

PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

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

MAINTENANCE INTERVALS CHART

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions controls. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

No.	Item	Remarks	Initial	Odometer readings				
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,00 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	**4 31,000 km or 31 months (19,600 mi)
1*	Valve clearance	Check and adjust valve clearance when engine is cold.					○	
2	Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○
3*	Crankcase breather system	Check breather hose for craks or damage. Replace if necessary.		○	○	○	○	○
4*	Fuel line	Check fuel hose for cracks or damage. Replace if necessary.		○	○	○	○	○
5*	Fuel filter	Replace initial 31,000 km (19,600 mi) and thereafter every 30,000 km (19,000 mi).						Replace
6*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○
7*	Carburetor Synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○
8*	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi), **3: Every 24,000 km (15,200 mi) and **4: Every 30,000 km (19,000 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

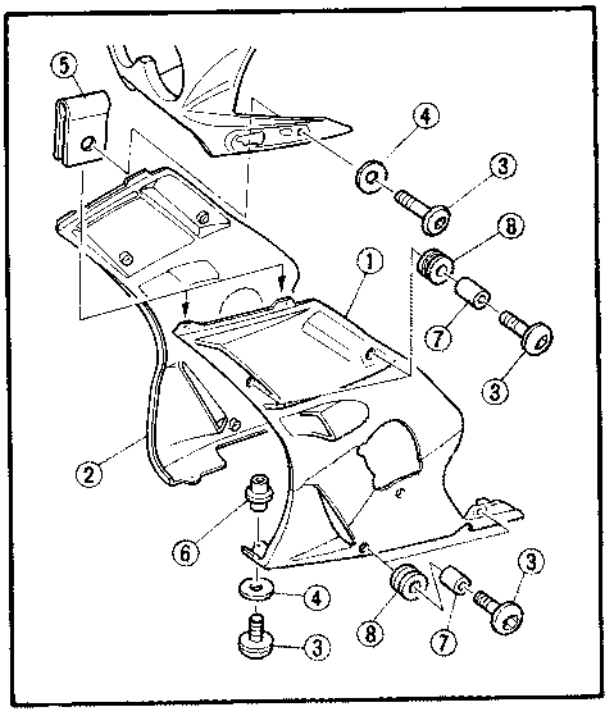
No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,00 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1	Engine oil	Warm-up engine before draining	* 1) Yamalube 4 (20W40) or SAE 20W40 type "SE" motor oil * 2) Yamalube 4 (10W30) or SAE 10W30 type "SE" motor oil	○	○	○	○	○	○
2*	Oil filter	Replace	–	○		○		○	
3*	Air filter	Clean with compressed air. Replace if necessary.	–		○	○	○	○	○
4*	Cooling system	Check hose for cracks or damage. Replace if necessary.	–		○	○	○	○	○
		Replace coolant every 24 months	Ethylene glycol antifreeze coolant					Replace	
5*	Brake system	Adjust free play. Replace pads if necessary.	–	○	○	○	○	○	○
6	Clutch	Adjust free play.	–	○	○	○	○	○	○
7	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30W-50W motor oil	Every 500 km (300 mi)					
8	Control and meter cable	Apply chain lube thoroughtly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
9*	Rear arm pivot shaft and suspension link pivots.	Apply grease lightly.	Molybdenum disulfid grease					○	
10	Brake/Clutch lever pivot shaft	Apply chain lube lightly	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11	Brake pedal and change pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
12*	Sidestand pivot	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
13*	Front fork	Check operation and leakage.	–		○	○	○	○	○

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,00 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
14*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,200 mi).	Medium weight wheel bearing grease.		○	○	○	○	○
15*	Wheel bearings	Check bearings for smooth rotation.	–		○	○	○	○	○
16	Battery	Check specific gravity and breather pipe for proper operation.	–		○	○	○	○	○
17*	Sidestand switch	Check and clean or replace if necessary.	–	○	○	○	○	○	○

*1) If ambient temperature does not go below 5°C.
*2) If ambient temperature does not go above 15°C.
* It is recommended that these items be service by a Yamaha dealer or other qualified mechanic.

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600) and **3: Every 24,000 km (15,200 mi) intervals.

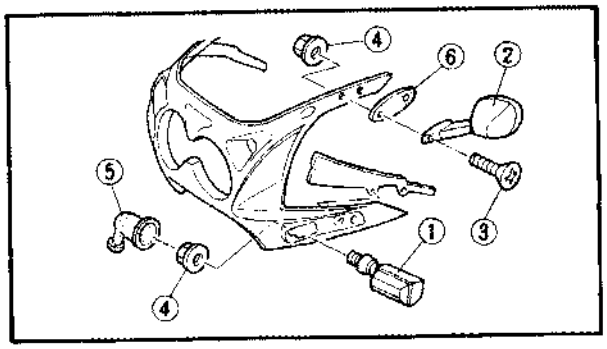


COWLINGS/COVERS REMOVAL AND INSTALLATION

REMOVAL

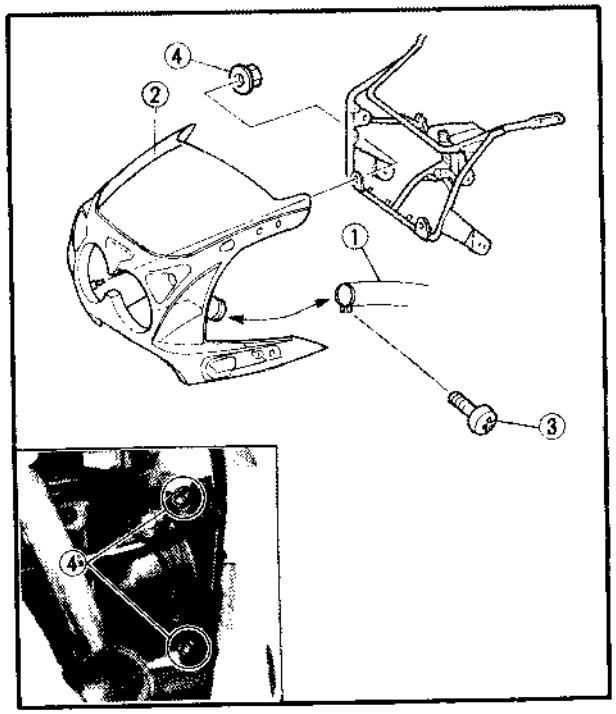
1. Remove:
   - Side cowlings (left ① and right ②)

③ Bolt
④ Plastic washer
⑤ Spring nut
⑥ Special nut
⑦ Collar
⑧ Damper



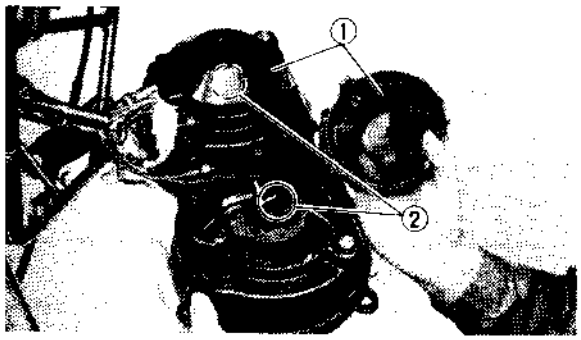
2. Remove:
   - Flasher lights (left and right) ①
   - Rear view mirror (left and right) ②

③ Screw
④ Nut
⑤ Cap
⑥ Damper



3. Remove:
   - Air intake ducts (left and right) ①
   - Upper cowling ②

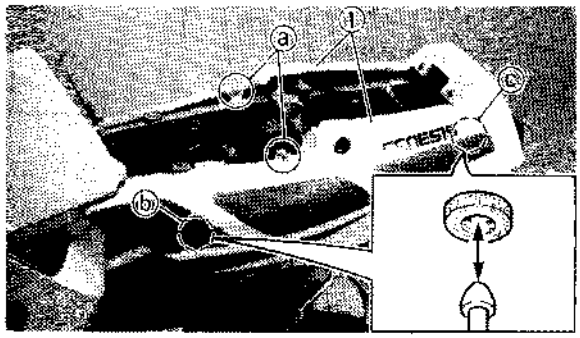
③ Screw
④ Nut



4. Remove:
   - Headlight covers (left and right) ①
5. Disconnect:
   - Headlight couplers (left and right) ②

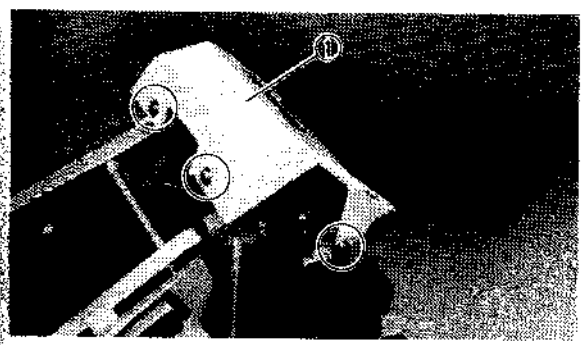
Covers

1. Remove:
   - Seats (front and rear)
   - Side covers (left and right) ①

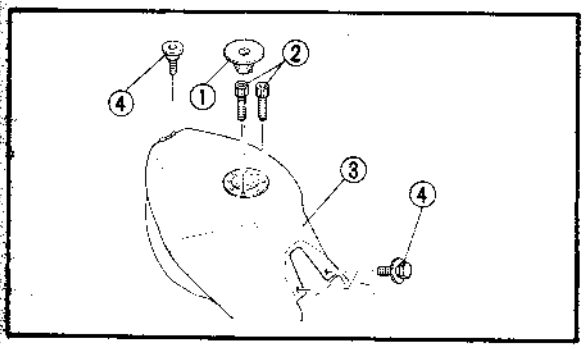


Removal Steps:
- Remove the screws ⓐ.
- Unhook the projections ⓑ, ⓒ on the side cover from the frame – grommets.
- Unhook the hooks ⓓ on the side cover the slot in the trail cover.





2. Remove:
   - Tail cover ①

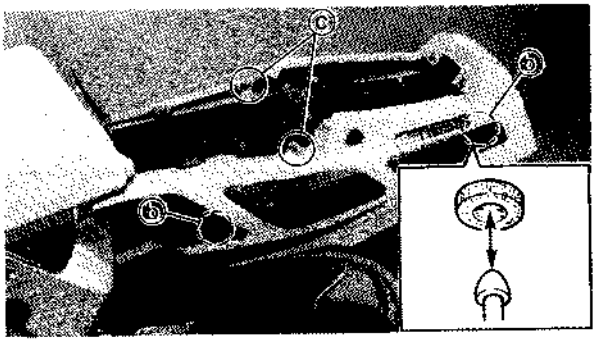


3. Remove:
   - Fuel tank cap ①
   - Socket head bolt ②
   - Top cover ③

NOTE:
It is necessary to remove the two bolts ② as shown to remove the top cover.

④ Bolts





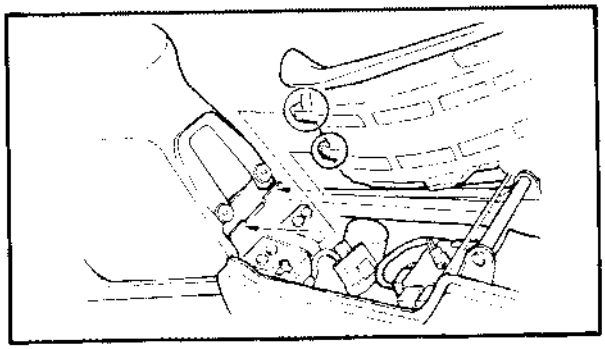
INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

Covers

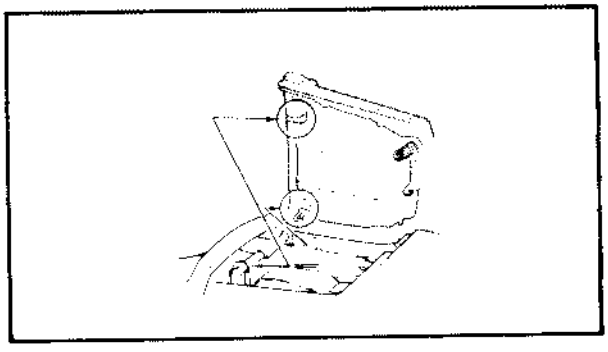
1. Install:
   - Side covers (left and right)

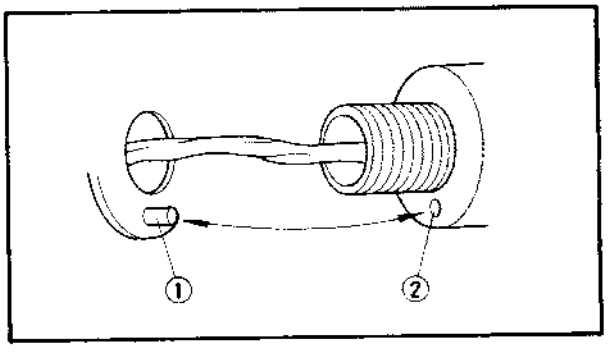
Installation Steps:
- Hook the hook ⓐ on the side cover into the slot in the tail cover.
- Insert the projections ⓑ, on side cover into the grommets.
- Install the screw ⓒ.



2. Install:
   - Seat

NOTE:
- Make sure that the seat is securely fitted.
- When reinstalling the seat, insert the lobes on the seat front into the receptacles on the frame, then push down the seat.



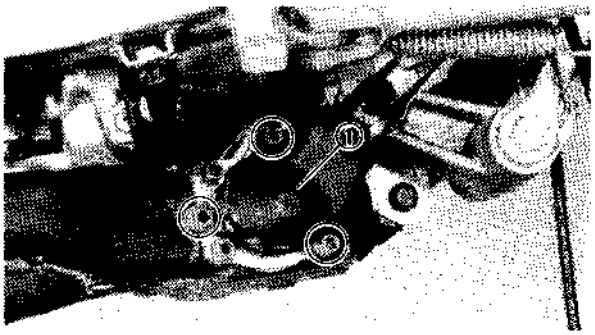


3. Install:
   - Flasher light (left and right)

NOTE:
- Make sure the projection ① on the flasher light stay are meshed with hole ② in the flasher light.
- For flasher lights, on the left side install the chocolate lead. Next, install the dark green lead on the right side.

4. Connect:
   - Flasher light leads
   - Headlight leads

NOTE:
The leads of identical colors should be connected.



ENGINE

EXUP CABLE ADJUSTMENT (For California only)

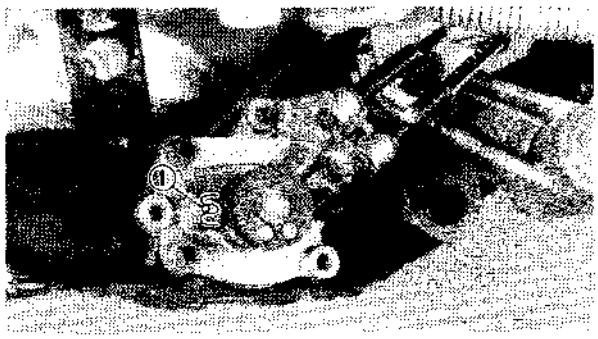
1. Remove:
   - Lower cowling (left)
   - Seat

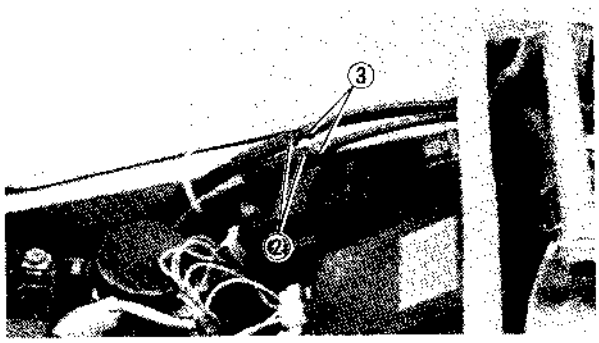
   Refer to the "COWLINGS COVERS REMOVAL AND INSTALLATION" section.
2. Remove:
   - Valve cover ①
3. Turn on the main switch.

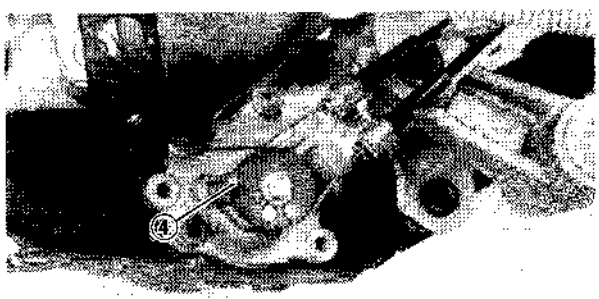
NOTE:
If does not operate EXUP servo motor, refer to the "EXUP SYSTEM" section in the CHAPTER 8.

4. Check:
   - Alignment mark ①

   Not aligned → Adjust EXUP cables.
5. Adjust:
   - EXUP cables



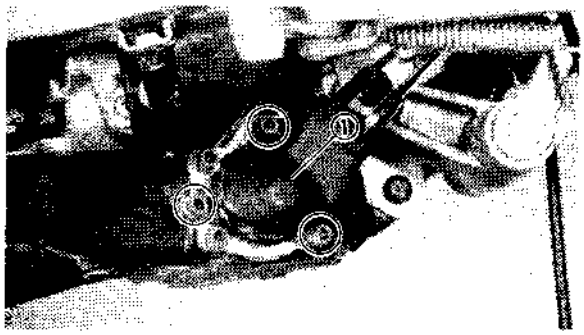




Adjustment steps:
- Loosen both locknuts ② and turn in both adjusters ③.
- Insert a [ϕ4 mm (ϕ0.16 in)] pin ④ through the alignment in the pulley and into the hole.
- Turn both adjusters counterclockwise by hand until any free play present in the cables has been eliminated.
- Turn both adjusters 1/2 turn clockwise.
- Tighten the locknuts.

Locknuts:
8 Nm (0.8 m·kg, 5.8 ft·lb)

- Remove the pin.
- Turn off the main switch, then turn the EXUP pulley (servo motor) back in the direction indicated by the arrow until it steps.
- Turn on the main switch once, and check that the alignment is set properly. If not, repeat the steps described above.



6. Install:
   - Valve cover ①

	Bolts (valve cover): **10 Nm (1.0 m · kg, 7.2 ft · lb)**

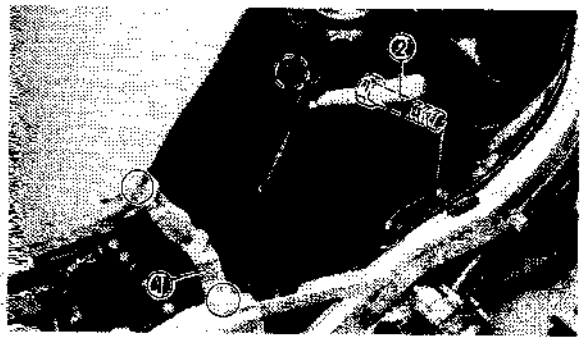
VALVE CLEARANCE ADJUSTMENT

⚠ WARNING:

The engine must be cool before servicing the valve clearance.

NOTE:

Measure and adjust valve clearance when piston is at TDC on compression stroke.

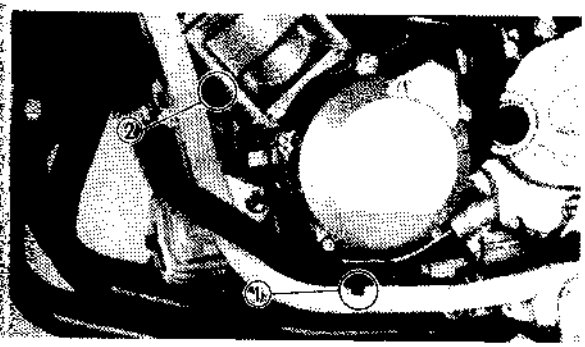


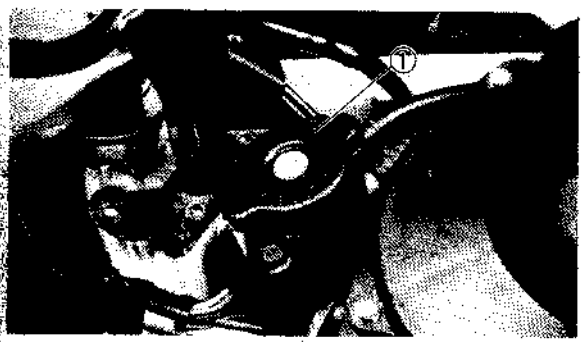
Removal

1. Remove:
   - Side cowlings
   - Top cover

   Refer to "COWLINGS/COVERS REMOVAL AND INSTALLATION" section.
2. Remove:
   - Fuel tank bracket ①
   - Bolt (fuel tank) ②

   Lift up the fuel tank.
3. Place a drain pan under the drain bolts.
4. Remove:
   - Drain bolt (outlet pipe) ①
   - Drain bolt (cylinder) ②

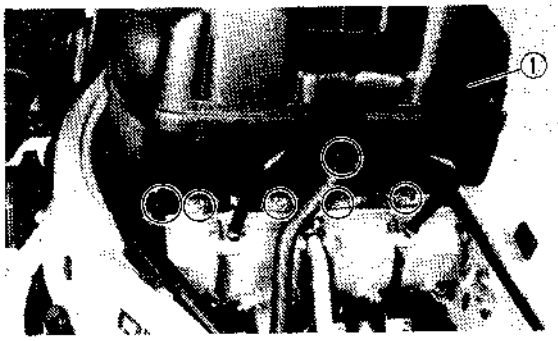




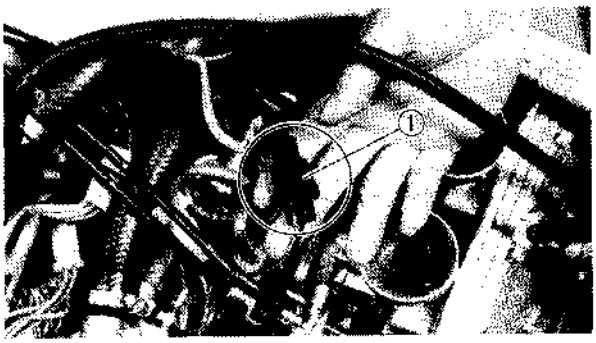
5. Remove:
   - Radiator cap ①

6. Drain:
   - Cooling system

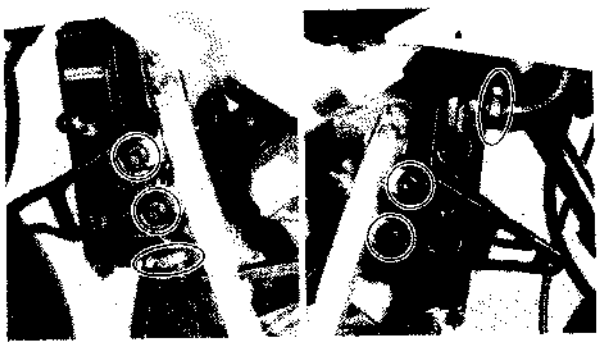
   Refer to the "COOLANT REPLACEMENT" section.



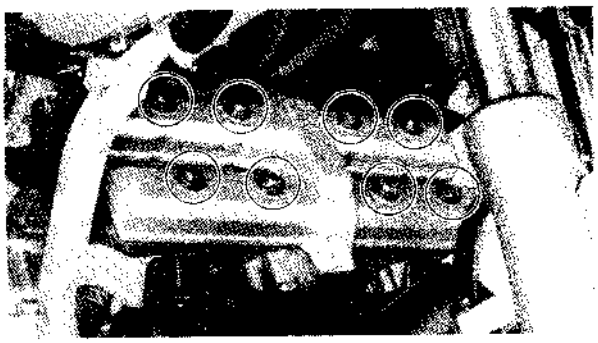
7. Loosen:
   - Screw (air filter case – carburetor)
8. Remove:
   - Air filter case ①



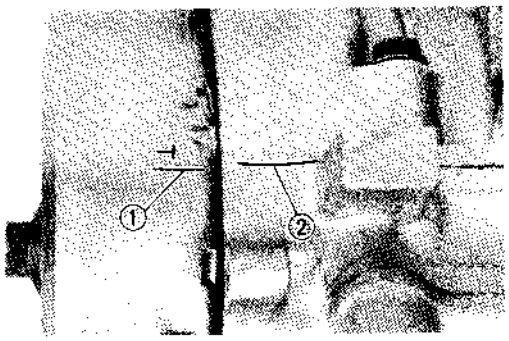
9. Disconnect:
   - Fan motor coupler ①



10. Disconnect:
    - Hose (radiator – inlet)
    - Hose (radiator – outlet)
11. Remove:
    - Radiator



12. Remove:
    - Spark plug leads
    - Cylinder head cover
    - Generator cover

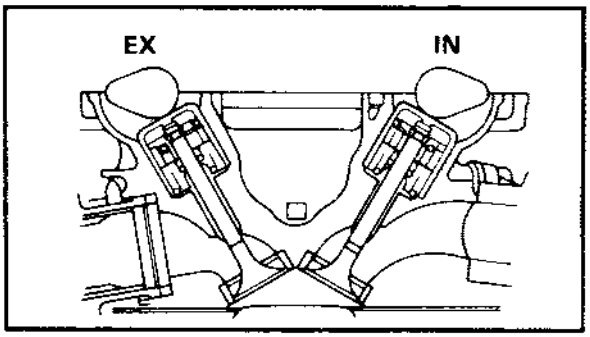


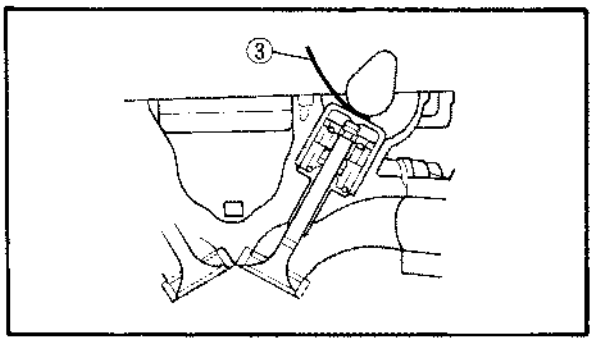
Adjustment

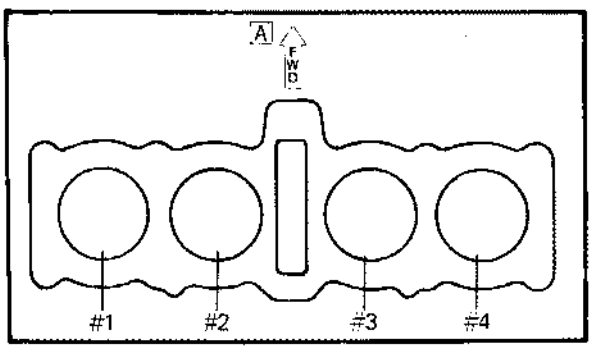
Valve Clearance Measurement

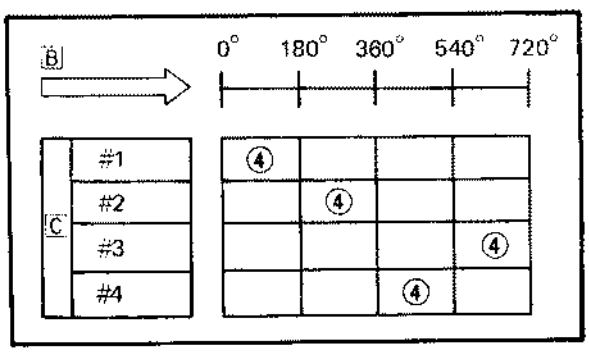
1. Measure:
   - Valve clearance

Valve Clearance Measurement Steps:
- Turn the crankshaft counterclockwise.
- Align the "T" mark ① on the magneto with the crankcase end ② when #1 piston is at TDC on compression stroke.









NOTE:

Compression TDC can be found when the cam lobes are apart from each other, as shown.

- Measure the valve clearance using thickness gauge ③ .
  Out of specification → Adjust valve clearance.

Intake valve (cold):
0.11 ~ 0.20 mm (0.004 ~ 0.008 in)
Exhaust valve (cold):
0.21 ~ 0.30 mm (0.008 ~ 0.012 in)

- Record the measured amount it the clearance is incorrect.
- Measure the valve clearance in sequence, for #2, 4 and #3 cylinders.
  Out of specification → Adjust valve clearance.

Firing sequence:
#1 → #2 → #4 → #3

A Front

NOTE:

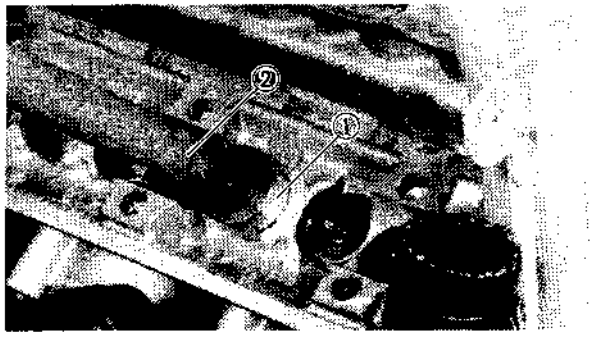
Turn the crankshaft each degrees counterclockwise from #1 Cylinder TDC.

#2 Cylinder	180 degrees
#4 Cylinder	360 degrees
#3 Cylinder	540 degrees

B Crankshaft counterclockwise turning angle
C Cylinder
④ Combustion

Adjusting Pad Replacement

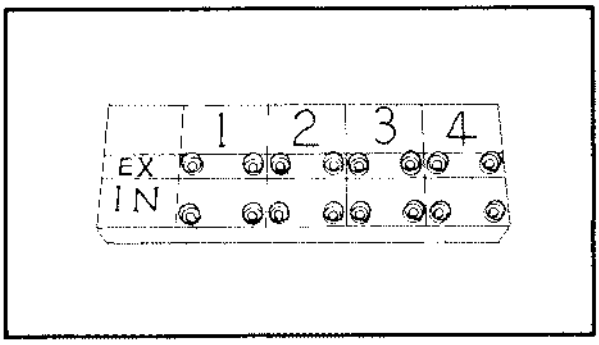
1. Remove:
   - Timing chain tensioner
   - Chain guide (upper)
   - Chain guide (exhaust side)
   - Camshaft caps (exhaust and intake)
   - Timing chain
   - Cam shafts (intake and exhaust)



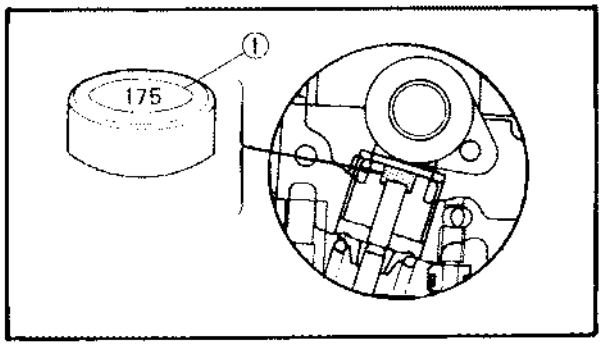
NOTE:
Refer to the "ENGINE DISASSEMBLY CAMSHAFT AND CYLINDER HEAD – Procedure 2", in the CHAPTER 4.
Fasten the wire to the timing chain to prevent it from falling into the crankcase.

2. Remove:
   - Valve lifter ①
   - Pad

   Use valve lapper ② .
   Record the installed pad number.



NOTE:
- Place a rug in the timing chain room to prevent the pad from falling into the crankcase.
- Identify each valve lifter and pad position very carefully so that it can be reinstalled in its original place.



3. Select:
   - Proper pad

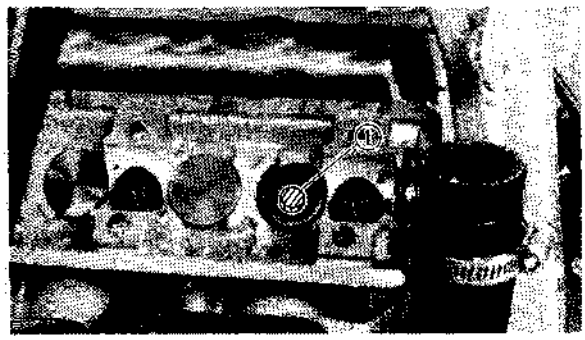
Selection steps:
- Select the proper pad from the table:

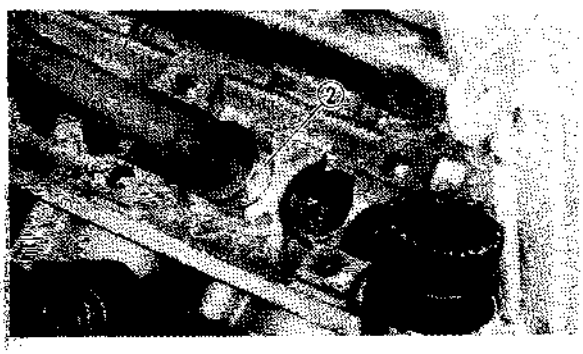
Pad range		Pad availability: 25 increments
No. 120 ~ No 240	1.20 mm (0.047 in) 2.40 mm (0.094 in)	Pads stepped in 0.05 mm (0.002 in) increments

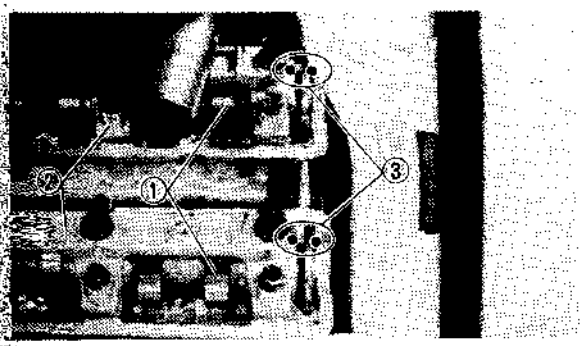
NOTE:
Thickness ① of each pad is marked on the pad top surface.

- Round off the hundredths digit of the installed pad number to the nearest 0.05 mm increment.

Hundredths digit	Rounded valve
0 or 2	0
5	(NOT ROUNDED OFF)
8	10







EXAMPLE:
Installed pad number = 148 (1.48 mm)
Rounded off digit = 150

NOTE:
Pads can only be selected in 0.05 mm (0.002 in) increments.

- Locate the "Rounded off Pad Number" on the chart, and then find the measured valve clearance. The point where these coordinates intersect is the new pad number.

NOTE:
Use the new pad number as a guide only as the number must be verified.

4. Install:
   - Pad (new) ①
5. Install:
   - Valve lifter ②

NOTE:
- Apply molybdenum disulfide grease to the pad and valve lifter.
- Valve lifter must be rotated smoothly by a finger.
- Each valve lifter and pad position very carefully so that its original place.

6. Install:
   - Camshaft (exhaust and intake) ①
   - Timing chain
   - Camshaft caps ②

   Refer to "ENGINE ASSEMBLY AND ADJUSTMENT – CAMSHAFT" section in the CHAPTER 4.

Bolts (camshaft cap):
10 Nm (1.0 m · kg, 7.2 ft · lb)

NOTE:
- Install the exhaust camshaft first.
- Align the matching marks ③.
- Apply molybdenum disulfide grease to the camshafts and cam caps.

INTAKE

B MEASURED CLEARANCE	A 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	RECOMMENDED CLEARANCE																								
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 (cold):
0.11 ~ 0.20 mm (0.004 ~ 0.008 in)
Installed is 148 (Rounded off number is 150)
Measured clearance is 0.24 mm (0.009 in)
Replace 148 pad with 160 pad

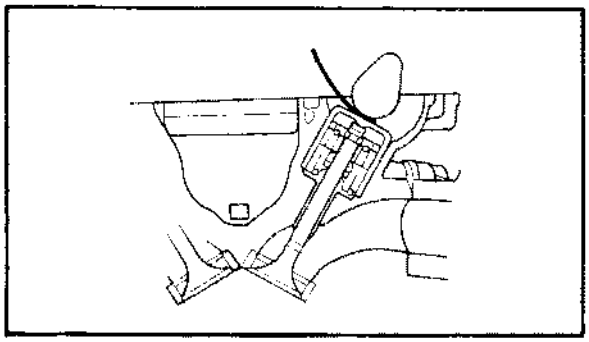
EXHAUST

B MEASURED CLEARANCE	A 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 ~ 0.30	RECOMMENDED CLEARANCE																								
0.31 ~ 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:

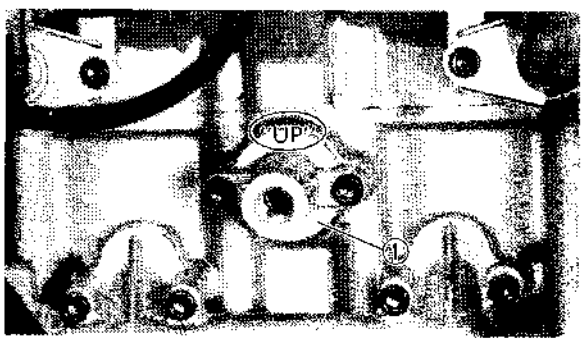
VALVE CLEARANCE (cold):
0.21 ~ 0.30 mm (0.008 ~ 0.012 in)
Installed is 175
Measured clearance is 0.35 mm (0.014 in)
Replace 175 pad with 185 pad

NOTE:
- Refer to the "ENGINE ASSEMBLY AND ADJUSTMENT – CYLINDER HEAD AND CAMSHAFT" section in the CHAPTER 4.
- Lubricate the crankshaft bearing surfaces cam lobes and cam journals with engine oil.
- Turn the crankshaft counterclockwise several turns for the installed parts to settle into the correct position.



6. Measure:
   - Valve clearance

Valve clearance verification steps:
- Follow the valve clearance measurement steps.
- If the clearance is incorrect, repeat all Adjusting Pad Replacement steps until the proper clearance is obtained.



Installation

Reverse the "REMOVAL" procedure.

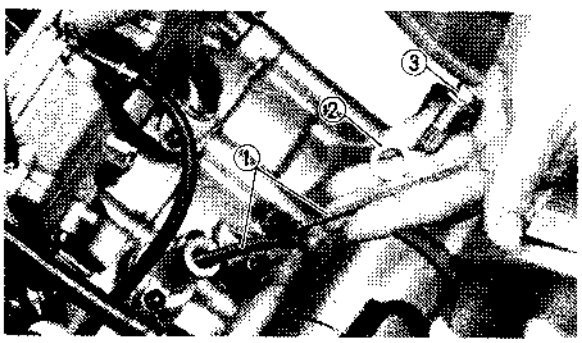
Note the following points.

1. Install:
   - Timing chain tensioner ①

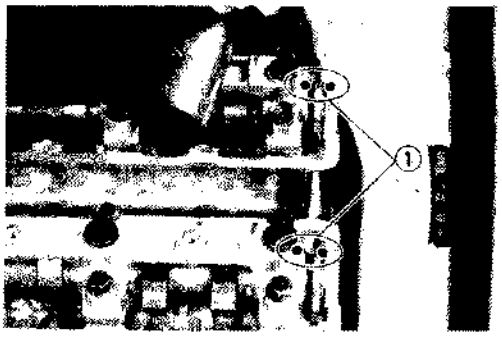
NOTE:

Install the Timing chain tensioner with the "UP" mark facing upward.

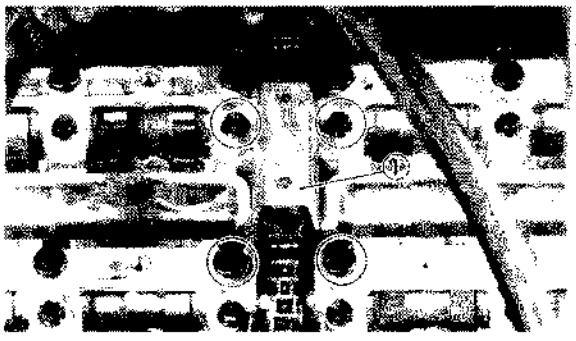
Bolts (cam chain tensioner):
10 Nm (1.0 m · kg, 7.2 ft · lb)



2. Install:
   - Spring ①
   - Washer ②
   - Timing chain tensioner cap ③



3. Recheck:
   • Align the matching marks ① .



4. Install:
   • Chain guide (upper) ①
   • Chain guide (exhaust side)

	Bolts (chain guide): **10 Nm (1.0 m · kg, 7.2 ft · lb)**

5. Install:
   • Cylinder head cover

	Bolts (cylinder head cover): **10 Nm (1.0 m · kg, 7.2 ft · lb)**

6. Fill:
   • Cooling system
   Refer to "COOLANT REPLACEMENT".

	Recommended coolant: **High quality ethylene glycol anti-freeze containing anti-corrosion for aluminum engine inhibitors** **Coolant and water mixed ratio:** **50%/50%** **Total amount:** **2.3 L (2.0 Imp qt, 2.4 US qt)**

CARBURETOR SYNCHRONIZATION

Carburetors must be adjusted to open and close simultaneously.

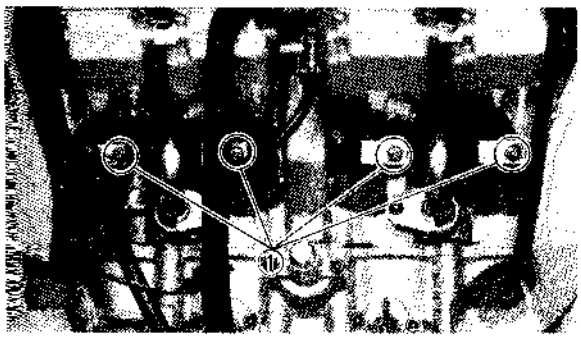
NOTE:

Valve clearance must be set properly before synchronizing the carburetors.

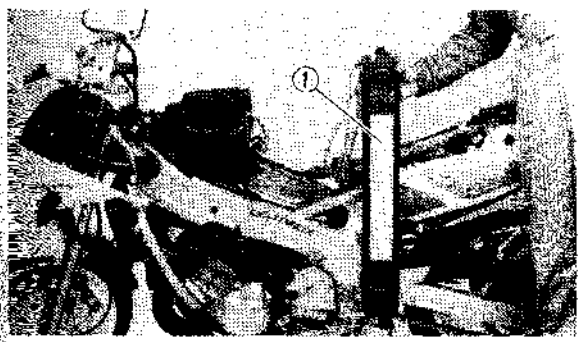
1. Remove:
   - Side cowlings
   - Seat

   Refer to the "COWLING/COVERS REMOVAL AND INSTALLATION – REMOVAL" section.
2. Remove:
   - Fuel tank

   Refer to the "CARBURETOR - REMOVAL" section in the CHAPTER 6.
3. Remove:
   - Vacuum plugs ①

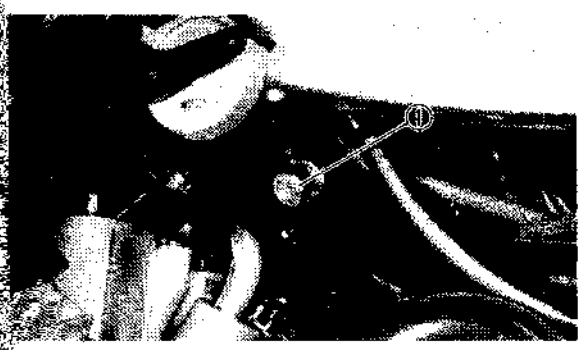


4. Attach
   - Vacuum gauge ①
   - Sub tank



Vacuum gauge:
P/N YU-08030
90890-03094

5. Start the engine and let it warm up.

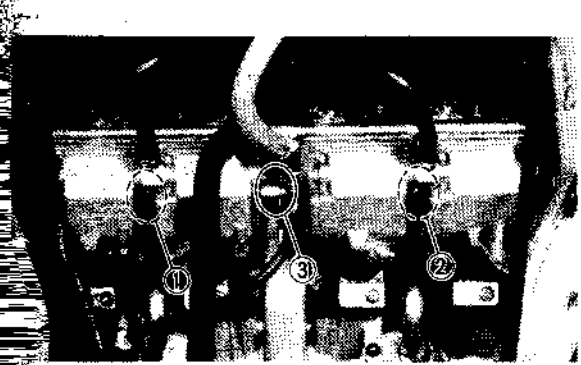


6. Adjust:
   - Idle speed

   Turn the throttle stop screw ①.

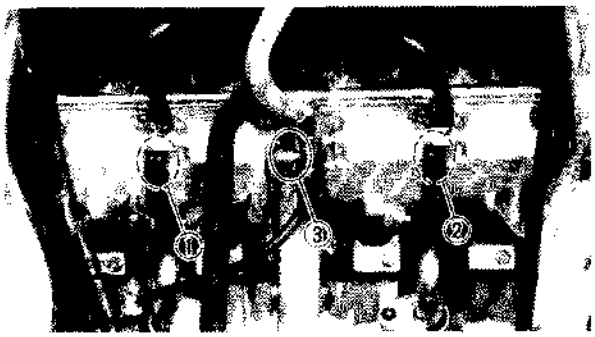
Turn in	**Engine speed is increased.**
Turn out	**Engine speed is decreased.**

Idle speed:
1,150 ~ 1,250 r/min
1,250 ~ 1,350 r/min (FZR600WC)



7. Adjust:
   - Carburetors synchronization

Adjustment steps:
- Lift up the front of fuel tank.
- Synchronize carburetor #1 to carburetor #2 by turning synchronizing screw ① until both gauges read the same.



- Racing the engine for less than a second, two or three times, and check the synchronization again.

Vacuum pressure at idle speed:
20.73 ~ 21.93 kPa
(155 ~ 165 mmHg, 6.10 ~ 6.50 inHg)
Vacuum synchronous difference:
1.33 kPa (10 mmHg, 0.4 inHg)

- Repeat the above steps to synchronize carburetor #4 to carburetor #3 by turning synchronizing screw ② until both gauges read the same.
- Repeat the same steps to synchronize #2 carburetor to #3 carburetor by turning synchronizing screw ③ until both gauges read the same.

8. Adjust:
   - Idle speed
9. Install:
   - Vacuum plug
   - Fuel tank
   - Seat
   - Side cowlings

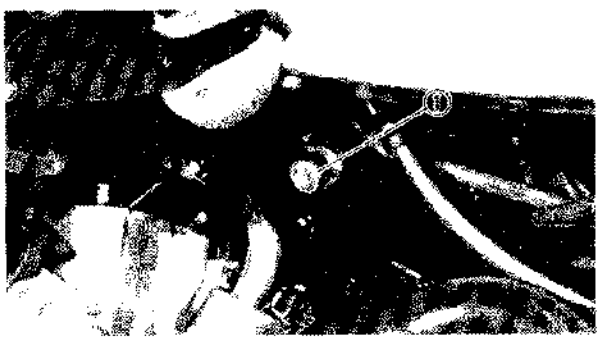
   Refer to "COWLINGS AND COVERS REMOVAL, AND INSTALLATION.

IDLE SPEED ADJUSTMENT

NOTE:
Before adjusting the idle speed, the carburetors synchronization should be adjusted.

1. Start the engine and let it warm up.
2. Inspect:
   - Idle speed

   Out of specification → Adjust.

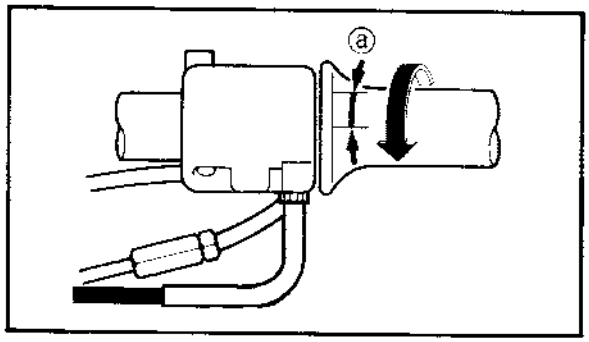


Idle speed:
1,150 ~ 1,250 r/min
1,250 ~ 1,350 r/min (FZR600WC)

3. Adjust:
   - Idle speed

   Turn the throttle stop screw ① .

Turn in	Engine speed is increased.
Turn out	Engine speed is decreased.



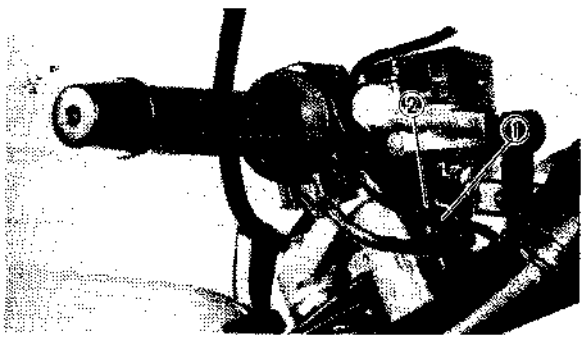
THROTTLE CABLE FREE PLAY ADJUSTMENT

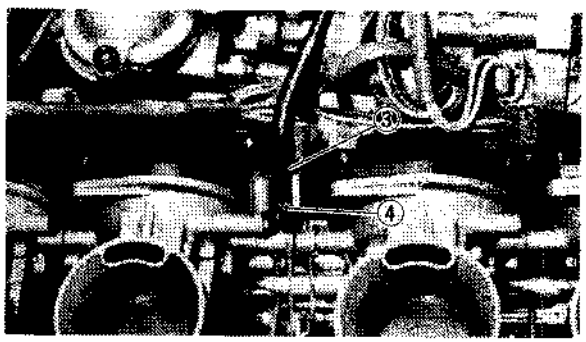
NOTE:

Before adjusting the throttle cable free play, the engine idle speed should be adjusted.

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

Throttle cable free play (on grip flange)
3 ~ 7 mm (0.12 ~ 0.28 in)





2. Adjust:
   - Throttle cable free play

Adjustment steps:

First step:

- Remove the seat, top cover and air filter case.
- Make sure that the adjuster ① and locknut ② on the throttle housing side are fully tightened.
- Loosen the locknut ③ on the carburetor side.
- Turn the adjuster ④ in or out until the correct free play is obtained.

Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**

- Tighten the locknut ③.

Second step:

- If the free play is incorrect, adjust the throttle cable free play with the adjuster (throttle grip side).
- Loosen the locknut ②.
- Turn the adjuster ① in or out until the correct free play is obtained.

Turn in	Free play is increased.
Turn out	Free play is decreased.

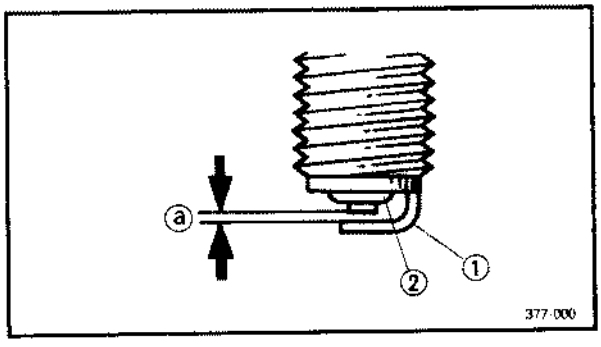
- Tighten the locknut ②.

NOTE:
After adjusting the free play, turn the handlebar to right and left, and make sure that the engine idling does not run faster.

- Install the air filter case, fuel tank and seat.

SPARK PLUG INSPECTION

⚠ CAUTION:
Before completely removing plug, use compressed air to clean the setting areas to prevent dirt particles from falling into the engine.

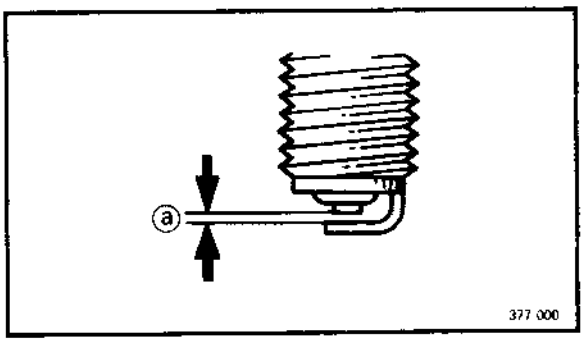


1. Inspect:
   - Electrode ①
     Wear/Damage → Replace.
   - Insulator color ②
     Normal condition is a medium to light tan color.
     Distinctly different color → Check the engine condition.

ⓐ Spark plug gap

2. Clean:
   - Spark plug
     Clean the spark plug with a spark plug cleaner or wire brush.
3. Inspect:
   - Spark plug type
     Incorrect → Replace.

Standard spark plug:
CR9E (NGK),
U-27ESR-N (NIPPON DENSO)



4. Measure:
   • Spark plug gap ⓐ
   Out of specification → Regap.
   Use a wire gauge.

Spark plug gap:
0.7 ~ 0.8 mm (0.028 ~ 0.032 in)

5. Tighten:
   • Spark plug

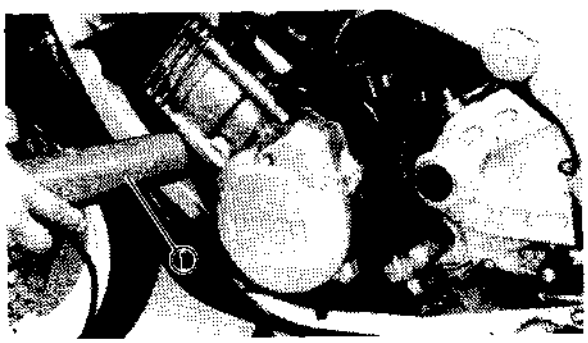
NOTE:
Before installing a spark plug, clean the gasket surface and plug surface.

Spark plug:
13 Nm (1.3 m · kg, 9.4 ft · lb)

NOTE:
If a torque wrench is not available when you are installing a spark plug, a good estimate of the correct torque is 1/4 to 1/2 turns part finger tight. Have the spark plug torqued to the correct value as soon as possible with a torque wrench.

IGNITION TIMING CHECK

1. Remove:
   • Side cowlings
   Refer to the "COWLING/COVERS REMOVAL AND INSTALLATION" section.
2. Remove:
   • Plug (Generator cover)

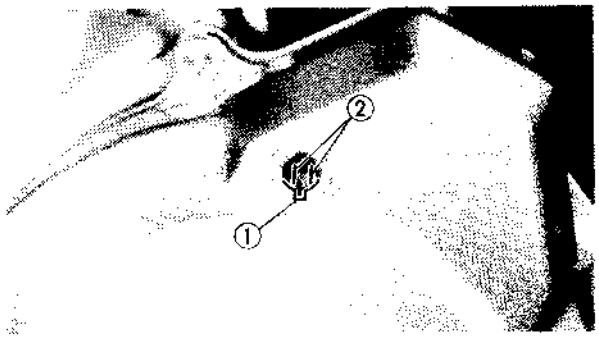


3. Correct:
   • Timing light ①
   To the #1 spark plug lead.
   • Inductive tachometer

Timing light:
P/N YU-33223
90890-03109
Inductive tachometer:
P/N YU-08036
90890-03113

4. Warm up the engine and allow it to idle at the specified speed.

	Engine idle speed: **1,150 ~ 1,250 r/min**



5. Check:
   - Ignition timing
     Visually check the stational pointer ① is within the firing range ② on the magneto.
     Out of firing range → Check pickup assembly.

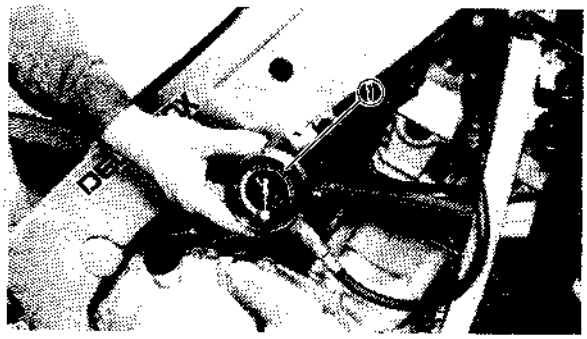
NOTE:
Ignition timing is not adjustable.

6. Install:
   - Generator cover

COMPRESSION PRESSURE MEASUREMENT

NOTE:
Insufficient compression pressure will result in performance loss.

1. Remove:
   - Side cowlings
     Refer to the "COWLING/COVERS REMOVAL AND INSTALLATION – REMOVAL" section.
2. Measure:
   - Valve clearance
     Out of specification → Adjust.
     Refer to the "VALVE CLEARANCE ADJUSTMENT" section.
3. Warm up the engine.
4. Remove:
   - Spark plugs



5. Measure:
   • Compression pressure

Measurement steps:
- Install the Compression Gauge ① using an adapter.
- Crank over the engine with the electric starter (be sure the battery is fully charged) with the throttle wide open until the compression reading on the gauge stabilizes.
- Check readings with specified levels (See chart).

Compression gauge:
P/N YU-33223
90890-03081

Comppression pressure (at sea level):
Standard:
1,100 kPa (11 kg/cm², 160 psi)
Minimum:
1,000 kPa (10 kg/cm², 145 psi)
Maximum:
1,150 kPa (11.5 kg/cm², 164 psi)

⚠ WARNING:

When cranking the engine, ground spark plug lead to prevent sparking.

- Repeat the previous steps for the other cylinders.
- If pressure falls bellow the minimum level:

1) Squirt a few drops of oil into the affected cylinder.
2) Measure the compression again.

Compression pressure (with oil introduced into cylinder)

Reading	Diagnosis
Higher than without oil	Worn or damaged pistons
Same as without oil	Defective ring(s), valves, cylinder head gasket or piston is possible.
Above maximum level	Inspect cylinder head, valve surfaces, or piston crown for carbon deposits.

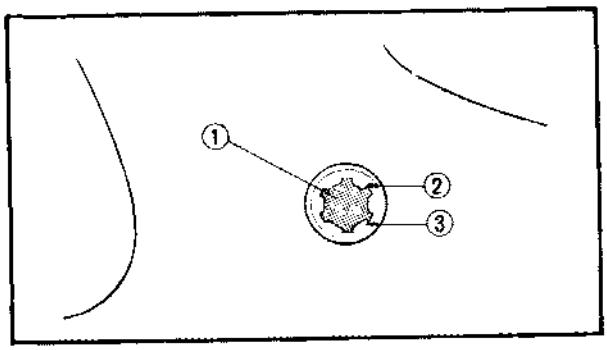
NOTE:
The difference between the highest and lowest cylinder compression readings must not vary more than the specified value.

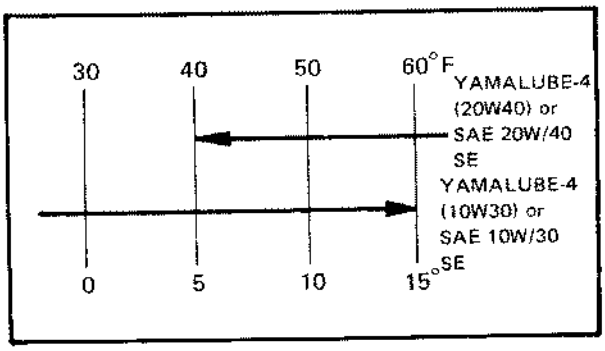
Difference between each cylinder:
Less than 100 kPa (1 kg/cm², 15 psi)

ENGINE OIL LEVEL INSPECTION

1. Place the motorcycle on its centerstand and warm up the engine for several minutes.

NOTE:
Position motorcycle straight up when checking oil level, a slight tilt to the side can produce false readings.





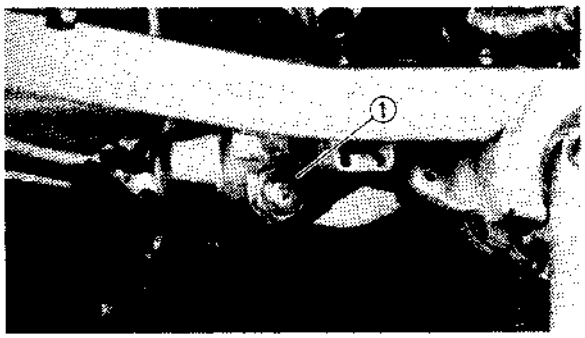
2. Stop the engine and visually check the oil level throught the level window ① .
3. Inspect:
   - Oil level
     Oil level should be between maximum ② and minimum ③ marks.
     Low oil level → Add oil to proper level.

NOTE:
Wait a few minutes until level settles before inspecting.

Recommended engine oil:
At 5°C (40°F) or higher:
YAMALUBE-4 (20W40) or
SAE 20W40 type SE motor oil
At 15°C (60°F) or lower:
YAMALUBE-4 (10W30) or
SAE 10W30 type SE motor oil

ENGINE OIL REPLACEMENT

1. Remove:
   - Side cowlings
     Refer to the "COWLING REMOVAL AND INSTALLATION" section.
2. Warm up the engine for several minutes.
3. Place a drain pan under the engine.
4. Remove:
   - Oil filler cap



5. Remove:
   • Drain plug ①
   Drain the engine oil.
6. Tighten:
   • Drain plug ①

Oil drain plug:
43 Nm (4.3 m · kg, 31 ft · lb)

7. Inspect:
   • O-ring (oil filler cap)
   • Gasket (drain plug)
   Damage → Replace.
8. Fill:
   • Crankcase

⚠ CAUTION:

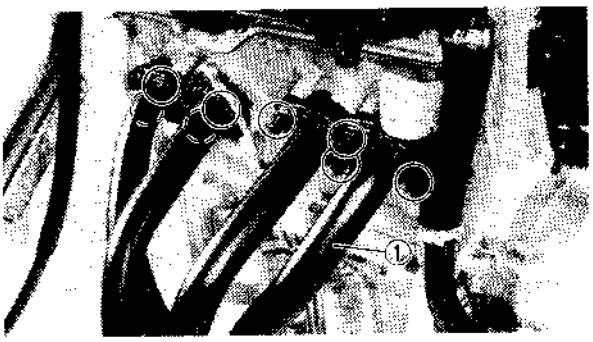
- **Do not add any chemical additives. Engine oil also lubricates the clutch and additives could cause clutch slippage.**
- **Be sure no foreign material enters the crankcase.**

Periodic oil change:
2.2 L (1.9 Imp qt, 2.4 US qt)
Recommended engine oil:
At 5°C (40°F) or higher:
YAMALUBE-4 (20W40) or
SAE 20W40 type SE motor oil
At 15°C (60°F) or lower:
YAMALUBE-4 (10W30) or
SAE 10W30 type SE motor oil

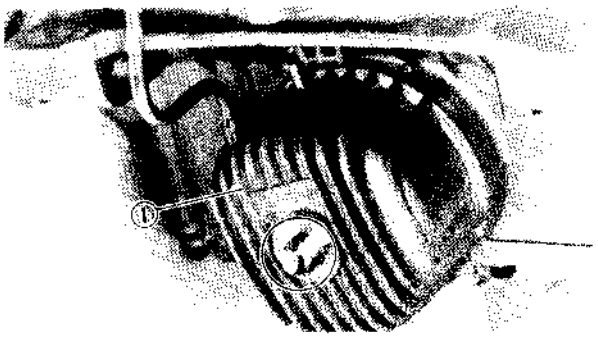
9. Install:
   • Oil filler cap
   • Side cowlings

ENGINE OIL FILTER REPLACEMENT

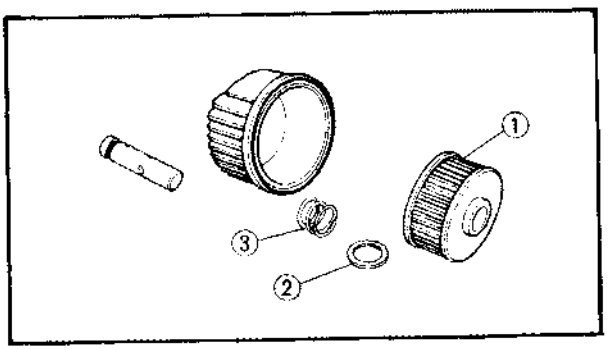
1. Remove:
   • Side cowlings
   Refer to the "COWLING/COVERS REMOVAL AND INSTALLATION" section.
2. Warm up the engine for several minutes.



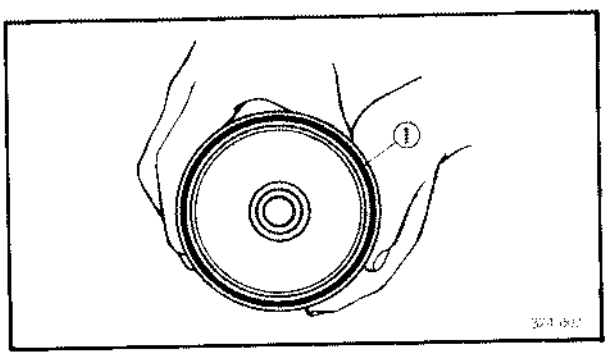
3. Remove:
   • Exhaust pipe ①
   Refer to the "ENGINE REMOVAL – MUFFLER ASSEMBLY" section in the CHAPTER 4.
4. Drain the oil.



5. Remove:
   • Oil filler cap
   • Bolt
   • Filter cover ①

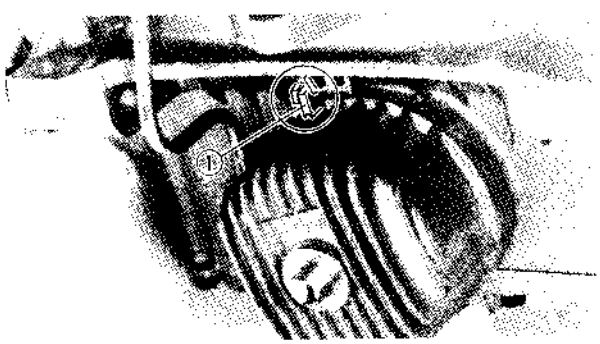


6. Remove:
   • Oil filter ①
   • Shim ②
   • Spring ③
7. Inspect:
   • O-ring
   Cracks/Damage → Replace.



8. Install:
   • O-ring (new) ①
   • Oil filter
   • Shim
   • Spring
   To oil filter cover.

NOTE:
Be sure the O-ring is positioned properly.



9. Install:
   • Oil filter cover

	Bolt (oil filter cover): **15 Nm (1.5 m · kg, 11 ft · lb)**

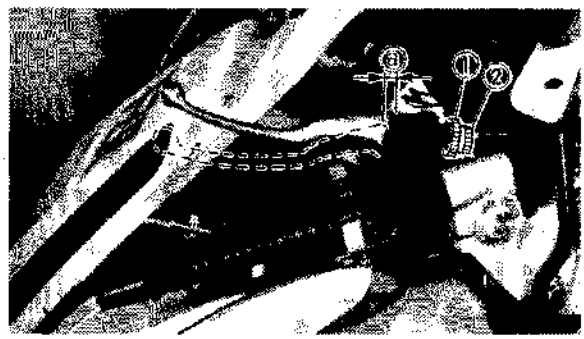
NOTE:
Mesh the oil filter cover projection ① with the crankcase slot.

10. Fill:
    - Crankcase

    Refer to "ENGINE OIL REPLACEMENT" Section for recommended engine oil.

	With oil filter replacement: 2.5 L (2.2 Imp qt, 2.64 US qt)

11. Warm up the engine for a few minutes, then stop the engine.
12. Observe:
    - Oil level
13. Install:
    - Side cowlings



CLUTCH ADJUSTMENT

1. Check:
    - Clutch lever free play ⓐ

    Out of specification → Adjust.

	Free play: 2 ~ 3 mm (0.08 ~ 0.12 in)

2. Adjust:
    - Clutch lever free play

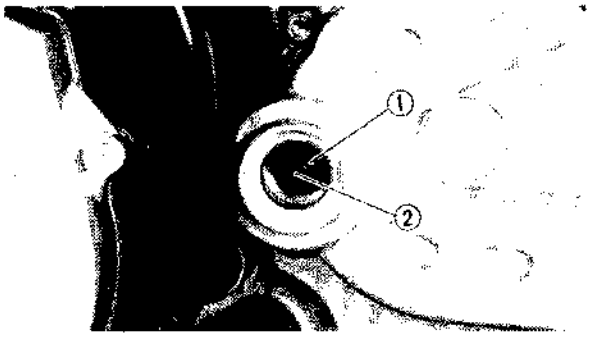
Adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② in or out until the specified free play is obtained.

Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**

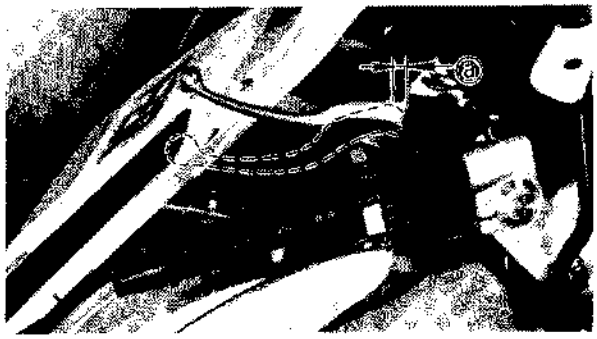
- Tighten the locknut.

NOTE:

Normally, once the clutch cable length adjuster (crankcase) is properly set; the only adjustment required is maintenance of free play at the clutch cable length adjuster (handlebar lever).

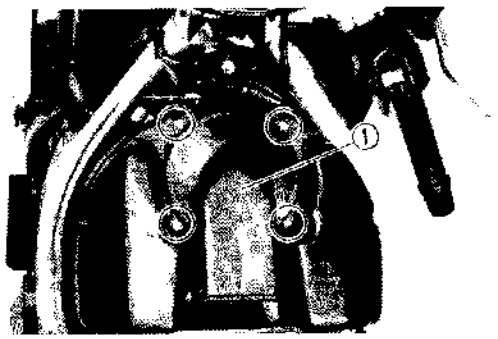


3. Remove:
   - Side cowlings
   - Cover
4. Loosen:
   - Locknut ①
5. Screw in adjuster ② until lightly tight and back it out 1/4 turn.
6. Tighten:
   - Locknut ①



7. Check:
   - Clutch lever free play ⓐ

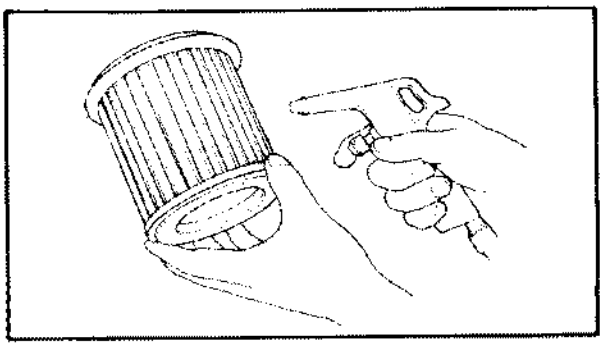
Free play:
2 ~ 3 mm (0.08 ~ 0.12 in)



AIR FILTER CLEANING

1. Remove:
   - Seat
   - Top cover

   Refer to the "COWLING/COVERS REMOVAL AND INSTALLATION" section.
2. Remove:
   - Air filter case cover ①
   - Air filter element



⚠ CAUTION:

The engine should never be run without the air filter element installed; excessive piston and/or cylinder wear may result.

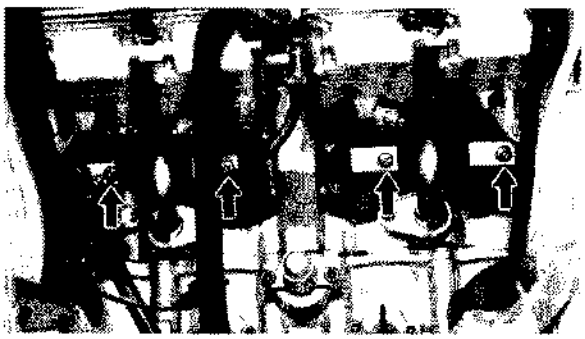
3. Clean:
   - Air filter element

   Blow out dust in the element from the outer surface using compressed air.
4. Inspect:
   - Air filter element

   Damage → Replace.
   - Sealing rubber

   Damage → Replace.
5. Install:
   - Air filter element
   - Air filter case cover
   - Top cover
   - Seat

NOTE:
When installing the element in its case, be sure its sealing surface matches the sealing surface on the case so there is no air leak.



CARBURETOR JOINT INSPECTION

1. Remove:
   - Fuel tank
   - Air filter case

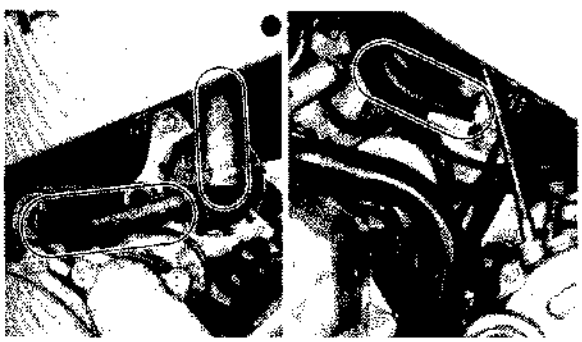
   Refer to the "CARBURETOR – REMOVAL" section in the CHAPTER 6.
2. Inspect:
   - Carburetor joint

   Cracks/Damage → Replace.

FUEL LINE INSPECTION

1. Remove:
   - Side cowlings

   Refer to the "COWLINGS/COVERS REMOVAL AND INSTALLATION" section.

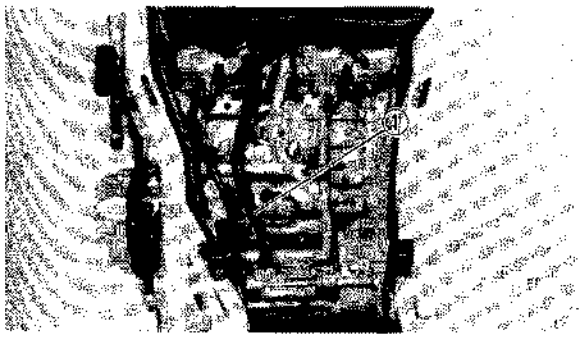


2. Inspect:
   - Fuel hoses

     Cracks/Damage → Replace.
   - Fuel filter

     Contamination/Damage → Replace.

NOTE:
Drain and flush the fuel tank if abrasive damage to any components is evident.

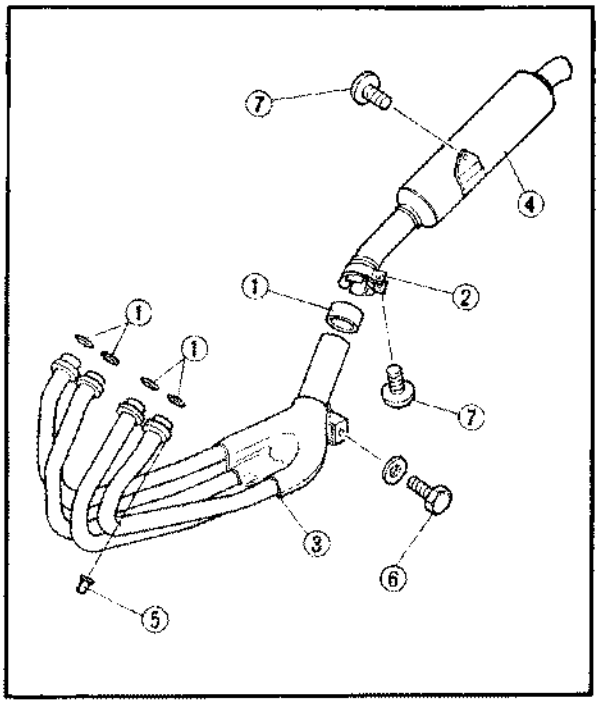


CRANKCASE VENTILATION HOSE INSPECTION

1. Remove:
   - Seat
   - Top cover

   Refer to the "COWLING/COVERS REMOVAL AND INSTALLATION – REMOVAL" section.
2. Inspect:
   - Crankcase ventilation hose ①

     Cracks/Damage → Replace.



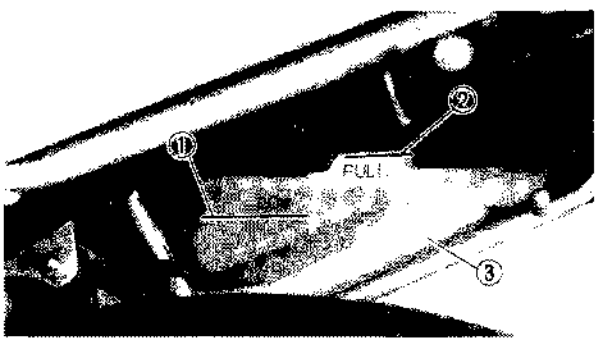
EXHAUST SYSTEM INSPECTION

1. Inspect:
   - Gasket (exhaust pipe) ①
   - Joint (silencer) ②
     Damage → Replace.
     Exhaust gas leakage → Repair.
   - Exhaust pipe ③
   - Silencer ④
     Cracked/Dent/Damage → Repair or replace.
2. Tighten:
   - Exhaust pipe
   - Muffler

Nut (exhaust pipe) ⑤ :
10 Nm (1.0 m · kg, 7.2 ft · lb)
Bolt (muffler stay) ⑥ :
20 Nm (2.0 m · kg, 14 ft · lb)
Exhaust pipe joint ⑦ :
20 Nm (2.0 m · kg, 14 ft · lb)

COOLANT LEVEL INSPECTION

1. Remove:
   - Seat
   - Side cover (right)
     Refer to the "COWLINGS/COVERS REMOVAL AND INSTALLATION" section.



2. Inspect:
   - Coolant level
     Coolant level is under "LOW" level line ① → Add soft water (tap water).

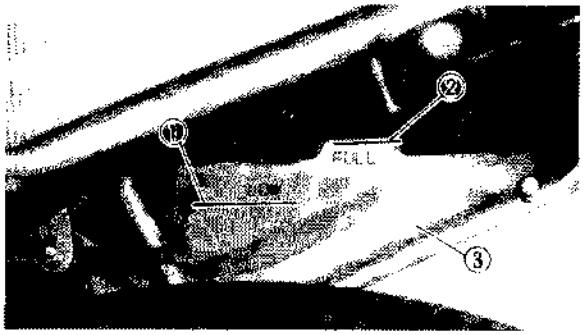
② "FULL" level
③ Coolant reservoir tank

⚠ WARNING:

Do not remove the radiator cap when the engine is hot.

⚠ CAUTION:

Hard water or salt water is harmful to the engine parts; use boiled or distilled water if you can't get soft water.



3. Add:
   - Soft water (tap water)

   Until the coolant level reaches "FULL" Level line ③.

Reservoir tank capacity:
Total:
0.28 L (0.25 Imp qt, 0.30 US qt)
From "LOW" to "FULL" level:
0.18 L (0.16 Imp qt, 0.19 US qt)

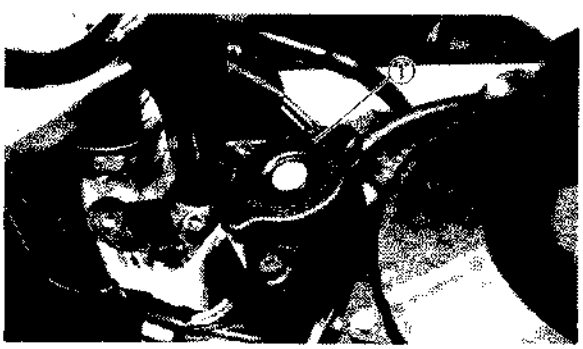
4. Install:
   - Side cover (right)
   - Seat

   Refer to the "COWLINGS/COVERS REMOVAL AND INSTALLATION" section.

COOLANT REPLACEMENT

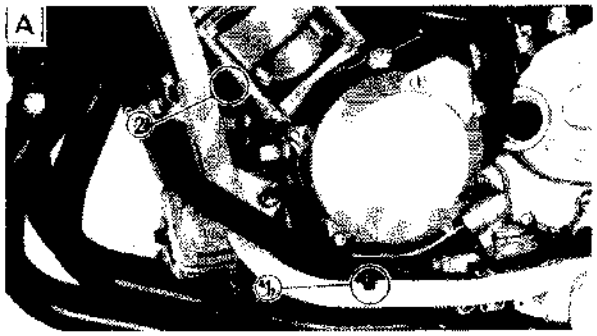
⚠ WARNING:

Do not remove the radiator cap when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, open the radiator cap by the following procedure:
Place a thick rag, like a towel, over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap.while turning counterclockwise and remove it.

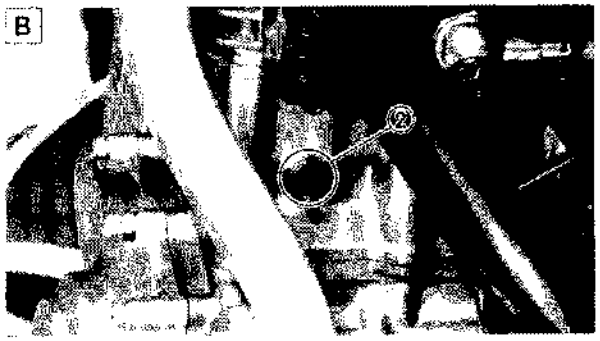


1. Remove:
   - Side cowlings (left and right)
   - Top cover

   Refer to the "COWLINGS/COVERS REMOVAL AND INSTALLATION" section.
2. Remove:
   - Radiator cap ①



3. Place a drain pan under the drain bolts.
4. Remove:
   • Drain bolt (outlet pipe) ①



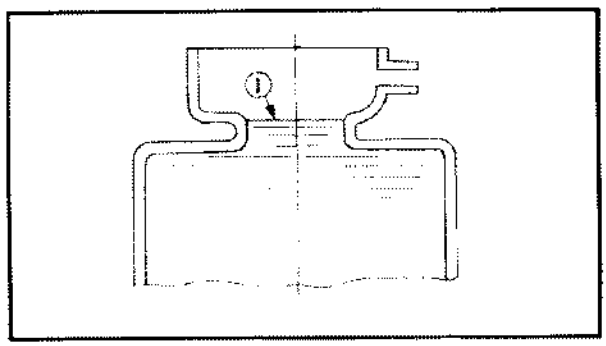
5. Remove:
   • Drain bolt (cylinder) ②
   Drain the coolant.

A. LEFT B. Right

NOTE:
Remove the drain bolts first, then remove the radiator cap to prevent the coolant spilling.

6. Inspect:
   • Gasket (drain bolts – cylinder)
   • Gasket (drain bolt – outlet pipe)
   Damage → Replace.
7. Tighten:
   • Drain bolts

	Drain bolt: **10 Nm (1.0 m · kg, 7.2 kg · in)**



8. Fill:
   • Cooling system

Coolant filling steps:
- Fill the coolant into the radiator until the radiator is full.
- Start the engine (coolant level decreases).

⚠ CAUTION:
Always check coolant level, and check for coolant leakage before starting engine.

- Add the coolant while engine is running.
- Stop the engine when coolant level stabilizes.
- Add the coolant again to specified level ① .
- Install the radiator cap.

Recommended coolant:
High quality ethylene glycol anti-freeze containing anti-corrosion for aluminum engine inhibitors

Coolant and water mixed ratio:
50%/50%

Total amount:
2.2 L (1.9 Imp qt, 2.3 US qt)

Reservoir tank capacity:
0.28 L (0.25 Imp qt, 0.30 US qt)

From "LOW" to "FULL" level:
0.18 L (0.16 Imp qt, 0.19 US qt)

Handling notes of coolant:
The coolant is harmful so it should be handled with special care.

⚠ WARNING:

- When coolant splashes to your eye.
  Thoroughly wash your eye with water and see your doctor.
- When coolant splashes to your clothes.
  Quickly wash it away with water and then with soap.
- When coolant is swallowed.
  Quickly make him vomit and take him to a doctor.

⚠ CAUTION:

- Hard water or salt water is harmful to the engine parts; use boiled or distilled water if you can't get soft water.
- Do not use water containing impurities or oil.
- Take care so that coolant does not splash to painted surfaces. If splashes, wash it away with water.

9. Install:
   - Inner cover (right)
   - Air intake duct (right)
   - Front cover
   - Side cowlings (left and right)
     Refer to the "COWLINGS/COVERS REMOVAL AND INSTALLATION" section.