YAMAHA

IT200S

OWNER'S MANUAL AND SERVICE

LIT-11626-05-15

1TY-28199-10

IMPORTANT NOTICE

THIS MACHINE IS DESIGNED STRICTLY FOR COMPETITION USE ONLY. IT IS ILLEGAL TO OPERATE THIS VEHICLE ON STREET. OFF ROAD USE ON PUBLIC LAND MAY BE ILLEGAL. PLEASE CHECK YOUR LOCAL RIDING AREA REGULATIONS. SUSPENSION ON THIS MACHINE CAN BE ADJUSTED. **FOR DETAILS OF TUNING, REFER TO THE RACE PREPARATION AND TUNING MANUAL.**

SAFETY WARNINGS:

1. **GASOLINE IS HIGHLY FLAMMABLE:**
   - * **Always turn off the engine when refueling.**
   - * **Take care not to spill on the engine or exhaust pipe/muffler, when refueling.**
   - * **If any gasoline spills on the engine or exhaust pipe/muffler, wipe it off immediately.**
   - * **Never refuel while smoking or in the vicinity of an open flame.**
2. **If you should swallow some gasoline or inhale a lot of gasoline vapor, or allow some gasoline to get in your eye(s), see your doctor immediately. If any gasoline spills on your skin or clothing, immediately wash it with soap and water, and change your clothes.**
3. **Do not touch any moving or heated areas.**
   - * **The engine and exhaust pipe/muffler are heated up. Park the machine in a place where pedestrians or children are not likely to touch the machine.**
   - * **Do not park the machine on a slope or soft ground; the machine can easily overturn.**
4. **When transporting the machine in another vehicle, be sure it is kept upright and that the fuel cock is turned to the "OFF" position. If it should lean over, gasoline may leak out of the carburetor or fuel tank.**
5. **Never start your engine or let it run for any length of time in a closed area. The exhaust fumes are poisonous and can cause loss of consciousness and death within a short time. Always operate your machine in an area with adequate ventilation.**
6. **Always wear a helmet, gloves, boots, trousers, and jacket for motocross riding.**

IT200S
OWNER'S SERVICE MANUAL

1st Edition, October 1985

Printed in Japan
P/N LIT-11626-05-15

TO THE NEW OWNER

This manual will provide you with a good basic understanding of features, operation, and basic maintenance and inspection items of this vehicle.
PLEASE READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING YOUR NEW MACHINE. If you have any questions regarding the operation or maintenance of your machine, please consult your Yamaha dealer.

NOTE:

This manual should be considered a permanent part of this machine and should remain with it even if the machine is subsequently sold.

NOTICE

Some data in this manual may become outdated due to improvements made to this model in the future. If there is any question you have regarding this manual or your machine, please consult your Yamaha dealer.

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.

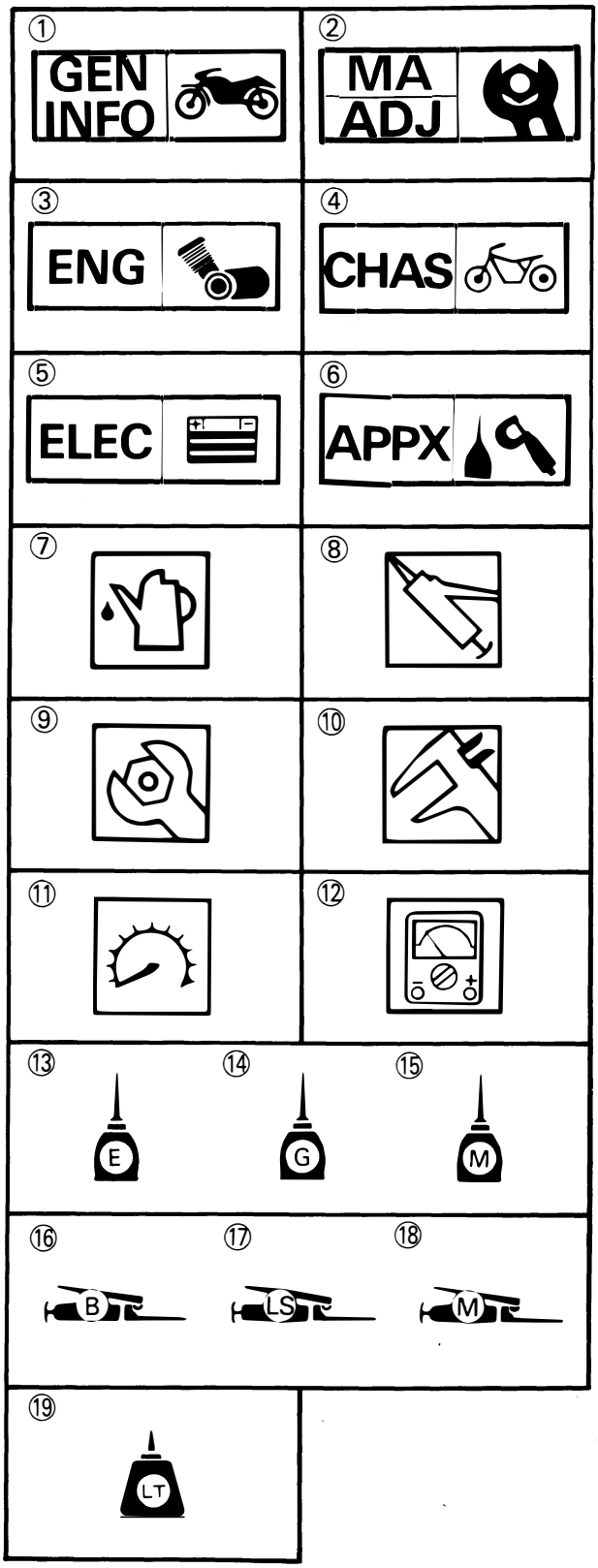
MANUAL FORMAT

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 assembly procedures.



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑥ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Chassis
⑤ Electrical
⑥ Appendices

Illustrated symbols ⑦ to ⑫ are used to identify the specifications appearing in the text.

⑦ Filling fluid
⑧ Lubricant
⑨ Tightening
⑩ Wear limit, clearance
⑪ Engine speed
⑫ Ω, V, A

Illustrated symbols ⑬ to ⑲ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑬ Apply engine oil
⑭ Apply gear oil
⑮ Apply molybdenum disulfide oil
⑯ Apply wheel bearing grease
⑰ Apply lightweight lithium-soap base grease
⑱ Apply molybdenum disulfide grease
⑲ Apply locking agent (LOCTITE®)

INDEX

CHAPTER 1
GENERAL INFORMATION

GENERAL INFORMATION

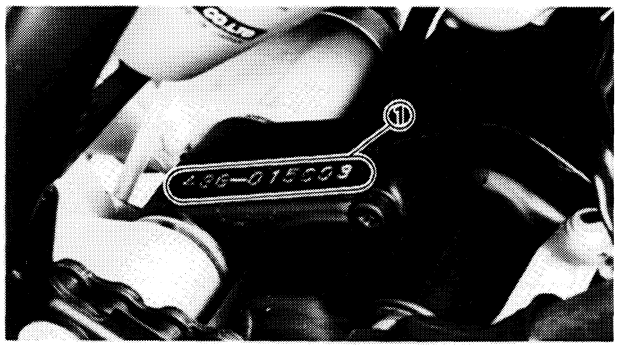
MACHINE IDENTIFICATION

There are two significant reasons for knowing the serial number of your machine:

1. When ordering parts, you can give the number to your Yamaha dealer for positive identification of the model you own;
2. If your machine is stolen, the authorities will need the number to search for and identify your machine.

VEHICLE IDENTIFICATION NUMBER

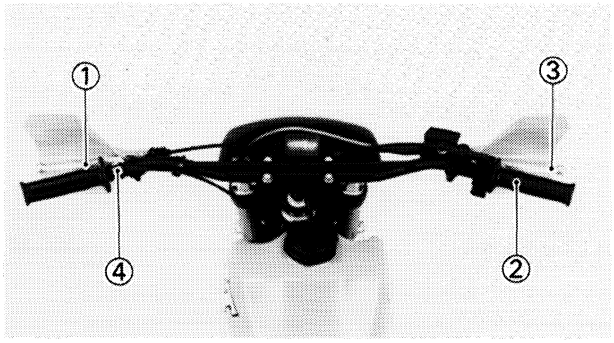
The vehicle identification number ① is stamped on the right of the steering head pipe.



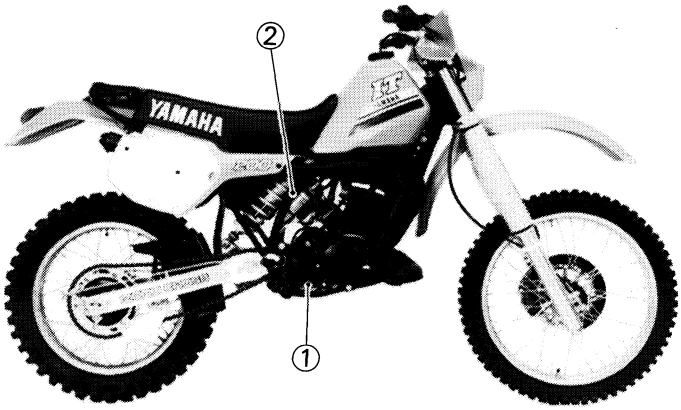
ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the elevated part of the right rear section of the engine.

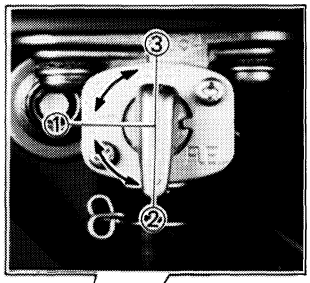
CONTROL FUNCTIONS



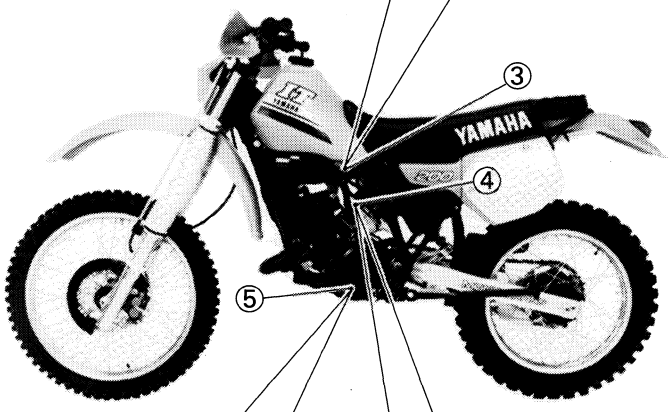
① Clutch lever
② Throttle grip
③ Front brake lever
④ Engine stop switch



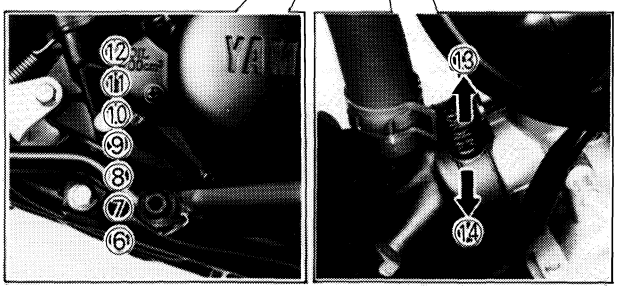
① Brake pedal
② Kick starter



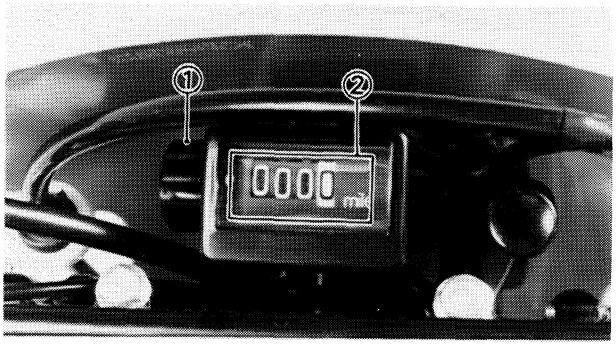
① "OFF" position
② "ON" position
③ "RES" position



③ Fuel cock
④ Starter lever
⑤ Shift pedal

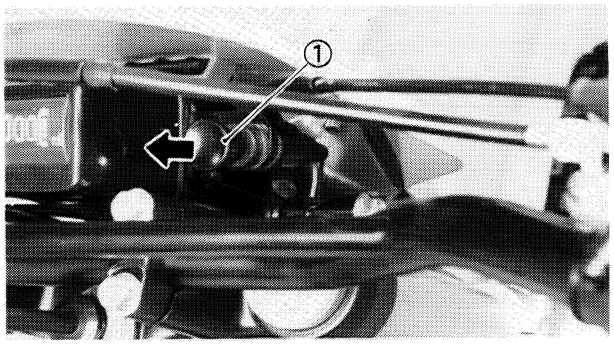


⑥ 1st
⑦ Neutral
⑧ 2nd
⑨ 3rd
⑩ 4th
⑪ 5th
⑫ 6th
⑬ For riding
⑭ For starting

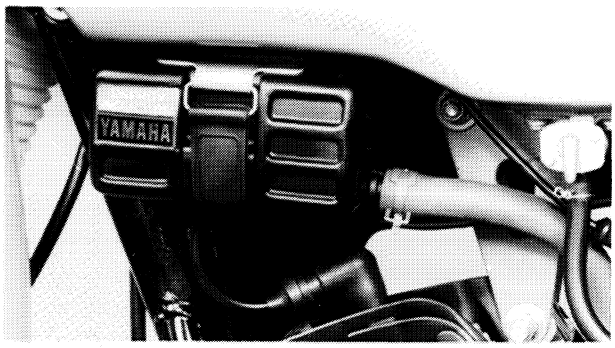


Trip Odometer

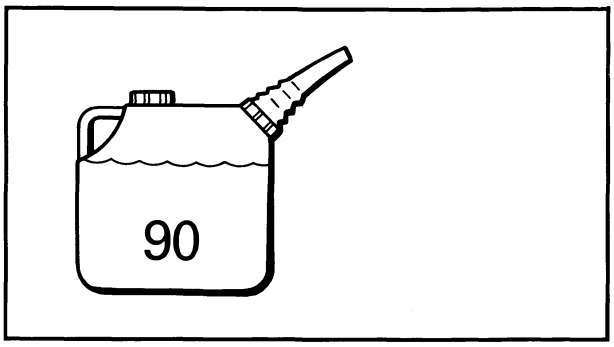
① Reset knob
To change the meter reading pull the knob and turn it as required.
② Trip-odometer

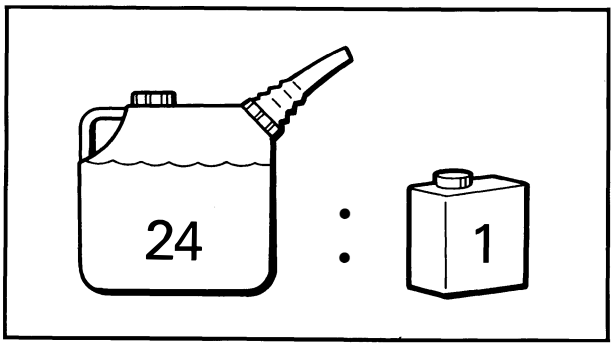


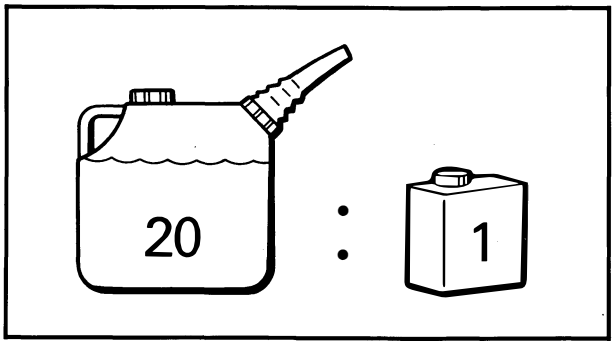
Light Switch
① Light switch



Note on handling of the Yamaha Energy Induction System
Handle the air chamber and hose with special care. Improper installation or damaged parts will result in poor performance. Replace any cracked or damage parts immediately. No modification of this system in any form is not allowed.







FUEL AND OIL

FUEL

Recommended Fuel:
Premium Fuel with an Octane Rating of at least 90

Fuel Tank Capacity:
11 L (2.42 Imp gal, 2.91 US gal)

ENGINE MIXING OIL

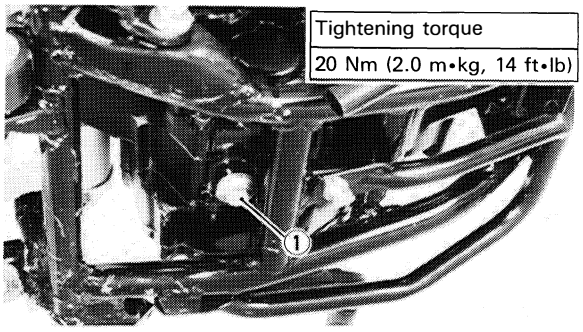
Recommended Oil: Yamalube "R" (Yamalube Racing 2-cycle Oil)
Mixing Ratio: 24 : 1

If for any reason you should use another type, select from the following list.

Recommended oil	Mixing ratio
Castrol R30 A545 A747	20:1

CAUTION:

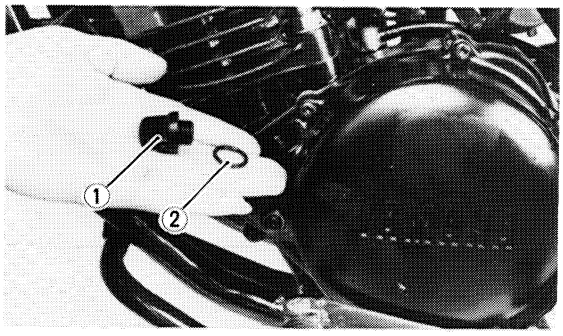
Never mix two types of oil in the same batch; clotting of the oil could result.



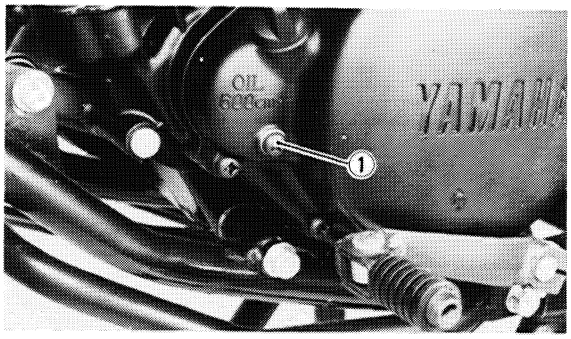
TRANSMISSION OIL

Recommended Oil:
Yamalube 4-cycle Oil or SAE 10W30 SE Motor Oil
Periodic Oil Change:
0.7 L (0.62 Imp qt, 0.74 US qt)
Overhaul:
0.75 L (0.66 Imp qt, 0.79 US qt)

① Drain plug



① Filler plug
② O-ring



OIL LEVEL

On the right side of the engine there is a checking screw ①. To check, warm up the engine for 1 minute. Stop engine. Leave the engine as it is for a few minutes and place the machine upright, then remove the oil level checking screw. If oil flows out, the oil level is correct.

PRE-OPERATION CHECKS

Before riding for break-in operation, practice or a race, make sure the machine is in good operating condition.

1

INSPECTION AND MAINTENANCE

Fuel
Check that a fresh mixture of oil and gasoline is filled in the fuel tank.

Gear Oil
Check that the gear oil level is correct.

Gear Shifter and Clutch
Check that gears can be shifted correctly in order and that the clutch operates smoothly.

Brakes
Check the play of both front and rear brakes and their braking effect.

Chain
Check chain slack and alignment. Check that the chain is lubricated properly.

Wheels
Is the tire pressure correct?
Check for excessive wear. Check for loose spokes and have no excessive play.

Steering
Check that the handlebars can be turned smoothly and have no excessive play.

Front Forks and Rear Shock
Check that they operate smoothly and there is no oil leakage.

Cables (Wires)
Check that the clutch and throttle cables move smoothly. Check that they are not caught when the handlebars are turned or when the front forks travel up and down.

Muffler
Check that the muffler is tightly mounted and has no cracks.

Sprocket
Check that the rear wheel sprocket tightening bolt is not loose.

Bolts and Nuts
Check the chassis and engine for loose bolts and nuts.

Fuel and Oil
Check the fuel tank, fuel cock, carburetor and engine bottom for leakage.

Lead Wire Connectors
Check that the CDI magneto, CDI unit, and ignition coil are connected tightly.

Settings
Is the machine set suitably for the condition of the racing course and weather or by taking into account the results of test-runs before racing? Is inspection and maintenance completely done?

NOTE:
The machine should be checked and serviced regularly so that only a simple, minor adjustment of settings is required prior to a race.

STARTING AND BREAK-IN

CAUTION:

Before starting the machine, perform the checks in the pre-operation check list.

WARNING:

Never start or run the engine in a closed area. The exhaust fumes are poisonous; they can cause loss of consciousness and death in a very short time. Always operate the machine in a well-ventilated area.

STARTING A COLD ENGINE

Shift the transmission into neutral. Turn on the fuel cock and push down the starter lever on the carburetor. With the throttle completely closed, kickstart the engine with a smooth, firm stroke. Using the starter lever as required, run the engine at idle or slightly higher until it warms up; this usually takes about one or two minutes. The engine is warmed up when it responds normally to the throttle with the starter lever raised completely.

CAUTION:

Do not warm up the engine for extended periods.

STARTING A WARM ENGINE

Do not push down the starter lever. Open the throttle slightly and kickstart the engine with a smooth, firm stroke.

CAUTION:

Observe the following break-in procedures during initial operation to ensure optimum performance and avoid engine damage.

BREAK-IN PROCEDURES

1. Before starting the engine, fill the fuel tank with a break-in oil-fuel mixture of 12 : 1 to 14 : 1.
2. Perform the pre-operation checks on the machine.
3. Start and warm up the engine. Check the idle speed, and check the operation of the controls and the engine stop switch.
4. Operate the machine in the lower gears at moderate throttle openings for five to eight minutes. Stop and check the spark plug condition; it will show a rich condition during break-in.
5. Allow the engine to cool. Restart the engine and operate the machine as in the step above for five minutes. Then, very briefly shift to the higher gears and check full-throttle response. Stop and check the spark plug.
6. After again allowing the engine to cool, restart and run the machine for five more minutes. Full throttle and the higher gears may be used, but sustained full-throttle operation should be avoided. Check the spark plug condition.
7. Allow the engine to cool, remove the top end, and inspect the piston and cylinder; instructions for this are on page 3-10. Remove any high spots on the piston with 600-grit, wet sandpaper. Clean all components and carefully reassemble the top end.
8. Drain the break-in oil-fuel mixture from the fuel tank and refill with the specified mix. Check the entire machine for loose screws, bolts, and nuts.
9. Restart the engine and check the operation of the machine throughout its entire operating range. Stop and check the spark plug condition. Restart the machine and operate it for about 10 to 15 more minutes. The machine will now be ready to race.

CAUTION:

1. **After the break-in period is completed, check the entire machine for loose fittings and fasteners. Tighten all such fasteners as required.**
2. **When any of the following parts have been replaced, they must be broken in.**
   CYLINDER AND CRANKSHAFT:
   About one hour of break-in operation is necessary.
   PISTON, RINGS AND GEARS:
   These parts require about 30 minutes of break-in operation at half-throttle or less. Observe the condition of the engine carefully during operation.

CLEANING AND STORAGE

CLEANING

Frequent cleaning of your machine will enhance its appearance, maintain good overall performance, and extend the life of many components.

1. Before washing the machine, block off the end of the exhaust pipe to prevent water from entering. A plastic bag secured with a rubber band may be used for this purpose.
2. If the engine is excessively greasy, apply some degreaser to it with a paint brush. Do not apply degreaser to the chain, sprockets, or wheel axles.
3. Rinse the dirt and degreaser off with a garden hose; use only enough pressure to do the job.

CAUTION:

Excessive hose pressure can force water into wheel bearings, front fork seals, brake drum, and transmission seals. Avoid using high-pressure hoses such as those found in coin-operated car washes.

4. After the majority of the dirt has been hosed off, wash all surfaces with warm water and a mild detergent. Use an old toothbrush to clean hard-to-reach places.
5. Rinse the machine off immediately with clean water, and dry all surfaces with a soft towel or cloth.
6. Immediately after washing, remove excess water from the chain with a paper towel and lubricate the chain to prevent rust.
7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.
8. Automotive wax may be applied to all painted or chromed surfaces. Avoid combination cleaner-waxes, as they may contain abrasives.
9. After completing the above, start the engine and allow it to idle for several minutes.

STORAGE

If your machine is to be stored for 60 days or more, some preventive measures must be taken to avoid deterioration. After cleaning the machine thoroughly, prepare it for storage as follows:

1. Drain the fuel tank, fuel lines, and the carburetor float bowl.
2. Remove the spark plug, pour a tablespoon of SAE 10W30 motor oil in the spark plug hole, and reinstall the plug. With the engine stop switch pushed in, kick the engine over several times to coat the cylinder walls with oil.
3. Remove the drive chain, clean it thoroughly with solvent, and lubricate it. Reinstall the chain or store it in a plastic bag tied to the frame.
4. Lubricate all control cables.
5. Block the frame up to raise the wheels off the ground.
6. Tie a plastic bag over the exhaust pipe outlet to prevent moisture from entering.
7. If the machine is to be stored in a humid or salt-air environment, coat all exposed metal surfaces with a film of light oil. Do not apply oil to rubber parts or the seat cover.

NOTE:

Make any necessary repairs before the machine is stored.

CHAPTER 2
REGULAR MAINTENANCE AND ADJUSTMENT

REGULAR MAINTENANCE AND ADJUSTMENT

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. If you are a doubt as to what intervals to follow in maintaining and lubricating your machine, consult your Yamaha dealer.

Item	After break-in	Every race	Every third	Every fifth	As required	Remarks
PISTON Inspect and clean Replace	●	●		●	●	Inspect crack Remove carbon
PISTON RING Inspect Replace	●	●	●		●	Check ring end gap
PISTON PIN, SMALL END BEARING Inspect Replace				●	●	
CYLINDER HEAD Inspect and clean Retighten	● ●	● ●				Remove carbon Check gasket
CYLINDER Inspect and clean Replace	●	●			●	Seizure Wear
Y.E.I.S. Inspect	●	●				
CLUTCH Inspect and adjust Replace	●	●			●	Inspect friction plate, clutch plate and spring
TRANSMISSION Replace oil Inspect transmission	●			●	●	Yamalube 4-cycle oil or SAE 10W30 SE motor oil
SHIFT CAM, FORK Inspect					●	Inspect wear
ROTOR NUT Retighten				●		
MUFFLER Inspect Clean	●	●		●		
CRANK Inspect and clean				●	●	
CARBURETOR Inspect, adjust and clean	●	●				
SPARK PLUG Inspect and clean Replace	●	●			●	STD plug: N-86 B8EG Gap: 0.5~0.6 mm (0.020~0.024 in)
DRIVE CHAIN Lubricate, slack, alignment Replace	●	●			●	Use chain lube Chain slack: 30~35 mm (1.2~1.4 in)

Item	After break-in	Every race	Every third	Every fifth	As required	Remarks
OUTSIDE NUTS AND BOLTS Retighten	●	●				
AIR FILTER Clean and oil Replace	●	●			●	Use Foam air-filter oil or SAE 10W30 motor oil
FRAME Clean and inspect	●	●				
FUEL TANK, COCK Clean and inspect	●		●			
BRAKES Adjust free play Lubricate pivot point Check fluid level and leakage Retighten brake disc bolts, caliper bolts and union bolts Replace linings/pads	● ● ● ●	● ● ● ●			●	Brake pad wear limit: 0.8 mm (0.03 in) Lining wear limit: 2 mm (0.08 in)
FRONT FORKS Inspect and adjust Replace oil Replace oil seal	● ●	●		●	●	Fork oil 10 wt
REAR SHOCK Inspect and adjust Lube and retighten	● ●	● ●				Lithium base grease
CHAIN GUARD AND ROLLES Inspect and replace					●	
SWINGARM Inspect and retighten	●	●				
RELAY ARM, CONNECTING ROD Inspect and lube	●	●				Lithium base grease
STEERING HEAD Inspect free play and retighten Clean and lube Replace bearing	●	●		●	●	Medium weight wheel bearing grease
TIRE, WHEELS Inspect air pressure, wheel run-out, tire wear and spoke looseness Retighten sprocket bolt Inspect bearings Replace bearings Lubricate	● ●	● ●	 ● ●		 ● 	 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	●	●				

2

LUBRICATION

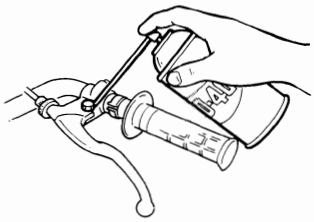
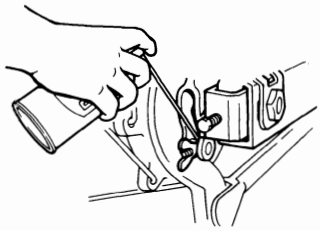
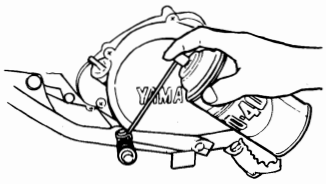
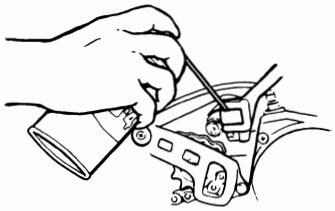
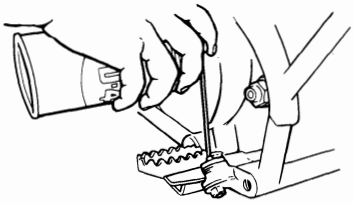
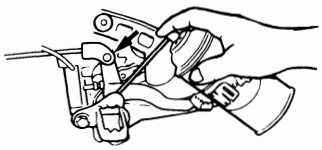
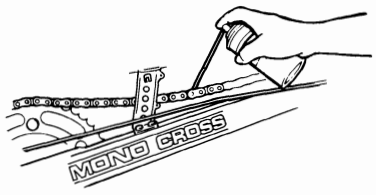
To ensure smooth operation of all components, lubricate your machine during setup, after break-in, and after every race.

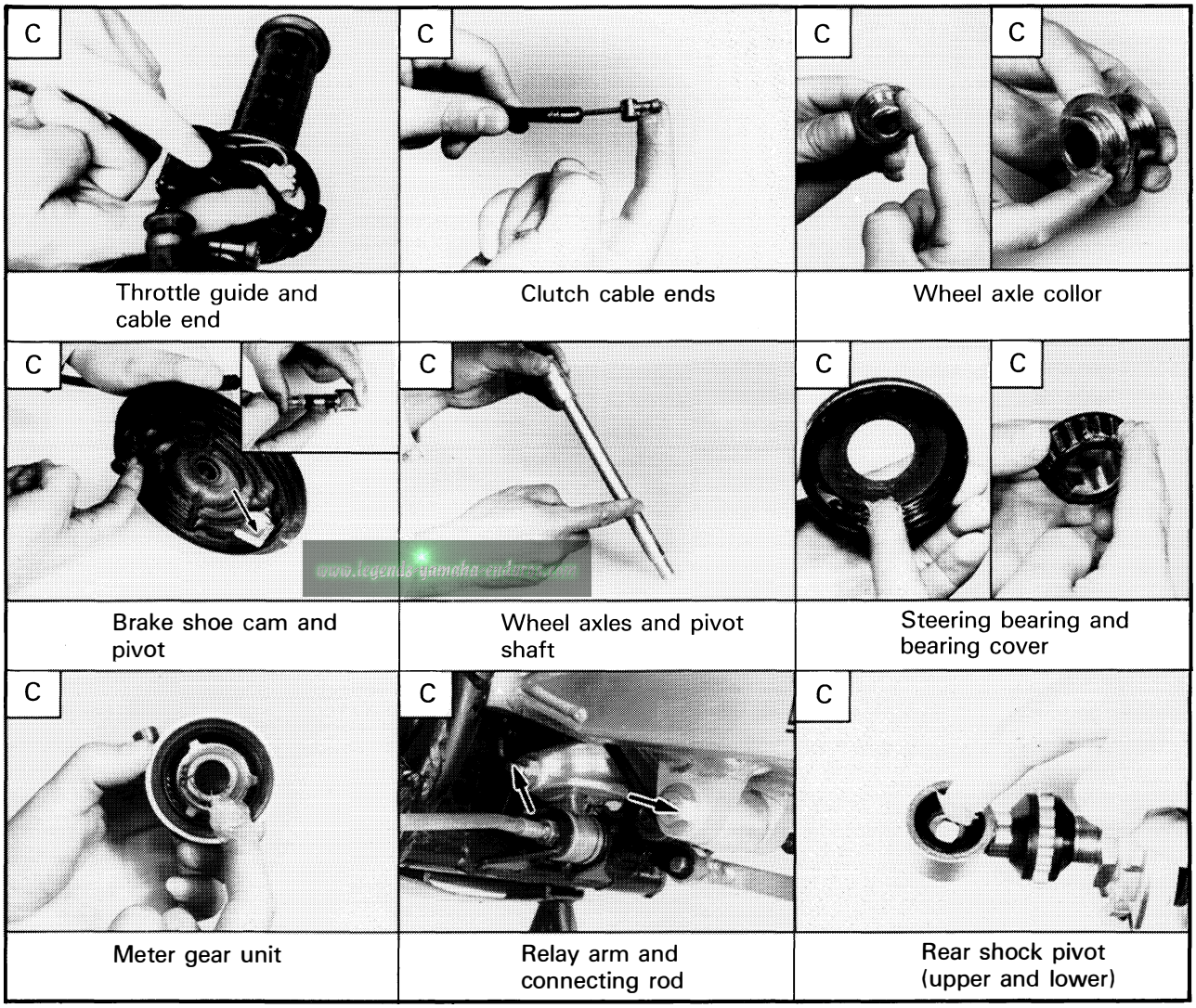
A. Use Yamaha cable lube, or WD-40 on these areas.
B. Use racing chain lube.
C. Lubricate the following areas with highquality, lightweight lithium-soap base grease.

CAUTION:

Wipe off any excess grease, and avoid getting grease on the brake disc and brake shoes.

2

A  All control cables	A  Brake and clutch lever pivots	A  Brake arm pivot
A  Shift lever pivot	A  Kick starter lever pivot	A  Footrest pivots
A  Throttle-to-handlebar contact	A  Brake rod pivot	B  Drive chain



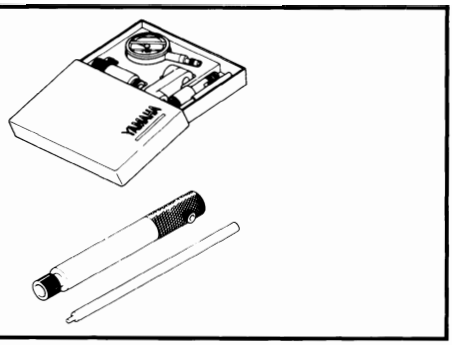
Throttle guide and cable end	Clutch cable ends	Wheel axle collor
Brake shoe cam and pivot	Wheel axles and pivot shaft	Steering bearing and bearing cover
Meter gear unit	Relay arm and connecting rod	Rear shock pivot (upper and lower)

SPECIAL TOOLS

The following special tools are required to perform maintenance, adjustments, and repairs on your machine. These tools can be obtained through your Yamaha dealer.

2

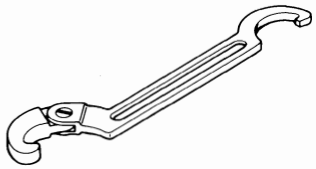
YU-03097
YU-01256



1. Dial Gauge and Stand Set
   P/N. YU-01256, YU-03097

These tools are used to set the ignition timing.

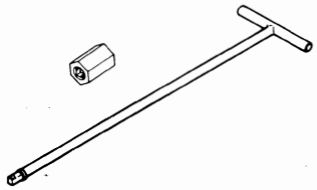
YU-01268



2. Steering Nut Wrench
   P/N. YU-01268

Use this wrench to put the proper tension on the steering head bearings.

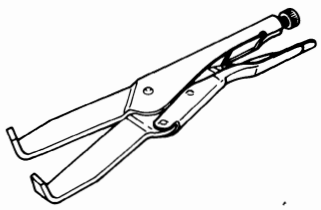
YM-33962
YM-01326



3. Fork Cylinder Holder and Adapter
   P/N. YM-33962, YM-01326

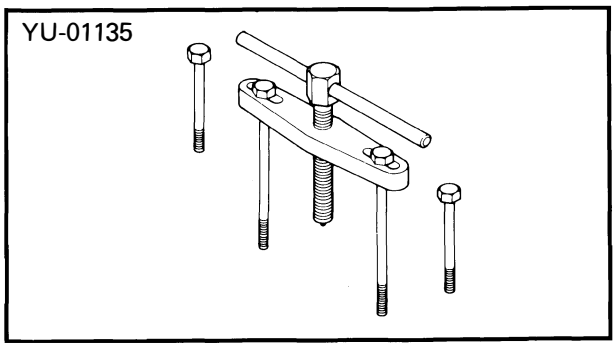
Use these tools to remove and install the fork cylinder.

YM-91042



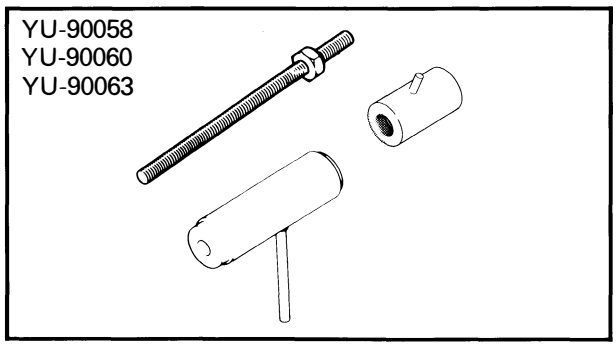
4. Clutch Holding Tool
   P/N. YM-91042

Use this tool to hold the clutch boss while removing or tightening the clutch boss nut.



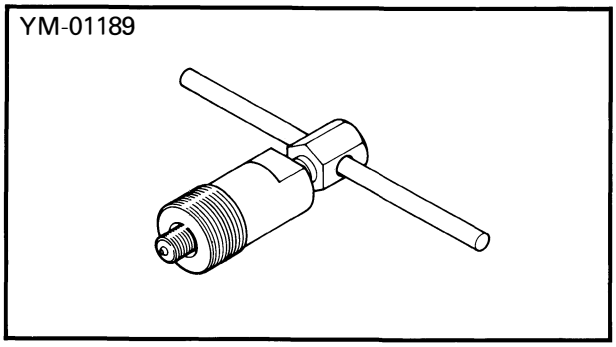
5. Crankcase Separating Tool
   P/N. YU-01135

This tool is used to split the crankcases as well as remove the crankshaft from either case.



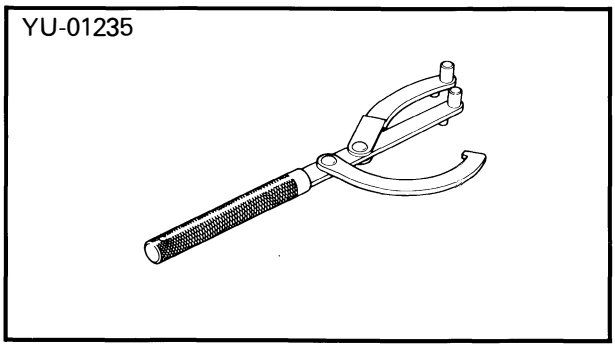
6. Crankshaft Installing Tool
   Pot
   P/N. YU-90058
   Bolt
   P/N. YU-90060
   Adapter
   P/N. YU-90063

These tools are used to install the crankshaft.



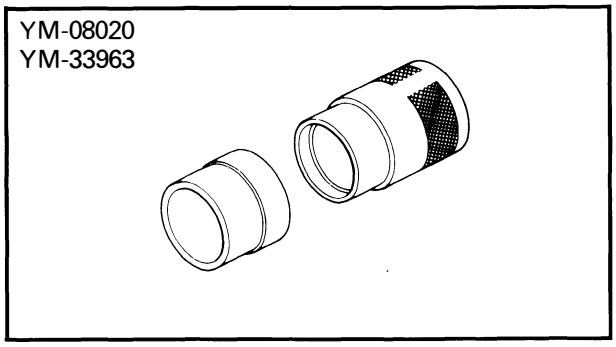
7. Rotor Puller
   P/N. YM-01189

This tool is used to remove the magneto.



8. Universal Rotor Holder
   P/N YU-01235

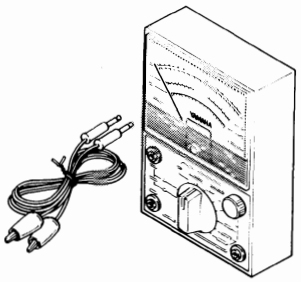
This tool is used to remove the magneto nut.



9. Fork Seal and Bushing Service Tool
   P/N. YM-08020, YM-33963

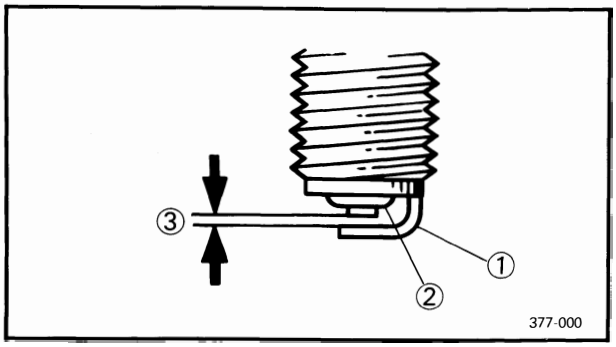
This tool is used to install the fork oil seal.

YU-03112



10. Yamaha Pocket Tester
P/N. YU-03112

Use this instrument to measure the coil resistance, output voltage and amperage.



MINOR MAINTENANCE AND ADJUSTMENTS

SPARK PLUG

1. Remove:
   - Spark plug
2. Inspect:
   - Electrode ①
     Wear/Damage → Replace.
   - Insulator color ②
3. Measure:
   - Plug gap ③
     Use a Wire Gauge or Feeler Gauge.
     Out of specification → Regap.

Spark Plug Gap:
0.5 ~ 0.6 mm (0.020 ~ 0.024 in)

Standard Spark Plug:
N-86, N-86G, N-2G, N-2C (CHAMPION)
B8EG, B8EGV (NGK)

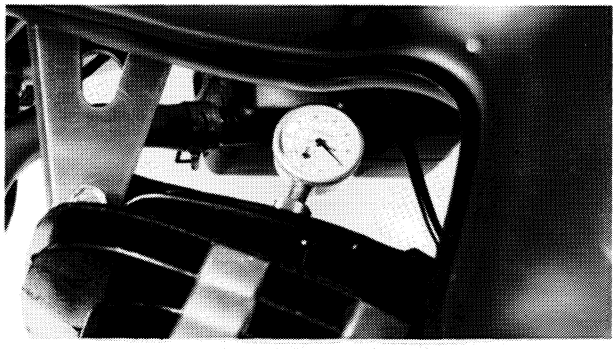
Before installing a spark plug, clean the gasket surface and plug surface.

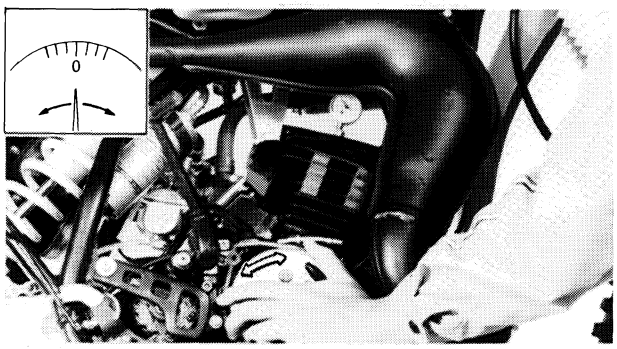
4. Tighten:
   - Spark plug

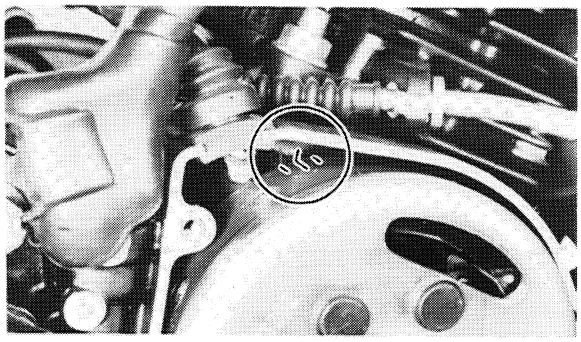
Spark Plug:
20 Nm (2.0 m•kg, 14 ft•lb)

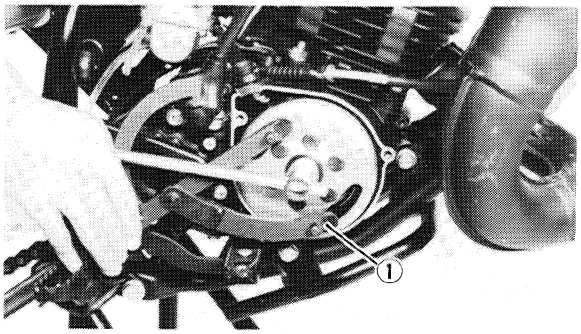
NOTE:

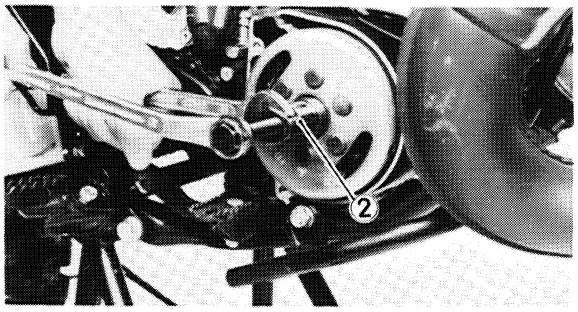
Finger-tighten the spark plug before torquing to specification.











IGNITION TIMING

Checking and Adjustment

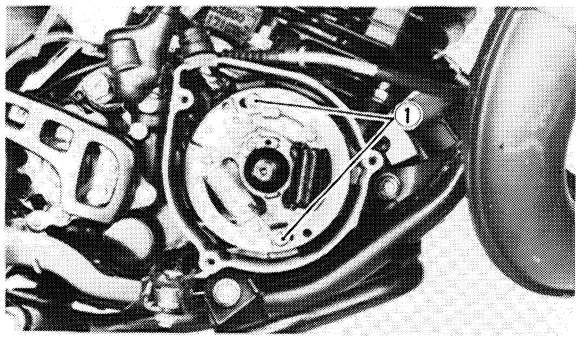
1. Check/Adjust:
   - Ignition timing

Ignition timing adjustment steps:

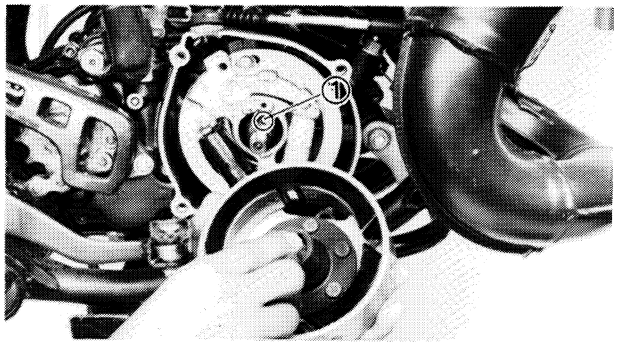
- Remove the YEIS chamber.
- Remove the spark plug.
- Install the extension on the dial gauge, and slide the dial gauge assembly into the dial gauge stand.
- Screw the dial gauge stand into the spark plug hole.
- Rotate the magneto rotor until the piston reaches top dead center (TDC). When this happens, the needle on the dial gauge will stop and reverse directions even though the rotor is being turned in the same direction. Zero the dial gauge at TDC.
- From TDC, rotate the rotor counterclockwise until the dial gauge indicates that the piston is at a specified distance from TDC. At this point, the scribed marks on the rotor and the crankcase should be aligned.

Ignition Timing: (B.T.D.C)
2.25~2.60 mm (0.089~0.102 in)

- If the marks are not aligned, punch a new mark on the crankcase in line with the rotor mark.
- Remove the flywheel magneto using the Universal Rotor Holder (YU-01235) ① and Rotor Puller (YM-01189) ②.

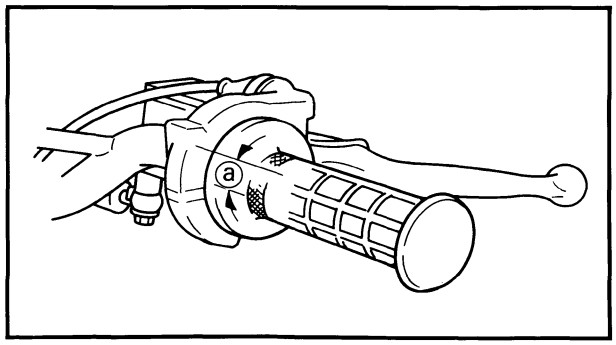


- Loosen the base set screws ① and turn the base right or left until the base mark aligns the new mark. And tighten the base set screws.



- Throughly degrease the crankshaft and flywheel magneto, and fit the woodruff key ① to the keyway correctly.
- Reinstall the flywheel and tighten the nut.

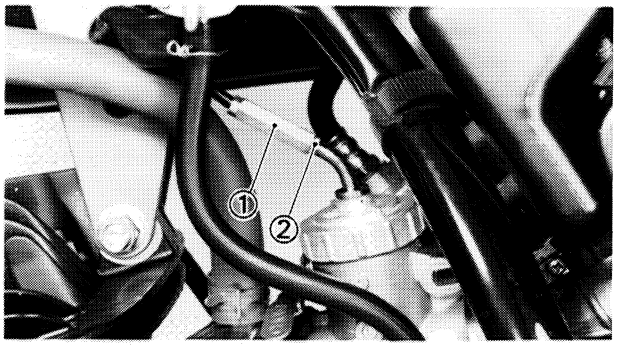
Tightening Torque:
98 Nm (9.8 m•kg, 71 ft•lb)



THROTTLE CABLE

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

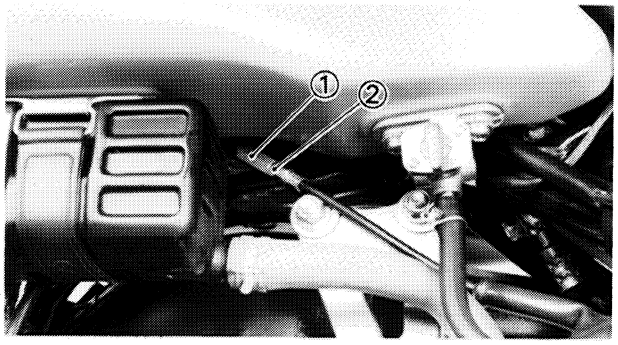
Free Play ⓐ:
3 ~ 5 mm (0.12 ~ 0.20 in)



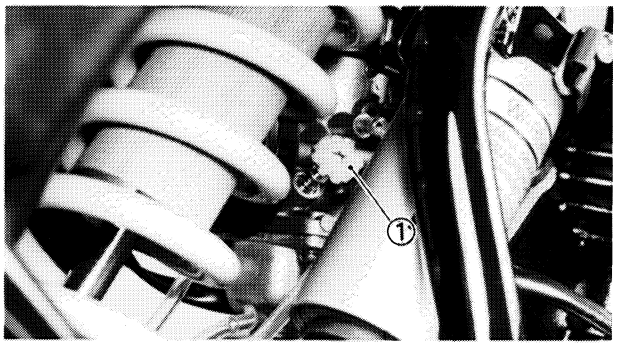
2. Adjust:
   - Throttle grip free play
     (by turning the adjuster ① in or out)

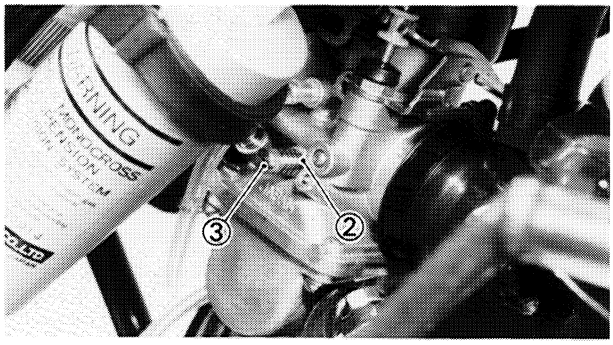
NOTE:

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



② Locknut





IDLE SPEED

1. Warm up engine for a few minutes.
2. Adjust:
   - Idle speed

Idle speed adjusting steps:
- Screw in the pilot air screw ① until it is lightly seated.
- Back out by the specified number of turns.

Pilot Air Screw:
3/4 turns out

- Loosen the locknut ② on the throttle stop screw ③ and turn the screw until the idle is at the desired rpm.
- Turn the pilot air screw ① in or out in 1/8-turn increments to achieve the highest rpm with just the pilot screw.
- Once again, turn the throttle stop screw ③ to attain the desired idle rpm, and tighten the locknut ②.

2

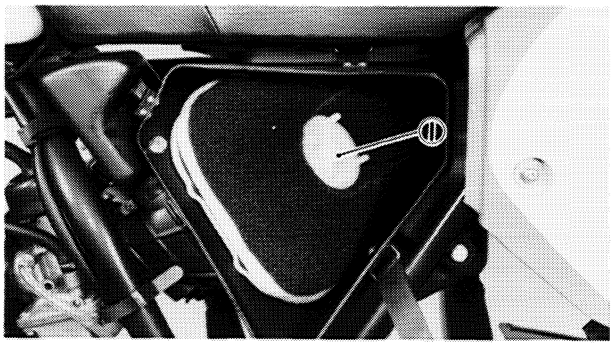
The throttle response off idle should be crisp and clean, without any hesitation. If the engine is completely warmed up and hesitates off idle, turn the pilot air screw in or out in 1/8-turn increments until the problem is eliminated.

AIR FILTER

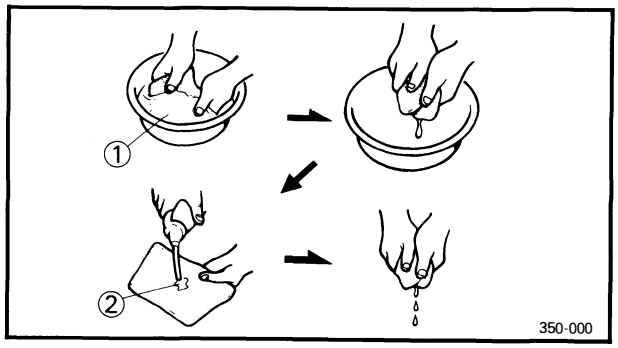
Proper air filter maintenance is the biggest key to preventing premature engine wear and damage.

CAUTION:

Never run the engine without the air filter element in place; this would allow dirt and dust to enter the engine and cause rapid wear and possible engine damage.



1. Remove:
   - Left side cover
   - Fitting nut ①
   - Air filter element
   - Air filter guide



2. Inspect:
   - Element

   Contamination → Clean element with solvent ①.

NOTE:

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

3. Apply:
   - Foam-air-filter oil ②

   (to the element)

NOTE:

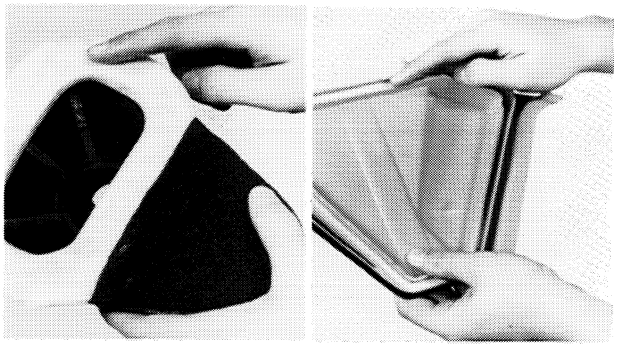
Sqeeze out the excess oil. Element should be wet but not dripping.

4. Install:
   - Air filter guide

5. Apply:
   - Lightweight lithium-soap base grease

   (to the sealing edge)

6. Install:
   - Air filter element
   - Fitting nut
   - Left side cover

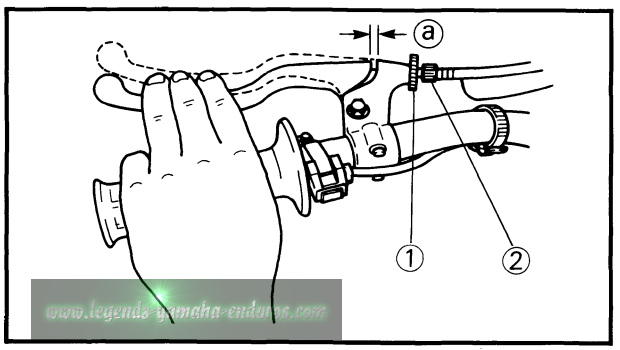


CLUTCH

To avoid clutch slipping or dragging, the clutch mechanism and cable must be adjusted correctly.

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

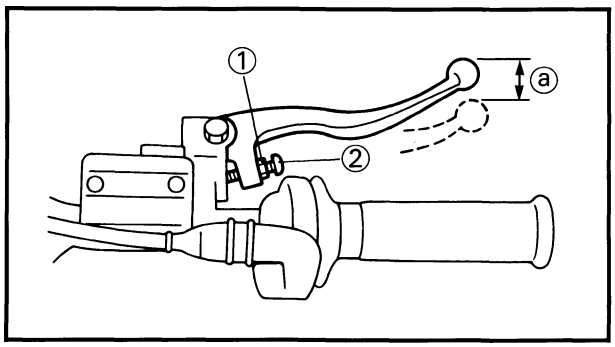
   Turn the adjusters ② clockwise or counter-clockwise until proper lever free play is attained.



Clutch Lever Free Play:
2 ~ 3 mm (0.08 ~ 0.12 in)

3. Tighten:
   - Locknuts

For the mecanical adjustment, refer to 3-20 of "Clutch mechanism adjustment".



FRONT BRAKE

Front Brake Lever Free Play Adjustment

CAUTION:

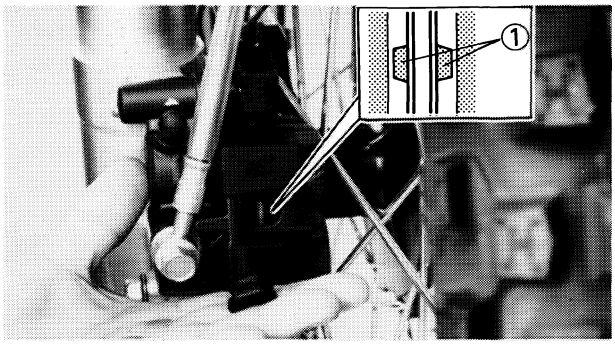
Proper lever free play is essential to avoid excessive brake drag.

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

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

Front Brake Lever Free Play:
10 ~ 20 mm (0.4 ~ 0.8 in)

3. Tighten:
   - Locknut

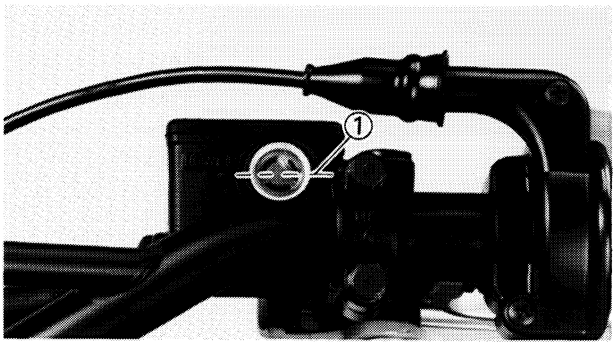


Front Brake Pad

1. Remove:
   - Rubber plug
2. Inspect:
   - Brake pads

   Over wear limit ①→Replace as a set.

Front Brake Pad Wear Limit:
0.8 mm (0.03 in)



Brake Fluid

1. Observe:
   - Brake fluid level

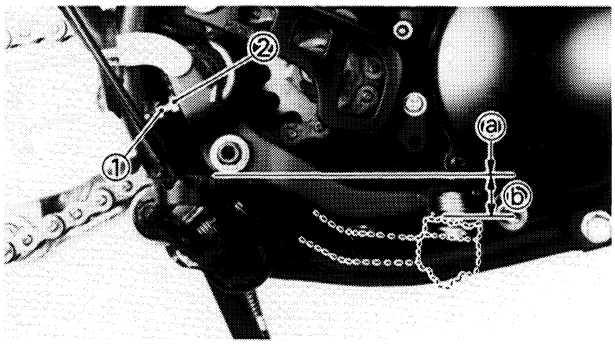
   Fluid at lower level→Replenish.

① Lower level

Brake Fluid:
DOT #3

WARNING:

- **Use only designated quality brake fluid to avoid poor brake performance.**
- **Refill with same type and brand of brake fluid; mixing fluids could result in poor brake performance.**
- **Be sure that water or other contaminants do not enter master cylinder when refilling.**
- **Clean up spilled fluid immediately to avoid erosion of painted surfaces or plastic parts.**



REAR BRAKE

Rear Brake Pedal Height Adjustment

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

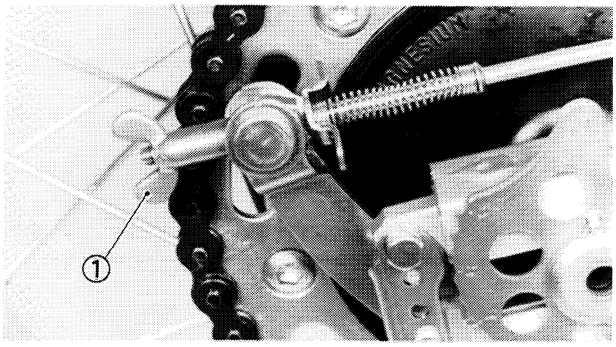
   Turn it clockwise or counterclockwise until proper brake pedal height ⓐ is attained.

ⓑ Free play

Rear Brake Pedal Free Play Adjustment

WARNING:

Adjust pedal height, then adjust brake pedal free play.



1. Rotate:
   - Adjuster ①

   Turn it clockwise or counterclockwise until proper brake pedal free play is attained.

Brake Pedal Free Play:
20 ~ 30 mm (0.8 ~ 1.2 in)

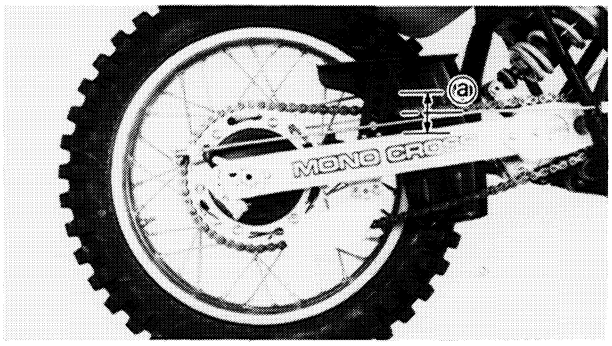
DRIVE CHAIN

* For the inspection of the sprocket and chain, refer to 4-5.

Drive Chain Slack Check

NOTE:

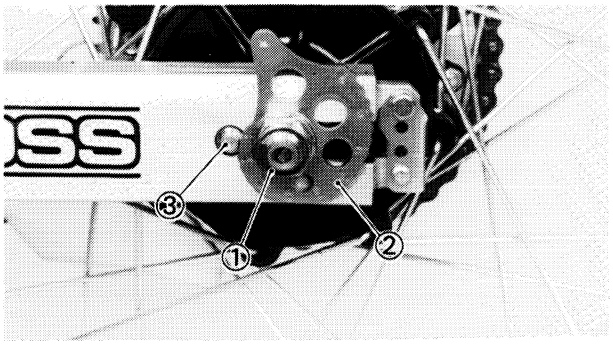
Before checking and/or adjusting, rotate the rear wheel through several revolutions and check the tension several times to find the tightest point. Check and/or adjust chain slack with rear wheel in this "tight chain" position.



1. Hold the machine standing vertically and rider on it.
2. Measure:
   - Chain slack ⓐ

   (at the position shown in the photograph.)
   Out of specification → Adjust chain.

Chain Slack ⓐ:
30 ~ 35 mm (1.2 ~ 1.4 in)



Drive Chain Slack Adjustment

1. Loosen:
   - Axle nut ①
2. Adjust:
   - Chain slack
     (by turning chain puller ② clockwise or counterclockwise)
3. Tighten:
   - Axle nut

③ Cam stopper

NOTE:

There are slot number on each side of adjuster; use same slot number for proper alignment.

	Axle Nut: **85 Nm (8.5 m•kg, 61 ft•lb)**

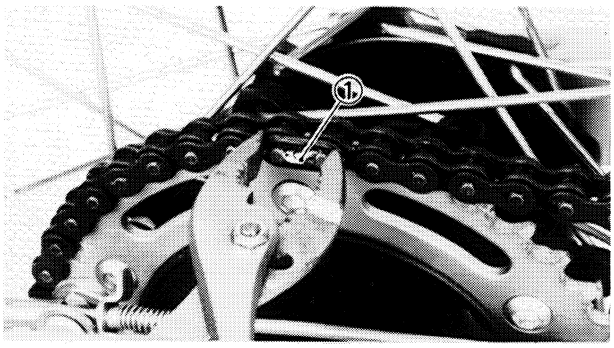
4. Adjust:
   - Brake pedal free play

CAUTION:

The brake pedal free play and the rear axle alignment must always be checked after the chain is adjusted or the rear wheel is removed.

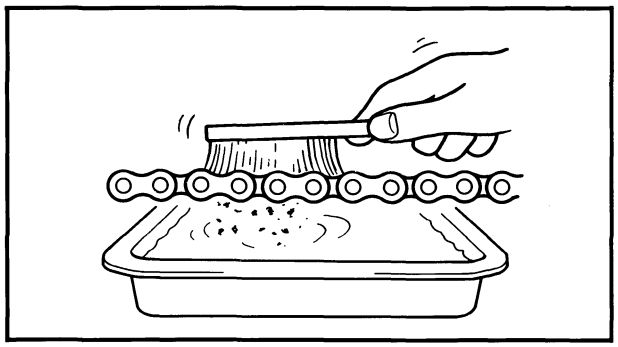
NOTE:

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

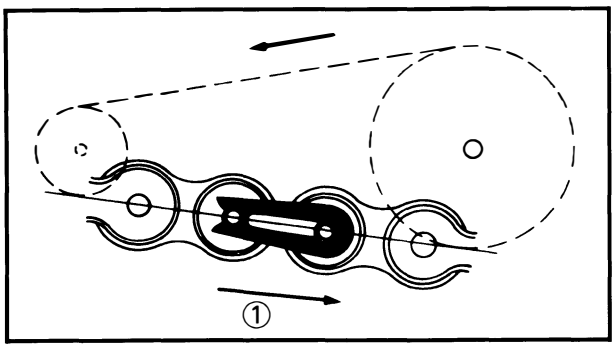


Drive Chain Maintenance

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



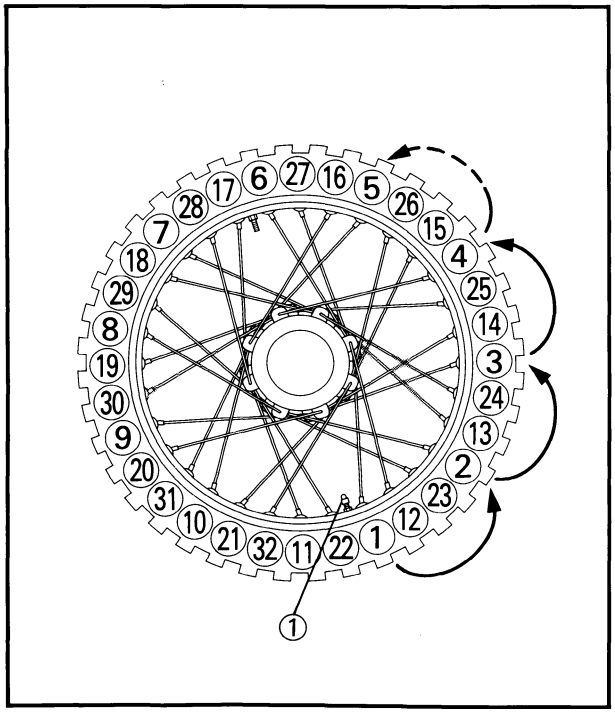
2. Clean:
   - Drive chain
   (Place it in solvent, and brush off as much dirt as possible. Then remove the chain from the solvent and dry the chain.)
3. Lubricate:
   - Drive chain



NOTE:

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

① Turning direction



SPOKES

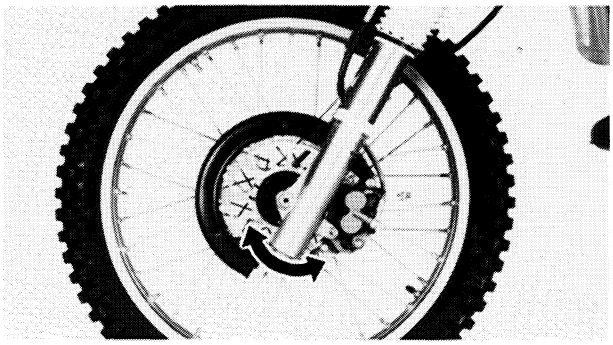
Be sure to retighten these spokes before and after Break-in.

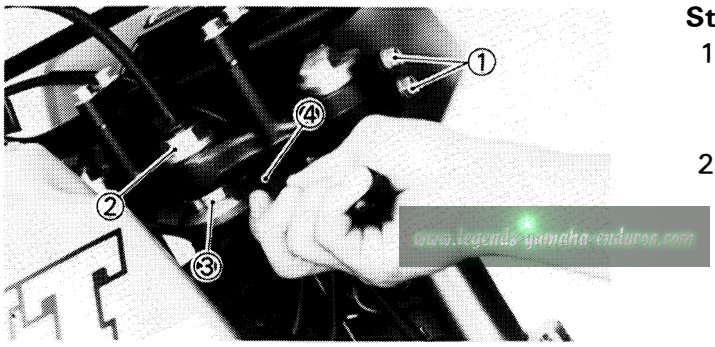
After a practice or a race check spokes for looseness.

1. Perform the retightening at an interval of three spokes as shown below.
2. The retightening will be completed at No. 32 after three turns of the wheel. If there still spokes that are short of torque, then repeat the same procedure.

① Air valve

	Nipple: **6 Nm (0.6 m•kg, 4.3 ft•lb)**





STEERING HEAD

Steering Head Inspection

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Check:
   - Steering assembly bearings
     Grasp the bottom of the forks and gently rock the fork assembly back and forth.
     Looseness → Adjust steering head.

Steering Head Adjustment

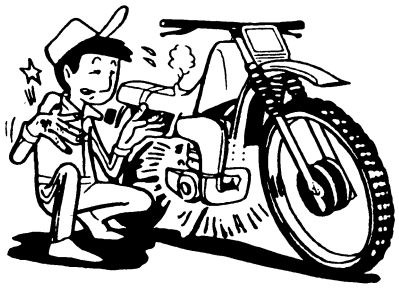
1. Loosen:
   - Upper front fork pinch bolts ①
   - Steering stem nut ②
2. Tighten:
   - Ring nut ③
     Use the Steering Nut Wrench ④ (YU-01268).
     Tighten the ring nut beneath the handle crown with the steering nut wrench until the free play is eliminated and there is no binding.

Steering Stem Nut:
85 Nm (8.5 m•kg, 61 ft•lb)
Pinch Bolt:
23 Nm (2.3 m•kg, 17 ft•lb)

CAUTION:

After a short running period, check steering head for proper adjustment.

CHAPTER 3
ENGINE MAINTENANCE AND REPAIR



ENGINE MAINTENANCE AND REPAIR

PREPARATION FOR SERVICE

Prior to beginning any work on the engine, take note of the following bits of advice; they will greatly facilitate your engine maintenance and repair:

NOTE:

The engine removal is required for the servicing of the transmission, crankshaft and bearings, oil seals, etc, of the crankcase. The procedures in page 3-2 to 3-24 are not accompanied by the engine removal.

- Clean your machine as described in the General Information section entitled, "Cleaning and Storage";
- Group the parts of each component on individual trays, and arrange the parts in the order of their removal;
- When replacing parts, always use the genuine Yamaha article to maintain optimum performance, durability, and safety;
- All gaskets and seals should be replaced during engine work, and all gasket surfaces should be clean;
- During assembly, always apply oil or grease to bearing surfaces to protect them upon initial start-up;
- Replace all circlips which are distorted from use or disassembly;
- Always replace cotter pins and piston pin clips after one use;
- Always clean and oil the threads of nuts, bolts, and screws during assembly, and torque them to the proper specifications whenever possible.

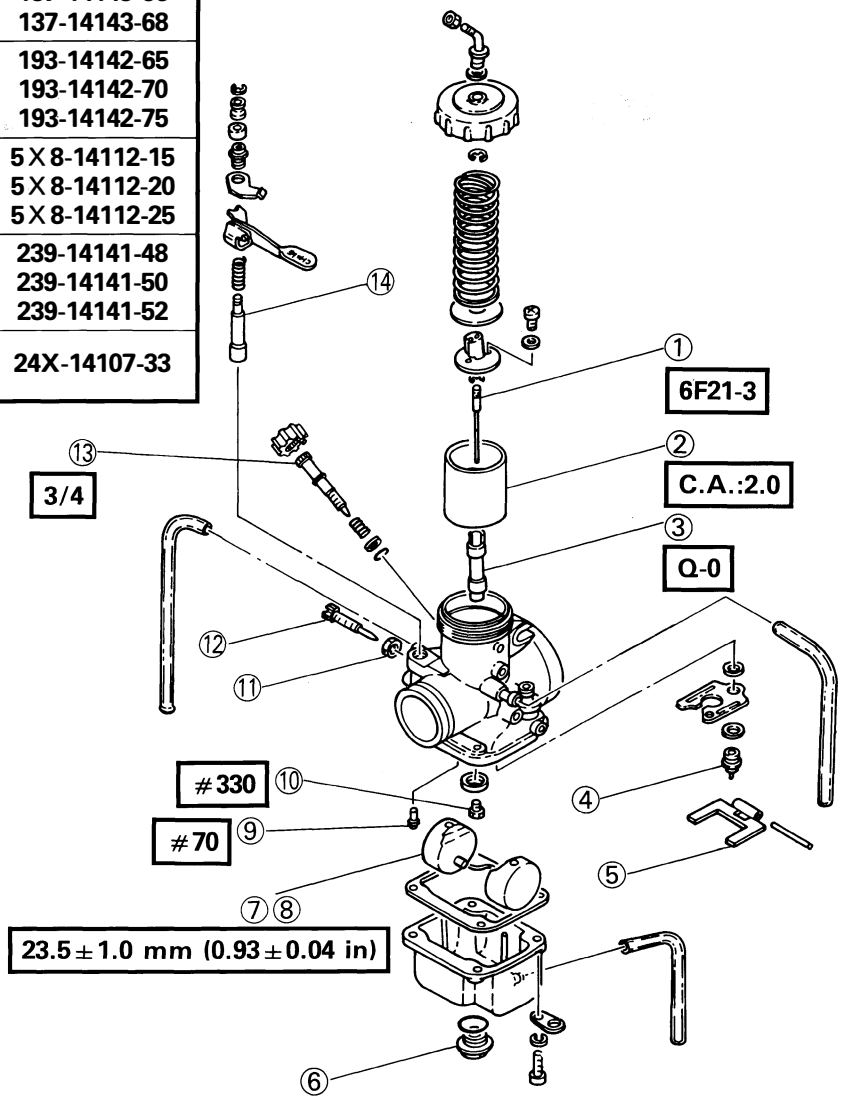
CARBURETION

CARBURETOR

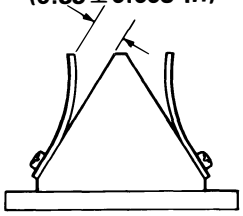
① Jet needle
② Throttle valve
③ Needle jet
④ Valve seat assembly
⑤ Float arm
⑥ Drain plug
⑦ Float height
⑧ Float
⑨ Pilot jet
⑩ Main jet
⑪ Locknut
⑫ Throttle stop screw
⑬ Pilot air screw
⑭ Starter plunger

SPECIFICATIONS	
MAIN JET (M.J.)	#330
JET NEEDLE (J.N.)	6F21-3
NEEDLE JET (N.J.)	Q-0
PILOT JET (P.J.)	#70
PILOT AIR SCREW (P.A.S.)	3/4 turns. out
FLOAT HEIGHT	23.5 ± 1.0 mm (0.93 ± 0.04 in)

PART NAME	SIZE	PART NAMBER
MAIN JET (STD)	#320	137-14143-64
	#330	137-14143-66
	#340	137-14143-68
PILOT JET (STD)	#65	193-14142-65
	#70	193-14142-70
	#75	193-14142-75
THROTTLE VALVE (STD)	1.5	5X8-14112-15
	2.0	5X8-14112-20
	2.5	5X8-14112-25
NEEDLE JET (STD)	P-8	239-14141-48
	Q-0	239-14141-50
	Q-2	239-14141-52
VALVE SEAT ASSEMBLY	ϕ3.3	24X-14107-33



A	STOPPER HEIGHT
	9.0 ± 0.2 mm (0.35 ± 0.008 in)

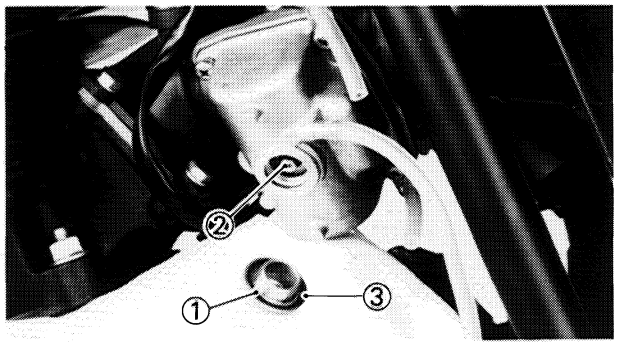


3

For details of carburetor tuning, refer to the Race Preparation and Tuning Manual.

IMPORTANT:

The carburetor has been set for operation at or near sea level; in most instances, it will not require changes. Some conditions, however, do demand carb setting changes to maintain performance. If this is the case, make the changes in small increments and check the results with a spark plug check. Improper settings can lead to poor performance or possible engine damage. If you are in doubt as to what setting changes to make, consult your Yamaha dealer.



MAIN JET REPLACEMENT

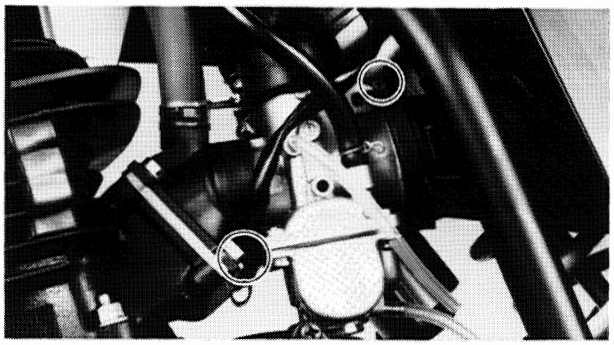
1. Loosen:
   - Clamps
2. Remove:
   - Drain plug ①
   - Main jet ②
3. Check:
   - O-ring ③

   Damage→Replace.

WARNING:

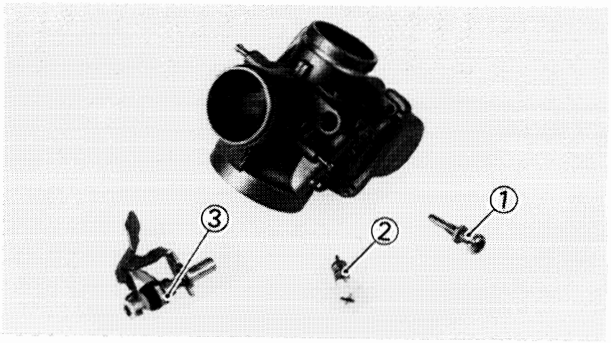
When the drain plug is removed, the fuel in the float bowl will drain. Do not remove the plug when the engine is hot. Place a rag under the carb when removing the plug to catch the fuel. Remove the plug in a well-ventilated area, away from any open flame. Always clean and dry the machine after completing main jet changes.

4. Install:
   - Main jet
   - Drain plug
5. Tighten:
   - Clamps

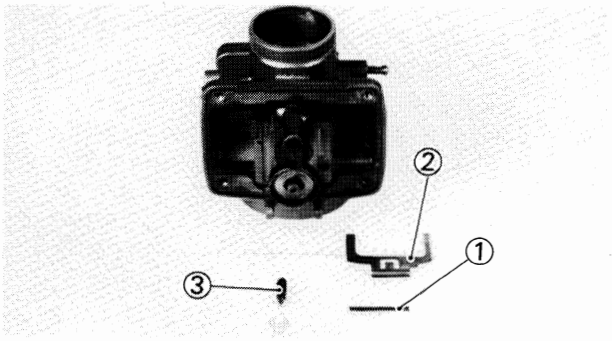


REMOVAL AND DISASSEMBLY

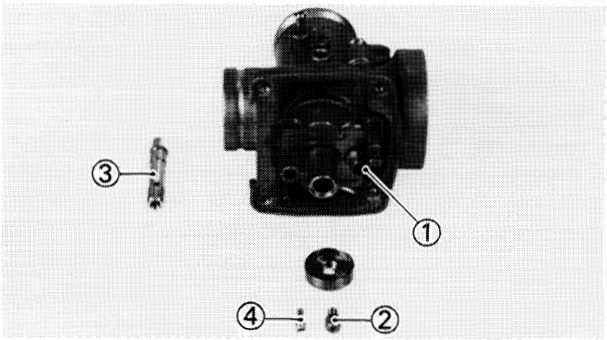
1. Loosen:
   - Clamps
2. Disconnect:
   - Fuel hose
3. Remove:
   - Carburetor assembly



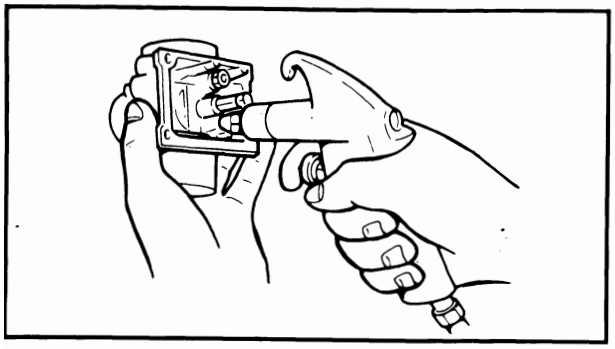
4. Remove:
   - Pilot air screw ①
   - Throttle stop screw ②
   - Starter plunger ③



5. Remove:
   - Float chamber
   - Float pin ①
   - Float arm ②
   - Needle valve ③



6. Remove:
   - Valve seat ①
   - Main jet ②
   - Needle jet ③
   - Pilot jet ④

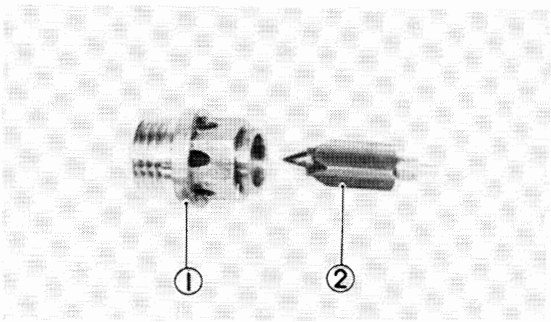


INSPECTION

1. Inspect:
   - Carburetor body
     Contamination → Clean.

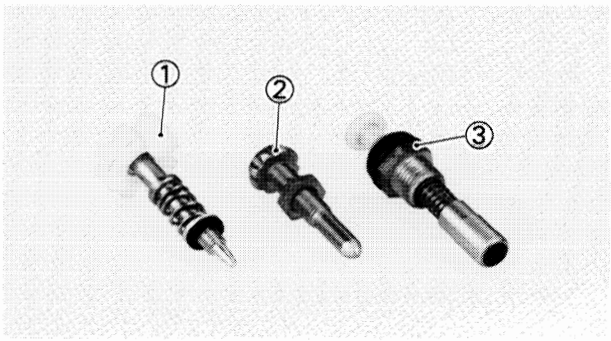
NOTE:

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

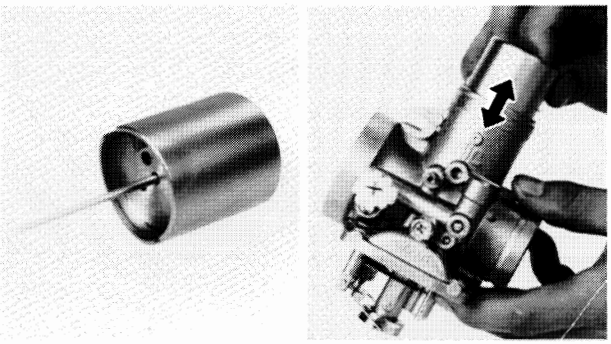


2. Inspect:
   • Valve seat ①/Needle valve ②
   Wear/Contamination → Replace.

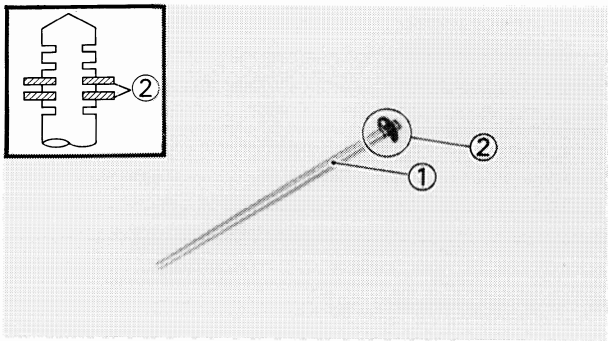
NOTE:
Always replace the needle valve and valve seat as a set.



3. Inspect:
   • Pilot air screw ①/Throttle stop screw ②/Starter plunger ③
   Wear/Contamination → Replace.

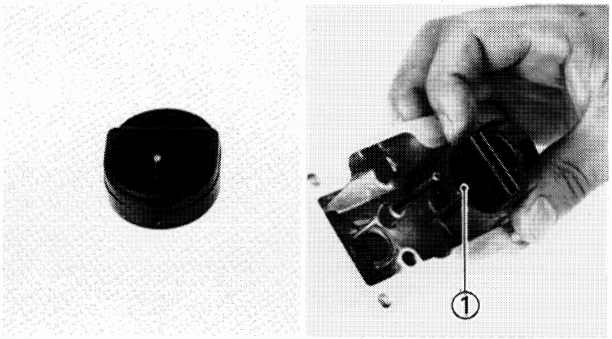


4. Inspect:
   • Throttle valve ①
   Wear/Damage → Replace.
5. Check:
   • Free movement
   Stick → Repair or replace.
   Insert the throttle valve into the carburetor body, and check for free movement.



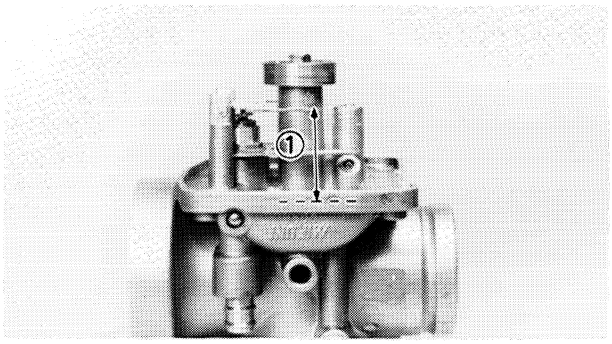
6. Inspect:
   • Jet needle ①
   Bends/Wear → Replace.
   • Clip position ②

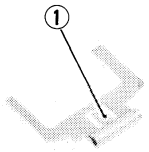
Standard Clip Position:
No. 3 Groove



7. Inspect:
   • Float
   Damage → Replace.

NOTE:
The float should be installed with the pins ① bottom.





8. Measure:
   - Float height ①
   Out of specification → Adjust.

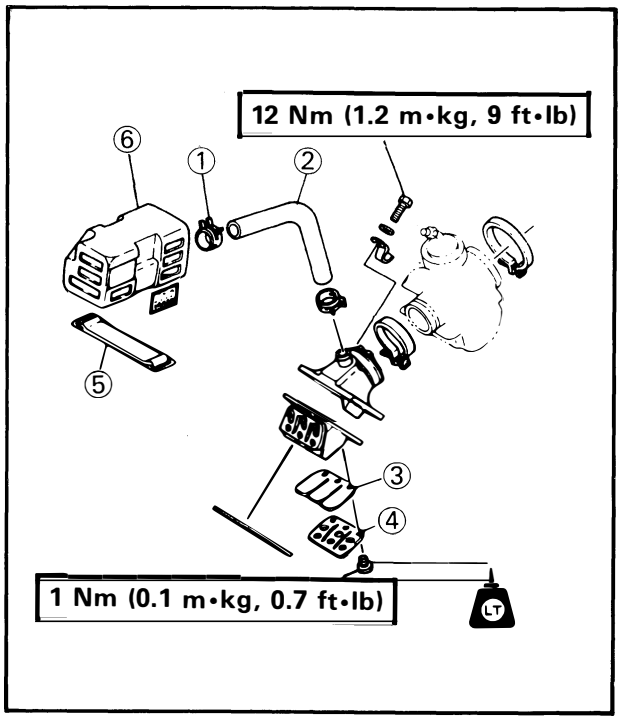
Float Height (F.H.):
23.5 ± 1.0 mm (0.93 ± 0.04 in)

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 tip of the float arm using a gauge.
- 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 tang ① on the float arm.
- Recheck the float height.

3

ASSEMBLY

1. Install:
   - Components in above list (Disassembly-Steps "4, 5, 6,".)
   Reverse the disassembly procedure.



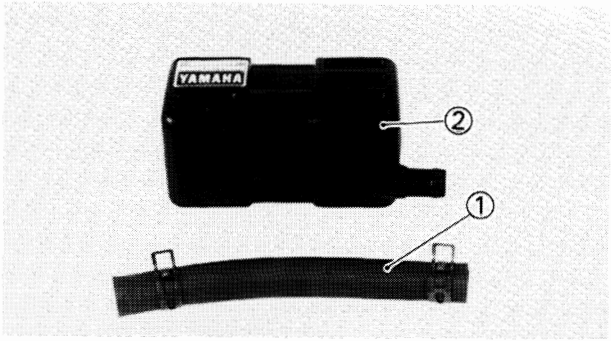
YAMAHA ENERGY INDUCTION SYSTEM (Y.E.I.S.)

CAUTION:

Never attempt to modify the Yamaha Energy Induction System.

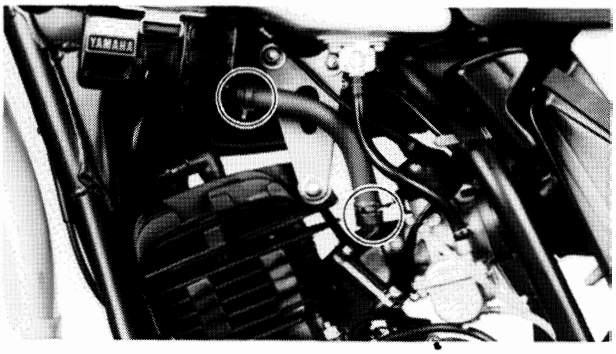
The air chamber and hose should be handled with special care.
Any imperfect connection or installation of these parts or damaged parts will have an adverse effect on the performance of the system. Check parts, and be sure to replace any defective one.

① Clip
② Hose
③ Reed valve
④ Reed valve stopper
⑤ Band
⑥ Air chamber



INSPECTION

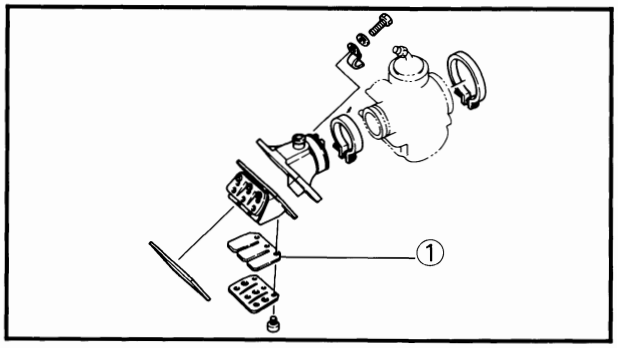
1. Inspect:
   - Hose ①
   - Air chamber ②
     Crack/Damage → Replace.



2. Check:
   - Hose fitting
     Loose → Tightly fit.

NOTE:

The fuel tank is attached to the Y.E.I.S. air chamber. When removing or mounting the fuel tank, first remove the band holding the air chamber.



REED VALVE

INSPECTION

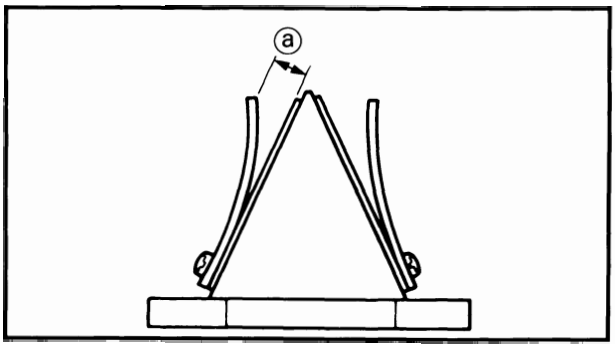
1. Inspect:
   - Rubber joint
     Weathering/Other Deterioration → Replace.
   - Reed petals ①
     Fatigue Cracks → Replace.

Inspection steps:
- Visually inspect the reed patals.

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.

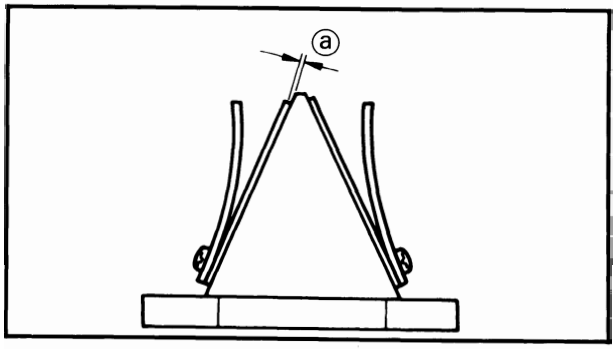


2. Measure:
   - Valve stopper height ⓐ
     Out of specification → Adjust stopper/ Replace valve stopper.

Valve Stopper Height:
9.0 ± 0.2 mm (0.354 ± 0.008 in)

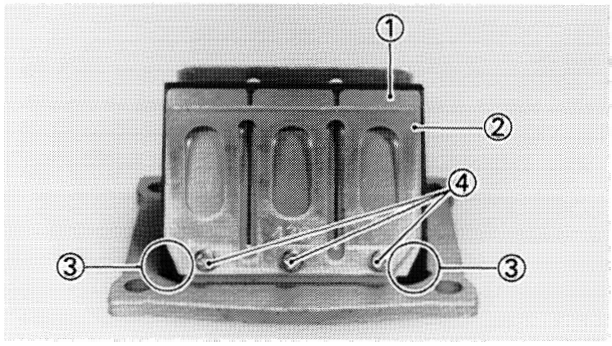
NOTE:

If it is 0.2 mm (0.008 in) more or less than specified, replace the valve stopper.



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

Reed Valve Bending Limit:
1.4 mm (0.055 in)



ASSEMBLY

1. Install:
   • Reed valve ①
   • Reed valve stopper ②

NOTE:

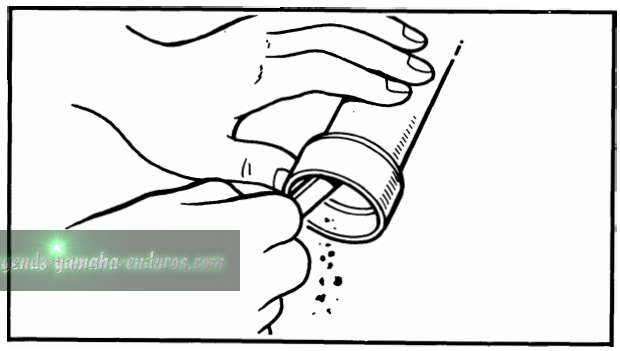
Note the cut ③ in the lower corner of the reed and stopper plate.

2. Tighten:
   • Reed valve securing screws ④
   Use LOCTITE®

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

NOTE:

Tighten each screw gradually to avoid warping.



MUFFLER

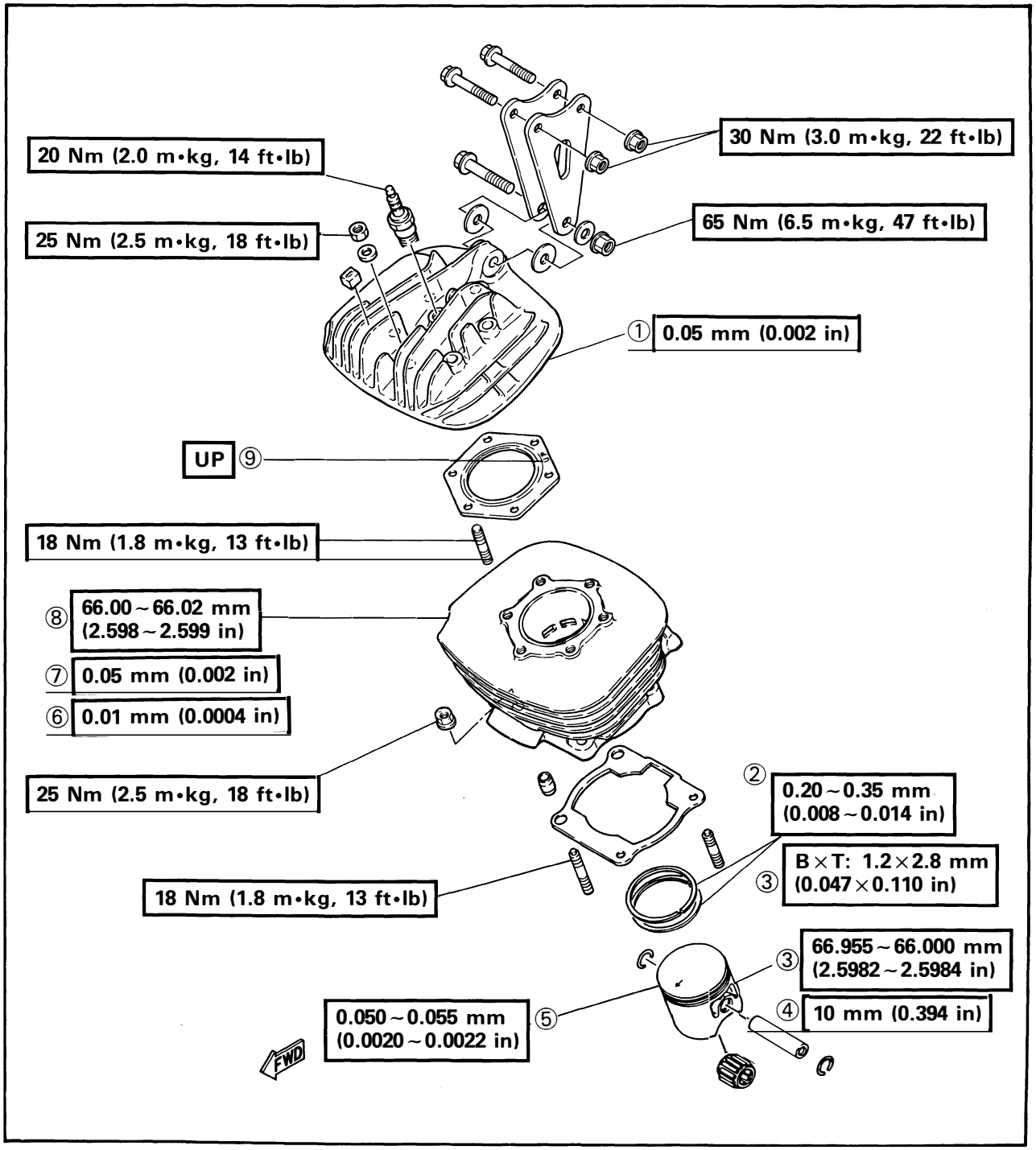
MAINTENANCE

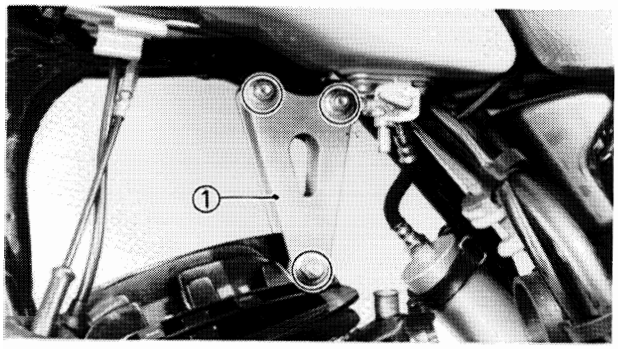
1. Check:
   • Exhaust pipe
   Crack → Repair or replace.
2. Remove:
   • Carbon deposits
   (from manifold area)

3. Check:
   • Silencer
   Large carbon buiied up → Replace.

CYLINDER HEAD

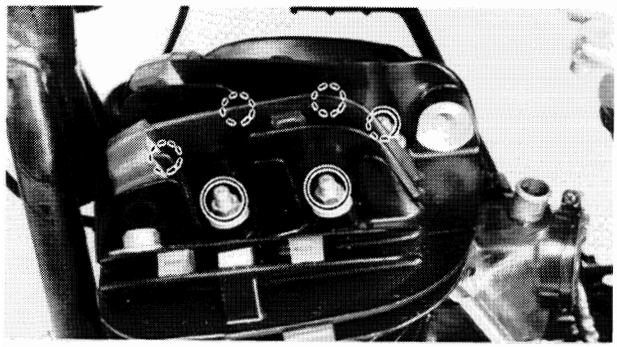
① Warp limit
② End gap (installed)
③ Size
④ Measuring point
⑤ Piston clearance
⑥ Out of round limit
⑦ Taper limit
⑧ Bore size
⑨ Mark





REMOVAL

1. Remove:
   - Spark plug cap
   - Cylinder head holding brackets ①

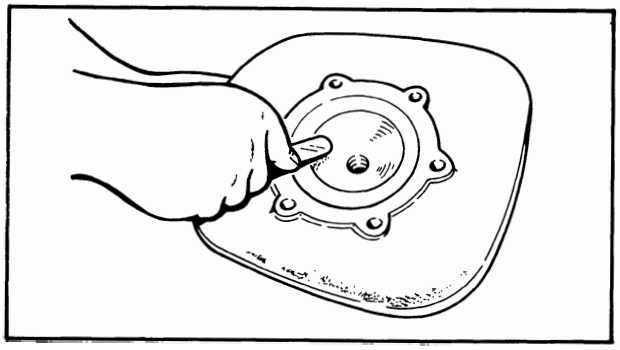


2. Loosen:
   - Cylinder head nuts

CAUTION:

The cylinder head holding nuts should be loosened 1/4 turn each time, and remove.

3. Remove:
   - Cylinder head
   - Cylinder head gasket



MAINTENANCE

1. Remove:
   - Carbon deposits
     Use a rounded scraper

NOTE:

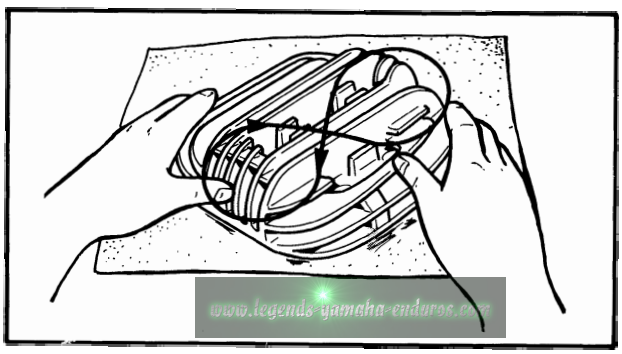
Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.

2. Inspect:
   - Cylinder head warpage
     Out of specification → Re-surface.

Warpage measurement and re-surfacement steps:

- Attach a straightedge and a thickness gauge on the cylinder head.
- Measure the warpage.

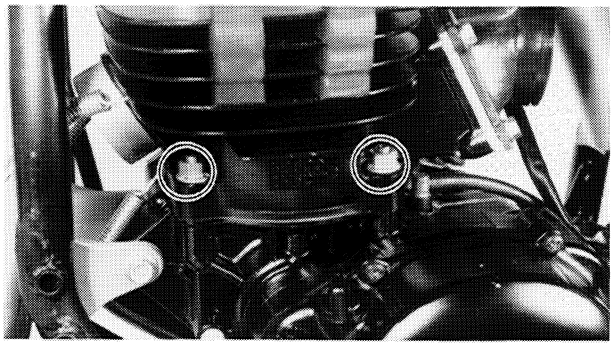
Warpage Limit:
0.05 mm (0.002 in)



- 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.

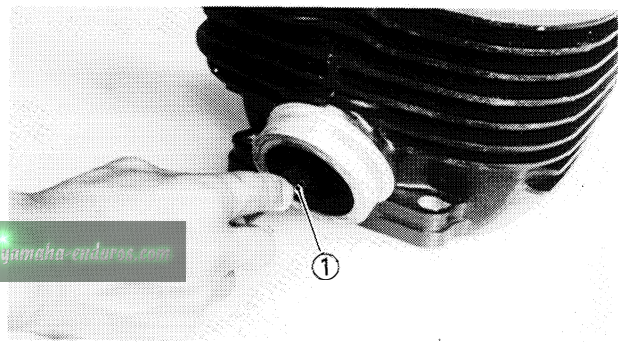
NOTE:

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



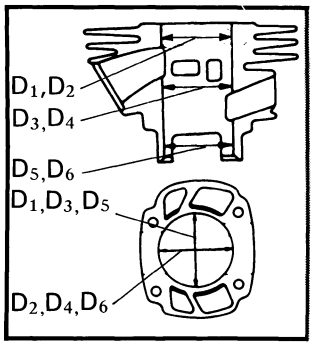
CYLINDER

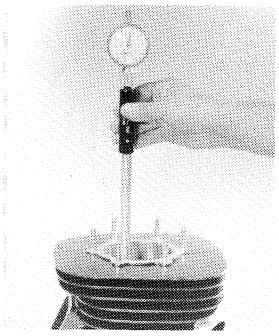
1. Loosen:
   - Cylinder holding nuts
     (in a crisscross pattern)
2. Remove:
   - Cylinder
   - Cylinder gasket



MAINTENANCE

1. Remove:
   - Carbon deposits
     Use a rounded scraper ①.
2. Inspect:
   - Cylinder wall
     Wear/Scratches→Rebore or replace.

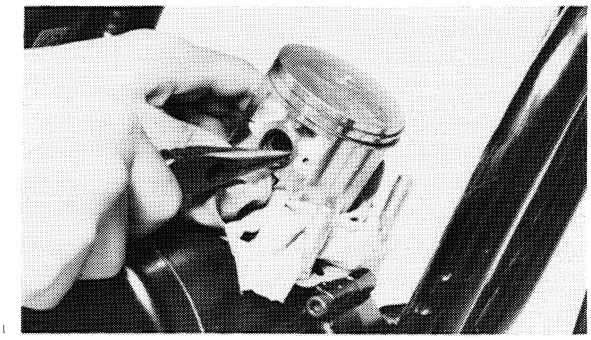


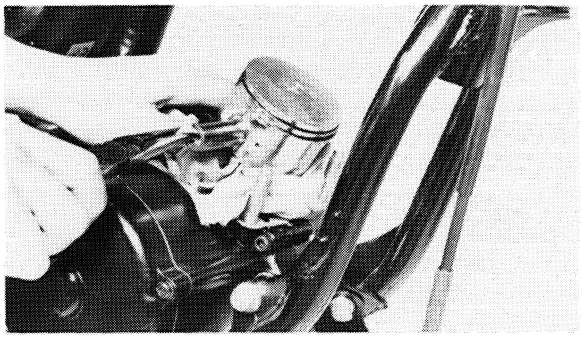


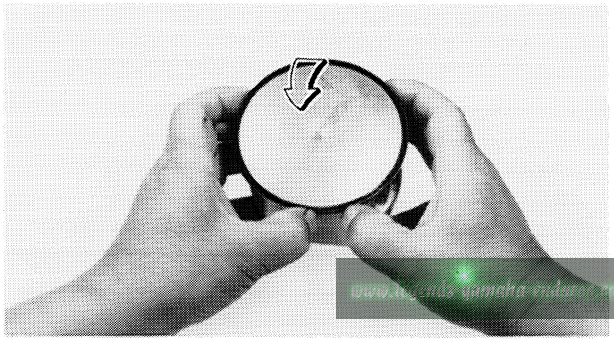
3. Measure:
   - Cylinder bore "C"
     Use a Cylinder Bore Gauge ①.
     Out of specification→Rebore.

	Standard	Wear limit
Cylinder bore "C"	66.00 mm (2.598 in)	66.10 mm (2.602 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 AND PISTON RINGS

REMOVAL

1. Remove:
   - Piston pin clip

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
   - Piston
   - Bearing

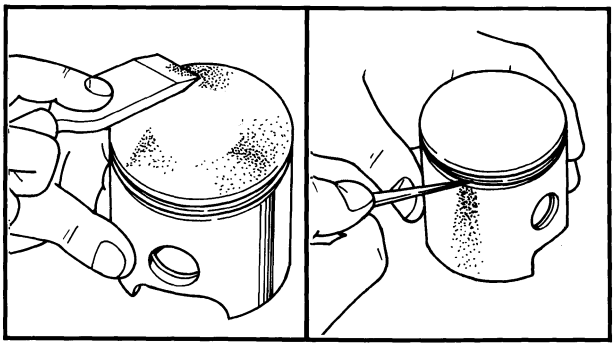
NOTE:

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.

CAUTION:

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

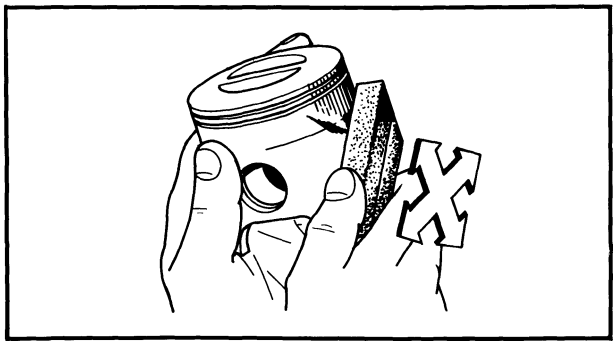
3. Remove:
   - Piston rings



MAINTENANCE

1. Remove:
   - Carbon deposits

   From the piston crown and ring groove.

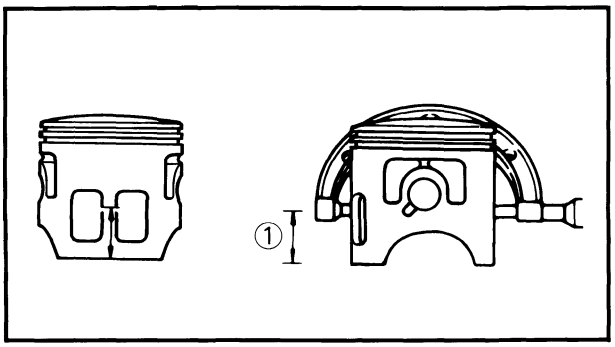


2. Remove:
   - Score marks

   From the piston wall.
   Use a 600 ~ 800 grit wet sandpaper.

NOTE:

Sand in a crisscross pattern. Do not sand excessively.



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

NOTE:

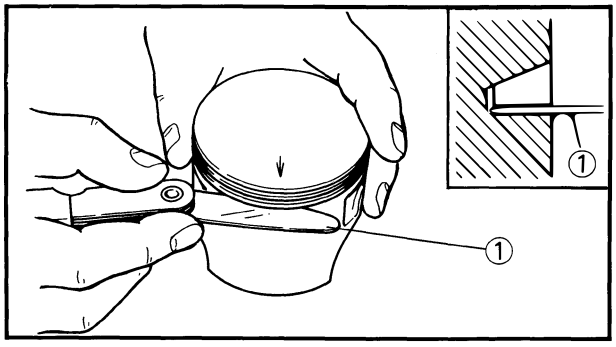
Measurement should be made at a point 10 mm (0.4 in) ① above the bottom edge of the piston.

	Size
Standard	**66.00 mm (2.598 in)**
Oversize 1	**66.25 mm (2.608 in)**
Oversize 2	**66.50 mm (2.618 in)**
Oversize 3	**66.75 mm (2.628 in)**
Oversize 4	**67.00 mm (2.638 in)**

4. Measure:
   • Piston clearance
   Out of specification → Rebore cylinder or replace piston.

A = C − P
A: Piston clearance
C: Cylinder bore
P: Piston outside diameter

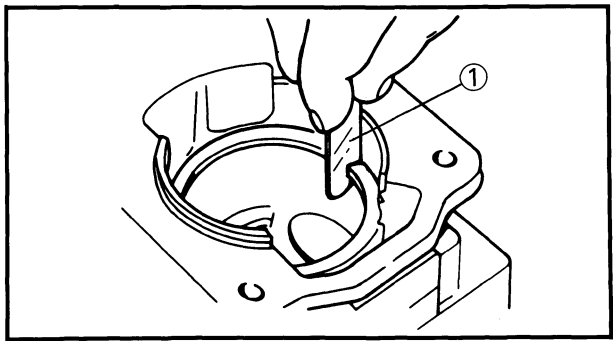
Piston Clearance:
0.050 ~ 0.055 mm
(0.0020 ~ 0.0022 in)
<Limit> 0.1 mm (0.004 in)



5. Measure:
   • Side clearance ⓐ
   Out of specification → Replace piston and/or rings.

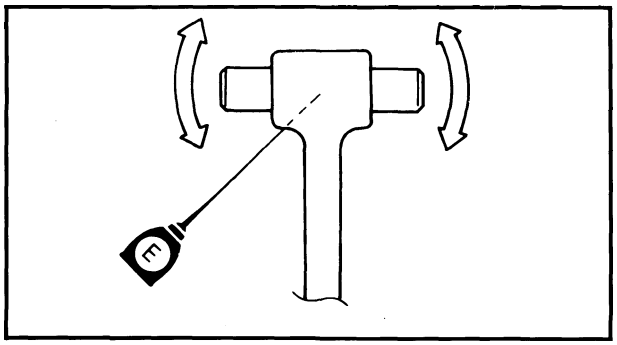
Side Clearance:
0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)
Limit: 0.08 mm (0.0032 in)

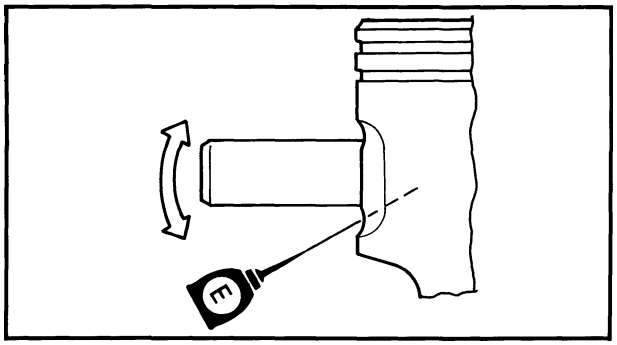
Use a Feeler Gauge ①.



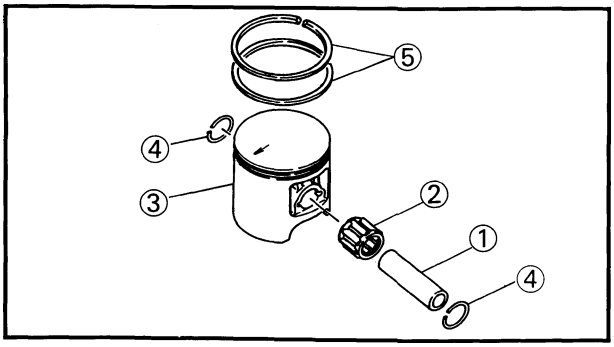
6. Install:
   • Piston rings
   (Into the cylinder)
   Push the rings with the piston crown.
7. Measure:
   • End gap
   Out of specification → Replace rings as a set.
   Use a Feeler Gauge ①.

Ring End Gap (Installed):
0.20 ~ 0.35 mm (0.008 ~ 0.014 in)
Limit: 0.8 mm (0.032 in)





8. Inspect:
   • Piston pin and bearing
   Signs of heat discoloration → Replace.
9. Lubricate:
   • Piston pin (lightly)
   • Bearing
10. Install:
   • Piston pin
   • Bearing
   (Into the small end of connecting rod)
11. 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.
12. Install:
   • Piston pin
   (Into the piston pin hole)
13. 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/piston.

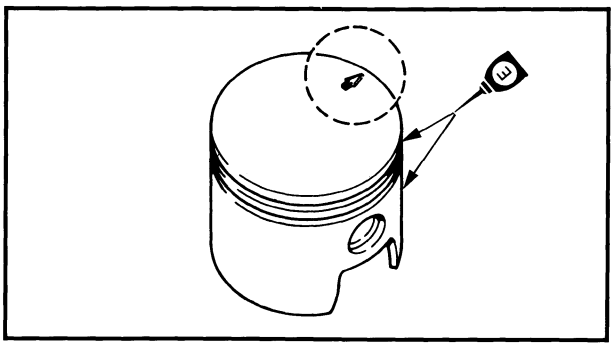


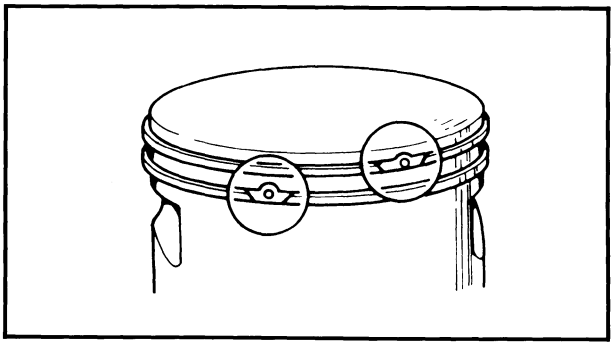
ASSEMBLY ABOVE CRANKCASE

PISTON AND PISTON RINGS

1. Lubricate:
   • Piston pin ①
   • Bearing ②
2. Install:
   • Bearing ②
   • Piston ③
   • Piston pin ①
   • Piston pin clips (New) ④
   • Piston rings ⑤

ASSEMBLY ABOVE CRANKCASE





NOTE:

The arrow on piston dome must face forward.

3. Lubricate:
   - Piston wall
   - Piston rings

Engine Oil:
(Same oil used for engine mixing oil)

CYLINDER

1. Install:
   - Dowel pins
   - Cylinder gasket (New)

CAUTION:

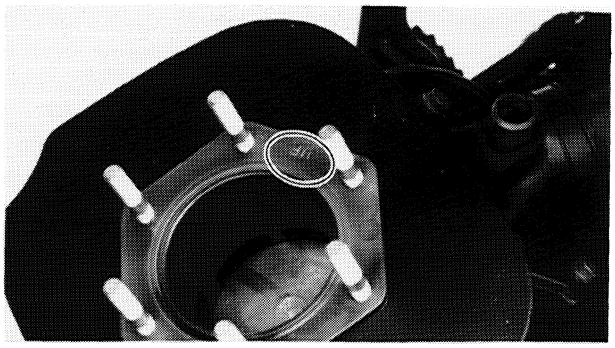
Make sure rings are properly positioned.

3. Install:
   - Cylinder

NOTE:

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

Cylinder Holding Nuts:
25 Nm (2.5 m•kg, 18 ft•lb)



CYLINDER HEAD

1. Install:
   - Cylinder head gasket (New)

NOTE:

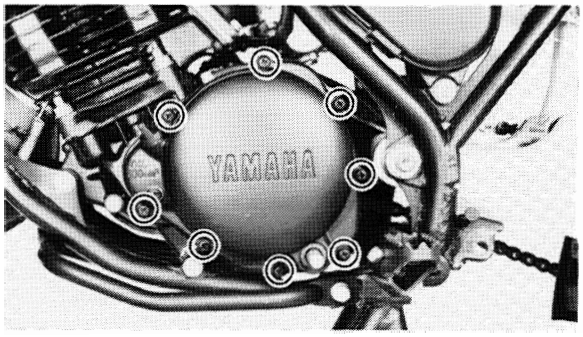
The head gasket should be installed with the "UP" mark facing upward.

   - Dowel pins
   - Cylinder head
   - Spark plug

NOTE:

Tighten the cylinder head holding nuts in stage, using a crisscross pattern.

Cylinder Head Holding Nuts:
25 Nm (2.5 m•kg, 18 ft•lb)



CRANKCASE COVER

REMOVAL

1. Drain:
   - Transmission oil
2. Remove:
   - Shift pedal
   - Crankcase cover

INSTALLATION

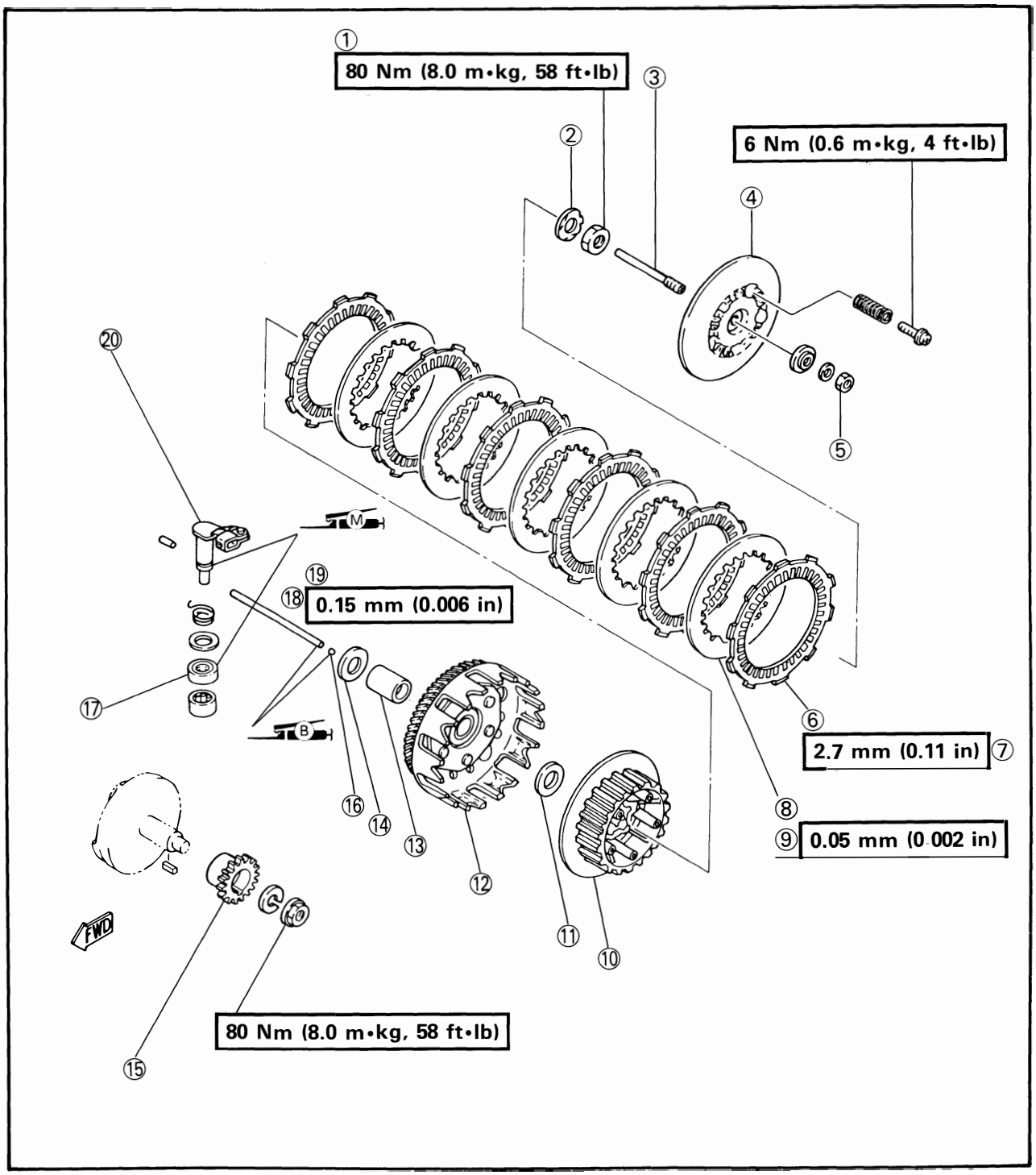
1. Install:
   - Crankcase cover

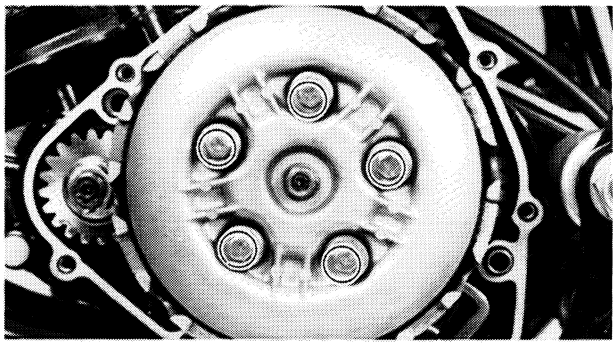
   Reverse removal steps.

	Crankcase Cover: **10 Nm (1.0 m•kg, 7.2 ft•lb)**

CLUTCH

① Clutch locknut
② Lock washer
③ Adjuster
④ Pressure plate
⑤ Locknut
⑥ Friction plate
⑦ Wear limit
⑧ Clutch plate
⑨ Warp limit
⑩ Clutch boss
⑪ Thrust washer
⑫ Clutch housing (Primary driven gear)
⑬ Spacer
⑭ Thrust washer
⑮ Primary drive gear
⑯ Ball
⑰ Oil seal
⑱ Push rod
⑲ Bending limit
⑳ Push lever assembly





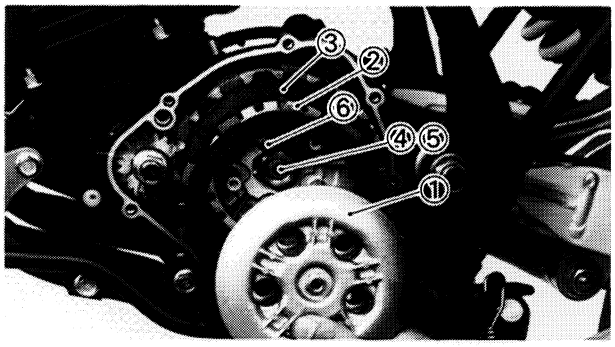
REMOVAL

1. Remove:
   - Clutch spring bolts

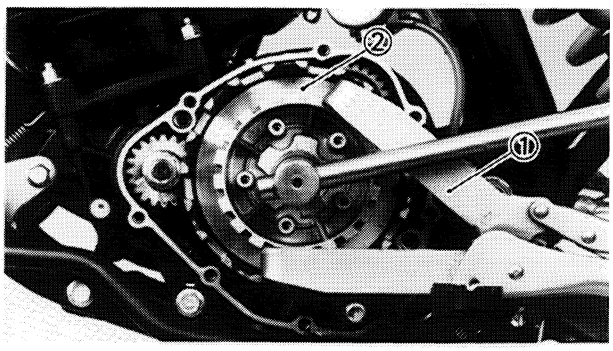
NOTE:

When removing phillips spring screws, loosen each screw in several stages working in a crisscross pattern.

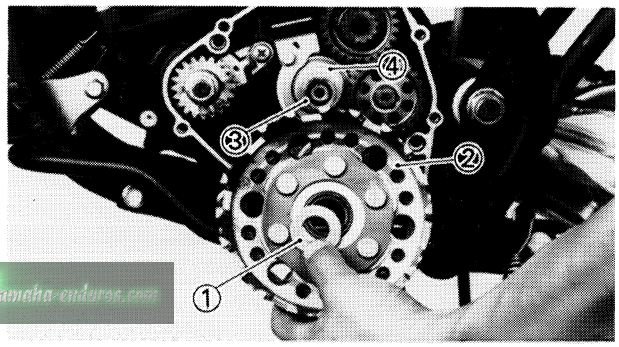
   - Clutch springs



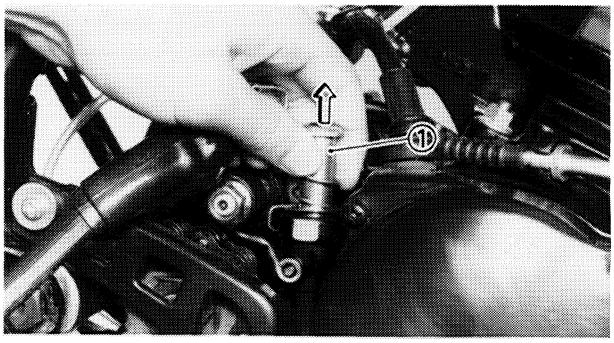
2. Remove:
   - Pressure plate ①
   - Friction plates ②
   - Clutch plates ③
   - Ball ④
   - Push rod ⑤
3. Straighten:
   - Lock washer tab ⑥



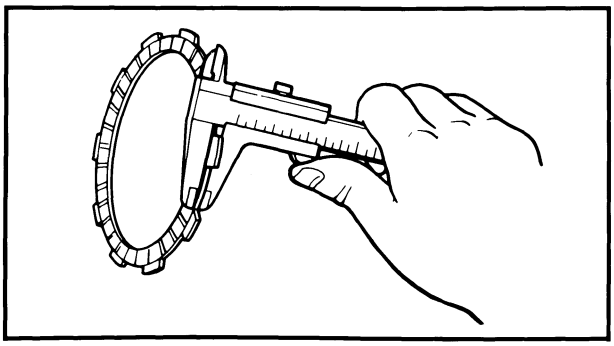
4. Remove:
   - Locknut
   - Lock washer
     Use Universal Clutch Holder ① (YM-91042) to hold the clutch boss.
   - Clutch boss ②



5. Remove:
   - Thrust washer ①
   - Clutch housing ②
   - Spacer ③
   - Thrust washer ④



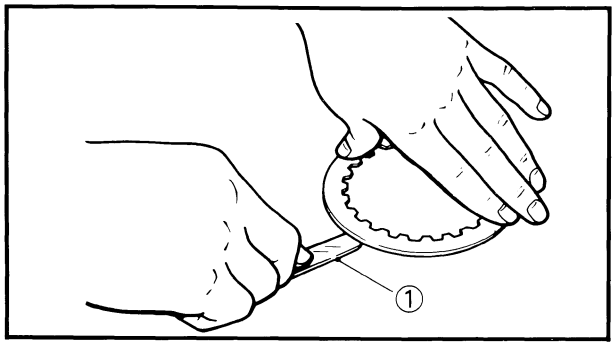
6. Remove:
   - Clutch push lever assembly ①



INSPECTION

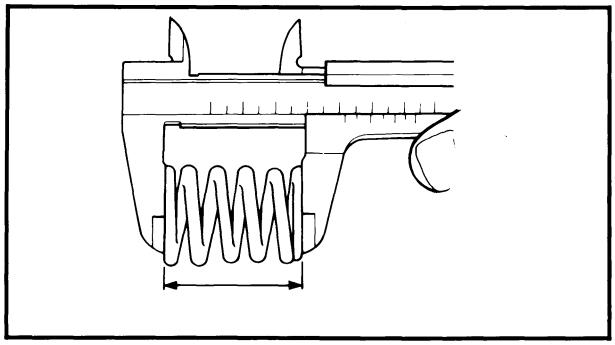
1. Measure:
   - Friction plate thickness
   Out of specification→Replace friction plate as a set.
   Measure at all four point.

Wear Limit: 2.7 mm (0.11 in)



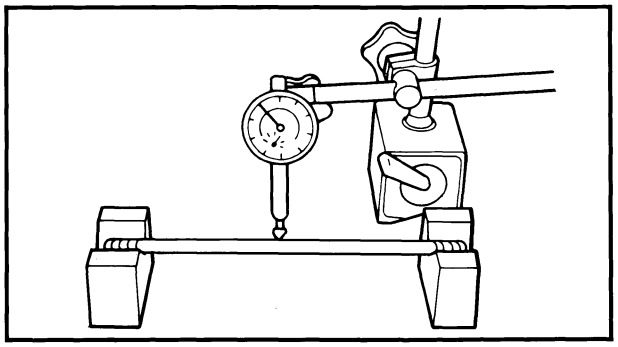
2. Measure:
   - Clutch plate warpage
   Out of specification→Replace clutch plate as a set.
   Use a surface plate and feeler gauge ①.

Warp Limit: 0.05 mm (0.002 in)



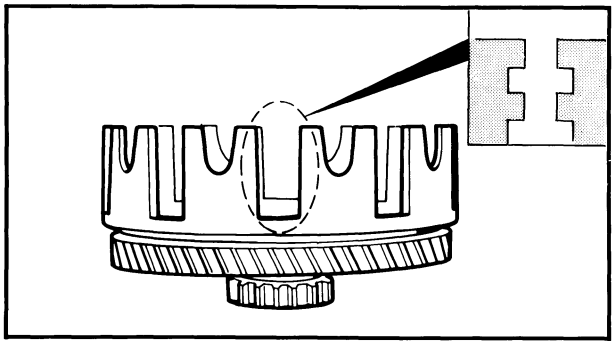
3. Measure:
   - Clutch spring free length
   Out of specification→Replace spring as a set.

Clutch Spring Minimum Length: 34.0 mm (1.34 in)

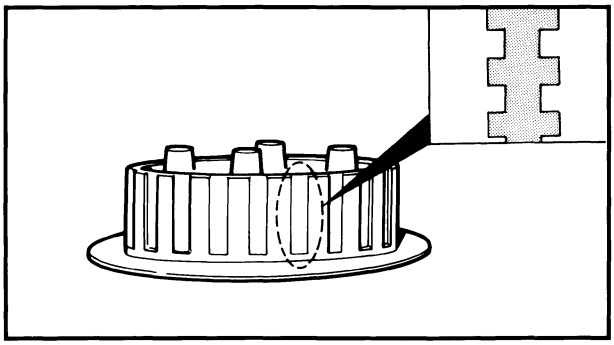


4. Measure:
   - Push rod runout (long rod)
   Out of specification→Replace.
   Use V-Blocks and Dial Gauge.

Bending Limit: 0.15 mm (0.006 in)



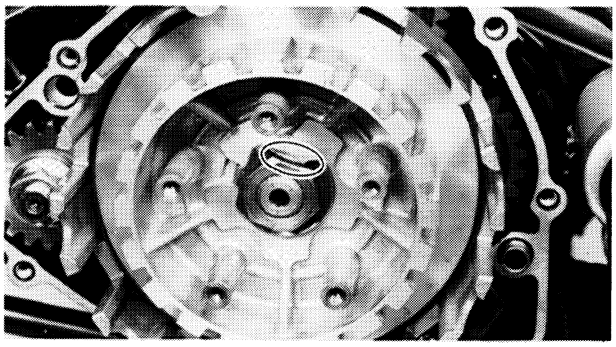
5. Inspect:
   - Dogs on the clutch housing
   Cracks/Wear/Damage→Deburr or replace.
   - Clutch housing bearing
   Chafing/Wear/Damage→Replace.

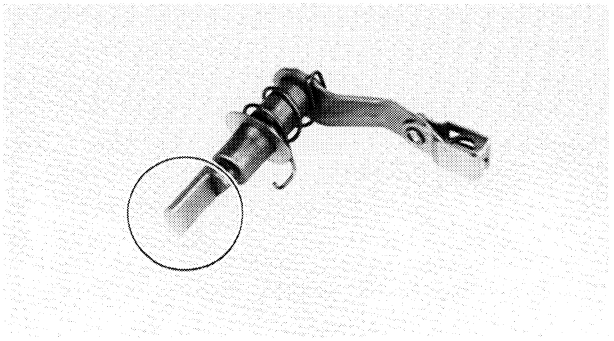


6. Inspect:
   - Clutch boss splines
     Scoring/Wear/Damage → Replace clutch boss.

NOTE:

Scoring on the clutch boss splines will cause erratic operation.





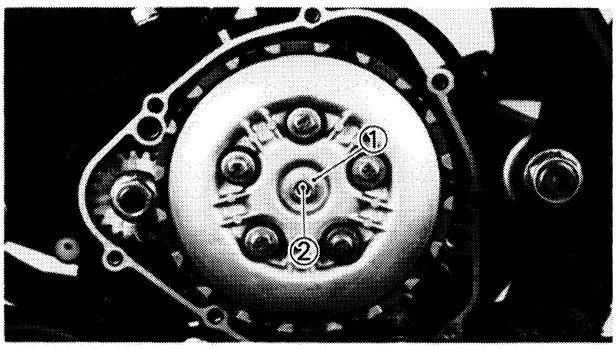
INSTALLATION

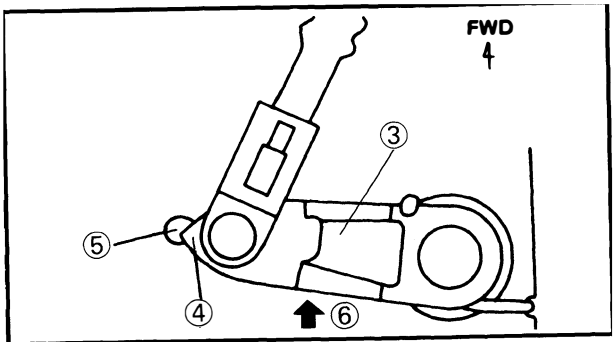
1. Install:
   - Clutch components
     Reverse removal steps.

Note the following installation points:
- When installing the clutch locknut, always use a new lock washer. After tightening the locknut to the specification, be sure to lock it with the lock washer.

Locknut:
80 Nm (8.0 m•kg, 58 ft•lb)

- Apply molybdenum disulfide grease to the push lever.





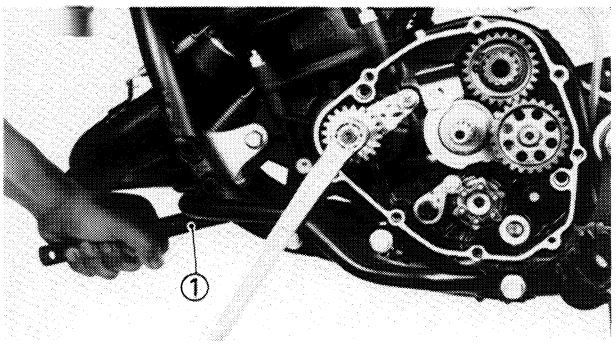
MECHANISM ADJUSTMENT

1. Loosen:
   - Locknut ①
2. Push the push lever ③ toward the front of the engine with your finger until it stops.
3. Adjust:
   - Free play
     With the push lever in this position, turn the adjuster ② either in or out until the point of push lever ④ and crankcase match mark ⑤ are aligned.

⑥ Push

4. Tighten:
   - Locknut

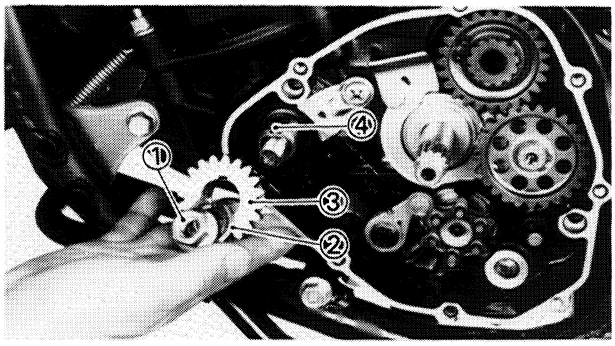
Locknut:
10 Nm (1.0 m•kg, 7.2 ft•lb)



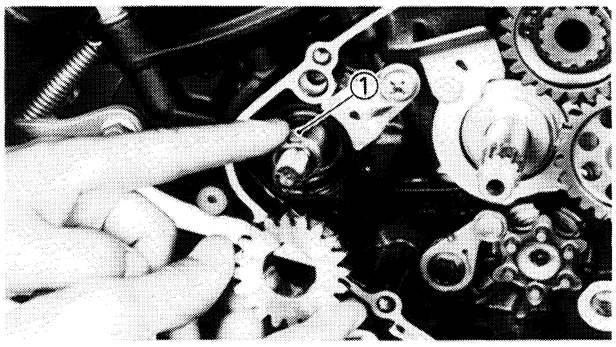
PRIMARY DRIVE GEAR

REMOVAL

1. Loosen:
   - Primary drive gear nut
     Use Universal Rotor Holder (YU-01235) ①
     to lock the crankshaft.



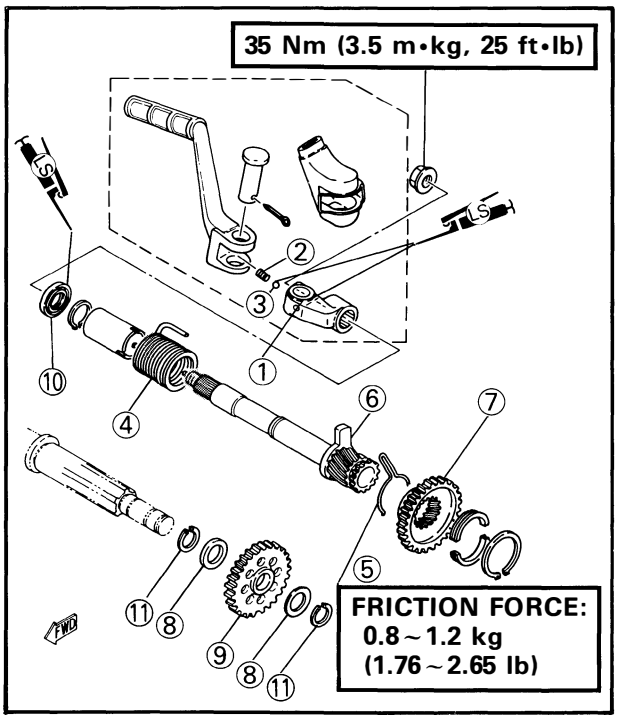
2. Remove:
   - Primary drive gear nut ①
   - Washer ②
   - Primary drive gear ③
   - Straight key ④



INSTALLATION

1. Install:
   - Straight key ①
   - Primary drive gear
   - Washer
   - Nut

	Primary Drive Gear: 80 Nm (8.0 m•kg, 58 ft•lb)

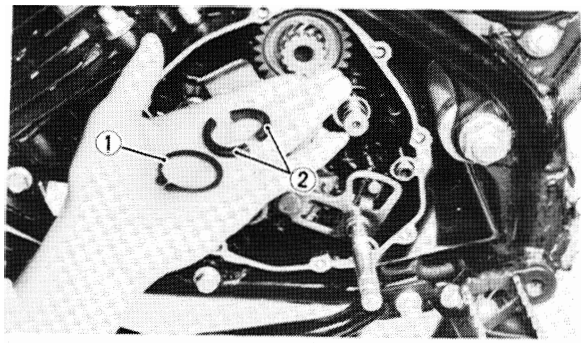


KICK STARTER

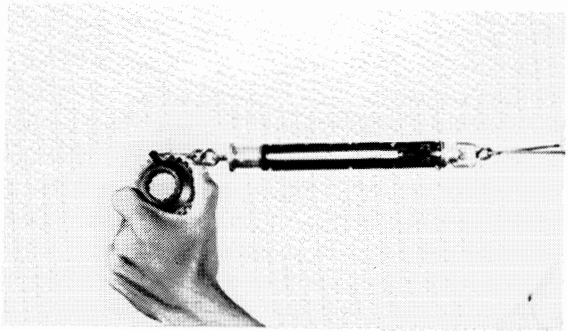
① O-ring
② Spring
③ Ball
④ Return spring
⑤ Kick clip
⑥ Kick axle
⑦ Kick gear
⑧ Washer
⑨ Kick idle gear
⑩ Oil seal
⑪ Circlip

REMOVAL

1. Remove:
   - Circlip
   - Washer
   - Kick idle gear
   - Washer



2. Remove:
   - Circlip ①
   - Retainers ②
   - Kick gear



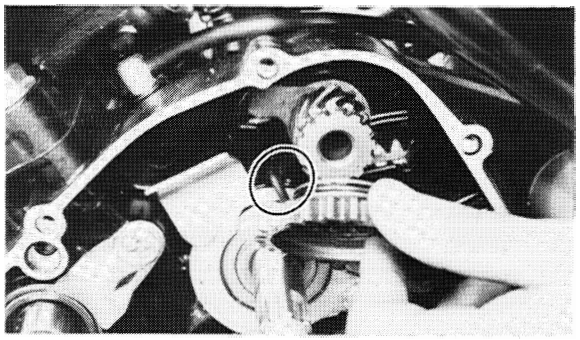
INSPECTION

1. Measure:
   - Kick clip friction force
     Out of specification→Replace.
     Use a spring balance.

Kick Clip Friction Force:
0.8~1.2 kg (1.8~2.6 lb)

CAUTION:

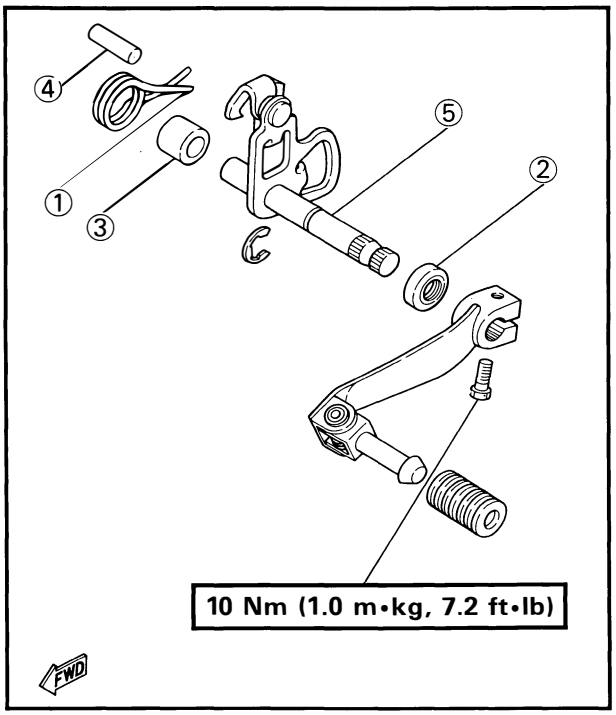
Do not try to bend the clip.



INSTALLATION

1. Install:
   - Kick gear
   - Kick idle gear
     Reverse removal steps.

Note the installation points:
- Engage the kick clip with the slot of the crankcase.
- After installing, make sure the kick gear engages and disengages properly with the idle gear.



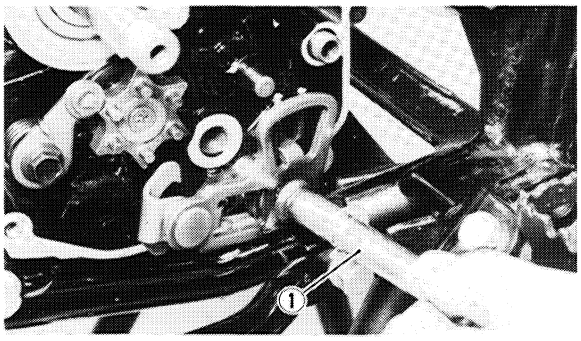
SHIFTER

NOTE:

Shift shaft maintenance should be performed with clutch assembly removed.

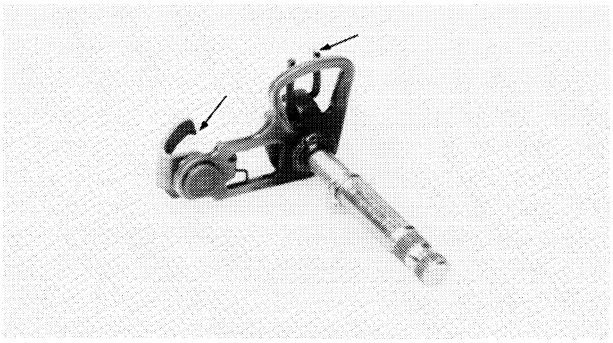
① Return spring
② Oil seal
③ Spacer
④ Shift shaft stopper
⑤ Shift shaft

3



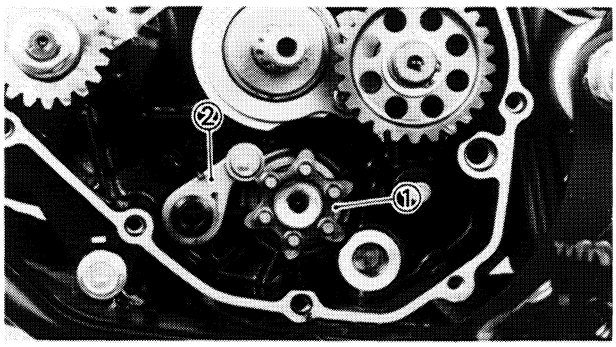
Removal

1. Remove:
   - Shift shaft ①
   - Stopper lever

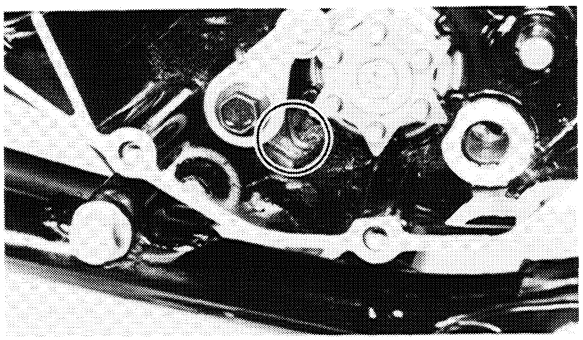


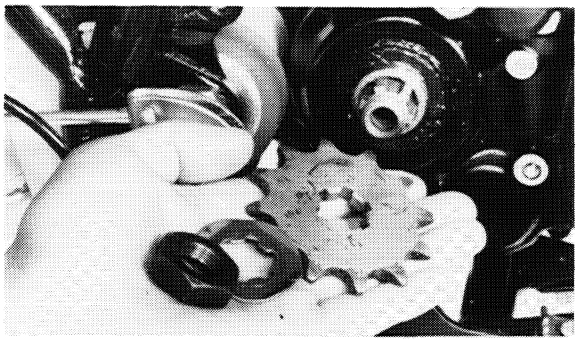
INSPECTION

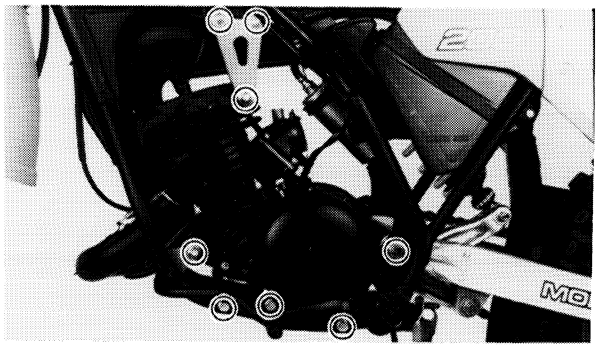
1. Inspect:
   - Return spring
     Broken → Replace.
   - Shift shaft
     Bend → Replace.



2. Inspect:
   - Segment ①
   - Stopper lever ②
     Wear/Damage → Replace.







INSTALLATION

1. Install:
   - Stopper lever
   - Shift shaft

   Reverse removal steps.

	Stopper Lever: 15 Nm (1.5 m•kg, 11 ft•lb)

Apply LOCTITE® to the stopper lever bolt.

ENGINE REMOVAL AND MOUNTING

REMOVAL

NOTE:

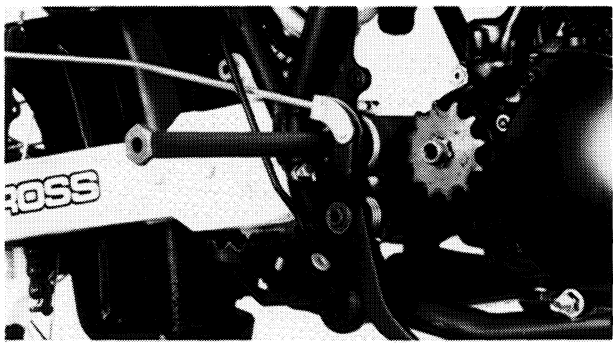
The engine removal is required for the servicing of the transmission, crankshaft, and bearings, oil seals, etc, of the crankcase.

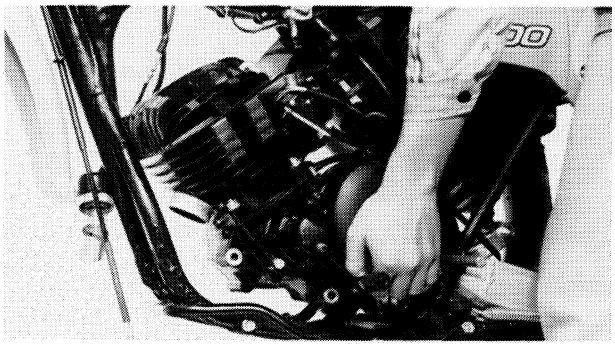
The procedures in page 3-3 to 3-24 are not accompanied by the engine removal.

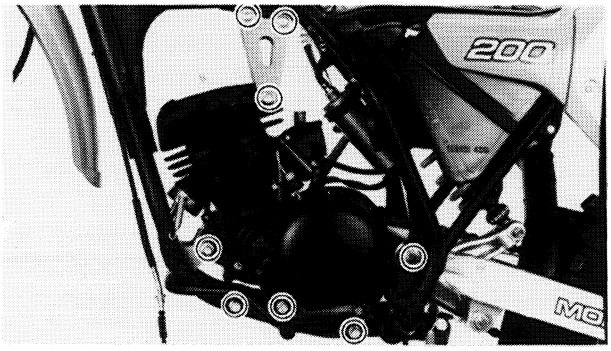
1. Drain:
   - Transmission oil
2. Remove:
   - Side cover/Seat/Fuel tank
   - Muffler/Carburetor
   - Shift pedal/Drive sprocket

   (Apply rear brake to lock the sprocket)
3. Disconnect:
   - Clutch calbe/Spark plug cap/Magneto leads

3







4. Remove:
   - Cylinder head brackets
   - Engine mounting bolts
5. Remove:
   - Swing arm pivot shaft nut

   Pull the shaft out about two-thirds of its length.

NOTE:

If the shaft is pulled all the way out, the swingarm will come loose. If possible, insert a shaft of similar diameter into the other side of the swingarm to support it.

6. Remove:
   - Engine

   (from right side of the frame)

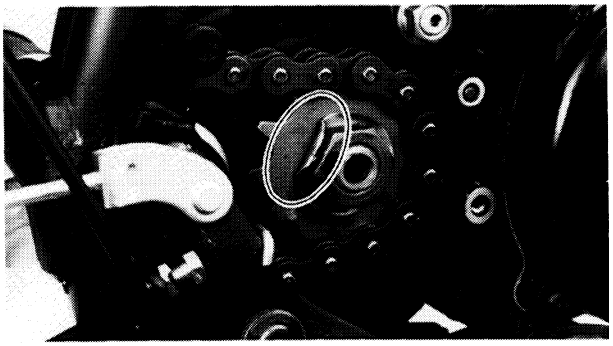
3

MOUNTING

1. Install:
   - Engine
   - Engine mounting bolts
   - Cylinder head brackets
   - Pivot shaft

Engine Mounting Bolt:
Upper Bracket to Engine:
65 Nm (6.5 m•kg, 47 ft•lb)
Others:
30 Nm (3.0 m•kg, 22 ft•lb)
Pivot Shaft:
85 Nm (8.5 m•kg, 61 ft•lb)

When installing the pivot shaft, grease it.



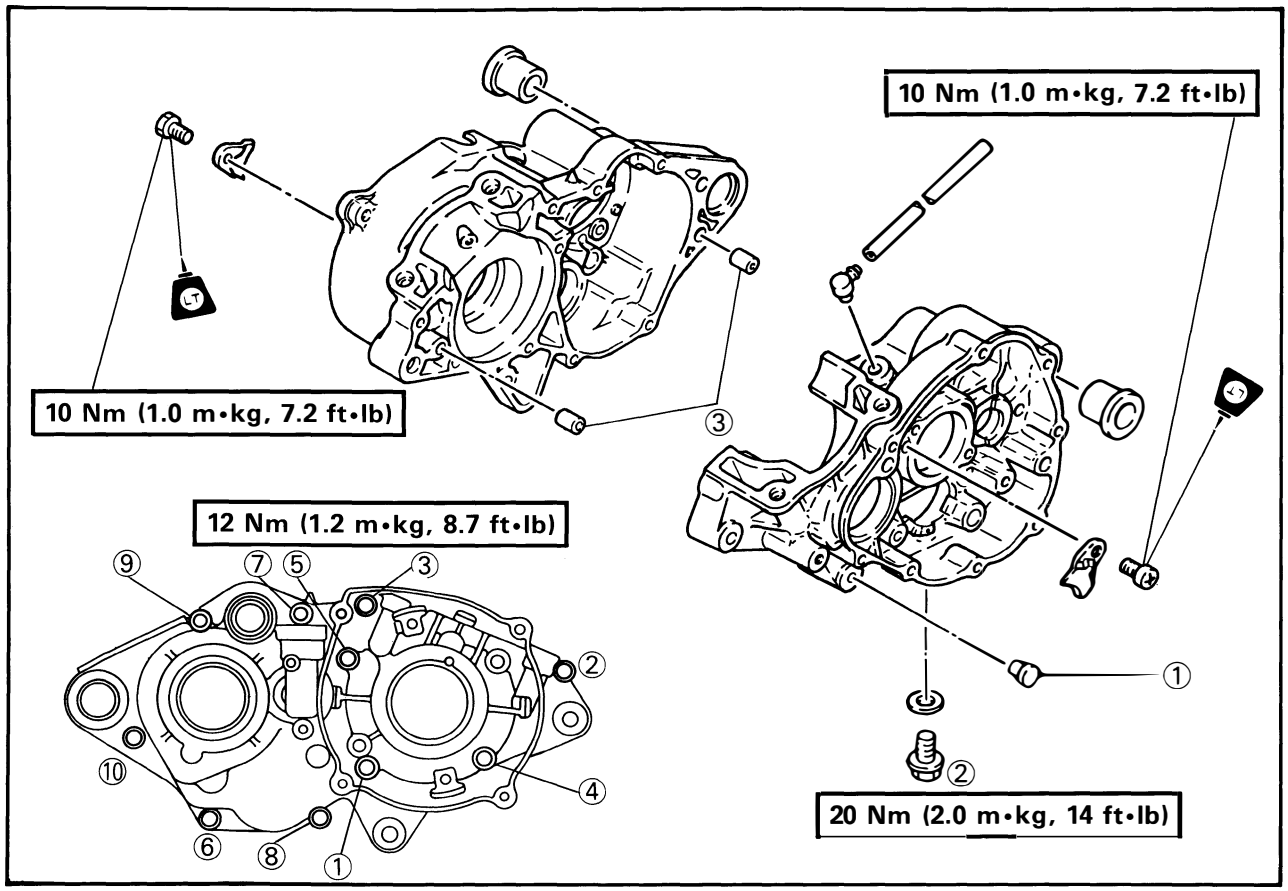
2. Install:
   - Drive sprocket
   - Lock washer (New)
   - Locknut

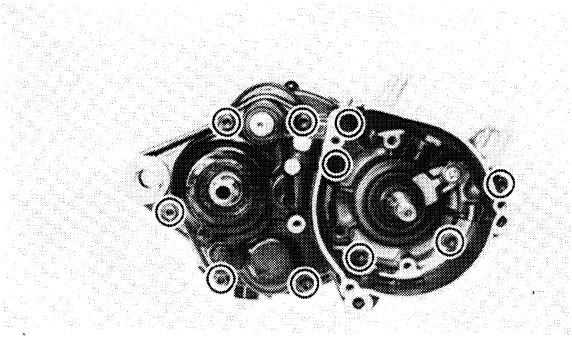
Drive Sprocket Nut:
60 Nm (6.0 m•kg, 42 ft•lb)

Bend the lock washer tab against nut flat.

CRANKCASE

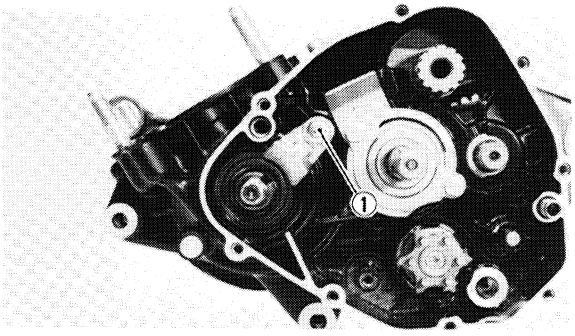
① Blind plug
② Drain bolt
③ Dowel pin



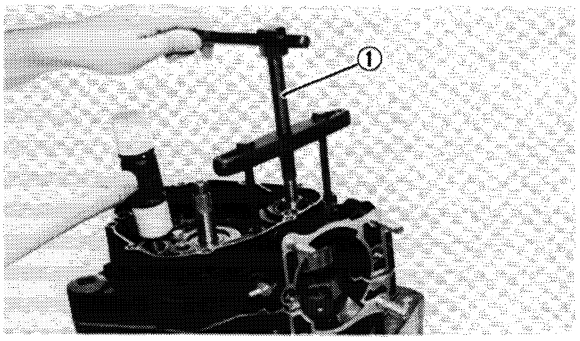


DISASSEMBLY

1. Loosen:
   - Crankcase tightening bolts
     (Working in a crisscross pattern, loosen 1/4 turn each.)
2. Remvoe:
   - Crankcase tightening bolts



3. Remove:
   - Blind plug
   - Oil seal holder ①
4. Turn the segment to the position shown in the figure so that it does not contact the crankcase.



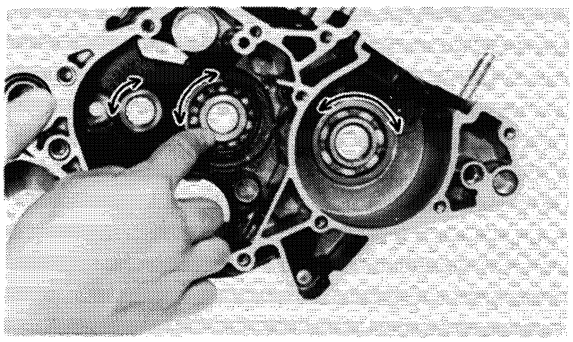
5. Attach:
   - Crankcase Separating Tool (YU-01135) ①
6. Remove:
   - Crankcase (Left)

NOTE:

- Fully tighten the tool holding bolts, but make sure the tool body is parallel with the case. If necessary, one screw may be backed out slightly to level tool body.
- As pressure is applied, alternately tap on the front engine mounting boss, transmission shafts, and shift cam.

CAUTION:

Use soft hammer to tap on the case half. Tap only on reinforced portions of case. Do not tap on gasket mating surface. Work slowly and carefully. Make sure the case halves separate evenly. If one end "hangs up," take pressure off the push screw, realign, and start over. If the cases do not separate, check for a remaining case screw or fitting. Do not force.

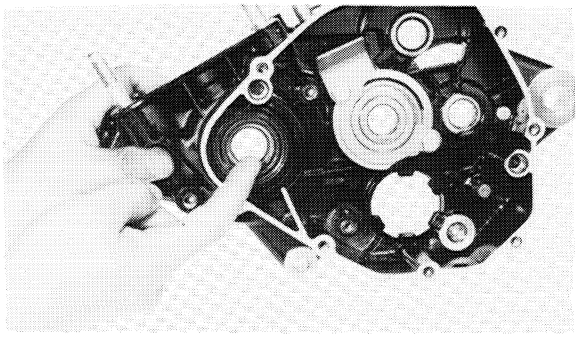


BEARINGS AND OIL SEALS

1. Clean/Lubricate/Inspect
   - Bearings
     (rotate inner race with a finger.)
     Rough spot/Seizure→Replace.

NOTE:

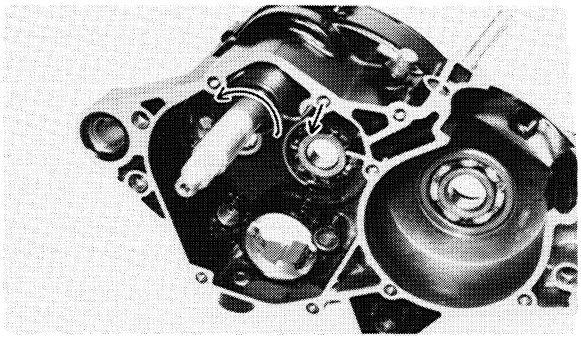
Bearing(s) are most easily removed or installed if the cases are first heated to approximately 90° ~ 120°C (194° ~ 248°F). Bring the case up to proper temperature slowly. Use an oven.



2. Inspect:
   - Oil seal
     Damage/Wear → Replace.

NOTE:

- Always replace crankshaft oil seals whenever the crankshaft is removed.
- Install bearing(s) and oil seal(s) with their manufacturer marks or numbers facing outward. Before installation, apply grease to oil seal lips and bearings.

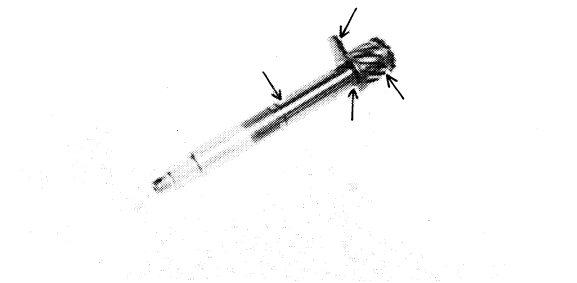


KICK AXLE

REMOVAL

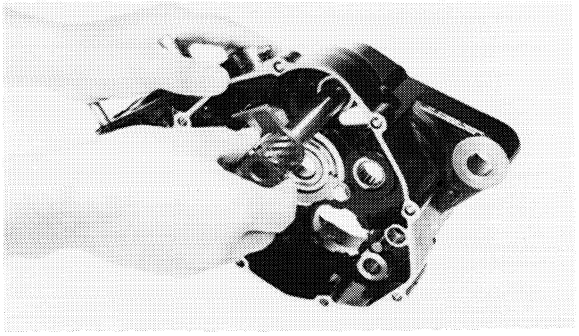
1. Unhook:
   - Kick return spring

2. Remove:
   - Kick axle assembly



INSPECTION

1. Inspect:
   - Kick axle
     Damage/Wear → Replace.



INSTALLATION

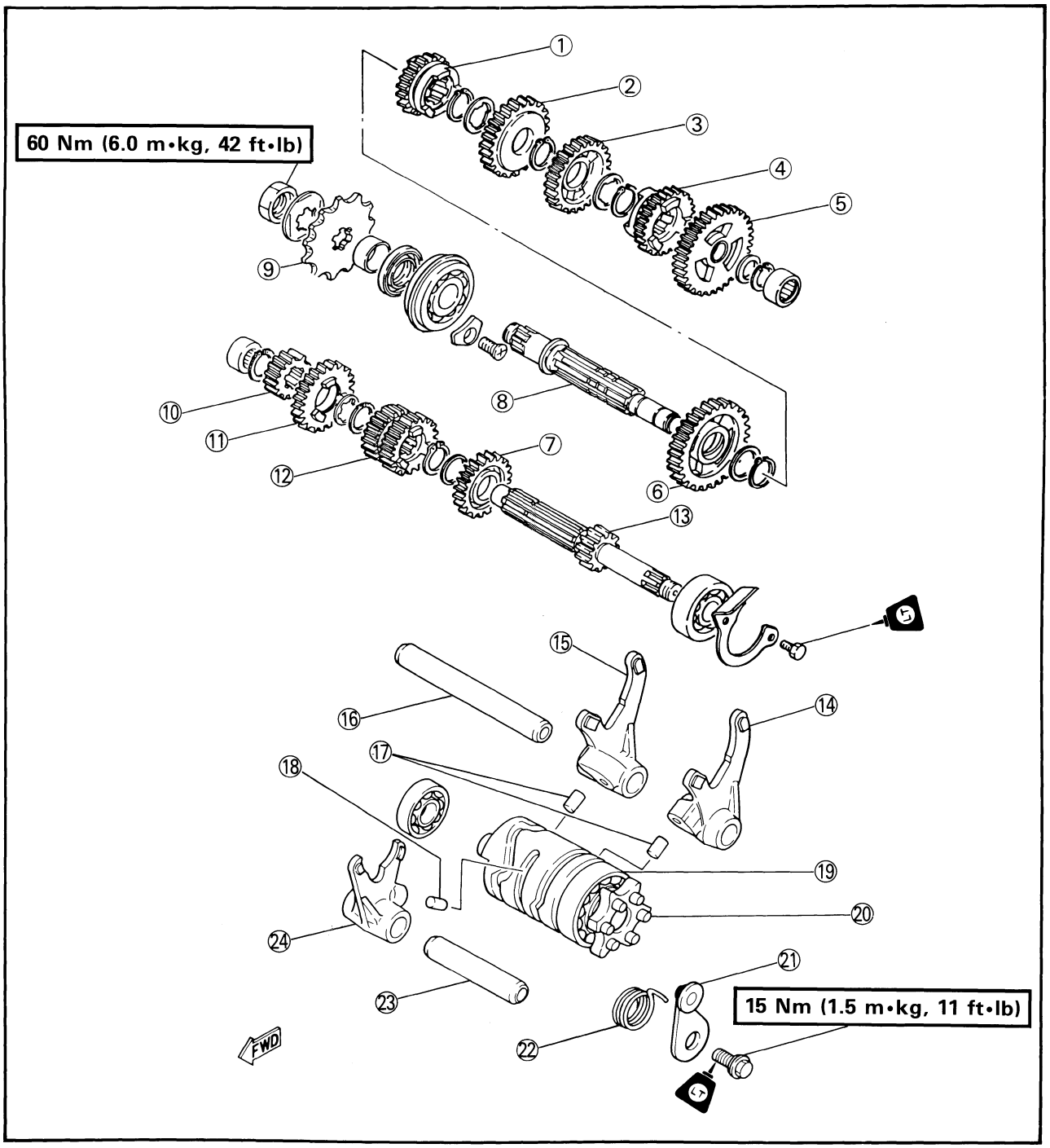
1. Install:
   - Kick axle
     Reverse removal steps.

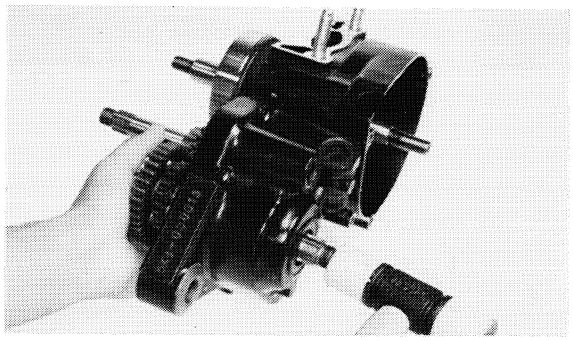
Note the installation points:

- Slide the axle assembly into the case;
- Turn the kick starter return spring clockwise and hook into the proper hole in the crankcase.

TRANSMISSION AND SHIFTER

① 6th wheel (21T)
② 3rd wheel (24T)
③ 4th wheel (25T)
④ 5th wheel (27T)
⑤ 1st wheel (33T)
⑥ 2nd wheel (26T)
⑦ 5th pinion (25T)
⑧ Drive axle
⑨ Drive sprocket (12T)
⑩ 2nd pinion (14T)
⑪ 6th pinion (24T)
⑫ 3rd/4th pinion (16T/20T)
⑬ Main axle (12T)
⑭ Shift fork 1
⑮ Shift fork 3
⑯ Guide bar
⑰ Follower
⑱ Follower
⑲ Shift cam assembly
⑳ Segment
㉑ Stopper lever
㉒ Stopper spring
㉓ Guide bar
㉔ Shift fork 2



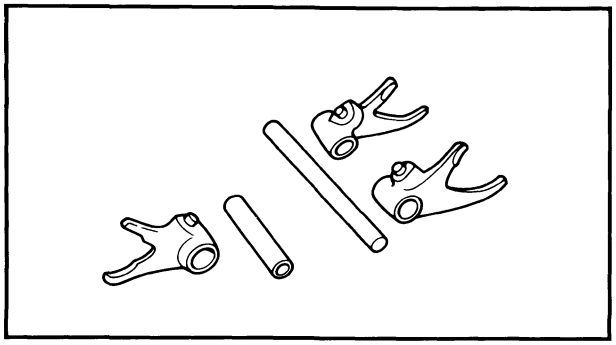


REMOVAL

1. Remove:
   - Transmission assembly
     (Tap lightly on the transmission drive axle with a soft hammer to remove.)

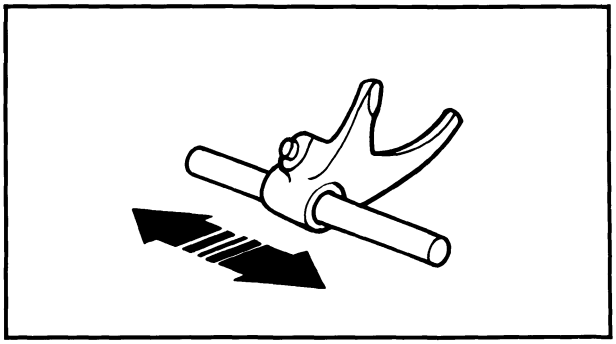
NOTE:

Remove assembly carefully. Note the position of each part. Pay particular attention to the location and direction of shift forks.

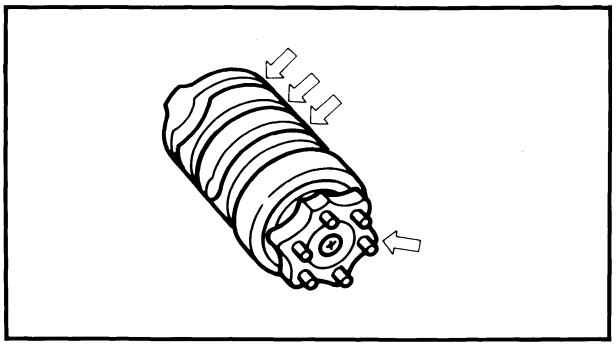


INSPECTION

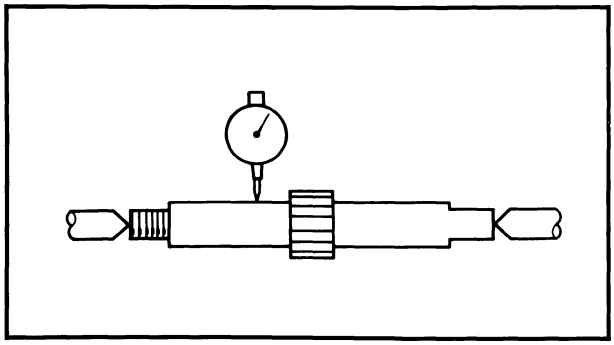
1. Inspect:
   - Shift forks (Gear and shift cam contact surfaces)
     Wear/Chafing/Bends/Damage → Replace.
   - Guide bars
     Bends/Wear → Replace.



2. Check:
   - Shift fork movement
     (on its guide bar)
     Unsmooth operation → Replace.
     Shift fork and/or guide bar.

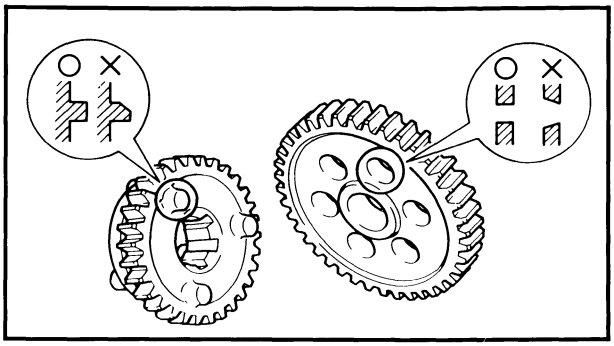


3. Inspect:
   - Shift cam grooves
     Wear/Damage/Scratches → Replace.
   - Shift cam segment
     Damage/Wear → Replace.

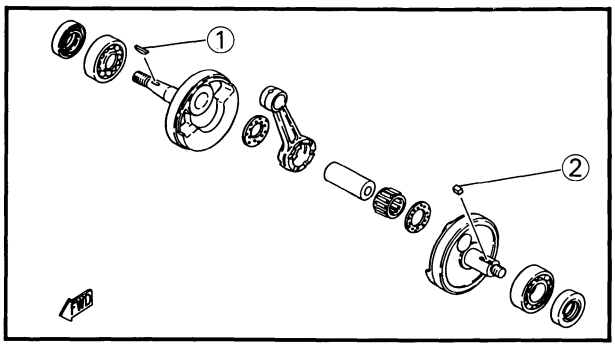


4. Measure:
   - Axle runout
     Out of specification → Replace.
     Use centering device and Dial Gauge (YU-03097).

Runout Limit: 0.01 mm (0.0004 in)

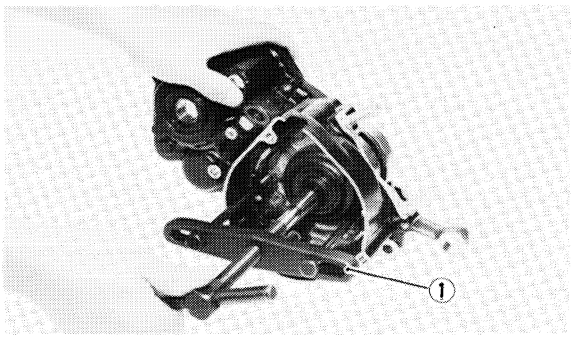


5. Inspect:
   • Gears
   Damage/Wear → Replace.
6. Check:
   • Gear movement
   Unsmooth operation → Replace.
7. Inspect:
   • Mating dogs
   Cracks/Wear/Damage → Replace.



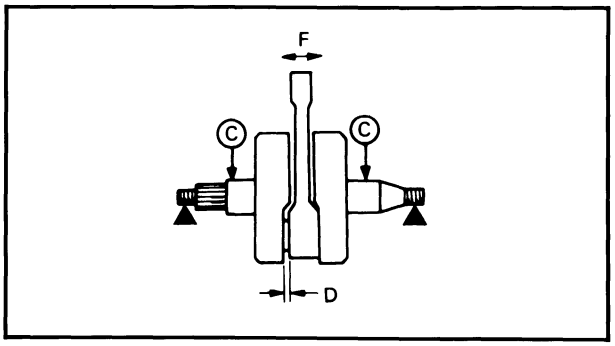
CRANKSHAFT

① Woodruff key
② Straight key



REMOVAL

1. Remove:
   • Crankshaft
   Use Crankcase Separating Tool (YU-01135) ①.



INSPECTION

1. Measure:
   • Runout limit "C"
   • Connecting rod big end side clearance "D"
   • Small end free play limit "F"
   Out of specification → Replace.
   Use V-Blocks, Dial Gauge (YU-03097) and Thickness Gauge.

Runout Limit "C":
0.03 mm (0.0012 in)
Connecting Rod Big End Side Clearance "D":
0.20 ~ 0.70 mm (0.008 ~ 0.028 in)
Small End Free Play Limit "F":
2 mm (0.08 in)

NOTE:

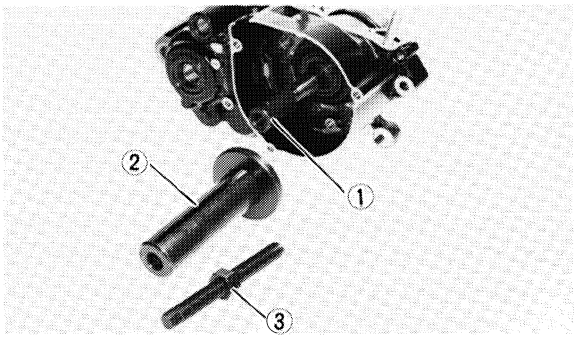
If any of the above measurements exceed tolerance, crankshaft repair is required. Take the machine to your authorized Yamaha dealer.

CRANKCASE ASSEMBLY

1. Thoroughly wash the case halves in mild solvent.
2. Clean all the gasket mating surfaces and crankcase mating surfaces thoroughly.

CAUTION:

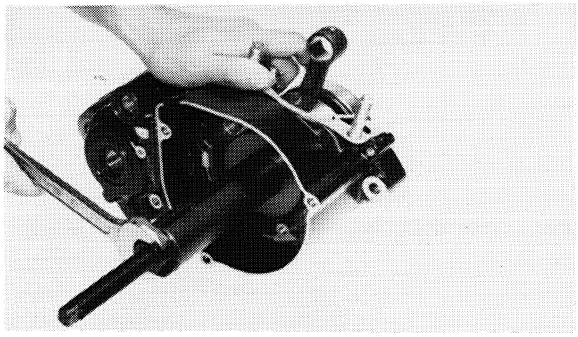
To protect the crankshaft against scratches or to facilitate the operation of the installation, apply the grease to the oil seal lips, and apply the engine oil to each bearing.



1. Attach:
   - Crankshaft Installing Tool (YU-90058 ①, YU-90063 ② and YU-90060 ③).
2. Install:
   - Crankshaft

NOTE:

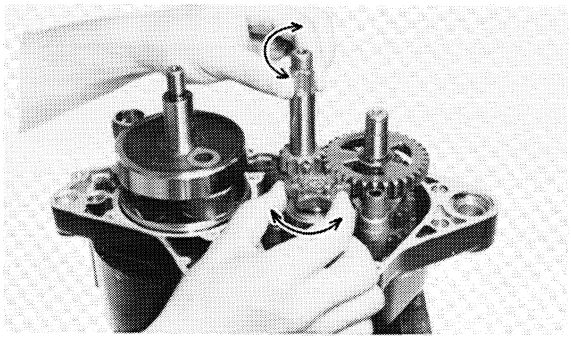
Hold the connecting rod at top dead center with one hand while turning the nut of the Installing Tool with the other. Operate the Installing Tool until the crankshaft bottoms against the bearing.



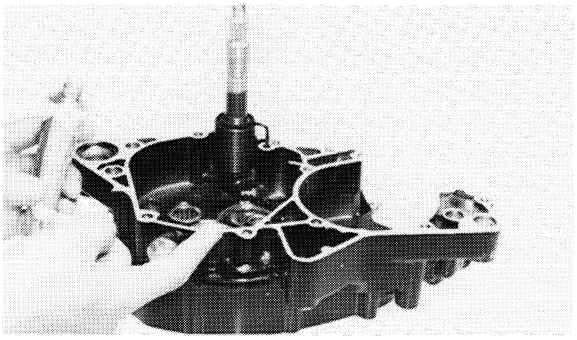
3. Install:
   - Transmission assembly

NOTE:

Each shift forks is identified by a number cast on its side. All the numbers should face the left side.



4. Check:
   - Transmission operation
     Unsmooth operation→Repair.



5. Apply:
   - Yamabond No.4® (ACC-11001-30-00) ①

   To the mating surfaces of both case halves.

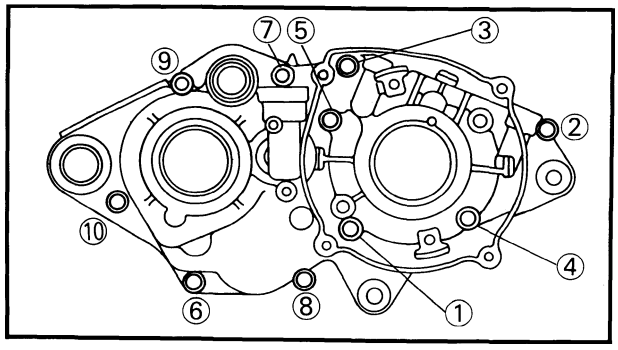
6. Install:
   - Dowel pins
7. Fit the left crankcase onto the right case. Tap lightly on the case with a soft hammer.

NOTE:

Turn the shift cam to the position shown in the figure so that it does not contact the crankcase when installing the crankcase.

CAUTION:

Before installing and torquing the crankcase holding screws, be sure to check whether the transmission is functioning properly by manually rotating the shift cam either way.



8. Tighten:
   - Crankcase tightening screws

NOTE:

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

Crankcase:
12 Nm (1.2 m•kg, 8.7 ft•lb)

9. Apply:
   - 2-stroke oil

   To the crank pin, bearing and oil delivery hole.
10. Check:
    - Crankshaft and transmission operation

    Unsmooth operation → Repair.

CHAPTER 4
CHASSIS MAINTENANCE AND REPAIR

① Brake cam
② Return spring
③ Oil seal
④ Driven sprocket
⑤ Drive chain
⑥ Spacer
⑦ Brake cam lever

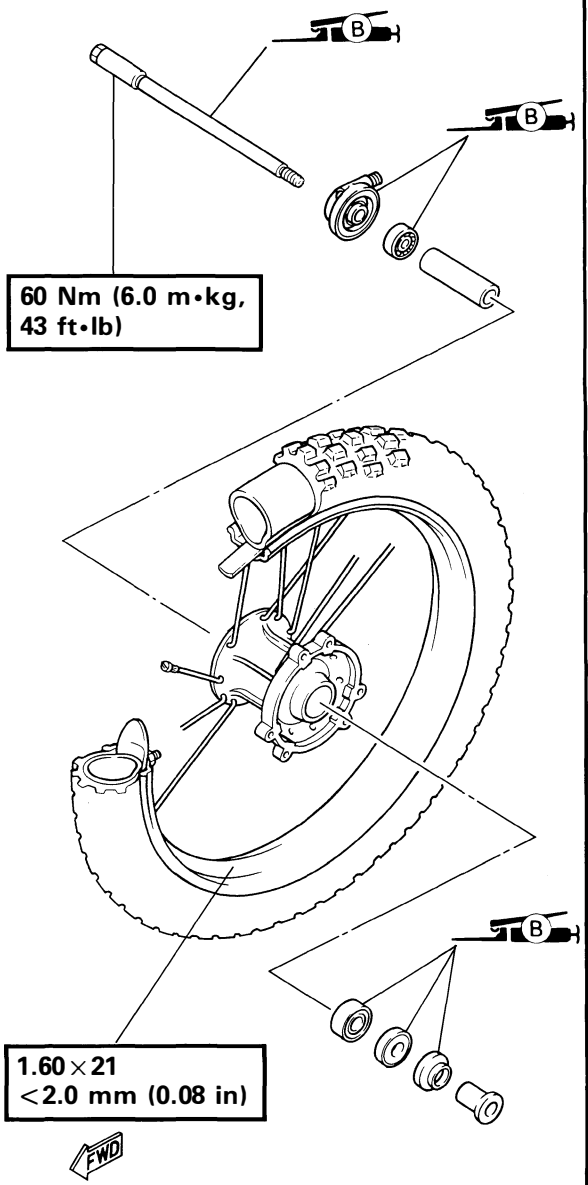
CHASSIS MAINTENANCE AND REPAIR

WHEEL ASSEMBLIES, SPROCKETS AND CHAIN

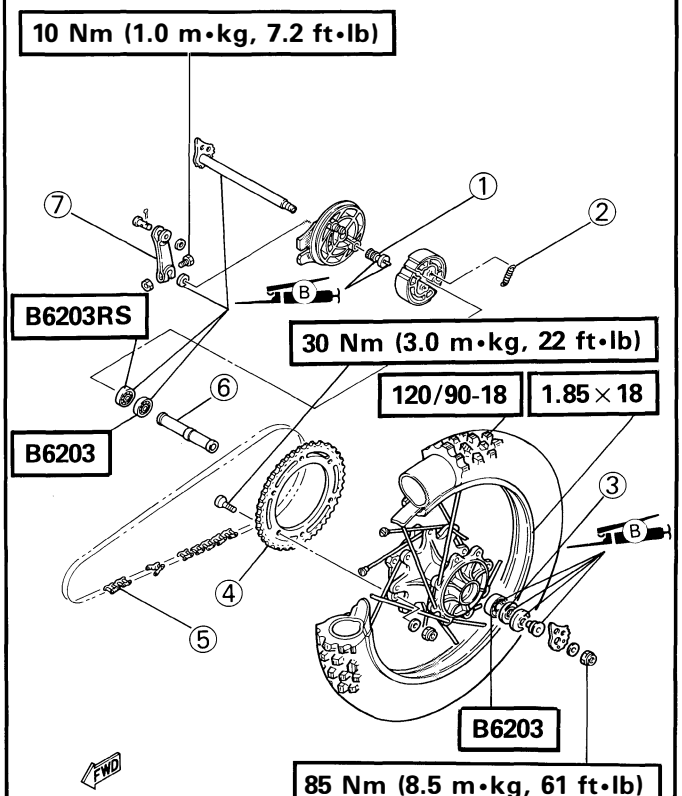
WARNING:

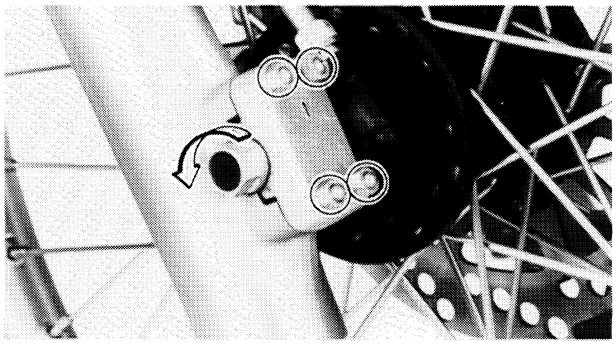
Whenever performing chassis work, always take extra care and double-check each step of each procedure. The wheels, brakes, suspension, steering, and frame must all be in top condition to provide optimum performance, reliability, and safety.

FRONT WHEEL



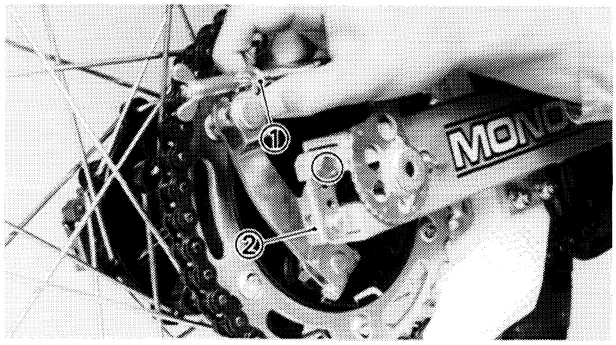
REAR WHEEL





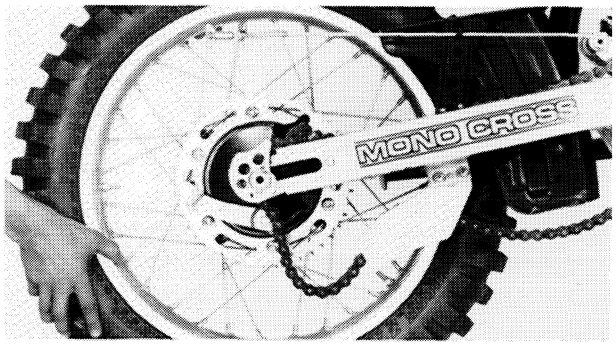
FRONT WHEEL REMOVAL

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Loosen:
   - Axle pinch bolts
3. Remove:
   - Axle shaft
   - Disc cover
   - Front wheel

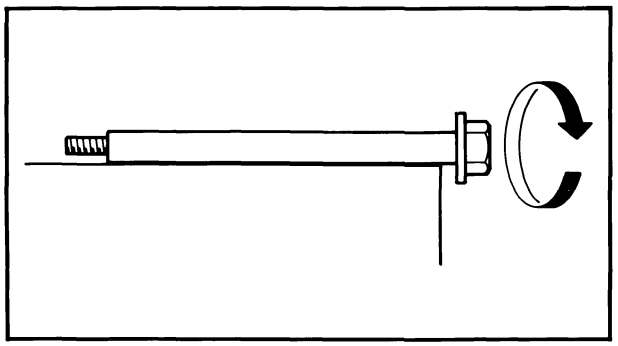


REAR WHEEL REMOVAL

1. To remove the rear wheel, place a suitable stand under the machine to keep the machine stable while the rear wheel is removed.
2. Remove:
   - Brake rod ①
   - Axle supporter bolts ②



3. Loosen:
   - Axle nut
4. Unhook:
   - Drive chain ①
     (from drive sprocket)
5. Remove:
   - Rear wheel
     (by pulling it backward.)



INSPECTION

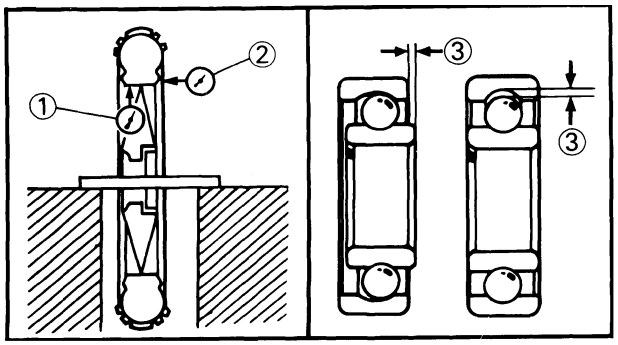
1. Eliminate any corrosion from parts.
2. Inspect:
   - Front axle
     Roll the axle on a flat surface.
     Bends→Replace.

WARNING:

Do not attempt to straighten a bent axle.

3. Inspect:
   - Wheel
     Cracks/Bends/Warpage→Replace.

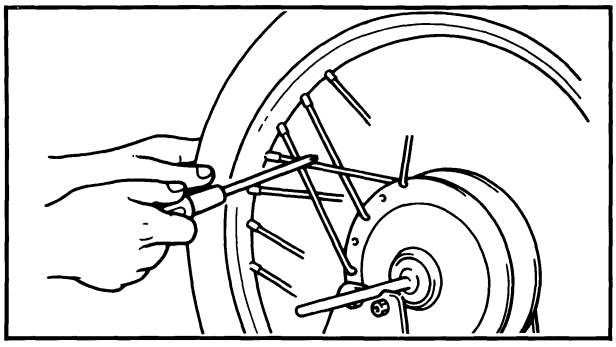
4



4. Measure:
   • Wheel runout

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

Over specified limit → Adjust spoke or check bearing play ③.



5. Check:
   • Loose spokes
   Turn the wheel and tap the spokes with a screwdriver.

NOTE:
A tight spoke will emit a clear, ringing tone; a loose spoke will sound flat.

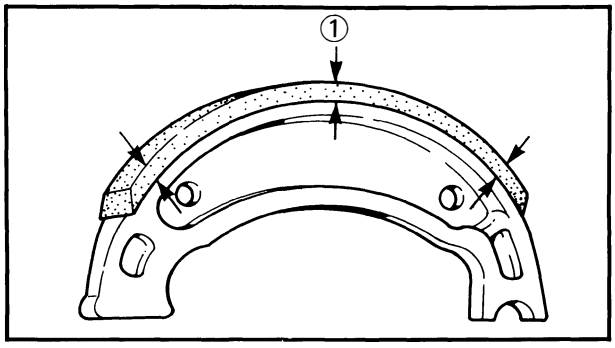
6. Tighten:
   • Loose spokes

Spoke:
6 Nm (0.6 m•kg, 4.3 ft•lb)

NOTE:
Check the wheel runout after tightening spoke.

7. Inspect:
   • Wheel bearings
   Wheel hub play/Wheel turns roughly → Replace.

   If bearings need replacement, take the wheels to your Yamaha dealer for this service.

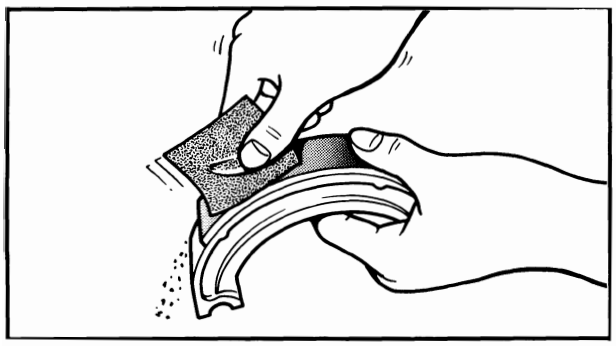


REAR BRAKE INSPECTION

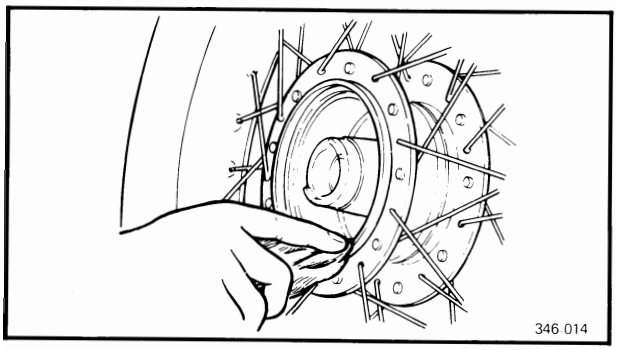
1. Measure:
   • Brake shoes (Thickness)
   Out of specification → Replace.

① Measuring point

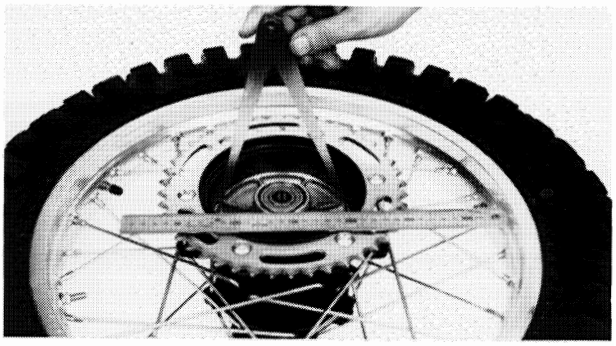
Brake Shoe Wear Limit:
2 mm (0.08 in)



2. Inspect:
   • Brake shoes
   Glazed parts → Sand with coarse sandpaper.

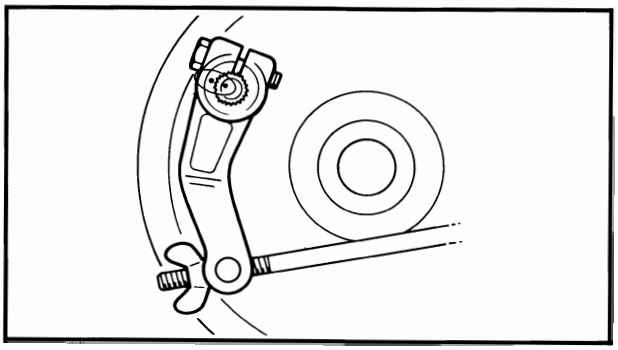


3. Inspect:
   • Brake drum (Inner surface)
   Oil → Wipe off brake drum with rag soaked in lacquer thinner or solvent.
   Scratches → Polish brake drum lightly and evenly with emery cloth.



4. Measure:
   • Brake drum inside diameter
   Out of specification → Replace.

Brake Drum Wear Limit:
131 mm (5.16 in)

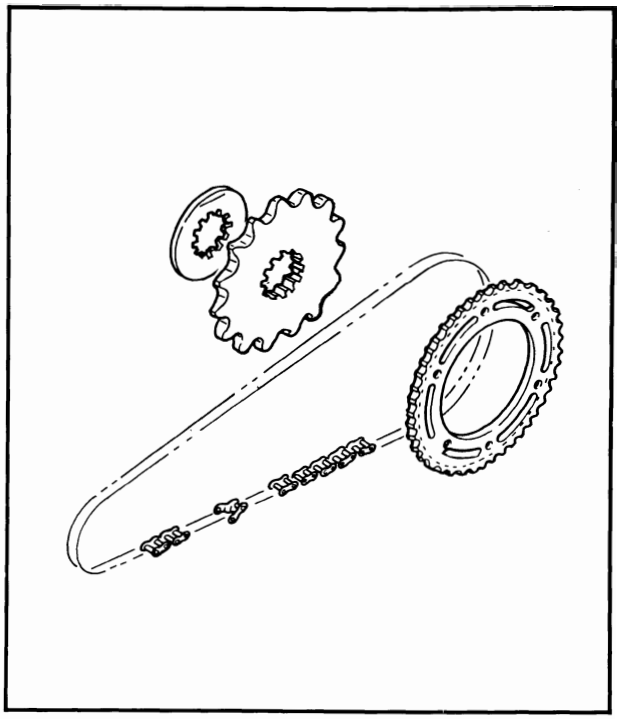


5. Inspect:
   • Cam face
   Wear → Replace camshaft.
   Condition OK → Grease camshaft.

NOTE:

When removing the brake cam lever from the shaft, put match marks on both the cam lever and the shaft.

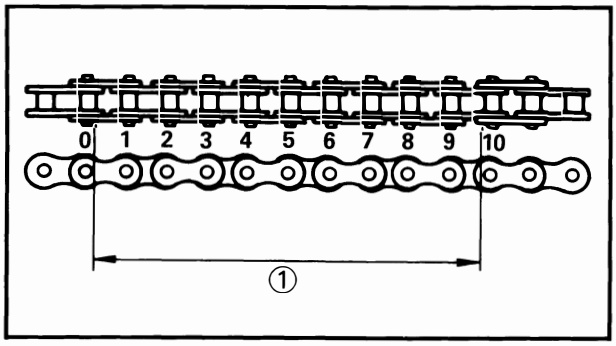
4



SPROCKETS AND CHAIN

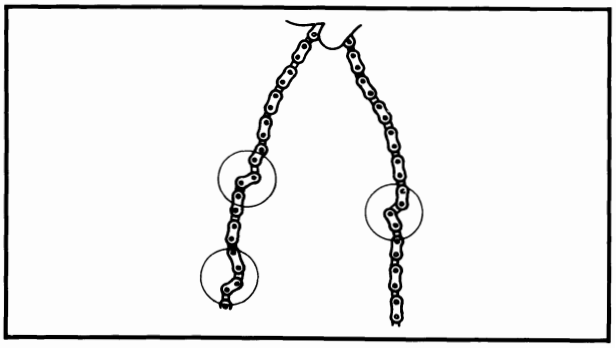
Tuning and repair parts

Part name	Size	Part number
Drive sprocket (STD)	11T 12T 13T	1G8-17461-10 1G8-17461-20 1G8-17461-30
Lock washer		90215-16127
Driven sprocket (STD)	42T 44T 46T	26A-25442-50 26A-25444-50 26A-25446-50
Chain Chain joint	105L + joint	94585-20106 94685-20001

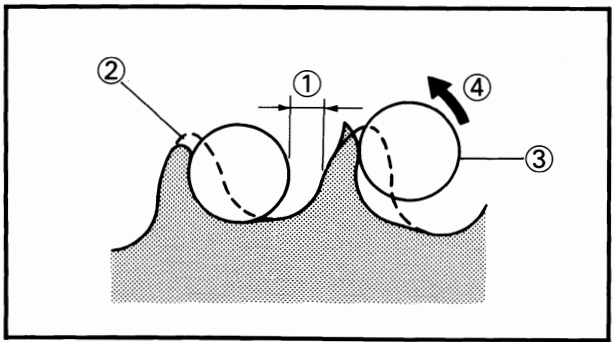


1. Measure:
   - Drive chain length (10 links) ①
     Out of specification → Replace.

Drive Chain Length (10 links):
New: 148.6 mm (5.850 in)
Limit: 151.5 mm (5.965 in)

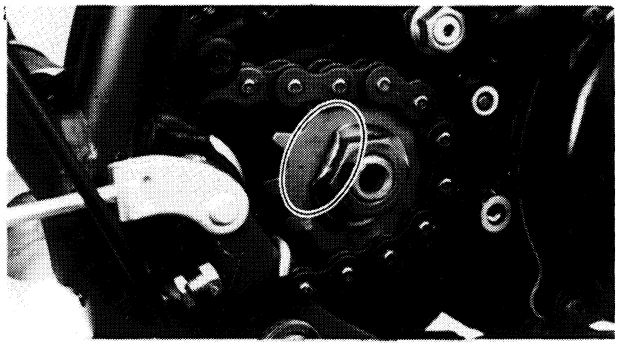


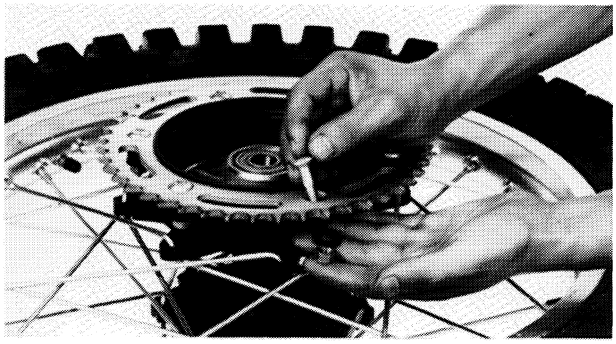
2. Check:
   - Drive chain stiffness
     Clean and oil the chain and hold as illustrated
     Stiff → Replace drive chain.

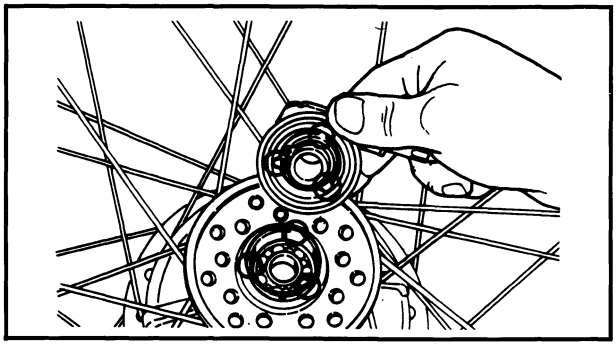


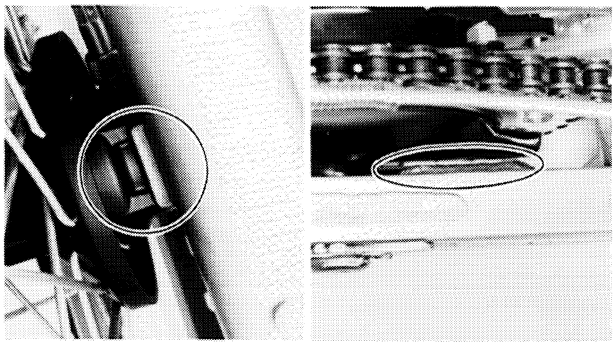
3. Inspect:
   - Drive sprocket/Driven sprocket
     More than 1/4 teeth ① wear → Replace sprocket.
     Bent teeth → Replace sprocket.

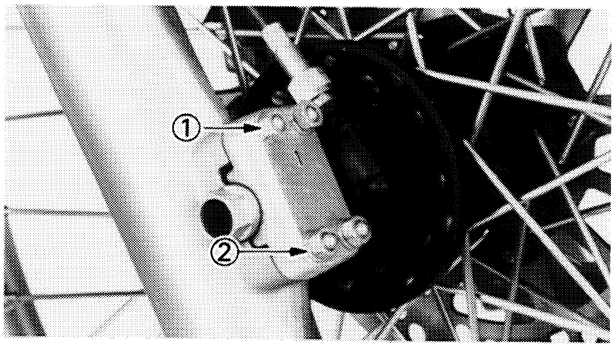
② Correct
③ Roller
④ Slip off











NOTE:

- When replacing the drive sprocket, always use a new lock washer. After tightening the sprocket nut to the specification, be sure to lock it with the lock washer.
- When installing the driven sprocket, lightly smear grease on the fitting bolts.

Drive Sprocket Securing Nut:
60 Nm (6.0 m•kg, 42 ft•lb)
Driven Sprocket Securing Nut:
30 Nm (3.0 m•kg, 22 ft•lb)

WHEEL INSTALLATION

When installing wheels, reverse the removal procedure taking care of the following points.

- Lightly smear grease on:
  * The shafts
  * The bearings and oil seal lips
  * The O-ring and dust cover interior for the rear brake shoe plate
- Make sure the three slots in the wheel hub are meshed with the three projections in the gear unit assembly.
- Be sure that the projection (torque stopper) of the front fork is meshed with the slot in the speedometer housing.
- Be sure that the projecting portion (torque stopper) of rear arm is meshed with brake shoe plate.
- Be sure to adjust the chain slack.
- Adjust the play in the brake lever and pedal.
- Make sure nuts are properly tightened.

NOTE:

- When tightening the axle holder nuts, first tighten the nuts on the upper side of axle holder.

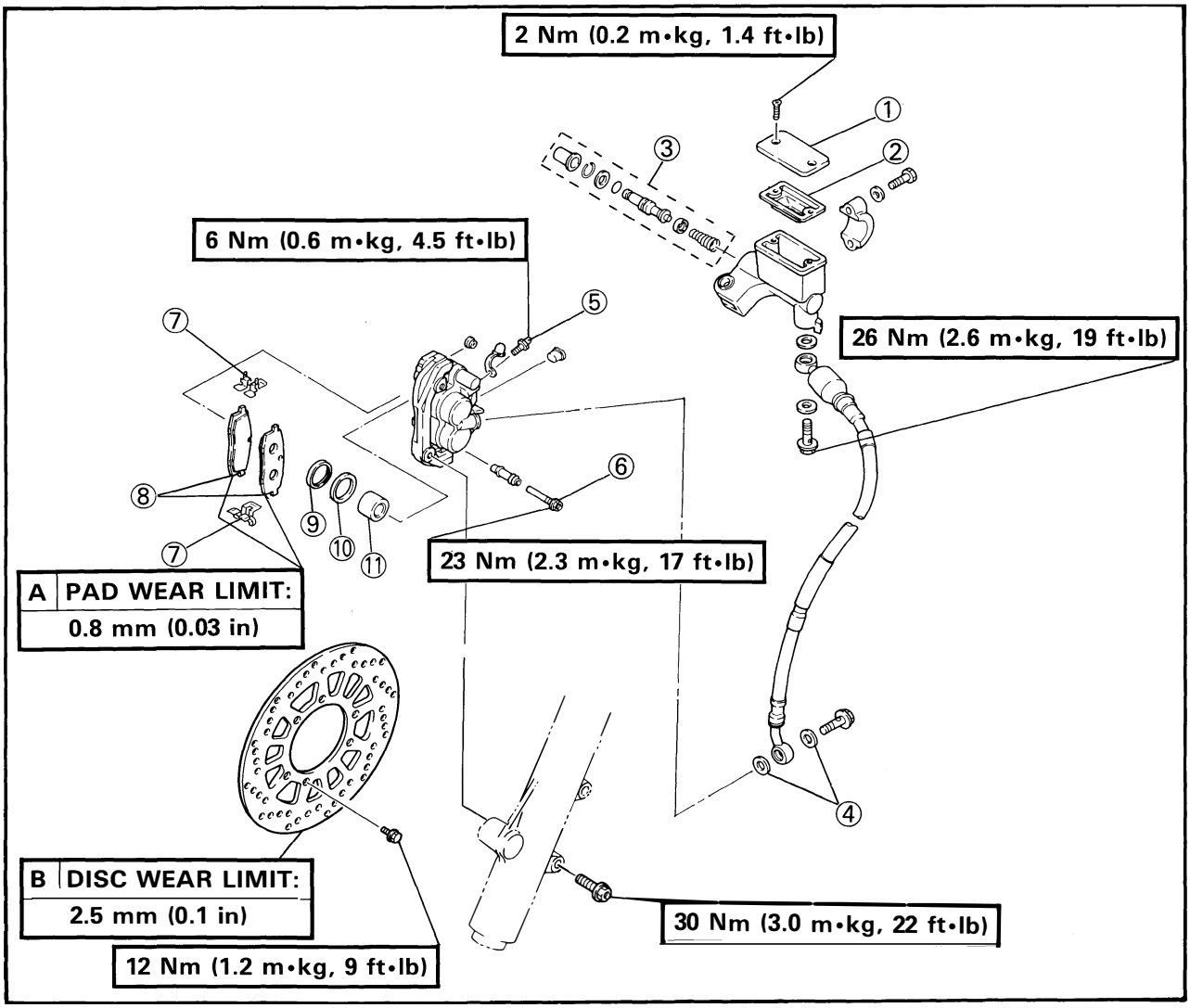
Front Wheel Axle:
60 Nm (6.0 m•kg, 43 ft•lb)
Axle Pinch Bolt:
10 Nm (1.0 m•kg, 7.2 ft•lb)
Rear Wheel Axle:
85 Nm (8.5 m•kg, 61 ft•lb)

①: 1st ②: 2nd

FRONT DISC BRAKE

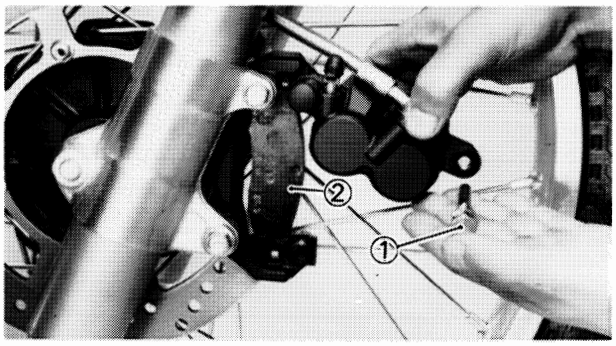
① Cap
② Rubber cap
③ Master cylinder kit
④ Copper washer
⑤ Bleed screw
⑥ Caliper bolt
⑦ Pad spring
⑧ Pad
⑨ Dust seal
⑩ Piston seal
⑪ Piston

RECOMMENDED BRAKE COMPONENT REPLACEMENT SCHEDULE	
BRAKE PADS	AS REQUIRED
PISTON SEAL, DUST SEAL	EVERY 2 YEARS
BRAKE HOSES	EVERY 4 YEARS
BRAKE FLUID	REPLACE ONLY WHEN BRAKES DISASSEMBLED



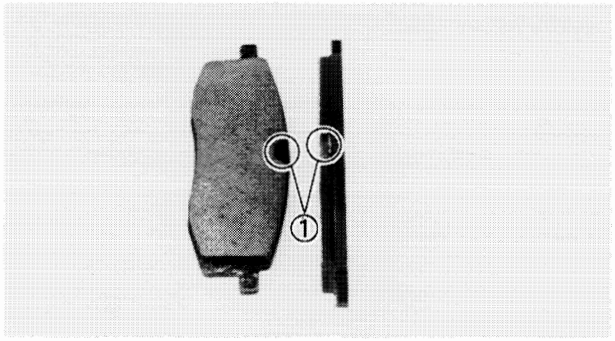
CAUTION:

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.**



BRAKE PAD REPLACEMENT

1. Remove:
   - Caliper bolt ①
2. Turn the caliper body counterclockwise.
3. Remove:
   - Pads ②

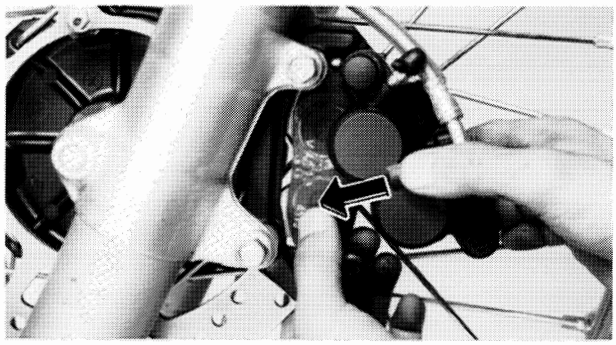


4. Inspect:
   - Pads

   Out of specification → Replace.

① Wear indicator

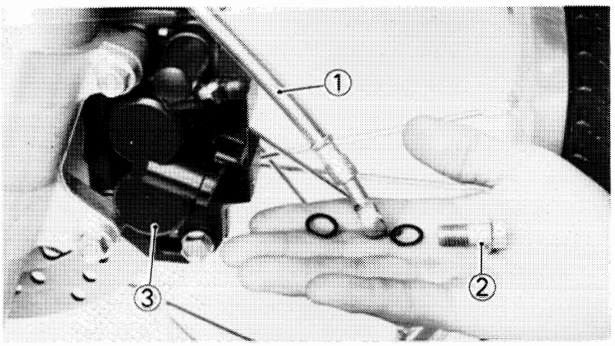
Pad Wear Limit:
0.8 mm (0.03 in)



5. Install:
   - Pads
   - Caliper bolt

   Hold the pads in the caliper bracket and turn the caliper body clockwise.

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

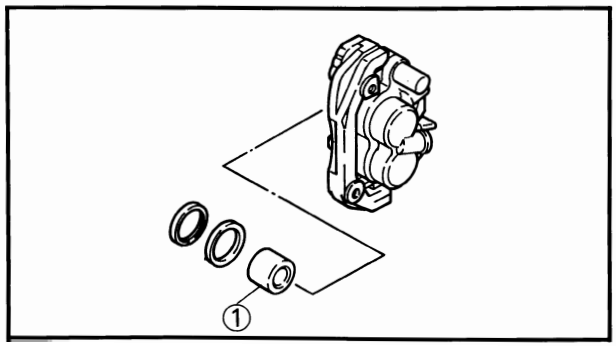


CALIPER

Caliper Disassembly

1. Remove:
   - Brake hose ①

   (Place the open hose end into the container.)
   - Caliper bolt ②
   - Caliper ③



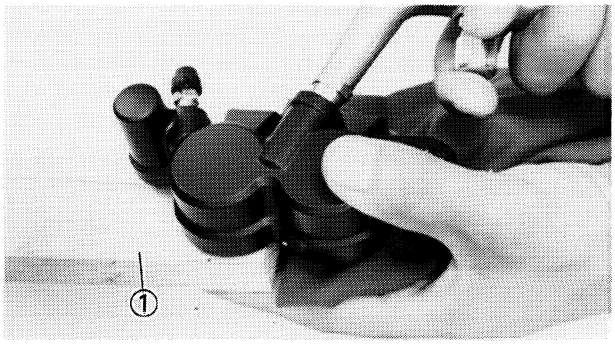
2. Remove:
   - Piston ①

Use compressed air and proceed carefully.

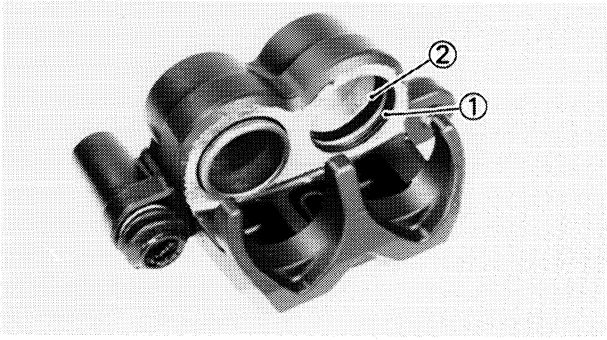
WARNING:

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

4



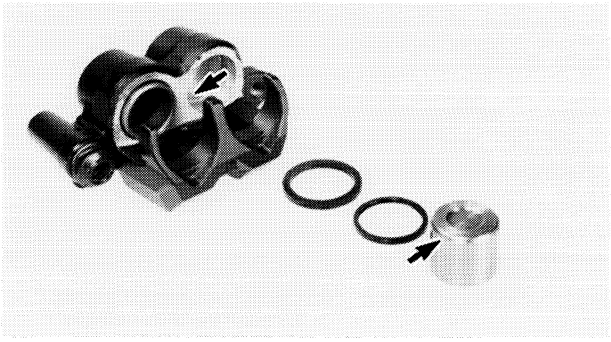
Caliper piston removal steps:
- Insert a piece of wooden block ① into the caliper to lock one caliper
- Carefully force the piston out of the caliper cylinder with compressed air.



NOTE:

In the first place, remove one piston and inspect. After inserting the piston, remove remaining one.

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



Inspection

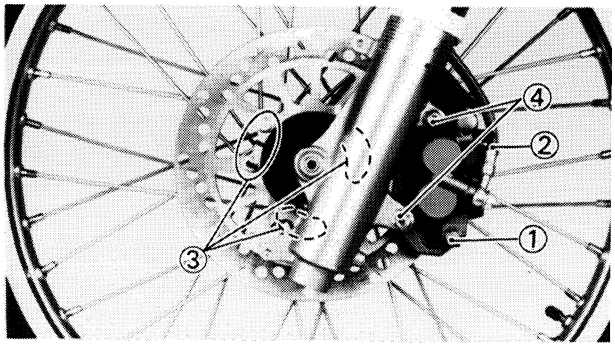
1. Inspect:
   - Caliper piston assembly
     Damage/Scratches → Replace.
2. Inspect:
   - Brake hose
     Cracks/Frayed/Damage → Replace.

Assembly

When reassembling the caliper, reverse the disassembly procedure taking care of the following points.

- All internal parts should be cleaned in new brake fluid only.
- Internal parts should be lubricated with brake fluid when installed.

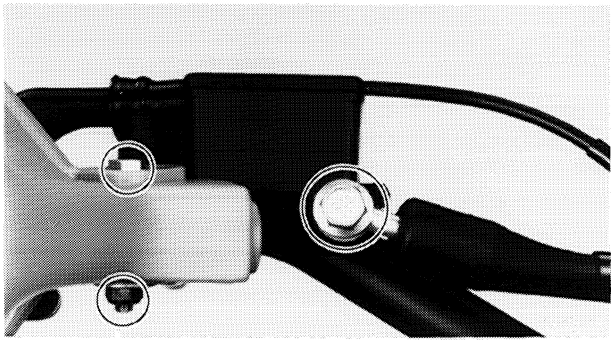
Brake Fluid: DOT #3



- Replace the piston seal and dust seal whenever a caliper is disassembled.
- Tighten each bolts to specification.

Caliper Bolt: ①
23 Nm (2.3 m•kg, 17 ft•lb)
Brake Hose: ②
26 Nm (2.6 m•kg, 19 ft•lb)
Brake Disc: ③
12 Nm (1.2 m•kg, 9 ft•lb)
Caliper Bracket: ④
30 Nm (3.0 m•kg, 22 ft•lb)

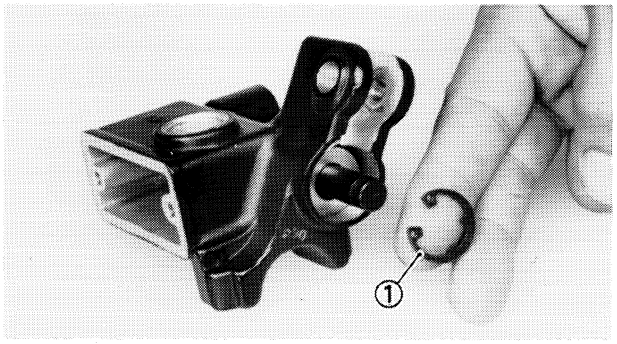
- Bleed the air completely from the brake system.



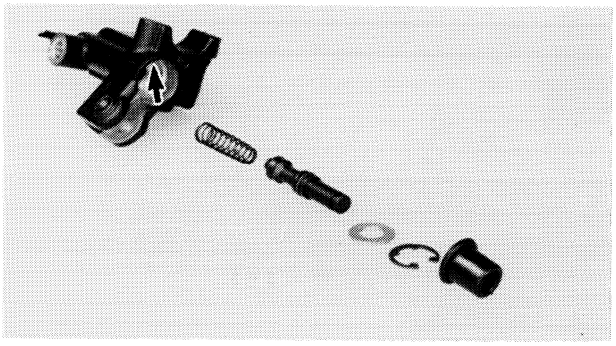
MASTER CYLINDER

Master Cylinder Disassembly

1. Remove:
   - Brake lever
   - Brake hose
   - Master cylinder



2. Remove:
   - Cap
   - Rubber cap
     (Drain the brake fluid)
   - Dust boot
   - Circlip ①
   - Master cylinder kit

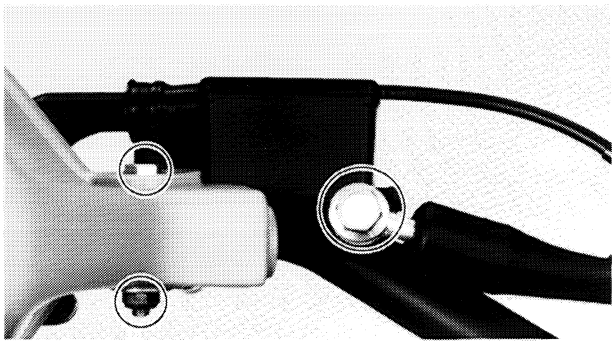


Inspection

1. Inspect:
   - Master cylinder body
     Scratches/Wear→Replace.
   - Master cylinder kit
     Wear/Damage→Replace as a set.

Assembly

When reassembling the master cylinder, reverse the disassembly procedure taking care of the following points.



- All internal parts should be cleaned in new brake fluid only.
- Internal parts should be lubricated with brake fluid when installed.

Brake Fluid: DOT #3

- Tighten each bolts to specification.

Cap: ①
2 Nm (0.2 m•kg, 1.4 ft•lb)
Brake Hose: ②
26 Nm (2.6 m•kg, 19 ft•lb)

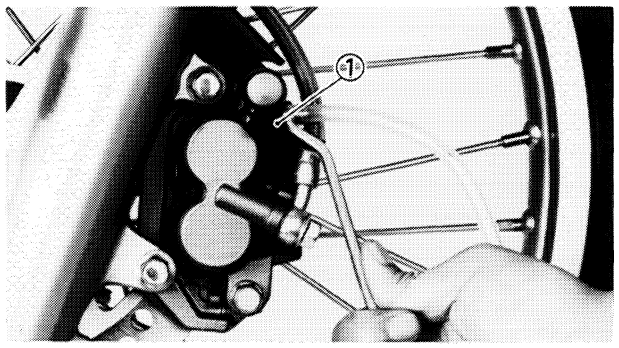
- Bleed the air completely from the brake system.

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.



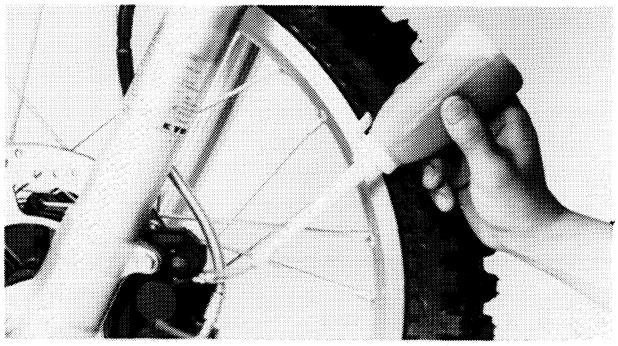
Air bleeding steps:

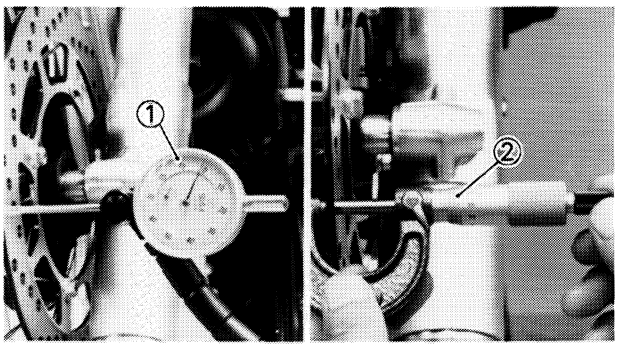
a. Add proper brake fluid to the reservoir.
b. Install diaphragm.
   Be careful not to spill any fluid or allow the reservoir to overflow.
c. Connect the clear plastic tube (4.5 mm, 3/16 in inside dia.) tightly to the caliper bleed screw ①.

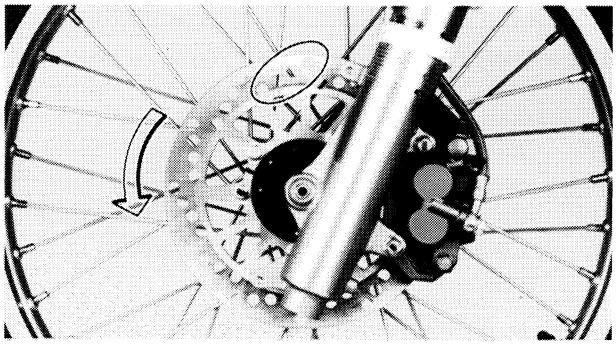
d. Place the other end of the tube into a container.
e. Slowly apply the brake lever several times.
f. Pull the lever in. Hold the lever in position.
g. Loosen the bleed screw and allow the lever to travel towards its limit.
h. Tighten the bleed screw when the lever limit has been reached; then release the lever.
i. Repeat steps (e) to (h) until all of the air bubbles have been removed from the system.

NOTE:

If the caliper and/or the master cylinder are drained of its brake fluid, inject fluid through the air bleed screw into the master cylinder using an oil feeder. Continue injecting oil until the fluid coming out at the master cylinder is free from air. While doing this, take care not to allow the fluid overflow. Then, bleed the air trapped in the caliper top by the above procedure.







BRAKE DISC

1. Measure:
   - Deflection ①
   - Thickness ②

   Wear/Deflection out of specification → Replace.

Maximum Deflection:
0.15 mm (0.006 in)
Minimum Disc Thickness:
2.5 mm (0.1 in)

NOTE:

When installing the brake disc, the slots on the disc should be positioned as shown.

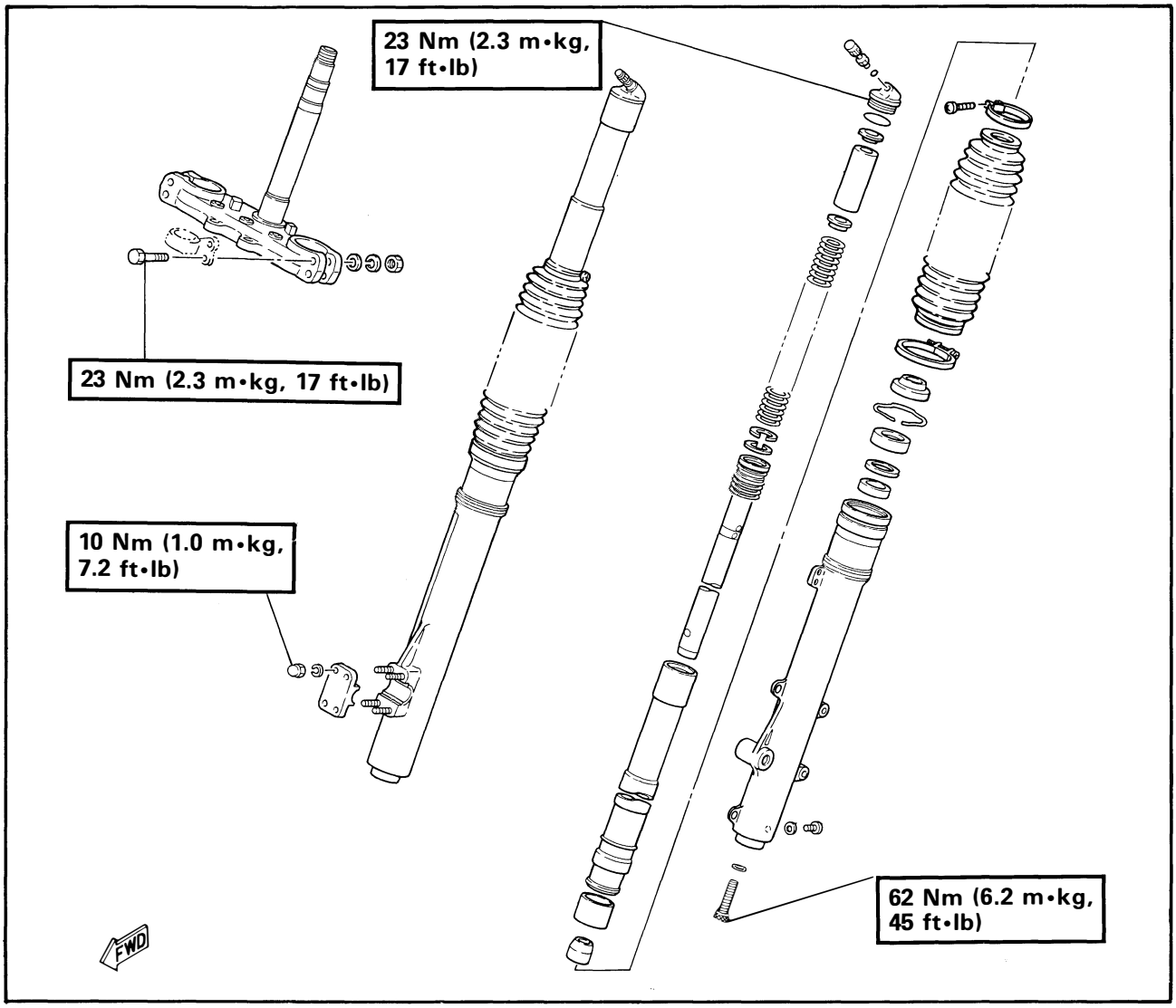
① Slot
② Rotating direction

Brake Disc:
12 Nm (1.2 m•kg, 9 ft•lb)

FRONT FORK

FRONT FORK SETTING

For details of front fork setting, refer to the Race Preparation and Tuning Manual. It is advisable to take a note of the standard setting data and specified range of adjustment.



Fork Oil

Recommended Oil:
Fork Oil 10 wt
Oil Quantity:
560 cm^3 (19.8 Imp oz, 18.9 US oz)
Oil Level:
STD 178 mm (7.01 in)
MIN. 220 mm (8.67 in)
MAX. 130 mm (5.12 in)
(From top of inner tube fully compressed without spring.)

NOTE:

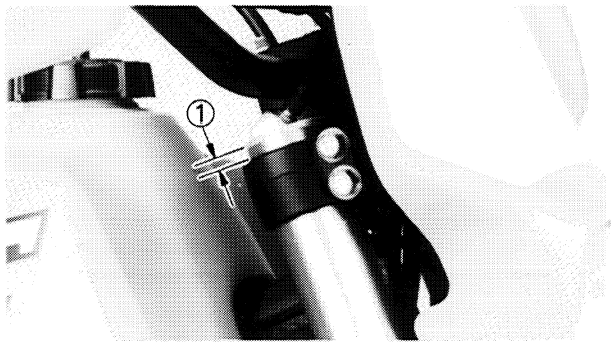
Unless the specified amount oil conforms to the oil level making on the machine, have recourse to the marked level. Also check that both oil amount levels are the same.

Fork Spring

Free Length: 459.5 mm (18.1 in)

Type	Spring rate (kg/mm)	Part number	I.D. mark
STD	0.300	43G-23141-L0	—
SOFT	0.275	43G-23141-10	1 Slit
HARD	0.325	43G-23141-20	2 Slits

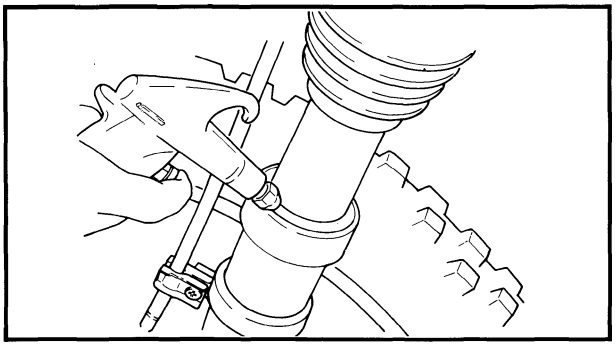
Fork Tube Height



STD 7 mm (0.28 in)
MIN. 0 mm (0 in)
MAX. 10 mm (0,4 in)

Air Pressure

STD 0 kPa (0 kg/cm^2, 0 psi)
MAX. 245 kPa (2.5 kg/cm^2, 35.6 psi)



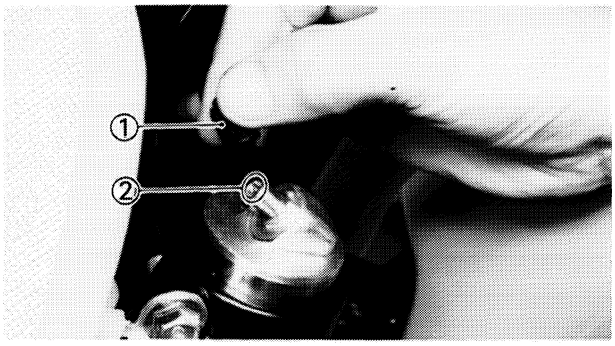
HANDLING NOTE

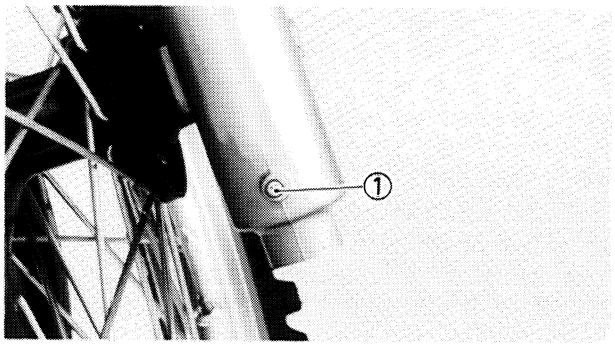
1. After running over a dusty or sandy course, remove the dust cover and remove the dust around the front forks. This cleaning will protect the fork oil seals against damage.

2. Before removing the front forks, put the marks, R and L, on the tops of cap bolts and spring seat so you will not be confused when reinstalling the front forks.

CAUTION:

To prevent an accidental explosion of air, the following instructions should be observed:
- **Use only air or nitrogen for filling. Never use any other gas. An explosion may result.**
- **Never throw the front fork into fire.**
- **Before removing the cap bolts or front forks, be sure to extract the air from the air chamber completely.**





FORK OIL REPLACEMENT

WARNING:

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

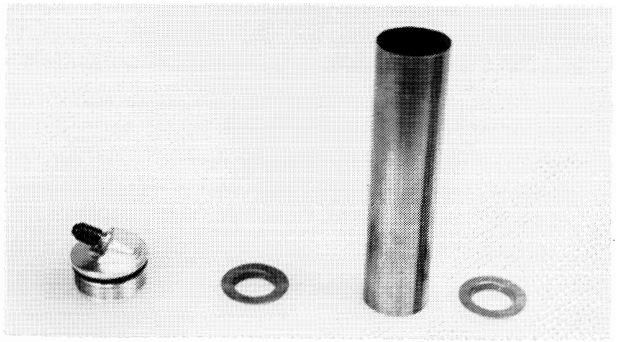
1. Remove:
   - Valve cap ①
2. Depress the air valve ② to allow the air to escape from the fork legs.
3. Place receptacle under drain hole.
4. Remove:
   - Drain screw ①

   Drain the fork oil.

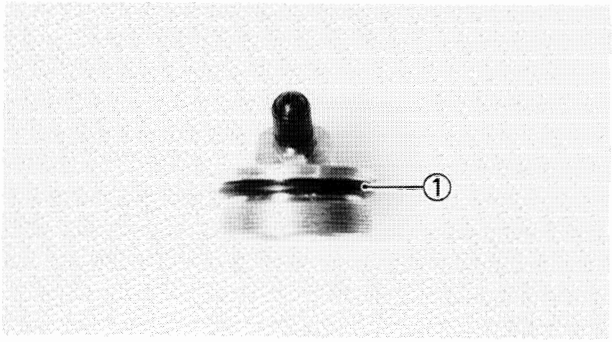
WARNING:

Do not allow any oil to contact the disc brake components. If oil is discovered, be sure to remove it, otherwise diminished braking capacity and damage to the rubber components of the brake assembly will occur.

5. After most of the oil has drained, slowly raise and lower outer tubes to pump out remaining oil.



6. Loosen:
   - Front fork upper pinch bolt
7. Remove:
   - Handlebar/•Cap bolt
   - Spring seat/•Spacer
   - Spring seat/•Spring



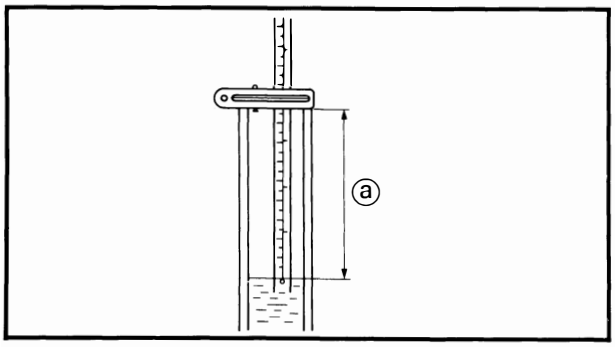
8. Inspect:
   - Cap bolt O-ring ①
   - Drain screw gasket

   Wear/Damage→Replace.
9. Install:
   - Drain screw
10. Fill:
   - Front fork

   (with correct amount of oil to get your desired oil level.)

   After filling pump the forks slowly up and down to distribute the oil.
11. Measure:
   - Oil level ⓐ

   Out of your preference→Add or reduce oil.

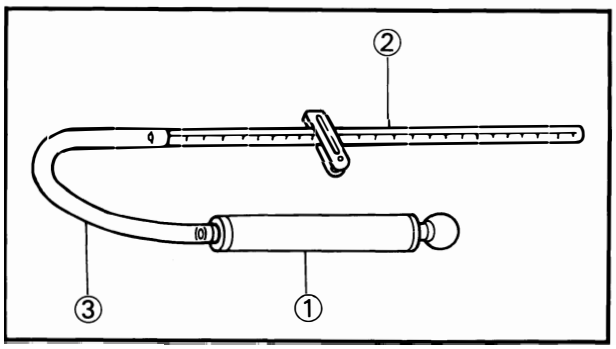


NOTE:

Measure the oil level from top of the fork tube with the oil level tool or the tape measure roll.

NOTE:

The oil level tool can be made easily as shown in illust. Fork tube must be fully bottomed.

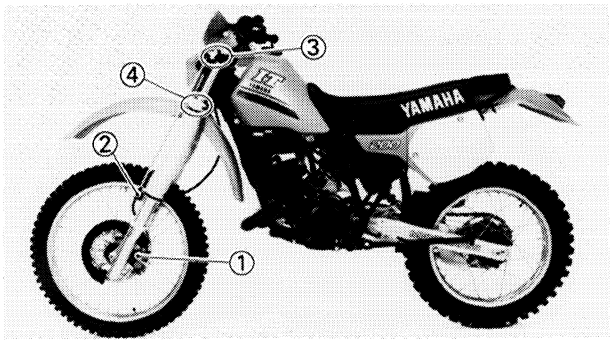


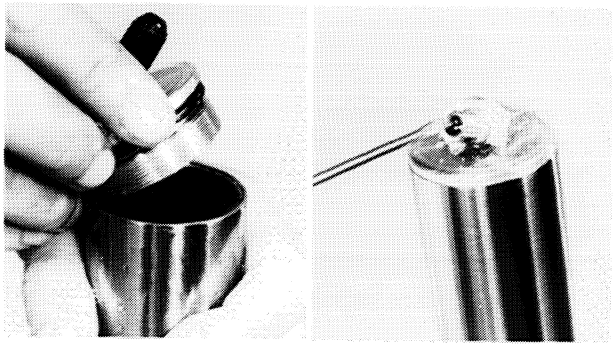
① Syringe
② Glass tube
③ Vinyl hose

12. Install:
   - Spring/•Spring seat
   - Spacer/•Spring seat
   - Cap bolt/•Handlebar

	Cap Bolt: /Handlebar: /Fork Pinch Bolt: **23 Nm (2.3 m•kg, 17 ft•lb)**

13. Set the air pressure to specification or your preference.

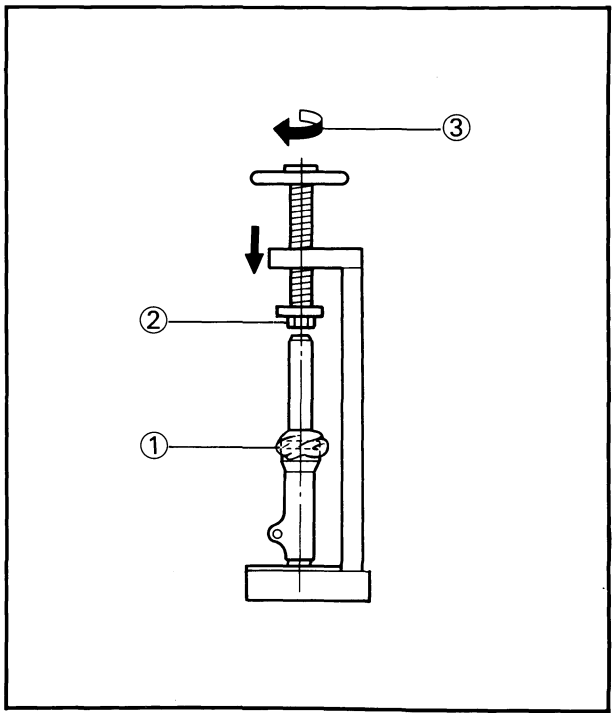




REMOVAL AND DISASSEMBLY

1. Place the machine on a suitable stand to keep it stable while the front wheel and forks are removed.
2. Remove:
   - Front wheel
   - Brake caliper ①
   - Brake hose bracket ②
3. Loosen:
   - Upper front fork pinch bolt ③
   - Cap bolt (slightly)
   - Lower front fork pinch bolt ④
4. Remove:
   - Front fork assembly (from the machine)
   - Cab bolt/•Spacer
   - Spring seats/•Rubber boot/•Snap ring ①
5. Fill:
   - Fork inner tube (with fork oil)

   Stretch the inner tube before filling.
6. Install:
   - Cap bolt
7. Depress the air valve until oil flows out.



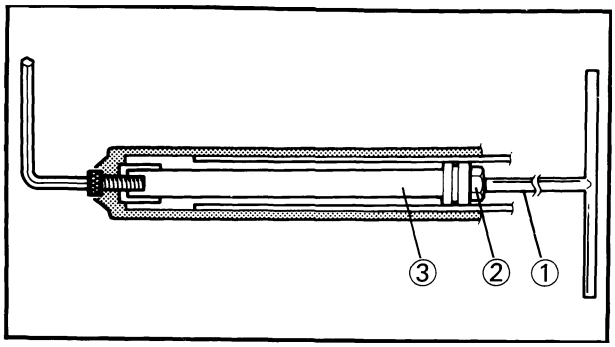
8. Remove:
   - Dust seal
   - Oil seal
   - Oil seal washer (from outer tube.)

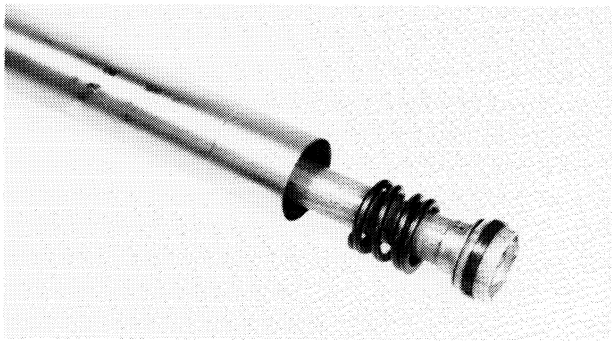
   Press the inner tube to facilitate removal.

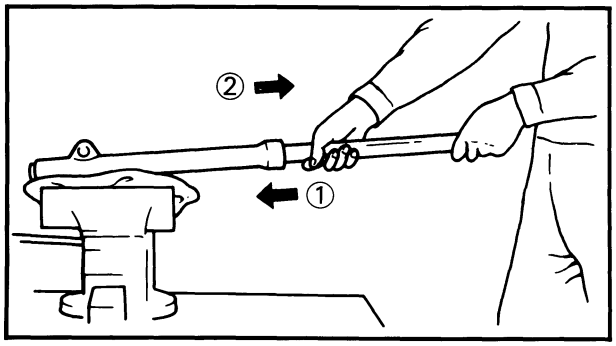
CAUTION:

- **If air enters the inner tube or it is compressed abruptly, oil may spurt out or the oil seal may be ejected.**
- **Never touch the inner tube during a disassembly operation.**
- **Be sure to wrap the oil seal with a rag for safety.**

① Wrap with rag
② Spacer
③ Turn slowly







9. Remove:
   - Oil seal
   - Cap bolt
10. Drain:
    - Fork oil
11. Remove:
    - Damper rod securing bolt

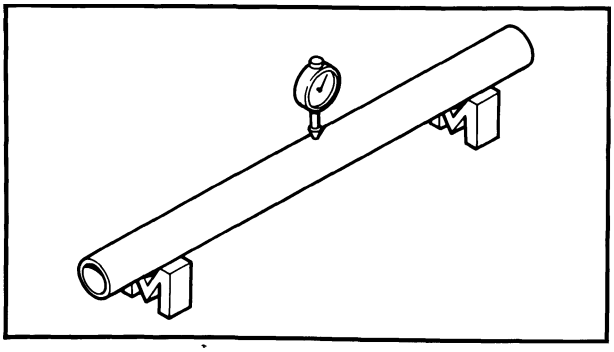
    Use T-handle ① (YM-01326) and Fork Cylinder Holder (YM-33962) ② to lock the damper rod ③.
12. Remove:
    - Damper rod
    - Damper rod spring
    - Guide bushing

Guide bushing removal steps:
- Hold fork leg in a vise horizontally.
- Put in slowly ① the inner fork tube just before it bottoms out and then pull it back quickly ②.
- Repeat this step until the inner fork tube can be pulled out from the outer fork tube (usual 2 or 3 times).

CAUTION:

Don't bottom out the inner fork tube in the above step, or the oil lock piece will be damaged.

4



INSPECTION

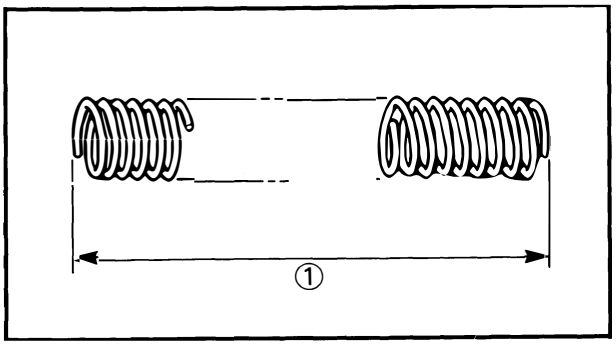
1. Inspect:
   - Inner fork tube/Outer fork tube

     Severe scratches/Bends→Replace.

     Damaged oil lock valve→Replace.

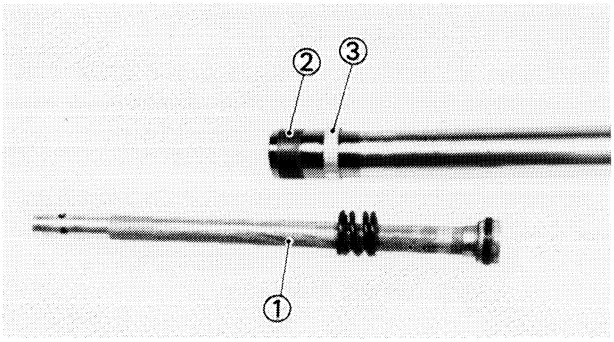
WARNING:

Do not attempt to straighten a bent fork tube as this may dangerously weaken the tube.

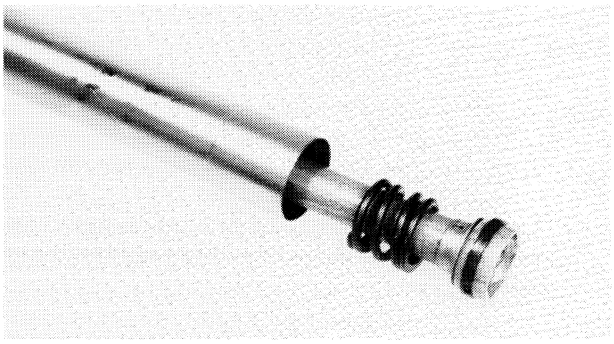


2. Inspect:
   • Fork spring ①
   Over specified limit → Replace.

Fork Spring Free Length Limit:
454 mm (17.9 in)



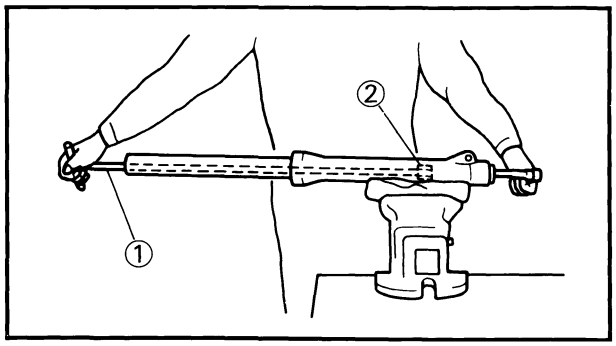
3. Inspect:
   • Damper rod ①
   Worn damper rod seal → Replace.
   Contamination → Wash and blow out all passages.
   • Slide metal ②/Guide bushing ③
   Damage/Wear → Replace



ASSEMBLY

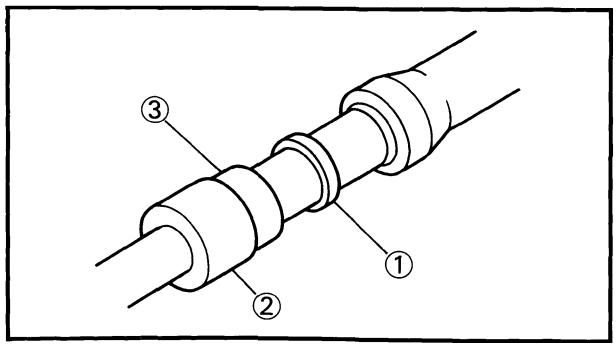
NOTE:

- Be sure all components are clean before assembly.
- Always install a new fork seal. Do not re-use a seal.

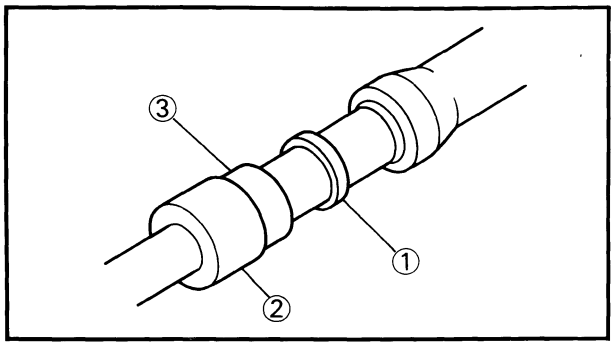


1. Install:
   • Damper rod spring
   • Damper rod
   Allow rod to slide slowly down the inner fork tube until it protrudes from the bottom.
   • Taper spindle
   • Inner fork tube
2. Install:
   • Damper rod securing bolt
   Hold damper rod with Fork Cylinder Holder ② (YM-33962) and T-handle ① (YM-01326).

Damper Rod:
62 Nm (6.2 m•kg, 45 ft•lb)
LOCTITE®



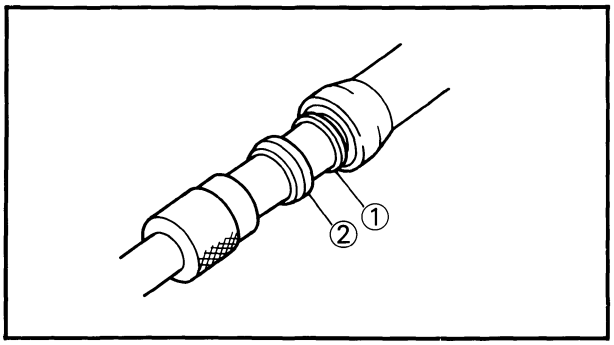
3. Install:
   • Guide bushing ①
   Press guide bushing into the outer fork tube with Fork Seal Driver ② (YM-08020) and Adapter (YM-33963) ③.
   • Oil seal washer



4. Install:
   - Fork oil seal ①
     Press fork oil seal into the outer fork tube with Fork Seal Driver ② (YM-08020) and Adapter (YM-33963) ③.

CAUTION:

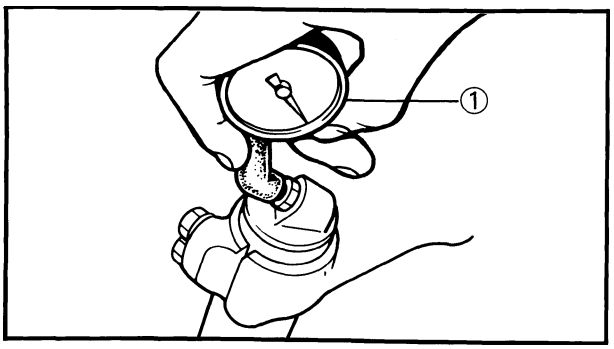
Be sure oil seal numbered side face upward.



5. Install:
   - Snap ring ①
   - Dust seal ②
     Use Fork Seal Driver (YM-08020) and Adapter (YM-33963).
   - Dust cover

6. Fill:
   - Inner tube
     (with fork oil)
     (See page 4-15 "FORK OIL REPLACEMENT.")
7. Continue assembly by reversing of Removal and Disassembly sequence.
   Install and torque tighten each component as specified.

Upper Pinch Bolts:
Lower Pinch Bolts:
Cap Bolt:
23 Nm (2.3 m•kg, 17 ft•lb)
Disc Brake Caliper:
30 Nm (3.0 m•kg, 22 ft•lb)
Front Wheel Axle:
60 Nm (6.0 m•kg, 43 ft•lb)

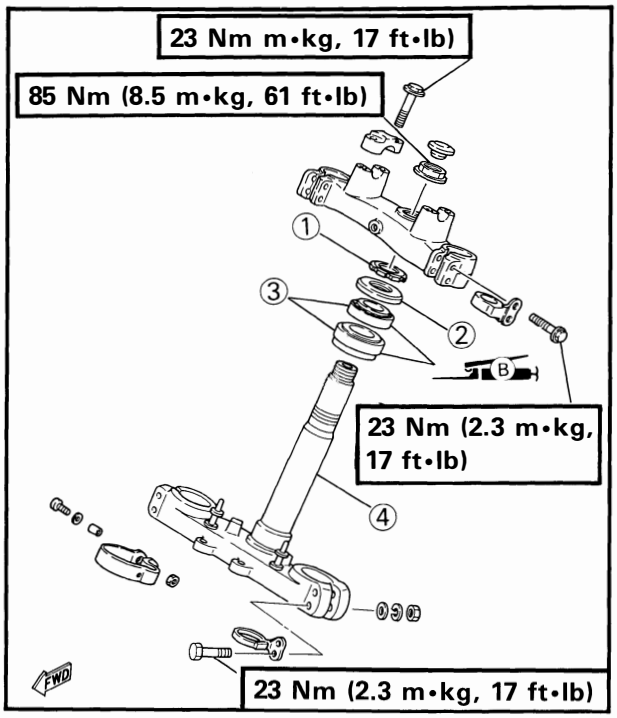


8. Fill:
   - Front fork
     (with air)

Maximum Air Pressure:
245 kPa (2.5 kg/cm^2, 35.6 psi)

① Air check gauge

9. Install:
   - Air valve cap

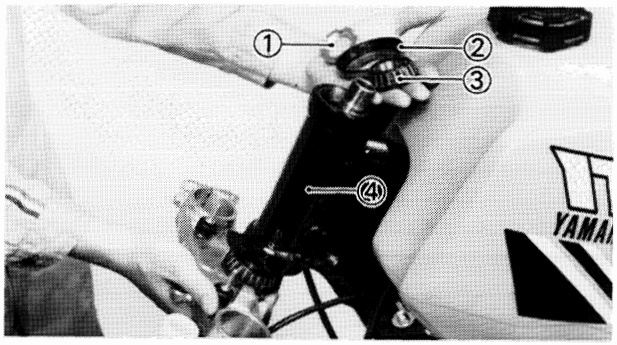


STEERING HEAD

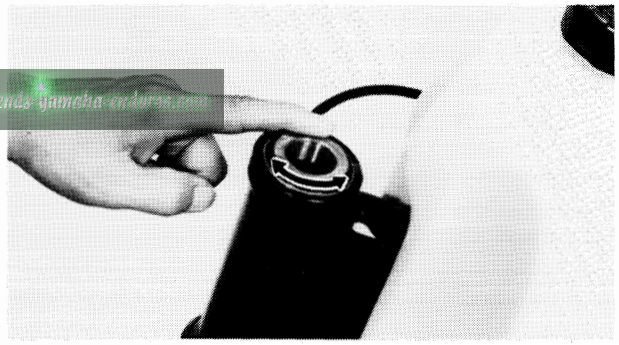
(Adjustment begins on page 2-16 of chapter 2.)

DISASSEMBLY

1. Remove:
   - Front wheel
   - Front forks
   - Front fender
   - Headlight assembly
   - Handlebar assembly
   - Steering stem nut
   - Handle crown

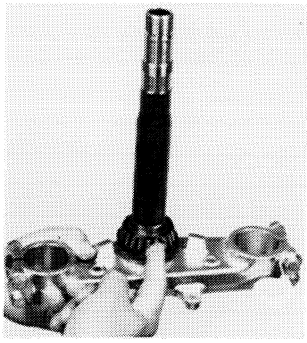


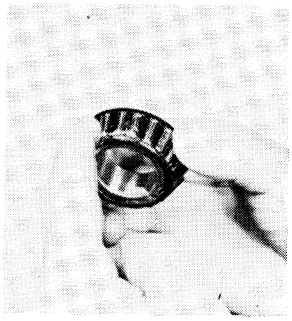
2. Remove:
   - Ring nut ①
     Use Steering Nut Wrench (YU-01268).
     Remove while holding the steering stem.
   - Bearing cover ②
   - Bearing ③
   - Steering stem ④



INSPECTION

1. Wash the bearings in solvent.
2. Inspect:
   - Bearing
     Pitting/Damage→Replace races and bearing.
     (Install the bearings in the races. Spin the bearings by hand. If the bearings hang up or are not smooth in their operation in the races, replace bearings and races.)





ASSEMBLY

1. Lubricate:
   - Bearings
   - Bearing cover seal

Wheel Bearing Grease

2. Install:
   - Steering stem
   - Upper bearing
   - Bearing cover
   - Ring nut
3. Tighten:
   - Ring nut

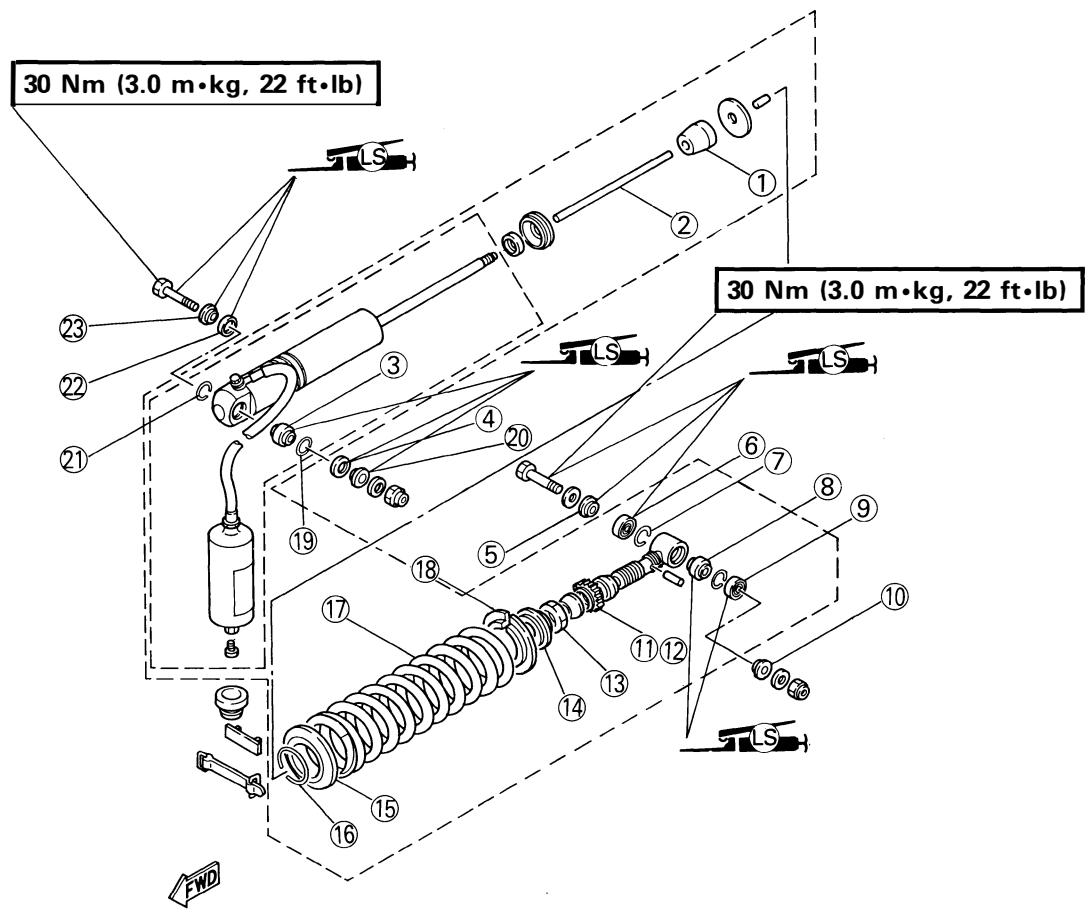
   Tighten the ring nut so all free play is taken up, but so the steering stem can still pivot freely from lock to lock.

   Continue assembly by reversing removal sequence.

4

REAR SHOCK (MONOCROSS SUSPENSION "DE CARBON" SYSTEM)

① Bump stop
② Push rod
③ Bush
④ Oil seal
⑤ Collar
⑥ Oil seal
⑦ Circlip
⑧ Bush
⑨ Oil seal
⑩ Collar
⑪ Rebound damping adjuster
⑫ STD position: 8 clicks out
⑬ Locknut
⑭ Preload adjuster
⑮ Spring shaft
⑯ Circlip
⑰ Spring
⑱ Retainer
⑲ Circlip
⑳ Collar
㉑ Circlip
㉒ Oil seal
㉓ Collar



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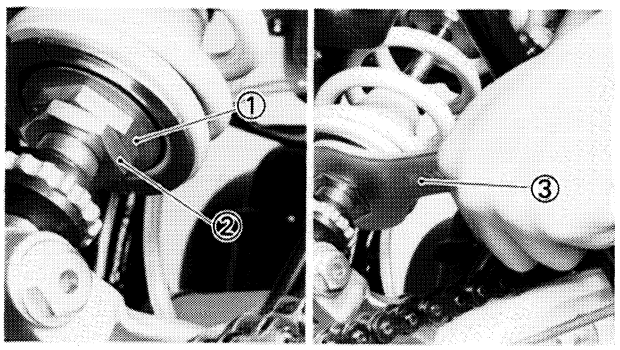


REAR SHOCK SETTING

For details of rear shock setting, refer to the Race Preparation and Tuning Manual. It is advisable to take a note of the standard setting and specified range of adjustment.

Spring Preload (Installed Length)

STD.	**260 mm (10.24 in)**
MIN.	**244 mm (9.61 in)**
MAX.	**269 mm (10.59 in)**

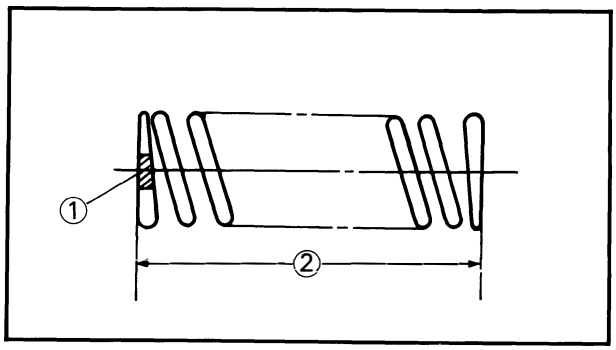
① Locknut
② Adjuster
③ Special wrench

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

CAUTION:

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

Locknut:
55 Nm (5.5 m•kg, 40 ft•lb)



Shock Spring

Free Length: 274 mm (10.2 in)

Type	Spring rate (kg/mm)	Part number	I.D. Collor
STD	5.50	43G-22212-00	Yellow
SOFT	5.50	43G-22212-10	White
HARD	6.00	43G-22212-20	Blue

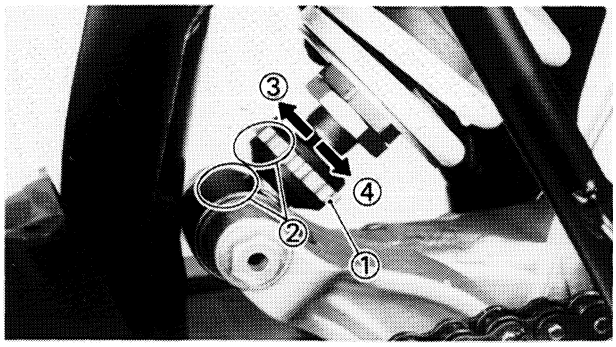
① I.D. Color
② Free length

Rebound Damping

STD SETTING:
8 clicks out
[Min ~ Max] [25 ~ 0]

CAUTION:

Don't turn out the adjuster more than 25 clicks from the stiffest position.



① Rebound damping adjuster
② Standard adjustment marks
③ Soft
④ Hard

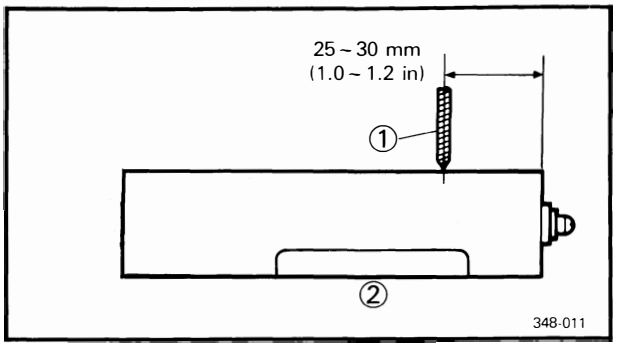
HANDLING NOTES

WARNING:

This shock absorber is provided with a separate type tank filled with high-pressure nitrogen gas. To prevent the danger of explosion, read and understand the following information before handling the shock absorber.

The manufacturer can not be held responsible for property damage or personal injury that may result from improper handling.

1. **Never tamper or attempt to disassemble the cylinder or the tank. Never tamper with the nut securing the hose to the cylinder assembly; otherwise, oil will spurt from the cylinder due to the high pressure in the nitrogen gas tank.**
2. **Never throw the shock absorber into an open flame or other high heat. The shock absorber may explode as a result of nitrogen gas expansion and/or damage to the hose.**
3. **Be careful not to damage any part of the gas tank. A damaged gas tank will impair the damping performance or cause a malfunction.**
4. **Use care not to damage any part of the hose. Any break in the hose may result in a spurt of oil under highpressure.**
5. **Take care not to scratch the contact surface of the piston rod with the cylinder; or oil could leak out.**
6. **Never attempt to remove the plug at the bottom of the nitrogen gas tank. It is very dangerous to remove the plug.**
7. **Never attempt to remove the banjo bolts where the hose attaches to the mono-shock and sub tank.**
8. **When scrapping the shock absorber, follow the instructions on disposal.**

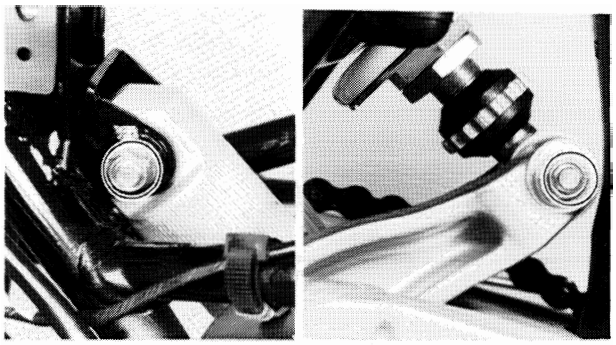


NOTES ON DISPOSAL (YAMAHA DEALERS ONLY)

Before disposing the shock absorber, be sure to extract the nitrogen gas. To do so, drill a 2 or 3 mm (0.08 ~ 0.12 in) hole ① through the tank at a position 25 ~ 30 mm (1.0 ~ 1.2 in) from the bottom end of the tank. At this time, wear eye protection ② to prevent eye damage from escaping gas and/or metal chips.

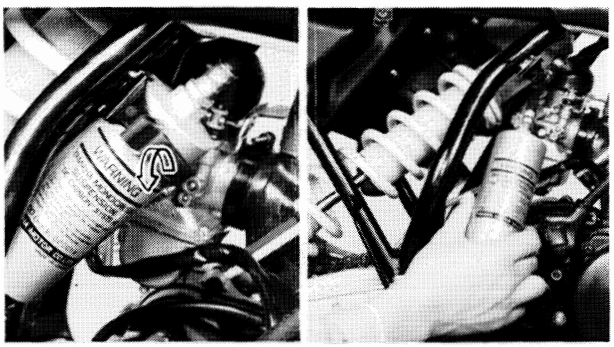
WARNING:

To dispose of a damaged or worn-out shock absorber, take the unit to your Yamaha dealer for this disposal procedure.



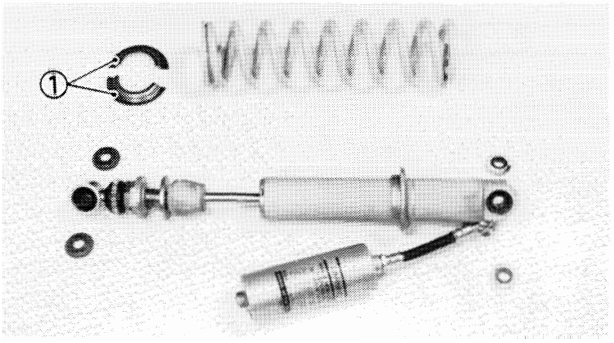
REMOVAL

1. To remove the shock absorber, plcace the machine on a suitable stand to keep the machine stable while the shock absorber is removed.



2. Remove:
   - Shock absorber upper securing bolt ①
   - Shock absorber lower securing bolt ②

3. Remove:
   - Rubber band
   - Shock absorber (from the machine)



4. Loosen:
   - Locknut
   - Adjuster

NOTE:

This will make it easy to remove the spring.

5. Remove:
   - Spring retainers ①
   - Spring

INSTALLATION

1. Install:
   - Shock absorber

   Reverse removal procedure taking care of the following points.

- Tighten the spring preload adjuster locknut and shock absorber securing bolts.

Locknut:
55 Nm (5.5 m•kg, 40 ft•lb)
Shock Absorber Securing Bolt:
30 Nm (3.0 m•kg, 21 ft•lb)

- Apply grease to the pivot shafts.

CAUTION:

Wipe off any excessive grease, and avoid getting grease on the brake shoes.

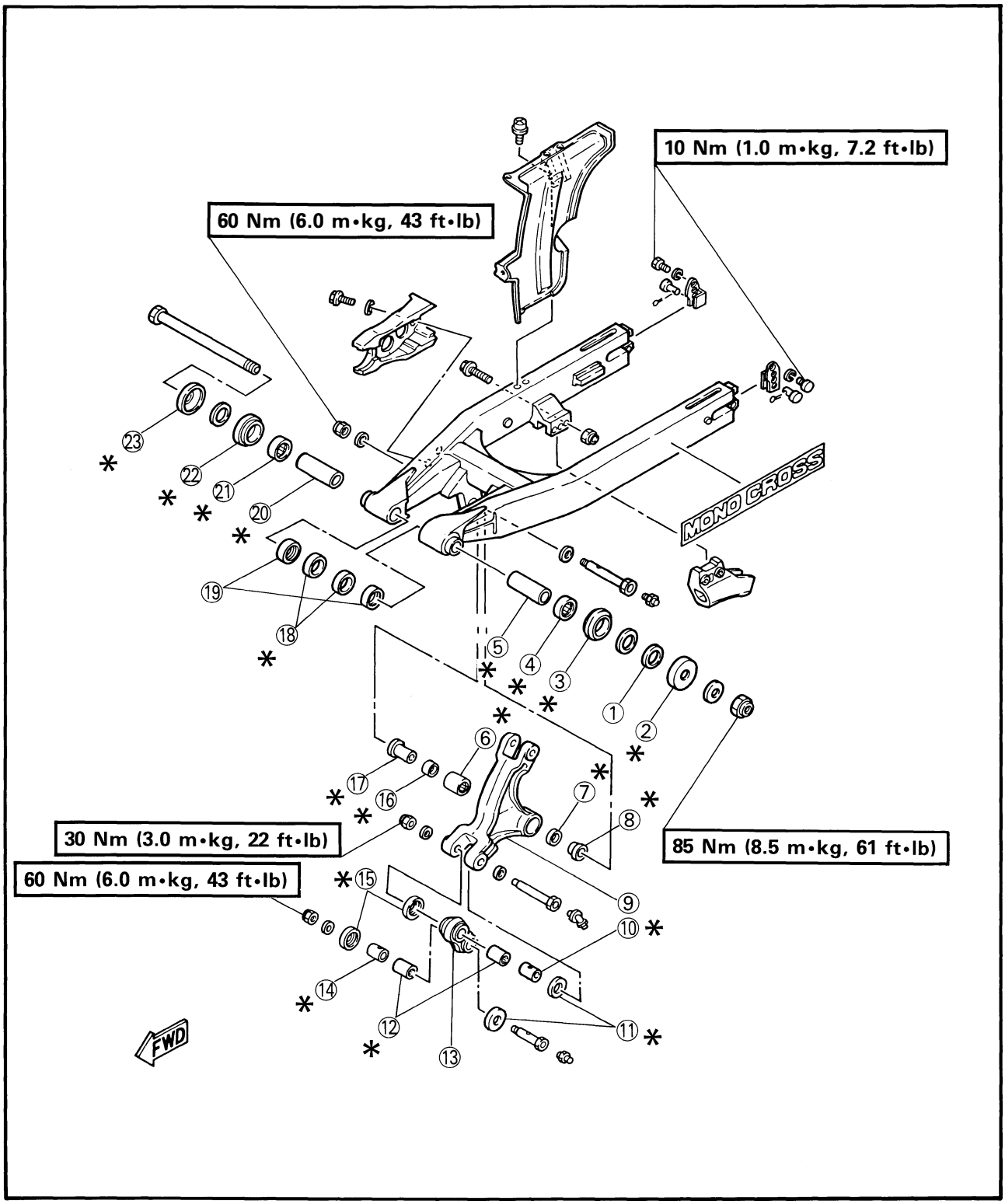
- After installing, make sure all these parts move smoothly.

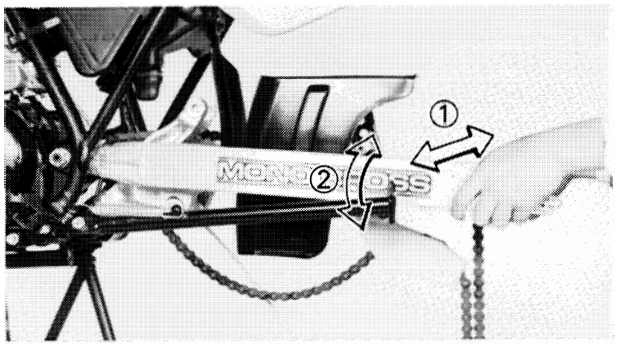
4

SWINGARM

① Shim
② Thrust cover
③ Oil seal
④ Bearing
⑤ Solid bush
⑥ Bearing
⑦ Oil seal
⑧ Collar
⑨ Relay arm
⑩ Collar
⑪ Thrust cover
⑫ Bearing
⑬ Connecting rod
⑭ Collar
⑮ Thrust cover
⑯ Oil seal
⑰ Collar
⑱ Oil seal
⑲ Bush
⑳ Solid bush
㉑ Bearing
㉒ Oil seal
㉓ Thrust cover

*Apply grease to all bearings, bushes, collars, oilseals, thrust covers and shafts.



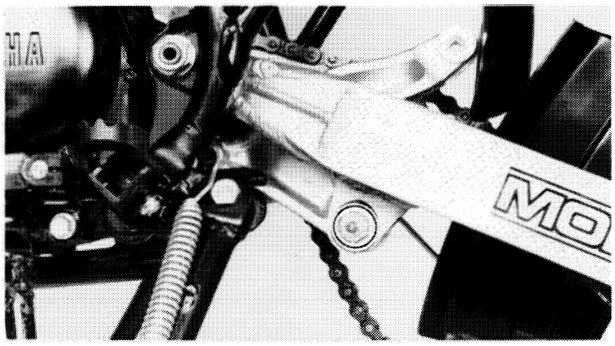


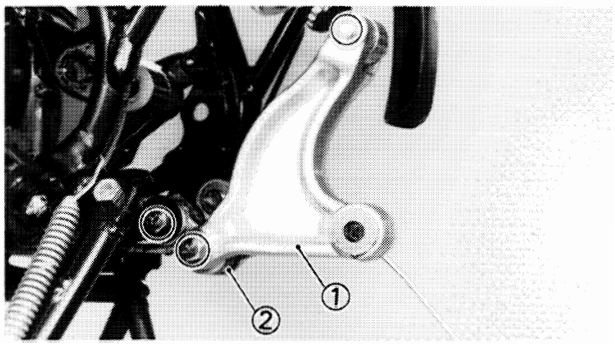
FREE PLAY INSPECTION

1. Check:
   - Swingarm side play ①
     Side play→Check bearing and collar.
   - Swingarm up and down movement ②
     Tightness/Binding/Rough spots→Replace bearings.

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

4

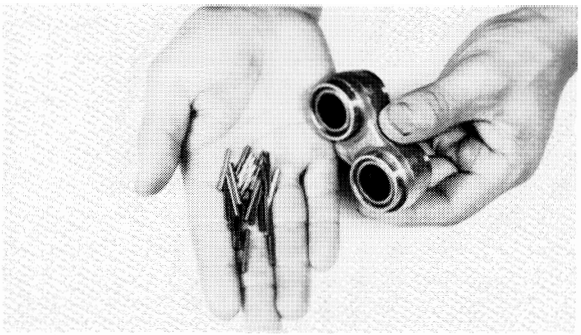


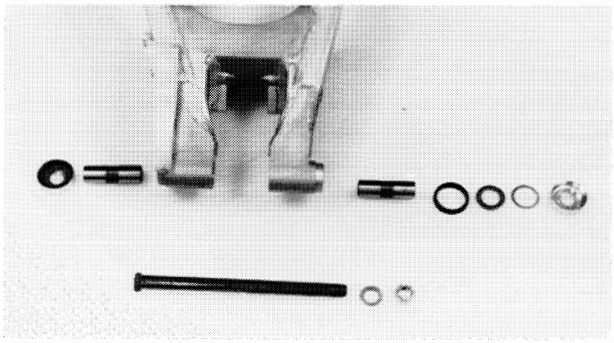


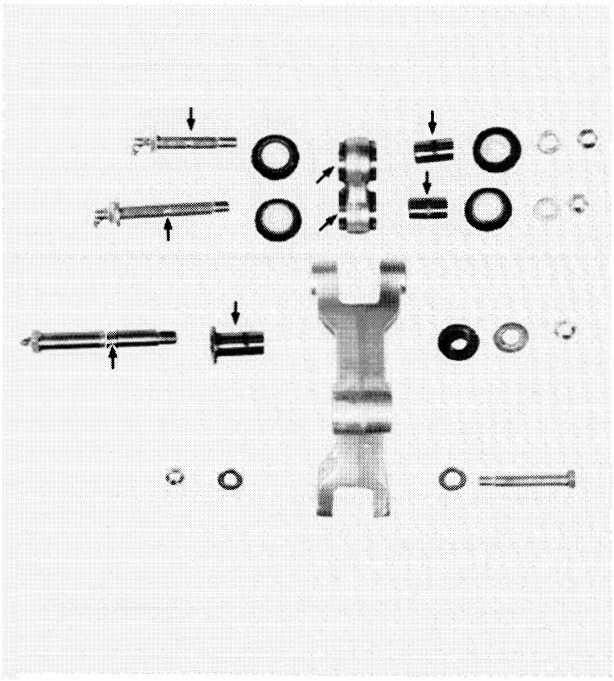
REMOVAL

1. Remove:
   - Rear wheel
   - Drive chain guide
   - Swingarm pivot shaft
   - Swingarm

2. Remove:
   - Relay arm ①
   - Connecting rod ②







INSPECTION

1. Wash the bearings bushes, collars, thrust covers in a solvent.
2. Inspect:
   - Bearings (Needle/Race)
   - Collars
   - Bushes
   - Oil seals

   Damage/Wear/Rust→Replace.

3. Inspect:
   - Swingarm
   - Relay arm
   - Connecting rod
   - Guard

   Damage/Wear→Repair/Replace.

INSTALLATION

Assemble the swingarm by reversing the removal procedure. Take care of the following precautions.

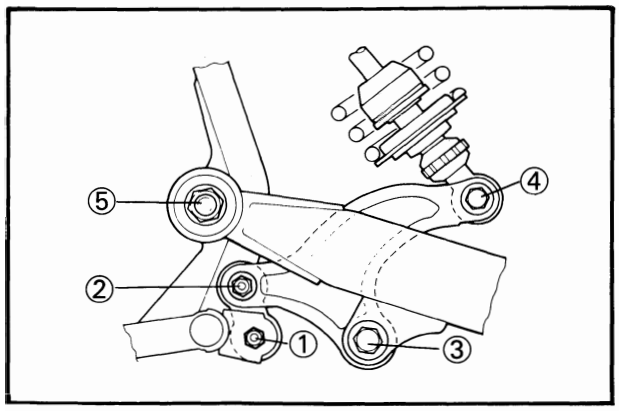
- Apply grease to the portions of the swingarm.

Bush/Collar:
Coat all surface of bushes and collars with grease.
Oil seal:
Fill the lip portion of oil seals with grease.
Thrust cover:
Fill inside of thrust cover with grease.
Pivot shaft:
Coat outside surface of shaft with grease.

- Tighten the nuts to specification.

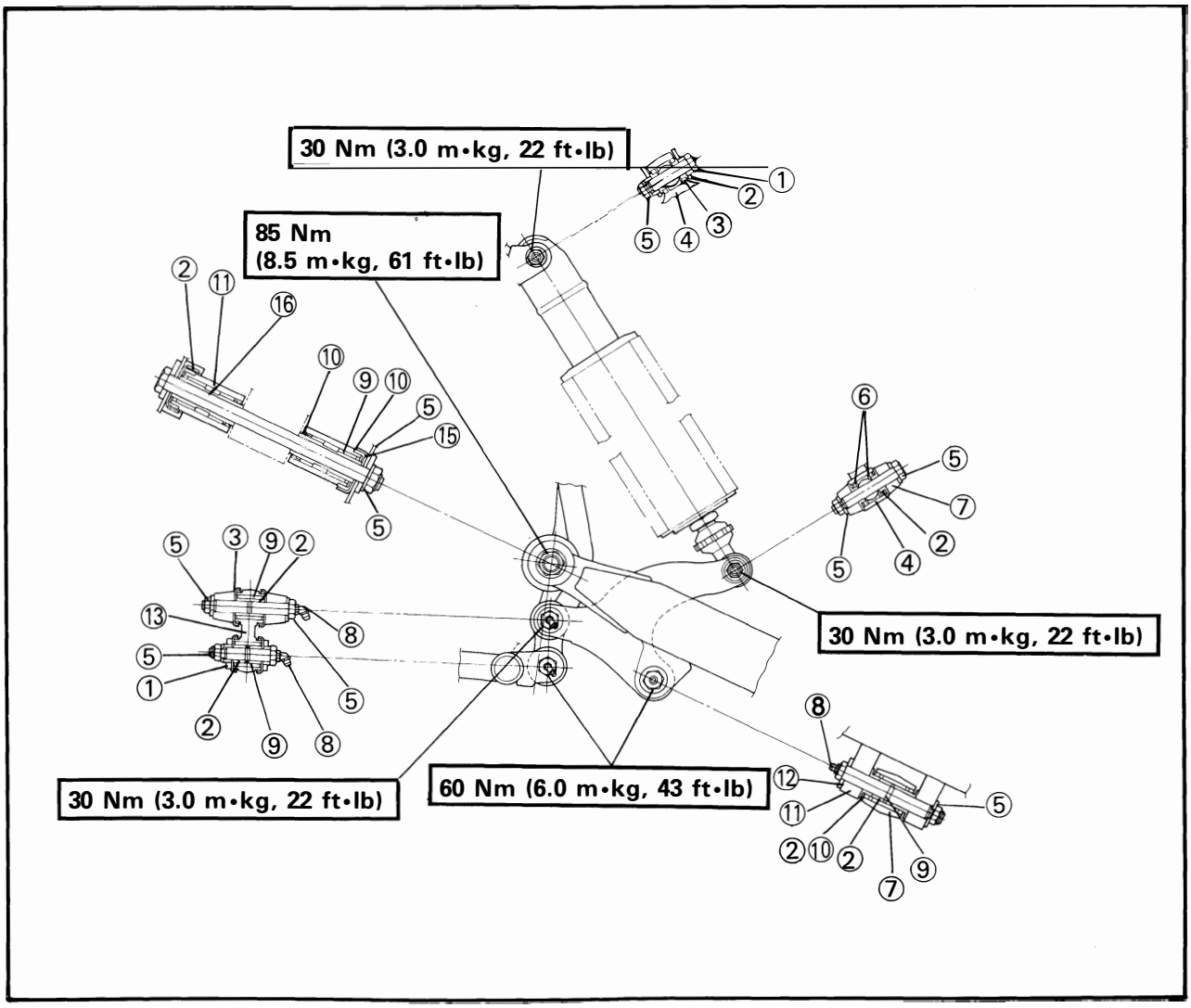
4

SWINGARM



① Connecting Rod—Frame
60 Nm (6.0 m•kg, 43 ft•lb)
② Connecting Rod—Relay arm
30 Nm (3.0 m•kg, 22 ft•lb)
③ Relay Arm—Swingarm
60 Nm (6.0 m•kg, 43 ft•lb)
④ Relay Arm — Suspension
30 Nm (3.0 m•kg, 22 ft•lb)
⑤ Pivot Shaft
85 Nm (8.5 m•kg, 61 ft•lb)

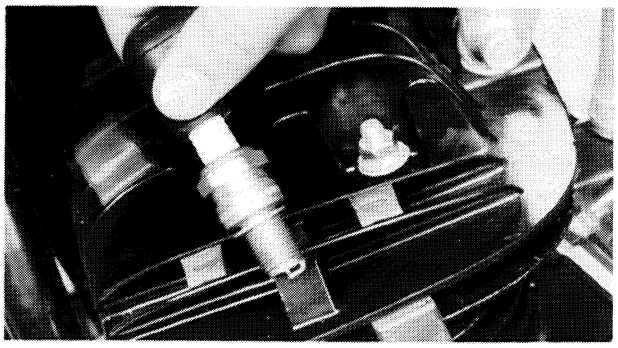
① Frame
② Collar
③ Cover
④ Rear suspension
⑤ Washer
⑥ Circlip
⑦ Relay arm
⑧ Grease nipple
⑨ Bearing
⑩ Oil seal
⑪ Swingarm
⑫ Washer plate
⑬ Connecting rod
⑭ Shim
⑮ Thrust cover
⑯ Solid bush



CHAPTER 5
ELECTRICAL

ELECTICAL IGNITION SYSTEM

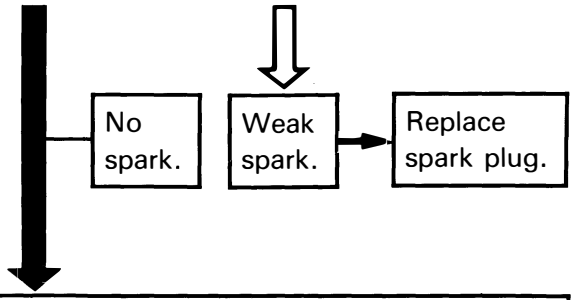
If the ignition spark is of poor quality or if there is no spark at all; use the following procedure, to locate and repair the problem.



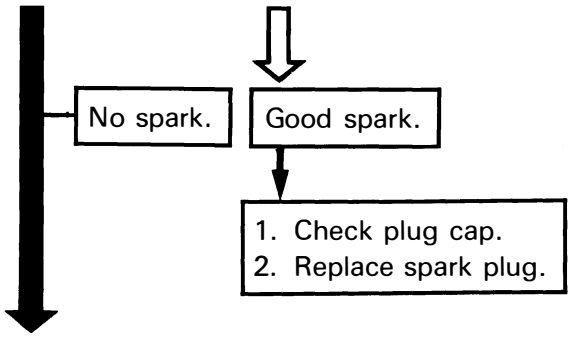
Spark plug test
Remove the spark plug and check the spark. Ground the spark plug cap to the cylinder head, and kick the starter.

NOTE:

If the spark plug is oily or has carbon deposits, clean it or replace.



Spark gap test
Remove the spark plug cap and check the spark. Hold the high tension lead 5 mm (0.20 in) from the head, and kick the engine through.



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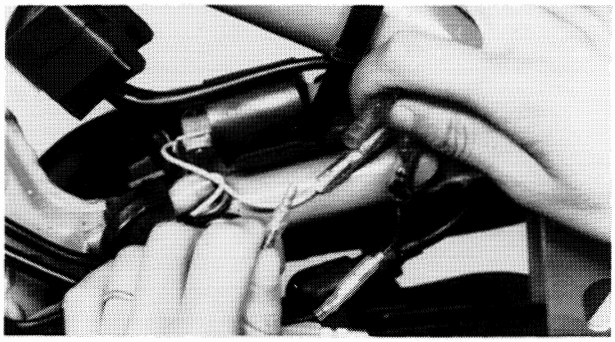
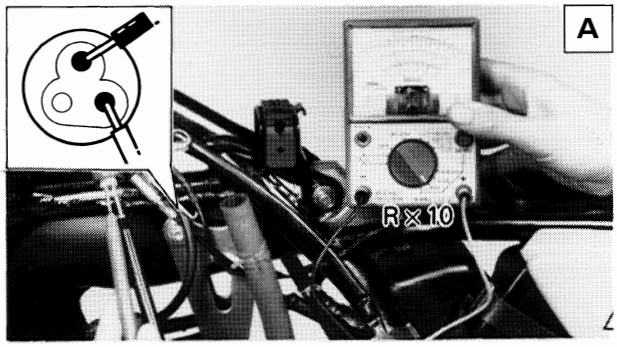


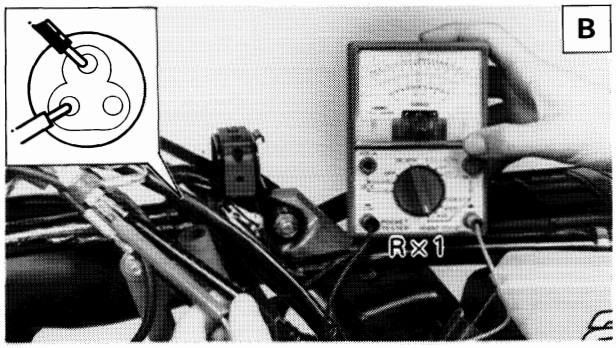
Engine stop switch

Disconnect the Black/White lead of engine stop switch at CDI unit.

Engine starts. → Replace Engine stop switch.

Engine does not start.





CDI Magneto
(Source coil, Pickup coil) test

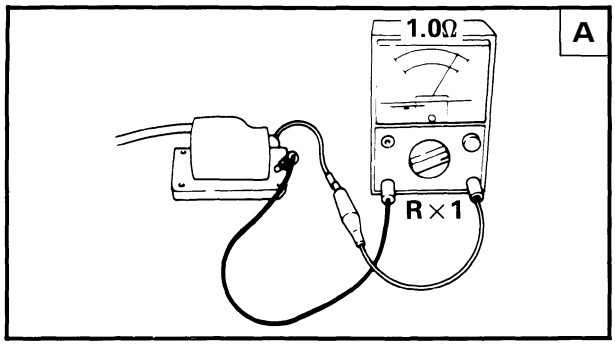
Disconnect the magneto leads, and use the pocket tester to check the resistance of the source coil [A] and/or pickup coil [B].

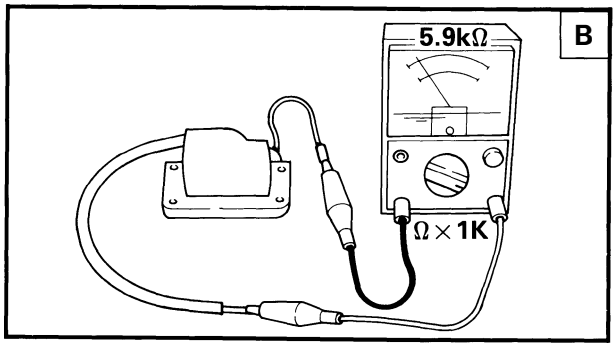
Source Coil Resistance:
[Brown-Black:]
420Ω ± 10% at 20°C (68°F)
Pickup Coil Resistance:
[Black-White/Red:]
12.4Ω ± 10% at 20°C (68°F)

If other than specified. → Replace source coil or pickup coil.

OK

5





Ignition coil test

Use the pocket tester to check the resistance of primary [A] and secondary [B] windings of the ignition coil.

Primary Coil Resistance:
1.0Ω ± 15% at 20°C (68°F)
Secondary Coil Resistance:
5.9kΩ ± 15% at 20°C (68°F)

If other than specified. → Replace ignition coil.

OK

Connectors check-up

1. Check the connectors and couplers for looseness of jointing ends.
2. Keep the connectors and couplers from dirt or rust.

Wrong connection. → Correct

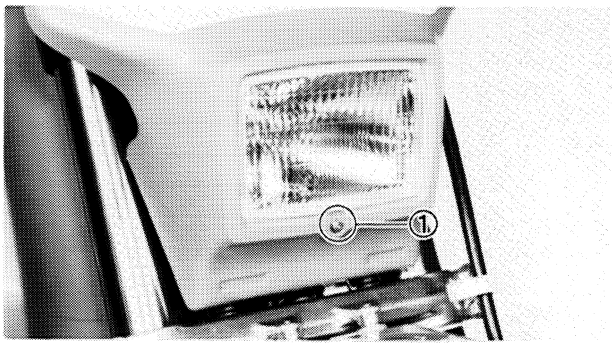
OK

Replace CDI unit.

CAUTION:

Make sure the wire harness is in a position it will not make contact with exhaust pipe, which could short out CDI unit.

5



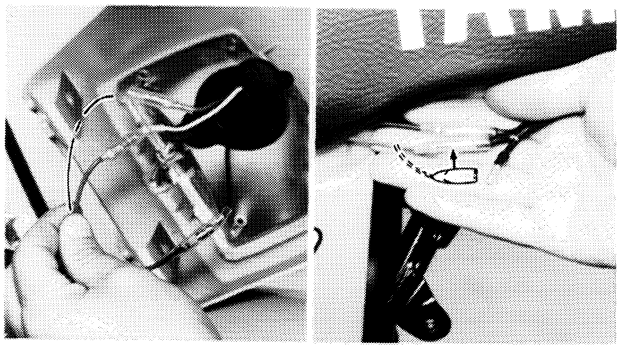
LIGHTING SYSTEM

HEADLIGHT ADJUSTMENT

1. Adjust the headlight beam by tightening or loosening the adjust screw ①.

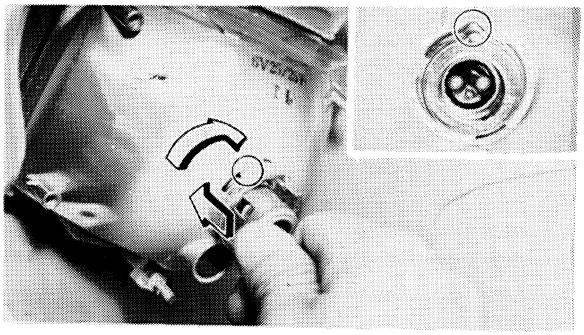
a. To adjust the beam to the upper, turn the adjusting screw clockwise.

b. To adjust the beam to the lower, turn the screw counterclockwise.



SWITCHING HEADLIGHT TERMINALS

The headlight has two filaments should the headlight burn out during operation, switch the headlight terminal to the other.

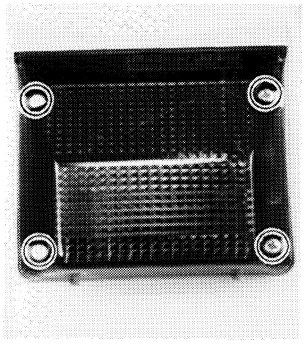


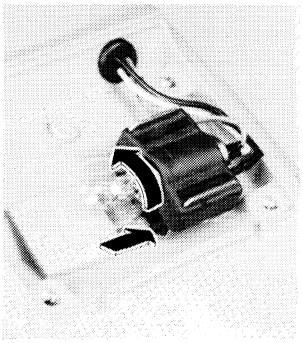
BULB REPLACEMENT

Headlight

1. Remove the headlight assembly from the frame.
2. Turn the bulb holder counterclockwise and remove the defective bulb.
   defective bulb.

5



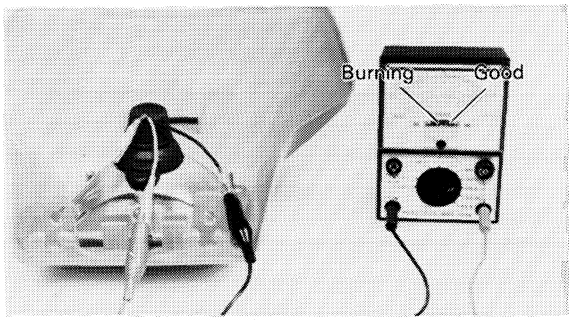


Taillight

1. Remove the taillight lens from the taillight assembly.
2. Turn the bulb counterclockwise and remove the defective bulb.

NOTE:

Make sure the oil seal is positioned properly.



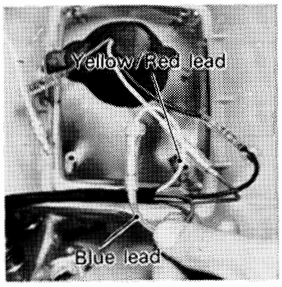
TROUBLESHOOTING

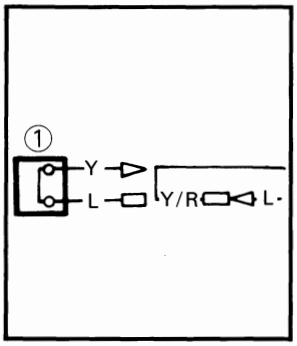
If the headlight or taillight will not come on, make checkups in the following sequence to determine the cause of trouble, and repair or replace the light (bulb).

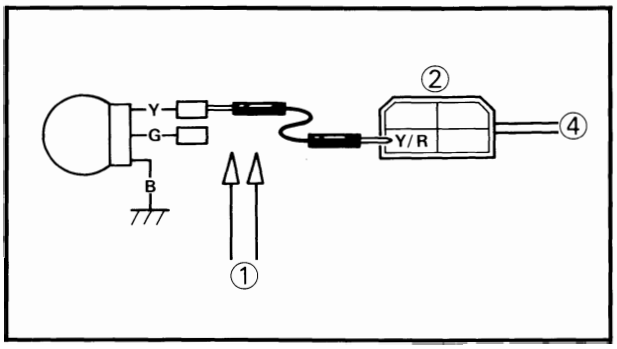
Check bulb
Check the condition of bulb.

If burn out or wrong wattage. → Replace.

OK







Check Switch

Disconnect the leads from the light switch, ① and connect the Yellow/Red lead ② from the magneto directly to the Blue or Yellow lead.

④ CDI Magneto

If comes on → Repair the light switch (dimmer switch) or replace it.

Fails to come on.

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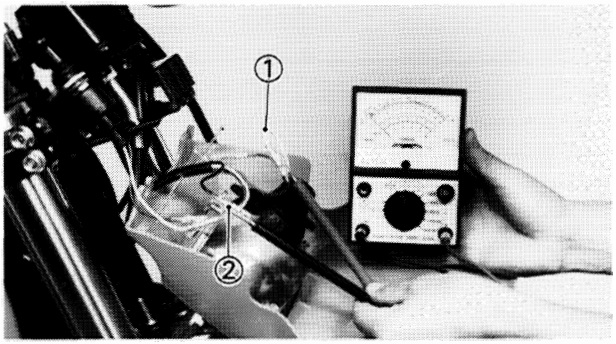
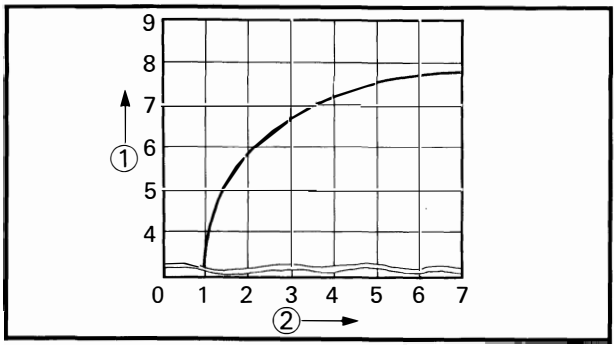




Check out-put voltage

Check output voltage on the Yellow/Red lead ① of the C.D.I. magneto.

② Black lead

To check, use the Yamaha Pocket Tester set in the AC20V range.

Engine speed	Voltage
2,500 r/min	6.0V or more
8,000 r/min	8.5V or less

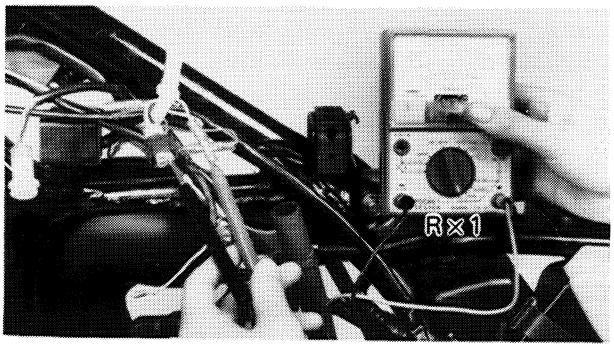
① Lighting voltage (V)
② Engine speed (×1,000 r/m)

If voltage is correct.

Check the Yellow/Red and Blue leads for connections (between the switch and light).

Voltage is incorrect.

5



Check lighting coil

Check the lighting coil resistance.

Lighting Coil Resistance:
0.48Ω ± 10% (Yellow/Red to Black)

If other than specified.

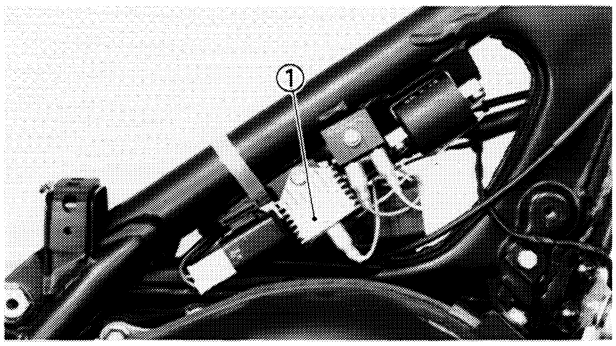
Replace lighting coil.

OK

Replace regulator.

Voltage is incorrect.

a. Check connector terminals for loose connection or corrosion.
b. Check the connection of ground lead.



① Regulator

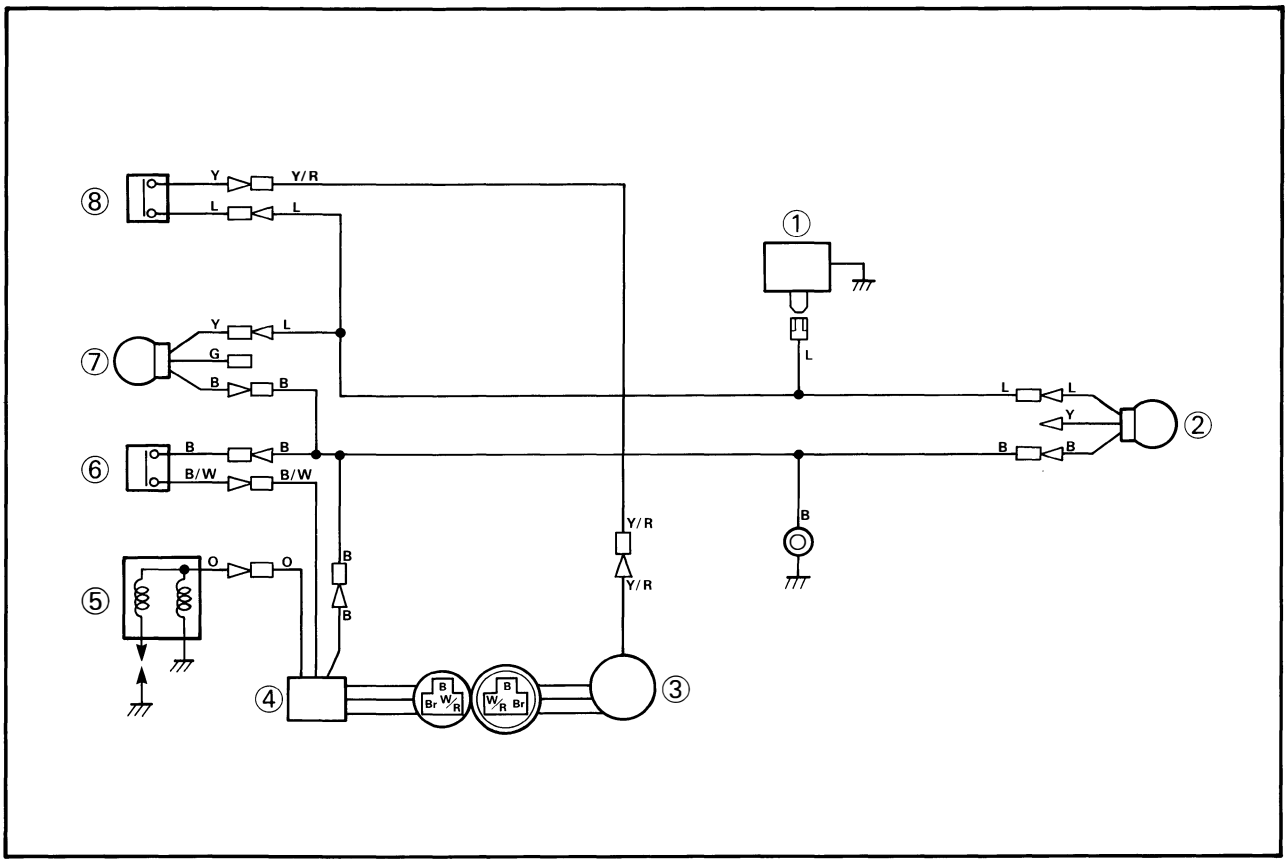
5

WIRING DIAGRAM

① Rectifier
② Tail/Brake light
③ C.D.I. magneto
④ C.D.I. unit
⑤ Ignition coil
⑥ Engine stop switch
⑦ Headlight
⑧ Lighting switch

COLOR CODE

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



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CHAPTER 6
APPENDICES

APPENDICES

TROUBLESHOOTING GUIDE

ENGINE IS HARD TO START OR DOES NOT START

Ignition System	
Possible Cause	Remedy
1. Spark plug is wet.	• Clean or replace
2. Ignition coil is faulty.	• Replace
3. C.D.I. unit is faulty.	• Replace
4. C.D.I. magneto is faulty (Pickup coil, source coil)	• Replace
5. Ignition timing is incorrect.	• Adjust
6. Wire is broken, shorted or disconnected.	• Repair, replace or connect
7. Engine stop switch is shorted.	• Repair or replace
Compression System	
Possible Cause	Remedy
1. Piston rings are sticking or worn.	• Replace
2. Cylinder or piston is worn or scratched.	• Repair or replace
3. Compression leaks passing cylinder head gasket (Head is distorted.)	• Replace (or repair)
4. Crankshaft side oil seal is faulty.	• Replace
5. Air leaks through crankcase sealing surfaces.	• Repair
Air/Fuel System	
Possible Cause	Remedy
1. Carburetor pilot jet is clogged.	• Clean
2. Fuel cock or pipe is clogged.	• Clean
3. Float valve is faulty. (Float height is too high or too low.)	• Replace (remove gasoline from crankcase)
4. Reed valve is broken or deformed.	• Replace
5. Fuel tank filler cap or carburetor breather pipe is clogged.	• Clean
6. Air screw is improperly adjusted.	• Adjust
7. Fuel is deteriorated.	• Replace
8. Oil-gas mixing ratio is incorrect.	• Replace
9. Air leakes through carburetor joints.	• Retighten or replace gasket

POOR HIGH SPEED PERFORMANCE

Ignition System	
Possible Cause	Remedy
1. Spark plug is dirty or plug gap is too narrow.	• Clean, repair or replace.
2. C.D.I. unit is faulty.	• Replace
3. C.D.I. magneto is faulty.	• Replace
4. Ignition coil is faulty.	• Replace
5. Ignition timing is incorrect.	• Adjust
6. Loose wire connection.	• Repair
Compression System	
Possible Cause	Remedy
1. Piston rings are sticking or worn.	• Replace
2. Cylinder or piston is worn or scratched.	• Repair or replace
3. Compression leakage through crankcase sealing surfaces or crankshaft side oil seal.	• Repair or replace
4. Carbon deposits in combustion chamber (Piston, Cylinder head).	• Decarbonize
Air/Fuel System	
Possible Cause	Remedy
1. Clogged carburetor jets.	• Clean
2. Improperly adjusted main jet (High speed).	• Adjust
3. Improperly adjusted jet needle (Medium speed).	• Adjust
4. Incorrect fuel level.	• Adjust
5. Dirty or clogged air cleaner element.	• Clean
6. Clogged fuel tank filler cap or carburetor breather pipe.	• Clean
7. Clogged fuel cock or kinked fuel pipe.	• Clean or repair
8. Deteriorated fuel.	• Replace
9. Improper oil-gas mixing ratio.	• Replace
10. Cracked or broken exhaust pipe (Leakage of exhaust gases).	• Replace

OVERHEAT

Possible Cause	Remedy
1. Incorrect air-fuel mixture.	• Adjust
2. Air leaks through carburetor joint.	• Repair or replace
3. Incorrect ignition timing.	• Adjust
4. Carbon builds up in cylinder head or on piston head.	• Decarbonize
5. Improper spark plug heat range (too hot)	• Replace
6. Fuel is deteriorated or oil-gas mixing ratio is incorrect.	• Replace

TRANSMISSION AND SHIFTER

Trouble	Possible Cause	Remedy
Gears slip off	1. Gear dogs are worn.	• Replace
	2. Shift forks are bent. (burnt or worn)	• Replace
	3. Shift cam stopper spring is fatigued.	• Replace
Gear shifts skipping over the next.	1. Shift cam stopper spring is fatigued.	• Replace
	2. Shift forks are bent. (burnt or worn)	• Replace
Gear does not select	1. Shift cam is worn. (broken)	• Replace
	2. Change shaft is bent.	• Replace
	3. Shift arm spring is broken.	• Replace
	4. Gears are broken.	• Removal (Replace)
Shift pedal does not return.	1. Change return spring is broken.	• Replace
	2. Change shaft is bent.	• Replace

CLUTCH

Trouble	Possible Cause	Remedy
Clutch slips	1. Friction plate is worn.	• Replace
	2. Clutch plate is worn.	• Replace
	3. Clutch spring is fatigued.	• Replace
	4. Pressure plate is deformed.	• Replace
	5. Clutch play is too small.	• Adjust
	6. Clutch adjustment is incorrect.	• Adjust
Clutch drags	1. Clutch plate is worped.	• Replace
	2. Clutch lock nut is loosen.	• Replace
	3. Friction plate is broken.	• Replace
	4. Clutch play is too much.	• Adjust
	5. Oil viscosity is incorrect.	• Replace

CHASSIS

Steering head is loose	
Possible Cause	Remedy
1. Roller is worn. 2. Steering nut is loose.	• Replace • Retighten

Wheels have excessive run-out	
Possible Cause	Remedy
1. Bearing is worn. 2. Rim has dent. 3. Spokes are loose (or broken). 4. Axle nut is loose.	• Replace • Repair or replace • Retighten or replace • Retighten

Brakes		
Trouble	Possible Cause	Remedy
Faulty	1. Brake pad or shoes are worn. 2. Brake is improperly adjusted. 3. Brake drum contains water. 4. Brake disc, pad or lining is greasy.	• Replace • Adjust • Clean • Degrease or replace
Not return smoothly	1. Wire is starved for oil. 2. Camshaft is starved for grease. 3. Return spring or brake shoe spring is broken. 4. Brake pedal axle is starved for grease.	• Grease or replace • Grease • Replace • Grease

Frame and Swingarm	
Possible Cause	Remedy
1. Frame is cracked. 2. Rear arm is bent. 3. Rear arm is cracked. 4. Bushing is worn. 5. Bushing lacks oil.	• Weld, reinforce or replace • Repair or replace • Replace • Replace • Lubricate

6

SPECIFICATIONS

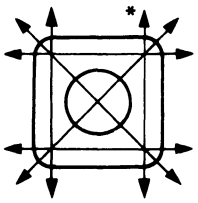
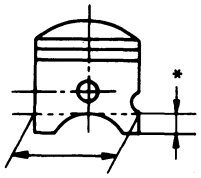
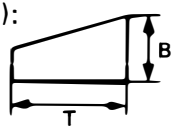
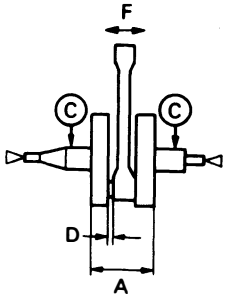
I. GENERAL SPECIFICATIONS

Model	IT200S
Model Code Number	1TY
Vehicle Identification Number	JYA1TY00*GA015101
Engine Starting Number	43G-015101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,140 mm (84.3 in) 860 mm (33.9 in) 1,260 mm (49.6 in) 925 mm (36.4 in) 1,440 mm (57.0 in) 345 mm (13.6 in)
Basic Weight: With Oil and Full Fuel Tank	 103 kg (227 lb)
Engine: Engine Type Cylinder Arrangement Displacement Bore × Stroke Compression Ratio Starting System	 Air, cooled 2-stroke, gasoline, torque induction Single cylinder, forward inclined 195 cm^3 66 × 57 mm (2.60 × 2.24 in) 7.7:1 Kick starter
Lubrication System	Premix (24 : 1) (Yamalube R) Premix (20 : 1) (Castrol R30) (Castrol A545) (Castrol A747)
Oil Type or Grade (2-Cycle): Transmission Oil Periodic Oil Change Total Amount	 Yamalube 4-cycle oil or SAE 10W30 type SE motor oil 0.70 L (0.62 Imp qt, 0.74 US qt) 0.75 L (0.66 Imp qt, 0.79 US qt)
Air Filter	Wet type element
Fuel: Type Tank Capacity/Reserve	 Premium fuel with an octane rating of at least 90 11.0 L (2.42 Imp gal, 2.91 US gal) 1.4 L (0.33 Imp gal, 0.37 US gal)
Carburetor: Type/Manufacturer	 VM34SS/MIKUNI
Spark plug: Type/Manufacturer Gap	 N-86, N-86G, N-2G, N-2C/CHAMPION, B8EG, B8EGV/NGK 0.5 ~ 0.6 mm (0.020 ~ 0.024 in)

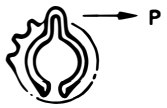
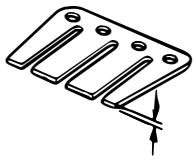
Model	IT200S
Clutch Type	Wet, multiple-disc
Transmission:	
Primary Reduction System	Spur gear
Primary Reduction Ratio	58/20 (2.900)
Secondary Reduction System	Chain drive
Secondary Reduction Ratio	44/12 (3.667)
Transmission Type	Constant mesh, 6-speed
Operation	Left foot operation
Gear Ratio 1st	33/12 (2.750)
2nd	26/14 (1.857)
3rd	24/16 (1.500)
4th	25/20 (1.250)
5th	27/25 (1.080)
6th	21/24 (0.875)
Chassis:	
Frame Type	Semi double cradle
Caster Angle	28°
Trail	115 mm (4.52 in)
Tire:	
Type	With tube
Size (F)	90/90-21-4PR
Size (R)	120/90-18-4PR
Brake:	
Front Brake Type	Disc brake
Operation	Right hand operation
Rear Brake Type	Drum brake
Operation	Right foot operation
Suspension:	
Front Suspension	Telescopic fork (Pneumo-mechanical)
Rear Suspension	Swingarm (New monocross suspension
Shock Absorber:	
Front Shock Absorber	Air, coil spring, oil damper
Rear Shock Absorber	Gas, coil spring, oil damper
Wheel Travel:	
Front Wheel Travel	270 mm (10.6 in)
Rear Wheel Travel	270 mm (10.6 in)
Electrical:	
Ignition System	C.D.I. Magneto
Generator System	Flywheel magneto

II. MAINTENANCE SPECIFICATIONS

Engine

Model	IT200S
Cylinder Head: Warp Limit 	<0.05 mm (0.0020 in)> *Lines indicate straightedge measurement.
Cylinder: Bore Size Taper Limit Out of Round Limit	 66.00~66.02 mm (2.598~2.599 in) <0.05 mm (0.002 in)> <0.01 mm (0.0004 in)>
Piston: Piston Size/ Measuring Point*  Piston Clearance <Limit> Oversize 1st 2nd 3rd 4th Piston Offset	 65.955~66.00 mm (2.5982~2.5984 in)/10 mm (0.4 in) 0.050~0.055 mm (0.0020~0.0022 in) <0.1 mm (0.004 in)> 66.25 mm (2.608 in) 66.50 mm (2.618 in) 66.75 mm (2.628 in) 67.00 mm (2.638 in) 0.5 mm (0.02 in)/EX-side
Piston Ring (1st & 2nd): Sectional Sketch  End Gap (Installed)/<Limit> Side Clearance (Installed)/<Limit>	 Keystone B=1.2 mm (0.047 in) T=2.8 mm (0.110 in) 0.20~0.35 mm (0.008~0.014 in) <0.08 mm (0.0032 in)> 0.02~0.06 mm (0.0008~0.0024 in) <0.8 mm (0.032 in)>
Crankshaft: Crank Width "A" Run Out Limit "C" Connecting Rod Big End Side Clearance "D" Small End Free Play "F" <Limit>	 57.90~57.95 mm (2.280~2.281 in) <0.03 mm (0.0012 in)> 0.2~0.7 mm (0.008~0.028 in) 0.8~1.0 mm (0.03~0.04 in) <2.0 mm (0.08 in)>

6

Model	IT200S
Clutch:	
Friction Plate Thickness/Quantity	3.0 mm (0.12 in) × 6
Wear Limit	<2.7 mm (0.11 in)>
Clutch Plate Thickness/Quantity	1.2 mm (0.063 in) × 5
Warp Limit	<0.05 mm (0.002 in)>
Clutch Spring Free Length/Quantity	35.0 mm (1.38 in) × 5
Clutch Spring Minimum Length	<34.0 mm (1.34 in)>
Clutch Housing Thrust Clearance	0.20 ~ 0.25 mm (0.008 ~ 0.010 in)
Clutch Housing Radial Clearance	0.015 ~ 0.049 mm (0.0006 ~ 0.0019 in)
Clutch Release Method	Inner push, cam push
Push Rod Bending Limit	<0.15 mm (0.006 in)>
Transmission:	
Main Axle Deflection Limit	<0.01 mm (0.0004 in)>
Drive Axle Deflection Limit	<0.01 mm (0.0004 in)>
Shifter:	
Shifting Type	Guide bar
Guide Bar Bending Limit	<0.05 mm (0.0020 in)>
Kick Starter:	
Type	Kick and mesh type
Kick Clip Friction Force [Min ~ Max] 	P = 0.8 ~ 1.2 kg (1.8 ~ 2.6 lb)
Air Filter Oil Grade (Oiled Filter)	Foam-air-filter oil
Carburetor:	
Type/Manufacturer	VM34SS/MIKUNI
I.D. Mark	43G-10
Main Jet (M.J.)	#330
Main Air Jet (M.A.J.)	ø2.5
Jet Needle-clip Position (J.N.)	6F21-3
Needle Jet (N.J.)	Q-0
Cutaway (C.A.)	2.0
Pilot Jet (P.J.)	#70
Pilot Air Screw (P.A.S.)	3/4 turn
Valve Seat Size (V.S.)	ø3.3
Starter Jet (G.S.)	#80
Float Height (F.H.)	23.5 ± 1.0 mm (0.925 ± 0.04 in)
Reed Valve:	
Thickness* 	0.42 mm (0.017 in)
Valve Stopper Height	9.0 ± 0.2 mm (0.35 ± 0.008 in)
Valve Bending Limit	1.4 mm (0.055 in)

SPECIFICATIONS

Tightening Torque:	Thread Size	Q'ty	Nm	m•kg	ft•lb	Remarks
Spark plug	M14×1.25	1	20	2.0	14	
Cylinder head -Stud bolt	M 8×1.25	6	18	1.8	13	
-Nut	M 8×1.25	6	25	2.5	18	
Cylinder -Stud bolt	M 8×1.25	4	18	1.8	13	
-Nut	M 8×1.25	4	25	2.5	18	
Crankcase	M 6×1.0	11	12	1.2	8.7	
Bearing cover plate	M 6×1.0	3	10	1.0	7.2	A
Crankcase cover (Left)	M 6×1.0	8	10	1.0	7.2	
(Right)	M 6×1.0	3	8	0.8	5.8	
Oil drain bolt	M12×1.5	1	20	2.0	14	
Kick starter	M10×1.0	1	35	3.5	25	
Primary drive gear	M12×1.0	1	80	8.0	58	
Primary driven (clutch assembly)	M14×1.0	1	80	8.0	58	
Push rod (locknut)	M 6×1.0	1	10	1.0	7.2	
Clutch spring	M 5×1.0	5	6	0.6	4	
Drive sprocket	M16×1.0	1	60	6.0	42	
Stopper lever	M 6×1.0	1	15	1.5	11	A
Shift pedal	M 6×1.0	1	10	1.0	7.2	
Flywheel magneto	M12×1.25	1	98	9.8	71	
Magneto base	M 6×1.0	2	10	1.0	7.2	A

A : Apply Three Bord® #1303

Chassis

Model	IT200S
Steering System:	
Steering Bearing Type	Taper roller bearing
Front Suspension	
Front Fork Travel	270 mm (10.6 in)
Fork Spring Free Length	459.5 mm (18.1 in)
Collor Length	160 mm (6.3 in)
Spring Rate, STD/I.D. mark	K = 2.9 N/mm (0.300 kg/mm, 16.8 lb/in)/(Nothing)
Optional Spring	Yes
Spring Rate, Soft/I.D. mark	K = 2.7 N/mm (0.275 kg/mm, 15.4 lb/in)/1 slit)
Hard/I.D. mark	K = 3.2 N/mm (0.325 kg/mm, 18.2 lb/in)/(2 slits)
Oil Capacity	560 cm^3 (19.8 Imp oz, 18.9 US oz)
Oil Level	178 mm (7.0 in) (From top of inner tube fully compressed without spring.)
Oil Grade	Fork oil 10 wt
Enclosed Air Pressure	0 kPa (0 kg/cm^2, 0 psi)
<Min. ~ Max.>	<0 ~ 245 kPa (0 ~ 2.5 kg/cm^2, 0 ~ 35.6 psi)>
Rear Suspension:	
Shock Absorber Travel	93 mm (3.7 in)
Spring Free Length	274 mm (10.8 in)
Fitting Length	260 mm (10.2 in)
Spring Rate, STD/I.D. color	K = 53.9 N/mm (5.50 kg/mm, 308 lb/in)/(Yellow)
Optional Spring	
Spring Rate, Soft/I.D. color	K = 49.0 N/mm (5.00 kg/mm, 280 lb/in)/(White)
Hard/I.D. color	K = 58.8 N/mm (6.00 kg/mm, 336 lb/in)/(Blue)
Enclosed Gas Pressure	1,471 kPa (15 kg/cm^2, 213 psi)
<Min. ~ Max.>	<1,177 ~ 1,961 kPa (12 ~ 20 kg/cm^2, 170 ~ 284 psi)>
Rear Arm:	
Swingarm Free Play Limit	
End	<2 mm (0.08 in)>
Side	<0.2 mm (0.008 in)>
Wheel:	
Front Wheel Type	Spoke wheel
Rear Wheel Type	Spoke wheel
Front Rim Size/Material	1.60 × 21/Aluminum
Rear Rim Size/Material	1.85 × 18/Aluminum
Rim Runout Limit	
Vartical	<2.0 mm (0.08 in)>
Lateral	<2.0 mm (0.08 in)>
Drive Chain:	
Type/Manufacture	DK520DS/DAIDO
Number of Links	105 links + Joint
Chain slack	30 ~ 35 mm (1.2 ~ 1.4 in)

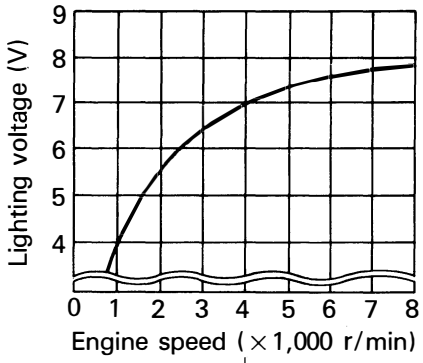
SPECIFICATIONS

Model	IT200S
Front Disc Brake:	
Disc Outside Dia. × Thickness	230 × 3.0 mm (9.06 × 0.12 in)
<Disc Wear Limit>	<2.5 mm (0.1 in)>
Pad Thickness	4.0 mm (0.16 in)
<Limit>	<0.8 mm (0.03 in)>
Master Cylinder Inside Dia.	11.0 mm (0.433 in)>
Caliper Cylinder Inside Dia.	27.0 mm (1.061 in)
Brake Fluid Type	DOT #3
Drum Brake:	
Type	Leading and trailing
Drum Inside Dia	130 mm (5.12 in)
<Limit>	<131 mm (5.16 in)>
Lining Thickness	4 mm (0.16 in)
<Limit>	<2 mm (0.08 in)>
Shoe Spring Free Length	36.5 mm (1.44 in)
Brake Lever & Brake Pedal:	
Brake Lever Free Play	5~8 mm (0.2~0.3 in)/(at lever end)
Brake Pedal Free Play	20~30 mm (0.8~1.2 in)
Clutch Lever Free Play/Position	2~3 mm (0.08~0.12 in)/at lever pivot

Tightening Torque:	Thread Size	Q'ty	Nm	m•kg	ft•lb
Front wheel axle	M14 × 1.5	1	60	6.0	43
Axle holder	M 6 × 1.5	4	10	1.0	7.2
Handle crown -Inner tube	M 8 × 1.25	4	23	2.3	17
-Steering shaft	M22 × 1.0	1	85	8.5	61
-Handle holder	M 8 × 1.25	4	23	2.3	17
Under bracket-Inner tube	M 8 × 1.25	4	23	2.3	17
Steering nut	M25 × 1.0	1	10	1.0	7.2
Brake disc	M 6 × 1.0	6	12	1.2	9
Caliper bolt	M 8 × 1.25	1	23	2.3	17
Caliper bracket	M 8 × 1.25	2	30	3.0	22
Engine mount -Front, Frame	M 8 × 1.25	4	34	3.4	24
-Front, Engine	M 8 × 1.25	1	30	3.0	22
-Lower	M 8 × 1.25	1	30	3.0	22
-Rear, Upper	M 8 × 1.25	2	30	3.0	22
-Rear, Engine head	M10 × 1.25	1	65	6.5	47
Rear wheel axle	M16 × 1.5	1	85	8.5	61
Sprocket wheel -Hub	M 8 × 1.25	6	30	3.0	22
Rear shock -Frame	M10 × 1.25	1	30	3.0	22
Pivot axle	M16 × 1.5	1	85	8.5	61
Brake cam lever	M 6 × 1.0	1	10	1.0	7.2
Ralay arm -Swingarm	M12 × 1.25	1	60	6.0	43
-Rear shock	M10 × 1.25	1	30	3.0	22
-Connectin rod	M10 × 1.25	1	30	3.0	22
Frame -Connecting rod	M10 × 1.25	1	60	6.0	43

Electrical

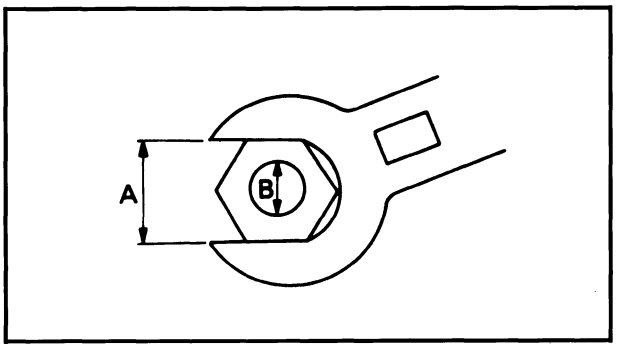
Model	IT200S
Voltage	6V
Ignition System: Ignition Timing (B.T.D.C.) Advancer Type	23.7°/2,000 r/min B.T.D.C. 2.25~2.60 mm (0.089~0.102 in) Electrical
C.D.I. Magneto-Model/Manufacturer Pickup Coil Resistance (Color) Source Coil Resistance (Color) C.D.I. Unit-Model/Manufacturer	 F-1146RJ/MITSUBISHI 12.4Ω±10% (White/Red—Black) 420Ω±10% (Brown — Black) F008T01172/MITSUBISHI
Ignition Coil: —Model/Manufacturer Minimum Spark Gap Primary Winding Resistance Secondary Winding Resistance	 F6T50579/MITSUBISHI 10kV or more at 500 r/min 15kV or less at 8,000 r/min 6 mm (0.24 in) 1.0Ω±15% at 20°C (68°F) 5.9kΩ±15% at 20°C (68°F)
Lighting System: Lighting Coil Resistance (Color) Lighting Voltage Min. Max.	 0.48Ω±10% (Yellow/Red — Black) 6.0V or more at 2,500 r/min 8.5V or less at 8,000 r/min



6

CONVERSION TABLES/DEFINITION OF UNITS

A (Nut)	B (Bolt)	TORQUE SPECIFICATION		
		Nm	m•kg	ft•lb
10 mm	6 mm	5	0.6	4.5
12 mm	8 mm	15	1.5	11.0
14 mm	10 mm	30	3.0	22.0
17 mm	12 mm	55	5.5	40.0
19 mm	14 mm	85	8.5	61.0
22 mm	16 mm	130	13.0	94.0



A: Distance across flats
B: Outside thread diameter

CONVERSION TABLES

METRIC TO INCH SYSTEM			
	KNOWN	MULTIPLIER	RESULT
TORQUE	m•kg	7.233	ft•lb
	m•kg	86.80	in•lb
	cm•kg	0.0723	ft•lb
	cm•kg	0.8680	in•lb
WT.	kg	2.205	lb
	g	0.03527	oz
FLOW/DISTANCE	km/ℓ	2.352	mpg
	km/hr	0.6214	mph
	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
VOL./CAPACITY	cc (cm^3)	0.03382	oz (US liq)
	cc (cm^3	0.06102	cu. in
	ℓ (liter)	2.1134	pt (US liq)
	ℓ (liter)	1.057	qt (US liq)
	ℓ (liter)	0.2642	gal (US liq)
MISC.	kg/mm	56.007	lb/in
	kg/cm^2	14.2234	psi (lb/in^2)
	Centigrade (°C)	9/5(°C) + 32	Fahrenheit (°F)

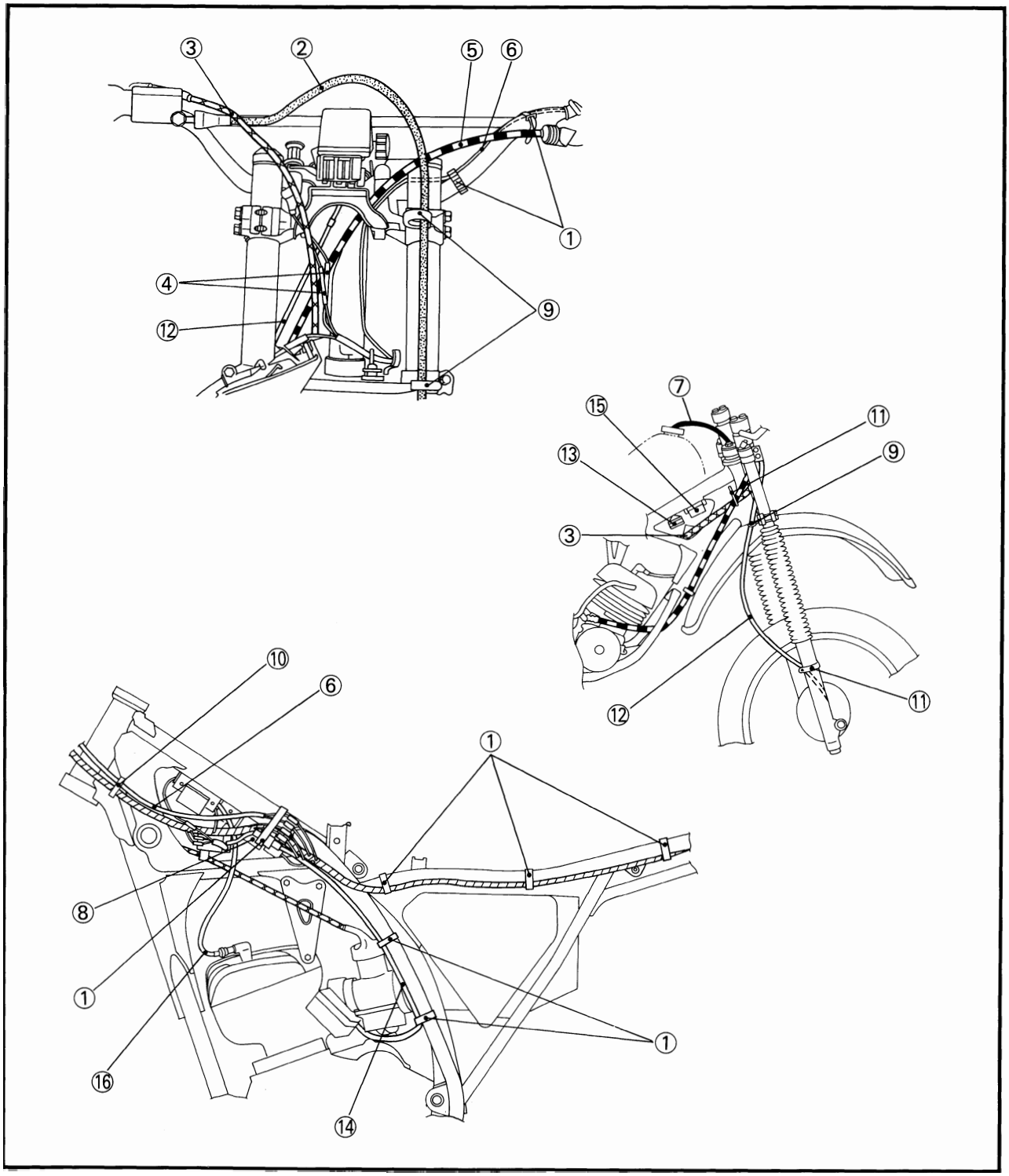
INCH TO METRIC SYSTEM			
	KNOWN	MULTIPLIER	RESULT
TORUQE	ft•lb	0.13826	m•kg
	in•lb	0.01152	m•kg
	ft•lb	13.831	cm•kg
	in•lb	1.1521	cm•kg
WT.	lb	0.4535	kg
	oz	28.352	g
FLOW/DISTANCE	mpg	0.4252	km/ℓ
	mph	1.609	km/hr
	mi	1.609	km
	ft	0.3048	m
	yd	0.9141	m
	in	2.54	cm
	in	25.4	mm
VOL./CAPACITY	oz (US liq)	29.57	cc (cm^3)
	cu. in	16.387	cc (cm^3)
	pt (US liq)	0.4732	ℓ (liter)
	qt (US liq)	0.9461	ℓ (liter)
	gal (US liq)	3.785	ℓ (liter)
MISC.	lb/in	0.017855	kg/mm
	psi (lb/in^2)	0.07031	kg/cm^2
	Fahrenheit (°C)	5/9(°F − 32)	Centigrade (°F)

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm	millimeter	10^{-3} meter	Length
cm	centimeter	10^{-2} meter	Length
kg	kilogram	10^3 gram	Weight
N	Newton	1 kg × m/sec^2	Force
Nm	Newton meter	N × m	Torque
m•kg	Meter kilogram	m × kg	Torque
Pa	Paskal	N/m^2	Pressure
N/mm	Newtom per millimeter	N/mm	Spring rate
L	Liter	—	Volume or Capacity
cm^3	Cubic centimeter		
r/min	Rotation per minute	—	Engine speed

CABLE ROUTING DIAGRAM

① Band
② Brake hose
③ Throttle cable
④ Headlight lead
⑤ Clutch cable
⑥ Engine stop switch lead
⑦ Fuel tank breath hose
⑧ CDI unit
⑨ Cable gúide
⑩ Clamp
⑪ Cable hoder
⑫ Trip-Odometer cable
⑬ Regulator
⑭ CDI magneto lead
⑮ Ignition coil
⑯ High tension lead



WARRANTY INFORMATION

Please refer to your copy of the YAMAHA LIMITED WARRANTY for details of the warranty offered on your new Yamaha.

The YAMAHA LIMITED WARRANTY contains the warranty policy, an explanation of the warranty, and other important information. Becoming familiar with these policies will help you make the best use of Yamaha's warranty programs.

There are certain requirements which you must meet in order to qualify for warranty coverage.

FIRST, your new Yamaha must be operated and maintained properly, as explained in this manual. If you have any questions about procedure in this manual, please consult a dealer. ABUSE AND NEGLECTED MAINTENANCE MAY LEAD TO MECHANICAL FAILURES WHICH CANNOT BE COVERED UNDERWARRANTY.

SECOND, IF ANY PROBLEMS OCCUR WHICH YOU FEEL SHOULD BE COVERED UNDER WARRANTY, NOTIFY YOUR DEALER IMMEDIATELY. Don't delay, as small problems left unrepaired can become large problems which may not be covered under warranty. We recommend that the YAMAHA LIMITED WARRANTY be used as a folder in which you may keep your registration and other important documents related to your new Yamaha.

* The YAMAHA LIMITED WARRANTY is to be supplied by a Yamaha dealer at the time of purchase. If you did not receive one, or have lost yours, you may obtain extracopies upon request from your Yamaha dealer or by writing to:

YAMAHA MOTOR CORPORATION U.S.A
6555 Katella Avenue
P.O. Box 6555
Cypress. California 90630
Attn: Warranty Department

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NOISE REGULATION

TEMPERING WITH NOISE CONTROL SYSTEM PROHIBITED:

Federal law prohibits the flollowing acts or the causing thereof: (1)
The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

''AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS USTED BELOW.''

These acts include tampering with the following systems; i.e., modification, removal, etc.

Exhaust system	**Muffler** **Exhaust pipe** **Silencer**
Intake system	**Air cleaner case** **Air cleaner element** **Intake duct**

MAINTENANCE RECORD

Make sure whoever performs the maintenance completes

MAINTENANCE	DATE OF SERVICE	MILEAGE	SERVICING DEALER NAME AND ADDRESS	REMARKS

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