON".

To change the display to the clock mode, push the "SELECT" button for at least one second.

To change the display back to the prior mode, push the "SELECT" button.

To set the clock:

1. Push the "SELECT" button and "RESET" button together for at least two seconds.
2. When the hour digits start flashing, push the "RESET" button to set the hours.
3. Push the "SELECT" button, and the minute digits will start flashing.
4. Push the "RESET" button to set the minutes.
5. Push the "SELECT" button and then release it to start the clock.

SPECIFICATIONS

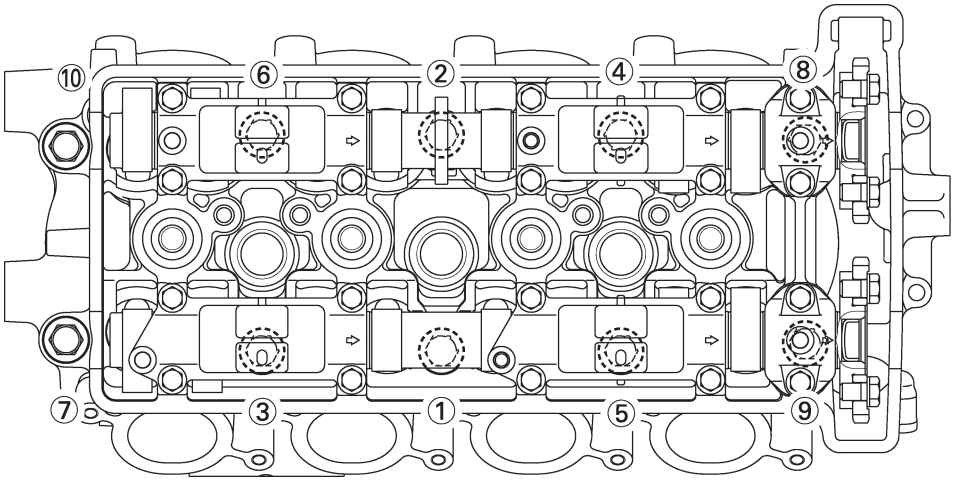
GENERAL SPECIFICATIONS

Item	Standard	Limit
Model code	5SL3 (USA except for CAL) 5SL4 (CAL) 5SL7 (USA except for CAL) 5SL8 (CAL)	•••
Dimensions		
Overall length	2,025 mm (79.7 in)	•••
Overall width	690 mm (27.2 in)	•••
Overall height	1,090 mm (42.9 in)	•••
Seat height	820 mm (32.3 in)	•••
Wheelbase	1,380 mm (54.3 in)	•••
Minimum ground clearance	135 mm (5.3 in)	•••
Minimum turning radius	3,400 mm (133.9 in)	•••
Weight		
Wet (with oil and a full fuel tank)	182 kg (401 lb) (USA except for CAL)	•••
	183 kg (404 lb) (CAL)	•••
Maximum load (except motorcycle)	193 kg (426 lb) (USA except for CAL)	•••
	192 kg (423 lb) (CAL)	•••

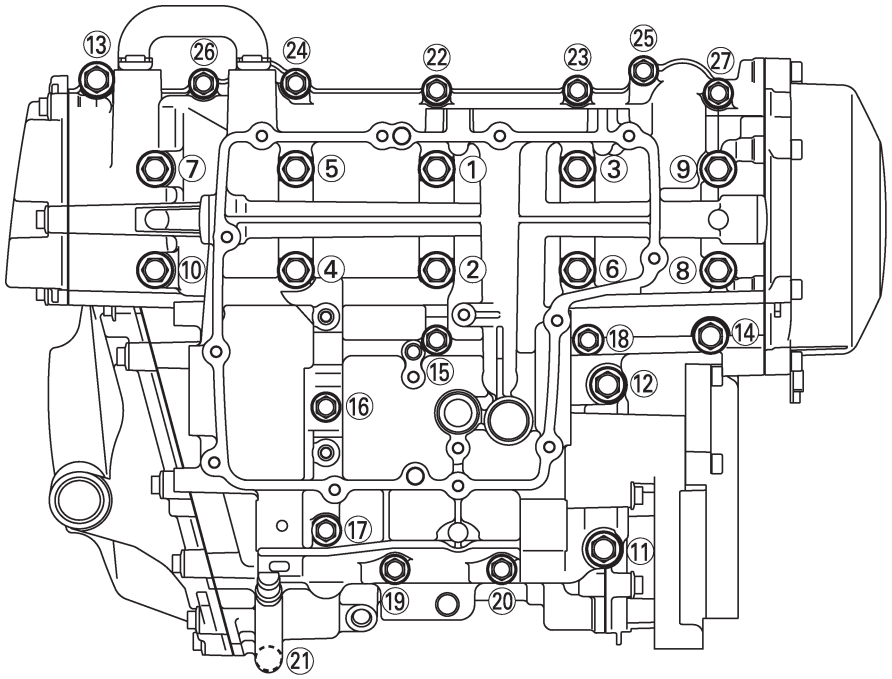
CHASSIS SPECIFICATIONS

Item	Standard	Limit
Frame		
Frame type	Diamond	•••
Caster angle	24°	•••
Trail	86 mm (3.39 in)	•••
Front wheel		
Wheel type	Cast wheel	•••
Rim		
Size	17 M/C × MT3.50	•••
Material	Aluminum	•••
Wheel travel	120 mm (4.72 in)	•••
Wheel runout		
Max. radial wheel runout	•••	1 mm (0.04 in)
Max. lateral wheel runout	•••	0.5 mm (0.02 in)
Rear wheel		
Wheel type	Cast wheel	•••
Rim		
Size	17 M/C × MT5.50	•••
Material	Aluminum	•••
Wheel travel	120 mm (4.72 in)	•••
Wheel runout		
Max. radial wheel runout	•••	1 mm (0.04 in)
Max. lateral wheel runout	•••	0.5 mm (0.02 in)
Front tire		
Tire type	Tubeless	•••
Size	120/60 ZR17 M/C (55W)	•••
Model (manufacturer)	Pilot SPORT N (MICHELIN) D208FL (DUNLOP)	•••
Tire pressure (cold)		
0 ~ 90 kg (0 ~ 198 lb)	250 kPa (2.5 kgf/cm^2, 2.5 bar, 35.6 psi)	•••
90 ~ 193 kg (198 ~ 426 lb) (USA except for CAL)	250 kPa (2.5 kgf/cm^2, 2.5 bar, 35.6 psi)	•••
90 ~ 192 kg (198 ~ 423 lb) (CAL)	250 kPa (2.5 kgf/cm^2, 2.5 bar, 35.6 psi)	•••
High-speed riding	250 kPa (2.5 kgf/cm^2, 2.5 bar, 35.6 psi)	•••
Min. tire tread depth	•••	1.6 mm (0.06 in)

Cylinder head tightening sequence:

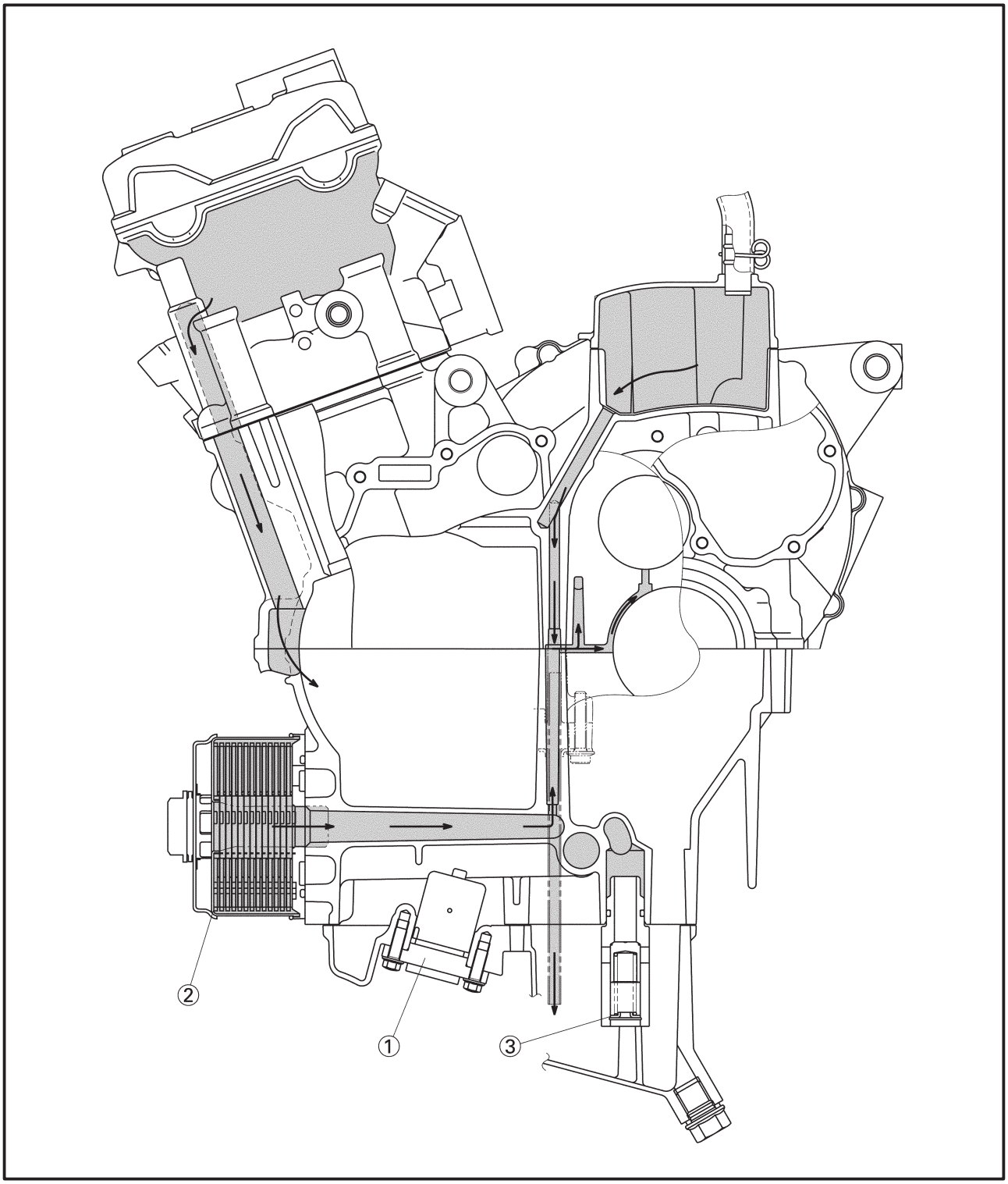


Crankcase tightening sequence.



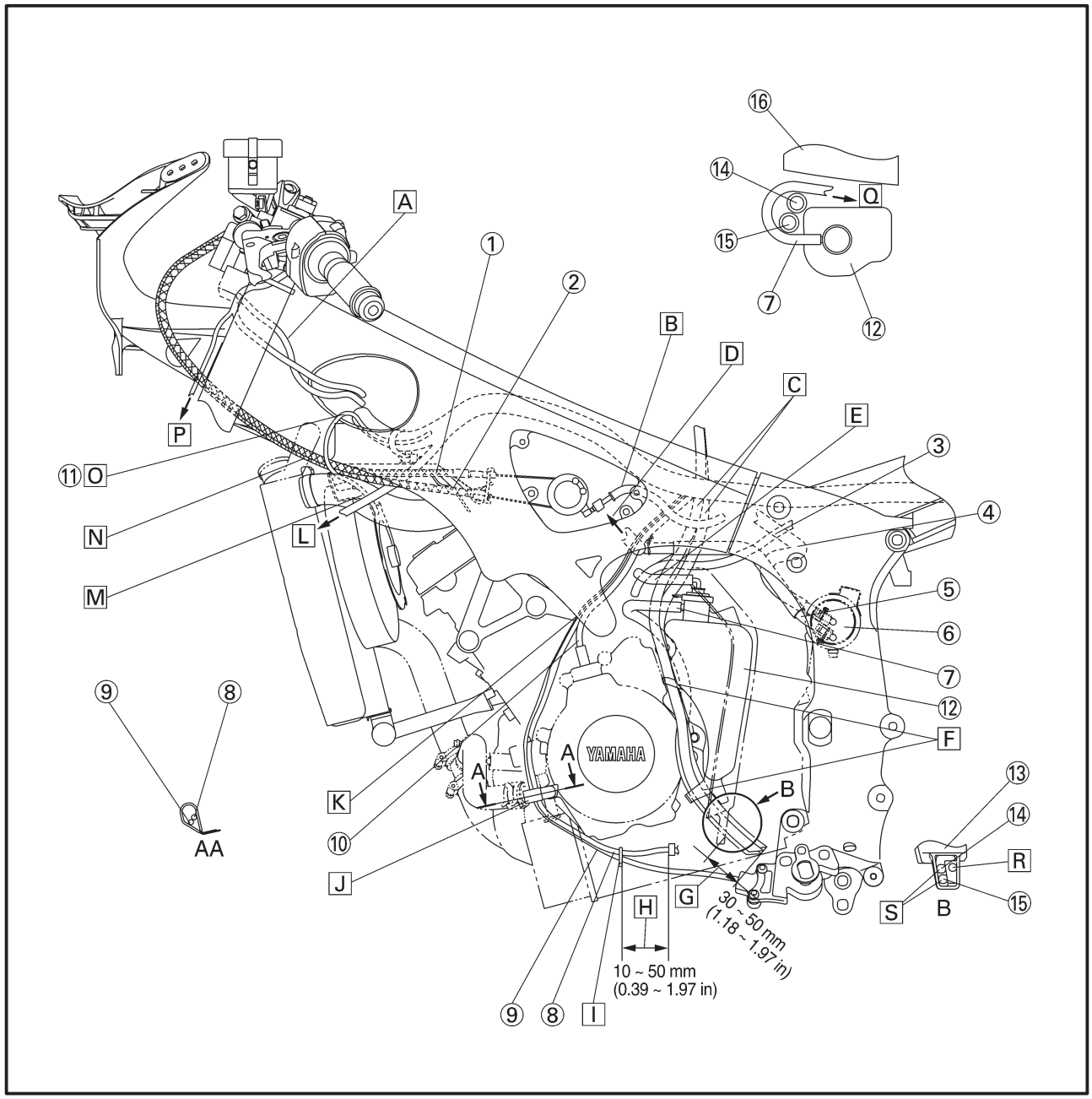
LUBRICATION DIAGRAMS

① Oil level switch
② Oil cooler
③ Relief valve



① Throttle cable (return side)
② Throttle cable (pull side)
③ Starter motor lead
④ Canister hose (for CAL)
⑤ Balance hose (for CAL)
⑥ Canister (for CAL)
⑦ Coolant reservoir tank breather hose
⑧ Oil level switch lead
⑨ Sidestand switch lead
⑩ A.C. magneto lead
⑪ Radiator fan motor lead
⑫ Coolant reservoir tank
⑬ Coolant reservoir tank cover
⑭ Fuel tank drain hose
⑮ Fuel tank breather hose
⑯ Drive sprocket cover

[A] Pass the main switch lead under the left handlebar switch lead and then to the right side of the vehicle.
[B] Pass the throttle stop cable by the left side of the sidestand switch lead, oil level switch lead, A.C. magneto lead, fuel tank drain hose and fuel tank breather hose, and then to the right side of the vehicle.
[C] Pass the fuel tank drain hose and fuel tank breather hose inside of the reservoir tank breather hose and reservoir tank hose, wire harness and throttle stop cable and then route it by the out side of the starter motor lead.
[D] To the throttle body.
[E] Route the coolant reservoir tank hose by the outside of the fuel tank drain hose and the fuel tank breather hose.



NO.		ITEM	REMARKS	INITIAL	ODOMETER READINGS				
				600 mi (1,000 km) or 1 month	4,000mi (7,000 km) or 6 months	8,000 mi (13,000 km) or 12 months	12,000 mi (19,000 km) or 18 months	16,000 mi (25,000 km) or 24 months	20,000 mi (31,000 km) or 30 months
7	*	**Control cables (See page 3-58)**	• Apply Yamaha chain and cable lube or engine oil 10W-30 thoroughly.	√	√	√	√	√	√
8	*	**Swingarm pivot bearing (See page 4-75)**	• Check bearing assembly for looseness. • Moderately repack with lithium-soap-based grease every 16,000 mi (25,000 km) or 24 months.			√		√ **Repack.**	
9	*	**Rear suspension link pivots (See page 4-75)**	• Check operation. • Correct if necessary.			√		√	
10	*	**Shock absorber assembly (See page 4-71)**	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	√
11	*	**Front fork (See page 3-50)**	• Check operation and oil leakage. • Replace if necessary.		√	√	√	√	√
12	*	**Steering bearings (See page 3-48)**	• Check bearing assembly for looseness. • Moderately repack with lithium-soap-based grease every 16,000 mi (25,000 km) or 24 months.	√	√	√	√	√ **Repack.**	√
13		**Brake and clutch lever pivot shafts (See page 3-58)**	• Apply lithium-soap-based grease (all-purpose grease) lightly.		√	√	√	√	√
14		**Brake and shift pedal pivot shafts (See page 3-58)**	• Apply lithium-soap-based grease (all-purpose grease) lightly.		√	√	√	√	√
15		**Drive chain (See page 3-46)**	• Check chain slack/alignment and condition. • Adjust and lubricate chain with a special O-ring chain lubricant thoroughly.	**Every 500 mi (800 km) or after washing the motorcycle or riding in the rain.**					
16	*	**Wheel bearings (See page 4-3)**	• Check bearing for smooth operation.		√	√	√	√	√
17		**Sidestand pivot (See page 3-58)**	• Check operation and lubricate. • Apply lithium-soap-based grease (all-purpose grease) lightly.		√	√	√	√	√
18	*	**Sidestand switch (See page 8-4)**	• Check operation and replace if necessary.	√	√	√	√	√	√
19	*	**Chassis fasteners (See page 2-22)**	• Check all chassis fitting and fasteners. • Correct if necessary.		√	√	√	√	√
20	*	**Brake hoses (See page 3-43)**	• Check for cracks or damage.		√	√	√	√	√
			• Replace.	**Every 4 years**					
21	*	**Wheels (See page 4-3)**	• Check runout and for damage. • Replace if necessary.		√	√	√	√	
22	*	**Tires (See page 3-55)**	• Check tread depth and for damage. • Replace if necessary. • Check air pressure. • Correct if necessary.		√	√	√	√	√

* Since these items require special tools, data and technical skills, have a Yamaha dealer perform the service.

NOTE:

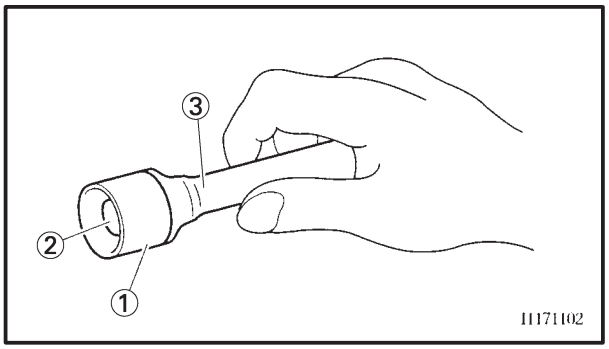
From 24,000 mi (37,000 km) 36 months, repeat the maintenance intervals starting from 4,000 mi (7,000 km) or 6 months.

NOTE:

- The air filter needs more frequent service if you are 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.

5. Remove:
   • camshafts

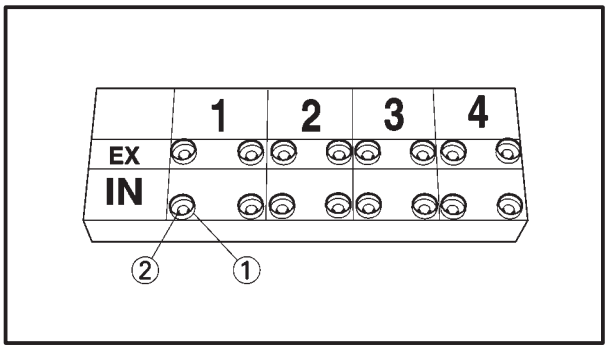
NOTE:
- Refer to "DISASSEMBLING THE ENGINE – CAMSHAFT AND CYLINDER HEAD" in chapter 5.
- When removing the timing chain and camshafts, fasten the timing chain with a wire to retrieve it if it falls into the crankcase.



6. Adjust:
   • valve clearance

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

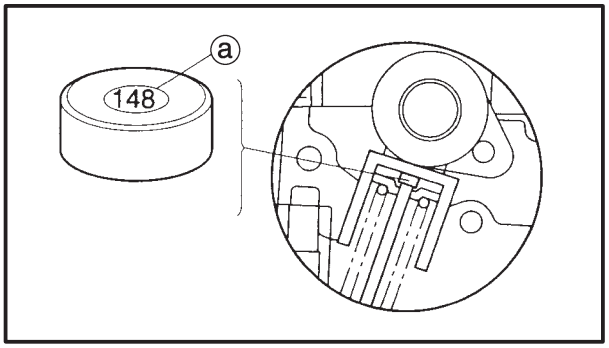
	Valve lapper 90890-04101



NOTE:
- 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.

b. Select the proper valve pad from the following table.

Valve pad thickness range		Available valve pads
Nos. 120 ~ 240	1.20 (0.0472) ~ 2.40 mm (0.0945 in)	25 thicknesses in 0.05 mm (0.002 in) increments



NOTE:
- The thickness ⓐ of each valve pad is marked in hundredths of millimeters on the side that touches the valve lifter.
- Since valve pads of various sizes are originally installed, the valve pad number must be rounded in order to reach the closest equivalent to the original.

6. Measure:
   • spark plug gap ⓐ
   (with a wire Thickness gauge)
   Out of specification → Regap.

Spark plug gap
0.6 ~ 0.7 mm
(0.0236 ~ 0.0276 in)

7. Install:
   • spark plug — **13 Nm (1.3 m•kg, 9.4 ft•lb)**

NOTE:

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

8. Install:
   • air filter case
   Refer to “AIR FILTER CASE”.
   • fuel tank
   Refer to “FUEL TANK”.
   • rider seat
   Refer to “SEATS”.

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MEASURING THE COMPRESSION PRESSURE

The following procedure applies to all of the cylinders.

NOTE:

Insufficient compression pressure will result in a loss of performance.

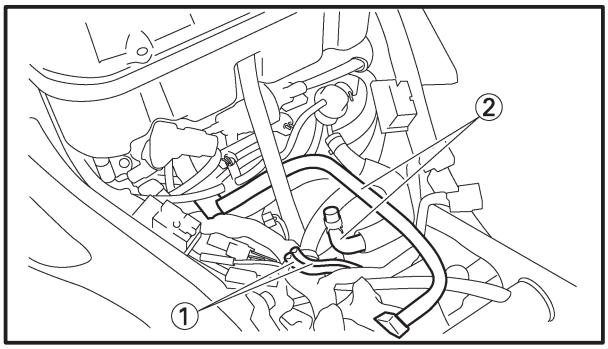
1. Measure:
   • valve clearance
   Out of specification → Adjust.
   Refer to “ADJUSTING THE VALVE CLEARANCE”.
2. Start the engine, warm it up for several minutes, and then turn it off.
3. Remove:
   • rider seat
   Refer to “SEATS”.
   • fuel tank
   Refer to “FUEL TANK”.
   • air filter case
   Refer to “AIR FILTER CASE”.
4. Remove:
   • cover
   • ignition coils
   • spark plugs

EAS00096

CHECKING THE FUEL AND BREATHER HOSES

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

1. Remove:
   - rider seat
     Refer to “SEATS”.
   - fuel tank
     Refer to “FUEL TANK”.



2. Check:
   - breather hoses ①
   - fuel hoses ②
     Cracks/damage → Replace.
     Loose connection → Connect properly.

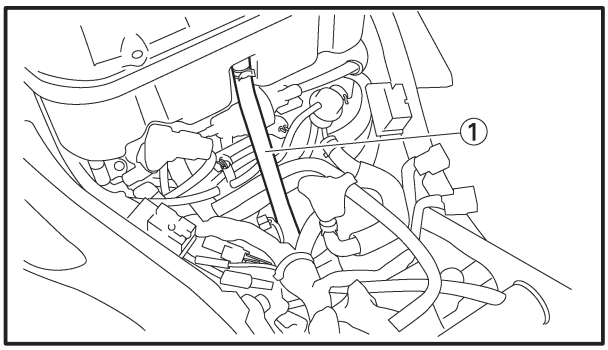
NOTE:

Before removing the fuel hoses, place a few rags in the area under where it will be removed.

3. Install:
   - fuel tank
     Refer to “FUEL TANK”.
   - rider seat
     Refer to “SEATS”.

EAS00098

CHECKING THE CRANKCASE BREATHER HOSE



1. Remove:
   - rider seat
     Refer to “SEATS”.
   - fuel tank
     Refer to “FUEL TANK”.
2. Check:
   - crankcase breather hose ①
     Cracks/damage → Replace.
     Loose connection → Connect properly.

CAUTION:

Make sure the crankcase breather hose is routed correctly.

3. Install:
   - fuel tank
     Refer to “FUEL TANK”.
   - rider seat
     Refer to “SEATS”.

CAUTION:

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

NOTE:

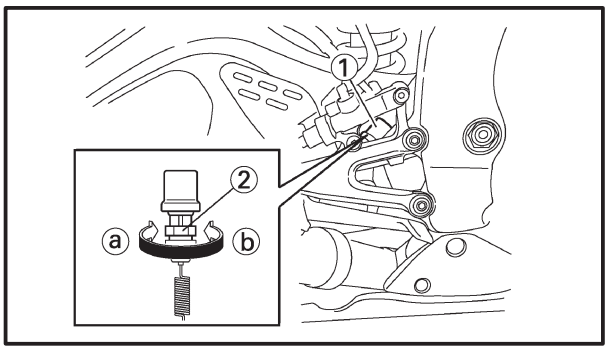
In order to ensure a correct reading of the brake fluid level, make sure the top of the brake fluid reservoir is horizontal.

EAS00128

ADJUSTING THE REAR BRAKE LIGHT SWITCH

NOTE:

The rear brake light switch is operated by movement of the brake pedal.
The rear brake light switch is properly adjusted when the brake light comes on just before the braking effect starts.



1. Check:
   - rear brake light operation timing
     Incorrect → Adjust.
2. Adjust:
   - rear brake light operation timing

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a. Hold the main body ① of the rear brake light switch so that it does not rotate and turn the adjusting nut ② in direction ⓐ or ⓑ until the rear brake light comes on at the proper time.

Direction ⓐ	**Brake light comes on sooner.**
Direction ⓑ	**Brake light comes on later.**

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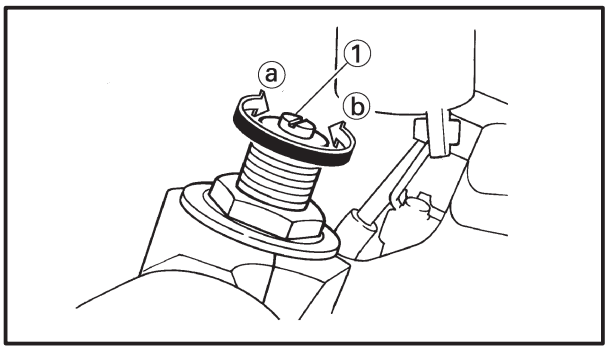

1. Adjust:
   • rebound damping

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a. Turn the adjusting screw ① in direction ⓐ or ⓑ.

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

Adjusting positions
Minimum: 10 clicks in direction ⓑ *
Standard: 9 clicks in direction ⓑ *
Maximum: 1 clicks in direction ⓑ *
*** with the adjusting screw fully turned-in direction ⓐ**

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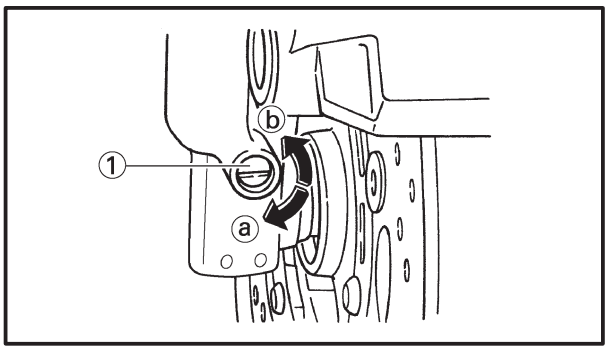
Compression damping

CAUTION:

Never go beyond the maximum or minimum adjustment positions.



1. Adjust:
   • compression damping

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a. Turn the adjusting screw ① in direction ⓐ or ⓑ.

Direction ⓐ	**Compression damping is increased (suspension is harder).**
Direction ⓑ	**Compression damping is decreased (suspension is softer).**

Adjusting positions
Minimum: 9 clicks in direction ⓑ *
Standard: 7 clicks in direction ⓑ *
Maximum: 1 clicks in direction ⓑ *
*** with the adjusting screw fully turned-in direction ⓐ**

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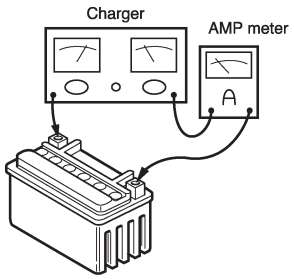
Charging method using a variable-current (voltage) charger



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Measure the open-circuit voltage prior to charging.

Connect a charged and AMP meter to the battery and start charging.

Make sure that the current is higher than the standard charging current written on the battery.

NOTE:
Voltage should be measured 30 minutes after the machine is stopped.

NOTE:
Set the charging voltage at 16 ~ 17 V. (If the setting is lower, charging will be insufficient. If too high, the battery will be over-charged.)

YES

NO

By turning the charging voltage adjust dial, set the charging voltage at 20 ~ 24 V.

Monitor the amperage for 3 ~ 5 minutes to check if the standard charging current is reached.

YES

Adjust the voltage so that the current is at the standard charging level.

NO

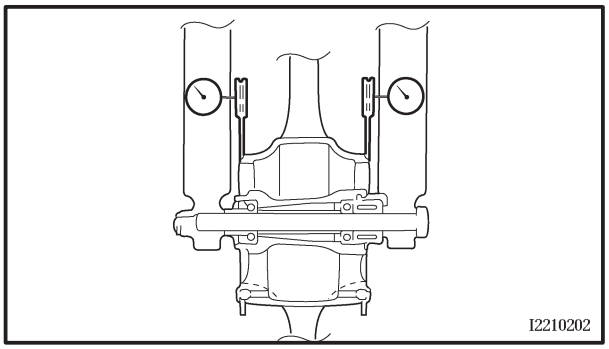
If the current does not exceed the standard charging current after 5 minutes, replace the battery.

Set the time according to the charging time suitable for the open-circuit voltage.
Refer to “Battery condition checking steps”.

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.

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.

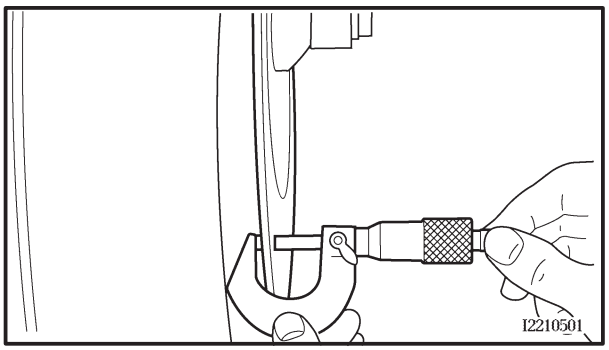
EAS00533
CHECKING THE BRAKE DISCS
The following procedure applies to all of the brake discs.
1. Check:
   • brake discs
   Damage/galling → Replace.



2. Measure:
   • brake disc deflection
   Out of specification → Correct the brake disc deflection or replace the brake disc.

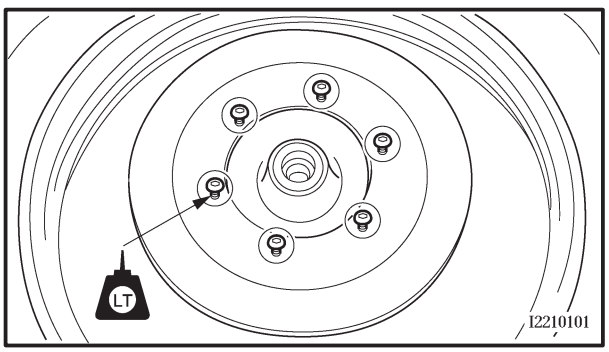
Brake disc deflection limit (maximum)
Front: 0.1 mm (0.004 in)
Rear: 0.15 mm (0.006 in)

a. Place the motorcycle on a suitable stand so that the wheel is elevated.
b. Before measuring the front brake disc deflection, turn the handlebars 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 deflection 2 ~ 3 mm (0.08 ~ 0.12 in) below the edge of the brake disc.



3. Measure:
   • brake disc thickness
   Measure the brake disc thickness at a few different locations.
   Out of specification → Replace.

Brake disc thickness limit (minimum)
Front: 4.5 mm (0.18 in)
Rear: 4.5 mm (0.18 in)



4. Adjust:
   • brake disc deflection

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

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

EAS00575

ADJUSTING THE REAR WHEEL STATIC BALANCE

NOTE:

- 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 drive hub installed.

1. Adjust:
   - rear wheel static balance
     Refer to “ADJUSTING THE FRONT WHEEL STATIC BALANCE”.

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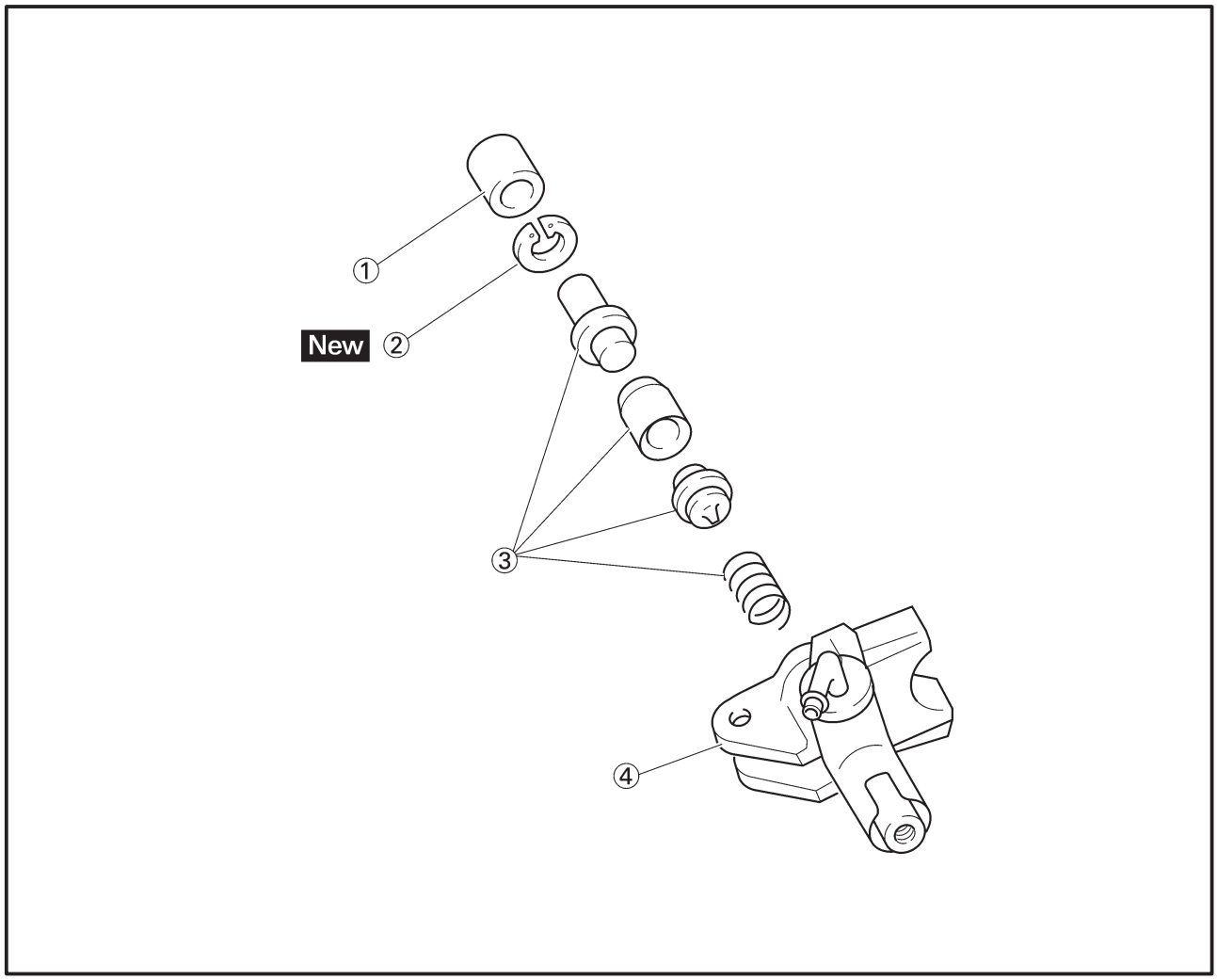
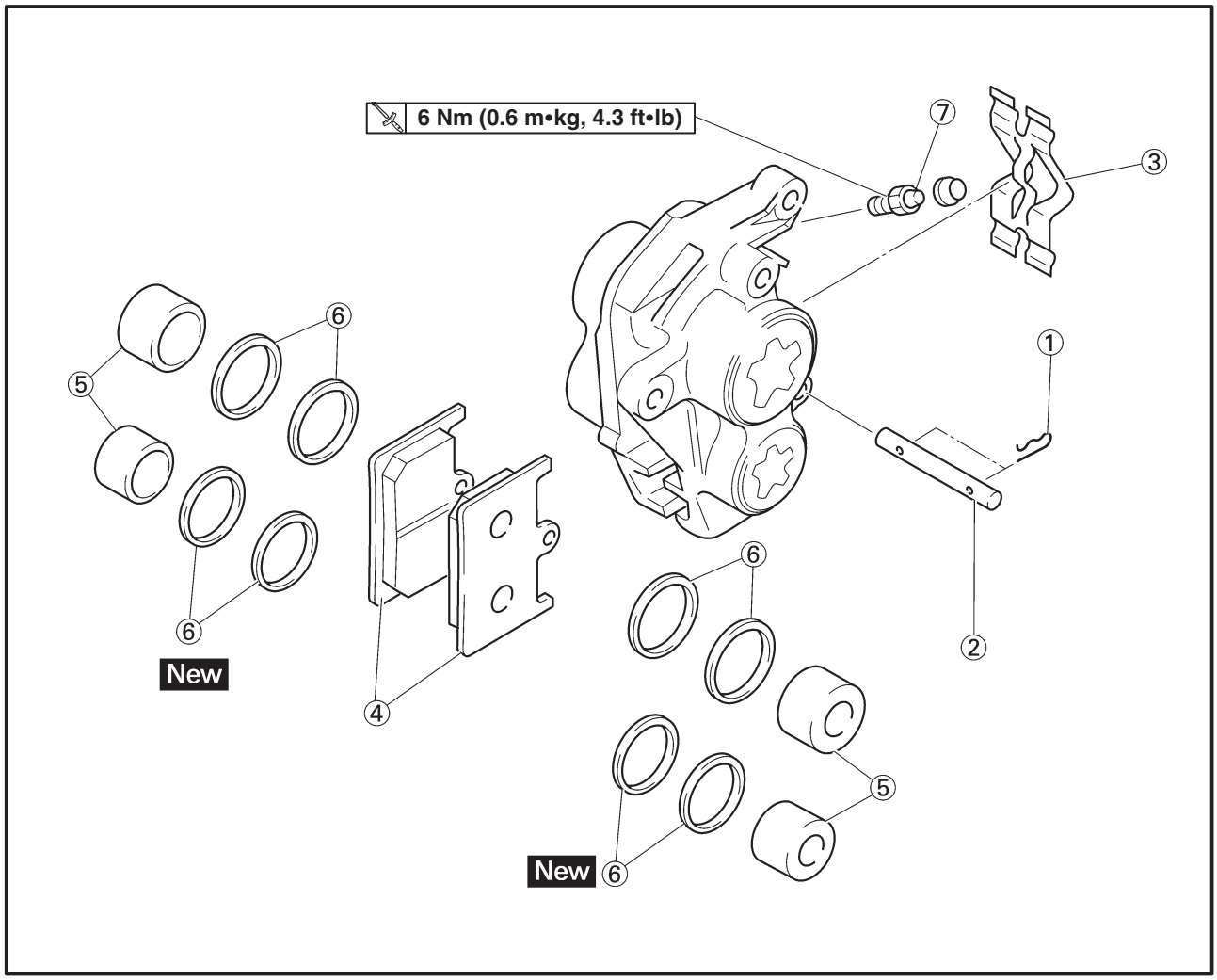


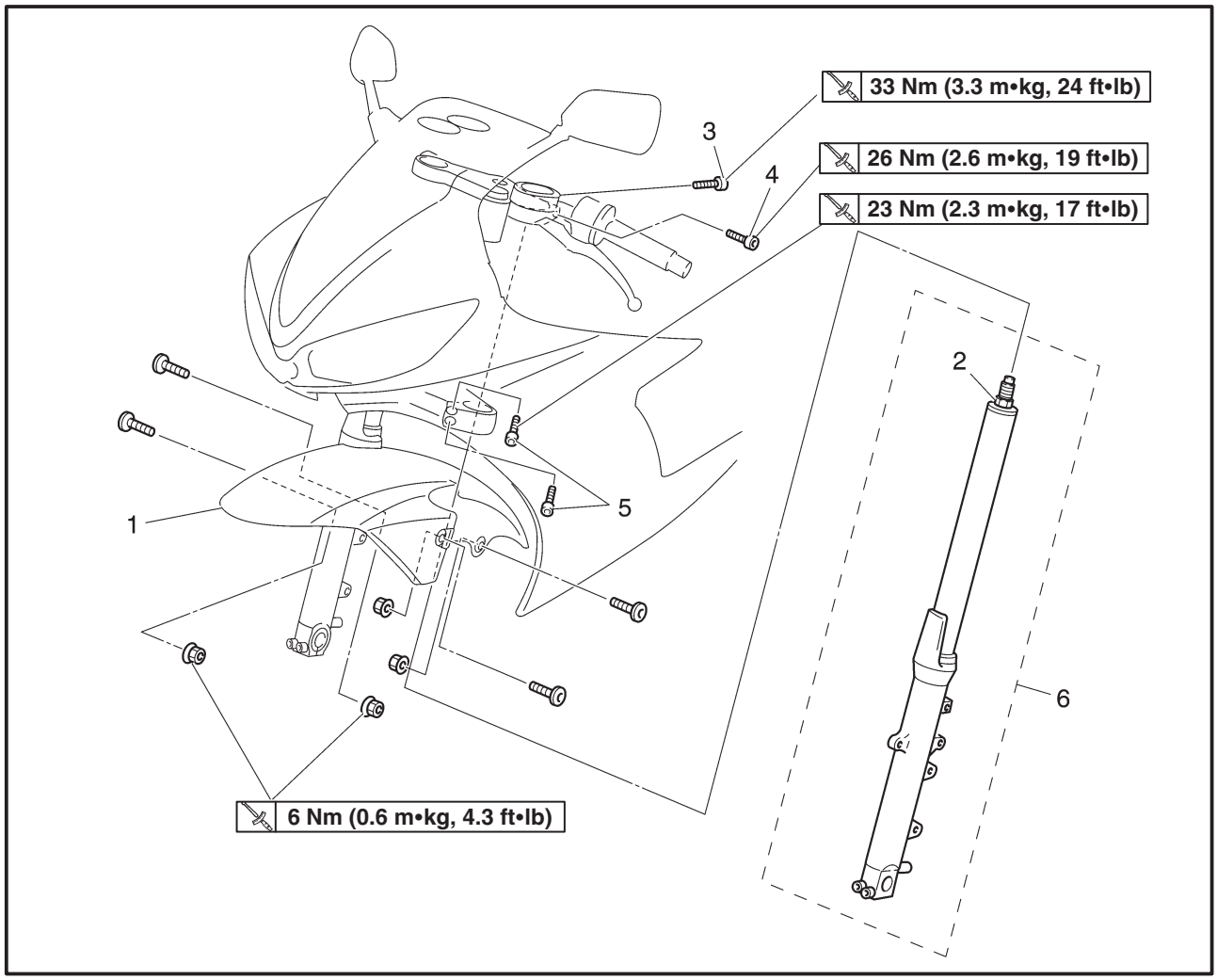
Order	Job/Part	Q'ty	Remarks
	Disassembling the front brake master cylinder		Disassemble the parts in the order listed.
①	Dust boot	1	
②	Circlip	1	
③	Brake master cylinder kit	1	
④	Brake master cylinder body	1	
			For assembly, reverse the disassembly procedure.

EAS00615

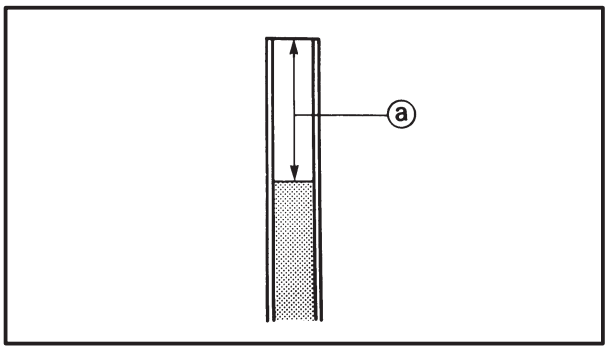


Order	Job/Part	Q'ty	Remarks
	Disassembling the front brake calipers		Disassemble the parts in the order listed. **NOTE:** The following procedure applies to both of the front brake calipers.
①	Brake pad clip	2	
②	Brake pad pin	1	
③	Brake pad spring	1	
④	Brake pad	2	
⑤	Brake caliper piston	4	
⑥	Brake caliper piston seal	8	
⑦	Bleed screw	1	
			For assembly, reverse the disassembly procedure.

EAS00647
FRONT FORK
FRONT FORK LEGS

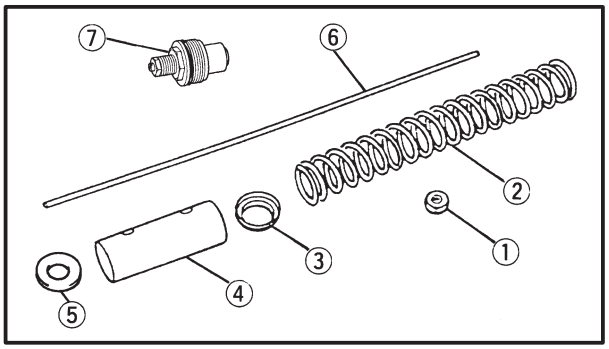


Order	Job/Part	Q'ty	Remarks
	Removing the front fork legs		Remove the parts in the order listed.
	Front wheel		
	Front brake calipers		Refer to "FRONT AND REAR BRAKES".
	Front cowling inner panels		Refer to "COWLINGS" in chapter 3.
1	Front fender	1	
2	Cap bolt	1	Loosen.
3	Handlebar pinch bolt	1	Loosen.
4	Upper bracket pinch bolt	1	Loosen.
5	Under bracket pinch bolt	2	Loosen.
6	Front fork leg	1	
			For installation, reverse the removal procedure.

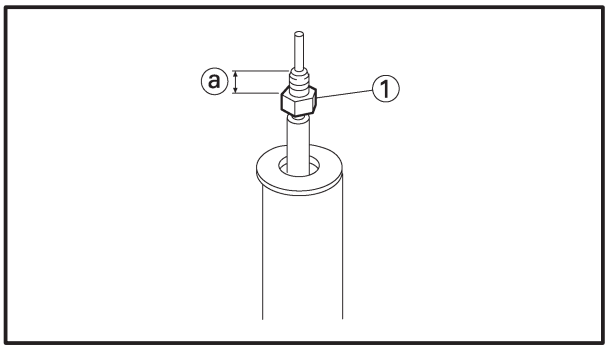


14. Measure:
- front fork leg oil level ⓐ
  Out of specification → Correct.

Front fork leg oil level (from the top of the inner tube, with the inner tube fully compressed, and without the spring)
106 mm (4.17 in)

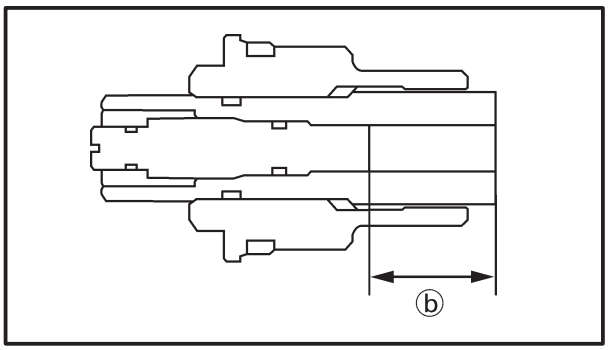


15. Install:
- nut ①
- fork spring ②
- washer ③
- spacer ④
- washer ⑤
- damper adjusting rod ⑥
- cap bolt ⑦



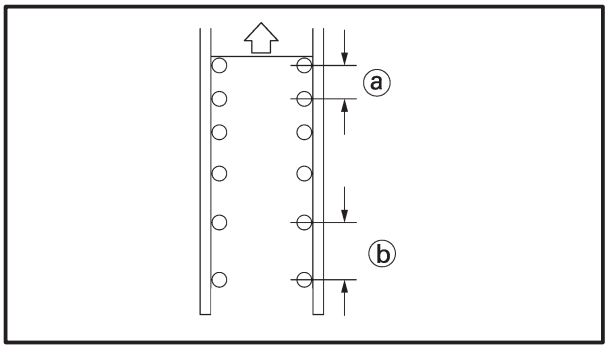
a. Remove the rod puller and rod puller attachment.
b. Install the damper adjusting rod locknut ① and position it as specified ⓐ.

Damper adjusting rod nut position (from the top of the rod to the top of the nut) ⓐ
11 mm (0.43 in)



c. Set the cap bolt distance ⓑ to specification.

Distance ⓑ
25 mm (0.98 in)



d. Install the damper adjusting rod, fork spring, washer (lower), spacer and washer (upper).

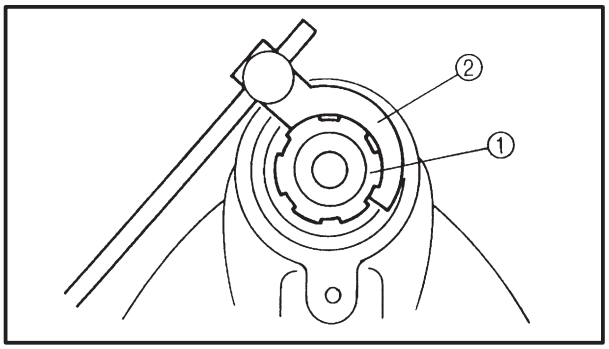
NOTE:
Install the fork spring with the smaller pinch ⓐ facing up.

ⓑ Larger pitch

EAS00679
REMOVING THE UNDER BRACKET
1. Stand the motorcycle on a level surface.

⚠ WARNING

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



2. Remove:
   - steering stem nut
   - washer
   - upper bracket
   - lock washer
   - rubber washer
   - ring nut ①
     (with the steering nut wrench ②)

NOTE:

Hold the lower ring nut with the exhaust and steering nut wrench, and then remove the upper ring nut with the ring nut wrench.

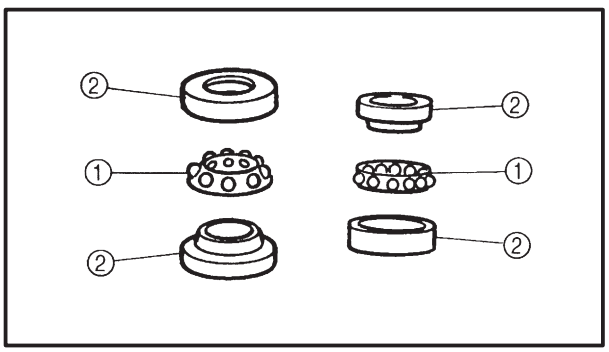
	Steering nut wrench **90890-01403, YU-33975**

⚠ WARNING

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

EAS00681
CHECKING THE STEERING HEAD
1. Wash:
   - bearings
   - bearing races

	Recommended cleaning solvent **Kerosene**



2. Check:
   - bearings ①
   - bearing races ②
     Damage/pitting → Replace.

EAS00703

REMOVING THE SWINGARM

1. Stand the motorcycle on a level surface.

⚠ WARNING

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

NOTE:

Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Remove:
   - rear wheel
     Refer to "REAR WHEEL AND BRAKE DISC".
   - rear shock absorber assembly, relay arm and connecting rod
     Refer to "REAR SHOCK ABSORBER ASSEMBLY".
3. Measure:
   - swingarm side play
   - swingarm vertical movement

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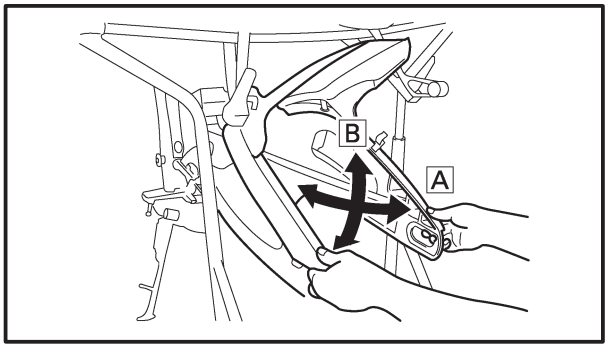
a. Measure the tightening torque of the pivot shaft nut.

Pivot shaft nut
95 Nm (9.5 m•kg, 69 ft•lb)

b. Measure the swingarm side play A by moving the swingarm from side to side.
c. If the swingarm side play is out of specification, check the spacers, bearings, washers, and dust covers.



Swingarm side play
(at the end of the swingarm)
1.0 mm (0.04 in)

d. Check the swingarm vertical movement B by moving the swingarm up and down.
   If swingarm vertical movement is not smooth or if there is binding, check the spacers, bearings, washers, and dust covers.

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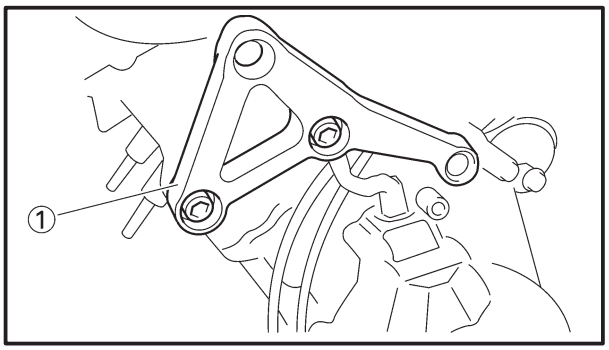
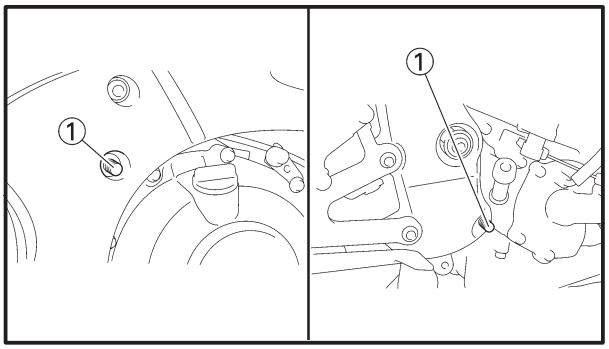


EAS00192
INSTALLING THE ENGINE

1. Install:
   - engine bracket ① (to the engine)

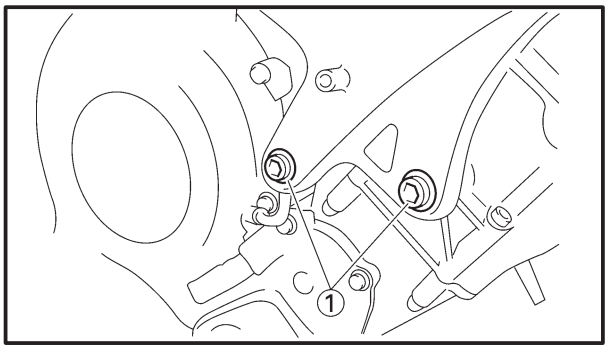
     45 Nm (4.5 m•kg, 33 ft•lb)
   - engine mounting adjust bolts (temporary tighten)



2. Install:
   - rear engine mounting bolts ①

NOTE:

- Lubricate the rear engine mounting bolt threads with lithium-soap-based grease.

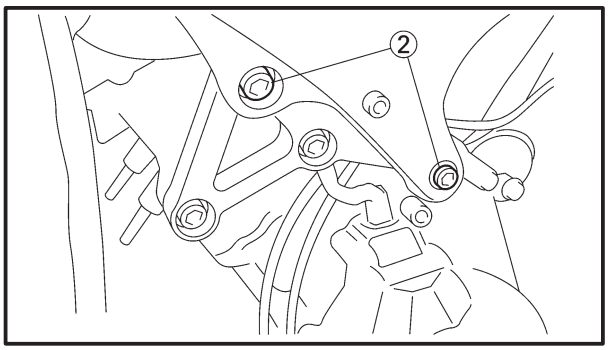


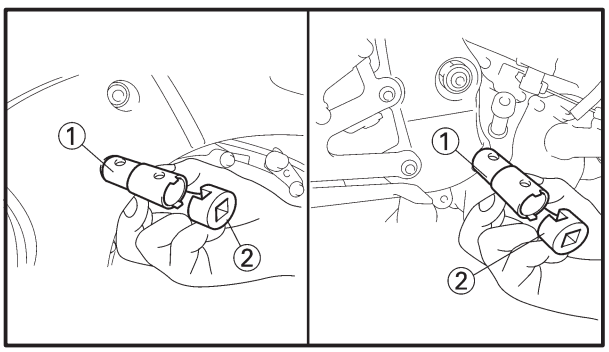
3. Install:
   - right front engine mounting bolts ① (temporary tighten)
   - left front engine mounting bolts ②

     45 Nm (4.5 m•kg, 33 ft•lb)

NOTE:

First tighten the rear side engine mounting bolt.



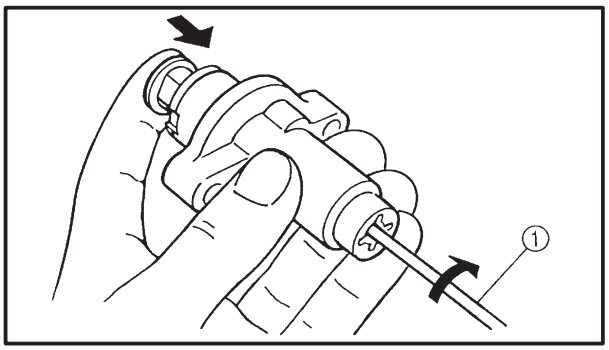


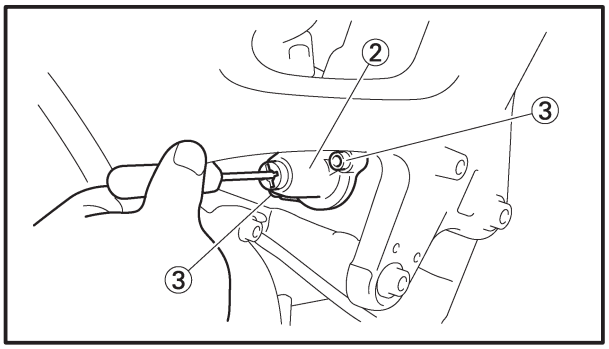
4. Tighten:
   - engine mounting adjust bolts

     7 Nm (0.7 m•kg, 5.1 ft•lb)

NOTE:

- First tighten the lower engine mounting adjust bolt.
- Use the pivot shaft wrench ① and pivot shaft wrench adapter ② to tighten the engine mounting adjust bolts.





6. Install:
   • timing chain tensioner

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a. While lightly pressing the timing chain tensioner rod by hand, turn the tensioner rod fully clockwise with a thin screwdriver ①.
b. With the timing chain tensioner rod turned all the way into the timing chain tensioner housing (with the thin screwdriver still installed), install the gasket and the timing chain tensioner ② onto the cylinder block.

⚠ WARNING

Always use a new gasket.

c. Tighten the timing chain tensioner bolts ③ to the specified torque.

	Timing chain tensioner bolt **12 Nm (1.2 m•kg, 8.7 ft•lb)**

d. Remove the screwdriver, make sure that the timing chain tensioner rod releases, and then tighten the cap bolt to the specified torque.

	Cap bolt **7 Nm (0.7 m•kg, 5.1 ft•lb)**

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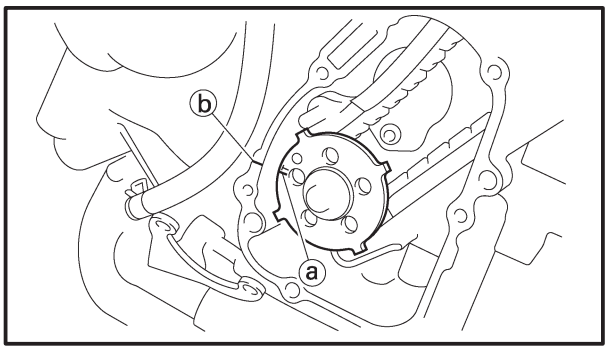
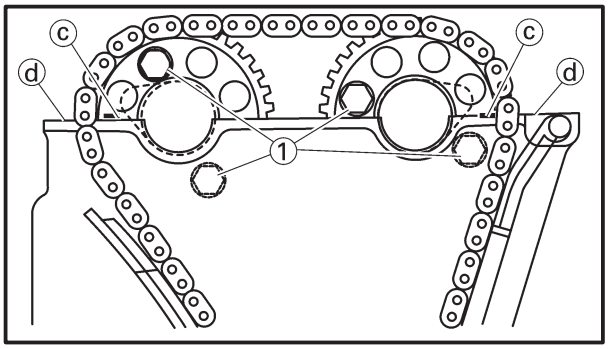
7. Turn:
   • crankshaft
   (several full turns clockwise)



8. Check:
   • "T" mark ⓐ
   Make sure the "T" mark on the pickup rotor is aligned with the crankcase mating sure face ⓑ.
   • camshaft sprocket match mark ⓒ
   Make sure the match marks on the camshaft sprockets are aligned with the crankcase mating surface ⓓ.
   Out of alignment → Adjust.
   Refer to the installation steps above.

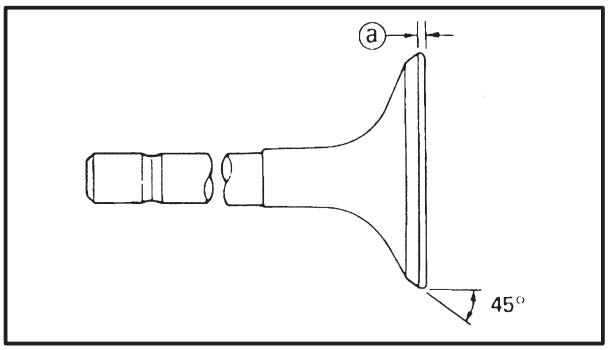


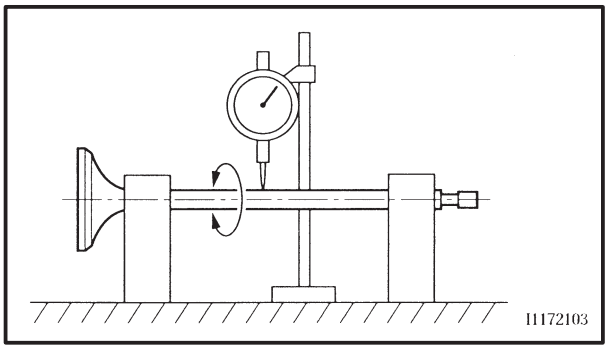
9. Tighten:
   • camshaft sprocket bolts ①

	24 Nm (2.4 m•kg, 17 ft•lb)

CAUTION:

Be sure to tighten the camshaft sprocket bolts to the specified torque to avoid the possibility of the bolts coming loose and damaging the engine.





5. Measure:
   • valve margin thickness ⓐ
   Out of specification → Replace the valve.

Valve margin thickness
0.6 ~ 0.8 mm
(0.0236 ~ 0.0315 in)
<Limit>: 0.5 mm (0.02 in)

6. Measure:
   • valve stem runout
   Out of specification → Replace the valve.

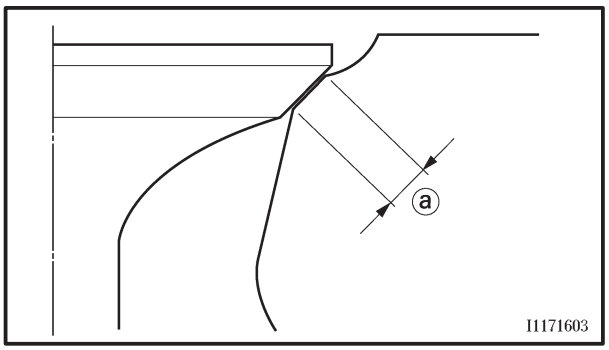
NOTE:
- When installing a new valve, always replace the valve guide.
- If the valve is removed or replaced, always replace the oil seal.

Valve stem runout
<Limit>: 0.04 mm (0.0016 in)

EAS00240
CHECKING THE VALVE SEATS

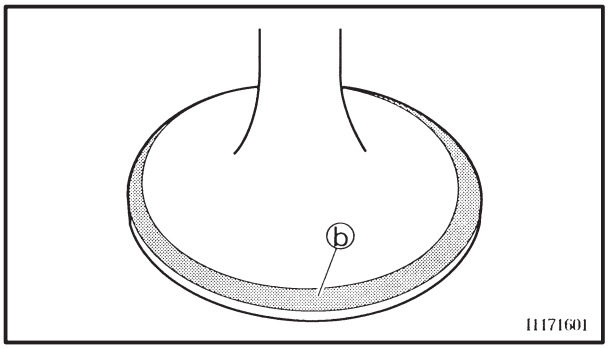
The following procedure applies to all of the valves and valve seats.

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 ⓐ
   Out of specification → Replace the cylinder head.

Valve seat width
0.9 ~ 1.1 mm
(0.0354 ~ 0.0433 in)
<Limit>: 1.6 mm (0.06 in)



a. Apply Mechanic's blueing dye (Dykem) ⓑ 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.

• Do not allow the sheave holder to touch the projection on the generator rotor.

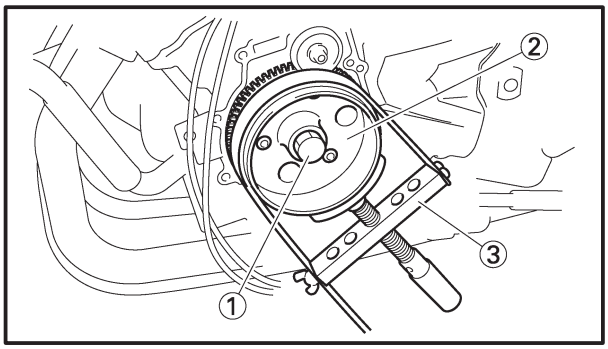
Sheave holder
90890-01701, YS-01880-A

EAS00354
INSTALLING THE GENERATOR

1. Install:
   • generator rotor
   • washer New
   • generator rotor bolt

NOTE:

• Clean the tapered portion of the crankshaft and the generator rotor hub.
• Replace the washer with new one.

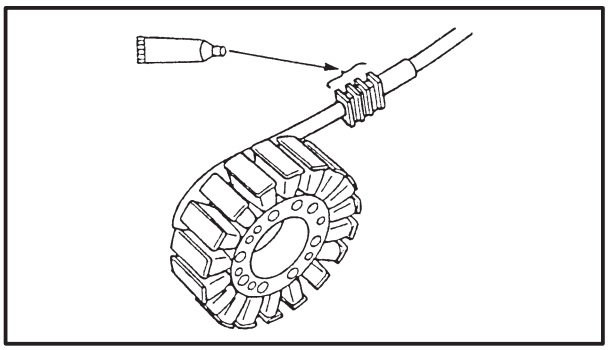


2. Tighten:
   • generator rotor bolt ①

75 Nm (7.5 m•kg, 54 ft•lb)

NOTE:

• While holding the generator rotor ② with the sheave holder ③, tighten the generator rotor bolt.
• Do not allow the sheave holder to touch the projection on the generator rotor.



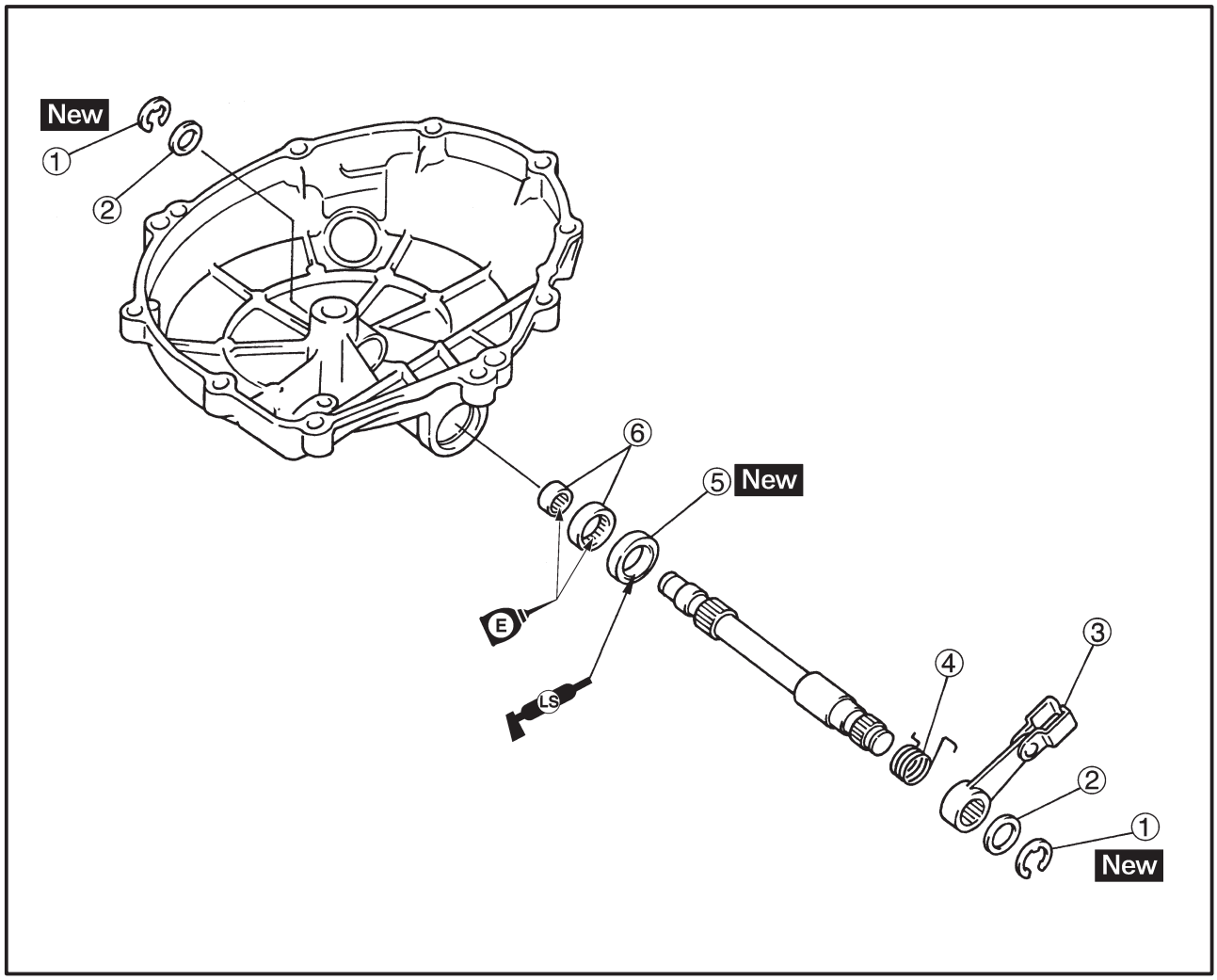
Sheave holder
90890-01701, YS-01880-A

3. Apply:
   • sealant
   (onto the stator coil assembly lead grommet)

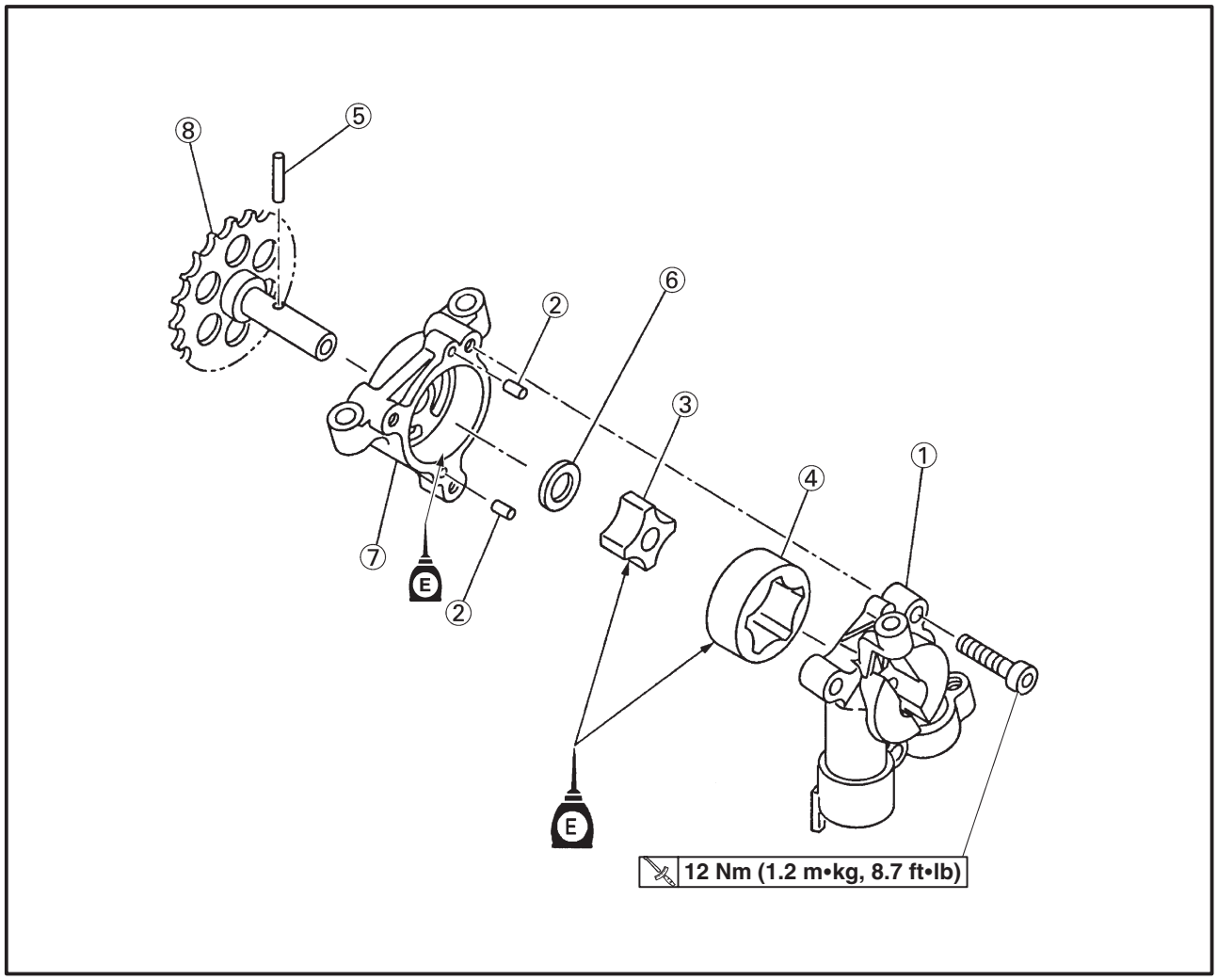
Yamaha bond No.1215
90890-85505, ACC-11001-05-01

4. Install:
   • stator coil
5. Install:
   • generator rotor cover

12 Nm (1.2 m•kg, 8.7 ft•lb)

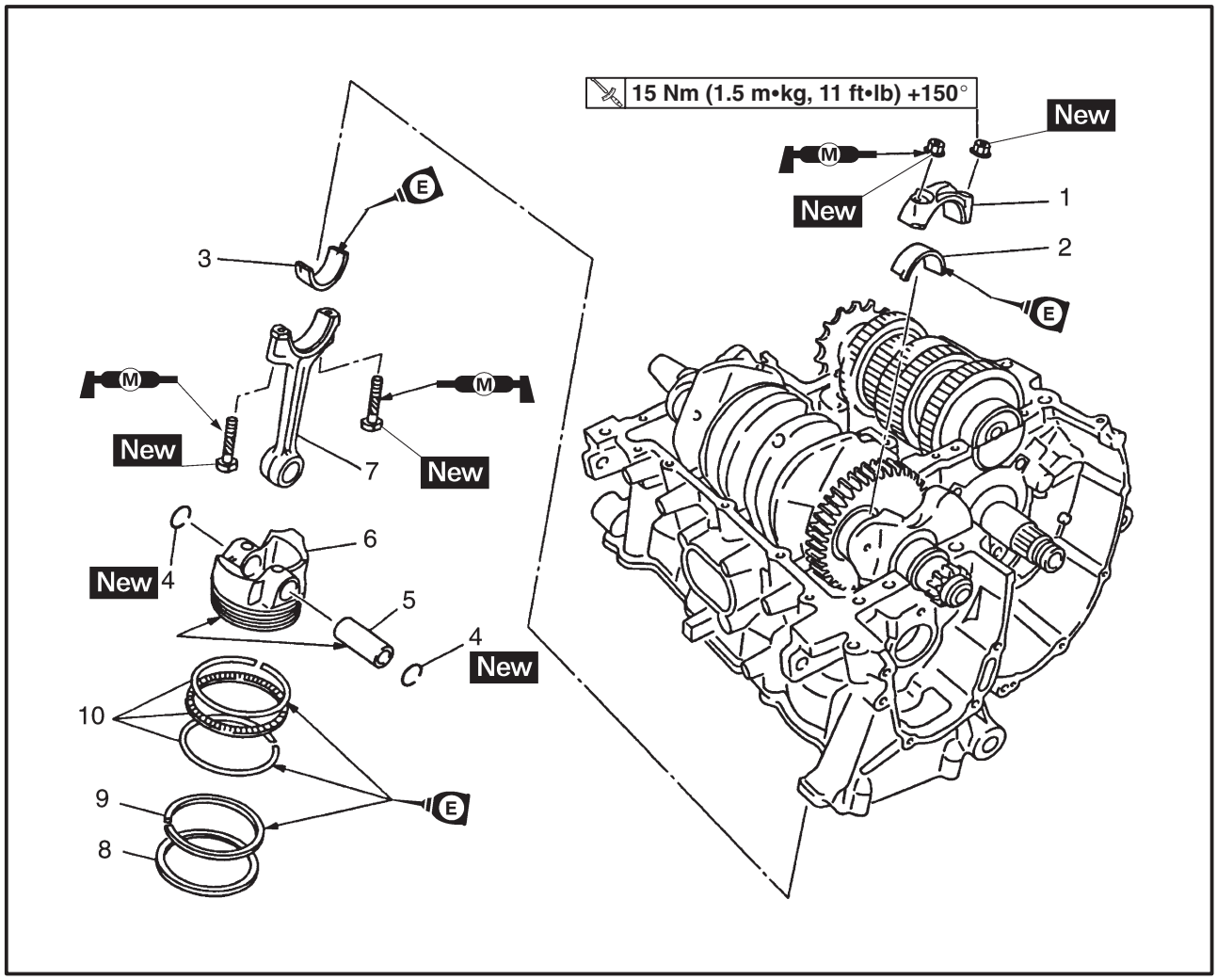


Order	Job/Part	Q'ty	Remarks
	Disassembling the clutch cover		Disassemble the parts in the order listed.
①	Circlip	2	
②	Washer	2	
③	Pull lever	1	
④	Pull lever spring	1	
⑤	Oil seal	1	
⑥	Bearing	2	
			For assembly, reverse the disassembly procedure.



Order	Job/Part	Q'ty	Remarks
	Disassembling the oil pump assembly		Disassemble the parts in the order listed.
①	Oil pump cover	1	
②	Pin	2	
③	Oil pump inner rotor	1	
④	Oil pump outer rotor	1	
⑤	Pin	1	
⑥	Washer	1	
⑦	Oil pump rotor housing	1	
⑧	Oil pump driver sprocket	1	
			For assembly, reverse the disassembly procedure.

EAS00252
CONNECTING RODS AND PISTONS

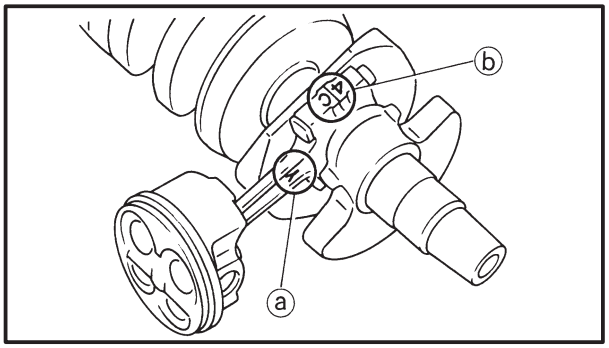


Order	Job/Part	Q'ty	Remarks
	Removing the connecting rods and pistons		Remove the parts in the order listed.
	Lower crankcase		Refer to "CRANKCASE".
1	Connecting rod cap	4	
2	Big end lower bearing	4	
3	Big end upper bearing	4	
4	Piston pin clip	8	
5	Piston pin	4	
6	Piston	4	
7	Connecting rod	4	
8	Top ring	4	
9	2nd ring	4	
10	Oil ring	4	
			For installation, reverse the removal procedure.

6. Install:
   • big end bearings
   • connecting rod assembly
     (into the cylinder and onto the crankshaft pin)
   • connecting rod cap
     (onto the connecting rod)

NOTE:

- Align the projections on the big end bearings with the notches in the connecting rods and connecting rod caps.
- Be sure to reinstall each big end bearing in its original place.
- While compressing the piston rings with one hand, install the connecting rod assembly into the cylinder with the other hand.
- Make sure that the "Y" marks ⓐ on the connecting rods face towards the left side of the crankshaft.
- Make sure that the characters ⓑ on both the connecting rod and connecting rod cap are aligned.



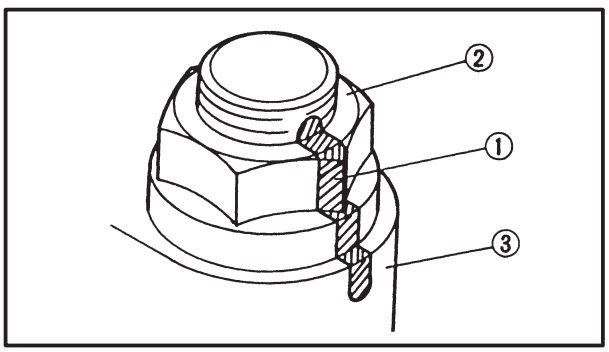
7. Align:
   • bolt heads
     (with the connecting rod caps)
8. Tighten:
   • connecting rod nuts

15 Nm (1.5 m•kg, 11 ft•lb) + 150°

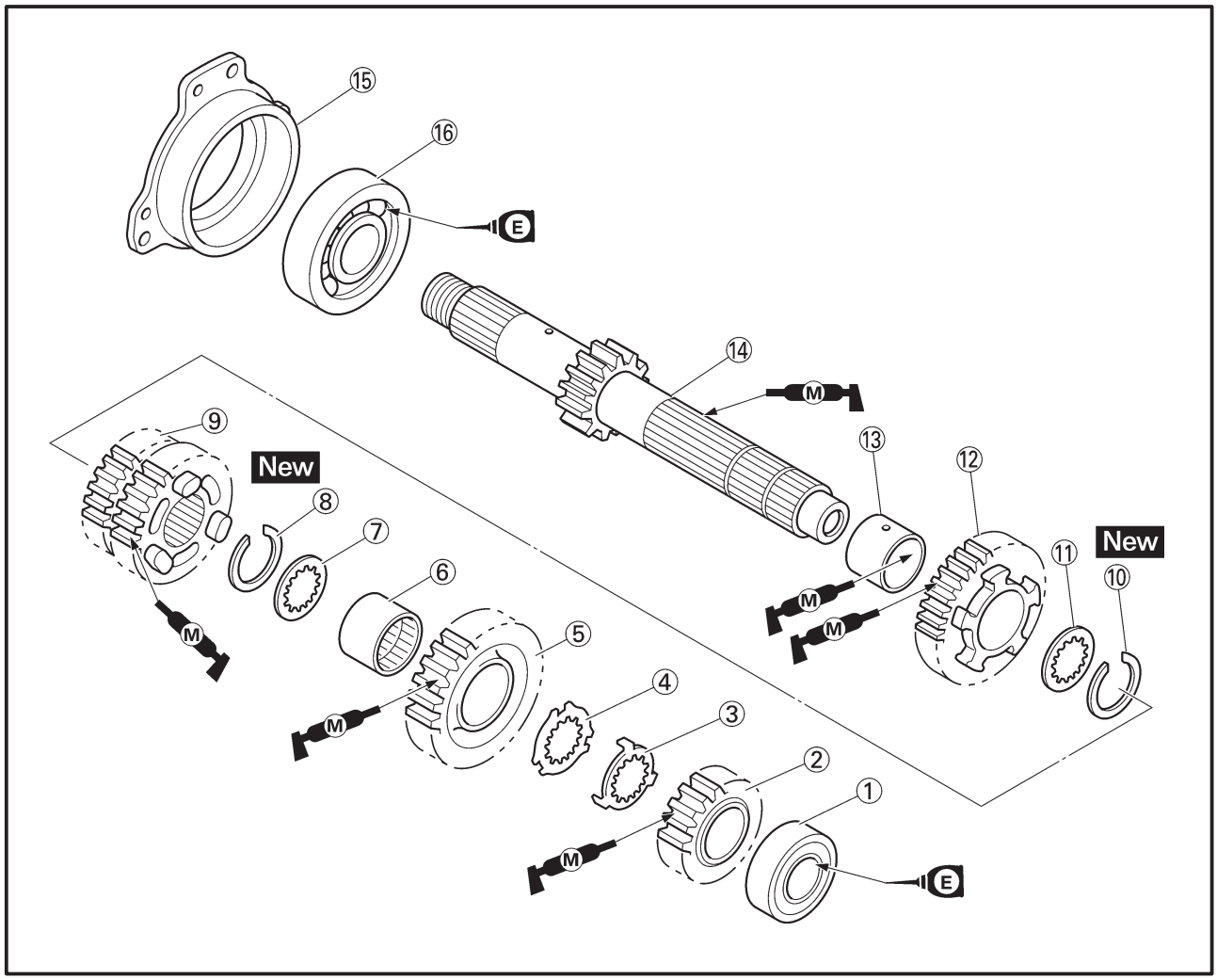
a. Replace the connecting rod bolts and nuts with new ones.

CAUTION:

Tighten the connecting rod bolts using the plastic-region tightening angle method.
Always install new bolts and nuts.



b. Clean the connecting rod bolts and nuts.
c. Tighten the connecting rod nuts.
d. Put a mark ① on the corner of the connecting rod nut ② and the connecting rod ③.



Order	Job/Part	Q'ty	Remarks
⑮	Bearing housing	1	
⑯	Bearing	1	
			For installation, reverse the removal procedure.

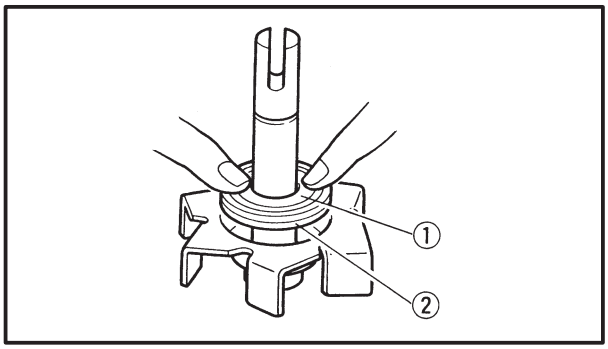
EAS00456

INSTALLING THE RADIATOR

1. Fill:
   - cooling system
     (with the specified amount of the recommended coolant)
     Refer to “CHANGING THE COOLANT” in chapter 3.
2. Check:
   - cooling system
     Leaks → Repair or replace any faulty part.
3. Measure:
   - radiator cap opening pressure
     Below the specified pressure → Replace the radiator cap.
     Refer to “CHECKING THE RADIATOR”.

Mechanical seal installer
90890-04078, YM-33221 ④
Middle driven shaft bearing driver
90890-04058, YM-04058 ⑤
Quick Gasket
ACC-11001-05-01
Yamaha bond #1215
90890-85505

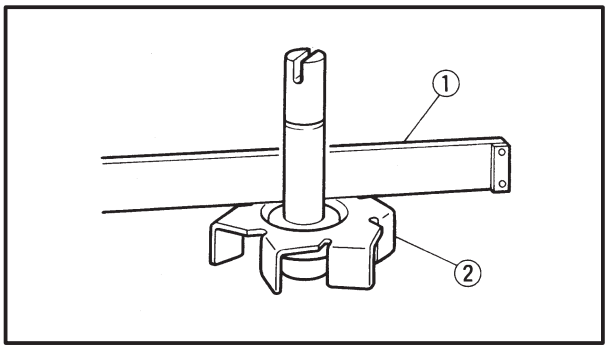
A Push down.



3. Install:
   • rubber damper New ①
   • rubber damper holder New ②

NOTE:

Before installing the rubber damper, apply tap water or coolant onto its outer surface.



4. Measure:
   • impeller shaft tilt
   Out of specification → Repeat steps (3) and (4).

CAUTION:

Make sure the rubber damper and rubber damper holder are flush with the impeller.

Impeller shaft tilt limit
0.15 mm (0.006 in)

① Straightedge
② Impeller

EAS00907

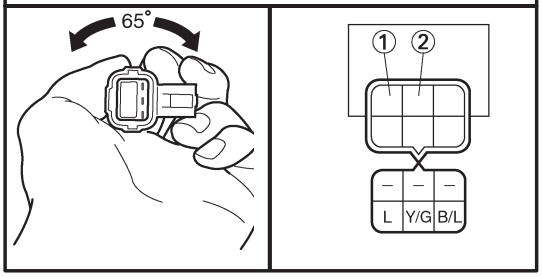
Diagnostic mode table

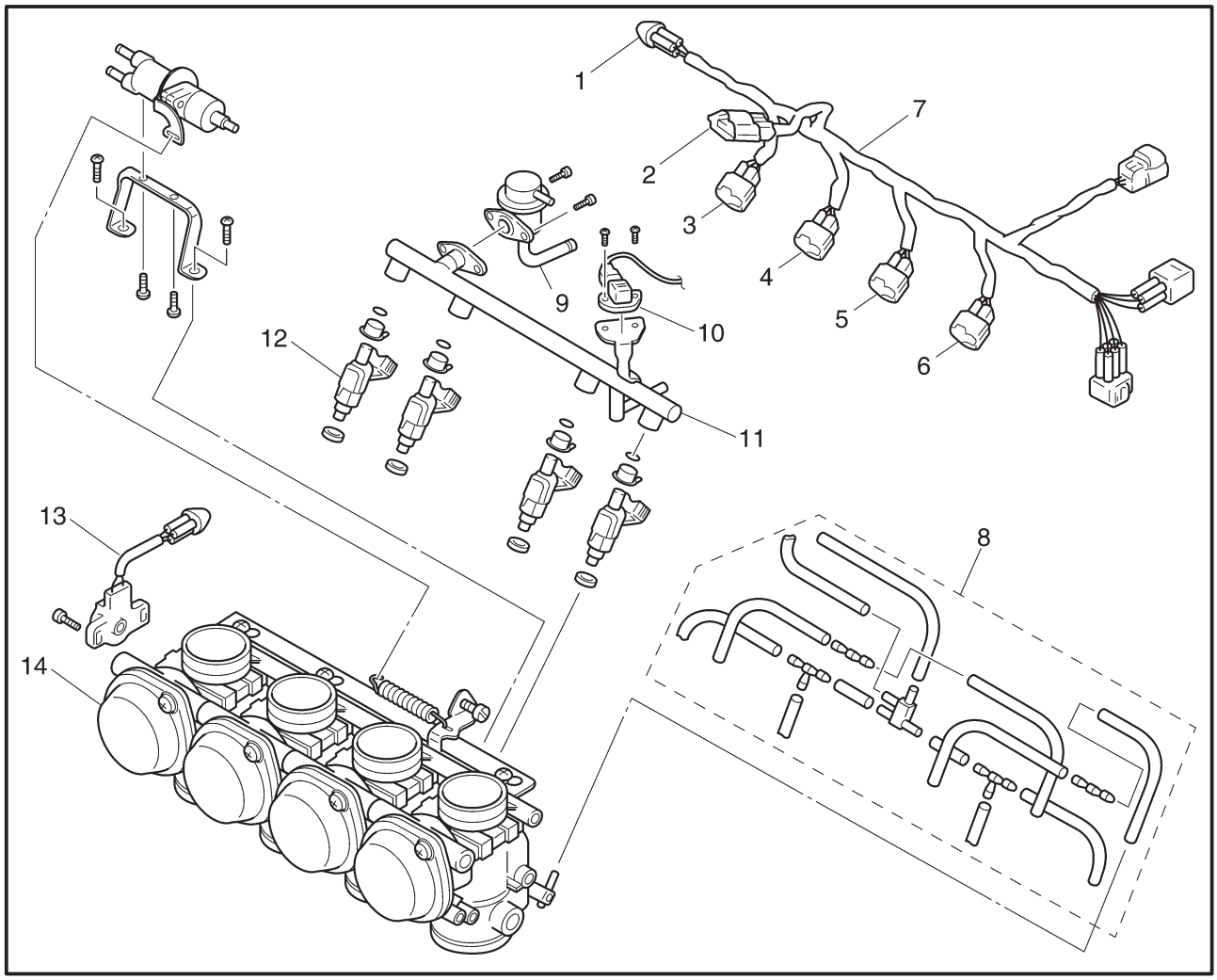
Switch the meter display from the regular mode to the diagnostic mode. To switch the display, refer to "DIAGNOSTIC MODE".

NOTE:

- Check the intake temperature and coolant temperature as close as possible to the intake temperature sensor and the coolant temperature sensor respectively.
- If it is not possible to check the atmospheric pressure with an atmospheric pressure gauge, determine the atmospheric pressure by using 760 mmHg as the standard.
- If it is not possible to check the intake temperature, use the ambient temperature as reference.

Diagnostic code	Item	Description of action	Data displayed on meter (reference value)
01	Throttle angle	Displays the throttle angle. • Check with throttle fully closed. • Check with throttle fully open.	0 ~ 125 degrees • Fully closed position (15 ~ 17) • Fully open position (97 ~ 100)
02	Atmospheric pressure	Displays the atmospheric pressure. * Use an atmospheric pressure gauge to check the atmospheric pressure.	Compare it to the value displayed on the meter.
03	Pressure difference (atmospheric pressure-intake air pressure)	Displays the pressure difference (atmospheric pressure-intake air pressure). Engine stop switch is on. * Generate the pressure difference by cranking the engine with the starter, without actually starting the engine.	10 ~ 200 mmHg
05	Intake temperature	Displays the intake air temperature. * Check the temperature in the air cleaner case.	Compare it to the value displayed on the meter.
06	Coolant temperature	Displays the coolant temperature. * Check the temperature of the coolant.	Compare it to the value displayed on the meter.
07	Vehicle speed pulse	Displays the accumulation of the vehicle pulses that are generated when the tire is spun.	(0 ~ 999; resets to 0 after 999) OK if the numbers appear on the meter.
08	Lean angle cut-off switch	Displays the lean angle cut-off switch values.	Upright: 0.4 ~ 1.4 V Overturned: 3.8 ~ 4.2 V
09	Fuel system voltage (battery voltage)	Displays the fuel system voltage (battery voltage). Engine stop switch is on.	0 ~ 18.7 V Normally, approximately 12.0 V
20	Sidestand switch	Displays that the switch is ON or OFF. (When the gear is in a position other than neutral.)	Stand retracted: ON Stand extended: OFF
21	Neutral switch	Displays that the switch is ON or OFF.	Neutral: ON In gear: OFF
30	Ignition coil #1	After 1 second has elapsed from the time the engine stop switch has been turned from OFF to ON, it actuates ignition coil #1 for five times every second and illuminates the engine trouble warning light. * Connect an ignition checker. * If the engine stop switch is ON, turn it OFF once, and then turn it back ON.	Check that spark is generated, 5 times with the engine stop switch ON.
31	Ignition coils #2	After 1 second has elapsed from the time the engine stop switch has been turned from OFF to ON, it actuates ignition coil #2 for five times every second and illuminates the engine trouble warning light. * Connect an ignition checker. * If the engine stop switch is ON, turn it OFF once, and then turn it back ON.	Check that spark is generated, 5 times with the engine stop switch ON.

Fault code No.	30	Symptom	The motorcycle has overturned.	
Used diagnostic code No. 08 (lean angle cut-off switch)				
Inspection operation item and probable cause		Operation item and countermeasure		Reinstatement method
Defective lean angle cut-off switch		Replace if defective. 1. Remove the lean angle cut-off switch from the motorcycle. 2. Connect the lean angle cut-off switch coupler to the wireharness. 3. Connect the pocket tester (DC 20 V) to the lean angle cut-off switch coupler as shown. **Tester positive prove → blue ①** **Tester negative prove → yellow/green ②**  4. When turn the lean angle cut-off switch approx. 65°, the voltage reading is 1.0 V to 4.0 V. 5. Is the lean angle cut-off switch OK?	Reinstated by turning the main switch ON (however, the engine cannot be restarted unless the main switch is first turned OFF).
The motorcycle has overturned.		Raise the motorcycle upright.		
Installed condition of the lean angle cut-off switch		Check the installed area for looseness or pinching.		
Connected condition of connector Inspect the coupler for any pins that may have pulled out. Check the locking condition of the coupler.		If there is a malfunction, repair it and connect it securely. Lean angle cut-off switch coupler Main wiring harness ECU coupler		



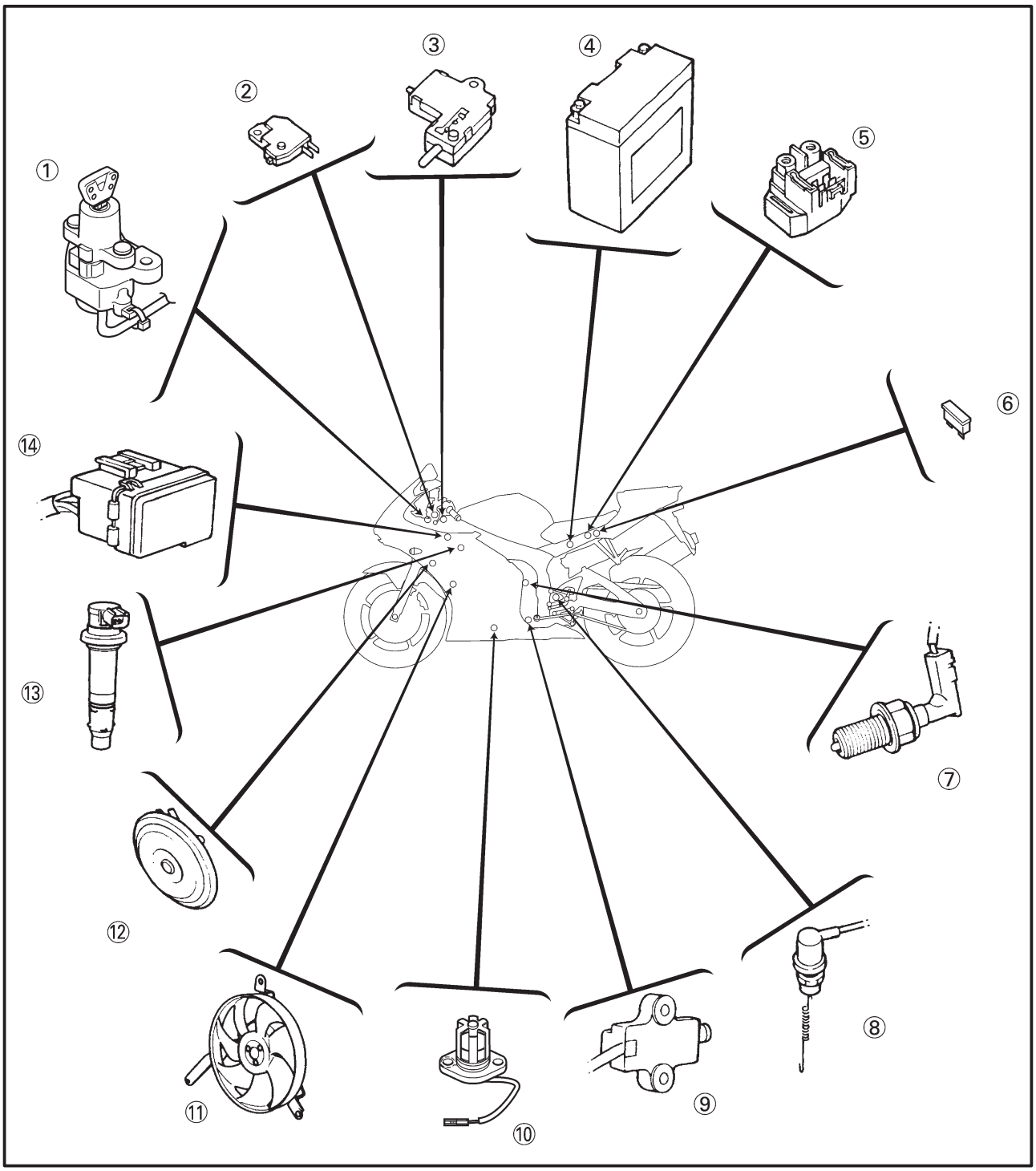
Order	Job/Part	Q'ty	Remarks
	Removing the injector		Remove the parts in the order listed.
1	Throttle position sensor coupler	1	Disconnect.
2	Intake air pressure sensor	1	Disconnect.
3	Cylinder #1-injector coupler	1	Disconnect.
4	Cylinder #2-injector coupler	1	Disconnect.
5	Cylinder #3-injector coupler	1	Disconnect.
6	Cylinder #4-injector coupler	1	Disconnect.
7	Sub wire harness 2	1	
8	Negative pressure hose	1	Disconnect.
9	Pressure regulator	1	

EAS00729

ELECTRICAL

ELECTRICAL COMPONENTS

① Main switch
② Front brake light switch
③ Clutch switch
④ Battery
⑤ Starter relay
⑥ Fuse (main)
⑦ Neutral switch
⑧ Rear brake light switch
⑨ Sidestand switch
⑩ Oil level switch
⑪ Radiator fan motor
⑫ Horn
⑬ Ignition coil
⑭ Fuse box

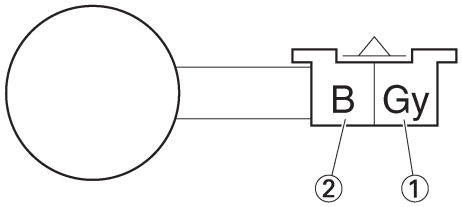


EAS00748

6. Crankshaft position sensor resistance

- Disconnect the crankshaft position sensor coupler from the wire harness.
- Connect the pocket tester (Ω × 100) to the crankshaft position sensor coupler as shown.

Positive tester probe → gray ①
Negative tester probe → black ②



- Measure the crankshaft position sensor resistance.

Crankshaft position sensor resistance
248 ~ 372Ω at 20°C (68°F)
(between gray and black)

- Is the crankshaft position sensor OK?

YES ⇩

NO ⇩

Replace the crankshaft position sensor.

EAS00749

7. Main switch

- Check the main switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the main switch OK?

YES ⇩

NO ⇩

Replace the main switch.

EAS00750

8. Engine stop switch

- Check the engine stop switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the engine stop switch OK?

YES ⇩

NO ⇩

Replace the right handlebar switch.

EAS00751

9. Neutral switch

- Check the neutral switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the neutral switch OK?

YES ⇩

NO ⇩

Replace the neutral switch.

EAS00752

10. Sidestand switch

- Check the sidestand switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the sidestand switch OK?

YES ⇩

NO ⇩

Replace the sidestand switch.

EAS00763

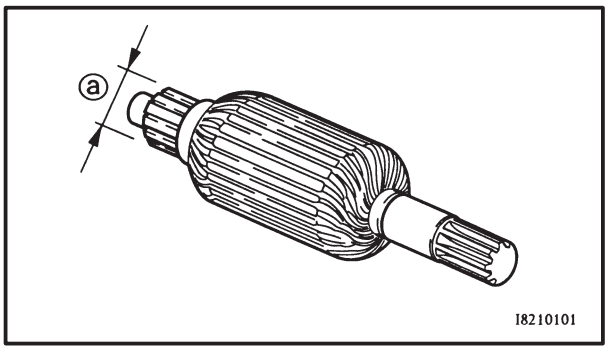
11. Clutch switch

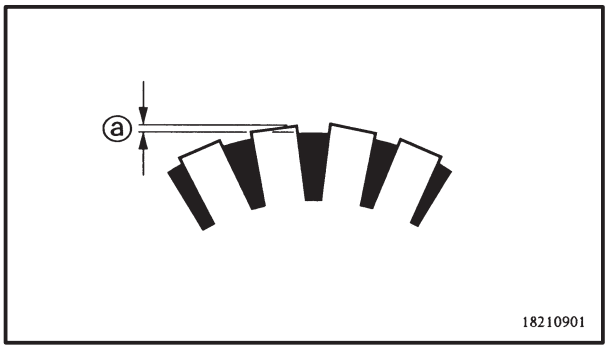
- Check the clutch switch for continuity. Refer to "CHECKING THE SWITCHES".
- Is the clutch switch OK?

YES ⇩

NO ⇩

Replace the clutch switch.





EAS00770
CHECKING THE STARTER MOTOR

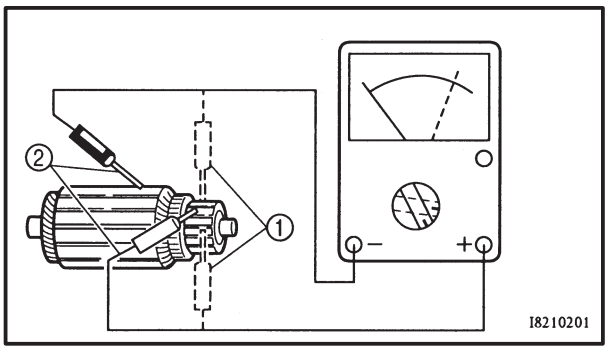
1. Check:
   - commutator
     Dirt → Clean with 600 grit sandpaper.
2. Measure:
   - commutator diameter ⓐ
     Out of specification → Replace the starter motor.

Commutator wear limit
27 mm (1.06 in)

3. Measure:
   - mica undercut ⓐ
     Out of specification → Scrape the mica to the proper measurement with a hacksaw blade that has been grounded to fit the commutator.

Mica undercut
0.7 mm (0.03 in)

NOTE:
The mica of the commutator must be undercut to ensure proper operation of the commutator.



4. Measure:
   - armature assembly resistances (commutator and insulation)
     Out of specification → Replace the starter motor.

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a. Measure the armature assembly resistances with the pocket tester.

Pocket tester
90890-03112, YU-3112

Armature coil
Commutator resistance ①
0.0012 ~ 0.0022 Ω
at 20°C (68°F)
Insulation resistance ②
Above 1 MΩ at 20°C (68°F)

b. If any resistance is out of specification, replace the starter motor.

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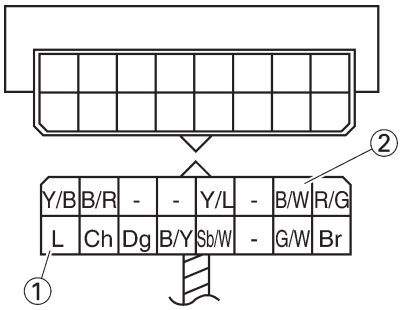
EAS00789
2. The meter light fails to come on.

1. Meter light (LEDs)
• Check the meter light for continuity. Refer to “CHECKING THE LEDs” • Are the meter light OK?

YES ⇩ NO ⇩

Replace the meter assembly.

2. Voltage
• Connect the pocket tester (DC 20 V) to the meter assembly coupler (wire harness side) as shown.
Positive tester probe → blue ① **Negative tester probe → black/white ②**

• Turn the main switch to “ON”. • Measure the voltage (DC 12 V) of blue ① on the meter assembly coupler (wire harness side). • Is the voltage within specification?

YES ⇩ NO ⇩

This circuit is OK.

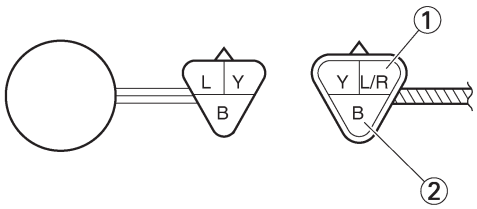
The wiring circuit from the main switch to the meter assembly coupler is faulty and must be repaired.

EAS00790
3. The tail/brake light fails to come on.

1. Tail/brake light (LEDs)
• Check the tail/brake light for continuity. Refer to “CHECKING THE LEDs” • Are the tail/brake light OK?

YES ⇩ NO ⇩

Replace the tail/brake light assembly.

2. Voltage
• Connect the pocket tester (DC 20 V) to the tail/brake light coupler (wire harness side) as shown.
Positive tester probe → blue/red ① **Negative tester probe → black ②**

• Turn the main switch to “ON”. • Measure the voltage (DC 12 V) of blue/red ① on the tail/brake light coupler (wire harness side). • Is the voltage within specification?

YES ⇩ NO ⇩

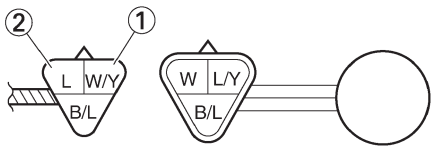
This circuit is OK.

Wiring circuit from the main switch to the tail/brake light coupler is faulty and must be repaired.

2. Speed sensor

- Connect the pocket tester (DC 20 V) to the speed sensor coupler (wire harness side) as shown.

Positive tester probe → white/yellow ①
Negative tester probe → blue ②



- Turn the main switch to "ON".
- Elevate the rear wheel and slowly rotate it.
- Measure the voltage (DC 5 V) of blue and white/yellow. With each full rotation of the rear wheel, the voltage reading should cycle from 0.6 V to 4.8 V to 0.6 V to 4.8 V.
- Does the voltage reading cycle correctly?

YES ⇩

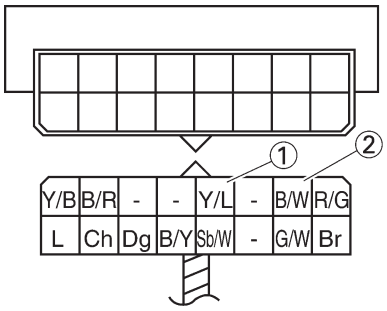
NO ⇩

Replace the speed sensor.

3. Voltage

- Connect the pocket tester (DC 20 V) to the meter assembly coupler (wire harness side) as shown.

Positive tester probe → yellow/blue ①
Negative tester probe → black/white ②



- Turn the main switch to "ON".
- Elevate the rear wheel and slowly rotate it.
- Measure the voltage (DC 5 V) of yellow/blue ① on the meter assembly coupler (wire harness side).
- Is the voltage within specification?

NO ⇩

This circuit is OK.

YES ⇩

Replace the meter assembly.

SELF-DIAGNOSIS

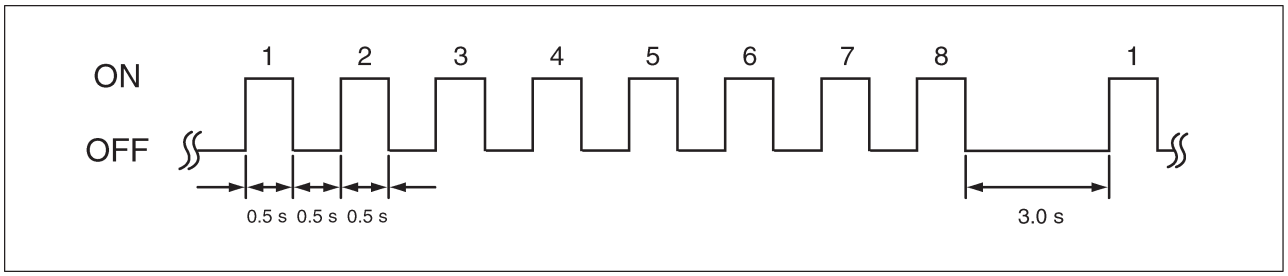
The YZF-R6 features a self-diagnosing system for the following circuit(-s):

- Fuel sender
- Oil level switch

If any of these circuits are defective, their respective condition codes will be displayed on the warning light when the main switch is turn to “ON” (irrespective of whether the engine is running or not)

Circuit	Defect(-s)	System response	Condition code
Fuel sender	• Open-circuit • Short-circuit	• The fuel warning light indicate the condition code.	Refer to *1
Oil level switch	• Open-circuit • Short-circuit	• The oil level warning light indicate the condition code.	Refer to *2

*1 Condition code
Fuel warning light



*2 Condition code
Oil level warning light