EAS00036

PERIODIC CHECKS AND ADJUSTMENTS

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.

PERIODIC MAINTENANCE CHART FOR THE EMISSION CONTROL SYSTEM

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1,000 km) or 1 month	4,000 mi (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
1	*	**Valve clearance (See page 3-9.)**	• Check and adjust valve clearance when engine is cold.	**Every 26,600 mi (42,000 km)**					
2	*	**Spark plugs (See page 3-19.)**	• Check condition. • Adjust gap and clean. • Replace every 8,000 mi (13,000 km) or 12 months.		√	**Replace.**	√	**Replace.**	√
3	*	**Crankcase ventilation system (See page 3-29.)**	• Check ventilation hose for cracks or damage. • Replace if necessary.		√	√	√	√	√
4	*	**Fuel line (See page 3-29.)**	• Check fuel hoses and vacuum hose for cracks or damage. • Replace if necessary.		√	√	√	√	√
5	*	**Exhaust system (See page 3-30.)**	• Check for leakage. • Retighten if necessary. • Replace gasket(s) if necessary.		√	√	√	√	√
6	*	**Electronic fuel injection (See page 3-14.)**	• Check and adjust engine idle speed and synchronization.	√	√	√	√	√	√
7	*	**Evaporative emission control system (for California only)**	• Check control system for damage. • Replace if necessary.				√		√
8	*	**Air induction system (See page 7-39.)**	• Check the air cut-off valve, reed valve, and hose for damage. • Replace any damaged parts if necessary.		√	√	√	√	√

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

GENERAL MAINTENANCE AND LUBRICATION CHART

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1,000 km) or 1 month	4,000 mi (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
1		**Engine oil (See page 3-23.)**	• Replace (warm engine before draining). (See NOTE on page 3-2.)	√	√	√	√	√	√
2	*	**Engine oil filter cartridge (See page 3-24.)**	• Replace at initial 600 mi (1,000 km) or 1 month, and thereafter every 8,000 mi (13,000 km) or 12 months.	√		√		√	
3	*	**Air filter element (See page 3-28.)**	• Check condition. • Replace if necessary.		√	√	√	√	√
4	*	**Cooling system (See page 3-32.)**	• Check hoses for cracks or damage. • Replace if necessary.		√	√	√	√	√
			• Replace with ethylene glycol antifreeze coolant every 24 months.					**Replace.**	
5	*	**Brake system (See page 3-37.)**	• Check operation, pad wear, and fluid leakage. (See NOTE on page 3-2.) • Correct if necessary.	√	√	√	√	√	√
6	*	**Clutch (See page 3-26.)**	• Check operation. • Adjust or replace cable.	√	√	√	√	√	√

GENERAL MAINTENANCE AND LUBRICATION CHART

CHK ADJ

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1,000 km) or 1 month	4,000 mi (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 3-57.)**	• Apply Yamaha chain and cable lube or engine oil SAE 10W-30 thoroughly.	√	√	√	√	√	√
8	*	**Swingarm pivot bearing (See page 4-71.)**	• Check bearing assembly for looseness. • Moderately repack with lithium-soap-based grease every 16,000 mi (25,000 km) or 24 months.			√		√ **Replace.**	
9	*	**Rear suspension link pivots (See page 4-71.)**	• Check operation. • Correct if necessary.			√		√	
10	*	**Shock absorber assembly (See page 4-68.)**	• Check operation and for oil leakage. • Replace if necessary.		√	√	√	√	√
11	*	**Front fork (See page 3-48.)**	• Check operation and for oil leakage. • Repair if necessary.		√	√	√	√	√
12	*	**Steering bearings (See page 3-45.)**	• Check bearing assembly for looseness. • Moderately repack with lithium-soap-based grease every 16,000 mi (25,000 km) or 24 months.		√	√	√	√ **Replace.**	√
13		**Brake and clutch lever pivot shafts (See page 3-57.)**	• Apply chain lube or lithium-soap-based grease lightly.	√	√	√	√	√	√
14		**Brake pedal (See page 3-57.)**	• Apply chain lube or lithium-soap-based grease lightly.		√	√	√	√	√
15	*	**Drive chain (See page 3-43.)**	• Check chain slack/alignment condition. • Adjust and lubricate chain with Yamaha chain and cable lube or engine oil SAE 10W-30 thoroughly.	**Every 600 mi (1,000 km) or after washing the motorcycle or riding in the rain.**					
16	*	**Wheel bearings (See page 4-3.)**	• Check bearings for smooth operation.		√	√	√	√	√
17	*	**Sidestand pivot (See page 3-57.)**	• Check operation. • Apply chain lube or lithium-soap-based grease lightly.		√	√	√	√	√
18	*	**Sidestand switch (See page 8-4.)**	• Check and clean or replace if necessary.	√	√	√	√	√	√
19	*	**Chassis fasteners (See page 2-21.)**	• Check all chassis fittings and fasteners. • 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) or 36 months, repeat the maintenance intervals starting from 4,000 mi (7,000 km) or 6 months.

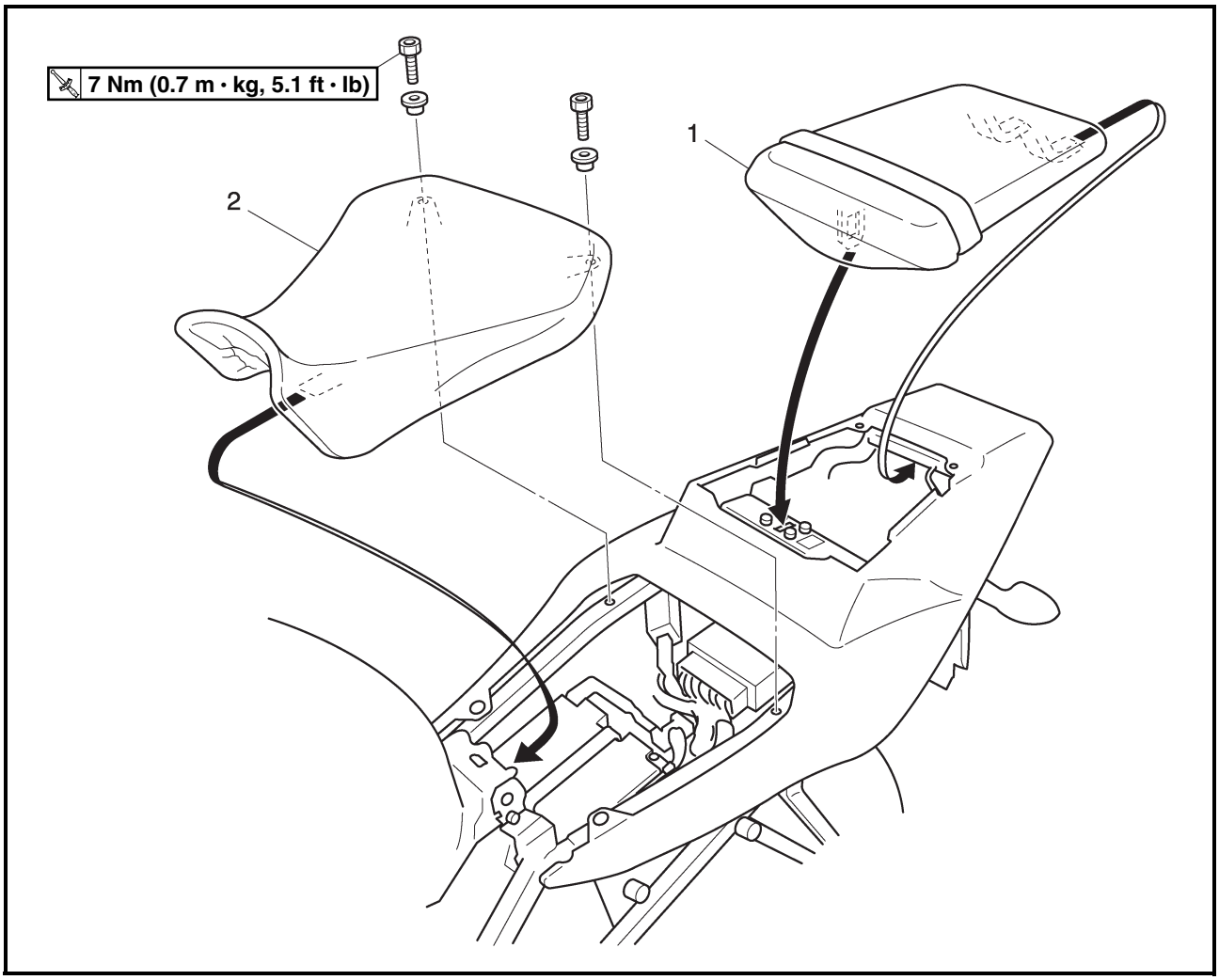
NOTE:

● Air filter
- This model's air filter is equipped with a disposable oil-coated paper element, which must not be cleaned with compressed air to avoid damaging it.
- The air filter element needs to be replaced 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.

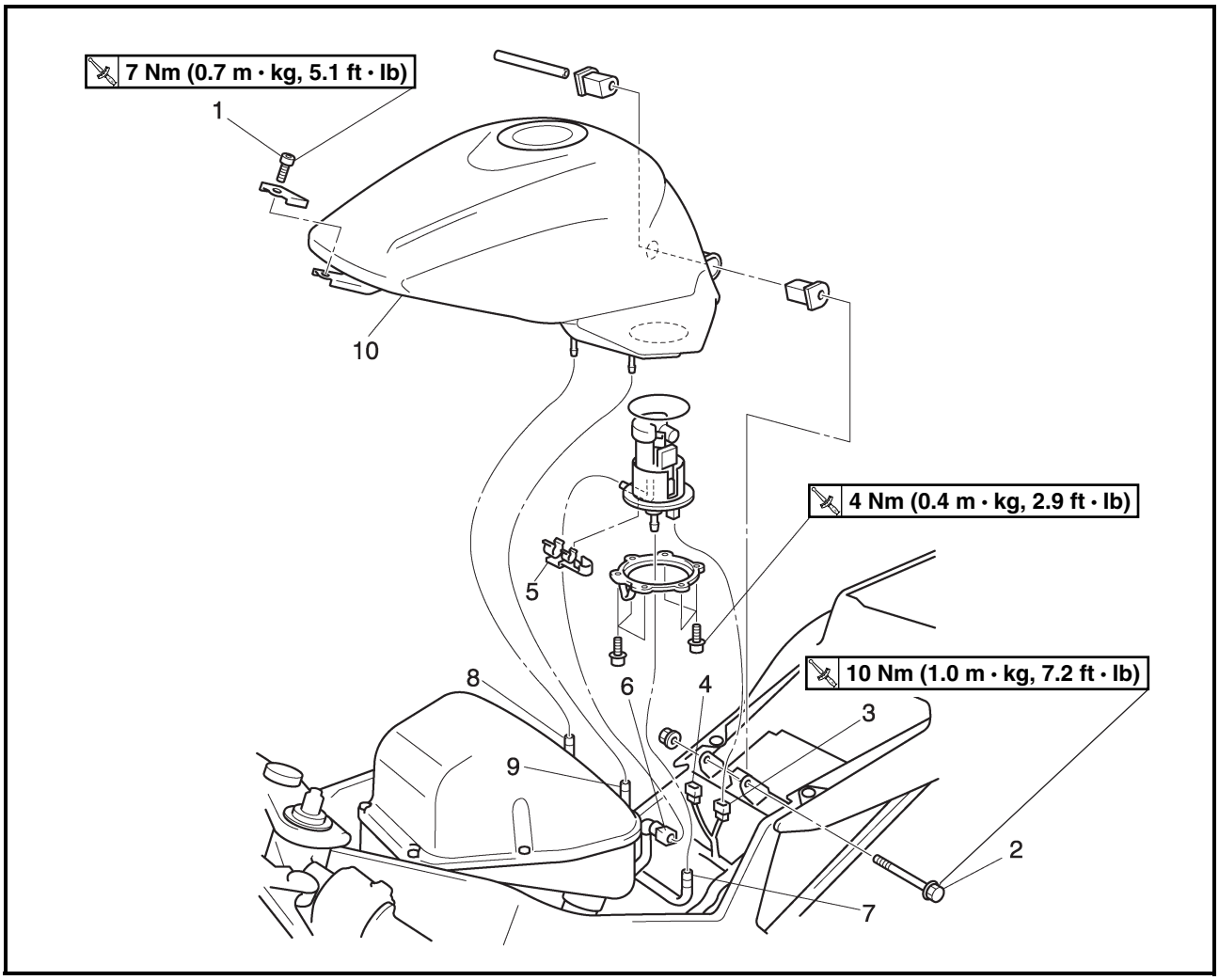
● Engine oil type
- Yamalube 4 (20W-40) or engine oil SAE 20W-40 (API SE) for temperatures of 5 °C (40 °F) or above.
- Yamalube 4 (10W-30) or engine oil SAE 10W-30 (API SE) for temperatures of 15 °C (60 °F) or below.

EAS00039
SEATS



Order	Job/Part	Q'ty	Remarks
	Removing the seats		Remove the parts in the order listed.
1	Passenger seat	1	
2	Rider seat	1	
			For installation, reverse the removal procedure.

EAS00040
FUEL TANK



Order	Job/Part	Q'ty	Remarks
	Removing the fuel tank		Remove the parts in the order listed.
	Rider seat		Refer to "SEATS".
1	Bolt	1	
2	Bolt	1	
3	Fuel sender coupler	1	Disconnect.
4	Fuel pump coupler	1	Disconnect.
5	Fuel hose connector cover	1	
6	Fuel hose	1	
7	Fuel return hose	1	
8	Fuel tank overflow hose	1	
9	Fuel tank breather hose	1	
10	Fuel tank	1	
			For installation, reverse the removal procedure.

REMOVING THE FUEL TANK

1. Extract the fuel in the fuel tank through the fuel tank cap with a pump.
2. Remove:
   - fuel return hose
   - fuel hose

CAUTION:

Although the fuel has been removed from the fuel tank be careful when removing the fuel hoses, since there may be fuel remaining in it.

NOTE:

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

3. Remove:
   - fuel tank

NOTE:

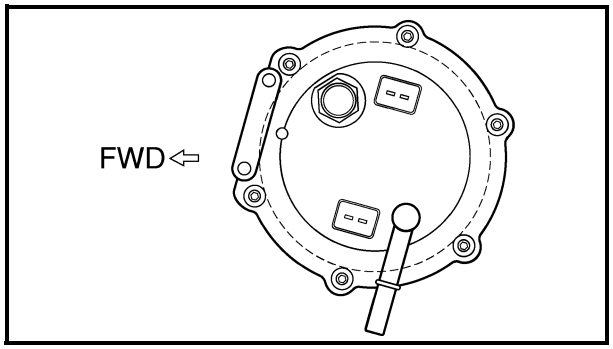
Do not set the fuel tank down so that the installation surface of the fuel pump is directly under the tank. Be sure to lean the fuel tank in an upright position.

REMOVING THE FUEL PUMP

1. Remove:
   - fuel pump

CAUTION:

- **Do not drop the fuel pump or give it a strong shock.**
- **Do not touch the base section of the fuel sender.**



INSTALLING THE FUEL PUMP

1. Install:
   - fuel pump — **4 Nm (0.4 m · kg, 2.9 ft · lb)**

NOTE:

- 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.
- Tighten the fuel pump bolts in stages in a crisscross pattern and to the specified torque.

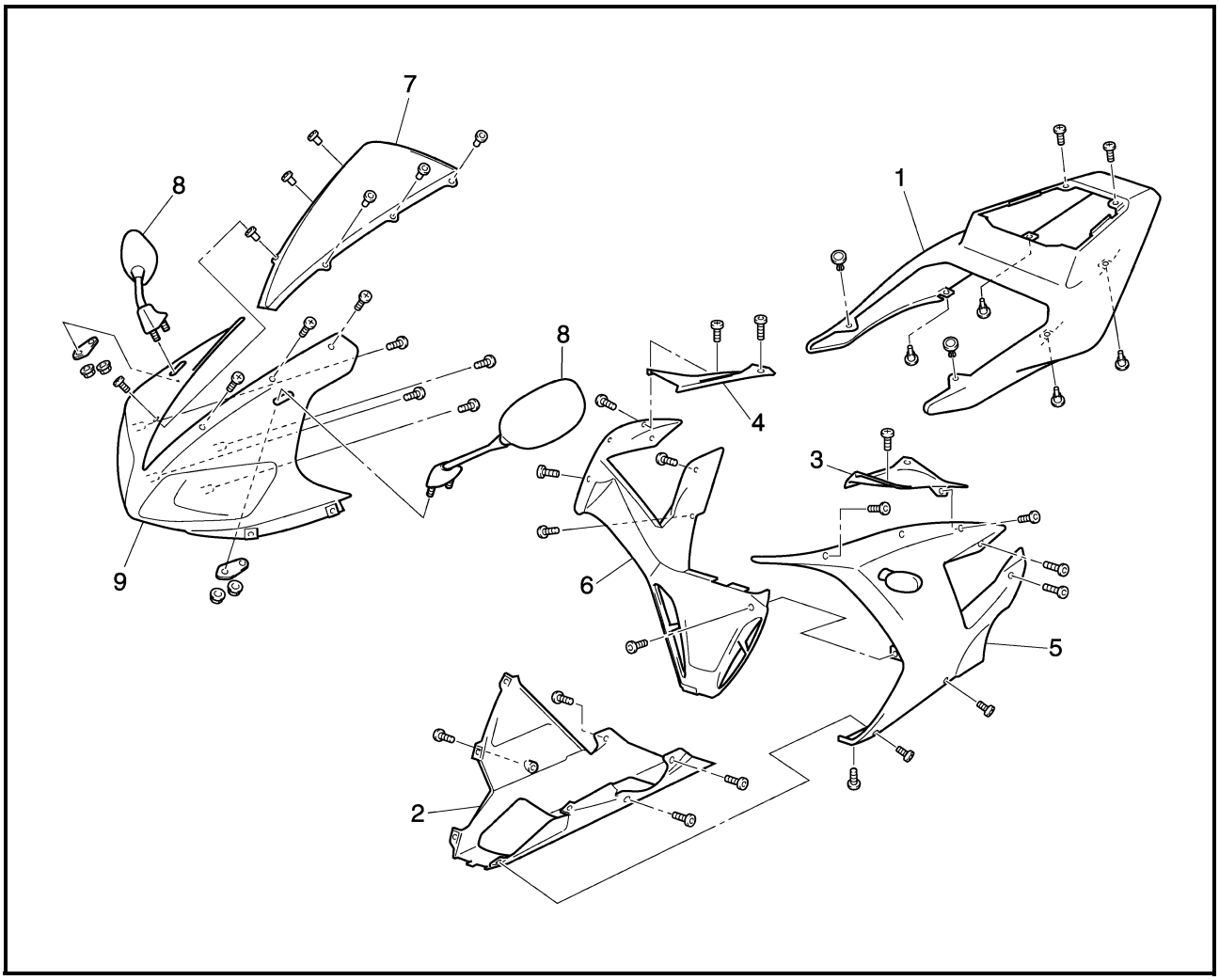
INSTALLING THE FUEL HOSE

1. Install:
   - fuel hose
   - fuel hose holders

CAUTION:

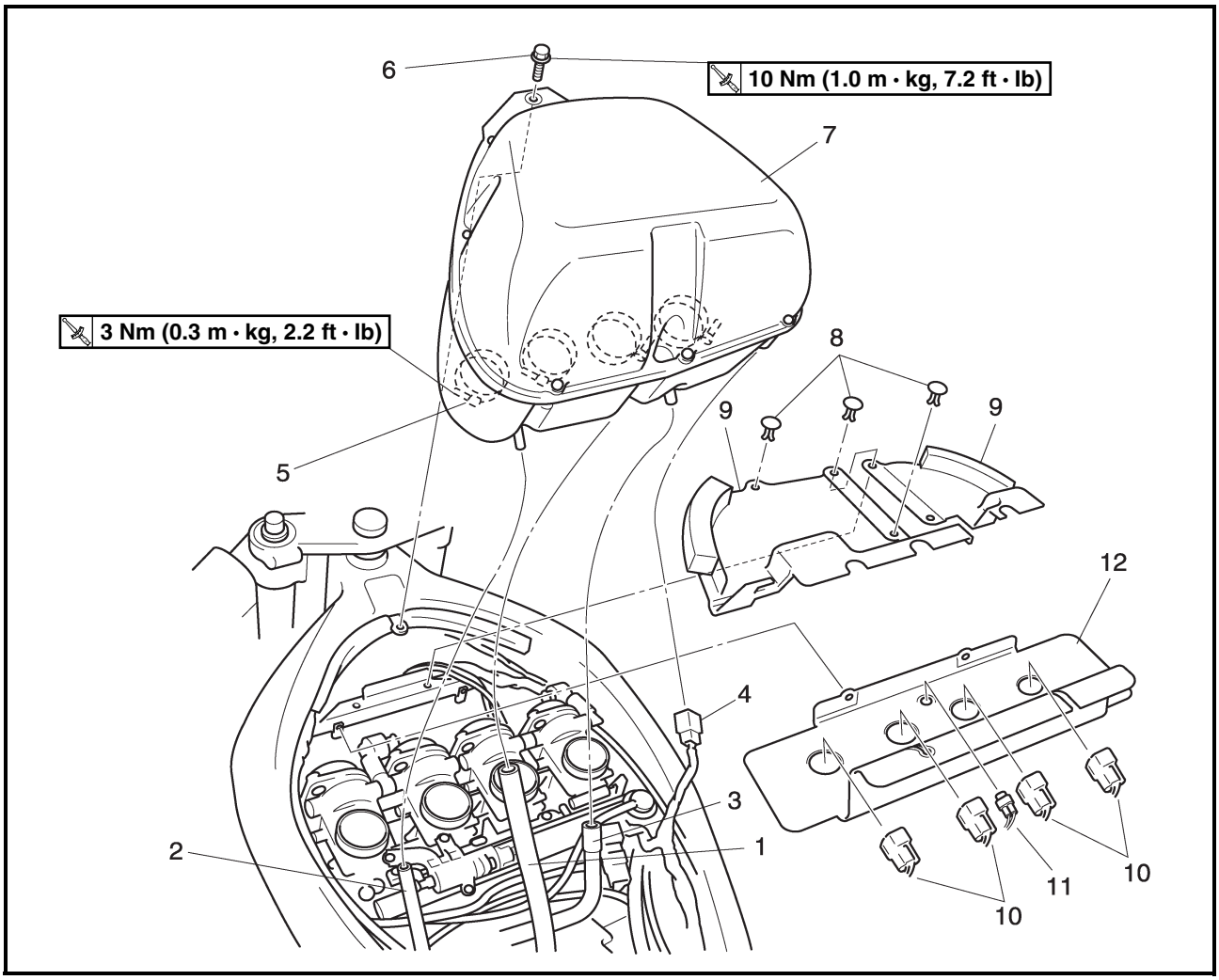
When installing the fuel hose, make sure that it is securely connected, and that the fuel hose holders are in the correct position, otherwise the fuel hose will not be properly installed.

EAS00042
COWLINGS



Order	Job/Part	Q'ty	Remarks
	Removing the cowlings		Remove the parts in the order listed.
	Rider and passenger seats		Refer to "SEATS".
1	Tail cowling	1	
2	Bottom cowling	1	
3	Front cowling inner panel (left)	1	
4	Front cowling inner panel (right)	1	
5	Left side cowling	1	
6	Right side cowling	1	
7	Windshield	1	
8	Rear view mirror	2	
9	Upper cowling	1	
			For installation, reverse the removal procedure.

EAS00043
AIR FILTER CASE

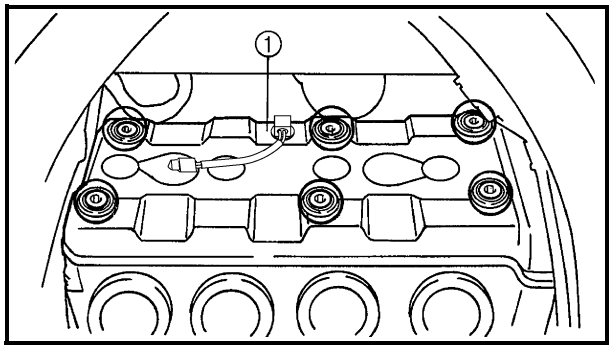


Order	Job/Part	Q'ty	Remarks
	Removing the air filter case		Remove the parts in the order listed.
	Rider seat and fuel tank		Refer to "SEATS" and "FUEL TANK".
1	Crankcase breather hose	1	
2	Air filter case breather hose	1	
3	AI system hose	1	
4	Intake temperature sensor coupler	1	
5	Clamp screw	4	Loosen.
6	Bolt	1	
7	Air filter case	1	
8	Quick fastener	3	
9	Ignition coil plate	2	
10	Ignition coil coupler	4	Disconnect.
11	Cylinder identification sensor coupler	1	
12	Rubber baffle	1	
			For installation, reverse the removal procedure.

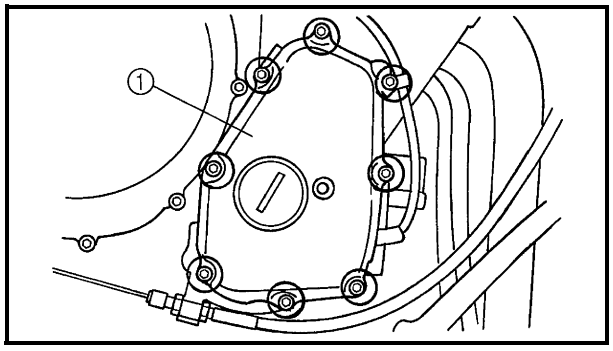
EAS00045
ENGINE
ADJUSTING THE VALVE CLEARANCE
The following procedure applies to all of the valves.

NOTE:
- 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.

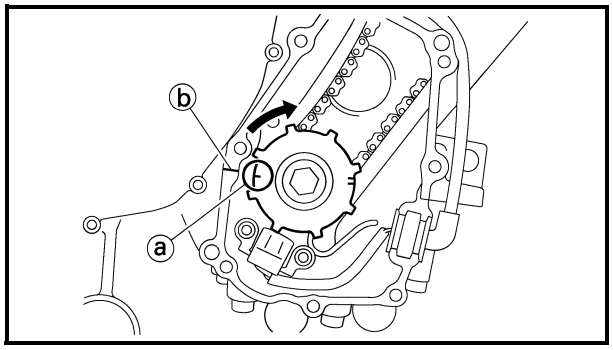
1. Remove:
   - rider seat
   - fuel tank
     Refer to “SEATS” and “FUEL TANK”.
   - air filter case
   - ignition coil plate
     Refer to “AIR FILTER CASE”.
   - bottom cowling
   - side cowlings
     Refer to “COWLINGS”.
   - throttle body
     Refer to “THROTTLE BODIES” in chapter 7.
   - radiator
   - thermostat
     Refer to “RADIATOR” and “THERMOSTAT” in chapter 6.

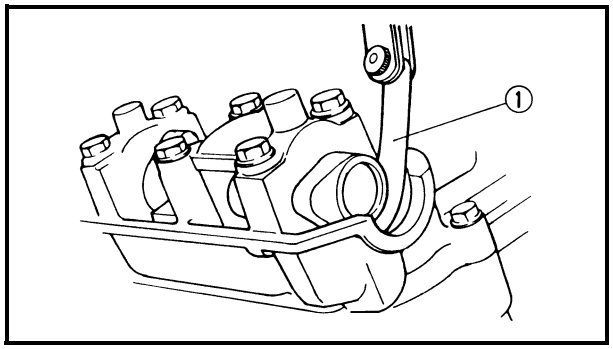


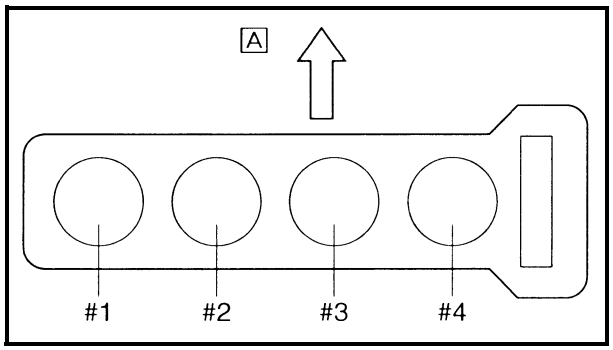
2. Remove:
   - spark plugs
   - cylinder head cover ①
   - cylinder head cover gasket

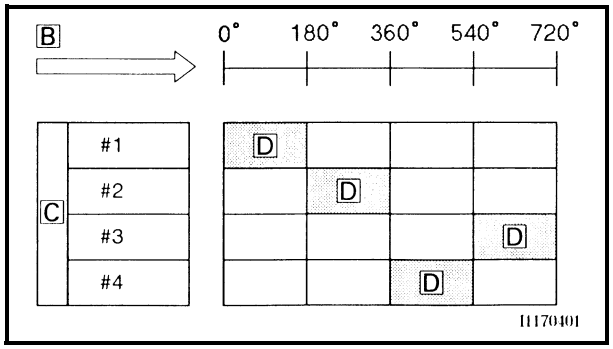


3. Remove:
   - pickup coil rotor cover ①









4. Measure:
   - valve clearance
     Out of specification → Adjust.

Valve clearance (cold)
Intake valve
0.11 ~ 0.20 mm
(0.0043 ~ 0.0079 in)
Exhaust valve
0.21 ~ 0.27 mm
(0.0083 ~ 0.0106 in)

a. Turn the crankshaft clockwise.
b. When piston #1 is at TDC on the compression stroke, align the TDC mark ⓐ on the pickup rotor with the crankcase mating surface ⓑ.

NOTE:
TDC on the compression stroke can be found when the camshaft lobes are turned away from each other.

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

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

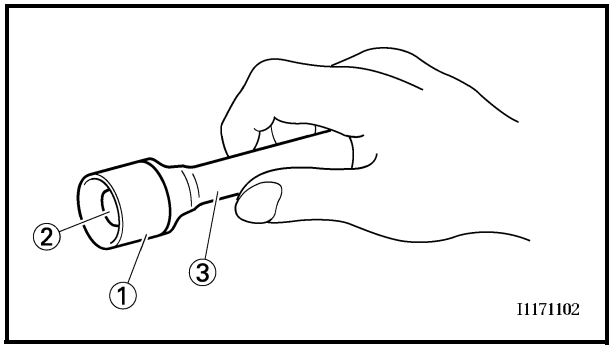
Valve clearance measuring sequence
Cylinder #1 → #2 → #4 → #3

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.
B Degrees that the crankshaft is turned counterclockwise
C Cylinder
D Combustion cycle

Cylinder #2	**180°**
Cylinder #4	**360°**
Cylinder #3	**540°**

5. Remove:
   • camshaft

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

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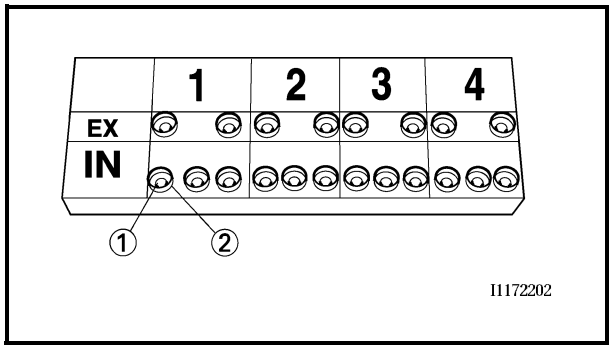
a. Remove the valve lifter ① and the valve pad ② with a valve lapper ③.

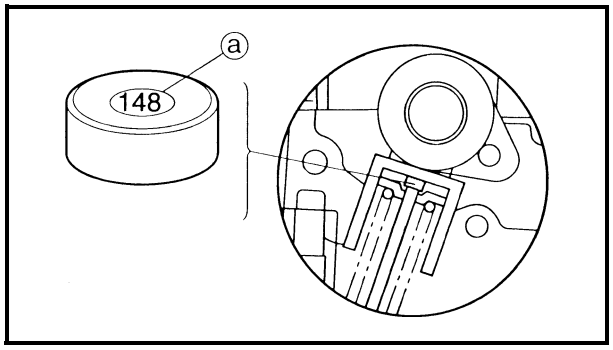
NOTE:
- Cover the timing chain opening with a rag to prevent the valve pad from falling into the crankcase.
- Make a note of the position of each valve lifter ① and valve pad ② so that they can be installed in the correct place.



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

Valve pad thickness range		Available valve pads
Nos. 120 ~ 240	1.20 ~ 2.40 mm	25 thicknesses in 0.05 mm 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.



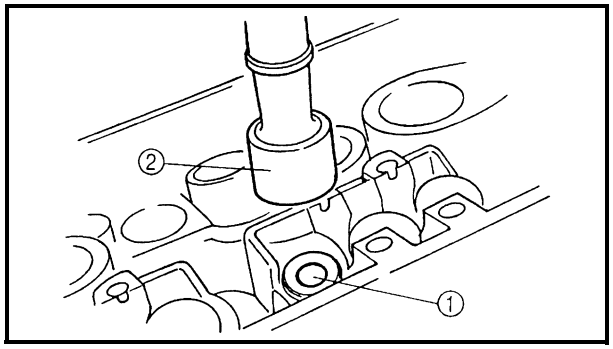
c. Round off the original valve pad number according to the following table.

Last digit	Rounded value
0 or 2	0
5	5
8	10

EXAMPLE:
Original valve pad number
= 148 (thickness =1.48 mm)
Rounded value = 150

d. Locate the rounded number of the original valve pad and the measured valve clearance in the valve pad selection table. The point where the column and row intersect is the new valve pad number.

NOTE:
The new valve pad number is only an approximation. The valve clearance must be measured again and the above steps should be repeated if the measurement is still incorrect.



e. Install the new valve pad ① and the valve lifter ②.

NOTE:
- Lubricate the valve pad with molybdenum disulfide grease.
- Lubricate the valve lifter with molybdenum disulfide oil.
- The valve lifter must turn smoothly when rotated by hand.
- Install the valve lifter and the valve pad in the correct place.

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

Camshaft cap bolt
10 Nm (1.0 m · kg, 7.2 ft · lb)

VALVE PAD SELECTION TABLE

INTAKE

	Measured clearance	INSTALLED PAD NUMBER																									
		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
	0.00 ~ 0.02				120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225
	0.03 ~ 0.07			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
	0.08 ~ 0.10		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235
	0.11 ~ 0.20	Specification																								
exa	0.21 ~ 0.22	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
→	0.23 ~ 0.27	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240		
	0.28 ~ 0.32	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240			
	0.33 ~ 0.37	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240				
	0.38 ~ 0.42	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240					
	0.43 ~ 0.47	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240						
	0.48 ~ 0.52	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240							
	0.53 ~ 0.57	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240								
	0.58 ~ 0.62	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240									
	0.63 ~ 0.67	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240										
	0.68 ~ 0.72	175	180	185	190	195	200	205	210	215	220	225	230	235	240											
	0.73 ~ 0.77	180	185	190	195	200	205	210	215	220	225	230	235	240												
	0.78 ~ 0.82	185	190	195	200	205	210	215	220	225	230	235	240													
	0.83 ~ 0.87	190	195	200	205	210	215	220	225	230	235	240														
	0.88 ~ 0.92	195	200	205	210	215	220	225	230	235	240															
	0.93 ~ 0.97	200	205	210	215	220	225	230	235	240																
	0.98 ~ 1.02	205	210	215	220	225	230	235	240																	
	1.03 ~ 1.07	210	215	220	225	230	235	240																		
	1.08 ~ 1.12	215	220	225	230	235	240																			
	1.13 ~ 1.17	220	225	230	235	240																				
	1.18 ~ 1.22	225	230	235	240																					
	1.23 ~ 1.27	230	235	240																						
	1.28 ~ 1.32	235	240																							
	1.33 ~ 1.37	240																								

EXAMPLE:
VALVE CLEARANCE: 0.11 ~ 0.20 mm
Installed is 150
Measured clearance is 0.25 mm
Replace 150 pad with 160 pad

EXHAUST

	Measured clearance	INSTALLED PAD NUMBER																									
		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
	0.00 ~ 0.02						120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
	0.03 ~ 0.07					120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
	0.08 ~ 0.12				120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225
	0.13 ~ 0.17			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
	0.18 ~ 0.20		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235
	0.21 ~ 0.27	Specification																								
exa	0.28 ~ 0.32	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
→	0.33 ~ 0.37	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240		
	0.38 ~ 0.42	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240			
	0.43 ~ 0.47	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240				
	0.48 ~ 0.52	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240					
	0.53 ~ 0.57	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240						
	0.58 ~ 0.62	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240							
	0.63 ~ 0.67	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240								
	0.68 ~ 0.72	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240									
	0.73 ~ 0.77	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240										
	0.78 ~ 0.82	175	180	185	190	195	200	205	210	215	220	225	230	235	240											
	0.83 ~ 0.87	180	185	190	195	200	205	210	215	220	225	230	235	240												
	0.88 ~ 0.92	185	190	195	200	205	210	215	220	225	230	235	240													
	0.93 ~ 0.97	190	195	200	205	210	215	220	225	230	235	240														
	0.98 ~ 1.02	195	200	205	210	215	220	225	230	235	240															
	1.03 ~ 1.07	200	205	210	215	220	225	230	235	240																
	1.08 ~ 1.12	205	210	215	220	225	230	235	240																	
	1.13 ~ 1.17	210	215	220	225	230	235	240																		
	1.18 ~ 1.22	215	220	225	230	235	240																			
	1.23 ~ 1.27	220	225	230	235	240																				
	1.28 ~ 1.32	225	230	235	240																					
	1.33 ~ 1.37	230	235	240																						
	1.38 ~ 1.42	235	240																							
	1.43 ~ 1.47	240																								

EXAMPLE:
VALVE CLEARANCE: 0.21 ~ 0.27 mm
Installed is 175
Measured clearance is 0.35 mm
Replace 175 pad with 185 pad

NOTE:
- Refer to "ASSEMBLING AND ADJUSTING THE ENGINE—CYLINDER HEAD AND CAMSHAFT" in chapter 5.
- Lubricate the camshaft bearings, camshaft lobes and camshaft journals.
- First, install the exhaust camshaft.
- Align the camshaft marks with the camshaft cap marks.
- Turn the crankshaft counterclockwise several full turns to seat the parts.

g. Measure the valve clearance again.
h. If the valve clearance is still out of specification, repeat all of the valve clearance adjustment steps until the specified clearance is obtained.

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7. Install:
   - all removed parts

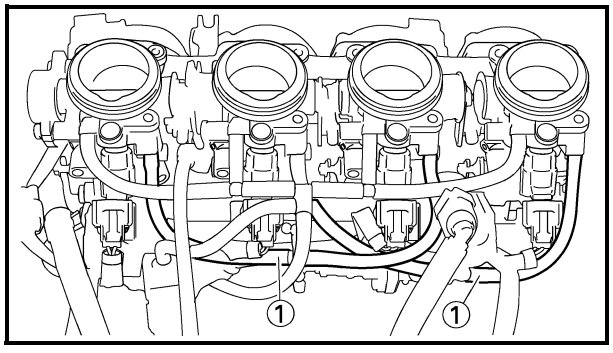
NOTE:
For installation, reverse the removal procedure.

SYNCHRONIZING THE THROTTLE BODIES

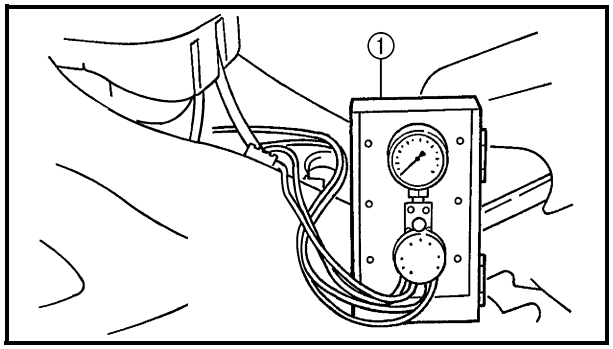
NOTE:
Prior to synchronizing the throttle bodies, the valve clearance and the engine idling speed should be properly adjusted and the ignition timing should be checked.

1. Stand the motorcycle on a level surface.

NOTE:
Place the motorcycle on a suitable stand.



2. Remove:
   - rider seat
     Refer to "SEATS".
   - fuel tank
     Refer to "FUEL TANK".
   - air filter case
     Refer to "AIR FILTER CASE".
3. Remove:
   - synchronizing hose ①

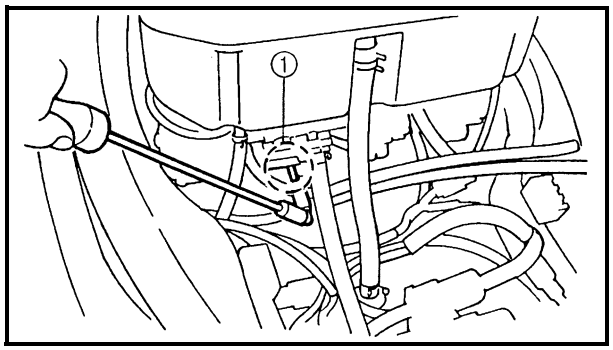


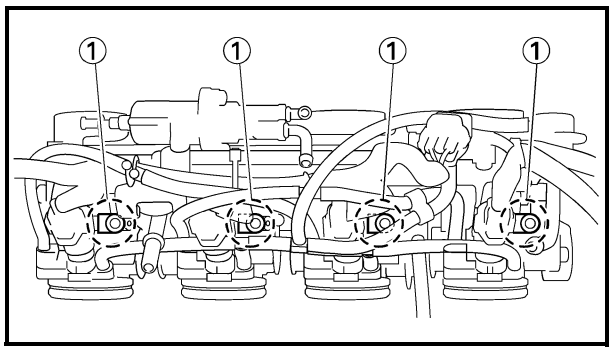
4. Install:
   - carburetor syncronizer ①
     (onto the synchronizing hose)
   - digital tachometer
     (near the spark plug)

	Carburetor synchronizer **YU-08030**

5. Install:
   - fuel tank
     Refer to "FUEL TANK".
6. Start the engine and let it warm up for several minutes.
7. Measure:
   - engine idling speed
     Out of specification → Adjust.
     Refer to "ADJUSTING THE ENGINE IDLING SPEED".

	Engine idling speed **1,000 ~ 1,100 r/min**





8. Adjust:
   - throttle body synchronization

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a. With throttle body #3 as standard, adjust throttle bodies #1, #2, and #4 using the air screw ①.

NOTE:

- After each step, rev the engine two or three times, each time for less than a second, and check the synchronization again.
- If the air screw is removed, turn the screw 3/4 turn in and be sure to synchronize the throttle body.

CAUTION:

Do not use the throttle valve adjusting screws to adjust the throttle body synchronization.

	Carburetor angle driver **90890-03158**
	Vacuum pressure at engine idling speed **25.3 kPa** **(190 mmHg, 7.48 inHg)**

NOTE:
The difference in vacuum pressure between two throttle bodies should not exceed 1.33 kPa (10 mmHg, 0.39 inHg).

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9. Measure:
   - engine idling speed
     Out of specification → Adjust.
     Make sure that the vacuum pressure is within specification.
10. Stop the engine and remove the measuring equipment.
11. Adjust:
    - throttle cable free play
      Refer to "ADJUSTING THE THROTTLE CABLE FREE PLAY".

Throttle cable free play (at the flange of the throttle grip)
3 ~ 5 mm (0.12 ~ 0.20 in)

12. Remove:
    - digital tachometer
    - carburetor syncronizer
13. Remove:
    - fuel tank
14. Install:
    - fuel tank
      Refer to "FUEL TANK".
    - rider seat
      Refer to "SEATS".

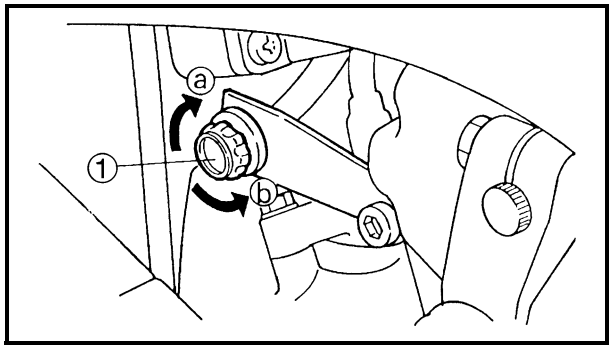
EAS00052
ADJUSTING THE ENGINE IDLING SPEED

NOTE:
Prior to adjusting the engine idling speed, the throttle bodies synchronization should be adjusted properly, and the engine should have adequate compression.

1. Start the engine and let it warm up for several minutes.

2. Install:
   • digital tachometer
   (onto the spark plug lead of cylinder #1)
3. Check:
   • engine idling speed
   Out of specification → Adjust.

	Engine idling speed **1,000 ~ 1,100 r/min**



4. Adjust:
   • engine idling speed

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a. Turn the throttle stop screw ① in direction ⓐ or ⓑ until the specified engine idling speed is obtained.

Direction ⓐ	**Engine idling speed is increased.**
Direction ⓑ	**Engine idling speed is decreased.**

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5. Adjust:
   • throttle cable free play
   Refer to "ADJUSTING THE THROTTLE CABLE FREE PLAY".

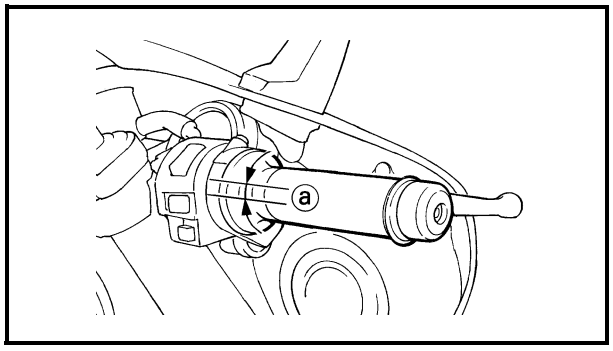
	Throttle cable free play (at the flange of the throttle grip) **3 ~ 5 mm (0.12 ~ 0.20 in)**

EAS00056

ADJUSTING THE THROTTLE CABLE FREE PLAY

NOTE:

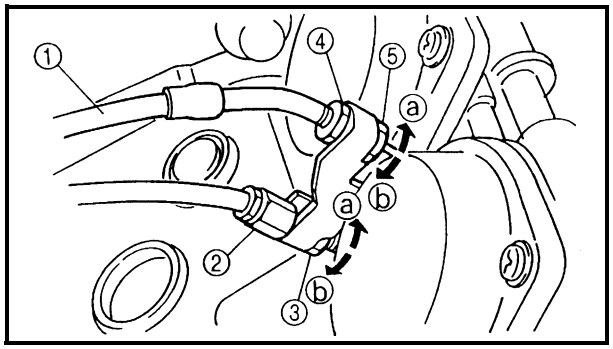
Prior to adjusting the throttle cable free play, the engine idling speed should be adjusted properly.



1. Check:
   • throttle cable free play ⓐ
   Out of specification → Adjust.

	Throttle cable free play (at the flange of the throttle grip) **3 ~ 5 mm (0.12 ~ 0.20 in)**

2. Remove:
   - rider seat
     Refer to “SEATS”.
   - fuel tank
     Refer to “FUEL TANK”.
   - air filter case
     Refer to “AIR FILTER CASE”.
3. Adjust:
   - throttle cable free play



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NOTE:

When the throttle is opened, the accelerator cable ① is pulled.

Carburetor side

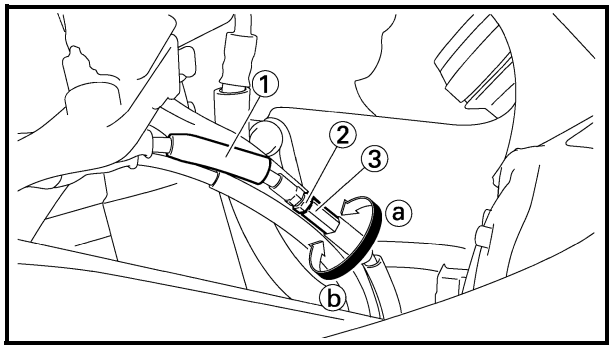
a. Loosen the locknut ② on the decelerator cable.
b. Turn the adjusting nut ③ in direction ⓐ or ⓑ to take up any slack on the decelerator cable.
c. Loosen the locknut ④ on the accelerator cable.
d. Turn the adjusting nut ⑤ in direction ⓐ or ⓑ until the specified throttle cable free play is obtained.

Direction ⓐ	**Throttle cable free play is increased.**
Direction ⓑ	**Throttle cable free play is decreased.**

e. Tighten the locknuts.

NOTE:

If the specified throttle cable free play cannot be obtained on the carburetor side of the cable, use the adjusting nut on the handlebar side.



Handlebar side

a. Slide back the rubber cover ①.
b. Loosen the locknut ②.
c. Turn the adjusting nut ③ in direction ⓐ or ⓑ until the specified throttle cable free play is obtained.

Direction ⓐ	**Throttle cable free play is increased.**
Direction ⓑ	**Throttle cable free play is decreased.**

d. Tighten the locknut.

⚠ WARNING

After adjusting the throttle cable free play, start the engine and turn the handlebars to the right and to the left to ensure that this does not cause the engine idling speed to change.

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

EAS00059
CHECKING THE SPARK PLUGS

The following procedure applies to all of the spark plugs.

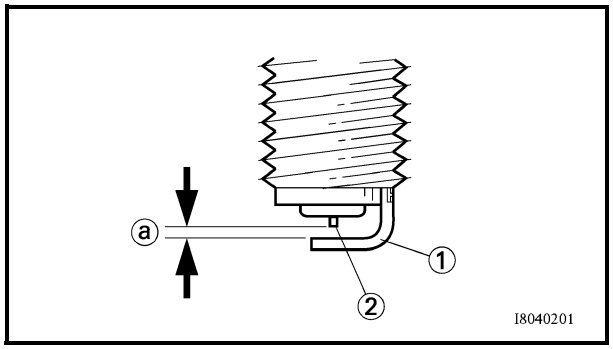
1. Remove:
   - rider seat
     Refer to “SEATS”.
   - fuel tank
     Refer to “FUEL TANK”.
   - air filter case
   - ignition coil plates
   - rubber baffle
     Refer to “AIR FILTER CASE”.
2. Remove:
   - ignition coil
   - spark plug

CAUTION:

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.

3. Check:
   - spark plug type
     Incorrect → Change.

Spark plug type (manufacturer)
CR9EIA 9 (NGK)
IU27D (DENSO)



4. Check:
   - electrode ①
     Damage/wear → Replace the spark plug.
   - insulator ②
     Abnormal color → Replace the spark plug.
     Normal color is medium-to-light tan.
5. Clean:
   - spark plug
     (with a spark plug cleaner or wire brush)
6. Measure:
   - spark plug gap ⓐ
     (with a wire thickness gauge)
     Out of specification → Regap.

Spark plug gap
0.8 ~ 0.9 mm (0.032 ~ 0.035 in)

7. Install:
   - spark plug — **13 Nm (1.3 m · kg, 9.4 ft · lb)**
   - ignition coil

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

8. Install:
   - rubber baffle
   - ignition coil plates
   - air filter case
     Refer to “AIR FILTER CASE”.
   - fuel tank
     Refer to “FUEL TANK”.
   - rider seat
     Refer to “SEATS”.

EAS00065
MEASURING THE COMPRESSION PRESSURE

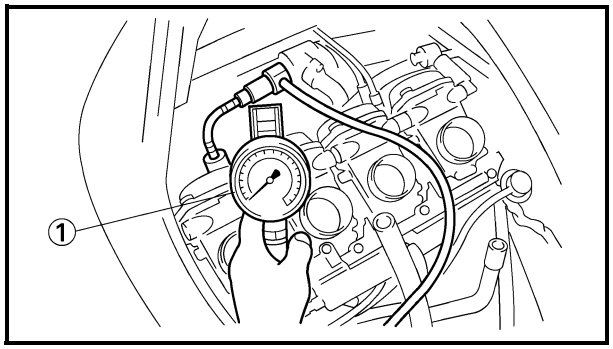
The following procedure applies to all of the cylinders.

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
   • ignition coil plates
   • rubber baffle
   Refer to “AIR FILTER CASE”.
4. Remove:
   • spark plug
   • ignition coil

CAUTION:

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.



5. Install:
   • compression gauge ①

Compression gauge
YU-33223
Adapter
YU-33223-3

6. Measure:
   • compression pressure
   Out of specification → Refer to steps (c) and (d).

Compression pressure
(at sea level)
Minimum
1,350 kPa
(13.5 kg/cm², 192 psi)
Standard
1,450 kPa
(14.5 kg/cm², 206 psi)
Maximum
1,500 kPa
(15.0 kg/cm², 213 psi)

a. Set the main switch to "ON".
b. With the throttle wide open, crank the engine until the reading on the compression gauge stabilizes.

⚠ WARNING

To prevent sparking, ground all spark plug leads before cranking the engine.

NOTE:

The difference in compression pressure between cylinders should not exceed 100 kPa (1 kg/cm², 1 bar).

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 → Repair.**
Same as without oil	**Piston, valves, cylinder head gasket or piston possibly defective → Repair.**

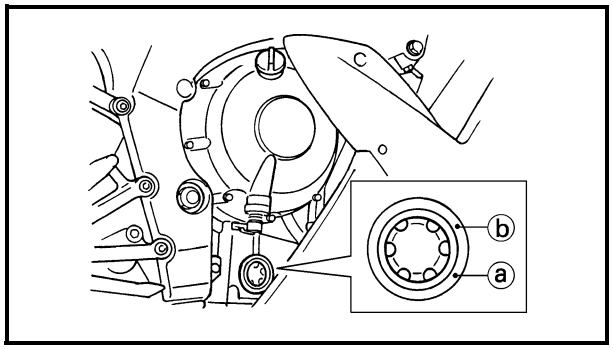
7. Install:
   - spark plug — **13 Nm (1.3 m · kg, 9.4 ft · lb)**
   - ignition coil
8. Install:
   - rubber baffle
   - ignition coil plates
   - air filter case
     Refer to “AIR FILTER CASE”.
   - fuel tank
     Refer to “FUEL TANK”.
   - rider seat
     Refer to “SEATS”.

EAS00069
CHECKING THE ENGINE OIL LEVEL

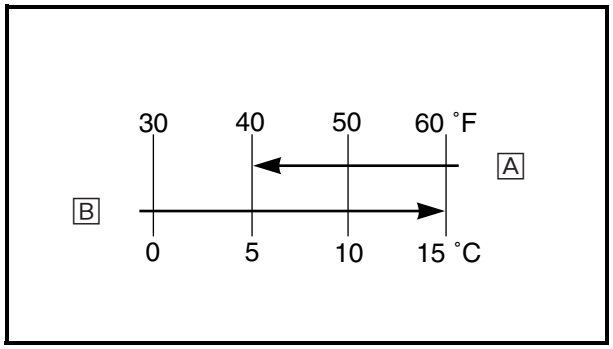
1. Stand the motorcycle on a level surface.

NOTE:
- Place the motorcycle on a suitable stand.
- Make sure the motorcycle 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 ⓐ and maximum level mark ⓑ.
     Below the minimum level mark → Add the recommended engine oil to the proper level.



Recommended oil
At 5 °C (40 °F) or higher A
Yamalube 4 (20W40) or
SAE 20W40 type SE motor oil
At 15 °C (60 °F) or lower B
Yamalube 4 (10W30) or
SAE 10W30 type SE motor oil

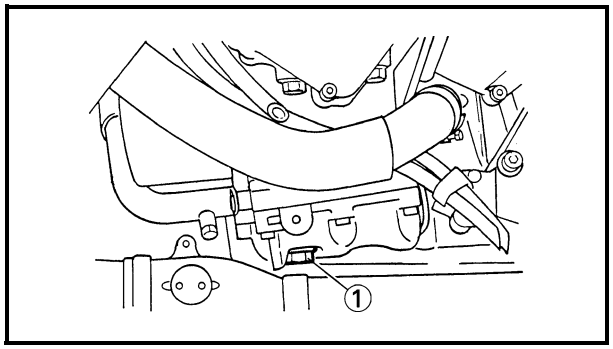
NOTE:
Before checking the engine oil level, wait a few minutes until the oil has settled.

4. Start the engine, warm it up for several minutes, and then turn it off.
5. Check the engine oil level again.

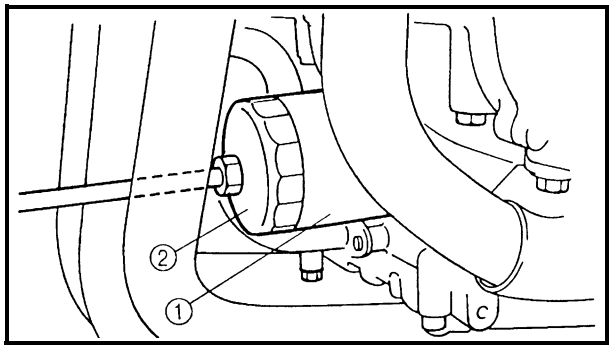
NOTE:
Before checking the engine oil level, wait a few minutes until the oil has settled.

EAS00073
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:
   - bottom cowling
     Refer to "COWLINGS".
   - engine oil filler cap
   - engine oil drain bolt ①
     (along with the gasket)
4. Drain:
   - engine oil
     (completely from the crankcase)



5. If the oil filter cartridge is also to be replaced, perform the following procedure.

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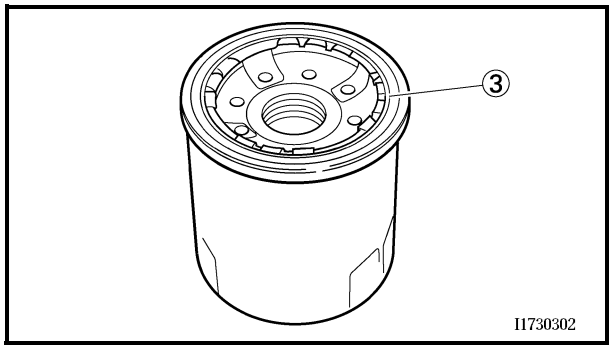
a. Remove the oil filter cartridge ① with an oil filter wrench ②.

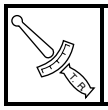
	**Oil filter wrench** **YU-38411**



b. Lubricate the O-ring ③ of the new oil filter cartridge with a thin coat of engine oil.

CAUTION:
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 specification with an oil filter wrench.



Oil filter cartridge
17 Nm (1.7 m · kg, 12 ft · lb)

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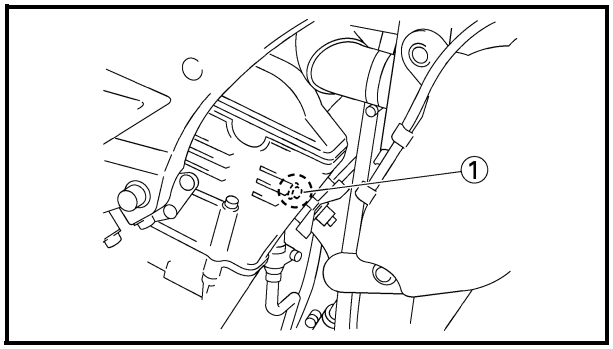
6. Check:
   - engine oil drain bolt gasket
     Damage → Replace.
7. Install:
   - engine oil drain bolt
     (along with the gasket New)

43 Nm (4.3 m · kg, 31 ft · lb)

8. Fill:
   - crankcase
     (with the specified amount of the recommended engine oil)

Quantity
Total amount
3.8 L (3.34 Imp qt, 4.02 US qt)
Without oil filter cartridge replacement
2.9 L (2.55 Imp qt, 3.07 US qt)
With oil filter cartridge replacement
3.1 L (2.73 Imp qt, 3.28 US qt)

9. Install:
   - engine oil filler cap
   - bottom cowling
     Refer to “COWLINGS”.
10. Start the engine, warm it up for several minutes, and then turn it off.
11. Check:
    - engine
      (for engine oil leaks)
12. Check:
    - engine oil level
      Refer to “CHECKING THE ENGINE OIL LEVEL”.



13.Check:
- engine oil pressure

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a. Slightly loosen the oil gallery bolt ①.
b. Start the engine and keep it idling until engine oil starts to seep from the oil gallery bolt. If no engine oil comes out after one minute, turn the engine off so that it will not seize.
c. Check the engine oil passages, the oil filter cartridge and the oil pump for damage or leakage. Refer to "OIL PAN AND OIL PUMP" in chapter 5.
d. Start the engine after solving the problem(s) and check the engine oil pressure again.
e. Tighten the oil gallery bolt to specification.

	**Oil gallery bolt** **10 Nm (1.0 m · kg, 7.2 ft · lb)**

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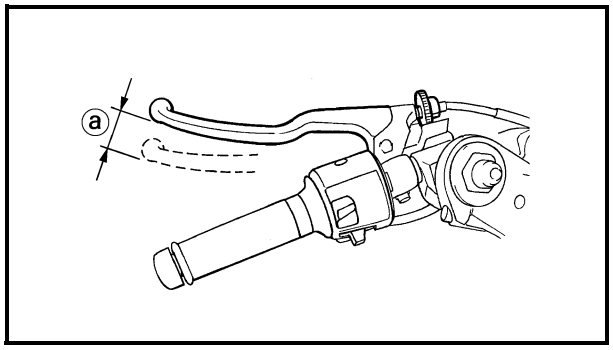
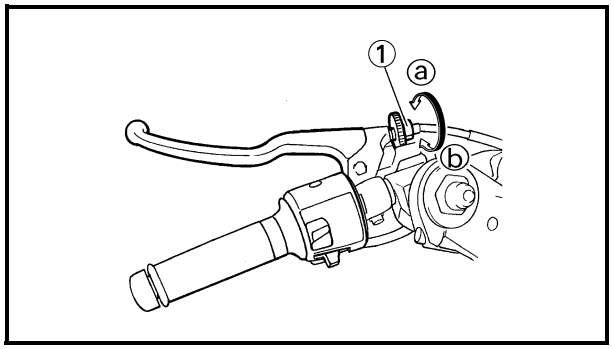


EAS00079
ADJUSTING THE CLUTCH CABLE FREE PLAY

1. Check:
- clutch cable free play ⓐ
  Out of specification → Adjust.

	**Clutch cable free play (at the pivot bolt of the clutch lever)** **10 ~ 15 mm (0.39 ~ 0.59 in)**



2. Adjust:
   • clutch cable free play

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Handlebar side

a. Turn the adjusting dial ① in direction ⓐ or ⓑ until the specified clutch cable free play is obtained.

Direction ⓐ	**Clutch cable free play is increased.**
Direction ⓑ	**Clutch cable free play is decreased.**

NOTE:

If the specified clutch cable free play cannot be obtained as described above, perform the mechanism adjustment procedure described below.

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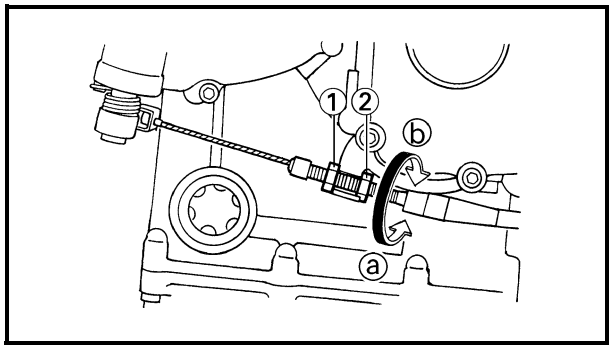
3. Remove:
   • bottom cowling
   Refer to “COWLINGS”.



4. Adjust:
   • clutch mechanism

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Engine side

a. Loosen the locknut ①.
b. Turn the adjusting nut ② in direction ⓐ or ⓑ until the specified clutch cable free play is obtained.

Direction ⓐ	**Clutch cable free play is increased.**
Direction ⓑ	**Clutch cable free play is decreased.**

c. Tighten the locknut.
d. Check the clutch cable free play again and adjust it if necessary.

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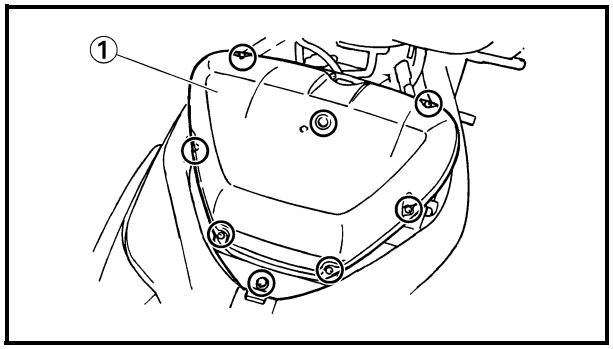
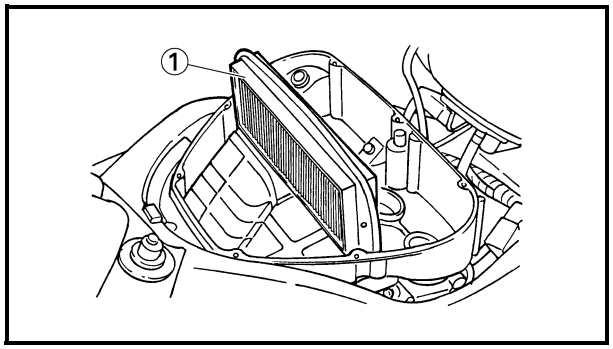




EAS00086
REPLACING THE AIR FILTER ELEMENT

1. Remove:
   - rider seat
     Refer to “SEATS”.
   - fuel tank
     Refer to “FUEL TANK”.
2. Remove:
   - air filter case cover ①

3. Check:
   - air filter element ①
     Damage → Replace.

NOTE:
Replace the air filter element at periodic intervals of 40,000 km travel.
The air filter needs more frequent service if you are riding in unusuallu wet or dusty areas.

4. Install:
   - air filter case cover

CAUTION:
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 the carburetor tuning, leading to poor engine performance and possible overheating.

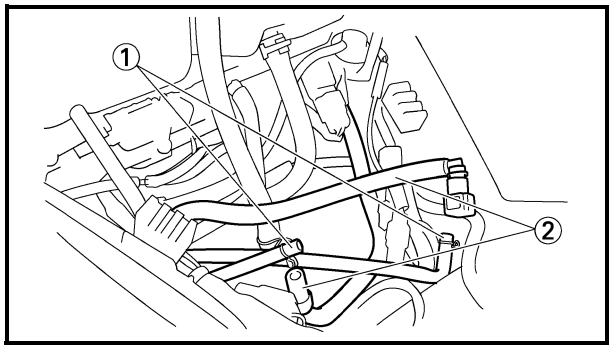
NOTE:
When installing the air filter element into the air filter case cover, make sure their sealing surfaces are aligned to prevent any air leaks.

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

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 hose ①
   - fuel hose ②
     Cracks/damage → Replace.
     Loose connection → Connect properly.

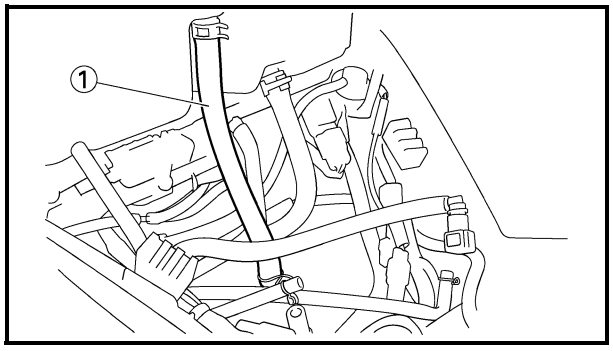
NOTE:

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:

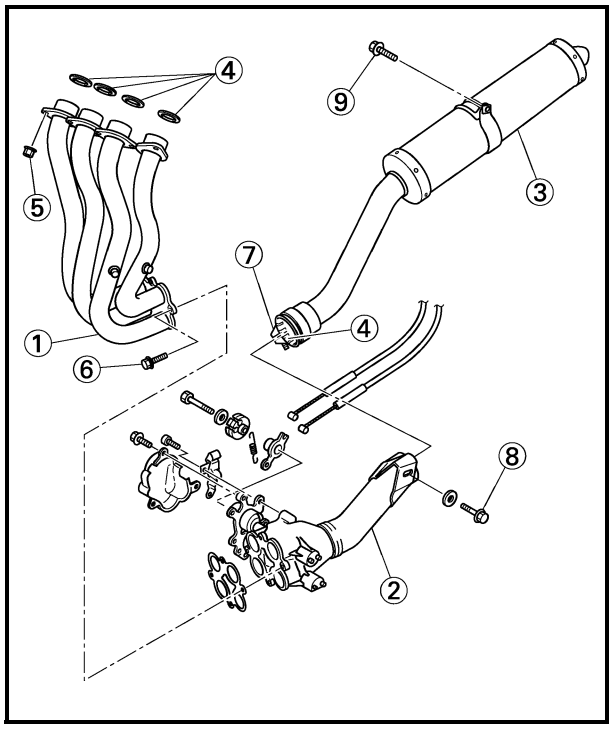
Make sure the crankcase breather hose is routed correctly.

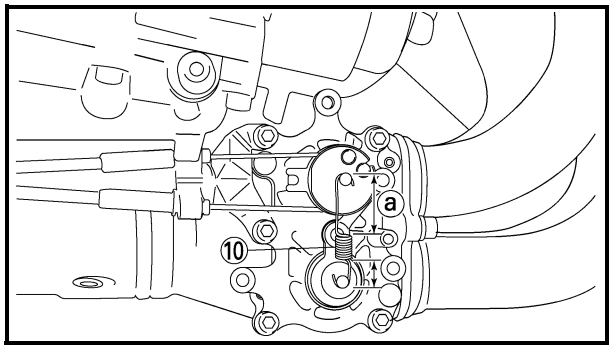
3. Install:
   - fuel tank
     Refer to “FUEL TANK”.
   - rider seat
     Refer to “SEATS”.

EAS00099
CHECKING THE EXHAUST SYSTEM

The following procedure applies to all of the exhaust pipes and gaskets.

1. Remove:
   - radiator
     Refer to “RADIATOR” in chapter 6.
2. Check:
   - exhaust pipe ①
   - exhaust valve pipe ②
   - muffler ③
     Cracks/damage → Replace.
   - gasket ④
     Exhaust gas leaks → Replace.
3. Check:
   - tightening torque

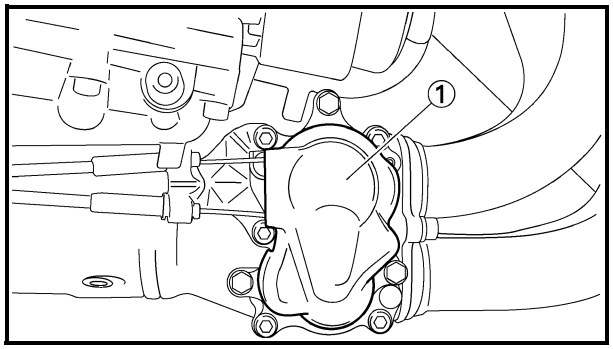




Exhaust pipe nut ⑤
20 Nm (2.0 m · kg, 14 ft · lb)
Exhaust pipe and exhaust valve pipe bolt ⑥
10 Nm (1.0 m · kg, 7.2 ft · lb)
Exhaust pipe and muffler bolt ⑦
20 Nm (2.0 m · kg, 14 ft · lb)
Exhaust valve pipe bracket bolt ⑧
20 Nm (2.0 m · kg, 14 ft · lb)
Muffler and muffler bracket bolt ⑨
38 Nm (3.8 m · kg, 27 ft · lb)

NOTE:
- Install the spring ⑩ with its longer part ⓐ positioned upward.
- Upper part “2” of the EXUP cable is attached with the rubber boot cover.
- Install the EXUP cable in parallel without twisting its upper and lower sides.

4. Install:
   - radiator
     Refer to “RADIATOR” in chapter 6.



EAS00101
ADJUSTING THE EXUP CABLES

1. Remove:
   - bottom cowling
     Refer to “COWLINGS”.
2. Remove:
   - EXUP valve pulley cover ①

3. Check:
   - EXUP system operation

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a. Turn the main switch ON.
b. Check that the EXUP valve operates properly.

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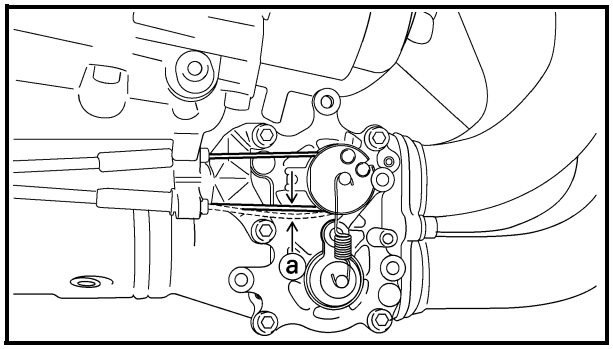
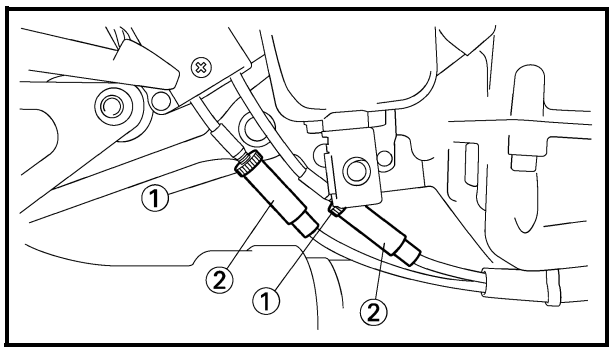


4. Check:
   - EXUP cable free play (at the EXUP valve pulley) ⓐ

Maximum EXUP cable free play (at the EXUP valve pulley)
1.5 mm (0.059 in)



5. Adjust:
   - EXUP cable free play

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a. Loosen both locknuts ①.
b. Insert a 4-mm long pin through the notch in the EXUP valve pulley and into the hole in the EXUP valve cover.
c. Turn both adjusting bolts ② counterclockwise until there is no EXUP cable free play.
d. Turn both adjusting bolts 1/2 of a turn clockwise.
e. Tighten both locknuts and then remove the pin.

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6. Install:
   - EXUP valve pulley cover

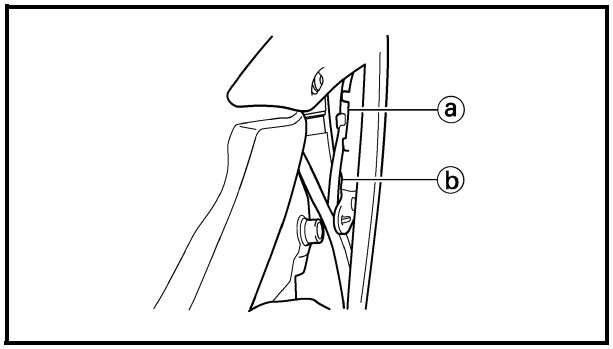
EXUP valve pulley cover bolt
10 Nm (1.0 m · kg, 7.2 ft · lb)

7. Install:
   • bottom cowling
   Refer to “COWLINGS”.

EAS00102
CHECKING THE COOLANT LEVEL

1. Stand the motorcycle on a level surface.

NOTE:
- Place the motorcycle on a suitable stand.
- Make sure the motorcycle is upright.

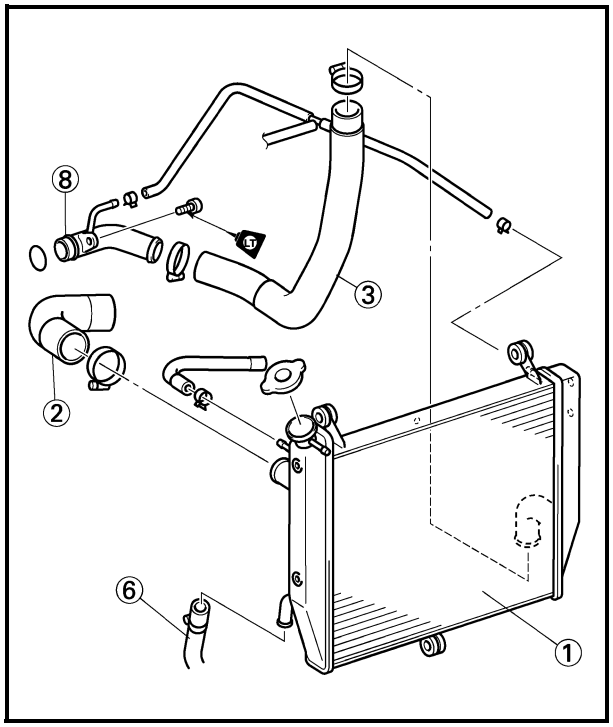


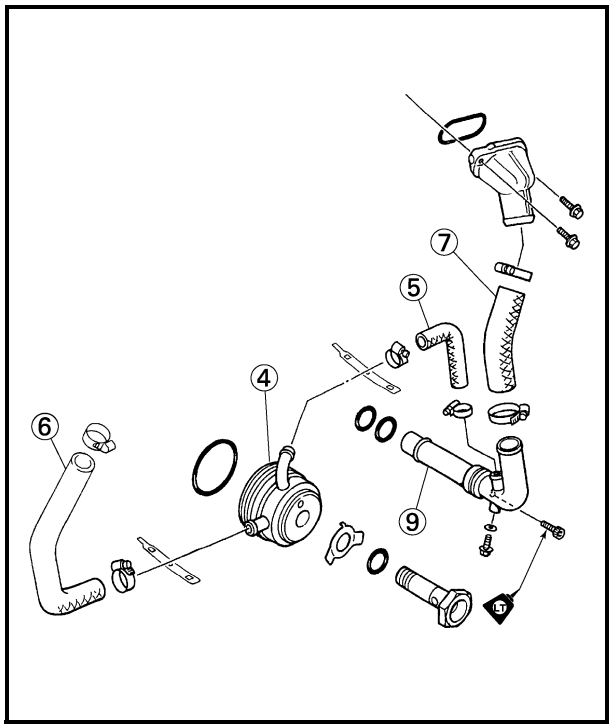
2. Check:
   • coolant level
   The coolant level should be between the maximum level mark ⓐ and minimum level mark ⓑ.
   Below the minimum level mark → Add the recommended coolant to the proper level.

CAUTION:
- **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.**

3. Start the engine, warm it up for several minutes, and then turn it off.
4. Check:
   • coolant level

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



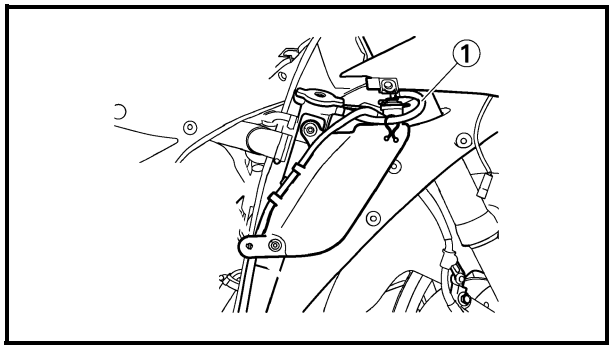


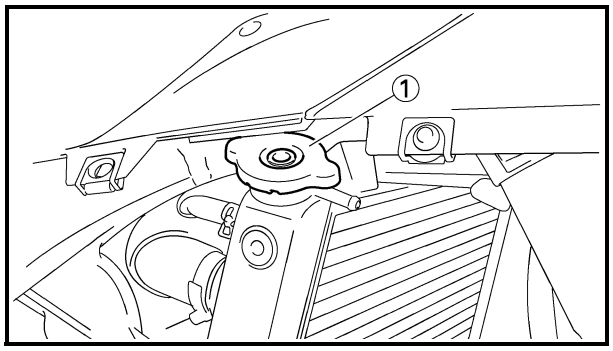
EAS00104
CHECKING THE COOLING SYSTEM

1. Remove:
   - bottom cowling
   - side cowlings
   Refer to “COWLINGS”.
2. Check:
   - radiator ①
   - radiator inlet hose ②
   - radiator outlet hose ③
   - oil cooler ④
   - oil cooler inlet hose ⑤
   - oil cooler outlet hose ⑥
   - water jacket joint inlet hose ⑦
   - water pump inlet pipe ⑧
   - water pump outlet pipe ⑨

   Cracks/damage → Replace.
   Refer to “COOLING SYSTEM” in chapter 6.
3. Install:
   - side cowlings
   - bottom cowling

   Refer to “COWLINGS”.





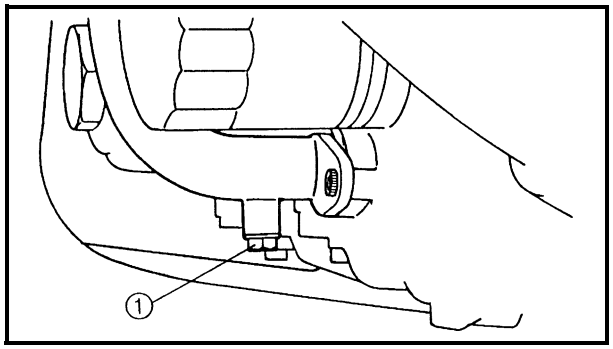
EAS00105
CHANGING THE COOLANT

1. Remove:
   - side cowling
   - bottom cowling
   Refer to “COWLINGS”.
2. Disconnect:
   - coolant reservoir hose ①
3. Drain:
   - coolant
   (from the coolant reservoir)
4. Remove:
   - radiator cap ①

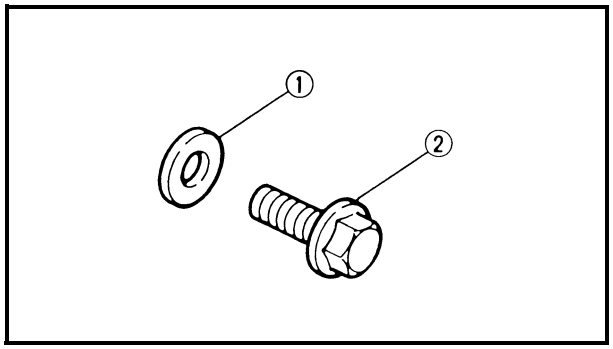
⚠ WARNING

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.

The following procedure applies to all of the coolant drain bolts and copper washers.

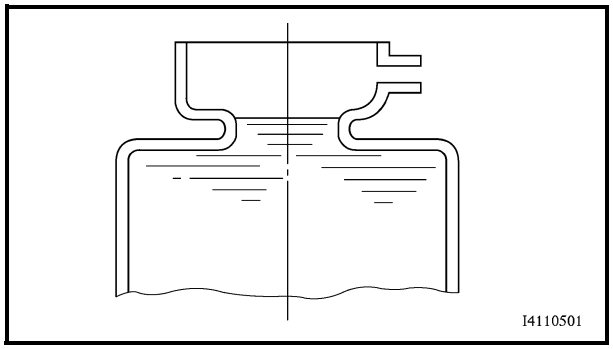


5. Remove:
   - coolant drain bolt ①
   (along with the copper washer)
6. Drain:
   - coolant



7. Check:
   - copper washer ①
   - coolant drain bolt ②
   Damage → Replace.
8. Install:
   - coolant drain bolt

   10 Nm (1.0 m · kg, 7.2 ft · lb)
9. Connect:
   - coolant reservoir hose



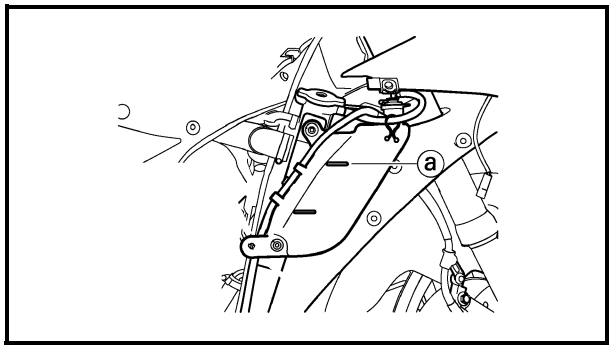
10.Fill:
- cooling system
  (with the specified amount of the recommended coolant)

Recommended antifreeze
High-quality ethylene glycol antifreeze containing corrosion inhibitors for aluminum engines
Mixing ratio
1:1 (antifreeze:water)
Quantity
Total amount
2.45 L
(2.16 Imp qt, 2.59 US qt)
Coolant reservoir capacity
0.24 L
(0.21 Imp qt, 0.25 US qt)

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

⚠ 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.**

CAUTION:
- **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.**



11.Install:
- radiator cap

12.Fill:
- coolant reservoir
  (with the recommended coolant to the maximum level mark ⓐ)

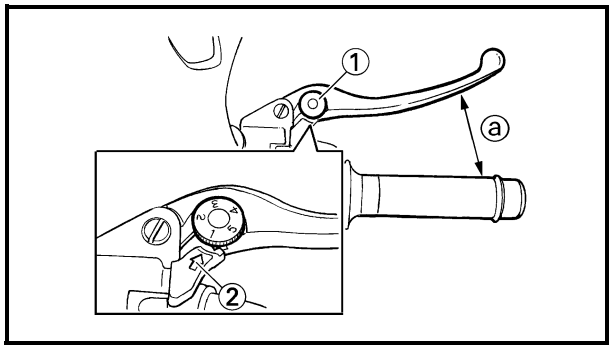
13.Install:
- coolant reservoir cap

14.Start the engine, warm it up for several minutes, and then stop it.

15.Check:
- coolant level
  Refer to “CHECKING THE COOLANT LEVEL”.

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

16.Install:
- side cowling
- bottom cowling
  Refer to “COWLINGS”.



EAS00107
CHASSIS
ADJUSTING THE FRONT BRAKE

1. Adjust:
   - brake lever position
     (distance ⓐ from the throttle grip to the brake lever)

NOTE:
- 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.

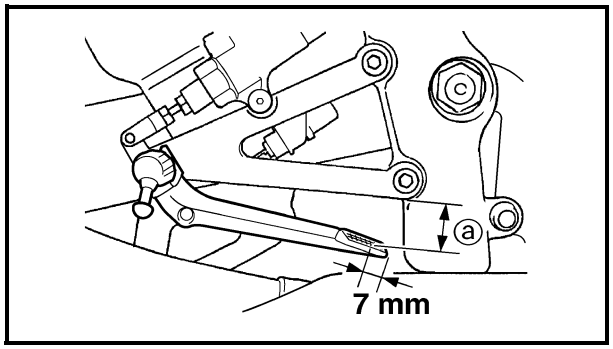
Position #1	**Distance ⓐ is the largest.**
Position #5	**Distance ⓐ is the smallest.**

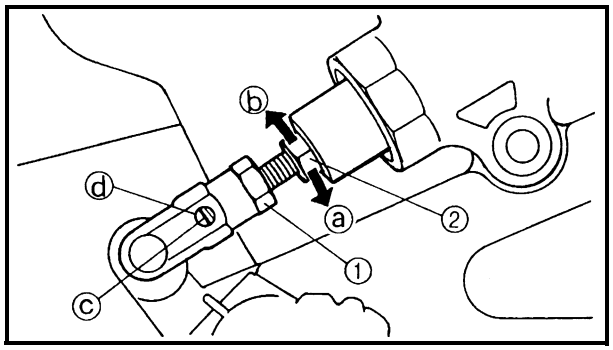
⚠ WARNING

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.

CAUTION:

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





EAS00110
ADJUSTING THE REAR BRAKE

1. Check:
   - brake pedal position
     (distance ⓐ from the top of the brake pedal to the bottom of the rider footrest bracket)
     Out of specification → Adjust.

Brake pedal position (from the top of the brake pedal to the bottom of the rider footrest bracket)
38 ~ 42 mm (1.50 ~ 1.65 in)

2. Adjust:
   - brake pedal position

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a. Loosen the locknut ①.
b. Turn the adjusting bolt ② in direction ⓐ or ⓑ until the specified brake pedal position is obtained.

Direction ⓐ	**Brake pedal is raised.**
Direction ⓑ	**Brake pedal is lowered.**

⚠ WARNING

After adjusting the brake pedal position, check that the end of the adjusting bolt ⓒ is visible through the hole ⓓ.

c. Tighten the locknut ① to specification.

Locknut
16 Nm (1.6 m · kg, 12 ft · lb)

⚠ WARNING

A soft or spongy feeling in the brake pedal 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 braking performance and could result in loss of control and possibly an accident. Therefore, check and, if necessary, bleed the brake system.

CAUTION:

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

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3. Adjust:
   • rear brake light switch
   Refer to "ADJUSTING THE REAR BRAKE LIGHT SWITCH".

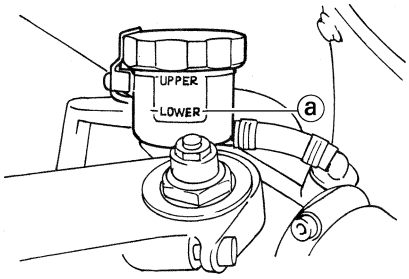
EAS00115

CHECKING THE BRAKE FLUID LEVEL

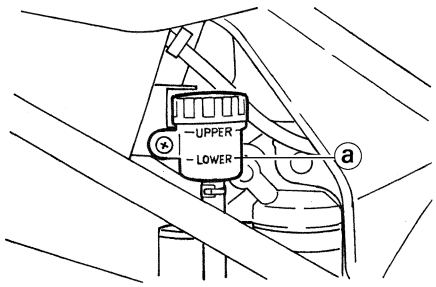
1. Stand the motorcycle on a level surface.

NOTE:
- Place the motorcycle on a suitable stand.
- Make sure the motorcycle is upright.

A



B



2. Check:
   • brake fluid level
   Below the minimum level mark ⓐ → Add the recommended brake fluid to the proper level.

Recommended brake fluid
DOT 4

A Front brake
B Rear brake

⚠ WARNING

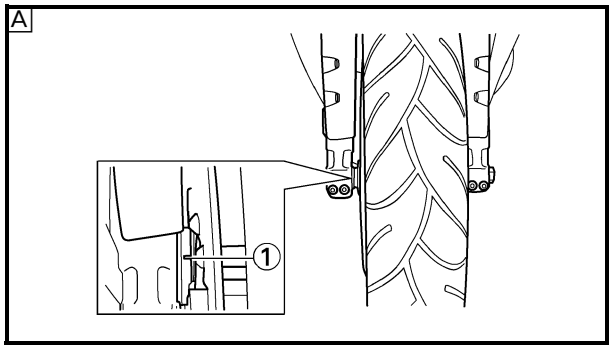
- **Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor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

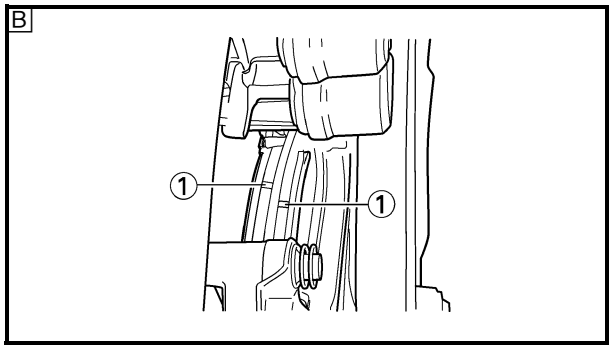
CAUTION:

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.





EAS00122
CHECKING THE FRONT AND REAR BRAKE PADS

The following procedure applies to all of the brake pads.

1. Operate the brake.
2. Check:
   - front brake pad
   - rear brake pad

   Wear indicator groove ① almost disappeared → Replace the brake pads as a set. Refer to "REPLACING THE FRONT BRAKE PADS" and "REPLACING THE REAR BRAKE PADS" in chapter 4.

Ⓐ Front brake
Ⓑ Rear brake

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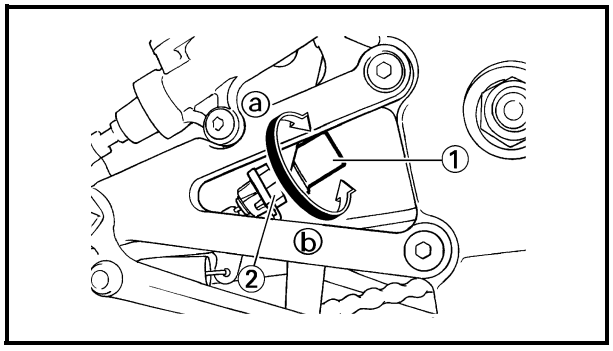
a. Hold the main body ① of the rear brake light switch so that it does not rotate and turn the adjusting nut ② in direction ⓐ or ⓑ until the rear brake light comes on at the proper time.



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

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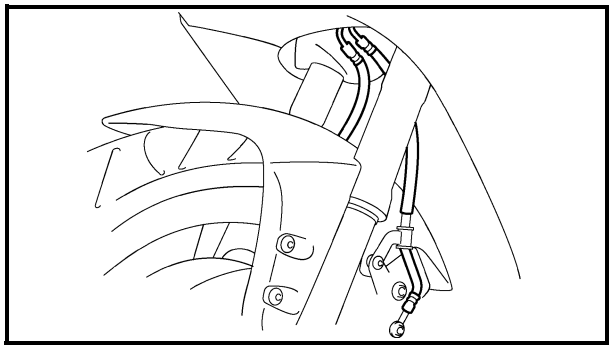
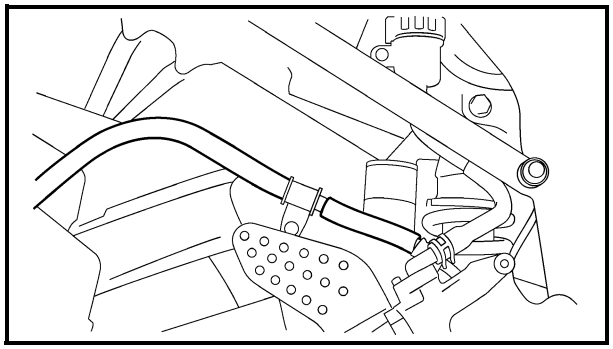




EAS00131
CHECKING THE FRONT AND REAR BRAKE HOSES

The following procedure applies to all of the brake hoses and brake hose clamps.

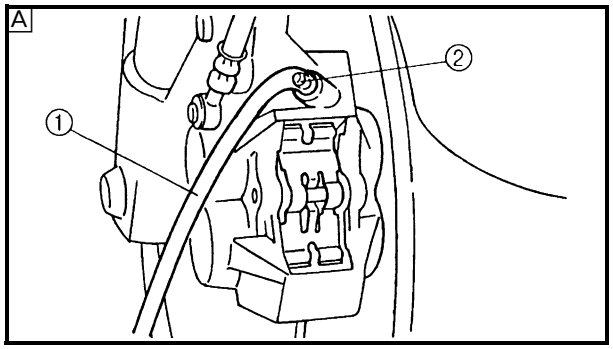
1. Check:
   - brake hose
     Cracks/damage/wear → Replace.
2. Check:
   - brake hose clamp
     Loose → Tighten the clamp bolt.
3. Hold the motorcycle upright and apply the brake several times.
4. Check:
   - brake hose
     Brake fluid leakage → Replace the damaged hose.
     Refer to “FRONT AND REAR BRAKES” in chapter 4.

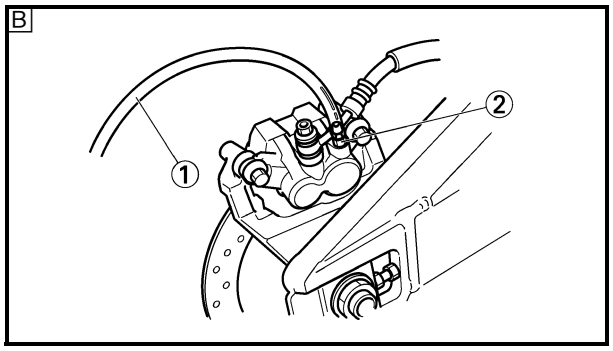
EAS00135
BLEEDING THE HYDRAULIC BRAKE SYSTEM

⚠ WARNING

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

NOTE:
- Be careful not to spill any brake fluid or allow the brake fluid reservoir to overflow.
- When bleeding the hydraulic brake system, make sure there is always enough brake fluid before applying the brake. Ignoring this precaution could allow air to enter the hydraulic brake system, 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:
   - hydraulic brake system

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

A Front
B Rear

d. Place the other end of the hose into a container.
e. Slowly apply the brake several times.
f. Fully pull the brake lever or fully press down the brake pedal and hold it in position.
g. Loosen the bleed screw.

NOTE:

Loosening the bleed screw will release the pressure and cause the brake lever to contact the throttle grip or the brake pedal to fully extend.

h. Tighten the bleed screw and then release the brake lever or brake pedal.
i. Repeat steps (e) to (h) until all of the air bubbles have disappeared from the brake fluid in the plastic hose.
j. Tighten the bleed screw to specification.

	**Bleed screw** **6 Nm (0.6 m · kg, 4.3 ft · lb)**

k. Fill the brake fluid reservoir to the proper level with the recommended brake fluid.
   Refer to “CHECKING THE BRAKE FLUID LEVEL”.

⚠ WARNING

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

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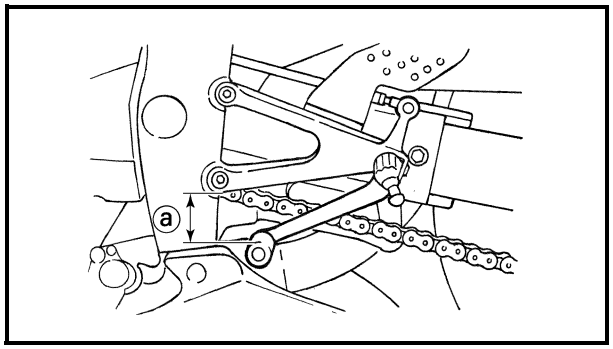

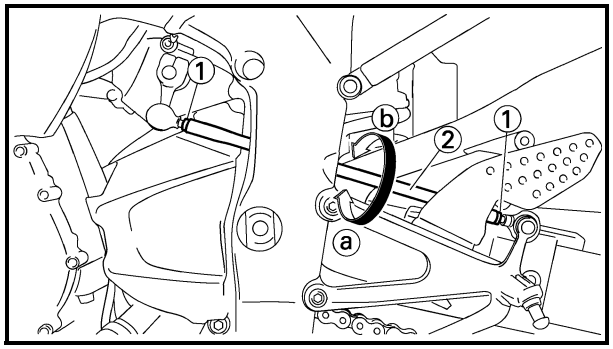

EAS00136
ADJUSTING THE SHIFT PEDAL

1. Check:
   - shift pedal position
     (distance ⓐ from the bottom of the rider footrest bracket to the top of the shift pedal)
     Out of specification→ Adjust.

Shift pedal position (below the top of the rider footrest)
38 ~ 43 mm (1.50 ~ 1.69 in)

2. Adjust:
   - shift pedal position

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a. Loosen both locknuts ①.
b. Turn the shift rod ② in direction ⓐ or ⓑ to obtain the correct shift pedal position.

Direction ⓐ	**Shift pedal is raised.**
Direction ⓑ	**Shift pedal is lowered.**

c. Tighten both locknuts.

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EAS00140
ADJUSTING THE DRIVE CHAIN SLACK

NOTE:
The drive chain slack must be checked at the tightest point on the chain.

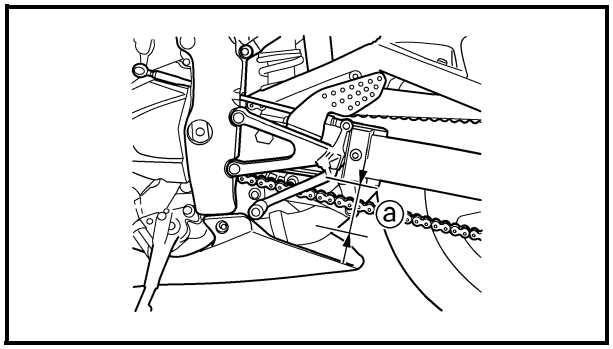
CAUTION:
A drive chain that is too tight will overload the engine and other vital parts, and one that is too loose can skip and damage the swingarm or cause an accident. Therefore, keep the drive chain slack within the specified limits.

1. Stand the motorcycle on a level surface.

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

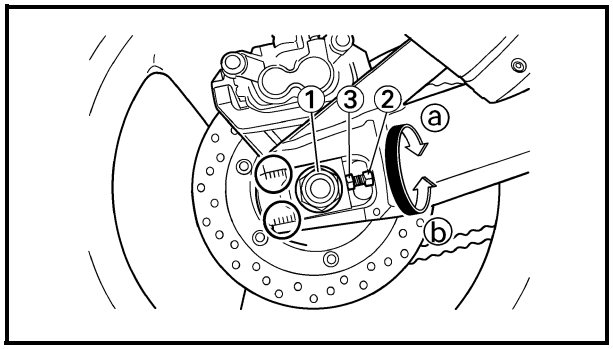
NOTE:
Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Spin the rear wheel several times and find the tightest position of drive chain.



3. Check:
   • drive chain slack ⓐ
   Out of specification → Adjust.

	Drive chain slack **40 ~ 50 mm (1.57 ~ 1.97 in)**



4. Adjust:
   • drive chain slack

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a. Loosen the wheel axle nut ①.
b. Loosen both locknuts ②.
c. Turn both adjusting bolts ③ in direction ⓐ or ⓑ until the specified drive chain slack is obtained.

Direction ⓐ	**Drive chain is tightened.**
Direction ⓑ	**Drive chain is loosened.**

NOTE:
To maintain the proper wheel alignment, adjust both sides evenly.

d. Tighten both locknuts to specification.

	Locknut **16 Nm (1.6 m · kg, 12 ft · lb)**

e. Tighten the wheel axle nut to specification.

	Wheel axle nut **150 Nm (15 m · kg, 108 ft · lb)**

CAUTION:
Do not loosen the wheel axle nut after tightening it to the specified torque. If the groove in the wheel axle nut is not aligned with the cotter pin hole in the wheel axle, tighten the nut further until they are aligned.

EAS00142
LUBRICATING THE DRIVE CHAIN

The drive chain consists of many interacting parts. If the drive chain is not maintained properly, it will wear out quickly. Therefore, the drive chain should be serviced, especially when the motorcycle is used in dusty areas.
This motorcycle has a drive chain with small rubber O-rings between each side plate. Steam cleaning, high-pressure washing, certain solvents, and the use of a coarse brush can damage these O-rings. Therefore, use only kerosene to clean the drive chain. Wipe the drive chain dry and thoroughly lubricate it with engine oil or chain lubricant that is suitable for O-ring chains. Do not use any other lubricants on the drive chain since they may contain solvents that could damage the O-rings.

Recommended lubricant
Engine oil or chain lubricant suitable for O-ring chains

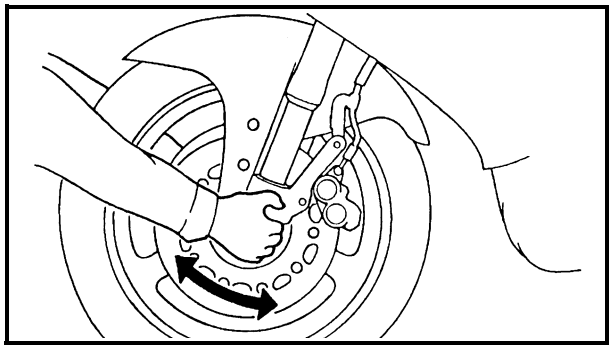
EAS00146
CHECKING AND ADJUSTING THE STEERING HEAD

1. Stand the motorcycle on a level surface.

⚠ WARNING

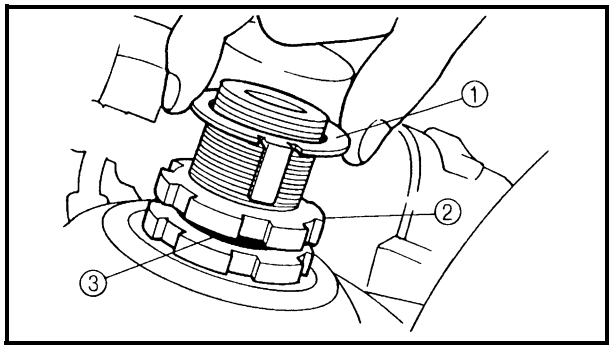
Securely support the motorcycle so that there is no danger of it falling over.

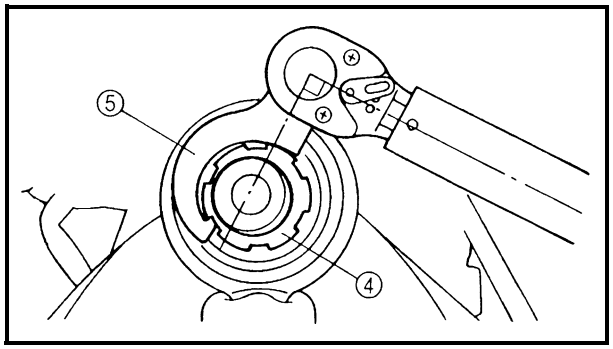
NOTE:
Place the motorcycle on a suitable stand so that the front wheel is elevated.



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 “HANDLEBARS” and “STTERLING HEAD” in chapter 4.





4. Adjust:
   • steering head

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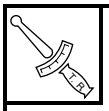
a. Remove the lock washer ①, the upper ring nut ②, and the rubber washer ③.
b. Loosen the lower ring nut ④ and then tighten it to specification with a steering nut wrench ⑤.

NOTE:
Set the torque wrench at a right angle to the steering nut wrench.

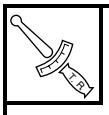
	**Steering nut wrench** **YU-33975**

	**Lower ring nut (initial tightening torque)** **50 Nm (5.0 m · kg, 36.2 ft · lb)**

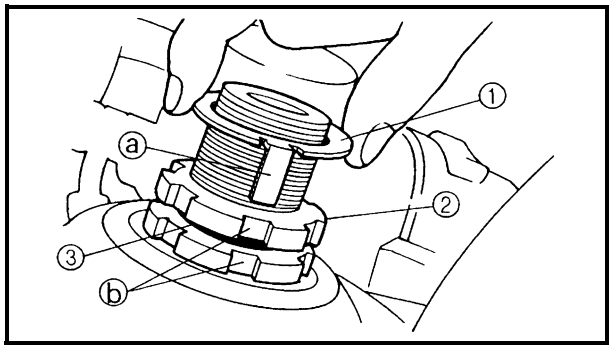
c. Loosen the lower ring nut completely, then tighten it to specification.

⚠ WARNING

Do not overtighten the lower ring nut.

	**Lower ring nut (final tightening torque)** **9 Nm (0.9 m·kg, 6.5 ft · lb)**

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” in chapter 4.



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.

NOTE:
Make sure the lock washer tabs ⓐ sit correctly in the ring nut slots ⓑ.

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5. Install:
   - upper bracket
   - steering stem nut

     115 Nm (11.5 m · kg, 83 ft · lb)
   - upper bracket bolt

     13 Nm (1.3 m · kg, 9.4 ft · lb)
   - handlebar pinch bolt

     13 Nm (1.3 m · kg, 9.4 ft · lb)
   - upper bracket pinch bolt

     26 Nm (2.6 m · kg, 19 ft · lb)
6. Measure:
   - steering head tension

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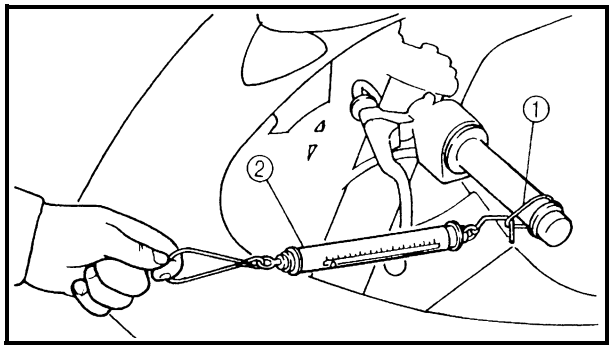
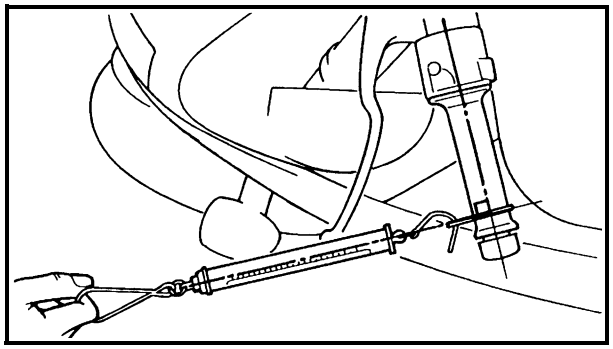
NOTE:
Make sure all of the cables and wires are properly routed.





a. Point the front wheel straight ahead.
b. Install a plastic locking tie ① loosely around the end of the handlebar as shown.
c. Hook a spring gauge ② onto the plastic locking tie.
d. Hold the spring gauge at a 90° angle from the handlebar, pull the spring gauge, and then record the measurement when the handlebar starts to run.

Steering head tension
200 ~ 500 g (7.05 ~ 17.64 oz)

e. Repeat the above procedure on the opposite handlebar.
f. If the steering head tension is out of specification (both handlebars should be within specification), remove the upper bracket and loosen or tighten the upper ring nut.

g. Reinstall the upper bracket and measure the steering head tension again as described above.
h. Repeat the above procedure until the steering head tension is within specification.
i. Grasp the bottom of the front fork legs and gently rock the front fork.
Binding/looseness → Adjust the steering head.

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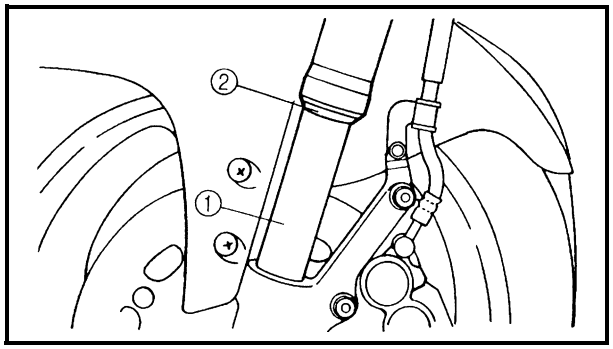
EAS00150
CHECKING THE FRONT FORK

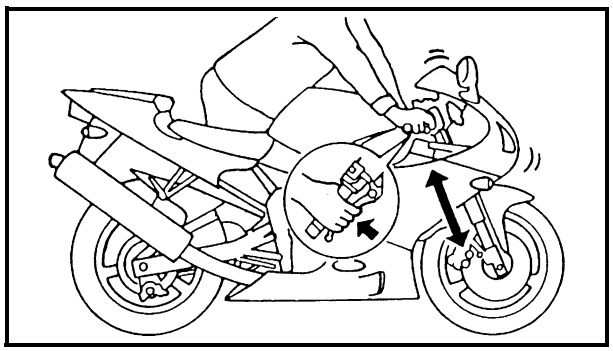
1. Stand the motorcycle on a level surface.

⚠ WARNING

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



2. Check:
- inner tube ①
Damage/scratches → Replace.
- oil seal ②
Oil leakage → Replace.



3. Hold the motorcycle upright and apply the front brake.
4. Check:
- front fork operation
Push down hard on the handlebars several times and check if the front fork rebounds smoothly.
Rough movement → Repair.
Refer to “FRONT FORK” in chapter 4.

EAS00155
ADJUSTING THE FRONT FORK LEGS

The following procedure applies to both of the front fork legs.

⚠ WARNING

- **Always adjust both front fork legs evenly. Uneven adjustment can result in poor handling and loss of stability.**
- **Securely support the motorcycle so that there is no danger of it falling over.**

Spring preload

CAUTION:

- **Grooves are provided to indicate the adjustment position.**
- **Never go beyond the maximum or minimum adjustment positions.**

1. Adjust:
   - spring preload

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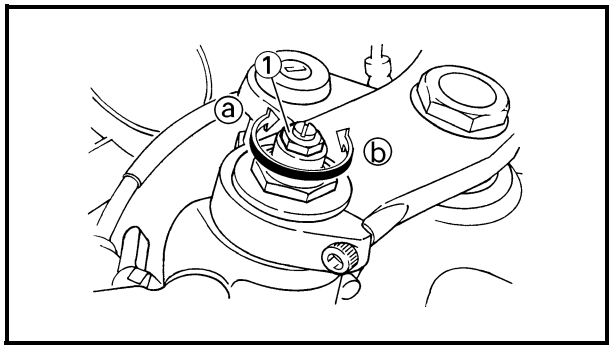
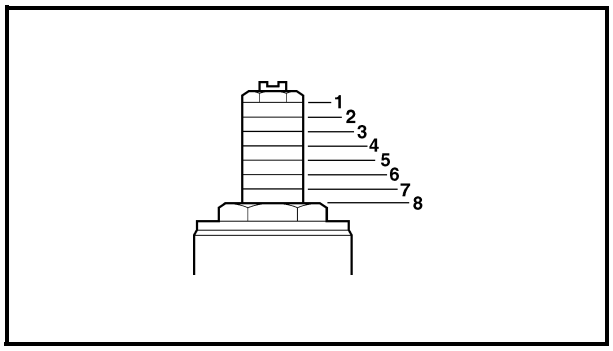
a. Turn the adjusting bolt ① in direction ⓐ or ⓑ.



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



Adjusting positions
Minimum: 8
Standard: 6
Maximum: 1

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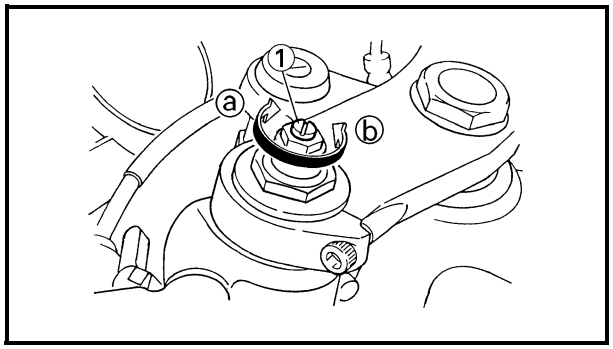
Rebound damping

CAUTION:

Never go beyond the maximum or minimum adjustment positions.



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: 26 clicks in direction ⓑ *
Standard: 13 clicks in direction ⓑ *
Maximum: 1 click in direction ⓑ *
*** with the adjusting screw fully turned-in direction ⓐ**

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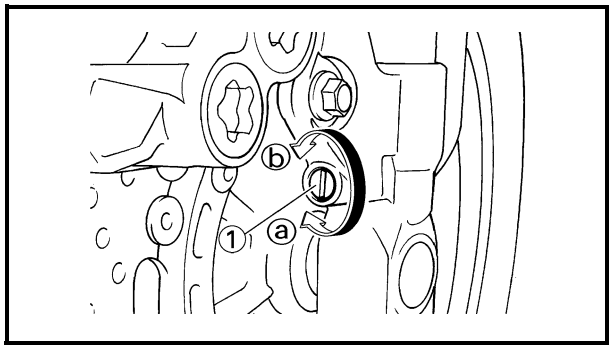
Compression damping

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: 20 clicks in direction ⓑ *
Standard: 13 clicks in direction ⓑ *
Maximum: 1 click in direction ⓑ *
*** with the adjusting screw fully turned-in direction ⓐ**

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EAS00158

ADJUSTING THE REAR SHOCK ABSORBER ASSEMBLY

⚠ WARNING

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

Spring preload

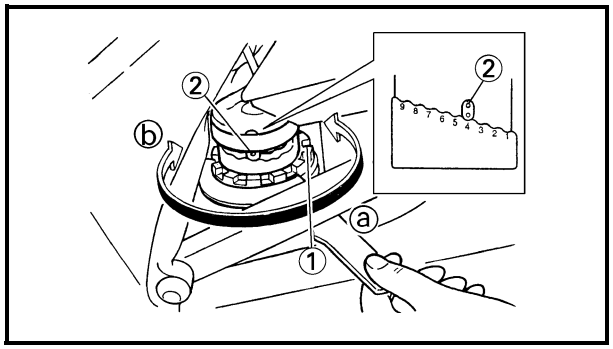
CAUTION:

Never go beyond the maximum or minimum adjustment positions.

1. Adjust:
   • spring preload

NOTE:

Adjust the spring preload with the special wrench and extension bar included in the owner's tool kit.



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a. Turn the adjusting ring ① in direction ⓐ or ⓑ.
b. Align the desired position on the adjusting ring with the stopper ②.

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

Adjusting positions
Minimum: 1
Standard: 4
Maximum: 9

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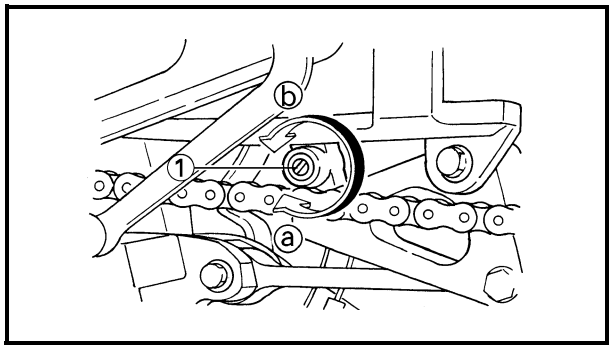
Rebound damping

CAUTION:

Never go beyond the maximum or minimum adjustment positions.



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: 20 clicks in direction ⓑ *
Standard: 15 clicks in direction ⓑ *
Maximum: 1 click in direction ⓑ *
*** with the adjusting screw fully turned-in direction ⓐ**

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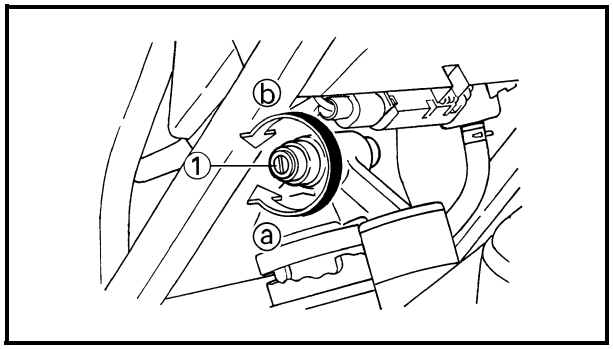
Compression damping

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: 20 clicks in direction ⓑ *
Standard: 15 clicks in direction ⓑ *
Maximum: 1 click in direction ⓑ *
*** with the adjusting screw fully turned-in direction ⓐ**

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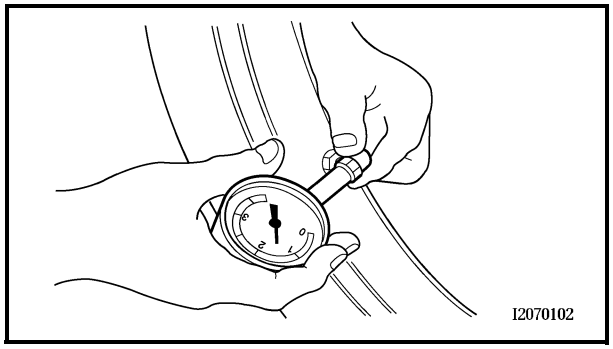


EAS00162
CHECKING THE TIRES

The following procedure applies to both of the tires.

1. Check:
   • tire pressure
   Out of specification → Regulate.

⚠ 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 motorcycle could cause tire damage, an accident or an injury.**

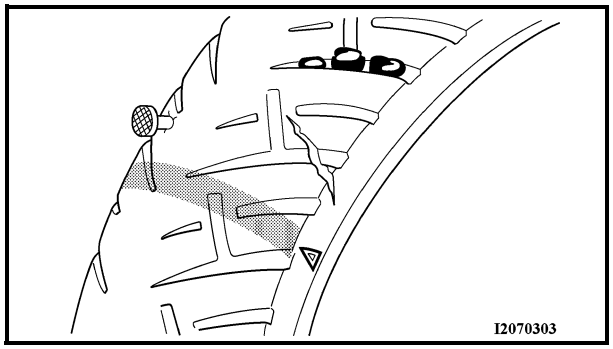
NEVER OVERLOAD THE MOTORCYCLE.

Basic weight (with oil and a full fuel tank)	**For USA, Canada 193 kg (426 lb) For California 194 kg (428 lb)**	
Maximum load*	**For USA, Canada 202 kg (445 lb) For California 201 kg (443 lb)**	
Cold tire pressure	**Front**	**Rear**
Up to 90 kg (198 lb) load*	**250 kPa (2.5 kgf/cm², 36.3 psi)**	**250 kPa (2.5 kgf/cm², 36.3 psi)**
90 kg (198 lb) ~ maximum load*	**250 kPa (2.5 kgf/cm², 36.3 psi)**	**290 kPa (2.9 kgf/cm², 42.1 psi)**
High-speed riding	**250 kPa (2.5 kgf/cm², 36.3 psi)**	**250 kPa (2.5 kgf/cm², 36.3 psi)**

* Total weight of rider, passenger, cargo and accessories

⚠ WARNING

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

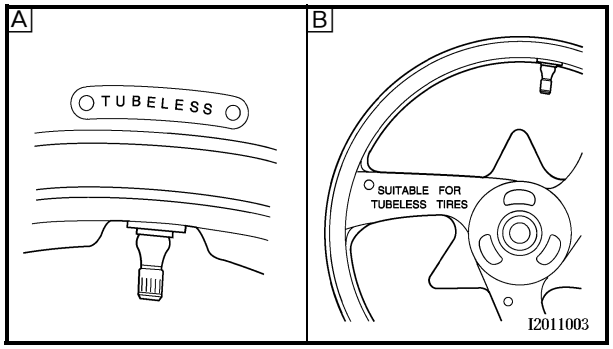


2. Check:
   - tire surfaces
     Damage/wear → Replace the tire.

	Minimum tire tread depth 1.6 mm (0.06 in)

⚠ WARNING

- **Do not use a tubeless tire on a wheel designed only for tube tires to avoid tire failure and personal injury from sudden deflation.**
- **When using a tube tire, be sure to install the correct tube.**
- **Always replace a new tube tire and a new tube as a set.**
- **To avoid pinching the tube, make sure the wheel rim band and tube are centered in the wheel groove.**
- **Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement.**



A Tire
B Wheel

Tube wheel	Tube tire only
Tubeless wheel	Tube or tubeless tire

⚠ 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 motorcycle.

Front tire

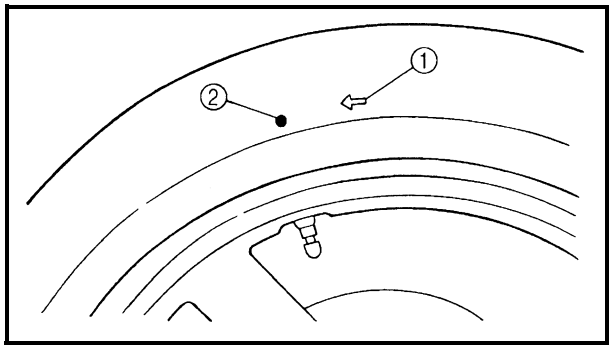
Manufacturer	Size	Model
DUNLOP	120/70ZR 17M/C (58W)	D208FL
MICHELIN	120/70ZR 17M/C (58W)	Pilot SPORT E

Rear tire

Manufacturer	Size	Model
DUNLOP	190/50ZR 17M/C (73W)	D208L
MICHELIN	190/50ZR 17M/C (73W)	Pilot SPORT

⚠ 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.



NOTE:

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.

EAS00168
CHECKING THE WHEELS

The following procedure applies to both of the wheels.

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

⚠ WARNING

Never attempt to make any repairs to the wheel.

NOTE:

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

EAS00170
CHECKING AND LUBRICATING THE CABLES

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

⚠ WARNING

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

NOTE:

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

EAS00171
LUBRICATING THE LEVERS AND PEDALS

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

Recommended lubricant
Lithium soap base grease

EAS00172
LUBRICATING THE SIDESTAND

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

Recommended lubricant
Lithium soap base grease

EAS00174
LUBRICATING THE REAR SUSPENSION

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

Recommended lubricant
Lithium soap base grease

EAS00178

ELECTRICAL SYSTEM

CHECKING AND CHARGING THE BATTERY

⚠ WARNING

Batteries generate explosive hydrogen gas and contain electrolyte which is made of poisonous and highly caustic sulfuric acid. Therefore, always follow these preventive measures:

- **Wear protective eye gear when handling or working near batteries.**
- **Charge batteries in a well-ventilated area.**
- **Keep batteries away from fire, sparks or open flames (e.g., welding equipment, lighted cigarettes).**
- **DO NOT SMOKE when charging or handling batteries.**
- **KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.**
- **Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.**

FIRST AID IN CASE OF BODILY CONTACT:
EXTERNAL

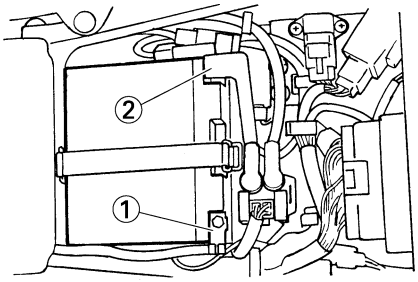
- **Skin — Wash with water.**
- **Eyes — Flush with water for 15 minutes and get immediate medical attention.**

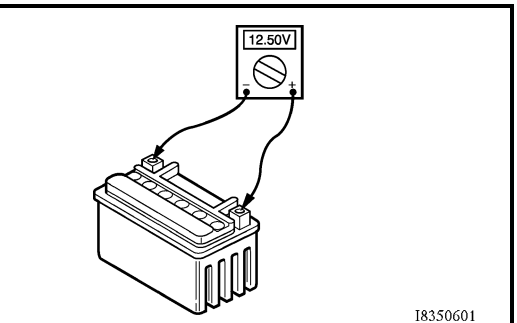
INTERNAL

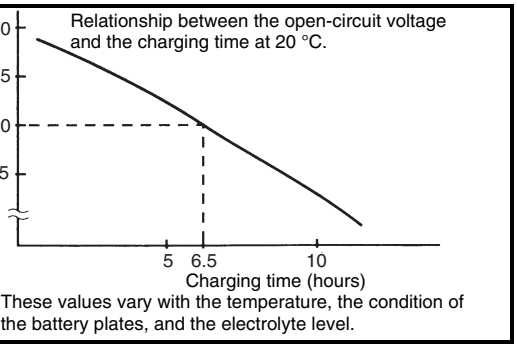
- **Drink large quantities of water or milk followed with milk of magnesia, beaten egg or vegetable oil. Get immediate medical attention.**

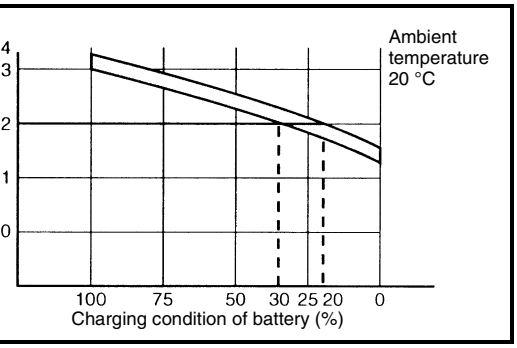
CAUTION:

- **This is a sealed battery. Never remove the sealing caps because the balance between cells will not be maintained and battery performance will deteriorate.**
- **Charging time, charging amperage and charging voltage for an MF battery are different from those of conventional batteries. The MF battery should be charged as explained in the charging method illustrations. If the battery is overcharged, the electrolyte level will drop considerably. Therefore, take special care when charging the battery.**









NOTE:

Since MF batteries are sealed, it is not possible to check the charge state of the battery by measuring the specific gravity of the electrolyte. Therefore, the charge of the battery has to be checked by measuring the voltage at the battery terminals.

1. Remove:
   - rider seat
     Refer to "SEATS"
2. Disconnect:
   - battery leads
     (from the battery terminals)

CAUTION:

First, disconnect the negative battery lead ①, and then the positive battery lead ②.

3. Remove:
   - battery
4. Check:
   - battery charge

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a. Connect a pocket tester to the battery terminals.

Positive tester probe → positive battery terminal
Negative tester probe → negative battery terminal

NOTE:

- The charge state of an MF 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

c. Open-circuit voltage = 12.0 V
d. Charging time = 6.5 hours
e. Charge of the battery = 20 ~ 30%

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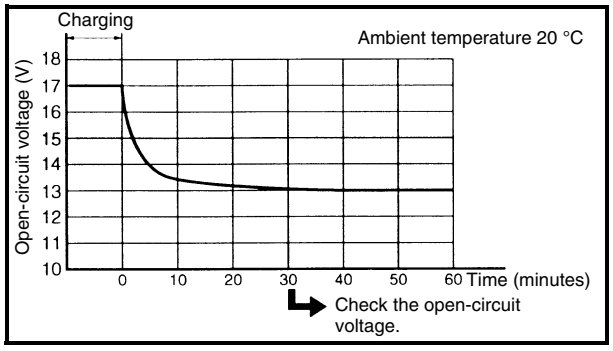


5. Charge:
   • battery
   (refer to the appropriate charging method illustration)

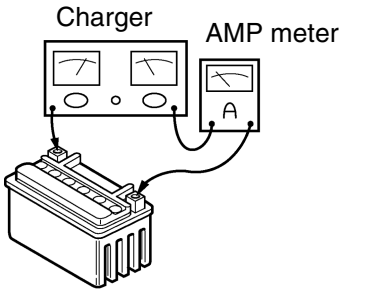
⚠ WARNING

Do not quick charge a battery.

CAUTION:

- **Never remove the MF battery sealing caps.**
- **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 motorcycle. (If charging has to be done with the battery mounted on the motorcycle, 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 an MF battery stabilizes about 30 minutes after charging has been completed. Therefore, wait 30 minutes after charging is completed before measuring the open-circuit voltage.**

Charging method using a variable-current (voltage) charger



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

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

Measure the open-circuit voltage prior to charging.

Connect a charger 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.

YES

NO

By turning the charging voltage adjust dial, set the charging 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

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

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

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.

Charging method using a constant voltage charger

Measure the open-circuit voltage prior to charging.

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

Connect a charger 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.

YES

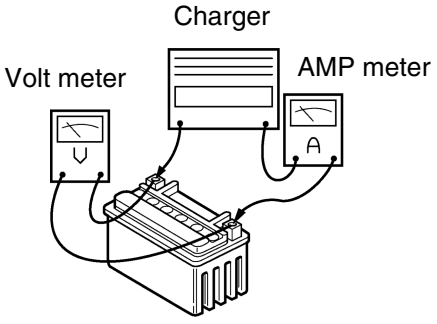
Charge the battery until the battery's charging voltage is 15 V.

NOTE:
Set the charging time at 20 hours (maximum).

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.

NO

This type of battery charger cannot charge the MF battery. A variable voltage charger is recommended.



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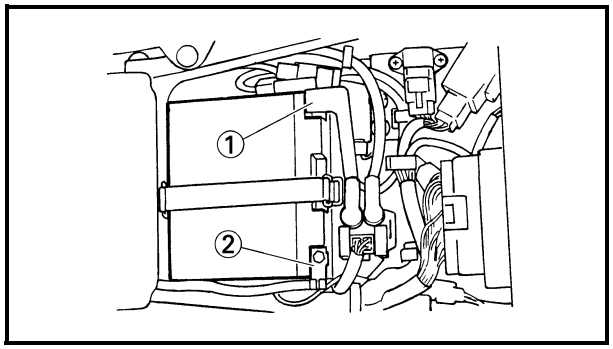


6. Install:
   • battery
7. Connect:
   • battery leads
     (to the battery terminals)

CAUTION:

First, connect the positive battery lead ①, and then the negative battery lead ②.

8. Check:
   • battery terminals
     Dirt → Clean with a wire brush.
     Loose connection → Connect properly.
9. Lubricate:
   • battery terminals

	Recommended lubricant **Dielectric grease**

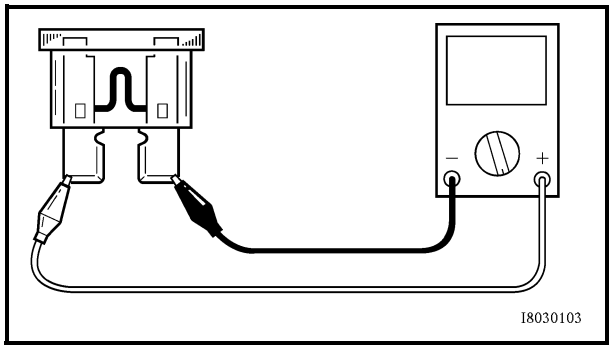
10. Install:
    • rider seat
      Refer to “SEATS”.

EAS00181
CHECKING THE FUSES

The following procedure applies to all of the fuses.

CAUTION:

To avoid a short circuit, always set the main switch to “OFF” when checking or replacing a fuse.



1. Remove:
   • rider seat
     Refer to “SEATS”.
   • front cowling inner panel (left)
     Refer to “COWLINGS”.
2. Check:
   • fuse

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a. Connect the pocket tester to the fuse and check the continuity.

NOTE:

Set the pocket tester selector to “$\Omega \times 1$”.

	Pocket tester **YM-03112**

b. If the pocket tester indicates “∞”, replace the fuse.

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3. Replace:
   • blown fuse

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a. Set the main switch to “OFF”.
b. Install a new fuse of the correct amperage rating.
c. Set on the switches to verify if the electrical circuit is operational.
d. If the fuse immediately blows again, check the electrical circuit.

Fuses	Amperage rating	Q’ty
Main	50 A	1
Fuel injection system	15 A	1
Headlight	20 A	1
Signaling system	15 A	1
Ignition	15 A	1
Back up (odometer and clock)	5 A	1
Radiator fan motor	15 A	1
Reserve	20 A	1
Reserve	15 A	1
Reserve	5 A	1

⚠ WARNING

Never use a fuse with an amperage rating other than that specified. Improvising or using a fuse with the wrong amperage rating may cause extensive damage to the electrical system, cause the lighting and ignition systems to malfunction and could possibly cause a fire.

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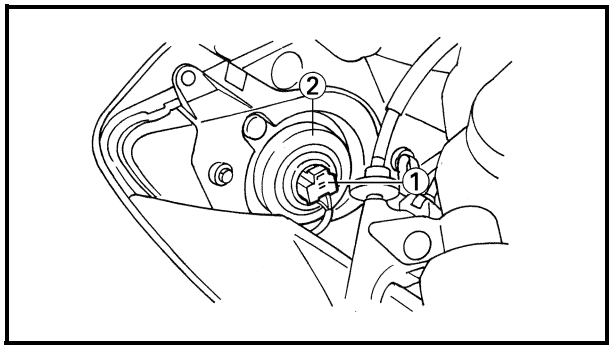
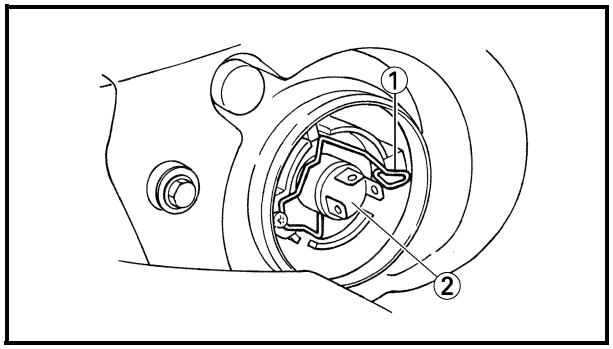
4. Install:
   • front cowling inner panel (left)
   Refer to “COWLINGS”.
   • rider seat
   Refer to “SEATS”.





EAS00183
REPLACING THE HEADLIGHT BULBS

The following procedure applies to both of the headlight bulbs.

1. Disconnect:
   - headlight coupler ①
2. Remove:
   - headlight bulb cover ②
3. Remove:
   - headlight bulb holder ①
4. Remove:
   - headlight bulb ②

⚠ WARNING

Since the headlight bulb gets extremely hot, keep flammable products and your hands away from the bulb until it has cooled down.

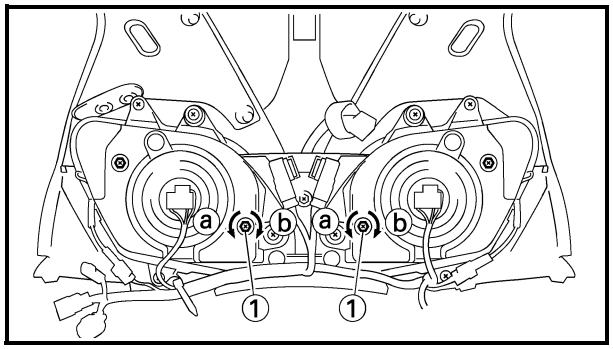
4. Install:
   - headlight bulb New

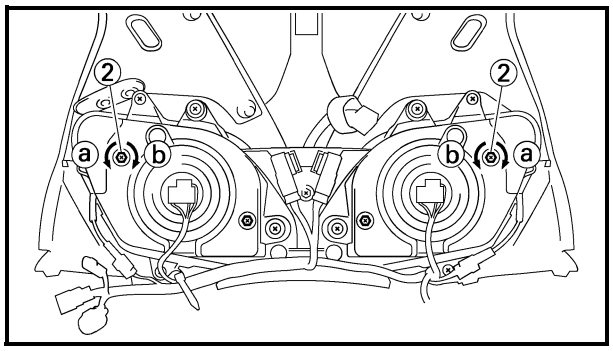
   Secure the new headlight bulb with the headlight bulb holder.

CAUTION:

Avoid touching the glass part of the headlight bulb to keep it free from oil, otherwise the transparency of the glass, the life of the bulb and the luminous flux will be adversely affected. If the headlight bulb gets soiled, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.

6. Install:
   - headlight bulb holder
7. Install:
   - headlight bulb cover
8. Connect:
   - headlight coupler





EAS00184
ADJUSTING THE HEADLIGHT BEAM

1. Adjust:
   • headlight beam (vertically)

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

Direction ⓐ	**Headlight beam is raised.**
Direction ⓑ	**Headlight beam is lowered.**

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2. Adjust:
   • headlight beam (horizontally)

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a. Turn the adjusting screw ② in direction ⓐ or ⓑ.

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

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