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# PERIODIC INSPECTION AND ADJUSTMENT

## 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.

## PERIODIC MAINTENANCE/LUBRICATION INTERVALS

ITEM	REMARKS	Unit: km (miles)		
		BREAK-IN	EVERY	EVERY
Valve(s)*	Check valve clearance. Adjust if necessary.	1,000 (600)	6,000 (4,000) or 12,000 (8,000) or 6 months/12 months	12,000 (8,000) or 24,000 (16,000) or 24 months/36 months
Spark plug(s)	Check condition. Clean or replace if necessary.			
Air filter	Clean. Replace if necessary.			
Carburetor*	Check idle speed/starter operation. Adjust if necessary.			
Fuel line*	Check fuel hose for cracks or damage. Replace if necessary.			
Engine oil	Replace (Warm engine before draining).			
Engine oil filter*	Replace.			
Engine oil strainer*	Clean.			
Brake*	Check operation/fluid leakage/See NOTE. Correct if necessary.			
Clutch	Check operation. Adjust if necessary.			
Rear arm pivot*	Check rear arm assembly for looseness. Correct if necessary. Moderately inspect...			
Rear suspension link pivot*	Check operation. Moderately inspect...			
Wheels*	Check bearings/damage/runout/Spoke tightness. Repair if necessary.			
Wheel bearings*	Check bearings assembly for looseness/damage. Replace if damaged.			
Steering bearings*	Check bearings assembly for looseness. Correct if necessary. Moderately inspect every 24,000 (16,000) or 24 months...			
Front fork*	Check operation/oil leakage. Repair if necessary.			
Rear shock absorber*	Check operation/oil leakage. Repair if necessary.			
Cooling system	Check coolant leakage. Repair if necessary. Replace coolant every 24,000 (16,000) or 24 months.			

Unit: km (miles)

ITEM	REMARKS	Unit: km (miles)		
		BREAK-IN	EVERY	EVERY
Drive chain	Check chain slack/alignment. Adjust if necessary. Chain and lube.	1,000 (600)	6,000 (4,000) or 12,000 (8,000) or 6 months/12 months	12,000 (8,000) or 24,000 (16,000) or 24 months/36 months
Fittings/Fasteners*	Check all chassis fitting and fasteners. Correct if necessary.			
Sidestand*	Check operation. Repair if necessary.			
Sidestand switch*	Check operation. Clean or replace if necessary.			

It is recommended that these items be serviced by a Yamaha dealer.  
 \* Medium weight wheel bearing grease.  
 \*\*\* Molybdenum disulfide grease.

### NOTE:

#### Brake system:

1. When disassembling the master cylinder or caliper cylinder, replace the brake fluid. Normally check the brake fluid level and add the fluid as required.
2. We recommend that, on the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
3. We recommend that replace the brake hoses every four years, or if cracked or damaged.

# SEAT, FUEL TANK AND COVER



# SEAT, FUEL TANK AND COVER



Remove the bolt  
of the air scoop  
from the fuel

## SEAT, FUEL TANK AND COVER

### C-5



5. Remove:
- Bolt ① (cowl and fuel tank)
  - Bolt ② (cowl and fuel tank)



6. Remove:
- Bolt ① (fuel tank)
  - Bolt ② (fuel tank)

7. Turn the fuel cock to "OFF".



8. Disconnect:
- Fuel hose ①

NOTE:

Place a rag on the engine to absorb a spill fuel.

#### WARNING

Gasoline is highly flammable.  
Avoid spilling fuel on the hot engine.



9. Remove:
- Fuel tank ①

## COWLING

### INSTALLATION

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

1. Install:

- Fuel tank
- Bolts (cowl and fuel tank)
- Air scoops



- Bolts (fuel tank):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolts (cowl and fuel tank):  
7 Nm (0.7 m·kg, 5.1 ft·lb)

2. Install:

- Side covers
- Seat



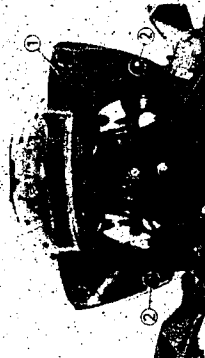
- Bolt (side cover):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt (seat):  
10 Nm (1.0 m·kg, 7.2 ft·lb)

### COWLING REMOVAL

1. Remove:
- Inner panel ①

NOTE:

When removing the inner panel ①, remove the bolts ②. Then pull the projections ③ from the grommets.



2. Remove:
- Air scoop (left) ①
  - Air scoop (right) ②
  - Bolt ③ (cowl and fuel tank)
  - Bolt ④ (cowl and fuel tank)
- Refer to the "SEAT, FUEL TANK AND COVER" section.
- Bolt ⑤ (cowl and cowl stay)

cedure. Note the

tkl

1 ft (lb)  
fuel tank);  
1 ft (lb)

1 ft (lb)  
7.2 ft (lb)

① remove the  
ins ③ from the

tank);  
tank);  
L TANK AND  
ing stay)

COWLING



3. Disconnect:
- Front flasher light leads ①
  - Rubber covers ②



4. Remove:
- Rubber dampers ③



5. Remove:
- Front flasher light (left) ①
  - Front flasher light (right) ②



6. Remove:
- Bolt ① (cowl and cowl stay)



7. Remove:
- Cowl ①

COWLING

INSTALLATION

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

1. Install:
  - Cowl ①
2. Install:
  - Bolts (cowl and cowl stay)
  - Front flasher lights
  - Rubber damper
3. Connect:
  - Rubber covers (front flasher light)
  - Front flasher light leads
4. Install:
  - Air scoops
  - Bolts (cowl and fuel tank)
  - Inner panel



Bolts (cowl and cowl stay):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolts (cowl and fuel tank):  
7 Nm (0.7 m·kg, 5.1 ft·lb)

# VALVE CLEARANCE ADJUSTMENT

## ENGINE

### VALVE CLEARANCE ADJUSTMENT

#### NOTE:

- The valve clearance must be adjusted when the engine is cool to the touch.
- Adjust the valve clearance when the piston is at the Top Dead Center (T.D.C.) on compression stroke.

#### WARNING

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

#### 1. Remove:

- Seat
- Side covers
- Air scoops
- Fuel tank

Refer to the "SEAT, FUEL TANK AND COVER" section.

#### 2. Remove:

- Bolt ① (radiator-stay)
- Bolt ② (radiator)



#### 3. Disconnect:

- Leads (ignition coil) ①
- Plug cap ②

#### 4. Remove:

- Ignition coil ③



#### 5. Remove:

- Tappet cover ① (intake)
- Tappet cover ② (exhaust)



# VALVE CLEARANCE ADJUSTMENT

## 6. Remove:

- Plug ①
- Plug ②



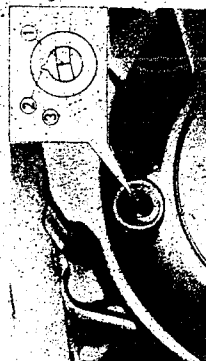
7. Turn the crankshaft counterclockwise with a wrench.

## 8. Align:

- "T" mark ①
- With stationary pointer ②

## NOTE:

Make sure the piston is at the T.D.C. on compression stroke.



## ③ Ignition timing mark

## 9. Check:

- Valve clearance
- Measure the valve clearance by using a feeler gauge ①
- Out of specification - Adjust



Valve clearance (cold):	
Intake:	0.10 - 0.15 mm (0.004 - 0.006 in)
Exhaust:	0.15 - 0.20 mm (0.006 - 0.008 in)

clockwise with a

by using a feeler

just

id:	0.004 - 0.006 (in)	0.005 - 0.008 (in)
-----	--------------------	--------------------

## VALVE CLEARANCE ADJUSTMENT

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C-8

## CAM CHAIN ADJUSTMENT/ IDLING SPEED ADJUSTMENT

INSP  
ADJ



10. Adjust:
- Valve clearance
- Adjustment steps:
- Loosen the locknut ①
  - Insert a Feeler Gauge ② between the adjuster end and the valve end.

- Turn the adjuster ③ clockwise or counter-clockwise with the valve adjusting tool ④ until proper clearance is obtained.

Valve adjusting tool:  
P/N: YM-08035  
P/N: 90890-01311

- Hold the adjuster to prevent it from moving and thoroughly tighten the locknut.

Locknut:  
14 Nm (11.4 m·kg, 10 ft·lb)

- Measure the valve clearance.
- If the clearance is incorrect, repeat above steps until the proper clearance is obtained.

11. Install:
- Reverse removal steps.
  - Plugs
  - Tappet cover (intake)
  - Tappet cover (exhaust)

Tappet cover (exhaust):  
12 Nm (1.2 m·kg, 8.7 ft·lb)  
Bolt (tappet cover-intake):  
10 Nm (1.0 m·kg, 7.2 ft·lb)

12. Install:
- Ignition coil

13. Connect:
- Leads (ignition coil)
  - Spark plug cap

14. Install:
- Bolts (radiator)
  - Bolt (radiator stay)

3-11

15. Install:
- Fuel tank
  - Air scoops
  - Side covers
  - Seat
- Refer to the "SEAT, FUEL TANK AND COVER" section.

Bolts (fuel tank, cowl and fuel tank, side cover):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt (seat):  
10 Nm (1.0 m·kg, 7.2 ft·lb)

## CAM CHAIN ADJUSTMENT

Adjustment free.



## IDLING SPEED ADJUSTMENT

- Start the engine and let it warm up for several minutes.
- Attach inductive tachometer to the spark plug lead.

Inductive tachometer  
P/N: YU-08036-A  
P/N: 90890-03113

3. Check:
- Engine idling speed
- Out of specification -- Adjust.

Engine idling speed:  
1,250 ~ 1,350 r/min

3-12



Weight and fuel
5.1 ft.-lb)
7.2 ft.-lb)

er
----

ust
-----



4. Adjust:
- Engine idling speed
- Adjustment steps:
- Turn in the pilot screw ① until it is lightly seated.
  - Turn out the pilot screw for the specified number of turns.

Pilot screw:  
2 and 1/2 turns out

- Turn the throttle stop screw ② in or out until specified idling speed is obtained.

Turn in—idling speed becomes higher.  
Turn out—idling speed becomes lower.

5. Remove:
- Inductive tachometer

6. Adjust:
- Throttle cable free play  
Refer to the "THROTTLE CABLE FREE PLAY ADJUSTMENT" section.

Free play:  
3 ~ 5 mm (0.12 ~ 0.20 in)

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 ③
  - Out of specification → Adjust.

Throttle cable free play:  
3 ~ 5 mm (0.12 ~ 0.20 in)

2. Remove:
- Seat
  - Side covers
  - Air scoops
  - Fuel tank
- Refer to the "SEAT, FUEL TANK AND COVER" section.

3. Adjust:
- Throttle cable free play

- Adjustment steps:
- Loosen the locknuts ① on the throttle cable 1 ②.
  - Turn the adjuster ③ clockwise or counter-clockwise until proper free play is obtained.
  - If the play is still incorrect after the adjuster is loosened 5 mm (0.2 in), make an adjustment with the adjuster ④ on the throttle cable 2 ⑤.
  - Tighten the locknuts.

- ① ⑥ Locknuts
4. Install:
- Fuel tank
  - Air scoops
  - Side covers
  - Seat

Bolts (fuel tank, cowling and fuel tank, side cover):  
7 Nm (0.7 m.-kg, 5.1 ft.-lb)  
Bolt (seat):  
10 Nm (1.0 m.-kg, 7.2 ft.-lb)



# F. FUEL TANK AND

lay

on the throttle cable  
lockwise or counter-  
free play is obtained.  
ct after the adjuster is  
make an adjustment  
the throttle cable 2 5

cowling and fuel
kg. 5.1 ft.-lb)
kg. 7.2 ft.-lb)

## SPARK PLUG INSPECTION



### SPARK PLUG INSPECTION

- Disconnect:
  - Spark plug cap ①
  - Rubber cover ②

- Remove:
  - Spark plug

### CAUTION

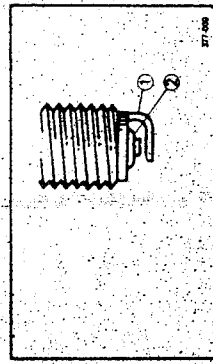
When removing the spark plug, use caution to prevent an object from falling into the engine.

- Inspect:
  - Spark plug type Incorrect — Replace

Standard spark plug:  
DPR6A-9 (N.G.K.), DPR6A-9 (N.G.K.)

- Inspect:
  - Electrode ① Wear/Damage — Replace
  - Insulator ② Abnormal color — Replace

Normal color is a medium-to-light tan color.

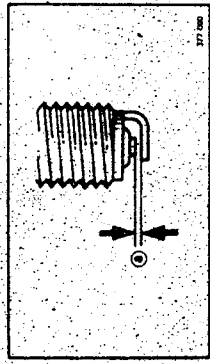


- Clean the spark plug with a spark plug cleaner or wire brush.

- Measure:
  - Plug gap ③ Use a wire gauge or feeler gauges

Out of specification — Regap.

Spark plug gap:  
0.8 ~ 0.9 mm (0.031 ~ 0.035 in)



## IGNITION TIMING CHECK

- Tighten:
  - Spark plug(s)

Spark plug:  
17.5 Nm (1.75 m·kg, 12.5 ft.-lb)

### NOTE:

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

- Connect:
  - Spark plug cap
  - Rubber cover

### IGNITION TIMING CHECK

#### NOTE:

Engine idling speed and throttle cable free play should be adjusted properly before checking the ignition timing.

- Start the engine and let it warm up for seven 4 minutes.
- Attach:
  - Inductive tachometer
  - Timing light

to spark plug lead

Inductive tachometer:  
P/N: YU-08036-A  
P/N: 90690-03113  
Timing light:  
P/N: VM-33277-A  
P/N: 90690-03109

- Remove:
  - Plug ①

Under extreme conditions, the oil may squirt out when removing the plug. Therefore care should be used when removing.



5 m•kg, 12.5 ft•lb)

plug, clean the gasket  
available when you are  
a good estimate of the  
1/2 turns part finger  
9 torqued to the correct  
with a torque wrench

ECK

throttle cable free play  
rly before checking the

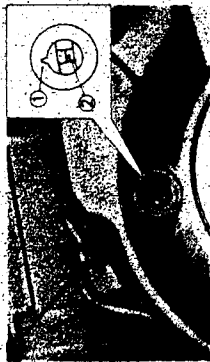
el it warm up for sever

ometer:  
35-A  
3113

77-A  
3109

ons, the oil may spurt  
plug. Therefore care  
removing.

## COMPRESSION PRESSURE MEASUREMENT



4. Check:

- Ignition timing

### Checking steps:

- Warm up the engine and let it run at the specified speed.

Engine speed:  
1,300 r/min

- Visually check the stationary pointer ① to verify it is within the required firing range ② indicated on the flywheel.

Incorrect firing range - Check pickup assembly.

### NOTE:

Ignition timing is not adjustable.

5. Install:

- Plug
- Timing light
- Inductive tachometer

## COMPRESSION PRESSURE MEASUREMENT

3. Install:

- Sub tank (fuel)

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

5. Stop the engine.

6. Disconnect:

- Spark plug cap
- Rubber cover

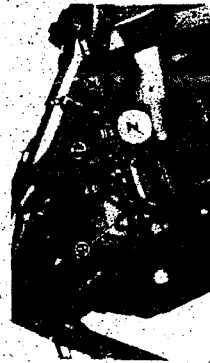
7. Remove:

- Spark plug
- Refer to the "SPARK PLUG INSPECTION" section.

8. Attach:

- Compression gauge ①
- Adapter ②

Compression gauge:  
P/N: YU-33223  
P/N: 90890-03061  
Adapter:  
P/N: YU-33223-3  
P/N: 90890-04062



## COMPRESSION PRESSURE MEASUREMENT

### NOTE:

Insufficient compression pressure will result in performance loss.

1. Remove:

- Seat
- Side covers
- Air scoops
- Fuel tank

Refer to the "SEAT, FUEL TANK AND COVER" section.

2. Check:

- Valve clearance
- Out of specification - Adjust.

Refer to the "VALVE CLEARANCE ADJUSTMENT" section.

## COMPRESSION PRESSURE MEASUREMENT

3. Check:

- Compression pressure

### Checking steps:

- 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.

### WARNING

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

- Check reading with specified levels (see chart)

let it warm up for sever-

# K PLUG INSPECTION

gauge	
Z23	
00081	
Z23-3	
04082	

with the electric starter  
fully charged) with the  
if the compression read-  
alizes.

fine, ground the spark  
parking.

scribed levels (see chart).

## COMPRESSION PRESSURE MEASUREMENT

Compression pressure (at sea level):  
Standard:  
1,100 kPa (11 kg/cm<sup>2</sup>, 155 psi)  
Minimum:  
900 kPa (9 kg/cm<sup>2</sup>, 128 psi)  
Maximum:  
1,200 kPa (12 kg/cm<sup>2</sup>, 171 psi)

• If pressure falls below 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)	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.

- Remove:
  - Sub tank (fuel)
  - Compression gauge (with an adapter)

- Install:
  - Spark plug

Spark plug:  
17.5 Nm (1.76 m·kg, 12.5 ft·lb)

Refer to the "SPARK PLUG INSPECTION" section.

- Connect:
  - Spark plug cap
  - Rubber cover

- Install:
  - Fuel tank
  - Air scoops
  - Side covers
  - Seat

## ENGINE OIL LEVEL INSPECTION

Bolts (fuel tank, cowl and fuel tank, slide cover):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt (seat):  
10 Nm (1.0 m·kg, 7.2 ft·lb)

### ENGINE OIL LEVEL INSPECTION

#### CAUTION

Do not add any chemical additives. Engine oil also lubricates the clutch and additives could cause clutch slippage.

#### WARNING

Never remove the oil tank cap just after high speed operation. The heated oil could spurt out, causing danger. Wait until the oil cools down to approximately 70°C (158°F).

- Place the motorcycle on a level place.
- Remove:
  - Oil tank cap



- Inspect:
  - Oil level

Oil level should be between the maximum level 1 and minimum level 2.

NOTE:

- Be sure the motorcycle is positioned straight up when checking the oil level.
- When inspecting the oil level, do not screw the oil level gauge into the oil tank.
- Insert the gauge lightly.

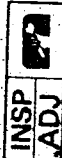


Oil level is incorrect → Add the oil up to the minimum level.

Recommended oil:  
SAE 20W40 type SE motor oil or  
SAE 10W30 type SE motor oil



## ENGINE OIL REPLACEMENT



4. Install:
  - Oil tank cap
5. Start the engine and warm up until the oil temperature rises to approximately 70°C (150°F).

When the oil tank is empty, never start the engine.

6. Idle the engine more than 10 seconds while keeping the motorcycle upright. Then stop the engine and add the oil to the maximum level.

7. Install:
  - Oil tank cap

	Oil quantity:
	Periodic oil change
	2.6 L (2.3 Imp qt, 2.7 US qt)
	With oil filter replacement
	2.7 L (2.4 Imp qt, 2.9 US qt)
	Total amount
	3.0 L (2.6 Imp qt, 3.2 US qt)

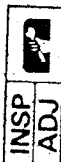
## ENGINE OIL REPLACEMENT

Do not add any chemical additives. Engine oil also lubricates the clutch and additives could cause clutch slippage.

### WARNING

Never remove the oil tank cap just after high speed operation. The heated oil could spurt out, causing danger. Wait until the oil cools down to approximately 70°C (150°F).

## ENGINE OIL REPLACEMENT



Engine oil replacement (without oil filter)  
1. Place the motorcycle on a level place.

2. Remove:
  - Engine guard (1)

3. Warm up the engine for several minutes, then stop the engine. Then place a receptacle under the drain bolt.



4. Remove:
  - Oil tank cap
  - Drain bolt (oil tank) (1)
  - Drain bolt (crankcase) (2)

5. Drain:
  - Engine oil

### NOTE:

When the drain bolt (1) is removed, the oil will not drain directly downward. Therefore a receptacle should be placed slightly in front of the drain bolt.



6. Remove:
  - Air bleed screw (1)
  - Bolt (2) (oil filter cover)

### NOTE:

The oil filter cover is secured by three screws. The lower one should be removed so that the filter cavity will drain.

7. Inspect:
  - Gasket (leak)
  - Damage -- Replace.

8. Install:
  - Bolt (oil filter cover)
  - Drain bolt (oil tank)
  - Drain bolt (crankcase)

without oil filter)  
a level place.

several minutes, then  
be a receptacle un-


2

moved; the oil will  
Therefore a recep-  
in front of the drain


three screws. The  
so that the filter

# ENGINE OIL REPLACEMENT

C-14


 Bolt (oil filter cover):  
18 Nm (1.0 m.-kg, 7.2 ft.-lb.)  
Drain bolt (oil tank):  
18 Nm (1.8 m.-kg, 13 ft.-lb.)  
Drain bolt (crankcase):  
30 Nm (3.0 m.-kg, 22 ft.-lb.)

9. Fill
- Oil tank (to frame)
  - Oil filter chamber


 Recommended oil:  
SAE 20W40 type SE motor oil or  
SAE 10W30 type SE motor oil  
Oil quantity:  
Oil tank  
2.8 L (2.3 imp qt, 2.7 US qt)  
Oil filter chamber  
0.08 L (0.08 imp qt, 0.08 US qt)

- Do not allow foreign material to enter the crankcase.
- Do not add any chemical additives. Engine oil also lubricates the clutch and additive could cause clutch slippage

10. Install
- Air bleed screw

 Air bleed screw:  
8 Nm (0.8 m.-kg, 3.8 ft.-lb.)

11. Inspect:
- Oil level  
Refer to the "ENGINE OIL LEVEL INSPECTION" section.
  - Oil pressure  
Refer to the "OIL PRESSURE INSPECTION" section.
  - Oil leaks
12. Install:
- Oil tank cap
  - Engine guard

 Nut (engine guard):  
7 Nm (0.7 m.-kg, 5.1 ft.-lb.)  
Bolt (engine guard):  
7 Nm (0.7 m.-kg, 5.1 ft.-lb.)

# ENGINE OIL REPLACEMENT

- Engine oil replacement (with oil filter)
1. Place the motorcycle on a level place
  2. Remove
    - Engine guard
- Refer to the "ENGINE OIL REPLACEMENT (without oil filter)" section
3. Warm up the engine for several minutes, then stop the engine. Then place a receptacle under the drain bolts



4. Remove
  - Oil tank cap
  - Drain bolt 1 (oil tank)
  - Drain bolt 2 (crankcase)
5. Drain
  - Engine oil

## NOTE

When the drain bolt 1 is removed, the oil will not drain directly downward. Therefore a receptacle should be placed slightly in front of the drain bolt.



6. Remove
  - Air bleed screw 1
  - Bolt 2

## NOTE

The oil filter cover is secured by three screws. The screw one should be removed so that the filter cavity will drain.



7. Remove
  - Oil filter cover
  - Oil filter 2



8. Inspect
  - Gasket seal
  - O-ring
  - Damage
  - Replace

With oil filter in a level place

**OIL REPLACEMENT**  
After several minutes, then place a receptacle un-

derneath the oil well

Therefore a receptacle in front of the drain

by three screws. The

**ENGINE OIL REPLACEMENT**

1. Inspect
  - Oil filter (see page 1)

Install the oil filter as shown

- Oil filter cover
- Drain both (crankcase)
- Drain both (oil tank)

**Oil level**

With oil filter cover!

10 mm (1.2 in.) - 12 mm (1.2 in.)

Drain both (oil tank)

10 mm (1.2 in.) - 12 mm (1.2 in.)

Drain both (crankcase)

20 mm (1.2 in.) - 22 mm (1.2 in.)

2. Tighten
  - Oil tank to frame
  - Oil filter chamber

**Recommended oil**

SAE 20W50 type SE motor oil or  
SAE 10W30 type SE motor oil

**Oil quantity**

Oil tank  
2.7 l (2.4 imp qt) 2.9 US qt

Oil filter chamber  
0.05 l (0.05 imp qt) 0.05 US qt

3. Do not allow foreign material to enter the crankcase
4. Do not add any chemical additives. Engine oil also lubricates the clutch and additive could cause clutch slippage

11. Inspect
  - Air bleed screw

**Air bleed screw**

5 mm (0.2 in.) - 6 mm (0.2 in.)

12. Inspect
  - Oil level

Refer to the "ENGINE OIL LEVEL INSPECTION" section

  - Oil pressure

Refer to the "OIL PRESSURE INSPECTION" section

  - Oil leaks

**OIL PRESSURE INSPECTION/CLUTCH ADJUSTMENT**

13. Inspect
  - Oil tank cap
  - Engine guard

**Oil tank cap**

7 mm (0.3 in.) - 8 mm (0.3 in.)

**Oil tank guard**

7 mm (0.3 in.) - 8 mm (0.3 in.)

**OIL PRESSURE INSPECTION**

1. Run engine
2. Start the engine and keep it idling for several minutes
3. Inspect
  - Oil condition of the bleed line
  - Oil flow out - Oil pressure is good
  - No oil comes out (Oil pressure is low)

If no oil comes out after a lapse of one minute, turn off the engine immediately so it will not seize

4. Tighten
  - Air bleed screw

**Air bleed screw**

5 mm (0.2 in.) - 6 mm (0.2 in.)

**CLUTCH ADJUSTMENT**

1. Check
  - Clutch cable free play
  - Clutch cable adjuster

**Free play**

10 - 15 mm (0.4 - 0.6 in.)

2. Adjust
  - Clutch cable free play

- Adjustment steps**
1. Loosen the locknut
  2. Turn the adjuster 2 in or out until the space

Lead free play is obtained

ward):  
n-k.g. 5.1 ft.-lb)  
ward):  
n-k.g. 5.1 ft.-lb)

ECTION

keep it idling for several  
bleed hole  
pressure is good.  
Oil pressure is bad.

after a lapse of one  
ngine immediately so

W2:  
n-k.g. 3.6 ft.-lb)

VT:  
lay 3  
1--Adjust.

10.4 - 0.8 in)  
er and

lay  
.....  
in or oil until the speci-  
ed.

AIR FILTER CLEANING

Turning in--Free play is increased.  
Turning out--Free play is decreased.

• Tighten the locknut(s).  
.....



AIR FILTER CLEANING

1. Remove:  
• Seat  
• Side cover (right)  
Refer to the "SEAT, FUEL TANK AND COVER" section.  
• Air filter case cover ①

2. Remove:  
• Air filter element ②

Never operate the engine with the air filter element removed. This will allow unfiltered air to enter, causing rapid wear and possible engine damage. Additionally, operation without the filter element will affect carburetor tuning with subsequent poor performance and possible engine overheating.

3. Inspect:  
• Air filter element  
Damage -- Replace

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

5. Install:  
• Air filter element

NOTE:  
• Install the air filter element with the arrow mark on the top pointing inward.  
• When installing the air filter element in its case, fit section ① into the slot ② of air filter case.

CARBURETOR JOINT INSPECTION

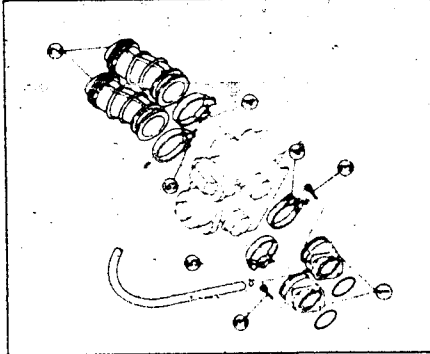
6. Install:  
• Air filter case cover  
• Side cover (right)  
• Seat

Bolt (side cover):  
7 Nm (0.7 m.k.g. 5.1 ft.-lb)  
Bolt (seat):  
10 Nm (1.0 m.k.g. 7.2 ft.-lb)

CARBURETOR JOINT INSPECTION

1. Remove:  
• Seat  
• Side covers  
• Air scoops  
• Fuel tank  
Refer to the "SEAT, FUEL TANK AND COVER" section.

2. Inspect:  
• Carburetor joint, 1, 2  
Crack/Damage -- Replace.



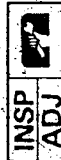
Bolt 3 (carburetor joint):  
10 Nm (1.0 m.k.g. 7.2 ft.-lb)  
Screw 4 (left):  
2 Nm (0.2 m.k.g. 1.4 ft.-lb)  
Screw 5 (right):  
5 Nm (0.5 m.k.g. 3.6 ft.-lb)

3. Install:  
• Fuel tank  
• Air scoops  
• Side cover  
• Seat

Bolts (fuel tank, cowl and fuel tank, side cover):  
7 Nm (0.7 m.k.g. 5.1 ft.-lb)  
Bolt (seat):  
10 Nm (1.0 m.k.g. 7.2 ft.-lb)



# CRANKCASE VENTILATION HOSE INSPECTION / FUEL LINE INSPECTION



D-1

## FUEL LINE INSPECTION

1. Remove:

- Seat
- Side covers
- Air scoops
- Fuel tank

Refer to the "SEAT, FUEL TANK AND COVER" section.

2. Inspect:

- Fuel hose ①
- Vacuum hose ②
- Delivery hose ③

Crack/Damage → Replace



3. Install:

- Air scoops
- Side covers
- Seat

	<p>Bolts (fuel tank, cowlings and fuel tank, side cover): 7 Nm (0.7 m·kg, 5.1 ft·lb)</p> <p>Bolt (seat): 10 Nm (1.0 m·kg, 7.2 ft·lb)</p>
--	--

## CRANKCASE VENTILATION HOSE INSPECTION

1. Inspect:

- Crankcase ventilation hose ①

Crack/Damage → Replace



# EXHAUST SYSTEM INSPECTION / COOLANT LEVEL INSPECTION



## EXHAUST SYSTEM INSPECTION

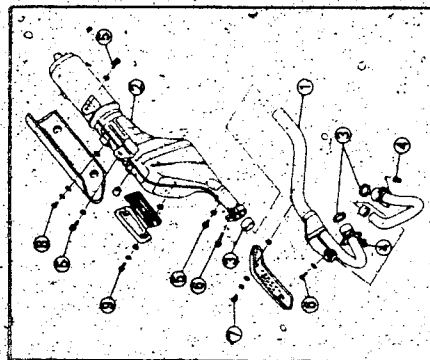
1. Inspect:

- Exhaust pipe ①
- Muffler ②

Crack/Damage → Replace

• Gasket ③

Exhaust gas leaks → Replace



	<p>Nut ④ (exhaust pipe): 10 Nm (1.0 m·kg, 7.2 ft·lb)</p> <p>Bolt ⑤ (muffler): 40 Nm (4.0 m·kg, 29 ft·lb)</p> <p>Bolt ⑥ (clamp): 20 Nm (2.0 m·kg, 14 ft·lb)</p> <p>Screw ⑦ (protector): 7 Nm (0.7 m·kg, 5.1 ft·lb)</p> <p>Use LOCTITE®</p> <p>Screw ⑧ (protector): 7 Nm (0.7 m·kg, 5.1 ft·lb)</p> <p>Use LOCTITE®</p> <p>Screw ⑨ (protector): 7 Nm (0.7 m·kg, 5.1 ft·lb)</p> <p>Use LOCTITE®</p>
--	---

## COOLANT LEVEL INSPECTION

- Place the motorcycle on a level place.

NOTE:

Position the motorcycle straight up when inspecting the coolant level.

2. Remove:

- Air scoop (right)

3. Inspect:

- Coolant level

Coolant level should be between maximum ① and minimum ② marks.

Coolant level low → Add soft water (tap water) to proper level.



ITEM INSPECTION

1. Replace:

2. Replace:

3. Replace:

REL INSPECTION

4. Inspect:

5. Inspect:

6. Inspect:

7. Inspect:

COOLANT REPLACEMENT

CAUTION

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

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

5. Stop the engine and inspect the coolant level once again.

NOTE:

Wait a few minutes until level settles before inspecting the coolant level.

6. Install:

- Air scoop (right)

PRELIMINARY

COOLANT REPLACEMENT

1. Remove:

- Side covers
- Air scoops
- Fuel tank

Refer to the "SEAT, FUEL TANK AND COVER" section.

2. Remove:

- Engine guard

3. Place a drain pan under the reservoir tank and drain bolts.

4. Disconnect:

- Hose (reservoir tank)

Drain the reservoir tank of its coolant.

COOLANT REPLACEMENT



5. Remove:

- Radiator cap

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 detente. 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.

6. Remove:

- Drain bolt (water pump)
- Gasket (drain bolt)

Drain the radiator and engine of its coolant.



7. Inspect:

- Gasket (drain bolt)

Damage -- Replace.

8. Install:

- Gasket (drain bolt)
- Drain bolt (water pump)
- Engine guard



Drain bolt (water pump):  
10 Nm (11.0 m.kg, 7.2 ft.lb)  
Nut (engine guard):  
7 Nm (0.7 m.kg, 5.1 ft.lb)  
Bolt (engine guard):  
7 Nm (0.7 m.kg, 5.1 ft.lb)

9. Connect:

- Hose (reservoir tank)

lator cap when the en-  
not. Scalding hot fluid  
in out under pressure.  
ious injury. When the  
on the radiator cap by  
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the cap counterclock-  
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to escape. When the  
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1d engine of its coolant.

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ter pump):  
m·kg, 7.2 ft·lb)  
used):  
1·kg, 5.1 ft·lb)  
ward):  
1·kg, 5.1 ft·lb)

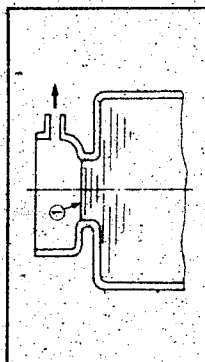
# COOLANT REPLACEMENT

D-3

10. Fill:

- Radiator
- Engine

(to specified level ①)



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

**Coolant and water (soft water)**  
Mixed ratio: 50%/50%  
Total amount:  
1.2 L (1.1 imp qt, 1.3 US qt)  
Reservoir tank capacity:  
0.29 L (0.26 imp qt, 0.31 US qt)

Handling notes of coolant:

- The coolant is harmful so it should be handled with special care.

## WARNING

- When coolant splashes in your eye. Thoroughly wash your eye with water and see your doctor.
- When coolant splashes on 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.

- 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 on painted surfaces. If it splashes, wash it away with water.
- Do not mix more than one type of ethylene glycol anti-freeze containing corrosion inhibitors for aluminum engines.

# COOLANT REPLACEMENT

11. Install:

- Radiator cap

12. Fill:

- Reservoir tank (to maximum level ①)



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

14. Stop the engine and inspect the level.

Refer to the "COOLANT LEVEL INSPECTION" section.

NOTE:

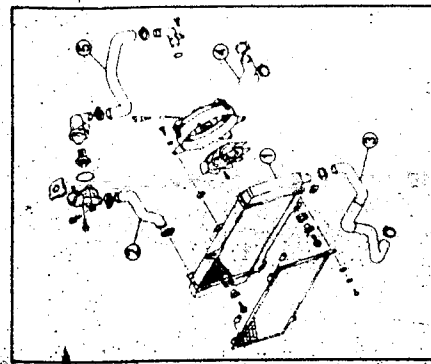
- Wait a few minutes until level settles before inspecting the coolant level.

15. Install:

- Fuel tank
- Air scoops
- Side covers
- Seat

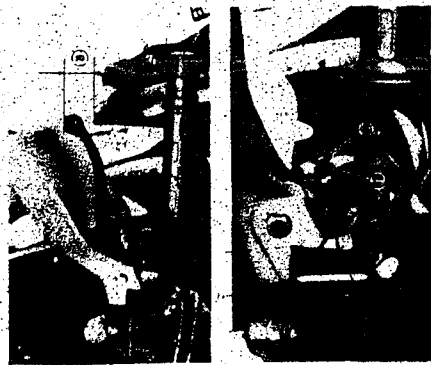


**Bolt (fuel tank, cowl and fuel tank, side cover):**  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
**Bolt (seat):**  
10 Nm (1.0 m·kg, 7.2 ft·lb)



### COOLING SYSTEM INSPECTION

- Inspect:
    - Radiator ①
    - Hose ② (thermostat - radiator)
    - Hose ③ (radiator - water pump)
    - Pipe ④ (water pump - cylinder)
    - Hose ⑤ (cylinder head - thermostat housing)
- Cracks/Damage → Replace.  
Refer to the "COOLING SYSTEM" section in the CHAPTER 5.



### CHASSIS

#### FRONT BRAKE ADJUSTMENT

- Check:
    - Brake lever free play ②

Out of specification → Adjust.
  - Adjust:
    - Brake 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 decreased.  
Turn out → Free play is increased.

- Tighten the locknut.

### CAUTION

Proper lever free play is essential to avoid excessive brake drag.

### WARNING

A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the motorcycle is operated. Air in the system will cause greatly diminished braking capability and can result in loss of control and an accident. Inspect and bleed the system if necessary.

Warm up for several

minutes. Inspect the level.

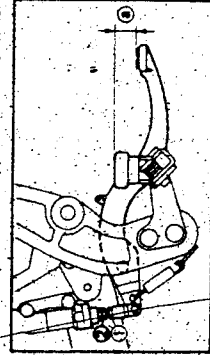
T-LEVEL INSPEC

oil settles before in-

swelling and fuel

1. 5.1 (ft-lb)

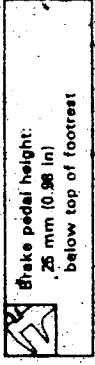
g. 7.2 (ft-lb)



REAR BRAKE ADJUSTMENT

- Check:
  - Brake pedal height

Out of specification - Adjust.



Brake pedal height:  
25 mm (0.98 in.)  
below top of footrest

- Adjust:
  - Brake pedal height

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

Turning in - Pedal height is increased.  
Turning out - Pedal height is decreased.

WARNING

After adjusting the brake pedal height, visually check the adjuster end. The adjuster end must appear within 4.0 mm (0.16 in.)

- Tighten the locknut.

Locknut:  
18 Nm (1.8 m·kg, 13 ft·lb)

WARNING

Make sure that the brake does not drag after adjusting it.

WARNING

A soft or spongy feeling in the brake pedal can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the motorcycle is operated. Air in the system will cause greatly diminished braking capability and can result in loss of control and an accident. Inspect and bleed the system if necessary.

BRAKE FLUID LEVEL INSPECTION

- Place the motorcycle on a level place.

NOTE:

- Position the motorcycle straight up when inspecting the brake fluid level.
- When inspecting the front brake fluid level, make sure the master cylinder top is horizontal by turning the handlebars.

- Remove:
  - Seat
  - Side cover (right)

Refer to the "SEAT, FUEL TANK AND COVER" section.

- Inspect:
  - Brake fluid level

Fluid level is under "LOWER" level line

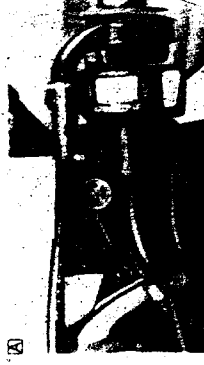
① - Fill up

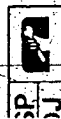
Recommended brake fluid:  
Front: DOT No. 4  
Rear: DOT No. 4

A Front, B Rear

CAUTION

Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.





SWITCH AD.

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fluid level, make  
horizontal by turn.

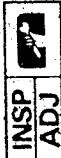
L TANK AND

VER level line

fluid:

d surfaces or  
o spilled fluid

## BRAKE PAD INSPECTION



### WARNING

- Use only the designated quality brake fluid; otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid; replacing fluids may result in a harmful chemical reaction and lead to poor performance.
- Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.

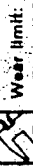
4. Install:
- Side cover (right)
  - Seat



Bolt (side cover (right)):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt (seat):  
10 Nm (1.0 m·kg, 7.2 ft·lb)

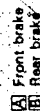
## BRAKE PAD INSPECTION

1. Activate the brake lever or brake pedal.
2. Inspect:
  - Brake pad (front)  
Wear indicator ① almost contacts brake disc → Replace brake pad as a set.
3. Check:
  - Pad thickness (rear)  
Out of specification → Replace.



Wear limit:  
Front: 1.0 mm (0.04 in)  
Rear ②: 0.8 mm (0.03 in)

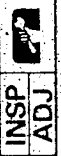
Refer to the "BRAKE PAD REPLACEMENT" section in the CHAPTER 7.



A Front brake  
B Rear brake

## D-6

## BRAKE LIGHT SWITCH ADJUSTMENT/ BRAKE HOSE INSPECTION/AIR BLEEDING



### BRAKE LIGHT SWITCH ADJUSTMENT

#### NOTE:

The brake light switch is operated by movement of the brake pedal.  
Proper adjustment is achieved when the brake light comes on just before the brake begins to take effect.

1. Check:
  - Brake light operating timing  
Incorrect → Adjust
2. Adjust:
  - Brake light operating timing

#### Adjustment steps:

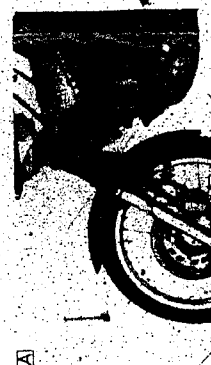
Hold the switch body ① with your hand so that it does not rotate and turn the adjusting nut ②.

## BRAKE HOSE INSPECTION

1. Inspect:
  - Brake hose  
Crack/Damage → Replace.  
Refer to the "FRONT AND REAR BRAKE" section in the CHAPTER 7.



A Front  
B Rear



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AIR BLEEDING HYDRAULIC BRAKE  
SYSTEM

**WARNING**

Bleed the brake system if:

- The system has been disassembled.
  - A brake hose has been loosened or removed.
  - The brake fluid is very low.
  - The brake operation is faulty.
- A dangerous loss of braking performance may occur if the brake system is not properly bled.



1. Bleed:
    - Brake system
- Air bleeding steps:**
- a. Add proper brake fluid to the reservoir
  - b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
  - c. Connect the clear plastic tube ① tightly to the caliper bleed screw.

① Front  
② Rear

- d. Place the other end of the tube into a container.
- e. Slowly apply the brake lever or pedal several times.
- f. Pull the lever in or push down on the pedal. Hold the lever or pedal in position.
- g. Loosen the bleed screw and allow the lever or pedal to travel towards its limit.
- h. Tighten the bleed screw when the lever or pedal limit has been reached; then release the lever or pedal.

Bleed screw:

9 Nm (0.6 m·kg, 4.3 ft·lb)

- i. Repeat steps (a) to (h) until all of the air bubbles have been removed from the system.

**NOTE:**

If the bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in the system have disappeared.

- j. Add brake fluid to proper level.

**WARNING**

Check the operation of the brake after bleeding brake system.

**NOTE:**

DRIVE CHAIN SLACK ADJUSTMENT

Before checking and/or adjusting, rotate the rear wheel several revolutions and check slack at several points to find the tightest point. Check and/or adjust the chain slack with the rear wheel in this "tightest" position.

**CAUTION:**

Too little of chain slack will overload the engine and other vital parts; keep the slack within the specified limits.

**WARNING**

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

1. Place the motorcycle on a level place, and hold it in an upright position.

**NOTE:**

Both wheels should be on the ground without the rider on it.





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## D-8

### DRIVE CHAIN SLACK ADJUSTMENT



#### 2. Check:

- Drive chain slack ⑥
- Out of specification--Adjust:



Drive chain slack:  
20 - 45 mm (0.78 - 1.77 in)  
at both wheels on ground  
without rider

#### 3. Adjust:

- Drive chain slack

#### Adjustment steps:

- Remove the cotter pin ① and loosen the axle nut ②.
- Loosen the locknut ③.
- Turn the adjuster ④ in or out until the specified slack is obtained.

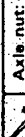
Turning in--Slack is increased.

Turning out--Slack is decreased.

#### NOTE:

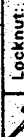
Turn each adjuster exactly the same amount to maintain correct axle alignment. (There are marks on each side of swingarm and on each chain puller; use them to check for proper alignment.)

- Tighten the axle nut to specification, while pushing up or down on the chain to zero slack.



Axle nut:  
100 Nm (10.0 m·kg, 72 ft·lb)

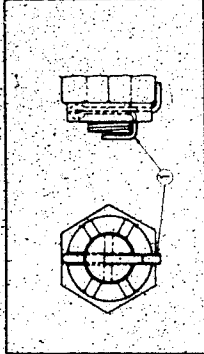
- Tighten the locknut.



Locknut:  
15 Nm (1.5 m·kg, 11 ft·lb)



### DRIVE CHAIN LUBRICATION



#### 4. Install:

- Cotter pin ①

#### CAUTION:

Do not loosen the axle nut after torque tightening. If the axle nut groove is not aligned with the cotter pin hole, align groove with the hole by tightening up on the axle nut.

#### WARNING:

Always use a new cotter pin.

#### 1214-025

#### DRIVE CHAIN LUBRICATION

The chain consists of many parts which work against each other. If the chain is not maintained properly, it will wear out rapidly, therefore, form the habit of periodically servicing the chain. This service is especially necessary when riding in dusty conditions.

This motorcycle has a drive chain with small rubber O-rings between the chain plates.

Stream cleaning, high-pressure washes, and certain solvents can damage these O-rings. Use only kerosene to clean the drive chain. Wipe it dry, and thoroughly lubricate it with SAE 30 - 50W motor oil. Do not use any other lubricants on the drive chain. They may contain solvents that could damage the O-rings ①.



Recommended lubricants:  
SAE 30 - 50W Motor Oil



After torque tight-  
ut groove is not aligned  
hole, align groove with  
ing up on the axle nut.

cotter pin.

#### LUBRICATION

If many parts which work  
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care it with SAE 30 : 50W  
any other lubricants on the  
contain solvents that could

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50W Motor Oil

#### STEERING HEAD ADJUSTMENT

##### WARNING

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

1. Place the motorcycle on a level place.
2. Elevate the front wheel by placing a suitable  
stand under the frame and engine.



#### 3. Check:

- Steering assembly bearings
- Grasp the bottom of the forks and gently  
rock the fork assembly back and forth.  
Looseness - Adjust steering head.

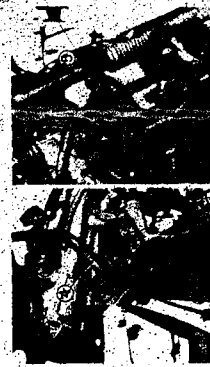
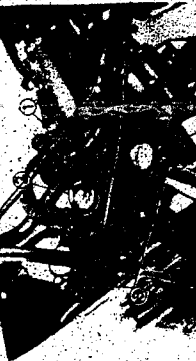
#### 4. Remove:

- Seat
- Side covers
- Air scoops
- Fuel tank

#### 5. Adjust:

- Steering head

#### STEERING HEAD ADJUSTMENT



#### Adjustment steps:

- Remove the bolt ① ("CHOKE" knob as-  
sembly).
- Remove the nut ② (steering shaft) and loos-  
en the bolt ③ (handlebar crown).
- Remove the fuel tank stay ④ and bolt (brake  
boss guide) ⑤.
- Put the rag around on the oil tank cap.
- Remove the handlebar crown ⑥ (with the  
handlebar) on the rag.
- Remove the stopper washer ⑦, second ring  
nut ⑧ and rubber washer ⑨.
- Tighten the ring nut (lower) using the ring nut  
wrench.

#### NOTE:

Set the torque wrench to the ring nut wrench so  
that they form a right angle.



Ring nut wrench:  
P/N: YU-33976  
P/N: 90690-01403



Ring nut (lower) (initial tightening):  
43 Nm (4.3 m·kg, 31 ft·lb)

- Reset the handlebar crown (with the handle-  
bar) on the front fork.
- Turn the handlebar to the left and right mak-  
ing sure there is no binding and then fully loosen  
the ring nut.
- Retighten the ring nut using the ring nut  
wrench.

#### WARNING

Avoid over-tightening.

1. "CHOKE" knob assembly (steering shaft) and lock washer (lower crown) stay 4 and bolt (brake) on the oil tank cap.

2. Tighten the ring nut (lower crown) using the ring nut wrench so angle.

3. Tighten the ring nut wrench so angle.

4. Tighten the ring nut wrench so angle.

5. Tighten the ring nut wrench so angle.

6. Tighten the ring nut wrench so angle.

7. Tighten the ring nut wrench so angle.

8. Tighten the ring nut wrench so angle.

9. Tighten the ring nut wrench so angle.

10. Tighten the ring nut wrench so angle.

11. Tighten the ring nut wrench so angle.

12. Tighten the ring nut wrench so angle.

13. Tighten the ring nut wrench so angle.

14. Tighten the ring nut wrench so angle.

15. Tighten the ring nut wrench so angle.

# STEERING HEAD ADJUSTMENT

Ring nut (final tightening):  
7 Nm (0.7 m·kg, 5.1 ft·lb)

NOTE:  
Recheck the steering head by turning the steering head from lock to lock, after adjusting steering head.  
If steering is binded, loosen the ring nut but not to the extent of free play in bearing.  
If steering is loosened, repeat the adjustment steps.

• Install the rubber washer on the ring nut (lower); then finger tighten the ring nut (upper) until it contacts the rubber washer. Align the grooves of the lower and upper nuts and install the stopper washer.  
• Tighten the nut (steering shaft) and bolt (handlebar crown).

Nut (steering shaft):  
110 Nm (11 m·kg, 80 ft·lb)  
Bolt (handlebar crown):  
23 Nm (2.3 m·kg, 17 ft·lb)

• Tighten the bolt (brake hose guide), temporary tighten the bolt (fuel tank stay) and tighten the bolt ("CHOKE" knob assembly).

Bolt (brake hose guide):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt ("CHOKE" knob assembly):  
23 Nm (2.3 m·kg, 17 ft·lb)

6. Install:  
• Fuel tank  
7. Tighten:  
• Bolt (fuel tank stay)  
• Air scoops  
• Side covers  
• Seat

Bolt (fuel tank, cowling and fuel tank, side covers):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt (fuel tank stay):  
15 Nm (1.5 m·kg, 11 ft·lb)  
Bolt (seat):  
10 Nm (0.7 m·kg, 7.2 ft·lb)

# D-10



NOTE:  
Recheck the steering head by turning the steering head from lock to lock, after adjusting steering head.  
If steering is binded, loosen the ring nut but not to the extent of free play in bearing.  
If steering is loosened, repeat the adjustment steps.

• Install the rubber washer on the ring nut (lower); then finger tighten the ring nut (upper) until it contacts the rubber washer. Align the grooves of the lower and upper nuts and install the stopper washer.  
• Tighten the nut (steering shaft) and bolt (handlebar crown).

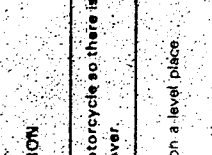
Nut (steering shaft):  
110 Nm (11 m·kg, 80 ft·lb)  
Bolt (handlebar crown):  
23 Nm (2.3 m·kg, 17 ft·lb)

• Tighten the bolt (brake hose guide), temporary tighten the bolt (fuel tank stay) and tighten the bolt ("CHOKE" knob assembly).

Bolt (brake hose guide):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt ("CHOKE" knob assembly):  
23 Nm (2.3 m·kg, 17 ft·lb)

6. Install:  
• Fuel tank  
7. Tighten:  
• Bolt (fuel tank stay)  
• Air scoops  
• Side covers  
• Seat

# FRONT FORK INSPECTION/REAR SHOCK ABSORBER ADJUSTMENT



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

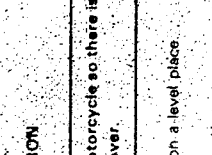
1. Place the motorcycle on a level place.

2. Check:  
• Inner tube  
• Scratch/Damage -- Replace.  
• Oil seal  
• Excessive oil leakage -- Replace.

3. Hold the motorcycle on upright position and apply the front brake.

4. Check:  
• Operation  
• Pump the front fork up and down for several times.  
• Unsmooth operation -- Repair.  
Refer to the "FRONT FORK" section in the "CHAPTER 7".

# FRONT FORK INSPECTION/REAR SHOCK ABSORBER ADJUSTMENT



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

1. Place the motorcycle on a level place.

2. Check:  
• Inner tube  
• Scratch/Damage -- Replace.  
• Oil seal  
• Excessive oil leakage -- Replace.

3. Hold the motorcycle on upright position and apply the front brake.

4. Check:  
• Operation  
• Pump the front fork up and down for several times.  
• Unsmooth operation -- Repair.  
Refer to the "FRONT FORK" section in the "CHAPTER 7".

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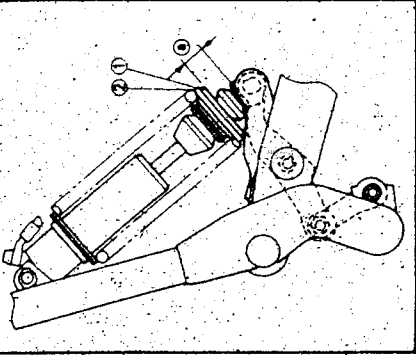
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# REAR SHOCK ABSORBER ADJUSTMENT



## Adjustment steps:

- Spring preload
- Loosen the locknut ① using the ring nut wrench.

Ring nut wrench:  
P/N. YM 36520  
P/N. 90890-01443

- Turn the adjuster ② in or out.

Turning in—Spring preload is increased.

Turning out—Spring preload is decreased.

## NOTE:

The length of the spring (installed) changes 1.0 mm (0.04 in) per turn of the adjuster.



## Measurement length ③

Standard:  
25.5 mm (1.0 in)

Minimum:  
22.5 mm (0.89 in)

Maximum:  
32.5 mm (1.28 in)

## CAUTION:

Never attempt to turn the adjuster beyond the maximum or minimum setting.

- Tighten the locknut.



## Locknut:

42 Nm (4.2 m•kg, 30 ft•lb)

## CAUTION:

Always tighten the locknut against the spring adjuster and torque the locknut to specification.

# TIRE INSPECTION



## Adjustment steps:

- Damping
- Adjust the damping with the damping adjuster ①

Adjuster position	Hard	S.T.D.	Soft
5	4	3	2
			1

## CAUTION:

Never attempt to turn the adjuster beyond the maximum or minimum setting.

## TIRE INSPECTION

- Measure:
  - Tire pressure
  - Out of specification—Adjust.

## WARNING:

Tire inflation pressure should be checked and adjusted when the temperature of the tire equals the ambient air temperature. The inflation pressure must be adjusted according to total weight of cargo, rider, passenger, and accessories (fairing, saddlebags, etc. if approved for this model), and vehicle speed.

Proper loading of your motorcycle is important for the handling, braking, and other performance and safety characteristics of your motorcycle. Do not carry loosely packed items that can shift. Securely pack your heaviest items close to the center of the motorcycle, and distribute the weight evenly from side to side. Properly adjust the suspension for your load, and check the condition and pressure of your tires. NEVER OVERLOAD YOUR MOTORCYCLE. Make sure the total weight of the cargo, rider, passenger, and accessories (fairing, saddlebags, etc. if approved for this model) does



tying adjuster

S.T.D.	Soft
2	1

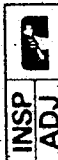
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## D-12



### TIRE INSPECTION

not exceed the maximum load of the motor-  
cycle. Operation of an overloaded motor-  
cycle could cause tire damage, an accident,  
or even injury.

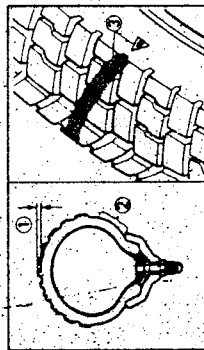
Basic weight: With oil and full-fuel tank	195 kg (430 lb)
Maximum load*	180 kg (397 lb)

Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	200 kPa (2.00 kg/cm <sup>2</sup> ; 28 psi)	200 kPa (2.00 kg/cm <sup>2</sup> ; 28 psi)
90 kg (198 lb) ~ Maximum load*	200 kPa (2.00 kg/cm <sup>2</sup> ; 28 psi)	225 kPa (2.25 kg/cm <sup>2</sup> ; 32 psi)

\*Load is the total weight of cargo, rider, passenger,  
and accessories.

#### 2. Inspect:

- Tire surfaces  
Wear/Damage - Replace.

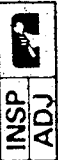


Minimum tire tread depth  
(front and rear):  
0.8 mm (0.03 in)

- ① Tread depth
- ② Side wall
- ③ Wear indicator

#### WARNING

- It is dangerous to ride with a wornout tire. When a tire tread begins to show lines, replace the tire immediately.
- 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.
- Do not attempt to use tubeless tires on a wheel designed for tube type tires only. Tire failure and personal injury may result from sudden deflation.



### TIRE INSPECTION

Tube type wheel - Tube type tire only
Tubeless type wheel - Tube type or tube- less tire

- Be sure to install the correct tube when using tube type tires.
- After extensive tests, the tires mentioned below have been approved by Yamaha motor Co., Ltd. for this model. No guarantee for handling characteristics can be given if tire combinations other than what is specified are used on this motorcycle. The front and rear tires should be of the same manufacture and design.

#### Front:

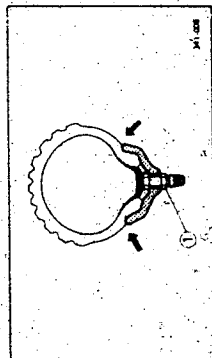
Manufacture	Size	Type
BRIDGESTONE	90/90-21 54S	TW41
DUNLOP	90/90-21 54S	TRAIL MAX G

#### Rear:

Manufacture	Size	Type
BRIDGESTONE	120/90-17 64S	TW42B
DUNLOP	120/90-17 64S	TRAIL MAX G

#### WARNING

- After mounting a tire, ride conservatively to allow proper tire to rim seating. Failure to do so may cause an accident resulting in motorcycle damage and possible operator injury.
- After a tire repair or replacement, be sure to torque tighten the valve stem locknut ① to specification.



Valve stem locknut: 1.5 Nm (0.15 m·kg, 1.1 ft·lb)
--

# WHEEL INSPECTION/ SPOKE INSPECTION AND TIGHTENING

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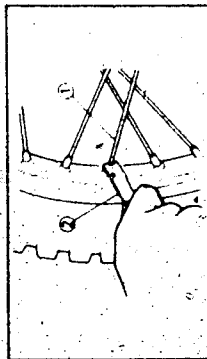
## WHEEL INSPECTION

1. Inspect:  
•Wheels  
Damage/Bends -- Replace.

NOTE:  
Always balance the wheel when a tire or wheel has been changed or replaced.

## WARNING

Never attempt even small repairs to the wheel.



## SPOKES INSPECTION AND TIGHTENING

1. Inspect:  
•Spokes ①  
Bend/Damage -- Replace  
Loose spoke -- Retighten.
2. Tighten:  
•Spokes  
② Spoke wrench

NOTE:  
Be sure to retighten these spokes before and after Break-in.

Nipple:  
1.5 Nm (0.15 m•kg, 1.1 ft•lb)

# D-13

## CABLE INSPECTION AND LUBRICATION/LEVER AND PEDAL LUBRICATION/SIDESTAND LUBRICATION

INSP  
ADJ

## CABLE INSPECTION AND LUBRICATION

Damaged cable sheath may cause corrosion and interfere with the cable movement. An unsafe condition may result so replace such cable as soon as possible.

1. Inspect  
•Cable sheath  
Damage -- Replace
2. Check  
•Cable operation  
Unsmooth operation -- Lubricate

Recommended lubricant:  
SAE 10W30 motor oil

NOTE:  
Hold cable end high and apply several drops of lubricant to cable

LEVER AND PEDAL LUBRICATION  
Lubricate the lever and pedal at their pivoting points

Recommended lubricant:  
SAE 10W30 motor oil

SIDESTAND LUBRICATION  
Lubricate the sidestand at pivoting points

Recommended lubricant:  
SAE 10W30 motor oil

# REAR SUSPENSION LUBRICATION

**REAR SUSPENSION LUBRICATION**  
Lubricate the swingarm and relay arms at their pivoting points.

**Recommended lubricant:**  
Lithium soap base grease.

① Grease nipple



# BATTERY INSPECTION

## ELECTRICAL

### BATTERY INSPECTION

**NOTE:**  
Since the MF battery is of a sealed-type construction, it is impossible to measure the specific gravity of the electrolyte in order to check the state of charge in the battery. Therefore, to check the state of charge in the battery, voltage must be measured at the battery terminals.



### CAUTION

#### CHARGING METHOD

- This battery is sealed type. Never remove sealing caps even when charging. With the sealing cap removed, this balancing will not be maintained, and battery performance will lower gradually.
- Never add water. If distilled water is added, chemical reaction in the battery will not proceed in the normal way, thus making it impossible for the battery to operate regularly.
- The charging time, charging current and charging voltage for the MF battery is different than general type batteries. The MF battery should be charged as instructed in the "Charging method". Should the battery be overcharged, the electrolyte level will lower extremely. Therefore, use special care when charging the battery.
- Avoid using any electrolyte other than specified. The specific gravity of the MF battery electrolyte is 1.32 at 20°C (68°F). (The specific gravity of the general type battery electrolyte is 1.28.) If the electrolyte whose specific gravity is less than 1.32, the sulfuric acid will decrease and thus low battery performance will result. Should any electrolyte, whose specific gravity is 1.32 or more, be used, the battery plates will corrode and battery life will shorten.

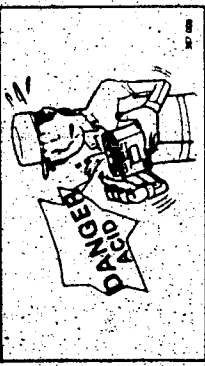
type correct; specific gravity check the state of charge; to check the state of charge must be 1.20 or higher.

Never remove battery while engine is running. With the engine off, check the state of charge. Should any electrolyte spill, it will corrode the battery.

# BATTERY INSPECTION

INSP ADJ.

D-15



## WARNING

Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic. Always follow these preventive measures:

- Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.
- Wear protective eye gear when handling or working near batteries.

## Antidote (EXTERNAL):

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

## Antidote (INTERNAL):

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

Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)
- DO NOT SMOKE when charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.



## 1. Remove

- Seat ①
  - Side cover ② (left)
- Refer to the "SEAT, FUEL TANK AND COVER" section.

## 2. Disconnect:

- Battery leads

Disconnect the negative lead first and then disconnect the positive lead.

## 3. Remove:

- Battery

# BATTERY INSPECTION

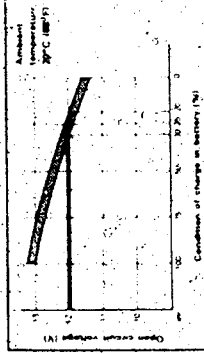
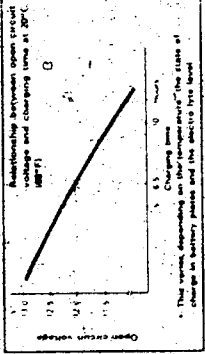
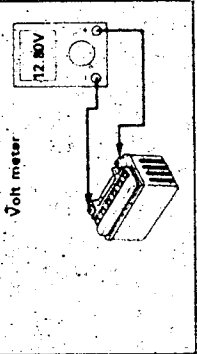
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## 4. Check:

- Battery condition.

## Battery condition checking steps:

- Connect a digital volt meter to the battery terminals.



Tester (+) lead - Battery (+) terminal.  
Tester (-) lead - Battery (-) terminal.

## NOTE:

The state of a discharged MF battery can be checked by measuring open circuit voltage (the voltage measured with the positive terminals being disconnected).

Open-circuit voltage	Charging time
12.8V or more	No charging is necessary.

- Check the battery condition using figure.

Example:  
Open circuit voltage = 12.0V  
Charging time = 6.5 hours  
Condition of charge in battery = 20 - 30%.

## 5. Charging method of MF battery

## CAUTION:

- If it is impossible to set the standard charging current, this type of battery charger cannot charge the MF battery.
- When charging the battery, be sure to remove it from the machine. If charging has to be done with the battery mounted on the machine for some reason, be sure to disconnect the wire at the negative terminal.
- Never remove the sealing plug from the MF battery.

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any (-) terminal:

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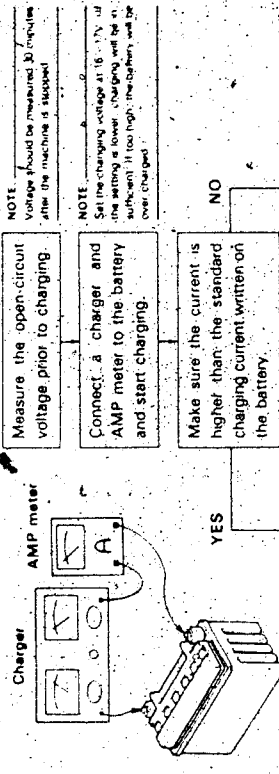
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g plug from the MF

- Use special care so that charging clips are in a full contact with the terminal and that they are not shorted. (A corroded clip of the charger may cause the battery to generate heat at the contact area. A weak clip spring may cause sparks.)
- Before removing the clips from the battery terminals, be sure to turn off the power switch of the charger.
- Change in the open-circuit voltage of the MF battery after being charged is shown below. As shown in the figure, the open-circuit voltage is stabilized 30 minutes after charging has been completed. Therefore, to check the condition of the battery, measure the open-circuit voltage 30 minutes after charging has been completed.



Charging method using a variable-current (voltage) type charger



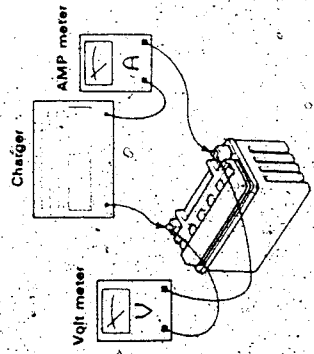
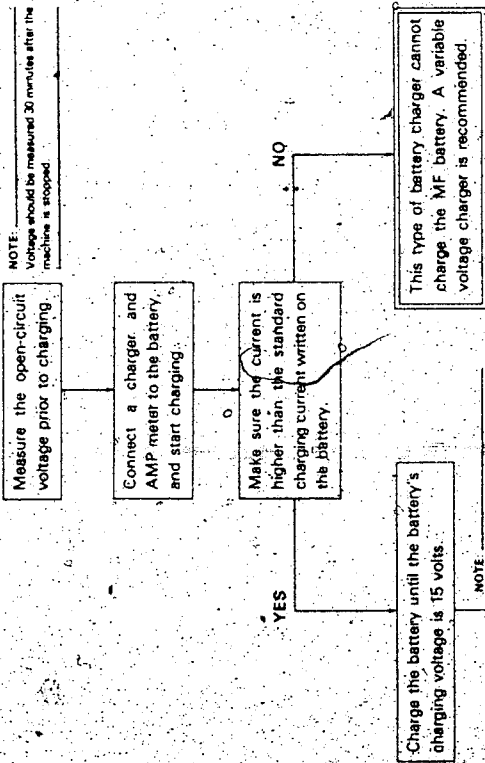
Set the timer according to the charging time suitable for the open-circuit voltage. Refer to the "Battery condition checking steps" section.

In case that 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 having left the battery unused for more than 30 minutes.  
12.8V or more - Charging is complete  
12.7V or less - Recharging is required.  
Under 12.0V - Replace the battery.



Charging method using a constant-voltage type charger



Charging method using a constant current type charger.  
This type charger cannot charge the MF battery.

6. Inspect:
- Battery terminal
  - Dirty terminal - Clean with wire brush.
  - Poor connection - Correct.
- NOTE: After cleaning the terminals, apply grease lightly to the terminals.
7. Install:
- Battery
8. Connect:
- Battery leads

**CAUTION:**  
Connect the positive lead first and then connect the negative lead.

9. Install:
- Side cover (left)
  - Seat

Bolt (side cover):  
7 Nm (0.7 m·kg, 5.1 ft·lb)  
Bolt (seat):  
10 Nm (1.0 m·kg, 7.2 ft·lb)

**CAUTION:**  
Don't forget to turn off the main switch when checking or replacing the fuse. Otherwise, it may cause accidental short-circuiting.

1. Remove:
- Seat (1)
  - Side cover (2) (left)
- Refer to the "SEAT, FUEL TANK AND COVER" section.





brush

ease lightly

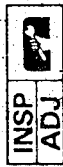
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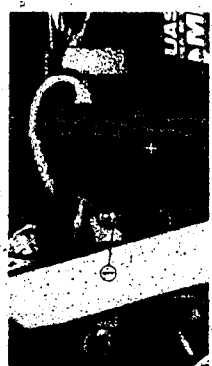


## FUSE INSPECTION

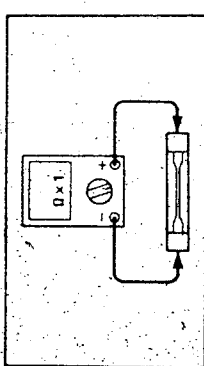
## E-2



## HEADLIGHT BEAM ADJUSTMENT/ HEADLIGHT BULB REPLACEMENT



2. Remove:
- Fuse ①



3. Inspect:

- Fuse

### Inspection steps:

- Connect the Pocket Tester to the fuse and check it for continuity.

### NOTE:

Set the tester selector to "0 x 1" position.



Pocket tester:

P/N: YU-03112

P/N: 90690-03112

- If the tester is indicated at ∞. The fuse is blown. replace it.

4. Replace:

- Blown fuse

### Blown fuse replacement steps:

- Turn off ignition and the circuit.
- Install a new fuse of proper amperage.



Fuse:

20 amps x 1 pc.

- Turn on switches to verify operation of electrical device.

- If fuse blows immediately again, check circuit in question.

### WARNING

Never use a fuse with a rating other than specified, or other material in place of a fuse. An improper fuse may cause damage to the electrical system and possible cause a fire, or the lighting and/or ignition may cease to function.



420301

### HEADLIGHT BEAM ADJUSTMENT

1. Adjust:

- Headlight beam (vertical)

Turn the adjuster ① in or out.

Turning in

Headlight beam moves to lower.

Turning out

Headlight beam moves to raise.

2. Adjust:

- Headlight beam (horizontal)

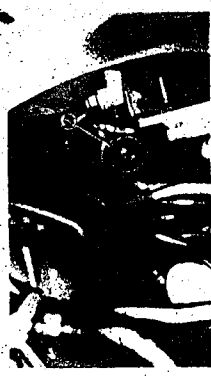
Turn the adjuster ② in or out.

Turning in

Headlight beam moves to right.

Turning out

Headlight beam moves to left.



740301

### HEADLIGHT BULB REPLACEMENT

1. Remove:

- Inner panel ①

Refer to the "COWLING" section.



2. Disconnect:

- Headlight leads ①

3. Remove:

- Bulb cover ②



cover)  
0.7 m.-kg. 5.1 ft.-lb)  
1)  
(1.0 m.-kg. 7.2 ft.-lb.)

#### M ADJUSTMENT

m (vertical)  
ster ① in or out

flight beam moves to

flight beam moves to raise

m (horizontal)  
ster ② in or out

flight beam moves to right  
flight beam moves to left

#### B REPLACEMENT

COWLING: section

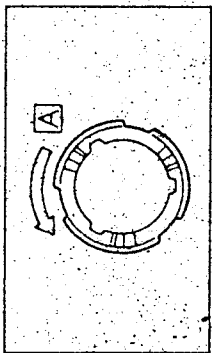
### HEADLIGHT BULB REPLACEMENT

- Remove:  
• Bulb

Unhook the bulb.

#### WARNING

Keep flammable products and your hands away from the bulb while it is on. It will be hot. Do not touch the bulb until it cools down.



- Turn

- Install:  
• Bulb (new)

Secure the new bulb with the bulb holder.

#### CAUTION:

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

- Install:  
• Bulb cover

- Connect:  
• Headlight leads

- Install:  
• Inner panel