YAMAHA

YFZ350T

SERVICE MANUAL

2GU-28197-20

YFZ350T
SERVICE MANUAL

1st Edition, August 1986

Printed in Japan

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha machines have a basic understanding of the mechanical concepts and procedures inherent in machine repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

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

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

NOTE: A NOTE provides key information to make procedures easier or clearer.

CAUTION: A CAUTION indicates special procedures that must be followed to avoid damage to the machine.

WARNING: A WARNING indicates special procedures that must be followed to avoid injury to a machine operator or person inspecting or repairing the machine.

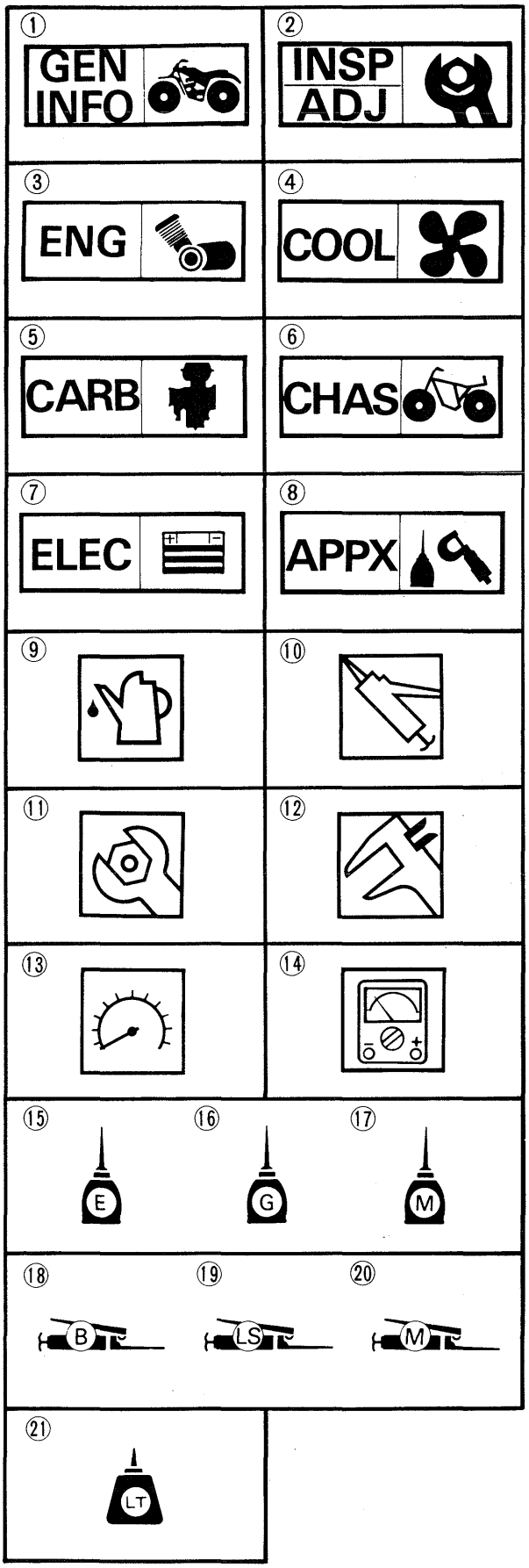
MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and asse mbly procedures.



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.

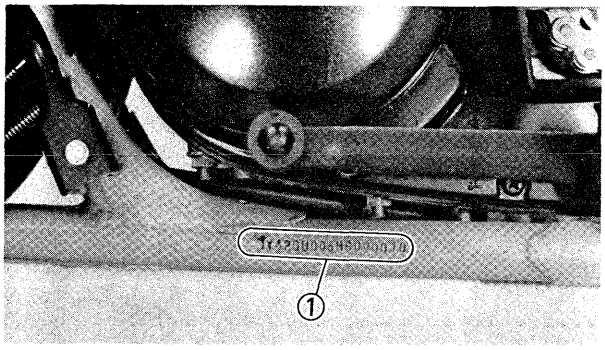
⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

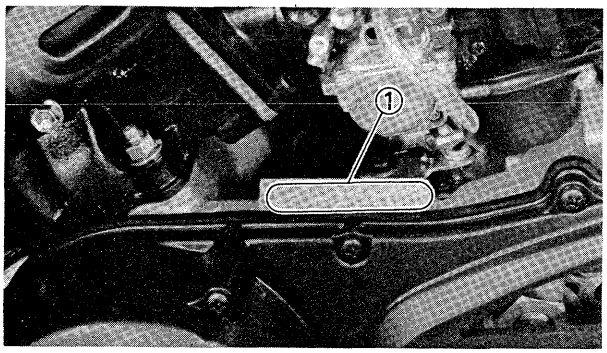
Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)

INDEX

CHAPTER 1
GENERAL INFORMATION





GENERAL INFORMATION

MACHINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number (1) is stamped into the left side of the lower pipe.

Starting Serial Number:
JY42GU00*HC000101

ENGINE SERIAL NUMBER

The engine serial number (1) is stamped into the left side of the engine.

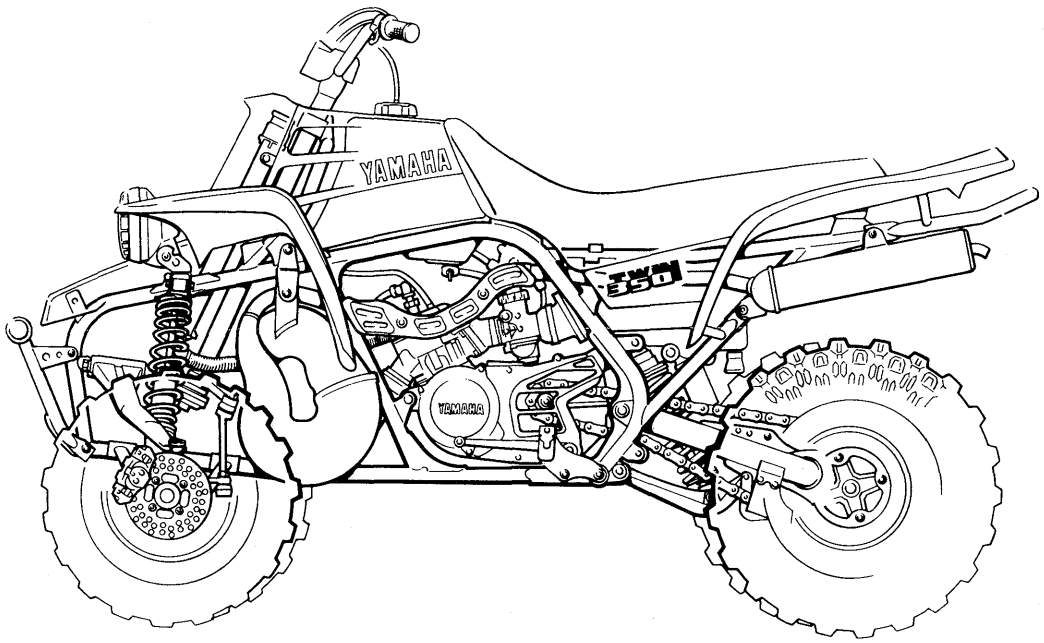
NOTE:

The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

Starting Serial Number:
YFZ350T 2GU-000101

NOTE:

Designs and specifications are subject to change without notice.



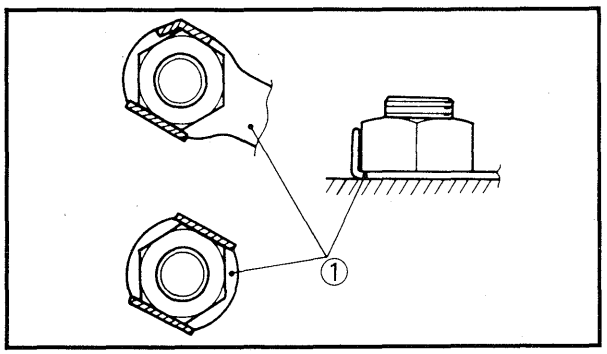
IMPORTANT INFORMATION

ALL REPLACEMENT PARTS

1. We recommend to use Yamaha genuine parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment.

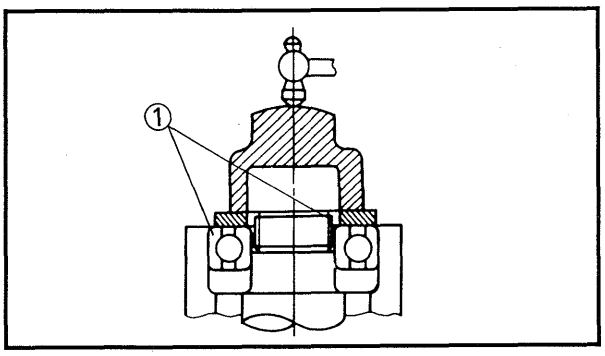
GASKETS, OIL SEALS AND O-RINGS

1. All gaskets, seals and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



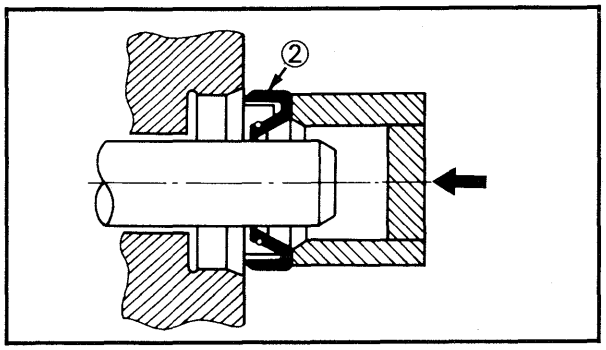
LOCK WASHERS/PLATES AND COTTER PINS

1. All lock washers/plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt for nut flat(s) after the bolt or nut has been properly tightened.



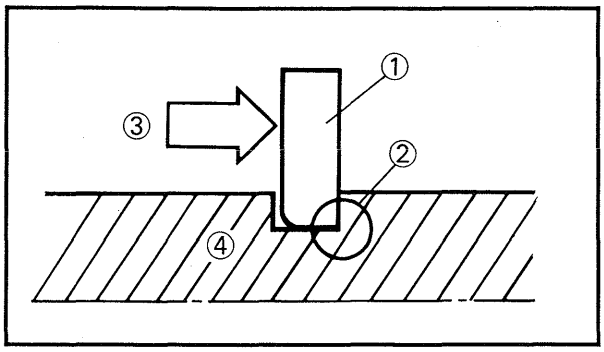
BEARINGS AND OIL SEALS

1. Install the bearing(s) ① and oil seal(s) ② with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.



CAUTION:

Do not use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.



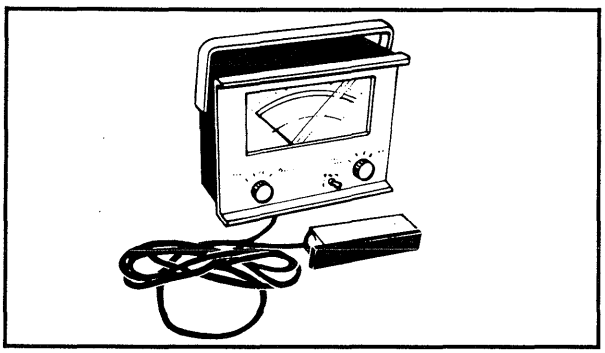
CIRCLIPS

1. All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp-edged corner ② is positioned opposite to the thrust ③ it receives. See the sectional view.

④ Shaft

SPECIAL TOOLS

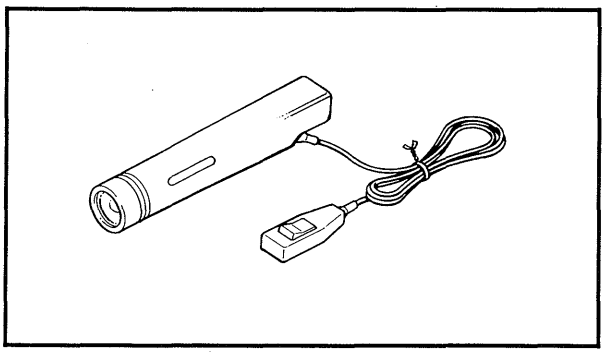
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE-UP

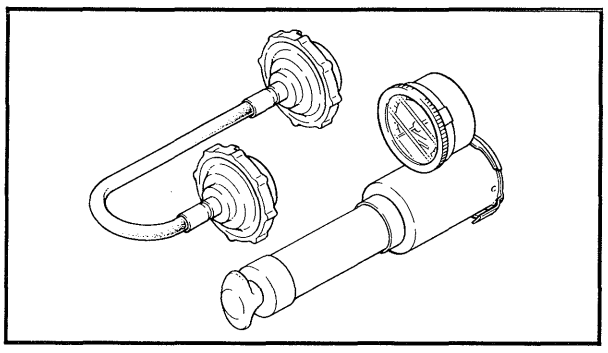
1. Inductive Tachometer
   P/N. YU-08036

This tool is needed for detecting engine rpm.



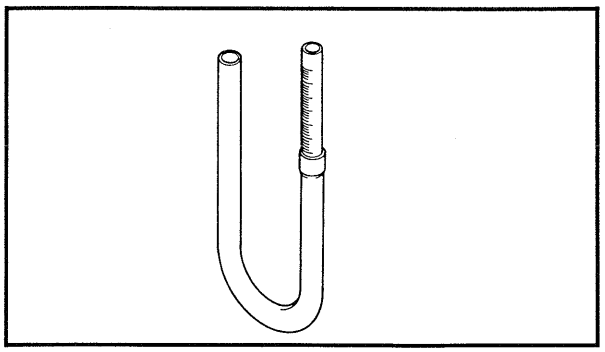
2. Inductive Timing Light
   P/N. YM-33277

This tool is necessary for checking ignition timing.



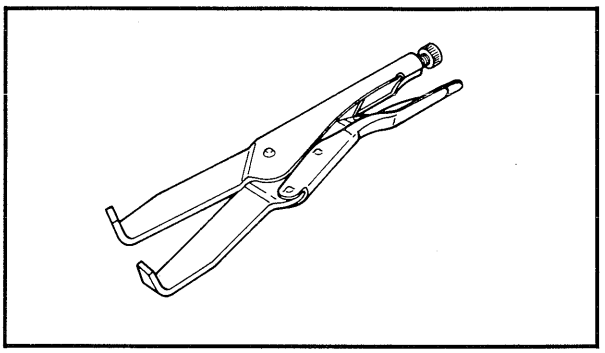
3. Cooling system Tester
   P/N. YU-24460-01

This tester is needed for checking the cooling system.



4. Fuel Level Gauge
   P/N. YM-01312

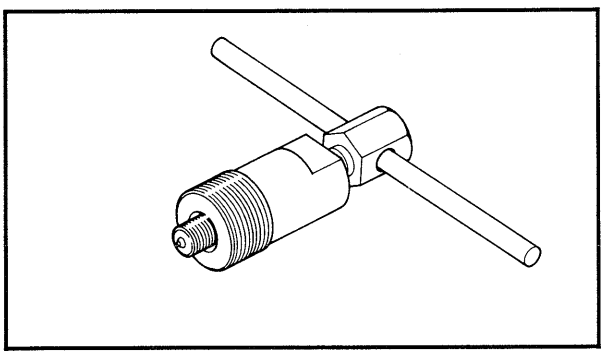
This gauge is used to measure the fuel level in the float chamber.



FOR ENGINE SERVICE

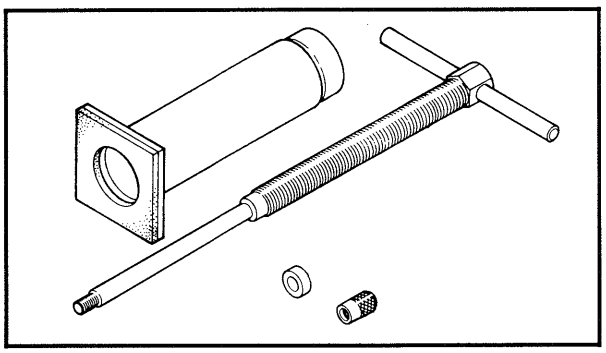
1. Universal Clutch Holder
   P/N. YM-91042

This tool is used to hold the clutch when removing or installing the clutch boss locknut.



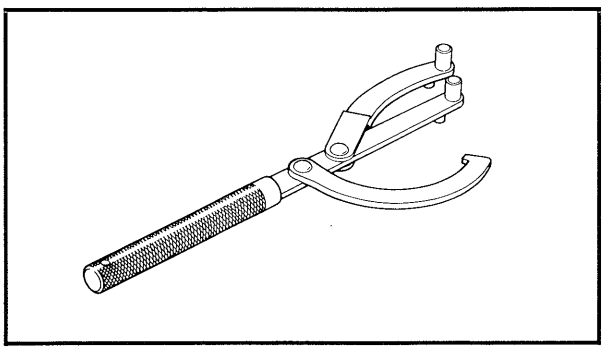
2. Flywheel Magneto Puller
   P/N. YM-01189

This tool is used to remove the flywheel.



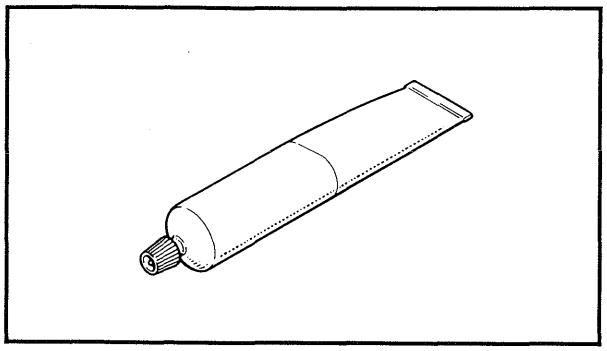
3. Piston Pin Puller
   P/N. YU-01304

This tool is used to remove the piston pin.



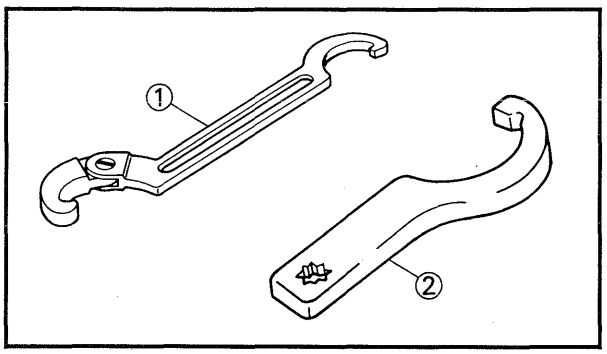
4. Rotor Holder
   P/N. YU-01235

This tool is used when loosening or tightening the flywheel magneto securing bolt.



5. Yamabond No.4®
   P/N. ACC-11001-30-00

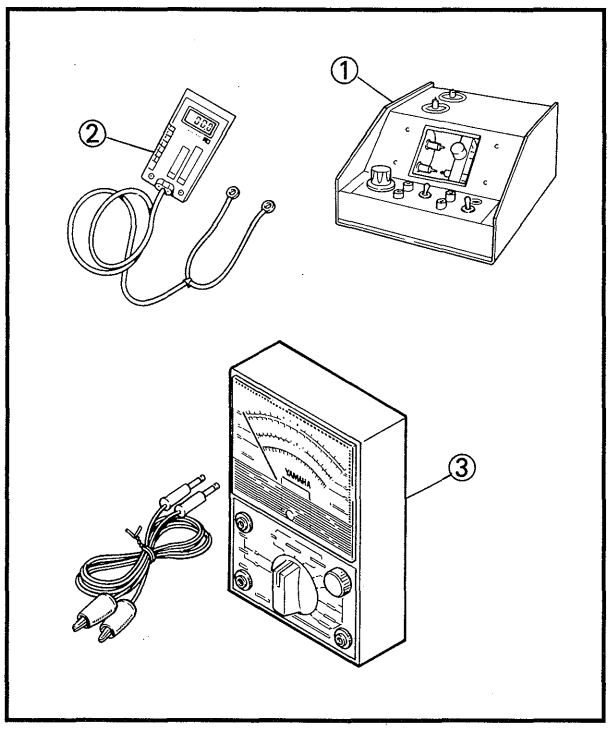
This sealant (bond) is used for crankcase mating surfaces, etc.



FOR CHASSIS SERVICE

1. Ring Nut Wrench
   P/N. YU-01268 ..... ①
   YU-33975 ..... ②

These tools are used to loosen and tighten the ring nut.



FOR ELECTRICAL COMPONENTS

1. Electro Tester
   P/N YU-33260 — ①

This instrument is necessary for checking the ignition system components.

2. Pocket Tester
   P/N YU-33263 — ② or
   P/N YU-03112 — ③

This instrument is invaluable for checking the electrical system.

CHAPTER 2.
PERIODIC INSPECTIONS AND ADJUSTMENTS

PERIODIC INSPECTIONS AND ADJUSTMENTS

MAINTENANCE INTERVALS

The following schedule is intended as a general guide to maintenance and lubrication. Bear in mind that such factors as weather, terrain, geographical location, and individual usage will alter the required maintenance and lubrication intervals.

Item	After break-in	Every 30 operation days	Every year	Remarks
TRANSMISSION Replace oil	●		●	Yamalube 4-cycle oil or SAE 10W30 SE motor oil
COOLING SYSTEM Check coolant leakage	●	●		Replace coolant every 2 years
SPARK PLUG Inspect and clean Replace if necessary	●	●		STD plug: BR8ES (For Canada and S. Africa) B8ES and W24ES (Except for Canada and S. Africa)
AIR FILTER Clean and oil Replace if necessary	●	●		Use Foam air-filter oil
*CARBURETOR Inspect, adjust and clean	●	●		
*FUEL LINE Check fuel hose for cracks or damage Replace if necessary		●		
THROTTLE OPERATION Inspect	●	●		
FRONT AND REAR BRAKE OPERATION Inspect and adjust free play if necessary	●	●		
FRONT AND REAR BRAKE FLUID Check fluid level and leakage	●	●		Fluid: DOT #4
*FRONT AND REAR BRAKE PAD Check pads wear Replace if necessary		●		
*CLUTCH Inspect free play and operation Adjust if necessary	●	●		
DRIVE CHAIN Lubricate, free play, alignment Replace if necessary	●	●		Use chain lube or SAE 30~50 motor oil Free play: 15 mm (0.59 in)
*DRIVE CHAIN GUARD AND ROLLERS Check wear and replace if necessary		●		Wear and alignment
*STEERING SYSTEM Inspect free play Clean and lube	●	●	●	Medium weight wheel bearing grease
*FRONT SUSPENSION Inspect and lubricate	●	●		Lithium base grease
*REAR SUSPENSION Inspect and lubricate	●	●		Lithium base grease

Item	After break-in	Every 30 operation days	Every year	Remarks
TIRE, WHEELS Inspect air pressure, wheel run-out, and tire wear *Inspect bearings Replace bearings if necessary	●	●		Medium weight wheel bearing grease
THROTTLE, CONTROL CABLE Check routing and connection *Lubricate	●	●	●	Yamaha cable lube SAE 10W30 motor oil
OUTSIDE NUTS AND BOLTS Retighten	●	●		
FRAME Clean and inspect		●		
LIGHTING EQUIPMENT Inspect	●	●		

*It is recommended that these items be serviced by a Yamaha dealer.

NOTE:

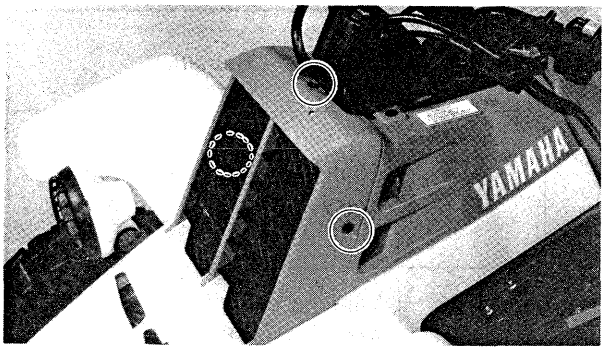
Brake fluid replacement:

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. On the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
3. Replace the brake hoses every four years, or if cracked or damaged.

Recommended brake fluid:

DOT #4

If DOT #4 is not available, #3 can be used.

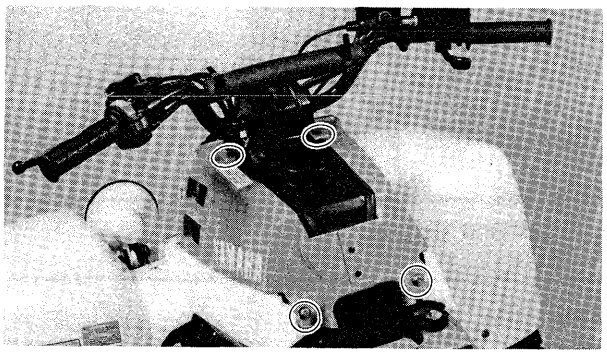


ENGINE

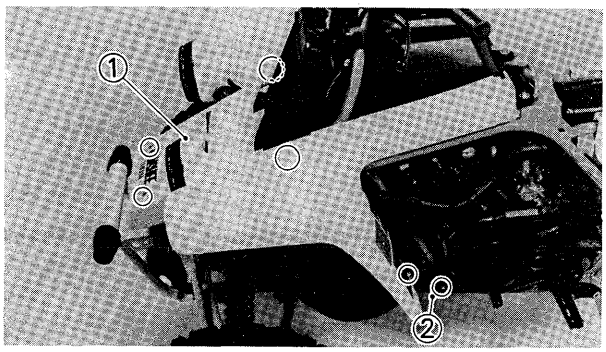
CARBURETOR SYNCHRONIZATION

Carburetors must be adjusted to open and close simultaneously.

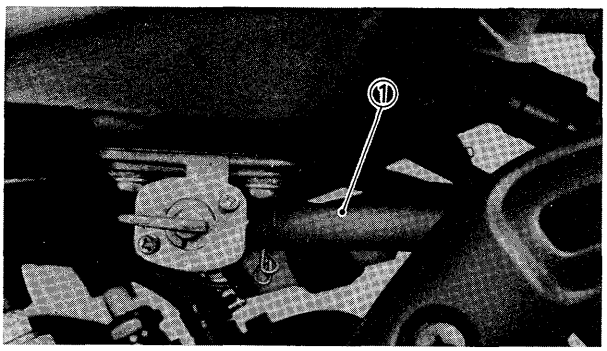
1. Remove:
   - Seat
   - Radiator cover



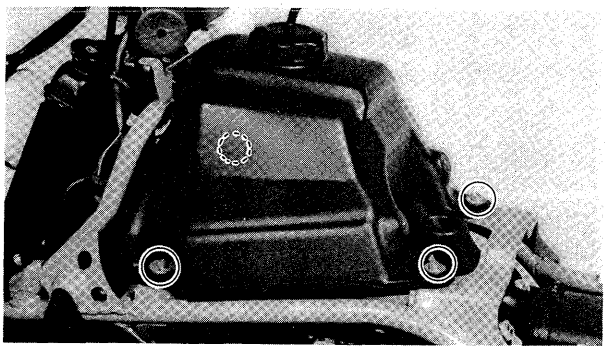
2. Remove:
   - Fuel tank cover



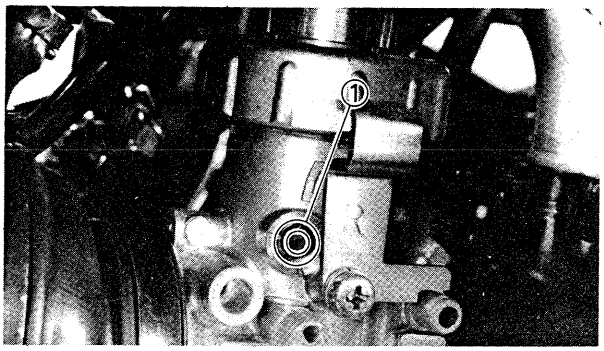
3. Remove:
   - Front fender ①
   - Front fender stay ②



4. Turn the fuel cock to the "OFF" position.
5. Disconnect:
   - Fuel hose ①

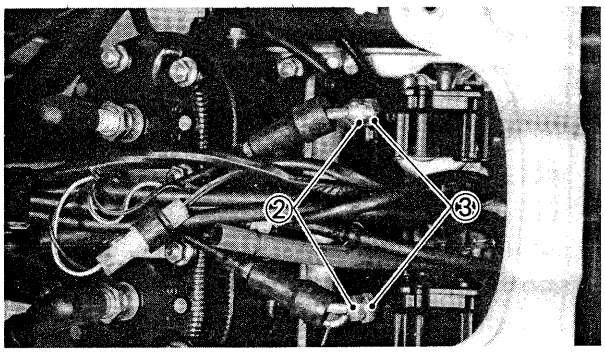


6. Remove:
   - Fuel tank



7. Check:
   - Alignment marks ①
     On the throttle valve.
     Not aligned→Adjust the throttle cable.

Throttle cable adjustment steps:
- Snap the throttle lever a few times.
- Open the throttle lever until the alignment mark appears in the center of the window ① of the right carburetor.
- While keeping the throttle lever at this position, check the left carburetor window for the presence of the alignment mark at the same position.
- If not, adjust the throttle cable for the left carburetor.
- Loosen the locknut ②.
- Turn the adjuster ③ in or out until the alignment mark comes to the same position.
- Tighten the locknut.
- Finally check that both alignment marks appear at the same position at the same time.
- If not, repeat the above steps.



8. Check:
   - Idle speed
     Refer to "IDLE SPEED ADJUSTMENT" section.
9. Check:
   - Throttle lever free play
     Refer to "THROTTLE LEVER ADJUSTMENT" section.
10. Install:
    - Fuel tank
    - Front fender
    - Fuel tank cover
    - Radiator cover
    - Seat

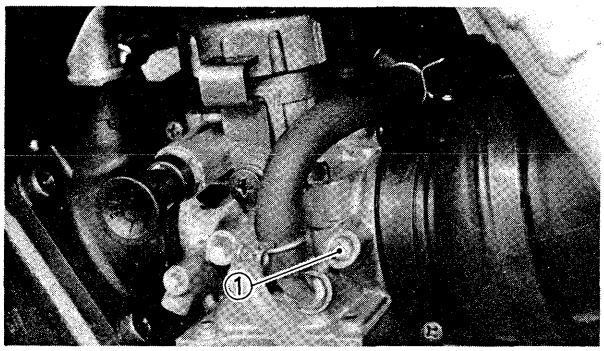
IDLE SPEED ADJUSTMENT

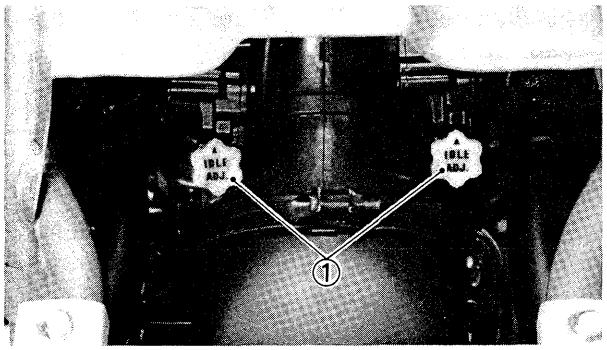
NOTE:

The carburetor synchronization should be set properly before adjusting the idle speed.

1. Remove:
   - Seat

IDLE SPEED ADJUSTMENT





2. Adjust:
   - Idle speed

Idle speed adjustment steps:
- Turn in both pilot air screw (1) until they lightly seat.

NOTE:

Right-hand carburetor pilot air screw located on inboard side of right carburetor.

- Turn out both pilot air screw to specification.

Pilot air screw (Turns out):
2.0

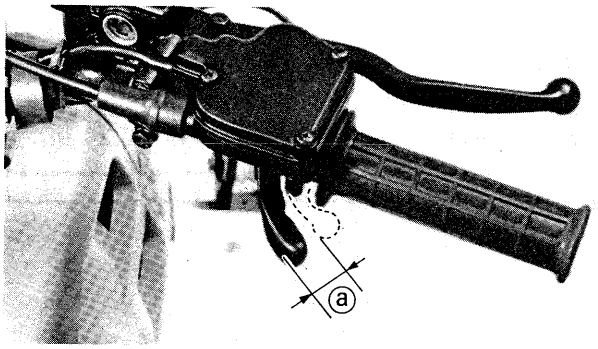
- Start the engine and let it warm up.
- Adjust the idle speed by turning the idle speed adjust screw (1) in or out until the specific engine speed is obtained.

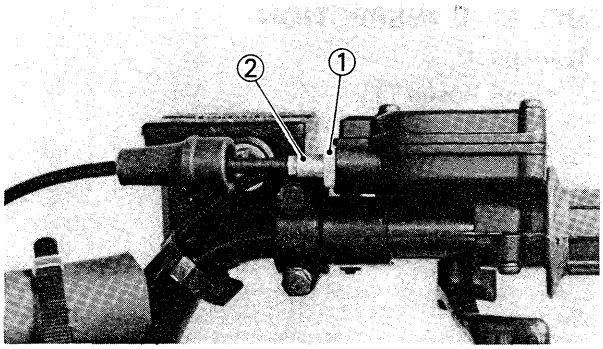
Engine Idle Speed:
1,450 ~ 1,550 r/min

NOTE:

- Idle speed adjust screws were preset at the factory. When adjusting idle speed, turn the right hand and left hand idle speed adjust screws in the same extent, or synchronization will be out.
- The pilot air screws and idle speed adjust screws are separate adjustments but they must be adjusted at the same time to achieve optimum operating condition at engine idle speeds.

3. Install:
   - Seat
4. Check:
   - Throttle lever free play
     Refer to "THROTTLE LEVER ADJUSTMENT" section.





THROTTLE LEVER ADJUSTMENT

NOTE:

Before adjusting the throttle lever free play, the carburetor synchronization should be set properly.

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

Throttle Lever Free Play ⓐ:
4 ~ 6 mm (0.16 ~ 0.24 in)

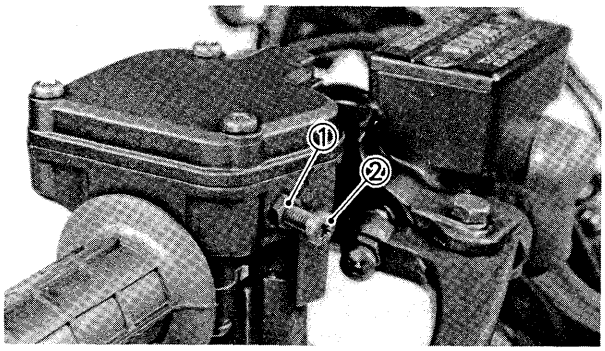
2. Adjust:
   - Throttle lever free play

Throttle lever free play adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② clockwise or counterclockwise until proper free play is attained.
- Tighten the locknut.

2

SPEED LIMITER ADJUSTMENT

The speed limiter keeps the carburetor throttle from becoming full-open even when the throttle grip is turned to a maximum. Screwing in the adjuster stops the engine speed from increasing.



1. Adjust:
   - Speed limiter length

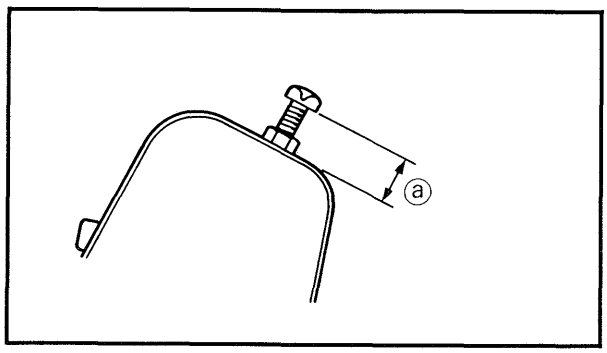
Speed limiter length adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② clockwise or counterclockwise until proper length is attained.

Speed Limiter Length ⓐ:
12 mm (0.47 in)

- Tighten the locknut.

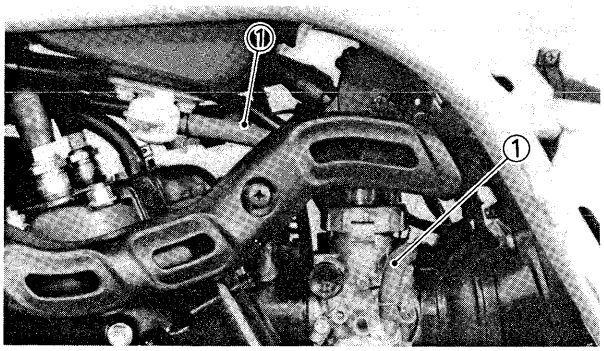
WARNING:

- **Particularly for a beginner rider, the speed limiter should be screwed in completely. Screw it out little by little as his riding technique improves. Never remove the speed limiter from the outset.**



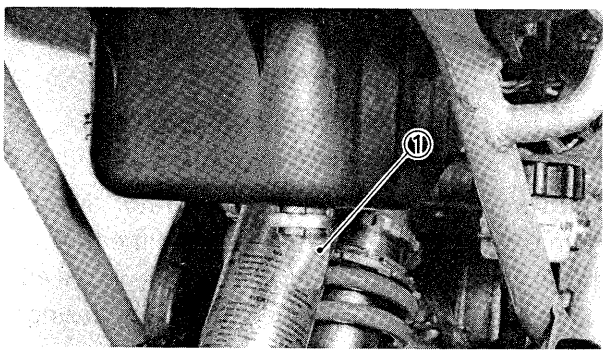
• For proper throttle lever operation do not turn out the adjuster more than 12 mm (0.47 in). Also adjust the throttle lever free play always to 4 ~ 6 mm (0.16 ~ 0.24 in).

2



FUEL LINE INSPECTION

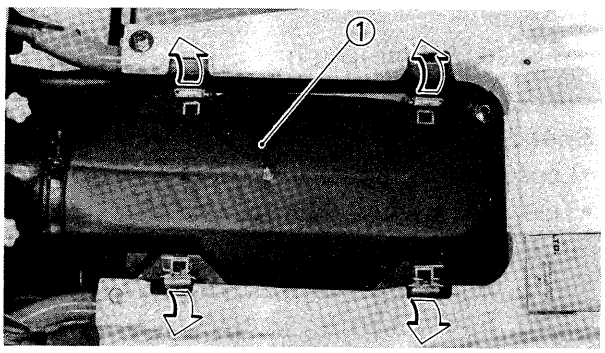
1. Inspect:
   • Fuel hoses ①
   Cracks/Damage → Replace.



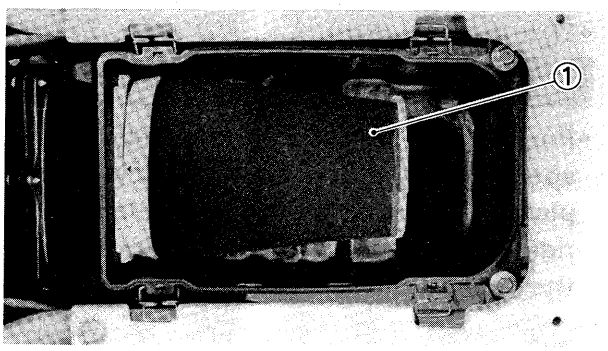
AIR FILTER CLEANING

NOTE:

There is a check hose ① at the bottom of the air filter case. If dust and/or water collects in this hose, clean the air filter element and air filter case.



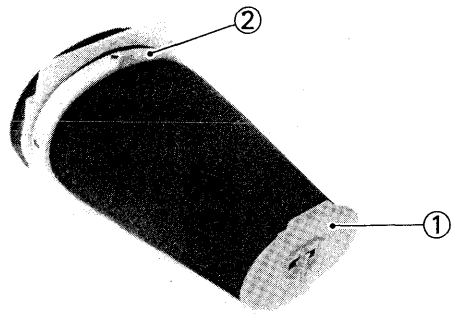
1. Remove:
   • Seat
   • Filter case ①



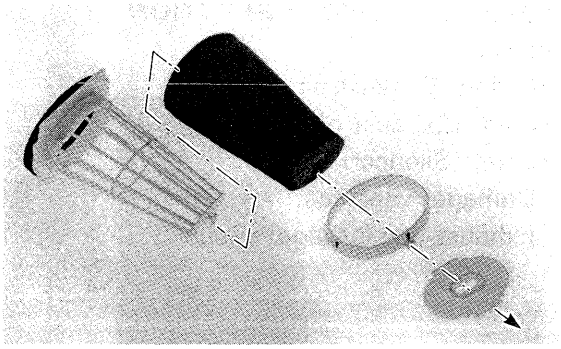
2. Remove:
   • Air filter ①

CAUTION:

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



3. Remove:
   - Element plate ①
     From the guide.
   - Element holder ②



4. Remove:
   - Air filter element
5. Clean:
   - Air filter element
     Clean it with solvent.

NOTE:

After cleaning, remove the remaining solvent by squeezing the element.

CAUTION:

Do not twist the filter element when squeezing the filter element.

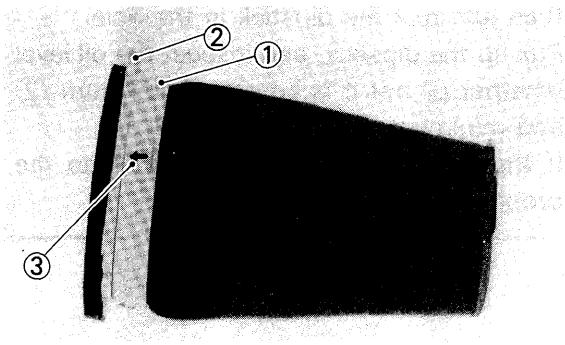
WARNING:

Never use low flash point solvents such as gasoline to clean the air filter element. Such solvent may lead to a fire or explosion.

6. Inspect:
   - Element
     Damage→Replace.
7. Apply:
   - SAE 10W30 motor oil
8. Squeeze out the excess oil.

NOTE:

The element should be wet but not dripping.

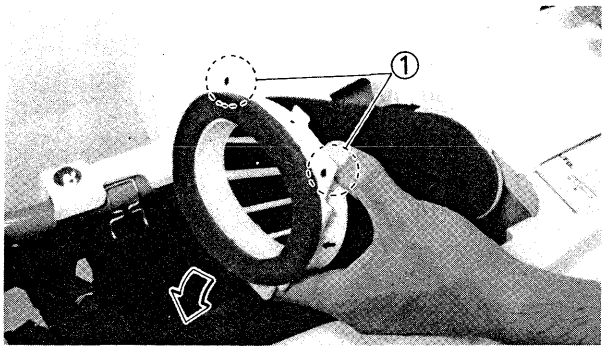


9. Apply:
   - All-purpose grease
     To the air filter seat.
10. Install:
    - Air filter element
    - Element holder ①
    - Element plate

NOTE:

The arrow mark ③ on the element holder ① must point to the element guide ②.

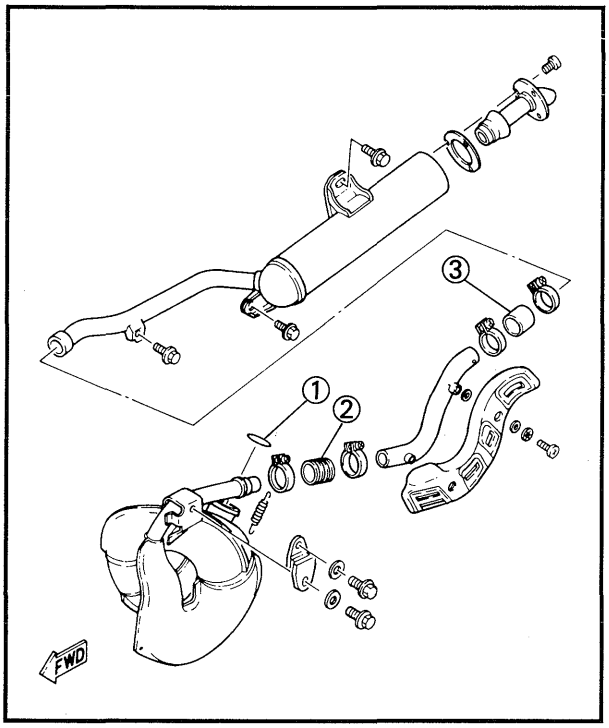
EXHAUST SYSTEM INSPECTION/ TRANSMISSION OIL LEVEL INSPECTION



11. Install:
    - Air filter

NOTE:

The arrow mark ① on the air filter guide should point to the upward of the air filter.



EXHAUST SYSTEM INSPECTION

1. Inspect:
    - O-ring (Exhaust pipe) ①
    - Joint (Exhaust pipe) ②
    - Joint (Silencer) ③

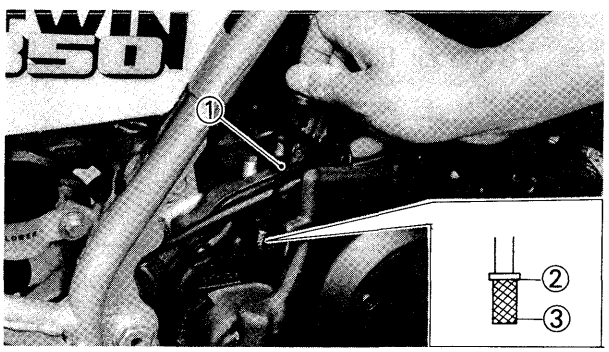
    Damage→Replace.
    Exhaust gas leakage→Repair.

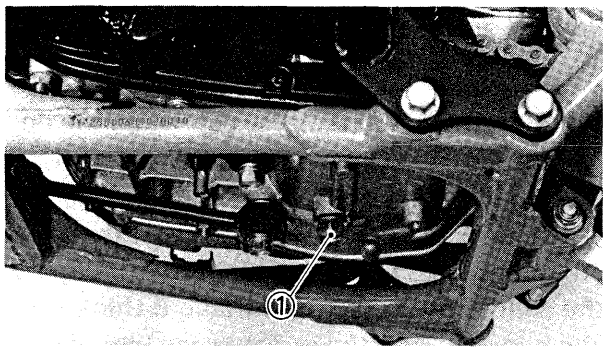
TRANSMISSION OIL LEVEL INSPECTION

1. Inspect:
    - Transmission oil level

    Oil level low→Add sufficient oil.

Transmission oil level inspection steps:
- Place the machine on a level place.
- Warm up the engine for several minutes, and stop it.
- Screw the dipstick ① completely out, and then just rest the dipstick in the hole.
- Pull up the dipstick, and inspect the oil level whether or not it is between maximum ② and minimum level ③.
- If the level is lower, add the oil up to the proper level.





TRANSMISSION OIL REPLACEMENT

1. Place the machine on a level place.
2. Warm up the engine for several minutes, and stop it.
3. Place an oil pan under the engine.
4. Remove:
   - Dip stick
   - Drain plug ①

   Drain the transmission oil.
5. Inspect:
   - Gasket (Drain plug)

   Damage→Replace.
6. Tighten:
   - Drain plug

Drain Plug:
20 Nm (2.0 m•kg, 14 ft•lb)

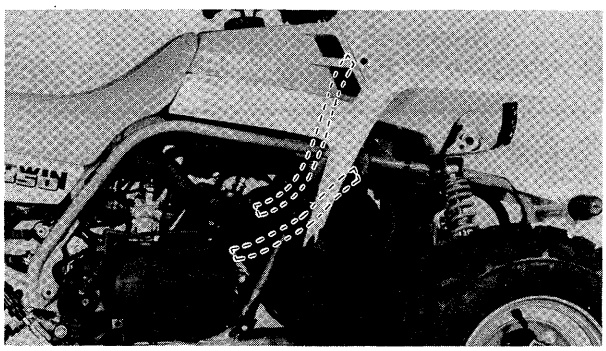
7. Fill:
   - Crankcase

Recommended Oil:
SAE 10W30 Type SE Motor Oil
Periodic Oil Change:
1.5 L (1.3 Imp qt, 1.6 US qt)

CAUTION:

Do not allow foreign material to enter the crankcase.

8. Install:
   - Dipstick
9. Inspect:
   - Oil leaks
   - Oil level



RADIATOR HOSE INSPECTION

1. Inspect:
   - Radiator hoses ①

   Crack/Damage/Coolant leakage→Repair or replace.
2. Inspect:
   - Cylinder
   - Crankcase cover

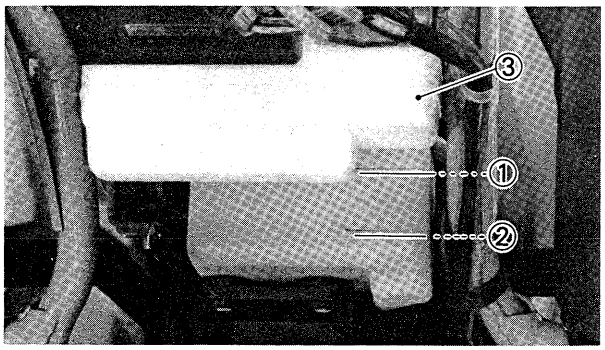
   Coolant leakage→Repair or replace.

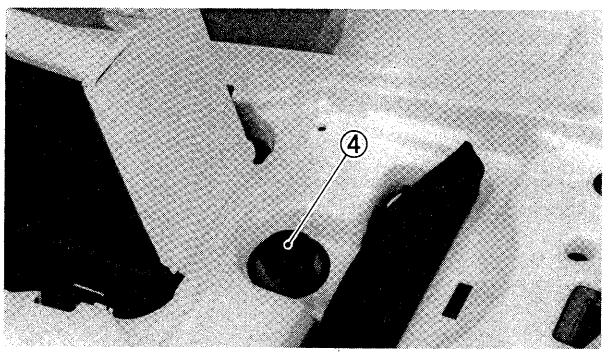
2

COOLANT LEVEL INSPECTION

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. Inspect:
   - Coolant level

   Coolant level low→Add sufficient coolant.

① "FULL" level
② "LOW" level
③ Reservoir tank
④ Reservoir tank cap

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:
2.5 L (2.20 Imp qt, 2.64 US qt)
Reservoir Tank Capacity:
0.28 L (0.25 Imp qt, 0.30 US qt)

CAUTION:

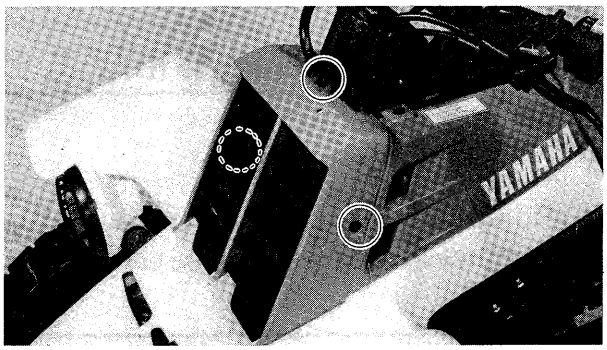
Hard water or salt water is harmful to the engine parts. You may use boiled water or distilled water, if you can't get soft water.

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

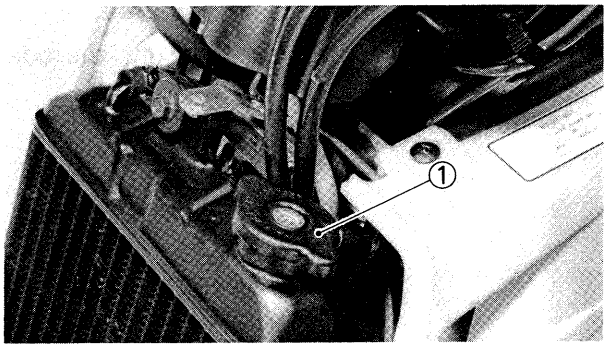
COOLANT REPLACEMENT

CAUTION:

Replace the coolant every two years. Before replacing, remove the radiator cap and check the color of the coolant and mineral deposits in the radiator. Flush the coolant system, as required.

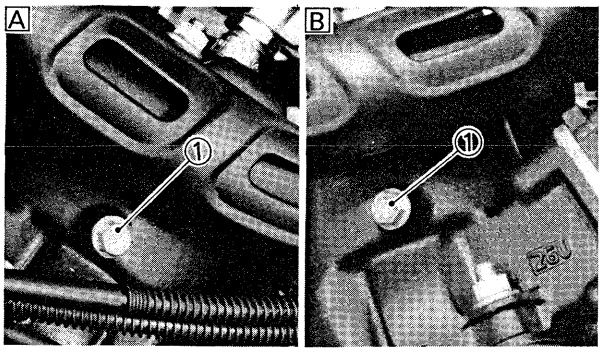


1. Remove:
   - Radiator cover



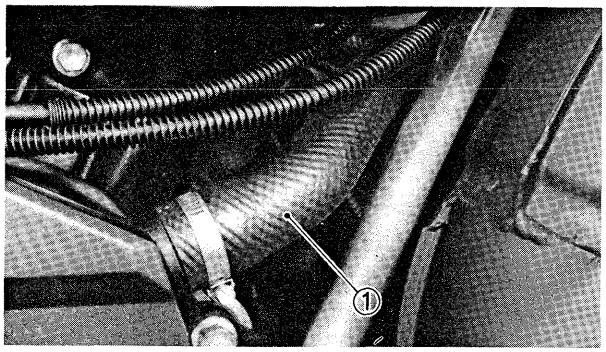
2. Remove:
   - Radiator cap ①

COOLANT REPLACEMENT



3. Remove:
   • Drain bolts ①

A Left side
B Right side



4. Remove:
   • Inlet hose ①
5. Drain:
   • Coolant (completely)

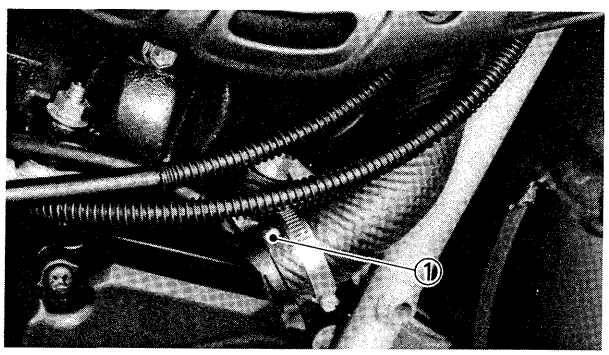
NOTE:

Thoroughly flush the cooling system with clean tap water.

CAUTION:

Take care so that coolant does not splash to painted surfaces. If splashes, wash it away with water.

6. Inspect:
   • Drain bolt gaskets
   Damage → Replace.
7. Tighten:
   • Drain bolts



	Drain Bolt: **14 Nm (1.4 m•kg, 10 ft•lb)**

8. Connect:
   • Inlet hose

NOTE:

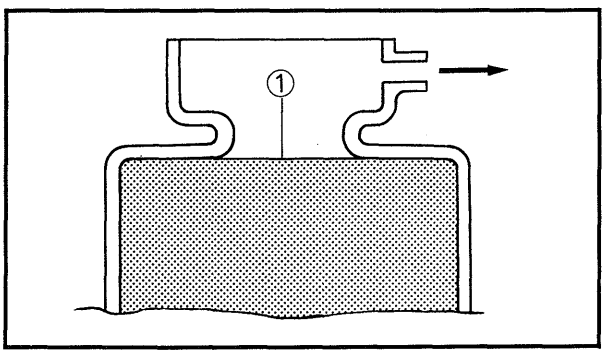
Connect the inlet hose with its white painted mark ① upward.

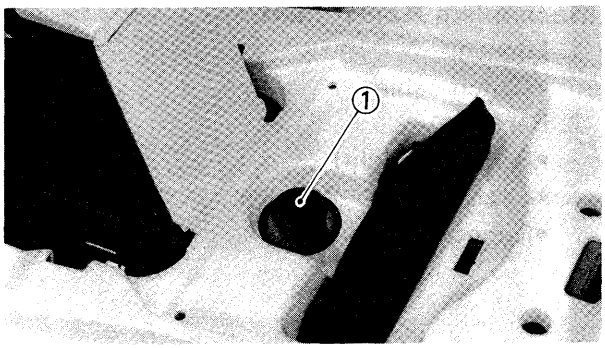
9. Fill:
   • Coolant
   Fill the coolant into the radiator until the radiator is full.

Recommended Coolant:
High Quality Ethylene Glycol Anti-Freeze Containing Anti-Corrosion for Aluminum Engine Inhibitors
Coolant and Water Mixed Ratio:
50%/50%
Total Amount:
2.5 L (2.20 Imp qt, 2.64 US qt)
Reservoir Tank Capacity:
0.28 L (0.25 Imp qt, 0.30 US qt)
From "LOW" to "FULL" Level:
0.07 L (0.06 Imp qt, 0.07 US qt)

CAUTION:

- **Hard water or salt water is harmful to the engine. You may use distilled water if you can't get soft water.**
- **Do not mix more than one type of ethylene glycol antifreeze containing corrosion for aluminum engine inhabitors.**

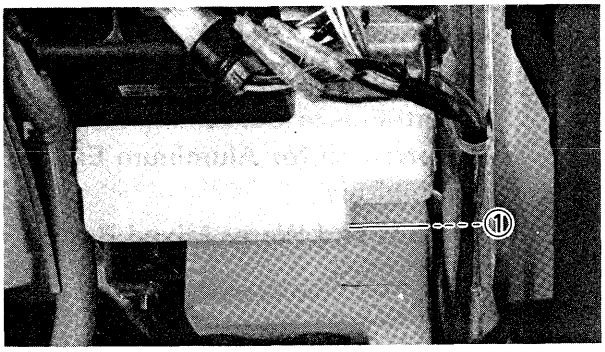




10. Install:
    - Radiator cap
11. Run the engine several minutes.

12. Inspect:
    - Coolant level ① in the radiator
      Coolant level low→Fill.
      Fill the coolant until it reaches the top of the radiator.

13. Remove:
    - Seat
    - Reservoir tank cap ①



14. Fill:
    - Coolant

    Fill the coolant in the reservoir tank until it reaches the "FULL" level line ① of the reservoir tank.

15. Install:
    - Reservoir tank cap
    - Seat

16. Inspect:
    - Cooling system

    Coolant leaks→Repair.

CAUTION:

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

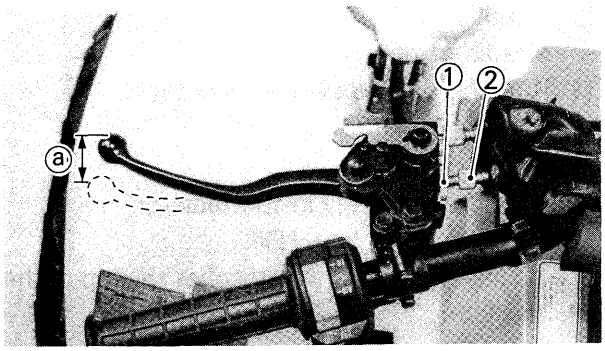
17. Install:
    - Radiator cover

CLUTCH ADJUSTMENT

Clutch Lever Free Play Adjustment

1. Loosen:
    - Adjuster locknut ①
2. Adjust:
    - Free play ⓐ

    Turn the adjuster ② in or out until correct free play is obtained.

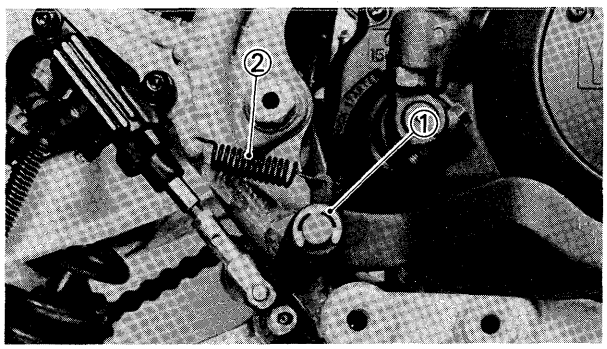


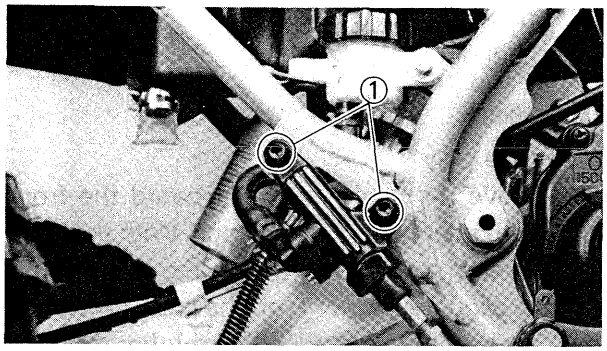
Clutch Lever Free Play:
10 ~ 15 mm (0.4 ~ 0.6 in)

3. Tighten:
    - Locknut

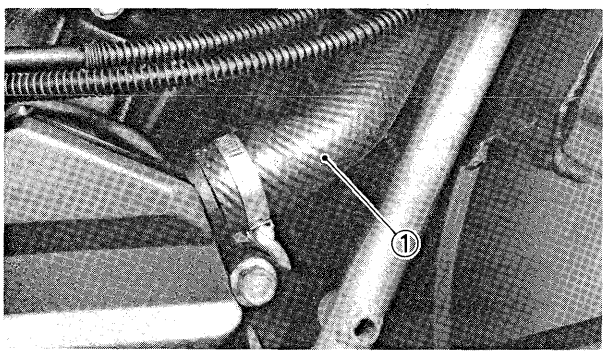
Mechanism Adjustment

1. Loosen:
    - Clutch cable
2. Remove:
    - Footrest (Right)
    - Circlip ①
    - Spring ②

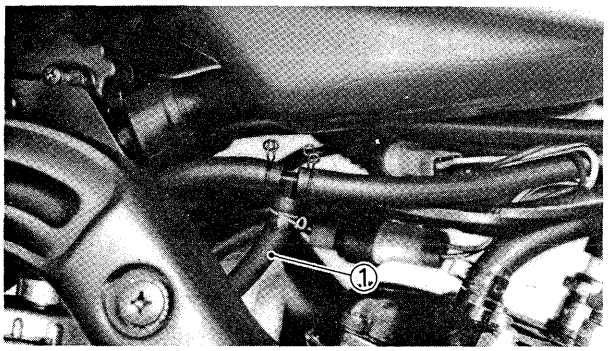




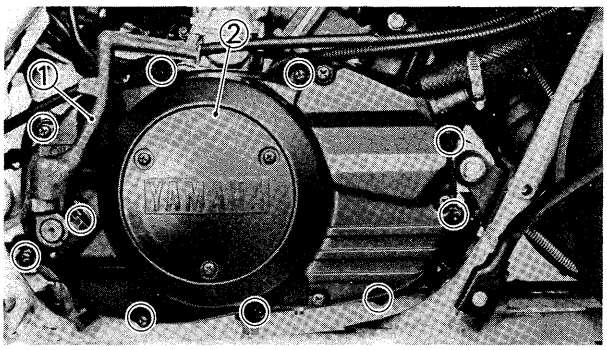
3. Remove:
   - Bolts ① (Rear brake master cylinder)
   - Rear brake pedal
4. Drain:
   - Transmission oil
     Refer to "TRANSMISSION OIL REPLACEMENT" section.
   - Coolant
     Refer to "COOLANT REPLACEMENT" section.



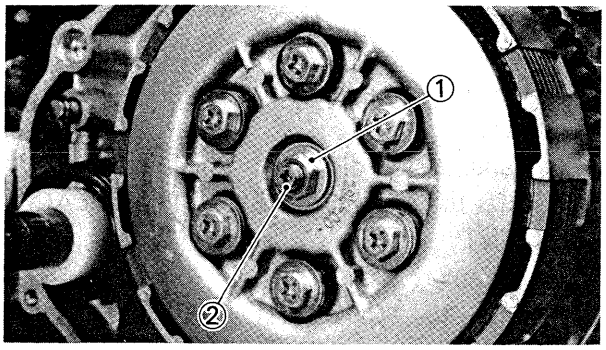
5. Disconnect:
   - Radiator hose ①

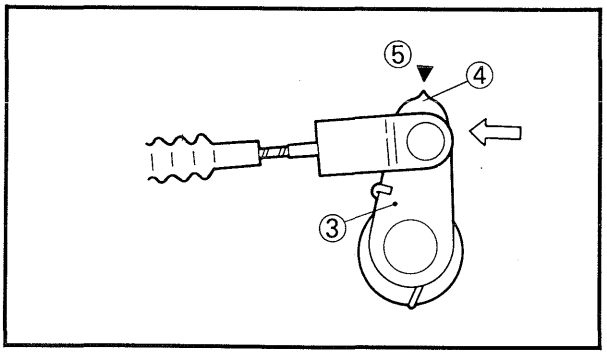


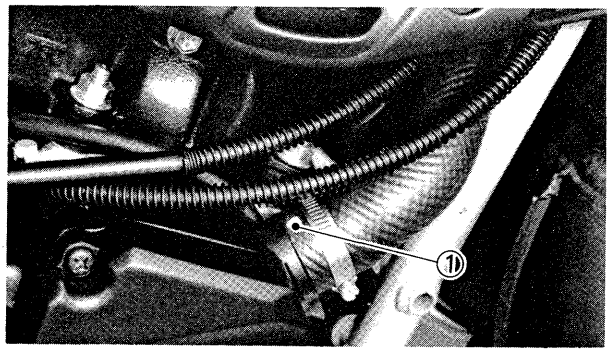
6. Disconnect:
   - Breather hose ①



7. Remove:
   - Kick crank ①
   - Crankcase cover (Right) ②
   - Dowel pin







8. Loosen:
   - Locknut ①

9. Adjust:
   - Free play

   Move the push lever ③ toward the front with your finger until it stops. With the push lever in this position, turn the adjuster ② to align the mark ④ on the end of the push lever with the mark ⑤ (protuberance) on the crankcase.

10. Tighten:
    - Locknut

	Locknut: **8 Nm (0.8 m•kg, 5.8 ft•lb)**

11. Install:
    - Dowel pin
    - Crankcase cover (Right)

NOTE:

Tighten the crankcase cover holding screws in stage, using a crisscross pattern.

	Screws (Crankcase Cover): **7 Nm (0.7 m•kg, 5.1 ft•lb)**

12. Install:
    - Kick crank

NOTE:

Install the kick crank so that it does not contact the case.

	Bolt (Kick Crank): **25 Nm (2.5 m•kg, 18 ft•lb)**

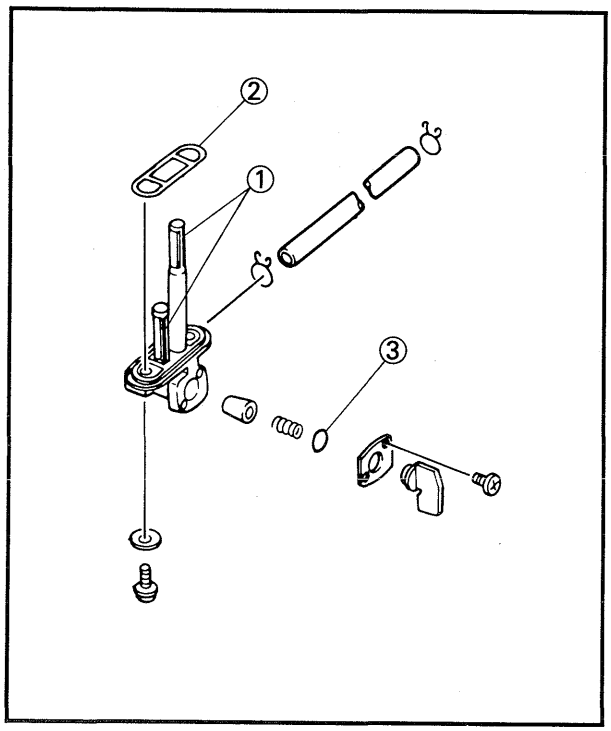
13. Connect:
    - Radiator hose

NOTE:

Connect the radiator hose with its white painted mark ① upward.

14. Install:
    - Rear brake pedal
    - Rear brake master cylinder
    - Footrest

	Rear Brake Master Cylinder: **20 Nm (2.0 m•kg, 14 ft•lb)** **Footrest:** **55 Nm (5.5 m•kg, 40 ft•lb)**



CHASSIS

FUEL COCK CLEANING

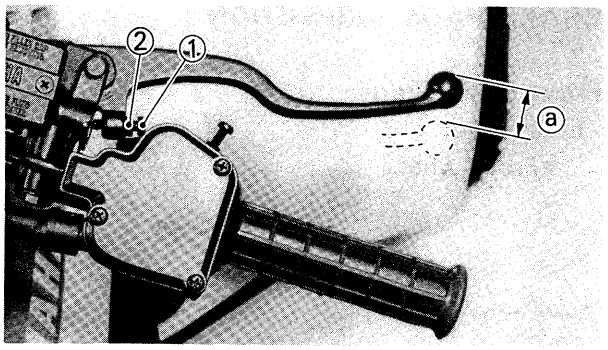
1. Turn the fuel cock lever to the "OFF".
2. Disconnect:
   - Fuel pipe
3. Remove:
   - Seat
   - Radiator cover
   - Fuel tank cover
   - Fuel tank
   - Fuel cock
4. Clean:
   - Filter screen ①

   Clean it with solvent.
5. Inspect:
   - Gasket ②
   - Filter screen ①
   - O-ring ③

   Damage→Replace.
6. Install:
   - Components in above list (Steps "3 and 2")

NOTE:

Be careful not to clamp the fuel cock too tightly as this may unseat the O-ring and gasket, and lead to a fuel leak.



FRONT BRAKE LEVER ADJUSTMENT

CAUTION:

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

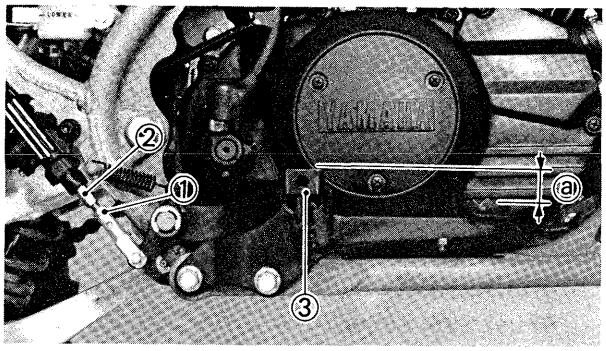
1. Loosen:
   - Adjuster locknut ②
2. Rotate:
   - Adjuster ①

   Turn it clockwise or counterclockwise until proper lever end free play ⓐ is attained.

Front Brake Lever Free Play ⓐ:
4~8 mm (0.16~0.32 in)

3. Tighten:
   - Locknut

REAR BRAKE PEDAL ADJUSTMENT/ BRAKE PADS INSPECTION



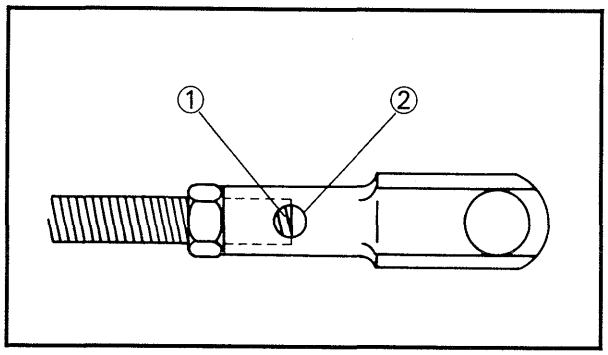
REAR BRAKE PEDAL ADJUSTMENT

1. Loosen:
   - Locknut ①
2. Rotate:
   - Adjuster ②

   Turn it clockwise or counterclockwise until proper brake pedal height ⓐ is attained.

Brake Pedal Height ⓐ:
10 mm (0.4 in)

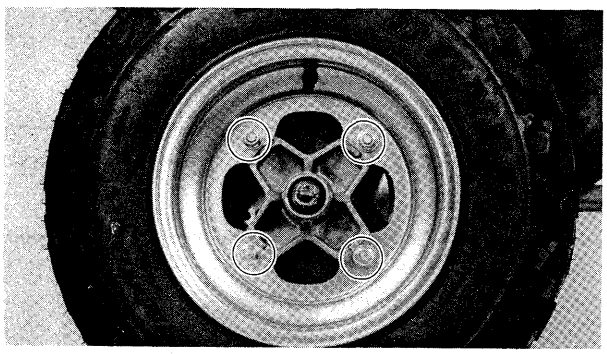
③ Footrest



3. Tighten:
   - Locknut

WARNING:

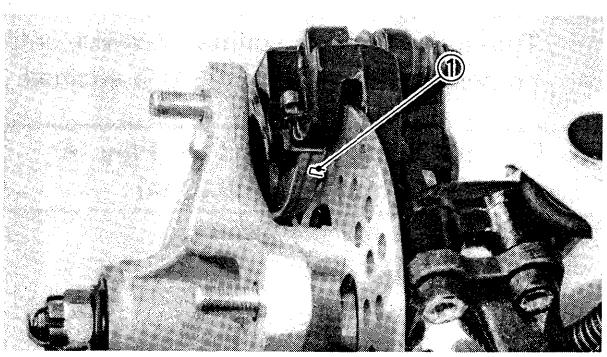
After adjusting the brake pedal height, visually check the adjuster end ① through the hole ② of the joint holder. The adjuster end must appear within this hole.



BRAKE PADS INSPECTION

Front Brake Pads

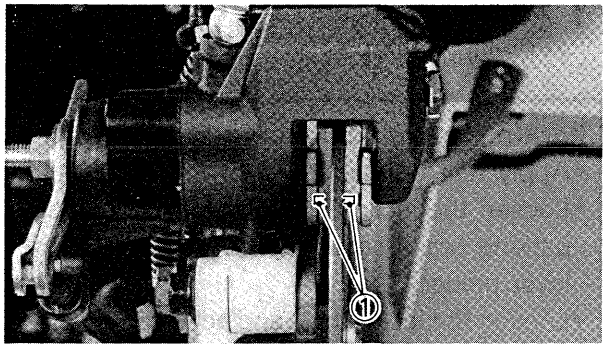
1. Remove:
   - Front wheel



2. Activate the brake lever.
3. Inspect:
   - Wear indicator ①

   Indicator almost contacts disc→Replace pads as a set.

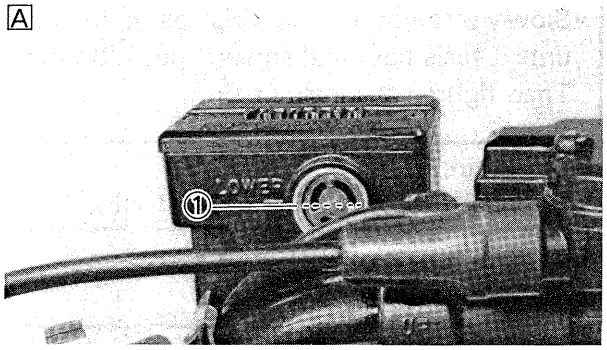
   Refer to "CHAPTER 6—FRONT BRAKE" section.



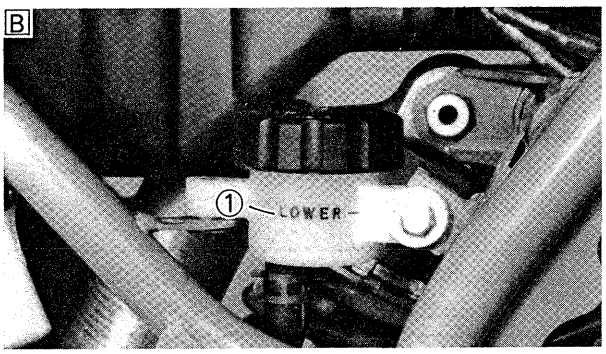
Rear Brake Pads

1. Depress the brake pedal.
2. Inspect:
   - Wear indicator ①
     Indicator almost contacts disc→Replace pads as a set.
     Refer to "CHAPTER 6.—REAR BRAKE" section.

A



B



BRAKE FLUID INSPECTION

NOTE:

Before checking the brake fluid level, inspect the brake pads wear limit.

1. Check:
   - Brake fluid level
     Low level ①→Replenish.

NOTE:

If DOT No. 4 is not available, No. 3 can be used.

Brake Fluid:
DOT No. 4

NOTE:

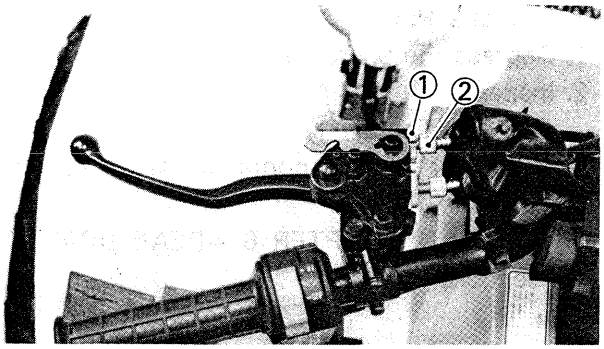
Be sure that:
- Water does not enter the master cylinder when refilling.
- Spilled fluid is cleaned up immediately to prevent painted surfaces or plastic parts from eroding.

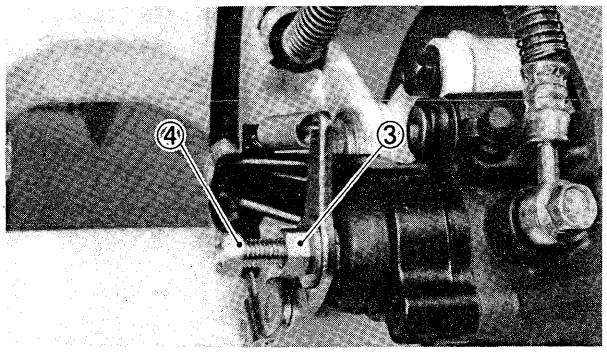
A FRONT BRAKE
B REAR BRAKE

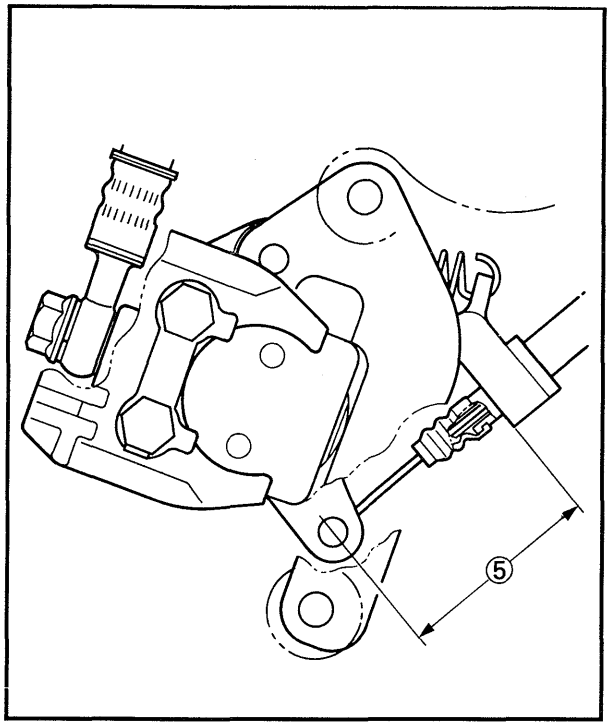
PARKING BRAKE ADJUSTMENT

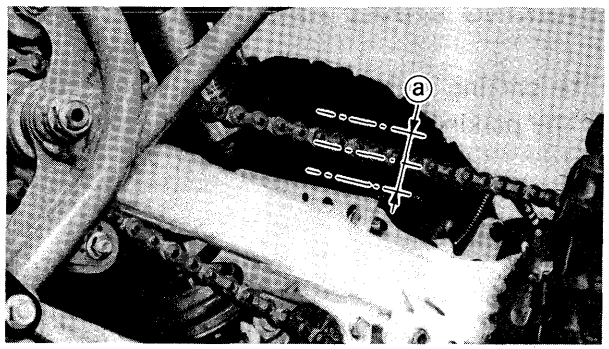
The parking brake adjustment may be required if the parking brake does not hold properly.

PARKING BRAKE ADJUSTMENT/ DRIVE CHAIN SLACK ADJUSTMENT









1. Adjust:
   - Parking brake

Parking brake adjustment steps:
- Apply rear brake pedal 2 or 3 times.
- Loosen the locknut ① and fully loosen the parking brake cable adjuster ② on the left lever holder.
- Loosen the locknut ③ and adjusting bolt ④ on the rear caliper.
- Slowly screw in the adjusting bolt ④ by tool until it feels tight and screw it out 1/8 turn. Then tighten the locknut ③.

Locknut ③:
16 Nm (1.6 m•kg, 11 ft•lb)

CAUTION:

When tightening the locknut, hold the adjusting bolt with a spanner so that the adjusting bolt is not turned together with the locknut.

- Adjust parking brake cable length ⑤ by turning cable adjuster ② in or out.

Parking Brake Cable Length:
46 ~ 50 mm (1.81 ~ 1.97 in)

- Tighten the locknut ①.

WARNING:

After this adjustment is performed, block the rear of the machine off the ground, and spin the rear wheels to ensure there is no brake drag. If any brake drag is noticed, perform the above steps again.

DRIVE CHAIN SLACK ADJUSTMENT

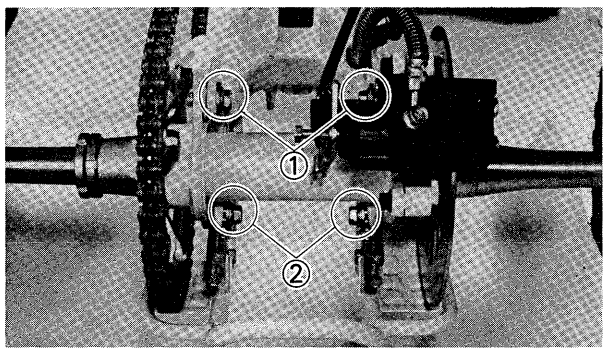
Drive Chain Slack Check

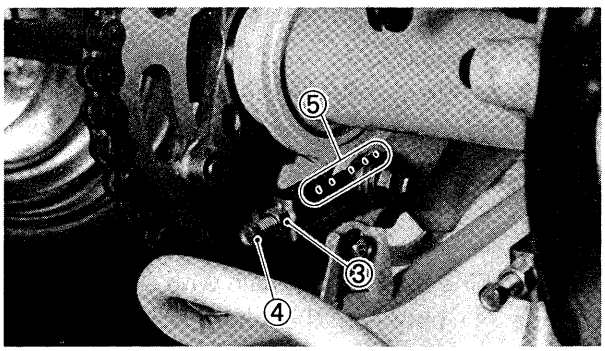
1. Measure:
   - Drive chain slack ⓐ
     At the position shown in the photograph.
     Out of specification→Adjust.

Drive chain slack measurement steps:
- Elevate the rear wheels by placing a suitable stand under the engine.
- Rotate the rear wheel several times.
- Check the chain slack several times to find the point where the chain is the tightest.
- Check the chain slack when the wheel is in this "tight chain" position.

Drive Chain Slack ⓐ:
Standard: 15 mm (0.6 in)
Limit: 40 mm (1.6 in)

- If the chain slack exceeds the limit [40 mm (1.6 in)], adjust the chain slack.





Drive Chain Slack Adjustment

1. Adjust:
   - Drive chain slack

Drive chain slack adjustment steps:
- Loosen the rear wheel hub upper bolts ①.
- Loosen the rear wheel hub lower bolts ②.
- Loosen the adjuster locknut ③.
- Adjust chain slack by turning the adjuster ④.

To Tighten→Turn adjuster ④ clockwise.
To Loosen→ Turn adjuster ④ counter-clockwise and push wheel forward.

- Turn each adjuster exactly the same amount to maintain correct axle alignment. (There are marks ⑤ on each side of chain puller alignment.)

CAUTION:

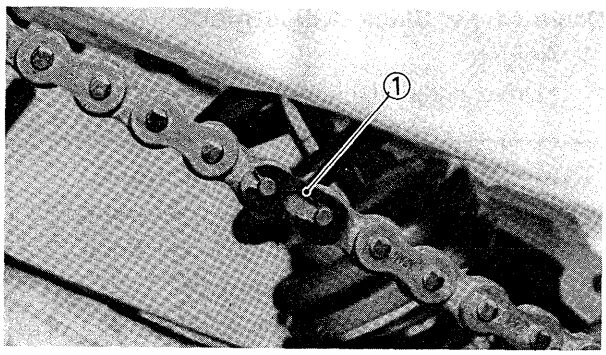
Excessive chain slack will overload the engine and other vital parts; keep the slack within the specified limits.

- If the chain slack cannot be adjusted, replace the sprockets and drive chain as a set.

- Tighten the rear wheel hub bolts and locknuts.

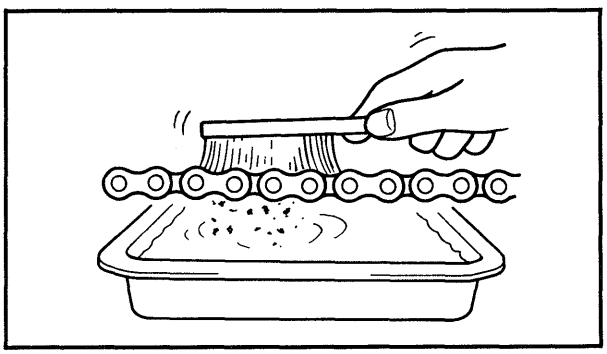
Rear Wheel Hub Lower Bolt:
60 Nm (6.0 m•kg, 43 ft•lb)
Rear Wheel Hub Upper Bolt:
120 Nm (12 m•kg, 85 ft•lb)
Locknuts (Chain Puller):
16 Nm (1.6 m•kg, 11 ft•lb)

NOTE:
The chain should be cleaned and lubricated after every use of the machine.



DRIVE CHAIN LUBRICATION

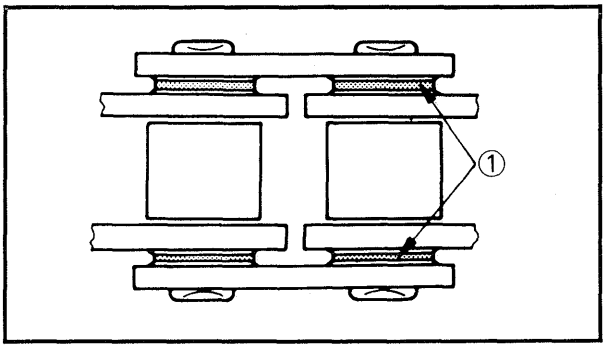
1. Remove:
   - Master link clip ①
   - Joint
   - Drive chain



2. Clean:
   - Drive chain

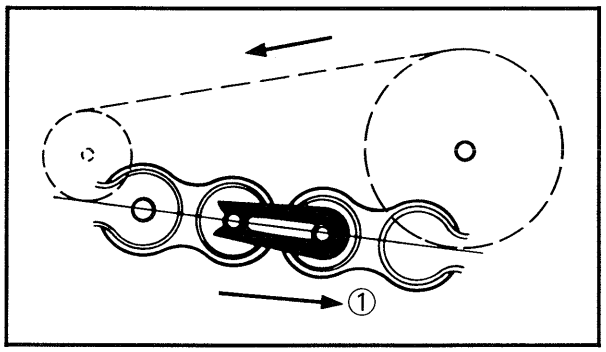
   Place it in kerosene, and brush off as much dirt as possible. Then remove the chain from the kerosene and dry the chain.

NOTE:
This machine has a drive chain with small rubber O-rings ① between the chain plates. Steam cleaning, high-pressure washes, and certain solvent can damage these O-rings. Use only kerosene to clean the drive chain.



3. Lubricate:
   - Drive chain

Drive Chain Lubricant:
SAE 30~50 Motor oil or chain lubricants for "O-ring" chains



CAUTION:

Do not use any other lubricants or O-rings damage may occur.

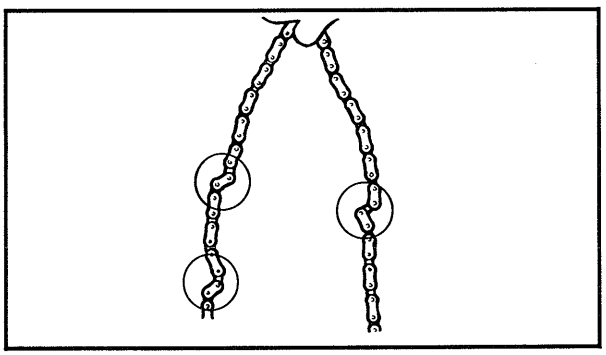
4. Install:
   Drive chain

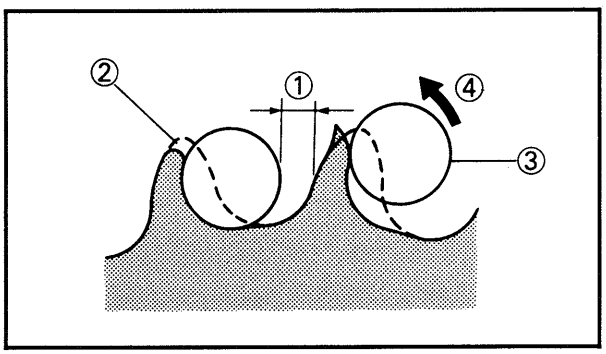
NOTE:

During reassembly, the master link clip must be installed with the rounded end facing the direction of travel.

① Turning direction

5. Adjust:
   • Drive chain slack
   Refer to "DRIVE CHAIN SLACK ADJUSTMENT" section.





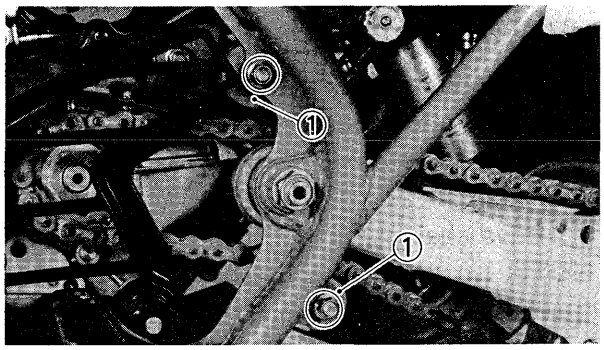
DRIVE CHAIN AND SPROCKETS INSPECTION

1. Remove:
   • Drive chain
   Refer to "DRIVE CHAIN LUBRICATION" section.
2. Check:
   • Drive chain stiffness
   Clean and oil the chain and hold as illustrated.
   Refer to "DRIVE CHAIN LUBRICATION" section.
3. Inspect:
   • Drive sprocket/Driven sprocket
   More than 1/4 teeth ① wear→Replace sprocket.
   Bent teeth→Replace sprocket.
   Refer to "CHAPTER 6—REAR WHEEL AND WHEEL HUB" section.

② Correct
③ Roller
④ Slip off

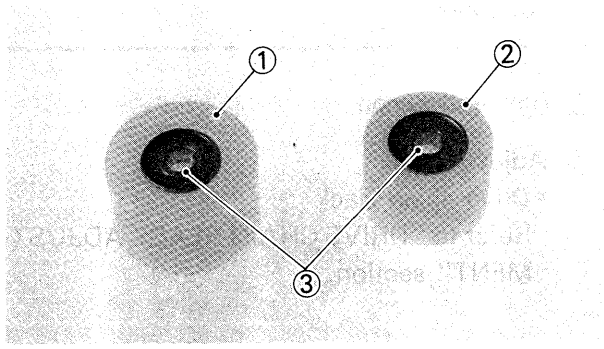
4. Install:
   • Drive chain
   Refer to "DRIVE CHAIN LUBRICATION" section.

CHAIN TENSIONER AND CHAIN GUIDE INSPECTION/ STEERING SYSTEM INSPECTION



CHAIN TENSIONER AND CHAIN GUIDE INSPECTION

1. Remove:
   - Chain tensioner (Upper and lower) ①



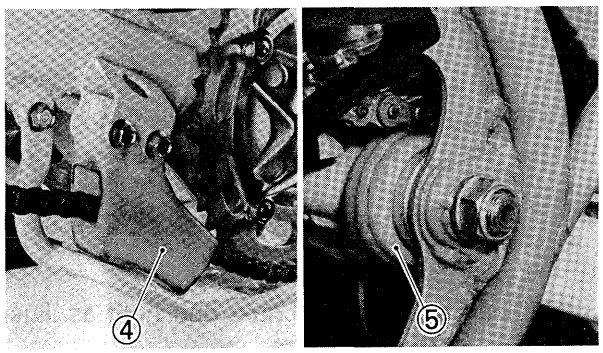
2. Inspect:
   - Chain tensioner roller (Upper-Big) ①
   - Chain tensioner roller (Lower-Small) ②

   Excessive wear→Replace.
3. Check:
   - Chain tensioner bearing ③

   Tightness/Binding/Damage→Replace.
4. Inspect:
   - Chain support ④

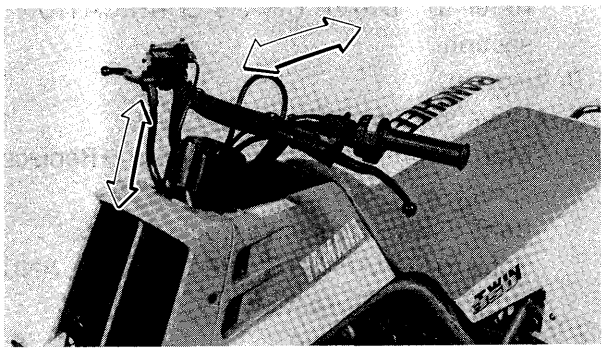
   Chain guide ⑤

   Damage→Replace.



5. Install:
   - Chain tensioner (Upper and lower)

	Bolt (Chain Tensioner): 9 Nm (0.9 m•kg, 6.8 ft•lb)

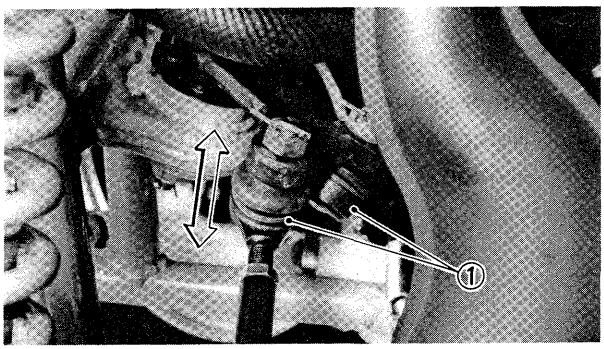


STEERING SYSTEM INSPECTION

1. Place the machine on a level place.
2. Check:
   - Steering assembly bushings

   Move the handlebar up and down, and/or back and forth.

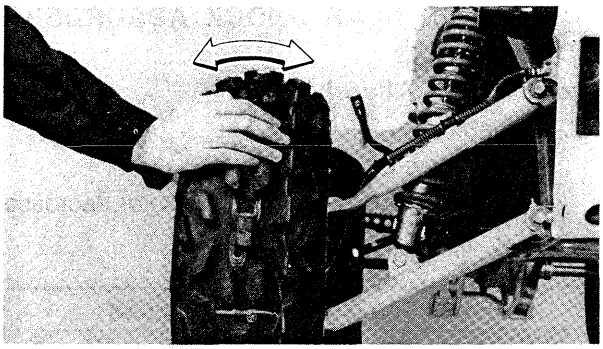
   Excessive play→Replace the steering shaft bushings.



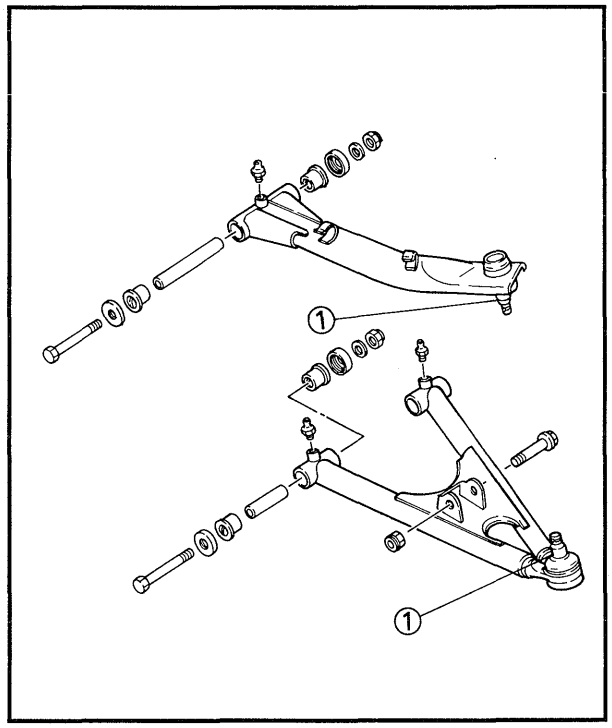
3. Check:
   - Tie-rod ends

   Turn the handlebar to the left and/or right until it stops completely, then slightly move the handlebar from left to right.

   Tie-rod end ① has any vertical play →Replace the tie-rod end(s).



4. Raise the front end of the machine so that there is no weight on the front wheels.
5. Check:
   - Ball joints ① and/or wheel bearings
     Move the wheels laterally back and forth.
     Excessive free play→Replace the front arms and/or wheel bearings.

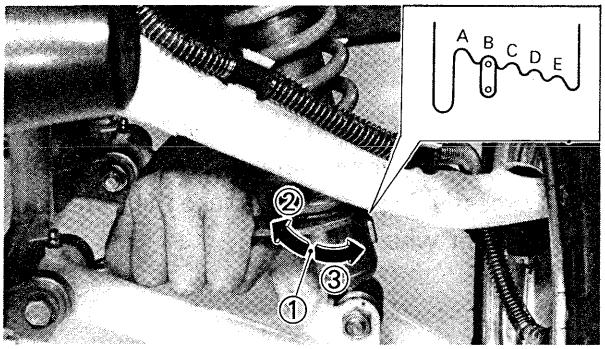


CABLE INSPECTION AND LUBRICATION

1. Damage to the outer housing of the various cables may cause corrosion. Often free movement will be obstructed. An unsafe condition may result. Replace such cables as soon as possible.
2. If the inner cables do not operate smoothly lubricate or replace them.

Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

FRONT AND REAR SHOCK ABSORBER ADJUSTMENT



FRONT AND REAR SHOCK ABSORBER ADJUSTMENT

Front Shock Absorber

1. Adjust:
   - Spring preload

   Turn the adjuster ① to increase or decrease the spring preload.

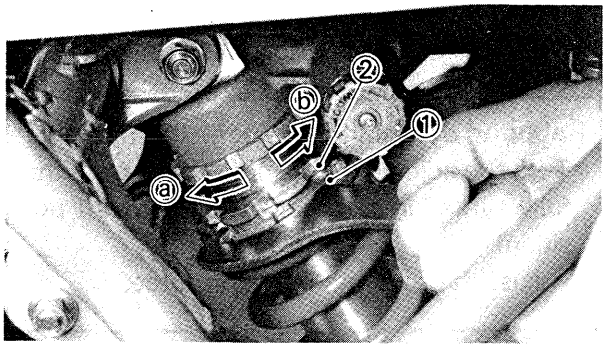
Front Shock Absorber Preload			
Preload	Softer ② ←	Standard	Stiffer ③ →
Position	A	B	C,D,E

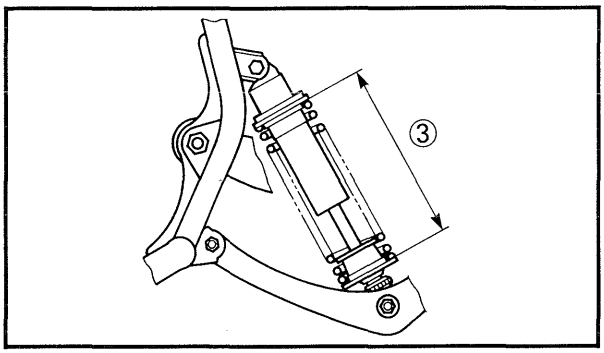
Rear Shock Absorber

WARNING:

This shock absorber contains highly pressurized nitrogen gas Read and understand the following information before handling the shock absorber. The manufacture cannot be held responsible for property damage or personal injury that may result from improper handling.

- **Do not tamper with or attempt to open the cylinder assembly.**
- **Do not subject shock absorber to an open flame or other high heat source. This may cause the unit to explode due to excessive gas pressure.**
- **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**





1. Adjust:
   - Spring preload

Spring preload adjustment steps:
- Elevate the rear wheels by placing the suitable stand.
- Loosen the locknut ②.
- Adjust the spring preload.

NOTE:

The length of the spring (installed) changes 1.5 mm (0.06 in) per turn of the adjuster.

③ Spring length

Stiffer ⓐ → Increase the spring preload. (Turn the adjuster ① in.)
Softer ⓑ → Decrease the spring preload. (Turn the adjuster ① out.)

Standard Spring Length (Installed):
218.5 mm (8.6 in)
Minimum Length (Installed):
210.5 mm (8.3 in)
Maximum Length (Installed):
225.5 mm (8.8 in)

CAUTION:

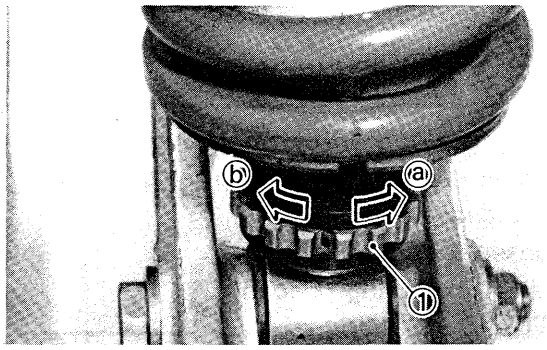
Never attempt to turn the adjuster beyond the maximum or minimum setting.

- Tighten the locknuts.

Locknut:
70 Nm (7.0 m•kg, 50 ft•lb)

2

FRONT AND REAR SHOCK ABSORBER ADJUSTMENT

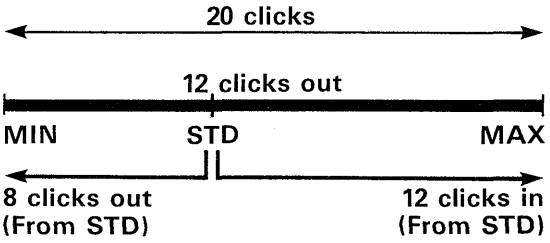


2. Adjust:
   • Rebound damping force

Rebound damping force adjustment steps:
- Turn the adjuster ① 12 clicks back from the fully turned-in position. (It is standard position)
- Adjust the rebound damping force.

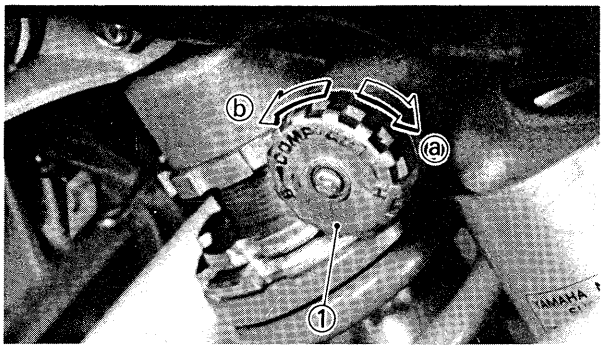
Slower ⓐ → Increase the rebound damping force. (Turn the adjuster ① in.)
Faster ⓑ → Decrease the rebound damping force. (Turn the adjuster ① out.)

Standard setting:
12 clicks turns out (From the fully turned-in position)
Minimum setting:
8 clicks turns out (From standard position)
Maximum setting:
12 clicks turns in (From standard position)



CAUTION:

Do not turn out (in) the adjuster from the damping force minimum (maximum) setting.

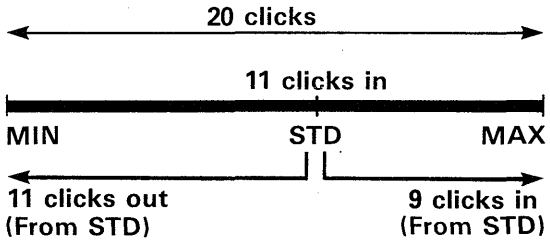


3. Adjust:
   • Compression damping force

Compression damping force adjustment steps:
- Turn the adjuster ① 11 clicks back from the fully turned-out position. (It is standard position.)
- Adjust the compression damping force.

Stiffer ⓐ → Increase the compression damping force. (Turn the adjuster ① clockwise.)
Softer ⓑ → Decrease the compression damping force. (Turn the adjuster ① counter-clockwise.)

Standard setting:
8 clicks turn in (From the fully turned out position)
Minimum setting:
11 clicks out (From standard setting)
Maximum setting:
9 clicks in (From standard setting)



CAUTION:

Do not turn out (in) the adjuster from the damping force minimum (maximum) setting.

WARNING:

The compression damping adjuster is very hot immediately after a run.
Never allow your bare hand or part of your body to touch it.

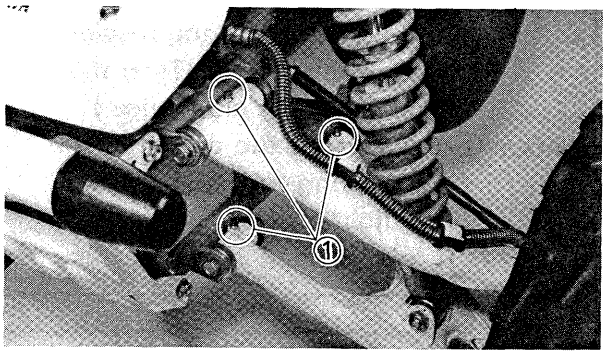
2

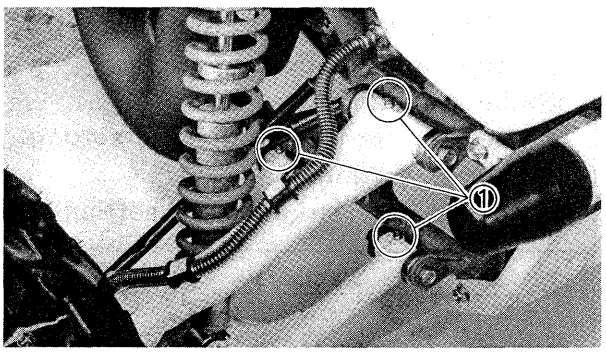
LEVERS, PEDAL, ETC. LUBRICATION/ FRONT ARM AND REAR ARM PIVOTS LUBRICATION

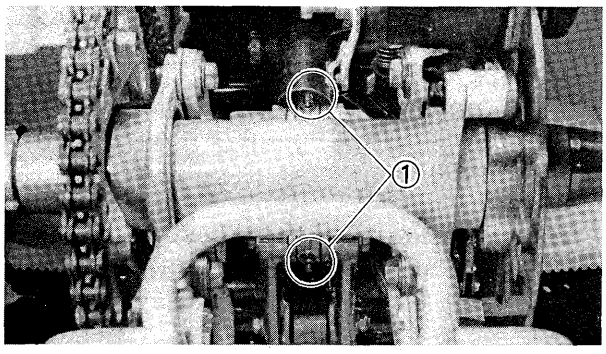
LEVERS, PEDAL, ETC. LUBRICATION

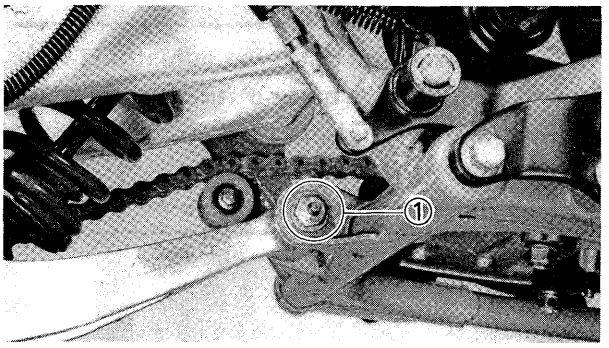
1. Lubricate:
   - Pivot points

	Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil









FRONT ARMS AND REAR ARM PIVOTS LUBRICATION

1. Lubricate:
   - Pivot points (font arms and rear arm) ①
     Use a grease gun.

	Lithium Base Grease

TIRES CHECK

WARNING:

This model is equipped with low pressure tires. It is important that they be inflated correctly and maintained at the proper pressures.

•TIRE CHARACTERISTICS

1) Tire characteristics influence the handling of ATV's. The tires listed below have been approved by Yamaha Motor Co., Ltd. for this model. If other tire combinations are used, they can adversely affect your machine's handling characteristics and are therefore not recommended.

	Manufacturer	Size	Type
Front	DUNLOP	AT21×7–10	KT764
Rear	DUNLOP	AT22×10–9	KT768

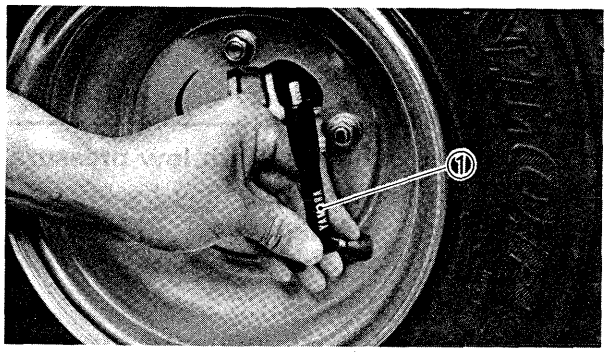
•TIRE PRESSURE

1) Recommended tire pressure
   Front 30 kPa (0.30 kg/cm^2, 4.3 psi)
   Rear 25 kPa (0.25 kg/cm^2, 3.6 psi)
2) Tire pressure below the minimum specified could cause the tire to dislodge from the rim under severe riding conditions. The following are minimums:
   Front 27 kPa (0.27 kg/cm^2, 3.8 psi)
   Rear 22 kPa (0.22 kg/cm^2, 3.1 psi)
3) Use no more than
   Front 280 kPa (2.5 kg/cm^2, 36 psi)
   Rear 190 kPa (1.9 kg/cm^2, 27 psi)
   when seating the tire beads. Higher pressures may cause the tire to burst.
   Inflate the tires very slowly and carefully. Fast inflation could cause the tire to burst.

•MAXIMUM LOADING LIMIT

1) Vehicle load limits: 100 kg (220 lb)*
   *Total weight of cargo, rider, and accessories.

TIRES CHECK



1. Measure:
   • Tire pressure (Cold tire pressure)
   Out of specification → Adjust.

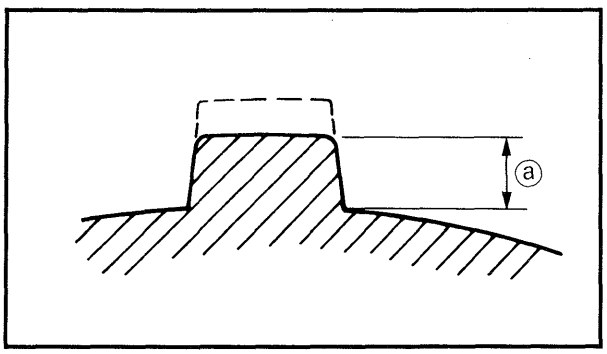
NOTE:

The low-pressure tire gauge ① is included in the standard equipment.
If dust or the like is stuck to this gauge, it does not provide correct readings. Therefore, make two measurements on the tire pressure and get the second reading.

Cold Tire Pressure	Front	Rear
Standard	30 kPa (0.3 kg/cm², 4.3 psi)	25 kPa (0.25 kg/cm², 3.6 psi)
Minimum	27 kPa (0.27 kg/cm², 3.8 psi)	22 kPa (0.22 kg/cm², 3.1 psi)
Maximum	33 kPa (0.33 kg/cm², 4.7 psi)	28 kPa (0.28 kg/cm², 4.0 psi)

WARNING:

Uneven or improper tire pressure may adversely affect the handling of this machine and may cause loss of control.
• Maintain proper tire pressures.
• Set tire pressures when the tires are cold.
• Tire pressures must be equal in both front tires and equal in both rear tires.

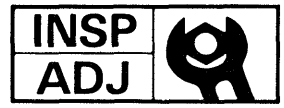


2. Inspect:
   • Tire surfaces
   Wear/Damage → Replace.

Tire Wear Limit ⓐ:
Front and Rear: 3.0 mm (0.12 in)

WARNING:

It is dangerous to ride with a wornout tire. When a tire wear is out of specification, replace the tire immediately.

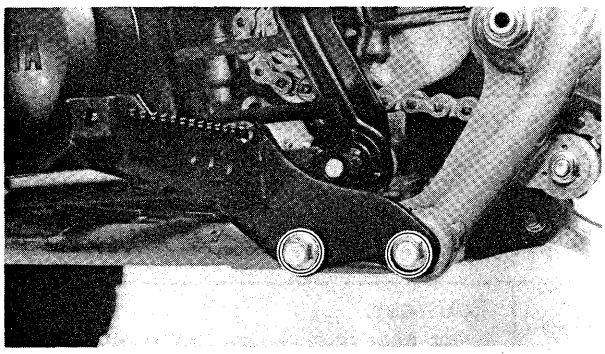


WHEELS CHECK

1. Inspect:
   - Wheels
     Crack/Bend/Warpage→Replace.

WARNING:

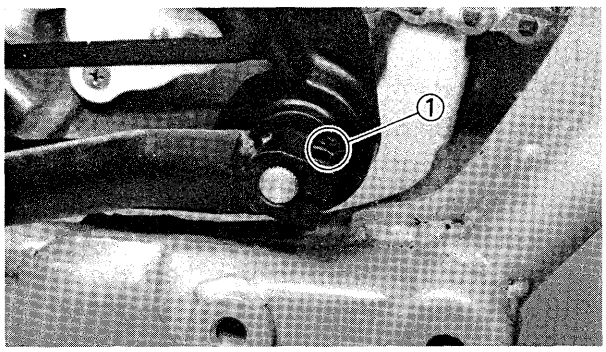
Never attempt even small repairs to the wheel.



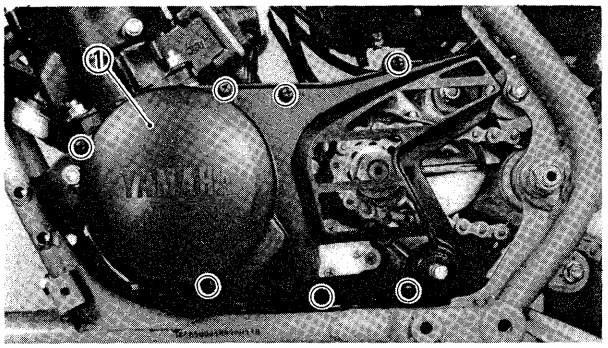
ELECTRICAL

IGNITION TIMING CHECK

1. Remove:
   - Footrest (Left)

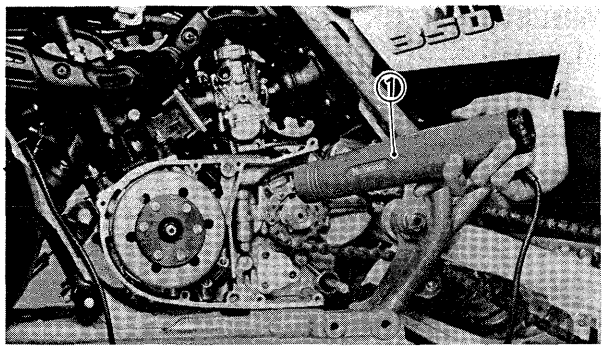


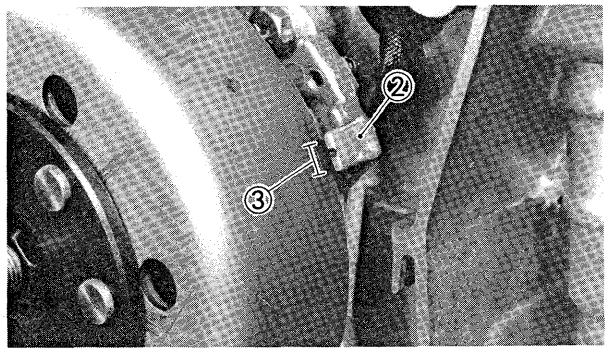
2. Remove:
   - Bolt ①
   - Change pedal



3. Remove:
   - Crankcase cover (Left) ①

IGNITION TIMING CHECK/ SPARK PLUG INSPECTION





4. Check:
   - Ignition timing

Ignition timing check steps:
- Connect the Timing Light ① (YM-33277) to the spark plug lead.
- Warm up the engine and let it idle at the specified idle speed of 1,450 ~ 1,550 r/min.
- Visually check the stationary pointer ② on the crankcase to verify it is within the firing range ③ indicated on the flywheel.
  Incorrect → Check flywheel and/or pick-up assembly (tightness and/or damage).
  Refer to "CHAPTER 7. ELECTRICAL" for further information.

5. Install:
   - Crankcase cover (Left)

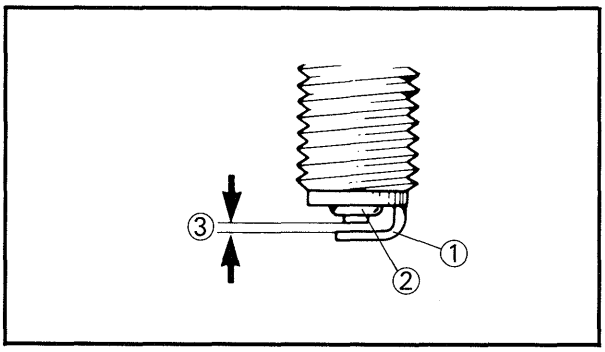
Screws (Crankcase Cover):
7 Nm (0.7 m•kg, 5.1 ft•lb)

6. Install:
   - Change pedal

Bolt (Change Pedal):
14 Nm (1.4 m•kg, 10 ft•lb)

7. Install:
   - Footrest (Left)

Footrest:
55 Nm (5.5 m•kg, 40 ft•lb)



SPARK PLUG INSPECTION

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.

③ 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:
BR8ES (N.G.K.)

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

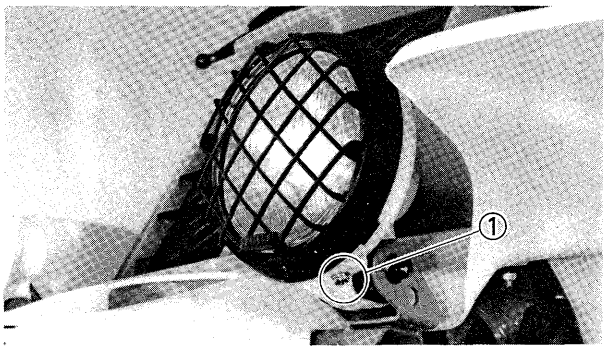
NOTE:

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

Spark Plug:
20 Nm (2.0 m•kg, 14 ft•lb)

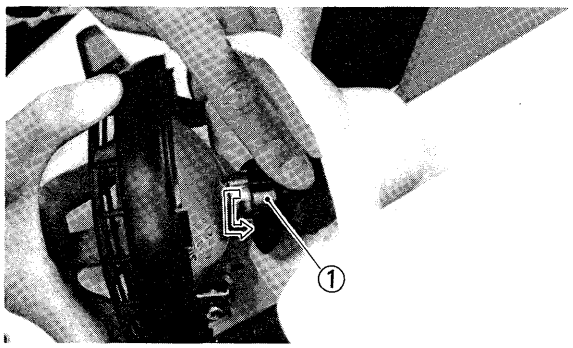
NOTE:

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.



HEADLIGHT BULB REPLACEMENT

1. Remove:
   • Screw ①

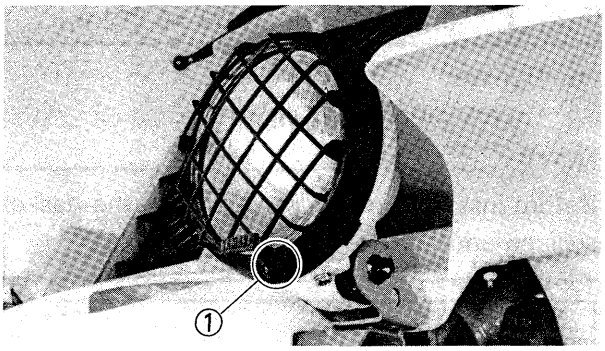


2. Remove:
   • Bulb
   Turn the bulb holder ① counterclockwise to release bulb.

WARNING:

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

3. Install:
   • Bulb (New)
   Secure the new bulb with the bulb holder.
4. Tighten:
   • Screw (Headlight)



HEADLIGHT BEAM ADJUSTMENT

1. Adjust:
   • Headlight beam (Vertically)

Vertical adjustment	
Higher	**Turn the adjusting screw ① clockwise.**
Lower	**Turn the adjusting screw ① counterclockwise.**

CHAPTER 3
ENGINE OVERHAUL

ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

It is not necessary to remove the engine in order to remove the cylinder and/or the flywheel magneto assembly.

3

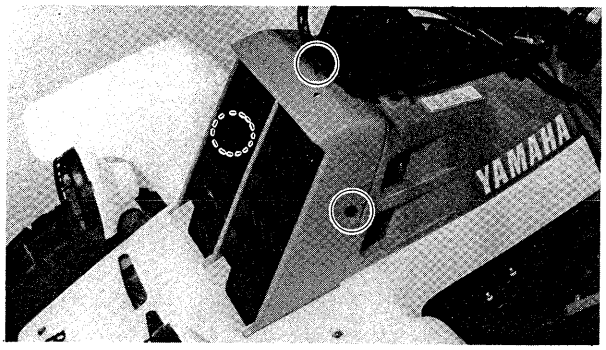
PREPARATION FOR REMOVAL

1. Remove all dirt, mud, dust and foreign material before removal and disassembly.
2. Use proper tools and cleaning equipment. Refer to "CHAPTER 1. GENERAL INFORMATION-SPECIAL TOOLS" section.

NOTE:

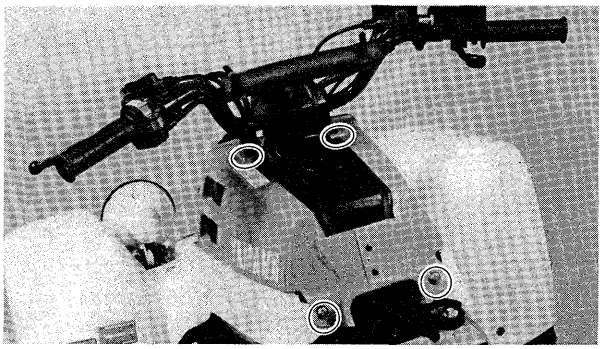
When disassembling the engine, keep mated parts together. This includes gears, cylinder, piston and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.

3. During engine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled in the engine.
4. Start the engine and allow it to warm up.
5. Drain the engine oil completely. Refer to "CHAPTER 2. PERIODIC INSPECTIONS AND ADJUSTMENTS — ENGINE OIL REPLACEMENT" section.
6. Drain the coolant completely. Refer to "CHAPTER 2. COOLANT REPLACEMENT" section.

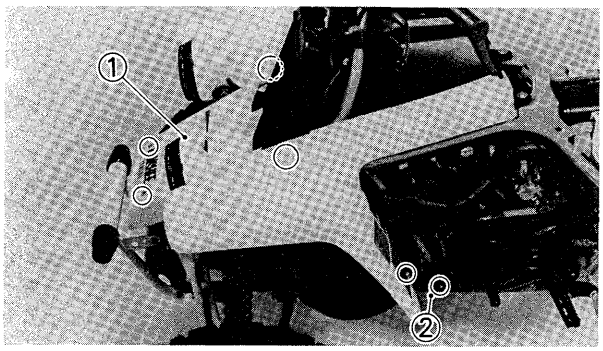


FRONT FENDER

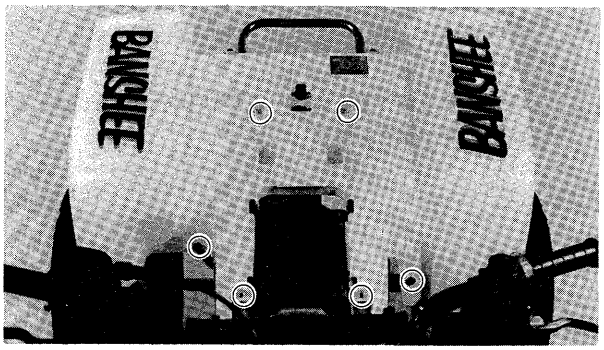
1. Remove:
   - Seat
   - Radiator cover



2. Remove:
   - Fuel tank cover

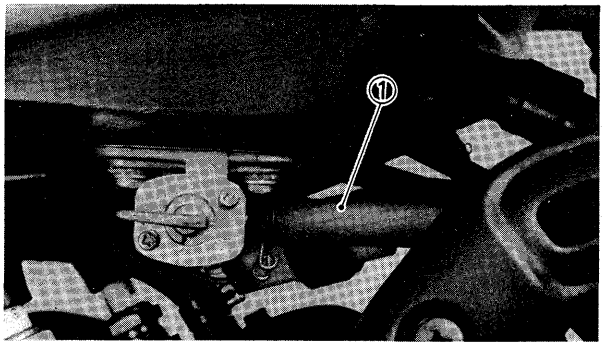


3. Remove:
   - Front fender ①
   - Front fender stays ②



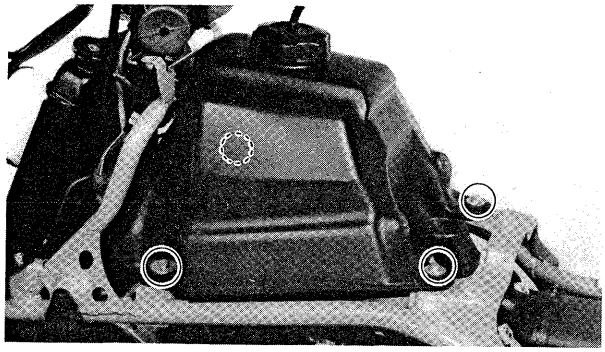
REAR FENDER

1. Remove:
   - Rear fender



FUEL TANK

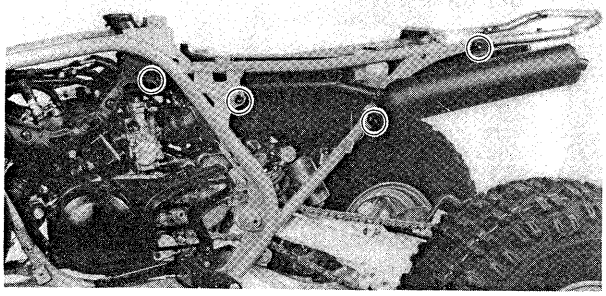
1. Turn the fuel cock to the "OFF" position.
2. Disconnect:
   - Fuel hose ①

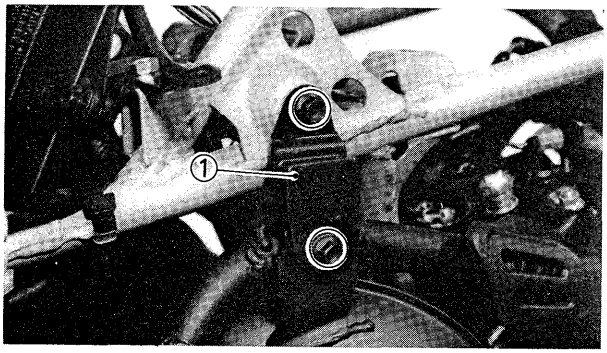


3. Remove:
   • Fuel tank

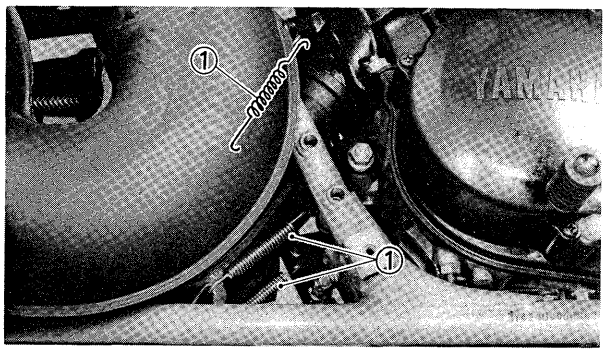
EXHAUST PIPE AND SILENCER

1. Remove:
   • Silencers





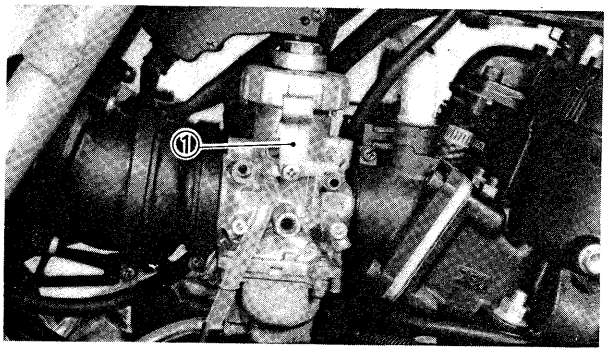
2. Remove:
   • Exhaust pipe stays ①

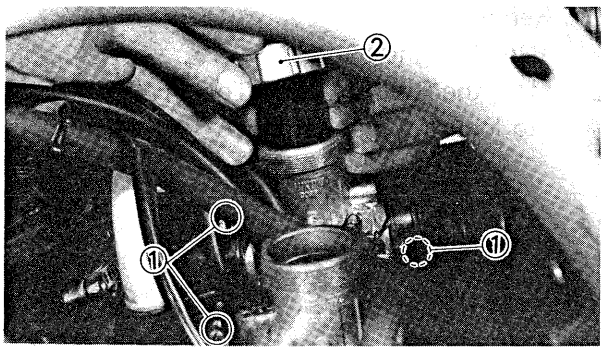


3. Remove:
   • Springs ①
     Use the general spring remover.
   • Exhaust pipes

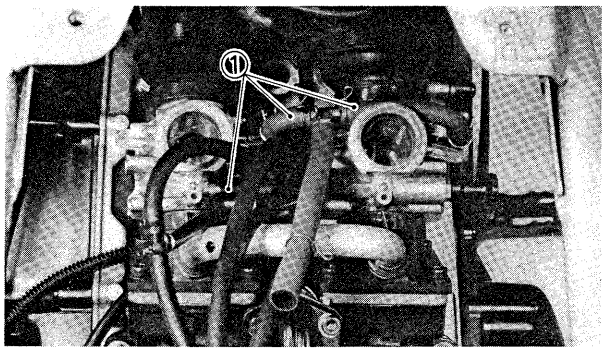
CARBURETOR

1. Remove:
   • Stopper plates ①





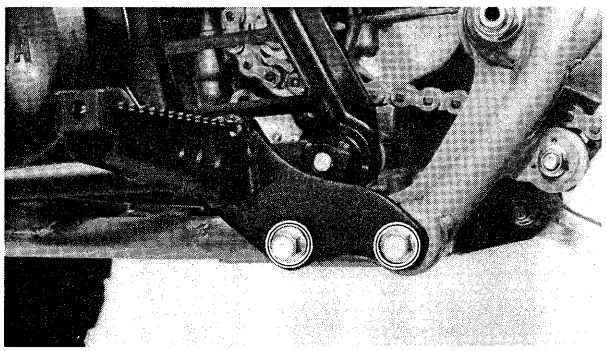
2. Loosen:
   - Carburetor joint holding screws ①
3. Remove:
   - Carburetor top ② together with throttle valve



4. Remove:
   - Hoses ①
   - Carburetors

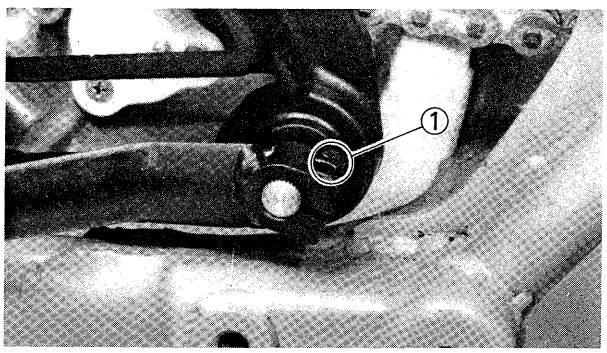
NOTE:

Cover the carburetor with a clean rag to prevent dirt or foreign matter into the carburetor.

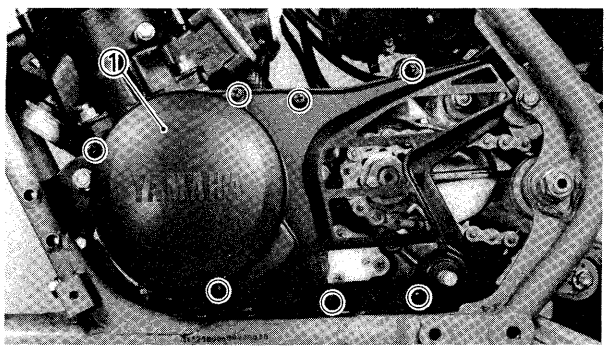


CHANGE PEDAL

1. Remove:
   - Footrests

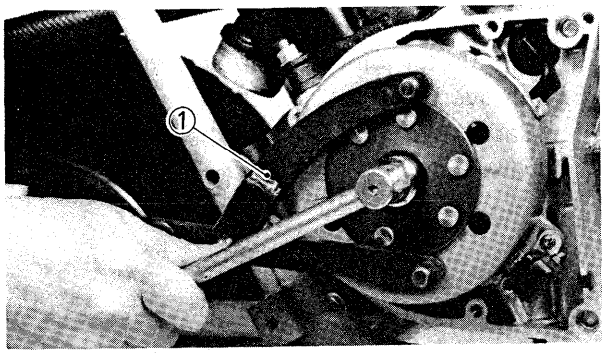


2. Remove:
   - Bolt ①
   - Change pedal

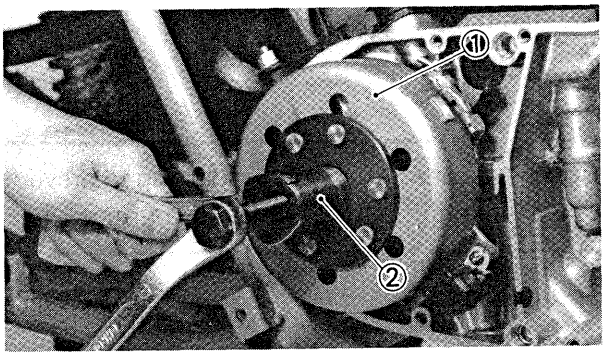


CDI MAGNETO

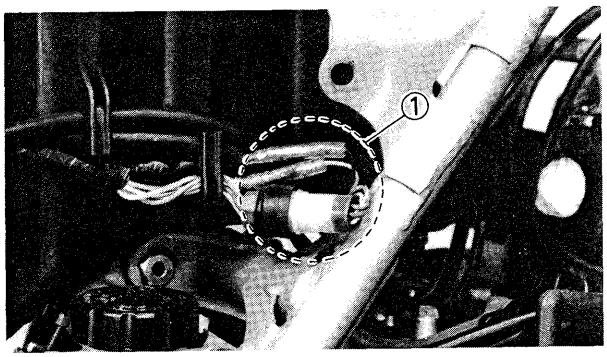
1. Remove:
   - Crankcase cover (Left) ①



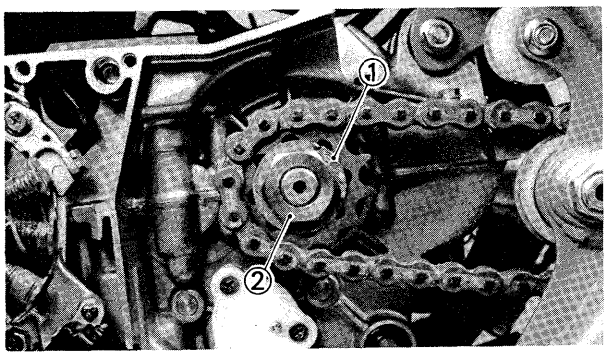
2. Remove:
   • Nut (Magneto)
   Use the Rotor Holding Tool ① (YU-01235) to lock the magneto.



3. Remove:
   • CDI magneto ①
   Use the Rotor Puller ② (YM-01189).
   • Woodruff key

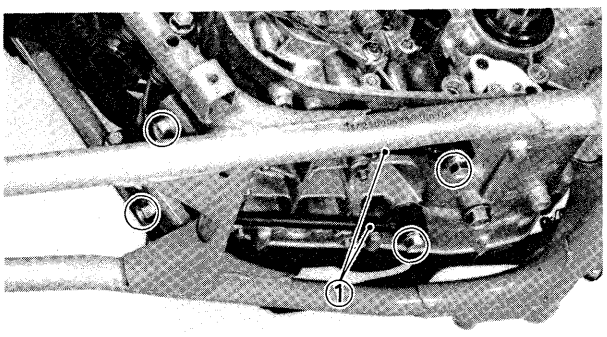


4. Disconnect:
   • Magneto leads ①



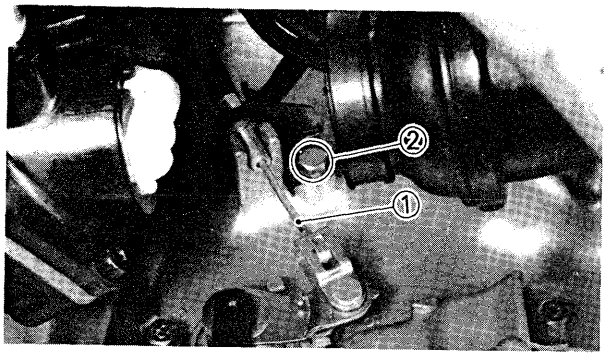
DRIVE CHAIN

1. Bend down lock tab ①.
2. Put the transmission in gear and apply parking brake.
3. Loosen:
   • Nut (Drive sprocket) ②
4. Remove:
   • Drive sprocket
   • Drive chain



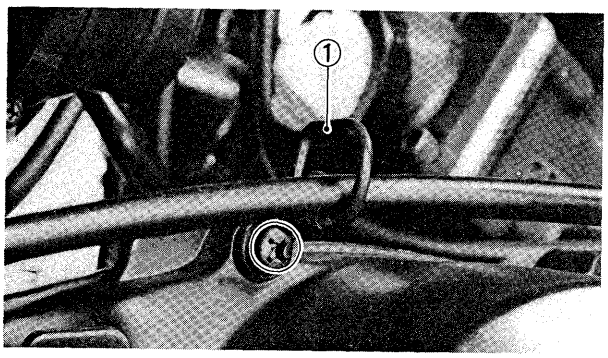
TENSION ROD

1. Remove:
   • Tension rods ①

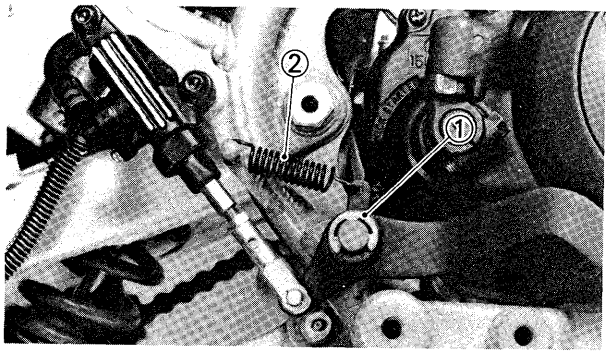


CABLES

1. Disconnect:
   - Spark plug lead
2. Remove:
   - Clutch cable ①
     First disconnect the handlebar lever side, and then crankcase side.
   - Cable holder ②

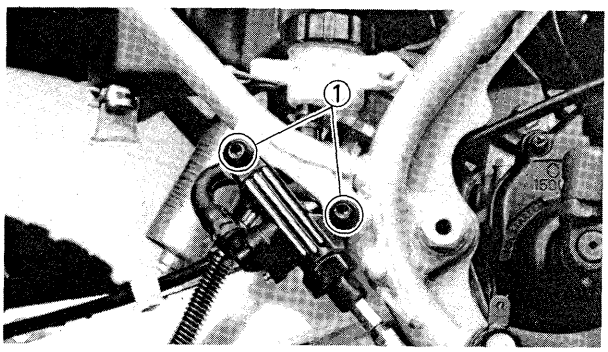


3. Remove:
   - Cable guide ①

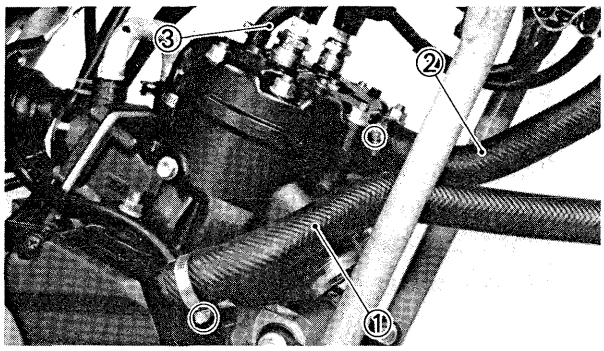


ENGINE REMOVAL

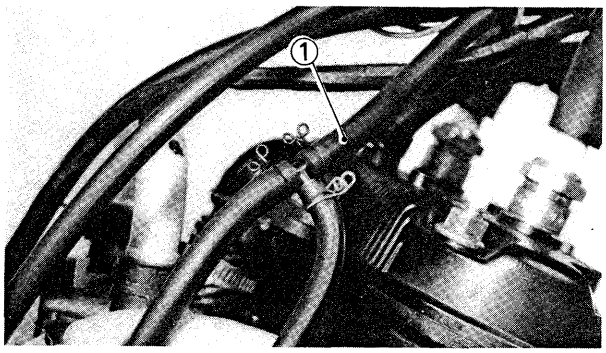
1. Remove:
   - Circlip ①
   - Spring ②



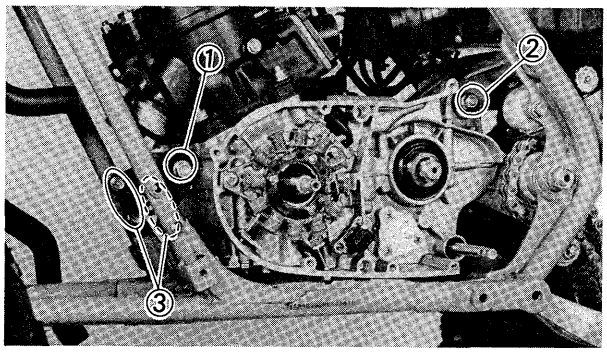
2. Remove:
   - Bolts ① (Rear brake master cylinder)
   - Rear brake pedal



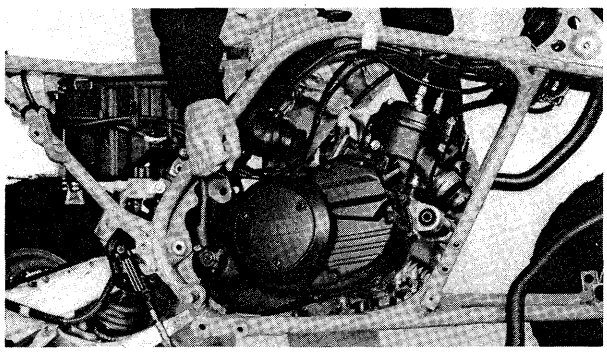
3. Disconnect:
   - Inlet hose ①
   - Outlet hose ②
   - Bypass hose ③



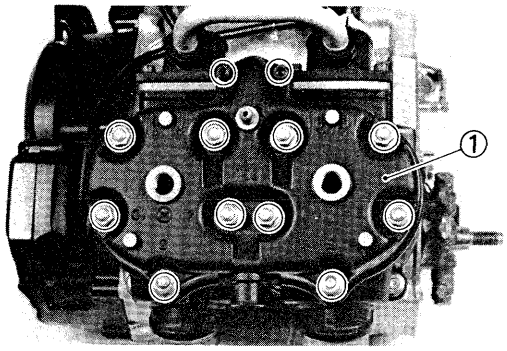
4. Disconnect:
   - Breather hose ①



5. Remove:
   - Bolt (Engine mounting-Front) ①
   - Bolt (Engine mounting-Rear) ②
   - Bolts (Engine stay-Front) ③



6. Remove:
   - Engine
     To the right



DISASSEMBLY

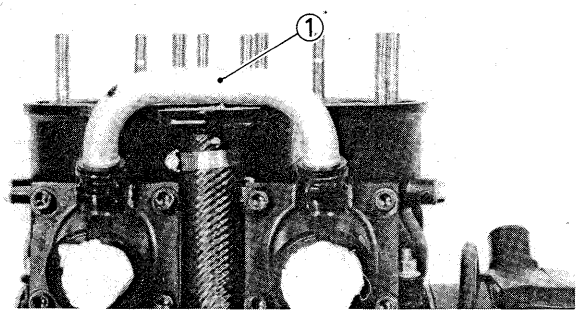
CYLINDER HEAD

1. Remove:
   - Cylinder head ①
   - Gasket (Cylinder head)

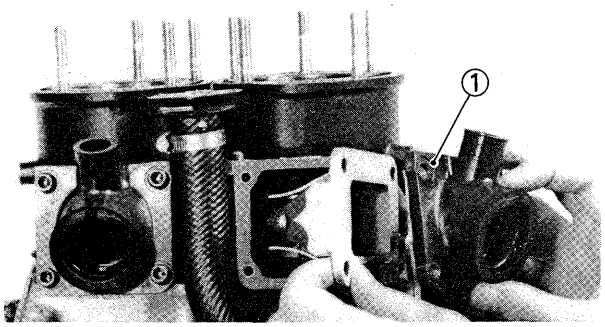
NOTE:

1. Before loosening the cylinder head, loosen the spark plugs.
2. The cylinder head bolts should be loosened starting from No.10.
   Loosen them 1/2 turn each time, and remove.

REED VALVE ASSEMBLY

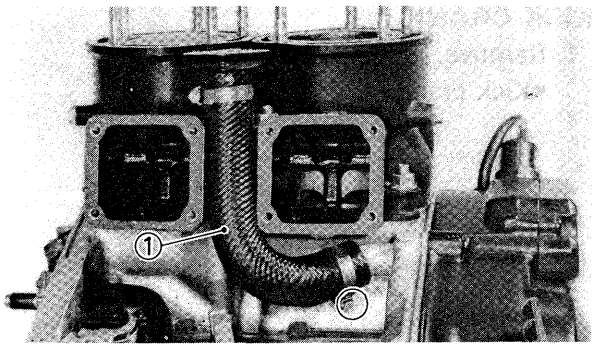


1. Remove:
   - Pipe ①

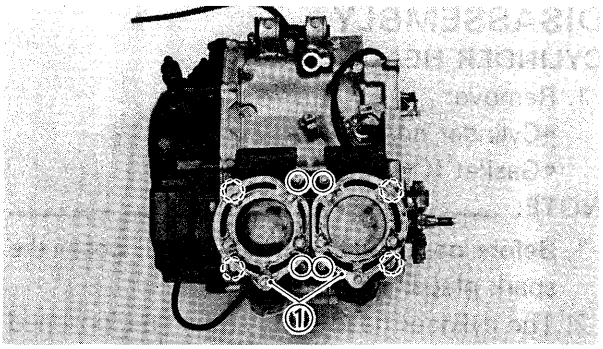


2. Remove:
   - Carburetor joint ①
   - Reed valve assembly

RADIATOR HOSE

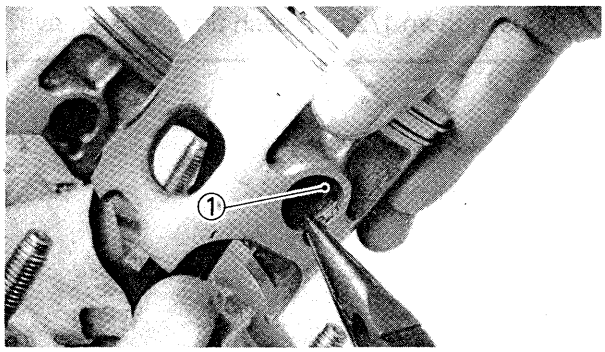


1. Remove:
   - Radiator hose ①



CYLINDER

1. Remove:
   - Cylinders ①
   - Cylinder gaskets
   - Dowel pins
2. Place the cylinder in an inverted position, and drain the coolant.

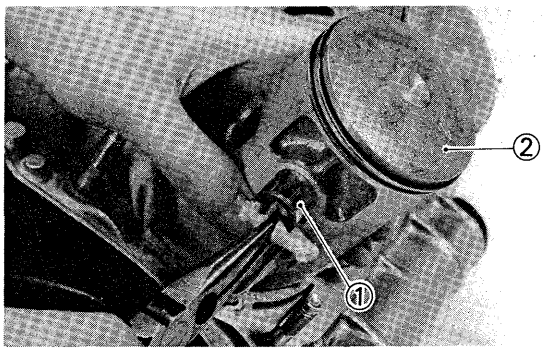


PISTON PIN AND PISTON

1. Remove:
   - Piston pin clip ①

NOTE:

Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.



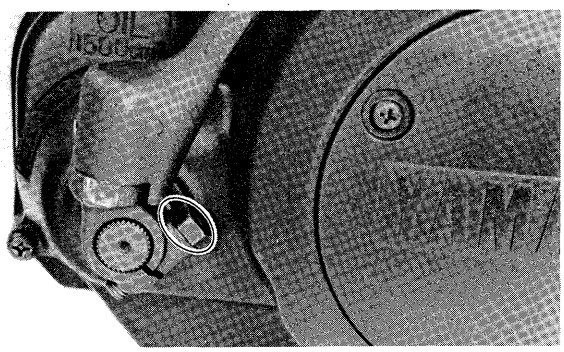
2. Remove:
   - Piston pin ①
   - Piston ②
   - Bearing (Small end)

NOTE:

Before removing the piston pin, deburr the clip groove and pin hole area. If the piston pin groove is deburred and piston pin is still difficult to remove, use Piston Pin Puller (YU-01304).

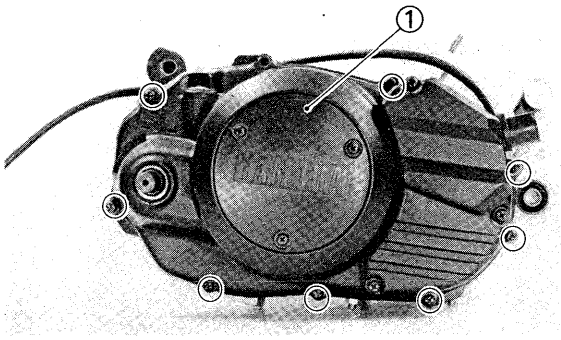
CAUTION:

Do not use a hammer to drive the piston pin out.



KICK CRANK

1. Remove:
   - Kick crank

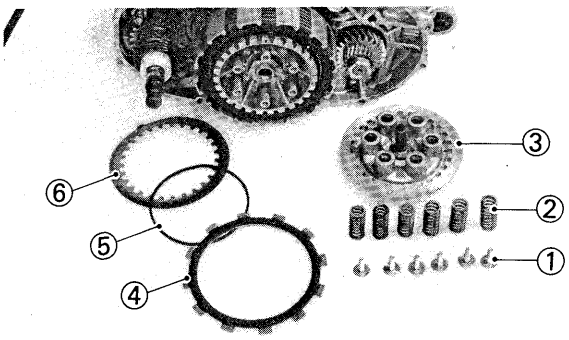


CRANKCASE COVER (RIGHT)

1. Remove:
   - Crankcase cover (Right) ①
   - Dowel pin

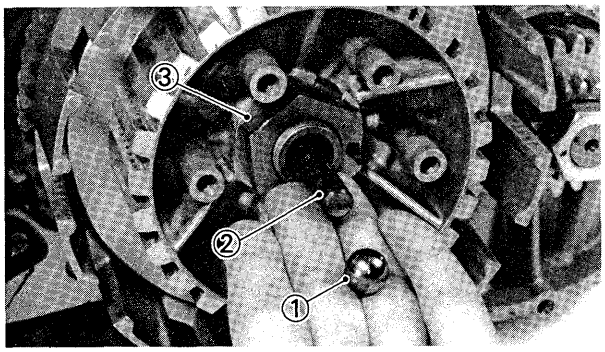
NOTE:

The crankcase cover can be removed without removing the water pump.

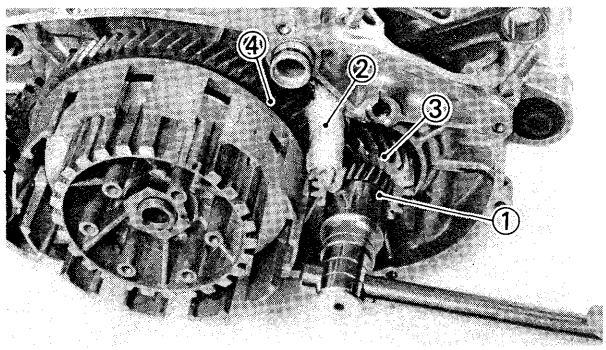


CLUTCH AND PRIMARY DRIVE GEAR

1. Remove:
   - Clutch spring holding screws ①
   - Clutch springs ②
   - Pressure plate ③
   - Friction plates ④
   - Cushion rings ⑤
   - Clutch plates ⑥

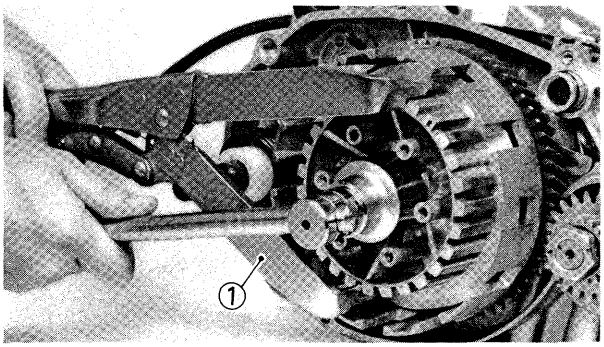


2. Remove:
   - Ball ①
   - Push rod #2 ②
3. Straighten:
   - Lock washer tab ③



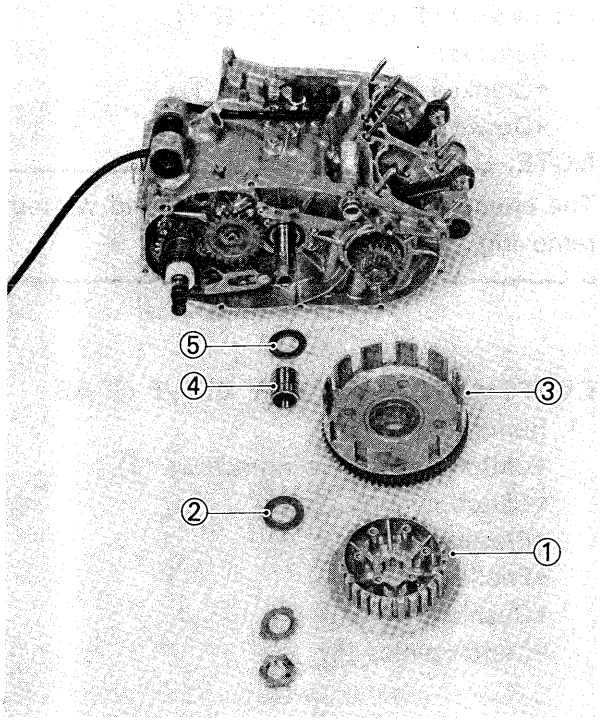
4. Loosen:
   - Nut ① (Primary drive gear)

   Place a folded rag ② between the teeth of the drive gear ③ and driven gear ④ to lock them.



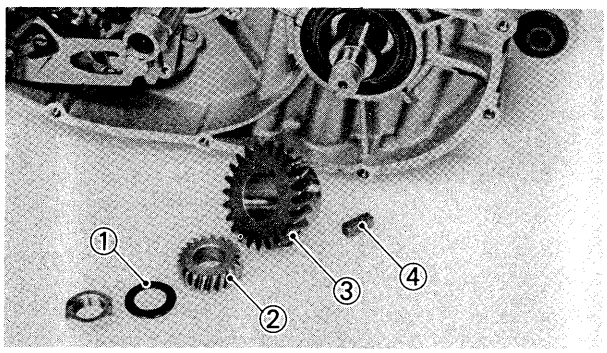
5. Loosen:
   - Nut (Clutch boss)

   Use the Universal Clutch Holder ① (YM-91042).

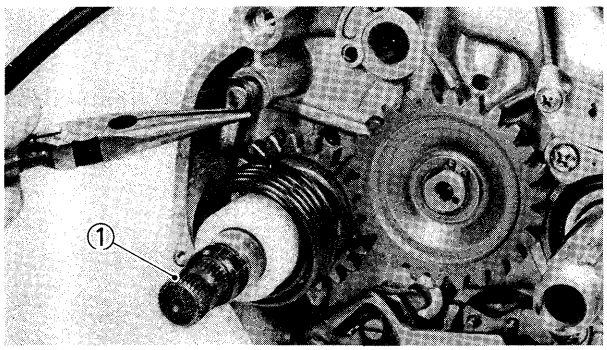


6. Remove:
   - Clutch boss ①
   - Thrust plate ②
   - Clutch housing ③
   - Spacer ④
   - Thrust plate ⑤

3

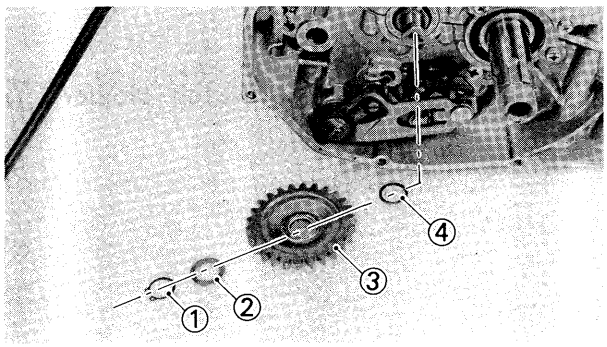


7. Remove:
   - Conical spring washer ①
   - Water pump drive gear ②
   - Primary drive gear ③
   - Key ④

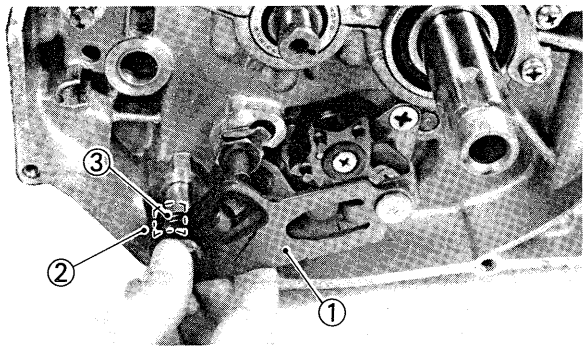


KICK AXLE

1. Unhook the kick spring from its position.
2. Remove:
   - Kick axle assembly ①

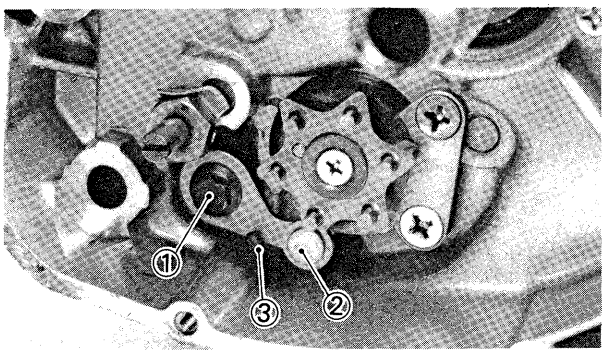


3. Remove:
   - Circlip ①
   - Washer ②
   - Kick idle gear ③
   - Plain washer ④

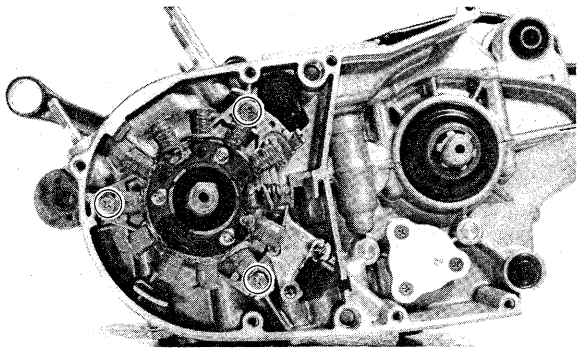


CHANGE SHAFT

1. Remove:
   - Change lever ①
   - Spring ②
   - Collar ③

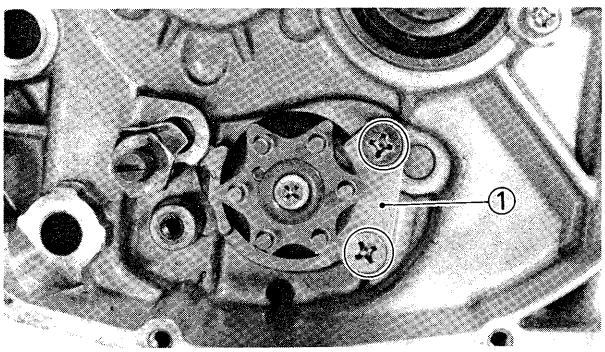


2. Unhook the torsion spring from its position.
3. Remove:
   - Securing bolt ①
   - Stopper lever ②
   - Spring ③



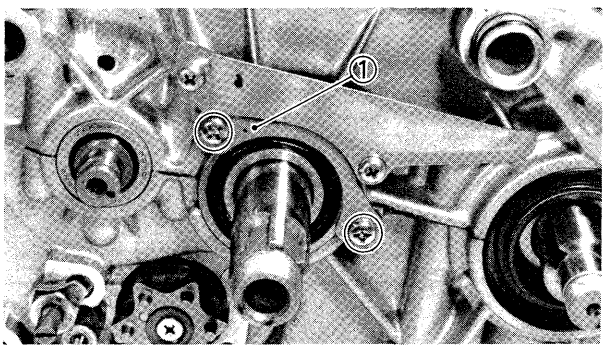
STATOR ASSEMBLY

1. Remove:
   - Stator assembly



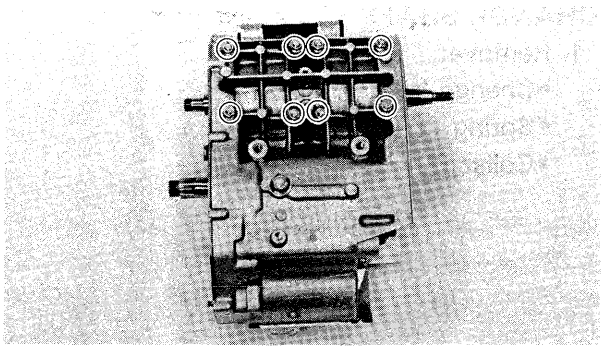
CAM STOPPER PLATE

1. Remove:
   - Cam stopper plate ①



BEARING STOPPER PLATE

1. Remove:
   - Bearing stopper plate ①

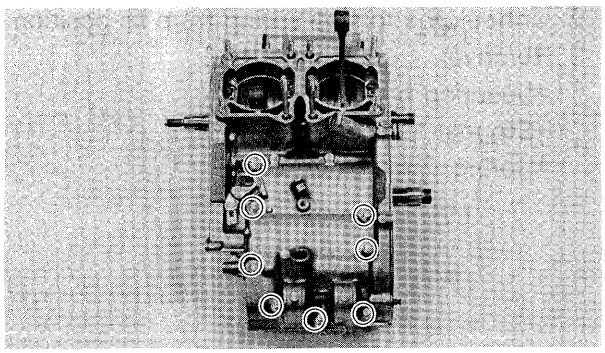


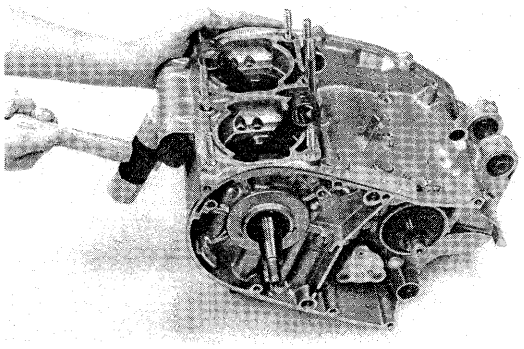
CRANKCASE

1. Remove:
   - Nuts (Crankcase)
   - Bolts (Crankcase)

NOTE:

Loosen each bolt and nut 1/4 turn, and remove them after all are loosened.

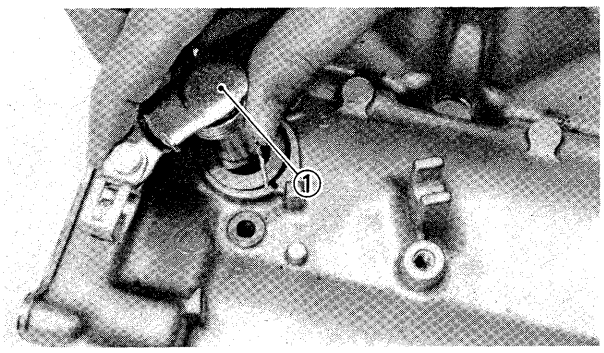




2. Remove:
   - Upper crankcase
   - Dowel pins

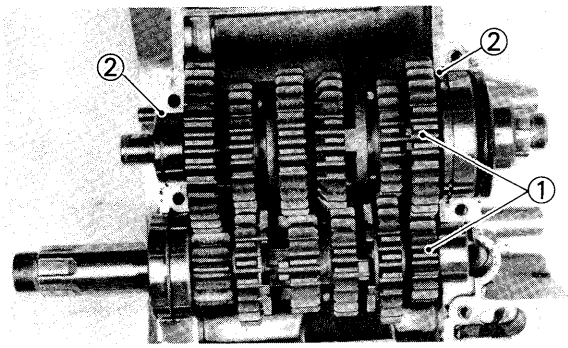
NOTE:

Split crankcase by lightly striking the front and rear parts of the upper crankcase.



PUSH LEVER

1. Remove:
   - Push lever ①

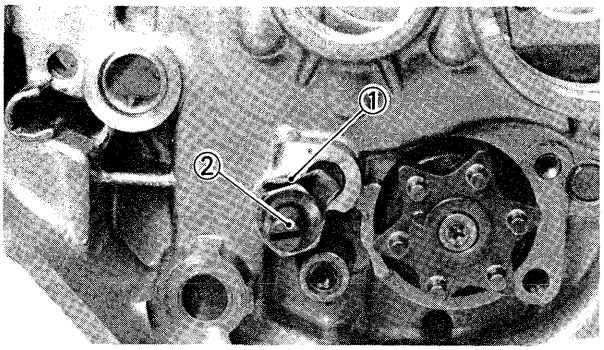


TRANSMISSION

1. Remove:
   - Transmission assembly ①
   - Circlips ②

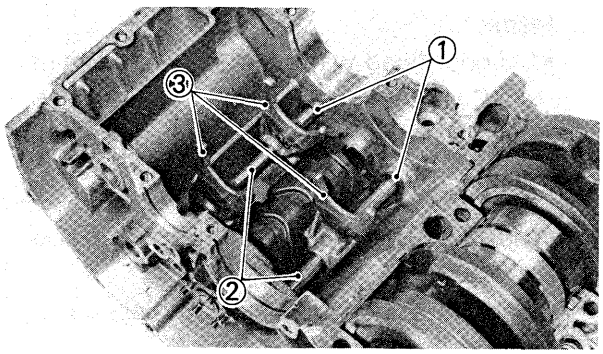
NOTE:

Remove the transmission by lightly striking it with a soft-faced hammer at case mating surface.

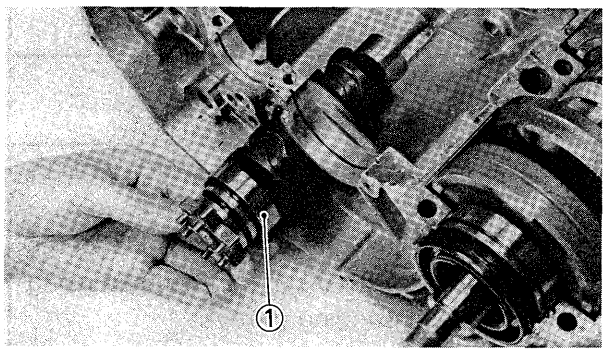


SHIFTER

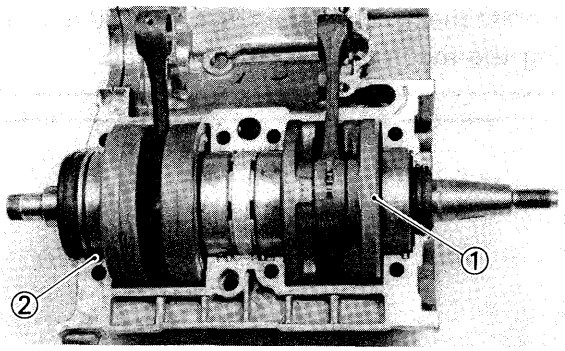
1. Straighten:
   - Lock washer tab ①
2. Remove:
   - Bolt ②



3. Remove:
   - Circlip ①
   - Guide bars ②
   - Shift forks ③

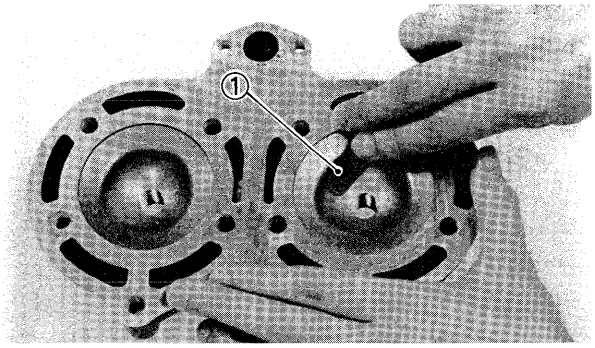


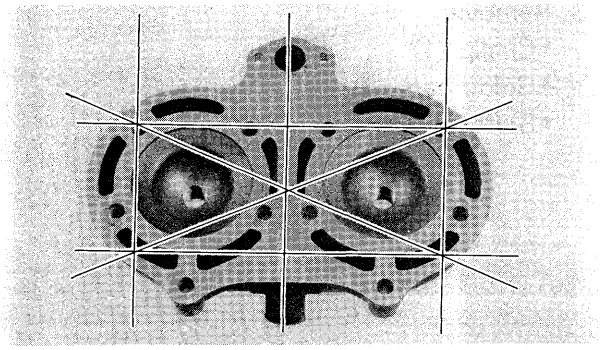
4. Remove:
   - Shift cam ①

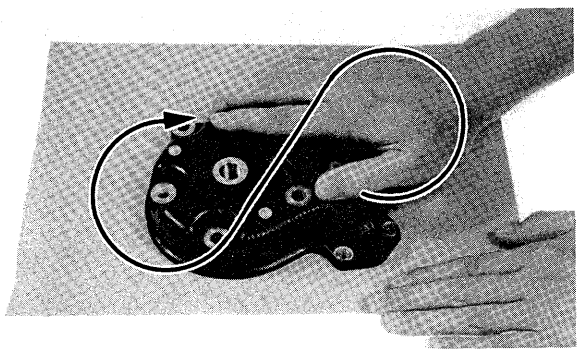


CRANKSHAFT

1. Remove:
   - Crankshaft ①
   - Circlip ②







INSPECTION AND REPAIR

CYLINDER HEAD

1. Remove:
   - Carbon deposits
     Use a scraper ①.

NOTE:

Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.

2. Inspect:
   - Cylinder head water jacket crust of minerals/Rust→Remove.
   - Cylinder head warpage out of specification →Re-surface.

Warpage measurement and re-surfacement steps:

- Attach a straight edge and a thickness gauge on the cylinder head.
- Measure the warpage limit.

Warpage Limit:
0.03 mm (0.0012 in)

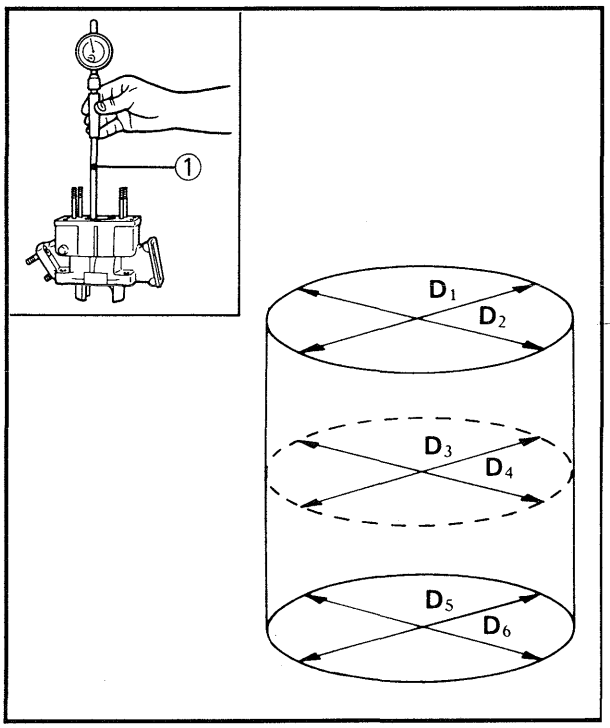
- If the warpage is out of specification, resurface the cylinder head.
- Place a 400~600 grit wet sandpaper on the surface plate, and re-surface the head using a figure-eight sanding pattern.

NOTE:

Rotate the head several times to avoid removing too much material from on side.

CYLINDER

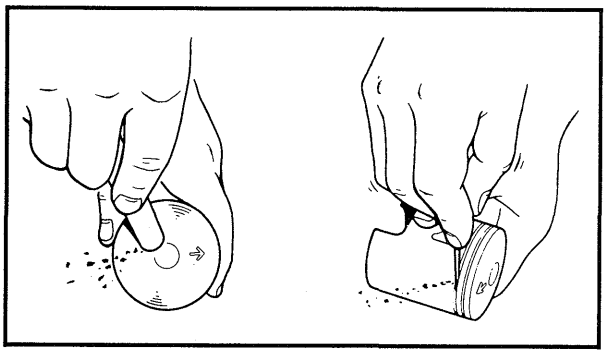
1. Remove:
   - Carbon deposits
     Use a rounded scraper.
2. Inspect:
   - Cylinder water jacket
     Crust of minerals/Rust→Remove.
   - Cylinder wall
     Wear/Scratches→Rebore or replace.



3. Measure:
   • Cylinder bore "C"
   Out of specification → Rebore.
   Use a Cylinder Bore Gauge ①.

	Standard	Wear limit
Cylinder bore "C"	64.00 mm (2.520 in)	64.10 mm (2.524 in)
Taper "T"	—	0.05 mm (0.002 in)
Out of round "R"	—	0.01 mm (0.0004 in)

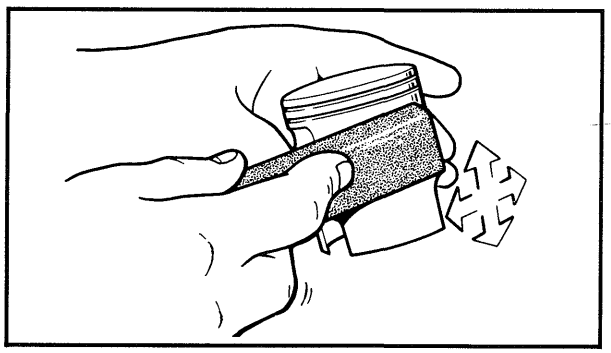
C = Maximum D
T = (Maximum D_1 or D_2) − (Minimum D_5 or D_6)
R = (Maximum D_1, D_3 or D_5) − (Minimum D_2, D_4 or D_6)



PISTON, PISTON RING AND PISTON PIN

Piston

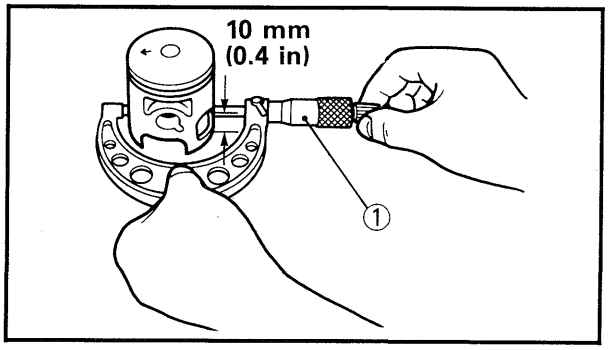
1. Remove:
   • Carbon deposits
   From the piston crown and ring grooves.
2. Inspect:
   • Piston wall
   Wear/Scratches/Damage → Replace.



3. Remove:
   • Score marks and lacquer deposits
   From the sides of piston.
   Use a 600 ~ 800 grit wet sandpaper.

NOTE:

Sand in a crisscross pattern. Do not sand excessively.



4. Measure:
   • Piston outside diameter "P"
   Out of specification → Replace.
   Use a Micrometer ①.

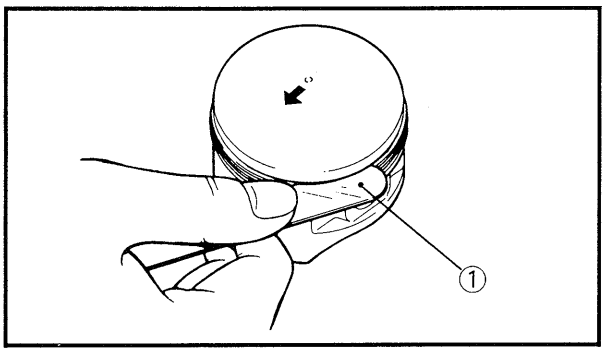
NOTE:

Measurement should be made at a point 10 mm (0.4 in) above the bottom edge of the piston.

Piston Outside Diameter "P"	
Standard	63.94 ~ 64.00 mm (2.517 ~ 2.521 in)
Oversize 1	64.25 mm (2.53 in)
Oversize 2	64.50 mm (2.54 in)

5. Measure:
   • Piston Clearance
   Out of specification → Rebore cylinder or replace piston.

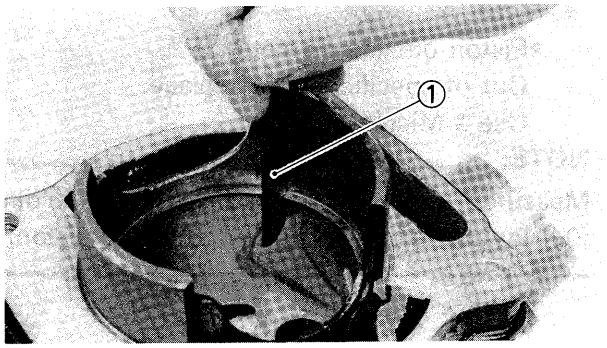
Piston Clearance = C — P: 0.060 ~ 0.065 mm (0.0024 ~ 0.0026 in)
C: Cylinder Bore P: Piston Outside Diameter



Piston Ring

1. Measure:
   • Side clearance
   Out of specification → Replace piston and/or rings.
   Use the Feeler Gauge ①.

	Side clearance	
	Standard	Limit
Top Ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)	0.12 mm (0.0047 in)
2nd Ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)	0.12 mm (0.0047 in)



2. Position:
   • Piston ring
   Into the cylinder.
   Push the ring with the piston crown.
3. Measure:
   • End gap
   Out of specification → Replace rings as a set.
   Use a Feeler Gauge ①.

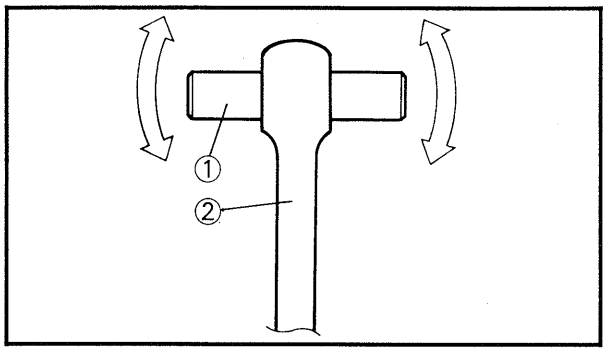
	End Gap	
	Standard	Limit
Top ring	0.30~0.45 mm (0.012~0.018 in)	0.70 mm (0.028 in)
2nd ring	0.30~0.45 mm (0.012~0.018 in)	0.70 mm (0.028 in)

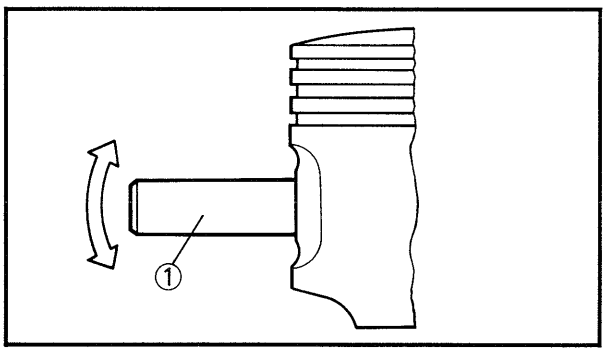
Piston Ring Oversize

- Top and 2nd piston ring

Oversize top and 2nd ring sizes are stamped on top of ring.

Oversize 1	"25"	0.25 mm (0.0098 in)
Oversize 2	"50"	0.50 mm (0.0197 in)





Piston Pin

1. Lubricate:
   - Piston pin (lightly)
2. Install:
   - Piston pin ①

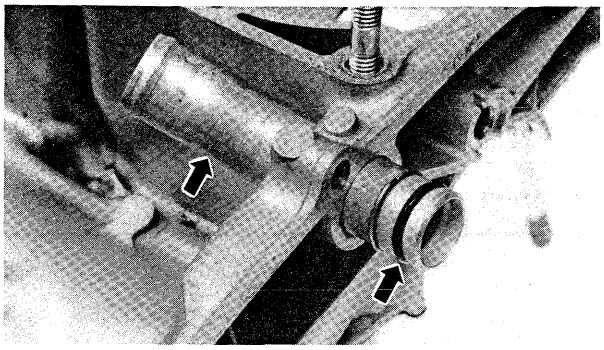
   Into the small end of connecting rod ②.
3. Check:
   - Free play

   There should be no noticeable for the play.
   Free play exists→Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.
4. Install:
   - Piston Pin ①

   Into the piston.
5. Check:
   - Free play (when the piston pin is in place in the piston)

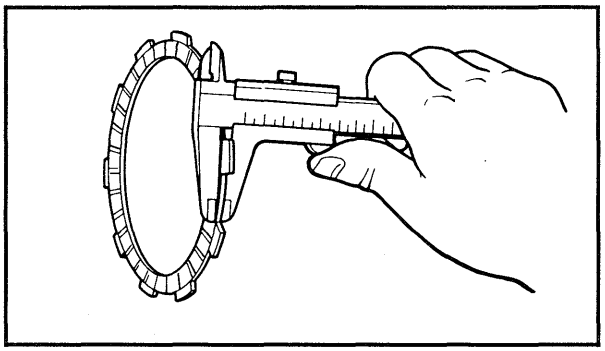
   There should be no noticeable for the play.
   Free play exists→Replace piston pin and/or piston.
6. Inspect:
   - Piston pin and bearing

   Signs of heat discoloration→Replace.



JOINT PIPE

1. Inspect:
   - Joint pipe
     Crack→Replace.
   - O-ring
     Damage→Replace.

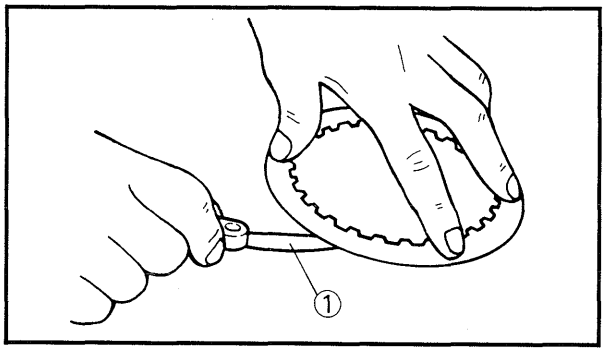


CLUTCH

Friction Plates

1. Inspect:
   - Friction plate
     Damage/Wear→Replace friction plate as a set.
2. Measure:
   - Friction plate thickness
     Out of specification→Replace friction plate as a set.
     Measure at all four point.

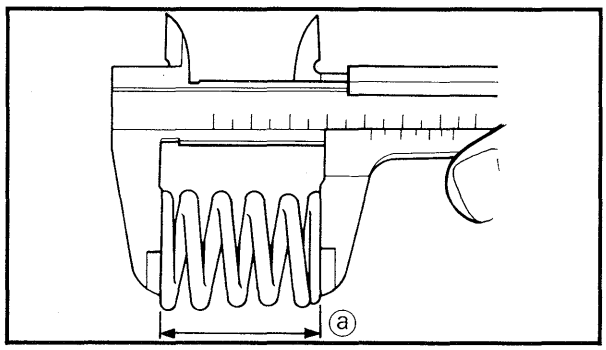
	Friction Plate Thickness
Wear Limit	2.7 mm (0.106 in)



Clutch Plates

1. Measure:
   - Clutch plate warpage
     Out of specification→Replace clutch plate as a set.
     Use a surface plate and feeler gauge ①.

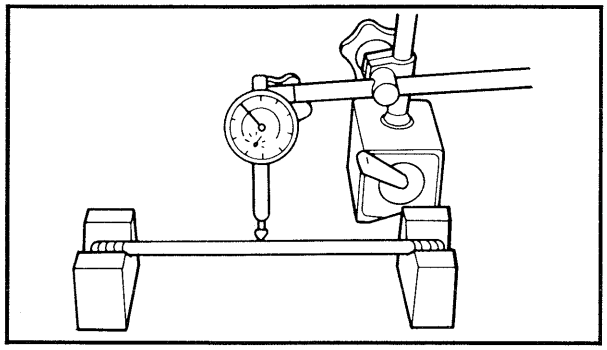
Warp Limit:
0.05 mm (0.002 in)



Clutch Spring

1. Measure:
   - Clutch spring free length ⓐ
     Out of specification→Replace spring as a set.

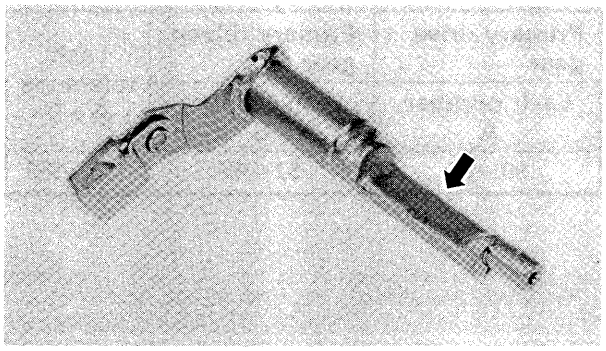
Clutch Spring Minimum Length:
34.4 mm (1.35 in)



Push Lod

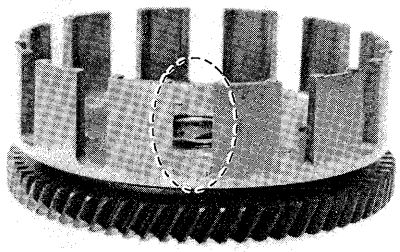
1. Measure:
   - Push rod runout (Long rod)
     Out of specification→Replace.
     Use the V-Blocks and Dial Gauge.

Bending Limit:
0.2 mm (0.008 in)



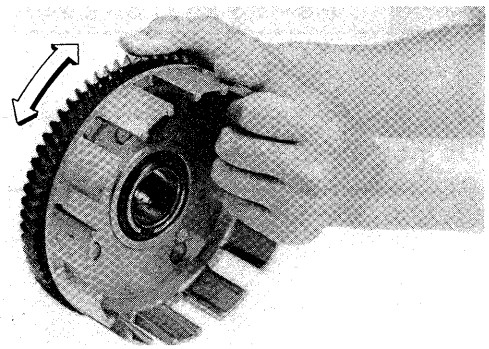
Push Lever

1. Inspect:
   - Push lever
     Wear/Damage→Repair using 300 ~ 400 grit sand paper or replace.

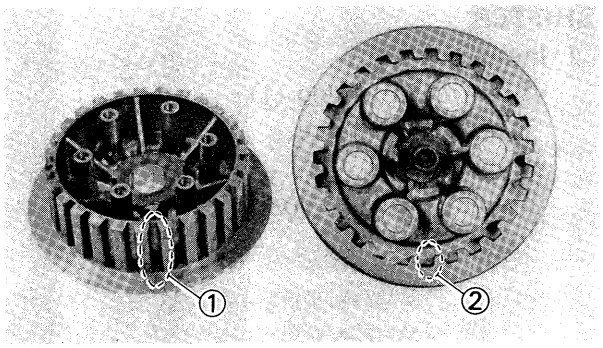


Clutch Housing

1. Inspect:
   - Dogs on the clutch housing
     Cracks/Wear/Damage→Deburr or replace.
   - Clutch housing bearing
     Chafing/Wear/Damage→Replace.



2. Check:
   - Circumferential play
     Free play exists→Replace.

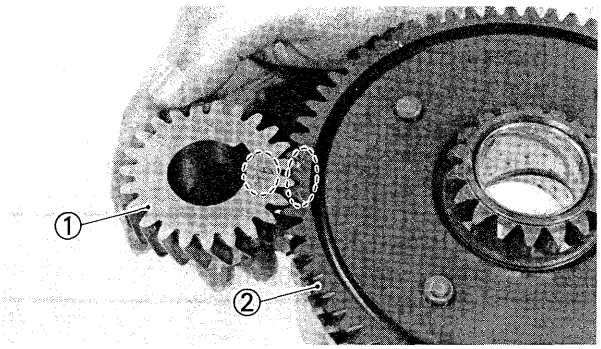


Clutch Boss and Pressure Plate

1. Inspect:
   - Clutch boss splines ①.
   - Pressure plate ②
     Scoring/Wear/Damage→Replace clutch boss and/or pressure plate.

NOTE:

Scoring on the clutch boss splines will cause erratic operation.



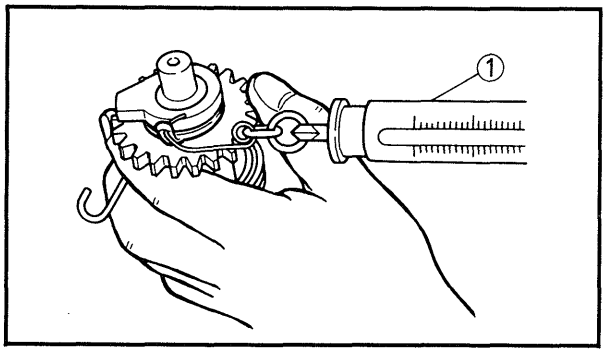
PRIMARY DRIVE GEAR

1. Inspect:
   - Drive gear and driven gear
     Pitting/Wear/Damage→Replace.
2. It is always advisable to pay strict attention to the lash numbers (mark) during replacement. Marks are scribed on the side of each gear. Match these marks.

① Drive gear
② Driven gear

Primary drive gear	Primary driven gear	Lash tolerance A+B
Lash number A	Lash number B	
90~98	57~65	154~156

3



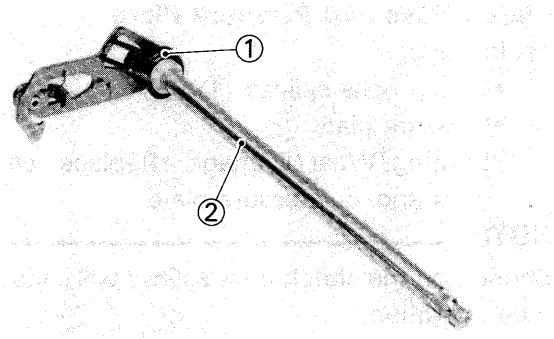
KICK STARTER

1. Inspect:
   - Kick axle
     Damage/Wear→Replace.
2. Measure:
   - Kick spring tension
     Out of specification→Replace.
     Use a spring balance ①.

Standard Tension:
0.8~1.3 kg (1.8~2.9 lb)

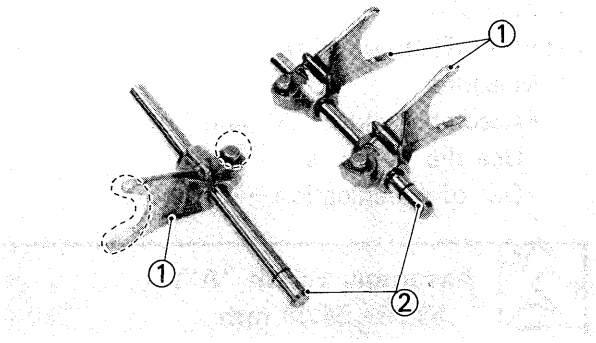
CAUTION:

Do not try to bend the clip.



SHIFTER

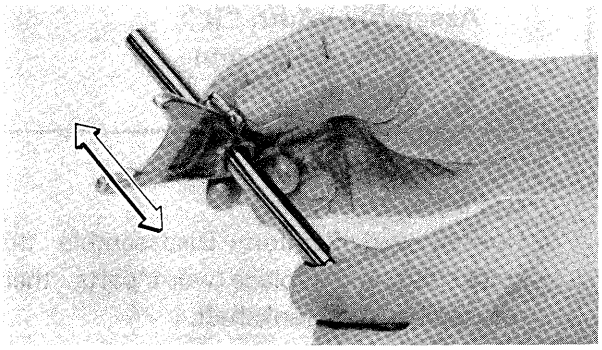
1. Inspect:
   - Shift return spring ①
     Damage→Replace.
   - Change shaft ②
     Damage/Bends/Wear→Replace.



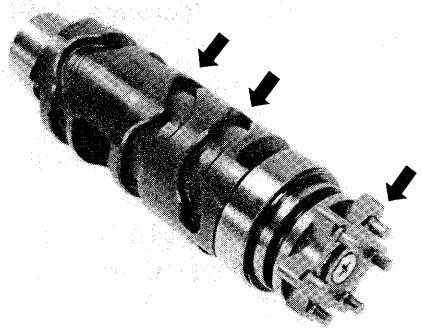
TRANSMISSION

Shift Fork

1. Inspect:
   - Shift forks ① (Gear and shift cam contact surfaces)
     Wear/Chafing/Bends/Damage→Replace.
   - Guide bars ②
     Bends/Wear→Replace.

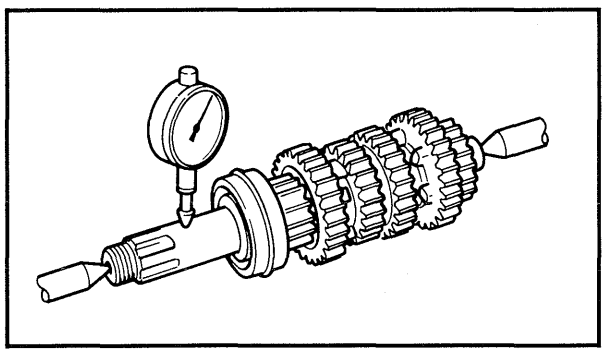


2. Check:
   - Shift fork movement
     On its guide bar.
     Unsmooth operation→Replace shift fork and/or guide bar.



Shift Cam

1. Inspect:
   - Shift cam grooves
     Wear/Damage/Scratches→Replace.
   - Shift cam segment
     Damage/Wear→Replace.



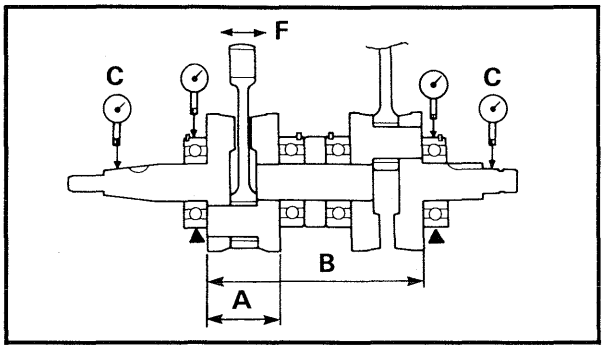
Main and Drive Axles

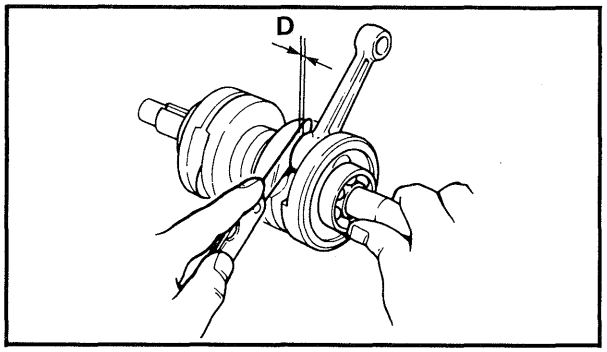
1. Measure:
   - Axle runout
     Out of specification→Replace.
     Use centering device and Dial Gauge.

Runout Limit:
0.08 mm (0.0031 in)

Gears

1. Inspect:
   - Gears
   - Mating dogs
     Cracks/Damage/Wear→Replace.
2. Check:
   - Gear movement
     Unsmooth operation→Replace.





CRANKSHAFT

Crankshaft Inspection

1. Measure:
   - Assembly width "A" and "B"
     Use the V-blocks.
     Out of specification→Replace.

Assembly Width "A":
53.95~54.00 mm
(2.124~2.126 in)
Assembly Width "B":
155.90~156.05 mm
(6.138~6.144 in)

   - Big end side clearance "D"
     Use a Feeler Gauge.
     Out of specification→Disassemble the crankshaft and replace worn parts, then reassemble the crankshaft.

Big End Side Clearance Limit "D":
0.25~0.75 mm (0.0098~0.0295 in)

   - Runout "C"
     Use the V-blocks and Dial Gauge.
     Out of specification→Correct any misalignment.

Runout Limit "C":
0.05 mm (0.002 in)

   - Small end free play "F"
     Use the V-blocks and Dial Gauge.
     Out of specification→Disassemble the crankshaft, and replace the defective parts, then reassemble the crankshaft.

Small End Free Play "F":
Standard: 0.36~0.98 mm
(0.0142~0.0386 in)
Limit: 2.0 mm (0.08 in)

2. Inspect:
   - Crankshaft bearing surfaces
     Wear/Scratchs/Rust sports→Replace.

NOTE:

Lubricate the bearing immediately after examining then to prevent rust.

BEARINGS AND OIL SEALS

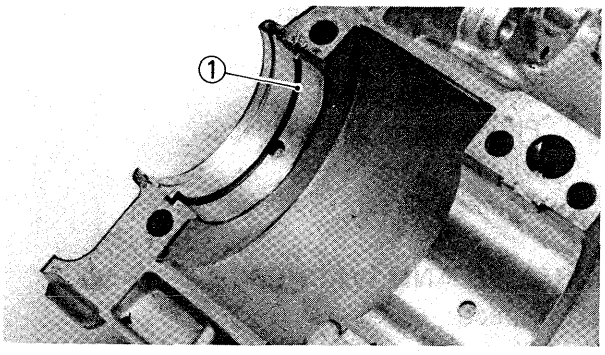
1. Inspect:
   - Bearings
     Pitting/Damage→Replace.
   - Oil seal lips
     Damage/Wear→Replace.

CIRCLIPS AND WASHERS

1. Inspect:
   - Circlips
   - Washers
     Damage/Looseness/Bends→Replace.

CRANKCASE

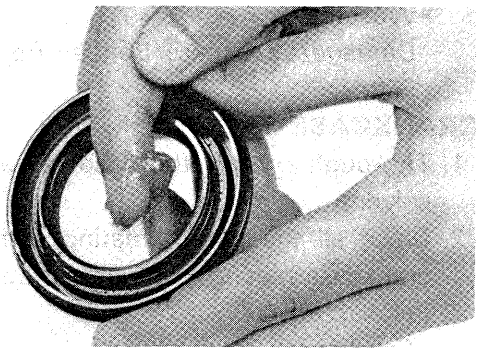
1. Thoroughly wash the case halves in mild solvent.
2. Clean all the gasket mating surfaces and crankcase mating surfaces thoroughly.
3. Inspect:
   - Crankcase
     Cracks/Damage→Replace.
   - Oil delivery passages
     Clog→Blow out with compressed air.



ENGINE ASSEMBLY AND ADJUSTMENT

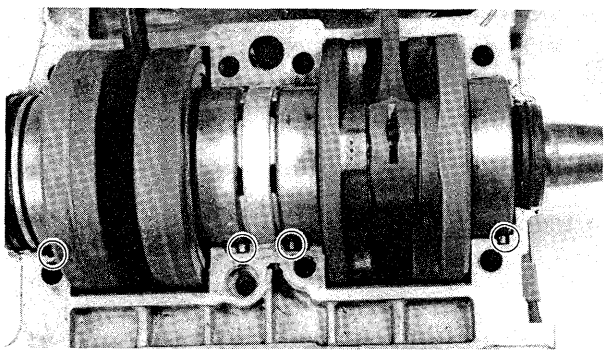
CRANKSHAFT

1. Install:
   - Circlip ①
     On the clutch side.



2. Apply:
   To oil seal lips and bearing.

Light Weight Lithium Base Grease



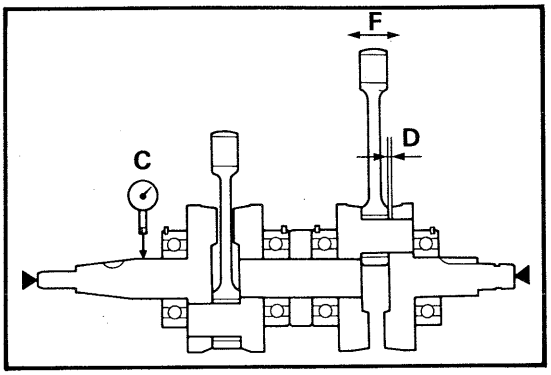
3. Install:
   - Crankshaft

NOTE:

Align the bearing knock pin with the pin slot in the crankcase lower half.

CRANKSHAFT/PISTON

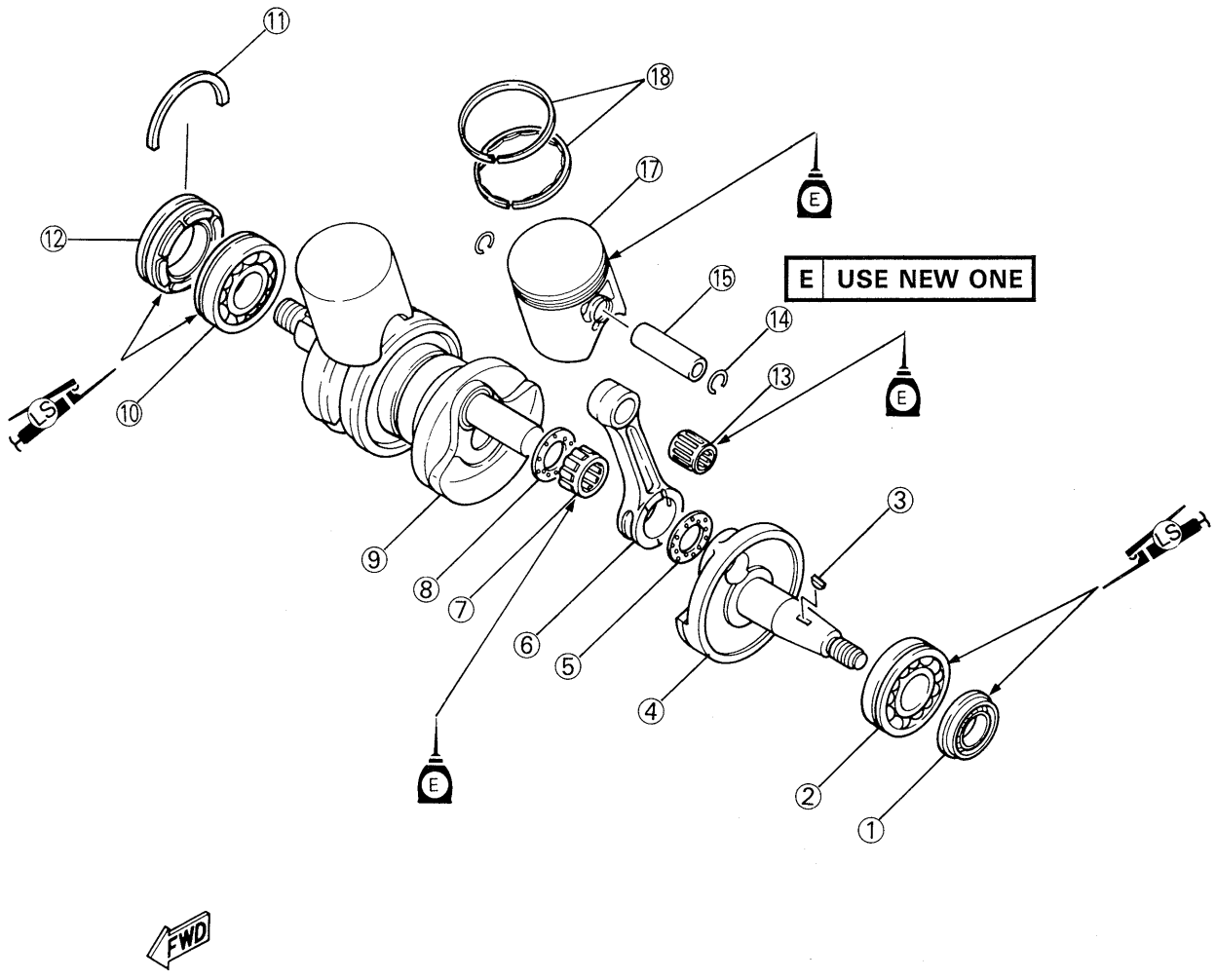
① Oil seal
② Bearing
③ Woodruff key
④ Crank (Left)
⑤ Washer
⑥ Connecting rod
⑦ Crank pin bearing
⑧ Washer
⑨ Crank (Right)
⑩ Bearing
⑪ Circlip
⑫ Oil seal
⑬ Piston pin bearing
⑭ Piston pin clip
⑮ Piston pin
⑯ Piston pin clip
⑰ Piston
⑱ Piston ring set



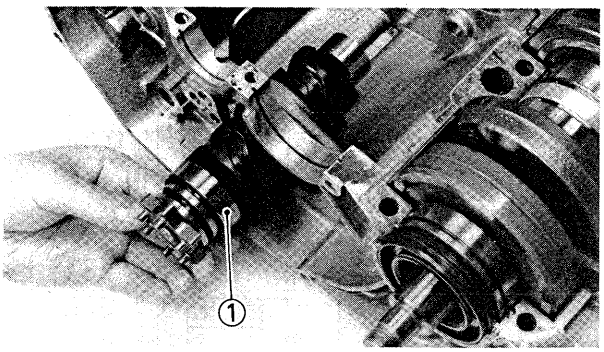
A	PISTON TO CYLINDER CLEARANCE: 0.060 ~ 0.065 mm (0.0024 ~ 0.0026 in)
B	END GAP (INSTALLED): TOP RING 0.30 ~ 0.45 mm (0.012 ~ 0.018 in) 2nd RING 0.30 ~ 0.45 mm (0.012 ~ 0.018 in)
D	SIDE CLEARANCE: TOP RING 0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in) 2nd RING 0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)

C	CRANKSHAFT: RUNOUT LIMIT "C": 0.05 mm (0.002 in) BIG END SIDE CLEARANCE "D": 0.25 ~ 0.75 mm (0.01 ~ 0.03 in) SMALL END FREE PLAY "F": 0.36 ~ 0.98 mm (0.0142 ~ 0.0386 in)

E	USE NEW ONE

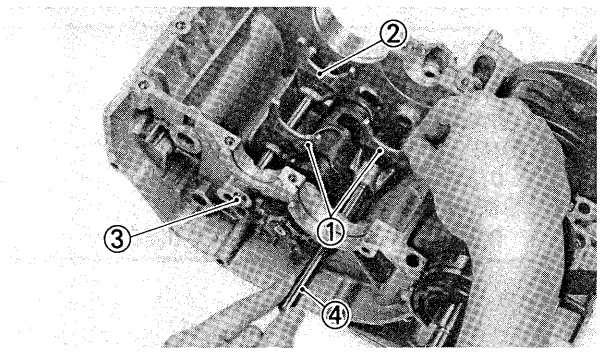


3



SHIFTER

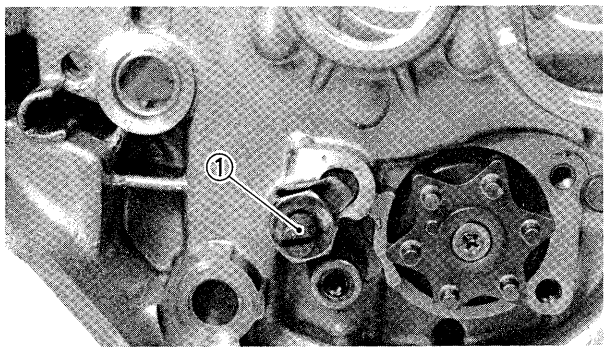
1. Install:
   - Shift cam ①



2. Install:
   - Shift forks #1 ①
   - Shift frok #2 ②
   - Guide bar #1 (Longer) ③
   - Guide bar #2 (Shorter) ④

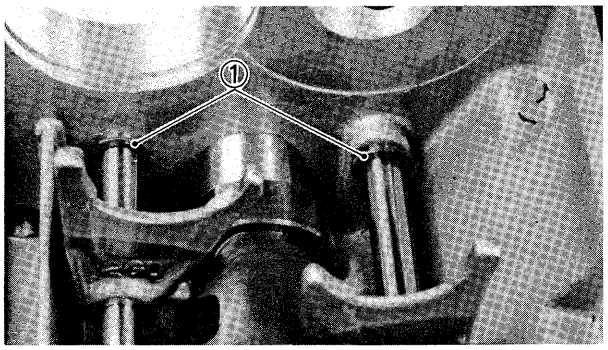
NOTE:

Each shift fork is identified by a number cast on its side.



3. Install:
   - Bolt ①

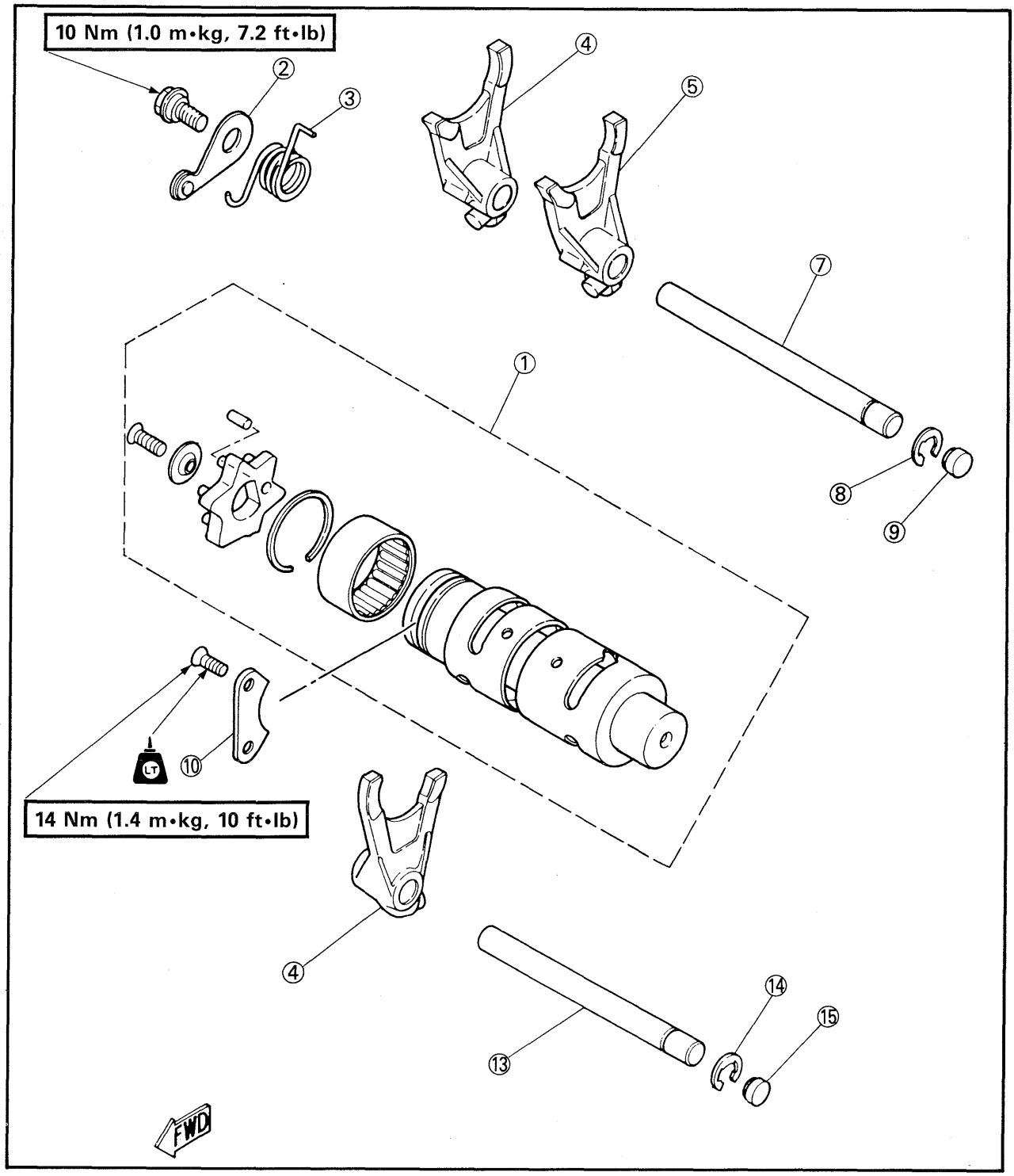
4. Bend the lock washer tab a long the nut flats.

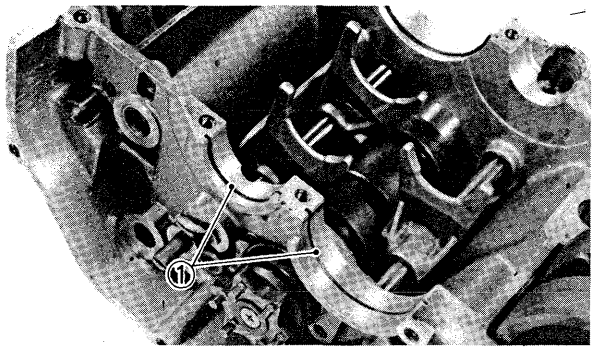


5. Install:
   - Circlips ① (Guide bar)

SHIFTER

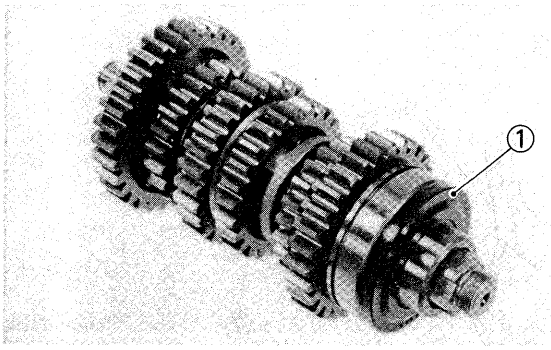
① Shift cam
② Stopper lever
③ Spring
④ Shift fork #1
⑤ Shift fork #2
⑥ Guide bar
⑦ Circlip
⑧ Plug
⑨ Cam stopper plate
⑩ Guide bar
⑪ Circlip
⑫ Plug





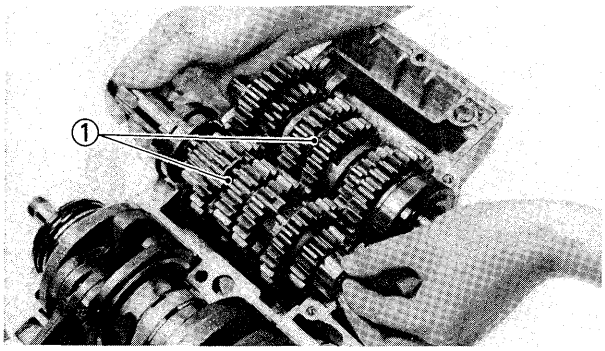
TRANSMISSION

1. Install:
   - Circlips ①



2. Install:
   - Oil seal ①

   To drive axle.



3. Install:
   - Transmission assembly ①

NOTE:

- Be sure axle circlips are fitted to bearings and circlips have been positioned in circlip grooves.
- Transmission installation is easier if shift cam is rotated to neutral position.

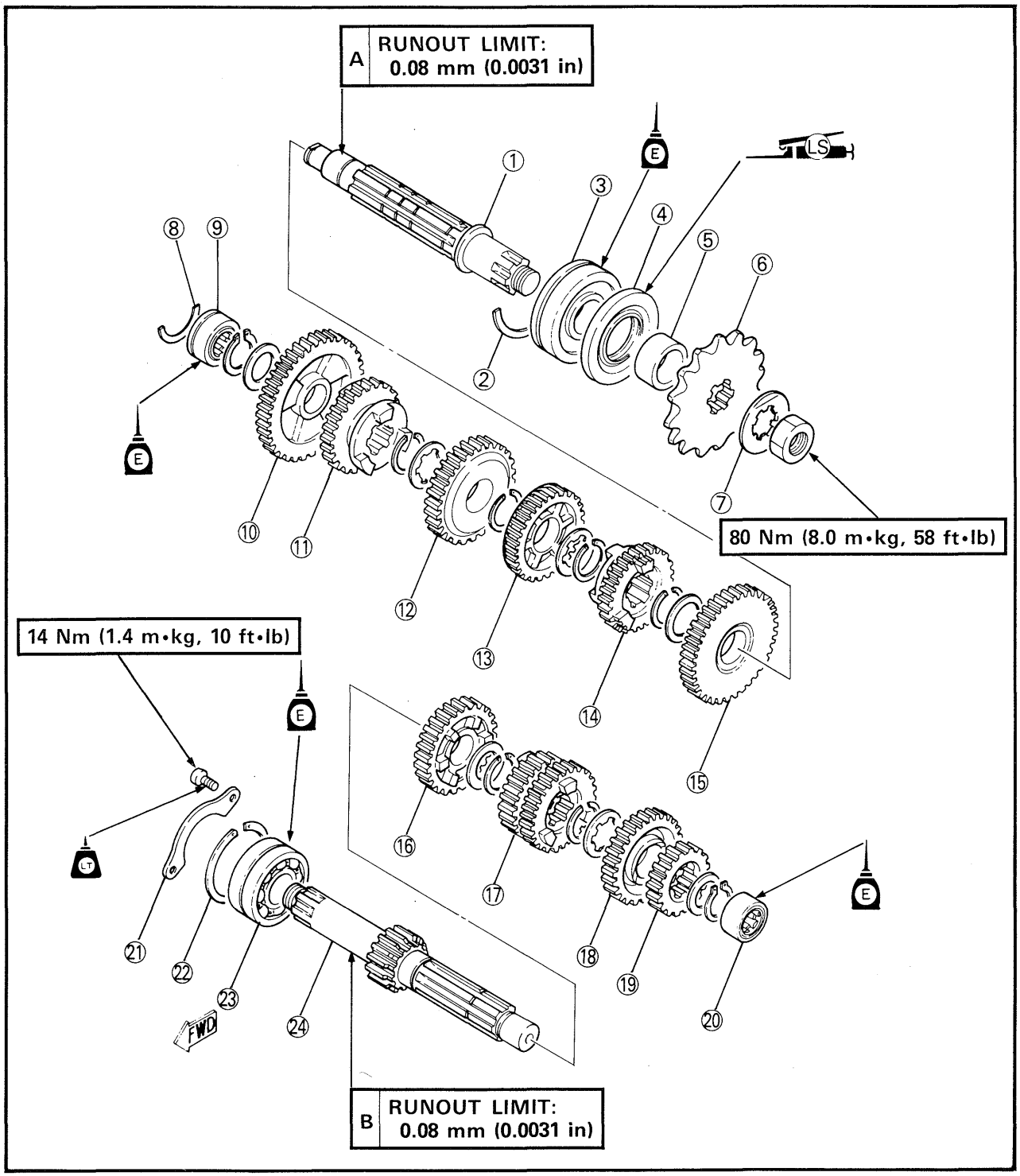
4. Check:
   - Shifter operation.

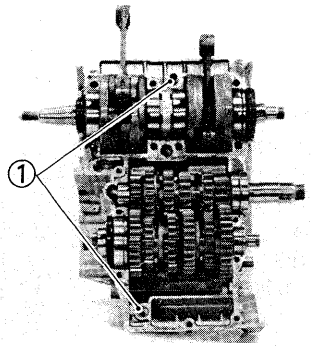
     Unsmooth operation→Repair.
   - Transmission operation

     Unsmooth operation→Repair.

TRANSMISSION

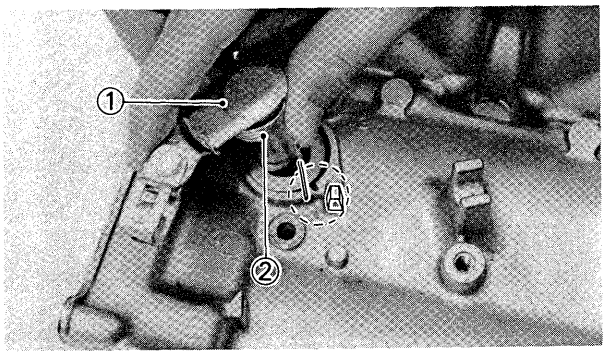
① Drive axle
② Circlip
③ Bearing
④ Oil seal
⑤ Collar
⑥ Drive sprocket
⑦ Lock washer
⑧ Circlip
⑨ Bearing
⑩ 1st wheel gear
⑪ 5th wheel gear
⑫ 3rd wheel gear
⑬ 4th wheel gear
⑭ 6th wheel gear
⑮ 2nd wheel gear
⑯ 5th pinion gear
⑰ 3rd and 4th pinion gear
⑱ 6th pinion gear
⑲ 2nd pinion gear
⑳ Bearing
㉑ Bearing stopper plate
㉒ Circlip
㉓ Bearing
㉔ Main axle



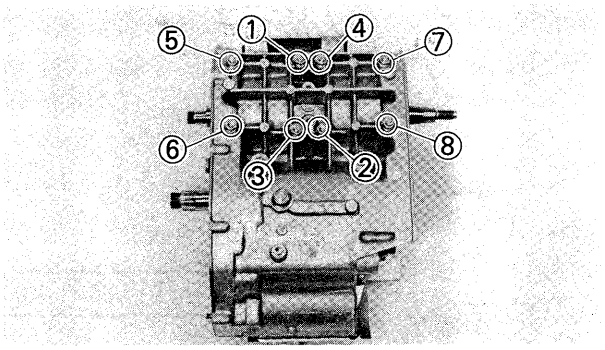


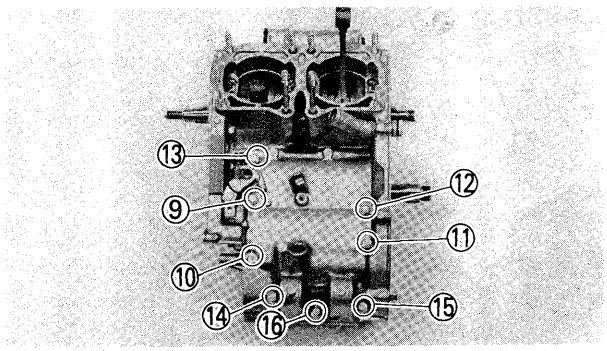
CRANKCASE

1. Apply:
   - Yamabond No.4® (ACC-11001-30-00)
     To the mating surfaces of both case halves.
2. Install:
   - Dowel pins ①



3. Install:
   - Clutch push lever ①
4. Set the push lever axle spring ② to its position.
5. Install:
   - Upper crankcase
6. Tighten:
   - Bolts (Crankcase)



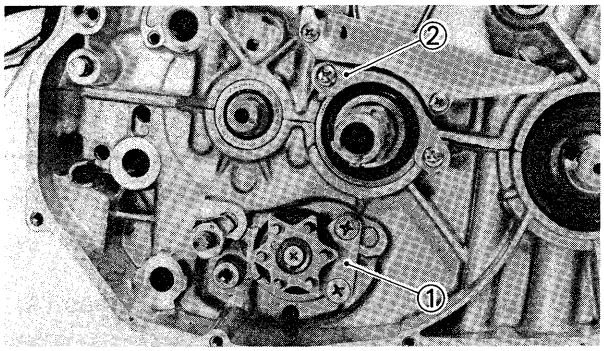


Securing bolts tightening steps: • Temporarily tighten ① to ⑧ and next ⑨ to ⑯, in that order. • Tighten ⑨ to ⑯.
5 Nm (0.5 m•kg, 3.6 ft•lb)
• Tighten ① to ⑧.
10 Nm (1.0 m•kg, 7.2 ft•lb)
• Tighten ① to ⑧.
25 Nm (2.5 m•kg, 18 ft•lb)
• Tighten ⑨ to ⑯.
10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Be sure to secure wire holder clamps together.

5. Apply:
   • 2-stroke oil
   To the crank pin, bearing and oil delivery hole.
6. Check:
   • Crankshaft and transmission operation
   Unsmooth operation → Repair.

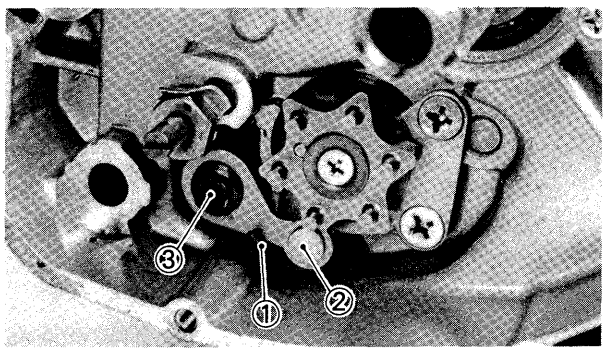


7. Install:
   • Cam stopper plate ①
   • Bearing stopper plate ②
8. Tighten:
   • Screws (cam stopper plate).

Screws (Cam Stopper Plate):
14 Nm (1.4 m•kg, 10 ft•lb)
LOCTITE®

   • Screws (Bearing stopper plate)

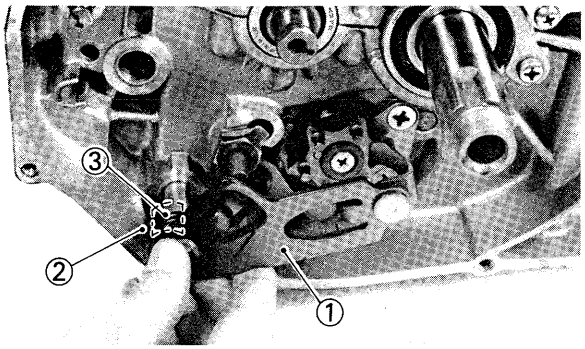
Screws (Bearing Stopper Plate):
14 Nm (1.4 m•kg, 10 ft•lb)
LOCTITE®



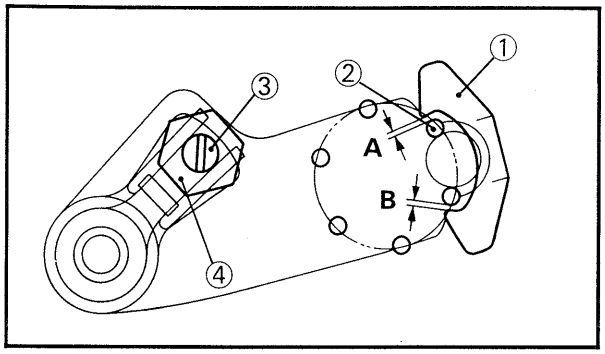
CHANGE SHAFT

1. Install:
   • Spring ①
   • Stopper lever ②
   • Securing bolt ③
2. Set the stopper lever and torsion spring as properly position.
3. Tighten:
   • Securing bolt ③

Securing Bolt:
10 Nm (1.0 m•kg, 7.2 ft•lb)
LOCTITE®



4. Install:
   - Change lever ①
   - Spring ②
   - Collar ③
5. Check:
   - Change operation
     Unsmooth operation→Repair.



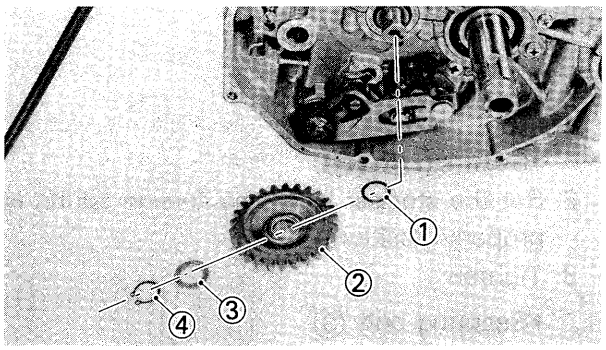
6. Check
   - Change lever position
     Gap (A) and (B) are not equal→Adjust.

Change lever position adjustment steps:
- Straighten the lock washer tab.
- Loosen the lock nut ④.
- Turn the adjuster ③ in or out until gap (A) and (B) are equal.
- Tighten the lock nut.

Lock Nut:
30 Nm (3.0 m•kg, 22 ft•lb)

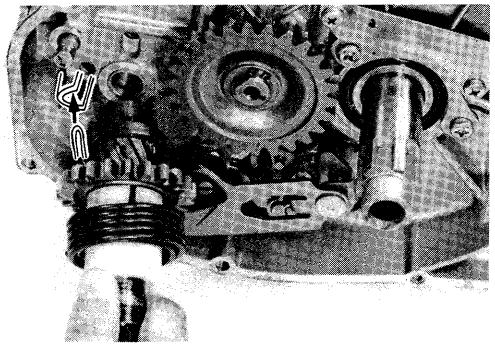
- Bend the lock washer tab.

① Change lever
② Segment



KICK AXLE

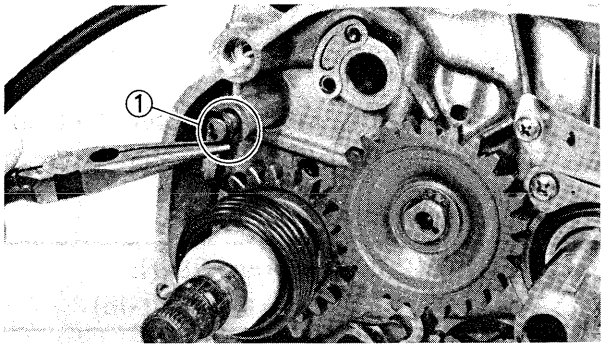
1. Install:
   - Plain washer ①
   - Kick idle gear ②
   - Washer ③
   - Circlip ④



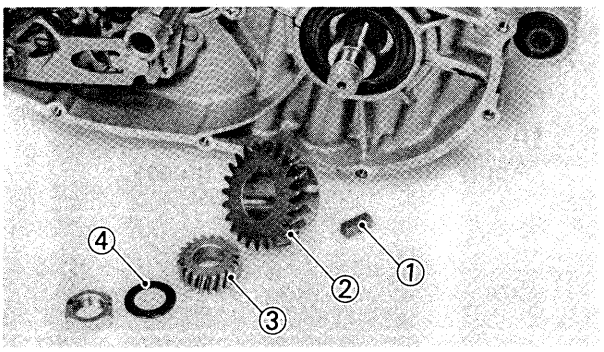
2. Install:
   - Kick axle assembly ①
     Rotate the shaft clockwise.

NOTE:

- Make sure that the kick stopper is stopped at the projection of the crankcase.
- Make sure that the spring is engaged with the crankcase hole.

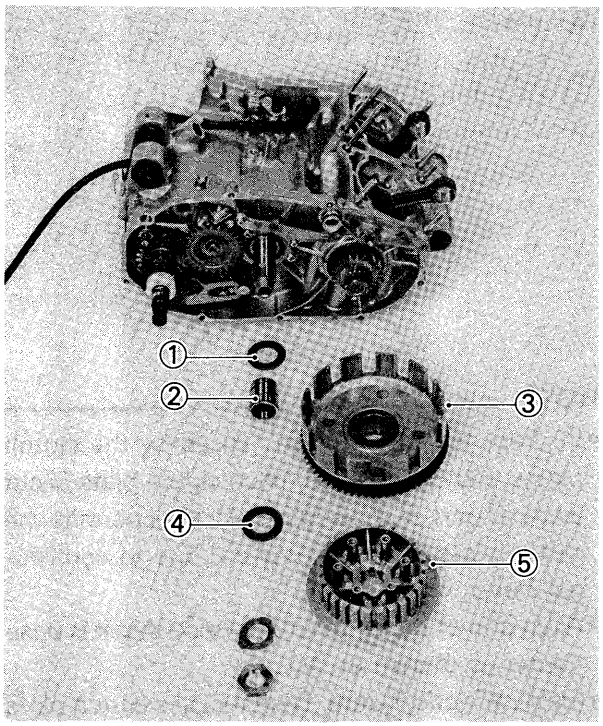


3. Set the kick spring ① to the spring hook.
4. Check:
   • Kick axle operation
   Unsmooth operation → Repair.



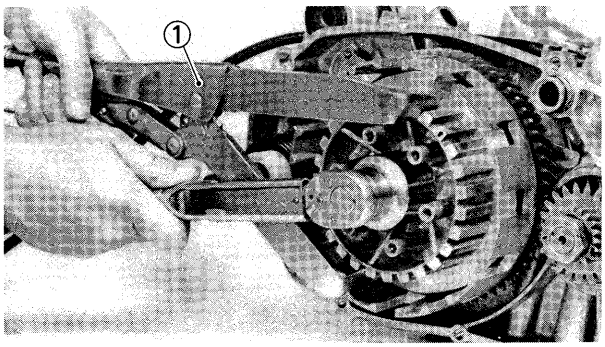
CLUTCH AND PRIMARY DRIVE GEAR

1. Install:
   • Key ①
   • Primary drive gear ②
   • Water pump drive gear ③
   • Conical washer ④
   • Nut (Primary drive gear)



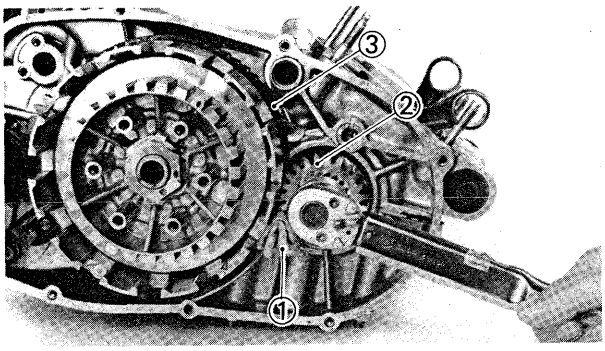
2. Install:
   • Thrust plate ①
   • Spacer ②
   • Clutch housing ③
   • Thrust plate ④
   • Clutch boss ⑤

3. Install:
   • Lock washer
   • Nut (Clutch boss)



4. Tighten:
   • Nut (Clutch boss)
   Use the Universal Clutch Holder ① (YM-91042).

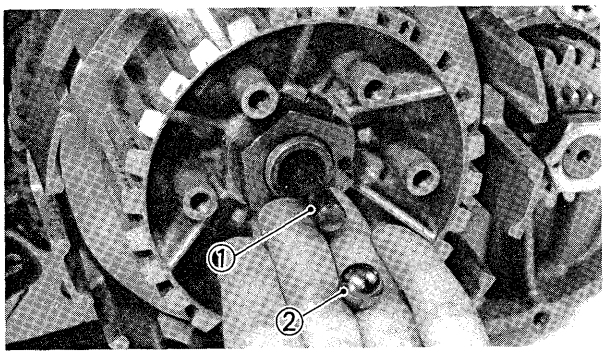
	Nut (Clutch Boss): **90 Nm (9.0 m•kg, 65 ft•lb)**



5. Tighten:
   - Nut (Primary drive gear)

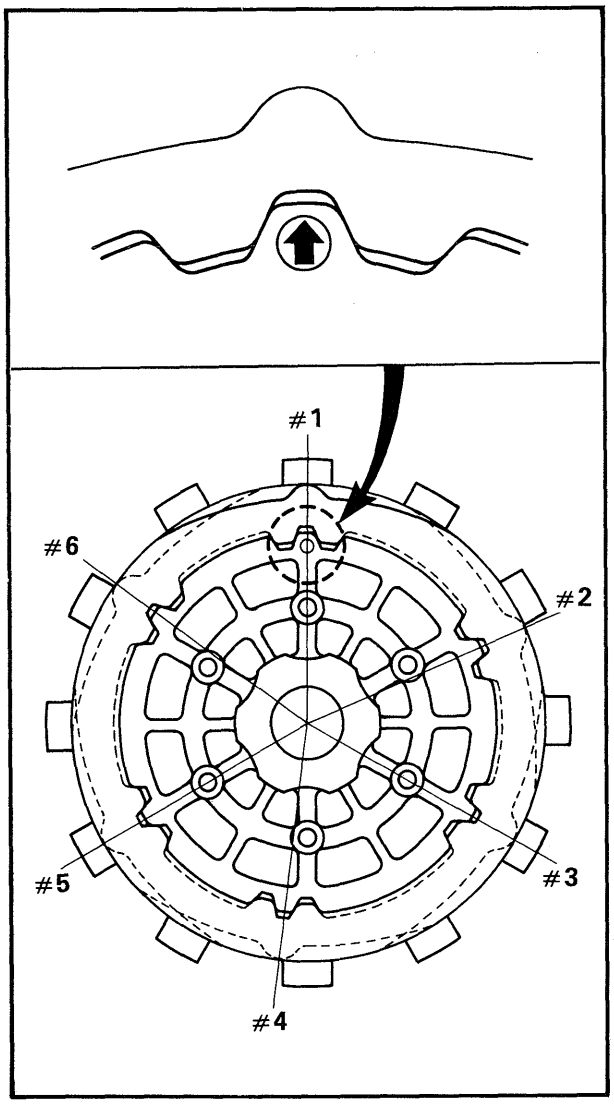
   Place the folded rag ① between the teeth of the drive gear ② and driven gear ③ to lock them.

	Nut (Primary Drive Gear): 65 Nm (6.5 m•kg, 47 ft•lb)



6. Bend the lock washer tab along the nut flats.
7. Install:
   - Push rod #2 ①
   - Ball ②

   Apply lithium soap base grease.

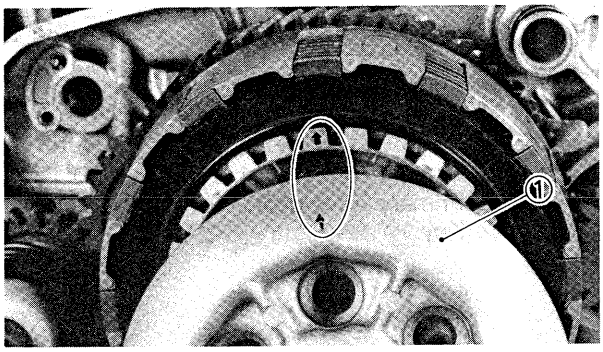


8. Install:
   - Cushion rings
   - Friction plates
   - Clutch plates

   Apply 10W30 motor oil.

NOTE:

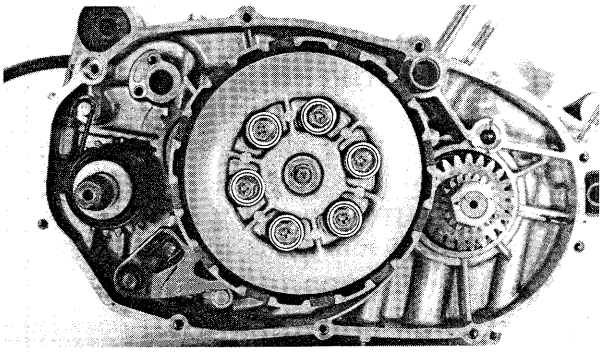
- In order to reduce noise caused by the clutch plates and clutch boss, each clutch plate is cut away at part of the edge (#1). This permits the clutch plate to move outward due to centrifugal force.
- Align one of the plate cutaways so that it is positioned as shown at #2.
- Install a friction plate. Next install a clutch plate with cutaway offset approximately 60° from previous plate cutaway.
- Continue this procedure in a clockwise direction until all clutch plates are installed.



9. Install:
   - Push rod #1
10. Install:
   - Clutch pressure plate ①

NOTE:

Align the punched mark on the clutch boss with the arrow mark on the clutch pressure plate.

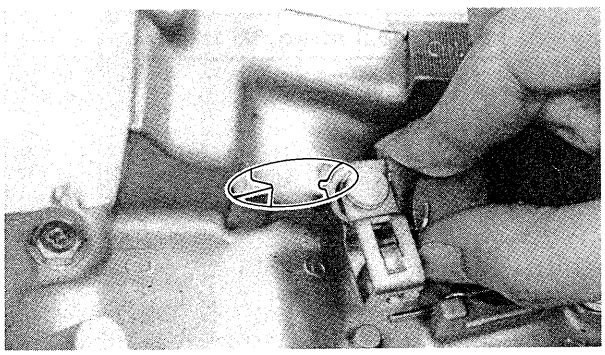


11. Install:
   - Clutch springs
   - Clutch spring holding screws

	Clutch Spring Holding Screws: 10 Nm (1.0 m•kg, 7.2 ft•lb)

12. Adjust:
   - Clutch mechanism free play

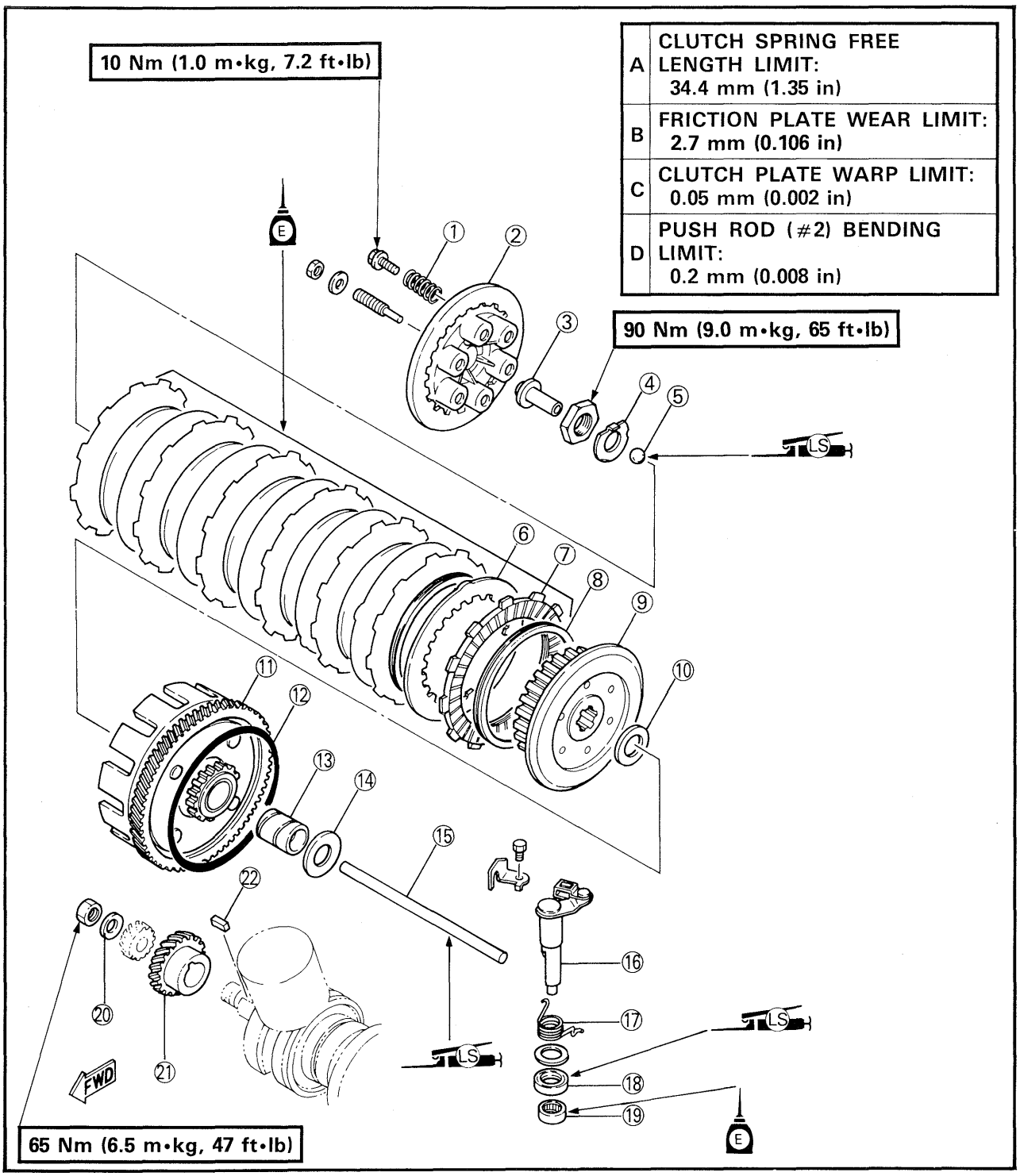
   Refer to "CHAPTER 2. CLUTCH ADJUSTMENT" section.



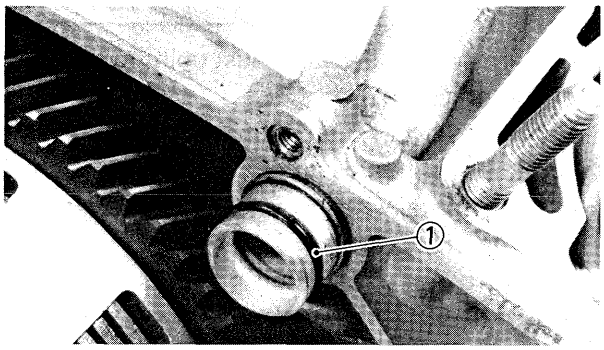
13. Inspect:
   - Clutch align marks

CLUTCH/PUSH LEVER/PRIMARY DRIVE GEAR

① Clutch spring
② Clutch pressure plate
③ Push rod (#1)
④ Lock washer
⑤ Ball
⑥ Clutch plate
⑦ Friction plate
⑧ Cushion ring
⑨ Clutch boss
⑩ Thrust plate
⑪ Clutch housing
⑫ O-ring
⑬ Spacer
⑭ Thrust plate
⑮ Push rod (#2)
⑯ Clutch push lever axle
⑰ Push lever axle spring
⑱ Oil seal
⑲ Bearing
⑳ Conical spring washer
㉑ Primary drive gear
㉒ Key

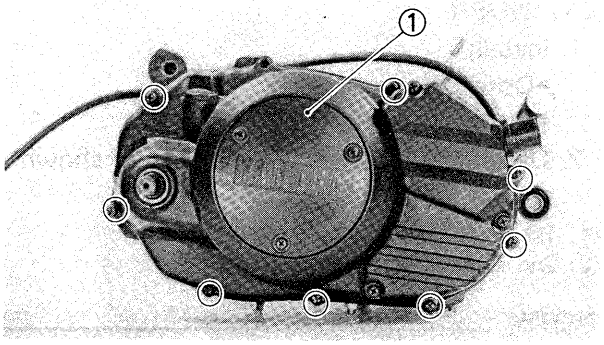


A	CLUTCH SPRING FREE LENGTH LIMIT: 34.4 mm (1.35 in)
B	FRICTION PLATE WEAR LIMIT: 2.7 mm (0.106 in)
C	CLUTCH PLATE WARP LIMIT: 0.05 mm (0.002 in)
D	PUSH ROD (#2) BENDING LIMIT: 0.2 mm (0.008 in)



CRANKCASE COVER (RIGHT)

1. Apply:
   - Light weight lithium soap base grease.
     To radiator hose joint O-ring ①.

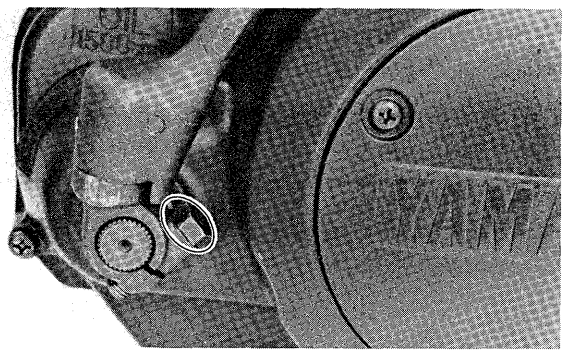


2. Install:
   - Dowel pin
   - Crankcase cover (Right) ①

NOTE:

Tighten the crankcase cover holding screws in stage, using a crisscross pattern.

	Screws (Crank Case Cover): 7 Nm (0.7 m•kg, 5.1 ft•lb)



KICK CRANK

1. Install:
   - Kick crank

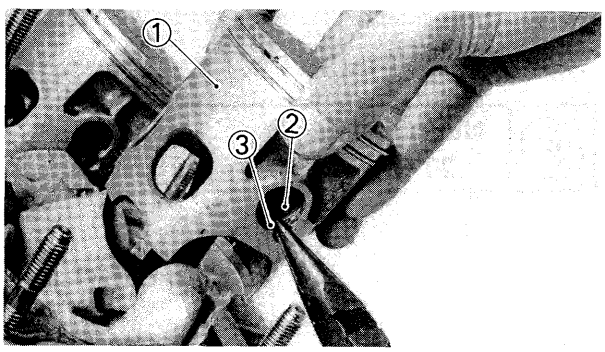
	Bolt (Kick Crank): 25 Nm (2.5 m•kg, 18 ft•lb)

NOTE:

Install the kick crank so that it does not contact the case.

PISTON PIN AND PISTON

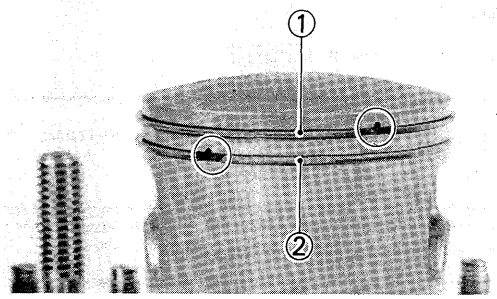
1. Apply:
   - 2-stroke oil
     To the piston pin, bearing, piston ring grooves and piston skirt areas.



2. Install:
   - Small end bearing
   - Piston ①
   - Piston pin ②
   - Piston pin clip ③

NOTE:

- The arrow on the piston must point to the front of the engine.
- Before installing the piston pin clip, cover the crankcase with a clean towel or rag so you will not accidentally drop the pin clip and material into the crankcase.
- Always use a new piston pin clip.



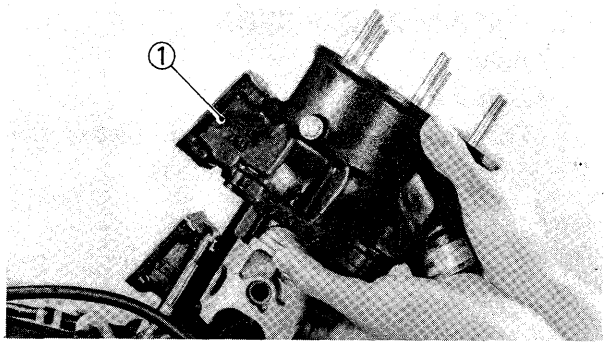
CYLINDER

1. Install:
   - Dowel pins
   - Cylinder gasket (New gasket)
2. Offset the piston ring end gaps as shown.

① 1st ring
② 2nd ring

NOTE:

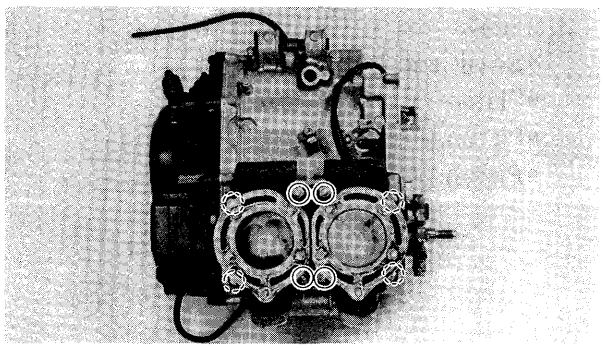
- Be sure to check the manufacturer's marks or numbers stamped on the rings are on the top side of the rings.
- Before installing the cylinder, apply a liberal coating of 2-stroke to the piston rings.



3. Install:
   - Cylinders ①

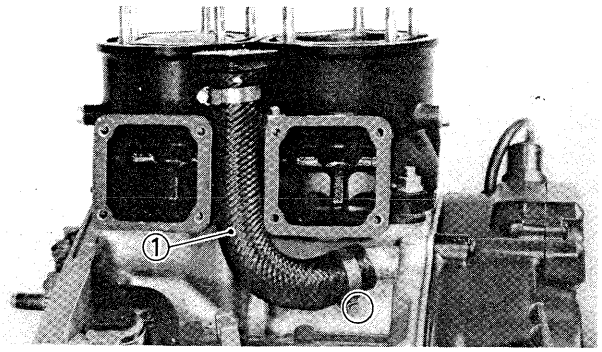
NOTE:

Install the cylinder with one hand while compressing the piston rings with the other hand.



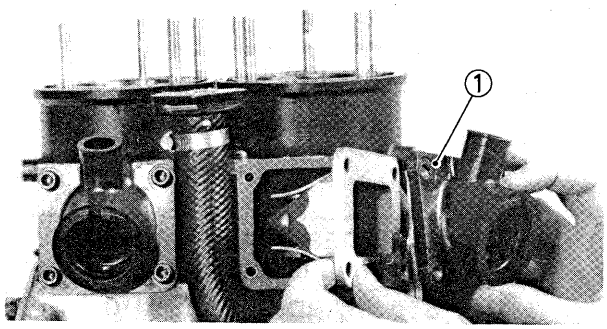
4. Tighten:
   - Nuts (Cylinder)

	Nuts (Cylinder): **28 Nm (2.8 m•kg, 20 ft•lb)**



RADIATOR HOSE

1. Install:
   - Radiator hose ①

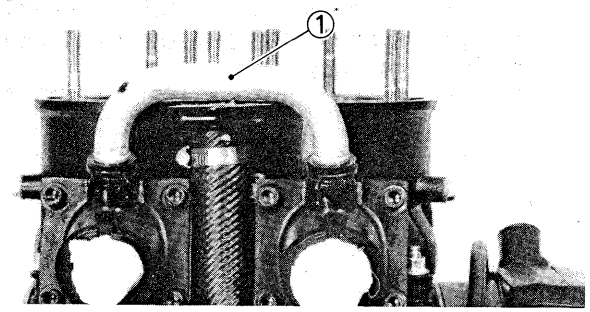


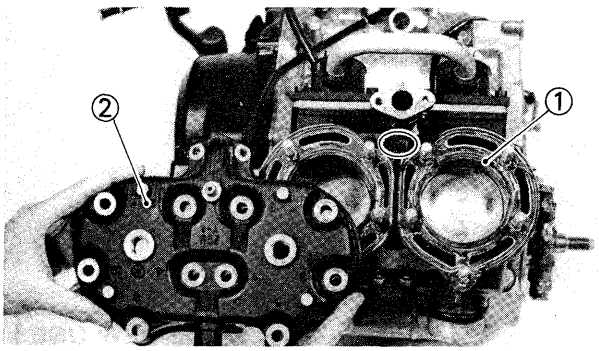
REED VALVE ASSEMBLY

1. Install:
   - Reed valve assembly
   - Carburetor joint ①
2. Tighten:
   - Bolts (Carburetor joint)

	Bolts (Carburetor Joint): **10 Nm (1.0 m•kg, 7.2 ft•lb)**

3. Install:
   - Pipe ①





CYLINDER HEAD

1. Install:
   - Cylinder head gasket ① (New gasket)
   - Cylinder head ②

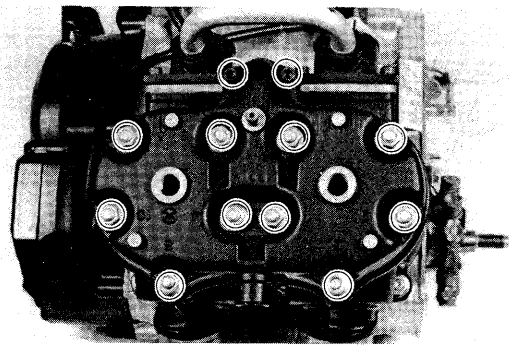
NOTE:

The "UP" mark on the gasket must point to the upward of the engine.

2. Tighten:
   - Nuts (Cylinder head)
   - Bolts (Joint)

NOTE:

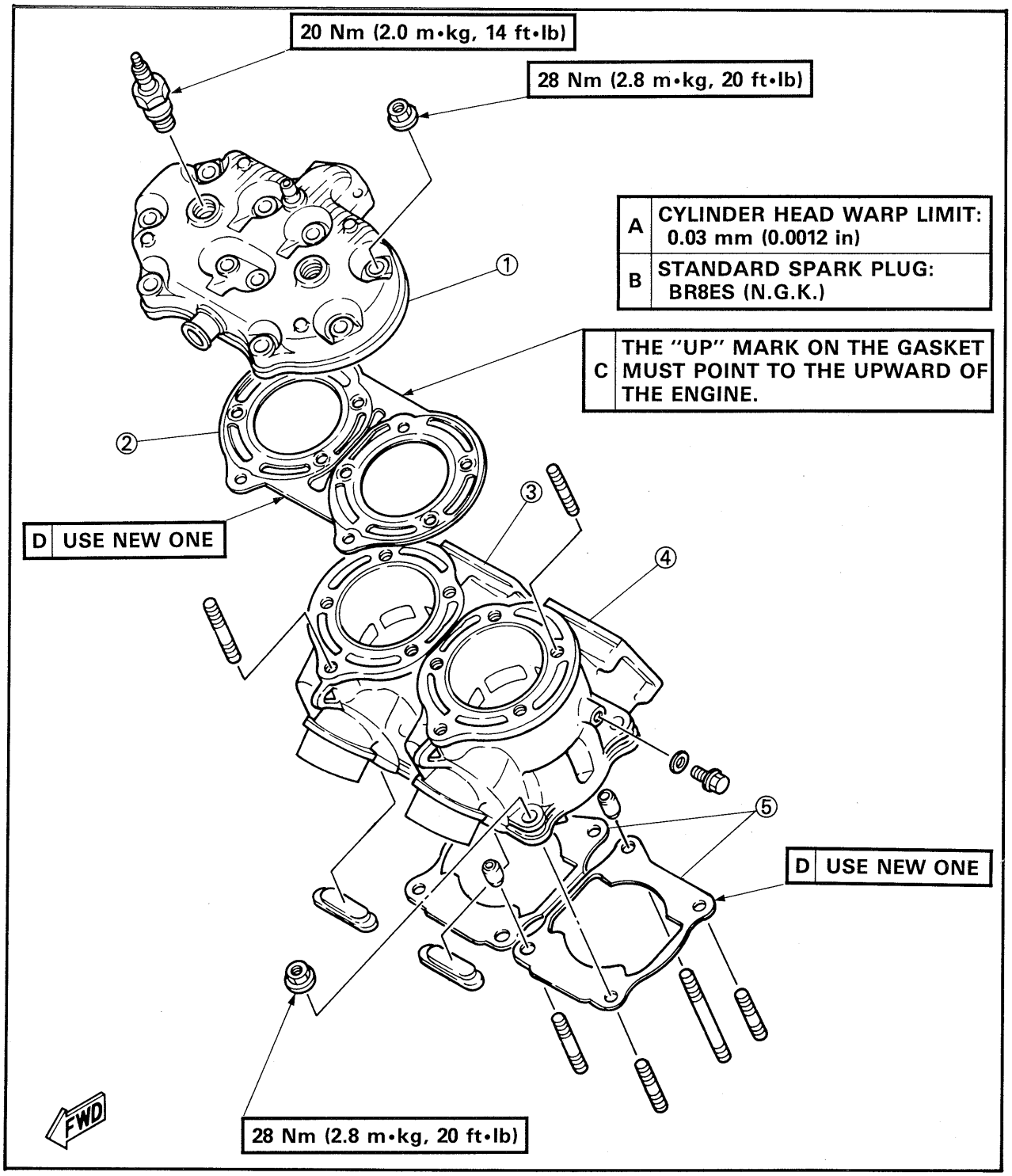
The bolts should be tightened in the order of numbers and in two steps.

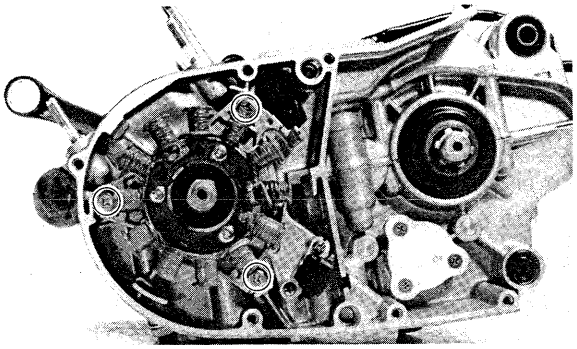


	Nuts (Cylinder Head): **28 Nm (2.8 m•kg, 20 ft•lb)** **Bolts (Joint):** **12 Nm (1.2 m•kg, 8 ft•lb)**

CYLINDER/CYLINDER HEAD

① Cylinder head
② Cylinder head gasket
③ Cylinder (Right)
④ Cylinder (Left)
⑤ Cylinder gaskets





CDI MAGNETO

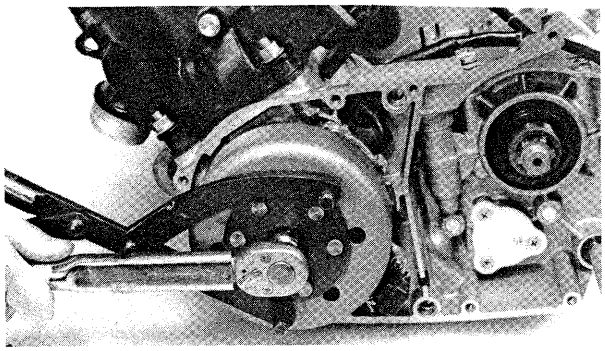
1. Install:
   - Woodruff key
   - Startor assembly
2. Tighten:
   - Screws (Stator assembly)

	Screws (Stator Assembly): 10 Nm (1.0 m•kg, 7.2 ft•lb)

3. Install:
   - CDI magneto
   - Plain washer
   - Nut (CDI magneto)

NOTE:

When installing the CDI magneto, make sure the woodruff key is properly seated in the key way of the crankshaft.



4. Tighten:
   - Nut (CDI magneto)

   Use the Rotor Holding Tool (YU-01235) to lock the magneto.

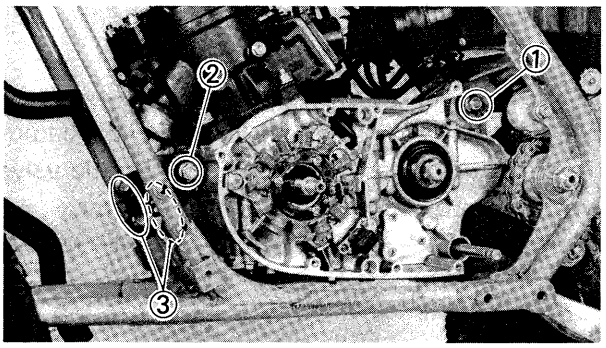
	Nut (CDI Magneto): 80 Nm (8.0 m•kg, 58 ft•lb)

REMOUNTING ENGINE

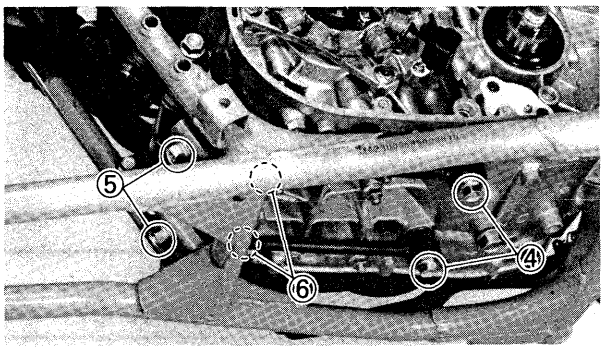
When remounting the engine, reverse the removal procedure.

Note the following points.

1. Tighten:
   - Engine mounting bolts



Engine mounting bolts tightening steps: • Tighten the engine mounting bolt (Rear) ①.	
	Bolt (Engine Mounting-Rear) ①: 45 Nm (4.5 m•kg, 32 ft•lb)
• Tighten the engine mounting bolt (Front) ②.	
	Bolt (Engine Mounting-Front) ②: 45 Nm (4.5 m•kg, 32 ft•lb)



• Tighten the front stay securing bolts ③.

Bolts (Engine Stay) ③:
30 Nm (3.0 m•kg, 22 ft•lb)

• Tighten the tension rod securing bolts ④ to the engine.

Bolts (Tension Rod) ④:
25 Nm (2.5 m•kg, 18 ft•lb)

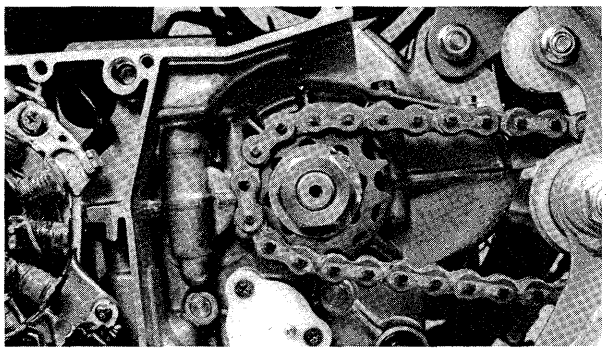
• Tighten the tension rod stay securing bolts ⑤ to the frame.

Bolts (Tension Rod Stay) ⑤:
45 Nm (4.5 m•kg, 32 ft•lb)

• Tighten the tension rod securing bolts ⑥ to the tension rod stay.

Bolts (Tension Rod-Tension Rod Stay) ⑥:
45 Nm (4.5 m•kg, 32 ft•lb)

3

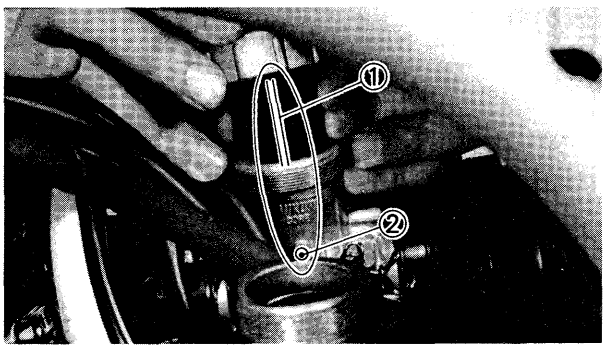


2. Install:
   • Drive chain
   • Drive sprocket
   • Lock washer (New)
   • Nut
3. Tighten:
   • Nut (Drive sprocket)

Nut (Drive Sprocket):
80 Nm (8.0 m•kg, 58 ft•lb)

4. Bend the lock washer tab along the nut flats.
5. Install:
   • Crankcase cover (Left)

Screws (Crankcase Cover-Left):
7 Nm (0.7 m•kg, 5.1 ft•lb)

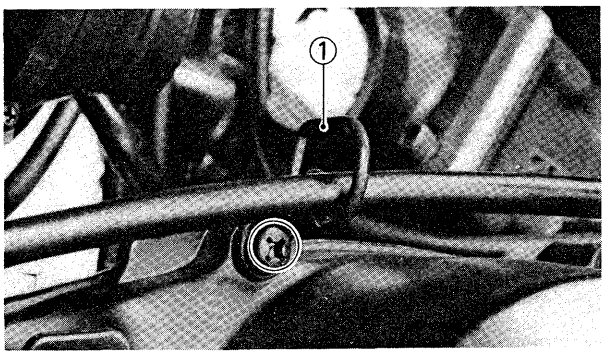


6. Install:
   • Carburetor

NOTE:

When installing the throttle valve into the carburetor, align the groove ① of the throttle valve with the projection ② of the carburetor.

7. Adjust:
   • Clutch cable free play.
   Refer to "CHAPTER 2 — CLUTCH ADJUSTMENT" section.



8. Tighten:
   • Bolts (Rear brake master cylinder)
   • Cable guide ①

Bolts (Rear Brake Master Cylinder):
20 Nm (2.0 m•kg, 14 ft•lb)

9. Adjust:
   • Drive chain slack
   Refer to "CHAPTER 2 — DRIVE CHAIN" section (2-21).
10. Apply:
   • High-melting-point grease
   To the O-rings (Exhaust pipe).
11. Install:
   • Exhaust pipes
   Use general spring remover.

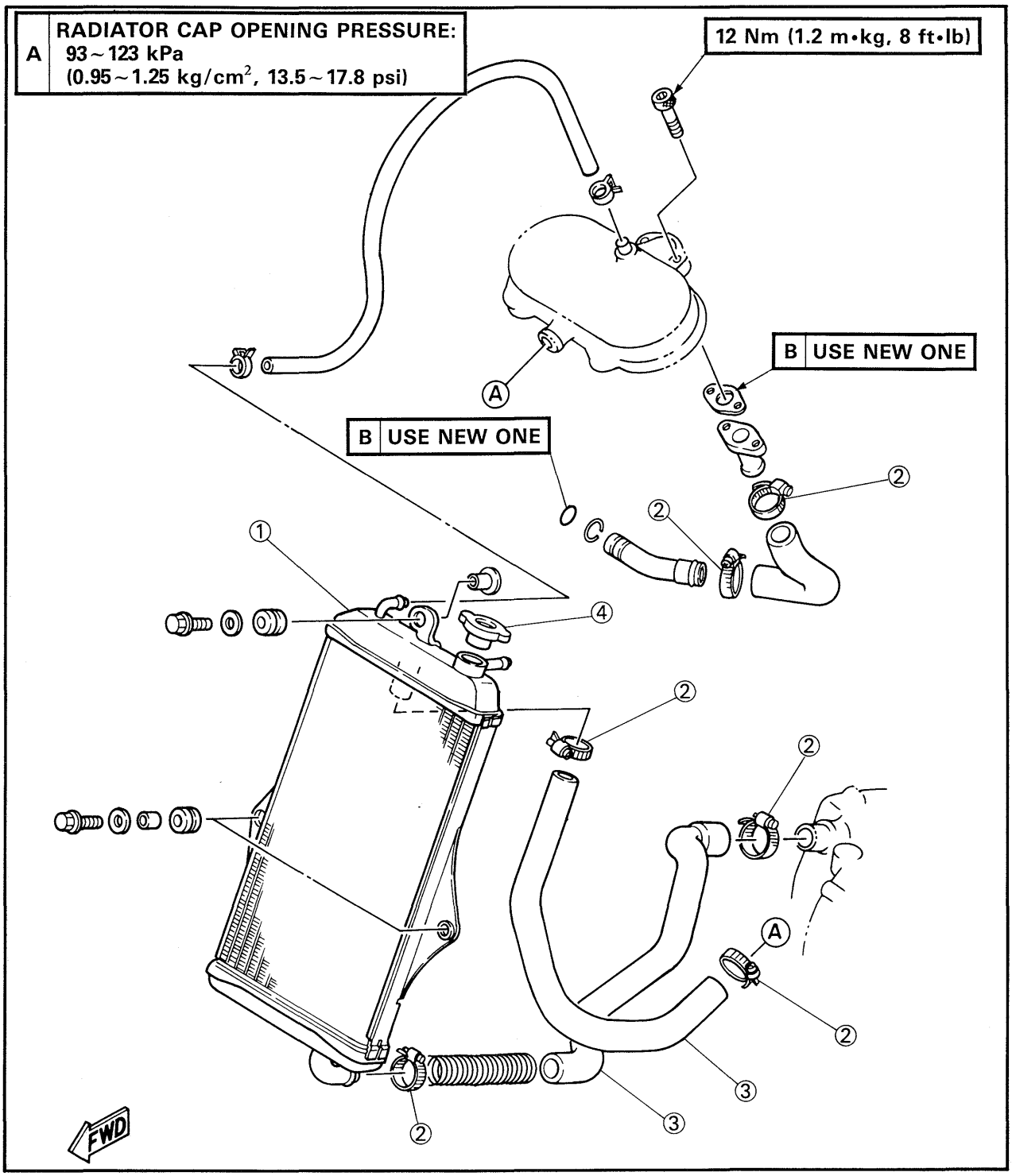
Exhaust Pipe Stay:
25 Nm (2.5 m•kg, 18 ft•lb)
Silencer:
35 Nm (3.5 m•kg, 25 ft•lb)

12. Apply:
   • Transmission oil
   Refer to "CHAPTER 2 — TRANSMISSION OIL LEVEL MEASUREMENT" section.
   • Coolant
   Refer to "CHAPTER 2 — COOLANT LEVEL INSPECTION" section.
13. Inspect:
   • Oil leakage
   • Coolant leakage

CHAPTER 4.
COOLING SYSTEM

RADIATOR

① Radiator
② Hose clamp
③ Radiator hose
④ Radiator cap



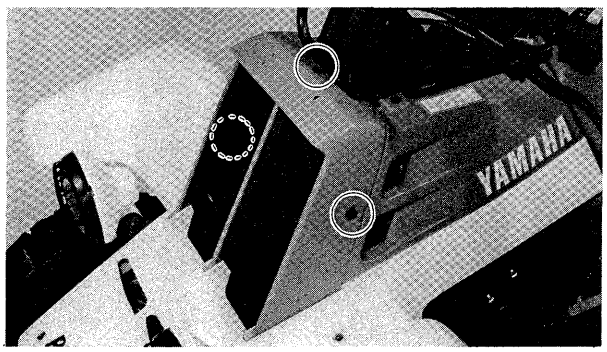
REMOVAL

1. Drain:
   - Coolant

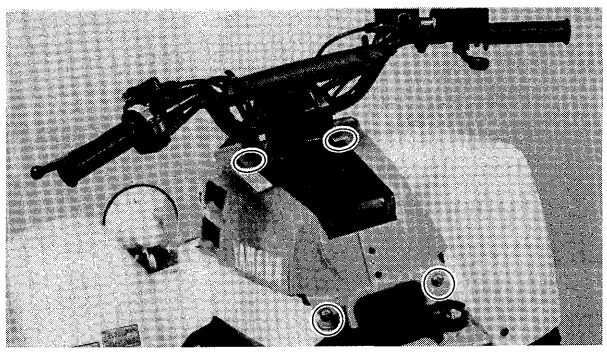
   Refer to "CHAPTER 2 — COOLANT REPLACEMENT" section.

WARNING:

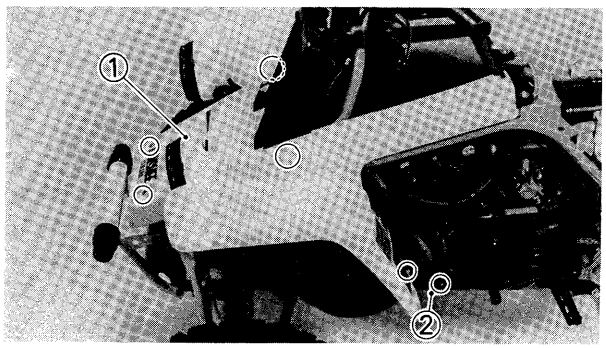
Do not remove the radiator cap when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, open the radiator cap by the following procedure:
Remove the radiator cover by removing the screw. Place a thick 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.



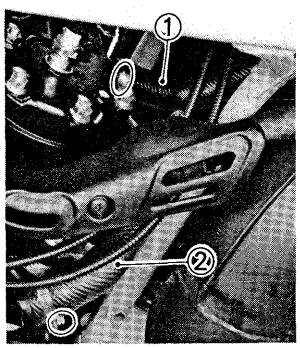
2. Remove:
   - Seat
   - Radiator cover

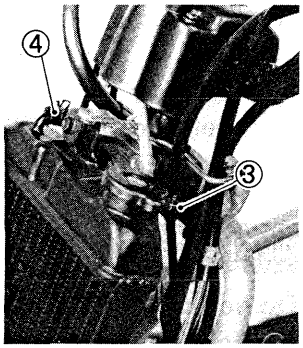


3. Remove:
   - Fuel tank cover

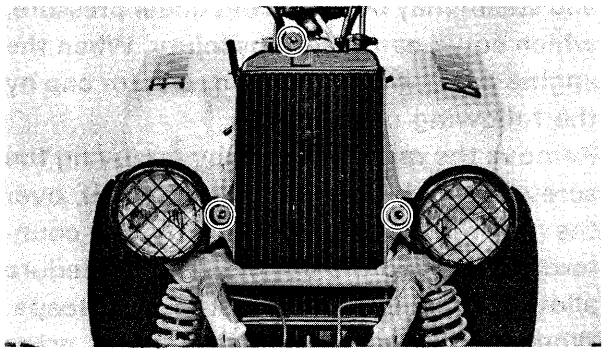


4. Remove:
   - Front fender ①
   - Front fender stay ②
   - Fuel tank

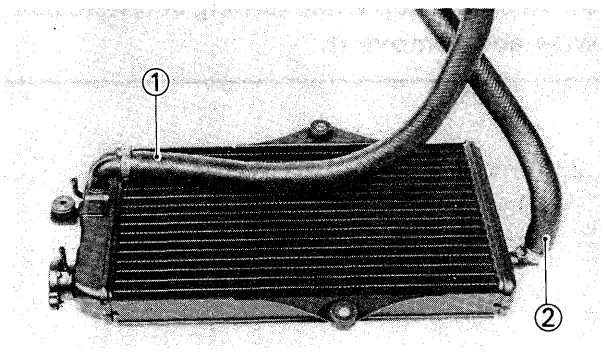




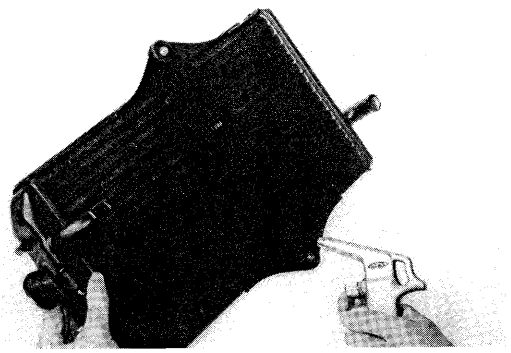
3. Disconnect:
   - Radiator hoses ①, ②
   - Breather hoses ③, ④



4. Remove:
   - Radiator



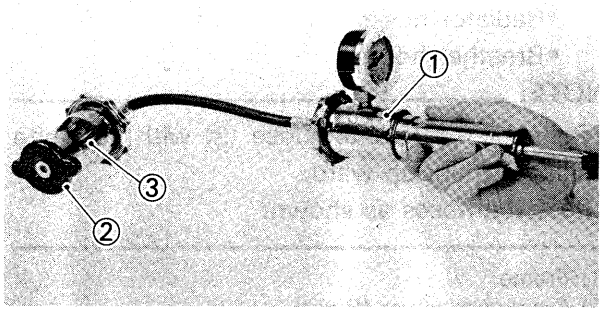
5. Remove:
   - Radiator hoses ①, ②

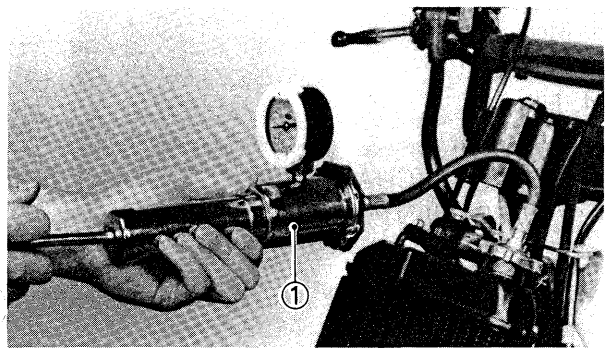


INSPECTION

1. Inspect:
   - Radiator core
     Obstruction→Blow out with compressed air through rear of the radiator.
     Flattened fin→Repair/replace.

2. Inspect:
   - Inlet hose
     Crack/Damage→Replace.
   - Outlet hose
     Crack/Damage→Replace.
   - Joint hose
     Crack/Damage→Replace.
3. Measure:
   - Valve opening pressure
     Valve opens at pressure below the specified valve or defective→Replace.





Valve Opening Pressure:
93 ~ 123 kPa
(0.95 ~ 1.25 kg/cm², 13.5 ~ 17.8 psi)

Measurement steps:
- Attach the Cooling System Tester ① (YU-24460-01) to the radiator cap ②.

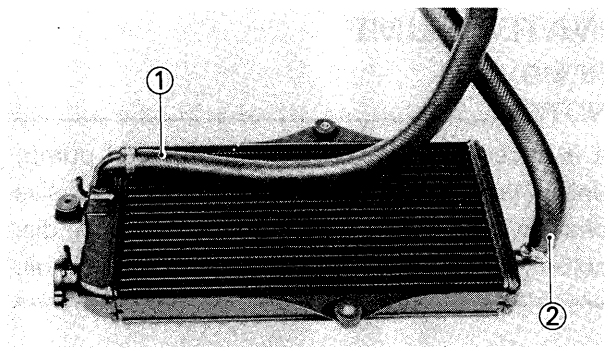
NOTE:

Use Adapter ③ (YU-33984).

- Apply the specified pressure for 10 seconds, and make sure there is no pressure drop.

4. Inspect:
   - Cooling system
     Decrease of pressure (leaks) → Repair as required.

Inspection steps:
- Attach the Cooling System Tester ① (YU-24460-01) to the radiator.
- Apply 98.1 kPa (1.0 kg/cm², 14 lb/in²) pressure.
- Measure the indicated pressure with gauge.



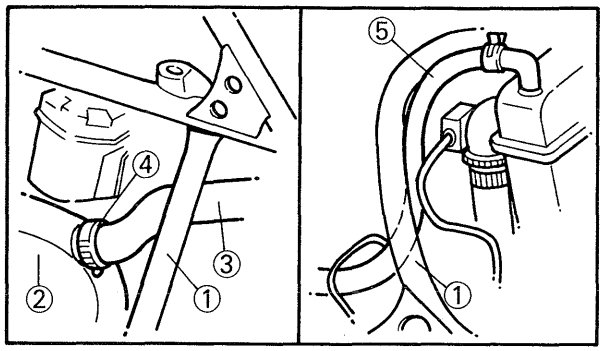
INSTALLATION

1. Connect:
   - Radiator hoses ①, ②

NOTE:

- Connect the hose ① with its white painted mark backward.
- Connect the hose ② with its white painted mark upward.

2. Install:
   - Radiator



3. Connect:
   - Radiator hoses
   - Breather hoses

NOTE:

- Connect the radiator hose ③ with its white painted mark up ward.
- Pass the hoses as shown.

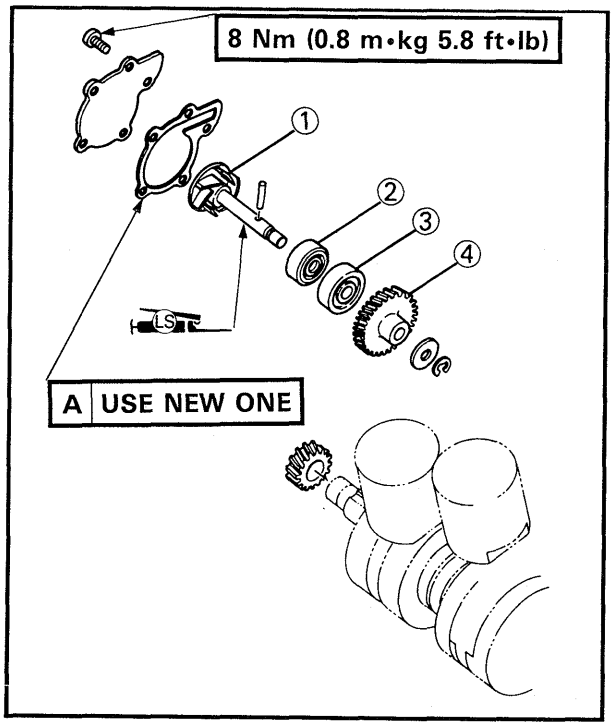
① Frame
② Crankcase cover (Right)
③ Radiator hose
④ Mark
⑤ Breather hose

4. Fill:
   - Coolant

   Refer to "CHAPTER 2 — COOLANT REPLACEMENT" section.

5. Install:
   - Front fender
   - Fuel tank cover
   - Radiator cover
   - Seat

4



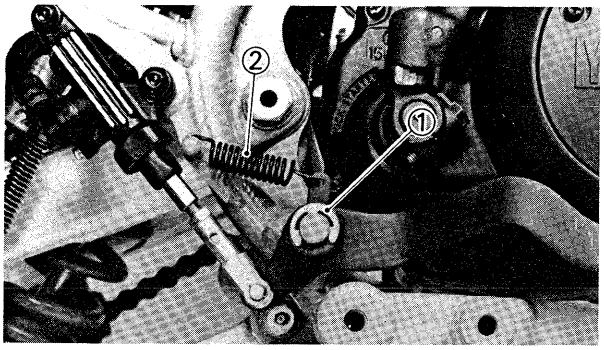
WATER PUMP

REMOVAL

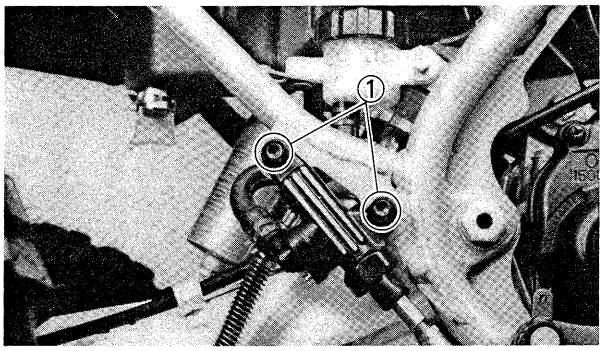
NOTE:

It is necessary to disassemble the water pump, unless there is no abnormality such as excessive change in coolant temperature and/or level, discoloration of coolant, or milky transmssion oil.

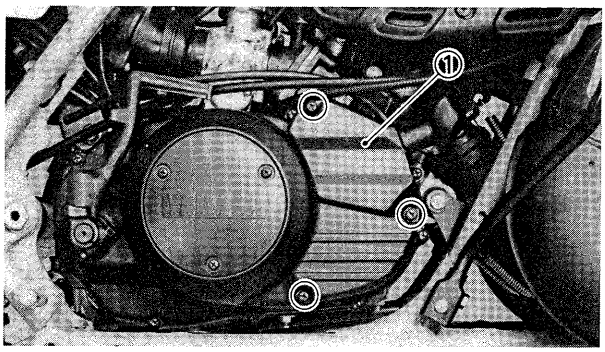
① Impeller shaft
② Oil seal
③ Bearing
④ Impeller shaft gear



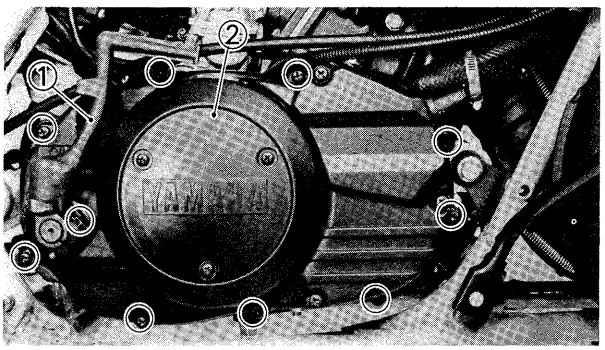
1. Drain:
   - Coolant (Completely)
   - Transmission oil
2. Remove:
   - Footrest (Right)
   - Circlip ①
   - Spring ②



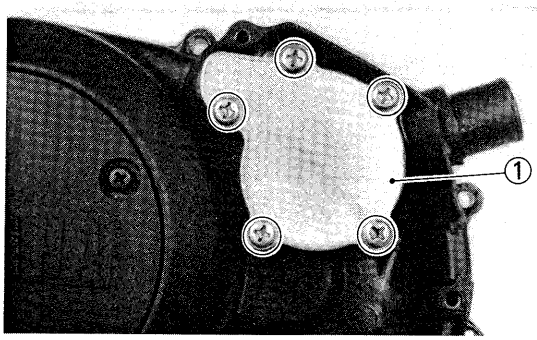
3. Remove:
   - Rear brake master cylinder



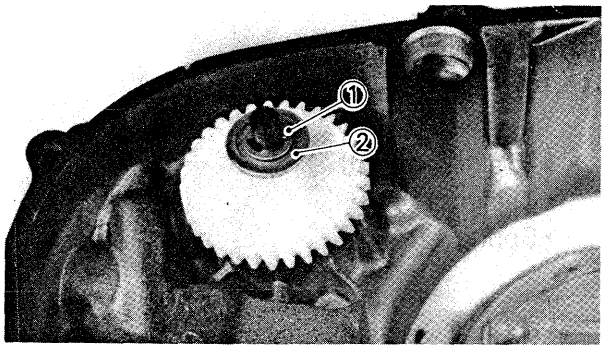
4. Remove:
   - Cover ①



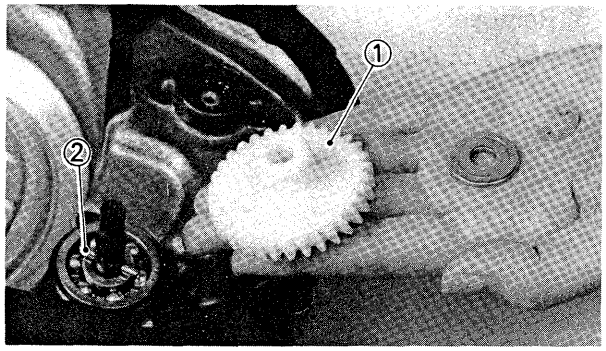
5. Remove:
   - Crankcase cover (Right) ②
   - Dowel pin



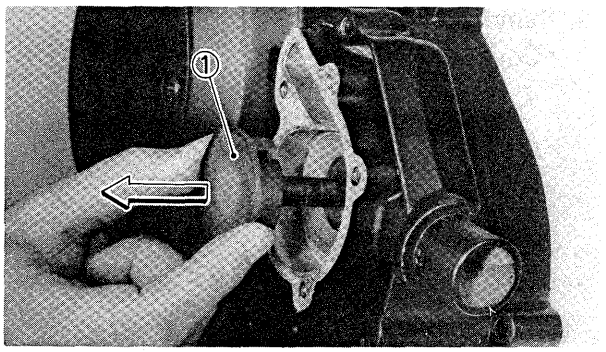
6. Remove:
   - Water pump cover ①



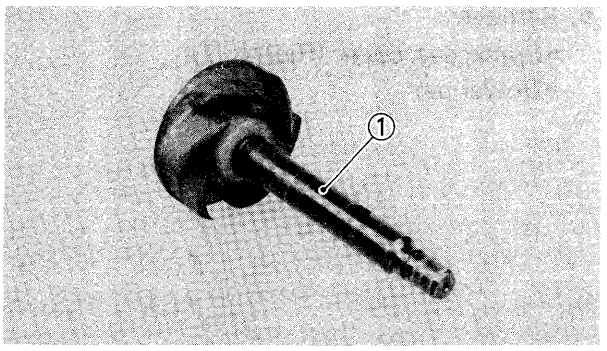
7. Remove:
   - Circlip ①
   - Plain washer ②

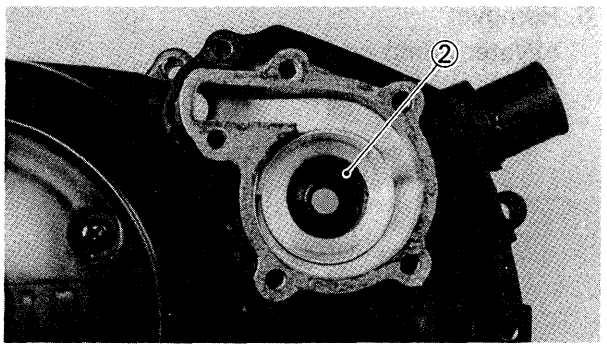


8. Remove:
   - Impeller shaft gear ①
   - Knock pin ②



9. Pull out the impeller shaft assembly ①.
10. Eliminate deposits from the impeller and water pump housing.



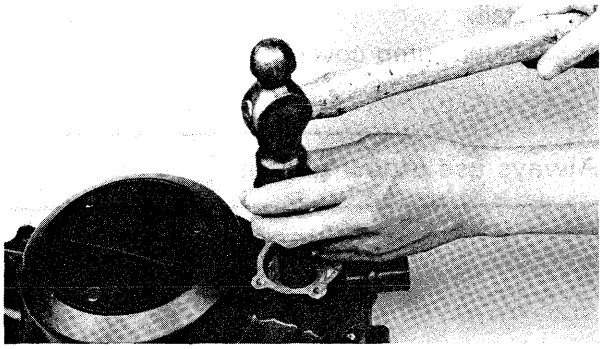


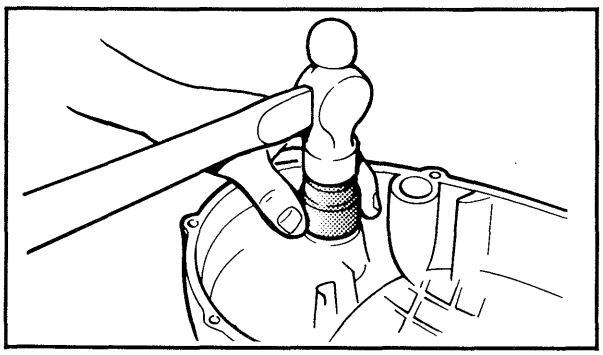
INSPECTION

1. Inspect:
   - Impeller ①
     Cracks/Wear/Damage→Replace.
   - Oil seal ②
     Wear/Damage→Replace.
   - Bearing
     Wear/Damage→Replace.

NOTE:

Replace the oil seal and bearing as a set.





Oil seal and bearing replacement steps:

- Remove both bearing and oil seal from the case by tapping them toward the oil seal side.

NOTE:

Bearing(s) are most easily removed or installed if the cases are first heated in an oven to approximately 90 ~ 120°C (194 ~ 248°F). Bring the case up to proper temperature slowly. Do not use a hot plate or torch.

- Install bearing(s) with their manufacturer's marks or numbers facing outward.

NOTE:

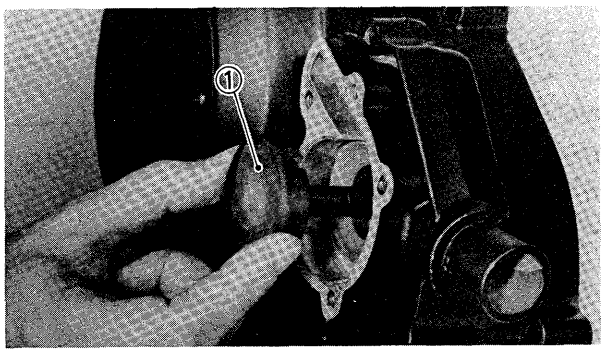
Install the oil seal, with the "WATER SIDE" mark is on the inside.

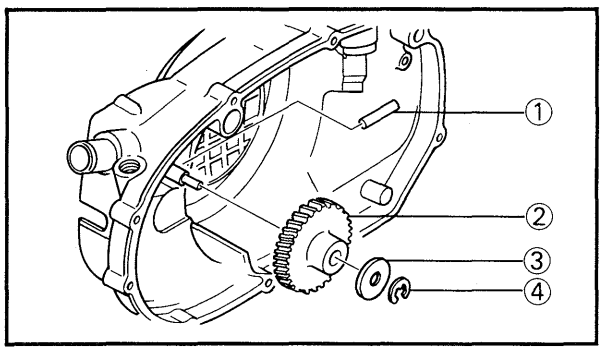
- When installing bearing(s) or oil seal(s), apply a light coating of lightweight lithium base grease to balls and seal lip(s).

NOTE:

Press-fit the oil seal and bearing until they contact the bottom.

4





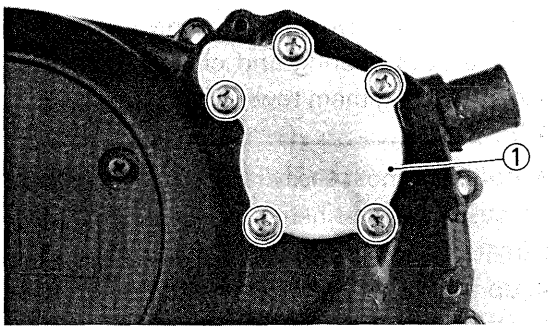
INSTALLATION

1. Apply:
   - Lightweight lithium base grease
     Apply a grease to oil seal and impeller shaft.
2. Install:
   - Impeller shaft ①
     Install the shaft while turning it.

NOTE:

Take care so that the oil seal lip is not damaged or the spring does not slip off its position.

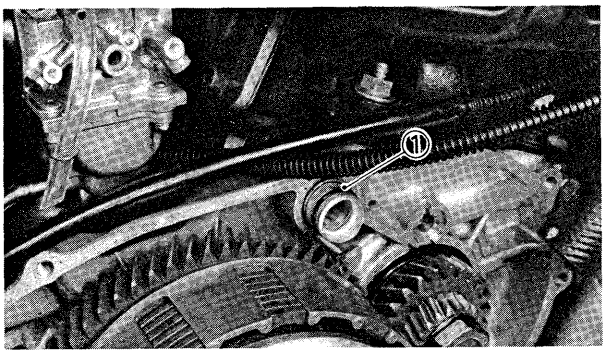
3. Install:
   - Knock pin ①
   - Impeller shaft gear ②
   - Plain washer ③
   - Circlip ④



4. Install:
   • Water pump cover ①

CAUTION:

Always use a new gasket.



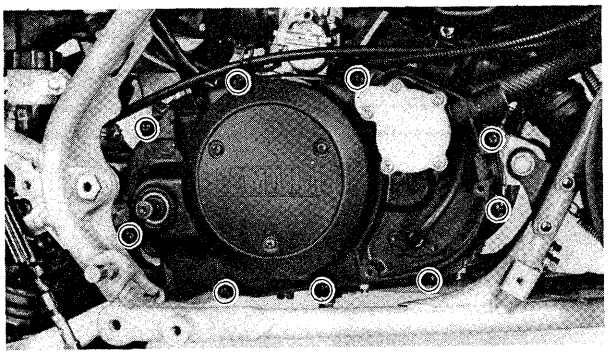
5. Tighten:
   • Screws (Water pump cover)

	Screws (Water Pump Cover): 8 Nm (0.8 m•kg, 5.8 ft•lb)

6. Install:
   • Dowel pin
   • Crankcase cover (Right)

NOTE:

When installing the crankcase cover, grease the radiator joint O-ring ①.



7. Tighten:
   • Screws (Crankcase cover)

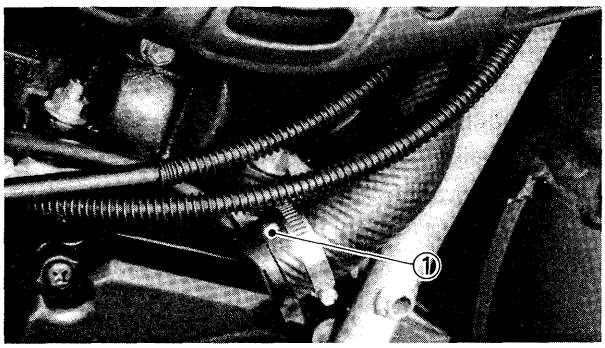
	Screws (Crankcase cover): 7 Nm (0.7 m•kg, 5.1 ft•lb)

① Cable guide

8. Install:
   • Kick crank

NOTE:

Install the kick crank so that it does not contact the case cover.



9. Tighten:
   • Bolt (Kick crank)

	Bolt (Kick Crank): 25 Nm (2.5 m•kg, 18 ft•lb)

10. Connect:
    • Radiator hoses

NOTE:

Connect the hose with its white painted mark ① upward.

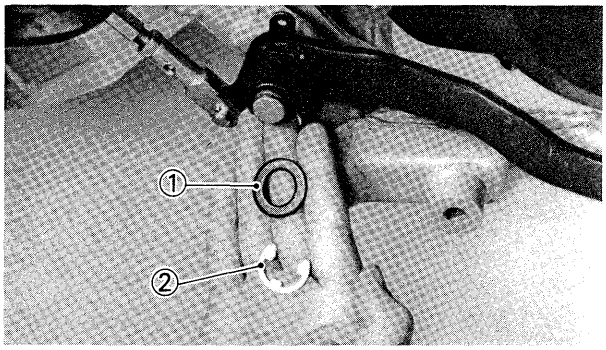
11. Fill:
    • Coolant
    • Transmission oil

CAUTION:

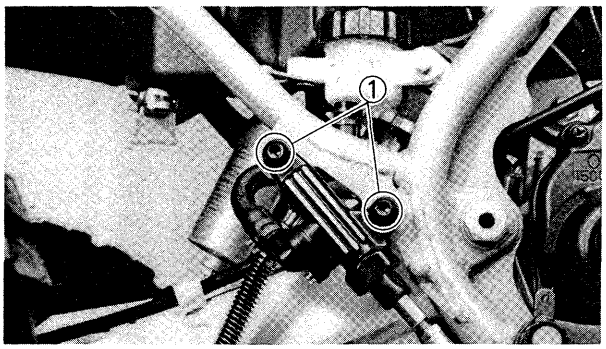
After warming up the engine, proceed as follows:

- **Retighten the pump cover screws to specification.**
- **Check for coolant leakage, particularly leakage into the transmission case.**

12. Inspect:
    - Cooling system
      Decrease of pressure (leaks)→Repair as required.
      Refer to "RADIATOR-INSPECTION" section.

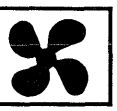


13. Install:
    - Rear brake pedal
    - Washer ①
    - Circlip ②
    - Cover



14. Install:
    - Bolts ① (Rear brake master cylinder)

Bolts (Rear Brake Master Cylinder):
20 Nm (2.0 m•kg, 14 ft•lb)



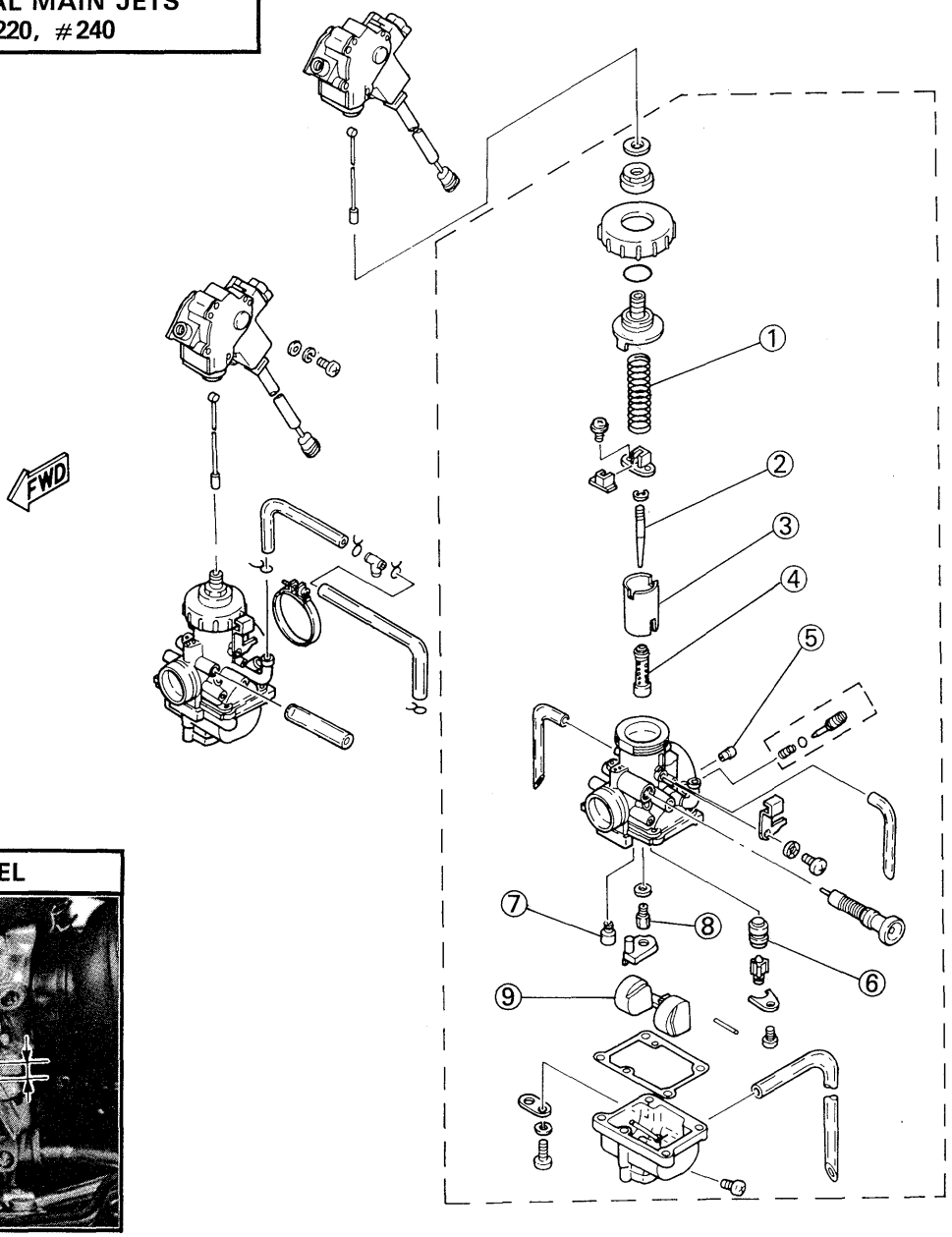
CHAPTER 5.
CARBURETION

CARBURETION
CARBURETOR

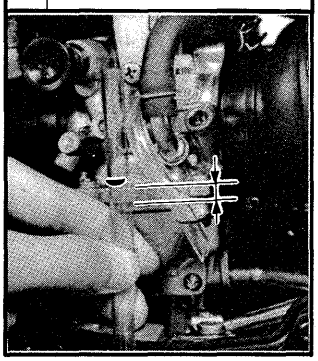
① Throttle valve spring
② Jet needle
③ Throttle valve
④ Main nozzle
⑤ Pilot air screw
⑥ Needle valve assembly
⑦ Pilot jet
⑧ Main jet
⑨ Float

SPECIFICATIONS	
MAIN JET (M.J.)	#210
MAIN AIR JET (M.A.J.)	ϕ1.6
JET NEEDLE (J.N.)	5N7-3
NEEDLE JET (N.J.)	O-8
PILOT JET (P.J.)	#25
PILOT AIR SCREW (P.A.S.)	2 turns out
FLOAT HEIGHT (F.H.)	21.0±1.0 mm (0.83±0.04 in)
FUEL LEVEL (F.L.)	0.5~1.5 mm (0.02~0.06 in)
ENGINE IDLING SPEED	1,500±50 r/min

B **OPTIONAL MAIN JETS**
#200, #220, #240



A **FUEL LEVEL**

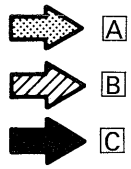


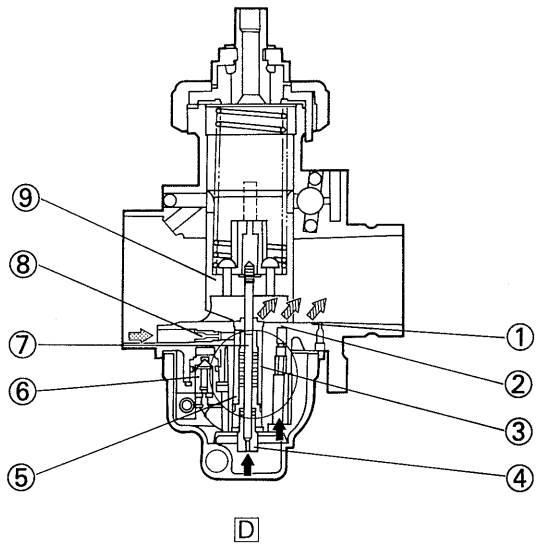
5

SECTIONAL VIEW

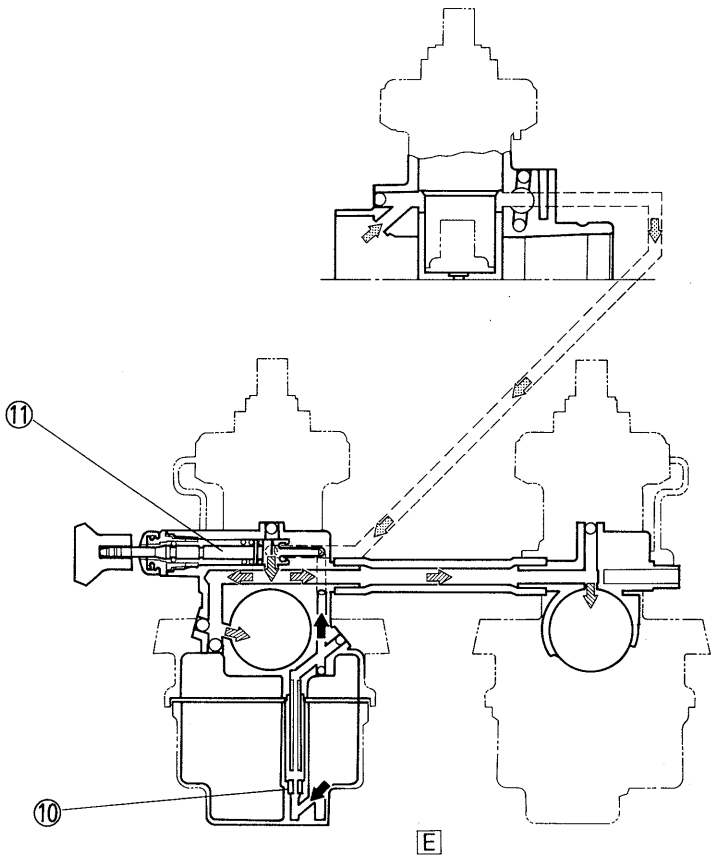
① Pilot outlet
② Bypass hole
③ Pilot jet
④ Main jet
⑤ Needle jet
⑥ Float valve set
⑦ Jet needle
⑧ Main air jet
⑨ Throttle valve
⑩ Starter jet
⑪ Starter plunger

A AIR
B MIXTURE
C FUEL
D MAIN METERING SYSTEM
E STARTER SYSTEM





D



E

5

REMOVAL

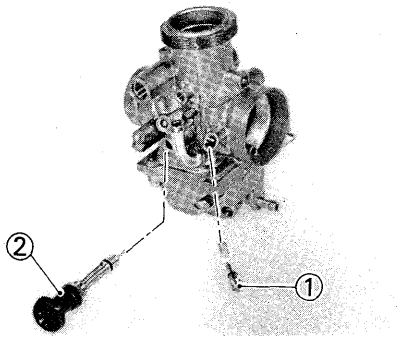
1. Remove:
   - Carburetor assembly
     Refer to engine removal section.

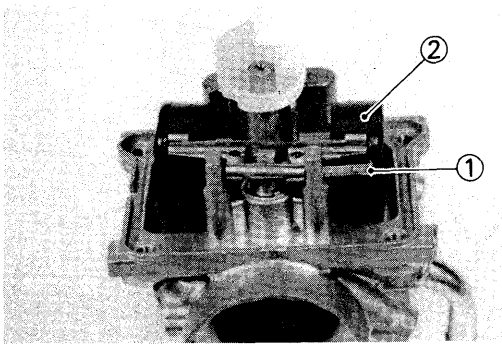
NOTE:

The following parts can be cleaned and inspected without disassembly.
- Throttle valve
- Pilot air screw
- Starter plunger

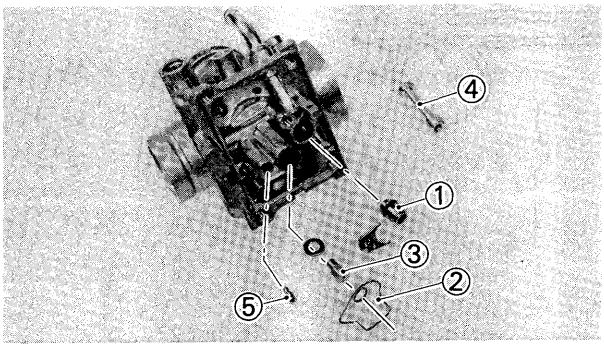
DISASSEMBLY

1. Remove:
   - Pilot air screw ①
   - Starter plunger ②

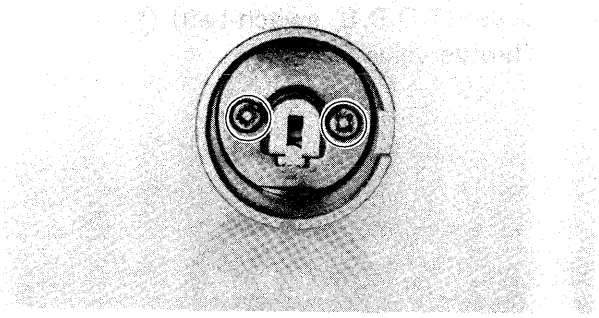




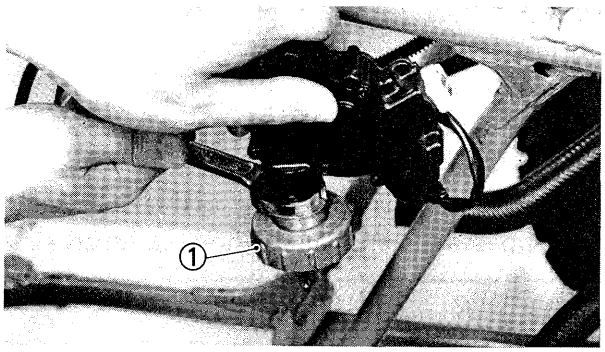
2. Remove:
   - Float chamber cover
   - Float pin ①
   - Float ②
   - Needle valve



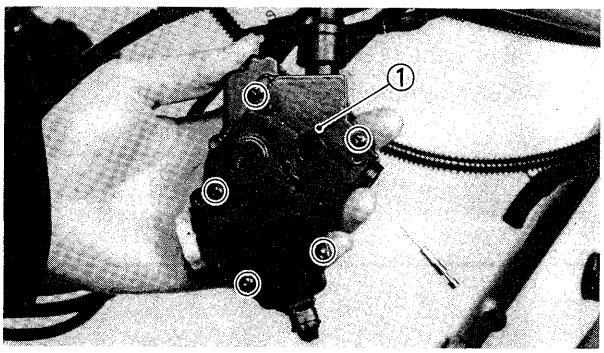
3. Remove:
   - Valve seat ①
   - Main jet ring ②
   - Main jet ③
   - Main nozzle ④
   - Pilot jet ⑤



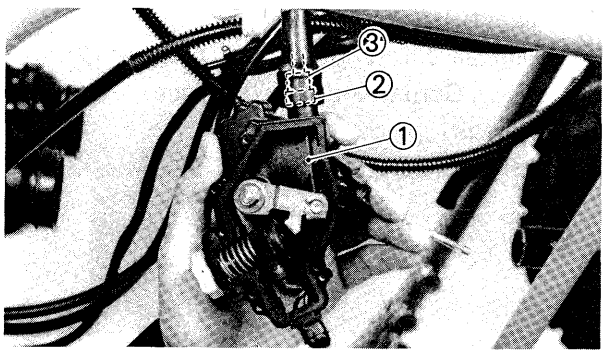
4. Remove:
   - Cable stopper
   - Throttle valve
   - Jet needle



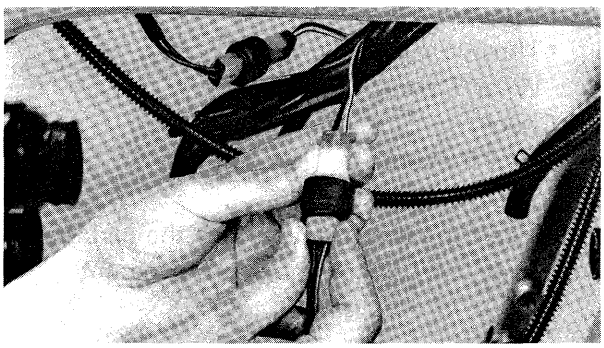
5. Remove:
   - Carburetor top ①



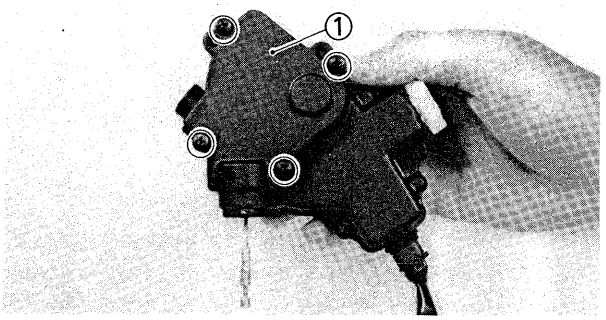
6. Remove:
   - Cover (T.O.R.S. switch-Right) ①



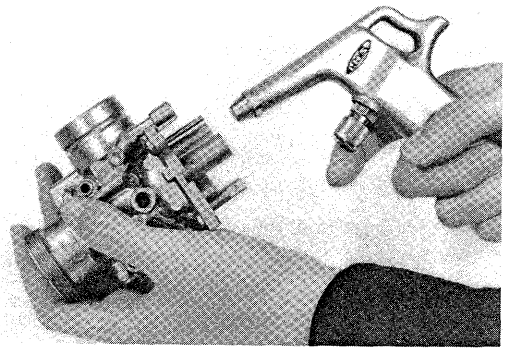
7. Disconnect:
   - Throttle cable ①
8. Loosen:
   - Locknut ②
9. Remove:
   - Adjuster ③



10. Disconnect:
    - T.O.R.S. switch lead



11. Remove:
    - Cover (T.O.R.S. switch-Left) ①
    - Throttle valve cable

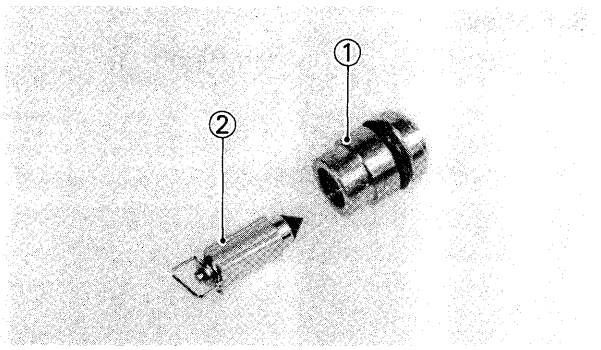


INSPECTION

1. Inspect:
    - Carburetor body
      Contamination→Clean.

NOTE:

Use a petroleum based solvent for cleaning. Blow out all passages and jets with compressed air.

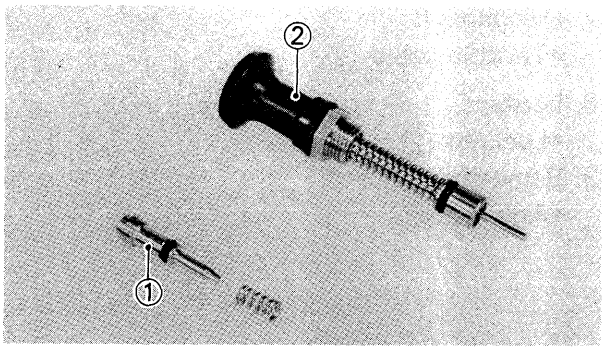


2. Inspect:
    - Valve seat ①/Needle valve ②
      Wear/Contamination→Replace.

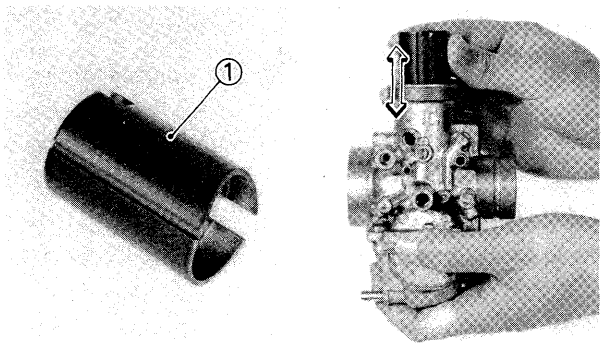
NOTE:

Always replace the needle valve and valve seat as a set.

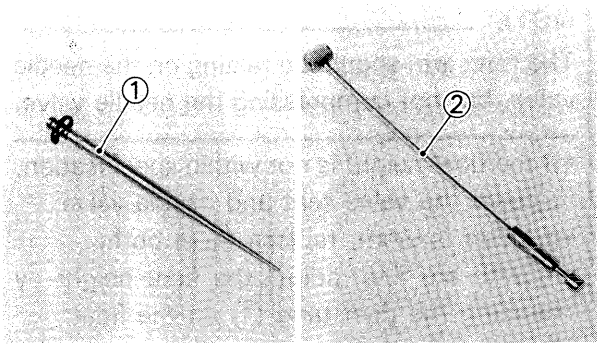
5



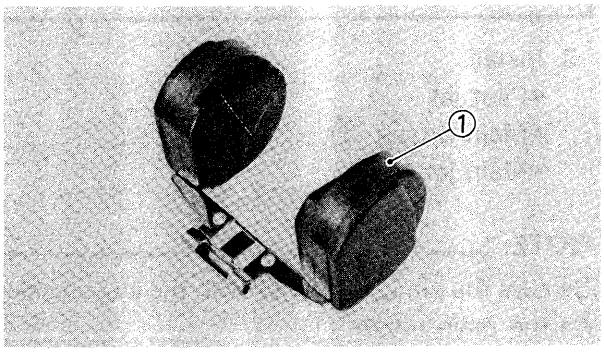
3. Inspect:
    - Pilot air screw ①/Starter plunger ②
      Wear/Contamination→Replace.
    - O-rings
      Damage→Replace.



4. Inspect:
    - Throttle valve ①
      Wear/Damage→Replace.
5. Check:
    - Free movement
      Stick→Replace.
      Insert the throttle valve into the carburetor body, and check for free movement.



6. Inspect:
   - Jet needle ①
     Bends/Wear→Replace.
   - Throttle valve cable ②
     Wear/Damage→Replace.
   - Gasket
     Damage→Replace.



7. Inspect:
   - Float ①
     Damage→Replace.

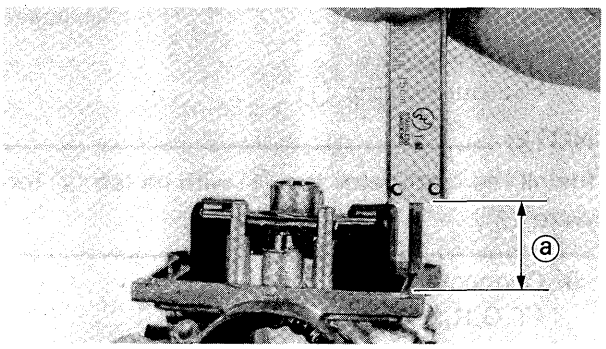
ASSEMBLY

To assemble the carburetor, reverse the disassembly procedures. Note the following points.

CAUTION:

- **Before reassembling, wash all parts in clean gasoline.**
- **Always use a new gasket.**

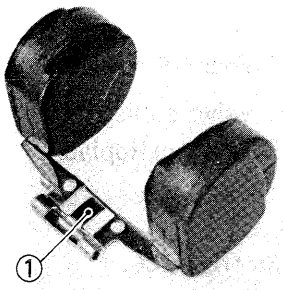
1. Install:
   - Valve seat
   - Float
   - Float pin
2. Measure:
   - Float height
     Out of specification→Adjust.



Float height measurement and adjustment steps:

- Hold the carburetor in an upside down position.
- Measure the distance between the mating surface of the float chamber (gasket removed) and top of the float using a gauge.

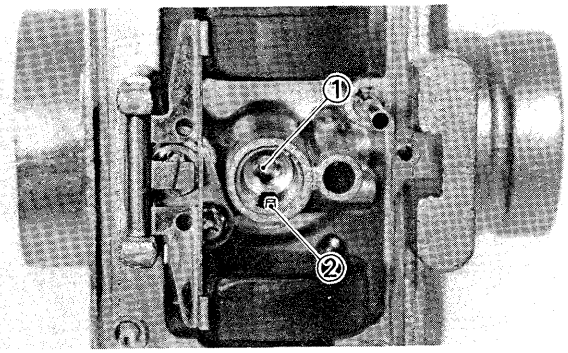
Float Height ⓐ:
20~22 mm (0.80~0.88 in)



NOTE:

The float arm should be resting on the needle valve, but not compressing the needle valve.

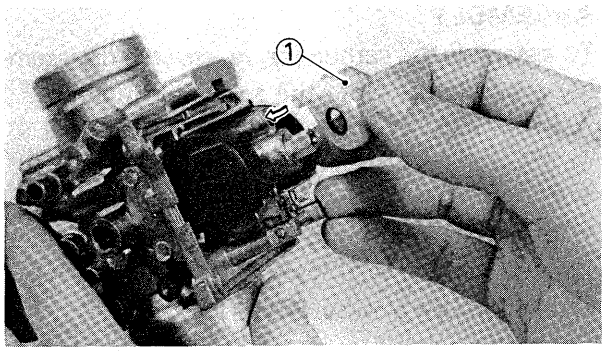
- If the float height is not within specification, inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ① on the float.
- Recheck the float height.



3. Install:
   - Pilot jet
   - Main nozzle ①
   - Main jet

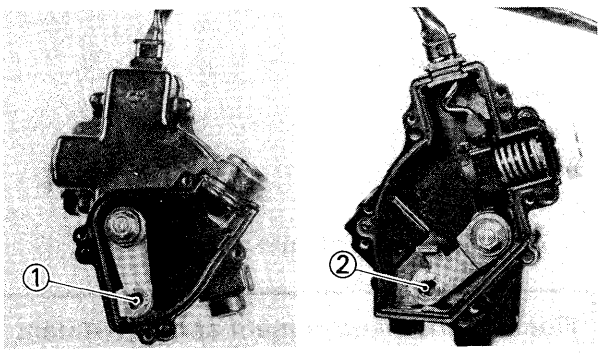
NOTE:

Be sure the pin ② engages with the locating slot on the main nozzle ①.



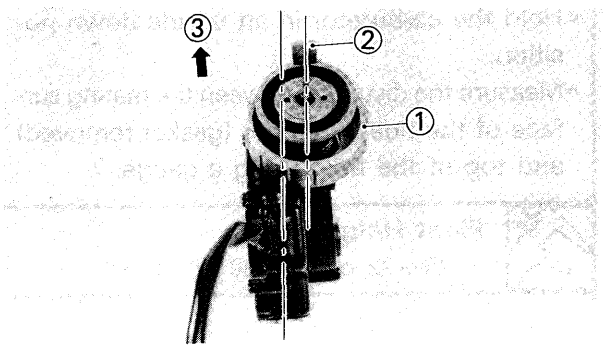
4. Install:
   - Main jet ring ①
   - Starter plunger
   - Pilot air screw
   - Float chamber cover

5



5. Apply:
   - Lithium base grease

   Lightly grease to the cable pivot ①, ②.
6. Install:
   - Throttle cable
   - Throttle valve cable
   - Covers (T.O.R.S. switch)



7. Install:
   - Washer
   - Carburetor top ①

NOTE:

Install the carburetor top ① with its tab ② forward ③.

8. Connect:
   - T.O.R.S. switch lead

INSTALLATION

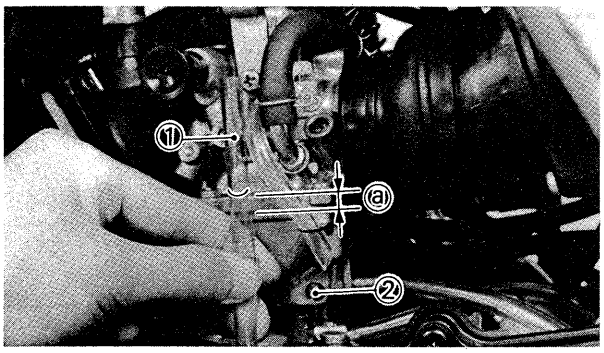
1. Install:
   - Carburetor assembly

   Reverse the removal step.

ADJUSTMENT

NOTE:

Before adjusting the fuel level, the float height should be adjusted.



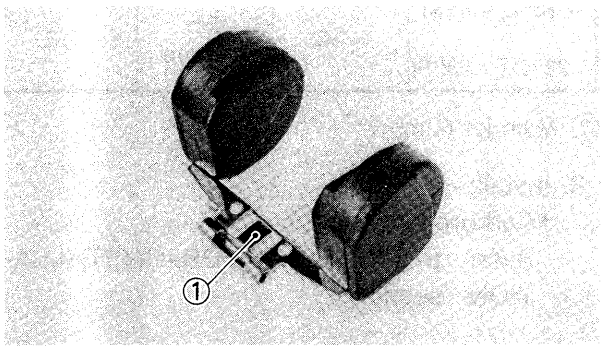
1. Measure:
   - Fuel level

   Out of specification→Adjust.

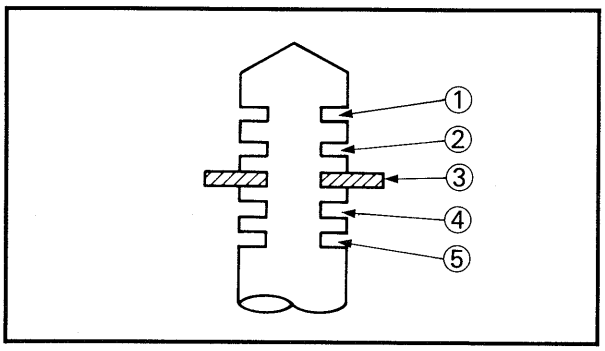
Fuel level measurement and adjustment steps:

- Place the machine on a level place.
- Attach the Fuel Level Gauge ① (YM-01312-A) to the float chamber nozzle.
- Loosen the drain screw ② and start the engine.
- Place tube vertically next to the center of the mating line of the mixing body and float chamber cover.
- Measure the fuel level ⓐ with gauge.

Fuel Level ⓐ:
3.0~4.0 mm (0.12~0.16 in)
Above the Carburetor Body Edge.



- If the fuel level is incorrect, adjust the fuel level.
- Remove the carburetor.
- Inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ① on the float.
- Recheck the fuel level.



2. Jet needle clip position
   - Mid-range air/fuel mixture characteristics of the motorcycle

   Poor condition→Jet needle position change.

Jet Needle Type: 5N7
Standard Clip Position: No. 3 Groove

① 1st (Leaner condition)
② 2nd
③ 3rd (Standard position)
④ 4th
⑤ 5th (Richer condition)

CARBURETOR SETTING CHANGE

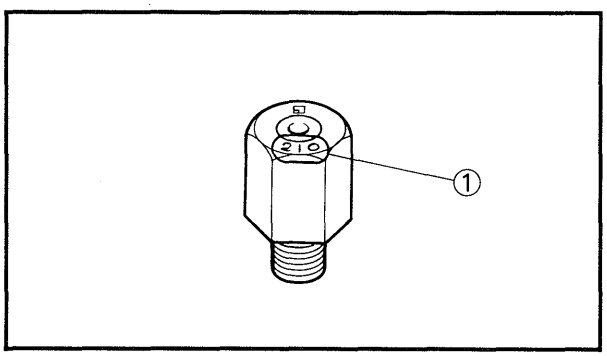
In extremely cold weather, it is necessary to change carburetor setting to maintain optimum engine performance and to prevent engine damage.

NOTE:

#200, #220, #240 optional main jets are enclosed in the tool compartment.

1. Remove:
   - Carburetor assembly
     Refer to "CARBURETOR—REMOVAL" section.

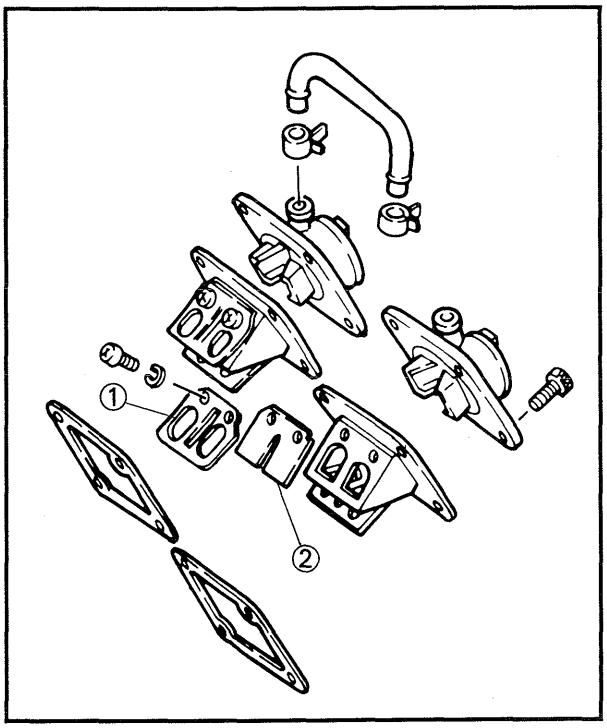
2. Adjust:
   - Carburetor setting



Carburetor setting chart			
Temperature	Main jet	Jet needle	Pilot air screw (turns out)
20°C above (68°F)	#200	3rd groove	2.0
0°C (32°F) ~ 20°C (68°F)	#210	3rd groove	2.0
+5°C (41°F) ~ −15°C (5°F)	#220	3rd groove	1−1/2
−10°C (14°F) ~ −30°C (−22°F)	#240	4th groove	1−1/2

① Main jet number

3. Install:
   - Carburetor assembly
     Refer to "CARBURETOR—INSTALLATION" section.



REED VALVE

REMOVAL

1. Remove:
   - Reed valve assembly
     Refer to "CHAPTER 3. ENGINE REMOVAL" section.

DISASSEMBLY

1. Remove:
   - Reed valve stopper ①
   - Reed valve ②

INSPECTION

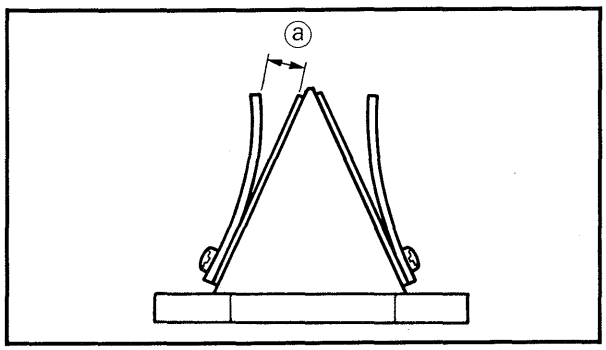
1. Inspect:
   - Rubber joint
     Weathering/Other deterioration→Replace.
   - Reed petals
     Fatigue/Cracks→Replace.

Inspection steps:
- Visually inspect the reed petals.

NOTE:

Correct reed petals should fit flush or nearly flush against neoprene seats.

- If in doubt as to sealing ability, apply suction to carburetor side of assembly.
- Leakage should be slight to moderate.

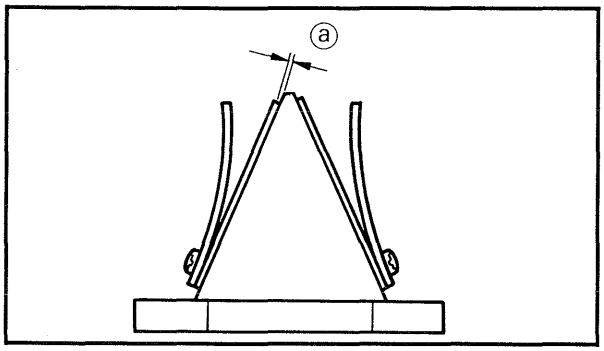


2. Measure:
   - Valve stopper height ⓐ
     Out of specification→Adjust stopper/Replace valve stopper.

Valve Stopper Height ⓐ:
10.3~10.7 mm (0.406~0.421 in)

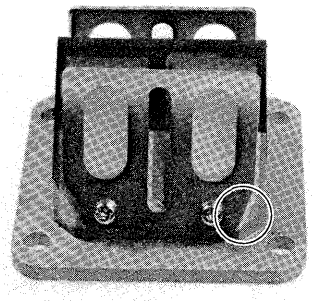
NOTE:

If it is 0.4 mm (0.016 in) more or less than specified, replace the valve stopper.



3. Measure:
   - Reed valve bending limit ⓐ
     Out of specification→Replace.

Reed Valve Bending Limit ⓐ:
0.5 mm (0.02 in)



ASSEMBLY

When assembling the reed valve, reverse the disassembly procedure. Note the following points.

1. Install:
   - Reed valve
   - Reed valve stopper

NOTE:

Note the cut in the lower corner of the reed and stopper plate.

2. Tighten:
   - Screws (Reed valve)

Screws (Reed Valve):
1 Nm (0.1 m•kg, 0.7 ft•lb)
LOCTITE®

NOTE:

Tighten each screw gradually to avoid warping.

INSTALLATION

When installing the reed valve, reverse the removal procedure. Note the following points.

1. Install:
   - Gasket (New)
2. Tighten:
   - Bolts (Carburetor joint)

Bolts (Carburetor Joint):
10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Tighten each bolt gradually to avoid warping.

CHAPTER 6
CHASSIS

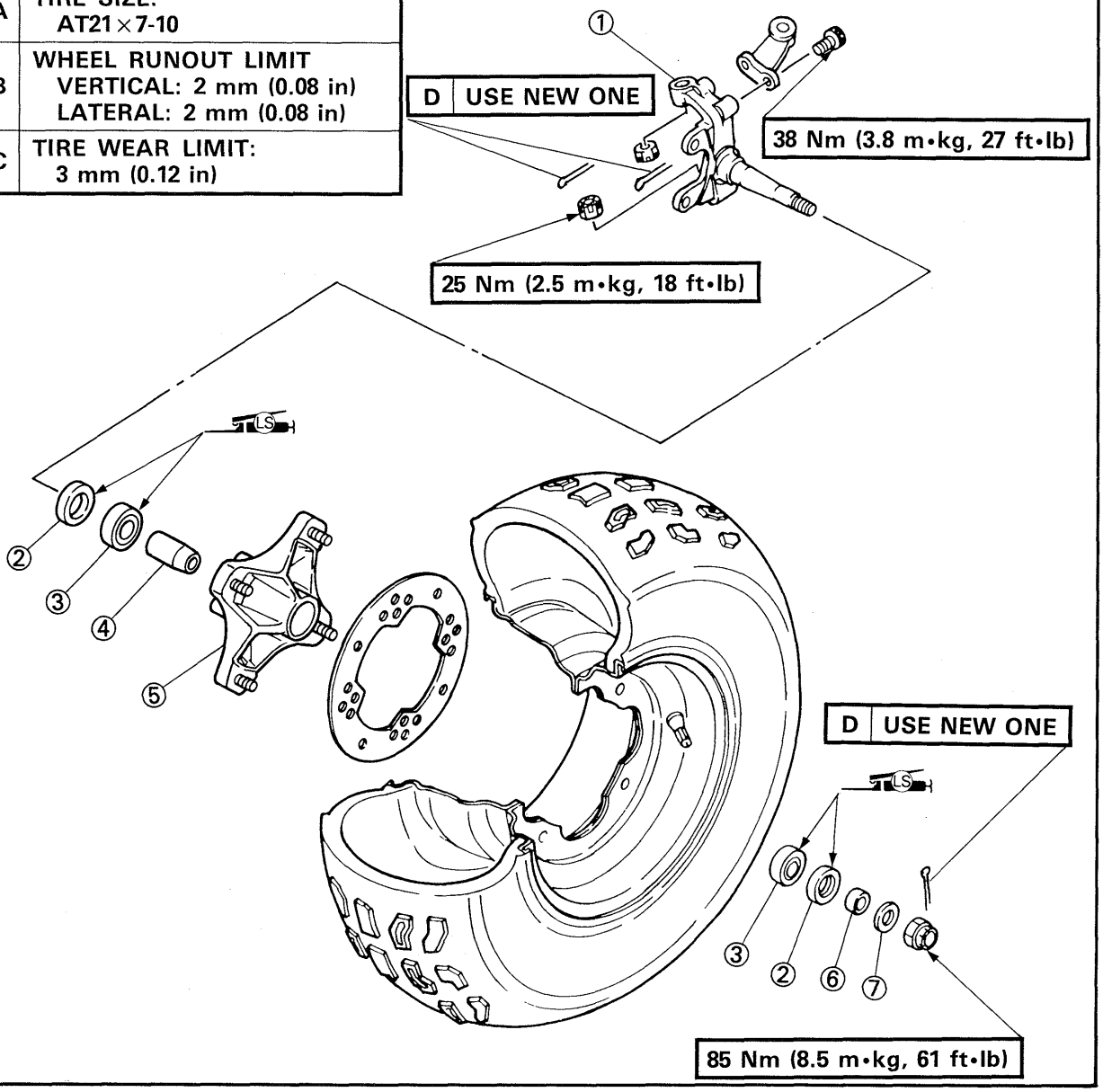
CHASSIS

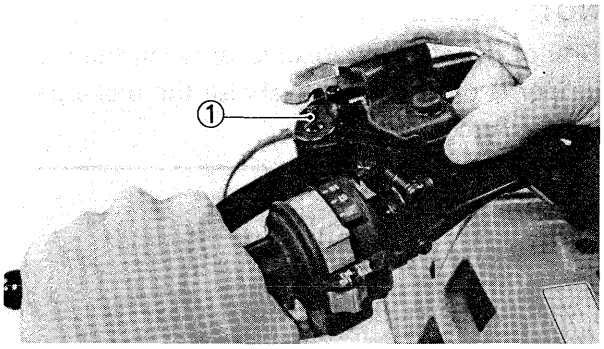
FRONT WHEEL

① Steering knuckle
② Oil seal
③ Bearing
④ Spacer
⑤ Front hub
⑥ Collar
⑦ Washer

TIRE AIR PRESSURE		
COLD TIRE PRESSURE	FRONT	REAR
STANDARD	30 kPa (0.30 kg/cm², 4.3 psi)	25 kPa (0.25 kg/cm², 3.6 psi)
MINIMUM	27 kPa (0.27 kg/cm², 3.8 psi)	22 kPa (0.22 kg/cm², 3.1 psi)
MAXIMUM	33 kPa (0.33 kg/cm², 4.7 psi)	28 kPa (0.28 kg/cm², 4.0 psi)

A	TIRE SIZE: AT21×7-10
B	WHEEL RUNOUT LIMIT VERTICAL: 2 mm (0.08 in) LATERAL: 2 mm (0.08 in)
C	TIRE WEAR LIMIT: 3 mm (0.12 in)



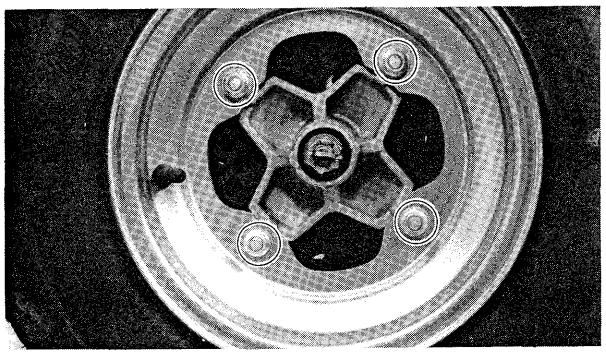


REMOVAL

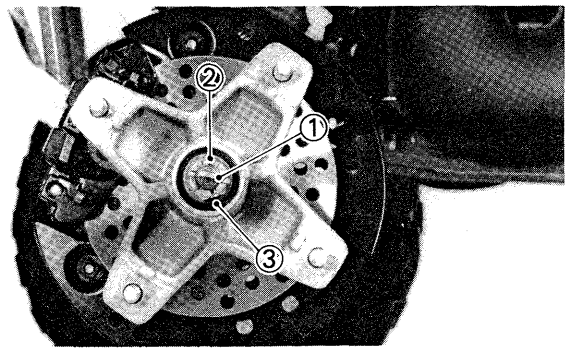
Front Wheel Removal

1. Place the machine on a level place.
2. Loosen:
   - Nuts (Front wheel)

   Apply the parking brake ①.
3. Elevate the front wheels by placing the suitable stand under the frame.

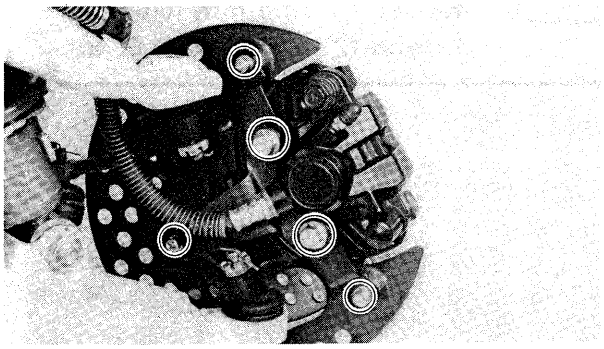


4. Remove:
   - Nuts (Front wheel)
   - Front wheel
   - Disc cover (Outer)

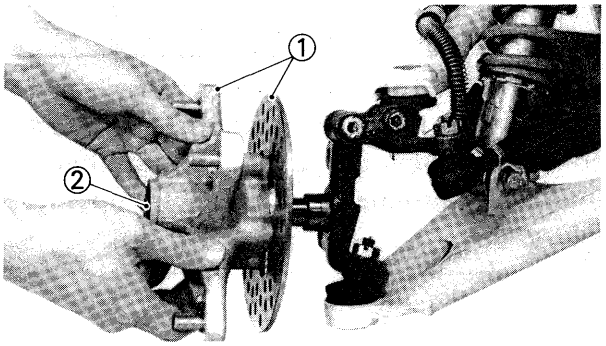


Front Wheel Hub Removal

1. Remove:
   - Cotter pin ①
   - Axle nut ②
   - Plain washer ③



2. Remove:
   - Disc cover (Inner)
   - Front brake caliper



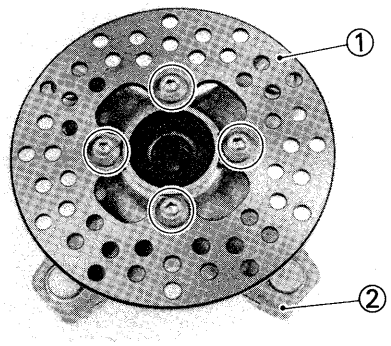
3. Remove:
   - Front wheel hub and brake disc assembly ①
   - Collar ②

CAUTION:

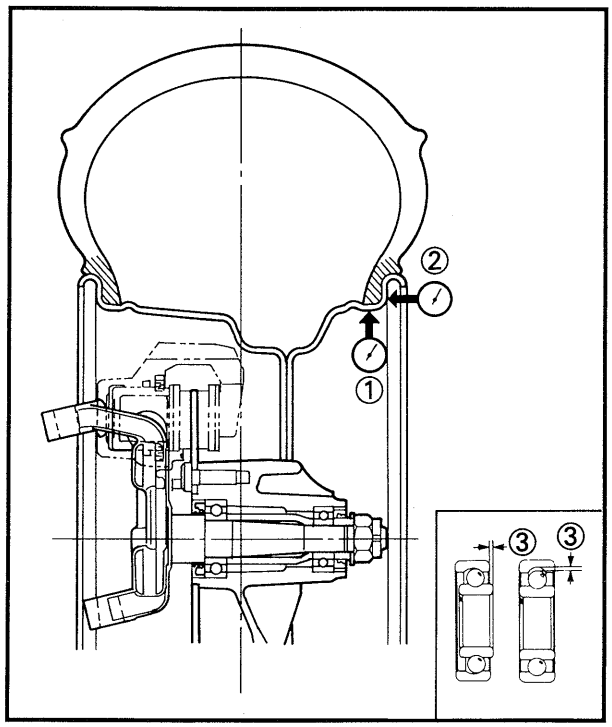
Make sure the machine is properly supported.

NOTE:

Do not depress the brake lever when the brake caliper is off the disc otherwise the brake pads will be forced shut.



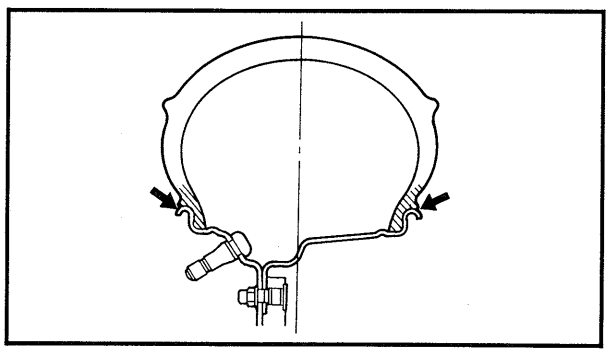
4. Remove:
   - Front brake disc ①
   - Front wheel hub ②



INSPECTION

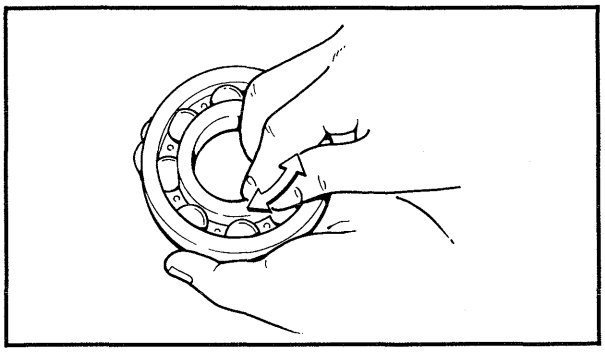
1. Inspect:
   - Wheel
     Cracks/Bends/Warpage→Replace.
2. Measure:
   - Wheel runout
     Over specified limit→Replace wheel or check bearing play ③.

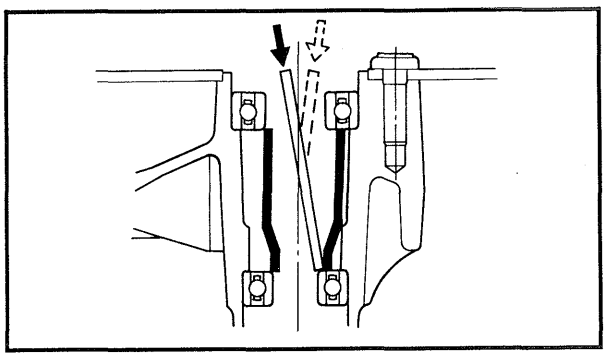
Rim Runout Limits:
Radial ① : 2.0 mm (0.08 in)
Lateral ② : 2.0 mm (0.08 in)



WARNING:

After mounting a tire, ride conservatively to allow proper tire to rim seating. Failure to do so may cause an accident resulting in machine damage and possible operator injury.





3. Check:
   - Wheel bearings
     Bearing allow play in the wheel hub or wheel turns roughly→Replace.

Wheel bearing replacement steps:
- Clean the outside of the wheel hub.
- Drive out the bearing.

WARNING:

Eye protection is recommenced when using striking tools.

- Install the new bearing by reversing the previous steps.

NOTE:

Use a socket that matches the outside diameter of the race of the bearing.

CAUTION:

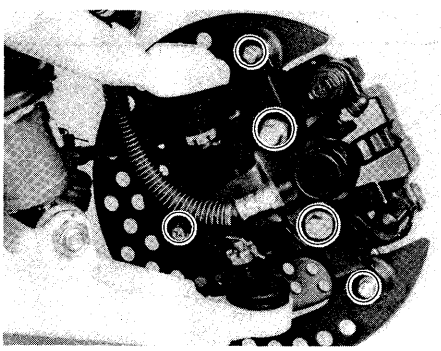
Do not strike the center race or balls of the bearing. Contact should be made only with the outer race.

INSTALLATION

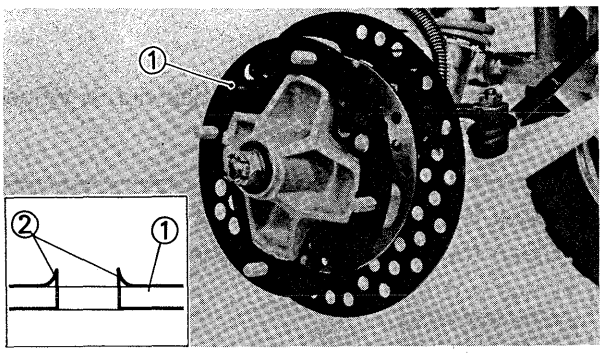
When installing the front wheel, reverse the removal procedure. Note the following points.

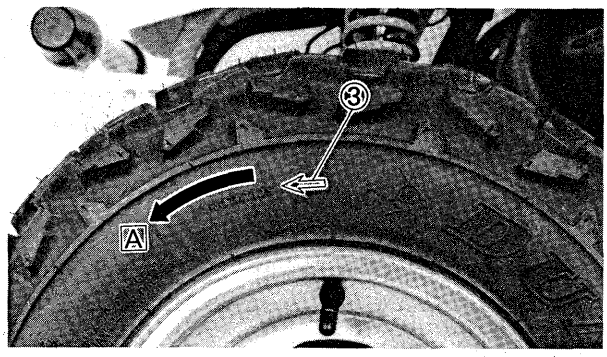
1. Apply:
   - Lithium base grease
     Lightly grease to the oil seal and bearing.

2. Install:
   - Front brake disc
   - Disc cover (Inner)
   - Front brake caliper
   - Axle nut



Front Brake Disc:
28 Nm (2.8 m•kg, 20 ft•lb)
Front Brake Caliper:
28 Nm (2.8 m•kg, 20 ft•lb)
Axle Nut:
85 Nm (8.5 m•kg, 61 ft•lb)





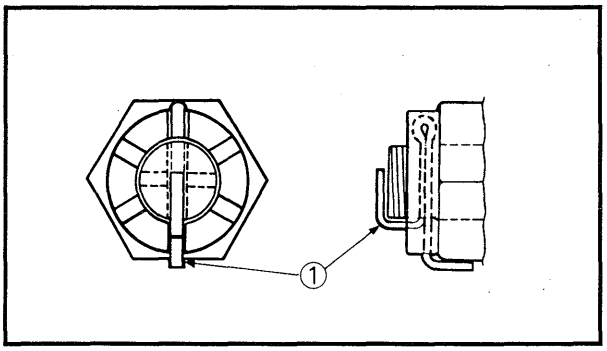
3. Install:
   - Disc cover (Outer)
   - Front wheels

NOTE:

- Install the disc cover (outer) ① with punched burrs ② on the hub side.
- The arrow mark ③ on the tire must point toward the rotating direction [A] of the wheel.

4. Tighten:
   - Nuts (Front wheel)

	Nuts (Front Wheel): 45 Nm (4.5 m•kg, 32 ft•lb)



5. Install:
   - Cotter pin (New) ①

NOTE:

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:

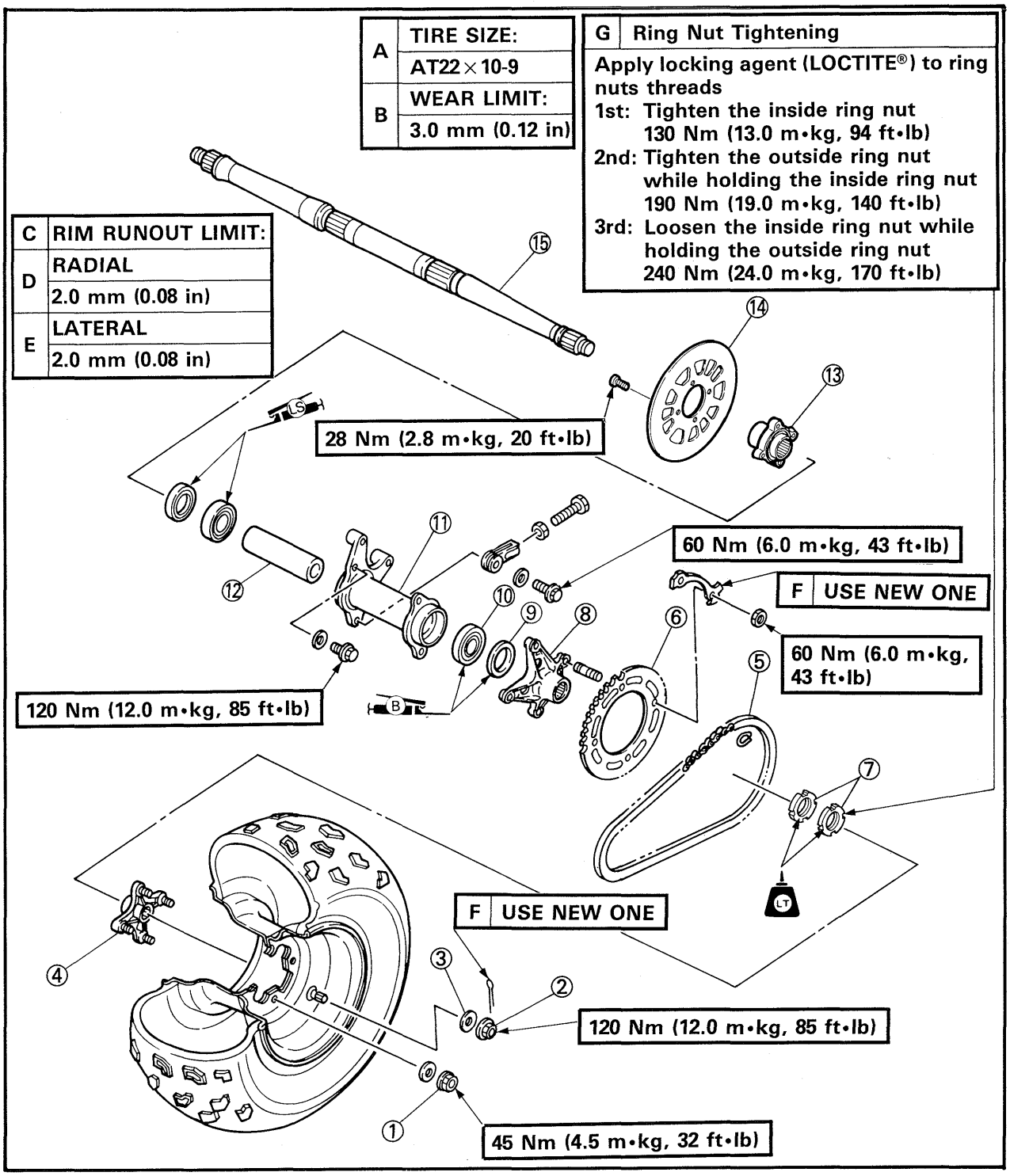
Always use a new cotter pin.

6

REAR WHEEL AND REAR AXLE

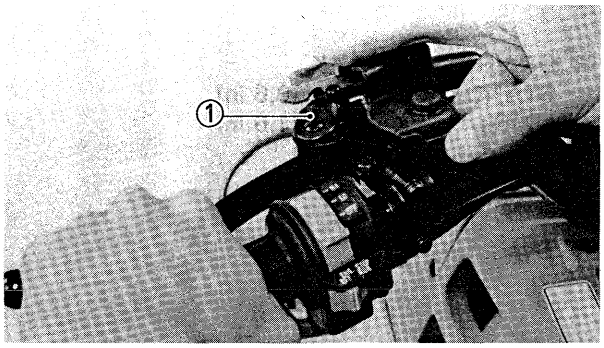
① Wheel panel nut
② Axle nut
③ Washer
④ Wheel boss
⑤ Drive chain
⑥ Driven sprocket
⑦ Ring nut
⑧ Sprocket boss
⑨ Oil seal
⑩ Bearing
⑪ Wheel hub
⑫ Spacer
⑬ Brake disc boss
⑭ Brake disc
⑮ Rear axle

H DRIVE CHAIN SLAK
STANDARD: 15 mm (0.6 in)
LIMIT: 40 mm (1.6 in)



6

REAR WHEEL AND REAR AXLE

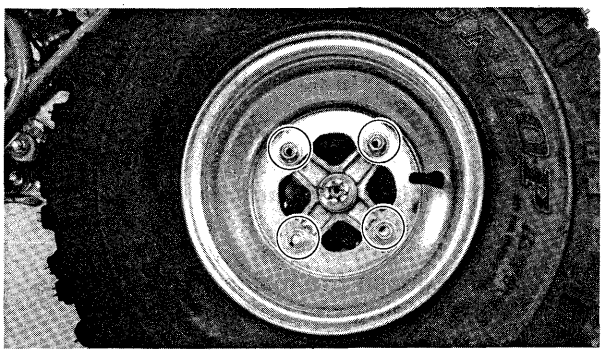


REMOVAL

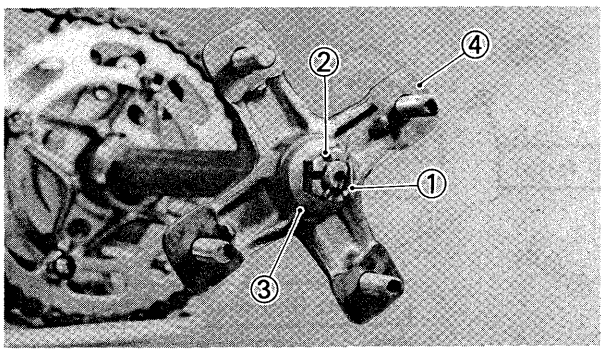
Rear Wheel Removal

1. Place the machine on a level place.
2. Loosen:
   - Nuts (Rear wheel)

   Apply the parking brake ①.
3. Elevate the rear wheels by placing the suitable stand under the rear of frame.

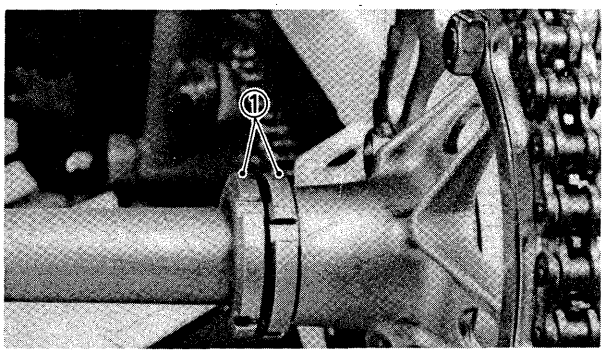


4. Remove:
   - Nuts (Rear wheel)
   - Rear wheel



Rear Wheel Hub Removal

1. Remove:
   - Cotter pin ①
   - Axle nut ②
   - Plain washer ③
   - Wheel hub ④



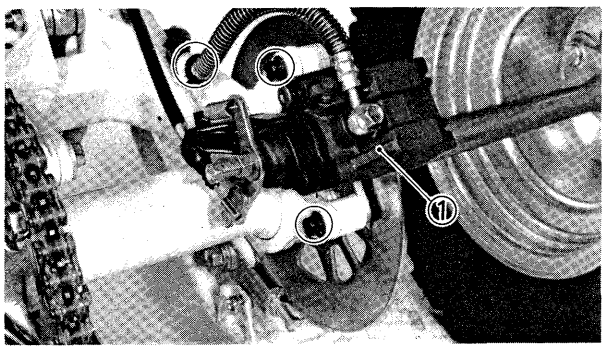
Rear Wheel Axle Removal

1. Remove:
   - Ring nuts ①

   Use the Ring Nut Wrench (YU-01268).

NOTE:

Apply the rear brake to lock the rear axle.

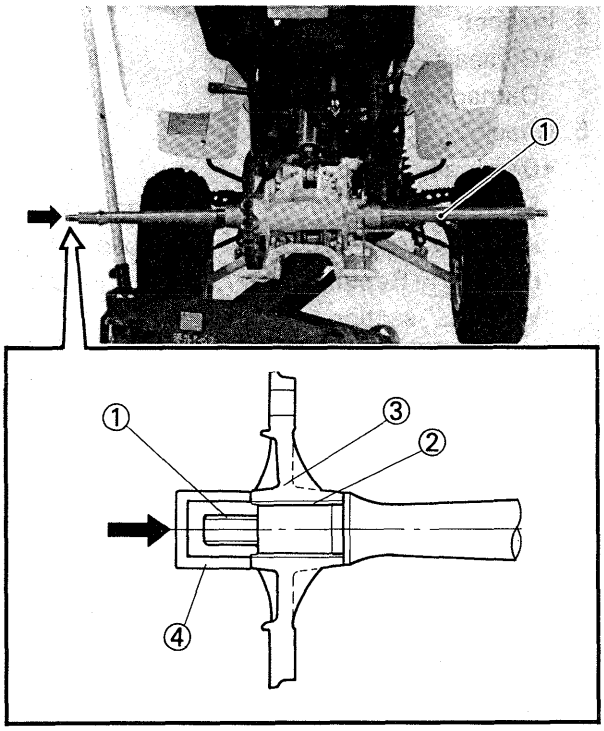


2. Remove:
   - Rear brake caliper assembly ①

NOTE:

Do not depress the parking brake lever and brake pedal when the brake caliper is off the disc otherwise the brake pads will be forced shut.

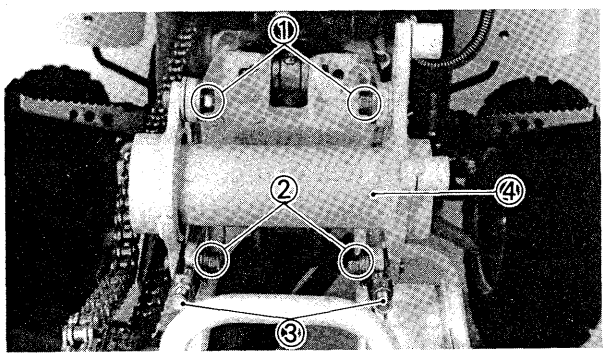
6



3. Remove:
   - Rear axle ①
     From the right side.
   - Brake disc

CAUTION:

•Never directly tap the axle end with a hammer, this will result in damage to the axle thread ① and spline ② .
•Install the wheel boss ③ and suitable socket ④ on the axle end to protect the thread and spline from damage.

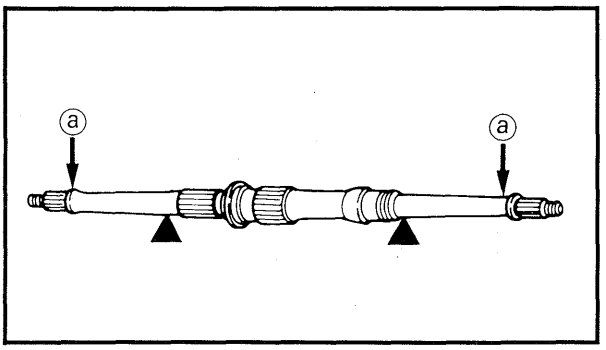


Wheel Hub Removal

1. Remove:
   - Driven sprocket and sprocket boss assembly
   - Bolts (Upper wheel hub) ①
   - Bolts (Lower wheel hub) ②
   - Tensioner assembly ③
   - Wheel hub ④

INSPECTION

1. Inspect:
   - Wheel
     Refer to "FRONT WHEEL—INSPECTION" section.
2. Measure:
   - Wheel runout
     Refer to "FRONT WHEEL—INSPECTION" section.



3. Inspect:
   - Rear axle runout ⓐ
     Out of specification→Replace.

Rear Axle Runout Limit:
1.5 mm (0.06 in)

WARNING:

Do not attempt to straighten a dent axle.

4. Inspect:
   • Oil seals
   Damage → Replace.
5. Check:
   • Bearings
   Bearings allow play in the final gear housing and rear hub or rear axle turns roughly → Replace. Refer to "FRONT WHEEL" section.

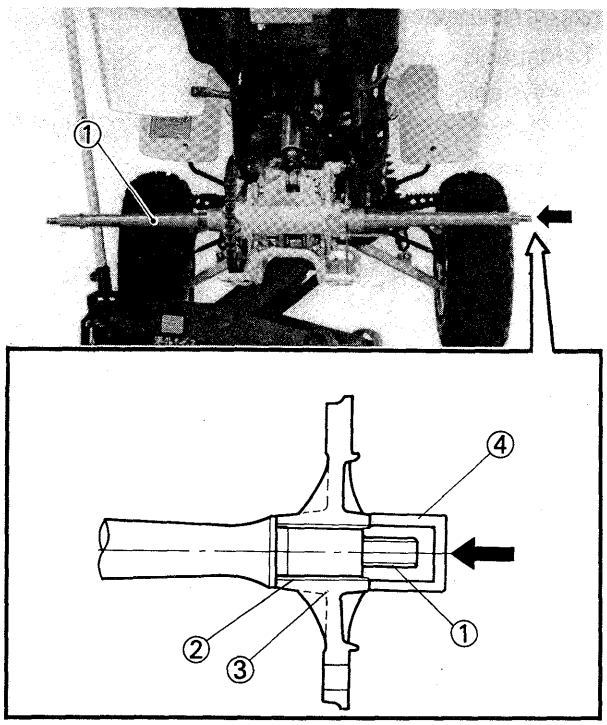
INSTALLATION

When installing the rear wheel, reverse the removal procedure. Note the following points.

Wheel Hub Installation

1. Apply:
   • Lithium base grease
   Lightly grease to the oil seals and bearing.
2. Install:
   • Wheel hub
   • Tensioner assembly

Bolts (Wheel Hub—Lower):
60 Nm (6.0 m•kg, 43 ft•lb)
Bolts (Wheel Hub—Upper):
120 Nm (12.0 m•kg, 85 ft•lb)



Rear Axle Installation

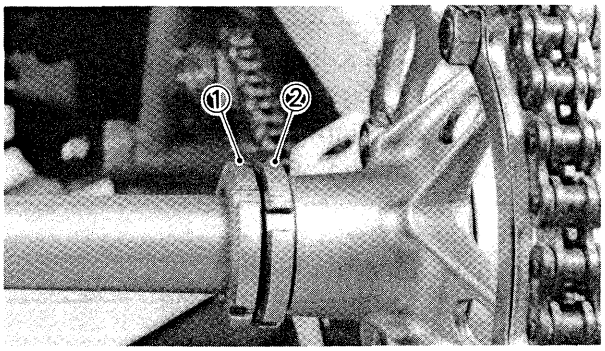
1. Install:
   • Brake disc
   • Rear axle ①
   Tap the RIGHT END axle.

CAUTION:

• Never directly tap the axle end with a hammer, this will result in damage to the axle thread ① and spline ② .
• Install the wheel boss ③ and suitable socket ④ on the axle end to protect the thread and spline from damage.

2. Install:
   • Drive sprocket and sprocket boss assembly

3. Apply the brake pedal and parking brake.
4. Install:
   • Ring nuts (Rear axle)



5. Tighten:
   • Ring nuts (Rear axle) ①, ②

Ring nuts tightening steps:
NOTE:
Before tightening the ring nuts, apply the LOCTITE® to the thread portion of the rear axle.

- Finger tighten the inside-ring nut ② while checking the ring gear engagement.
- Tighten the inside-ring nut with Ring Nut Wrench (YU-01268) to specification while holding the rear axle.

Inside-Ring Nut (First Tightening): 130 Nm (13.0 m•kg, 94 ft•lb)

- Hold the inside-ring nut ② and tighten the outside-ring nut ① with Ring Nut Wrench to specification.

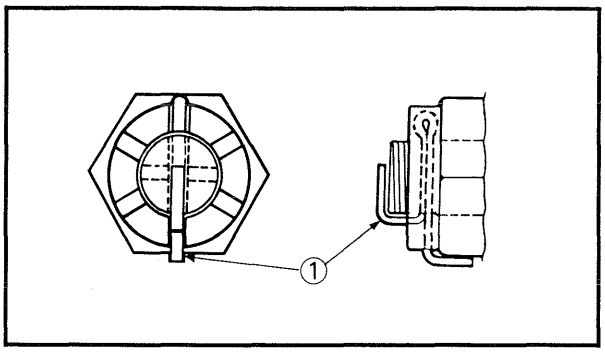
Outside-Ring Nut: 190 Nm (19.0 m•kg, 140 ft•lb)

- Hold the outside-ring nut ① and tighten back the inside-ring nut ② with Ring Nut Wrench to specification.

Inside-Ring Nut (Final Tightening): 240 Nm (24.0 m•kg, 170 ft•lb)

6. Install:
   • Rear brake caliper

Rear Brake Caliper: 23 Nm (2.3 m•kg, 17 ft•lb)



Rear Wheel Hub Installation

1. Tighten:
   - Axle nuts

	Axle Nuts: 120 Nm (12.0 m•kg, 85 ft•lb)

2. Install:
   - Cotter pins (New) ①

NOTE:

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.

Rear Wheel Installation

1. Install:
   - Rear wheels

2. Tighten:
   - Nuts (Rear wheel)

	Nuts (Rear Wheel): 45 Nm (4.5 m•kg, 32 ft•lb)

3. Adjust:
   - Drive chain slack

   Refer to "CHAPTER 2. DRIVE CHAIN SLACK ADJUSTMENT" section.

FRONT BRAKE

BRAKE CALIPER AND BRAKE DISC

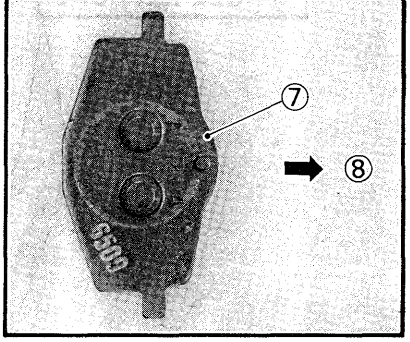
① Brake disc
② Brake pads
③ Caliper piston assembly
④ Pad springs
⑤ Air bleed screw
⑥ Retaining bolt

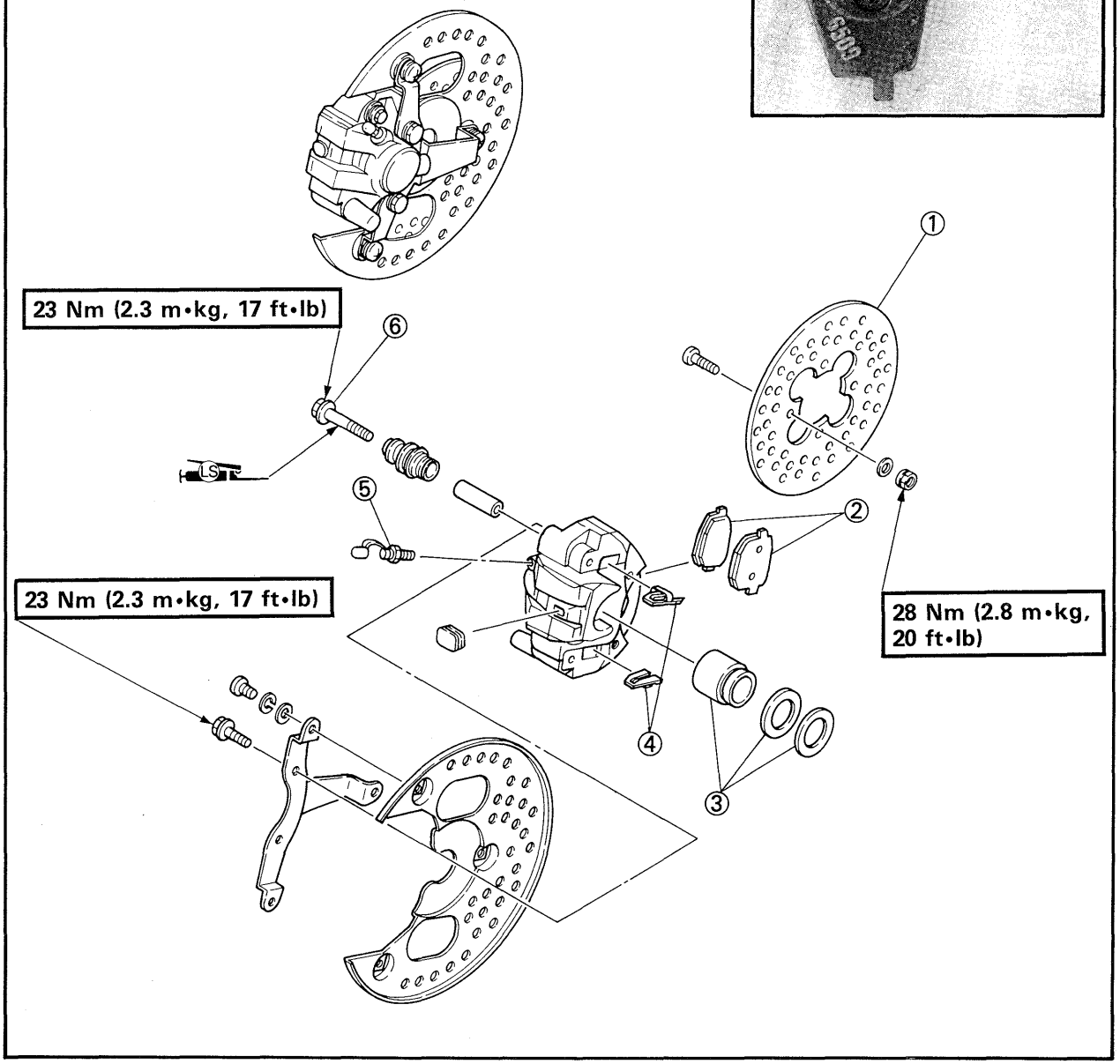
NOTE:

- Be sure to position the pad so that its round side ⑦ is forward ⑧.
- Drain the brake fluid before removing the brake hose.

A	BRAKE PAD WEAR LIMIT: 0.8 mm (0.032 in)
B	BRAKE DISC WEAR LIMIT: 3.0 mm (0.12 in)
C	MAXIMUM DEFLECTION: 0.5 mm (0.02 in)

D BRAKE PAD



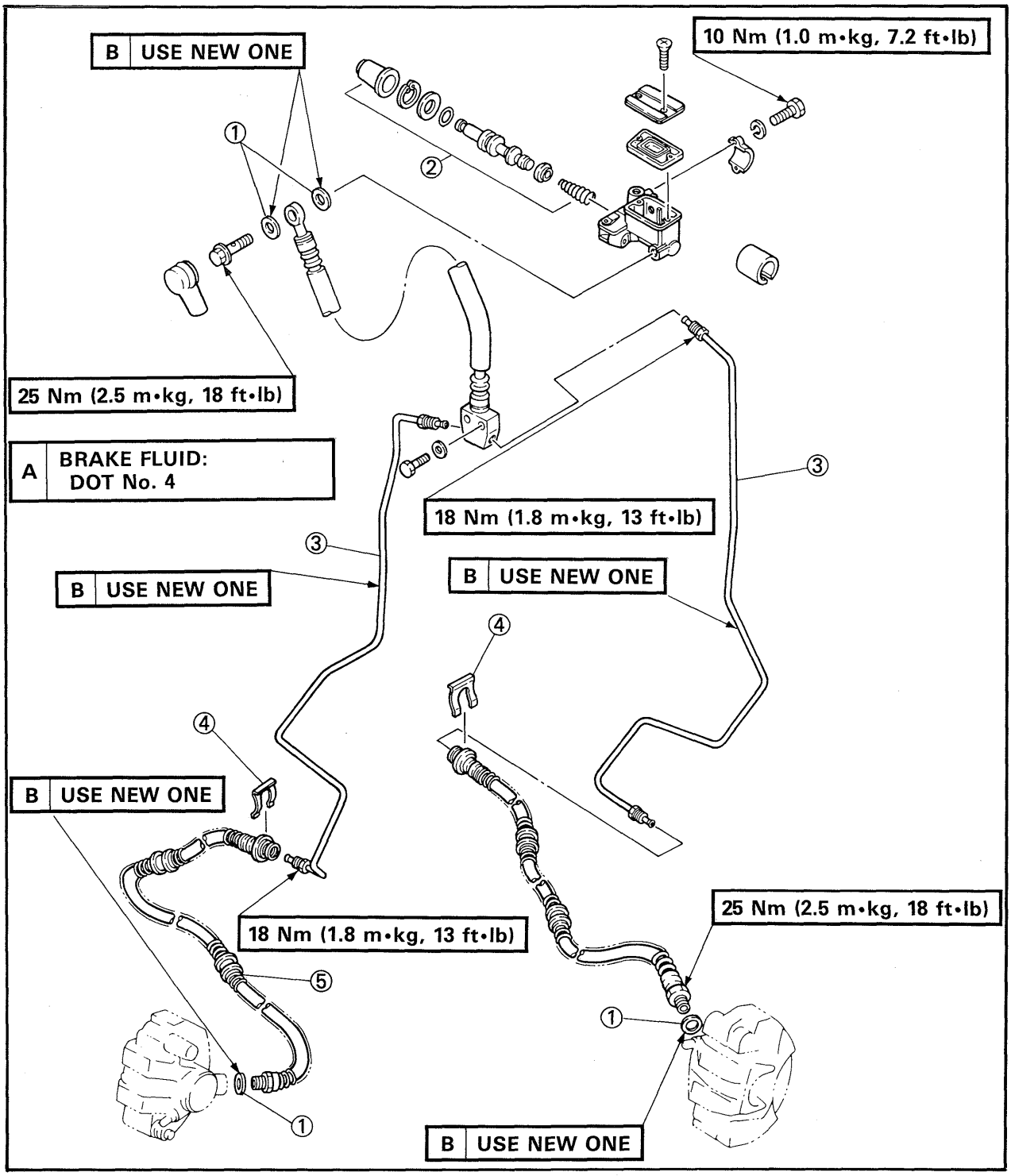


6

BRAKE HOSE AND MASTER CYLINDER

NOTE:
Always use a new brake pipe after removal.

① Copper washers
② Master cylinder kit
③ Brake pipe
④ Clip
⑤ Brake hose



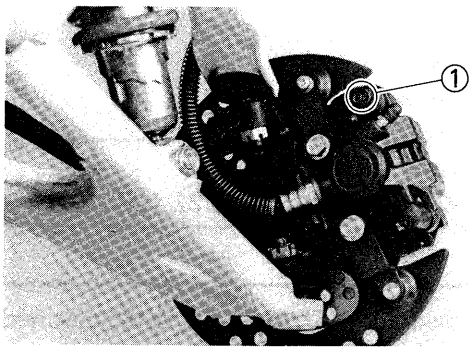
CAUTION:

Disc brake components rarely require disassembly. DO NOT:

- **Disassembly components unless absolutely necessary.**
- **Use solvents on internal brake component.**
- **Use contaminated brake fluid for cleaning. Use only clean brake fluid.**
- **Allow brake fluid to come in contact with the eyes otherwise eye injury may occur.**
- **Allow brake fluid to contact painted surfaces or plastic parts otherwise damage may occur.**
- **Disconnect any hydraulic connection otherwise the entire system must be disassembled, drained, cleaned, and then properly filled and bled after reassembly.**

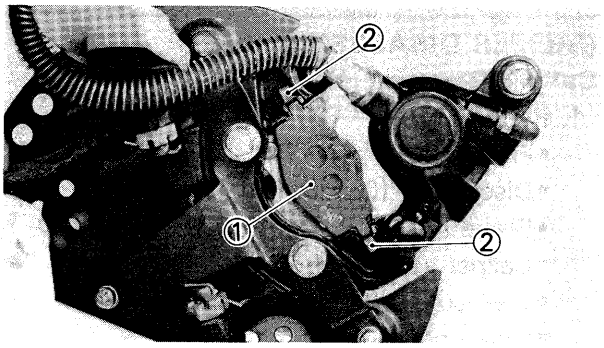
NOTE:

Drain the brake fluid before removing brake hose.

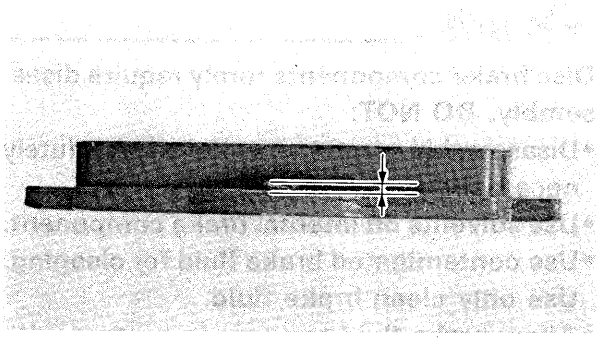


BRAKE PAD REPLACEMENT

1. Remove:
   - Front wheel
   - Disc cover (Outer)
   - Retaining bolt ①



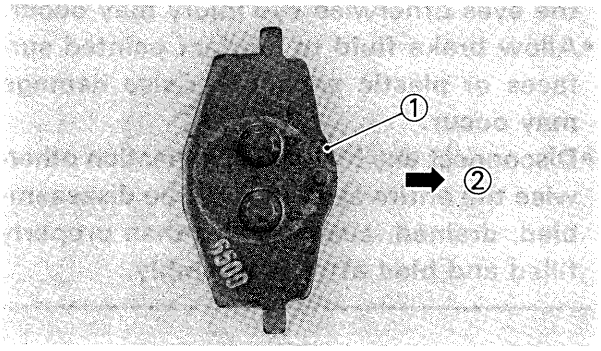
2. Remove:
   - Brake pads ①
     Lift the brake caliper.
   - Pad spring ②



NOTE:

Replace pads as a set if either is found to be worn to the wear limit.

Brake Pad Wear Limit:
0.8 mm (0.032 in)



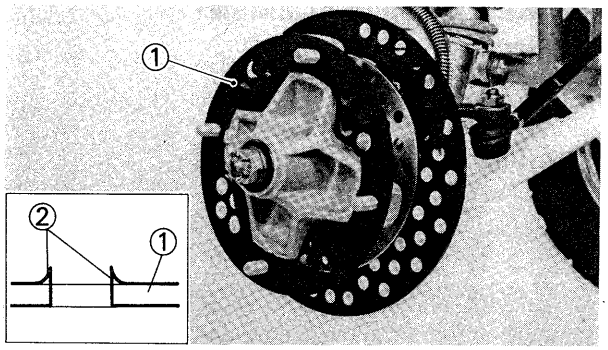
3. Install:
   - Pad springs
   - Pads (New)

NOTE:

Be sure to position the pad so that its round side ① is forward ②.

4. Apply:
   - Lithium base grease (Lightly) (to retaining bolt)
5. Set the caliper body at the original position.
6. Tighten:
   - Retaining bolt

Retaining Bolt:
23 Nm (2.3 m•kg, 17 ft•lb)

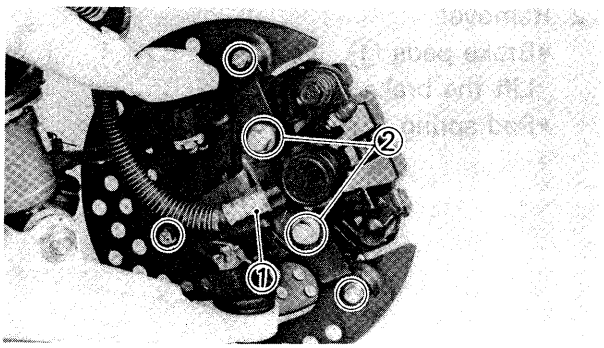


7. Install:
   - Disc cover (Outer) ①
   - Front wheel

Nuts (Wheel Panel):
45 Nm (4.5 m•kg, 32 ft•lb)

NOTE:

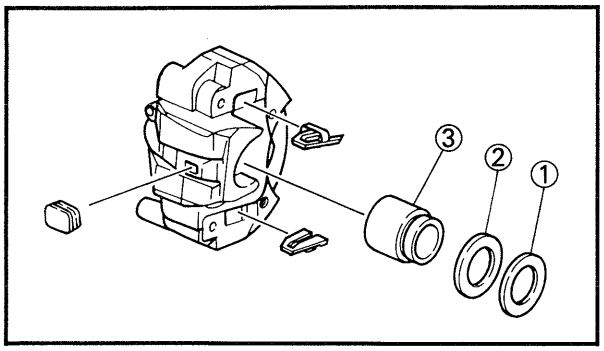
Install the disc cover (Outer) ① with punched burrs ② on the hub side.



CALIPER DISASSEMBLY

Caliper Removal

1. Remove:
   - Front wheel
   - Disc cover (Outer)
   - Brake hose ①
   - Caliper securing bolts ②
   - Disc cover (Inner)
   - Brake pads
   - Pad spring



Caliper Disassembly

1. Remove:
   - Dust seal ①
   - Piston seal ②
   - Piston ③

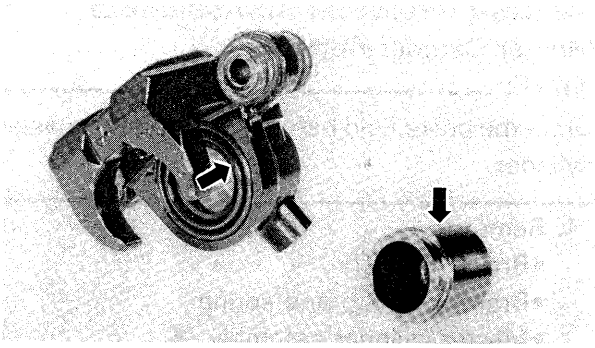
   Use compressed air and proceed carefully.

WARNING:

- **Cover piston with rag and use extreme caution when expelling piston from cylinder.**
- **Never attempt to pry out piston.**

Caliper piston removal steps:

- Insert the rag into the caliper to lock the piston.
- Blow compressed air into the hose joint opening to force out the piston from the caliper body.



Inspection

1. Inspect:
   - Piston

     Rust/Wear→Replace.
   - Caliper cylinder body

     Wear/Scratches→Replace.

Installation

1. Assemble:
   - Brake caliper(s)

     Reverse disassembly steps.

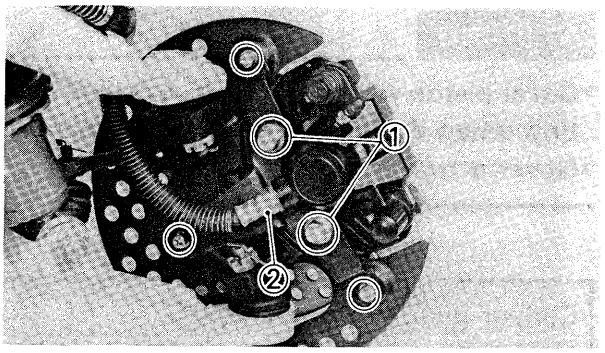
WARNING:

- **All internal parts should be cleaned in new brake fluid only.**
- **If DOT No. 4 is not available, No. 3 can be used.**

•Internal parts should be lubricated with brake fluid when installed.

	Brake Fluid: DOT No. 4

•Replace the dust and piston seals whenever a caliper is disassembled.



2. Tighten:
   •Caliper securing bolts ①

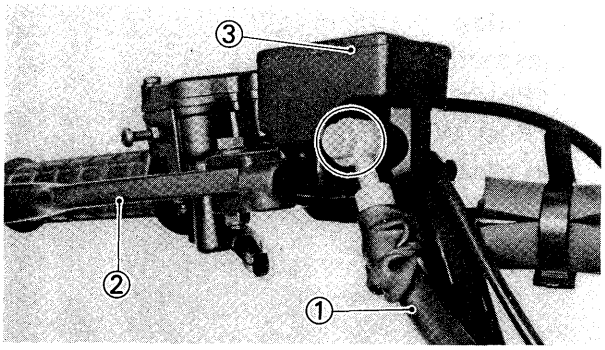
	28 Nm (2.8 m•kg, 20 ft•lb)

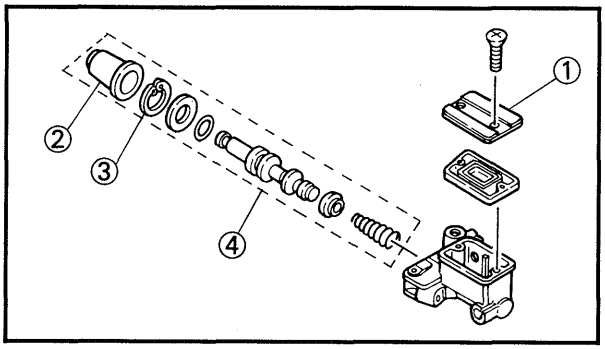
   •Brake hose union bolts ②

	25 Nm (2.5 m•kg, 18 ft•lb)

3. Bleed the air completely from the brake system.
   Refer to "AIR BLEEDING" section.

4. Install:
   •Disc cover (Outer)
   •Front wheel
   Refer to "FRONT WHEEL—INSTALLATION" section.





MASTER CYLINDER DISASSEMBLY

Master Cylinder Removal

NOTE:

Drain the brake fluid before removing the master cylinder.

1. Remove:
   •Brake hose ①
   •Brake lever ② and spring
   •Master cylinder assembly ③

Master Cylinder Disassembly

1. Remove:
   •Cap ①
   Drain remaining fluid.
   •Master cylinder dust boot ②
   •Circlip ③
   •Master cylinder kit ④

NOTE:

Be sure to reinstall the larger diameter lips of the cylinder cups first.

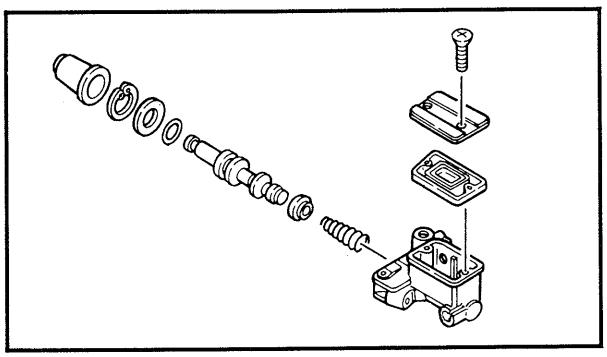
Inspection

1. Inspect:
   - Master cylinder body
     Scratches/Wear→Replace.

NOTE:

Clean all passages with new brake fluid.

   - Brake hoses
     Cracks/Wear/Damage→Replace.
   - Master cylinder kit
     Scratches/Wear→Replace.



Installation

1. Assemble:
   - Master cylinder
     Reverse disassembly steps.

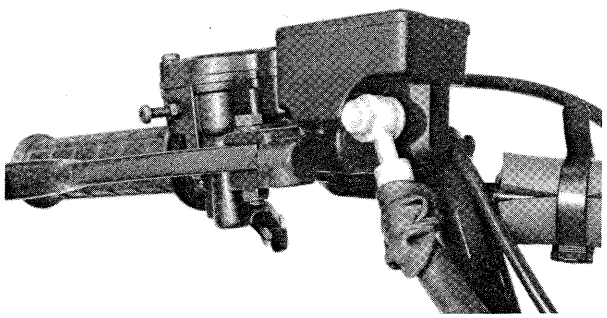
WARNING:

Internal parts should be lubricated with brake fluid when installed.

2. Install:
   - Master cylinder
   - Brake hose (With copper washers)
   - Brake lever

NOTE:

Grease the pivot point.

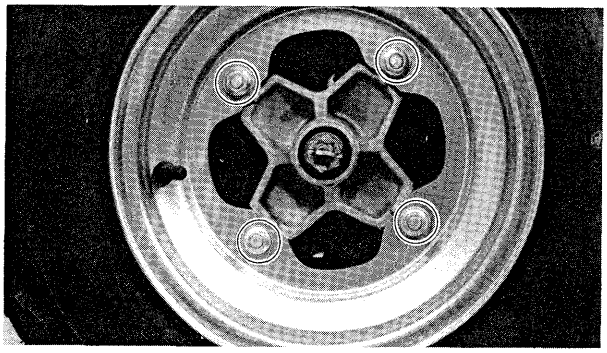


3. Tighten:
   - Master cylinder bolts
   - Brake hose

Master Cylinder:
10 Nm (1.0 m•kg, 7.2 ft•lb)
Brake Hose:
25 Nm (2.5 m•kg, 18 ft•lb)

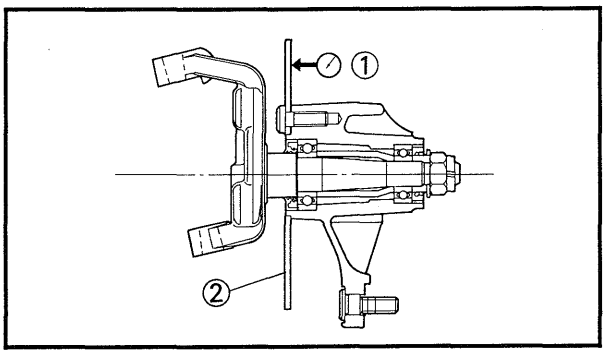
4. Bleed the air completely from the brake system.
5. Tighten:
   • Master cylinder cap

	Master Cylinder Cap: 2 Nm (0.2 m•kg, 1.4 ft•lb)



BRAKE DISC

1. Remove:
   • Front wheel
   • Disc cover (Outer)



2. Inspect:
   • Brake disc ②
   Wear/Deflection out of specification→ Replace.

	Maximum Deflection: 0.15 mm (0.006 in) **Minimum Disc Thickness: 3.0 mm (0.12 in)**

① Dial gauge

3. Install:
   • Disc cover (Outer)
   • Front wheel
   Refer to "FRONT WHEEL—INSTALLATION" section.

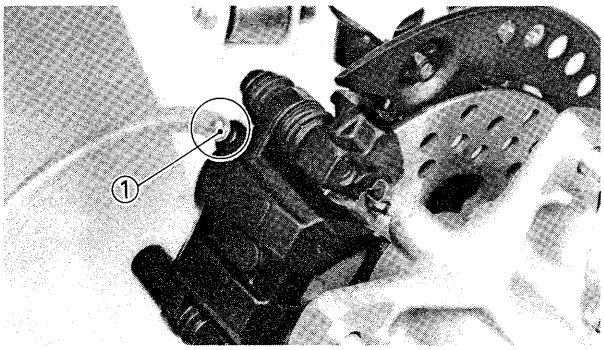
6

AIR BLEEDING

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.



Air bleeding steps:
- Add proper brake fluid to the reservoir.
- Install diaphragm.
  Be careful not to spill any fluid or allow the reservoir to overflow.
- Connect the clear plastic tube (4.5 mm, 3/16 in inside dia.) tightly to the caliper bleed screw ①.
- Place the other end of the tube into a container.
- Slowly apply the brake lever several times. (*)
- Pull the lever in. Hold the lever in position.
- Loosen the bleed screw and allow the lever to travel towards its limit.
- Tighten the bleed screw when the lever limit has been reached; then release the lever. (**)
- Repeart steps (*) to (**) until all of the air bubbles have been removed from the system.

NOTE:

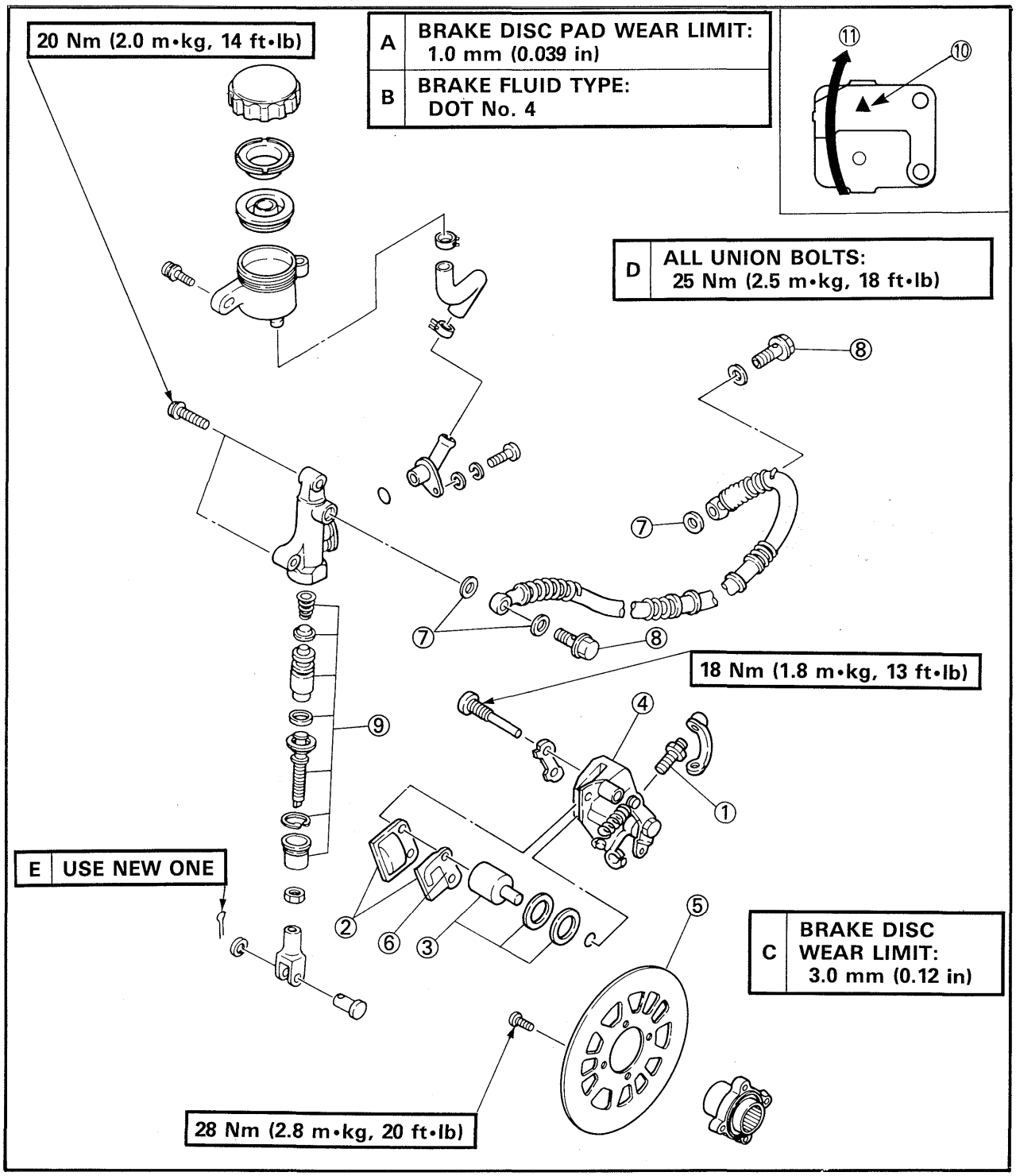
If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in system have disappeared.

REAR BRAKE

① Bleed screw
② Brake pad
③ Caliper piston assembly
④ Brake caliper
⑤ Brake disc
⑥ Shim
⑦ Copper washer
⑧ Union bolt
⑨ Master cylinder kit

NOTE:

Be sure to position the shim so that its arrow mark ⑩ points in the direction of the disc plate rotation ⑪.



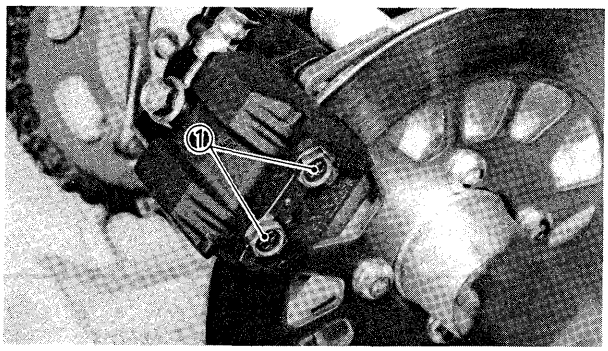
CAUTION:

Disc brake components rarely require disassembly. DO NOT:

- **Disassembly components unless absolutely necessary.**
- **Use solvents on internal brake component.**
- **Use contaminated brake fluid for cleaning. Use only clean brake fluid.**
- **Allow brake fluid to come in contact with the eyes otherwise eye injury may occur.**
- **Allow brake fluid to contact painted surfaces or plastic parts otherwise damage may occur.**
- **Disconnect any hydraulic connection otherwise the entire system must be disassembled, drained, cleaned, and then properly filled and bled after reassembly.**

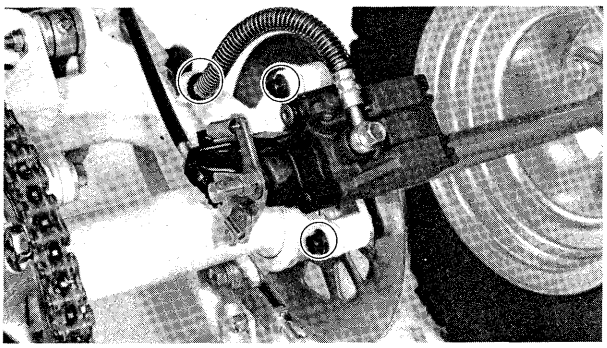
NOTE:

Drain the brake fluid before removing brake hose.

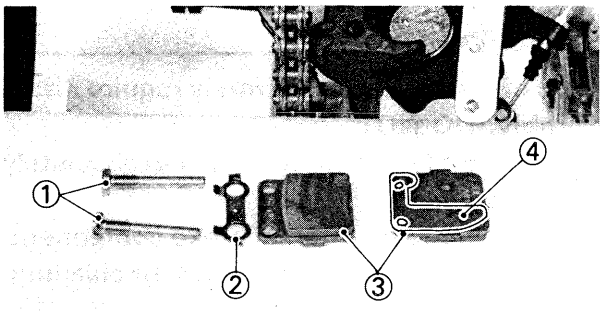


BRAKE PAD REPLACEMENT

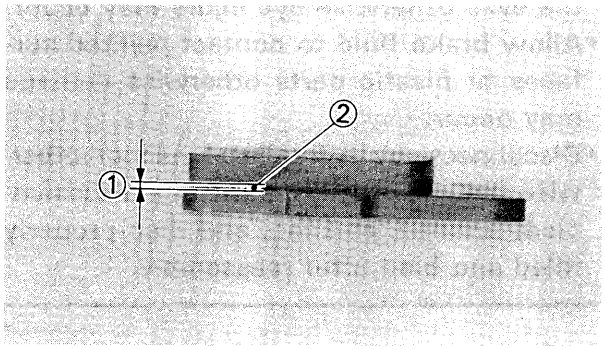
1. Loosen:
   - Pad retaining bolts ①



2. Remove:
   - Brake caliper



3. Remove:
   - Pad retaining bolts ①
   - Lock washer ②
   - Pad ③
   - Shim ④
   - Pad spring

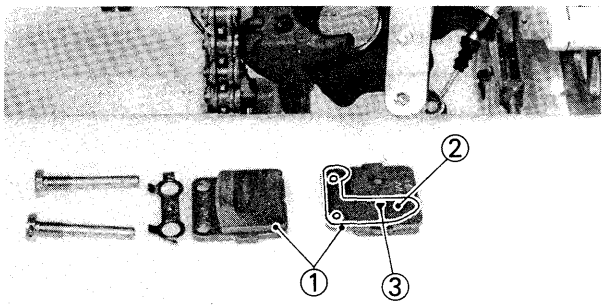


4. Inspect:
   - Brake pad

   Over wear limit ①→Replace as a set.

Brake Pad Wear Limit:
1.0 mm (0.0394 in)

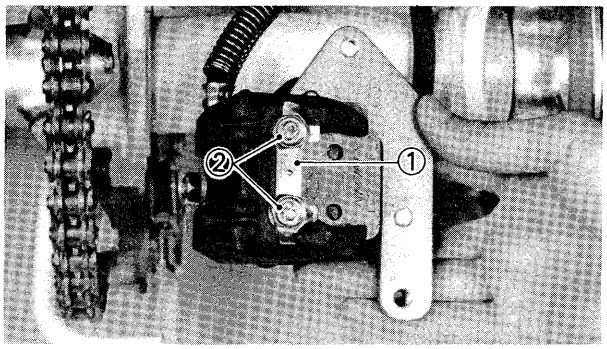
② Wear indicator



5. Install:
   - Pad spring
   - Pads (New) ①
   - Shim ②

NOTE:

- Be sure to position the shim so that its arrow mark ③ points in the direction of the disc plate rotation.
- Replace pads as a set if either is found to be worn to the wear limit.



6. Install:
   - Lock washer (New) ①
   - Pad retaining bolts ②

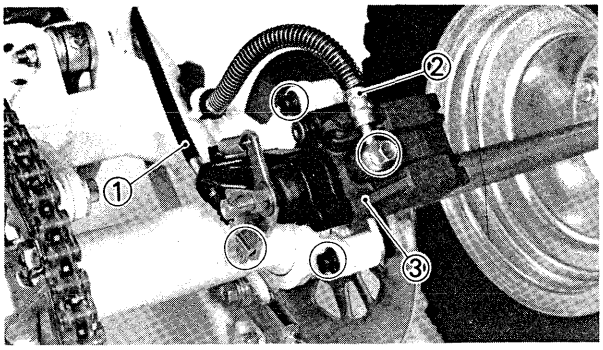
7. Install:
   - Brake caliper

Brake Caliper Bolts:
23 Nm (2.3 m•kg, 17 ft•lb)

8. Tighten:
   - Pad retaining bolts

Pad Retaining Bolts:
18 Nm (1.8 m•kg, 13 ft•lb)

9. Bend the lock washer tabs along the bolt flats.



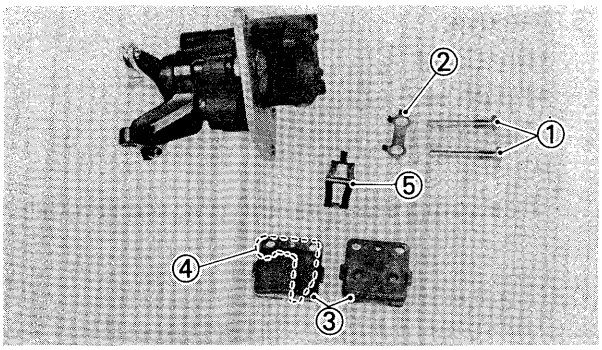
CALIPER DISASSEMBLY

Caliper Removal

NOTE:

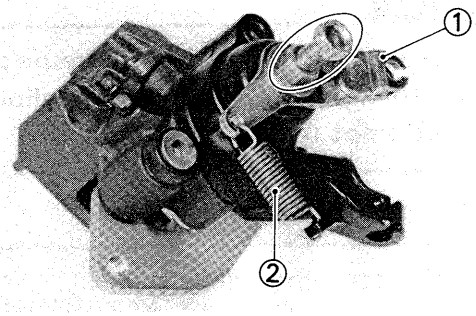
Drain the brake fluid before removing the caliper.

1. Disconnect:
   - Parking brake cable ①
   - Brake hose ②
2. Remove:
   - Brake caliper ③

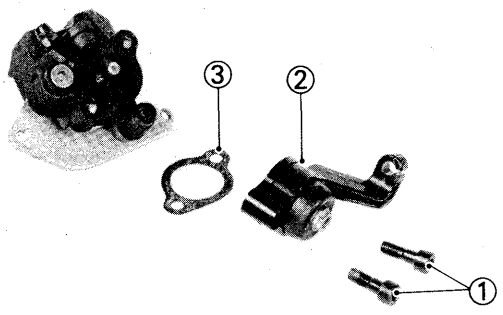


Disassembly

1. Remove:
   - Pad retaining bolts ①
   - Lock washer ②
   - Pad ③
   - Shim ④
   - Pad spring ⑤

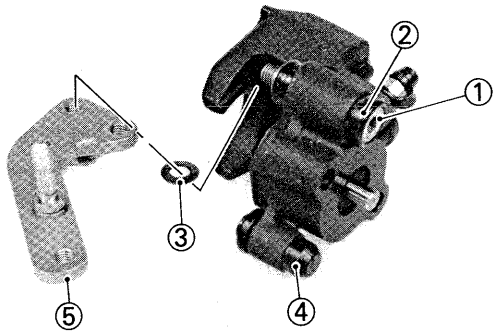


2. Remove:
   - Parking brake lever ①
   - Spring ②

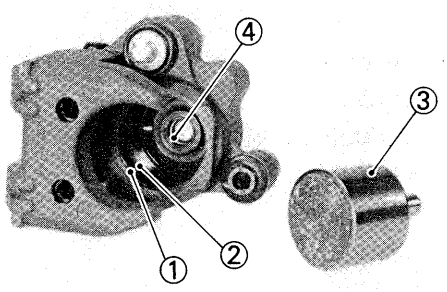


3. Remove:
   - Bolts ①
   - Parking brake case assembly ②
   - Gasket ③

6



4. Remove:
   - Caliper bracket bolt ①
   - Cover ②
   - Washer ③
   - Cover ④
   - Bracket ⑤



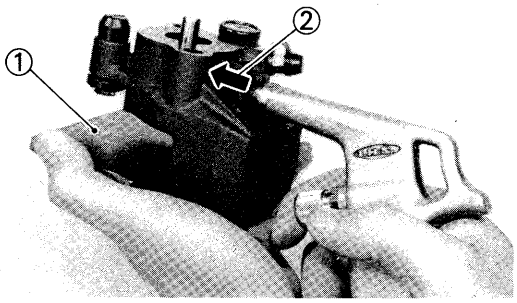
5. Remove:
   - Dust seal ①
   - Piston seal ②
   - Piston ③
   - O-ring ④

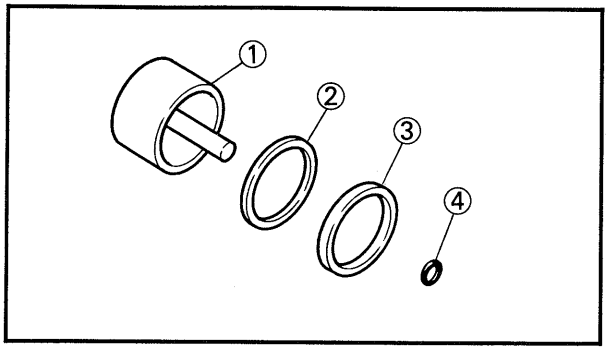
   Use compressed air and proceed carefully.

WARNING:

- **Cover piston with rag and use extreme caution when expelling piston from cylinder.**
- **Never attempt to pry out piston.**

Caliper piston removal steps:
- Insert the rag ① into the caliper to lock the piston.
- Blow compressed air ② into the hose joint opening to force out the piston from the caliper body.

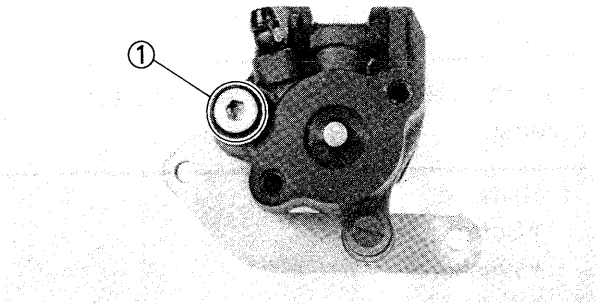




Inspection

1. Inspect:
   - Caliper piston ①
   - Dust seal ②
   - Piston seal ③
   - O-ring ④

   Damage/Scratches→Replace as a set.

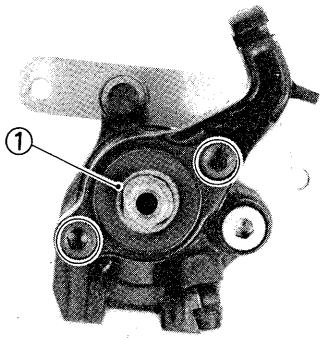


Installation

Refer to front brake assembly except for following items.

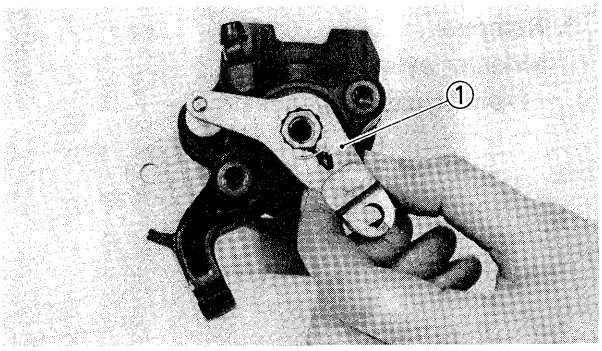
1. Tighten:
   - Bolt (Caliper bracket) ①

	Bolt (Caliper Bracket): **23 Nm (2.3 m•kg, 17 ft•lb)**



2. Tighten:
   - Parking brake case ①

	Parking Brake Case Bolt: **28 Nm (2.8 m•kg, 20 ft•lb)** **LOCTITE®**



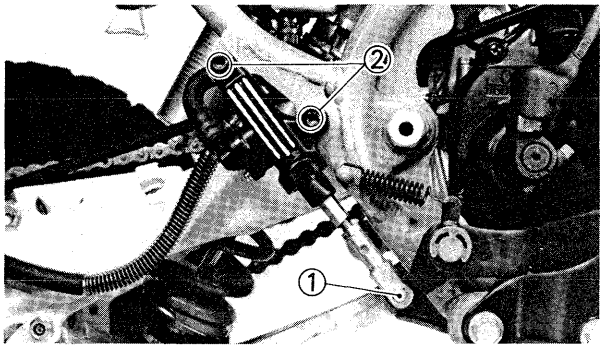
3. Install:
   - Parking brake lever ①

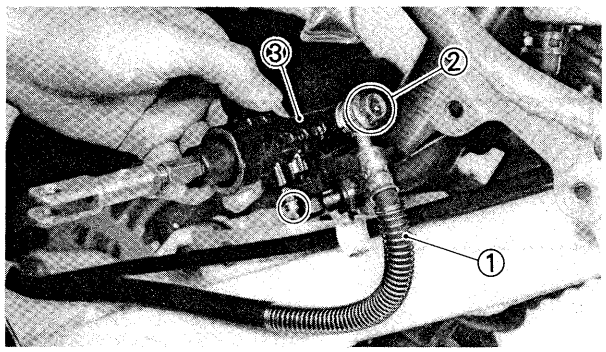
4. Tighten:

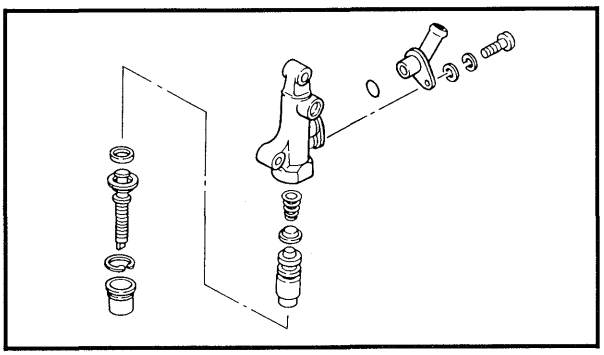
	Pad Retaining Bolt: **18 Nm (1.8 m•kg, 13 ft•lb)** **Brake Caliper Bolt:** **23 Nm (2.3 m•kg, 17 ft•lb)** **Brake Union Bolt:** **25 Nm (2.5 m•kg, 18 ft•lb)**

5. Adjust:
   - Parking brake

   Refer to "CHAPTER 2— PARKING BRAKE ADJUSTMENT" section.







MASTER CYLINDER DISASSEMBLY

Master Cylinder Removal

NOTE:

Drain the brake fluid before removing the master cylinder.

1. Remove:
   - Cotter pin
   - Washer
   - Pivot pin ①
   - Bolts ②
2. Remove:
   - Brake hose ①
   - Union bolt ②
   - Washer
   - Master cylinder assembly ③

Master Cylinder Disassembly

1. Remove:
   - Master cylinder kit
     From master cylinder body.

Inspection

1. Inspect:
   - Master cylinder body
     Scratches/Wear→Replace.

NOTE:

Clean all passages with new brake fluid.

- Brake hoses
  Cracks/Wear/Damage→Replace.
- Master cylinder kit
  Scratches/Wear→Replace.

6

Installation

1. Assemble:
   - Master cylinder

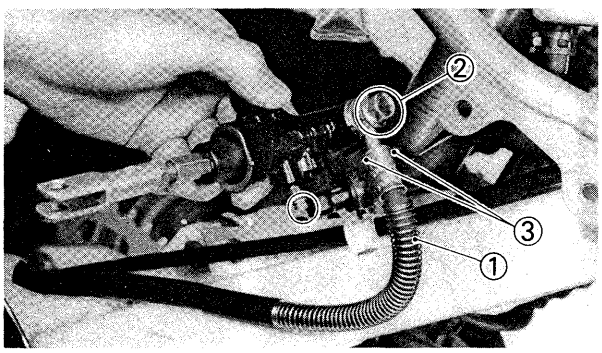
   Reverse disassembly steps.

WARNING:

Internal parts should be lubricated with brake fluid when installed.

2. Install:
   - Master cylinder

	Master Cylinder Bolt: 20 Nm (2.0 m•kg, 14 ft•lb)

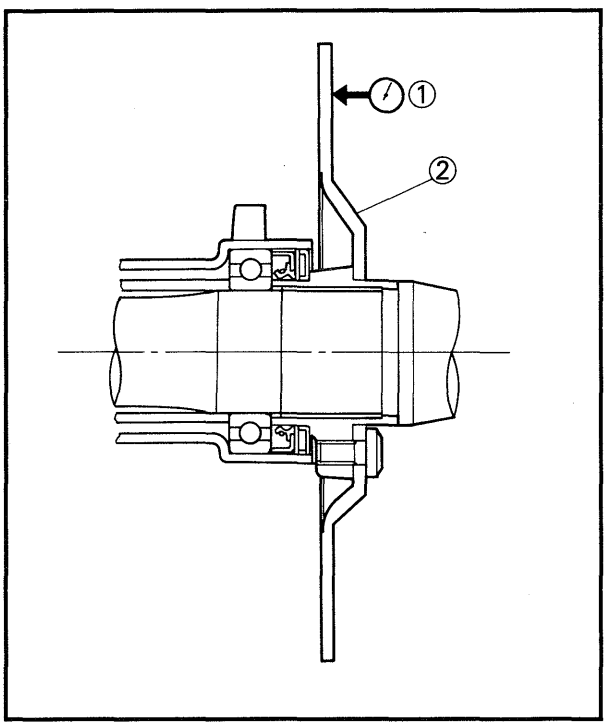


3. Install:
   - Brake hose ①

	Union Bolt ②: 25 Nm (2.5 m•kg, 18 ft•lb)

CAUTION:

Be sure the brake hose should be installed between bosses ③.



BRAKE DISC

1. Inspect:
   - Brake disc ②

   Wear/Deflection out of specification→ Replace.

	Maximum Deflection: 0.15 mm (0.006 in) **Minimum Disc Thickness: 3.0 mm (0.12 in)**

① Dial gauge

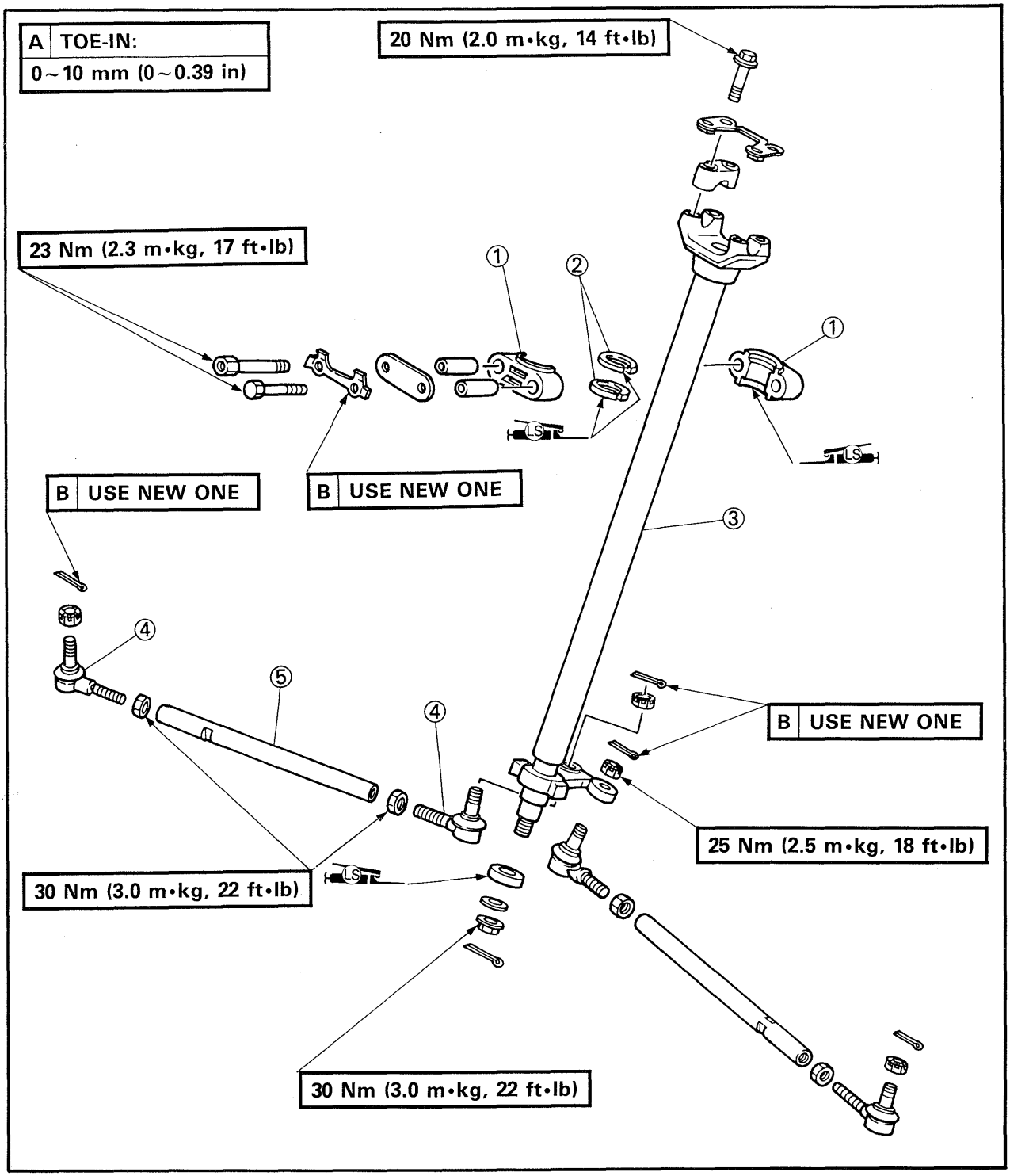
AIR BLEEDING

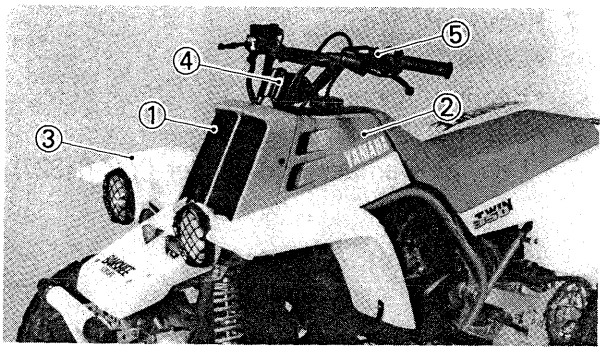
Refer to "FRONT BRAKE — AIR BLEEDING" section.

6

STEERING SYSTEM

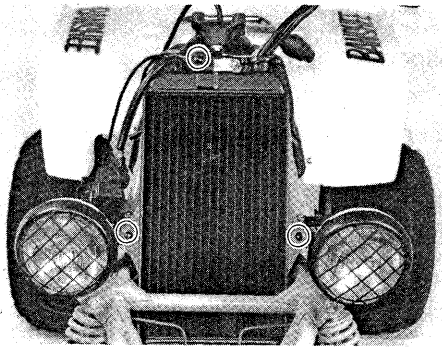
① Steering shaft bearing
② Oil seal
③ Steering shaft
④ Tie-rod end
⑤ Tie-rod



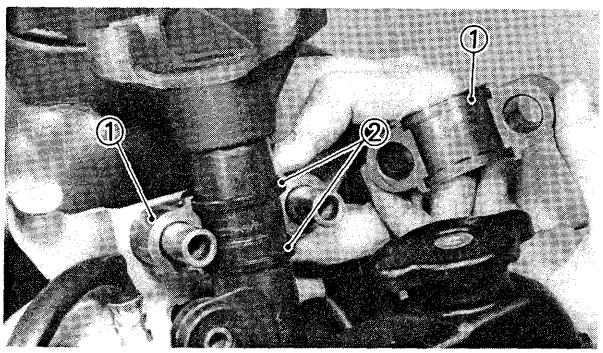


REMOVAL

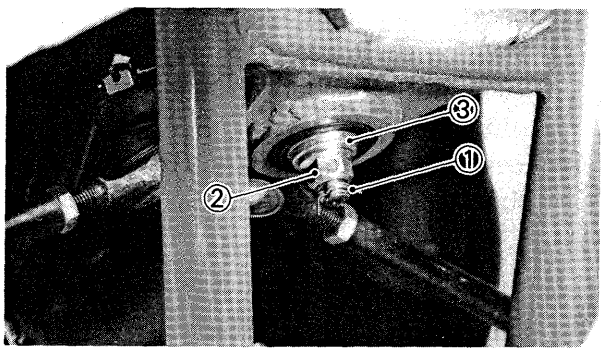
1. Remove:
   - Radiator cover ①
   - Fuel tank cover ②
   - Front fender ③
   - Handlebar cover ④
   - Handlebar ⑤



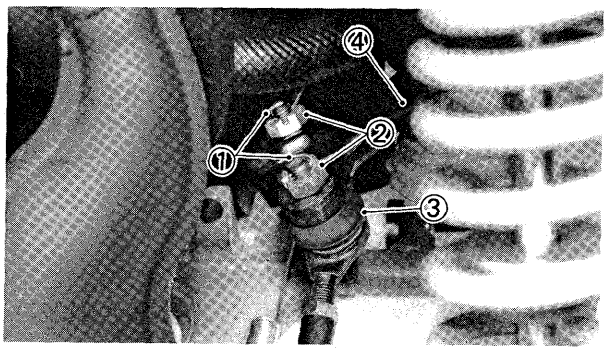
2. Remove:
   - Bolts (Radiator)



3. Straighten:
   - Lock washer tabs
4. Remove:
   - Steering shaft bushings ①
   - Oil seals ②

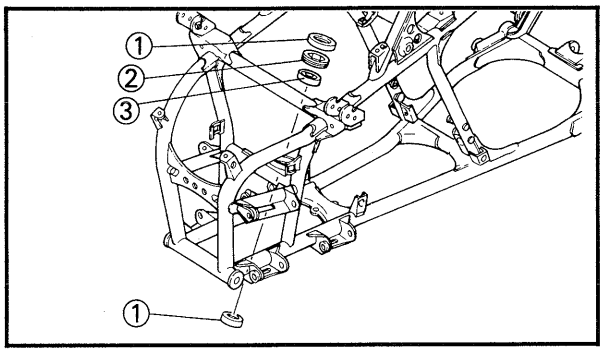


5. Remove:
   - Cotter pin ①
   - Nut (Steering shaft) ②
   - Plain washer ③



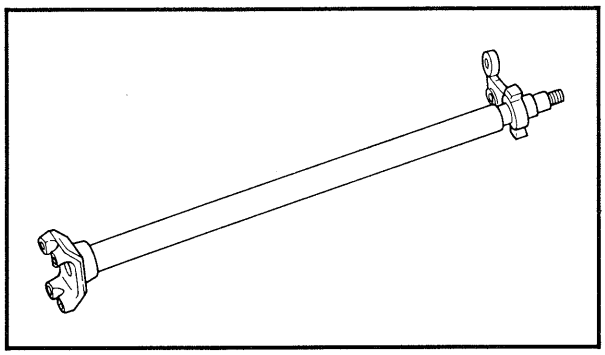
6. Remove:
   - Cotter pins ①
   - Nuts (Tie-rod end) ②
   - Tie-rod ends ③
   - Steering shaft ④

6



7. Remove:
   - Oil seals ①
   - Bearing holder ②
   - Bearing ③

   Use the Damper Rod Holder (YM-01327).



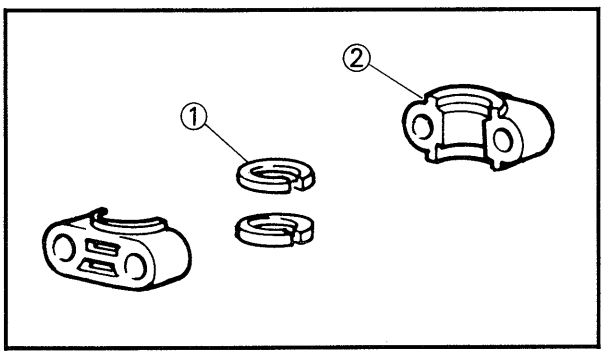
INSPECTION

1. Inspect:
   - Steering shaft

   Bends→Replace.

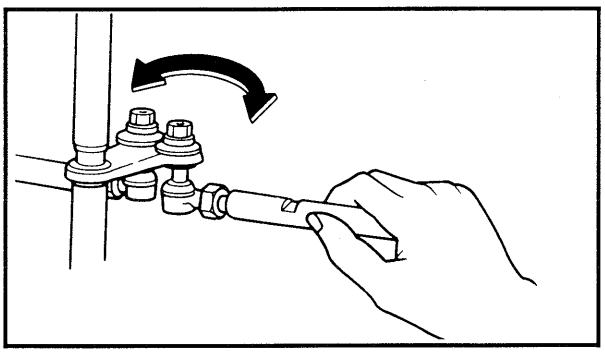
WARNING:

Do not attempt to straighten a bent shaft; this may dangerously weaken the shaft.



2. Inspect:
   - Oil seals ①
   - Steering shaft bushings ②

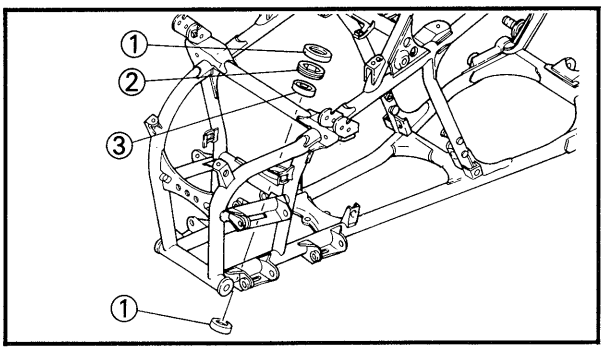
   Wear/Damage→Replace.



3. Check:
   - Steering shaft free play

   Steering shaft is loose→Replace bushings and O-rings.

   Insert the steering shaft into the frame, and check for free play.



INSTALLATION

When installing the steering system, reverse the removal procedure. Note the following points.

1. Install:
   - Bearing ③
   - Bearing holder ②
   - Oil seals ①

   To the frame.

   Use the Damper Rod Holder (YM-01327).

NOTE:

Apply lithium soap base grease to the bearing and oil seals.

Bearing Holder:
40 Nm (4.0 m•kg, 29 ft•lb)

2. Install:
   - Steering shaft

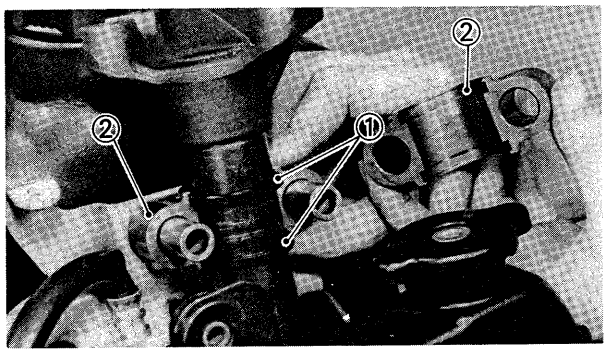
WARNING:

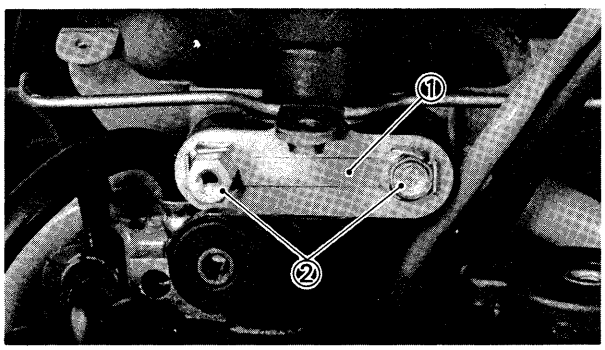
Make sure the brake hoses and pipes are properly routed, and are not damaged or twisted.

3. Tighten:
   - Nuts (Tie-rod end)
   - Nut (Steering shaft)

Nuts (Tie-rod End):
25 Nm (2.5 m•kg, 18 ft•lb)
Nut (Steering Shaft):
30 Nm (3.0 m•kg, 22 ft•lb)

4. Install:
   - Cotter pins (New)





WARNING:

Always use a new cotter pin.

5. Install:
   - Oil seals ①
   - Steering shaft bushings ②

NOTE:

- Lightly apply lithium soap base grease to the oil seals.
- Be careful not to damage the oil seals during installation.

6. Install:
   - Lock washer (New) ①
   - Bolts (Steering shaft bracket) ②

Bolts (Steering Shaft Bracket):
23 Nm (2.3 m•kg, 17 ft•lb)

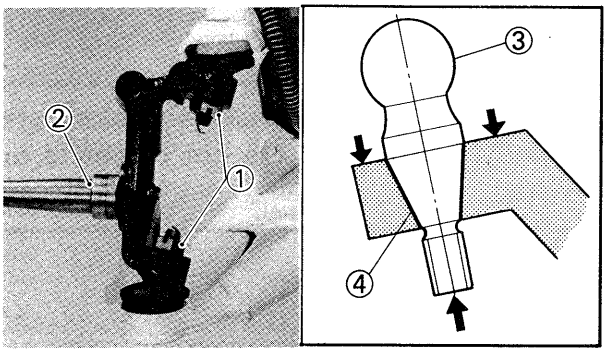
7. Bend the lock washer tab along the bolt flats.

STEERING KNUCKLES AND TIE-ROD ENDS

REMOVAL

1. Remove:
   - Front wheels
   - Front hubs

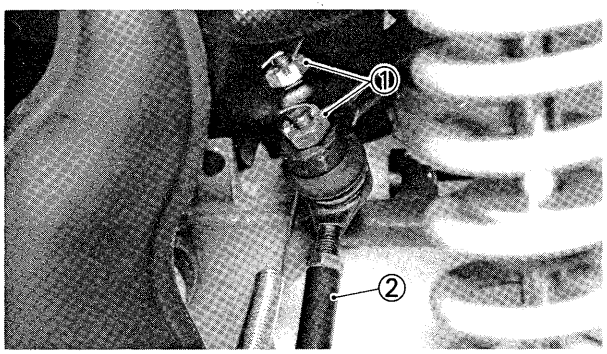
   Refer to "FRONT WHEEL — REMOVAL" section.



2. Remove:
   - Cotter pins
   - Nut (Tie-rod end)
   - Bolts (Knuckle arm)
   - Nuts (Steering knuckle) ①
   - Steering knuckle ②

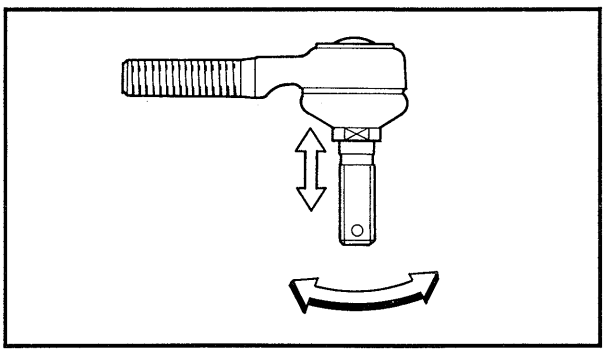
NOTE:

Use the General Puller to separate ball joint ③ and steering knuckle.



④ Taper fitting

3. Remove:
   - Cotter pin
   - Nut (Tie-rod end) ①
   - Tie-rod ②

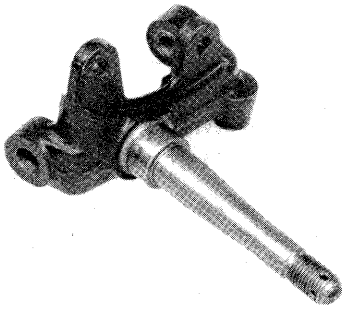


INSPECTION

1. Check:
   - Tie-rod free play and movement

   Tie-rod is exists free play→Replace tie-rod end.

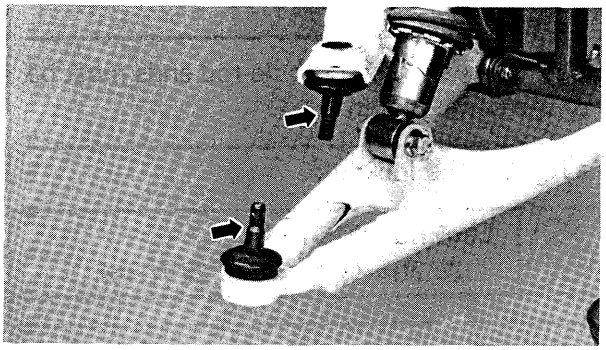
   Tie-rod turns roughly→Replace tie-rod end.



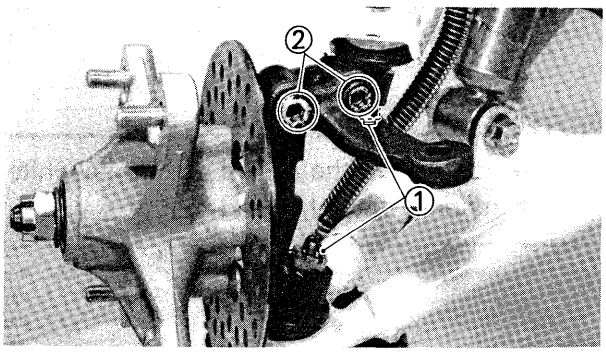
2. Inspect:
   - Steering knuckle

   Damage/Pitting→Replace.

6



3. Inspect:
   - Ball joints
     Damage/Pitting→Replace front arm.
     Ball joint is exists free play→Replace front arm.
     Ball joint turns roughly→Replace front arm.



INSTALLATION

When installing the tie-rod, reverse the removal procedure. Note the following points.

1. Tighten:
   - Nuts (Steering knuckle) ①
   - Bolts (Knuckle arm) ②

Nuts (Steering Knuckle):
25 Nm (2.5 m•kg, 18 ft•lb)
Bolts (Knuckle Arm):
38 Nm (3.8 m•kg, 27 ft•lb)

CAUTION:

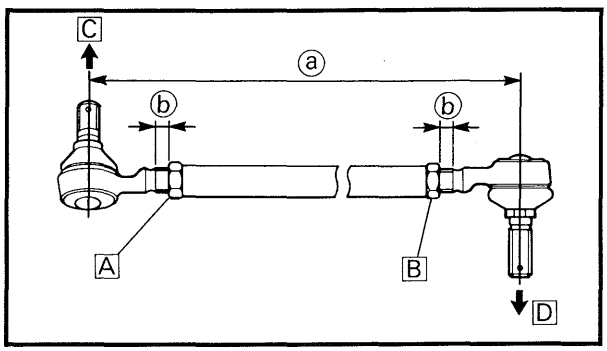
Avoid over-tightening.

2. Install:
   - Cotter pins

WARNING:

Always use a new cotter pin.

3. Adjust:
   - Tie-rod assembly length



Tie-rod assembly length adjustment steps:
- Loosen the locknuts.
- Adjust tie-rod assembly length ⓐ by turning both tie-rod ends.

Tie-rod Assembly Length ⓐ:
361 mm (14.2 in)

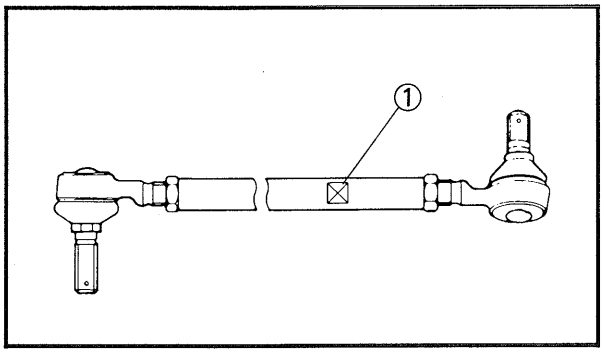
A Right-hand-threads
B Left-hand-threads
C To steering shaft
D To knuckle

NOTE:

The threads ⓑ on both tie-rod ends must be of the same length.

- Tighten the locknuts.

Locknut (Tie-rod):
30 Nm (3.0 m•kg, 22 ft•lb)



4. Install:
   - Tie-rods (Left and right)

NOTE:

Be sure to position the tie-rod so that its white painted mark ① is right-hand rod.

5. Tighten:
   - Nuts (Tie-rod end)

Nuts (Tie-rod End):
25 Nm (2.5 m•kg, 18 ft•lb)

6. Install:
   - Cotter pins

WARNING:

Always use a new cotter pin.

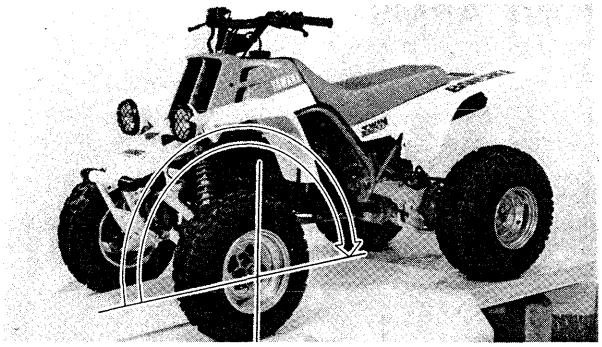
6

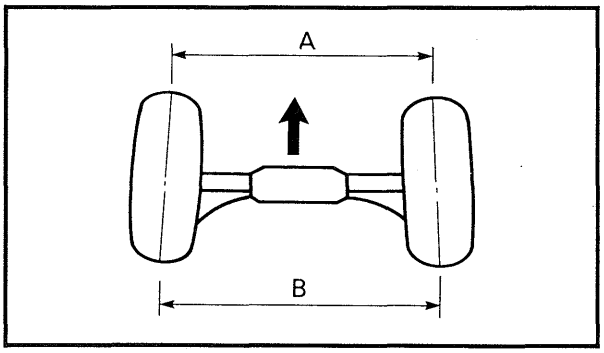
ADJUSTMENT

Toe-in Adjustment

1. Place the machine on a level place.
2. Measure:
   - Toe-in

Toe-in measurement steps:
- Mark both front tire tread centers.





- Measure the width [A] between the marks.
- Move the front tires 180 degrees either forward or backward until the marks come exactely opposite.
- Measure the width [B] between the marks.
- Calculate the toe-in using the formula given below.

Toe-in = [B] − [A]

Toe-in:
0 ~ 10 mm (0 ~ 0.39 in)

- If the toe-in is incorrect, adjust the toe-in.

3. Adjust:
   - Toe-in

   Refer to "Tie-rod assembly length adjustment steps" section.

WARNING:

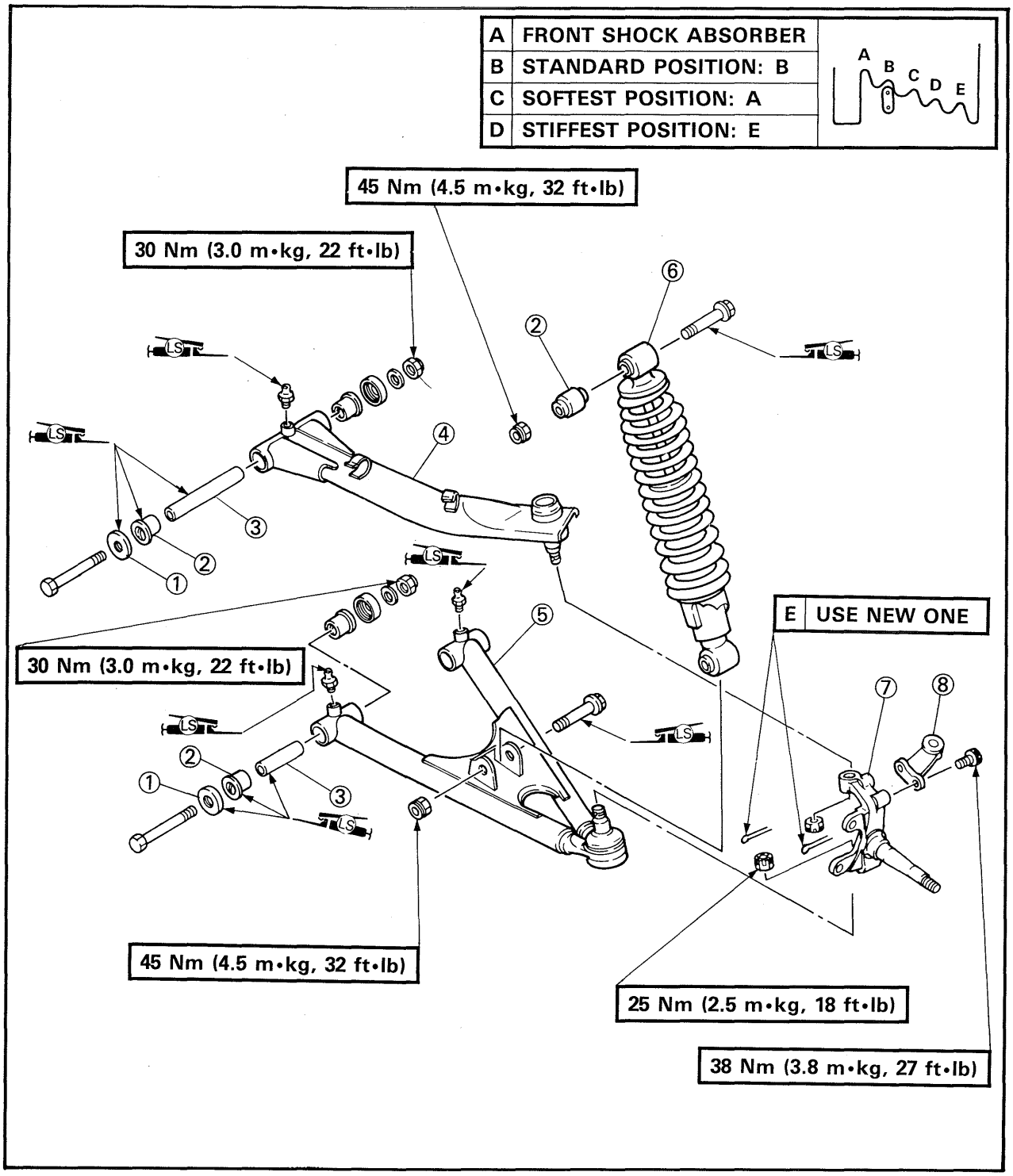
- **Be sure that both tie-rod are turned by the same amount. If not, the machine will go right or left even though the handlebar is positioned straight and it may lead to mishandling and accident.**
- **After setting the toe-in to specification, run the machine slowly for some distance with the hands lightly on the handlebar and check that the handlebar responds correctly. If not, turn either the right or left tie-rod within the toe-in specification.**

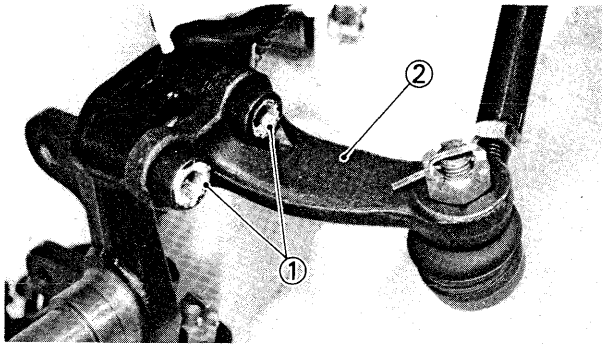
4. Measure:
   - Toe-in

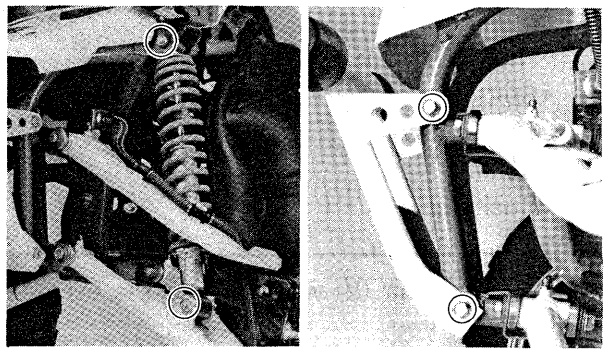
   Refer to "Toe-in Adjustment" section.

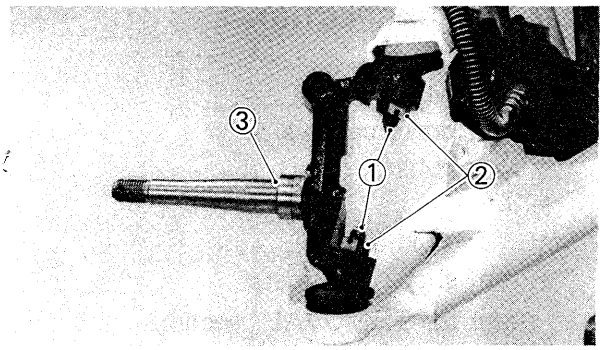
FRONT SHOCK ABSORBER AND FRONT ARMS

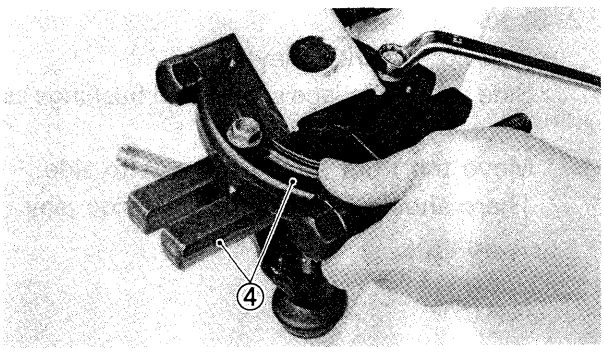
① Thrust cover
② Bushing
③ Collar
④ Front arm (upper)
⑤ Front arm (lower)
⑥ Front shock absorber
⑦ Steering knuckle
⑧ Knuckle arm

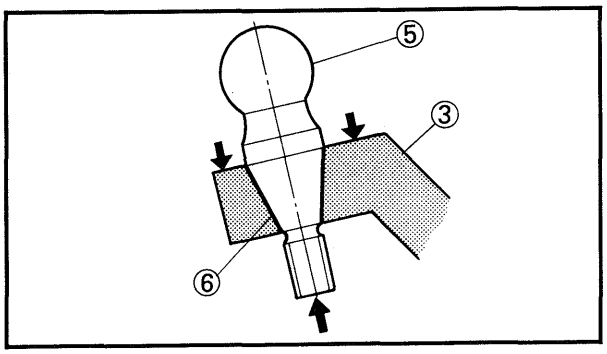












⑥ Taper fitting

REMOVAL

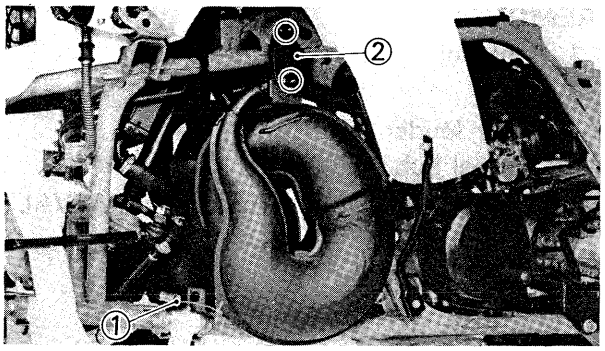
1. Remove:
   - Seat
   - Rear fender
   - Wheel hub

   Refer to "FRONT WHEEL — REMOVAL" section.
2. Remove:
   - Bolt (Knuckle arm) ①
   - Knuckle arm ②
3. Remove:
   - Front shock absorber
   - Front bumber
4. Remove:
   - Cotter pins ①
   - Nuts (Steering knuckle) ②
   - Steering knuckle ③

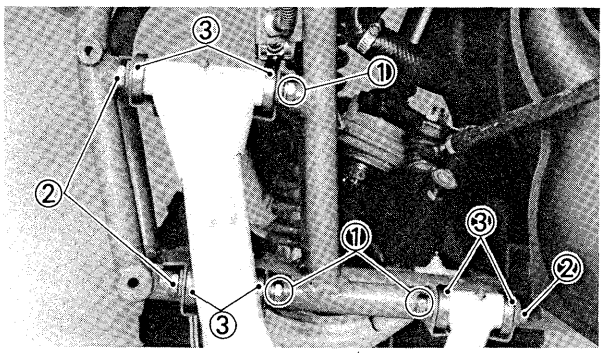
NOTE:

Use the General Puller ④ to separate ball joint ⑤ and steering knuckle.

6



5. Remove:
   - Silencer
   - Spring ①
   - Stay (Exhaust pipe) ②



6. Remove:
   - Nuts (Front arm) ①
   - Bolts (Front arm) ②
   - Thrust cover ③
   - Collars
   - Bushings

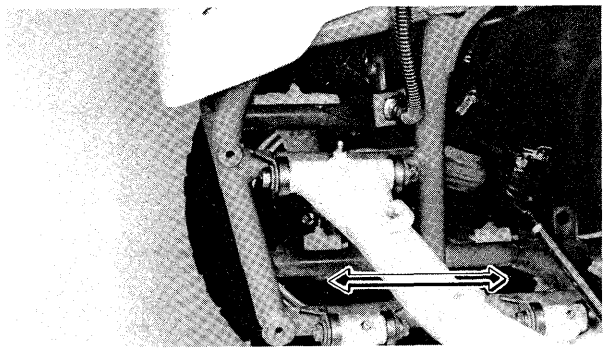
NOTE:

Remove the bolt ② while pulling the exhaust pipe toward you.

FREE PLAY INSPECTION

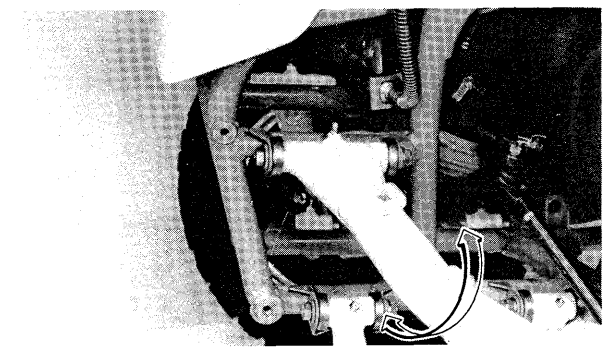
1. Remove:
   - Front wheels
   - Front brake calipers
   - Front hubs
   - Tie-rods
   - Steering knuckles
   - Front shock absorbers

   Refer to "REMOVAL" section.



2. Check:
   - Front arms (Side play)

   Side play→Replace spacer and bushings as a set.
   Move the front arms from side to side.
   There should be no noticeable side play.



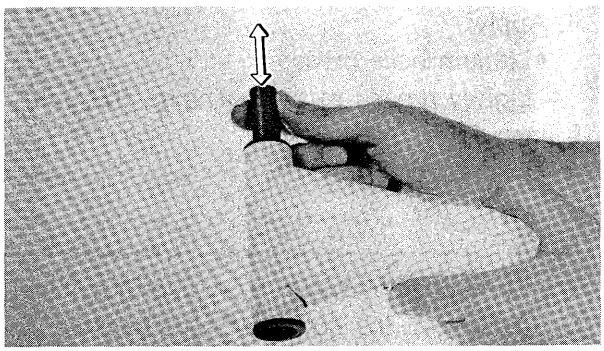
3. Check:
   - Front arms (Vertical movement)

   Tightness/Binding/Rough spots→Replace spacer and bushings as a set.
   Move the front arms up and down.

INSPECTION

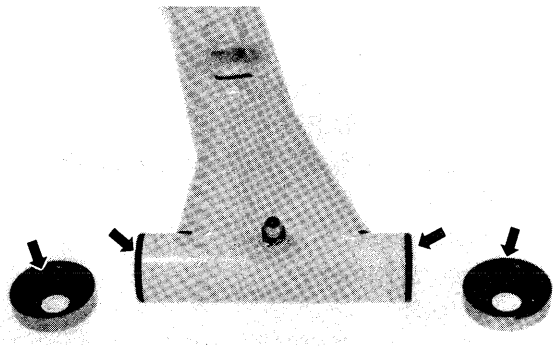
Front Shock Absorber Inspection

1. Inspect:
   - Shock absorber rod
     Bends/Damage→Replace the shock absorber assembly.
   - Shock absorber assembly
     Oil leakes→Replace the shock absorber assembly.
   - Spring
     Fatigue→Replace the shock absorber assembly.
     Move the spring up and down.



Front Arms Inspection

1. Check:
   - Spacer free play
     Spacer is loose→Replace spacer and bushings as a set.
     Insert the spacer into the front arm, and check for free play.



2. Inspect:
   - Thrust covers
   - Bushings
     Wear/Damage→Replace as a set.

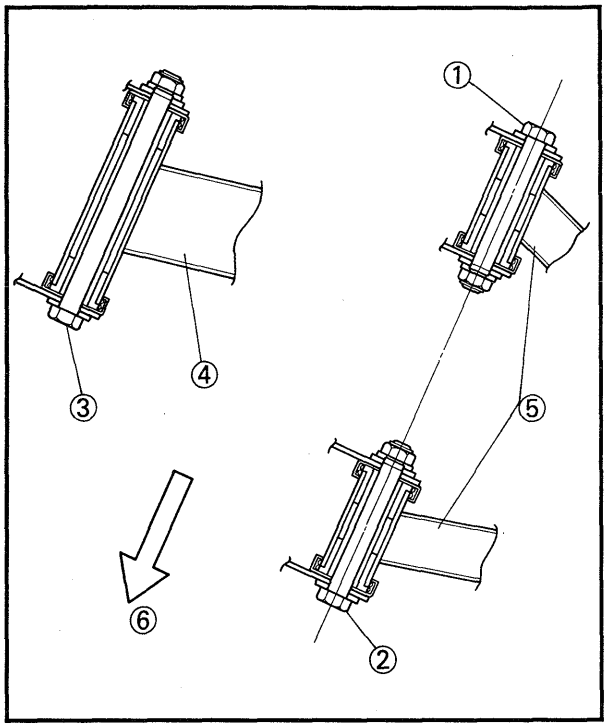
6

INSTALLATION

When installing the front arms and shock absorber, reverse the removal procedure. Note the following points.

1. Apply:
   - Lithium base grease
   - Lightly grease to the front arms, spacers, bushings and thrust covers.
2. Install:
   - Front arms

FRONT SHOCK ABSORBER AND FRONT ARMS



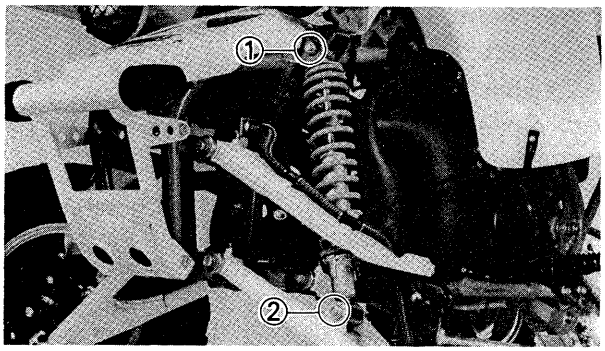
NOTE:

Be sure to position the bolts (upper and lower) ①, ②, ③ so that the bolt head face outward.

④ Front arm (Upper)
⑤ Front arm (Lower)
⑥ Forward

3. Tighten:
   - Nuts (Front arm)

	Nuts (Front Arm): **30 Nm (3.0 m•kg, 22 ft•lb)**

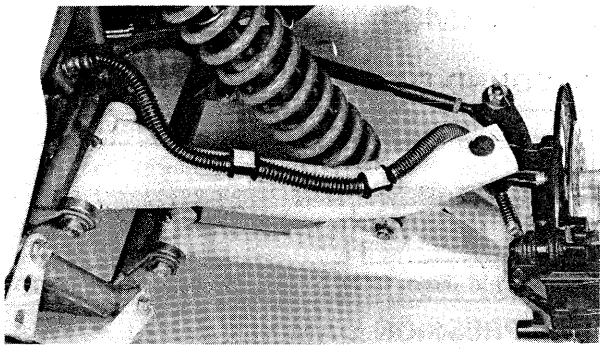


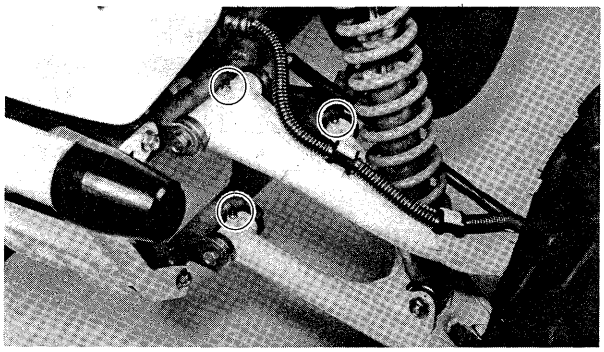
4. Apply:
   - Lithium base grease
   Lightly grease to the bushings and bolts.
5. Install:
   - Front shock absorber

NOTE:

Be sure to position the bolts (Upper and lower) ①, ② so that the bolt head face backward.

6. Adjust:
   - Front shock absorber
   Refer to "CHAPTER 2. FRONT AND REAR SHOCK ABSORBER ADJUSTMENT" section.
7. Install:
   - Steering knuckles
   - Tie-rods
   Refer to "STEERING KNUCKLE AND TIE-ROD ENDS — INSTALLATION" section.
8. Install:
   - Front hubs
   - Front brake caliper
   - Front wheels
   Refer to "FRONT WHEEL — INSTALLATION" section.





WARNING:

Make sure the brake hoses are properly routed, and are not damage or twisted.

9. Lubricate:
   - Pivot points (Front arms)
     Use a grease gun.

Lithium Base Grease

10. Install:
    - Stay (Exhaust pipe)
    - Silencer
    - Spring
    - Rear fender
    - Seat

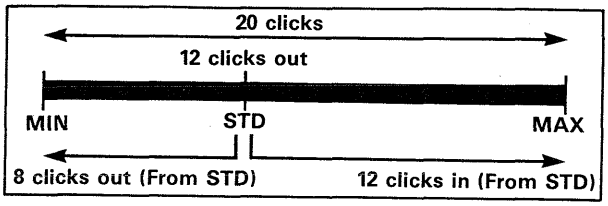
Stay (Exhaust Pipe):
25 Nm (2.5 m•kg, 18 ft•lb)
Silencer:
35 Nm (3.5 m•kg, 25 ft•lb)

REAR SHOCK ABSORBER AND SWINGARMS

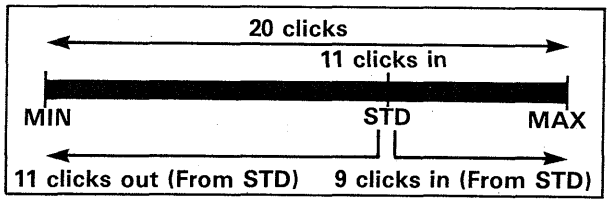
① Damping adjuster (Rebound)
② Damping adjuster (Compression)
③ Soft
④ Hard
⑤ Thrust cover
⑥ Bushing
⑦ Collar
⑧ Connecting rod
⑨ Relay arm
⑩ Rear shock absorber assembly
⑪ Bearing
⑫ Chain guide
⑬ Oil seal
⑭ Plane washer

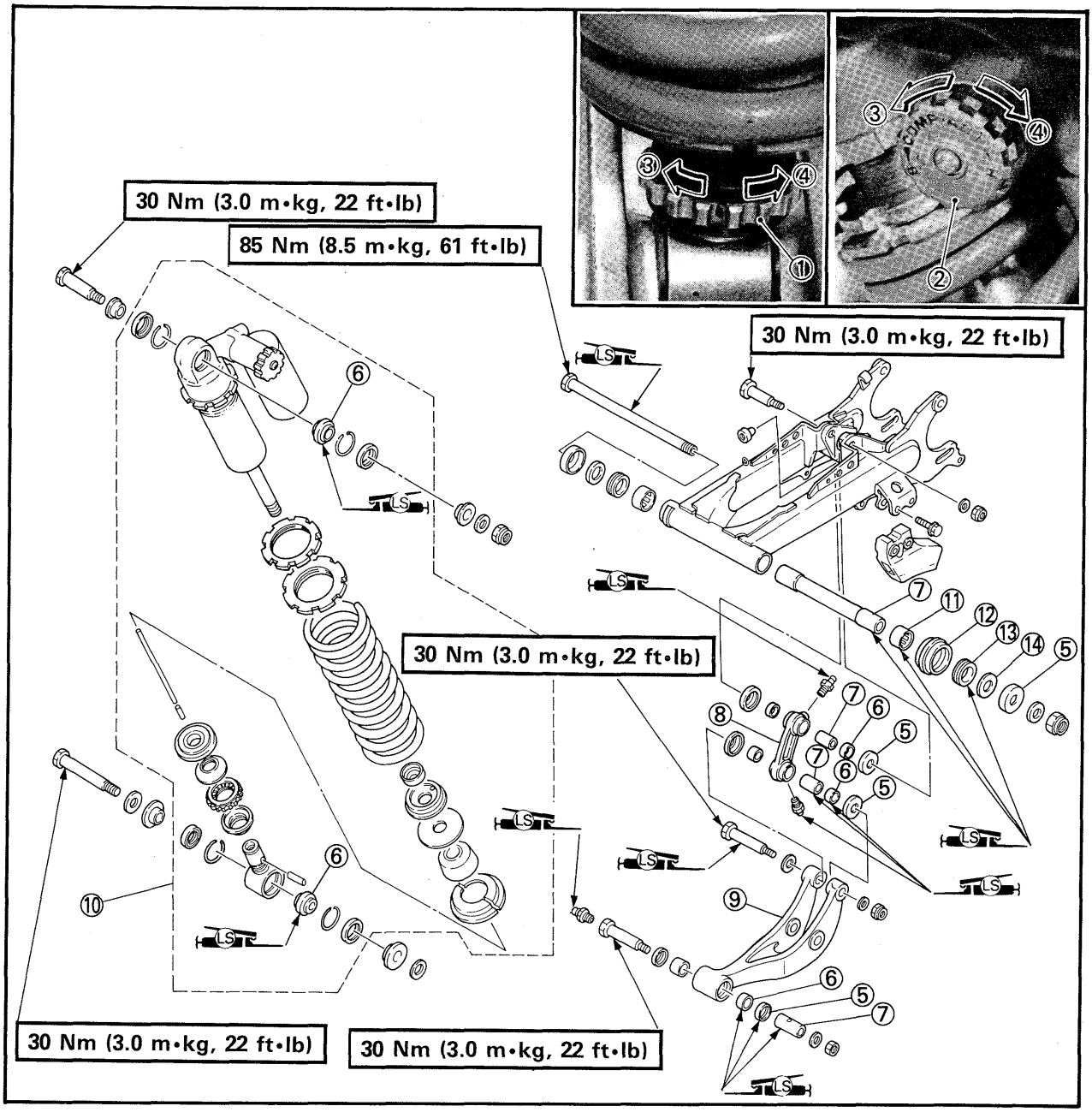
SPRING PRELOAD: (INSTALLED LENGTH)	
STANDARD LENGTH	218.5 mm (8.6 in)
MINIMUM LENGTH	210.5 mm (8.3 in)
MAXIMUM LENGTH	225.5 mm (8.8 in)

REBOUND DAMPING



COMPRESSION DAMPING





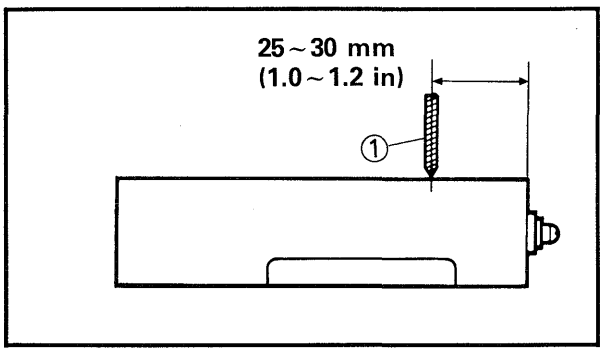
6

HANDLING NOTES

WARNING:

This shock absorber contains highly compressed nitrogen gas. Read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.

- **Do not tamper or attempt to open the cylinder assembly.**
- **Do not subject shock absorber to an open flame or other high heat. This may cause the unit to explode due to excessive gas pressure.**
- **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**
- **Take care not to scratch the contact surface of the piston rod with the cylinder; or oil could leak out.**
- **When scrapping the shock absorber, follow the instructions on disposal.**



NOTES ON DISPOSAL

Shock absorber disposal steps:

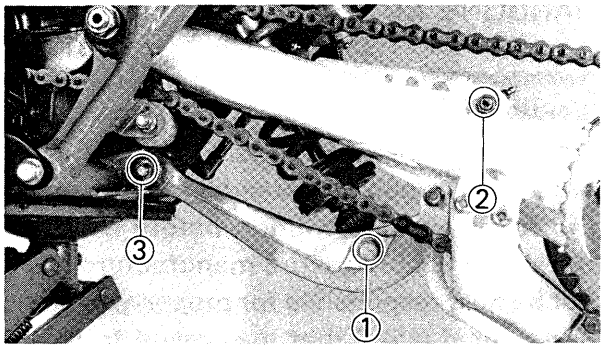
Gas pressure must be released before disposing of shock absorber. To do so, drill ① a 2 ~ 3 mm (0.08 ~ 0.12 in) hole through the gas chamber wall at a point 25 ~ 30 mm (1.0 ~ 1.2 in) from the bottom end of the gas chamber.

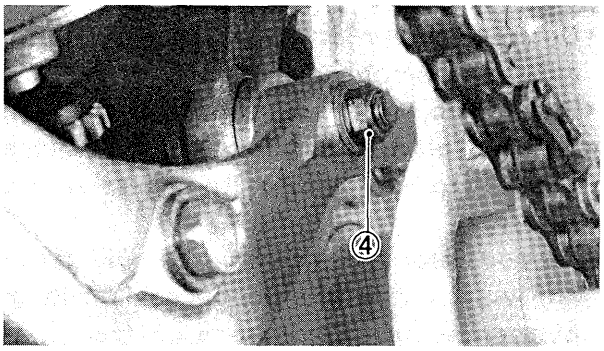
CAUTION:

Wear eye protection to prevent eye damage from escaping gas and/or metal chips.

6

REAR SHOCK ABSORBER AND SWINGARMS

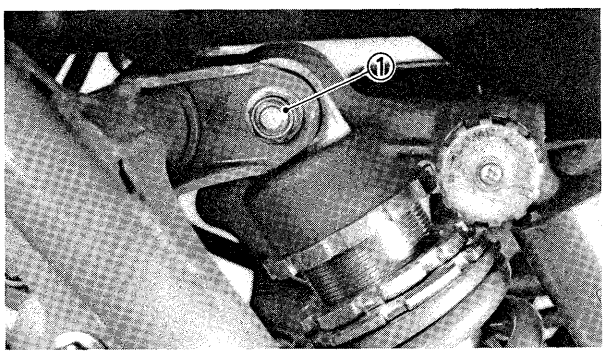




REMOVAL

Shock Absorber

1. Elevate rear wheels by placing a suitable stand under the rear of the frame.
2. Remove:
   - Bolt (Shock absorber-lower) ①
   - Bolt (Connecting rod) ②
   - Bolt (Relay arm) ③, ④
   - Thrust covers
   - Collars
   - Relay arm
   - Connecting rod

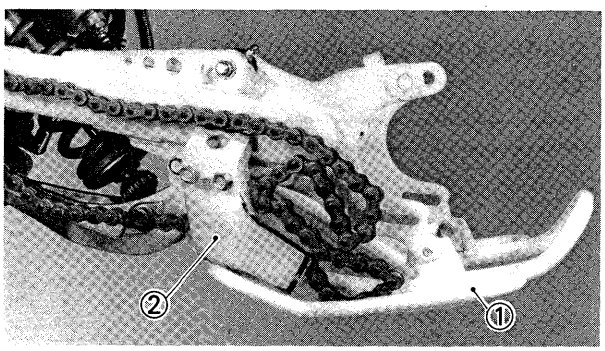


3. Remove:
   - Bolt (Shock absorber-upper) ①
   - Shock absorber

Swingarm

1. Remove:
   - Rear wheels
   - Rear wheel hubs
   - Rear axle
   - Rear axle hub

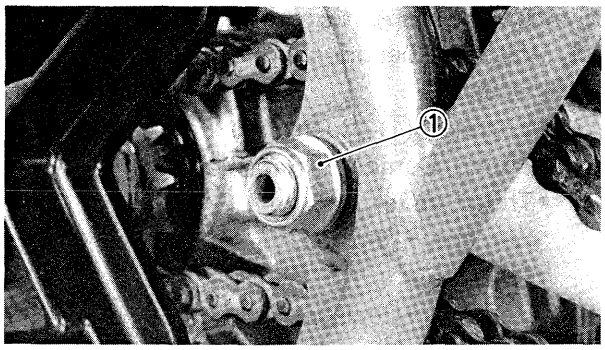
   Refer to "REAR WHEEL AND REAR AXLE — REMOVAL" section.



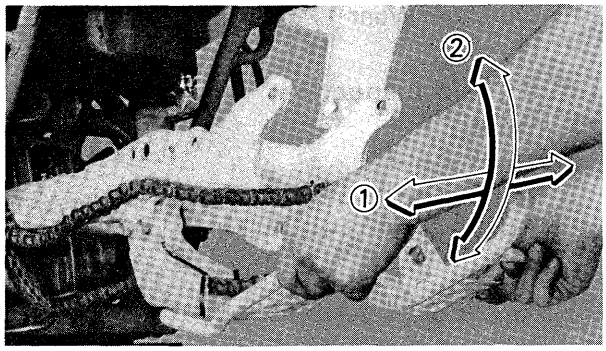
2. Remove:
   - Rear hub protector ①
   - Drive chain

   Refer to "DRIVE CHAIN LUBRICATION" section.
   - Chain guide ②

6



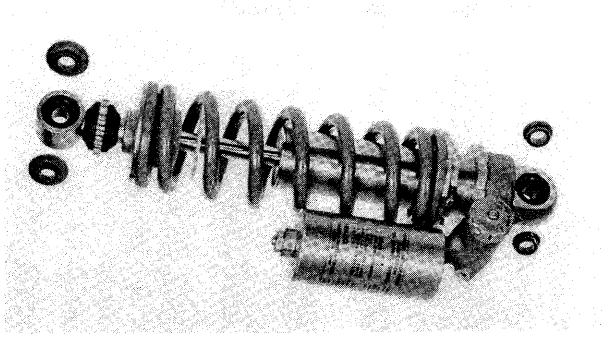
3. Remove:
   - Nut (Pivot shaft) ①
   - Pivot shaft
   - Swingarm
   - Thrust covers
   - Bushing
   - Bearings



FREE PLAY INSPECTION

1. Check:
   - Swingarm (Side play) ①
     Out of specification→Replace swingarm or bearings.
   - Swingarm up and down movement ②
     Tightness/Binding/Rough spots→Replace bearings.

Free play inspection step:
- Remove the rear wheel and rear axle.
- Remove the shock absorber and swingarm securing bolt.
- Inspect swingarm side play by moving it from side to side. (There should be on noticeable side play)
- Inspect swingarm up and down movement by moving it up and down.

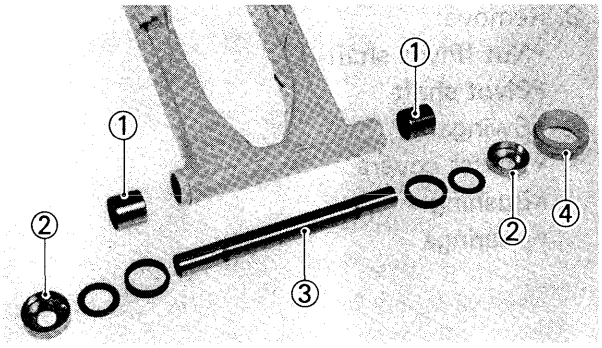


INSPECTION

Rear Shock Absorber Inspection

1. Inspect:
   - Shock absorber rod
     Bends/Damage→Replace the shock absorber assembly.

2. Inspect:
   - Shock absorber
     Oil leaks/Gas leaks→Replace the shock absorber assembly.
   - Spring
     Fatigue→Replace the shock absorber assembly.
     Move the spring up and down.

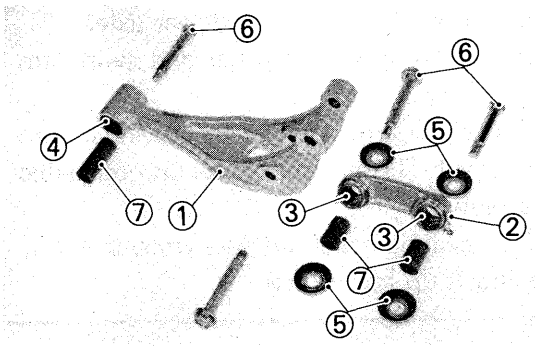


Swingarm Inspection

1. Wash the bearings in a solvent.
2. Inspect:
   - Bearings ① (Race/Balls)
     Pitting/Damage→Replace.
   - Thrust cover ②
     Damage→Replace.
   - Collar ③
     Damage→Replace.
   - Protector ④
     Damage/Wear→Replace.

Drive Chain Inspection

1. Inspect:
   - Drive chain
     Refer to "CHAPTER 2. DRIVE CHAIN AND SPROCKET INSPECTION" section.



Swingarm Linkage Inspection

1. Inspect:
   - Relay arm ①
   - Connecting rod ②
   - Bushings ③
   - Oil seals ④
     Damage/Wear→Replace.
   - Dust seal ⑤
   - Bolt ⑥
   - Collar ⑦
     Damage/Wear→Replace.

6

INSTALLATION

When installing the rear shock absorber and swingarm, reverse the removal procedures. Note the following points.

1. Lubricate:
   - Bearings
   - Oil seals
   - Collars
   - Pivot shafts

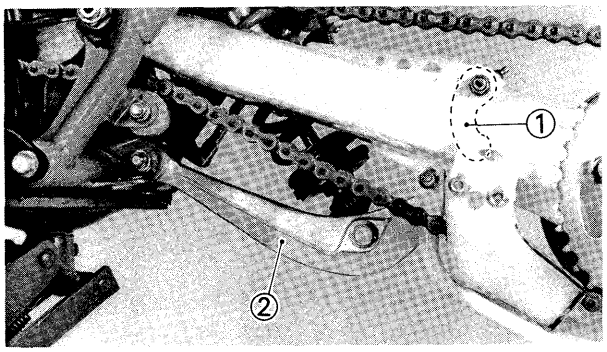
Lithium Base Waterproof Wheel Bearing Grease

2. Install:
   - Swingarm
3. Tighten:
   - Pivot shaft

Pivot Shaft:
85 Nm (8.5 m•kg, 61 ft•lb)

4. Check:
   - Swingarm (Side play)
   - Swingarm (Vertical movement)

   Refer to "FREE PLAY INSPECTION" section.
5. Install:
   - Drive chain
   - Shock absorber
6. Tighten:
   - Bolt (Shock absorber-upper)



Bolt (Shock Absorber-Upper):
30 Nm (3.0 m•kg, 22 ft•lb)

7. Install:
   - Connecting rod ①
   - Relay arm ②

Connecting Rod:
30 Nm (3.0 m•kg, 22 ft•lb)
Relay Arm:
30 Nm (3.0 m•kg, 22 ft•lb)

8. Tighten:
   - Bolt (Shock absorber-lower)

Bolt (Shock Absorber-Lower):
30 Nm (3.0 m•kg, 22 ft•lb)

9. Install:
   - Rear axle
   - Rear wheel hubs
   - Rear wheels

   Refer to "REAR WHEEL AND REAR AXLE — INSTALLATION" section

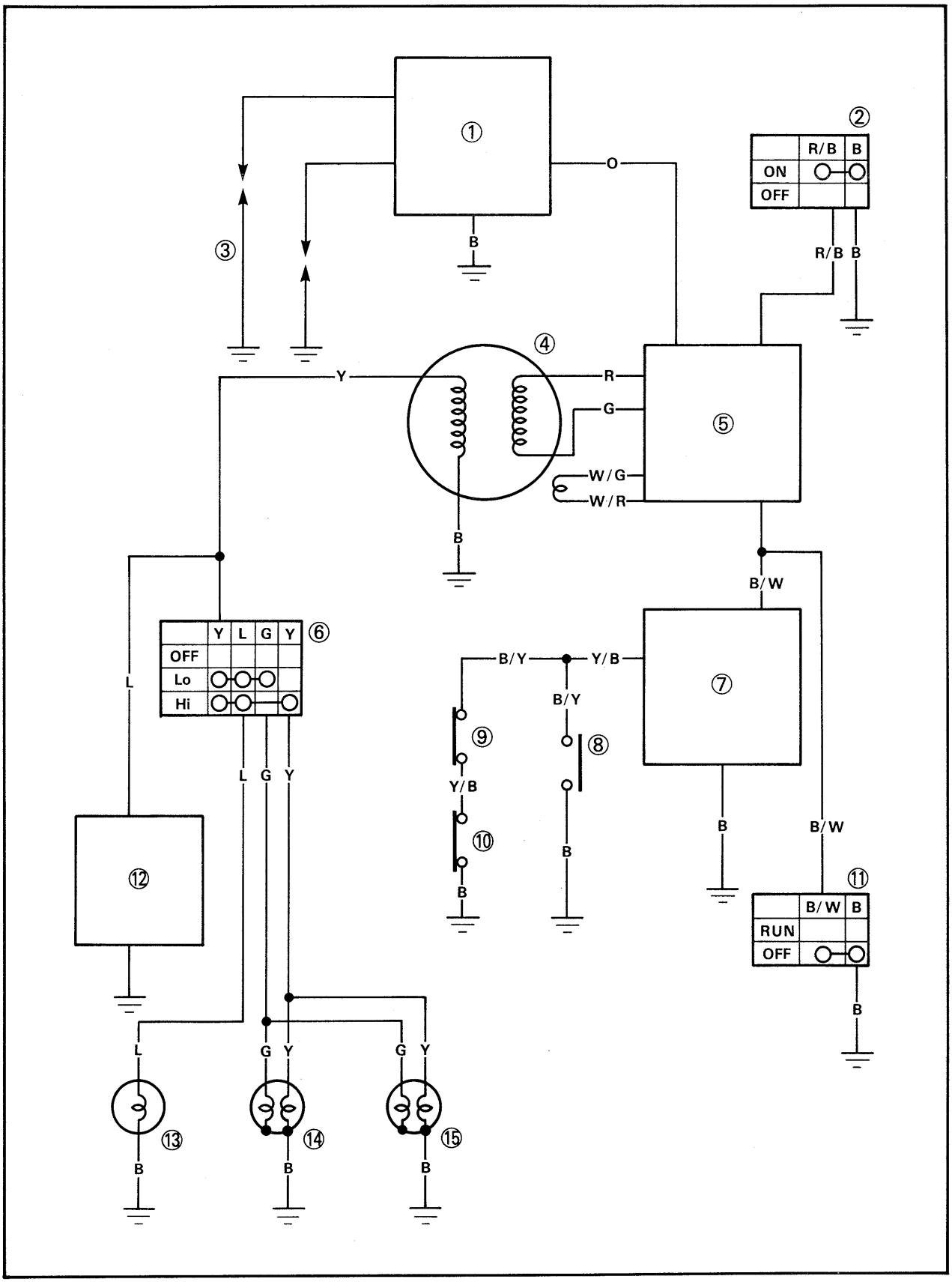
10. Adjust:
    - Drive chain slack

    Refer to "CHAPTER 2. DRIVE CHAIN SLACK ADJUSTMENT" section.

CHAPTER 7
ELECTRICAL

ELECTRICAL

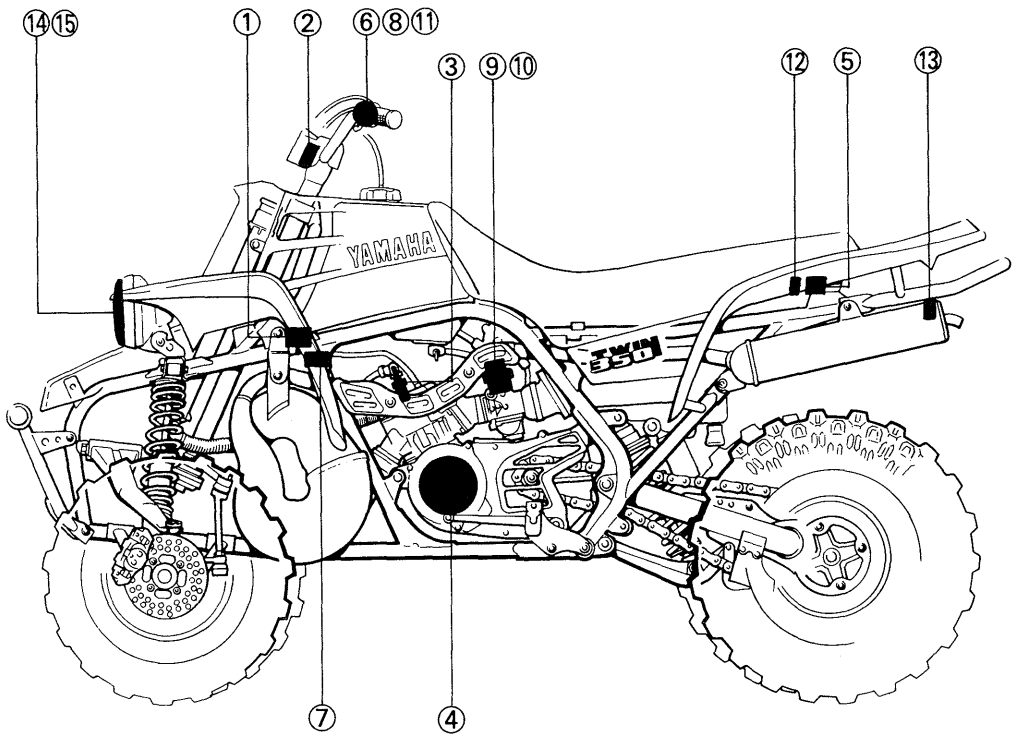
YFZ350T CIRCUIT DIAGRAM



① Ignition coil
② Main switch
③ Spark plug
④ CDI magneto
⑤ CDI unit
⑥ "LIGHTS" (Dimmer) switch
⑦ T.O.R.S. (Throttle override system) control unit
⑧ Throttle switch
⑨ Carburetor switch (Left)
⑩ Carburetor switch (Right)
⑪ "ENGINE STOP" switch
⑫ Voltage regulator
⑬ Taillight
⑭ Headlight (Left)
⑮ Headlight (Right)

COLOR CODE

B	Black	B/W	Black/White
R	Red	R/W	Red/White
L	Blue	W/G	White/Green
Y	Yellow	W/R	White/Red
G	Green	G/L	Green/Blue
O	Orange	R/B	Red/Black
W	White	Y/B	Yellow/Black
Br	Brown	B/Y	Black/Yellow

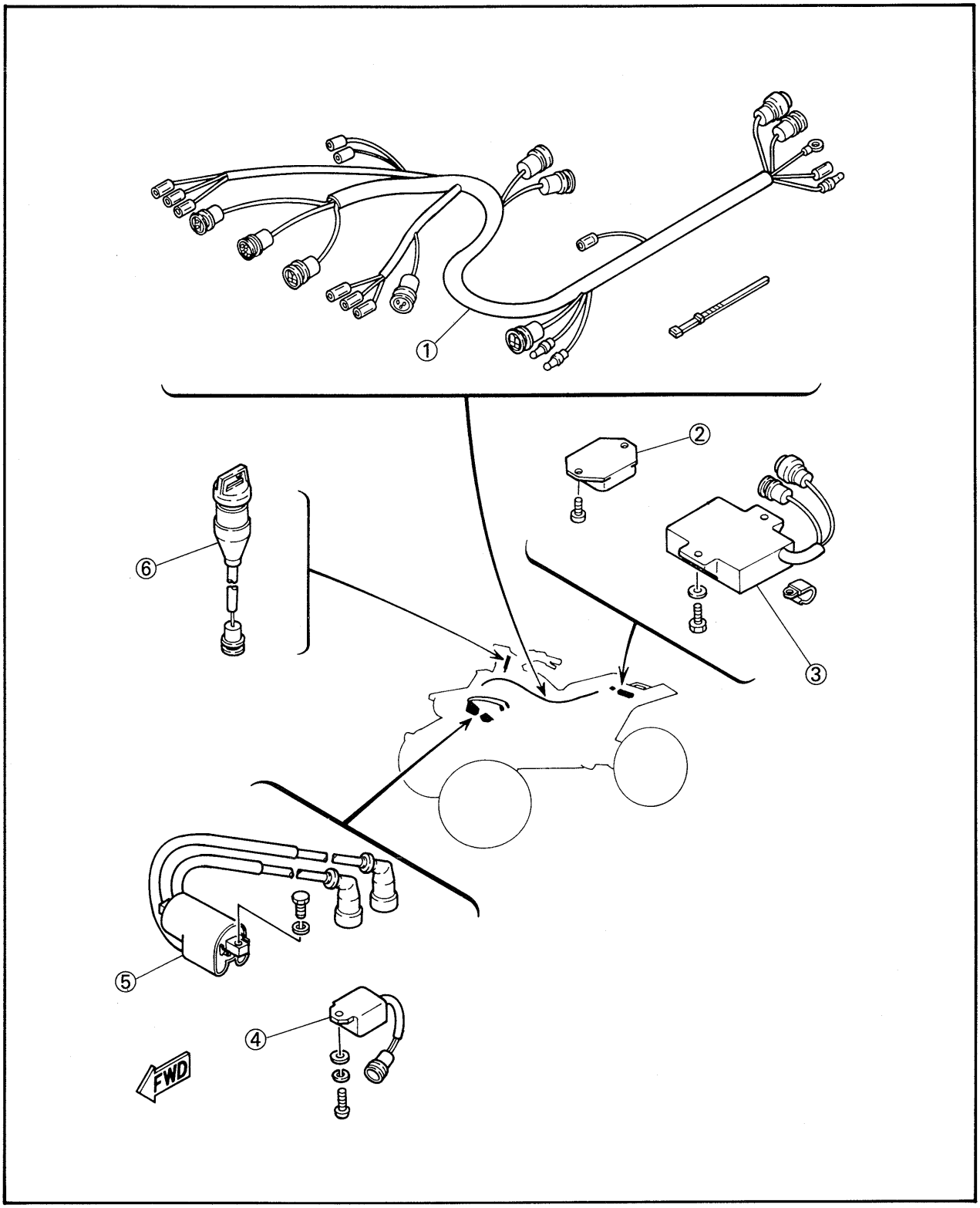


7

ELECTRICAL COMPONENTS

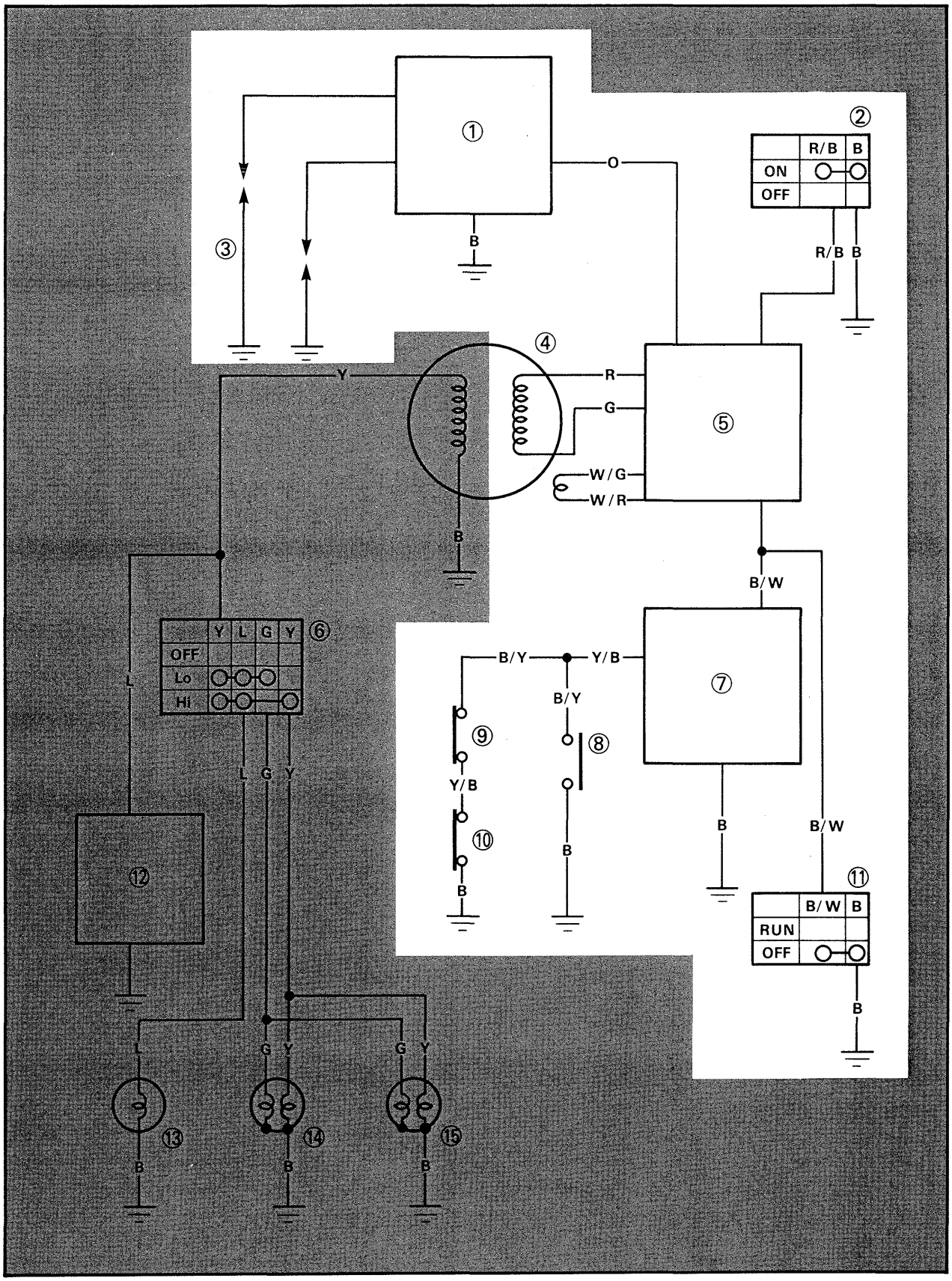
① Wireharness
② Voltage regulator
③ CDI unit
④ T.O.R.S. control unit
⑤ Ignition coil
⑥ Main switch

SPECIFICATIONS	RESISTANCE
IGNITION COIL:	
PRIMARY	0.28 ~ 0.38Ω
SECONDARY	4.7 ~ 7.1 kΩ
PICK-UP COIL	94 ~ 140Ω
SOURCE COIL	13.7 ~ 20.5Ω
LIGHTING COIL	0.26 ~ 0.38Ω



IGNITION SYSTEM

CIRCUIT DIAGRAM

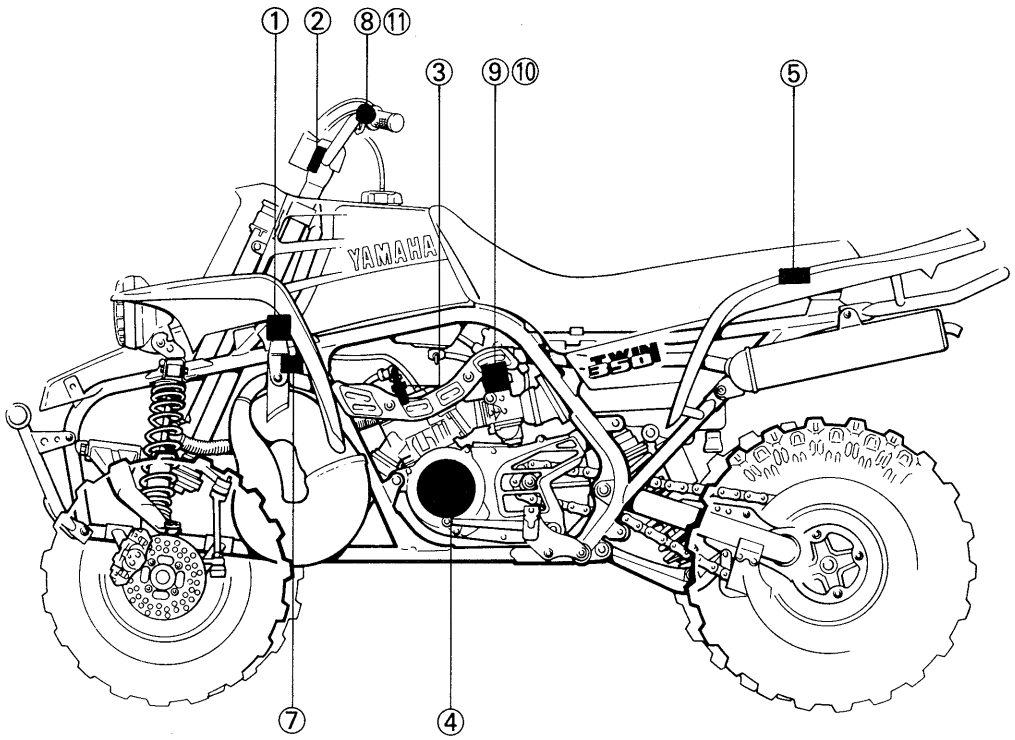


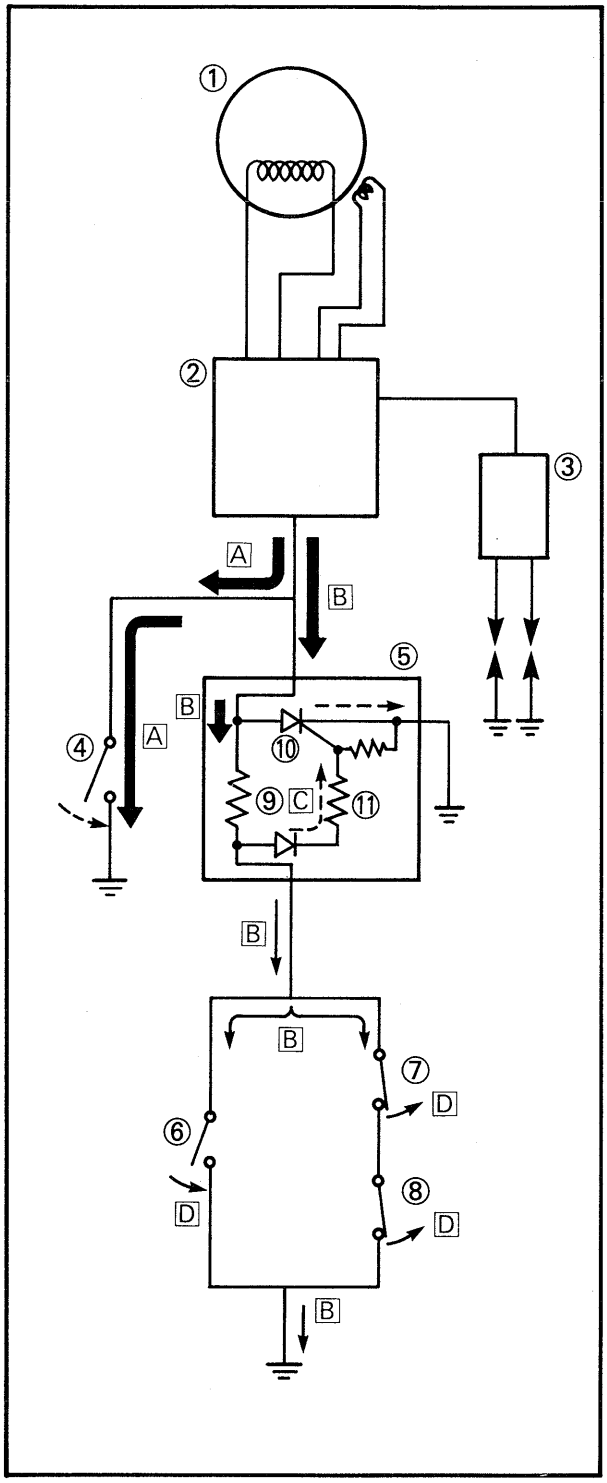
Aforementioned circuit diagram shows ignition circuit in circuit diagram.

NOTE:

For the encircled numbers and color codes, see page 7-2.

① Ignition coil
② Main switch
③ Spark plug
④ CDI magneto
⑤ CDI unit
⑦ T.O.R.S. control unit
⑧ Throttle switch
⑨ Carburetor switch (Left)
⑩ Carburetor switch (Right)
⑪ "ENGINE STOP" switch





THROTTLE OVERRIDE SYSTEM (T.O.R.S.)

The ignition circuit on this model consist of the CDI magneto, CDI unit, ignition coil, spark plug, engine stop switch, T.O.R.S. control unit, throttle switch and carburetor switches.

When the engine stop switch ④ is turned to "STOP", the engine stop control current [A] flows to the ground through it; then, the engine will not start.

Operation of T.O.R.S.

1) Current [B] flows into the T.O.R.S. control unit ⑤, where it is decreased by resistance ⑨. The current then flows into the carburetor switches ⑦ and ⑧ or throttle switch ⑥. As a result, no current flows into the thyristor ⑩, thereby keeping the engine running.

2) If the carburetor and throttle switches ⑥, ⑦ and ⑧ are all turned off, the current [C] from the CDI unit flows into the thyristor ⑩, which is thus turned on, thereby grounding the engine stop control current [B] of the CDI unit.

① CDI magneto
② CDI unit
③ Ignition coil
④ "ENGINE STOP" switch
⑤ T.O.R.S. control unit
⑥ Throttle switch
⑦ Carburetor switch (Left)
⑧ Carburetor switch (Right)
⑨ Resistance
⑩ Thyristor
⑪ Resistance
[D] At accelerating throttle

7

TROUBLESHOOTING

Troubleshooting 1.

NOTE:

Before this troubleshooting, remove the seat, front fender and rear fender.

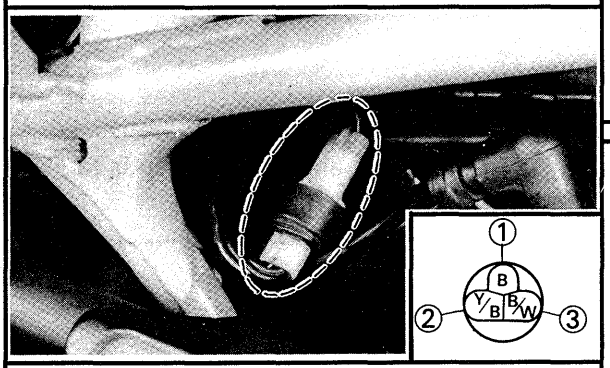
IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK).

1. Throttle lever free play check
   - Check the throttle lever free play. Refer to "CHAPTER 2. THROTTLE LEVER ADJUSTMENT" section.

FAULTY → Adjust the throttle lever free play.

OK ↓

2. Cancellation of the T.O.R.S.
   - Disconnect the T.O.R.S. control unit coupler (Black ①, Yellw/Black ②, Black/White ③).



OK → Go to the Troubleshooting 2.

- Start the engine.

ENGINE DOES NOT RUN ↓

3. Spark plug inspection
   - Check the spark plug condition. Refer to "CHAPTER 2. SPARK PLUG INSPECTION" section.

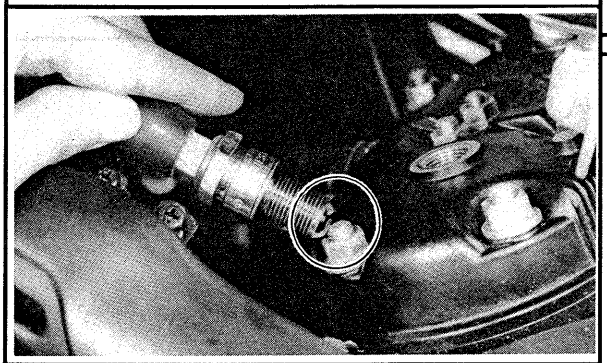
FAULTY → Replace or regap spark plug.

OK ↓

*

*

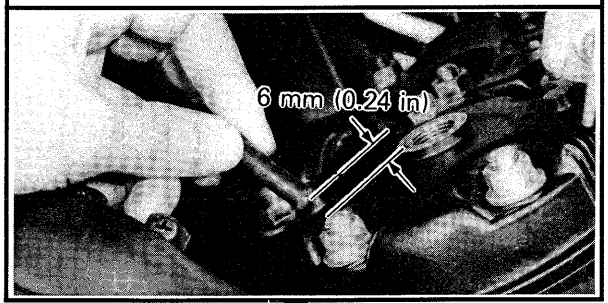
4. Ignition spark test (With spark plug)
   - Install the spark plug to the plug cap.
   - Ground the spark plug to the cylinder head.
   - Turn the main switch to "ON" and "ENGINE STOP" switch to "RUN", then, shift the gear in neutral and set the parking brake.
   - Kick the kick crank forcefully.
   - Check the ignition spark condition.



SPARK → Ignition circuit is good.

NO SPARK

5. Ignition spark gap test (Without spark plug and cap)
   - Remove the spark plugs and plug caps.
   - Hold the spark plug lead 6 mm (0.24 in) from the cylinder head.
   - Repeat the aforementioned test.
   - Check the ignition spark condition.



SPARK → Spark plug and/or plug cap is faulty. Replace faulty part(s).

NO SPARK

6. "ENGINE STOP" and main switches conduct check.
   - Check the "ENGINE STOP" and main switches for continuity. Refer to "SWITCHES TEST" section.

FAULTY → "ENGINE STOP" and/or main switches is faulty. Replace faulty part(s).

OK

*

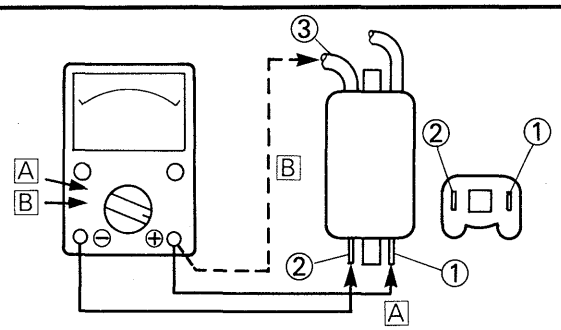
7

*

7. Ignition coil resistance test
- Disconnect the ignition coil leads (Orange ① and Black ②) and spark plug lead ③.
- Connect the Pocket Tester (YU-03112) as shown.
- Measure the primary and secondary coil resistances.

Primary Coil Resistance A:
0.28~0.38Ω at 20°C (68°F)
Secondary Coil Resistance B:
4.7~7.1 kΩ at 20°C (68°F)

OUT OF SPECIFICATION → Ignition coil is faulty. Replace it.

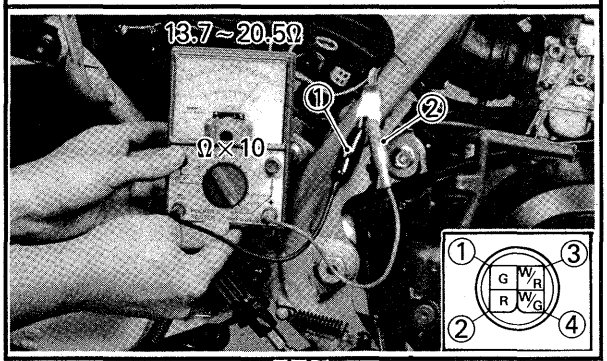


BOTH RESISTANCES MEET SPECIFICATIONS

8. Source coil resistance test
- Disconnect the CDI magneto coupler (Green ①, Red ②, White/Red ③ and White/Green ④) from the wireharness.
- Connect the Pocket Tester (YU-03112) to the CDI magneto leads.
- Measure the source coil resistance.

Source Coil Resistance
(Green ① – Red ②):
13.7~20.5Ω at 20°C (68°F)

OUT OF SPECIFICATION → Source coil is faulty. Replace stator assembly.



OK

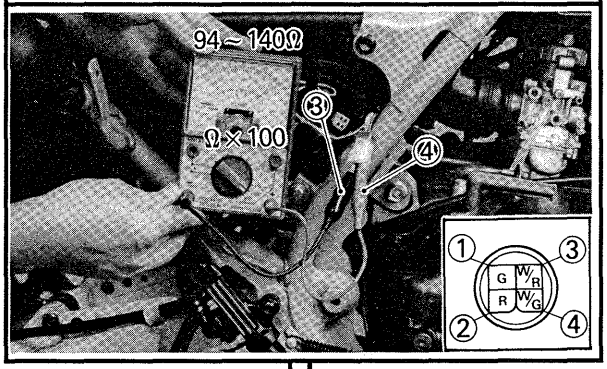
*

7

*

9. Pickup coil resistance test
   - Disconnect the CDI magneto coupler (Green ①, Red ②, White/Red ③ and White/Green ④) from the wireharness.
   - Connect the Pocket Tester (YU-03112) to the pickup coil leads.
   - Measure the pickup coil resistance.

Pickup Coil Resistance
(White/Red ③ — White/Green ④)
94 ~ 140Ω at 20°C (68°F)



OUT OF SPECIFICATION → Pickup coil is faulty. Replace stator assembly.

BOTH RESISTANCES MEET SPECIFICATIONS

10. Check entire ignition system for connections.
    - Refer to "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

OK

CDI unit is faulty. Replace it.

Troubleshooting 2. (T.O.R.S.)

NOTE:

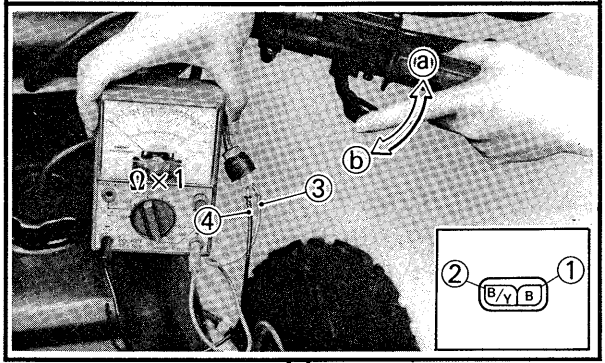
Before this troubleshooting 2., troubleshooting 1. should be performed.

1. Throttle lever switch test
   - Disconnect the throttle lever switch coupler (Black ① and Black/Yellow ②) from the wireharness.
   - Connect the positive lead ③ of the Pocket Tester (YU-03112) to the Black/Yellow lead ②.
   - Connect the negative lead ④ of the Pocket Tester to the Black lead ①.
   - Check the switch for continuity.

BAD CONDITION → Throttle lever switch is faulty. Replace it.

Throttle Lever	Good Condition	Bad Condition		
Open ⓐ	○	×	○	×
Close ⓑ	×	×	○	○

○: Continuity ×: Discontinuity



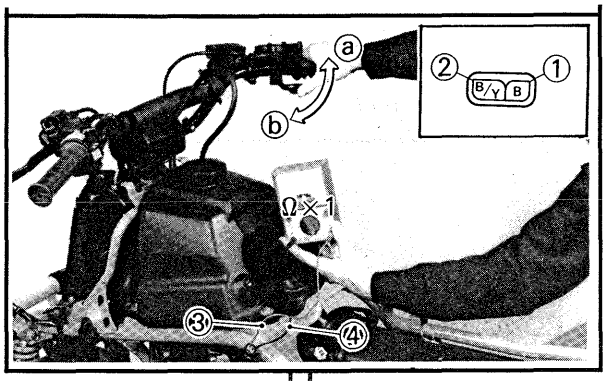
GOOD CONDITION

2. Carburetor switches test
   - Disconnect the carburetor switch coupler (Black ① and Black/Yellow ②) from the wireharness.
   - Connect the positive lead ③ of the Pocket Tester (YU-03112) to the Black/Yellow lead ②.
   - Connect the negative lead ④ of the Pocket Tester to the Black lead ②.
   - Check the switch for continuity.
   - Repeat the above steps for the another carburetor switch.

BAD CONDITION → Carburetor switch(s) is faulty. Replace the carburetor switch assembly(s).

Carburetor Switch	Good Condition	Bad Condition		
Open ⓐ	×	×	○	○
Close ⓑ	○	×	○	×

○: Continuity ×: Discontinuity



GOOD CONDITION

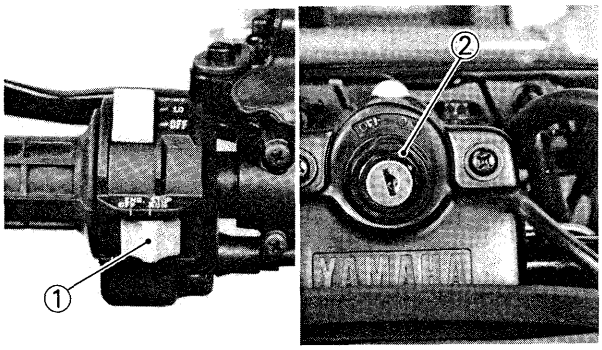
POOR CONNECTION

3. Check entire T.O.R. System for connections.
   • Refer to "WIRING DIAGRAM" section.

Correct.

OK

T.O.R.S. control unit is faulty.
Replace it.



SWITCHES TEST

Switches may be checked for continuity with a Pocket Tester (YU-03112) on the "Ohm × 1" position.

① "ENGINE STOP" switch
② Main switch

Main Switch

Switch Position	Lead Color			
	R/W	B/R	R	Br
OFF				
ON	○—○		○—○	

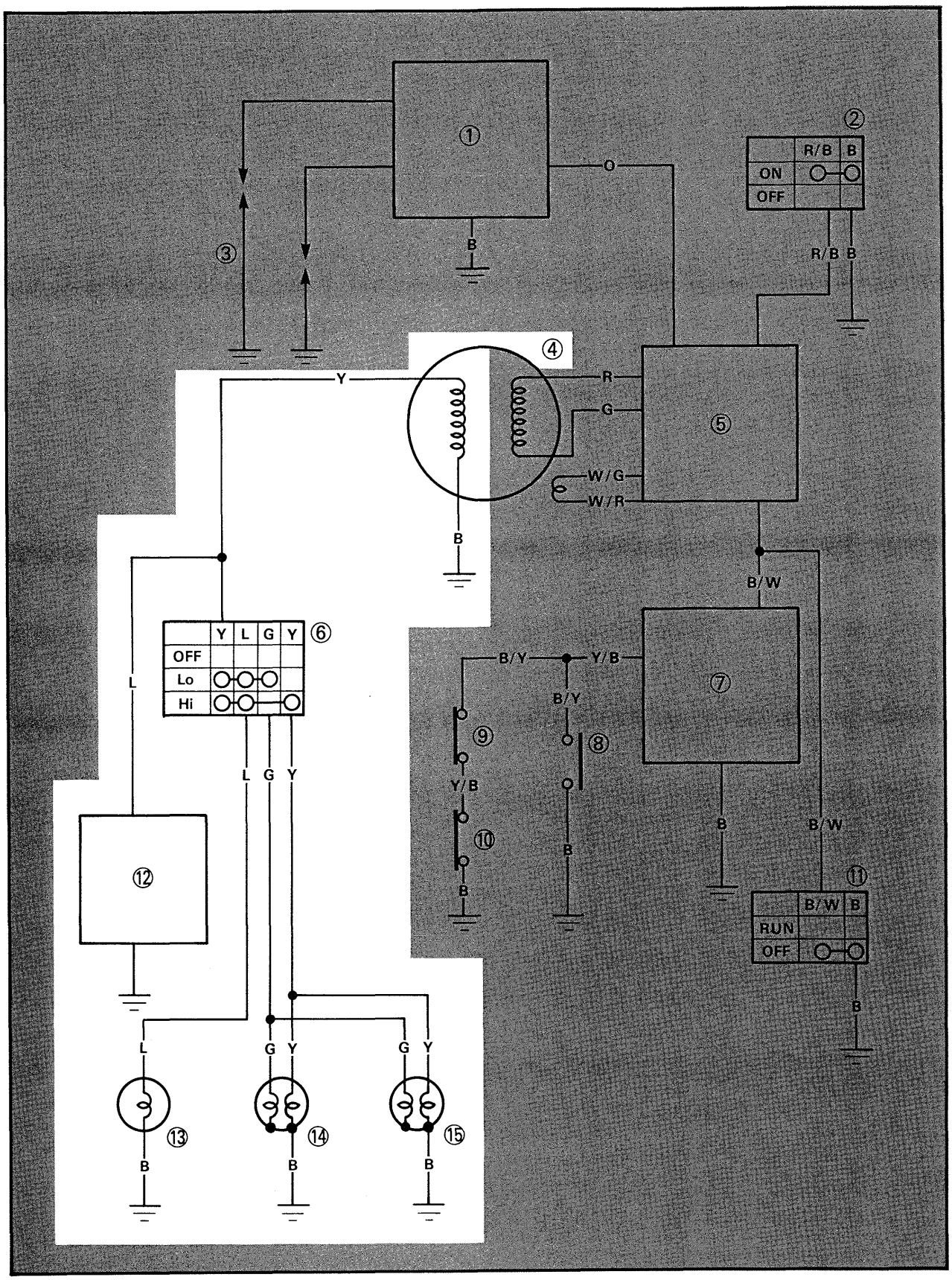
"ENGINE STOP" Switch

Switch Position	Lead Color	
	B/W	B
RUN		
OFF	○—	—○

7

LIGHTING SYSTEM

CIRCUIT DIAGRAM

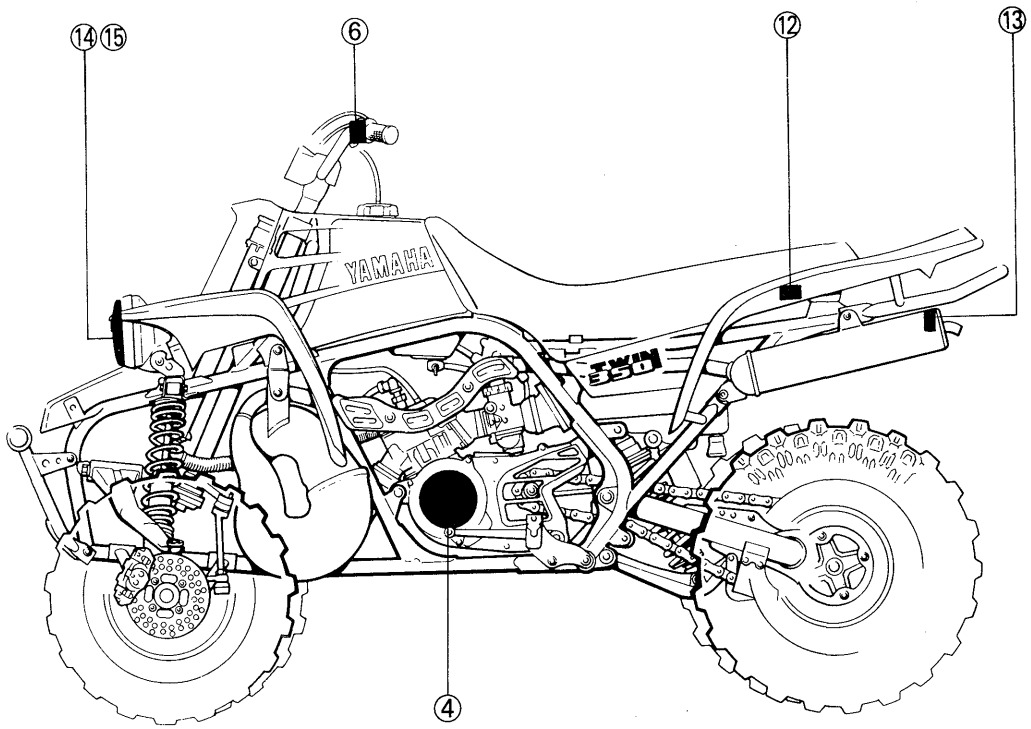


Aforementioned circuit diagram shows lighting circuit in circuit diagram.

NOTE:

For the encircled numbers and color codes, see page 7-2.

④ CDI magneto
⑥ "LIGHTS" (Dimmer) switch
⑫ Voltage regulator
⑬ Taillight
⑭ Headlight (Left)
⑮ Headlight (Right)



7

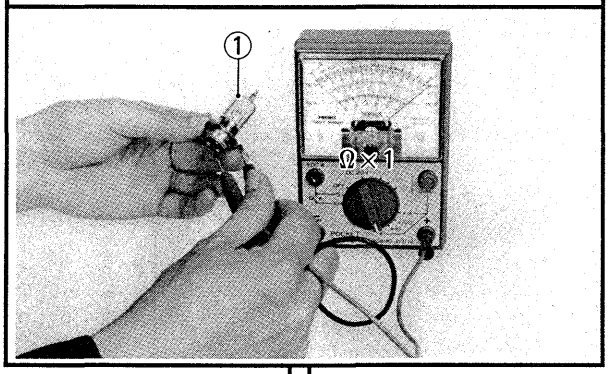
TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the front fender and rear fender.

HEADLIGHT DOES NOT COME ON.

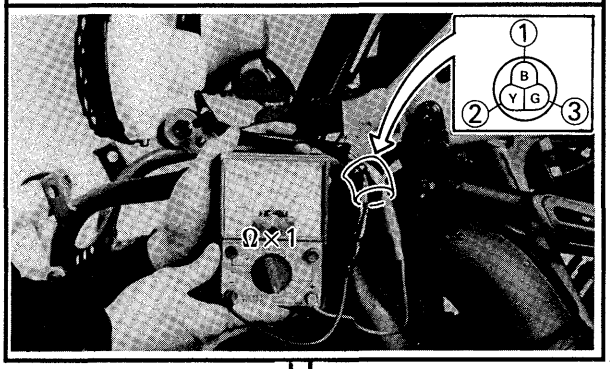
1. Headlight bulb conduct check
   - Remove the headlight bulb ①. Refer to "CHAPTER 2. HEADLIGHT BULB REPLACEMENT" section.
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.



CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

2. Headlight bulb socket conduct check
   - Install the bulb to the headlight socket.
   - Connect the Pocket Tester (YU-03112) to the headlight leads (Black ①, Yellow ② and Green ③), and check it for continuity.



CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb socket is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

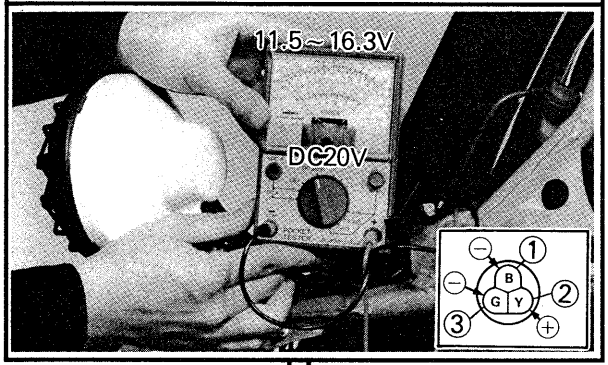
*

7

*

3. Lighting voltage test
- Connect the Pocket Tester (YU-03112) to the headlight leads (Black ①, Yellow ② and Green ③).
- Turn the "LIGHTS" (Dimmer) switch to "LO" or "HI" position.
- Start the engine and accelerate to specific engine revolution.
- Measure the lighting voltage.

Lighting Voltage:
11.5V at 2,500 r/min
16.3V at 8,000 r/min



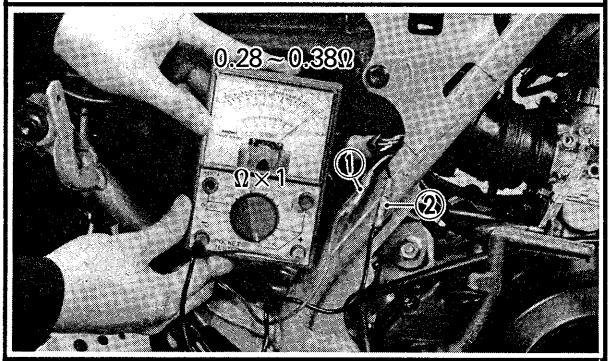
MORE THAN 16.3V AT 8,000 r/min

Voltage regulator is faulty.
Replace it.

LESS THAN 11.5V AT 2,500 r/min

4. Lighting coil resistance test
- Disconnect the CDI magneto leads (Yellow ① and Black ②) from the wire-harness.
- Connect the pocket tester (YU-03112) to the CDI magneto leads.
- Measure the lighting coil resistance.

Lighting Coil Resistance
(Yellow ① — Black ②):
0.28~0.38Ω at 20°C (68°F)



OUT OF SPECIFICATION

OK

Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

Lighting coil is faulty.
Replace stator assembly.

OK

4. "LIGHTS" (Dimmer) switch conduct check
- Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SWITCHES TEST" section.

FAULTY

OK

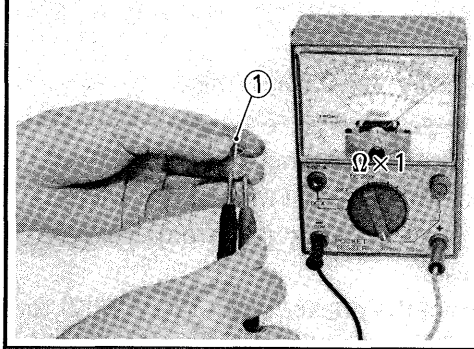
Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

"LIGHTS" (Dimmer) switch is faulty. Replace it.

7

TAILLIGHT DOES NOT COME ON.

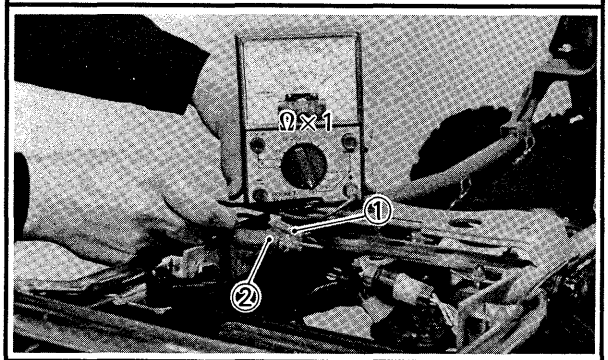
1. Taillight bulb conduct check
   - Remove the taillight bulb ①.
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.



CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

2. Taillight bulb socket conduct check
   - Install the bulb to the taillight socket.
   - Connect the Pocket Tester (YU-03112) to the taillight leads (Black ①, Blue ②), and check it for continuity.



CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb socket is faulty. Replace it.

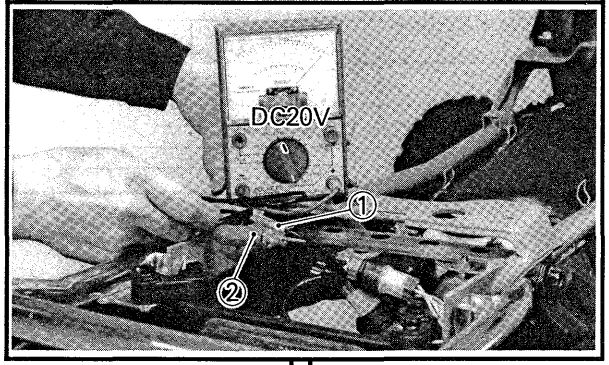
CONTINUITY EXISTS ON BOTH CIRCUIT

*

*

3. Lighting voltage test
   - Connect the Pocket Tester (YU-03112) to the taillight leads (Black ①, Blue ②).
   - Start the engine and accelerate to specific engine revolution.
   - Measure the lighting voltage.

Lighting Voltage:
11.5V at 2,500 r/min
16.3V at 8,000 r/min



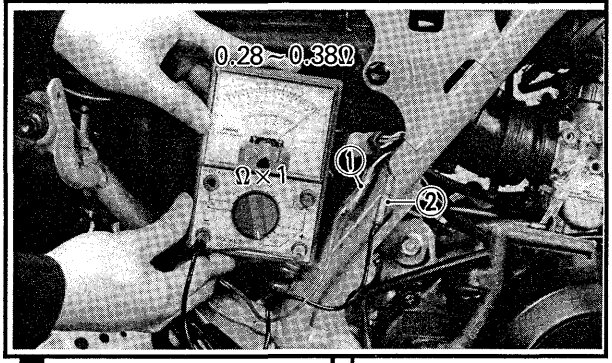
MORE THAN 16.3V AT 8,000 r/min

Voltage regulator is faulty.
Replace it.

LESS THAN 11.5V AT 2,500 r/min

4. Lighting coil resistance test
   - Disconnect the CDI magneto leads (Yellow ① and Black ②) from the wire-harness.
   - Connect the pocket tester (YU-03112) to the CDI magneto leads.
   - Measure the lighting coil resistance.

Lighting Coil Resistance
(Yellow ① — Black ②):
0.28~0.38Ω at 20°C (68°F)



OK

4. "LIGHTS" (Dimmer) switch conduct check
   - Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SWITCH TEST" section.

FAULTY

OK

Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

"LIGHTS" (Dimmer) switch is faulty. Replace it.

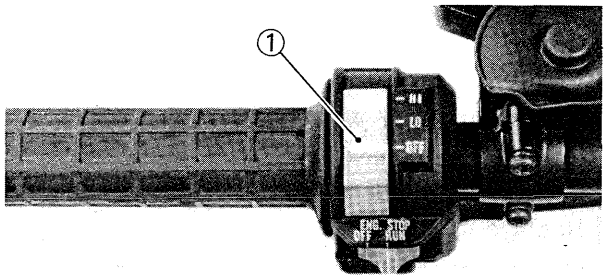
OK

Correct entire lighting system for connections.
- Refer to "WIRING DIAGRAM" section.

OUT OF SPECIFICATION

Lighting coil is faulty.
Replace stator assembly.

7



SWITCHES TEST

Switches may be checked for continuity with a Pocket Tester (YU-03112) on the "Ohm × 1" position.

① "LIGHTS" (Dimmer) switch

"LIGHTS" (Dimmer) Switch

Switch Position	Lead Color			
	Y	L	G	Y
OFF				
LO	○	○	○	
HI	○	○		○

CHAPTER 8.
APPENDICES

APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YFZ350T
Model Code Number	2GU
Engine Starting Number	2GU-000101
Vehicle Identification Number	JY42GU00*HC000101
DIMENSIONS:	
Overall Length	1,855 mm (73 in)
Overall Width	1,100 mm (43.3 in)
Overall Height	1,080 mm (42.5 in)
Seat Height	780 mm (30.7 in)
Wheelbase	1,280 mm (50.4 in)
Minimum Ground Clearance	135 mm (5.31 in)
BASIC WEIGHT:	
With Oil and Full Fuel Tank	182 kg (401 lb)
Minimum Turning Radius:	3,600 mm (142 in)
ENGINE:	
Engine Type	Liquid Cooled, 2-Stroke
Induction System	Reed Valve
Cylinder Arrangement	Forward Inclined Parallel 2-Cylinder
Displacement	347 cm^3
Bore × Stroke	64 × 54 mm (2.520 × 2.126 in)
Compression Ratio	6.5 : 1
Starting System	Kick Starter
LUBRICATION SYSTEM:	Premix
Premix Ratio	YAMALUBE "R" 24 : 1 CASTROL R30 20 : 1 CASTROL A545 20 : 1 CASTROL A747 20 : 1
Transmission Oil	SAE 10W30 type SE motor oil
OIL CAPACITY:	
Transmission Oil	
Periodic Oil Change	1.5 L (1.3 Imp qt, 1.6 US qt)
Total Amount	1.7 L (1.5 Imp qt, 1.8 US qt)
Radiator Capacity:	
(Including all Routes)	1.5 L (0.33 Imp gal, 0.40 US gal)
AIR FILTER:	Wet Type Element

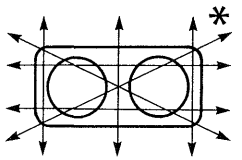
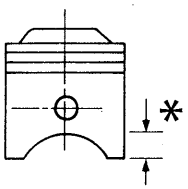
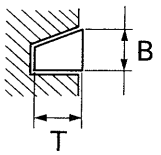
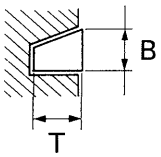
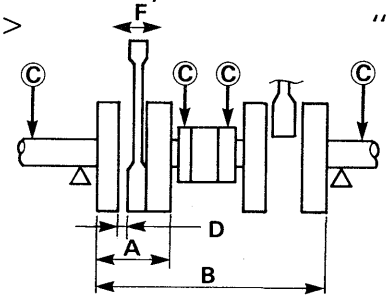
Model	YFZ350T	
FUEL:		
Type	Premix Premium Gasoline	
Capacity: Total	12 L (2.64 Imp gal, 3.17 US gal)	
Reserve Amount	2.5 L (2.2 Imp qt, 2.64 US qt)	
CARBURETOR:		
Type/Quantity	VM26SS/2	
Manufacturer	MIKUNI	
SPARK PLUG:		
Type	BR8ES	
Manufacturer	NGK	
Spark Plug Gap	0.7~0.8 mm (0.028~0.032 in)	
Clutch Type	Wet, Multiple-disc	
TRANSMISSION:		
Primary Reduction System	Helical Gear	
Primary Reduction Ratio	66/23 (2.869)	
Secondary Reduction System	Chain Drive	
Secondary Reduction Ratio	42/13 (3.230)	
Transmission Type	Constant Mesh 6-Speed	
Operation	Left Foot Operation	
Gear Ratio: 1st	32/13 (2.461)	
2nd	29/16 (1.812)	
3rd	27/18 (1.500)	
4th	25/20 (1.250)	
5th	23/22 (1.045)	
6th	21/24 (0.875)	
CHASSIS:		
Frame Type	Steel Tube Frame	
Caster Angle	9°	
Trail	40 mm (1.57 in)	
Tread (Standard): Rear	840 mm (33.1 in)	
Front	900 mm (35.4 in)	
Toe-in	0~10 mm (0~0.39 in)	
TIRE:		
Type	Tubeless	
Size: Front	AT21×7-10	
Rear	AT22×10-9	
Wear Limit	3 mm (0.12 in)	
TIRE PRESSURE:	Front	Rear
	30 kPa (0.3 kg/cm^2, 4.3 psi)	25 kPa (0.25 kg/cm^2, 3.6 psi)

SPECIFICATIONS

Model	YFZ350T
BRAKE:	
Front Brake Type	Dual Disc Brake
Front Brake Operation	Right Hand Operation
Rear Brake Type	Single Disc Brake
Rear Brake Operation	Right Foot Operation
Parking Brake Operation	Left Hand Operation
SUSPENSION:	
Front	Double Wishbone
Rear	Swingarm (Link Suspension)
SHOCK ABSORBER:	
Front	Coil Spring/Oil Damper
Rear	Coil-Gas Spring/Oil Damper
WHEEL TRAVEL:	
Front	220 mm (8.66 in)
Rear	220 mm (8.66 in)
ELECTRICAL:	
Ignition System	C.D.I.
Generator System	Flywheel Magneto
Headlight Type	Bulb Type
Bulb Watage × Quantity:	
Headlight	12V30W/30W × 2
Tail/Brake Light	12V3.8W/—W × 1

MAINTENANCE SPECIFICATIONS

Engine

Model	YFZ350T
CYLINDER HEAD: Warp Limit 	<0.03 mm (0.0012 in)> *Lines indicate straightedge measurement:
CYLINDER: Bore Size <Limit> Taper Limit Out of Round Limit	 64.00~64.02 mm (2.520~2.521 in) 64.1 mm (2.524 in) <0.05 mm (0.002 in)> <0.01 mm (0.0004 in)>
PISTON: Piston Size Measuring Point*  Piston Clearance Oversize: 1st 2nd	 63.94~64.00 mm (2.517~2.520 in) 10 mm (0.39 in) 0.060~0.065 mm (0.0024~0.0026 in) 64.25 mm (2.53 in) 64.50 mm (2.54 in)
PISTON RING: TOP RING: Type  Dimensions (B×T) End Gap (Installed) <Limit> Side Clearance (Installed) <Limit> 2ND RING: Type  Dimensions (B×T) End Gap (Installed) <Limit> Side Clearance <Limit>	 Keystone 1.2×2.6 mm (0.05×0.10 in) 0.30~0.45 mm (0.012~0.018 in) <0.5 mm (0.020 in)> 0.02~0.06 mm (0.0008~0.0024 in) <0.12 mm (0.0047 in)> Keystone 1.50×2.15 mm (0.06×0.08 in) 0.30~0.45 mm (0.012~0.018 in) <0.5 mm (0.020 in)> 0.02~0.06 mm (0.0008~0.0024 in) <0.12 mm (0.0047 in)>
CRANKSHAFT: Crank Width "A" Assembly Width "B" Runout Limit "C" Big End Side Clearance "D" Small End Free Play "E" <Limit> "F" 	 53.95~54.00 mm (2.124~2.126 in) 155.90~156.05 mm (6.138~6.144 in) <0.05 mm (0.0021 in)> 0.25~0.75 mm (0.0098~0.0295 in) 0.36~0.98 mm (0.0142~0.0386 in) <2.0 mm (0.08 in)>

SPECIFICATIONS

Model		YFZ350T
CLUTCH:		
Friction Plate: Thickness		3 mm (0.118 in)
Quantity		7 pcs
Wear Limit		<2.7 mm (0.106 in)>
Clutch Plate: Thickness		1.2 mm (0.047 in)
Quantity		6 pcs
Warp Limit		<0.05 mm (0.002 in)>
Clutch Spring: Free Length		36.4 mm (1.43 in)
Quantity		6 pcs
Minimum Length		34.4 mm (1.351 in)
Clutch Release Method		Inner Push, Cam Push
Push rod bending limit		<0.2 mm (0.008 in)>
TRANSMISSION:		
Main Axle Deflection Limit		<0.08 mm (0.0031 in)>
Drive Axle Deflection Limit		<0.08 mm (0.0031 in)>
SHIFTER:		
Shifter Type		Cam Drum
KICK STARTER:		
Kick Starter Type		Kick & Mesh Type
Kick clip Friction Force		0.8~1.3 kg (1.8~2.9 lb)
Air Filter Oil Grade		Foam-Air-Filter Oil or SAE10W30SE type motor oil
CARBURETOR:		
I.D. Mark		2GU 00
Fuel Level	(F.L)	
(With Special Tool)		0.5~1.5 mm (0.020~0.059 in)
Float Height	(F.H)	20~22 mm (0.80~0.88 in)
Main Jet	(M.J.)	#210
Main Air Jet	(M.A.J.)	ϕ1.6
Jet Needle	(J.N.)	5N7-3
Needle Jet	(N.J.)	O-8
Cutaway	(C.A.)	2.0
Pilot Outlet	(P.O.)	ϕ0.6
Pilot Jet	(P.J.)	#25
Bypass 1	(B.P.1.)	1.4
Air Screw	(A.S.)	2.0 turns out
Valve Seat Size	(V.S.)	2.8
Starter Jet	(G.S)	ϕ1.4
REED VALVE:		
Thickness		0.37~0.47 mm (0.0146~0.0185 in)
Valve Stopper Height		10.3~10.7 mm (0.406~0.421 in)
Valve Bending Limit		<0.5 mm (0.02 in)>

Model	YFZ350T
COOLING SYSTEM:	
Radiator Core Size:	
Width	210 mm (8.27 in)
Height	350 mm (13.8 in)
Thickness	32 mm (1.26 in)
Radiator Cap Opening Pressure	93 ~ 123 kPa (0.95 ~ 1.25 kg/cm^2, 13.5 ~ 17.8 psi)
Reservoir Tank Capacity	0.28 L (0.246 Imp qt, 0,296 US, qt)
Water Pump	
Type	Single-Suction Centrifugal Pump

Tightening torque

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m•kg	ft•lb	
Cylinder head	M 8×1.25	28	2.8	20	
Cylinder	M 8×1.25	28	2.8	20	
Spark plug	M14×1.25	20	2.0	14	
Reed valve	M 3×0.5	1	0.1	0.7	
Water pump cover	M 6×1.0	8	0.8	5.8	
Joint (Cylinder head)	M 6×1.0	12	1.2	8	
Reed valve assembly	M 6×1.0	10	1.0	7.2	
Primary drive gear	M16×1.0	65	6.5	47	
Clutch boss	M20×1.0	90	9.0	65	
Clutch spring	M 6×1.0	10	1.0	7.2	
Drive sprocket	M18×1.0	80	8.0	58	
Kick crank	M 8×1.25	25	2.5	18	
Shift pedal	M 6×1.0	14	1.4	10	
Flywheel magneto	M12×1.25	80	8.0	58	
Exhaust pipe	M 8×1.25	25	2.5	18	
Silencer	M 8×1.25	35	3.5	25	
Drain plug (Transmission)	M14×1.5	20	2.0	14	
(Coolant)	M 6×1.0	14	1.4	10	
Crankcase cover (R)	M 6×1.0	7	0.7	5.1	
(L)	M 6×1.0	7	0.7	5.1	
Crankcase (Lower)	M 8×1.25	25	2.5	18	
(Upper)	M 6×1.0	10	1.0	7.2	
Bearing stopper plate	M 6×1.0	14	1.4	10	◆B
Shift cam stopper plate	M 6×1.0	14	1.4	10	◆B
Stopper lever	M 6×1.0	10	1.0	7.2	◆B
Shift lever adjust screw	M 8×1.25	30	3.0	22	◆B

SPECIFICATIONS

Chassis

Model	YFZ350T
STEERING SYSTEM:	
Lock to Lock Angle:	
Left	38.0°
Right	38.0°
FRONT SUSPENSION:	
Cushion stroke	110 mm (4.33 in)
Suspension Spring Free Length	279.5 mm (11 in)
Spring Rate (K1)	34.3 N/mm (3.5 kg/mm, 196 lb/in)
(K2)	39.2 N/mm (4.0 kg/mm, 224 lb/in)
Stroke (K1)	Zero ~ 59.5 mm (Zero ~ 2.34 in)
(K2)	59.5 ~ 127.0 mm (2.34 ~ 5.00 in)
REAR SUSPENSION:	
Shock Absorber Travel	86 mm (3.39 in)
Spring Free Length	234.5 mm (9.23 in)
Fitting Length	218.5 mm (8.6 in)
Spring Rate (K1)	63.7 N/mm (6.5 kg/mm, 364 lb/in)
Stroke (K1)	0 ~ 124.5 mm (0 ~ 4.90 in)
REAR ARM:	
Swing Arm Free Play Limit: End	<1 mm (0.04 in)>
Side	<1 mm (0.04 in)>
FRONT WHEEL:	
Type	Panel Wheel
Rim Size	10 × 6 AT
Rim Material	Aluminum
Rim Runout Limit: Vertical	<2 mm (0.08 in)>
Lateral	<2 mm (0.08 in)>
REAR WHEEL:	
Type	Panel Wheel
Rim Size	9 × 8.5 AT
Rim Material	Aluminum
Rim Runout Limit: Vertical	<2 mm (0.08 in)>
Lateral	<2 mm (0.08 in)>
DRIVE CHAIN:	
Type/Manufacturer	520V/DAIDO
No. of Links	103 + Joint
Chain Free Play	15 mm (0.6 in)
FRONT DISC BRAKE:	
Type	Dual
Disc Outside Dia. × Thickness	161.0 × 3.5 mm (6.34 × 0.138 in)
Pad Thickness	6 mm (0.24 in)
<Limit>	<0.8 mm (0.032 in)>
Master Cylinder Inside Diameter	14 mm (0.55 in)
Caliper Cylinder Inside Diameter	31.75 mm (1.25 in)
Brake Fluid Type	DOT No. 4

SPECIFICATIONS

Model	YFZ350T
REAR DISC BRAKE:	
Type	Single
Disc Outside Dia. × Thickness	220.0 × 3.5 mm (8.66 × 0.138 in)
Pad Thickness Inner	4.5 mm (0.18 in)
<Limit>	<1 mm (0.039 in)>
Pad Thickness Outer	4.5 mm (0.18 in)
<Limit>	<1 mm (0.039 in)>
Master Cylinder Inside Diameter	12.7 mm (0.50 in)
Caliper Cylinder Inside Dia.	33.96 mm (1.34 in)
Brake Fluid Type	DOT No. 4
BRAKE LEVER AND BRAKE PEDAL:	
Brake Lever Free Play	4 ~ 8 mm (0.16 ~ 0.32 in) at lever end
Brake Pedal Position	10 mm (0.4 in)
Brake Pedal Free Play	8 mm (0.3 in)

Tightening torque

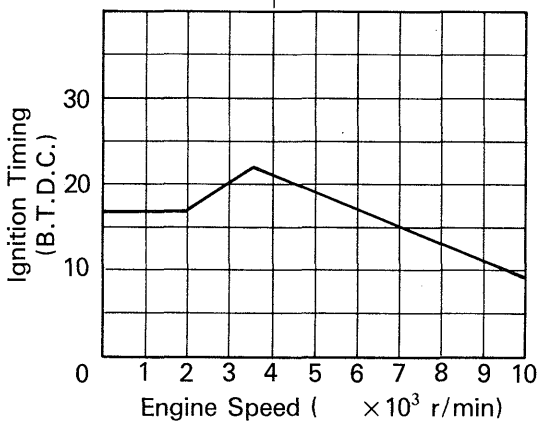
Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m•kg	ft•lb	
Steering knuckle & Castle nut	M14×1.5	85	8.5	61	
Wheel panel nut	M10×1.25	45	4.5	32	
Steering knuckle & Knuckle arm	M10×1.25	38	3.8	27	
Caliper (Front)	M 8×1.25	28	2.8	20	
Brake disc (Front & Rear)	M 8×1.25	28	2.8	20	
Steering knuckle & Ball joint	M10×1.25	25	2.5	18	
Ball joint (Tie-rod) & Knuckle arm	M10×1.25	25	2.5	18	
Ball joint (Tie-rod) & Steering shaft	M10×1.25	25	2.5	18	
Ball joint & Tie-rod	M10×1.25	30	3.0	22	
Steering shaft & Frame	M10×1.25	30	3.0	22	
Steering bearing bracket & Frame	M 8×1.25	23	2.3	17	Use lock washer
Handlebar holder	M 8×1.25	20	2.0	14	
Bearing holder (Steering shaft)	M42×1.0	40	4.0	29	
Upper & Lower arm & Frame	M10×1.25	30	3.0	22	
Front shock absorber (Upper & Lower)	M10×1.25	45	4.5	32	
Engine mount:					
Frame & Front engine stay	M 8×1.25	30	3.0	22	
Engine & Front engine stay	M10×1.25	45	4.5	32	
Engine & Rear engine stay	M10×1.25	45	4.5	32	
Tension rod & Engine	M10×1.25	25	2.5	18	
Tension rod & Tension rod stay	M10×1.25	45	4.5	32	
Tension rod stay & Frame	M10×1.25	45	4.5	32	
Pivot shaft	M16×1.5	85	8.5	61	
Rear shock absorber (Upper & Lower)	M10×1.25	30	3.0	22	
Relay arm & Frame	M10×1.25	30	3.0	22	
Connecting rod & Swingarm	M10×1.25	30	3.0	22	
Relay arm & connecting rod	M10×1.25	30	3.0	22	
Footrest	M10×1.25	55	5.5	40	
Caliper (Rear)	M 8×1.25	23	2.3	17	
Rear axle ring nut	M33×1.5	—	—	—	SEE NOTE
Rear axle & Castle nut	M14×1.5	120	12.0	85	
Rear hub & Swingarm (Upper)	M12×1.25	120	12.0	85	
(Lower)	M10×1.25	60	6.0	43	
Brake hose union bolt	M10×1.25	25	2.5	18	
Brake hose & Caliper	M10×1.25	25	2.5	18	
Brake hose joint & Brake pipe	M10×1.0	18	1.8	13	
Brake hose joint	M 8×1.25	20	2.0	14	
Rear master cylinder	M 8×1.25	20	2.0	14	
Driven sprocket	M10×1.25	60	6.0	43	
Chain puller & Locknut	M 8×1.25	16	1.6	11	
Locknut (Rear brake caliper adjustment)	M 8×1.25	16	1.6	11	
Swingarm & Swingarm guard	M 8×1.25	23	2.3	17	

NOTE:

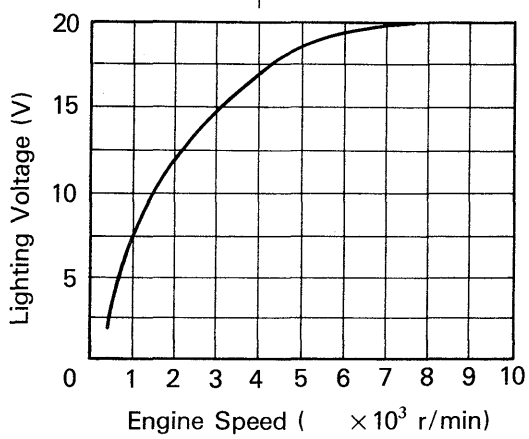
1. Tighten the inside-ring nut to 130 Nm (13.0 m•kg, 94 ft•lb) while holding the rear axle.
2. Hold the inside-ring nut and tighten the outside-ring nut to 190 Nm (19.0 m•kg, 140 ft•lb).
3. Hold the outside-ring nut and tighten back the inside-ring nut to 240 Nm (24.0 m•kg, 170 ft•lb).

MAINTENANCE SPECIFICATION (ELECTRICAL)

Model	YFZ350T
Voltage	12V
IGNITION SYSTEM:	
Ignition Timing (B.T.D.C.)	17°/1,200 r/min
Advancer Type	Electrical Type



C.D.I.:	
Magneto Model/Manufacturer	032000-620/NIPPONDENSO
Pickup Coil Resistance (Color)	94~140Ω at 20°C (68°F) (W/R—W/G)
Charging Coil Resistance (Color)	13.7~20.5Ω at 20°C (68°F) (G—R)
C.D.I. Unit Model/Manufacturer	070000-167/NIPPONDENSO
IGNITION COIL:	
Model/Manufacturer	129700-146/NIPPONDENSO
Minimum Spark Gap	6 mm (0.24 in)
Primary Winding Resistance	0.28~0.38Ω at 20°C (68°F)
Secondary Winding Resistance	4.7~7.1kΩ at 20°C (68°F)
SPARK PLUG CAP:	
Type	Rubber Type
Resistance	5kΩ
F.W.MAGNETO:	
Model/Manufacturer	032000-620/NIPPONDENSO
Lighting Voltage (Min.)	11.5V/2,500 r/min
(Max.)	16.3V/8,000 r/min
Lighting Coil Resistance (Color)	0.26~0.38Ω at 20°C (68°F) (Y—B)

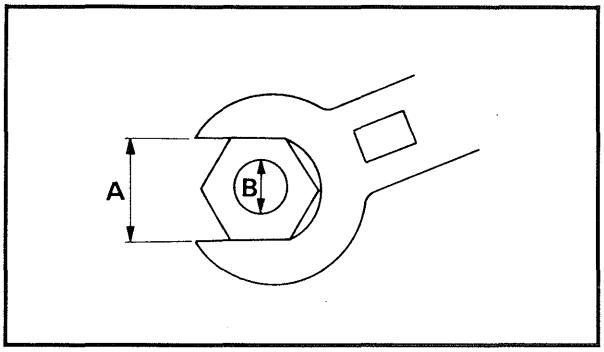


Model	YFZ350T
VOLTAGE REGULATOR:	
Model/Manufacturer	TRIZ-50/HITACHI
No Load Regulated Voltage	16V
Withstand Voltage	200V

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m•kg	ft•lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



A Distance across flats
B Outside thread diameter

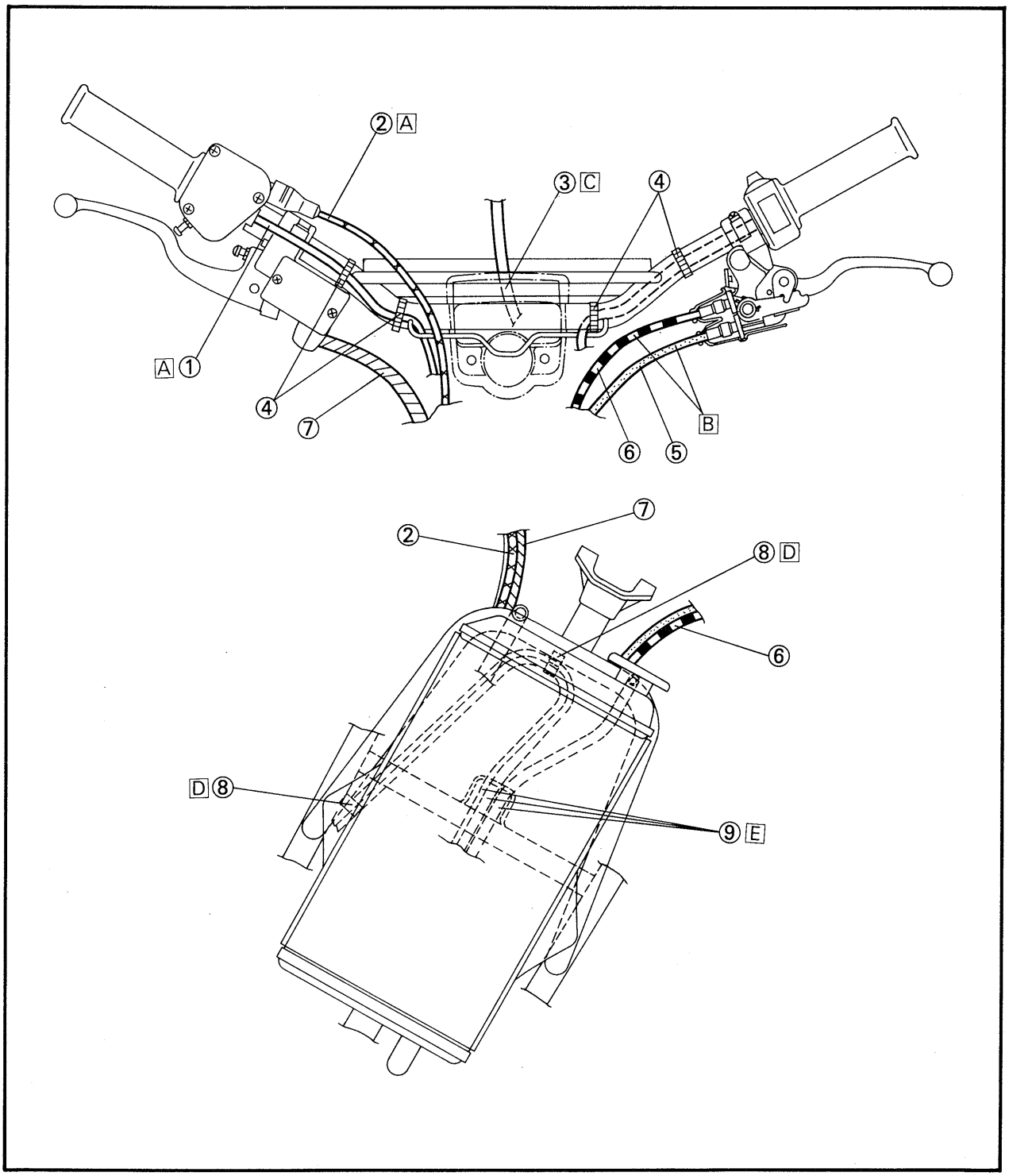
DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm cm	millimeter centimeter	10^{-3} meter 10^{-2} meter	Length Length
kg	kilogram	10^{3} gram	Weight
N	Newton	1 kg × m/sec^2	Force
Nm m•kg	Newton meter Meter kilogram	N × m m × kg	Torque Torque
Pa N/mm	Pascal Newton per millimeter	N/m^2 N/mm	Pressure Spring rate
L cm^3	Liter Cubic centimeter		Volume or Capacity
r/min	Rotation per minute		Engine Speed

CABLE ROUTING

① Throttle switch lead
② Throttle cable
③ Fuel tank breather hose
④ Band
⑤ Parking brake cable
⑥ Clutch cable
⑦ Front brake hose
⑧ Clamp
⑨ Breather hose

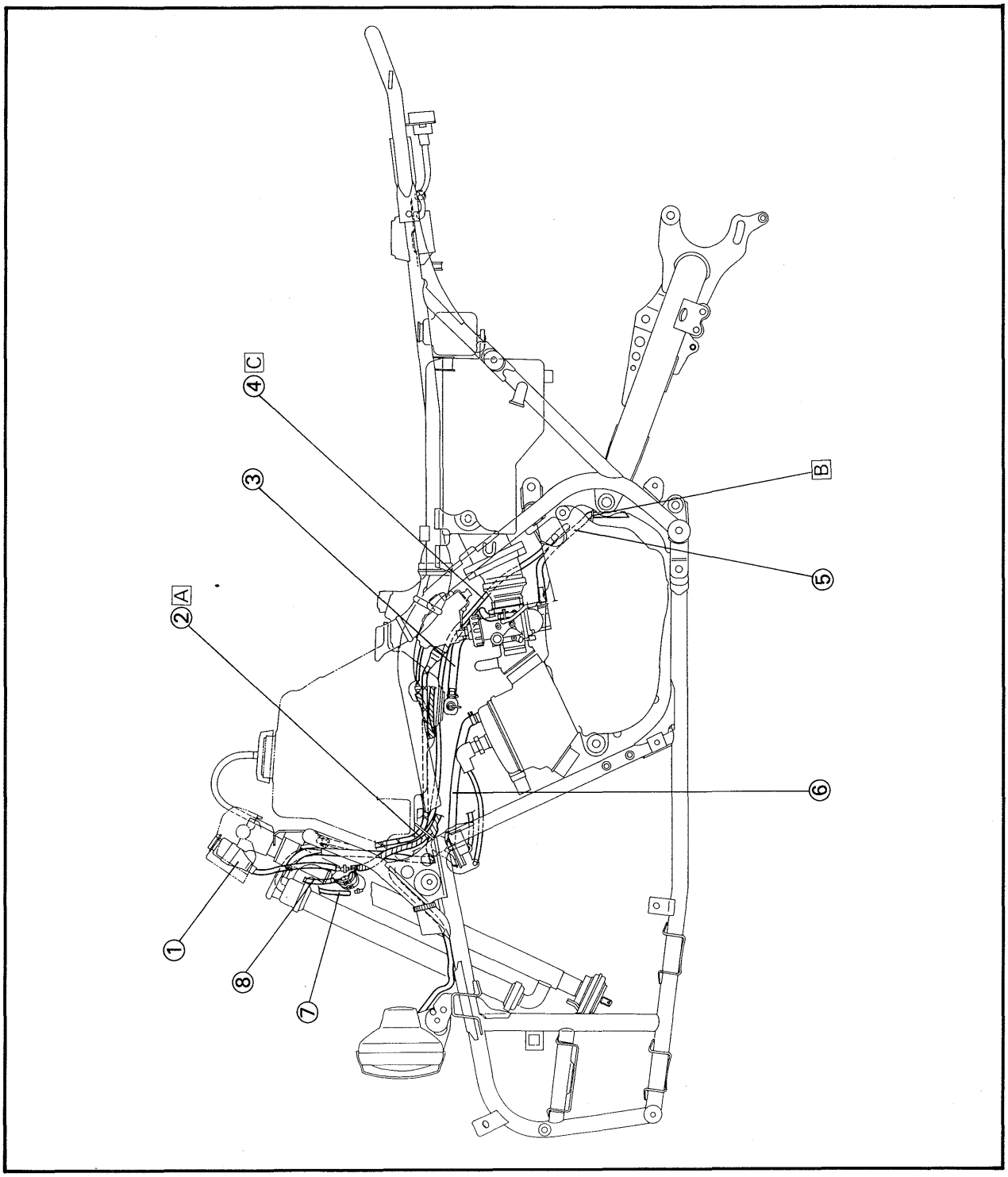
[A] Pass the cable in front of the front brake pipe.
[B] Pass the cables behind the fornt brake pipe.
[C] Pass the hose through the handle protector hole.
[D] Clamp the hoses.
[E] Pass the hoses through the hose guide.



CABLE ROUTING

① Main switch
② Wire harness
③ Fuel hose
④ Crankcase breather hose
⑤ Carburetor over flow hose
⑥ Radiator hose
⑦ Throttle switch lead
⑧ Handle switch lead.

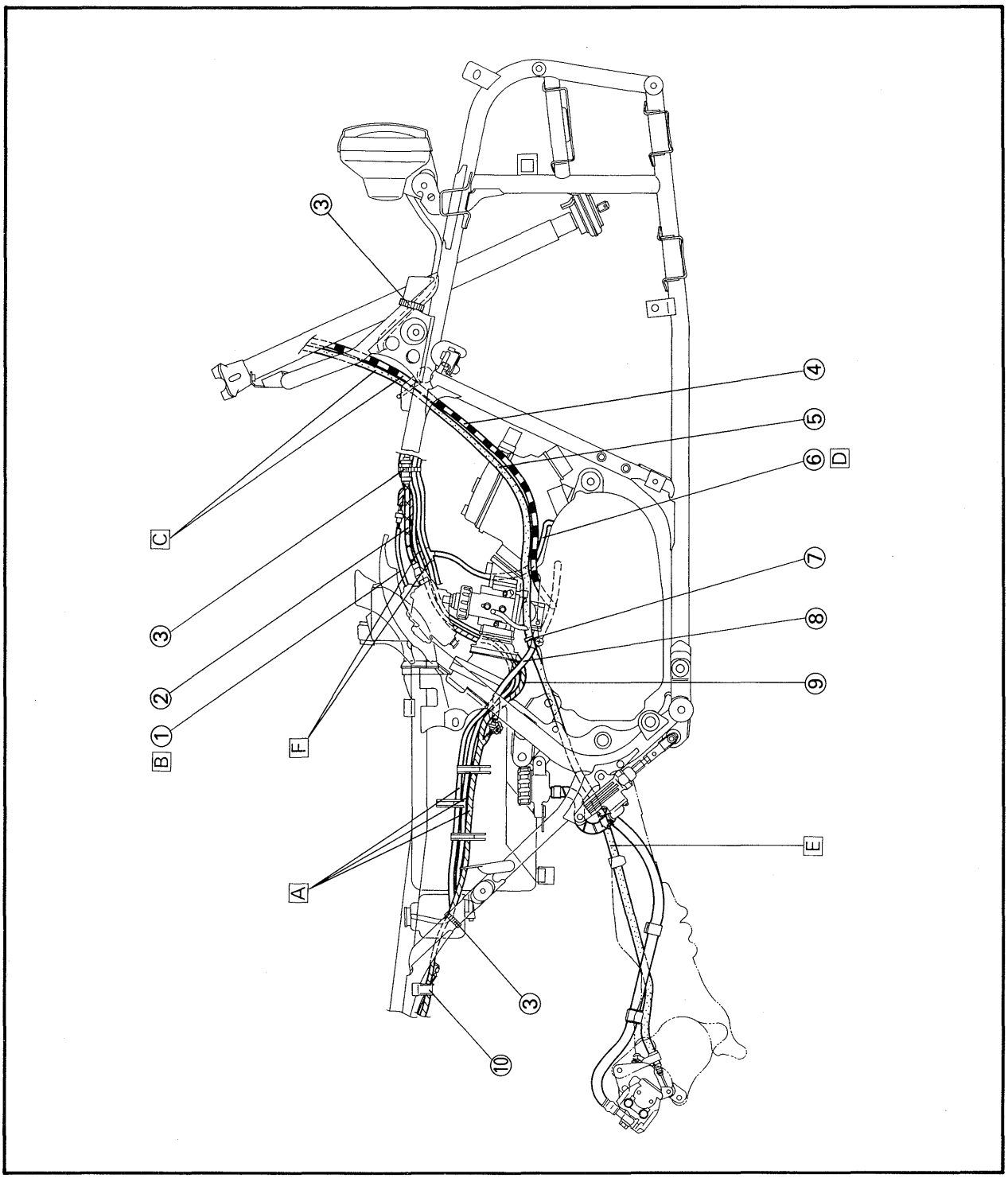
[A] Pass the wire harness into the guide. Align the marking tape at the position of the guide.
[B] Pass the hose into the guide
[C] Do not pass the hose into the guide. Pass the hose behind the brake pipe.



CABLE ROUTING

① Carburetor switch lead
② Throttle cable
③ Band
④ Clutch cable
⑤ Parking brake cable
⑥ Breather hose
⑦ Cable guide
⑧ CDI magneto lead
⑨ Wire harness
⑩ Clamp

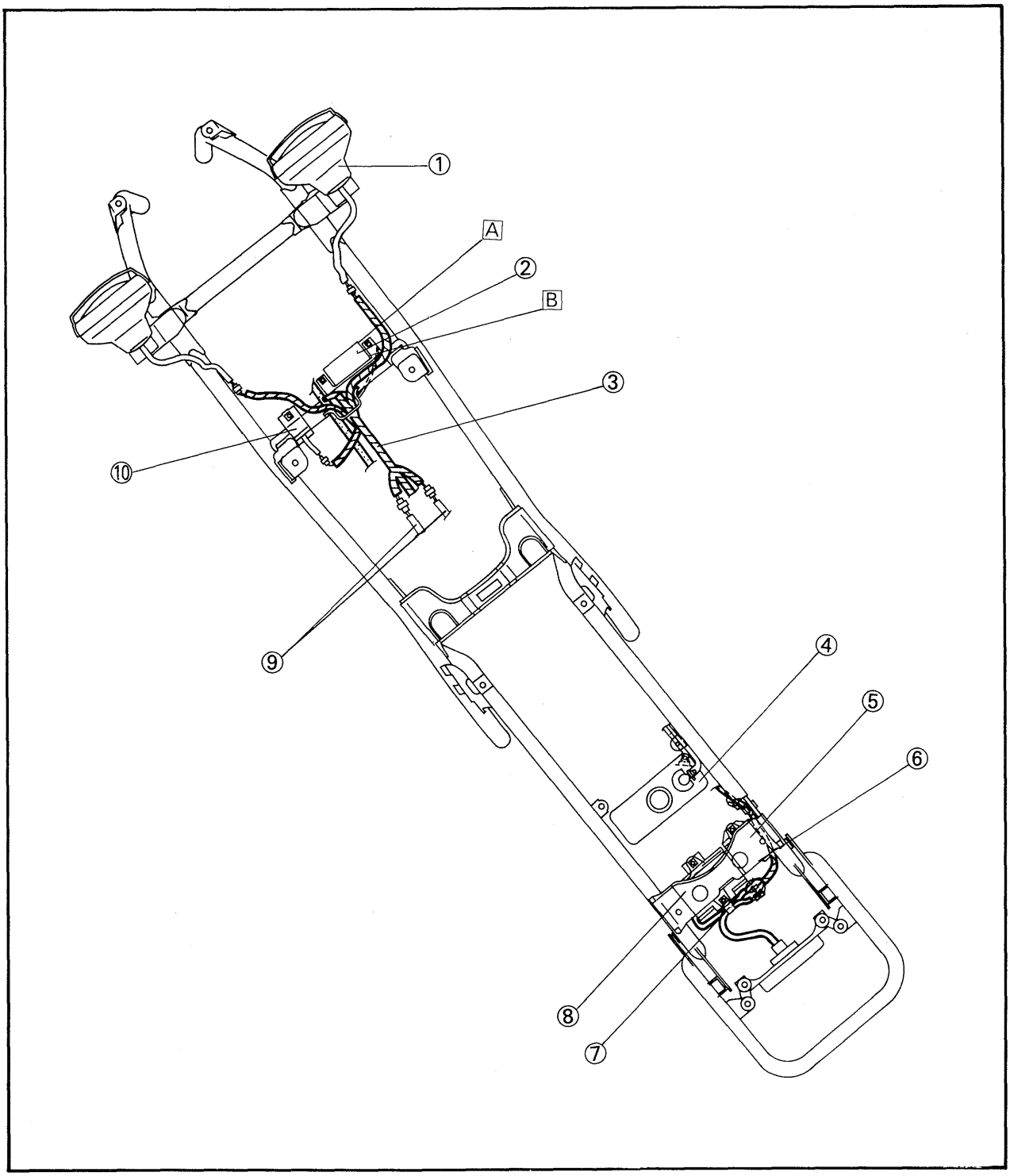
[A] Pass the wire harness and hoses through the guide on the air cleaner.
[B] Pass the lead above the hoses and cables.
[C] Pass the cable through the guide.
[D] Route the hose behind the clutch and Parking cable. Pass the hose between both carburetor joint.
[E] Route the cable behind the rear brake hose.
[F] Pass the hoses inside the wire harness.



CABLE ROUTING

① Headlight
② Ignition coil
③ Wire harness
④ Reserver tank
⑤ Voltage regulator
⑥ Body earth
⑦ Clamp
⑧ CDI unit
⑨ Carburetor switch lead
⑩ T.O.R.S. control unit

Ⓐ Ignition coil lead (Orange)
Ⓑ Ignition coil lead (Black)



YFZ350T WIRING DIAGRAM
PLAN DE CABLAGE DE LA YFZ350T

① T.O.R.S. control unit
② Carburetor switch
③ Voltage regulator
④ Taillight
⑤ Spark plug
⑥ Ignition coil
⑦ CDI unit
⑧ CDI magneto
⑨ Headlight
⑩ Main switch
⑪ "ENGINE STOP" switch
⑫ "LIGHTS" (Dimmer) switch
⑬ Throttle switch
⑭ Headlight

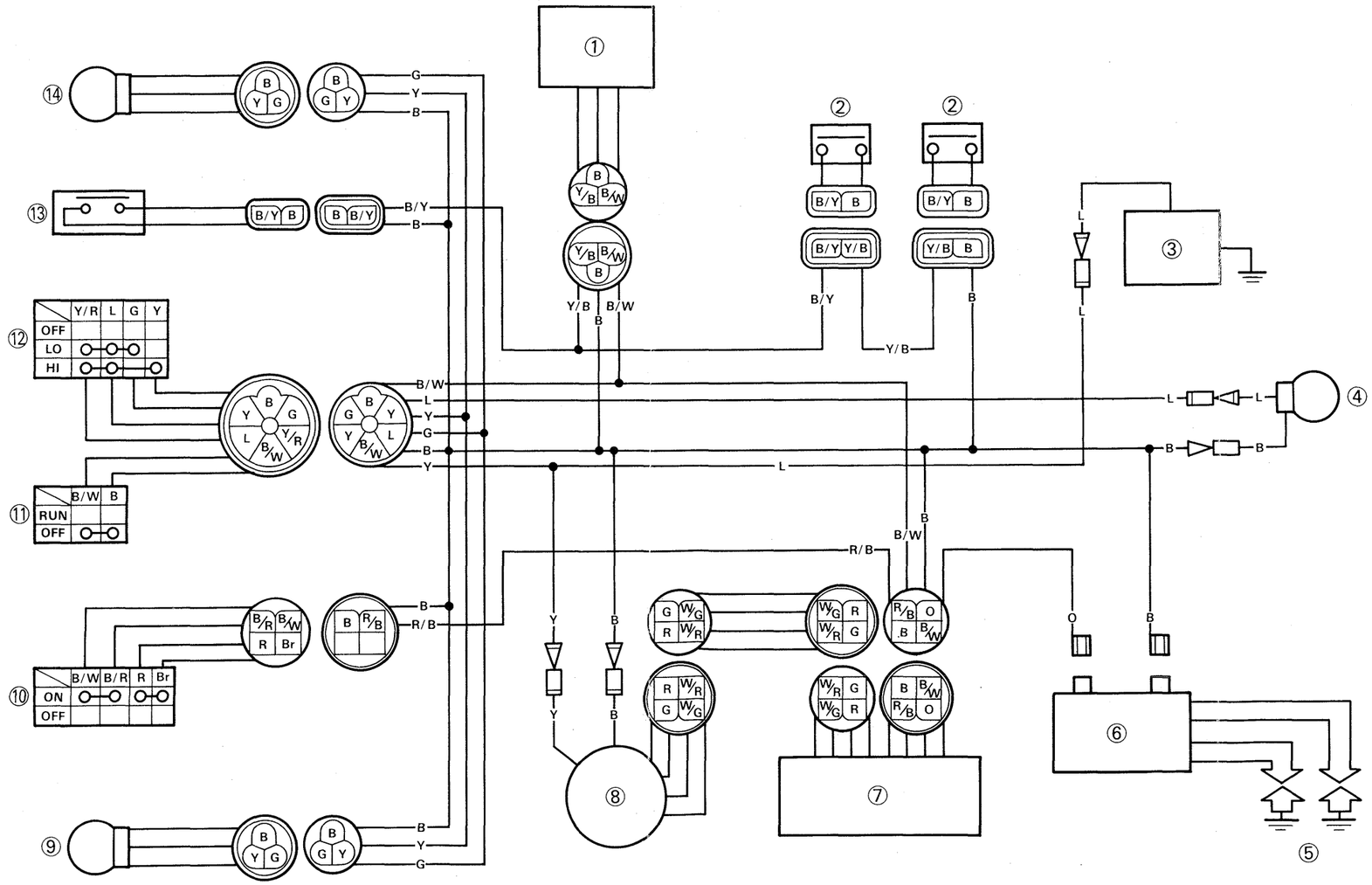
COLOR CODE

B	Black	B/W	Black/White
Br	Brown	B/Y	Black/Yellow
G	Green	R/B	Red/Black
L	Blue	W/G	White/Green
O	Orange	W/R	White/Red
R	Red	W/B	White/Black
Y	Yellow	Y/B	Yellow/Black
B/R	Black/Red	Y/R	Yellow/Red

① Bloc de commande T.O.R.S.
② Contacteur de carburateur
③ Régulateur de tension
④ Feu arrière
⑤ Bougie
⑥ Bobine d'allumage
⑦ Bloc CDI
⑧ Magnéto CDI
⑨ Phare
⑩ Contacteur à clé
⑪ Coupe-circuit de sécurite "ENGINE STOP"
⑫ Commutateur feu de route/feu de croisement "LIGHTS"
⑬ Commutateur d'accélérateur
⑭ Phare

CODE DE COULEUR

B	Noir
Br	Brun
G	Vert
L	Bleu
O	Orange
R	Rouge
Y	Jaune
B/R	Noir/Rouge
B/W	Noir/Blanc
B/Y	Noir/Jaune
R/B	Rouge/Noir
W/G	Blanc/Vert
W/R	Blanc/Rouge
W/B	Blanc/Noir
Y/B	Jaune/Noir
Y/R	Jaune/Rouge



YAMAHA MOTOR CO.,LTD.
IWATA, JAPAN

PRINTED IN JAPAN
86·9—0.56×1 ⓐ
(英)