YAMAHA

YFM350FW

Service Manual



LIT-11616-FM-37

YAMAHA

YFM350FWT

Service Manual

LIT-11616-06-01

NOTICE

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

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

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

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

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

MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage → Replace.

EXPLODED DIAGRAM

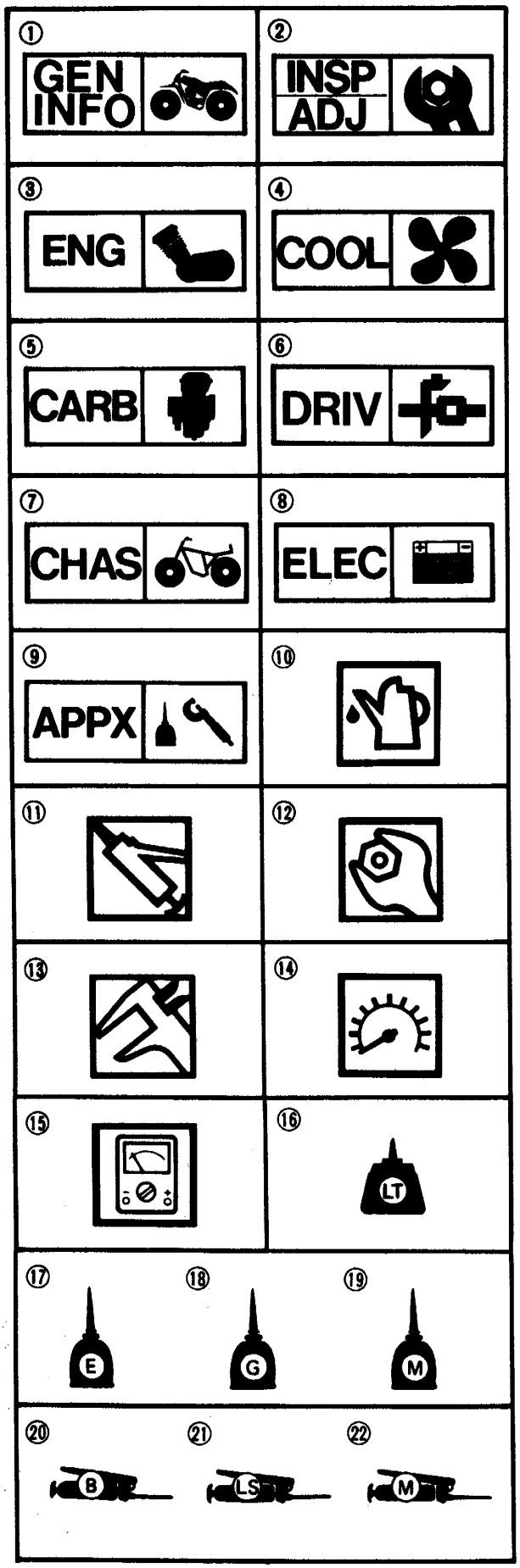
Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.

YFM350FW (T-B)
SERVICE MANUAL

P/N: LIT-11616-07-58

INDEX

GENERAL INFORMATION	GEN INFO 1
PERIODIC INSPECTIONS AND ADJUSTMENTS	INSP ADJ 2
ENGINE	ENG 3
CARBURETION	CARB 4
DRIVE TRAIN	DRIV 5
CHASSIS	CHAS 6
ELECTRICAL	ELEC 7
APPENDICES	APPX 8



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Drive train
⑦ Chassis
⑧ Electrical
⑨ Appendices

Illustrated symbols ⑩ to ⑮ are used to identify the specifications appearing.

⑩ Filling fluid
⑪ Lubricant
⑫ Tightening
⑬ Wear limit, clearance
⑭ Engine speed
⑮ Ω, V, A

Illustrated symbols ⑯ to ㉒ in the exploded diagram indicate grade of lubricant and location of lubrication point.

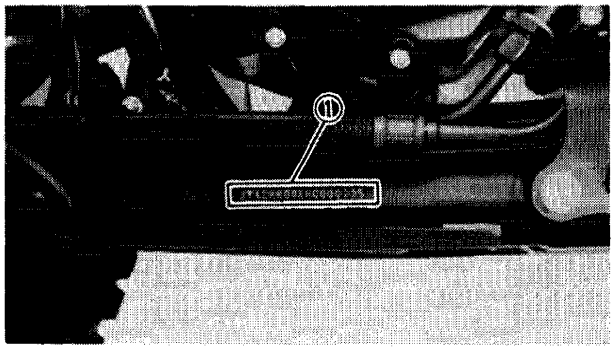
⑯ Apply locking agent (LOCTITE®)
⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease

CHAPTER 1.
GENERAL INFORMATION

MACHINE IDENTIFICATION 1-1
VEHICLE IDENTIFICATION NUMBER 1-1
ENGINE SERIAL NUMBER 1-1

IMPORTANT INFORMATION 1-2
ALL REPLACEMENT PARTS 1-2
GASKETS, OIL SEALS, AND O-RINGS 1-2
LOCK WASHERS/PLATES AND COTTER PINS 1-2
BEARINGS AND OIL SEALS 1-2
CIRCLIPS 1-3

SPECIAL TOOLS 1-3
FOR TUNE-UP 1-3
FOR ENGINE SERVICE 1-4
FOR MIDDLE GEAR SERVICE 1-7
FOR FINAL GEAR SERVICE 1-8
FOR DIFFERENTIAL GEAR SERVICE 1-8
FOR CHASSIS SERVICE 1-9
FOR ELECTRICAL COMPONENTS 1-9



GENERAL INFORMATION

MACHINE IDENTIFICATION

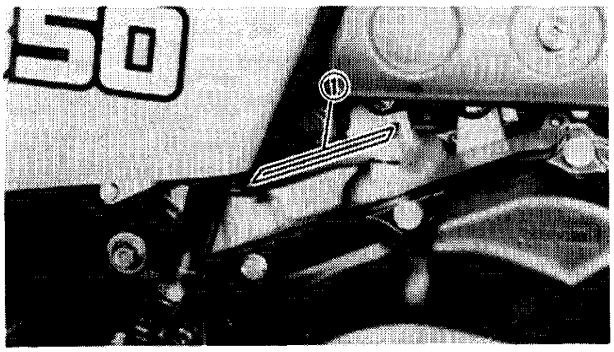
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

NOTE:

The vehicle identification number is used to identify your machine and may be used to register your machine with the licensing authority in your state.

Starting Serial Number:
JY42HR00 * HC000101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

NOTE:

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

Starting Serial Number:
2HR-000101

NOTE:

Designs and specifications are subject to change without notice.



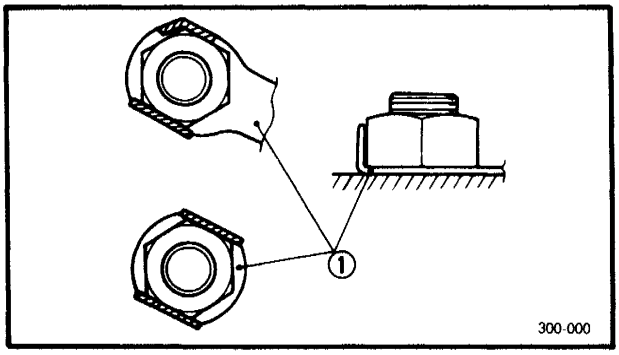
IMPORTANT INFORMATION

ALL REPLACEMENT PARTS

1. We recommended to use Yamaha genuine parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment. Other brands may be similar in function and appearance, but inferior in quality.

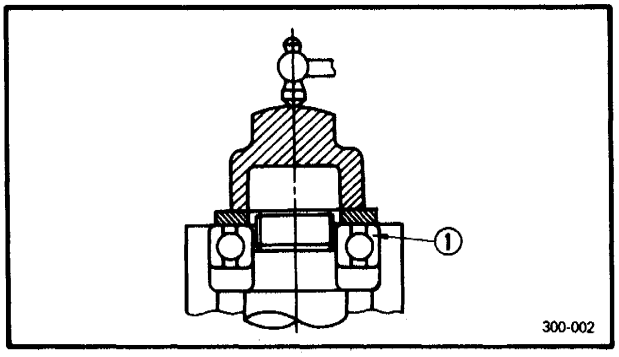
GASKETS, OIL SEALS, AND O-RINGS

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



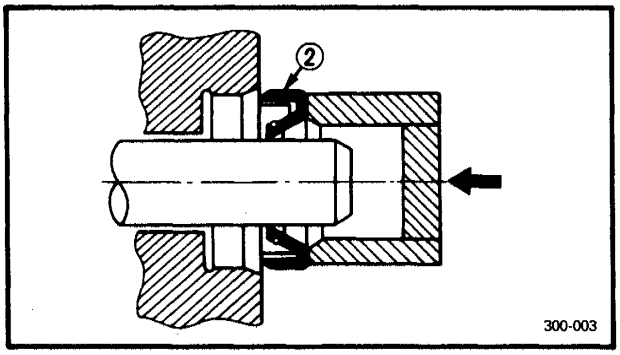
LOCK WASHERS/PLATES AND COTTER PINS

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



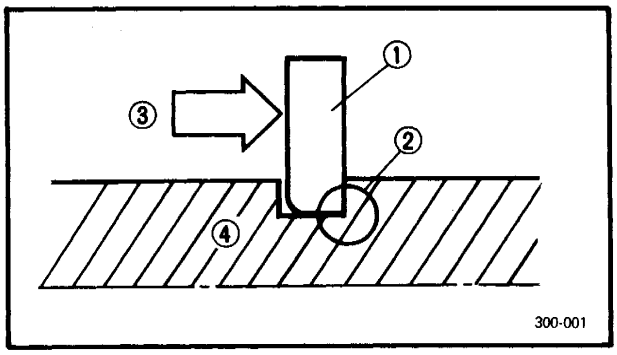
BEARINGS AND OIL SEALS

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



CAUTION:

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



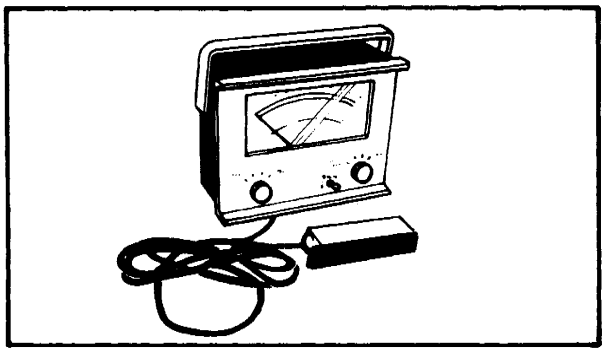
CIRCLIPS

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

④ Shaft

SPECIAL TOOLS

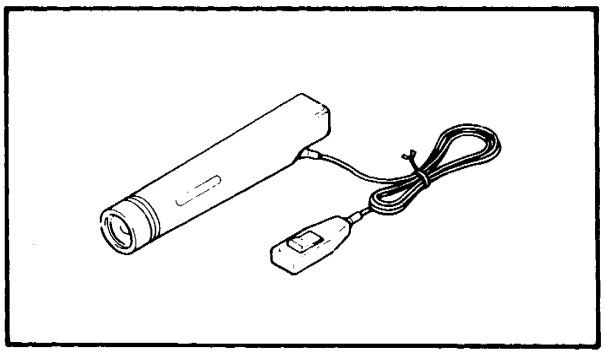
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE UP

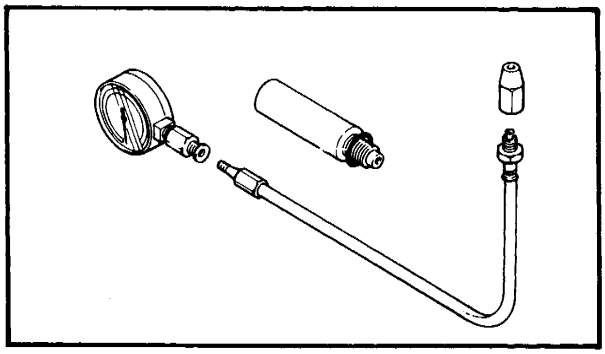
1. Inductive Tachometer
   P/N YU-08036

This tool is needed for detecting engine rpm.



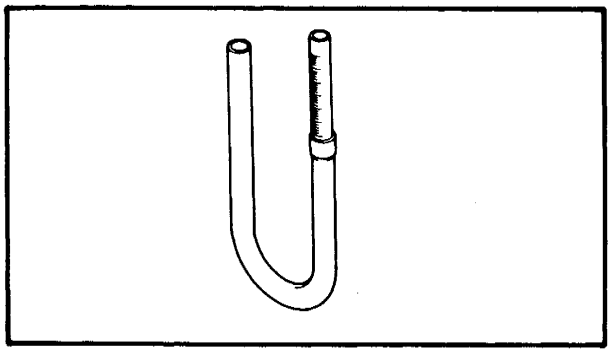
2. Inductive Timing Light
   P/N YM-33277

This tool is necessary for checking ignition timing.



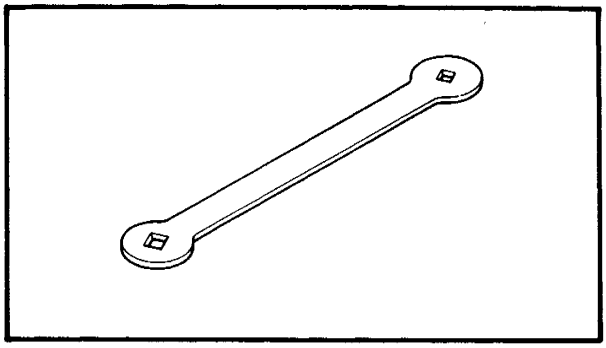
3. Compression Gauge
   P/N YU-33223

This gauge is used to measure the engine compression.



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

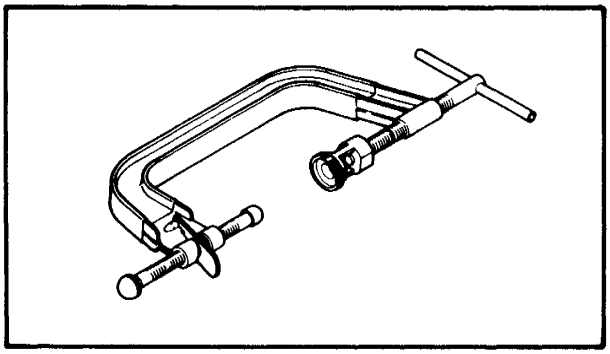
This gauge is used to measure the fuel level in the float chamber.



5. Valve Adjusting Tool
   P/N YM-08035

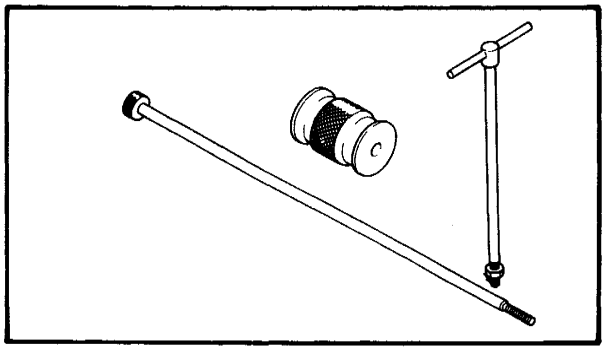
This tool is necessary for adjusting the valve clearance.

FOR ENGINE SERVICE



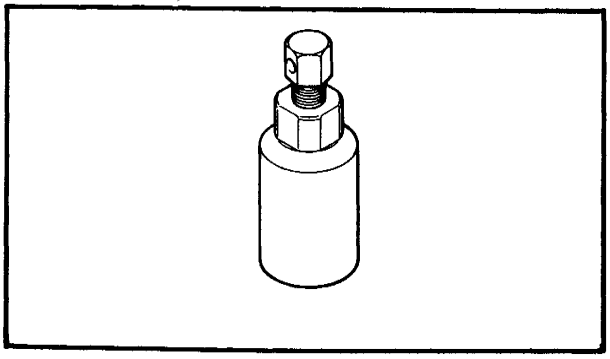
1. Valve Spring Compressor
   P/N YM-04019

This tool is needed to remove and install the valve assemblies.



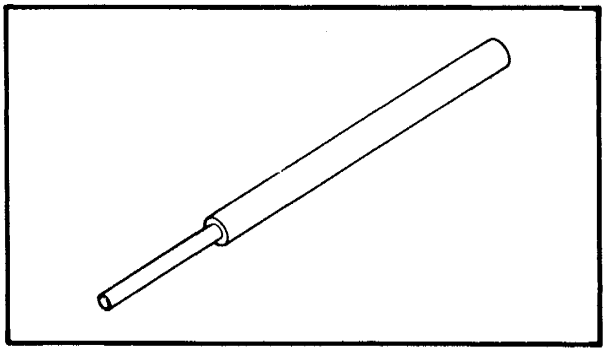
2. Slide Hammer Set
   P/N YU-01083

These tools are used when removing the rocker arm shaft.

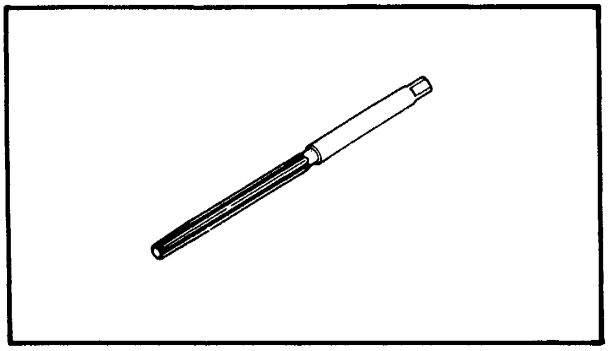


3. Flywheel Puller
   P/N YM-01404

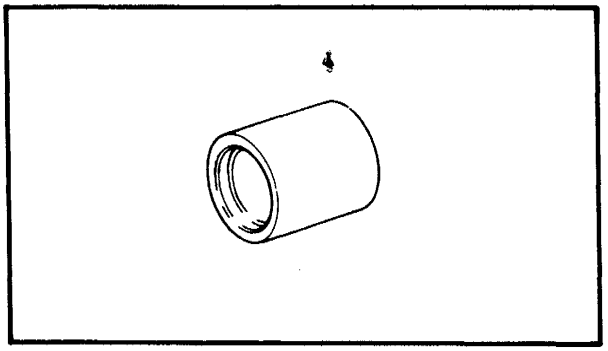
This tool is used to remove the CDI rotor.



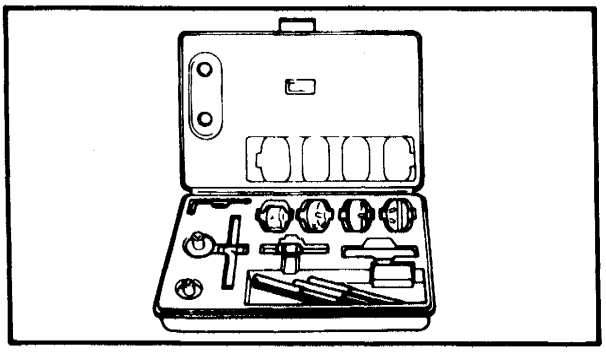
4. Valve Guide Remover (7.0 mm)
   P/N YM-01225
This tool is used to remove the valve guides.



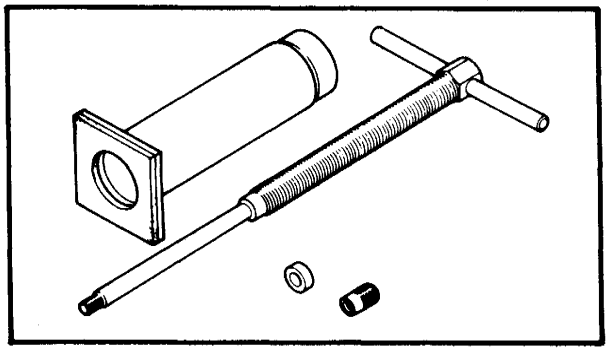
5. Valve Guide Reamer (7.0 mm)
   P/N YM-01227
This tool is used to rebore the new valve guide.



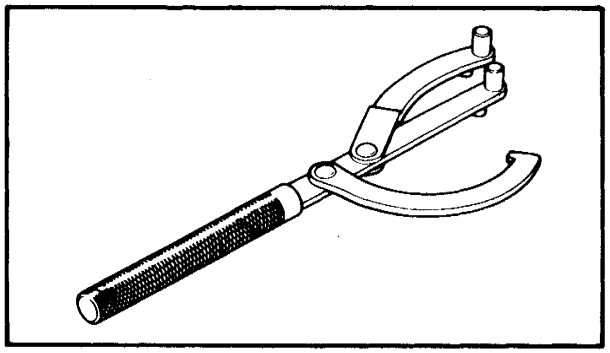
6. Valve Guide Installer (7.0 mm)
   P/N YM-04017
This tool is needed to install the valve guides properly.



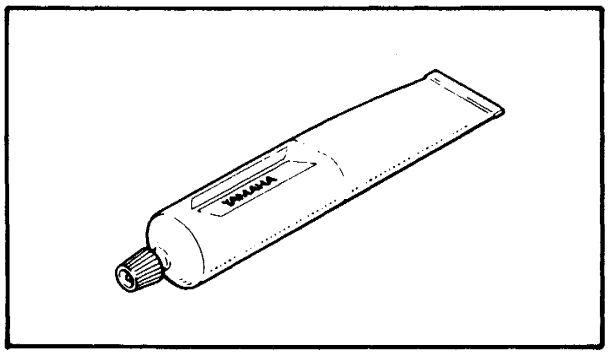
7. Valve Seat Cutter Set
   P/N YM-91043
This tool is needed to resurface the valve seat.



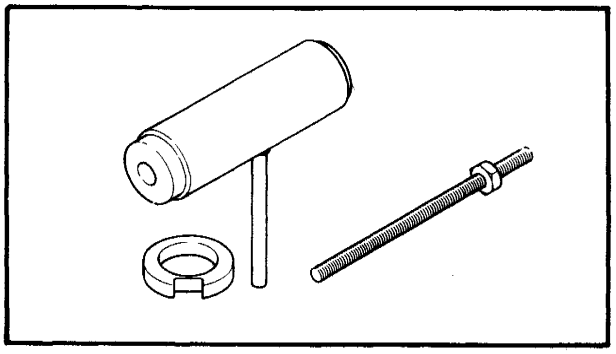
8. Piston Pin Puller
   P/N YU-01304
This tool is used to remove the piston pin.



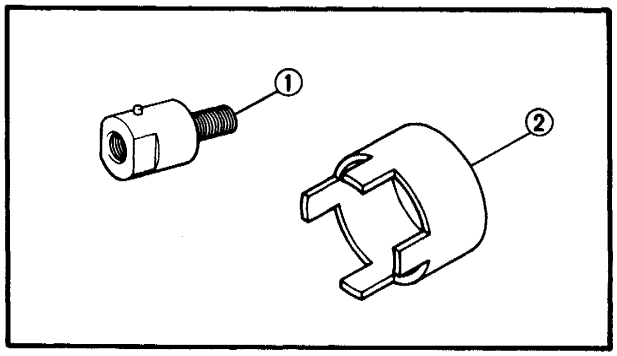
9. Rotor Holder
   P/N YU-01235
This tool is used to hold the clutch when removing or installing the clutch boss securing nut.



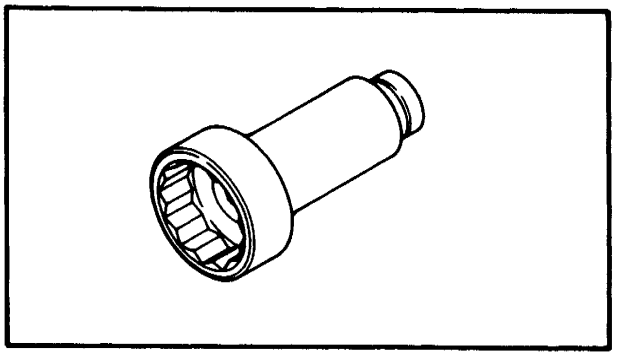
10. Sealant (Quick Gasket®)
    P/N ACC-11001-05-01
This sealant (bond) is used for crankcase mating surfaces, etc.



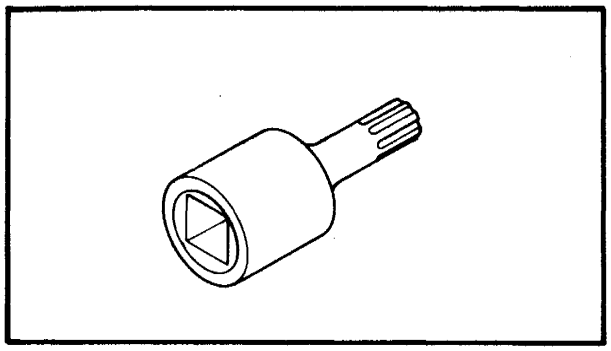
11. Crankshaft Installer Set
    P/N YU-90050
These tools are used to install the crankshaft



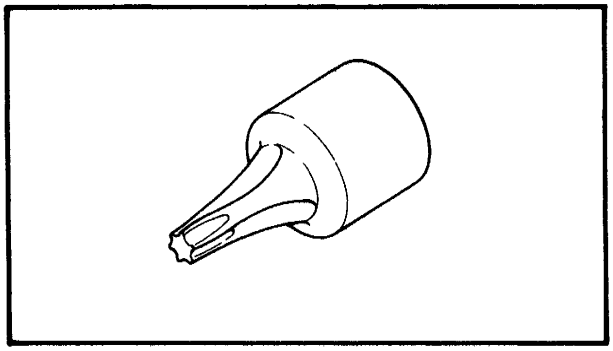
12. Adapter #12
    P/N YM-1383 – ①
    Spacer
    P/N YM-91044 – ②
These tools are used to install the crankshaft.



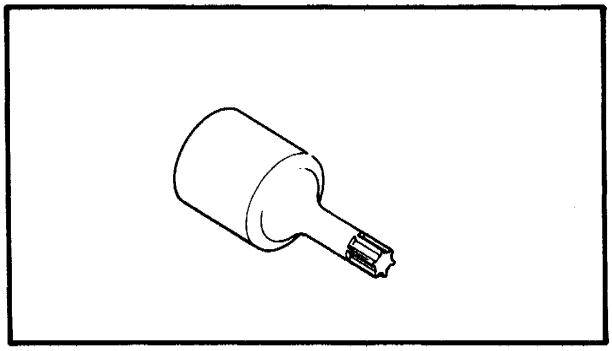
13. Middle Drive Shaft Nut Wrench
    P/N YM-04054
    This tool is used to install the buffer boss.



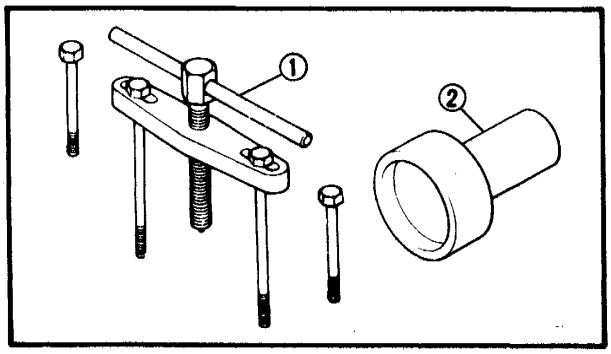
14. #40 Torx Driver
    P/N YM-04049
This tool is used to loosen or tighten the middle gear bearing retainer bolt.



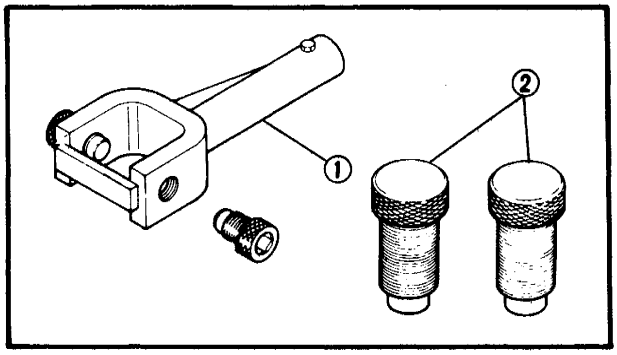
15. #30 Torx Driver
    P/N YU-29843-6
This tool is used to loosen or tighten the drive axle bearing retainer bolt.



16. #25 Torx Driver
    P/N YU-29843-4
This tool is used to loosen or tighten the shift cam segment securing bolt.

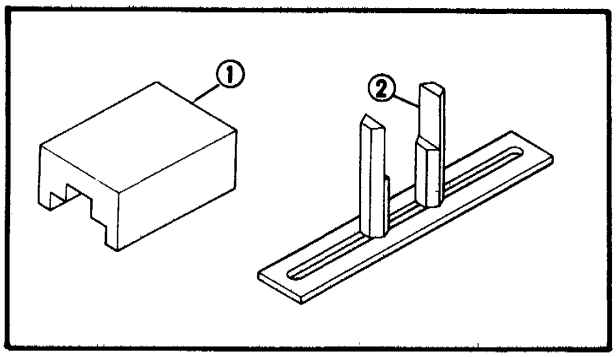


17. Crankcase Separating Tool
    P/N YU-01135 – ①
    Flywheel Puller Attachment
    P/N YM-01382 – ②
These tools are used when removing the crankshaft.



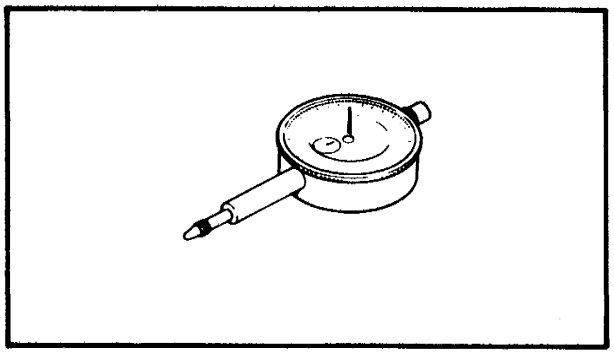
FOR MIDDLE GEAR SERVICE

1. Universal Joint Holder
    P/N YM-04062 – ①
    Attachment
    P/N YM-33291 – ②
These tools are used to remove and install the universal joint.



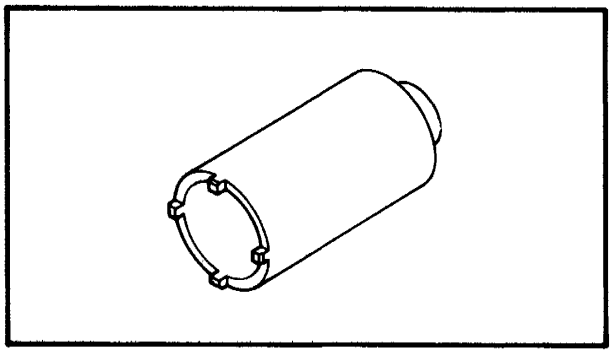
2. Damper Spring Compressor
   P/N YM-33286 – ①
   Middle Drive Gear Holder
   P/N YM-33222 – ②

These tools are used to disassemble and reassemble the middle gear damper.



3. Dial Gauge
   P/N YM-03097

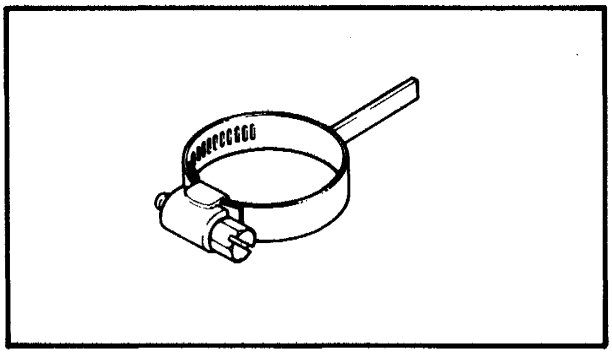
This tool is used to measure the gear lash for the middle gear and final gear.



FOR FINAL GEAR SERVICE

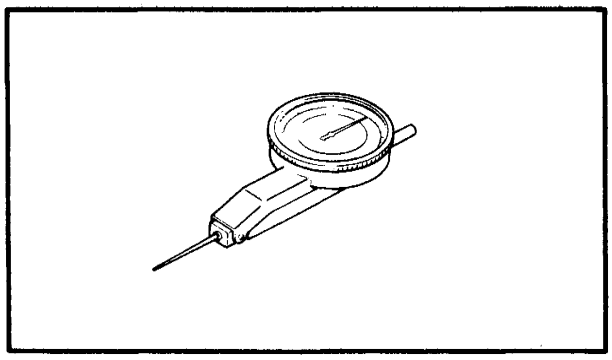
1. Final Drive Shaft Bearing Retainer Wrench
   P/N YM-33214

This tool is used to remove and install the final gear bearing retainer.



2. Gear Lash Measurement Tool
   P/N YM-01230

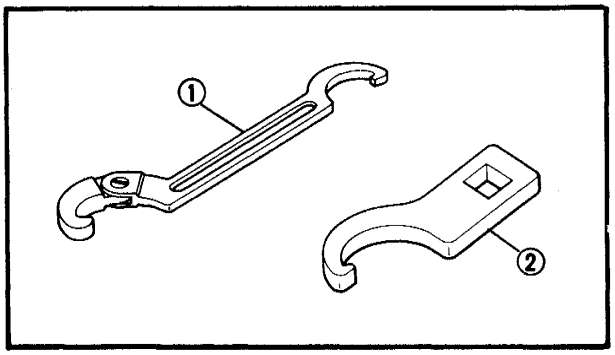
This tool is used to measure the gear lash .



FOR DIFFERENTIAL GEAR SERVICE

1. Dial Gauge (For Lever Type)
   P/N YM-03110

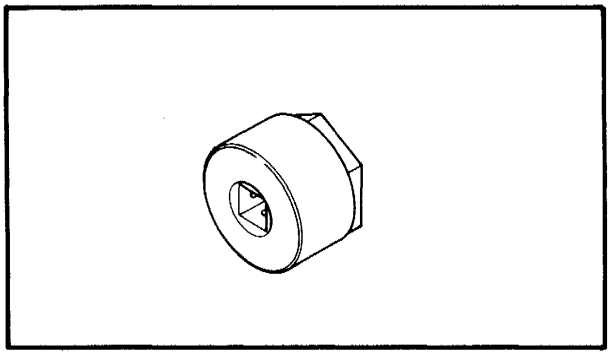
This tool is used to measure the gear lash for the differential gear.



FOR CHASSIS SERVICE

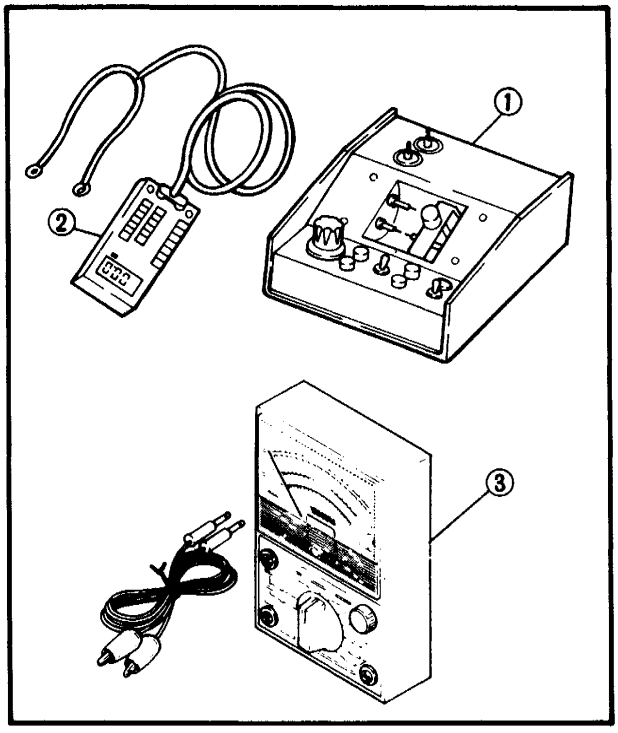
1. Ring Nut Wrench
   P/N YU-01268 – ①
   P/N YU-33975 – ②

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



2. Damper Rod Holder
   P/N YM-01327

This tool is used to remove and install the bearing retainer for the steering shaft holder bearing.



FOR ELECTRICAL COMPONENTS

1. Electro Tester
   P/N YU-33260 – ①

This instrument is necessary for checking the ignition system components.

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

This instrument is invaluable for checking the electrical system.

CHAPTER 2.
PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION 2-1

PERIODIC MAINTENANCE/LUBRICATION 2-1

ENGINE 2-3
- CAM CHAIN TENSIONER ADJUSTMENT 2-3
- VALVE CLEARANCE ADJUSTMENT 2-3
- IDLE SPEED ADJUSTMENT 2-6
- THROTTLE LEVER ADJUSTMENT 2-6
- SPEED LIMITER ADJUSTMENT 2-7
- FUEL LINE INSPECTION 2-8
- AIR FILTER CLEANING 2-8
- ENGINE OIL/TRANSFER GEAR OIL LEVEL INSPECTION 2-10
- ENGINE OIL/TRANSFER GEAR OIL REPLACEMENT 2-10
- EXHAUST SYSTEM INSPECTION 2-14
- COMPRESSION PRESSURE MEASUREMENT 2-14

CHASSIS 2-16
- FUEL COCK CLEANING 2-16
- FRONT BRAKE FLUID LEVEL INSPECTION 2-16
- FRONT BRAKE LINING INSPECTION 2-17
- FRONT BRAKE ADJUSTMENT 2-17
- REAR BRAKE LEVER AND PEDAL ADJUSTMENT 2-20
- REAR BRAKE PADS INSPECTION 2-22
- CLUTCH ADJUSTMENT 2-22
- SELECT LEVER CONTROL CABLE ADJUSTMENT 2-22
- STEERING SYSTEM INSPECTION 2-24
- REAR SHOCK ABSORBER ADJUSTMENT 2-25
- CABLE INSPECTION AND LUBRICATION 2-26
- LEVERS, PEDAL, ETC. LUBRICATION 2-26
- TIRES CHECK 2-26
- WHEELS CHECK 2-28
- FINAL GEAR OIL LEVEL INSPECTION 2-28
- FINAL GEAR OIL/ DIFFERENTIAL GEAR OIL REPLACEMENTS 2-29
- CONSTANT VELOCITY JOINT DUST BOOT INSPECTION 2-30

ELECTRICAL 2-31
- IGNITION TIMING CHECK 2-31
- BATTERY INSPECTION 2-31
- SPARK PLUG INSPECTION 2-33
- HEADLIGHT BULB REPLACEMENT 2-34
- HEADLIGHT BEAM ADJUSTMENT 2-34
- FUSE INSPECTION 2-35
- CIRCUIT BREAKER INSPECTION 2-35

PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

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

PERIODIC MAINTENANCE/LUBRICATION

Item	Remarks	Initial			Every	
		1 month	3 months	6 months	6 months	1 year
Valve(s)*	Check valve clearance. Adjust if necessary.	O		O	O	O
Spark plug(s)	Check condition. Clean or replace if necessary.	O	O	O	O	O
Air filter	Clean. Replace if necessary.		O	O	O	O
Carburetor*	Check idle speed/starter operation. Adjust if necessary.		O	O	O	O
Fuel line*	Check fuel hose for cracks or damage. Replace if necessary.			O	O	O
Engine oil/ Transfer gear oil	Replace (Warm engine before draining).	O		O	O	O
Engine oil filter	Clean.	O		O		O
Engine oil strainer	Clean.	O		O		O
Final gear oil/ Differential gear oil	Check oil level/oil leakage. Replace every 12 months.	O				O
Front brake*	Check operation/fluid leakage. See NOTE. Correct if necessary.	O	O	O	O	O
Rear brake*	Check operation. Adjust if necessary.	O	O	O	O	O
Clutch*	Check operation. Adjust if necessary.	O		O	O	O
Drive select lever system*	Check operation. Adjust if necessary.			O	O	O
Wheels*	Check balance/damage/runout. Repair if necessary.	O		O	O	O
Wheel bearings*	Check bearings assembly for looseness/ damage. Replace if damaged.	O		O	O	O
Steering system*	Check operation/replace if damaged. Check toe-in/adjust if necessary.	O	O	O	O	O
Constant velocity joint dust boots	Check damage. Repair or replace if necessary.					O
Fittings/Fasteners*	Check specific gravity. Check bearing hose Correct if necessary.	O	O	O	O	O
Battery*	Check specific gravity. Check bearing pipe for proper operation. Correct if necessary.	O	O	O	O	O

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



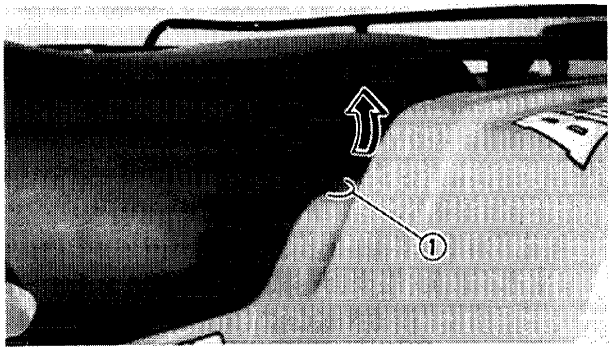
NOTE:

- Brake fluid replacement:
  1. When disassembling the master cylinder or wheel cylinder, replace the fluid. Normally check the brake fluid level and add the fluid as required.
  2. On the inner parts of the master cylinder and wheel cylinder, replace the oil seals every two years.
  3. Replace the brake hoses every four years, or if cracked or damaged.
- Recommended brake fluid:
  DOT #4
  If DOT #4 is not available, #3 can be used.

ENGINE

CAM CHAIN TENSIONER ADJUSTMENT

This model is has been equipped the automatic cam chain tensioner. No adjustment is necessary.

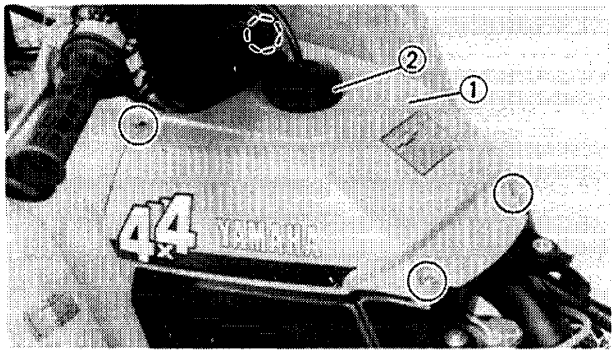


VALVE CLEARANCE ADJUSTMENT

Removal

1. Remove:
   - Seat

     Pull up the seat lock lever ①.



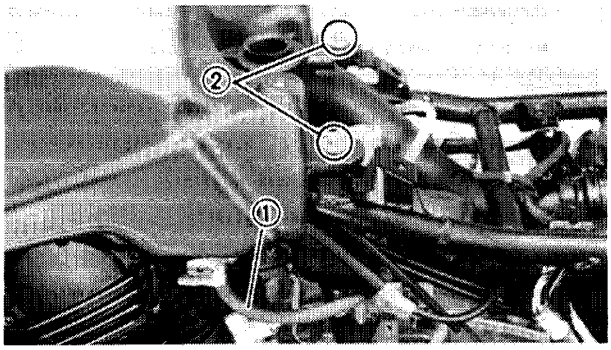
2. Remove:
   - Fuel tank cover ①
   - Fuel tank cap ②

NOTE:

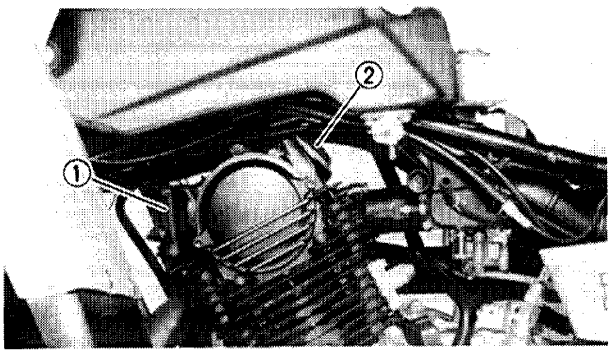
After removing the tank cover, install the tank cap on the fuel tank.

WARNING:

- **GASOLINE IS HIGHLY FLAMMABLE.**
  Always turn off the engine while refueling. Take care to not spill any gasoline on the engine or exhaust system. Never refuel in the vicinity of an open flame, or while smoking.
- **GASOLINE CAN CAUSE INJURY.**
  If you should swallow some gasoline, inhale excess gasoline vapors, or allow any gasoline line to get into your eyes, contact a doctor immediately. If any gasoline spills onto your skin or clothing, immediately wash skin areas with soap and water, and change your clothes.



3. Turn the fuel cock lever to "OFF".
4. Disconnect:
   - Fuel hose ①
5. Remove:
   - Bolts (Fuel tank – Rear) ②
6. Lift up the fuel tank rear by placing the block under the fuel tank.



7. Remove:
   - Tappet cover (Exhaust) ①
   - Tappet cover (Intake) ②
   - Timing plug

Adjustment

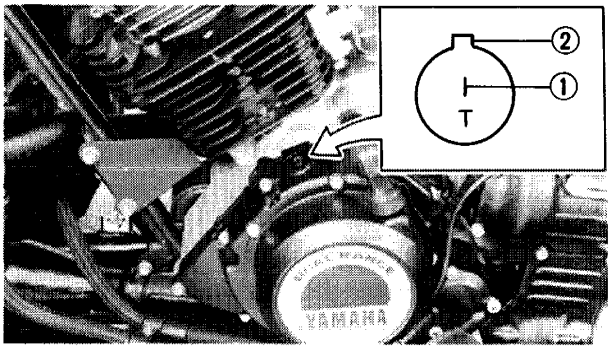
1. Measure:
   - Valve clearance

Valve clearance measurement steps:

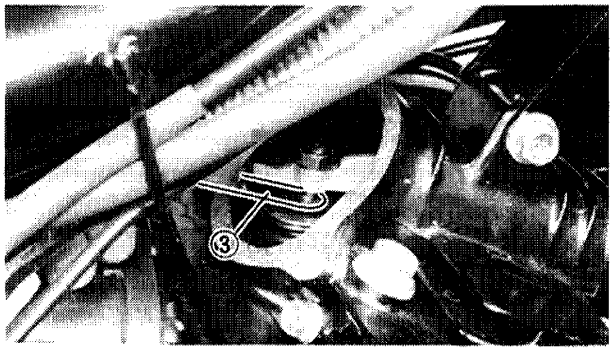
- Turn the starter pulley counterclockwise with recoil starter.

NOTE:

Valve clearance must be measured when the engine is cold to touch.

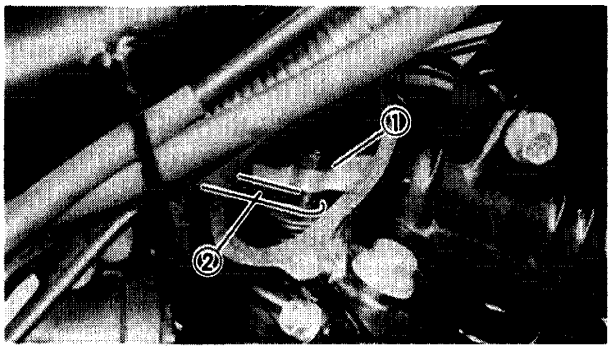


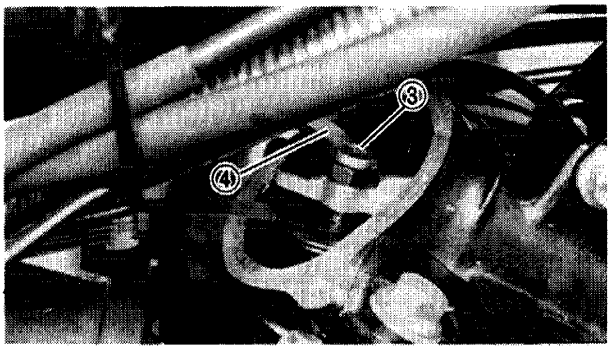
- Align the "T" mark ① on the flywheel with the stationary pointer ② on the crankcase cover. When the "T" mark is aligned with the stationary pointer, the piston is at Top Dead Center (TDC).
- Measure the valve clearance using a Feeler Gauge ③.
  Out of specification → Adjust clearance.



Intake Valve (Cold):
0.06 ~ 0.10 mm (0.002 ~ 0.004 in)
Exhaust Valve (Cold):
0.16 ~ 0.20 mm (0.006 ~ 0.008 in)

VALVE CLEARANCE ADJUSTMENT





2. Adjust:
   - Valve clearance

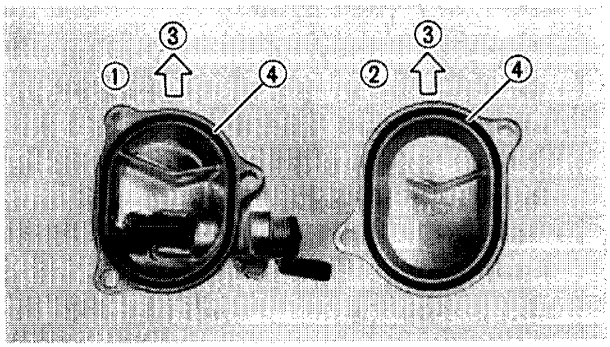
Valve clearance adjustment steps:
- Loosen the locknut ① .
- Insert a Feeler Gauge ② between the adjuster end and the valve end.
- Turn the adjuster ③ clockwise or counter-clockwise with the Valve Adjusting Tool ④ (YM-08035) until proper clearance is attained.

Intake Valve (Cold):
0.06 ~ 0.10 mm (0.002 ~ 0.004 in)
Exhaust Valve (Cold):
0.16 ~ 0.20 mm (0.006 ~ 0.008 in)

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

Valve Clearance Adjusting Locknut:
20 Nm (2.0 m·kg, 14 ft·lb)

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



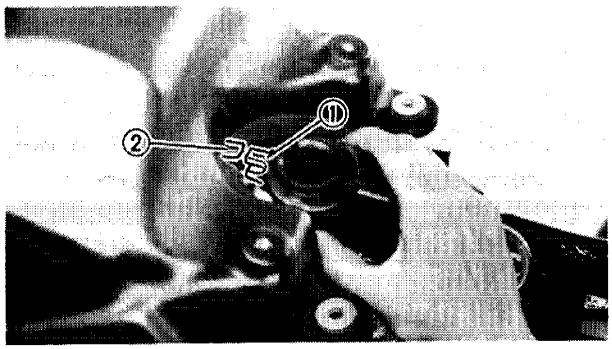
Installation

When installing the tappet covers, reverse the removal procedure. Note the following points.

1. Install:
   - Tappet cover (Exhaust) ①
   - Tappet cover (Intake) ②

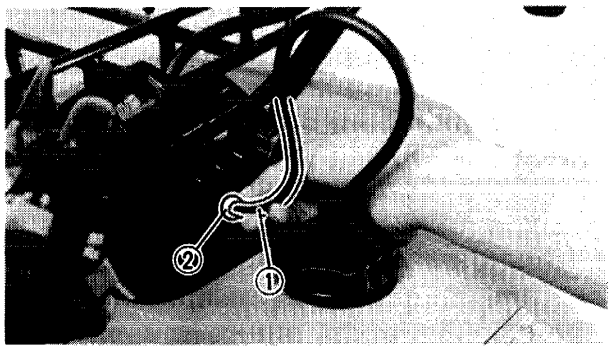
NOTE:
- Install the tappet covers with its ridge facing upward ③ .
- Check the O-rings ④ for damage. If damaged, replace.

Tappet Cover:
10 Nm (1.0 m·kg, 7.2 ft·lb)



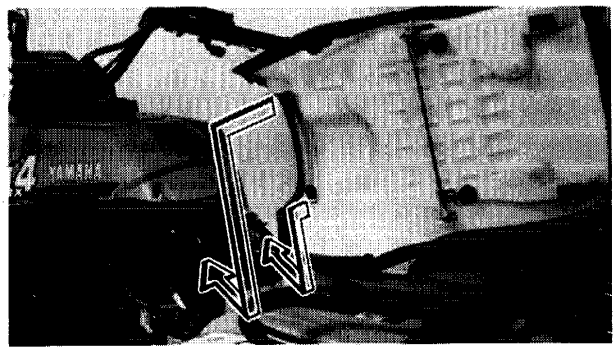
2. Place the fuel tank to original position.

NOTE:
Insert the lobe ① on the air intake manifold into the receptacle ② on the fuel tank, then secure the tank.



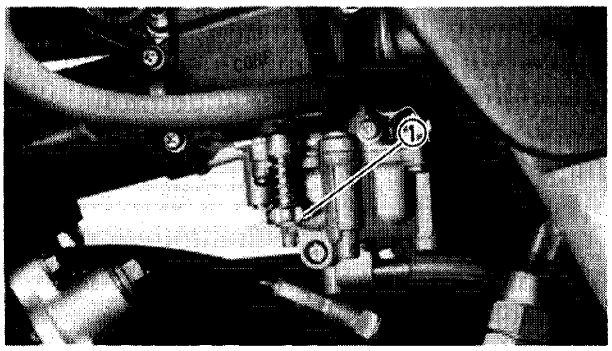
3. Install:
   • Fuel tank cap

NOTE:
Insert the fuel tank breather hose ① into the handlebar protector hole ② . Refer to "CABLE ROUTING" section.



4. Install:
   • Seat

NOTE:
Insert the lobes on the seat front into the receptacles on the frame, then push down the seat at the rear.



IDLE SPEED ADJUSTMENT

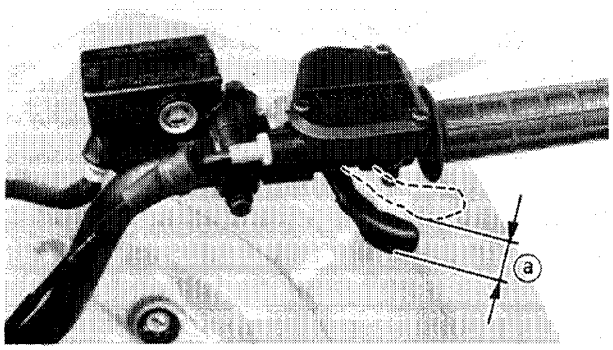
1. Adjust:
   • Idle speed
   Warm up the engine and turn the throttle stop screw ① to adjust.

	Idle Speed: **1,350 ~ 1,450 r/min**

THROTTLE LEVER ADJUSTMENT

NOTE:
Before adjusting the throttle lever free play, the engine idling speed should be adjusted.

SPEED LIMITER ADJUSTMENT

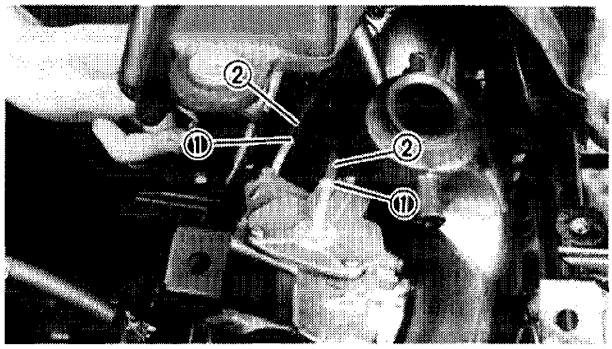


CAUTION:

Before adjusting the throttle lever free play, make sure that the adjusters and locknuts on the carburetor side are fully tightened. If not, the throttle does not operate properly.

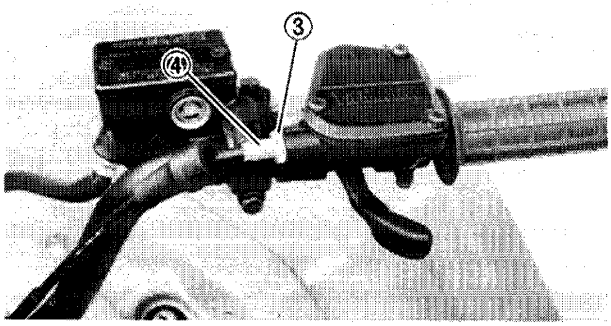
1. Check:
   - Throttle lever free play ⓐ
     Out of specification → Adjust.

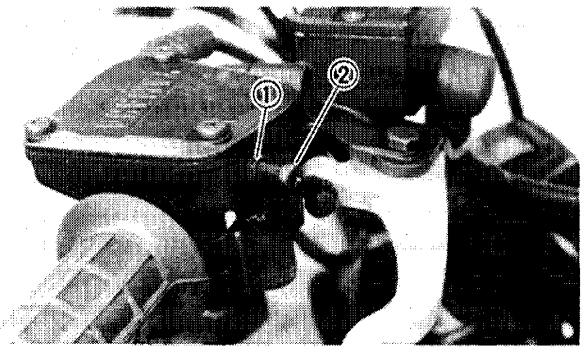
Throttle Lever Free Play ⓐ :
3 ~ 5 mm (0.12 ~ 0.20 in)



2. Adjust:
   - Throttle lever free play

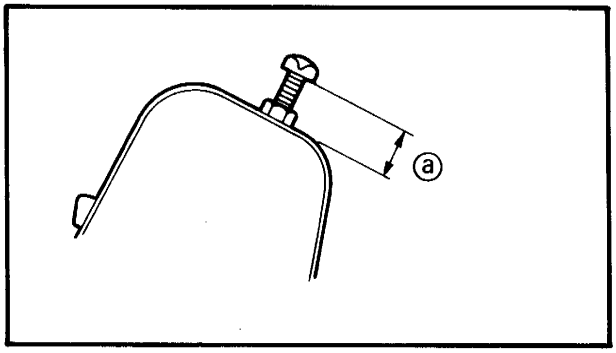
Throttle lever free play adjustment steps:
- Make sure that the adjusters ② and locknuts ① on the carburetor side are fully tightened.
- Loosen the locknut ③.
- Turn the adjuster ④ clockwise or counterclockwise until proper free play is attained.
- Tighten the locknut.





SPEED LIMITER ADJUSTMENT

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



1. Adjust:
   - Speed limiter length

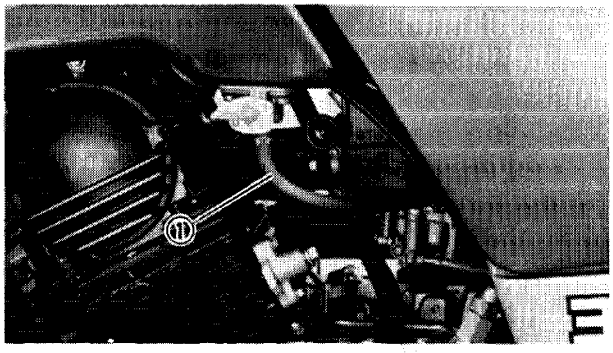
Speed limiter length adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② clockwise or counterclockwise until proper length is attained.

Speed Limiter Length ⓐ :
12 mm (0.47 in)

- Tighten the locknut.

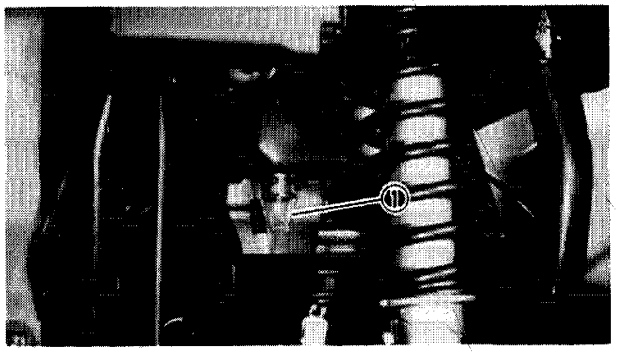
WARNING:

- **Particularly for a beginner rider, the speed limiter should be screwed in completely. Screw it out little by little as his riding technique improves. Never remove the speed limiter from the outset.**
- **For proper throttle lever operation do not turn out the adjuster more than 12 mm (0.47 in). Also adjust the throttle lever free play always to 3 ~ 5 mm (0.12 ~ 0.20 in).**



FUEL LINE INSPECTION

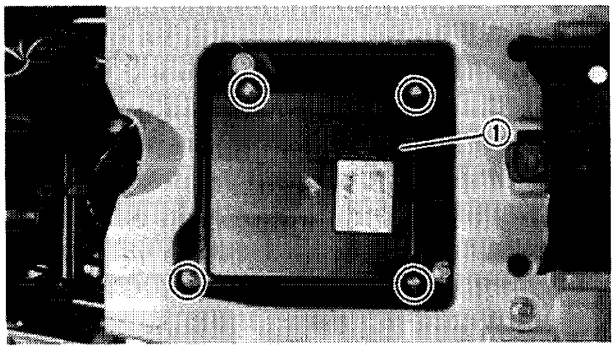
1. Inspect:
   - Fuel hose ①
     Cracks/Damage → Replace.



AIR FILTER CLEANING

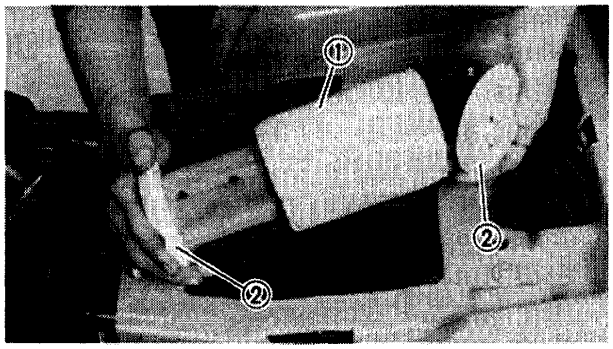
NOTE:

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



1. Remove:
   - Seat
   - Filter case ①
   - Air filter element assembly

AIR FILTER CLEANING



2. Remove:
   - Air filter element ①
   - Element guide ②

CAUTION:

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

3. Clean:
   - Air filter element
     Clean it with solvent.

NOTE:

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

CAUTION:

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

WARNING:

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

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

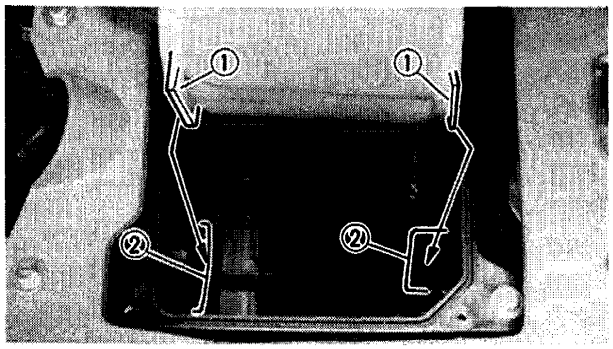
NOTE:

The element should be wet but not dripping.

7. Apply:
   - All-purpose grease
     To the air filter seat.
8. Install:
   - Air filter element
     To the element guide.
9. Install:
   - Air filter element assembly

NOTE:

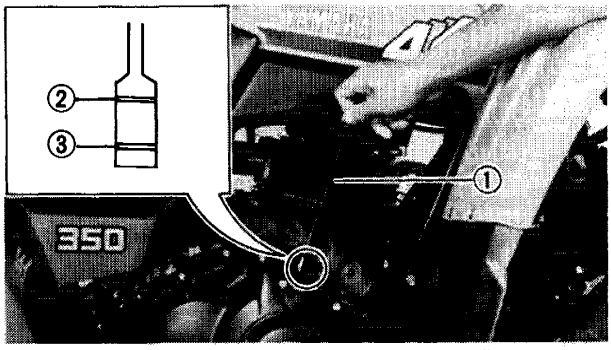
- Insert the lobes ① on the element guide into the receptacles ② on the filter case.
- Make sure its sealing surface matches the sealing surface of the case so there is no air leak.



ENGINE OIL/TRANSFER GEAR OIL LEVEL INSPECTION

1. Inspect:
   - Engine oil/transfer gear oil level
     Oil level low → Add sufficient oil.

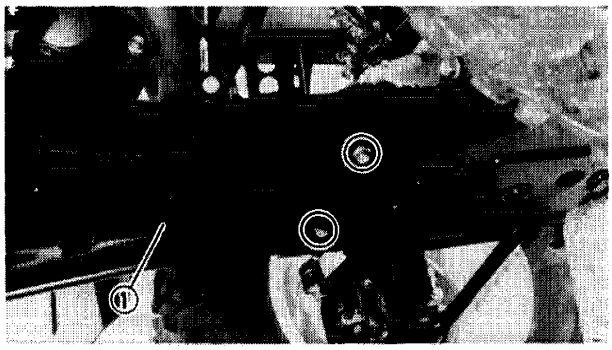
Engine oil/transfer gear oil level inspection steps:
- Place the machine on a level place.
- Warm up the engine for several minutes, and stop it.
- Screw the dipstick ① completely out, and then just rest the dipstick in the hole.
- Pull up the dipstick, and inspect the oil level whether or not it is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

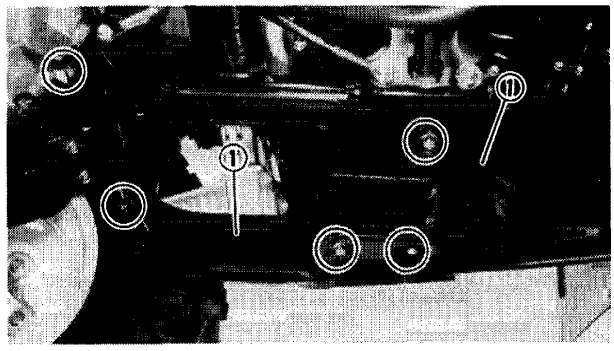


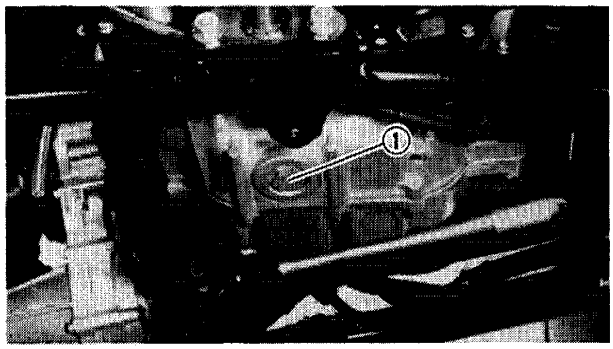
ENGINE OIL/TRANSFER GEAR OIL REPLACEMENT

Engine Oil/Transfer Gear Oil Replacement (Without Oil Filter Change)

1. Place the machine on a level place.
2. Remove:
   - Engine guards (Center and rear) ①
3. Warm up the engine for several minutes, and stop it.
4. Place the oil pans under the engine and transfer gear case.





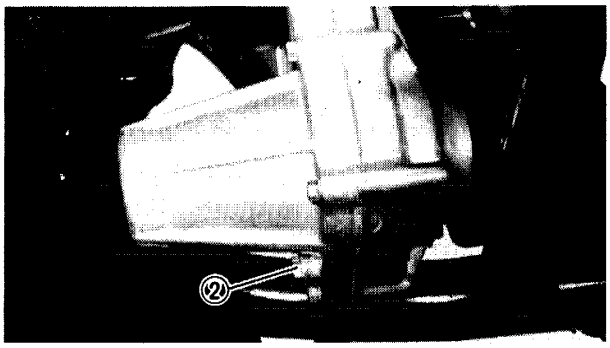


5. Remove:
   - Dip stick
   - Drain plug (Crankcase) ①
   - Drain plug (Transfer gear oil) ②
     Drain the engine/transfer gear oil.

CAUTION:

When removing the drain plug (Crankcase), the compression spring, oil strainer and O-ring will fall off. Take care not to lose these parts.

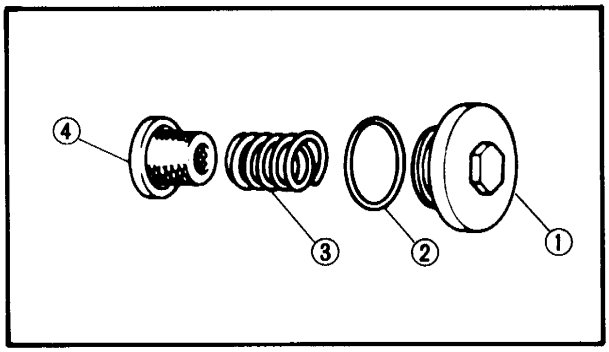
ENGINE OIL/TRANSFER GEAR OIL REPLACEMENT



6. Clean:
   - Oil strainer

   Clean it with solvent.
7. Inspect:
   - O-ring

   Damage → Replace.
8. Tighten:
   - Drain plug (Crankcase)
   - Drain plug (Transfer gear case)



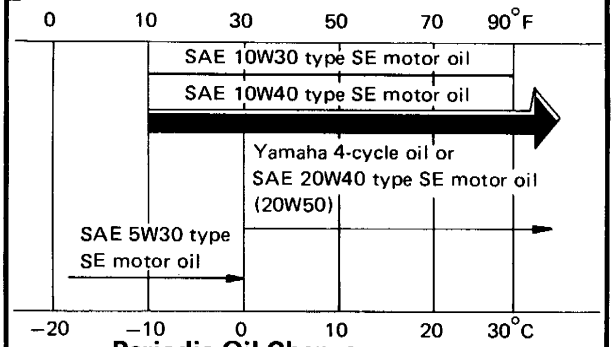
CAUTION:

Before reinstalling the drain plug (Crankcase) ① , do not forget to fit the O-ring ② , compression spring ③ and oil strainer ④ .

Drain Plug (Crankcase):
32 Nm (3.2 m·kg, 23 ft·lb)
Drain Plug (Transfer Gear Oil):
20 Nm (2.0 m·kg, 14 ft·lb)

9. Fill:
   - Engine

Recommended Oil:
SAE 10W40 Type SE Motor Oil

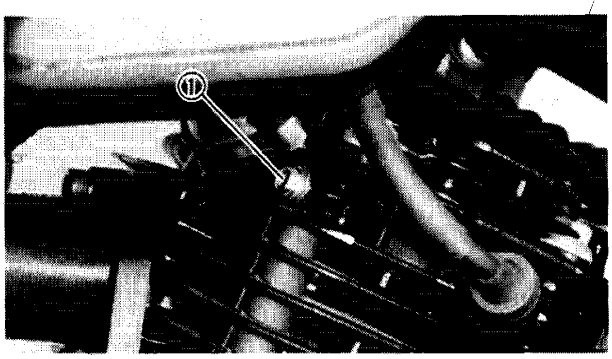


Periodic Oil Change
(Including Transfer Gear Oil):
2.7 L (2.4 Imp qt, 2.9 US qt)

NOTE:
Recommended engine oil classification; API Service "SE", "SF" type or equivalent (e.g. "SF-SE", "SF-SE-CC", "SF-SE-SD" etc.).

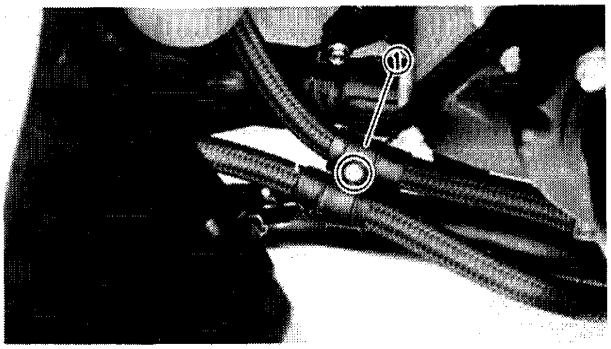
CAUTION:
Do not allow foreign material to enter the engine.

10. Install:
    - Dipstick
11. Warm up the engine for several minutes, and stop it.
12. Inspect:
    - Oil leaks
    - Oil level
13. Inspect:
    - Oil flow



Oil flow inspection steps:
- Slightly loosen the oil gallery bolt ① in the cylinder head.
- Start the engine and keep it idling until oil begins to seep from the oil gallery bolt. If no oil comes out after one minute, turn the engine off so it will not seize.
- Restart the engine after solving the problem(s), and recheck the oil pressure.
- Tighten the oil gallery bolt to specification.

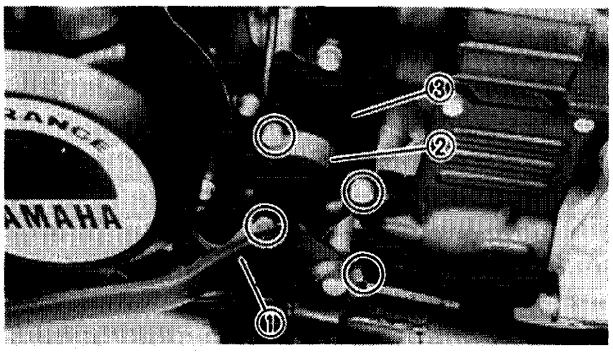
Oil Gallery Bolt:
7 Nm (0.7 m·kg, 5.1 ft·lb)



Engine Oil/Transfer Gear Oil Replacement (With Oil Filter Change)
When replacing the oil filter, repeat the engine oil/transfer gear oil replacement (Without oil filter change) procedure. However, note the following points.

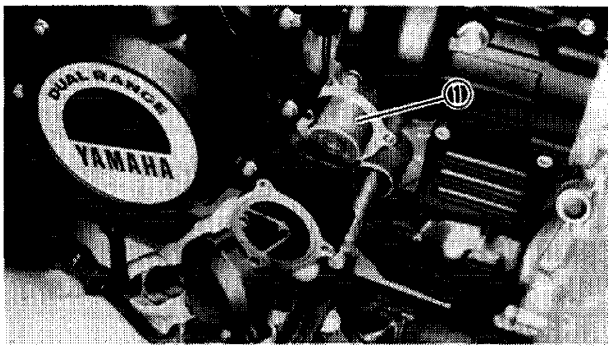
1. Remove:
    - Clamp (Oil hose) ①

ENGINE OIL/TRANSFER GEAR OIL REPLACEMENT



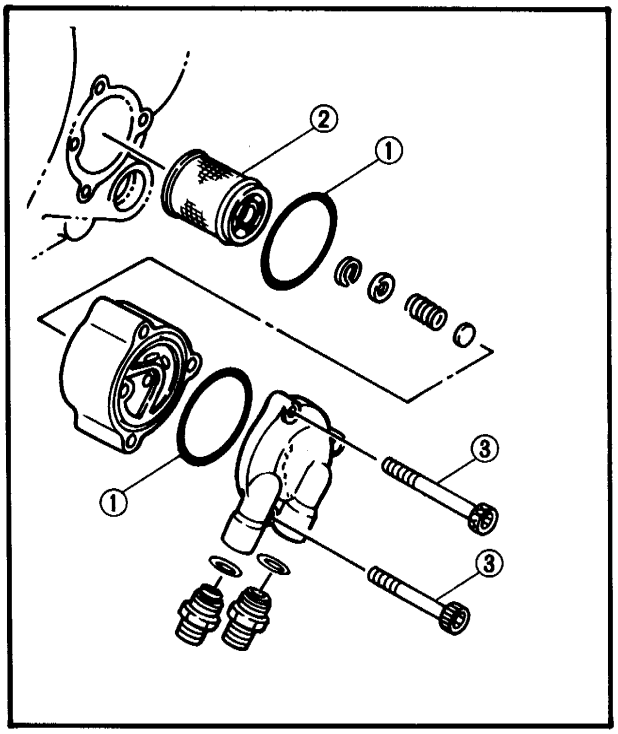
2. Remove:
   - Change pedal ①
   - Oil filter cover (Outside) ②
   - Oil filter cover (Inside) ③

   Drain the engine oil.



3. Remove:
   - Oil filter element ①
4. Clean:
   - Oil filter element

   Clean it with solvent.

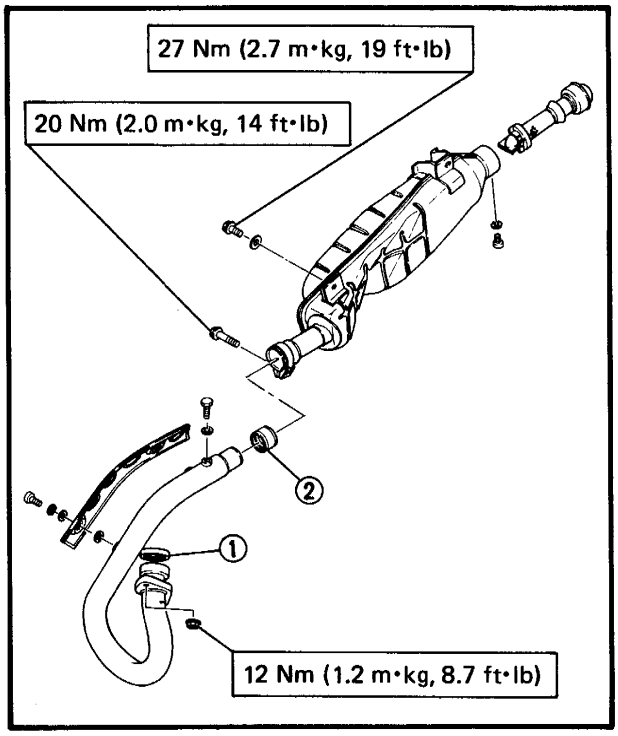


5. Inspect:
   - O-rings ①
   - Oil filter element ②

   Damage → Replace.
6. Install:
   - Component in above list (Steps "3 & 2")
7. Apply:
   - Sealant (Quick Gasket®) (ACC-11001-05-01)

   To the thread portion of the filter cover bolts ③.
8. Tighten:
   - Bolts (Filter cover)
   - Bolt (Change bolt)
   - Screw (Clamp)

Bolts (Filter Cover):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Bolts (Change Pedal):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Screw (Clamp):
7 Nm (0.7 m·kg, 5.1 ft·lb)



EXHAUST SYSTEM INSPECTION

1. Inspect:
   - Gasket (Exhaust pipe) ①
   - Gasket (Muffler clamp) ②

   Damage → Replace.
   Exhaust gas leakage → Repair.
2. Tighten:
   - Bolts (Exhaust pipe)
   - Bolts (Muffler)

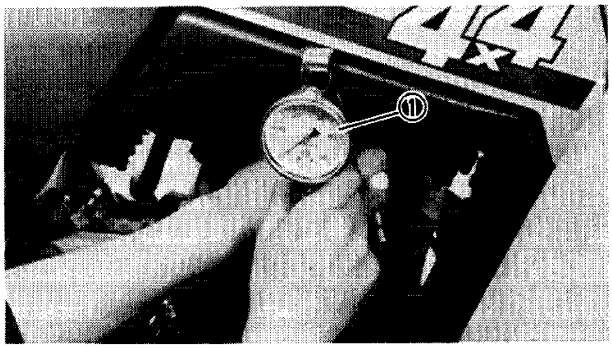
Bolts (Exhaust Pipe):
12 Nm (1.2 m•kg, 8.7 ft•lb)
Bolt (Muffler and Exhaust Pipe):
20 Nm (2.0 m•kg, 14 ft•lb)
Bolts (Muffler):
27 Nm (2.7 m•kg, 19 ft•lb)

COMPRESSION PRESSURE MEASUREMENT

NOTE:
Insufficient compression pressure will result in performance loss.

1. Measure:
   - Valve clearance

   Out of specification → Adjust.
2. Warm up the engine, and stop it.
3. Remove:
   - Spark plug
4. Measure:
   - Compression pressure



Compression pressure measurement steps:
- Install the Compression Gauge ① (YU-33223).
- Crank over the engine with the electric starter (be sure the battery is fully charged) with the throttle wide-open until the compression reading on the gauge stabilizes.
- Check readings with specified levels (See chart).

Compression Pressure (At Sea Level):
Standard: 850 kPa (8.5 kg/cm², 121 psi)
Minimum: 800 kPa (8.0 kg/cm², 114 psi)
Maximum: 900 kPa (9.0 kg/cm², 128 psi)

COMPRESSION PRESSURE MEASUREMENT

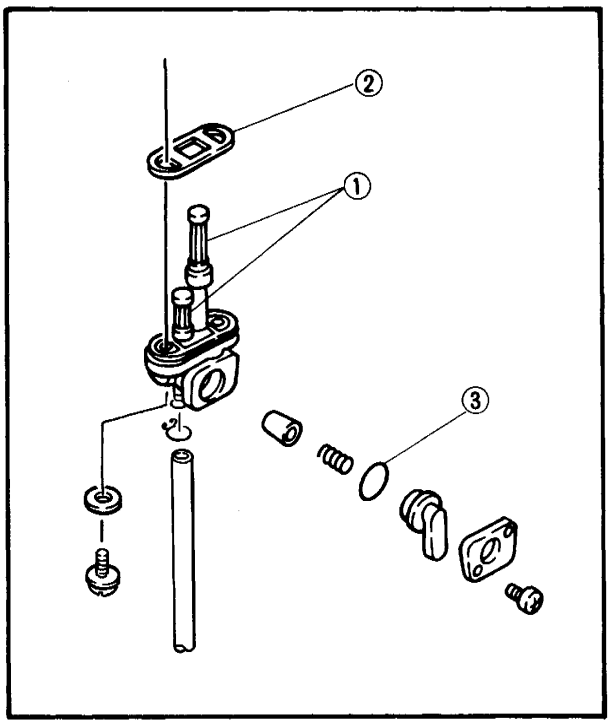
WARNING:

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

- If pressure falls below the minimum level:
  1) Squirt a few drops of oil into the affected cylinder.
  2) Measure the compression again.

Compression Pressure (with oil introduced into cylinder)

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



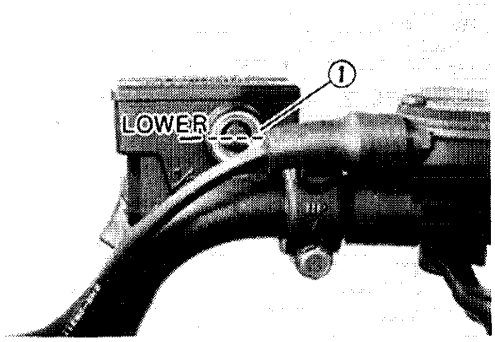
CHASSIS

FUEL COCK CLEANING

1. Turn the fuel cock lever to the "OFF".
2. Disconnect:
   - Fuel pipe
3. Remove:
   - Seat
   - Fuel tank
   - Fuel cock
4. Clean:
   - Filter screen ①
     Clean it with solvent.
5. Inspect:
   - Gasket ②
   - Filter screen ①
   - O-ring ③
     Damage → Replace.
6. Install:
   - Components in above list (Steps "3 and 2")

NOTE:

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



FRONT BRAKE FLUID LEVEL INSPECTION

1. Inspect:
   - Brake fluid level (Master cylinder)
     Level low → Replenish fluid.

	Brake Fluid: **DOT #4**

① Lower level

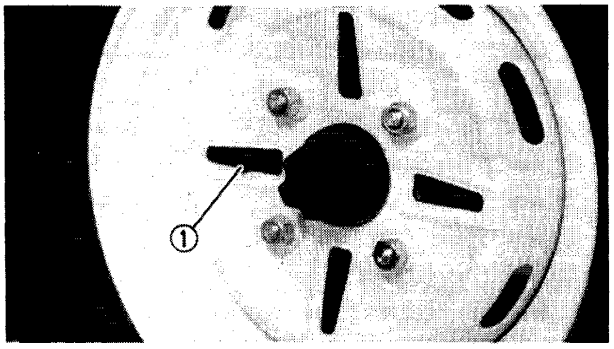
NOTE:

- Spilled fluid is cleaned up immediately to prevent painted surfaces or plastic parts from eroding.
- If DOT #4 is available, #3 can be used.

WARNING:

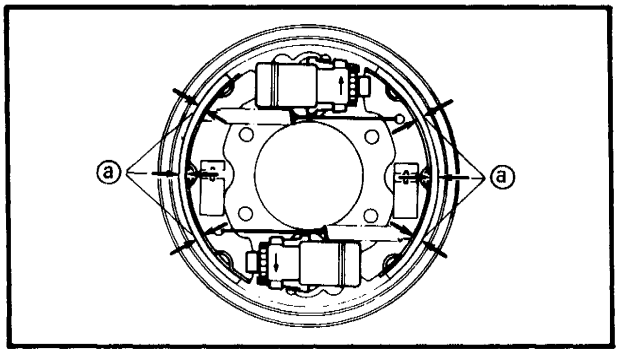
- **Use only the designated quality brake fluid, otherwise poor brake performance will result.**

• Water does not enter the master cylinder when refilling, otherwise poor brake performance.



FRONT BRAKE LINING INSPECTION

1. Remove:
   • Rubber plug ①



2. Inspect:
   • Brake lining thickness
   Out of specification → Replace.

Brake Lining Thickness:
4 mm (0.16 in)
Wear Limit:
1 mm (0.04 in)

ⓐ Measuring points

NOTE:
Replace the brake shoes as a set if either is found to be worn to the wear limit.

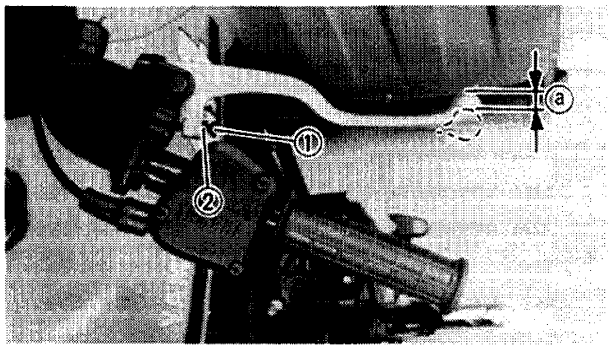
FRONT BRAKE ADJUSTMENT

NOTE:
Before adjusting the front brake, the front brake lining should be inspected.

1. Check:
   - Free play (Just before adjuster ① contacts master cylinder piston) ⓐ
     Out of specification → Adjust.

Free Play (Just Before Adjuster Contacts Master Cylinder Piston) ⓐ : 3 ~ 5 mm (0.12 ~ 0.20 in)

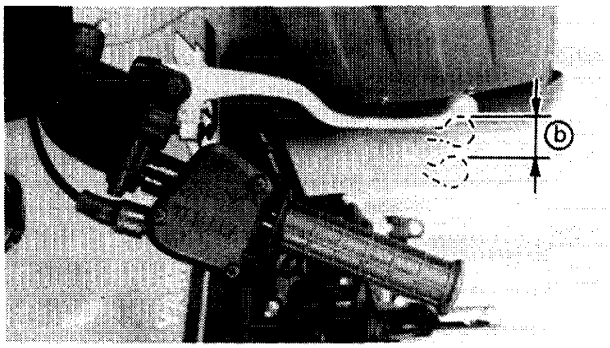
2. Adjust:
   - Free play ⓐ



Steps for brake lever free play (Just before adjuster contacts master cylinder piston) adjustment:
- Loosen the locknut ② .
- Turn the adjuster ① until the brake lever free play ⓐ is within the specified limits.

Free Play (Just Before Adjuster Contacts Master Cylinder Piston) ⓐ : 3 ~ 5 mm (0.12 ~ 0.20 in)

- Tighten the locknut.



3. Check:
   - Free play (Just before brake is actually apply) ⓑ
     Out of specification → Adjust.

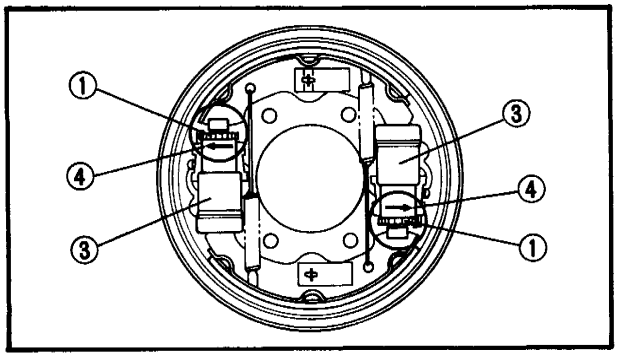
Free play (Just before brake is actually apply) checking steps:
- Place the machine on level place.
- Lift the front and rear wheels off the ground by placing the block under the engine.
- Spin the wheel by hand and apply the front brake.
- Check the free play (Just before brake is actually apply) ⓑ is specified limit.

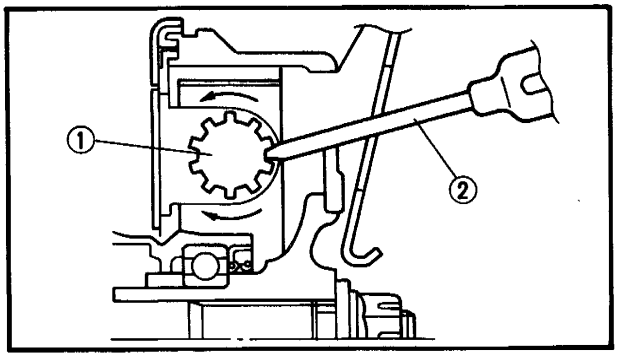
FRONT BRAKE ADJUSTMENT

Free Play (Just Before Brake is Actually Apply) ⓑ :
25 ~ 30 mm (1.0 ~ 1.2 in)

- If not, adjust the wheel cylinders.

4. Adjust:
   - Free play ⓑ





Steps for brake lever free play (Just before brake is actually) adjustment:

- Place the machine on level place.
- Lift the front and rear wheels off the ground by the placing block under the engine.
- Remove the rubber plug.
- Locate the wheel so that you can see either of the adjuster ① through the inspection hole.
- Insert the screwdriver ② through the hole and turn the adjuster ① of either wheel cylinder ③ in the direction shown by the arrow ④ until the front brake locks.
- Turn back the adjuster ① THREE CLCKS and squeeze the brake lever several times.
- Turn the wheel 180° and carry out the same adjustment on the other adjuster on the same wheel.
- Make sure there is no brake drag.
- Adjust the other front brake on the opposite wheel.
- Recheck the front brake free play ⓑ .

CAUTION:

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

WARNING:

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

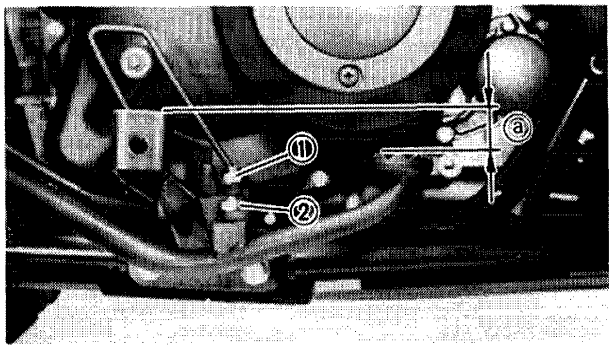
• After this adjustment is performed, lift the front and rear wheels off the ground by the placing block under the engine, and spin the front wheels to ensure there is no brake drag. If any brake drag is noticed, perform the above steps again.

REAR BRAKE LEVER AND PEDAL ADJUSTMENT

WARNING:

Always adjust both the brake pedal and the rear brake lever whenever adjusting the rear brake.

1. Adjust:
   • Pedal height ⓐ



Brake pedal height adjustment steps:
• Loosen the locknut ① .
• Turn the adjuster ② until the pedal height ⓐ is within the specified limits.

Pedal Height ⓐ :
5 mm (0.2 in)
Below the Footrest Top End

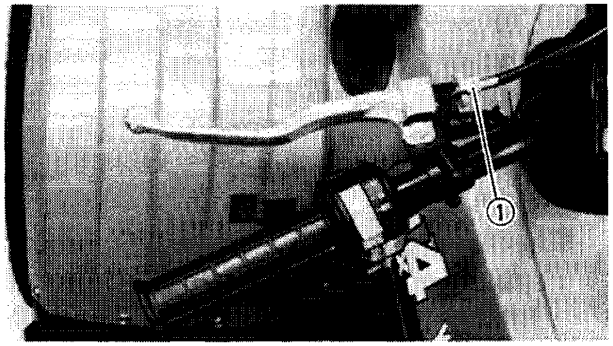
• Tighten the locknut.

2. Adjust:
   • Free play (Rear brake lever)
   • Free play (Brake pedal)

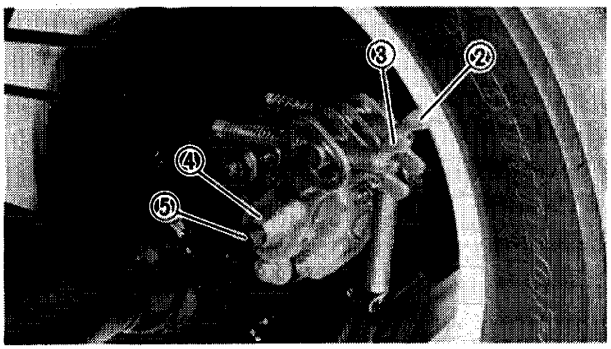
Step for rear brake lever and brake pedal free play adjustment:

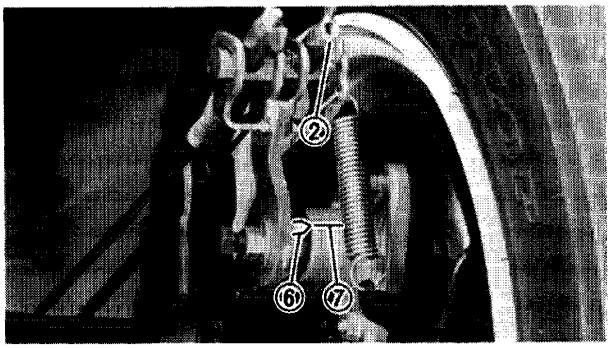
NOTE:
Before adjusting the free plays, pump the brake pedal 2 to 3 times.

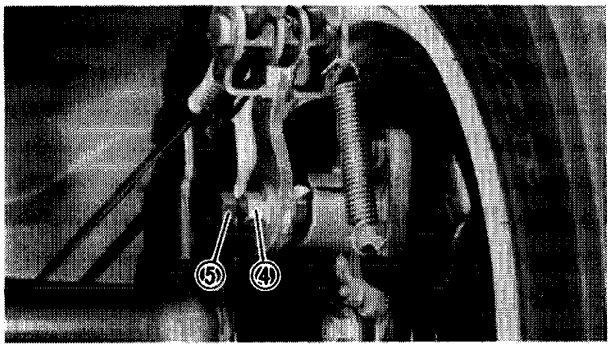
• Fully loosen the brake lever cable adjuster (Handlebar) ① .

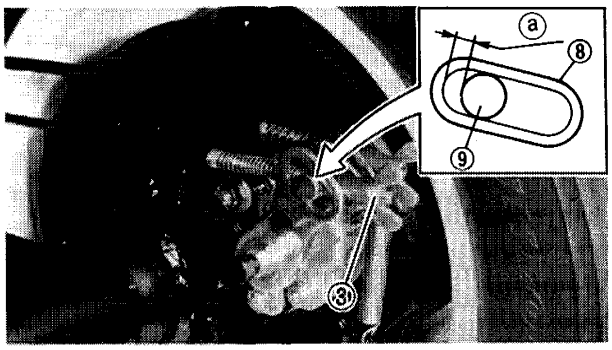


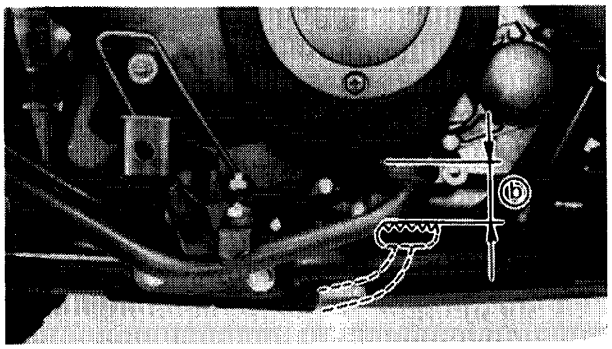
REAR BRAKE LEVER AND PEDAL ADJUSTMENT











- Fully loosen both brake lever cable adjuster (Caliper) ② and brake pedal cable adjuster (Caliper) ③.
- Loosen the locknut (Caliper) ④ and the adjusting bolt (Caliper) ⑤.
- Screw in the brake lever cable adjuster ② to align the caliper lever match mark ⑥ with the caliper projection ⑦.
- Slowly turn the adjusting bolt ⑤ clockwise by hand until resistance is felt.
- Turn it 1/4 counterclockwise.
- Tighten the locknut ④.

Locknut (Caliper):
16 Nm (1.6 m·kg, 11 ft·lb)

CAUTION:

When tightening the locknut ④, hold the adjusting bolt ⑤ with a spanner so that the adjusting bolt is not turned together with the locknut.

- Turn the brake pedal cable adjuster ③ clockwise until the gap ⓐ is within the specified limits.

Gap ⓐ:
0 ~ 1 mm (0 ~ 0.04 in)

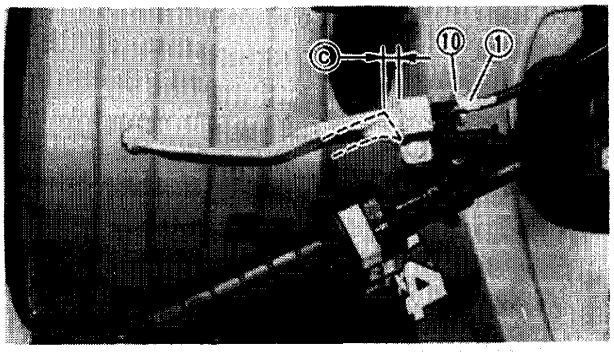
⑧ Brake caliper lever ⑨ Pin

WARNING:

After this adjustment is performed, lift the front and rear wheels off the ground by the placing under the engine, and spin the rear wheels to ensure there is no brake drag. If any brake drag is noticed, perform the above steps again.

- Inspect the free play (Brake pedal) ⓑ whether or not it is specified value. If not, perform the aforementioned steps again.

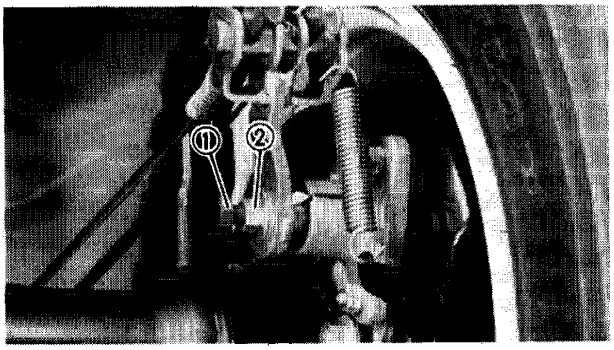
Free Play (Brake Pedal) ⓑ:
20 ~ 30 mm (0.8 ~ 1.2 in) or more



- Loosen the locknut (Handlebar) ⑩ , and turn the brake lever cable adjuster (Handlebar) ① until the free play (Brake lever) ⓒ is within the specified limits.

Free Play (Brake Lever) ⓒ :
10 mm (0.4 in) or more

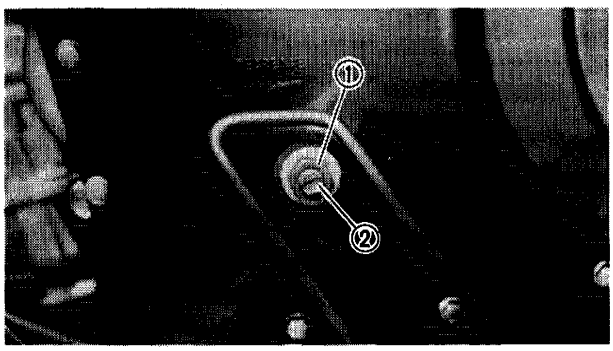
- Tighten the locknut (Handlebar).



REAR BRAKE PADS INSPECTION

1. Inspect:
   - Brake pads

   Adjusting bolt ① comes close to touching the locknut ② due to use → Replace pads as a set.



CLUTCH ADJUSTMENT

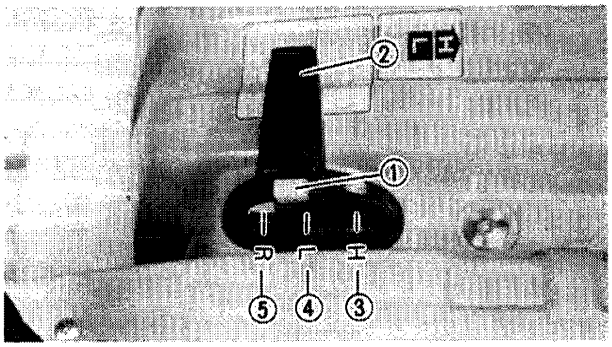
1. Adjust:
   - Free play

Clutch free play adjustment steps:
- Loosen the locknut ① .
- Slowly turn the adjuster ② counterclockwise until resistance is felt.
- Turn it 1/8 clockwise.

NOTE:
Turn the adjuster counterclockwise to decrease the clutch free play and turn it clockwise to increase the free play.

- Tighten the locknut.

Clutch Locknut:
15 Nm (1.5 m·kg, 11 ft·lb)



SELECT LEVER CONTROL CABLE ADJUSTMENT

1. While pushing the knob ① , move the select lever ② toward the LOW.

③ HIGH ④ LOW ⑤ REVERSE

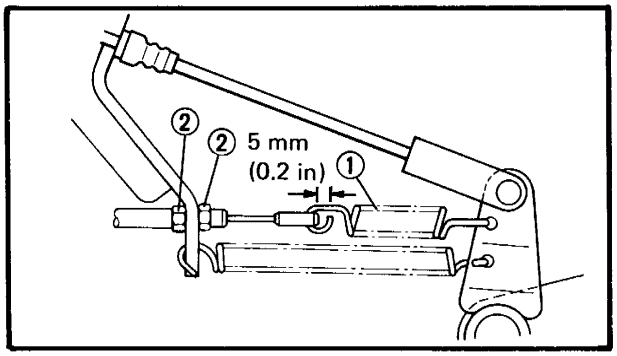
NOTE:
Check that the knob has returned to its home position once the shift is complete.

SELECT LEVER CONTROL CABLE ADJUSTMENT

WARNING:

Before moving the select lever, bring the machine to a complete stop and return the throttle lever to its closed position. Otherwise the transmission may be damaged.

2. Adjust:
   - Select lever control cable 1
   - Select lever control cable 2



Select lever control cables adjustment steps:

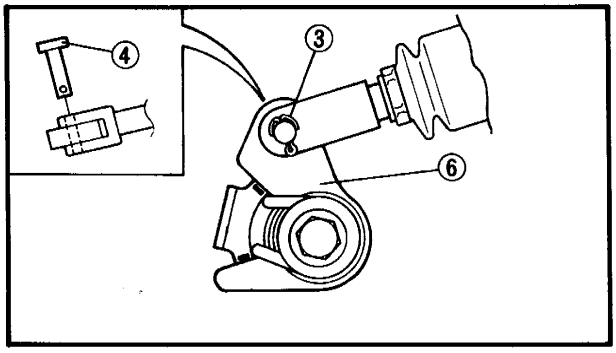
Control Cable 2:

- Make sure that the select lever is LOW.
- Adjust the control cable 2 so there is zero free play in the cable. When the adjustment is correct, slack in the return spring ① will be just taken up.

NOTE:

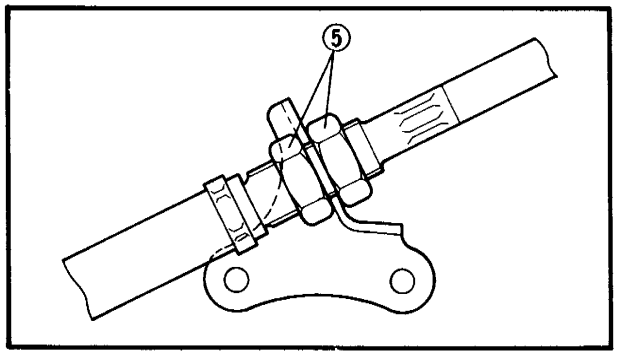
In some cases it will be necessary to further adjust the cable with the locknuts ② arrangement that holds the cable to its mount.

- Verify that the select lever cannot be shifted to REVERSE without operating the brake pedal. While operating the brake pedal make sure the control cable has at least 5 mm (0.2 in) travel.



Control Cable 1:

- Make sure that the select lever in LOW.
- Remove the small hitch pin ③ and clevis pin ④ from the engine end of control cable 1.
- Loosen both locknuts ⑤.
- Alternately turn the locknuts so the holes in the clevis are located exactly over the hole in the arm ⑥ (attached to shift cam 2), so the clevis pin slips easily through both the eyes and arm.
- With the clevis pin removed, carefully tighten the locknuts.

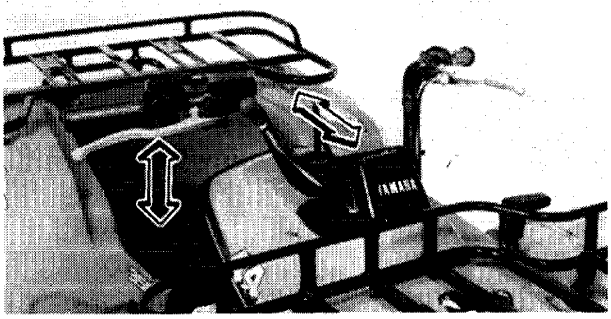


- Verify that the clevis pin still slips through easily, and, with a sllicone lubricant, lightly lubricate the clevis pin and install it and hitch pin.
- Tighten the locknuts.

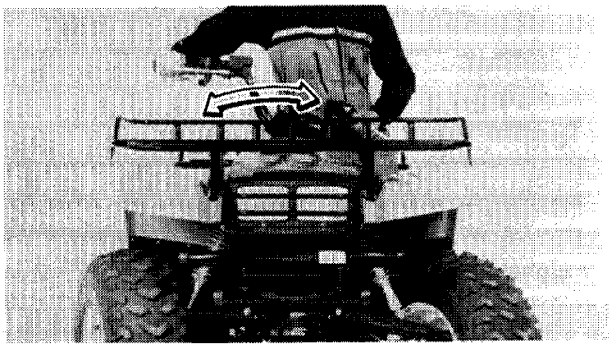
Locknuts (Control Cable 1):
20 Nm (2.0 m·kg, 14 ft·lb)

- Slide the dust bellows on the control cable in both directions, applying grease to the areas exposed.
- Check the operation of the select lever, and verify that the brake pedal must be pressed before REVERSE can be engaged. Make sure there is a positive action as another range is engaged. Unsually a distinct "Click" can be heard if engagement is positive.

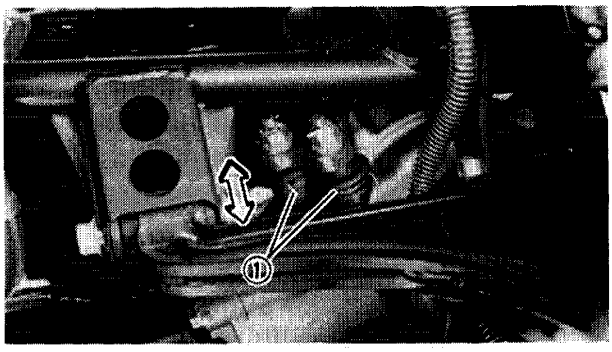
STEERING SYSTEM INSPECTION

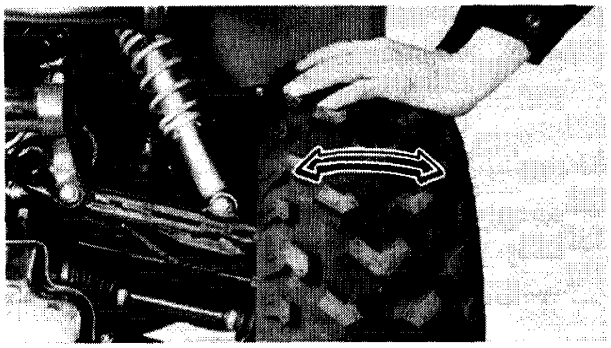


1. Place the machine on a level place.
2. Check:
   - Steering assembly bushings
     Move the handlebar up and down, and/or back and forth.
     Excessive play → Replace the steering shaft bushings.

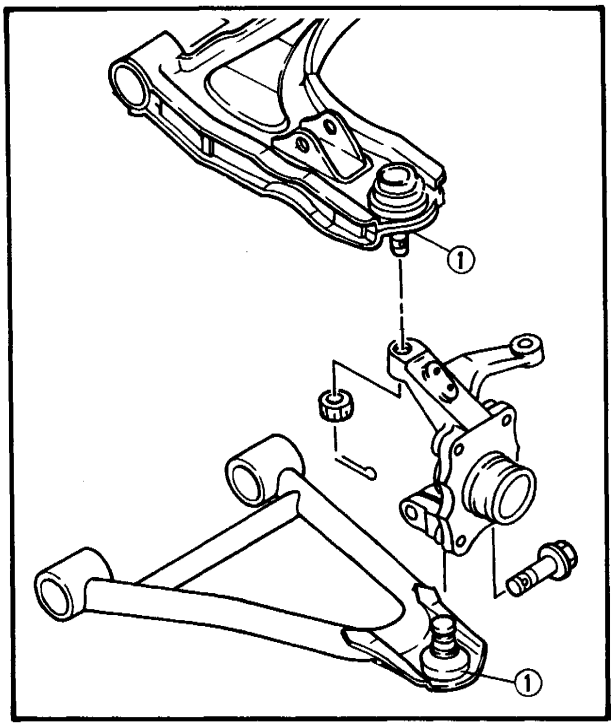


3. Check:
   - Tie-rod ends
     Turn the handlebar to the left and/or right until it stops completely, then slightly move the handlebar from left to right.
     Tie-rod end ① has any vertical play → Replace the tie-rod end(s).





4. Rasise the front end of the machine so that there is no weight on the front wheels.

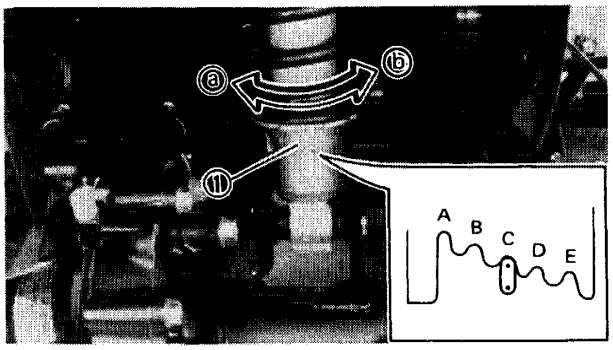


5. Check:
   - Ball joints ① and/or wheel bearings
     Move the wheels laterally back and forth.
     Excessive free play → Replace the front arms (Upper and lower) and/or wheel bearings.

REAR SHOCK ABSORBER ADJUSTMENT

1. Adjust:
   - Spring preload

NOTE:
The spring preload of the rear shock absorber can be adjusted to suit rider's preferance, weight, and the course conditions.



Spring preload adjustment steps:
• Adjust the spring preload with the spring seat ① using the water pump pliers.
Stiffer ⓐ → Increase the spring preload. (Raise the spring seat.) **Softer ⓑ → Decrease the spring preload. (Lower the spring seat.)**
Standard Position: C **Softest Position: A** **Stiffest Position: E**

CABLE INSPECTION AND LUBRICATION

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



Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

LEVERS, PEDAL, ETC. LUBRICATION

1. Lubricate:
   - Pivot points



Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

TIRES CHECK

WARNING:

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

• TIRE CHARACTERISTICS

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

	Manufacturer	Size	Type
Front	DUNLOP	AT25 x 8-12	KT951
Rear	DUNLOP	AT25 x 10-12	KT955

• TIRE PRESSURE

1) Recommended tire pressure
Front 20 kPa (0.20 kg/cm², 2.8 psi)
Rear 20 kPa (0.20 kg/cm², 2.8 psi)

2) Tire pressure below the minimum specified could cause the tire to dislodge from the rim under severe riding conditions.
The following are minimums:
Front 17 kPa (0.17 kg/cm², 2.4 psi)
Rear 17 kPa (0.17 kg/cm², 2.4 psi)

3) Use no more than
Front 140 kPa (1.4 kg/cm², 20 psi)
Rear 140 kPa (1.4 kg/cm², 20 psi)
when seating the tire beads. Higher pressures may cause the tire to burst.
Inflate the tires very slowly and carefully. Fast inflation could cause the tire to burst.

• MAXIMUM LOADING LIMIT

1) Vehicle load limits: 110 kg (240 lb)*
***Total weight of cargo, trailer hitch vertical load, rider, and accessories.**

2) When using this machine under 16 km/h (10 mi/h), this load limit can be increased to 150 kg (330 lb).

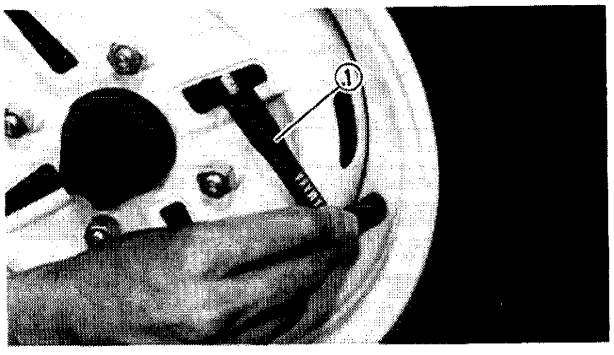
3) Front carrier (If so equipped): 15 kg (33 lb)

4) Rear carrier: 45 kg (100 lb)

5) Storage box: 2 kg (4.4 lb)

6) Trailer hitch:
Horizontal load: 300 kg (660 lb)
Total weight of trailer and cargo.
Vertical load: 15 kg (33 lb)
Vertical weight on trailer hitch joint.
Be extra careful of the machine balance and stability when towing a trailer.

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



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

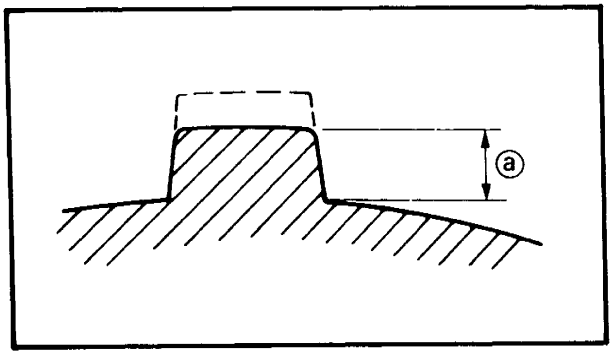
Cold Tire Pressure	Front	Rear
Standard	20 kPa (0.2 kg/cm², 2.8 psi)	20 kPa (0.2 kg/cm², 2.8 psi)
Minimum	17 kPa (0.17 kg/cm², 2.4 psi)	17 kPa (0.17 kg/cm², 2.4 psi)
Maximum	23 kPa (0.23 kg/cm², 3.2 psi)	23 kPa (0.23 kg/cm², 3.2 psi)

WARNING:

Uneven or improper tire pressure may adversely affect the handling of this machine and may cause loss of control.

- **Maintain proper tire pressures.**
- **Set tire pressures when the tires are cold.**
- **Tire pressures must be equal in both front tires and equal in both rear tires.**

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



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

WARNING:

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

WHEELS CHECK

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

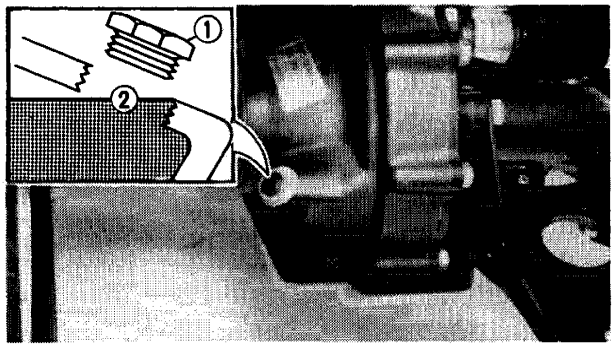
WARNING:

Never attempt even small repairs to the wheel.

FINAL GEAR OIL LEVEL INSPECTION

1. Inspect:
   - Final gear oil level
     Oil level low → Add sufficient oil.

FINAL GEAR OIL/ DIFFERENTIAL GEAR OIL REPLACEMENTS



Final gear oil level visual inspection steps:

- Place the machine on a level place.

NOTE:

The engine should be cool (at atmospheric temperature).

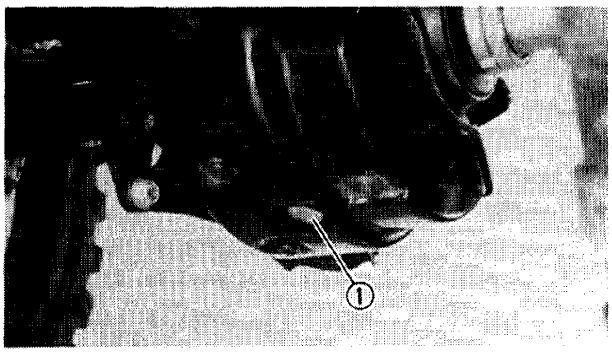
- Remove the oil filler cap ①.
- Visually check the oil level. Correct oil level ② should be at the brim of the hole.
- If the oil level is low, add sufficient oil.

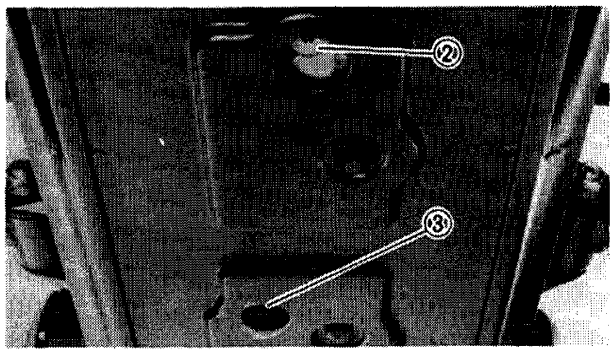
WARNING:

Take care not to allow foreign material to enter the final gear case.

- Tighten the oil filler cap.

Oil Filler Cap (Final Gear Case): 23 Nm (2.3 m·kg, 17 ft·lb)





FINAL GEAR OIL/DIFFERENTIAL GEAR OIL REPLACEMENTS

1. Place the oil pans under the final gear case and differential gear case.
2. Remove:
   - Oil filler caps (Final gear case and differential gear case)
   - Drain plug (Final gear case) ①
   - Drain plug (Differential gear case – Front) ②
   - Drain plug (Differential gear case – Rear) ③

   Drain the oil.

Ⓐ Final gear case Ⓑ Differential gear case

3. Install:
   - Drain plug (Final gear case)
   - Drain plug (Differential gear case – Front)
   - Drain plug (Differential gear case – Rear)

Drain Plug (Final Gear Case):
23 Nm (2.3 m·kg, 17 ft·lb)
Drain Plug
(Differential Gear Case – Front):
23 Nm (2.3 m·kg, 17 ft·lb)
Drain Plug
(Differential Gear Case – Rear):
16 Nm (1.6 m·kg, 11 ft·lb)

4. Fill:
   - Final gear case
   - Differential gear case

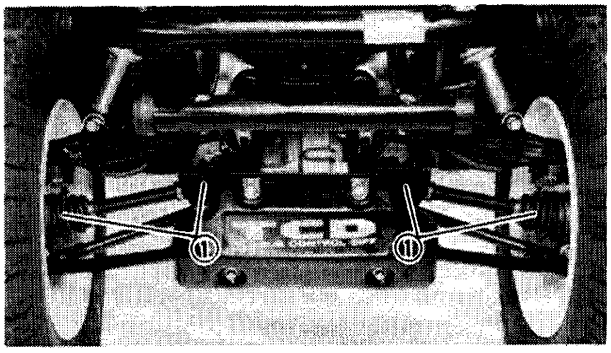
Oil Capacity:
Final Gear Case:
0.25 L (0.22 Imp qt, 0.26 US qt)
Differential Gear Case:
0.50 L (0.44 Imp qt, 0.53 US qt)
Recommended Oil
(Final Gear Oil and
Differential Gear Oil):
SAE 80 API "GL-4" Hypoid Gear Oil
If desired, an SAE 80W90 Hypoid gear oil may be used for all conditions.

WARNING:

Take care not to allow foreign material to enter the final gear case and differential gear case.

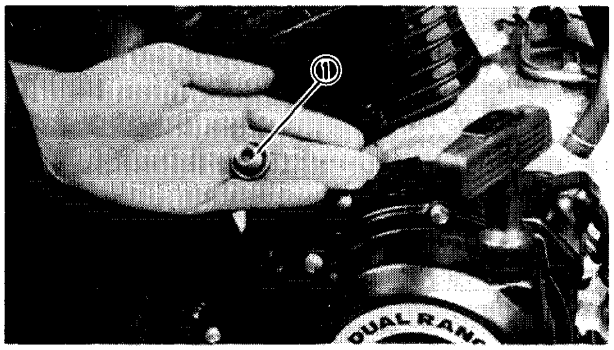
5. Install:
   - Oil filler caps (Final gear case and differential gear case)

Oil Filler Caps
(Final Gear Case and Differential Gear Case):
23 Nm (2.3 m·kg, 17 ft·lb)



CONSTANT VELOCITY JOINT DUST BOOT INSPECTION

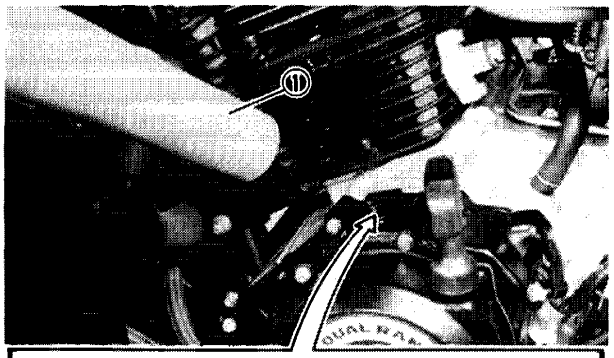
1. Inspect:
   - Dust boots ①
     Damage → Replace.
     Refer to "CHAPTER 5. DRIVE TRAIN – CONSTANT VELOCITY JOINT" section.

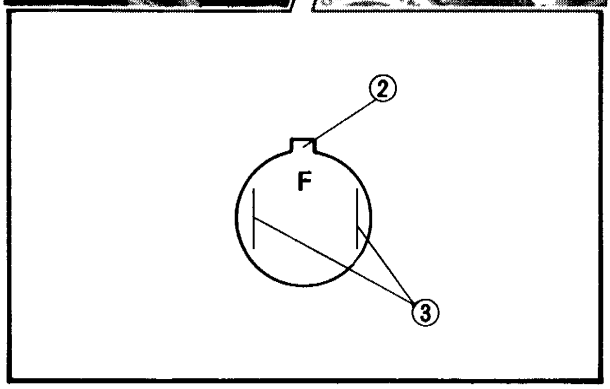


ELECTRICAL

IGNITION TIMING CHECK

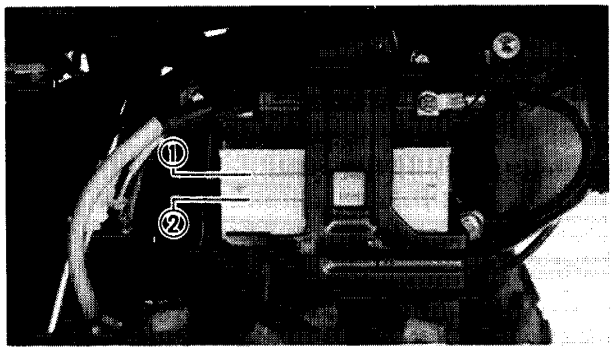
1. Remove:
   - Timing plug ①





2. Check:
   - Ignition timing

Ignition timing check steps:
- Connect the Timing Light ① (YM-33277) to the spark plug lead.
- Warm up the engine and let it idle at the specified idle speed of 1,350 ~ 1,450 r/min.
- Visually check the stationary pointer ② on the crankcase cover to verify it is within the firing range ③ indicated on the flywheel.
  Incorrect → Check flywheel and/or pick-up assembly (tightness and/or damage).
  Refer to "CHAPTER 7. ELECTRICAL" for further information.



BATTERY INSPECTION

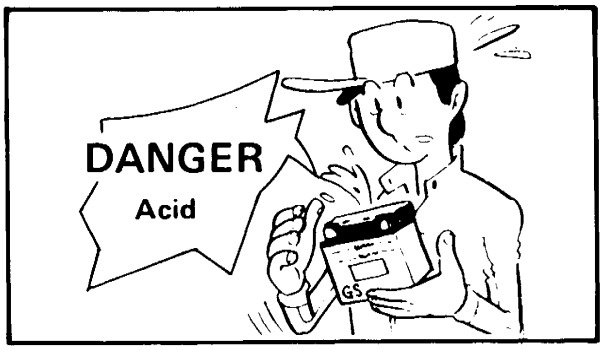
1. Inspect:
   - Battery fluid level
     Battery fluid level low → Fill.
     Fluid level should be between upper ① and lower ② level marks.

CAUTION:

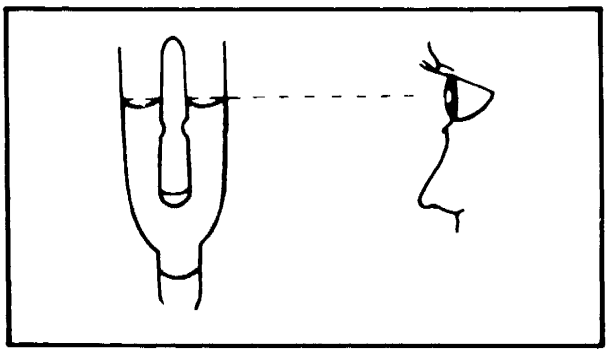
Normal tap water contains minerals which are harmful to a battery; therefore, refill only with distilled water.

WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk.

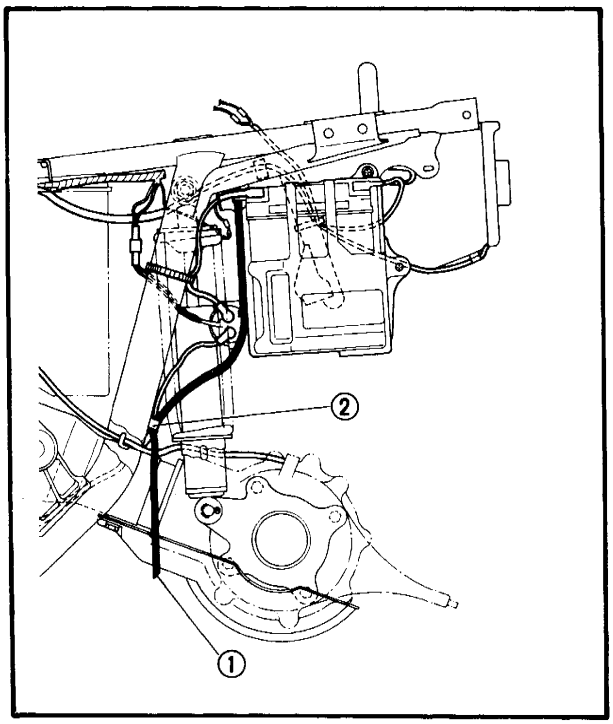


Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when chargeing or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.



2. Remove:
   - Rear fender
   - Rear carrier
   - Battery
3. Inspect:
   - Battery fluid specific gravity
     Out of specification → Charge.

Charging Current:
1.4 Amps/10 Hrs.
Specific Gravity:
1,280 at 20°C (68°F)



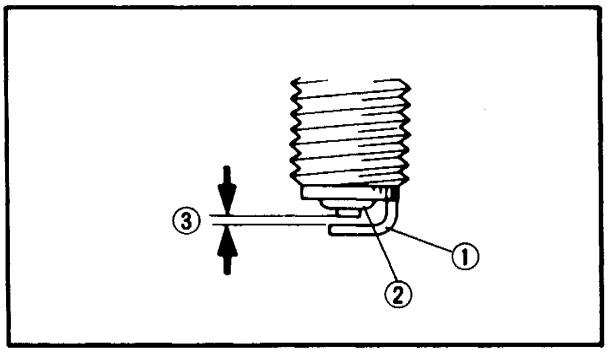
4. Install:
   - Battery
5. Connect/Inspect:
   - Battery breather hose ①
     Be sure the hose is properly attached and routed.

② Clamp the starter motor cable and battery breather hose.

CAUTION:

When inspecting the battery, be sure the breather hose is routed correctly. If the breather hose touches the frame or exits in such a way as to cause battery electrolyte or gas to exit onto the frame, structural and cosmetic damage to the machine can occur.

6. Inspect:
   - Battery breather hose
     Obstruction → Remove.
     Damage → Replace.



SPARK PLUG INSPECTION

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

③ Spark plug gap

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

Standard Spark Plug:
D8EA (N.G.K.) or X24ES-U (N.D.)
For Canada: DR8ES-L (N.G.K.)

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

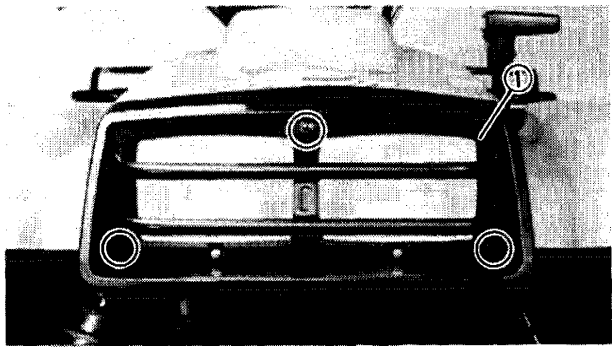
Spark Plug Gap:
0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

5. Tighten:
   - Spark plug

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

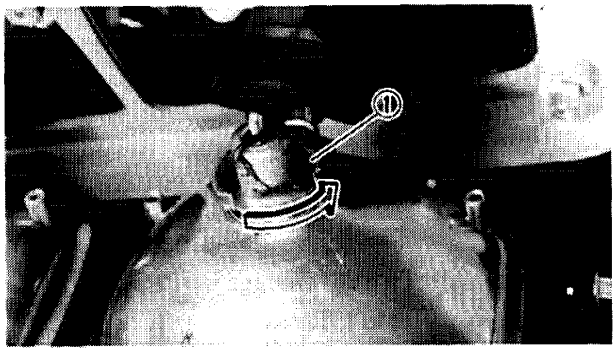
Spark Plug:
17.5 Nm (1.75 m·kg, 12.5 ft·lb)

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



HEADLIGHT BULB REPLACEMENT

1. Remove:
   - Headlight cover ①



2. Remove:
   - Bulb

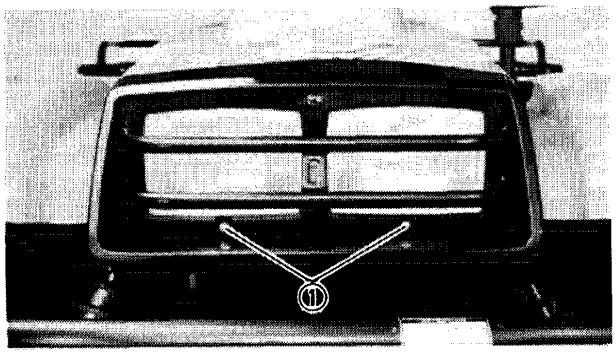
   Turn the bulb holder ① counterclockwise to release bulb.

WARNING:

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

3. Install:
   - Bulb (New)

   Secure the new bulb with the bulb holder.
4. Install:
   - Headlight cover

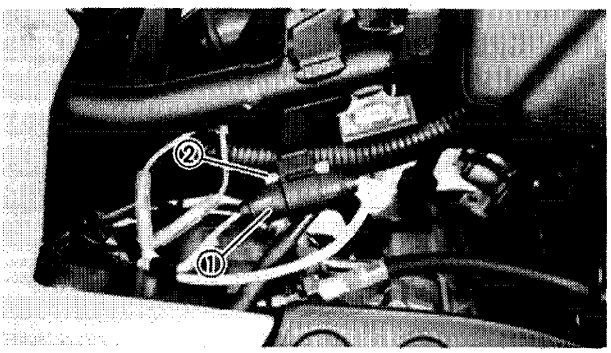


HEADLIGHT BEAM ADJUSTMENT

1. Adjust:
   - Headlight beam (Vertically)

Vertical Adjustment	
Higher	Turn the adjusting screw ① clockwise.
Lower	Turn the adjusting screw ① counterclockwise.

FUSE INSPECTION/CIRCUIT BREAKER INSPECTION



FUSE INSPECTION

1. Remove:
   - Rear fender
2. Inspect:
   - Fuse ①

   Defective → Replace.

   Blow fuse (New) → Inspect circuit.

② Spare fuse

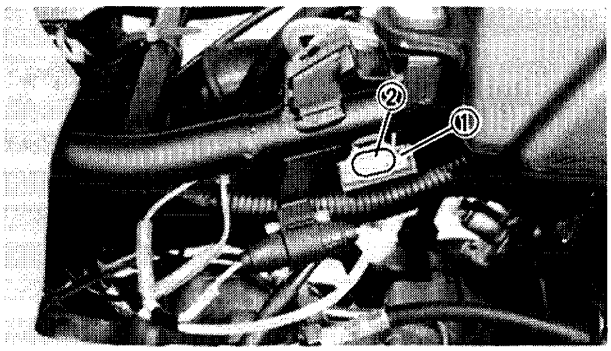
CAUTION:

Do not use fuses of higher amperage rating than those recommended.
Substitution of a fuse of improper rating can cause extensive electrical system damage and possibly a fire.

Description	Amperage	Quantity
Main	30A	1
Reserve	30A	1

CIRCUIT BREAKER INSPECTION

1. Remove:
   - Rear fender
2. Inspect:
   - Circuit breaker ①



Circuit breaker inspection steps:

- Turn off the ignition switch and switch in the circuit in question.
- Push in the breaker knob ② .

CAUTION:

Wait 30 seconds before resetting the circuit breaker.

- Turn on the switches and see if the electrical device operates.

  Circuit breaker interrupts the circuit again → Check electrical system.

  Refer to "CHAPTER 7. ELECTRICAL" for further information.

CHAPTER 3.
ENGINE OVERHAUL

ENGINE REMOVAL 3-1
PREPARATION FOR REMOVAL 3-1
FRONT CARRIER AND FRONT FENDER 3-2
REAR CARRIER AND REAR FENDER 3-3
EXHAUST PIPE AND MUFFLER 3-4
WIRINGS AND HOSE 3-4
REAR BRAKE AND SELECT LEVER CABLES 3-5
CARBURETOR 3-6
STARTER MOTOR 3-7
OIL FILTER 3-7
REAR DRIVE ASSEMBLY AND SWINGARM 3-7
TRANSFER GEAR ASSEMBLY AND FRONT DRIVE SHAFT 3-8
ENGINE REMOVAL 3-10

DISASSEMBLY 3-11
RECOIL STARTER 3-11
CYLINDER HEAD AND CYLINDER 3-11
PISTON 3-14
CRANKCASE COVER (LEFT) 3-14
CDI ROTOR 3-15
CAM CHAIN AND OIL PIPE 3-15
CRANKCASE COVER (RIGHT) 3-16
CLUTCH 3-16
BALANCER DRIVE AND DRIVEN GEARS 3-18
OIL PUMP AND SHIFTER 3-18
CRANKCASE 3-19
TRANSMISSION AND CRANKSHAFT 3-20

INSPECTION AND REPAIR 3-22
ROCKER ARMS AND ROCKER ARM SHAFTS 3-22
CAMSHAFT 3-24
CAM CHAIN 3-25
CAM SPROCKET AND CAM DRIVE SPROCKET 3-25
CHAIN DAMPERS 3-25
CAM CHAIN TENSIONER 3-26
TAPPET COVER AND SIDE COVER 3-26
CYLINDER HEAD 3-26
VALVE, VALVE GUIDE AND VALVE SEAT 3-27
CYLINDER AND PISTON 3-34
PISTON RING AND PISTON PIN 3-35
PRIMARY GEARS AND STARTER 3-37
PRIMARY CLUTCH 3-38
SECONDARY CLUTCH 3-38

OIL PUMP 3-40
CRANKSHAFT 3-41
TRANSMISSION 3-42
DECOMPRESSION CAM 3-43
STARTER PULLEY AND RECOIL STARTER 3-43
BALANCER DRIVE GEAR 3-44
CRANKCASE 3-44
BEARINGS 3-45
CIRCLIPS AND WASHERS 3-45

ENGINE ASSEMBLY AND ADJUSTMENT 3-46
CRANKSHAFT AND TRANSMISSION 3-46
CRANKCASE 3-48
OIL PUMP AND SHIFTER 3-52
BALANCER DRIVE AND DRIVEN GEARS 3-53
CLUTCH 3-54
CRANKCASE COVER (RIGHT) 3-58
OIL PIPE AND CAM CHAIN 3-58
CDI ROTOR 3-59
CRANKCASE COVER (LEFT) 3-59
PISTON 3-60
CYLINDER AND CYLINDER HEAD 3-60
RECOIL STARTER 3-67
REMOUNTING ENGINE 3-68

ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

- It is NOT NECESSARY to remove the engine in order to remove the cylinder and/or the flywheel magneto assembly.
- It is NECESSARY to remove the rear drive assembly, transfer gear assembly and front drive shaft in order to remove the engine assembly.

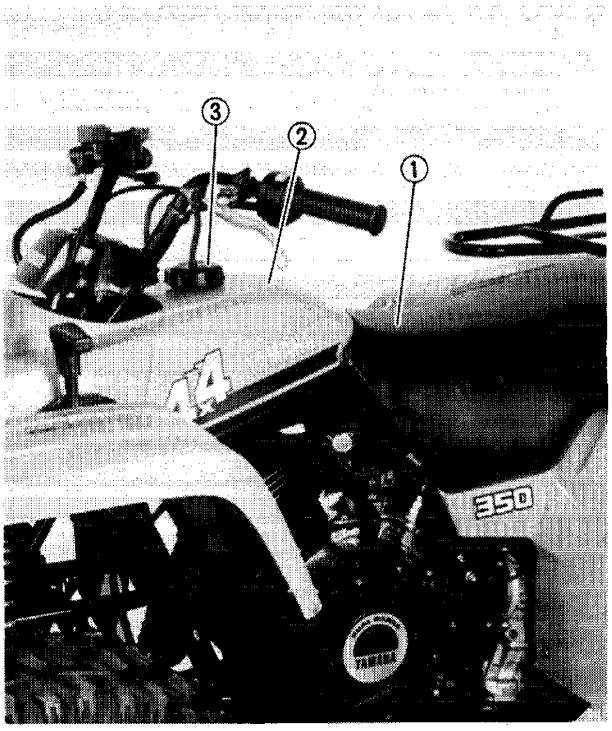
PREPARATION FOR REMOVAL

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

NOTE:

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

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



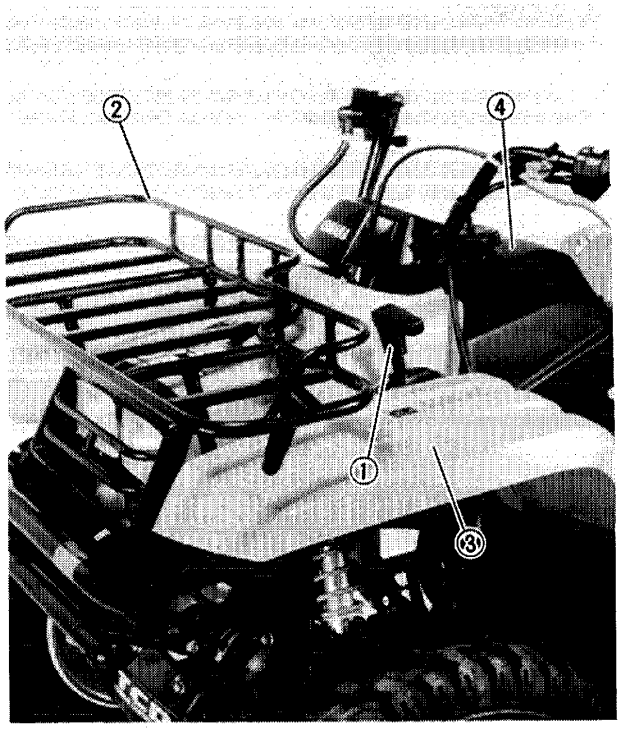
FRONT CARRIER AND FRONT FENDER

1. Remove:
   - Seat ①
   - Fuel tank cover ②
   - Fuel tank cap ③

   Refer to "CHAPTER 2. VALVE CLEARANCE ADJUSTMENT" section.

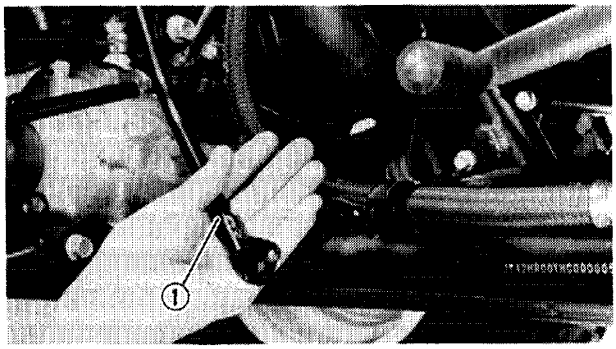
NOTE:

After removing the tank cover, install the tank cap on the fuel tank.

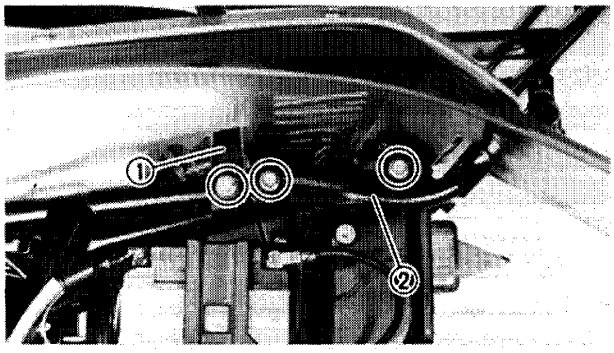


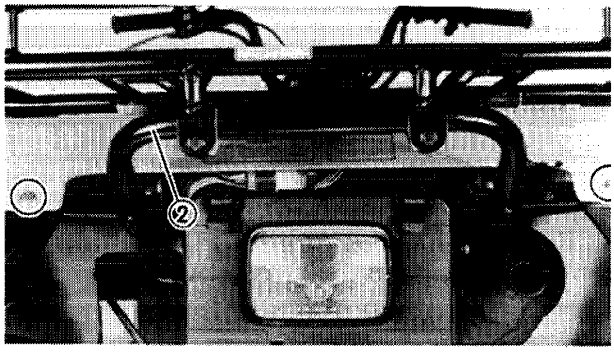
2. Remove:
   - Select lever ①
   - Front carrier (If so equipped) ②
   - Front fender ③
   - Fuel tank ④

   Refer to "CHAPTER 6. CHASSIS – STEERING SYSTEM" section.



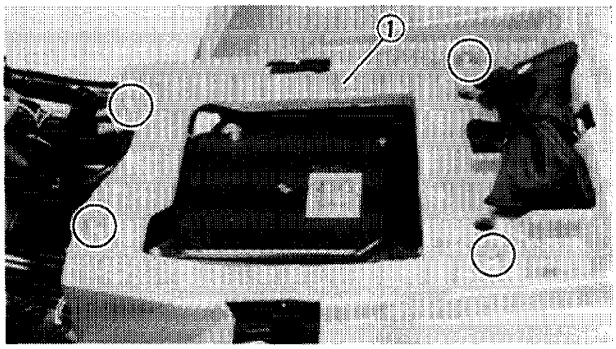
3. Remove:
   - Stays (Front fender) ①



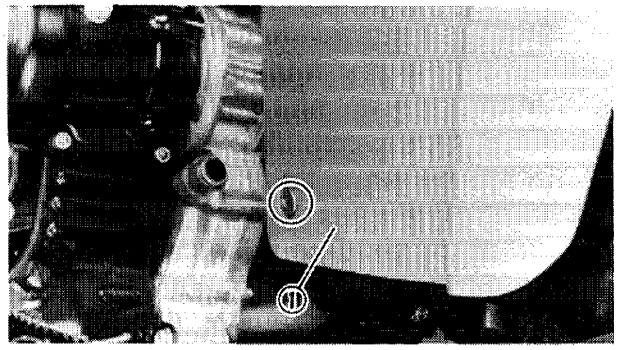


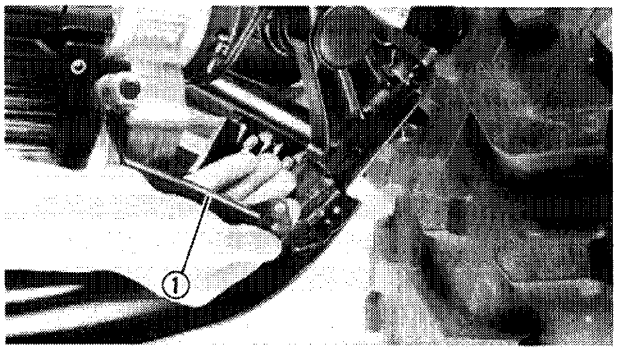
REAR CARRIER AND REAR FENDER

1. Remove:
   - Rear carrier ①
   - Rear bumper ②

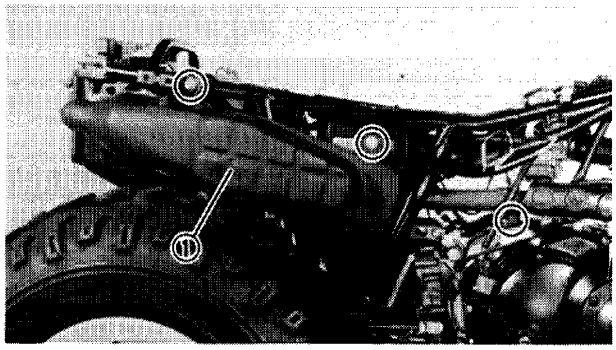


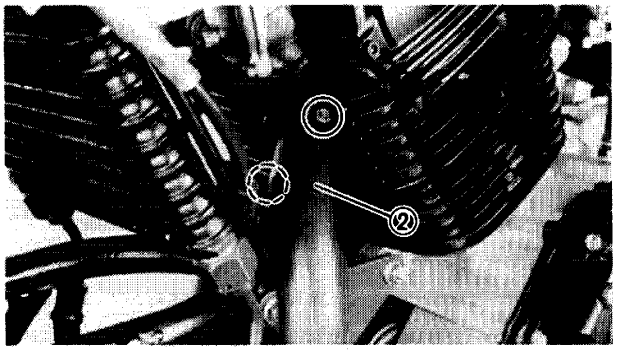
2. Remove:
   - Rear fender ①

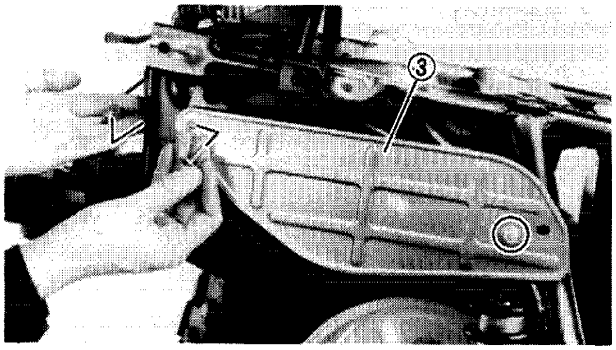


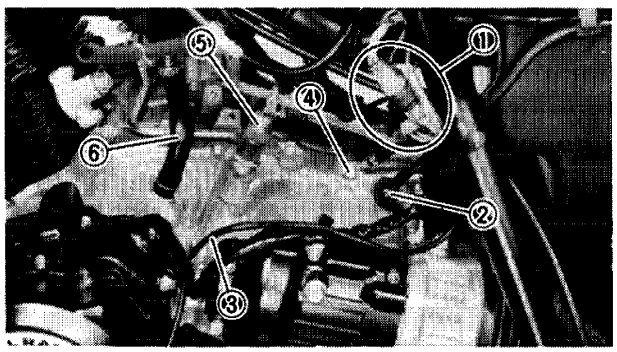


3. Remove:
   - Stays (Rear fender) ①









EXHAUST PIPE AND MUFFLER

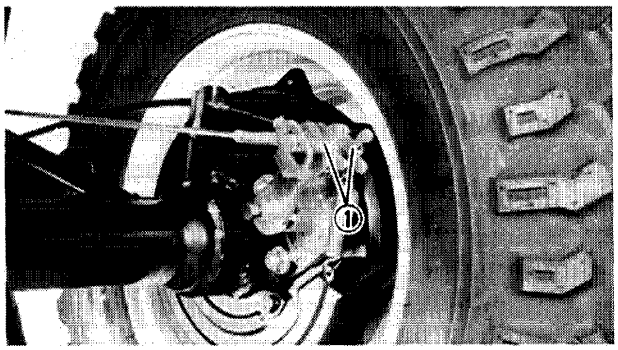
1. Remove:
   - Muffler ①
   - Exhaust pipe ②
   - Muffler protector ③

WIRING AND HOSE

1. Disconnect:
   - Spark plug lead
   - CDI magneto leads ①
   - "REVERSE" switch lead ②
   - "NEUTRAL" switch lead ③
   - Ground lead ④
   - Thermo switch with switch lead ⑤
   - Ventilation hose ⑥

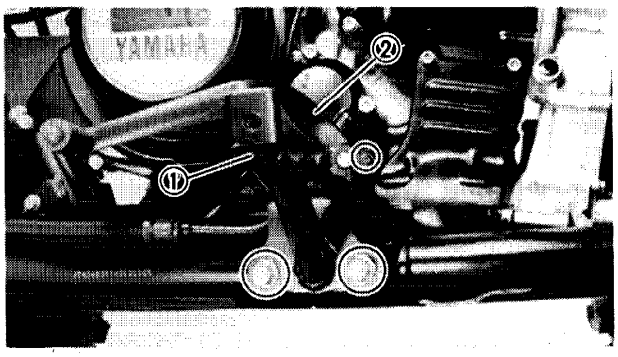
WARNING:

Handle the thermo switch with special care. Never subject it to strong shock or allow it to be dropped. Should it be dropped, it must be replaced.

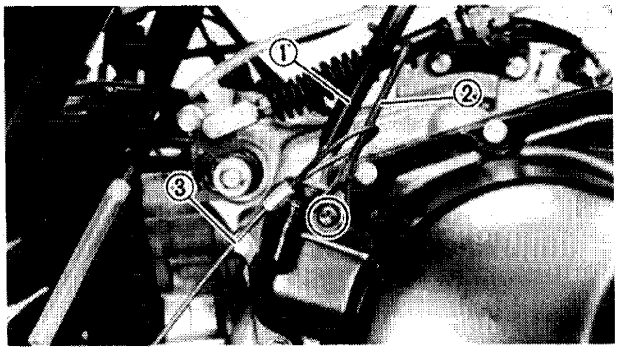


REAR BRAKE AND SELECT LEVER CABLES

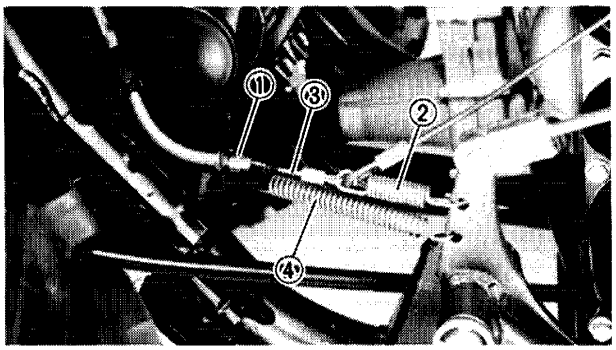
1. Remove:
   - Adjusters (Brake lever and brake pedal) ①



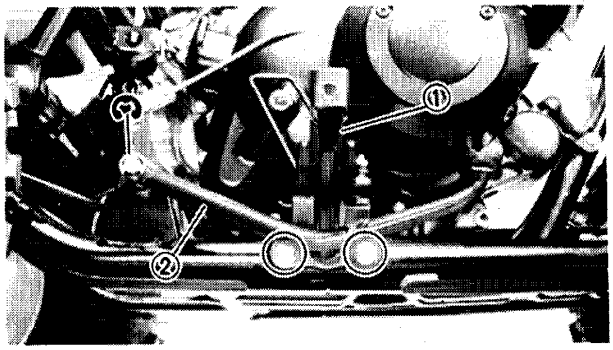
2. Remove:
   - Footrest (Left) ①
   - Change pedal ②



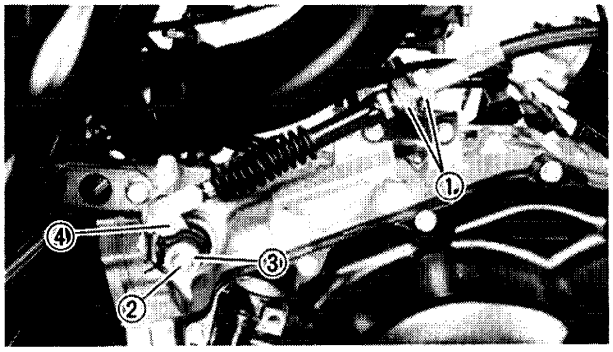
3. Remove:
   - Speedometer cable ①
   - Wire guide ②
   - Reverse lock release wire ③



4. Loosen:
   - Locknut ①
5. Remove:
   - Spring (Upper) ②
   - Select lever control cable 2 ③
   - Spring (Lower) ④

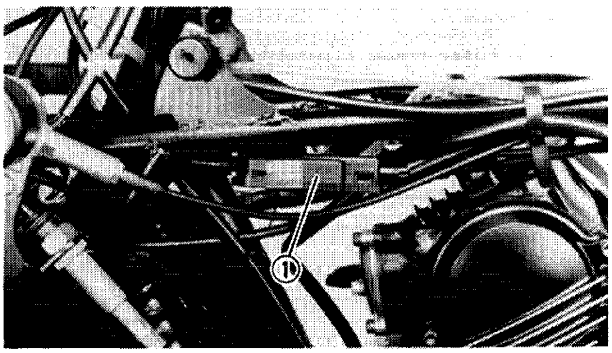


6. Remove:
   - Footrest (Right) ①
   - Brake pedal assembly ②



7. Loosen:
   - Locknuts ①
8. Remove:
   - Bolt ②
   - Washer ③
   - Select lever control cable 1 assembly ④

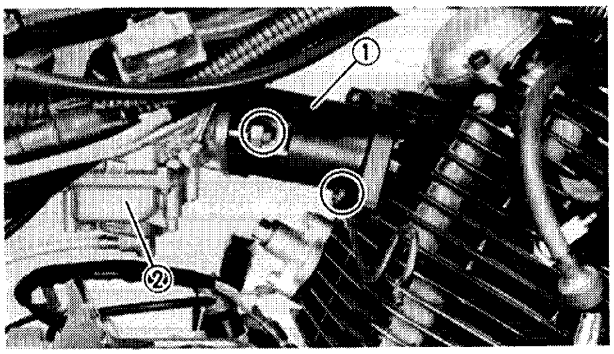
NOTE:
When removing the control cable 1, the spring, collar and lever will fall off. Take care not to lose these parts.



CARBURETOR

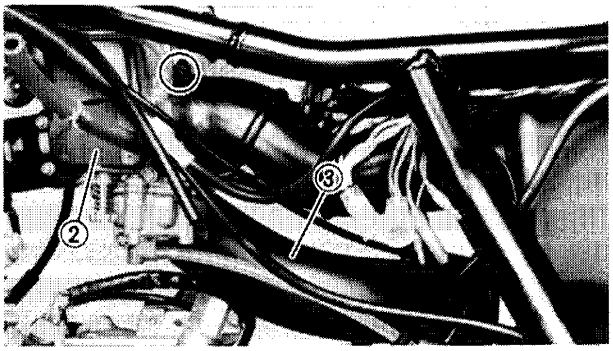
1. Remove:
   - Wire cylinder ①

   Refer to "CHAPTER 4. CARBURETION – WIRE CYLINDER" section.

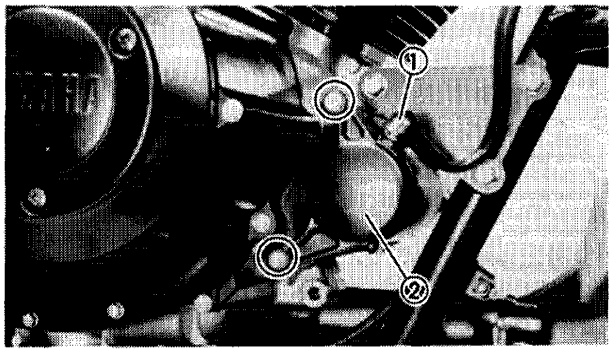


2. Remove:
   - Carburetor joint ①
   - Carburetor ②
   - Air cleaner manifold ③

NOTE:
- Noting the presence, location, and routing or all pipes, remove the carburetor.
- Cover the carburetor with a clean rag to prevent dirt or foreign matter into the carburetor.

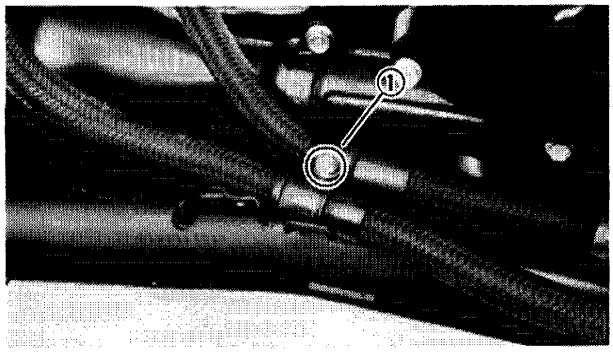


3. Disconnect:
   - Breather hoses



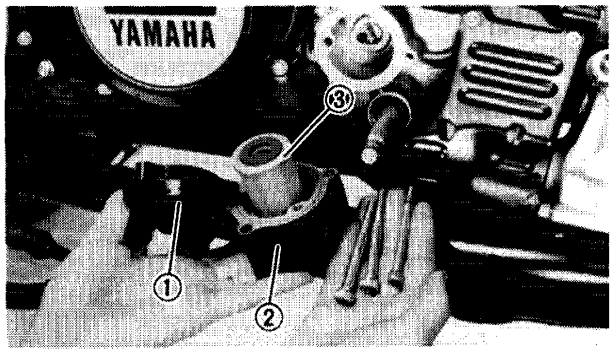
STARTER MOTOR

1. Disconnect:
   - Starter motor lead ①
2. Remove:
   - Starter motor ②

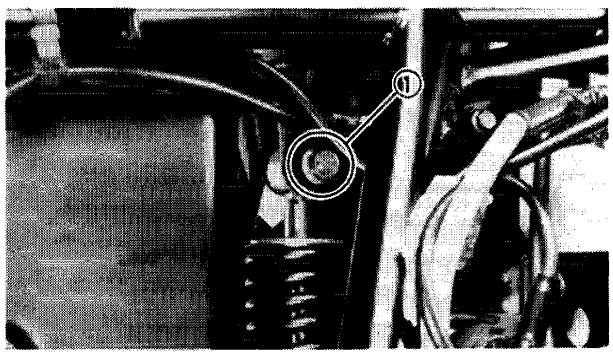


OIL FILTER

1. Remove:
   - Clamp (Oil hoses) ①

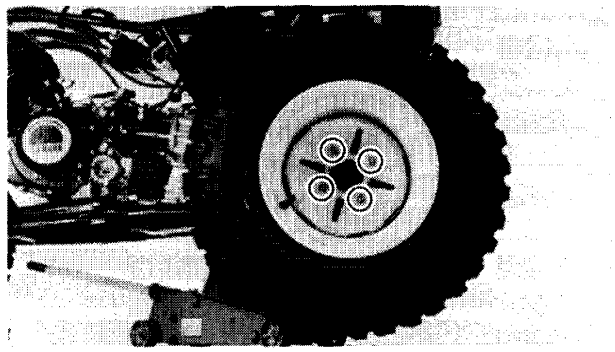


2. Remove:
   - Oil filter cover (Outside) ①
   - Oil filter cover (Inside) ②
   - Oil filter element ③

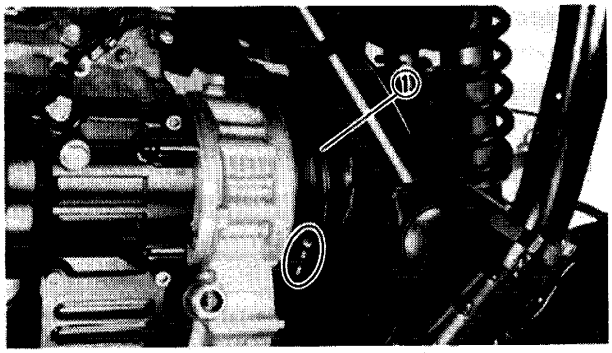


REAR DRIVE ASSEMBLY AND SWINGARM

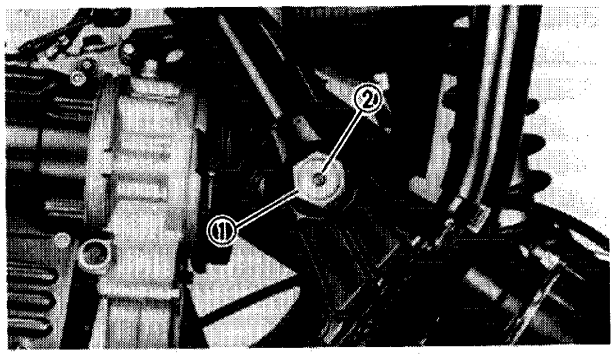
1. Remove:
   - Bolt (Rear shock absorber-Top) ①
2. Disconnect:
   - Breather hose (Rear final gear housing)
3. Block the front wheels, and elevate the rear wheels by placing the suitable stand under the frame.



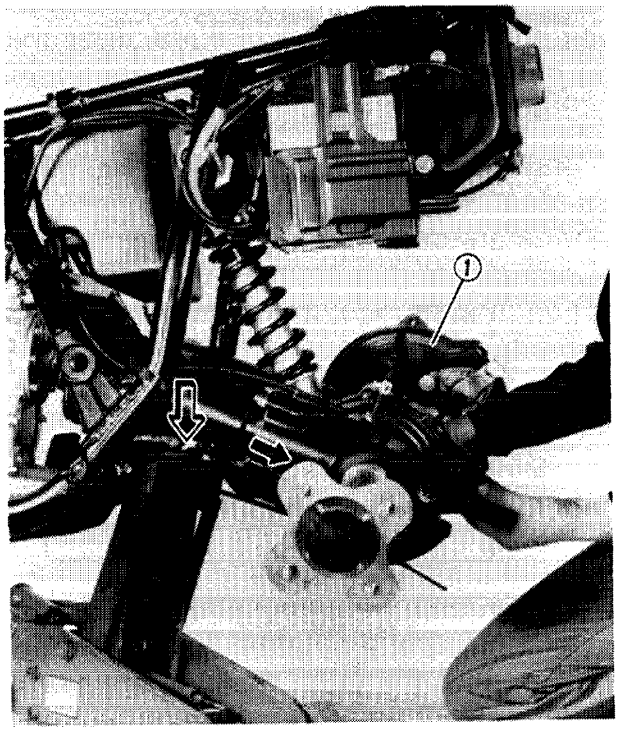
4. Remove:
   - Rear wheels



5. Remove:
   - Rubber boot ①



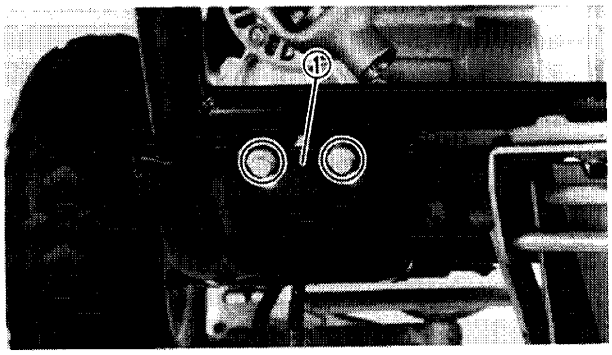
6. Remove:
   - Pivot shaft caps
   - Locknuts (Swingarm) ①
   - Pivot shafts (Swingarm) ②



7. Remove:
   - Rear drive assembly and swingarm ①

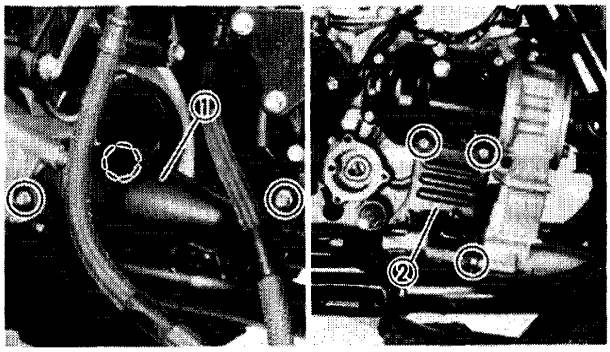
NOTE:

When removing the swingarm;
1) Tilt it to the left side.
2) The drive shaft, coupling gear and spring will fall off. Take care not to lose these parts.



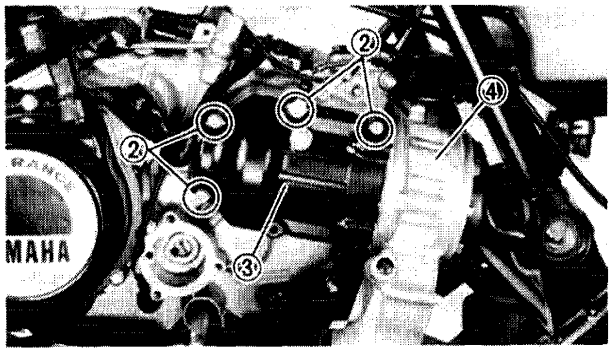
TRANSFER GEAR ASSEMBLY AND FRONT DRIVE SHAFT

1. Remove:
   - Engine guard (Rear) ①



2. Remove:
   - Bolts (Front drive shaft protector)
   - Front half (Front drive shaft protector) ①

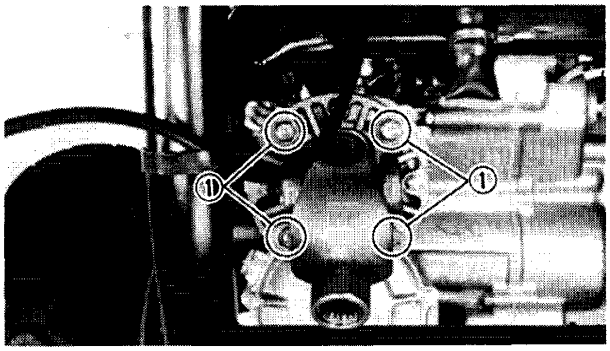
NOTE:
Do not remove the rear half protector ② completely at this point.

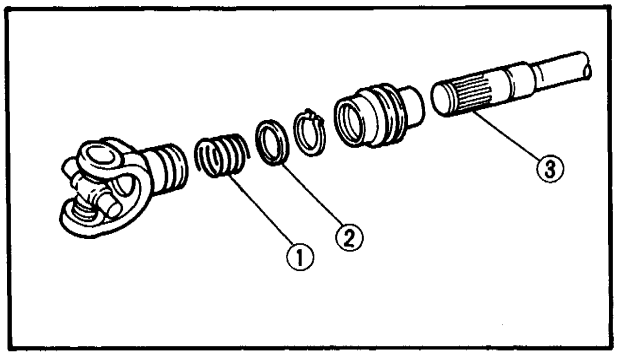


3. Remove:
   - Bolts (Transfer gear assembly) ①
   - Bolts (Middle gear case) ②
   - Middle gear case ③
   - Transfer gear assembly ④

   Slide the rubber boot (Rear) on the drive shaft, the move the transfer gear assembly to backward and pull it to outside.

NOTE:
When removing the middle gear case and transfer gear assembly, the dowel pins and shims will fall off. Take care not to lose these parts.



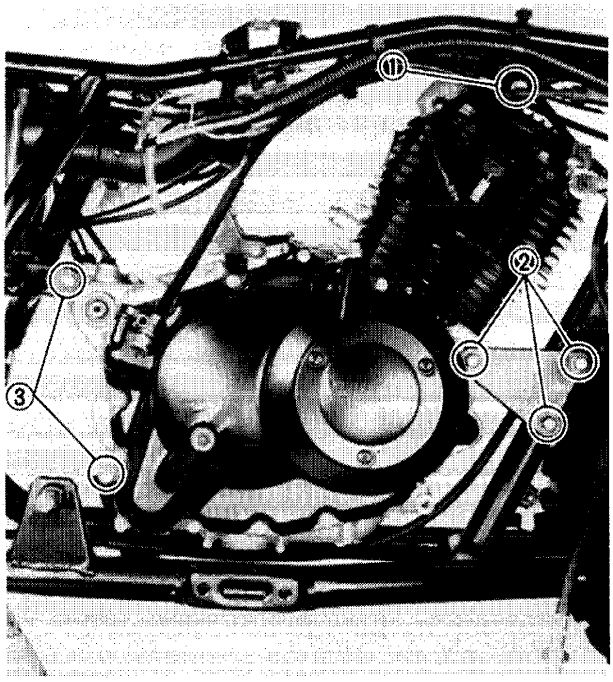


4. Disconnect:
   - Front drive shaft ③

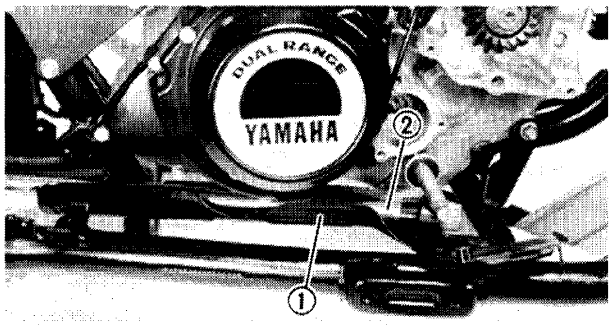
   Slide the rubber boot (Front) on the drive shaft and pull out the drive shaft to backward.

NOTE:
When disconnecting the drive shaft, the spring ① and spring seat ② will fall off. Take care not to lose these parts.

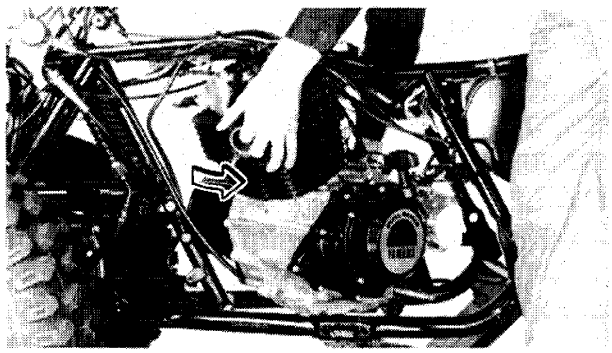
ENGINE REMOVAL



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

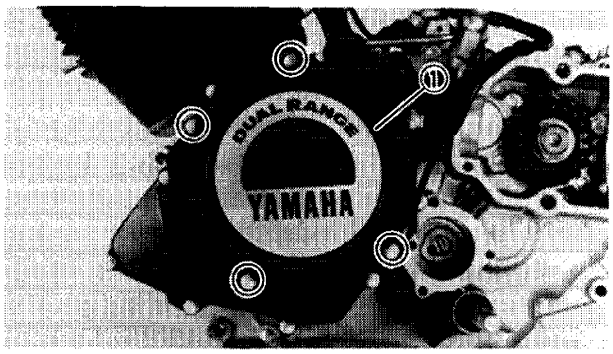


2. Remove:
   - Front drive shaft protector ①
   - Front drive shaft ②



3. Remove:
   - Engine

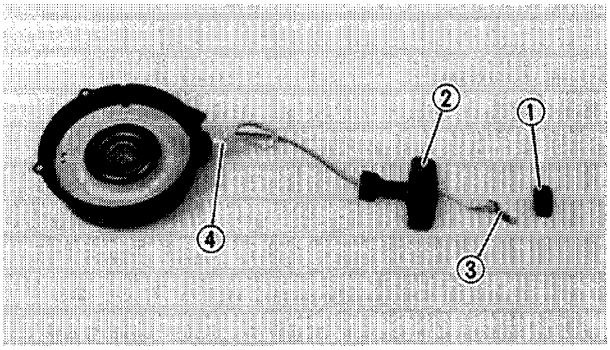
   To the left.



DISASSEMBLY

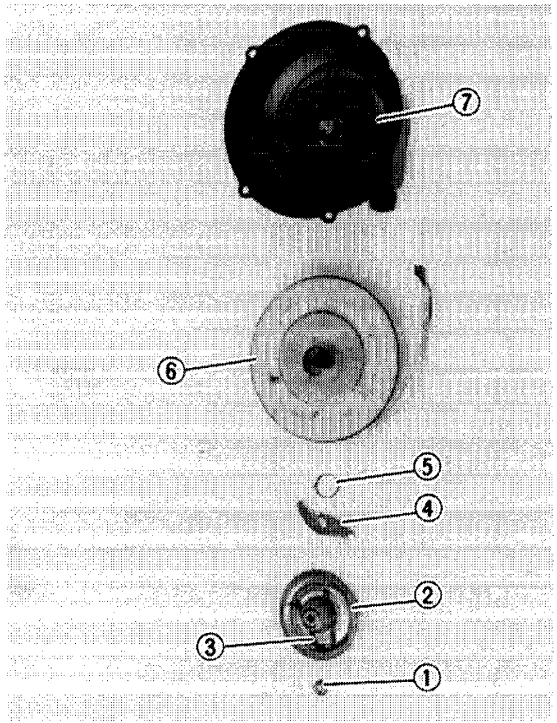
RECOIL STARTER

1. Remove:
   - Recoil starter assembly ①
   - Gasket

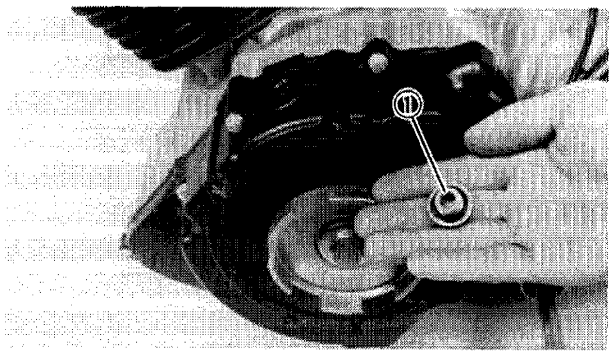


2. Remove:
   - Cap ①
   - Starter handle ②

NOTE:
Before untying knot ③, pull out the rope long enough to make knot ④ on the rope so that the rope is not pulled into the case.

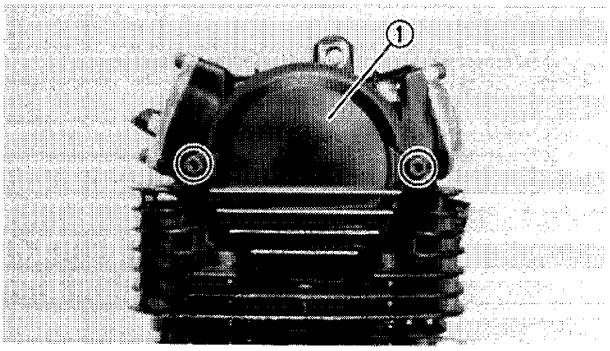


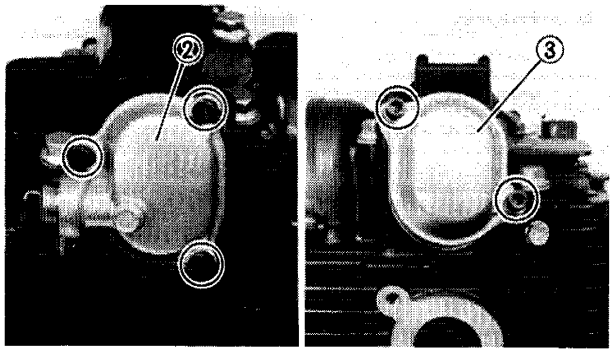
3. Remove:
   - Nut ①
   - Plate ②
   - Spring ③
   - Drive pawl ④
   - Pawl spring ⑤
   - Sheave drum ⑥
   - Coil spring ⑦



CYLINDER HEAD AND CYLINDER

1. Remove:
   - Spark plug
   - Timing plug ①



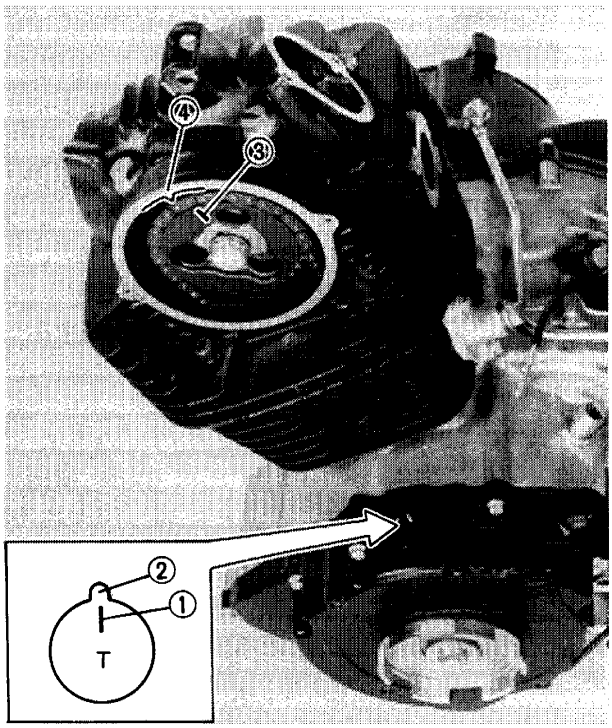


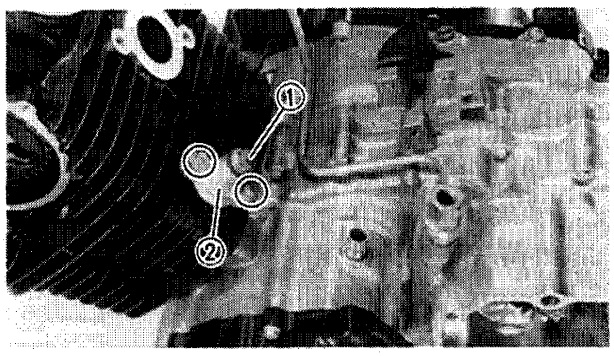
2. Remove:
   - Side cover (Cylinder head) ①
   - O-ring (Side cover)
   - Tappet cover (Exhaust) ②
   - O-ring (Exhaust cover)
   - Tappet cover (Intake) ③
   - O-ring (Intake cover)

3. Align:
   - "T" mark on the flywheel
     With the stationary pointer on the crankcase cover.

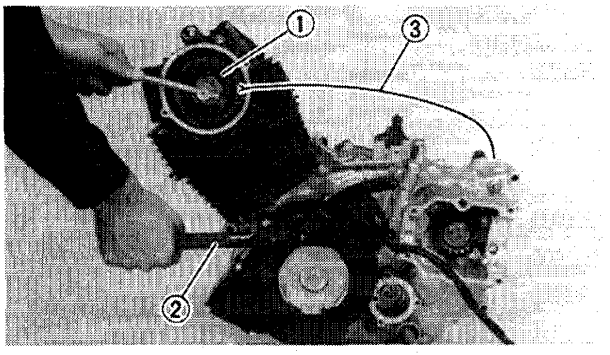
TDC alignment steps:
- Turn the starter pulley counterclockwise with wrench.
- Align the "T" mark ① on the flywheel with the stationary pointer ② on the crankcase cover. When the "T" mark is aligned with the stationary pointer, the piston is at Top Dead Center (TDC).

NOTE:
TDC on compression stroke check:
- Both rocker arms must have a valve clearance when the cam sprocket match mark ③ is aligned with the cylinder head match mark ④.
- If not, give the crankshaft one counterclockwise turn too meet above condition.





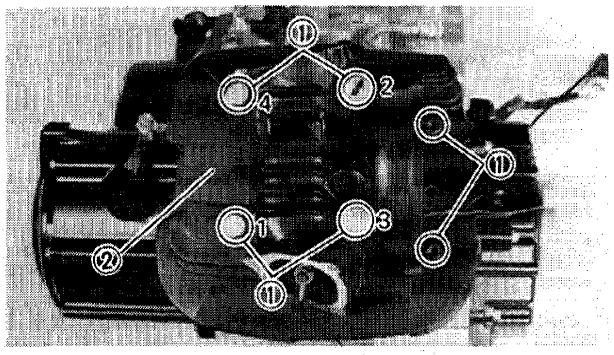
4. Loosen:
   - End plug (Cam chain tensioner) ①
5. Remove:
   - Cam chain tensioner body ②
   - Gasket



6. Remove:
   - Cam sprocket ①

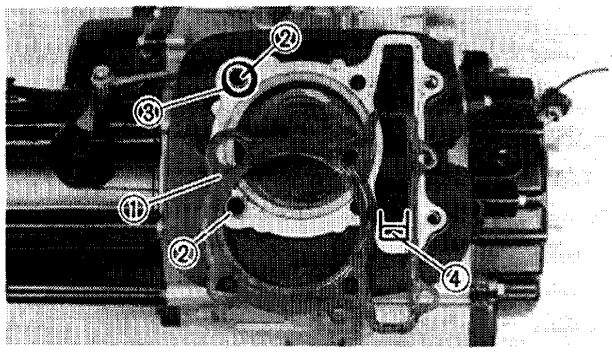
   Use the Rotor Holder ② (YU-01235) to hold the starter pulley.

NOTE:
- Fasten safety wire ③ to the cam chain to prevent it from failling into the crankcase.
- When removing the cam sprocket, it is not necessary to separate the cam chain.

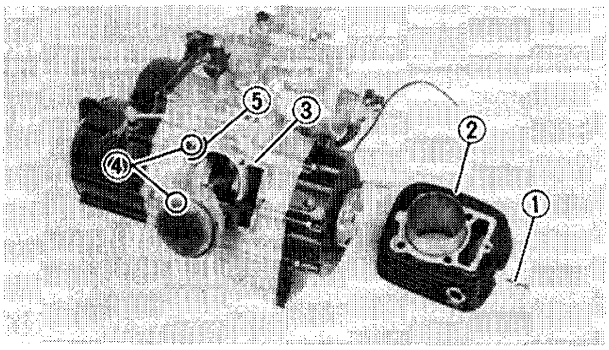


7. Remove:
   - Bolts (Cylinder head) ①
   - Cylinder head ②

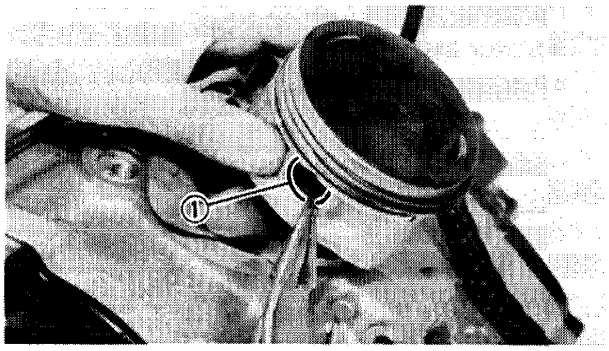
NOTE:
Loosen the bolts starting with the highest numbered one.



8. Remove:
   - Gasket (Cylinder head) ①
   - Dowel pins ②
   - O-ring ③
   - Cam chain damper (Exhaust) ④



9. Remove:
   - Bolt (Cylinder) ①
   - Cylinder ②
   - Gasket (Cylinder) ③
   - Dowl pins ④
   - O-ring ⑤

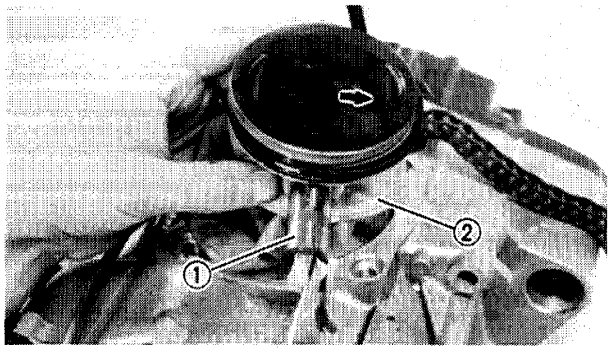


PISTON

1. Remove:
   - Piston pin clip ①

NOTE:

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



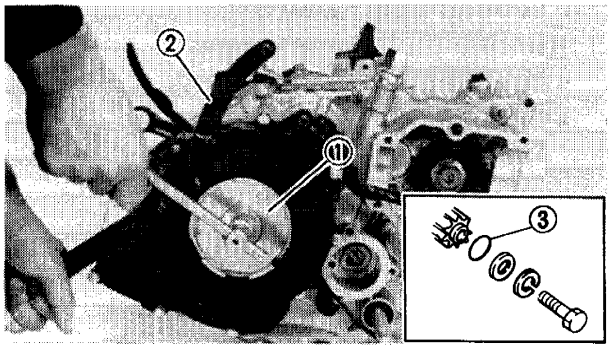
2. Remove:
   - Piston pin ①
   - Piston ②

NOTE:

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

CAUTION:

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



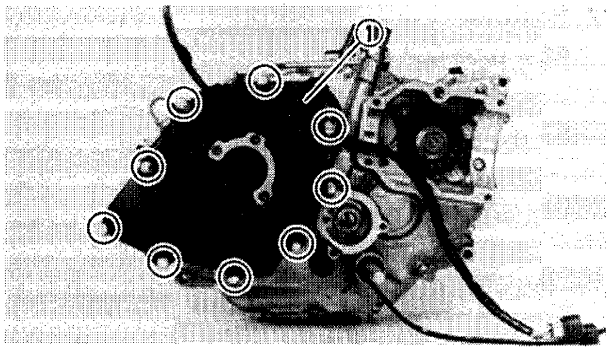
CRANKCASE COVER (LEFT)

1. Remove:
   - Starter pulley ①

   Use the Rotor Holder ② (YU-01235) to hold the starter pulley.

NOTE:

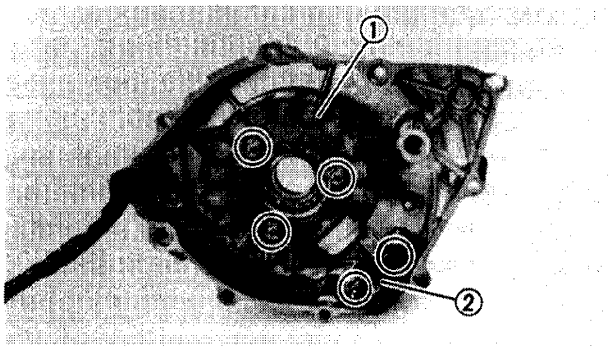
When removing the starter pulley, the O-ring ③ will fall off. Take care not to lose it.



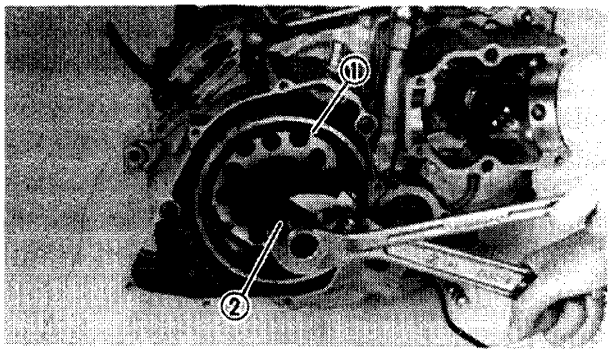
2. Remove:
   - Crankcase cover (Left) ①
   - Gasket
   - Dowel pins

NOTE:

When removing the crankcase cover, the plain washer will fall off. Take care not to lose it.

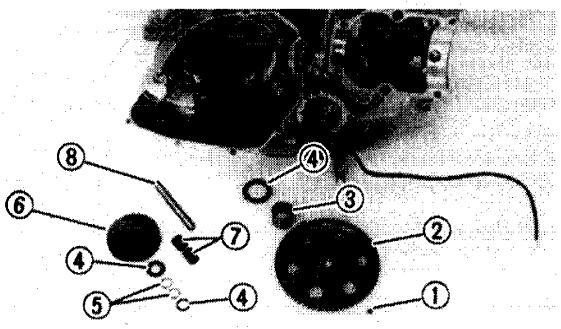


3. Remove:
   - Stator assembly ①
   - Pickup coil assembly ②

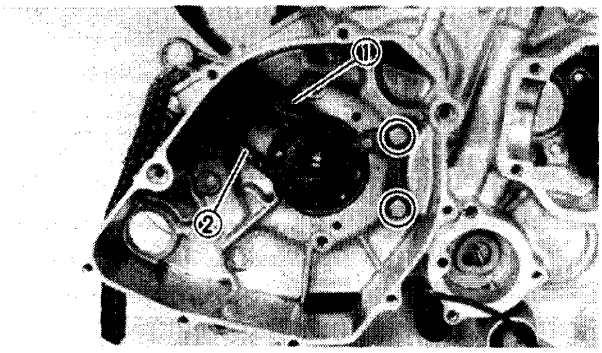


CDI ROTOR

1. Remove:
   - CDI rotor ①
     Use the Flywheel Puller ② (YM-01404).

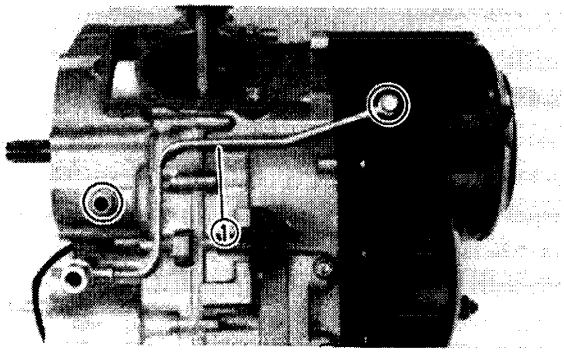


2. Remove:
   - Woodruff key ①
   - Starter idle gear #2 ②
   - Bearing ③
   - Plain washers ④
   - Circlips ⑤
   - Starter idle gear #1 ⑥
   - Bearings ⑦
   - Shaft ⑧

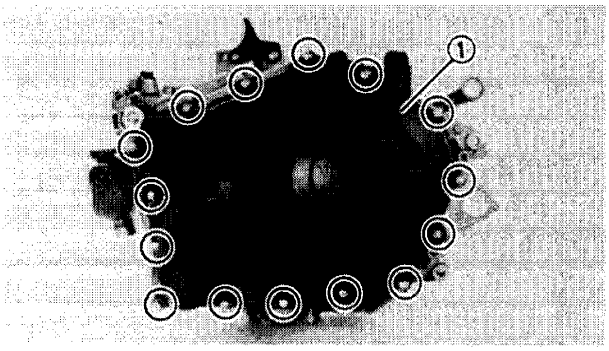


CAM CHAIN AND OIL PIPE

1. Remove:
   - Cam chain damper (Intake) ①
   - Cam chain ②



2. Remove:
   - Oil pipe ①

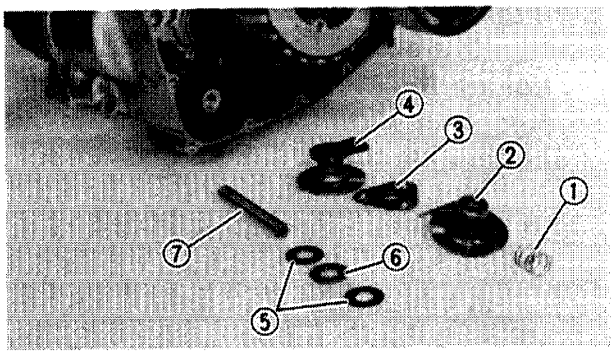


CRANKCASE COVER (RIGHT)

1. Remove:
   - Crankcase cover (Right) ①
   - Dowel pins
   - Gasket

NOTE:

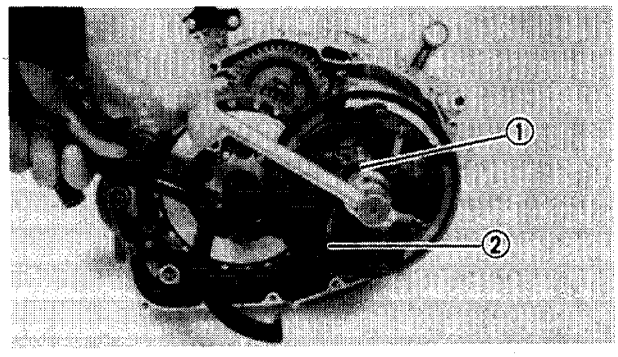
- Working in a crisscross pattern, loosen bolt 1/4 turn each. Remove them after all are loosened.
- Before removing the crankcase cover, remove the dip stick.



CLUTCH

Shift Guide

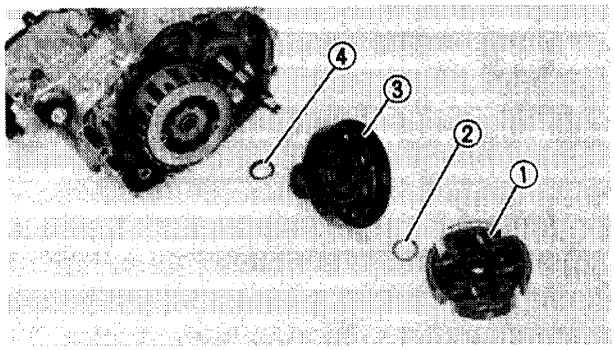
1. Remove:
   - Clutch lever spring ①
   - Shift guide #1 ②
   - Pawl holder ③
   - Shift guide #2 ④
   - Plain washers ⑤
   - Bearing ⑥
   - Shift shaft ⑦



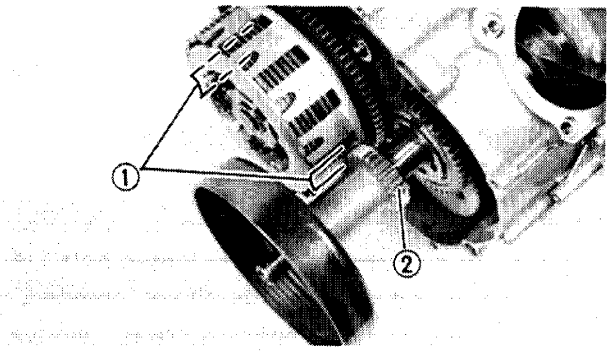
Primary Clutch and Secondary Clutch

1. Straighten:
   - Lock washer tabs
2. Remove:
   - Nuts (Primary clutch) ①

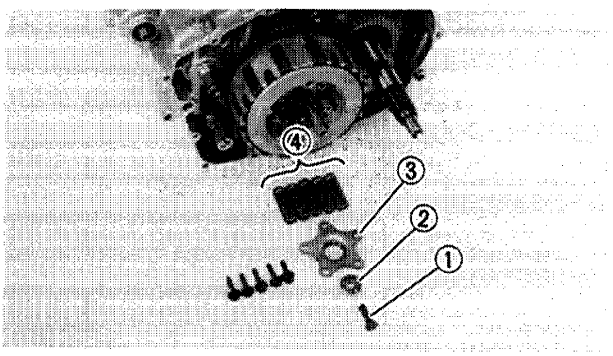
   Use the Rotor Holder ② (YU-01235) to hold the clutch shoe assembly.



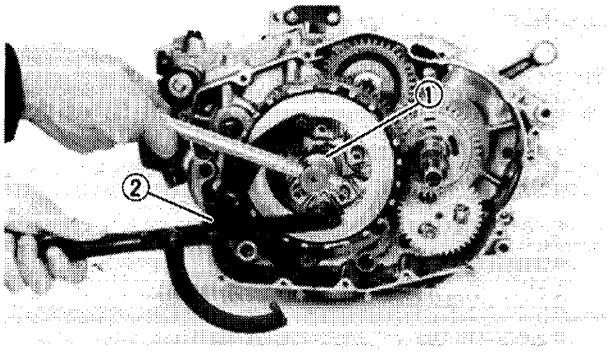
3. Remove:
   - Lock washer
   - Clutch carrier assembly ①
   - Plain washer ②
   - Clutch housing comp. ③
   - Plain washer ④



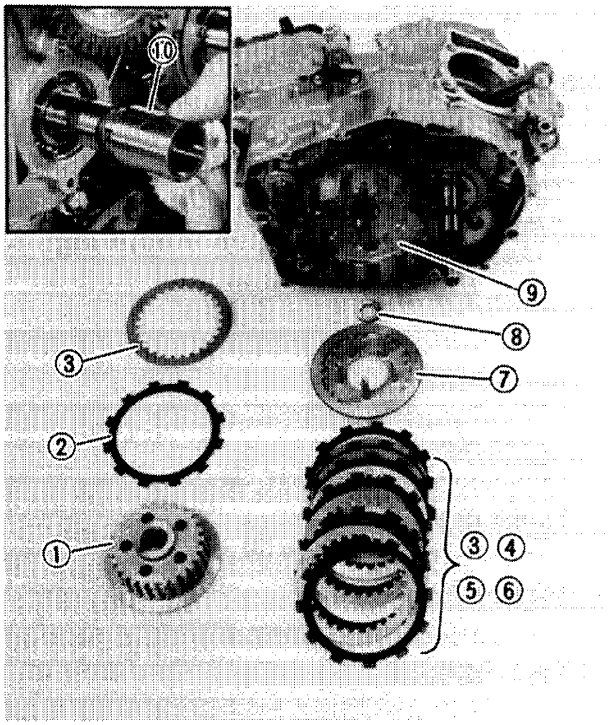
NOTE:
The secondary clutch housing has two notches ① machines into it to permit the primary drive gear behind the primary clutch to clear the secondary clutch. Align one of these notches with the primary gear ② before removing the primary clutch assembly.



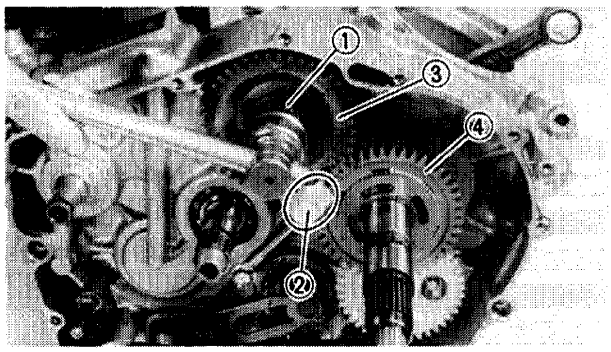
4. Remove:
   - Push rod ①
   - Bearing ②
   - Clutch spring plate ③
   - Clutch springs ④
5. Straighten:
   - Lock washer tabs (Clutch boss)



6. Remove:
   - Nut (Clutch boss) ①
     Use the Rotor Holder ② (YU-01235) to hold the clutch boss.
   - Lock washer



7. Remove:
   - Clutch boss ①
   - Friction plate (Cut – 1pc.) ②
   - Clutch plates
     (Thickness: 1.6 mm – 4 pcs.) ③
   - Friction plates (Red – 6 pcs.) ④
   - Clutch plates
     (Thickness: 2.0 mm – 2 pcs.) ⑤
   - Cushion springs ⑥
   - Pressure plate ⑦
   - Thrust washer ⑧
   - Clutch housing ⑨
   - Collar ⑩



BALANCER DRIVE AND DRIVEN GEARS

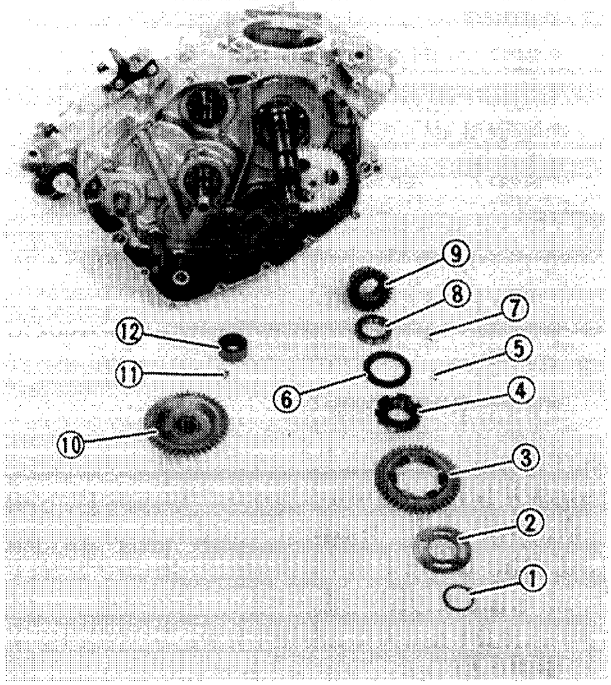
1. Straighten:
   - Lock washer tabs (Driven gear)
2. Loosen:
   - Nut (Driven gear) ①

NOTE:

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

- Lock washer

3. Remove:
   - Circlip ①
   - Holding plate ②
   - Balancer drive gear ③
   - Buffer boss ④



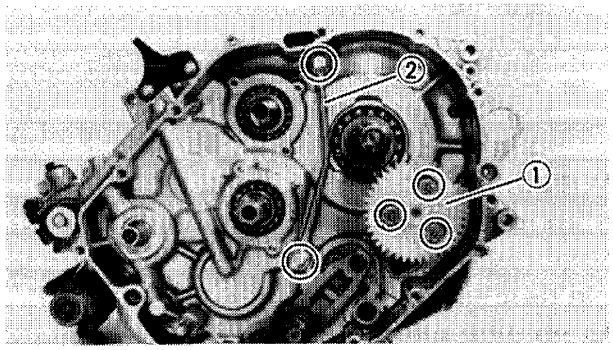
NOTE:

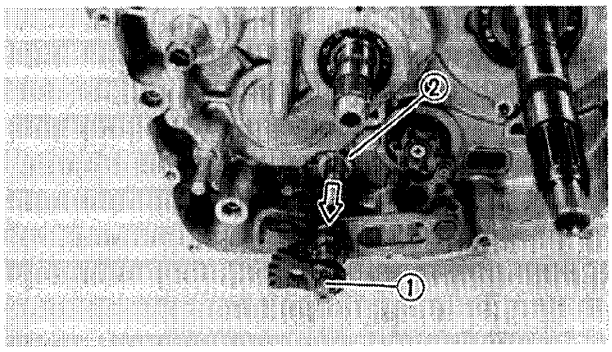
- The balancer drive gear has six springs and three pins. Use care so that they do not fall out when removing the balancer drive gear.
- Using the suitable bearing puller when removing the buffer boss.

- Key (Woodruff – Outside) ⑤
- Plain washer ⑥
- Key (Woodruff – Inside) ⑦
- Collar ⑧
- Oil pump drive gear ⑨
- Balancer driven gear ⑩
- Key (Straight) ⑪
- Collar ⑫

OIL PUMP AND SHIFTER

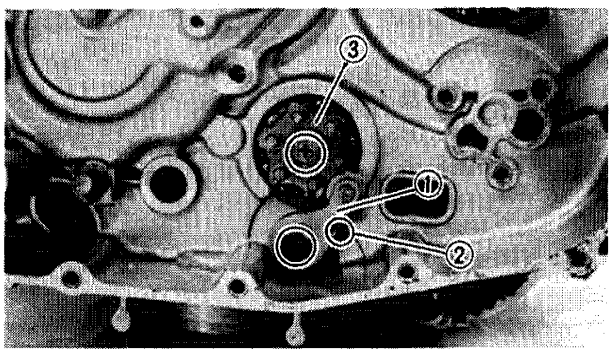
1. Remove:
   - Oil pump assembly ①
   - Gasket (Oil pump)
   - Oil pipe ②





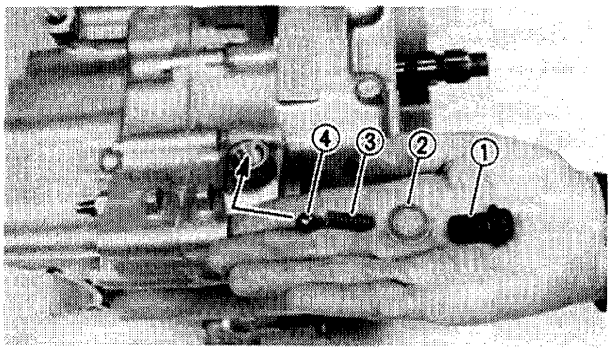
2. Remove:
   - Shift shaft ①

     Pull the shift shaft out from to right.
   - Plain washer ②



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

   Use the #25 Torx Driver (YU-29843-4).

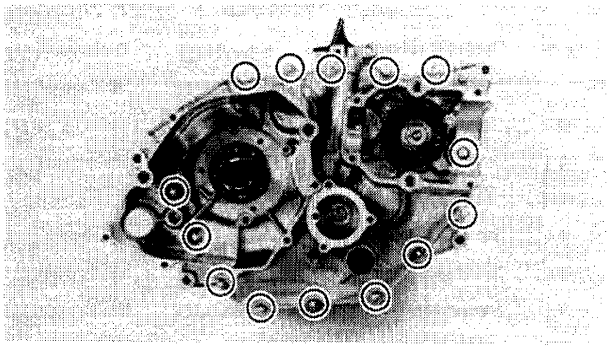


CRANKCASE

1. Remove:
   - Bolt (Shift cam 2) ①
   - Plain washer ②
   - Spring ③
   - Ball ④

NOTE:
When removing the bolt, the spring will fall out. Take care not to lose it.

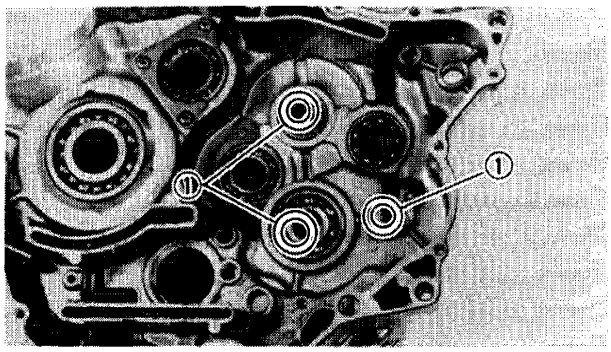
2. Remove:
   - Bolts (Crankcase)



NOTE:
Working in a crisscross pattern, loosen all bolt 1/4 turn each. Remove them after all are loosened.

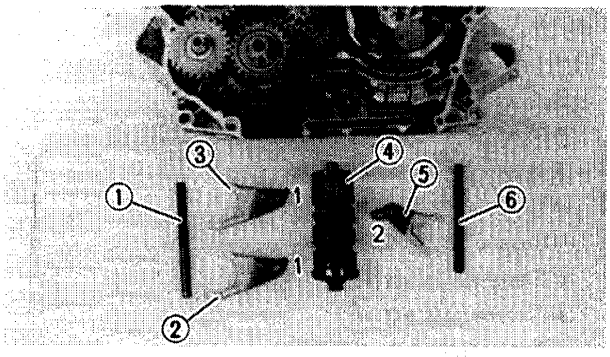
3. Remove:
   - Crankcase (Right)
   - Dowel pins

   Alternately tap on the engine mounting boss, transmission shafts, shift cam, and crankshaft.



NOTE:
When removing the crankcase (Right), the three plain washer ① will fall off. Take care not to lose these parts.

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.

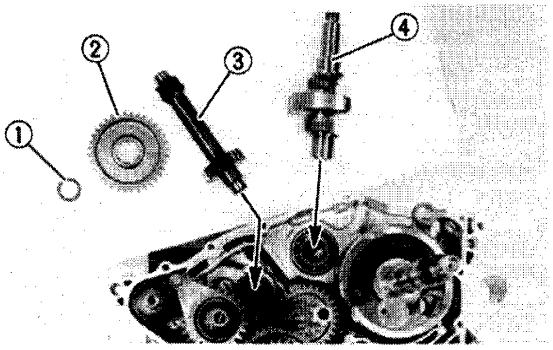


TRANSMISSION AND CRANKSHAFT

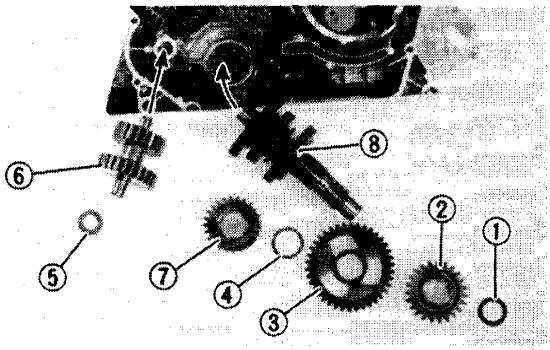
NOTE:
When removing the transmission gears, mark the gear tooth number to avoid confusion.

1. Remove:
   - Guide bar #2 (Longer) ①
   - Shift fork #1 (Outside) ②
   - Shift fork #1 (Inside) ③
   - Shift cam #1 ④
   - Shift fork #2 ⑤
   - Guide bar #1 (Shorter) ⑥

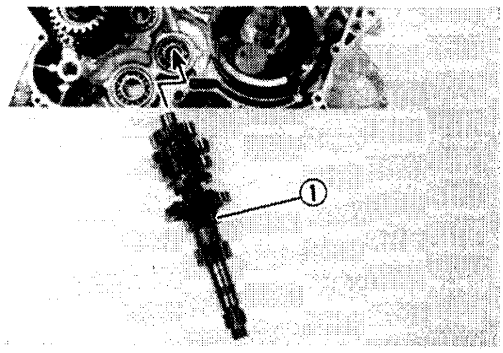
NOTE:
Note the position of each part. Pay particular attention to the location and direction of shift forks.



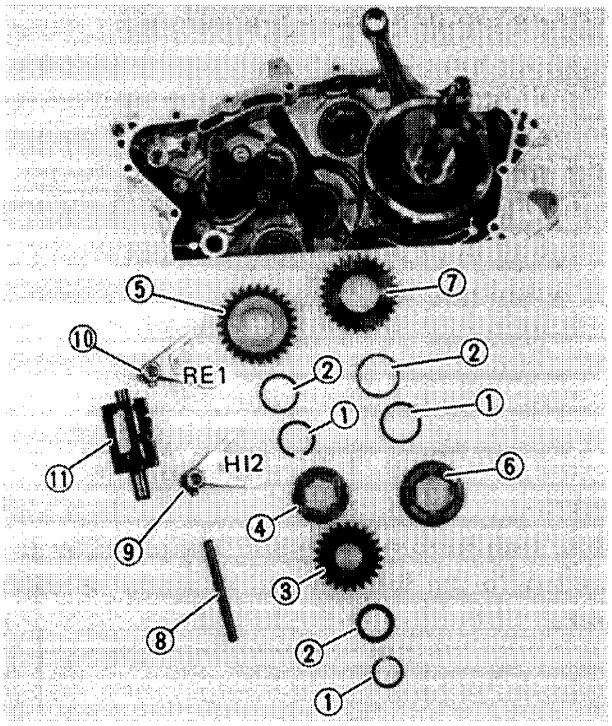
2. Remove:
   - Plain washer (Reverse axle) ①
   - Reverse wheel gear #1 (36T) ②
   - Reverse axle ③
   - Balancer weight ④



3. Remove:
   - Plain washer (Drive axle) ①
   - High pinion gear (23T) ②
   - 1st wheel gear (38T) ③
   - Plain washer (Drive axle) ④
   - Plain washer (Idle axle) ⑤
   - High wheel gear ⑥
   - 5th wheel gear (24T) ⑦
   - Drive axle gear assembly ⑧

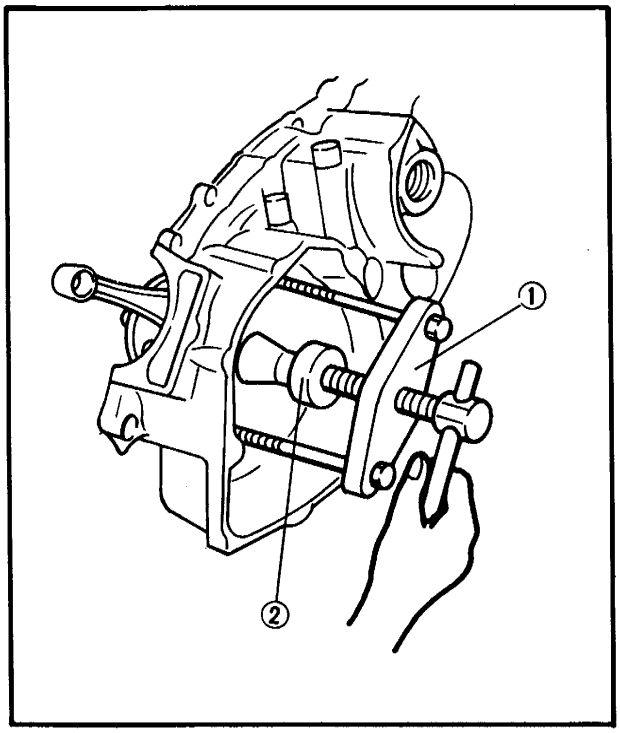


4. Remove:
   - Main axle assembly ①



5. Remove:
   - Circlip ①
   - Plain washer ②
   - Middle driven gear ③
   - Holder (Middle driven gear) ④
   - Middle drive gear ⑤
   - Dog clutch ⑥
   - Reverse wheel gear #2 ⑦
   - Guide bar #2 ⑧
   - Shift fork #2 ⑨
   - Shift fork #1 ⑩
   - Shift cam #2 ⑪

NOTE:
Note the position of each part. Pay particular attention to the location and direction of shift forks.



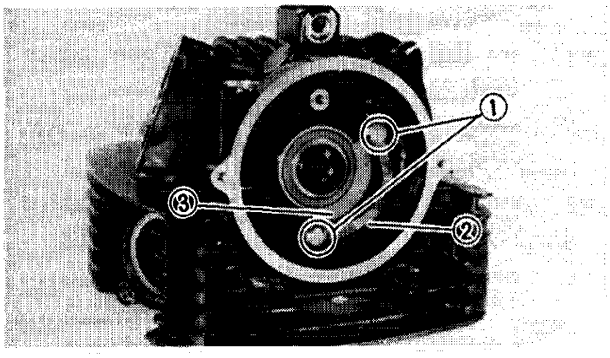
6. Remove:
   - Crankshaft

     Use the Crankcase Separating Tool (YU-01135) ① and Flywheel Puller Attachment (YU-01382) ② .

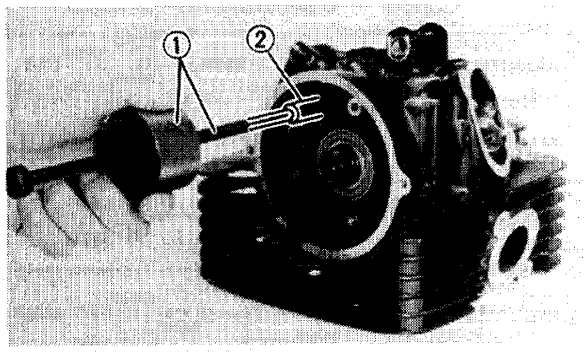
INSPECTION AND REPAIR

ROCKER ARMS AND ROCKER ARM SHAFTS

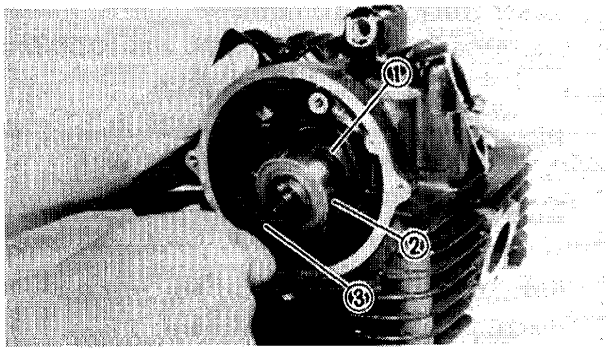
1. Remove:
   - Tappet covers (Intake and exhaust)
2. Loosen:
   - Locknuts
   - Adjusters
3. Straighten:
   - Lock washer tabs
4. Remove:
   - Bolts (Camshaft) ①
   - Lock washer ②
   - Retainer ③



5. Attach:
   - Slide Hammer Set ① (YU-01083)
6. Remove:
   - Rocker arm shafts ②



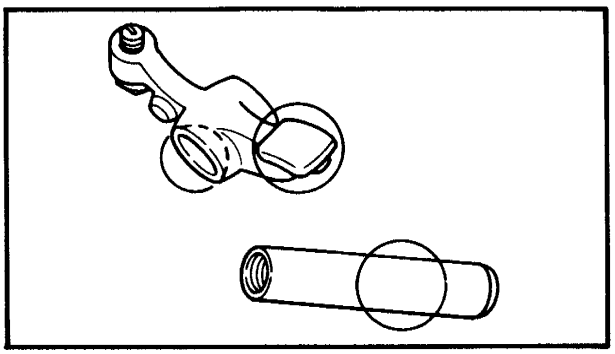
7. Remove:
   - Camshaft ①
   - Camshaft bushing ②

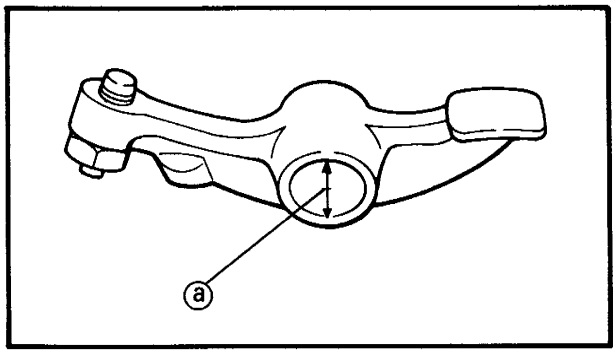


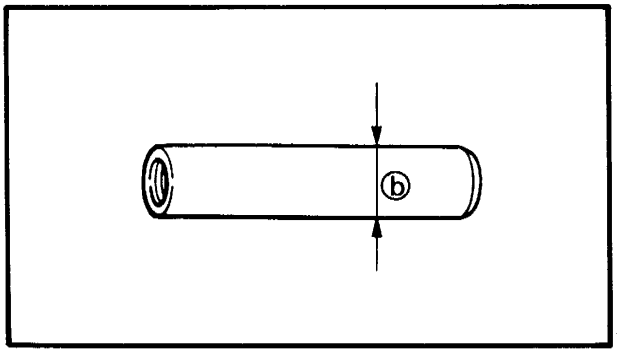
NOTE:

Screw in a suitable length of 10 mm bolt ③ into the thread hole on the camshaft, and pull out the camshaft.

8. Remove:
   - Rocker arms (Intake and exhaust)







9. Inspect:
   - Rocker arm shafts
   - Rocker arms

   Wear/Damage → Replace.

Rocker arm shaft and arm inspection steps:
- Inspect the two areas on the rocker arm for sings of unusual wear.
  1) Rocker arm shaft hole.
  2) Cam-lobe-contact surface.

  Excessive wear → Replace.
- Inspect the surface condition of the rocker arm shaft.

  Pitting/Scratches/Blue discoloration → Replace/Check lubrication.
- Measure the inside diameter ⓐ of the rocker arm hole.

  Out of specification → Replace.

Rocker Arm Inside Diameter Limit: 12.078 mm (0.4755 in)

- Measure the outside diameter ⓑ of the rocker arm shaft.

  Out of specification → Replace.

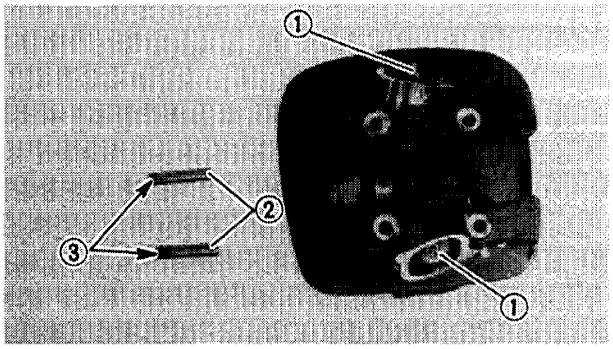
Rocker Arm Shaft Outside Diameter Limit: 11.951 mm (0.4705 in)

- Calculate the clearance by subtracting the rocker-arm-shaft outside diameter from the rocker-arm inside diameter.

  Clearance is greater than 0.08 mm (0.0032 in) → Replace either or both parts.

Arm-to-shaft Clearance (Standard): 0.009 ~ 0.037 mm (0.0004 ~ 0.0015 in)

- Inspect the O-rings ④ on the rocker arm shafts. If damaged, replace them.



10. Install:
    - Rocker arms ①
    - Rocker arm shafts ②

NOTE:

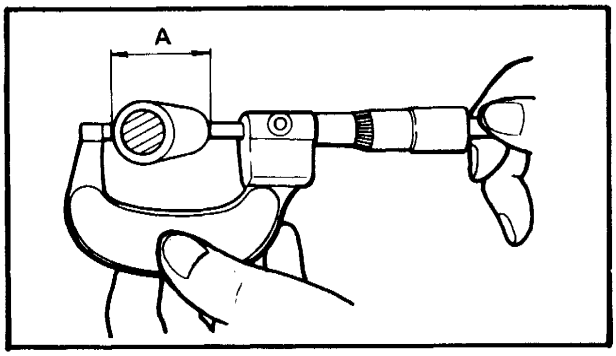
Thread hole ③ of the rocker arm shaft should be placed outside.

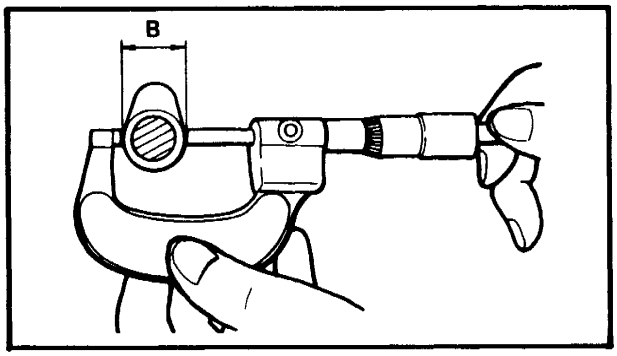
CAMSHAFT

1. Remove:
   - Camshaft

   Refer to "ROCKER ARMS AND ROCKER ARM SHAFTS" section.
2. Inspect:
   - Camshaft bushing

   Wear/Damage → Replace.





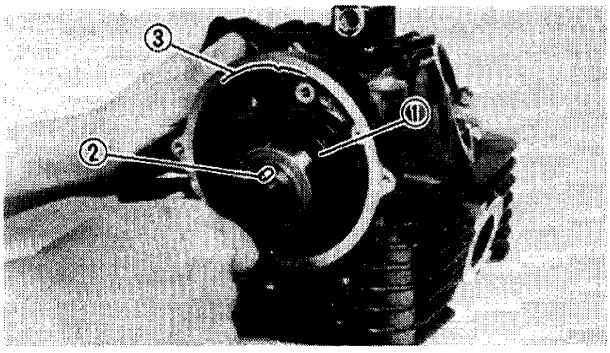
3. Inspect:
   - Cam lobes

   Pitting/Scratches/Blue discoloration → Replace.
4. Measure:
   - Cam lobes

   Use a Micrometer.

   Out of specification → Replace.

	Cam Lobe Limit "A"	Cam Lobe Limit "B"
Intake	40.26 mm (1.585 in)	32.11 mm (1.264 in)
Exhaust	40.25 mm (1.585 in)	32.11 mm (1.264 in)



5. Install:
   - Camshaft ①

   To the cylinder head.

NOTE:

The pin ② on the end of the camshaft must align with the timing mark ③ on the cylinder head.

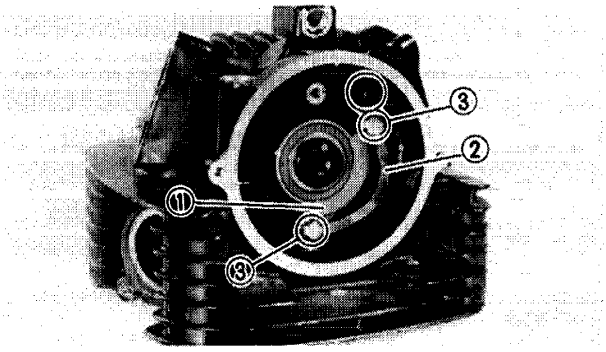
6. Install:
   - Camshaft bushing

NOTE:

The cut-out portion of the bushing must be flush with the cylinder head.

CAUTION:

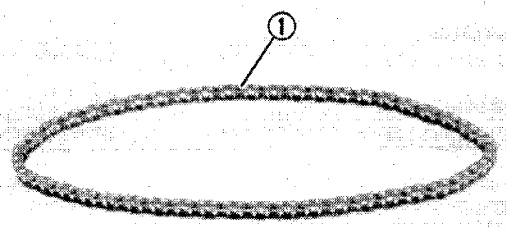
Do not cock the bushing during installation. The bushing must be perpendicular to the camshaft during installation.



7. Install:
   - Retainer ①
   - Lock washer (New) ②
   - Bolts (Camshaft) ③

Bolts (Camshaft):
8 Nm (0.8 m·kg, 5.8 ft·lb)

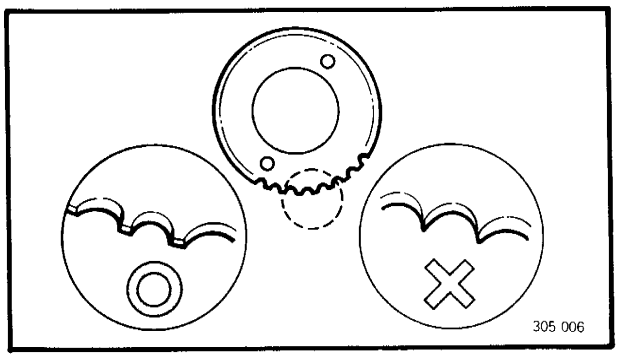
8. Bend the lock washer tabs.



CAM CHAIN

1. Inspect:
   - Cam chain ①

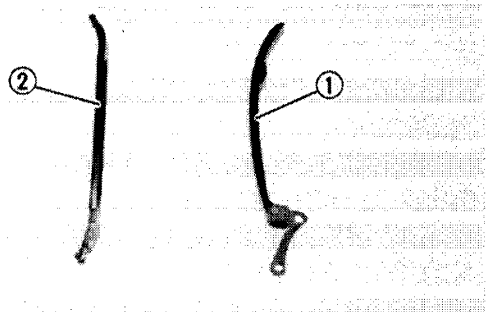
   Chain stretch/Cracks → Replace.



CAM SPROCKET AND CAM DRIVE SPROCKET

1. Inspect:
   - Cam sprocket
   - Cam drive sprocket

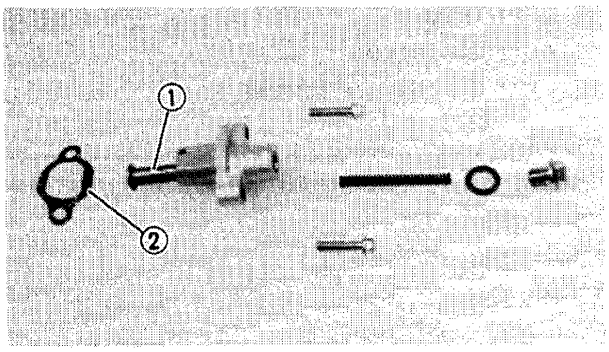
   Wear/Damage → Replace.



CHAIN DAMPERS

1. Inspect:
   - Cam chain damper (Intake) ①
   - Cam chain damper (Exhaust) ②

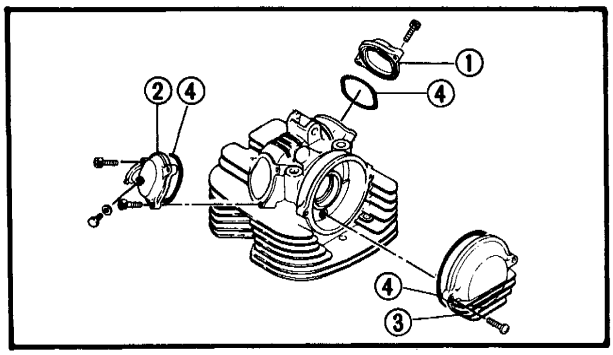
   Wear → Replace.



CAM CHAIN TENSIONER

1. Inspect:
   - Chain tensioner rod ①
   - Gasket ②

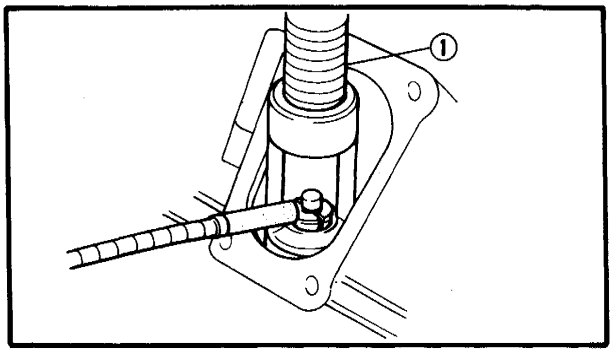
   Damage/Wear → Replace.



TAPPET COVER AND SIDE COVER

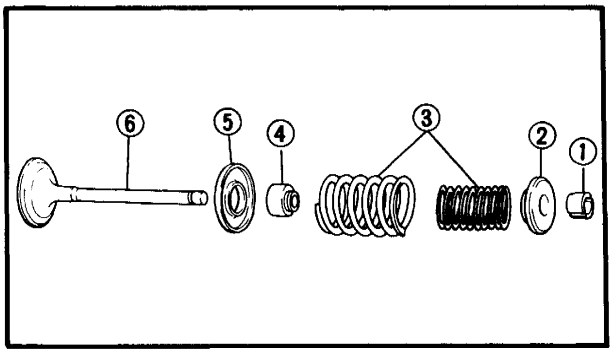
1. Inspect:
   - Tappet covers (Intake and exhaust) ① , ②
   - Side cover ③
   - O-rings ④

   Damage → Replace.

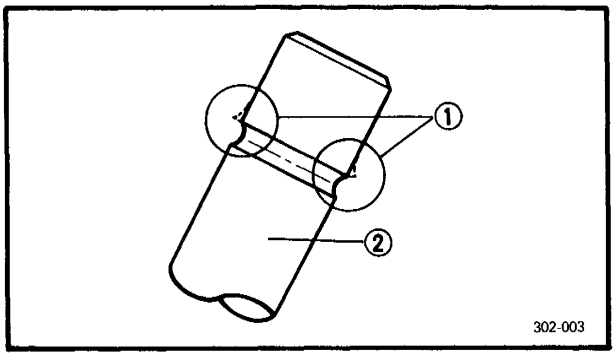


CYLINDER HEAD

1. Attach:
   - Valve Spring Compressor ① (YM-04019)



2. Remove:
   - Valve retainers ①
   - Valve spring seat ②
   - Valve spring ③
   - Oil seal ④
   - Valve spring seat ⑤
   - Valve ⑥



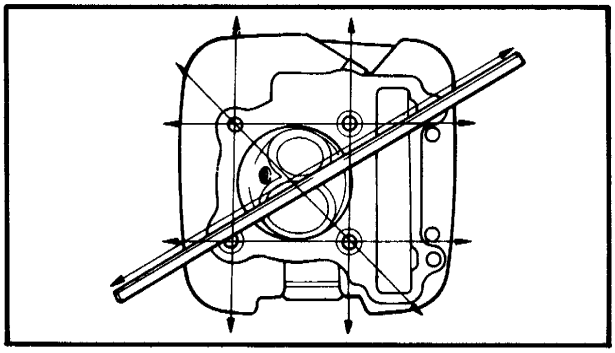
NOTE:

Deburr any deformed valve stem end. Use an oil stone to smooth the stem end.

① Deburr
② Valve stem

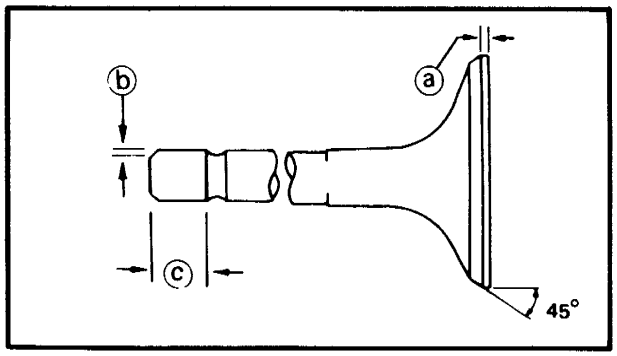
3. Eliminate:
   • Carbon deposit
   Use the rounded scraper.

NOTE:
Do not use a sharp instrument and avoid damaging or scratching:
• Spark plug thread
• Valve seat
• Cylinder head



4. Measure:
   • Cylinder head warpage
   Out of specification → Resurface/Replace.

Cylinder Head Warp.Limit:
Less than 0.03 mm (0.0012 in)

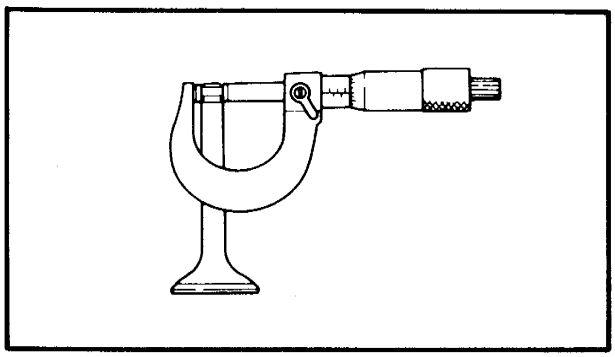


VALVE, VALVE GUIDE, AND VALVE SEAT

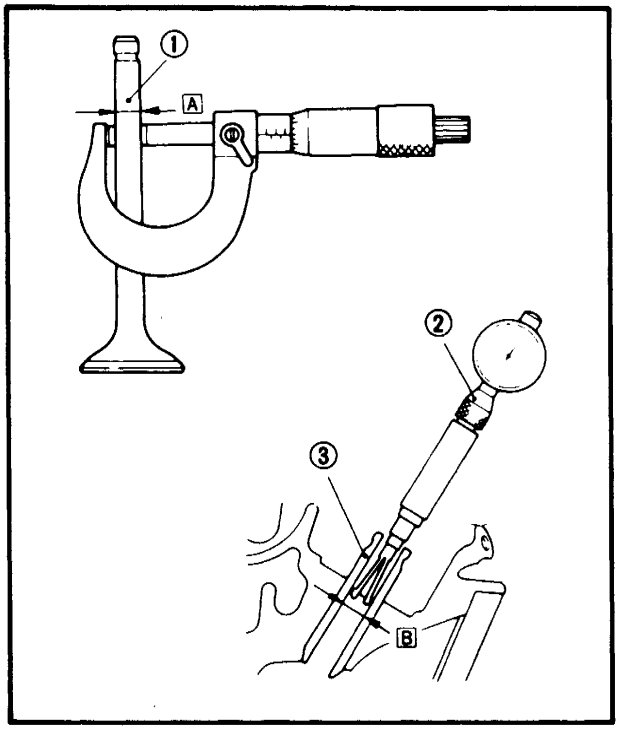
Intake and Exhaust Valve

1. Check:
   • Valve face
   • Stem end
   Wear/Pitting/Out of specification → Replace.

Minimum Thickness (Service Limit) ⓐ:
0.8 mm (0.031 in)
Beveled ⓑ: 0.5 mm (0.020 in)
Minimum Length (Service Limit) ⓒ:
4.0 mm (0.157 in)



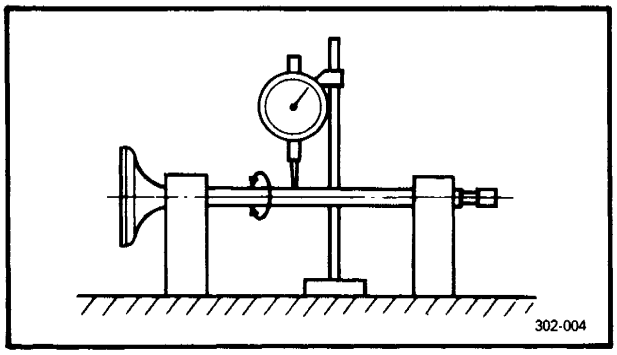
2. Inspect:
   • Valve stem end
   Mushroom shape/Larger diameter than rest of stem → Replace valve, valve guide, and oil seal.



3. Measure:
   • Valve stem clearance
   Use the Micrometer and Bore Gauge ②.
   Out of specification → Replace either valve ① and/or guide ③.

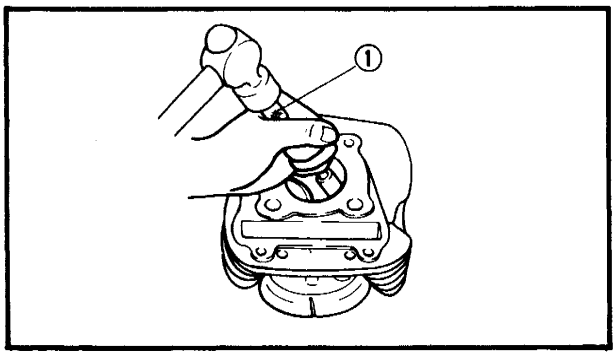
Valve Stem Clearance = B – A		
	Valve Stem Clearance	Maximum
Intake	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.08 mm (0.0031 in)
Exhaust	0.030 ~ 0.057 mm (0.0012 ~ 0.0022 in)	0.10 mm (0.0039 in)

[A] VALVE STEM OUTSIDE DIAMETER
[B] VALVE GUIDE INSIDE DIAMETER



4. Measure:
   • Valve stem runout
   Out of specification → Replace.

Maximum Runout:
0.02 mm (0.0008 in)



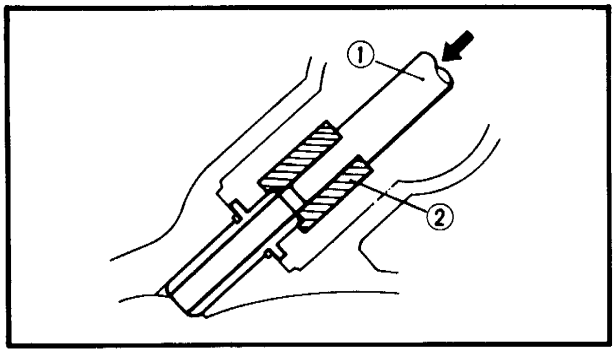
Valve Guide

NOTE:
- Always replace valve guide if valve is replaced.
- Always replace oil seal if valve is removed.

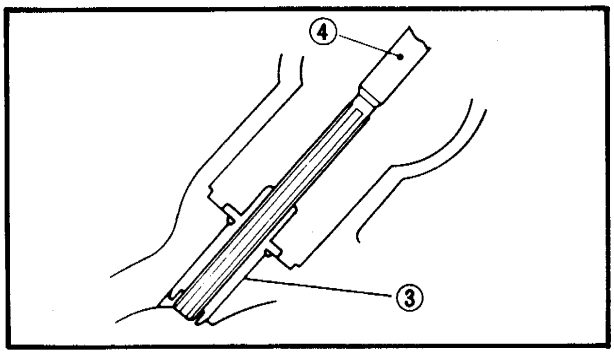
1. Remove:
   • Valve guide
   Use a Valve Guide Remover ① (YM-01225).

NOTE:
Heat the head in an oven to 100°C (212°F) to ease guide removal and installation and to maintain correct interference fit.

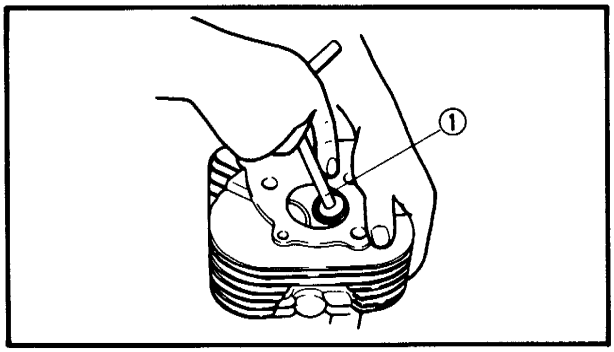
2. Inspect:
   • Valve guides
   Wear/Oil leakage into cylinder → Replace.



3. Install:
   - Circlip (New)
   - Valve guide (Oversize)
     Use a Valve Guide Remover ① with Valve Guide Installer ② (YM-04017).



NOTE:
After installing valve guide ③ :
- Use the 7.0 mm Valve Guide Reamer ④ (YM-01227) to obtain proper valve guide/valve stem clearance.
- Recut the valve seat.

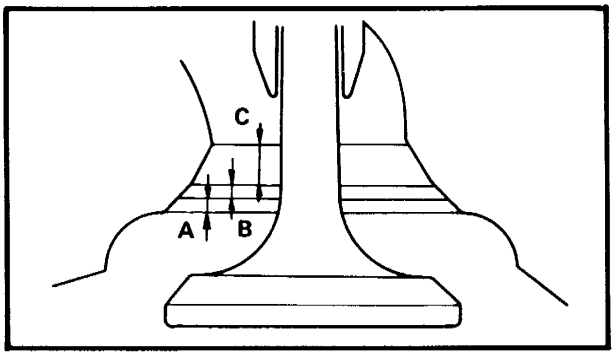


Valve Seat

1. Inspect:
   - Valve seats
     Wear/Pitting/Valve replacement → Resurface seat at 45° angle.

CAUTION:

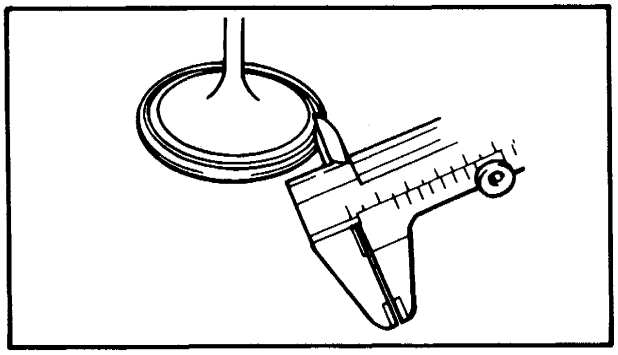
Clean valve seat if pitted or worn using the 45° Valve Seat Cutter (YM-91043) ①. When twisting cutter, keep an even downward pressure to prevent chatter marks.



Cut section as follows	
Section	Cutter
A	20°
B	45°
C	60°

2. Measure:
   - Valve seat width
3. Apply:
   - Mechanics bluing dye (Dykem)
     To valve and seat.

4. Position:
   - Valves
     Into cylinder head.
     Press the valve through the valve guide and onto the valve seat to make a clear pattern.
5. Inspect:
   - Valve seat surface
     Wherever valve seat and valve face made contact, bluing will have been removed.
6. Measure:
   - Valve seat width "a"
     Out of specification/Pitting/Variation of valve seat width → Cut valve seat further.



CAUTION:

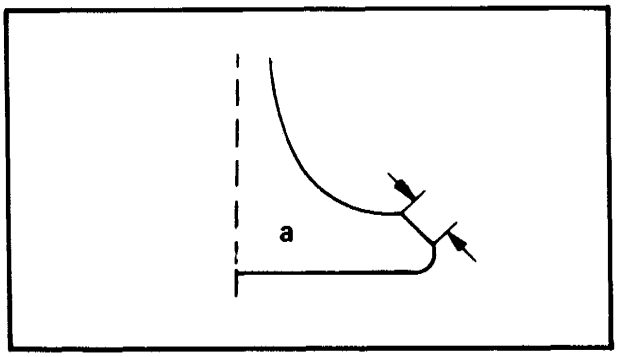
Remove just enough material to achieve satisfactory seat.

Seat Width:
Standard:
1.0 ~ 1.2 mm (0.039 ~ 0.047 in)
Wear Limit: 1.6 mm (0.063 in)

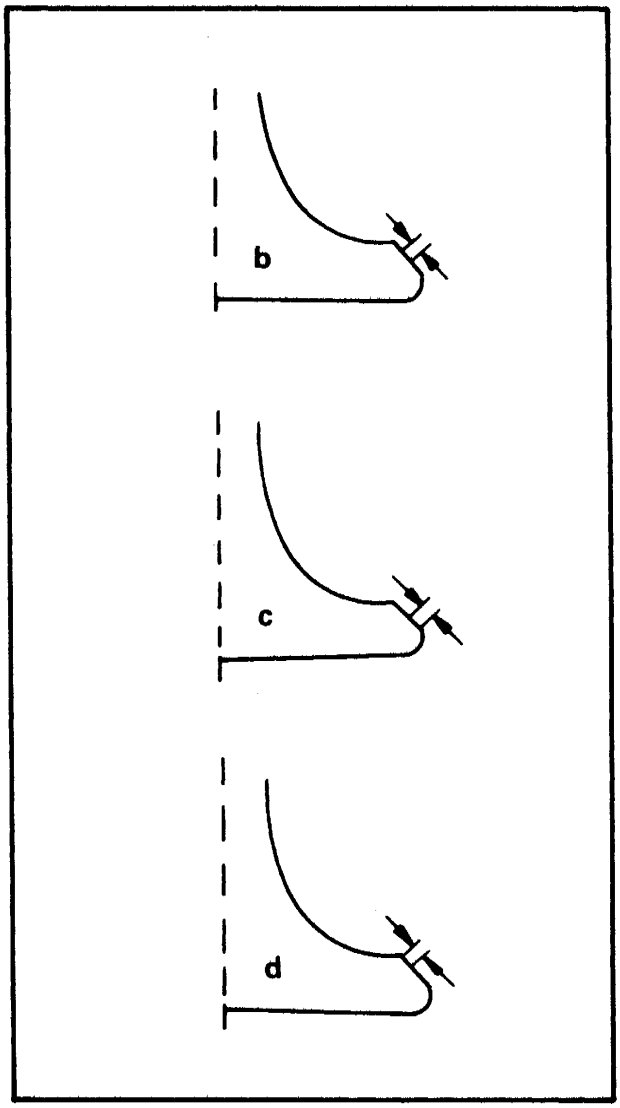
Valve seat recutting steps are necessary if:
- Valve seat is uniform around perimeter of valve face but too wide or not centered on valve face.

Valve Seat Cutter Set		Desired result
Use either	20° cutter	To center the seat or to reduce its width
	45° cutter	
	60° cutter	

- Valve face indicates that valve seat is centered on valve face but is too wide (see "a" diagram).



Valve Seat Cutter Set		Desired result
Use lightly	20° cutter	To reduce valve seat width to 1.0 mm (0.039 in)
	60° cutter	



- Valve seat is in the middle of the valve face but too narrow (see "b" diagram).

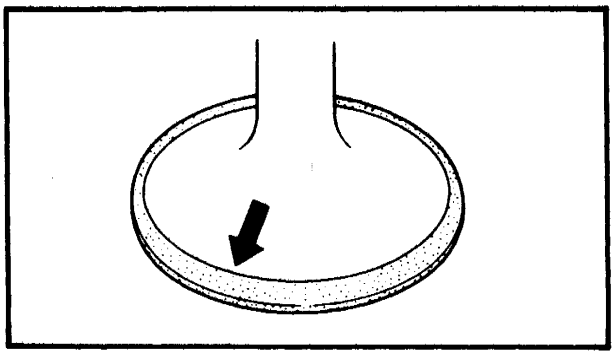
Valve Seat Cutter Set		Desired Result
Use	45° cutter	To achieve a uniform valve seat width of 1.0 mm (0.039 in)

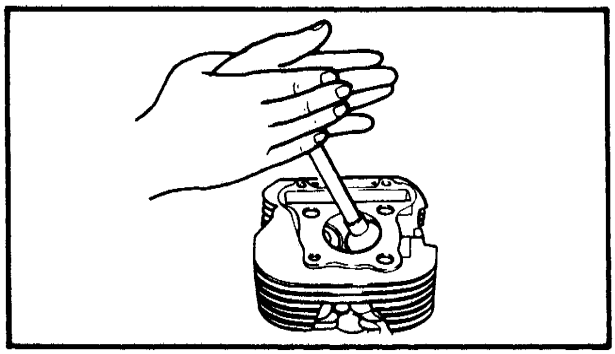
- Valve seat is too narrow and right up near valve margin (see "c" diagram).

Valve Seat Cutter Set		Desired Result
Use	20° cutter, first	To center the seat and to increase its width
	45° cutter	

- Valve seat is too narrow and is located down near the bottom edge of the valve face (see diagram "d").

Valve Seat Cutter Set		Desired Result
Use	60° cutter, first	To center the seat and to increase its width
	45° cutter	





Valve/Valve Seat Assembly Lapping

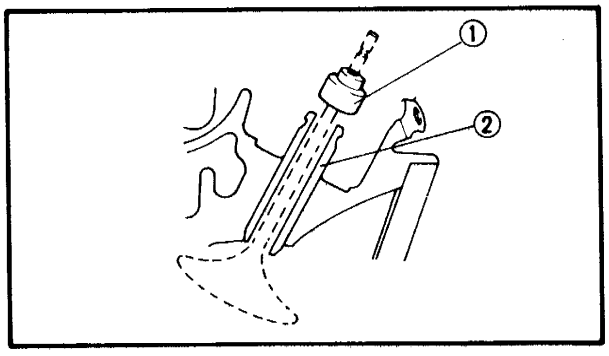
1. Apply:
   - Coarse lapping compound (Small amount)
     To valve face.
   - Molybdenum disulfide oil
     To valve stem.
2. Position:
   - Valves
     In cylinder head.
3. Rotate:
   - Valve
     Turn until valve and valve seat are evenly polished, then clean off all compound.
4. Apply:
   - Fine lapping compound (Small amount)
     To valve face.

5. Repeat steps 2 and 3.

NOTE:
Be sure to clean off all compound from valve face after every lapping operation.

6. Inspect:
   - Valve face
     Not yet uniformly smooth → Repeat procedure from step 1.
7. Apply:
   - Mechanics bluing dye (Dykem)
     To valve face and seat.
8. Install:
   - Valves
     Into cylinder head.
     Press the valve through the valve guide and onto the valve seat to make a clear pattern.
9. Inspect:
   - Valve face
     Valve must make full seat contact indicated by grey surface all around. The valve face where bluing was removed.
     Faulty contact → Replace.
     See procedure below.
10. Apply:
    - Solvent
      Into each intake and exhaust port.

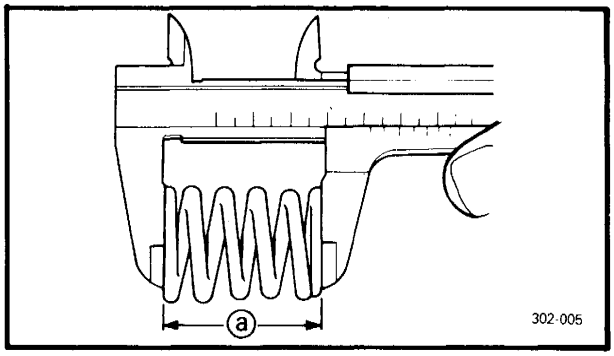
NOTE:
Pour solvent into intake and exhaust ports only after completion of all valve work and assembly of all head parts.



11. Check:
    - Valve seals ①
      Leakage past valve seat → Replace valve.
      (See procedure below)

② Valve guide

Relapping steps:
- Disassemble head parts.
- Repeat lapping steps using fine lapping compound.
- Clean all parts thoroughly.
- Reassemble and check for leakage again using solvent.
- Repeat steps as often as necessary to effect a satisfactory seal.

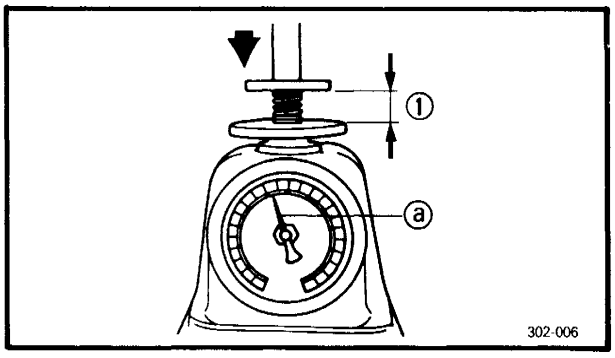


Valve Spring

1. Measure:
   - Spring free length ⓐ

   Out of specification → Replace.

Minimum Free Length:
Inner Spring: 37.9 mm (1.49 in)
Outer Spring: 41.27 mm (1.62 in)

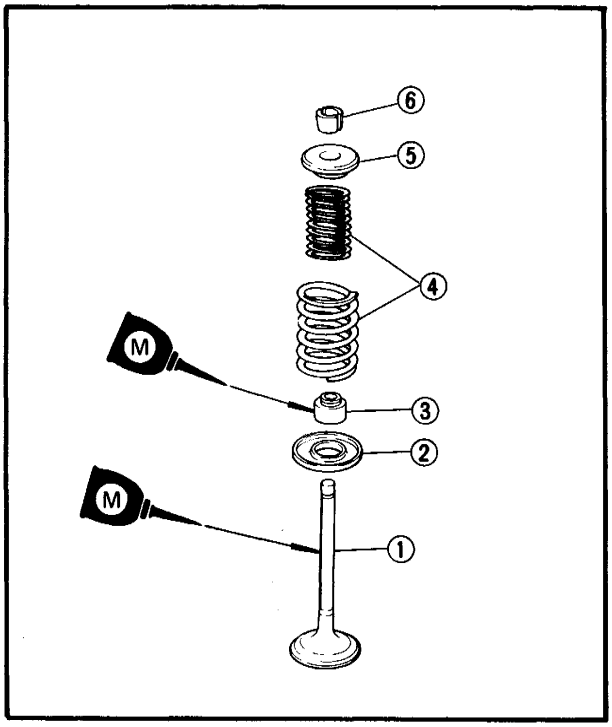


2. Measure:
   - Spring force (Installed length) ⓐ

   Out of specification → Replace.

Valve Compressed Force:
Inner Spring:
10.7 ~ 12.3 kg (23.6 ~ 27.1 lb)
at 36.6 mm (1.32 in)
Outer Spring:
24.0 ~ 25.6 kg (52.9 ~ 56.4 lb)
at 36.6 mm (1.44 in)

① Installed length

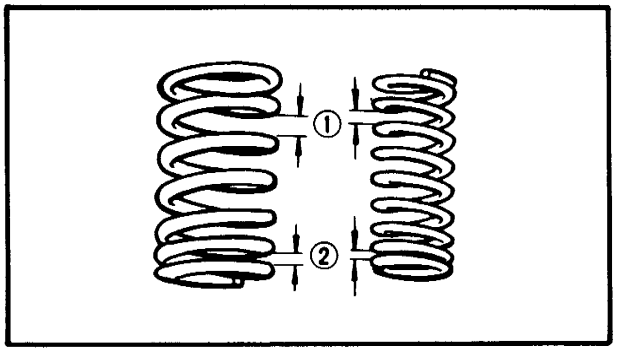


Valve Installation

1. Lubricate:
   - Valve stem
   - Oil seal

High-Quality Molybdenum Disulfide Motor Oil or Molybdenum Disulfide Grease

2. Install:
   - Valve ①
   - Valve spring seat ②
   - Oil seal ③
   - Valve springs ④
   - Valve spring seat ⑤
   - Valve retainers ⑥

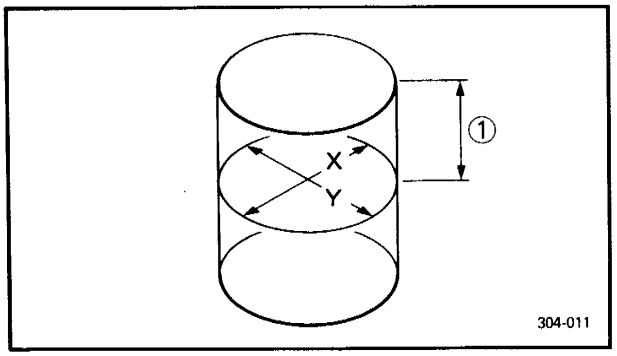


NOTE:
Install spring with wider-gapped coil facing upwards, as shown.

① Larger pitch
② Smaller pitch

CYLINDER AND PISTON

1. Inspect:
   - Cylinder and piston walls
     Vertical scratches → Rebore or replace cylinder and piston.
2. Measure:
   - Piston-to-cylinder clearance



Piston-to-cylinder clearance measurement steps:
First pipe:
- Measure the cylinder bore "C" with the Cylinder Bore Gauge.

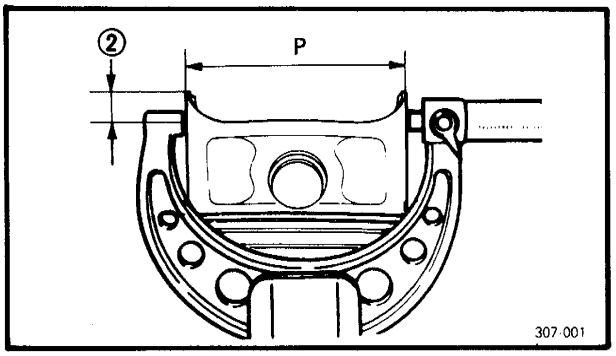
① 40 mm (1.57 in) from the cylinder top

NOTE:
Measure the cylinder bore "C" in parallel to and at right angles to the crankshaft. Then, find the average of the measurements.

	Standard	Wear Limit
Cylinder Bore "C":	82.97 ~ 83.02 mm (3.267 ~ 3.269 in)	83.10 mm (3.272 in)

$$C = \frac{X + Y}{2}$$

- If out of specification, rebore or replace the cylinder, and replace the piston and piston ring as a set.



Second step:
- Measure the piston skirt diameter "P" with a micrometer.

② 5.5 mm (0.22 in) from the piston bottom edge

Piston Outside Diameter "P"	
Standard	82.92 ~ 82.97 mm (3.265 ~ 3.267 in)
Oversize 2	83.50 mm (3.289 in)
Oversize 4	84.00 mm (3.307 in)

- If out of specification, replace the piston and piston rings as a set.

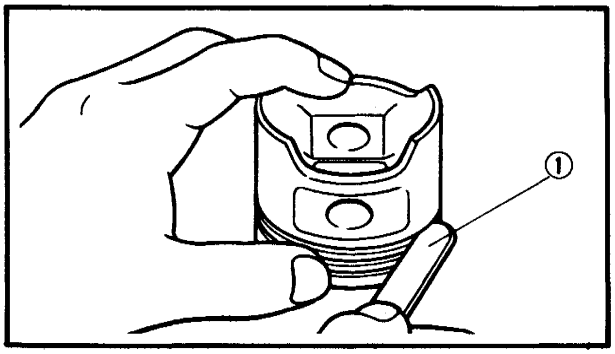
Third step:

- Find the piston-to-cylinder clearance with following formula:

Piston-to-cylinder Clearance = Cylinder Bore "C" – Piston Skirt Diameter "P"

- If out of specification, rebore or replace the cylinder, and replace the piston and piston rings as a set.

Piston-to-cylinder Clearance: 0.04 ~ 0.06 mm (0.0016 ~ 0.0024 in)



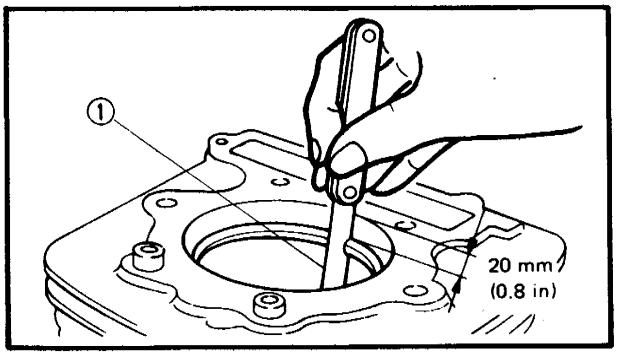
PISTON RING AND PISTON PIN

Piston Ring

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

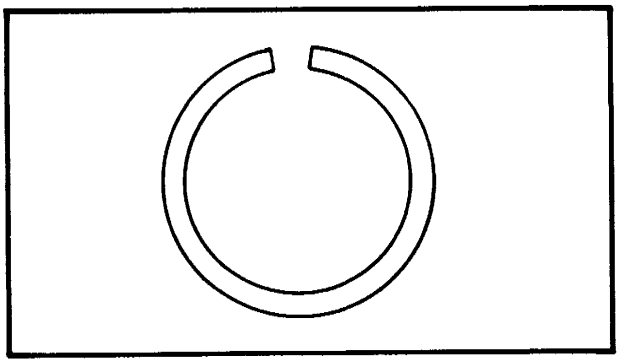
	Side Clearance	
	Standard	Limit
Top Ring	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)	0.12 mm (0.0047 in)
2nd Ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)	0.12 mm (0.0047 in)

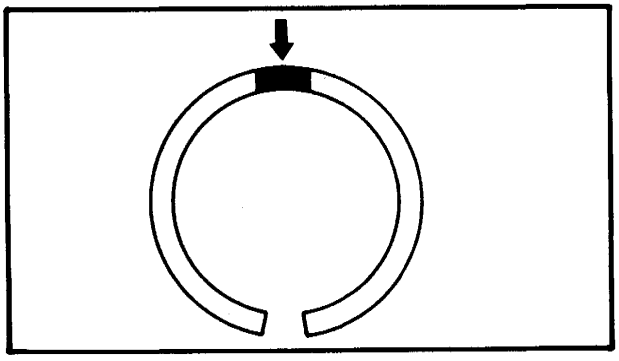
2. Position:
   - Piston ring
     Push the ring with the piston crown.

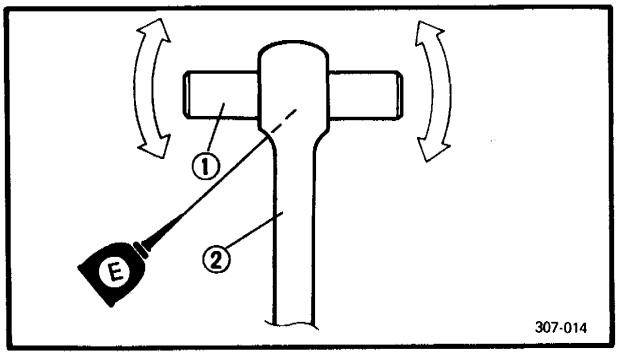


3. Measure:
   • End gap
   Use a Feeler Gauge ①
   Out of specification → Replace rings as set.

	End Gap	
	Standard	Limit
Top Ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)	0.5 mm (0.020 in)
2nd Ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)	0.5 mm (0.020 in)
Oil Ring	0.3 ~ 0.9 mm (0.012 ~ 0.036 in)	—







Piston Ring Oversize

• Top and 2nd piston ring
Oversize top and middle ring sizes are stamped on top of ring.

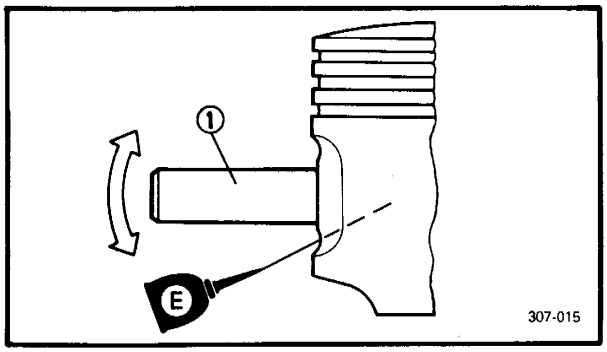
Oversize 2	0.50 mm (0.0197 in)
Oversize 4	1.00 mm (0.0394 in)

• Oil control ring
Expander spacer of bottom ring (oil control ring) is color-coded to identify sizes.

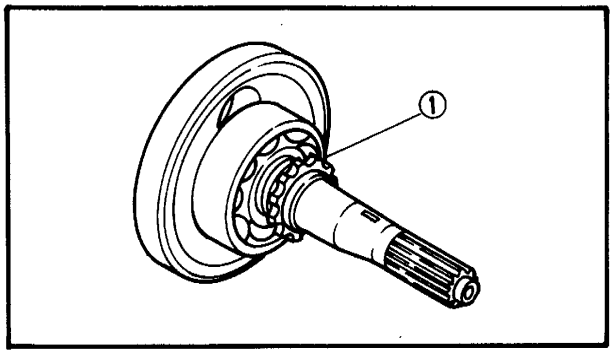
Size	Color
Oversize 2	Blue
Oversize 4	Yellow

Piston Pin

1. Lubricate:
   • Piston pin (Lightly)
2. Install:
   • Piston pin ①
   Into small end of connecting rod ② .
3. Check:
   • Free play
   Free play → Inspect connecting rod and piston pin for wear.

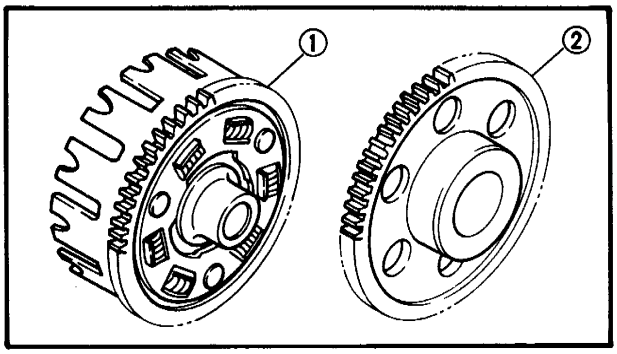


4. Position:
   - Piston pin ①
     Into piston.
5. Check:
   - Free play
     When pin is in place in piston.
     Free play → Replace piston pin and/or piston.

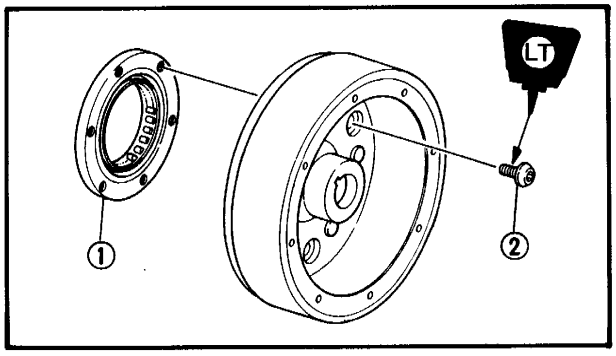


PRIMARY GEARS AND STARTER

1. Inspect:
   - Drive gear ①
     Scratches/Wear/Damage → Replace crankshaft.



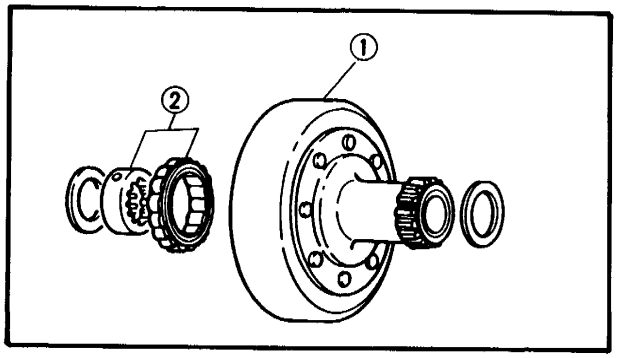
2. Inspect:
   - Driven gear ①
     Scratches/Wear/Damage → Replace clutch housing assembly.
   - Idler gear ②
     Scratches/Wear/Damage → Replace.



3. Inspect:
   - Bearing ①
     Damage → Replace.
   - Bolts (Starter clutch) ②
     Loose → Replace with a new one, and clinch the end of the bolt.

NOTE:
The arrow mark on the starter clutch must face inward, away from the CDI rotor.

Bolts (Starter Clutch):
30 Nm (3.0 m·kg, 22 ft·lb)
LOCTITE®



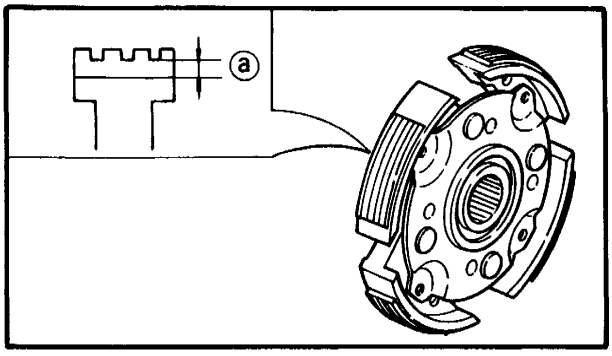
PRIMARY CLUTCH

Clutch Housing

1. Inspect:
   - Clutch housing ①
     Heat damage/Wear/Damage → Replace.
   - One way clutch assembly ②
     Chafing/Wear/Damage → Replace.

NOTE:

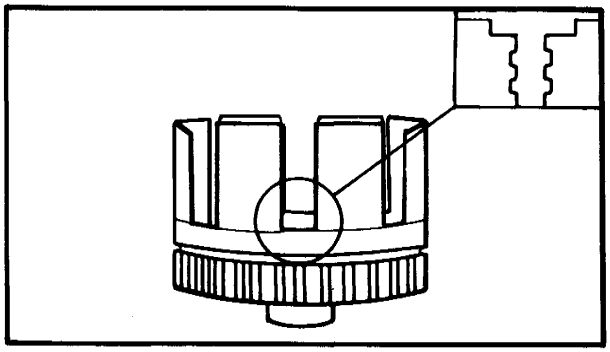
Replace the one way clutch assembly and clutch housing as a set.



Clutch Carrier

1. Inspect:
   - Clutch shoe
     Heat damage → Replace.
2. Measure:
   - Clutch shoe thickness
     Out of specification → Replace.

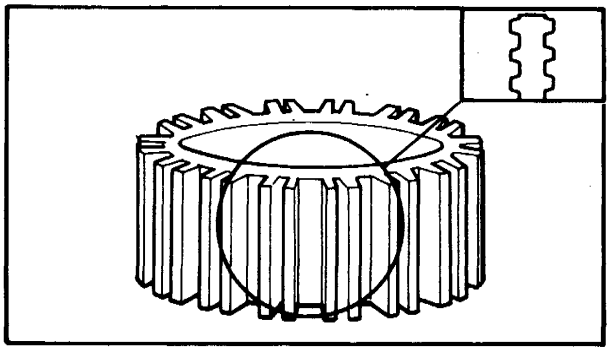
Clutch Shoe Wear Limit ⓐ :
1.5 mm (0.06 in)



SECONDARY CLUTCH

Clutch Housing

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



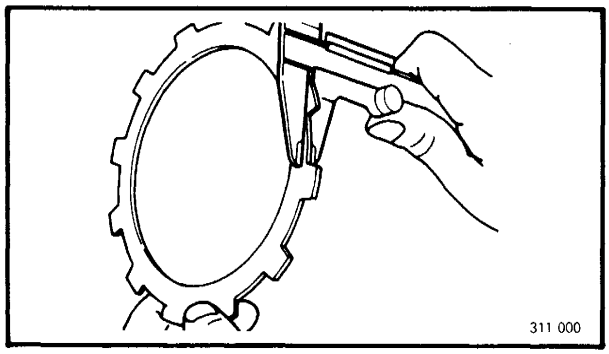
Clutch Boss and Pressure Plate #1

1. Inspect:
   - Clutch boss splines
   - Pressure plate #1

   Scoring/Wear/Damage → Replace clutch boss assembly and/or pressure plate #1.

NOTE:

Scoring on the clutch plate splines will cause erratic operation.



Friction Plates

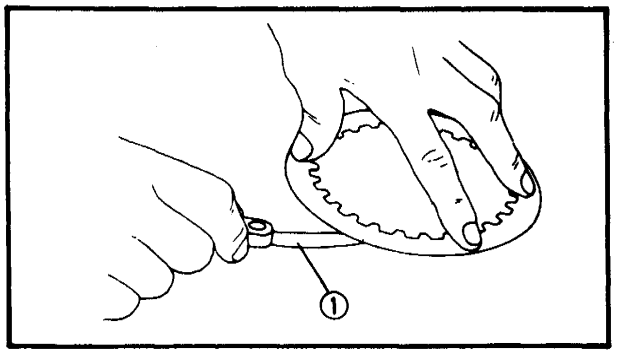
1. Inspect:
   - Friction plate

   Damage/Wear → Replace friction plate as a set.
2. Measure:
   - Friction plate thickness

   Measure at all four points.

   Out of specification → Replace friction plate as a set.

	Friction Plate Thickness
Wear Limit	2.8 mm (0.110 in)



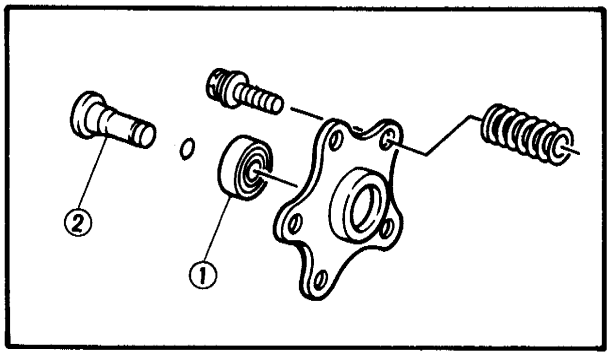
Clutch Plates

1. Measure:
   - Clutch plate warpage

   Use surface plate and Feeler Gauge ①.

   Out of specification → Replace.

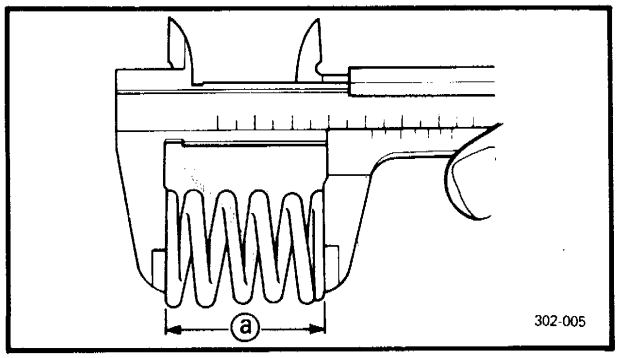
Warp Limit:
0.2 mm (0.008 in)



Pressure Plate #2

1. Inspect:
   - Pressure plate bearing ①
   - Push rod ②

   Wear/Damage → Replace.



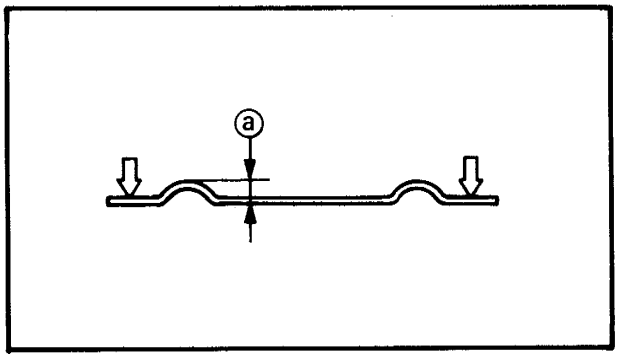
Clutch Spring

1. Inspect:
   - Clutch spring

   Wear/Damage → Replace.
2. Measure:
   - Clutch spring free length ⓐ

   Out of specification → Replace springs as a set.

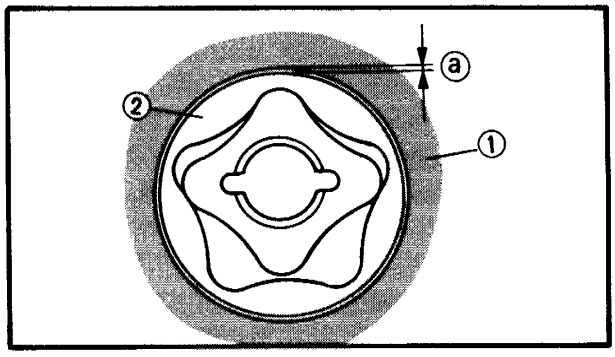
Clutch Spring Minimum Length:
45.8 mm (1.80 in)



3. Measure:
   - Cushion spring height ⓐ

   Out of specification → Replace.

Cushion Spring Height:
3.15 ~ 3.45 mm (0.12 ~ 0.14 in)



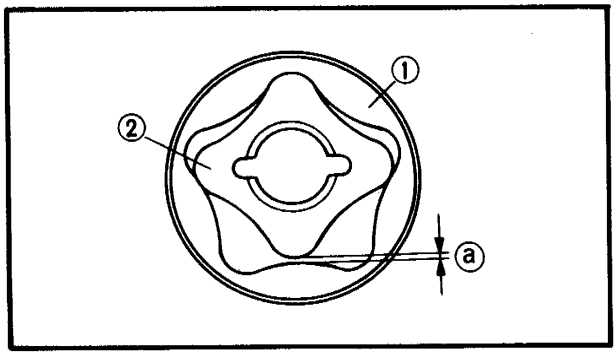
OIL PUMP

1. Measure:
   - Housing ① /Outer rotor ② clearance

   Use a Feeler Gauge.

   Out of specification → Replace oil pump assembly.

Side Clearance ⓐ :
0.04 ~ 0.09 mm
(0.0016 ~ 0.0035 in)



2. Measure:
   - Outer rotor ① /Inner rotor ② clearance

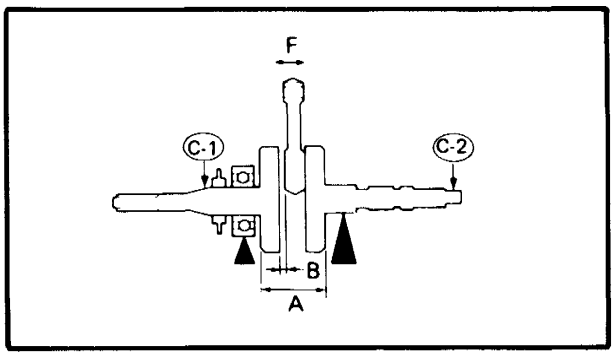
   Use a Feeler Gauge.

   Out of specification → Replace oil pump assembly.

Tip Clearance ⓐ :
0.15 mm (0.006 in)
Limit:
0.20 mm (0.008 in)

3. Inspect:
   - Oil pump drive gear
   - Oil pump driven gear

   Wear/Damage → Replace.



CRANKSHAFT

Crankshaft Inspection

1. Measure:
   - Assembly width "A"

   Use the V-blocks.

   Out of specification → Replace.

Assembly Width "A":
58.95 ~ 59.00 mm
(2.321 ~ 2.323 in)

   - Big end side clearance "B"

   Use a Feeler Gauge.

   Out of specification → Disassemble the crankshaft and replace worn parts, then reassemble the crankshaft.

Big End Side Clearance Limit "B":
0.9 mm (0.035 in)

   - Runout "C"

   Use the V-blocks and Dial Gauge.

   Out of specification → Correct any misalignment.

Runout Limit:
C1: 0.02 mm (0.0008 in)
C2: 0.06 mm (0.0024 in)

   - Small end free play "F"

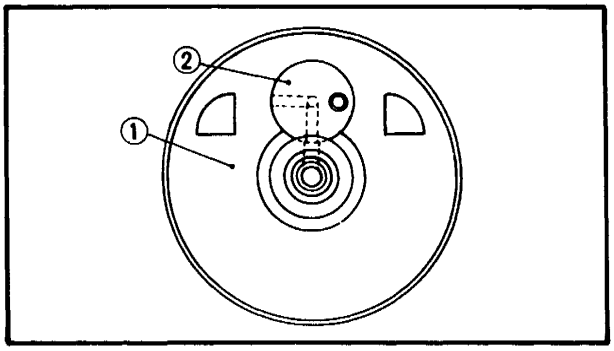
   Use the V-blocks and Dial Gauge.

   Out of specification → Disassemble the crankshaft, and replace the defective parts, then reassemble the crankshaft.

Small End Free Play "F":
Standard: 0.8 ~ 1.0 mm
(0.03 ~ 0.04 in)
Limit: 2.0 mm (0.08 in)

2. Inspect:
   • Crankshaft bearing surfaces
     Wear/Scratches/Rust spots → Replace.

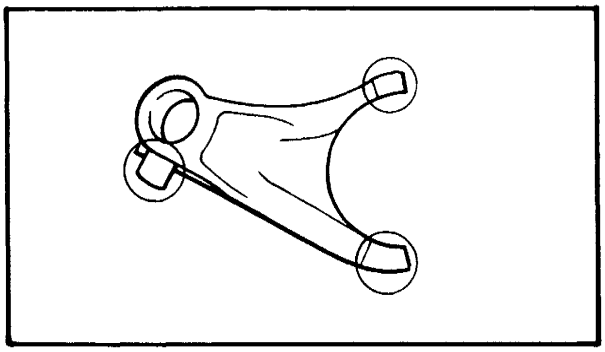
NOTE:
Lubricate the bearing immediately after examining then to prevent rust.



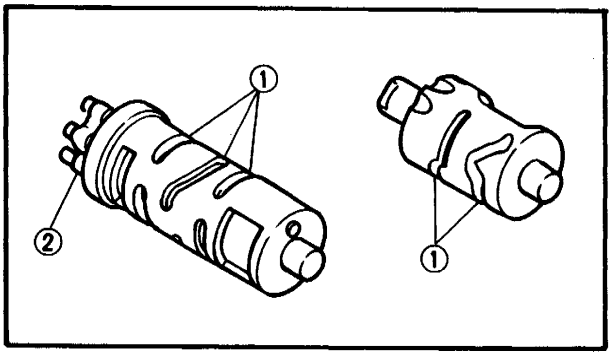
Crankshaft Reassembling
1. Install:
   • Crank pin ②

NOTE:
The crankshaft ① and the crank pin ② oil passages must be properly interconnected with a tolerance of less than 1 mm (0.04 in).

CAUTION:
The buffer boss and woodruff key should be replaced when removed them from the crankshaft.

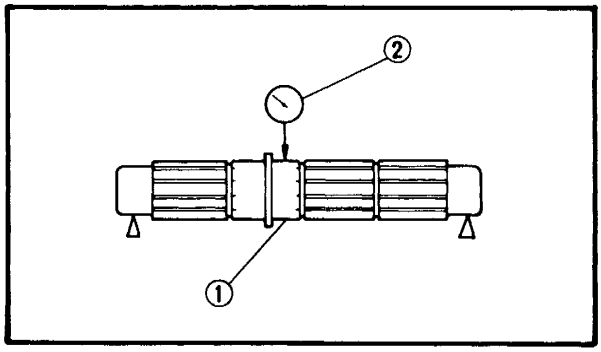


TRANSMISSION
Shift Fork
1. Inspect:
   • Shift forks
     On the gear and shift cam contact surfaces.
     Wear/Chafing/Bends/Damage → Replace.
2. Check:
   • Shift fork movement
     On its guide bar.
     Unsmooth operation → Replace fork and/or guide bar.
3. Inspect:
   • Shift fork spring
     Fatigue → Replace.
     Move the spring up and down.



Shift Cam

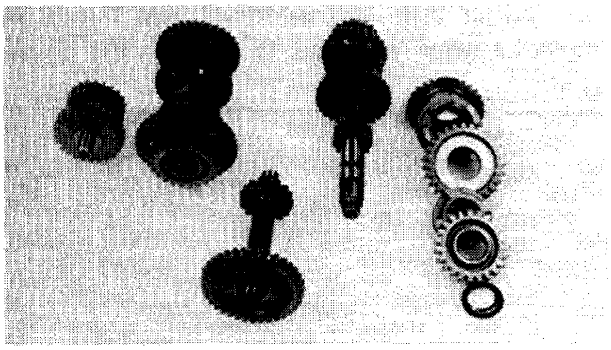
1. Inspect:
   - Shift cam grooves ①
     Wear/Damage/Scratches → Replace.
   - Shift cam segment ②
     Damage/Wear → Replace.
   - Shift cam bearing ③
     Pitting/Damage → Replace.



Main and Drive Axles

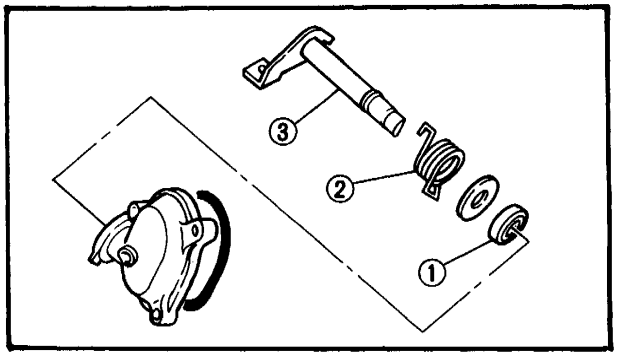
1. Measure:
   - Axle ① runout
     Use centering device and Dial Gauge ②
     Out of specification → Replace.

Runout Limit:
0.08 mm (0.0031 in)



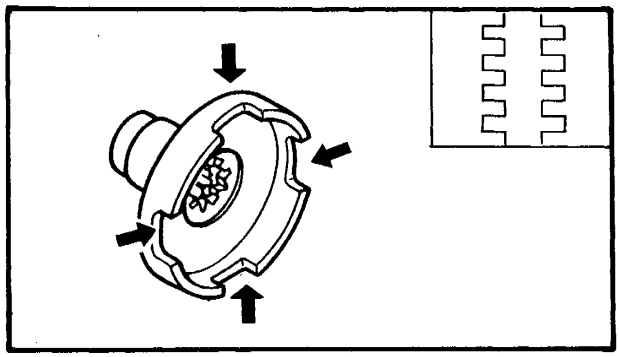
Gears

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



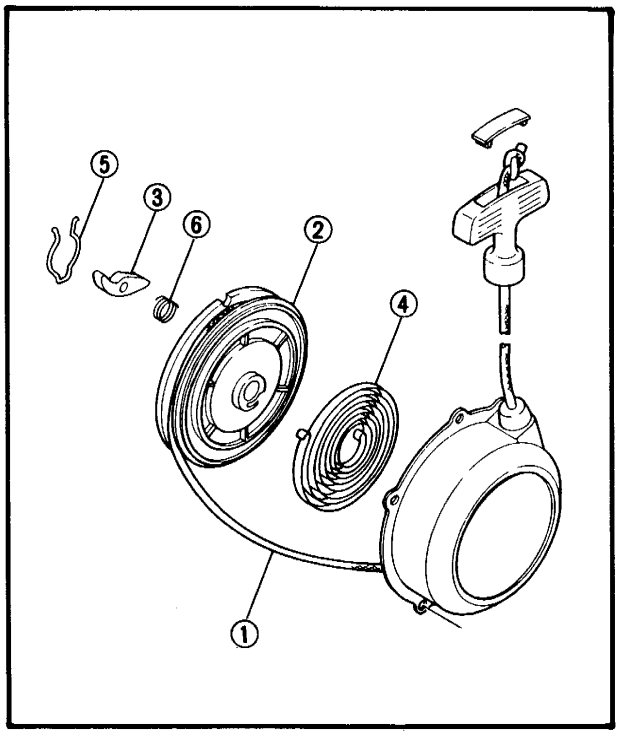
DECOMPRESSION CAM

1. Inspect:
   - Oil seal ①
   - Spring ②
   - Decompression cam ③
     Damage/Wear → Replace.

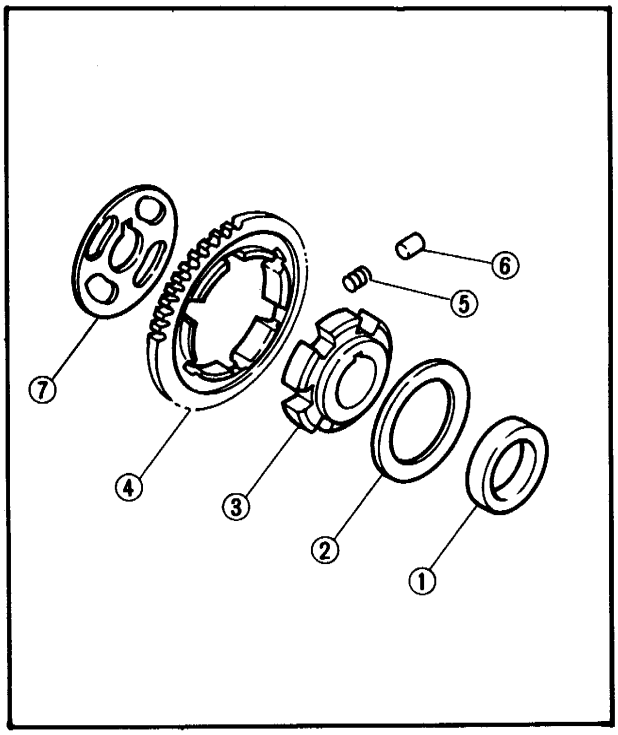


STARTER PULLEY AND RECOIL STARTER

1. Inspect:
   - Starter pulley
     Cracks/Pitting → Deburr or replace.



2. Inspect:
   - Rope ①
   - Sheave drum ②
   - Drive pawl ③
     Wear/Damage → Replace.
   - Coil spring ④
   - Pawl spring ⑤
   - Spring ⑥
     Fatigue → Replace.

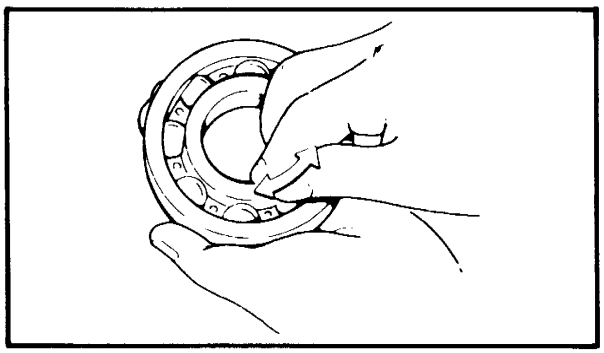


BALANCER DRIVE GEAR

1. Inspect:
   - Collar ①
   - Plain washer ②
   - Buffer boss ③
   - Drive gear ④
   - Springs ⑤
   - Dowel pins ⑥
   - Holding plate ⑦
     Damage/Wear/Fatigue → Replace.

CRANKCASE

1. Inspect:
   - Case halves
   - Bearing seat
     Damage → Replace.



BEARINGS

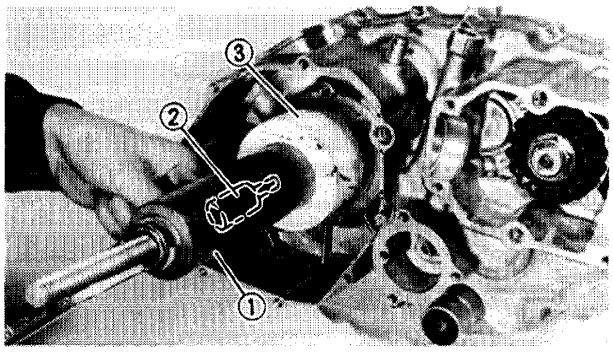
1. Inspect:
   - Axle bearings
   - Shift cam bearing

   Pitting/Damage → Replace.

CIRCLIPS AND WASHERS

1. Inspect:
   - Circlips
   - Washers

   Damage/Looseness/Bends → Replace.



ENGINE ASSEMBLY AND ADJUSTMENT

CRANKSHAFT AND TRANSMISSION

1. Install:
   - Crankshaft

     To the left side crankcase.

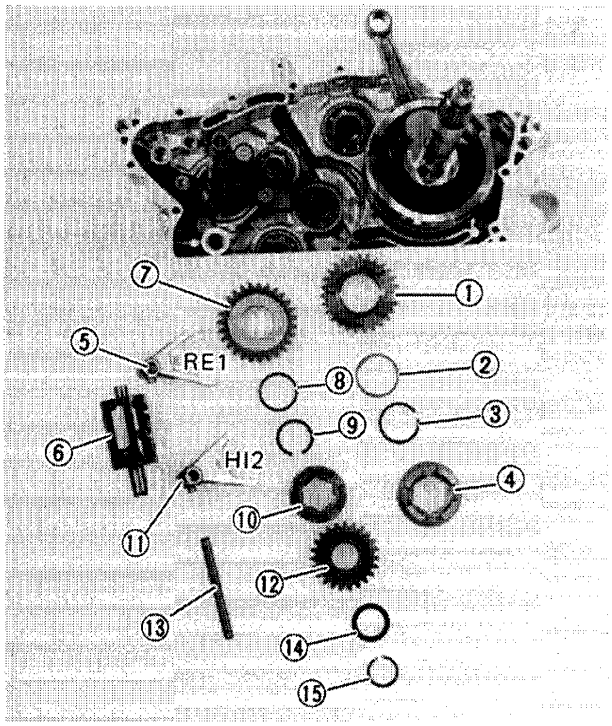
     Use the Crankshaft Installer Set (YU-90050) ① , Adapter (YM-1383) ② and Spacer (YM-91044) ③ .

NOTE:

Hold the connecting rod at top dead center with one hand while installing the crankshaft.

CAUTION:

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



2. Install:
   - Reverse wheel gear #2 ①
   - Plain washer ②
   - Circlip ③
   - Dog clutch ④

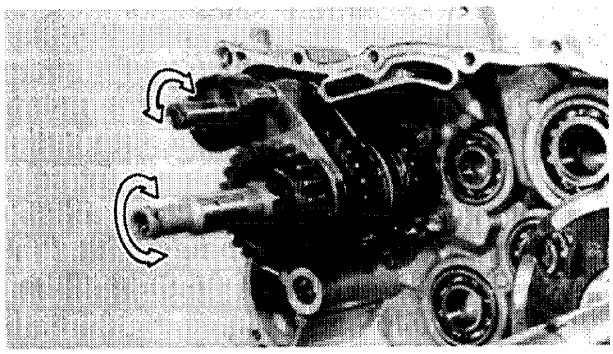
NOTE:

Before installing the middle drive gear ⑦ install the shift fork #1 ⑤ and shift cam #2 ⑥ .

   - Plain washer ⑧
   - Circlip ⑨
   - Holder (Middle driven gear) ⑩
   - Shift fork #2 ⑪
   - Middle driven gear ⑫
   - Guide bar #2 ⑬
   - Plain washer ⑭
   - Circlip ⑮

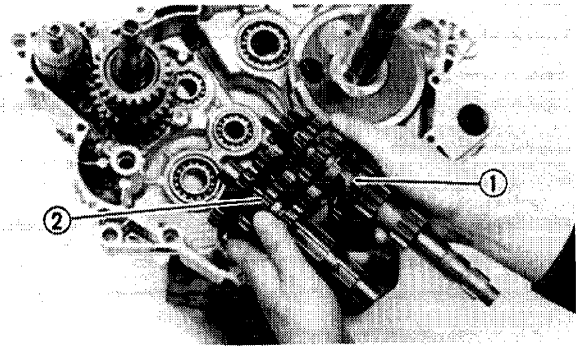
NOTE:

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

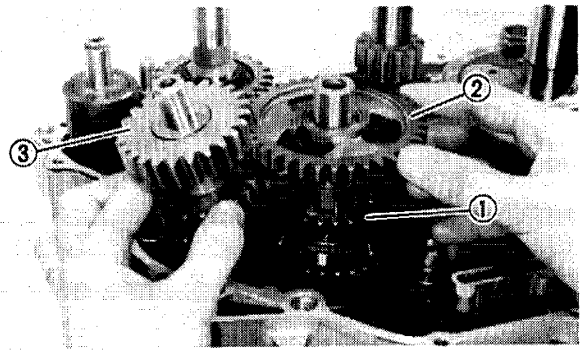


3. Check:
   - Shifter operation
     Unsmooth operation → Repair.

NOTE:
Oil each gear and bearing thoroughly.

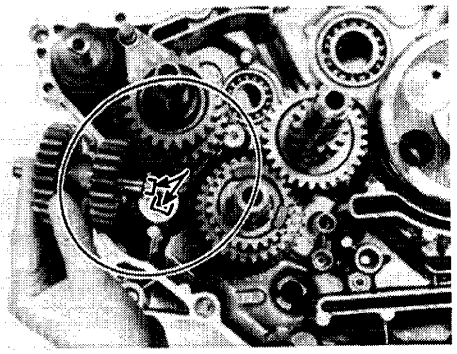


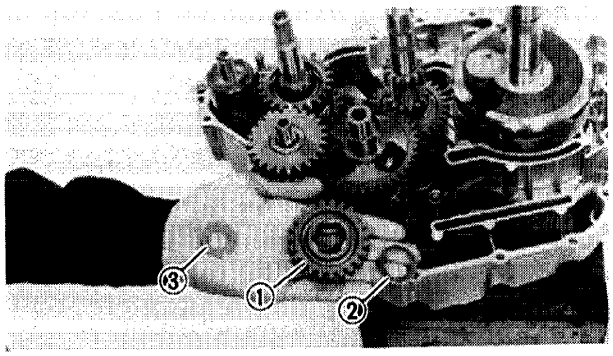
4. Install:
   - Main axle assembly ①
   - Drive axle gear assembly ②



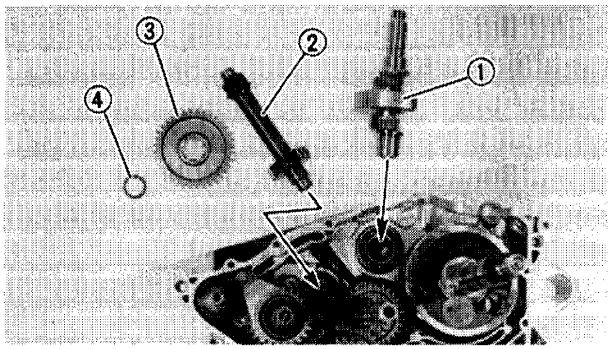
5. Install:
   - 5th wheel gear (24T) ①
   - 1st wheel gear (38T) ②
   - High wheel gear ③

NOTE:
Align the projected portion of the high wheel gear end with the groove in the hole of the crankcase.

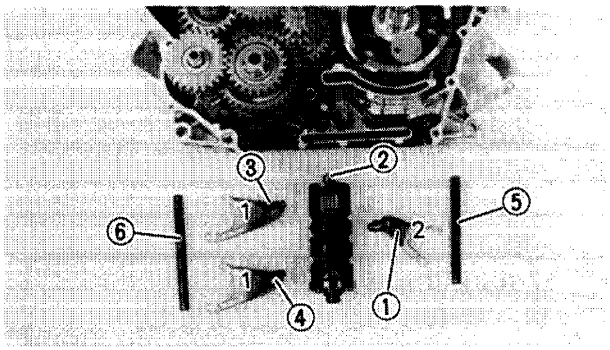




6. Install:
   - High pinion gear (23T) ①
   - Plain washer (Drive axle) ②
   - Plain washer (Idle axle) ③

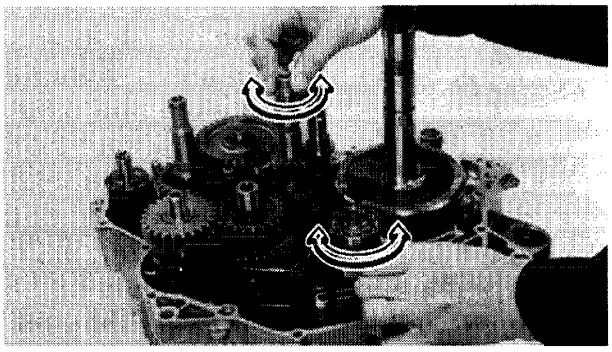


7. Install:
   - Balancer weight ①
   - Reverse axle ②
   - Reverse wheel gear (36T) ③
   - Plain washer (Reverse axle) ④



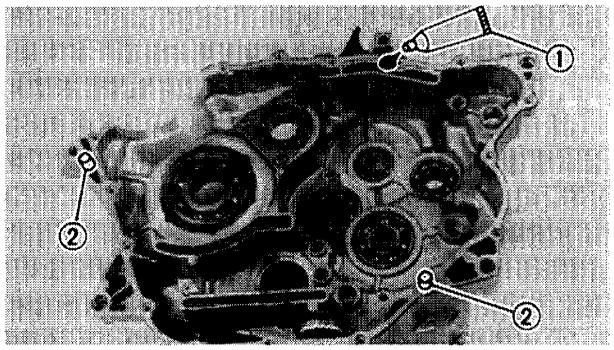
8. Install:
   - Shift fork #2 ①
   - Shift cam #1 ②
   - Shift fork #1 (Inside) ③
   - Shift fork #1 (Outside) ④
   - Guide bar #1 (Shorter) ⑤
   - Guide bar #2 (Longer) ⑥

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



9. Check:
   - Transmission and shifter operation
     Unsmooth operation → Repair.

NOTE:
Oil each gear and bearing thoroughly.

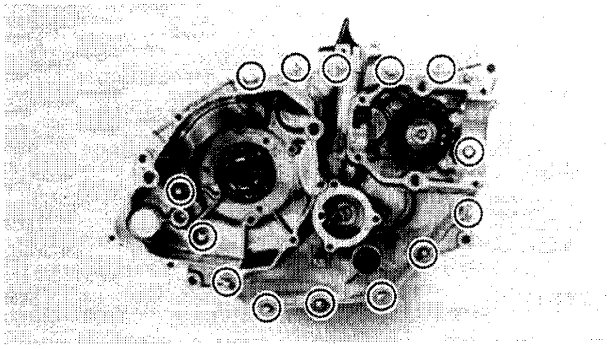


CRANKCASE

1. Apply:
   - Sealant (Quick Gasket®) ① (ACC-11001-05-01)
     To the mating surfaces of both case halves.
2. Install:
   - Dowel pins ②
3. Fit the right crankcase onto the left case.
   Tap lightly on the case with a soft hammer.

CAUTION:

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



4. Tighten:
   - Bolts (Crankcase)

NOTE:

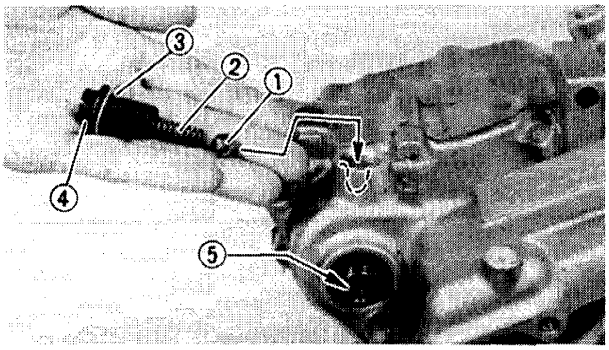
Tighten the bolt in stage, using a crisscross pattern.

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

5. Apply:
   - 4-stroke engine oil

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

   Unsmooth operation → Repair.



7. Install:
   - Ball ①
   - Spring ②
   - Plain washer ③
   - Bolt (Shift cam #2) ④

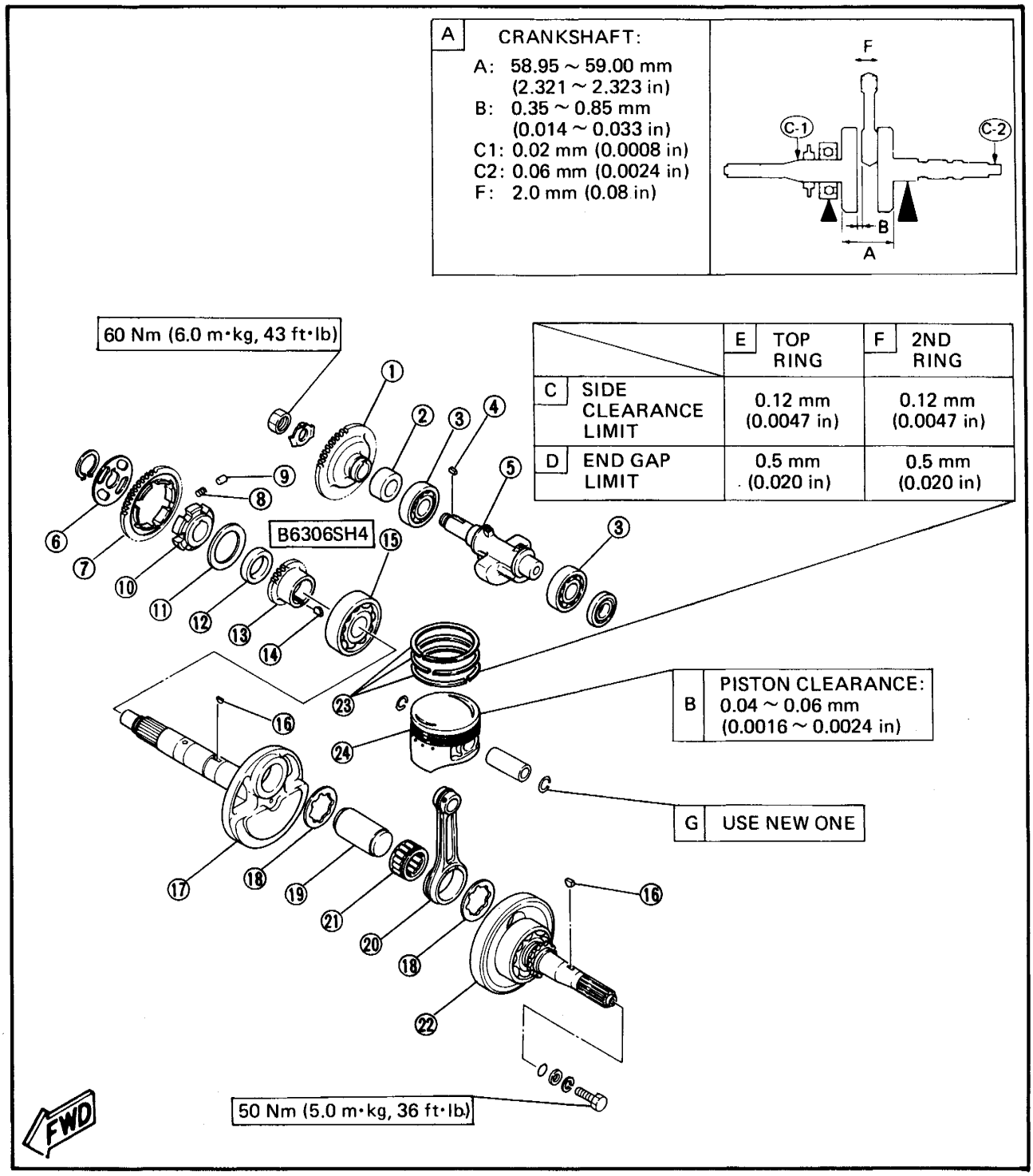
NOTE:

- Apply grease to the ball and spring thoroughly.
- Shift the shift cam in "LOW" position ⑤ .

Bolt (Shift Cam 2):
10 Nm (1.0 m·kg, 7.2 ft·lb)

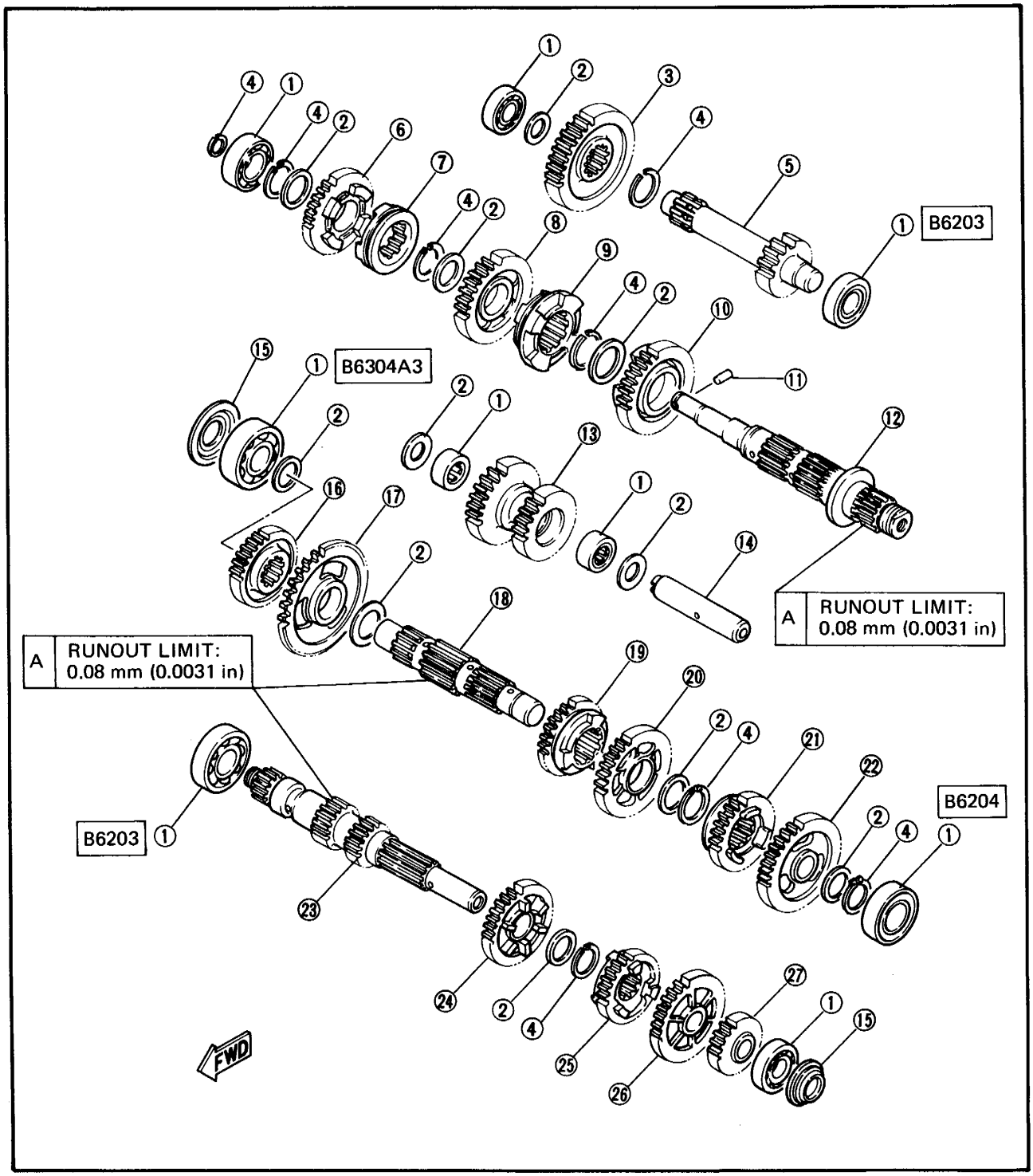
CRANKSHAFT

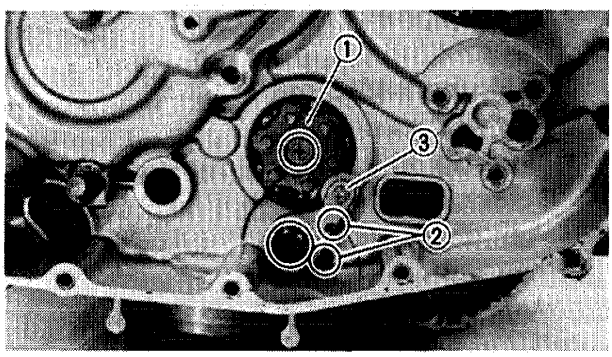
① Balancer driven gear
② Collar
③ Bearing
④ Straight key
⑤ Balancer shaft
⑥ Holding plate
⑦ Balancer drive gear
⑧ Compression spring
⑨ Dowel pin
⑩ Buffer boss
⑪ Plain washer
⑫ Collar
⑬ Oil pump driven gear
⑭ Woodruff key
⑮ Bearing
⑯ Woodruff key
⑰ Crank (Right)
⑱ Washer
⑲ Crank pin
⑳ Connecting rod
㉑ Cylinderical bearing
㉒ Crank (Left)
㉓ Piston ring set
㉔ Piston



TRANSMISSION

① Bearing
② Plain washer
③ Reverse wheel gear #1
④ Circlip
⑤ Reverse axle
⑥ Middle driven gear
⑦ Holder (Middle driven gear)
⑧ Middle drive gear
⑨ Dog clutch
⑩ Reverse wheel gear #2
⑪ Dowel pin
⑫ Middle drive axle
⑬ High wheel gear
⑭ Idle axle
⑮ Oil seal
⑯ High pinion gear (23T)
⑰ 1st wheel gear (38T)
⑱ Drive axle
⑲ 5th wheel gear (24T)
⑳ 3rd wheel gear
㉑ 4th wheel gear
㉒ 2nd wheel gear
㉓ Main axle
㉔ 5th pinion gear
㉕ 3rd pinion gear
㉖ 4th pinion gear
㉗ 2nd pinion gear





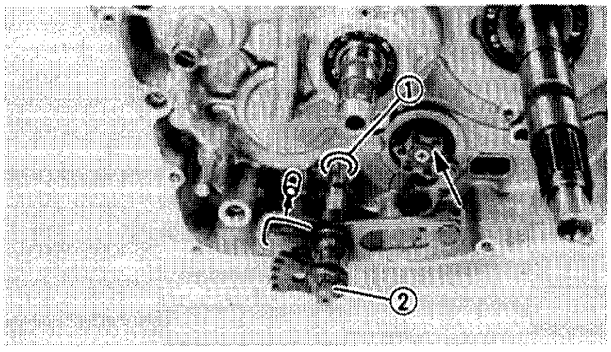
OIL PUMP AND SHIFTER

1. Install:
   - Segment ①
     Use #25 Torx Driver (YU-29843-4).

Screw (Segment):
12 Nm (1.2 m·kg, 8.7 ft·lb)
LOCTITE®

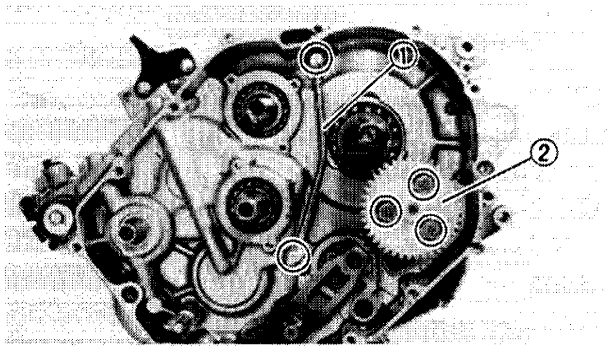
   - Spring ②
   - Stopper lever ③
2. Hook the spring to its original positon.
3. Tighten:
   - Bolt (Stopper lever)

Bolt (Stopper Lever):
14 Nm (1.4 m·kg, 10 ft·lb)
LOCTITE®



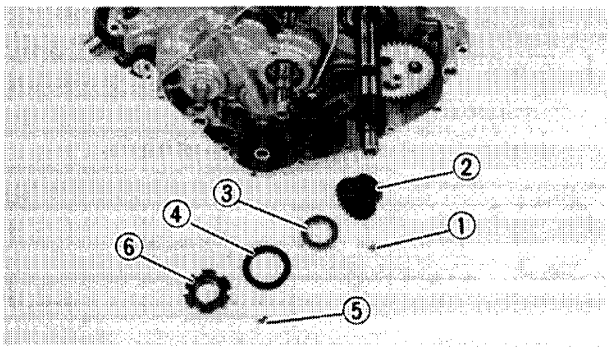
4. Install:
   - Plain washer ①
   - Shift shaft ②

NOTE:
- Be sure the shift lever correctly engages the shift cam pins.
- Be sure the stopper shaft is placed between the spring hooks.



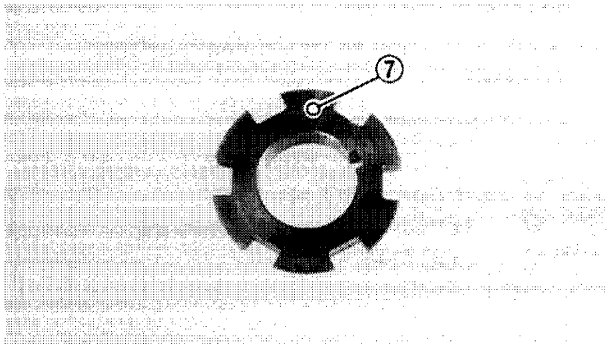
5. Install:
   - Oil pipe ①
   - Gasket (Oil pump)
   - Oil pump assembly ②

Oil Pipe:
16 Nm (1.6 m·kg, 11 ft·lb)
Oil Pump:
7 Nm (0.7 m·kg, 5.1 ft·lb)

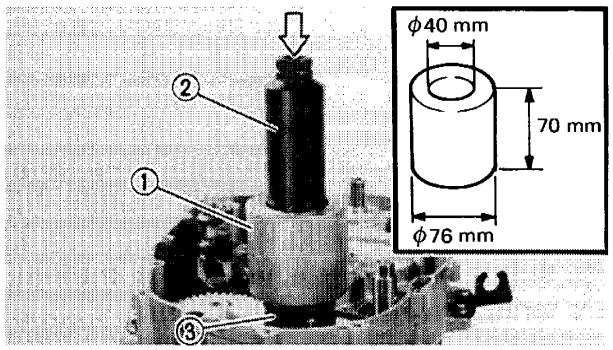


BALANCER DRIVE AND DRIVEN GEARS

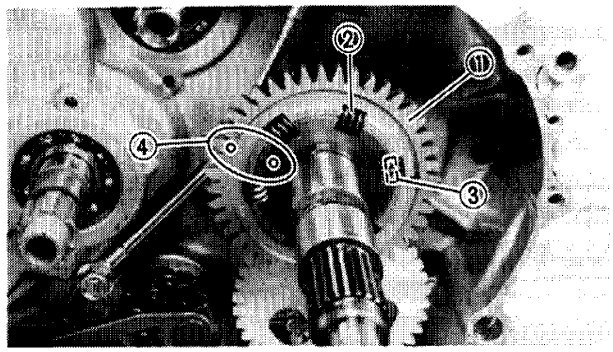
1. Install:
   - Key (Woodruff – Inside) ①
     Apply engine oil.
   - Oil pump drive gear ②
   - Collar ③
   - Plain washer ④
   - Key (Woodruff – Outside) ⑤
     Apply engine oil.
   - Buffer boss (New) ⑥



NOTE:
- The punch mark ⑦ on the boss must face outward, away from the main bearing.
- Be sure the woodruff key in the crankshaft should engage the keyway in the buffer boss.

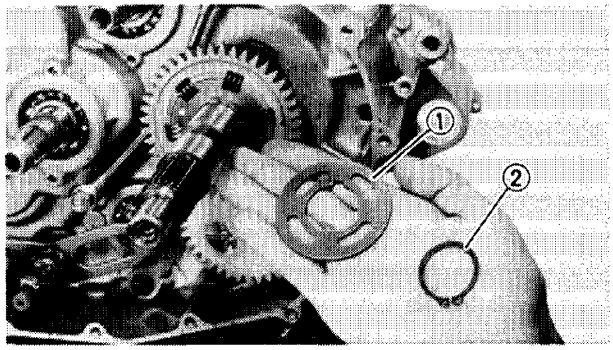


2. Attach:
   - Suitable tool (Steel) ①
   - Middle Drive Shaft Nut Wrench (YM-04054) ②
3. Secure:
   - Buffer boss ③
     Tap on the wrench end with a steel hammer.

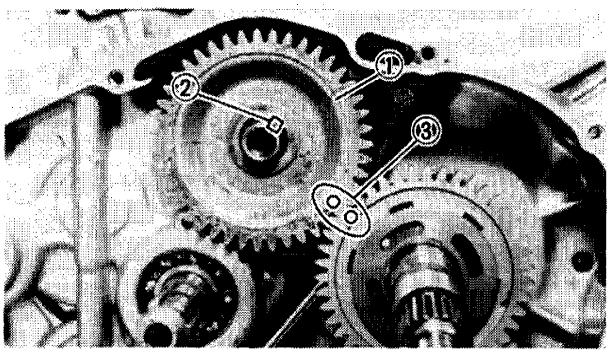


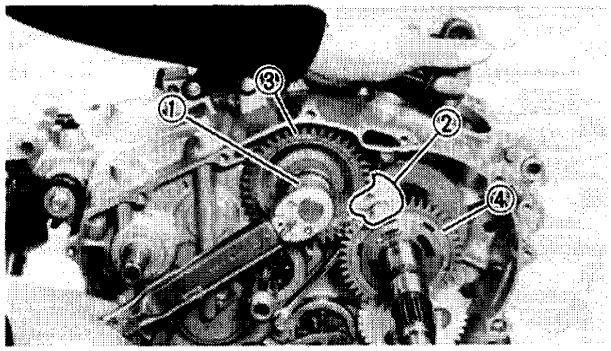
4. Install:
   - Balancer drive gear ①

NOTE:
- The balancer drive gear damper assembly is composed of six springs ② and three pins ③ . Insert a spring into the buffer boss, then insert a spring with a pin in it.
- Align the punch marks ④ on the buffer boss and drive gear.



5. Install:
   - Holding plate ①
   - Circlip ②





6. Install:
   - Collar
   - Balancer driven gear ①
   - Key (Straight) ②
   - Lock washer

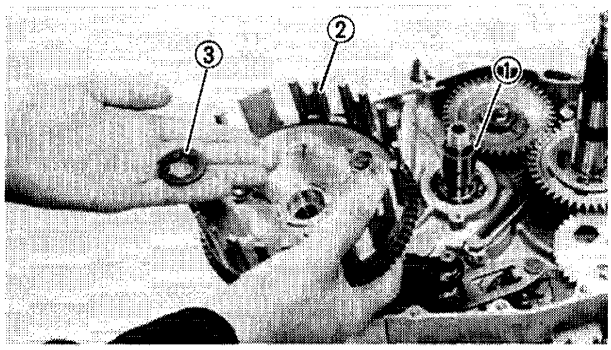
NOTE:
- Align the punch marks ③ on the drive and driven gear.
- Be sure the tab of the lock washer engages the slot in the balancer shaft.

   - Nuts (Driven gear)
     Finger tighten the nut.
7. Tighten:
   - Nut (Driven gear) ①

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

	Nut (Balancer Driven Gear): 60 Nm (6.0 m·kg, 43 ft·lb)

8. Bend the lock washer tabs.



CLUTCH

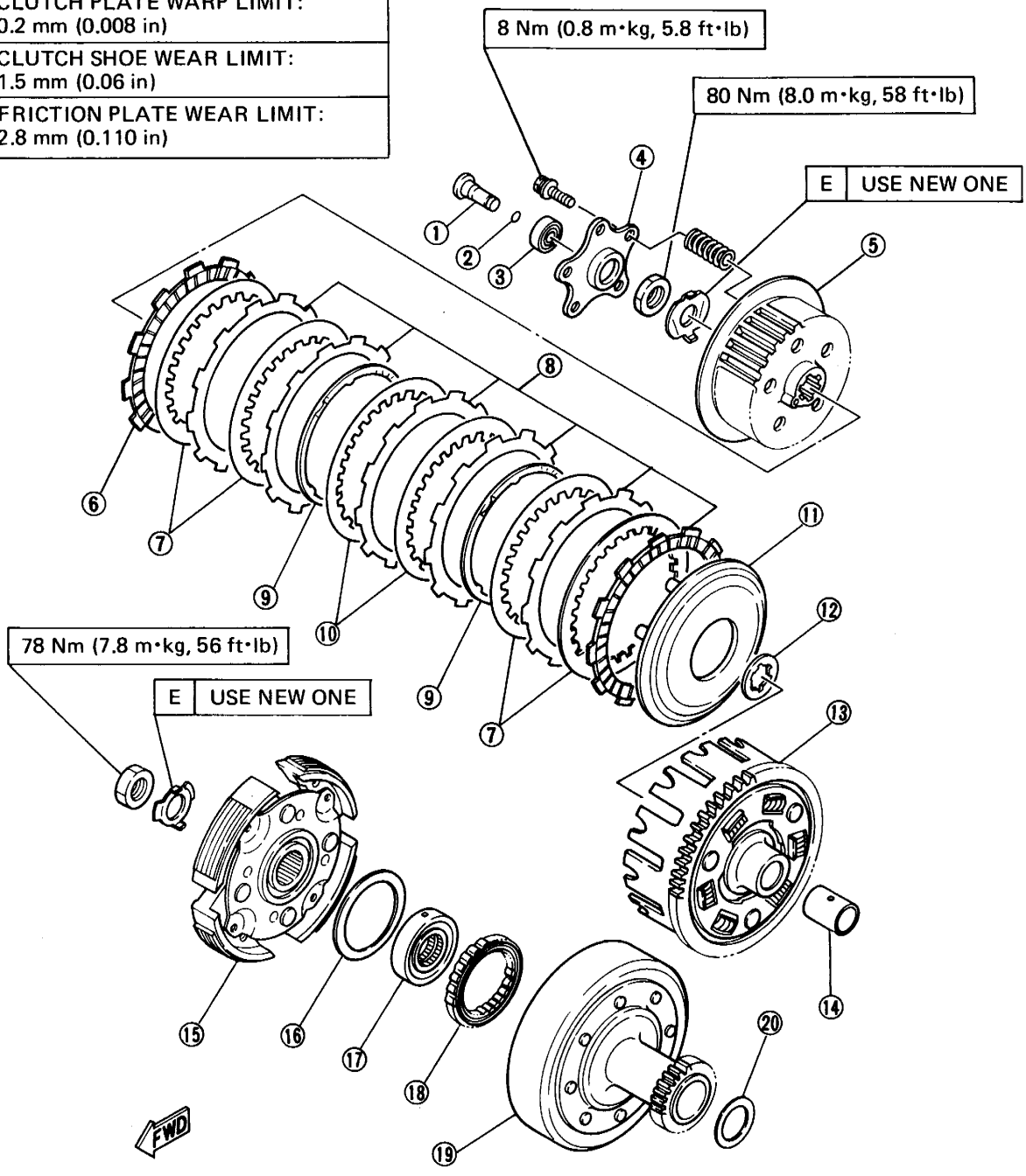
Secondary Clutch and Primary Clutch

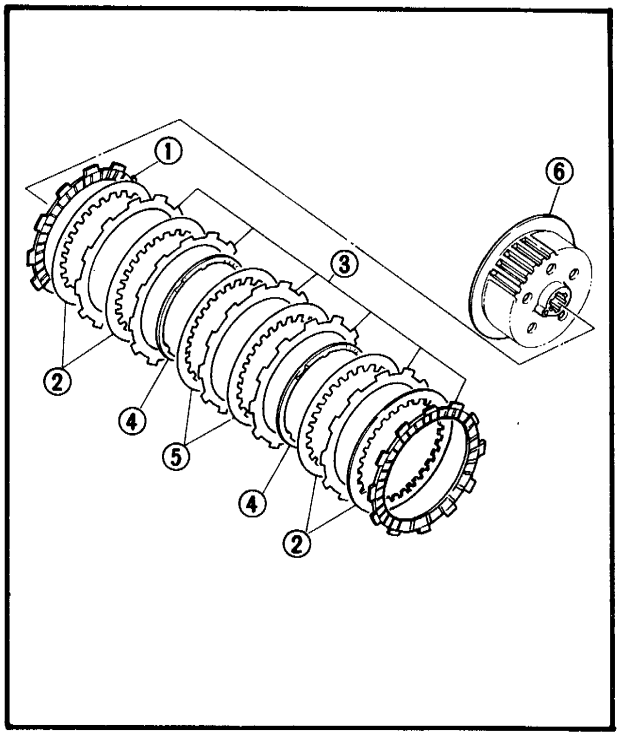
1. Install:
   - Collar ①
   - Clutch housing ②
   - Thrust washer ③

CLUTCH

① Push rod
② O-ring
③ Bearing
④ Clutch spring plate
⑤ Clutch boss
⑥ Friction plate (Cut – 1 pc)
⑦ Clutch plates
(Thickness: 1.6 mm – 4 pcs.)
⑧ Friction plates (Red – 6 pcs.)
⑨ Cushion springs (2 pcs.)
⑩ Clutch plate
(Thickness: 2.0 mm – 2 pcs.)
⑪ Pressure plate
⑫ Thrust washer
⑬ Clutch housing
⑭ Collar
⑮ Clutch carrier assembly
⑯ Plain washer
⑰ Bearing retainer
⑱ One way bearing
⑲ Clutch housing complete
⑳ Plain washer

A	CLUTCH SPRING MINIMUM LENGTH: 45.8 mm (1.80 in)
B	CLUTCH PLATE WARP LIMIT: 0.2 mm (0.008 in)
C	CLUTCH SHOE WEAR LIMIT: 1.5 mm (0.06 in)
D	FRICTION PLATE WEAR LIMIT: 2.8 mm (0.110 in)

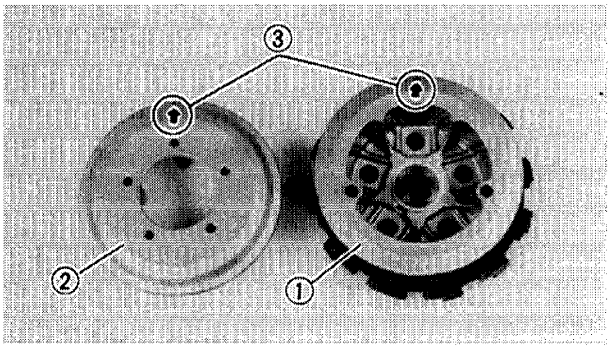




2. Install:
   - Friction plate (Cut – 1 pc.) ①
   - Clutch plates (Thickness: 1.6 mm – 4 pcs) ②
   - Friction plates (Red – 6 pcs) ③
   - Cushion springs ④
   - Clutch plates (Thickness: 2.0 mm – 2 pcs) ⑤

   To clutch boss ⑥.

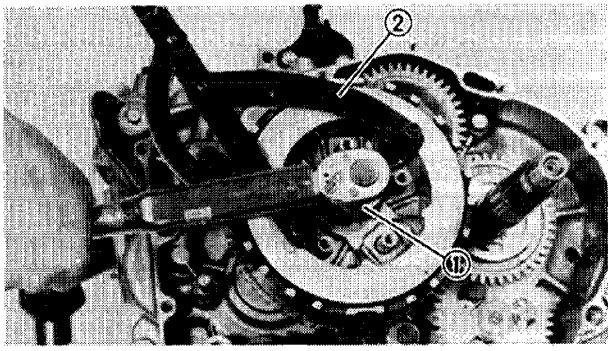
NOTE:
Install the clutch plates and friction plates alternately on the clutch boss, starting with a friction plate and ending with a friction plate.



3. Install:
   - Clutch boss ①

   To the pressure plate assembly ②.

NOTE:
Align the arrow marks ③ on the clutch boss with the pressure plate assembly.

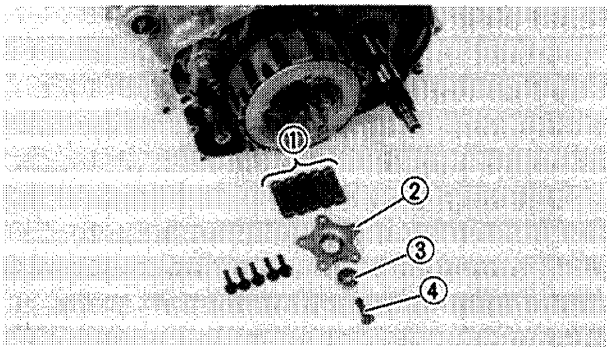


4. Install:
   - Lock washer (New)
   - Nut (Clutch boss) ①

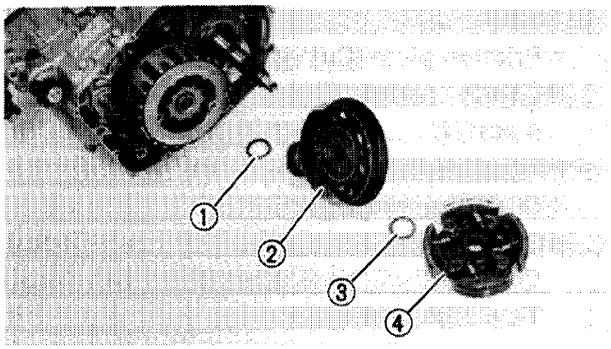
   Use the Rotor Holder ② (YU-01235) to hold the clutch boss.

Nut (Clutch Boss):
80 Nm (8.0 m·kg, 58 ft·lb)

5. Bend the lock washer tabs.
6. Install:
   - Clutch springs ①
   - Clutch spring plate ②
   - Bearing ③
   - Push rod ④

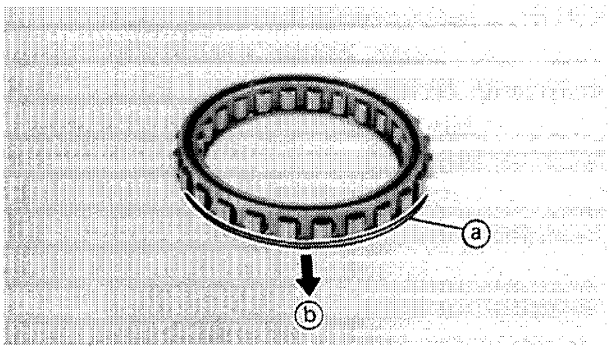


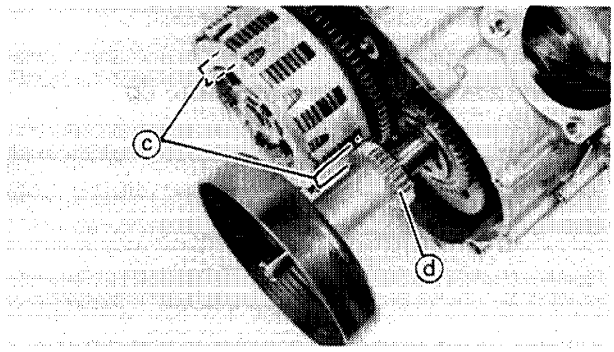
Bolts (Clutch Spring):
8 Nm (0.8 m·kg, 5.8 ft·lb)

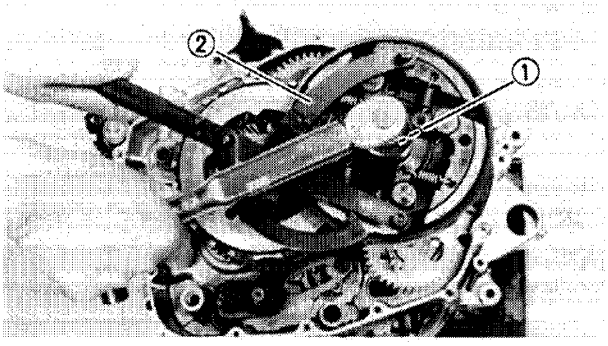


7. Install:
   - Plain washer ①
   - Clutch housing comp. ②
   - Plain washer ③
   - Clutch carrier assembly ④
   - Lock washer (New)
   - Nut (Primary clutch)

NOTE:
- The flange side ⓐ of one-way bearing must face inward ⓑ , away from the clutch shoe.
- The secondary clutch housing has two notches ⓒ machines into it to permit the primary drive gear behind the primary clutch to clear the secondary clutch.
  Align one of these notches with the primary gear ⓓ before installing the primary clutch assembly.



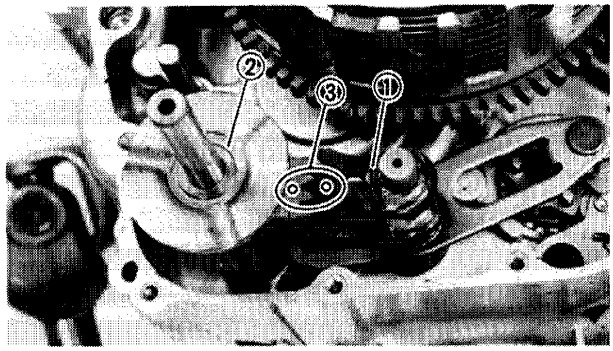




8. Tighten:
   - Nut (Primary clutch) ①
     Use the Rotor Holder ② (YU-01235) to hold the clutch shoe assembly.

	Nut (Primary Clutch): **78 Nm (7.8 m·kg, 56 ft·lb)**

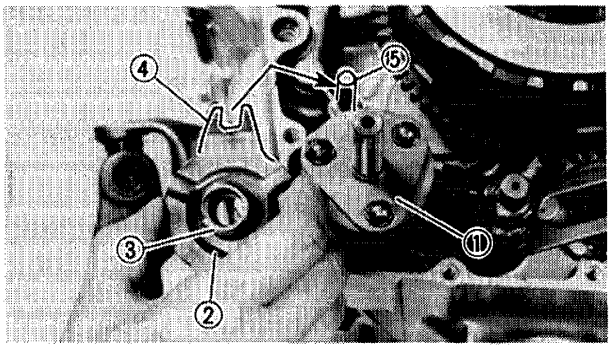
9. Bend the lock washer tabs.



Shift Guide

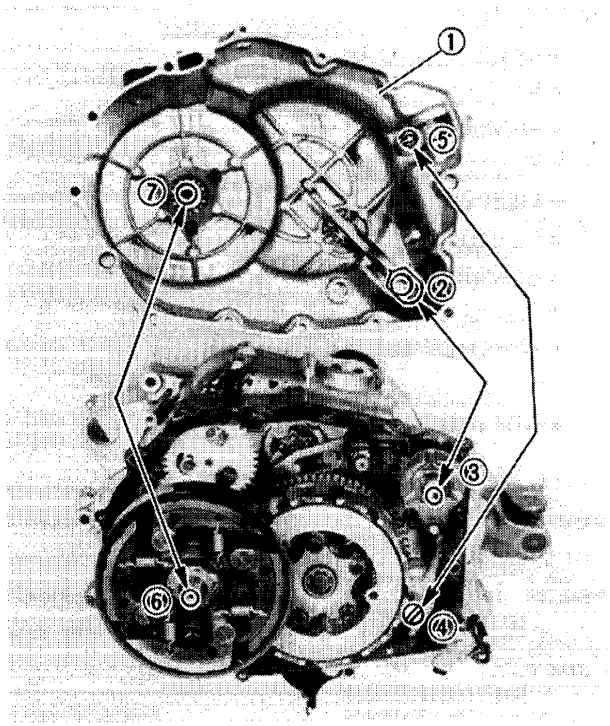
1. Install:
   - Plain washers
   - Bearing
   - Shift shaft ①
   - Shift guide #2 ②

NOTE:
Align the punch marks ③ on the shift guides.



2. Install:
   - Pawl holder ①
   - Shift guide #1 ②
   - Clutch lever spring ③

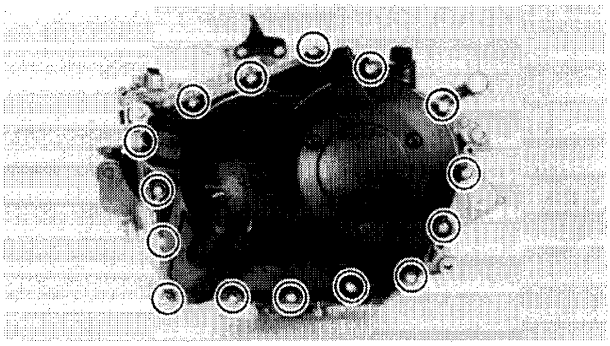
NOTE:
The slot ④ in the shift guide #1 must engage the stopper bolt ⑤.



CRANKCASE COVER (RIGHT)

1. Install:
   - Gasket (New)
   - Dowel pins
   - Crankcase cover (Right) ①

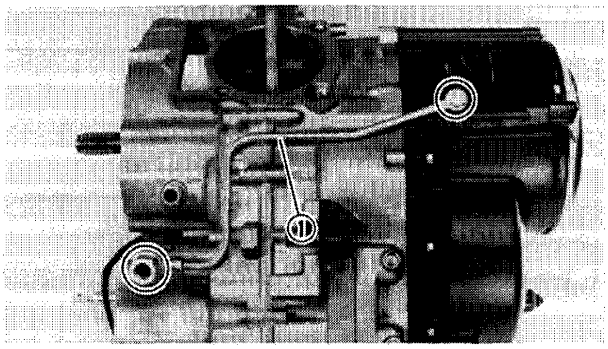
NOTE:
- The shift arm ② engages the shift guide #1 ③.
- The pin of middle drive axle ④ engages the groove of speedometer drive gear ⑤.
- The crankshaft end ⑥ engages the bearing of crankcase ⑦.



2. Tighten:
   - Bolts (Crankcase cover)

NOTE:
Tighten the bolts in stage, using a crisscross pattern.

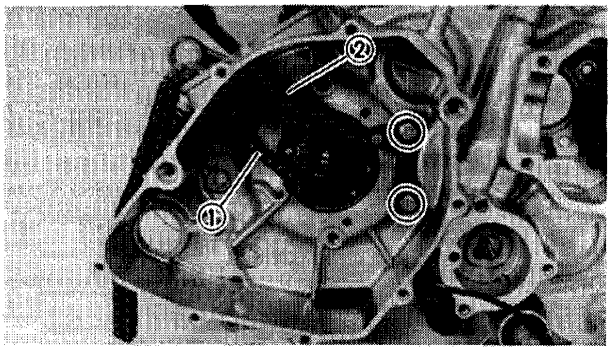
Screws (Crankcase Cover):
10 Nm (1.0 m·kg, 7.2 ft·lb)



OIL PIPE AND CAM CHAIN

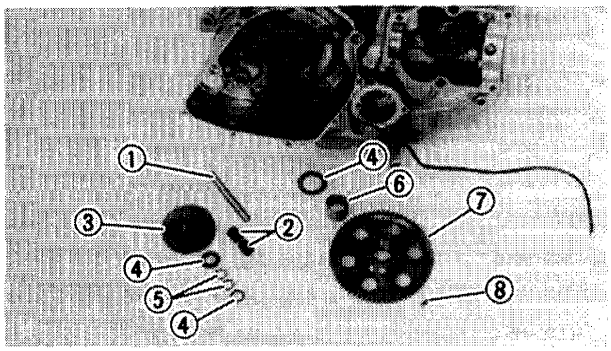
1. Install:
   - Oil pipe ①

Union Bolt (8 mm):
16 Nm (1.6 m·kg, 11 ft·lb)
Union Bolt (14 mm):
35 Nm (3.5 m·kg, 25 ft·lb)



2. Install:
   - Cam chain ①
   - Cam chain damper (Intake) ②

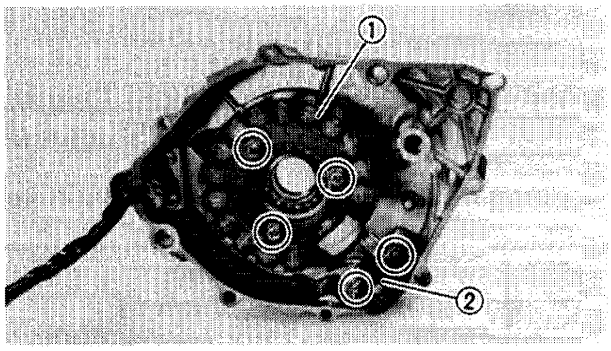
Cam Chain Damper (Intake):
10 Nm (1.0 m·kg, 7.2 ft·lb)



CDI ROTOR

1. Install:
   - Shaft ①
   - Bearings ②
   - Starter idle gear #1 ③
   - Plain washers ④
   - Circlips ⑤
   - Bearing ⑥
   - Starter idle gear #2 ⑦
   - Woodruff key ⑧
2. Install:
   - CDI rotor

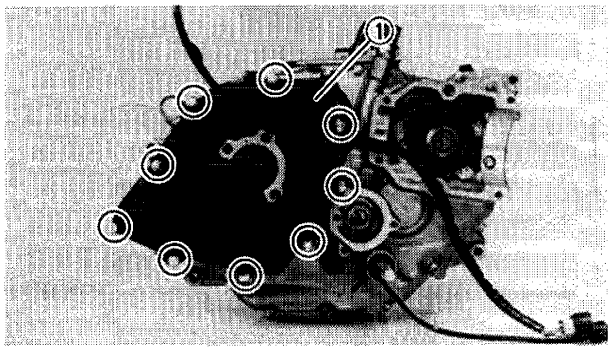
NOTE:
- Before installing the rotor, clean the outside of the crankshaft and inside of the rotor.
- After installing the rotor, check the rotor rotation smoothly. If not, reinstall the key and rotor.



CRANKCASE COVER (LEFT)

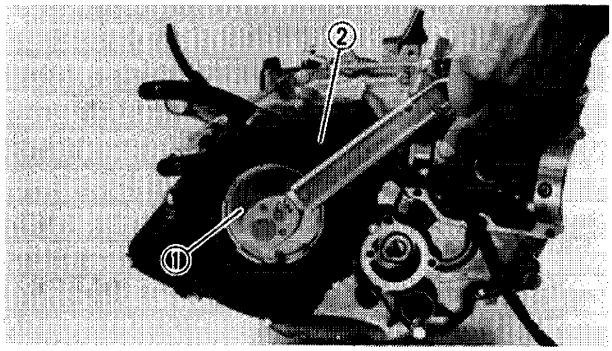
1. Install:
   - Stator assembly ①
   - Pickup coil assembly ②

Stator Assembly:
7 Nm (0.7 m·kg, 5.1 ft·lb)



2. Install:
   - Dowel pins
   - Gasket (New)
   - Crankcase cover (Left) ①

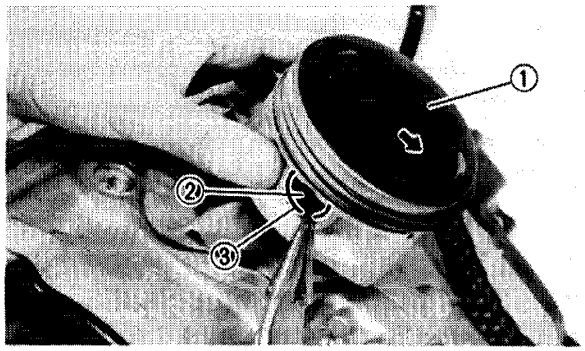
Crankcase Cover (Left):
10 Nm (1.0 m·kg, 7.2 ft·lb)



3. Install:
   - Starter pulley ①
     Use the Rotor Holder ② (YU-01235) to hold the starter pulley.

NOTE:
Before installing the starter pulley, do not forget to fit the O-ring.

Starter Pulley:
50 Nm (5.0 m·kg, 36 ft·lb)

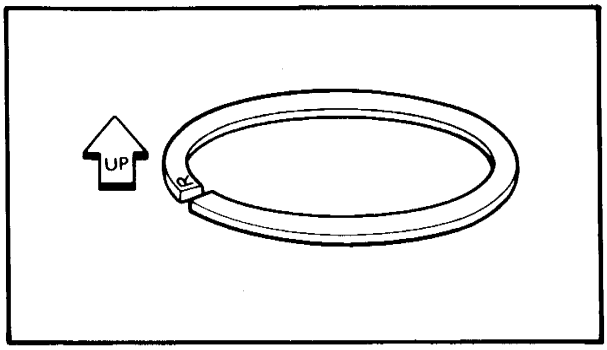


PISTON

1. Install:
   - Piston ①
   - Piston pin ②
   - Piston pin clip ③

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

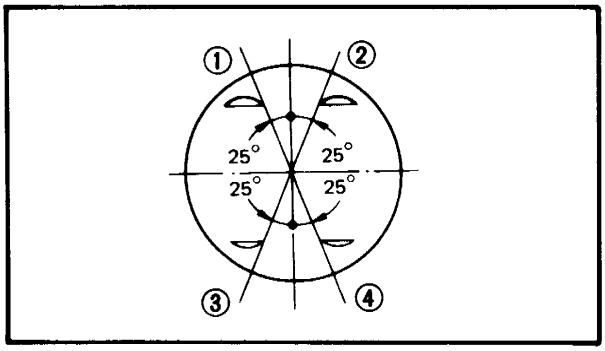
2. Apply:
   - 4-stroke engine oil
     To the piston pin, piston ring grooves and piston skirt areas.



CYLINDER AND CYLINDER HEAD

1. Install:
   - Piston rings
     Onto the piston.

NOTE:
Be sure to install the rings so that Manufacturer's marks or numbers are located on the top side of the rings.

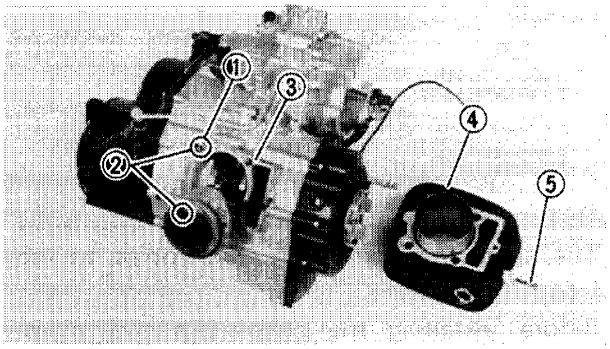


2. Apply:
   - 4-stroke engine oil
     To the piston, piston rings and cylinder.
3. Set:
   - Piston ring ends

CAUTION:

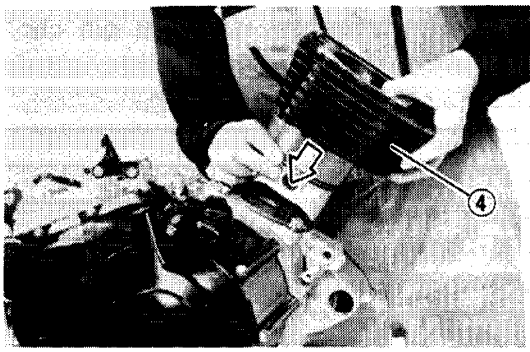
Make sure the ends of the oil ring expanders do not overlap.

① TOP
② OIL RING (LOWER RAIL)
③ OIL RING (UPPER RAIL)
④ 2ND



4. Install:
   - O-ring ①
   - Dowel pins ②
   - Gasket (New) ③
   - Cylinder ④
   - Bolts (Cylinder) ⑤

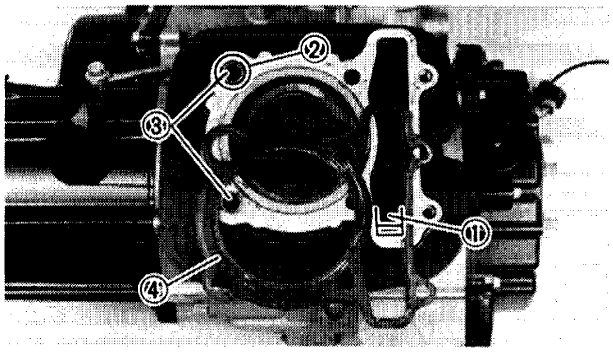
NOTE:
Install the cylinder with one hand while compressing the piston rings with the other hand.



CAUTION:

- **Be careful not to damage the cam chain damper during installation.**
- **Pass the cam chain through the cam chain cavity.**

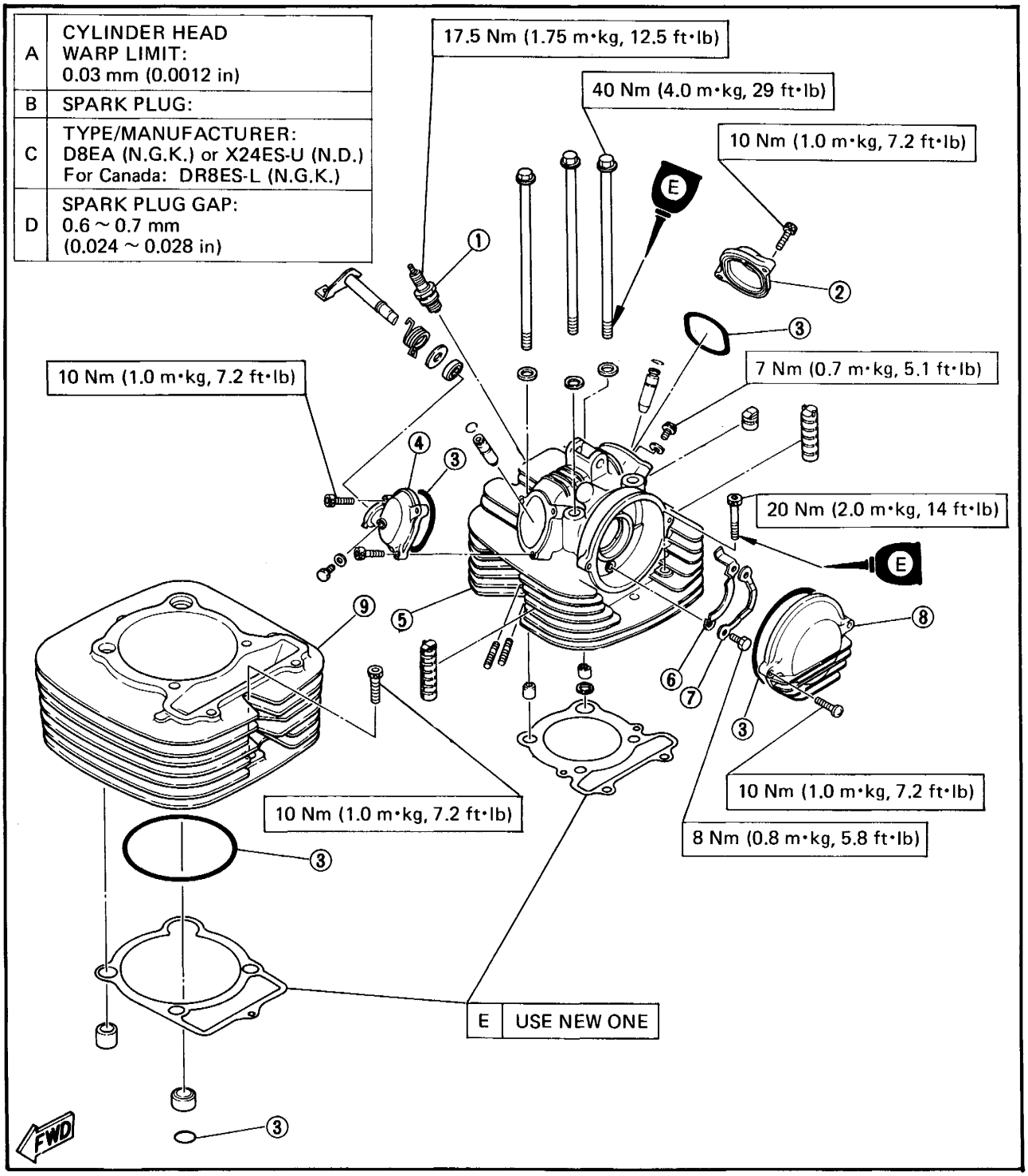
Bolts (Cylinder):
10 Nm (1.0 m·kg, 7.2 ft·lb)



5. Install:
   - Cam chain damper (Exhaust) ①
   - O-ring ②
   - Dowel pins ③
   - Gasket (New) ④

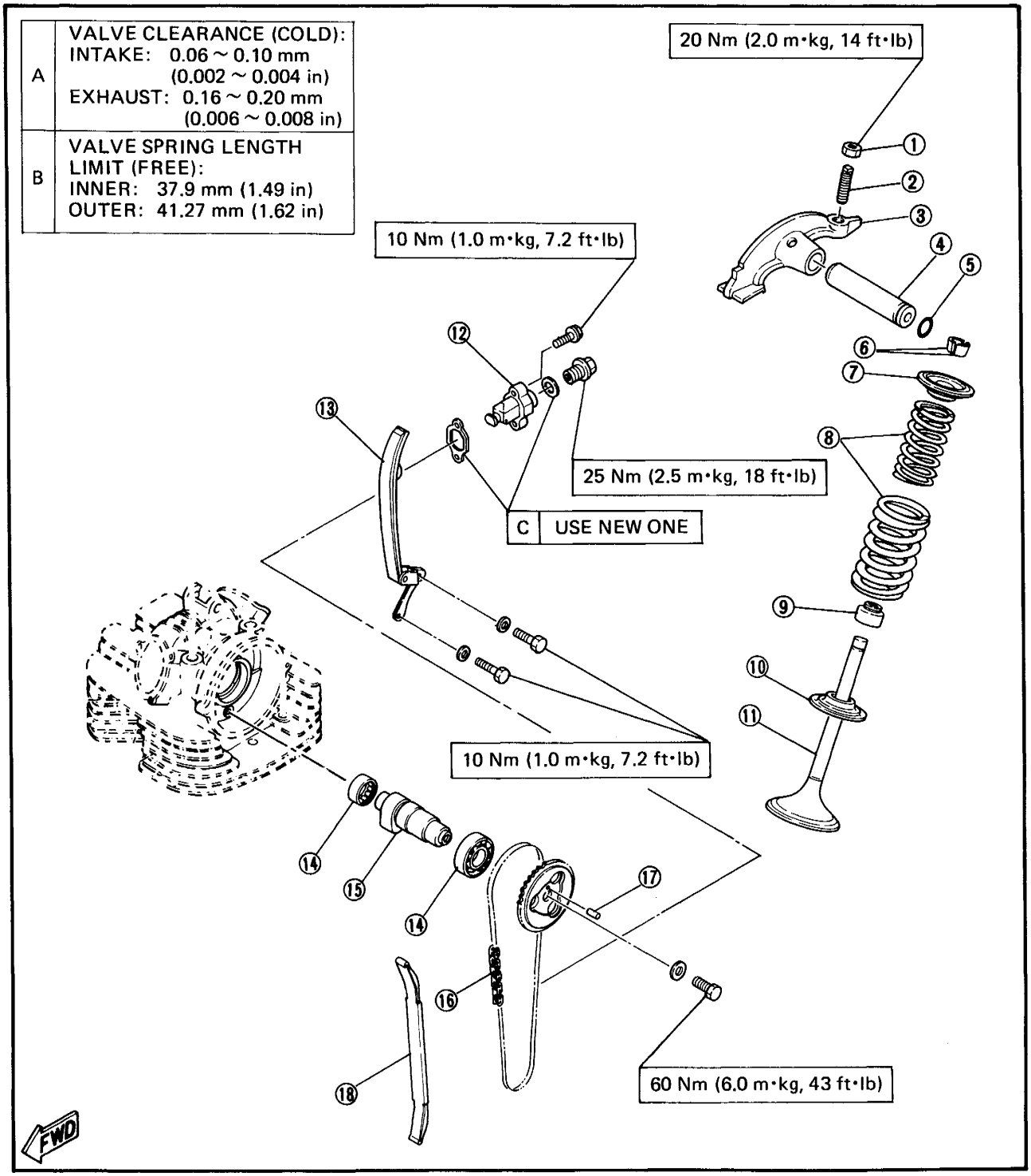
CYLINDER AND CYLINDER HEAD (1)

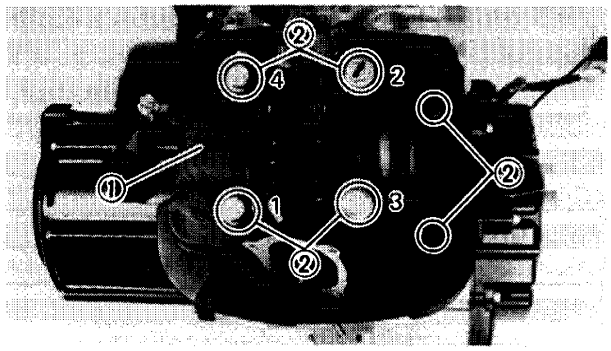
①Spark plug
②Tappet cover (Intake)
③O-ring
④Tappet cover (Exhaust)
⑤Cylinder head
⑥Bearing retainer
⑦Lock washer
⑧Side cover
⑨Cylinder



CYLINDER AND CYLINDER HEAD (2)

① Locknuts (Valve adjusting)
② Adjuster (Valve adjusting)
③ Rocker arm
④ Rocker arm shaft
⑤ O-ring
⑥ Valve retainers
⑦ Valve spring seat
⑧ Valve springs
⑨ Oil seal
⑩ Valve spring seat
⑪ Valve
⑫ Cam chain tensioner
⑬ Cam chain damper (Intake)
⑭ Bearing
⑮ Camshaft
⑯ Cam chain
⑰ Cam sprocket
⑱ Cam chain damper (Exhaust)





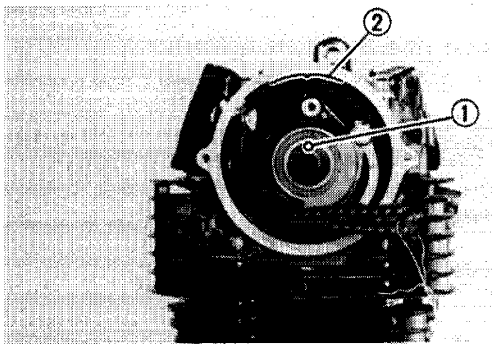
6. Install:
   • Cylinder head ①

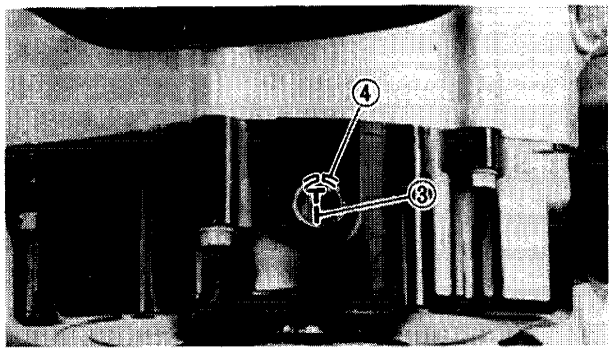
NOTE:
Tie the cam chain so that it does not fall into the crankcase.

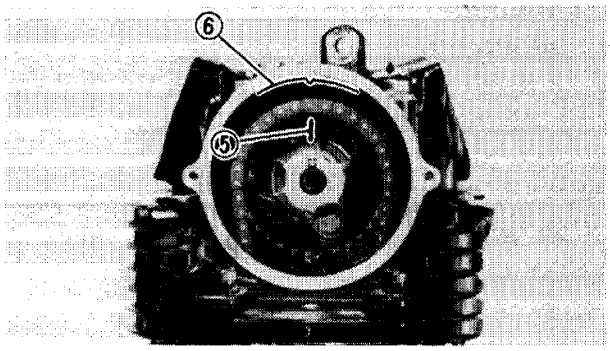
   • Bolts (Cylinder head) ②
     Apply engine oil to the thread portion.

NOTE:
Tighten the bolts in stage, using a crisscross pattern.

Bolts (Cylinder Head) – 10 mm:
40 Nm (4.0 m·kg, 29 ft·lb)
Bolts (Cylinder Head) – 8 mm:
20 Nm (2.0 m·kg, 14 ft·lb)







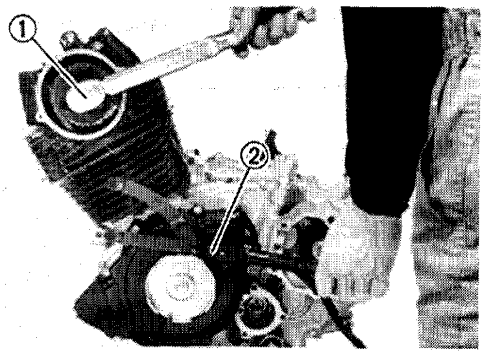
7. Install:
   • Cam sprocket

Cam sprocket installing steps:
- Rotate the camshaft to align the camshaft pin ① with the cylinder head match mark ②.
- Turn the starter pulley until the "T" mark ③ is aligned with the stationary pointer ④ on the crankcase.
- Place the cam chain onto the cam chain sprocket.
- Install the cam chain sprocket onto the camshaft, and finger tighten the sprocket bolt.

NOTE:
Be sure the match mark ⑤ on the cam chain sprocket is aligned with the match mark ⑥ on the cylinder head.

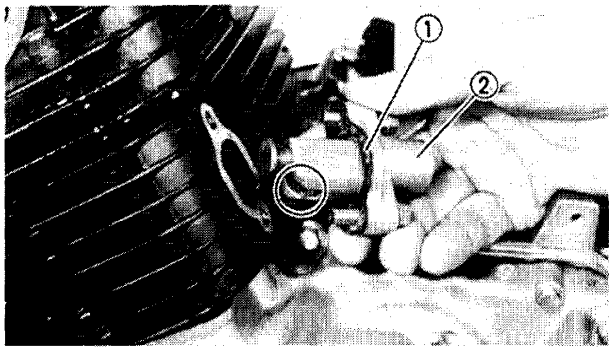
- Force the camshaft clockwise and counter-clockwise to remove the cam chain slack.
- Insert the screwdriver into the cam chain tensioner hole, and push the cam chain damper inward.
- While pushing the cam chain damper, be sure cam sprocket match mark ⑤ align the cylinder head match mark ⑥.

• If marks is aligned, tighten the cam sprocket bolt. If marks do not align, change the meshing position of sprocket and cam chain.



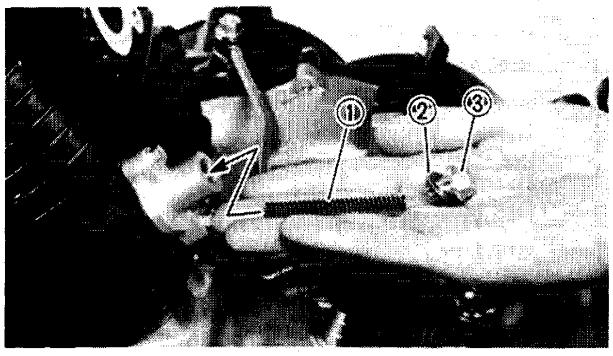
10. Tighten:
    • Bolt (Cam chain sprocket) ①
    Use the Rotor Holder ② (YU-01235) to hold the starter pulley.

Bolt (Cam Chain Sprocket): 60 Nm (6.0 m·kg, 43 ft·lb)



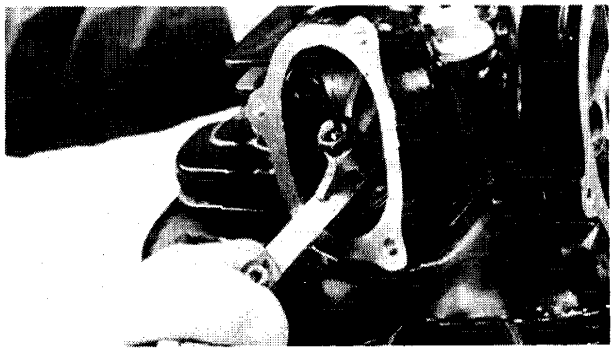
11. Install:
    • Gasket (New) ①
    • Cam chain tensioner body ②

Bolts (Cam Chain Tensioner Body): 10 Nm (1.0 m·kg, 7.2 ft·lb)



12. Install:
    • Spring ①
    • Plain washer ②
    • End plug ③

End Plug (Cam Chain Tensioner): 25 Nm (2.5 m·kg, 18 ft·lb)



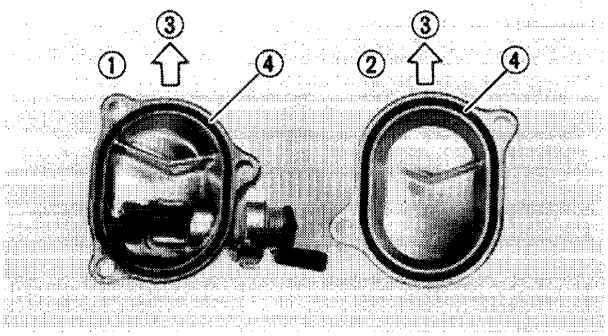
13. Adjust:
    • Valve clearance
    Refer to "CHAPTER 2. VALVE CLEARANCE ADJUSTMENT" section.

NOTE:

After adjusting the valve clearance, apply 4-stroke engine oil to the following parts.

- Camshaft
- Rocker arm shafts
- Rocker arms
- Valve assemblies

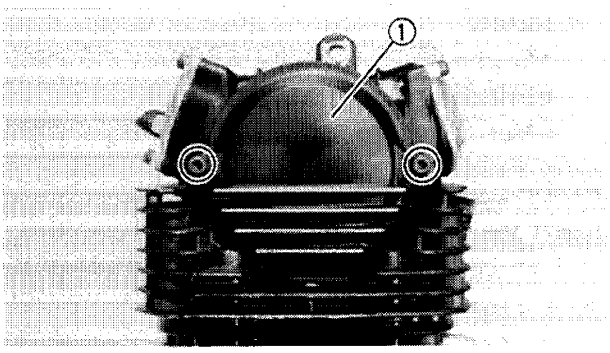
Intake Valve (Cold):
0.06 ~ 0.10 mm (0.002 ~ 0.004 in)
Exhaust Valve (Cold):
0.16 ~ 0.20 mm (0.006 ~ 0.008 in)



14. Install:
    - O-ring (Exhaust cover)
    - Tappet cover (Exhaust) ①
    - O-ring (Intake cover)
    - Tappet cover (Intake) ②

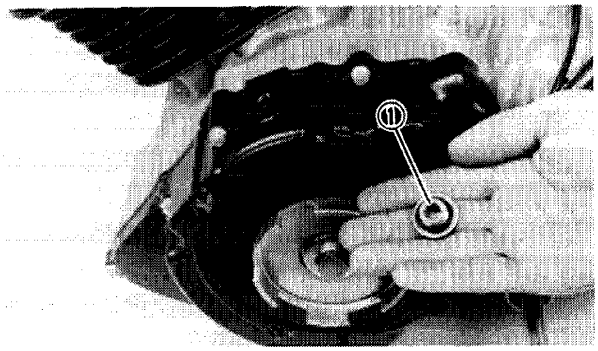
NOTE:
- Install the tappet covers with its ridge facing upward ③.
- Check the O-rings ④ for damage. If damaged, replace.

Tappet Cover:
10 Nm (1.0 m·kg, 7.2 ft·lb)



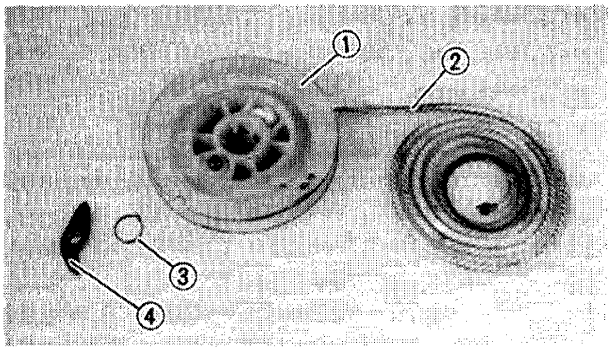
15. Install:
    - O-ring (Side cover)
    - Side cover (Cylinder head) ①

Side Cover (Cylinder Head):
10 Nm (1.0 m·kg, 7.2 ft·lb)



16. Install:
    - Timing plug ①
    - Spark plug

Spark Plug:
17.5 Nm (1.75 m·kg, 12.5 ft·lb)

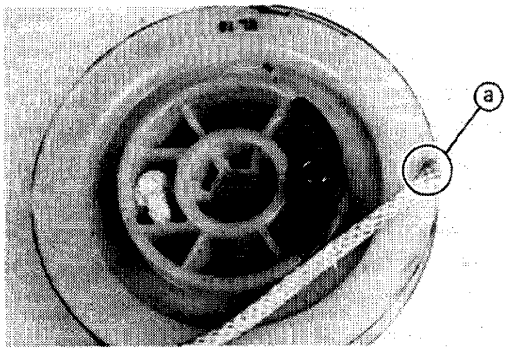


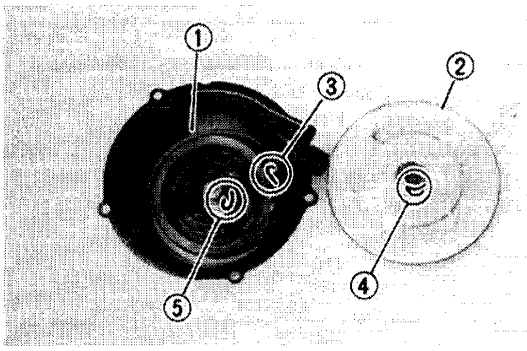
RECOIL STARTER

1. Install:
   - Sheave drum ①
   - Rope ②
   - Pawl spring ③
   - Drive pawl ④

NOTE:

Wind the rope 4-1/2 turns clockwise around the sheave drum. Then insert the rope into the drum slit ⓐ.

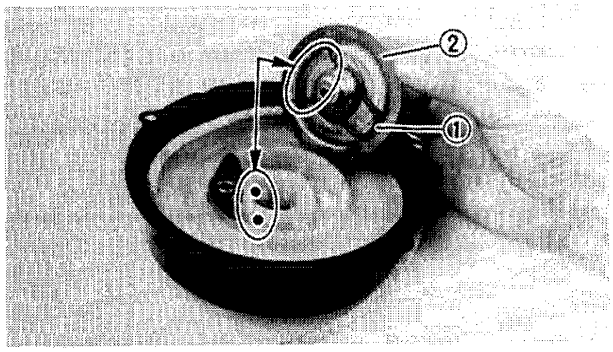




2. Install:
   - Starter spring ①
   - Sheave drum assembly ②

NOTE:

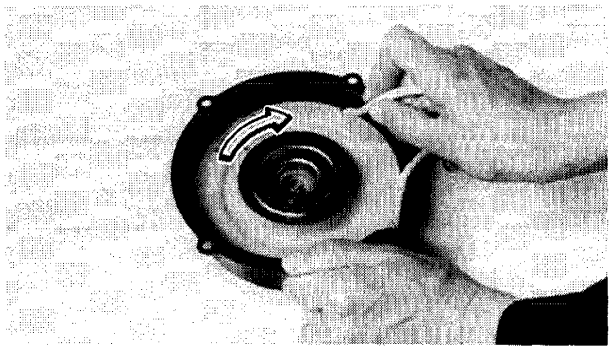
- Mesh the spring hook ③ with the case slit, then wind the spring clockwise into the case from larger to smaller diameter.
- Mesh the sheave drum hook ④ with the spring hook ⑤.



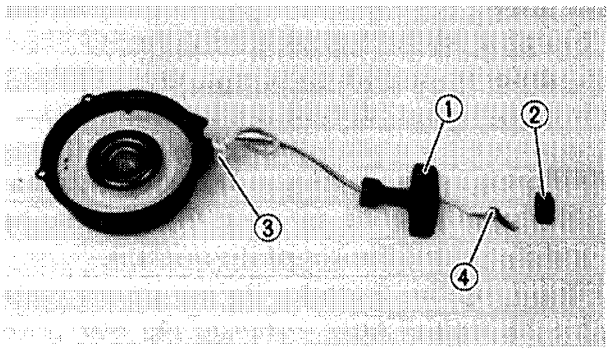
3. Install:
   - Spring ①
   - Friction plate ②
   - Nut

NOTE:

Insert the spring hooks into the pawl side holes.

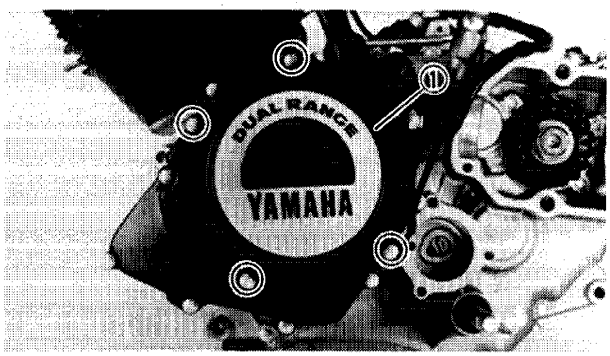


4. Turn the sheave drum 3-turns clockwise to give preload to the spring.



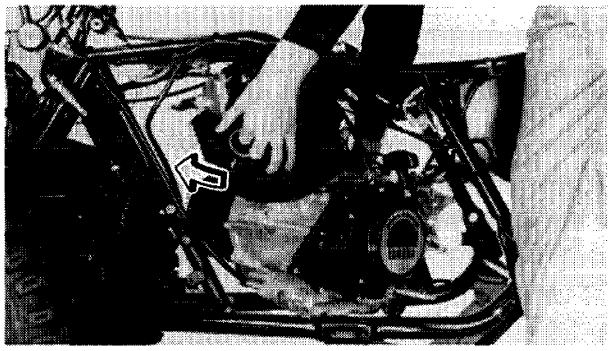
5. Install:
   - Starter handle ①
   - Cap ②

NOTE:
- Pass the rope through the case hole and make knot ③ on the rope so that the rope is not pulled into the case.
- Untying knot ③ after making knot ④.



6. Install:
   - Gasket (New)
   - Recoil starter assembly ①

Recoil Starter:
10 Nm (1.0 m·kg, 7.2 ft·lb)

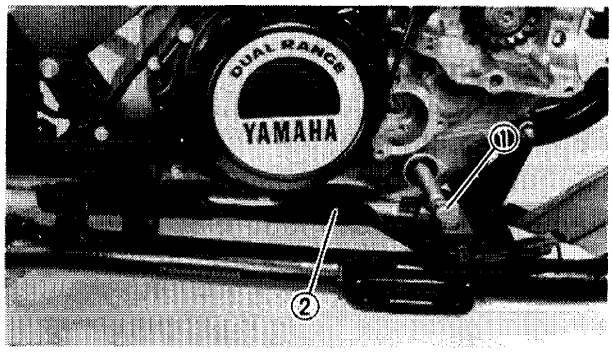


REMOUNTING ENGINE

When remounting the engine, reverse the removal procedure. Note the following points.

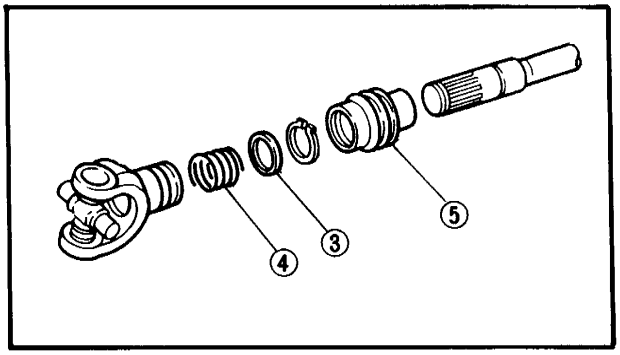
1. Install:
   - Engine

   From the left side.

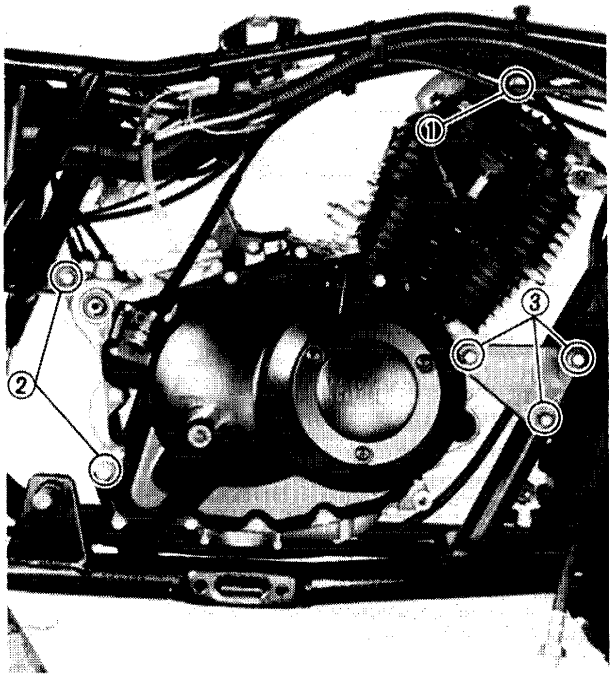


2. Apply:
   - Molbdenum disulfide grease

   To the drive shaft splines.
3. Install:
   - Front drive shaft ①
   - Front drive shaft protector ②

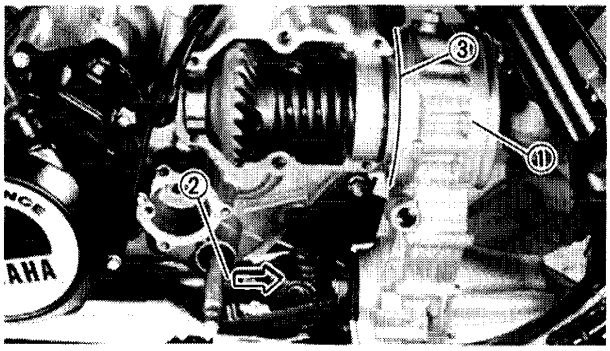


NOTE:
- Before connecting the drive shaft, do not forget to fit the spring seat ③ and spring ④.
- Insert the front drive shaft into the universal joint (Front differential gear side) properly and slide the rubber boot (Front) ⑤ on the drive shaft.
- Do not secure the protector at this point.



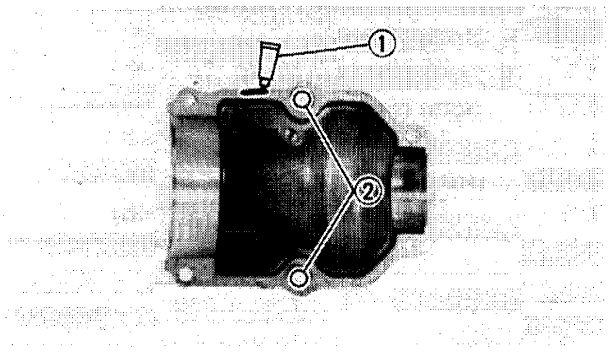
4. Install:
   - Bolts (Engine mounting-Top) ①
   - Bolt (Engine mounting-Rear) ②
   - Bolt (Engine mounting-Front) ③

NOTE:
- All mounting bolts ① , ② , ③ should be installed from the right of the machine.
- Finger tighten the nuts, do not torque them at this point. After installing the rear drive assembly and swingarm, tighten the mounting bolts securely.



5. Install:
   - Transfer gear assembly ①

NOTE:
- Before installing the transfer gear assembly;
  1) Insert the front drive shaft into the universal joint (Transfer gear side) properly and slide the rubber boot (Rear) ② on the drive shaft.
  2) Do not forget to fit the shims ③ .
- Finger tighten the mounting bolts (Crankcase side) of the transfer gear assembly, do not torque them at this point.

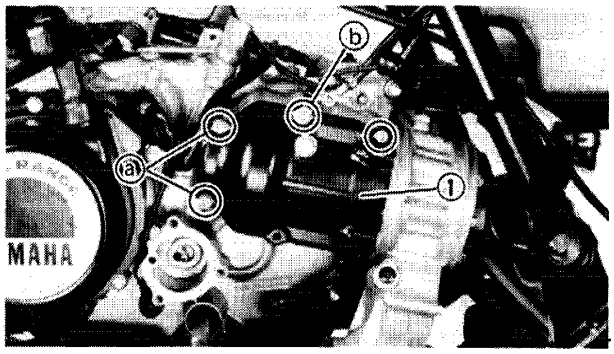


6. Apply:
   - Sealant (Quick Gasket ®) (ACC-11001-05-01) ①

     To the mating surface of both case halves.

NOTE:

Before installing the middle gear case, do not forget to fit the dowel pins ② .



7. Install:
   - Middle gear case ①

NOTE:

Finger tighten the mounting bolts (Middle gear case side) of the transfer gear assembly, do not torque them at this point.

Bolts (Middle Gear Case): 10 Nm (1.0 m·kg, 7.2 ft·lb)

ⓐ With copper washer ⓑ With clamp

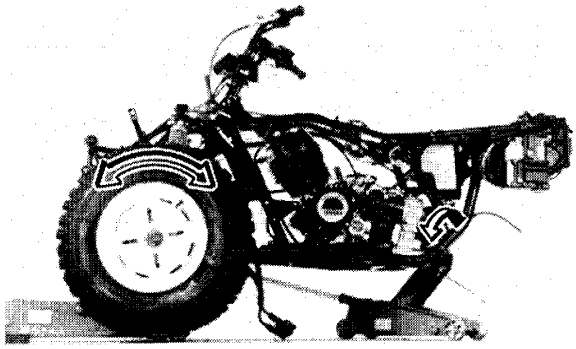
8. Check:
   - Front drive shaft operation

Front drive shaft operation checking steps:
- Make sure that the machine is off the ground at the rear.
- Lift the front of the machine off the ground, too.

WARNING:

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

- Turn the front wheels back and forth.
- Check the front drive shaft operation. If the operation is unsmooth, reinstall the front drive shaft properly.



9. Tighten:
   - Bolts (Transfer gear assembly)
   - Bolts (Front drive shaft protector)
   - Front half (Front drive shaft protector)

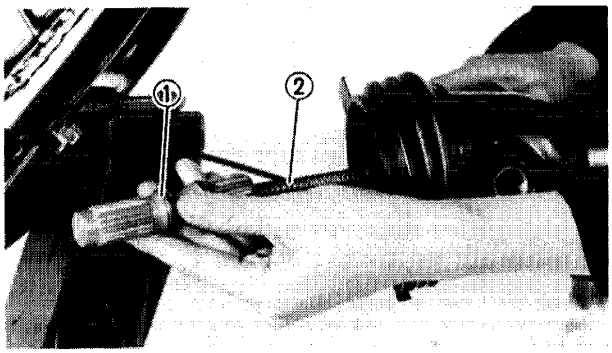
NOTE:

Before tightening the bolts, adjust the gear lash of the middle gear. Refer to "CHAPTER 5. DRIVE TRAIN – TRANSFER GEAR" section.

Bolts (Transfer Gear Assembly):
25 Nm (2.5 m·kg, 18 ft·lb)
Bolts (Front Drive Shaft Protector):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Bolts (Engine Guard – Rear):
16 Nm (1.6 m·kg, 11 ft·lb)

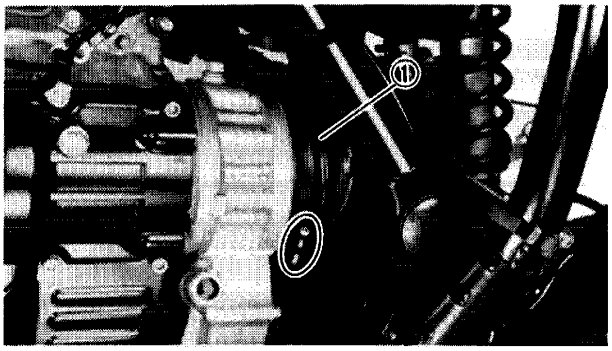
10. Install:
    - Rear drive assembly and swingarm

NOTE:
- Before installing the swingarm, lubricate the following parts.
  1) Bearings
  2) Oil seals
  3) Collars
  4) Pivot shaft



Lithium Base Waterproof Wheel Bearing Grease

- Before installing the swingarm, do not forget to fit the rear drive shaft ① and spring ② .
- Insert the rear drive shaft into the universal joint properly.
- When installing the swingarm, tilt it to the left side.



11. Install:
    - Rubber boot ①

NOTE:
Be sure to position the rubber boot so that the tang face downward.

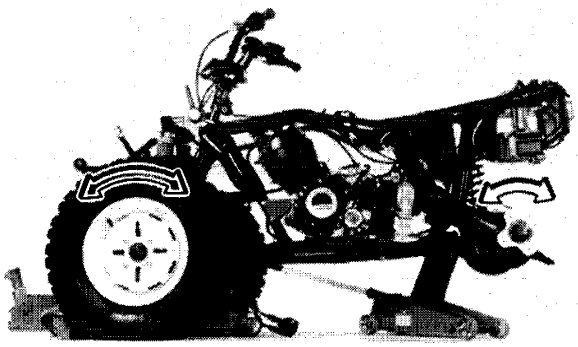
12. Install:
    - Pivot shafts
    - Locknuts (Swingarm)
    - Bolt (Rear shock absorber)

NOTE:
- Before installing the bolt (Rear shock absorber), apply the lithium base grease.
- Finger tighten the pivot shafts, locknuts and bolt (Shock absorber) do not torque them at this point.

- Pivot shaft caps

13. Check:
    - Rear drive shaft operation

Rear drive shaft operation checking steps:
- Make sure that the machine is off the ground at the rear.
- Place the suitable block under the swingarm.
- Lift the front of the machine off the ground, too.



WARNING:

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

- Turn the front wheel back and forth.
- Check the rear axle operation. If the operation is unsmooth, reinstall the swingarm properly.

14. Tighten:
    - Bolts (Engine mounting)
    - Pivot shaft (Swingarm)
    - Locknuts (Swingarm)
    - Bolts (Rear shock absorber)
    - Nuts (Rear wheels)

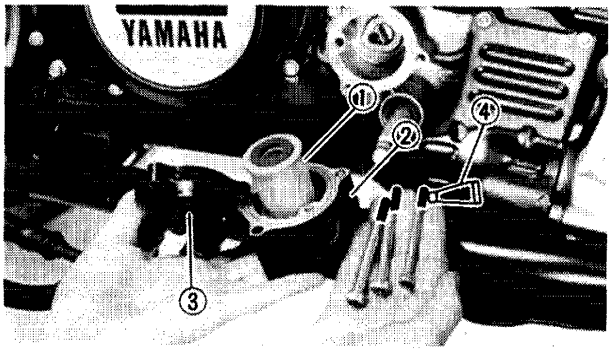
    Refer to "CHAPTER 6. CHASSIS – REAR SHOCK ABSORBER AND SWINGARM/ FRONT AND REAR WHEELS" section.

NOTE:
Tighten the top engine mounting bolts first, and tighten the other bolt and nut at this point.

WARNING:

Tapered wheel nuts are used for both front and rear wheels. Install the nut with its tapered side towards the wheel.

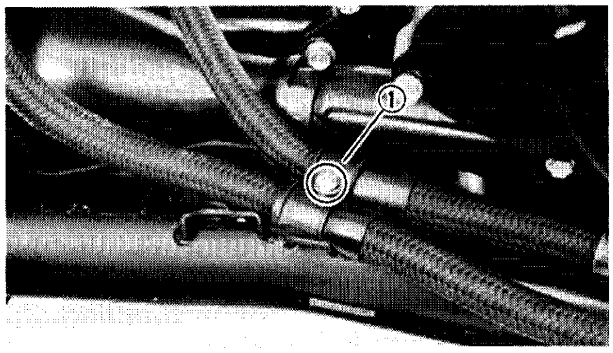
Bolts (Engine Mounting):
33 Nm (3.3 m·kg, 24 ft·lb)
Pivot Shaft (Swingarm):
6 Nm (0.6 m·kg, 4.3 ft·lb)
Locknuts (Swingarm):
130 Nm (13.0 m·kg, 94 ft·lb)
Rear Shock Absorber (Upper):
50 Nm (5.0 m·kg, 36 ft·lb)
Nuts (Rear Wheels):
55 Nm (5.5 m·kg, 40 ft·lb)



15. Install:
- Oil filter element ①
- Oil filter cover (Inside) ②
- Oil filter cover (Outside) ③

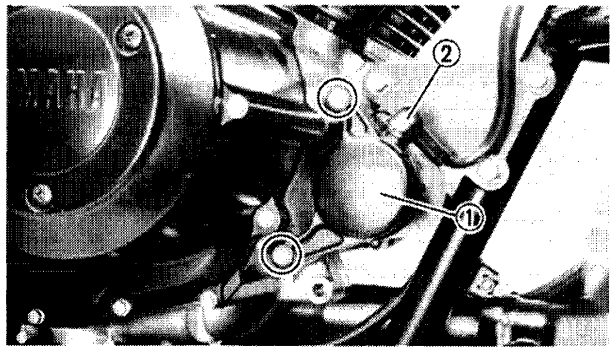
NOTE:
- Before installing the oil filter element, clean it with solvent.
- Before installing the bolts (Filter cover), apply the Sealant (Quick Gasket®) ④ (ACC-11001-05-01) to the thread portion of the bolts.

Bolts (Oil Filter Cover):
10 Nm (1.0 m·kg, 7.2 ft·lb)



16. Install:
- Clamp (Oil hose) ①

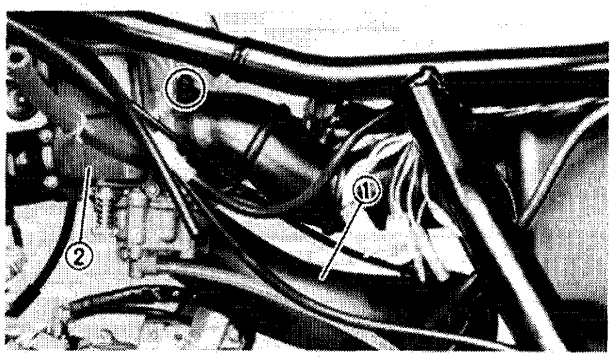
Screw (Oil Hose):
7 Nm (0.7 m·kg, 5.1 ft·lb)

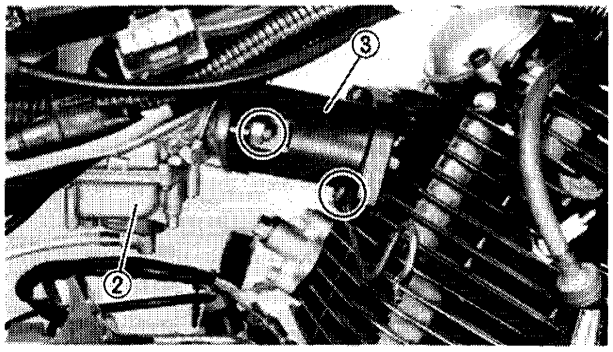


17. Install:
- Starter motor ①
- Starter motor lead ②

NOTE:
Be careful not to damage the O-ring during installation.

Starter Motor:
10 Nm (1.0 m·kg, 7.2 ft·lb)

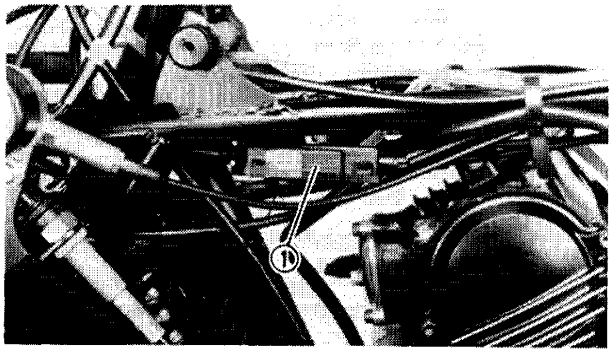




18. Install:
- Air cleaner manifold ①
- Carburetor ②
- Carburetor joint ③

NOTE:
- Check the O-rings for damage. If damaged, replace.
- Do not forget to fit the cable guide (Select lever control cable 1) onto the carburetor joint.

Bolts (Carburetor Joint):
16 Nm (1.6 m·kg, 11 ft·lb)
Nuts (Carburetor):
8 Nm (0.8 m·kg, 5.8 ft·lb)

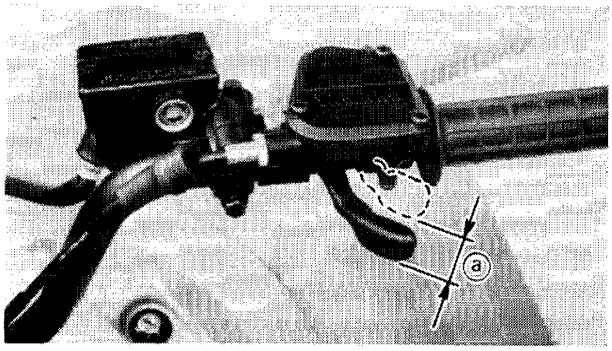


19. Install:
- Wire cylinder ①

Refer to "CHAPTER 4. CARBURETION – WIRE CYLINDER" section.

20. Check:
- Throttle cable operation

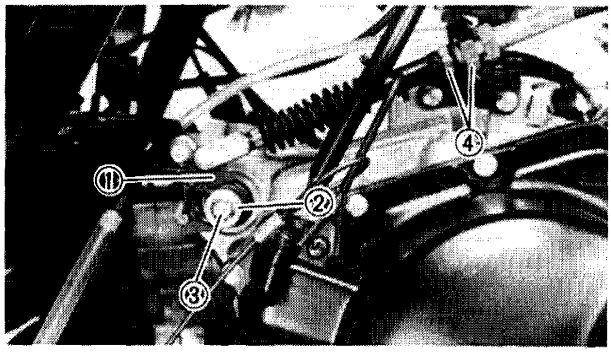
Unsmooth operation → Repair.



21. Adjust:
- Throttle lever free play

Out of specification → Adjust.
Refer to "CHAPTER 2. THROTTLE LEVER ADJUSTMENT" section.

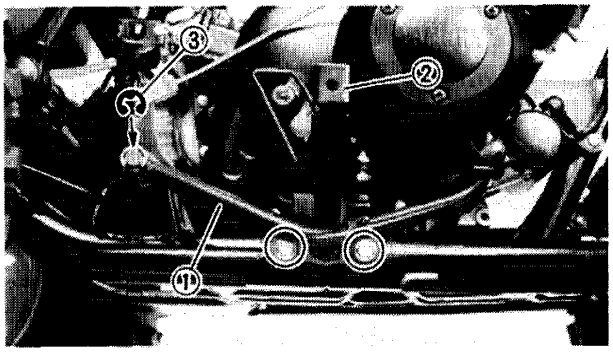
Throttle Lever Free Play ⓐ :
3 ~ 5 mm (0.12 ~ 0.20 in)



22. Install:
- Select lever control cable 1 assembly ①
- Washer ②
- Bolt ③
- Locknuts ④

NOTE:
After installing the control cable 1, adjust the control cable. Refer to "CHAPTER 2. SELECT LEVER CONTROL CABLE ADJUSTMENT" section.

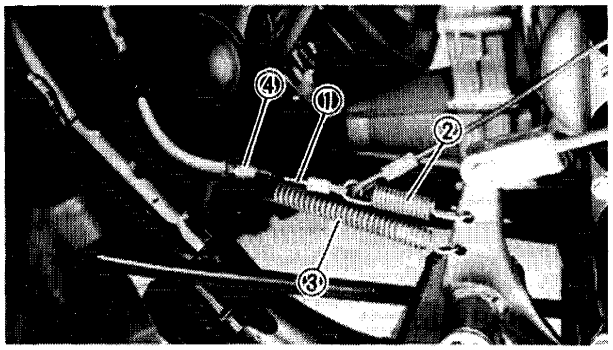
Bolt (Select Lever Cam):
14 Nm (1.4 m·kg, 10 ft·lb)



23. Install:
- Brake pedal assembly ①
- Footrest (Right) ②

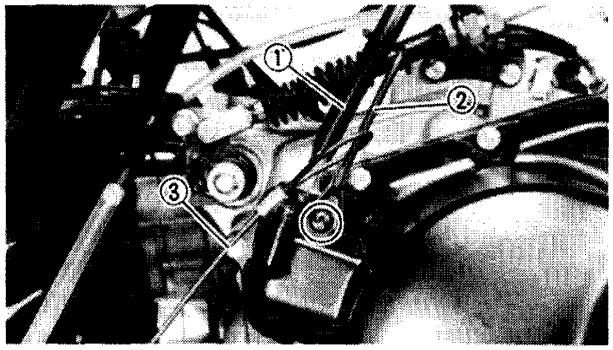
NOTE:
- Before installing the brake pedal, apply the 4-cycle oil to the pivot on the frame.
- When installing the brake pedal, do not forget to fit the circlip ③.

Footrest (Right):
55 Nm (5.5 m·kg, 40 ft·lb)



24. Install:
- Select lever control cable 2 ①
- Spring (Upper) ②
- Spring (Lower) ③
- Locknut ④

NOTE:
After connecting the cable 2, adjust the control cable. Refer to "CHAPTER 2. SELECT LEVER CONTROL CABLE ADJUSTMENT" section.

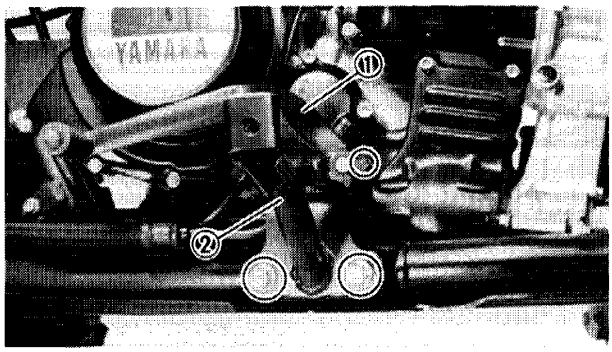


25. Install:
- Speedometer cable ①
- Wire guide ②
- Reverse lock release wire ③

NOTE:
- Before installing the wire guide, pass the wire guide into the release wire.

- After connecting the cable, check the cable operation. If there is unsmooth operation, repair.

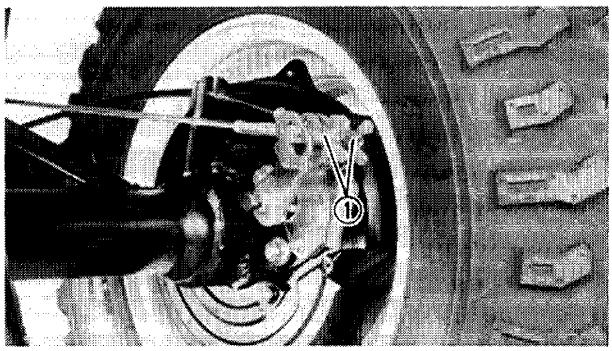
Speedometer Gear Housing:
7 Nm (0.7 m·kg, 5.1 ft·lb)



26. Install:
- Change pedal ①
- Footrest (Left) ②

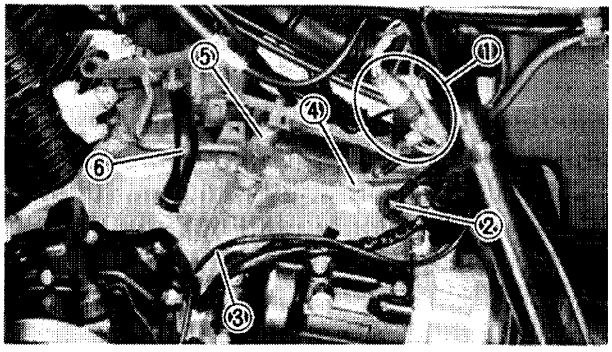
NOTE:
After installing the change pedal, check the shifting operation. If there is unsmooth operation, repair.

Change Pedal:
10 Nm (1.0 m·kg, 7.2 ft·lb)
Footrest (Left):
55 Nm (5.5 m·kg, 40 ft·lb)



27. Install:
- Adjuster (Brake lever and brake pedal) ①

NOTE:
After installing the adjusters, adjust the brake lever and pedal free play. Refer to "CHAPTER 2. REAR BRAKE LEVER AND PEDAL ADJUSTMENT" section.

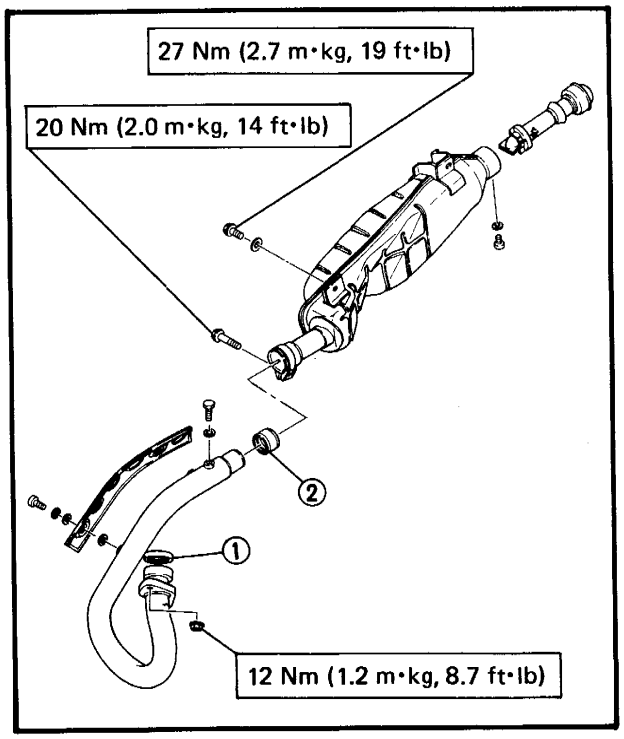


28. Connect:
- Spark plug lead
- CDI magneto leads ①
- "REVERSE" switch lead ②
- "NEUTRAL" switch lead ③
- Ground lead ④
- Thermo switch with switch lead ⑤
- Ventilation hose ⑥

NOTE:
When connecting the leads and hose, be sure they are routed correctly. Refer to CHAPTER 8. APPENDICES – CABLE ROUTING" section.

WARNING:
Handle the thermo switch with special care. Never subject it to strong shock or allow it to be dropped. Should it be dropped, it must be replaced.

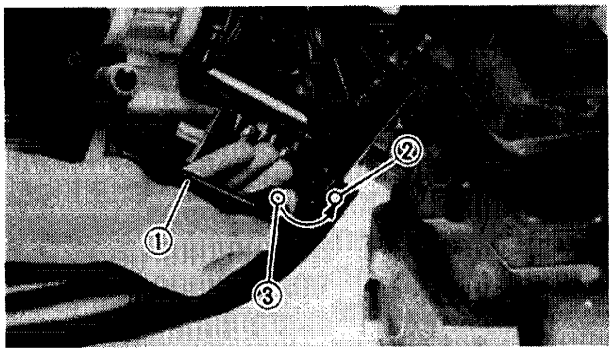
Thermo Switch:
20 Nm (2.0 m·kg, 14 ft·lb)



29. Install:
- Muffler protector
- Exhaust pipe
- Muffler

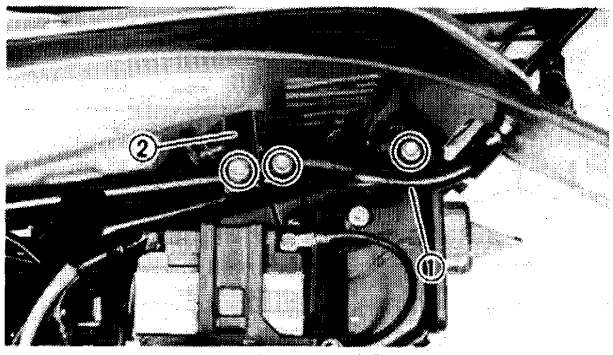
NOTE:
Inspect the gasket ① , ② (Exhaust pipe and muffler). If damaged, replace.

Bolts (Exhaust Pipe):
12 Nm (1.2 m·kg, 8.7 ft·lb)
Bolt (Muffler and Exhaust Pipe):
20 Nm (2.0 m·kg, 14 ft·lb)
Bolts (Muffler):
27 Nm (2.7 m·kg, 19 ft·lb)



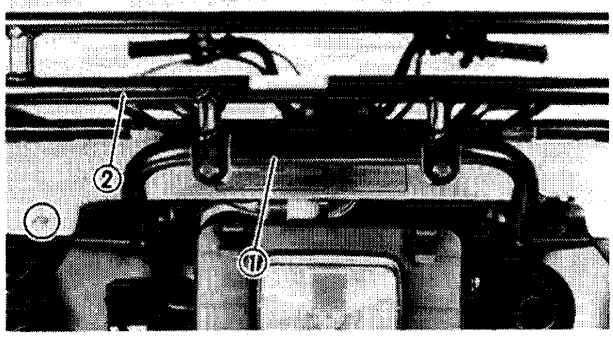
30. Install:
- Stays (Rear fender) ①

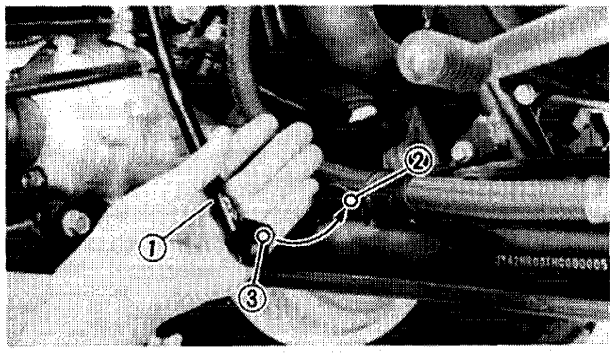
NOTE:
Be sure the projection ② on the frame correctly engages with the hole ③ into the stay.



31. Install:
- Rear bumper ①
- Rear carrier ②

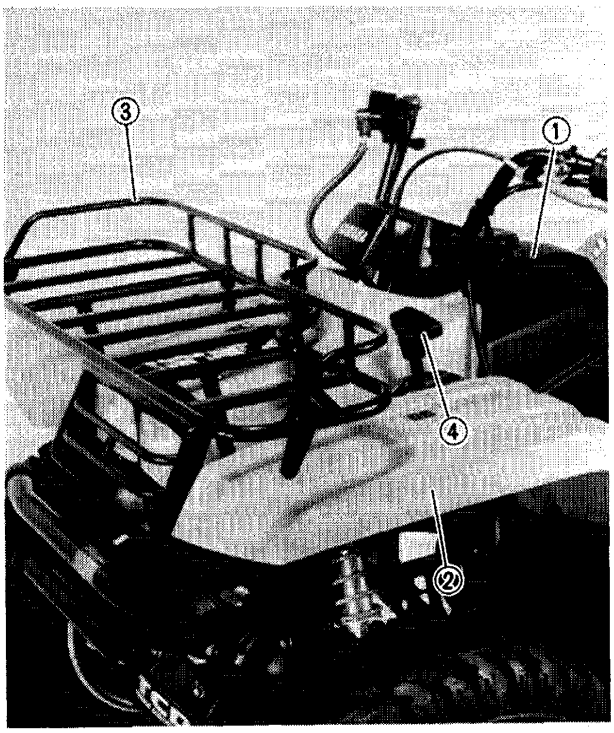
Rear Bumper:
33 Nm (3.3 m·kg, 24 ft·lb)
Rear Carrier:
33 Nm (3.3 m·kg, 24 ft·lb)
Rear Carrier and Rear Bumper:
9 Nm (0.9 m·kg, 6.5 ft·lb)





32. Install:
- Stays (Front fender) ①

NOTE:
Be sure the projection ② on the frame correctly engages with the hole ③ into the stay.



33. Install:
- Fuel tank ①
- Front fender ②
- Front carrier (If so equipped) ③
- Select lever ④

Refer to "CHAPTER 6. CHASSIS – STEERING SYSTEM" section.

Front Carrier and Frame:
20 Nm (2.0 m·kg, 14 ft·lb)
Front Carrier and Front Bumper:
10 Nm (1.0 m·kg, 7.2 ft·lb)
Screws (Select Lever):
1.5 Nm (0.15 m·kg, 1.1 ft·lb)
LOCTITE®

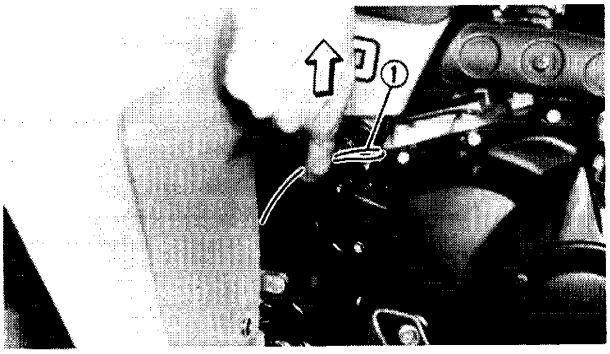
34. Apply:
    - Engine oil/Transfer gear oil

Recommended Oil:
SAE 10W40 Type SE Motor Oil
Total Amount:
3.4 L (3.0 Imp qt, 3.6 US qt)

Refer to "CHAPTER 2. ENGINE OIL/ TRANSFER GEAR OIL REPLACEMENT" section.

35. Inspect:
    - Oil leakage
36. Check:
    - "NEUTRAL" indicator light operation
    - "REVERSE" indicator light operation
    - "OIL TEMP" indicator light operation

    Poor operation → Repair.
37. Check:
    - Reverse lock release wire ① operation



Reverse lock release wire operation checking steps:
- Pull the reverse lock release wire by hand.
- Put gear in reverse shift.

NOTE:
Do not use the rear brake pedal at this point.

- If there is unsmooth shifting, adjust the select lever control cable 2.

CHAPTER 4.

CARBURETION

CARBURETOR 4-1
SECTIONAL VIEW 4-2
REMOVAL 4-3
DISASSEMBLY 4-3
INSPECTION 4-5
ASSEMBLY 4-6
INSTALLATION 4-8
ADJUSTMENT 4-8

WIRE CYLINDER 4-9
REMOVAL 4-9
INSPECTION 4-10
INSTALLATION 4-10

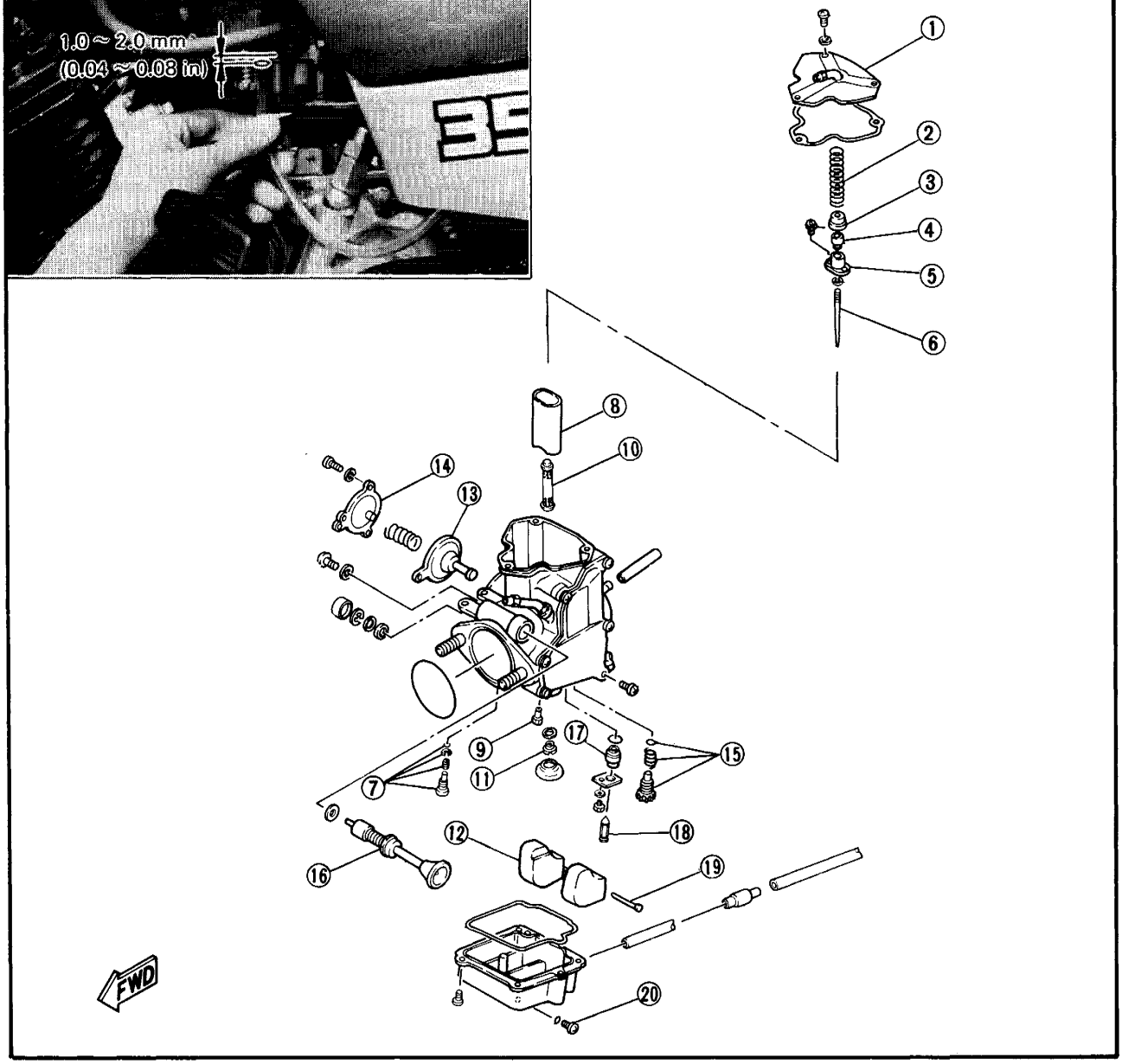
CARBURETION

CARBURETOR

① Carburetor cap
② Spring
③ Connector (Upper)
④ Connector (Lower)
⑤ Needle holder
⑥ Jet needle
⑦ Pilot screw
⑧ Piston valve
⑨ Pilot jet
⑩ Main nozzle
⑪ Main jet
⑫ Float
⑬ Coasting enricher diaphragm
⑭ Cover
⑮ Throttle stop screw
⑯ Starter plunger assembly
⑰ Valve seat
⑱ Needle valve
⑲ Float pin
⑳ Drian screw

SPECIFICATIONS	
MAIN JET (M.J.)	#122.5
MAIN AIR JET (M.A.J.)	φ 0.8
JET NEEDLE (J.N.)	5H26-3
PILOT JET (P.J.)	# 45
PILOT AIR JET (P.A.J. 1)	φ 1.0
(P.A.J. 2)	φ 0.9
PILOT SCREW	2 and 3/4 turns out
FLOAT VALVE SEAT	φ 2.5
ENGINE IDLE SPEED	1,350 ~ 1,450 r/min
FUEL LEVEL (F.L.)	1.0 ~ 2.0 mm (0.04 ~ 0.08 in)
FLOAT HEIGHT (F.H.)	11.4 ~ 13.4 mm (0.45 ~ 0.53 in)

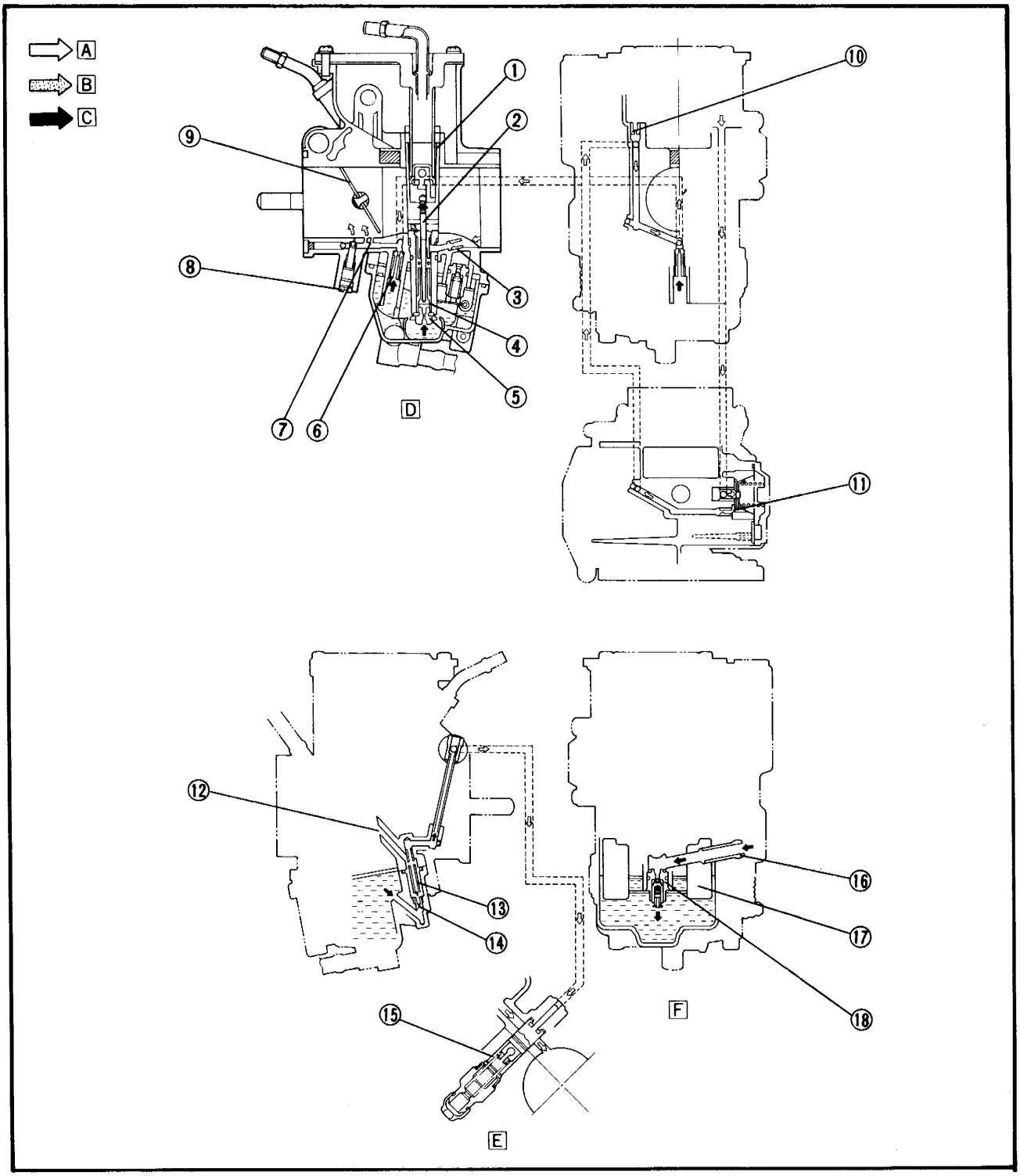
A FUEL LEVEL



SECTIONAL VIEW

① Piston valve
② Jet needle
③ Main air jet
④ Needle jet
⑤ Main jet
⑥ Pilot jet
⑦ Bypass hole
⑧ Pilot screw
⑨ Throttle valve
⑩ Pilot air jet No. 1
⑪ Pilot air jet No. 2
⑫ Starter air bleed
⑬ Starter bleed pipe
⑭ Starter jet
⑮ Starter plunger
⑯ Fuel inlet
⑰ Float
⑱ Float valve set

[A] AIR
[B] MIXTURE
[C] FUEL
[D] MAIN METERING SYSTEM
[E] STARTER SYSTEM
[F] FLOAT SYSTEM



REMOVAL

1. Remove:
   - Wire cylinder
     Refer to "WIRE CYLINDER" section.
2. Remove:
   - Carburetor assembly
     Refer to engine removal section.

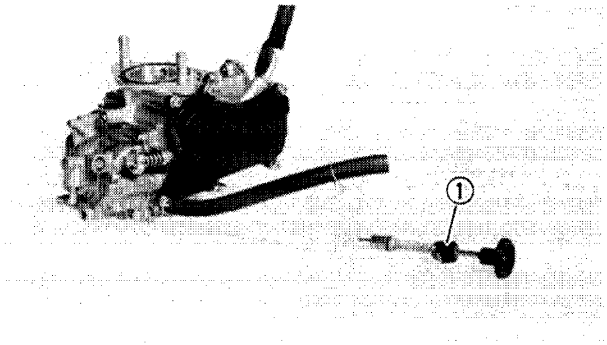
NOTE:

The following parts can be cleaned and inspected without disassembly.

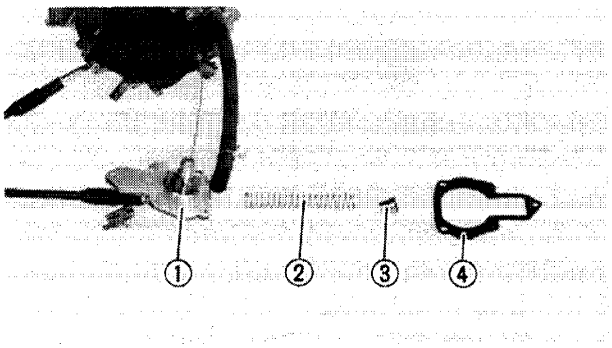
- Throttle stop screw set
- Starter plunger

DISASSEMBLY

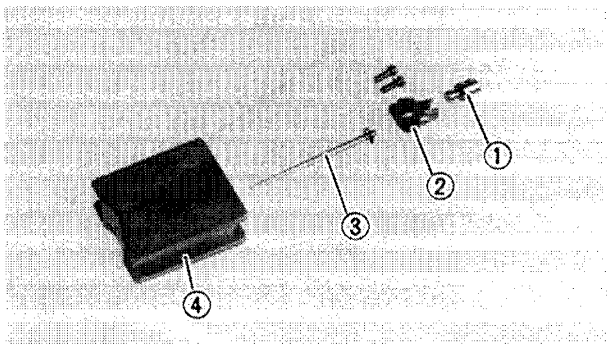
1. Remove:
   - Starter plunger assembly ①

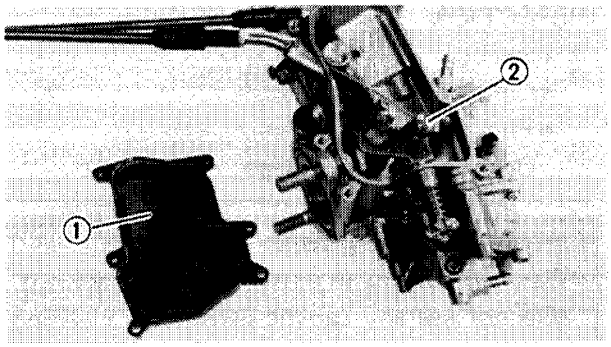


2. Remove:
   - Carburetor cap ①
   - Spring ②
   - Connector (Upper) ③
   - Gasket ④

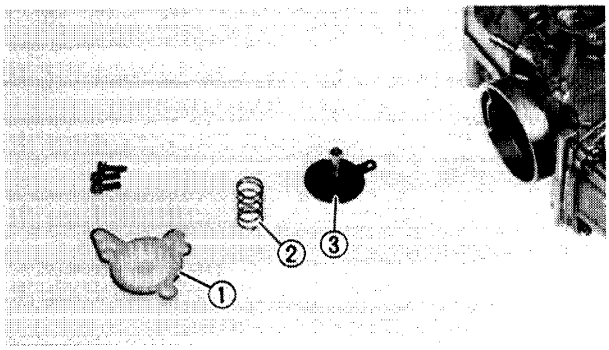


3. Remove:
   - Connector (Lower) ①
   - Needle holder ②
   - Jet needle ③
   - Piston valve ④

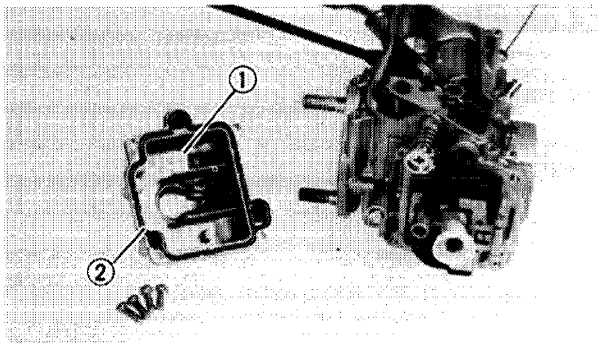




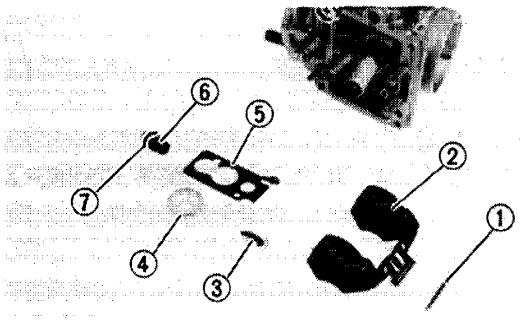
4. Remove:
   - Cover (Throttle valve) ①
   - Connector (Throttle valve) ②



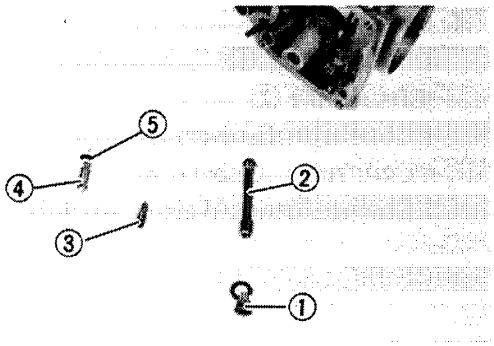
5. Remove:
   - Cover (Coasting enricher) ①
   - Spring ②
   - Diaphragm (Coasting enricher) ③



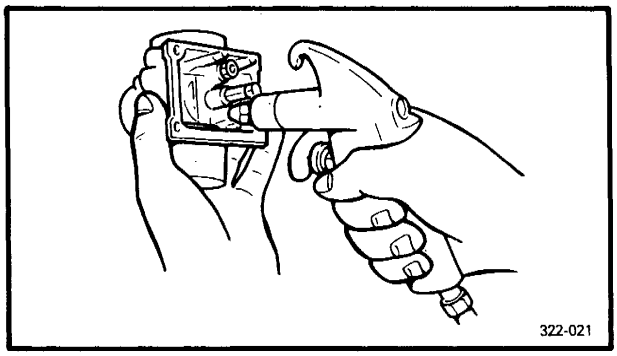
6. Remove:
   - Float chamber cover ①
   - O-ring ②



7. Remove:
   - Float pin ①
   - Float ②
   - Needle valve ③
   - Main jet ring ④
   - Plate ⑤
   - Valve seat ⑥
   - O-ring ⑦



8. Remove:
   - Main jet ①
   - Main nozzle ②
   - Pilot jet ③
   - Pilot screw set ④
   - O-ring ⑤



INSPECTION

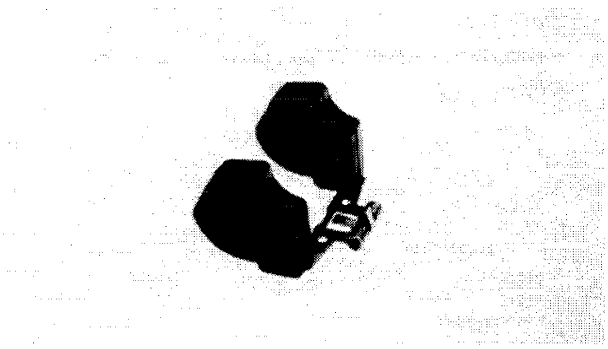
1. Inspect:
   - Carburetor body
   - Fuel passage

   Contamination → Clean.

Carburetor cleaning steps:
- Wash carburetor in petroleum based solvent. (Do not use any caustic carburetor cleaning solution).
- Blow out all passages and jets with compressed air.

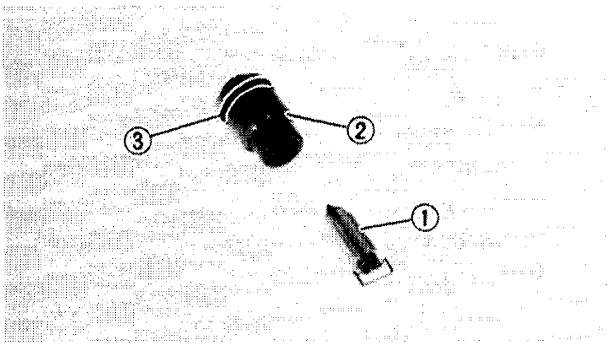
   - O-rings

   Damage → Replace.



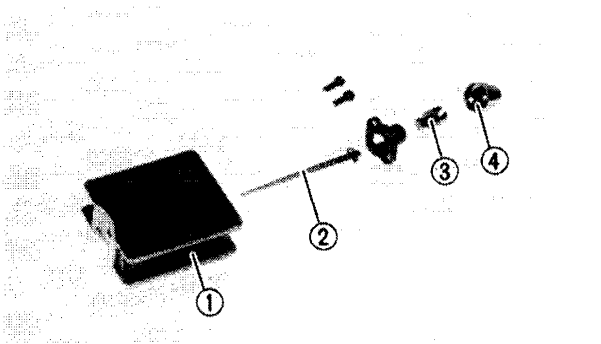
2. Inspect:
   - Floats

   Damage → Replace.



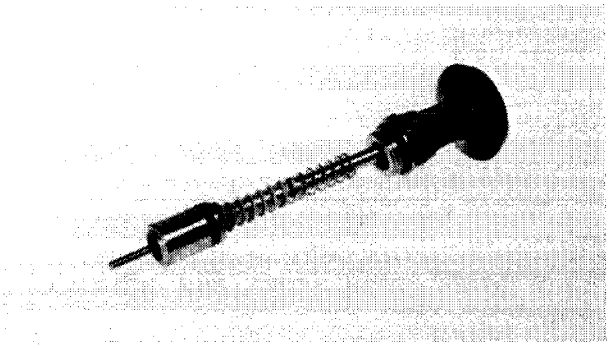
3. Inspect:
   - Needle valve ①
   - Seat ②
   - O-ring ③

   Damage/Wear/Contamination → Replace as a set.

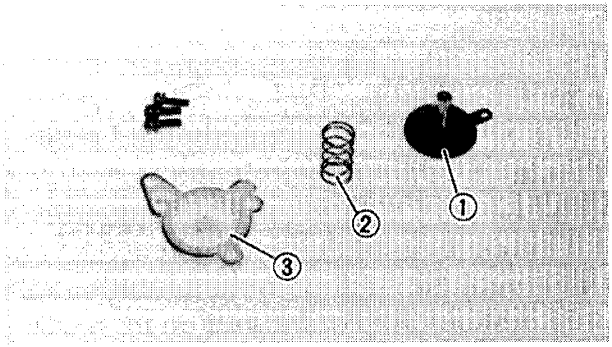


4. Inspect:
   - Piston valve ①
   - Jet needle ②
   - Connector (Lower) ③
   - Connector (Upper) ④

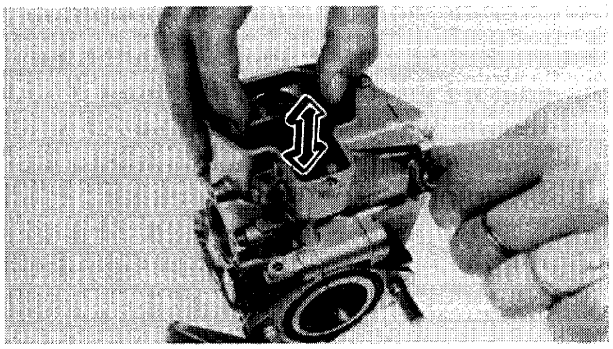
   Damage/Bends/Wear → Replace.



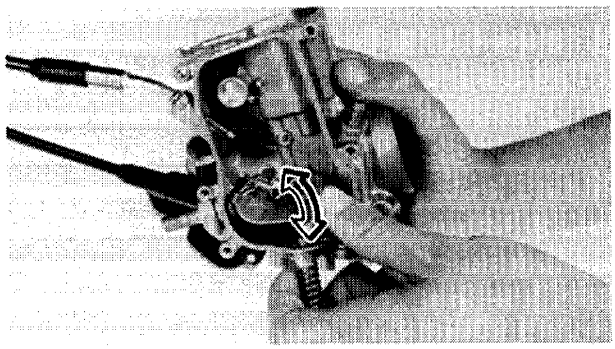
5. Inspect:
   - Starter plunger
     Wear/Damage → Replace.



6. Inspect:
   - Diaphragm (Coasting enricher) ①.
   - Spring ②
   - Cover ③
     Damage/Tears (Diaphragm) → Replace.



7. Check:
   - Free movement (Piston valve)
     Stick → Replace.
     Insert the piston valve into the carburetor body, and check for free movement.



8. Check:
   - Free movement (Throttle valve)
     Stick → Replace carburetor assembly.

ASSEMBLY

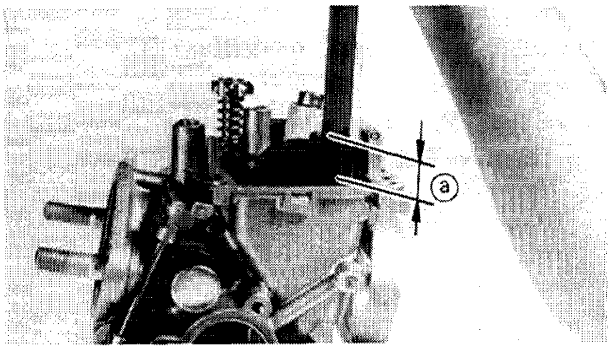
To assemble the carburetor, reverse the disassembly procedures. Note the following points.

CAUTION:

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

1. Install:
   - Float
   - Float pin
2. Measure:
   - Float height

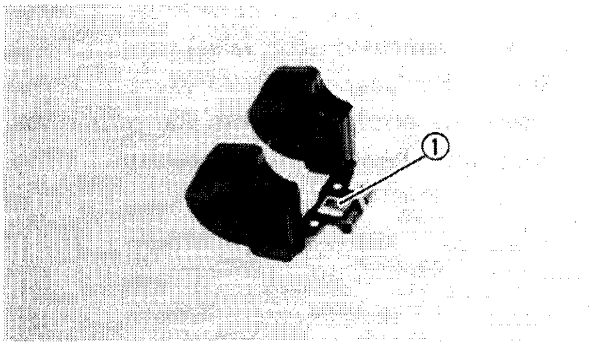
   Out of specification → Adjust.



Float height measurement and adjustment steps:

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

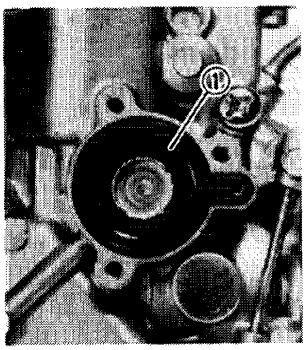
Float Heitht ⓐ :
11.4 ~ 13.4 mm (0.45 ~ 0.53 in)

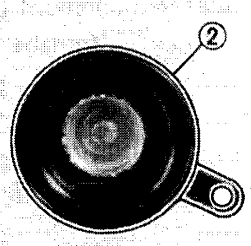


NOTE:

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

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

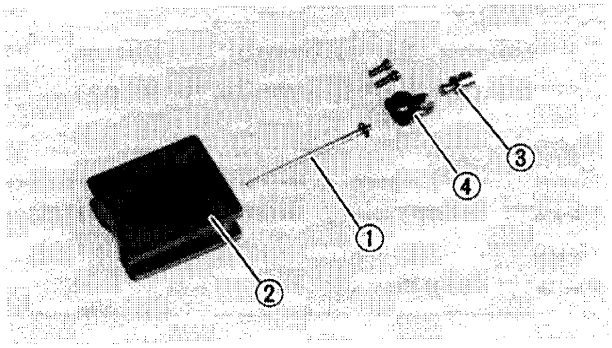




3. Install:
   - Diaphragm (Coasting enricher) ①

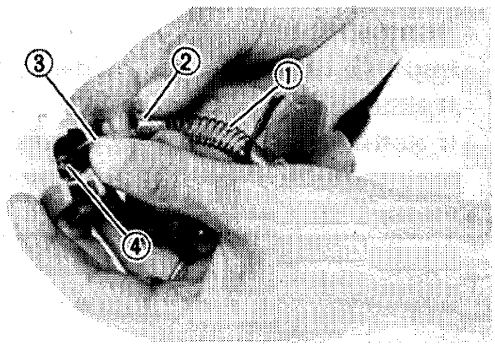
NOTE:

- Match the tab on the diaphragm to the matching recess in the coasting enricher.
- The round lip ② side face to carburetor body.



4. Install:
   - Jet needle ①
   - Connector (Lower) ③
   - Needle holder ④

   To the piston valve ②



5. Install:
   - Spring ①
   - Connector (Upper) ②
     To piston valve cable ③.
6. Hook the piston valve cable end to the connector (Lower) ④.

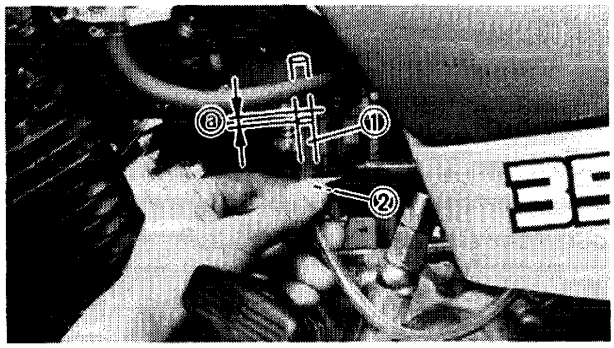
INSTALLATION

1. Install:
   - Carburetor assebmly
     Reserve the removal procedure.
2. Install:
   - Wire cylinder
     Refer to "WIRE CYLINDER" section.

ADJUSTMENT

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

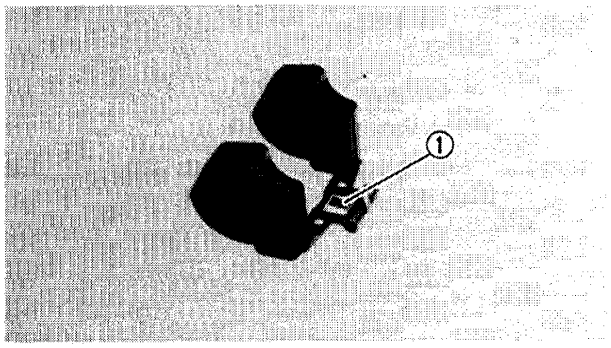
1. Measure:
   - Fuel level
     Out of specificaton → Adjust.



Fuel level measurement and adjustment steps:
- Place the machine on a level place.
- Use a garage jack under the engine to ensure that the carburetor is positioned vertically.
- Attach the Fuel Level Gauge ① (YM-01312-A) to the float chamber nozzle.
- Loosen the drain screw ② and start the engine.
- Place tube vertically next to the center of the mating line of the mixing body and float chamber cover.
- Measure the fuel level ⓐ with gauge.

Fuel Level ⓐ :
1.0 ~ 2.0 mm (0.04 ~ 0.08 in)
Above the Carburetor Body Edge.

- If the fuel level is incorrect, adjust the fuel level.

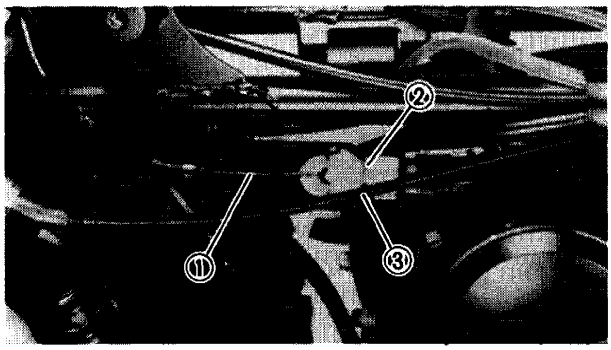


- Remove the carburetor.
- Inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ① on the float.
- Recheck the fuel level.

WIRE CYLINDER

REMOVAL

1. Remove:
   - Front fender
   - Fuel tank
2. Unhook the rubber band and slide the band.
3. Open:
   - Cover (Wire cylinder)
4. Disconnect:
   - Throttle cable (Throttle lever side) ①
   - Piston valve cable (Carburetor side) ②
   - Throttle valve cable (Carburetor side) ③



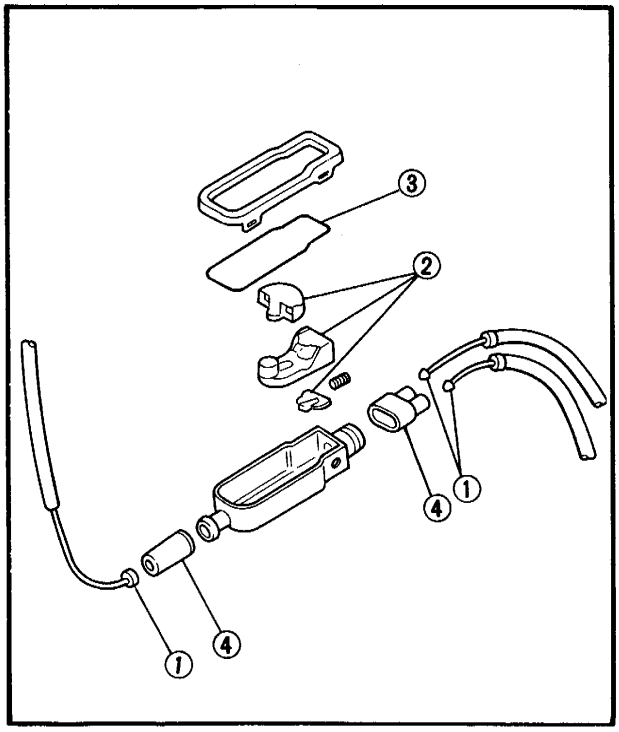
CAUTION:

Before removing the piston valve cable and throttle valve cable, make sure that the adjusters and locknuts on the carburetor side are fully tightened. If not, the throttle does not operate properly.

5. Remove:
   - Sliders
   - Spring

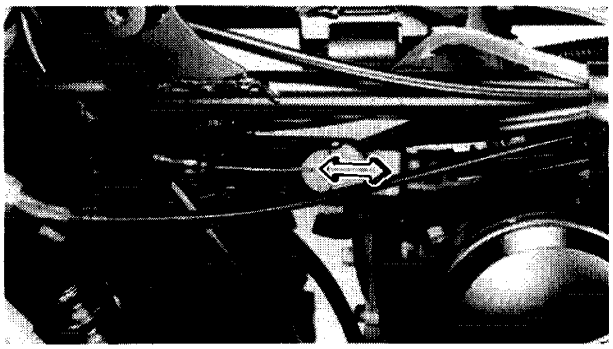
NOTE:

When removing the sliders, the spring will fall out. Take care not to lose this part.

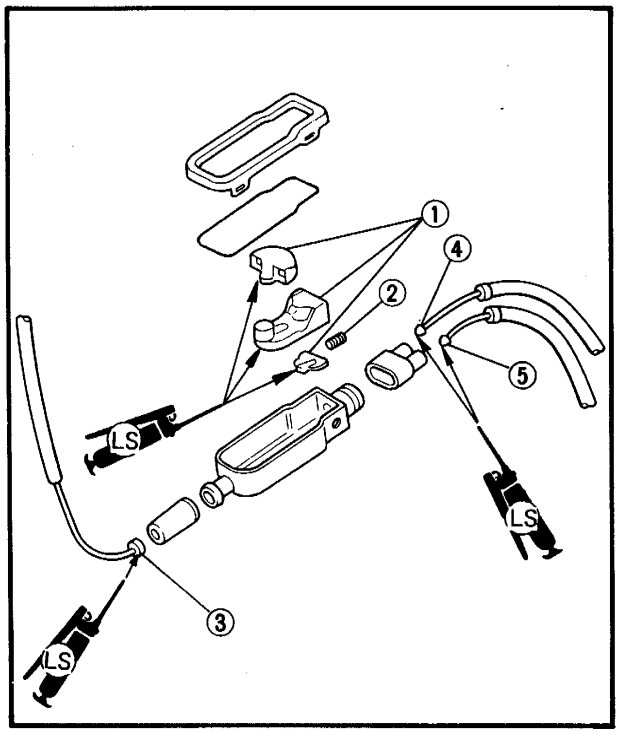


INSPECTION

1. Inspect:
   - Cable ends ① (Throttle cable, Piston valve cable and Throttle valve cable)
     Damage → Replace.
   - Sliders ②
     Cracks/Wear → Replace.
   - O-ring ③
   - Rubber boots ④
     Damage → Replace.



2. Check:
   - Slider operation
     Unsmooth operation → Repair.

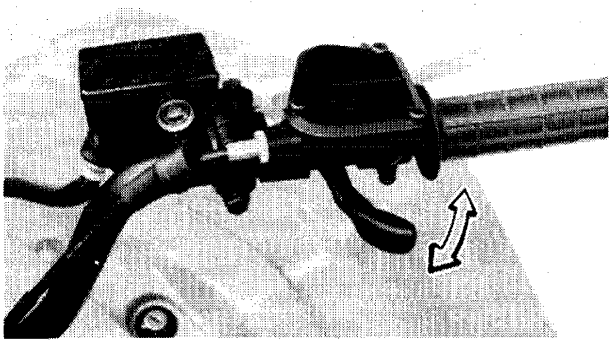


INSTALLATION

1. Apply:
   - Lithium base grease
     To the sliders and cable ends.
2. Install:
   - Sliders ①
   - Spring ②

NOTE:
Before installing the sliders, do not forget to fit the spring.

3. Connect:
   - Throttle cable (Throttle lever side) ③
   - Piston valve cable (Carburetor side) ④
   - Throttle valve cable (Carburetor side) ⑤



NOTE:

Before connecting the cables, insert the throttle cable (Throttle lever side) into the rubber band.

CAUTION:

Before installing the piston valve cable and throttle valve cable, make sure that the adjusters and locknuts on the carburetor side are fully tightened. If not, the throttle does not operate properly.

4. Install:
   - Cover (Wire cylinder)
5. Check:
   - Cable operation
     Unsmooth operation → Repair.
6. Hook the rubber band securely.

CHAPTER 5.
DRIVE TRAIN

TROUBLESHOOTING 5-1

DIFFERENTIAL GEAR AND CONSTANT VELOCITY JOINTS 5-4
- REMOVAL 5-6
- DISASSEMBLY 5-9
- INSPECTION 5-12
- REASSEMBLY 5-14
- INSTALLATION 5-19
- MEASUREMENT AND ADJUSTMENT 5-23
- DIFFERENTIAL GEAR OPERATION CHECK 5-25

TRANSFER GEAR 5-27
- REMOVAL 5-28
- DISASSEMBLY 5-28
- INSPECTION 5-32
- REASSEMBLY 5-33
- INSTALLATION 5-39
- ADJUSTMENT 5-39
- MIDDLE DRIVE AND DRIVEN GEARS POSITIONING 5-41

REAR AXLE/REAR FINAL GEAR AND REAR DRIVE SHAFT 5-46
- REMOVAL 5-48
- DISASSEMBLY 5-51
- INSPECTION 5-53
- REASSEMBLY 5-54
- INSTALLATION 5-56
- MEASUREMENT AND ADJUSTMENT 5-59
- REAR FINAL DRIVE GEAR AND RING GEAR POSITIONING 5-62

DRIVE TRAIN

TROUBLESHOOTING

The following conditions may indicate damage shaft drive components:

Symptoms	Possible Causes
1. A pronounced hesitation or "jerky" movement during acceleration, deceleration, or sustained speed. (This must not be confused with engine surging or transmission characteristics.) 2. A "rolling rumble" noticeable at low speed; a high-piched whine; a "clunk" from a shaft drive component or area. 3. A locked-up condition of the shaft drive mechanism, no power transmitted from engine to front and/or rear wheel.	A. Bearing damage. B. Improper gear lash. C. Gear tooth damage. D. Broken drive shaft. E. Broken gear teeth. F. Seizure due to lack of lubrication. G. Small foreign object lodged between moving parts.

NOTE:

Areas A, B, and C above may be extremely difficult to diagnose. The symptoms are quite subtle and difficult to distinguish from normal machine operating noise. If there is reason to believe these components are damaged, remove the components for specific inspection.

Inspection Notes

1. Inrestigate any unusual noises

The following "Noises" may indicate a machanical defect:

- A "rolling rumble" noise during coasting, acceleration, or deceleration. The noise increases with front and/or rear wheel speed, but it does not increase with higher engine or transmission speeds.
  Diagnosis: Possible wheel bearing damage.
- A "whining" noise that varies with acceleration and deceleration.
  Diagnosis: Possible incorrect reassembly, too-little gear lash.

CAUTION:

Too-little gear lash is extremely destructive to the gear teeth. If a test ride following reassembly indicates this condition, stop riding immediately to minimize gear damage.

- A slight "thunk" evident at low speed operation. This noise must be distinguished from normal machine operation.
  Diagnosis: Possible broken gear teeth.

WARNING:

Stop riding immediately if broken gear teeth are suspected. This condition could result in a locking-up of the shaft drive assembly, causing loss of control of the dike and possible injury to the rider.

2. Inspect:
   - Drained oil
     Drain plug shows large amount of metal particles → Check bearing fur seizure.

NOTE:

A small amount of metal particles in the oil is normal.

3. Inspect:
   - Oil leakage

Oil leakage inspection steps:

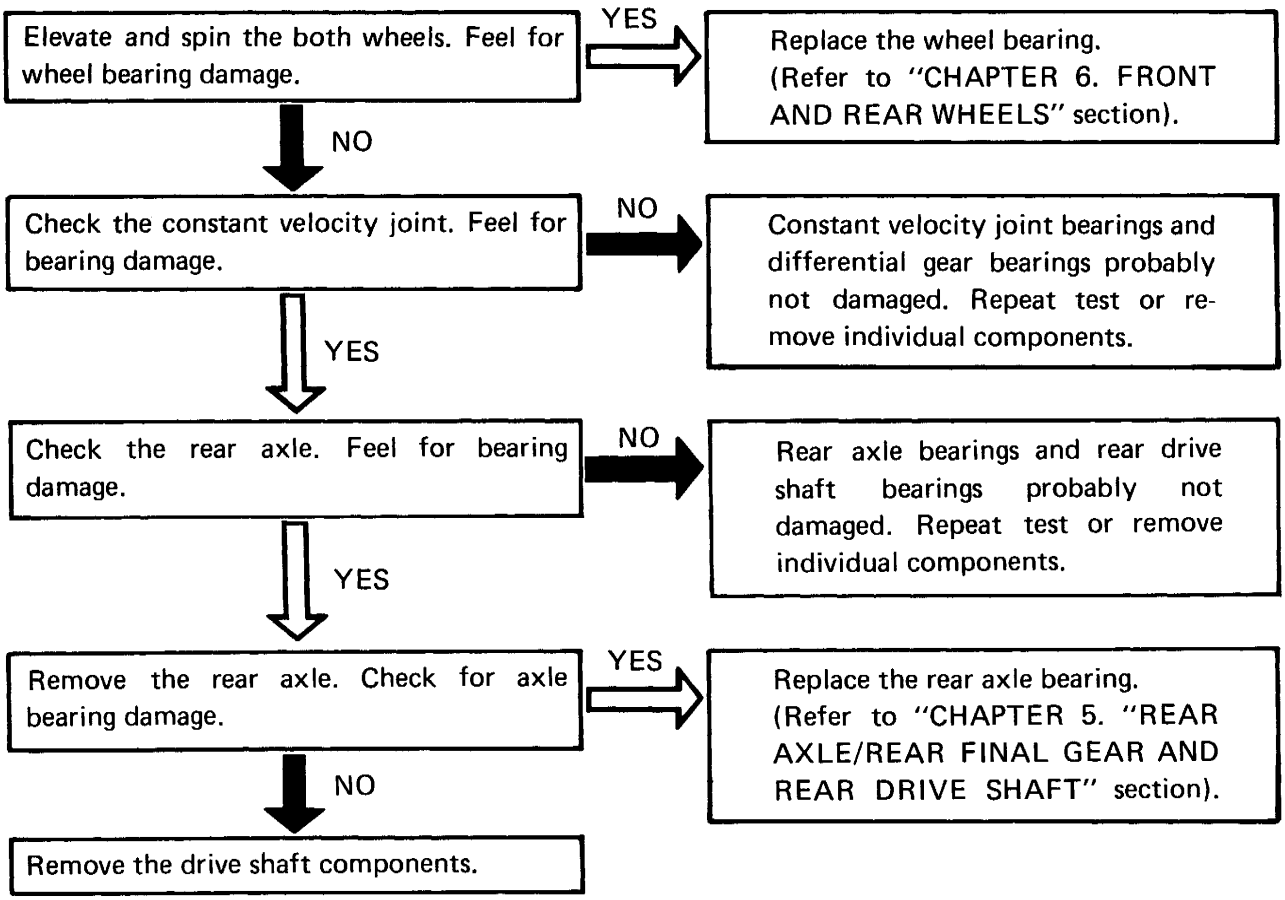
- Clean the entire machine thoroughly, then dry it.
- Apply a leak-localizing compound or dry powder spray to the shaft drive.
- Road test the machine for the distance necessary to locate the leak.
  Leakage → Inspect component housing, gasket, and/or seal for damage.
  Damage → Replace component.

NOTE:

- An apparent oil leak on a new or nearly new machine may be the result of a rest-preventative coating or excessive seal lubrication.
- Always clean the machine and recheck the suspected location of an apparent leakage.

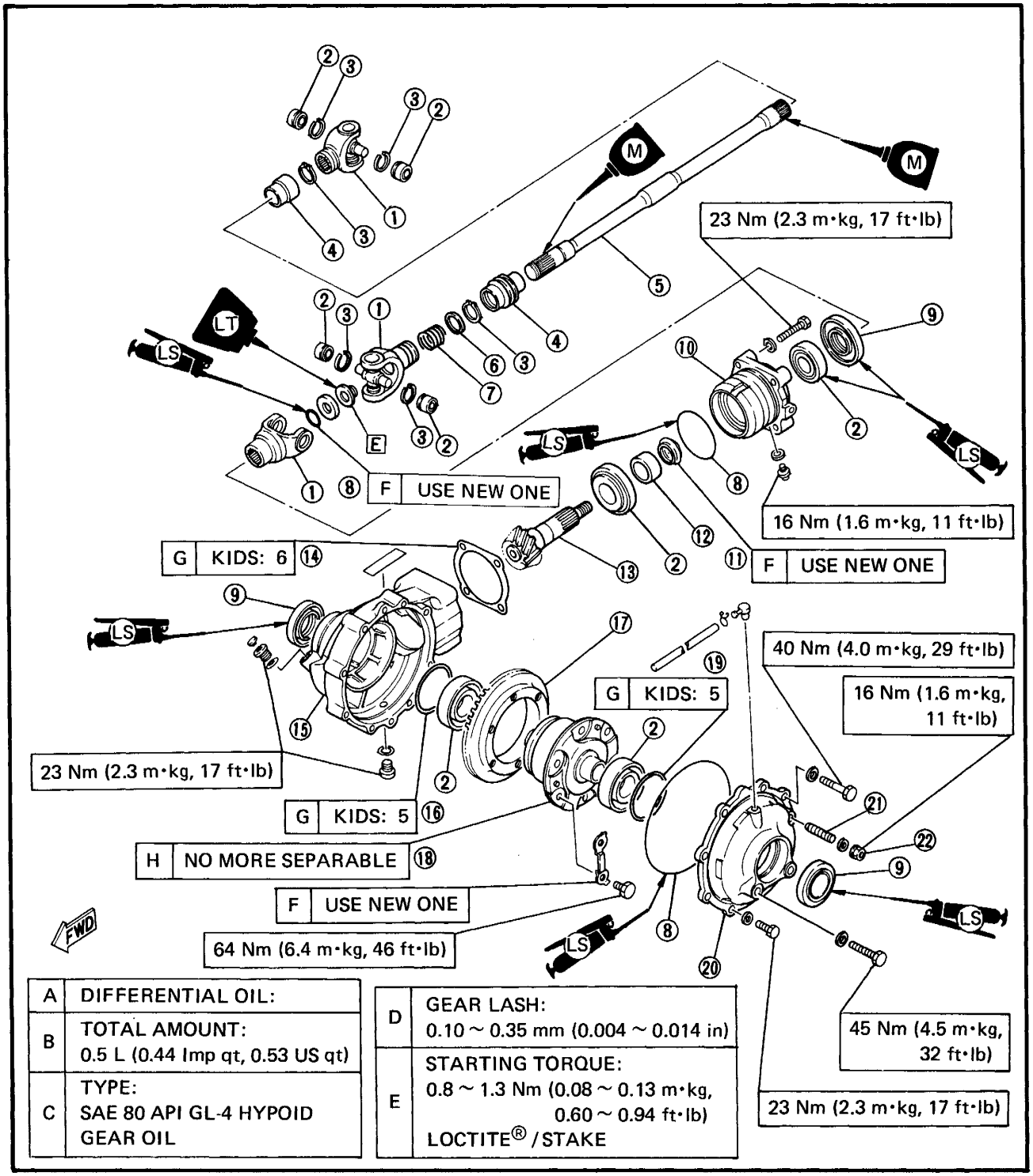
Troubleshooting Chart

When basic condition "a" and "b" above exist, check the following points:



DIFFERENTIAL GEAR AND CONSTANT VELOCITY JOINTS

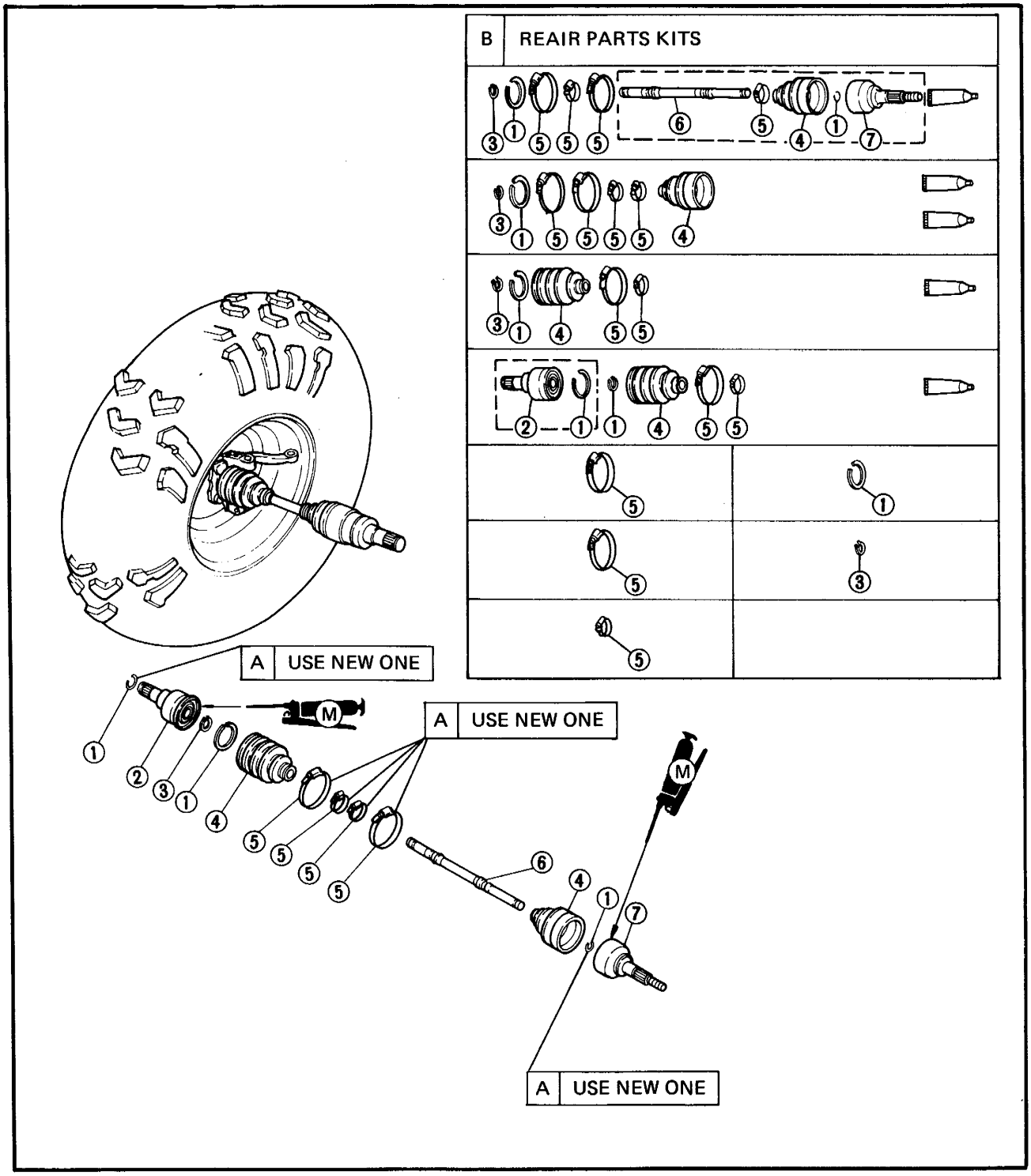
① Universal joint
② Bearing
③ Circlip
④ Dust boot
⑤ Front drive shaft
⑥ Spring seat
⑦ Spring
⑧ O-ring
⑨ Oil seal
⑩ Bearing housing (Front drive gear)
⑪ Collapsible collar
⑫ Spacer
⑬ Front drive gear
⑭ Front drive gear shim
⑮ Differential gear case
⑯ Thrust washer
⑰ Ring gear
⑱ Differential gear assembly
⑲ Ring gear shim
⑳ Bearing housing (Ring gear)
㉑ Ring gear stopper
㉒ Locknut



A	DIFFERENTIAL OIL:
B	TOTAL AMOUNT: 0.5 L (0.44 Imp qt, 0.53 US qt)
C	TYPE: SAE 80 API GL-4 HYPOID GEAR OIL

D	GEAR LASH: 0.10 ~ 0.35 mm (0.004 ~ 0.014 in)
E	STARTING TORQUE: 0.8 ~ 1.3 Nm (0.08 ~ 0.13 m•kg, 0.60 ~ 0.94 ft•lb) LOCTITE® / STAKE

① Circlip
② Double off-set joint
③ Snap ring
④ Dust boot
⑤ Boot band
⑥ Joint shaft
⑦ Ball joint



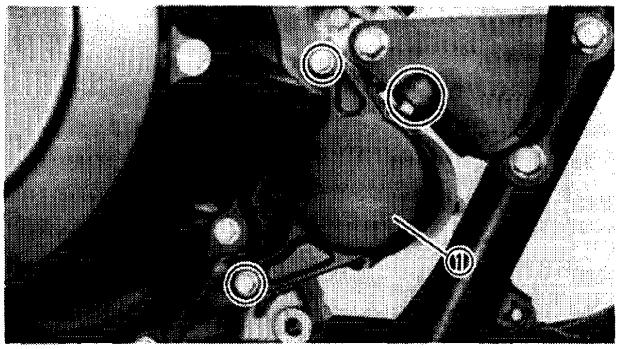
REMOVAL

Differential Gear

1. Remove:
   - Seat
   - Fuel tank cover
   - Front carrier (If so equipped)
   - Front fender
   - Stays (Front fender)

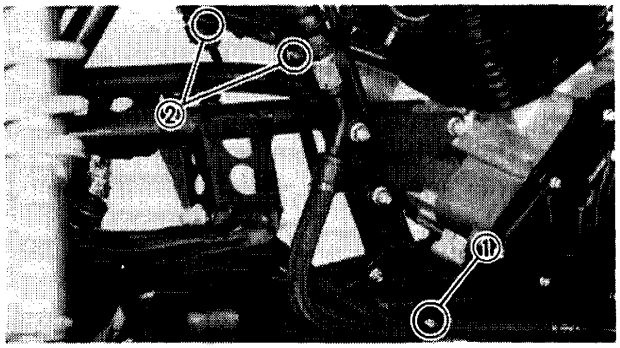
   Refer to "CHAPTER 6. CHASSIS – STEERING SYSTEM" section.
2. Remove:
   - Front wheels
   - Front wheel hubs

   Refer to "CHAPTER 6. CHASSIS – FRONT AND REAR WHEELS" section.

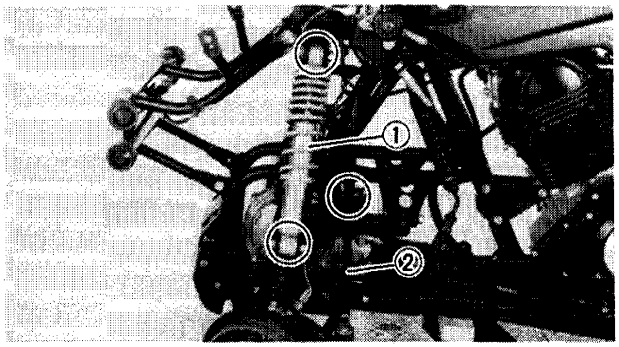


3. Remove:
   - Rear carrier
   - Rear bumper
   - Rear fender
   - Exhaust pipe
   - Muffler
   - Starter motor ①

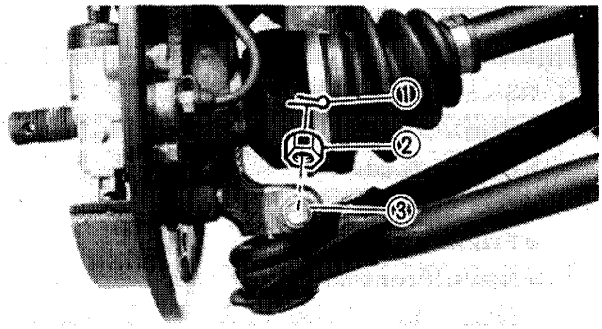
   Refer to "CHAPTER 3. ENGINE OVERHAUL – ENGINE REMOVAL" section.



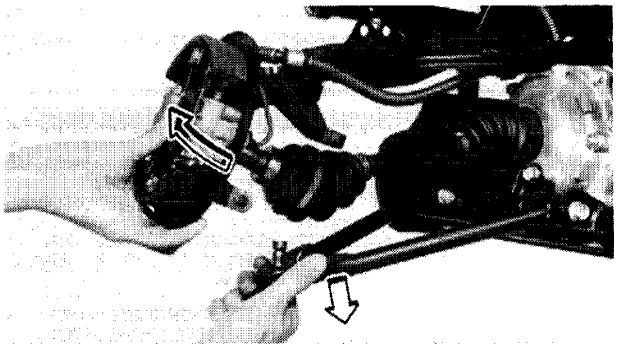
4. Remove:
   - Clamp (Oil hose) ①
   - Bolts (Oil cooler) ②



5. Remove:
   - Front shock absorbers (Right and left) ①
   - Cotter pins
   - Nuts (Tie-rod end)
   - Tie-rods (Right and left) ②

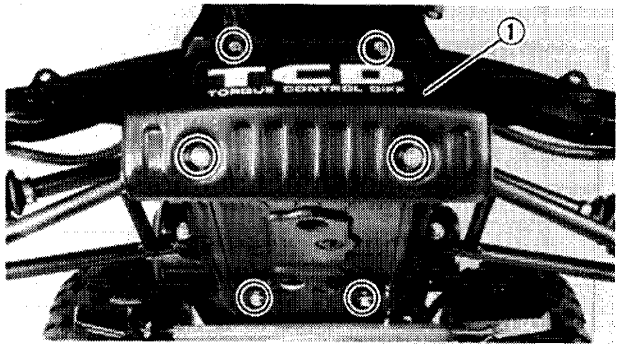


6. Remove:
   - Cotter pins ①
   - Nuts (Knuckle arm) ②
   - Bolts (Knuckle arm) ③



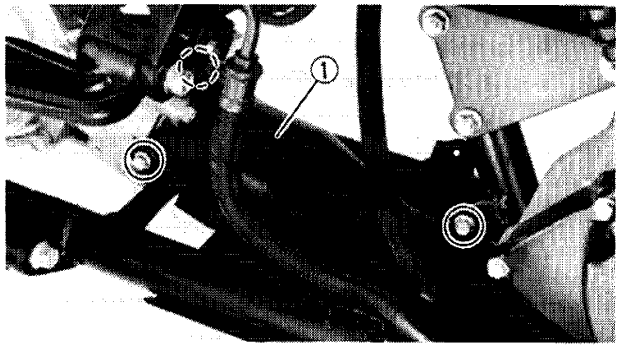
7. Disconnect:
   - Ball joint ends

   Push down the lower arm and pull up the steering knuckle.



8. Remove:
   - Engine protector (Front) ①
   - Drain plugs

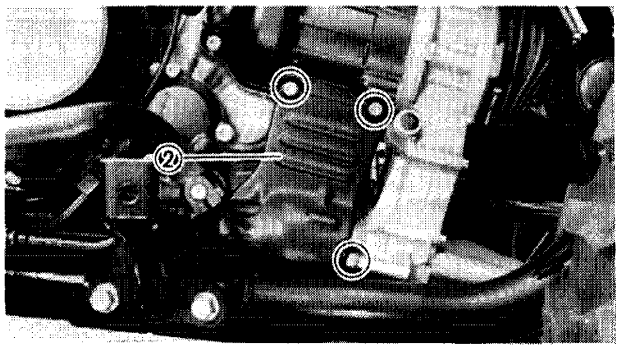
   Drain the oil completely.

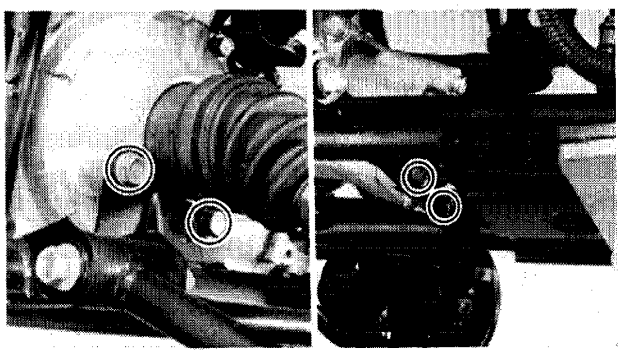


9. Remove:
   - Bolts (Front drive shaft protector)
   - Front half (Front drive shaft protector) ①

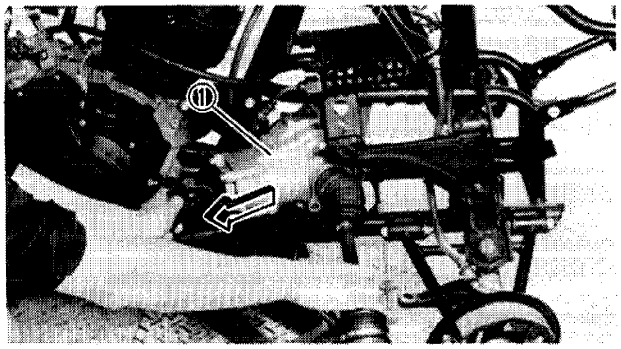
NOTE:

Do not remove the rear half protector ② completely at this point.





10. Remove:
- Bolts (Differential gear case — Front)
- Bolts (Differential gear case — Rear)

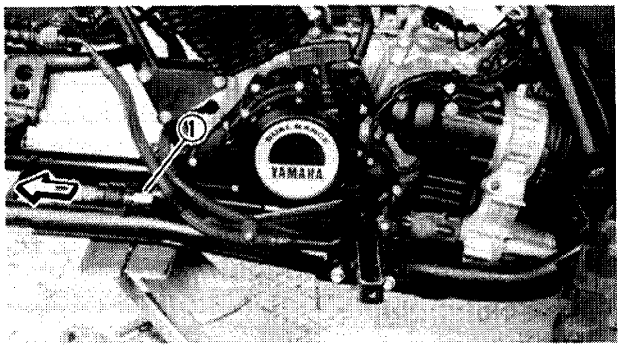


11. Remove:
- Differential gear case with constant velocity joints ①

Differential gear case removing steps:
- Slide the rubber boot (Front) on the drive shaft.
- Lift up the gear case.
- Move the gear case to forward and disconnect the drive shaft universal joint.

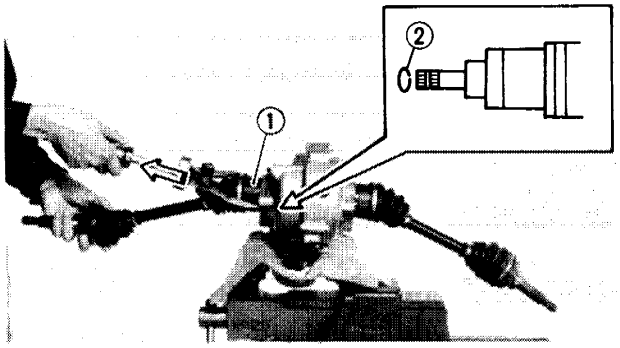
NOTE:
When disconnecting the drive shaft, the spring seat and spring will fall off. Take care not to lose these parts.

- Remove the gear case to the rear-right side.



12. Remove:
- Front drive shaft ①

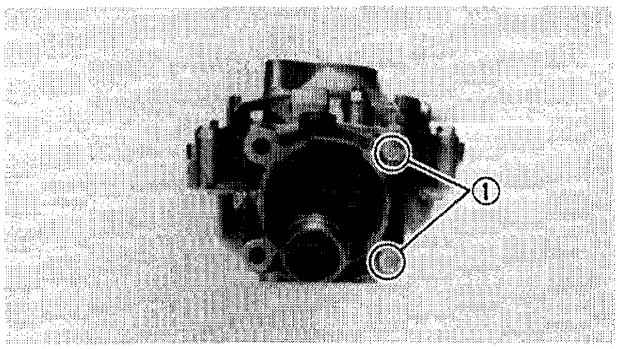
  Slide the rubber boot (Rear) on the drive shaft and pull out the drive shaft to forward.



Constant Velocity Joint

1. Remove:
- Constant velocity joint ①
- Circlip (Double off-set joint) ②

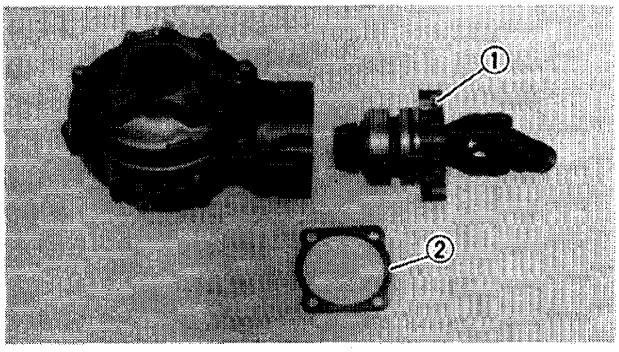
NOTE:
Use the General Puller to separate the differential gear case and constant velocity joint.



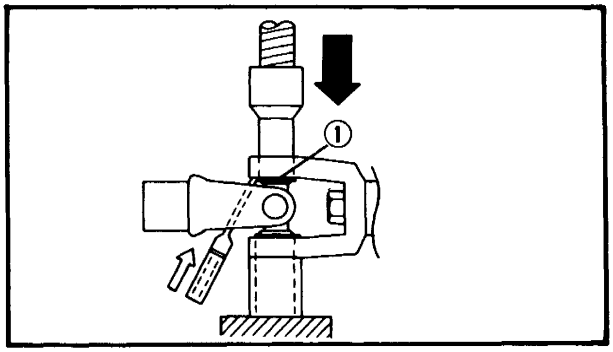
DISASSEMBLY

Differential Gear

1. Remove:
   - Bolts (Bearing housing — Front drive gear) ①



2. Remove:
   - Front drive gear assembly with bearing housing ①
   - Shim(s) ②



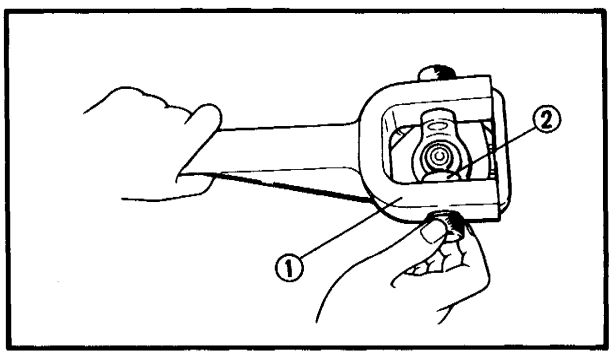
3. Remove:
   - Universal joint

Universal joint removal steps:
- Remove the circlips ①.
- Place the U-joint in a press.
- With a suitable diameter pipe beneath the yoke, press the bearing into the pipe as shown.

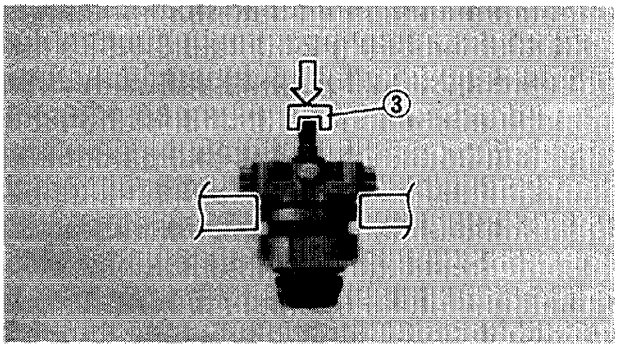
NOTE:
It may be necessary to lightly tap the yoke with a punch.

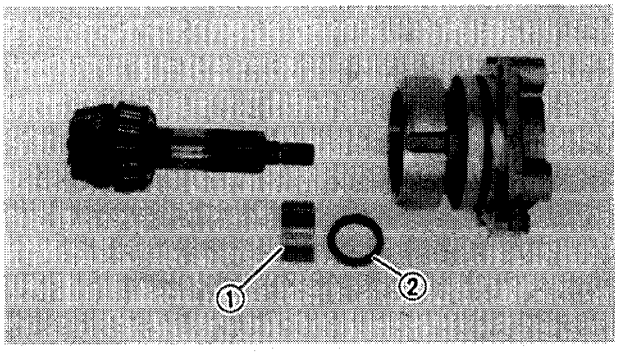
- Repeat the steps for the opposite bearing.
- Remove the yoke.

NOTE:
It may be necessary to lightly tap the yoke with a punch.



4. Attach:
   - Universal Joint Holder ① (YM-04062)
   - Attachement ② (YM-33291)
     Onto the universal joint yoke.
5. Remove:
   - Nut (Front drive gear)
   - Washer
   - O-ring
   - Yoke
     Lightly tap the end of the axle with soft hammer.



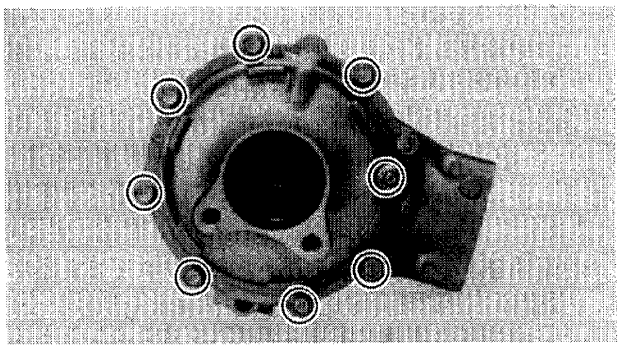


6. Remove:
   - Spacer ①
   - Collapsible collar ②

Spacer and collapsible collar removal steps:
- Clean the outside of the front drive gear shaft.
- Place the front drive gear assembly with bearing housing onto a Hydraulic Press.

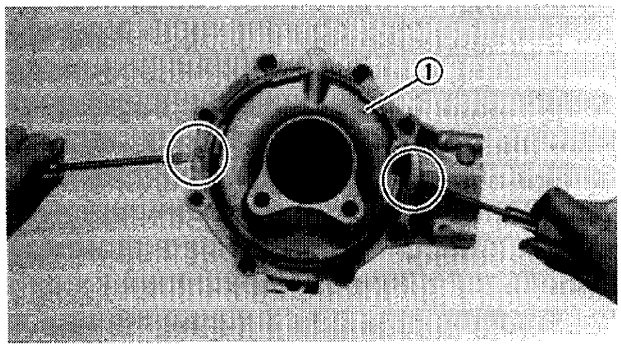
CAUTION:
- **Never directly press the shaft end with a Hydraulic Press, this will result in damage to the shaft thread.**
- **Install the suitable socket ③ on the shaft end to protect the thread from damage.**

- Press the shaft end, and remove the spacer and collapsible collar.

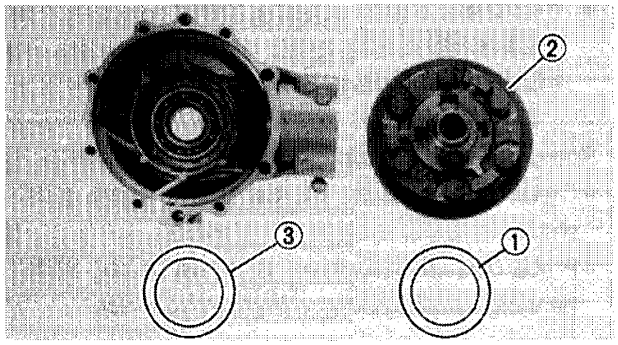


7. Remove:
   - 8 mm bolts (Bearing housing — Ring gear)
   - 10 mm bolts (Bearing housing — Ring gear)

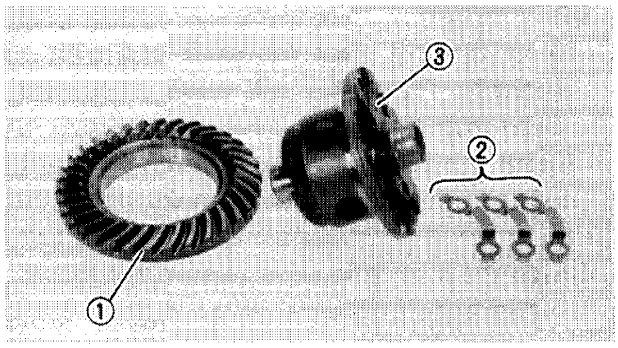
NOTE:
Working in a crisscross pattern, loosen the bolt 1/4 turn each. Remove then after all loosened.



8. Remove:
   - Bearing housing (Ring gear) ①



9. Remove:
   - Ring gear shim(s) ①
   - Differential gear assembly with ring gear ②
   - Thrust washer ③

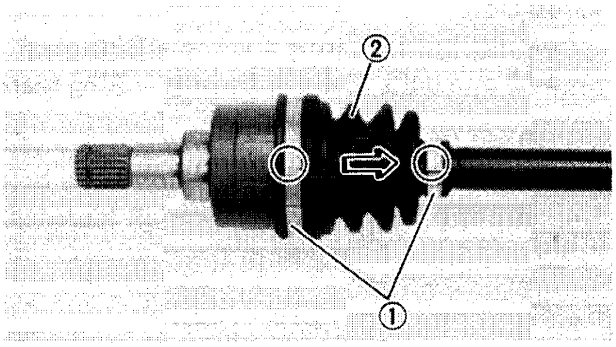


10. Remove:
    - Ring gear ①
    - Lock washers ②

    From the differential gear assembly ③.

CAUTION:

The differential gears are assembled into a proper unit at the factory by means of specialized equipment. Do not attempt to disassemble this unit. Disassembly will result in the mulfunction of the unit.

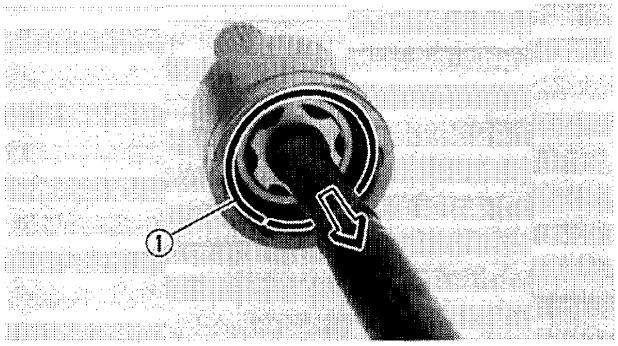


Constant Velocity Joint

1. Remove:
   - Bands (Double off-set joint) ①

NOTE:

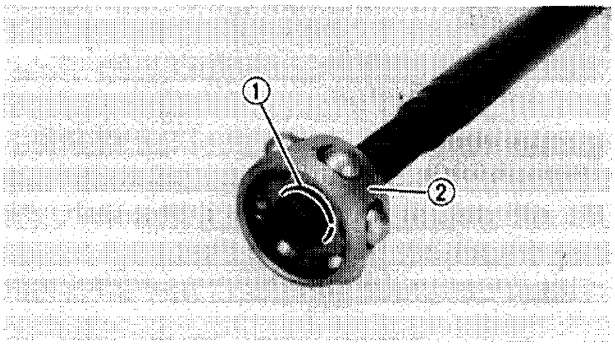
After removing the bands, slide the dust boot (Double off-set joint) ② to the ball joint side.



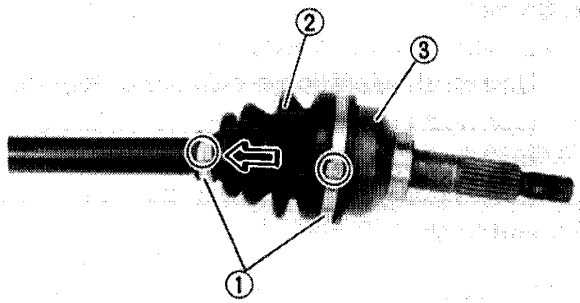
2. Remove:
   - Circlip ①

NOTE:

After removing the circlip, pull out the shaft with bearing.



3. Remove:
   - Snap ring ①
   - Ball bearing ②
   - Dust boot (Double off-set joint)



4. Remove:
   - Bands (Ball joint) ①
   - Dust boot (Ball joint) ②

   From the ball joint assembly ③.

INSPECTION

Differential Gear

1. Inspect:
   - Gear teeth

     Pitting/Galling/Wear → Replace front drive gear and ring gear as a set.
   - Bearing

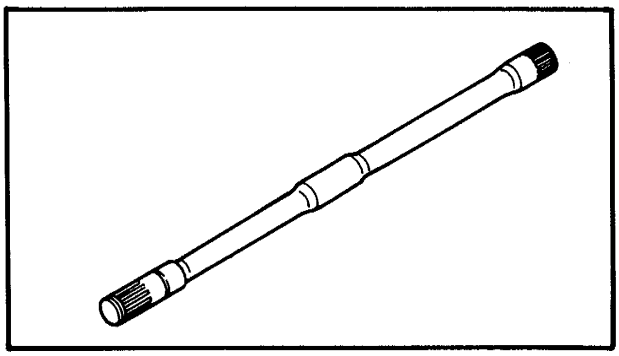
     Pitting/Damage → Replace.
   - Oil seal
   - O-ring

     Damage → Replace.
2. Inspect:
   - Drive shaft splines
   - Universal joints
   - Front drive gear spline

     Wear/Damage → Replace.
   - Spring

     Fatigue → Replace.

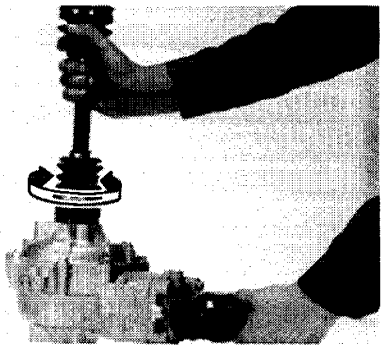
     Move the spring up and down.



3. Inspect:
   - Front drive shaft
     Bends → Replace.

WARNING:

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



4. Check:
   - Differential gear operation
     Unsmooth operation → Replace differential gear assembly.
     Insert the double off-set joint into the differential gear, and turn the gear back and forth.

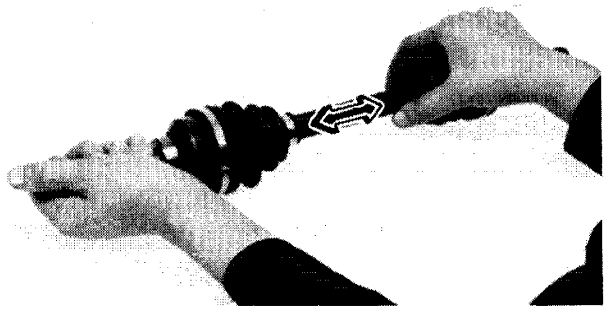
Constant Velocity Joint

1. Inspect:
   - Double off-set joint spline
   - Ball joint spline
   - Shaft spline
     Wear/Damage → Replace.
2. Inspect:
   - Dust boots
     Cracks/Damage → Replace.

CAUTION:

Always use new boot band.

3. Inspect:
   - Balls and ball races
   - Inner surface of double off-set joint
     Pitting/Damage/Wear → Replace.



4. Check:
   - Free play (Thrust movement)
     Excessive play → Replace joint assembly.
     Move the shaft back and forth.

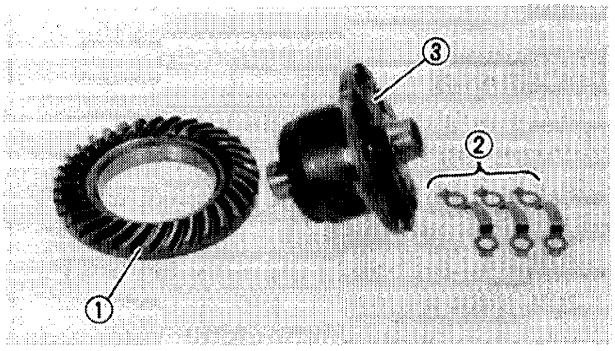
REASSEMBLY

Differential Gear

When reassembling the differential gear, reverse the disassembly procedures. Note the following points.

1. Apply:
   - Lithium base grease

   To the oil seals and O-rings.

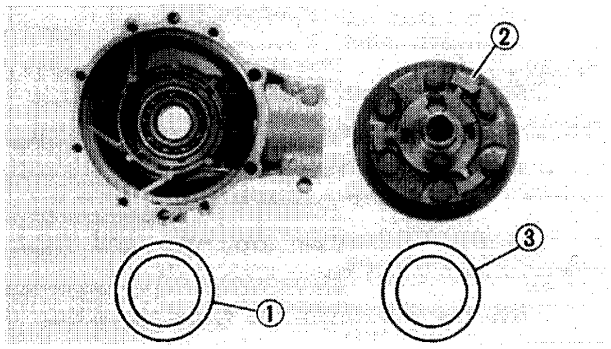


2. Install:
   - Ring gear ①
   - Lock washers (New) ②

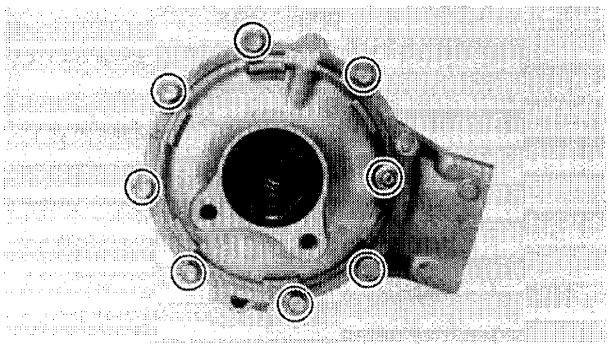
   To the differential gear assembly ③ .

Ring Gear:
64 Nm (6.4 m·kg, 46 ft·lb)

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



4. Install:
   - Thrust washer ①
   - Differential gear assembly with ring gear ②
   - Ring gear shim(s) ③

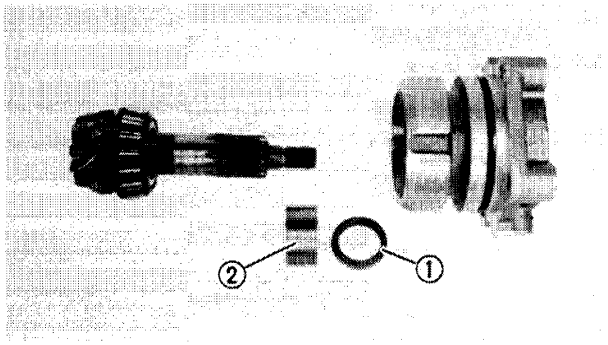


5. Tighten:
   - 10 mm bolts (Bearing housing — Ring gear)
   - 8 mm bolts (Bearing housing — Ring gear)

NOTE:
Tighten the bolts in stage, using a crisscross pattern.

10 mm Bolts
(Bearing Housing — Ring Gear):
40 Nm (4.0 m·kg, 29 ft·lb)

8 mm Bolts
(Bearing Housing — Ring Gear):
23 Nm (2.3 m·kg, 17 ft·lb)



6. Install:
   - Collapsible collar (New) ①
   - Spacer ②

Collapsible collar and spacer installation steps:

- Clean the outside of the front drive gear shaft and inside of the collapsible collar and spacer.
- Inspect the spacer for damage. If damaged, replace it.

WARNING:

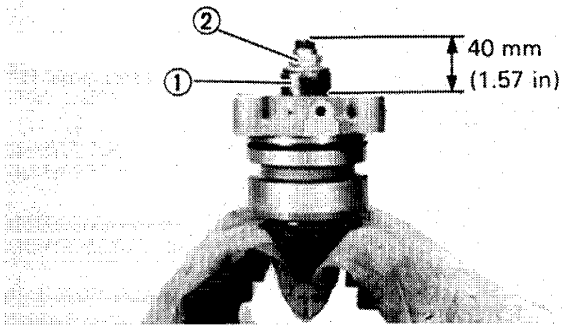
Always use a new collapsible collar.

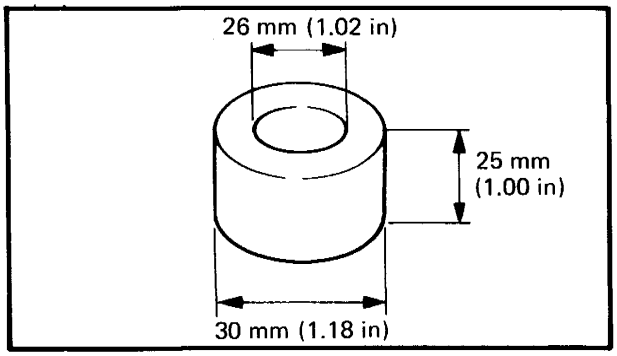
- Fit the spacer and collapsible collar onto the front drive gear shaft.
- Insert the front drive gear assembly into the bearing housing.
- Clamp the front drive gear in a vise with soft jaws.

CAUTION:

Do not clamp the bearing inner race. Clamp the front drive gear with care at this point.

- Install the hand-made tool ① and nut (Front drive gear) ② .
- Tighten the nut until the front drive gear shaft end and bearing housing end are 40 mm (1.57 in) apart.
- Remove the nut (Front drive gear) and front drive gear assembly.





7. Apply:
   - Lithium base grease

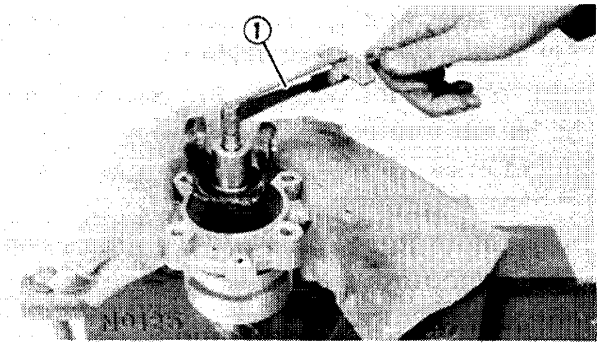
   To the O-ring of the yoke.

8. Install:
   - Yoke
   - O-ring (New)
   - Washer
   - Nut (Front drive gear)

NOTE:
Before installing the nut (Front drive gear), apply LOCTITE® to the thread of front drive gear shaft.

Nut (Front drive gear) tightening steps:
- Clean the outside of the bearing housing.
- Clamp the bearing housing in a vise with soft jaws.

CAUTION:
Do not clamp the bearing inner race. Clamp the bearing housing with care at this point.



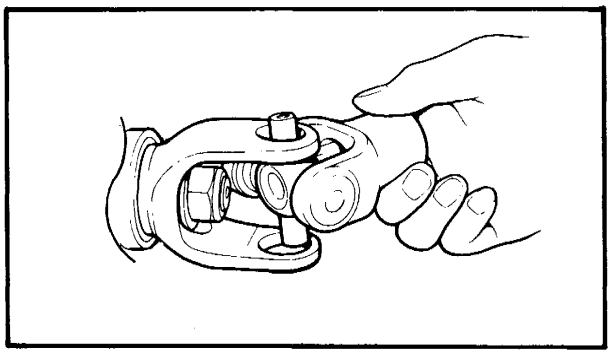
- Attach the Universal Joint Holder (YM-04062) and Attachment (YM-33291) on the U-joint.
- Carefully tighten the nut (Front drive gear), little by little.
- Remove the aforementioned special tools.
- Measure the starting torque of the front drive gear with the small size torque wrench ①.

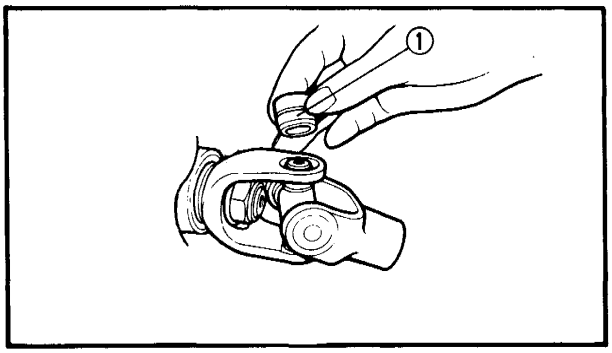
Front Drive Gear Starting Torque:
0.8 ~ 1.3 Nm (0.08 ~ 0.13 m·kg, 0.60 ~ 0.94 ft·lb)

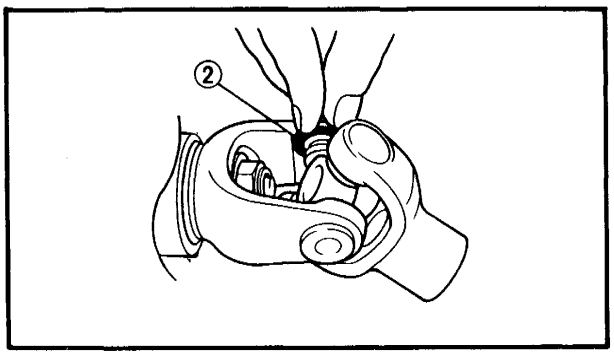
- Repeat tightening steps to establish the standard starting torque for the front drive gear.

CAUTION:
Never exceed the standard starting torque. Be sure to tighten the nut (Front drive gear) slowly, carefully checking and measurements each time. Exceeding the standard starting torque may depress the collapsible collar, requiring reassembly. Then you must replace the collapsible collar and repeat the tightening steps to obtain the standard starting torque.

- **Stake the nut head with a center punch to lock.**







9. Install:
   - Universal joint

Universal joint installation steps:
- Install the opposite yoke into the U-joint.
- Apply the wheel bearing grease to the bearings.
- Install the bearing ① onto the yoke.

CAUTION:

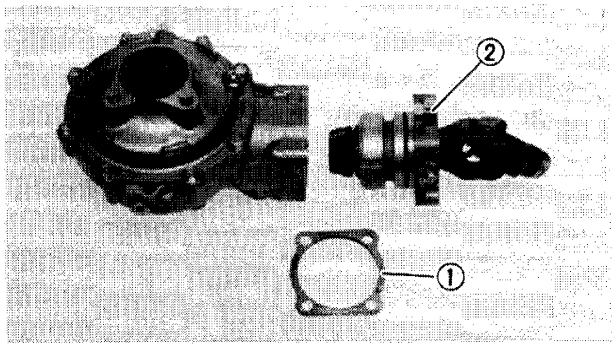
Check each bearing. The needles can easily fall out of their races. Slide the yoke back and forth on the bearings; the yoke will not go all the way onto a bearing if a needle is out of place.

- Press each bearing into the U-joint using a suitable socket.

NOTE:

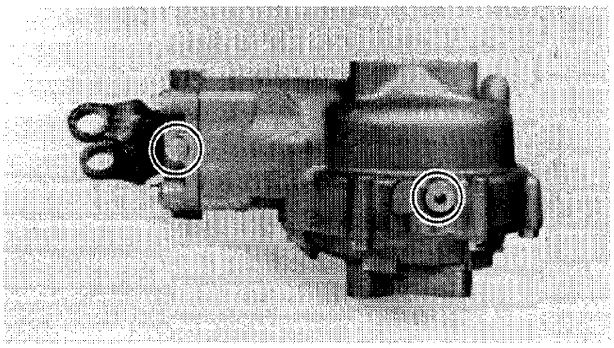
Bearing must be inserted far enough into U-joint so that circlip can be installed.

- Install the circlips ② into the groove of each bearing.



10. Install:
    - Shim(s) ①
    - Front drive gear assembly with bearing housing ②

      Lightly tap the end of the bearing housing with soft hammer.



NOTE:
Be sure to position the bearing housing so that the drain plug face downward.

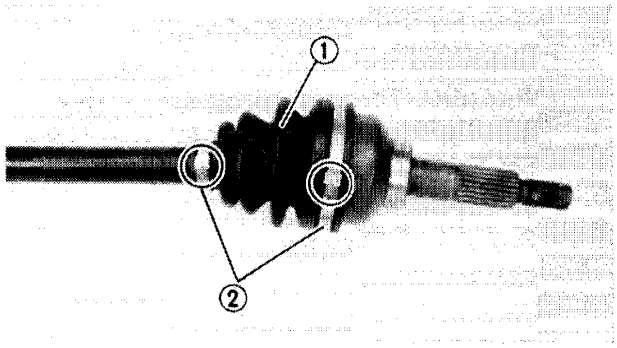
Bolts (Bearing Housing – Front Drive Gear):
23 Nm (2.3 m·kg, 17 ft·lb)

11. Check:
    - Gear lash
      Out of specification → Adjust.
      Refer to "MEASUREMENT AND ADJUSTMENT" section.

Constant Velocity Joint
When reassembling the constant velocity joint. Reverse the disassembly procedures. Note the following points.

1. Apply:
   - Molbdenum disulfide grease
     Into the ball joint assembly.

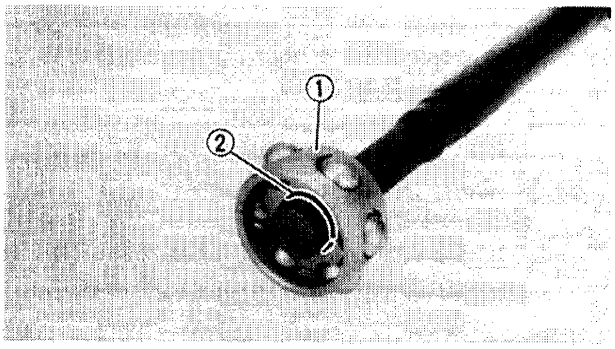
NOTE:
Molbdenum disulfide grease is included in the repair kit.



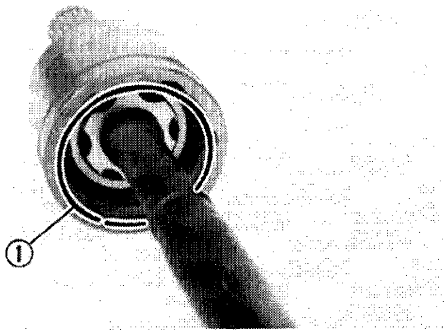
2. Install:
   - Dust boot (Ball joint) ①
   - Bands (Ball joint – New) ②

NOTE:
After installing the bands, bend the band ends securely.

CAUTION:
Always use the new bands.

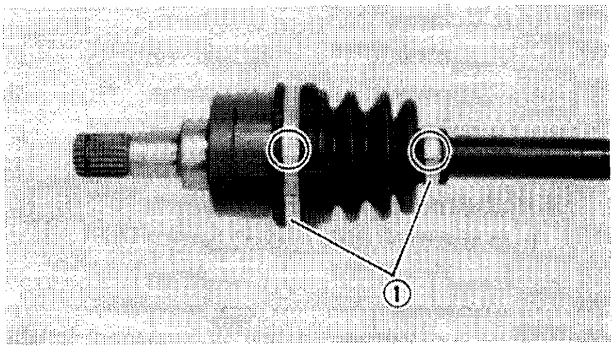


3. Install:
   - Dust boot (Double off-set joint)
     Insert the shaft into the boot.
   - Ball bearing ①
   - Snap ring ②



4. Install:
   - Ball bearing with shaft
   - Circlip ①
     To the double off-set joint.

NOTE:
- Before installing the ball bearing, apply the molbdenum disulfide grease into the double off-set joint.
- Cover the double off-set joint with the dust boot.

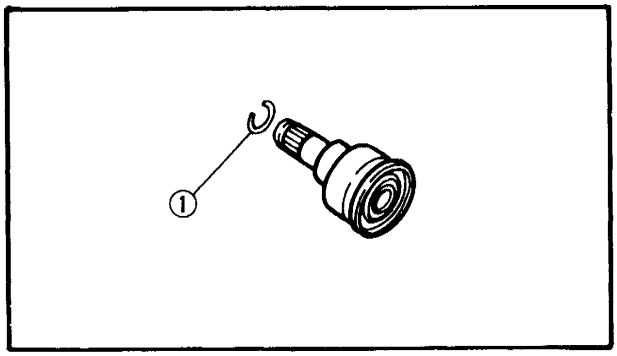


5. Install:
   - Bands (Double off-set joint) ①

NOTE:
After installing the bands, bend the band ends securely.

CAUTION:
Always use the new bands.

6. Check:
   - Free play (Thrust movement)
     Refer to "INSPECTION" section.

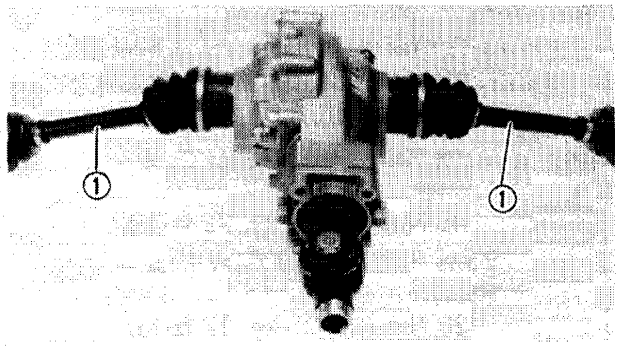


INSTALLATION

Constant Velocity Joint

1. Install:
   - Circlip (Double off-set joint) ①

WARNING:
Always use a new circlip.



2. Install:
   - Constant velocity joints ①

   Tap the end of the joint with the soft hammer.

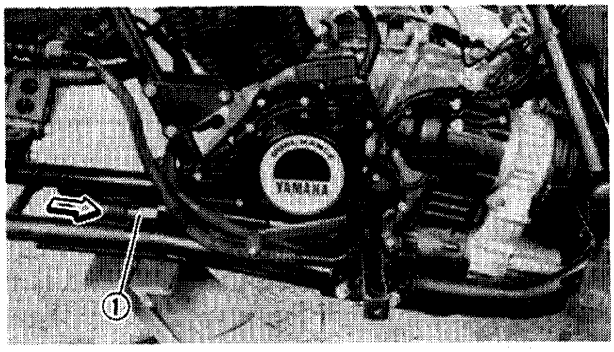
NOTE:
Before installing the joints, apply the lithium base grease to the joints and oil seals.

Differential Gear

When installing the differential gear, reverse the removal procedures. Note the following points.

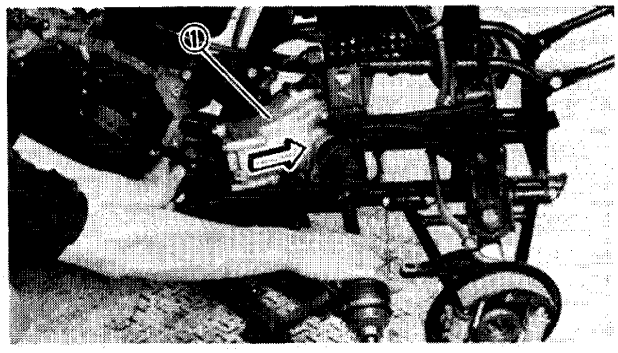
1. Apply:
   - Molbdenum disulfide grease

   To the drive shaft splines.



2. Install:
   - Front drive shaft ①

NOTE:
Insert the drive shaft into the universal joint properly and slide the rubber boot (Rear).

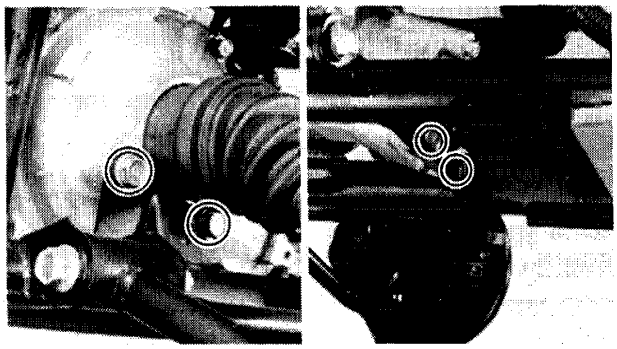


3. Install:
   - Differential gear case with constant velocity joints ①

Differential gear case installation steps:
- Insert the gear case from the rear-right side.
- Connect the drive shaft universal joint.

NOTE:
Before connecting the drive shaft, do not forget to fit the spring seat and spring.

- Slide the rubber boot (Front) on the drive shaft.
- Check the differential gear operation. If not, reinstall the drive shaft.



4. Tighten:
   - Bolts (Differential gear case — Front)
   - Bolts (Differential gear case — Rear)

Bolts (Differential Gear Case — Front):
45 Nm (4.5 m·kg, 32 ft·lb)
Bolts (Differential Gear Case — Rear):
23 Nm (2.3 m·kg, 17 ft·lb)

5. Tighten:
   - Bolts (Front drive shaft protector)
   - Drain plugs (Differential gear case)
   - Bolts (Engine guard — Front)

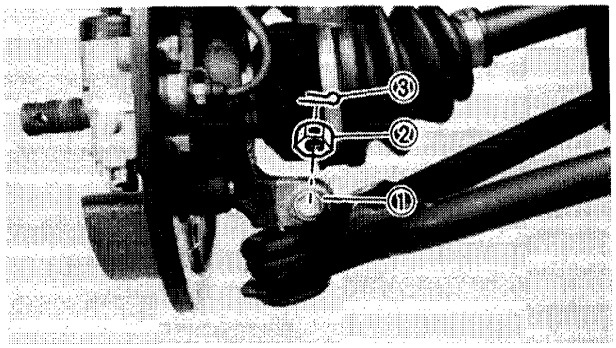
Bolts (Front Drive Shaft Protector):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Drain Plugs (8 mm):
16 Nm (1.6 m·kg, 11 ft·lb)
Drain Plug (14 mm):
23 Nm (2.3 m·kg, 17 ft·lb)
Bolts (Engine Guard — Front):
16 Nm (1.6 m·kg, 11 ft·lb)

6. Fill:
   - Differential gear case

WARNING:

Take care not to allow foreign material to enter the differential gear case.

Total Amount:
0.5 L (0.44 Imp qt, 0.53 US qt)
Recomended Oil:
SAE 80 API "GL-4" Hypoid Gear Oil
If desired, an SAE 80W90 Hypoid Gear Oil may be used for all conditions.



7. Install:
   - Bolts (Knuckle arm) ①
   - Nuts (Knuckle arm) ②
   - Cotter pins ③

NOTE:

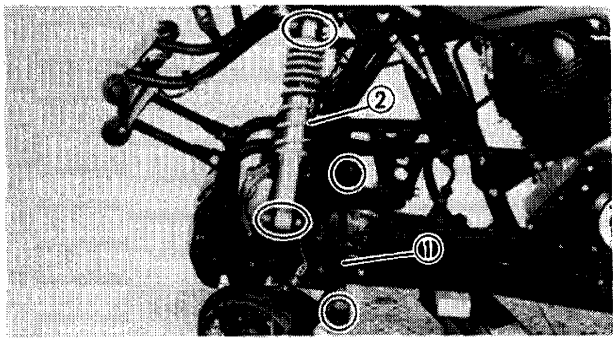
Be sure to position the bolts (Knuckle arm) so that the bolt head face forward.

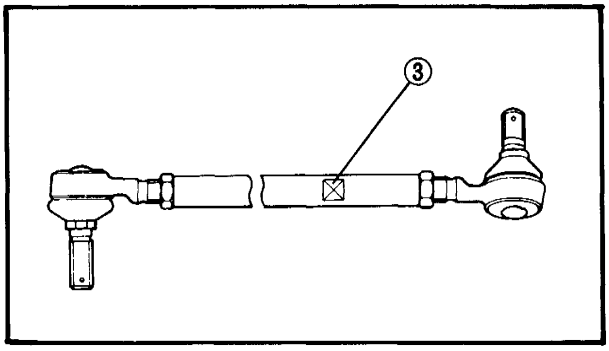
CAUTION:

Avoid over-tightening.

WARNING:

Always use a new cotter pin.





8. Install:
   - Tie-rods (Right and left) ①
   - Nuts (Tie-rod end)
   - Cotter pins
   - Front shock absorbers (Right and left) ②

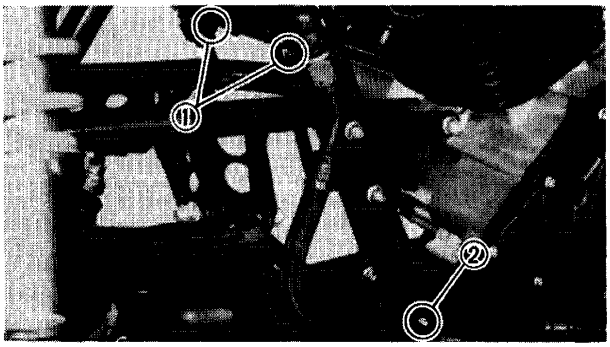
NOTE:

- Be sure to position the tie-rod so that its white painted mark ③ is right-hand rod.
- Be sure to position the front shock absorber holding bolts (Upper and lower) so that the bolt head face forward.

WARNING:

Always use a new cotter pin.

Nuts (Tie-rod End):
25 Nm (2.5 m·kg, 18 ft·lb)
Nuts (Front Shock Absorber):
45 Nm (4.5 m·kg, 32 ft·lb)



9. Tighten:
   - Bolts (Oil cooler) ①
   - Screw (Clamp – Oil hose) ②

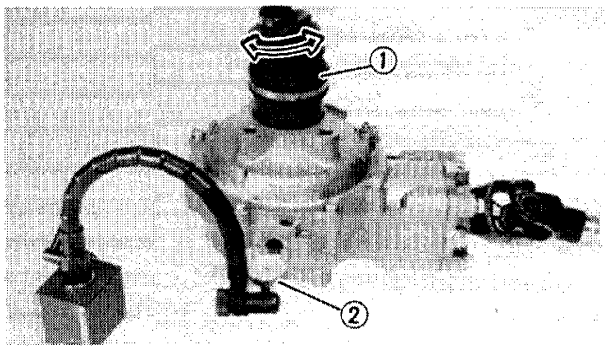
Bolts (Oil Cooler):
7 Nm (0.7 m·kg, 5.1 ft·lb)
Screw (Clamp – Oil Hose):
7 Nm (0.7 m·kg, 5.1 ft·lb)

MEASUREMENT AND ADJUSTMENT

Differential Gear Gear Lash Measurement

1. Remove:
   - Drain plug (14 mm)
     Drain the oil.
2. Install:
   - Constant velocity joint ①
     Into the joint hole.

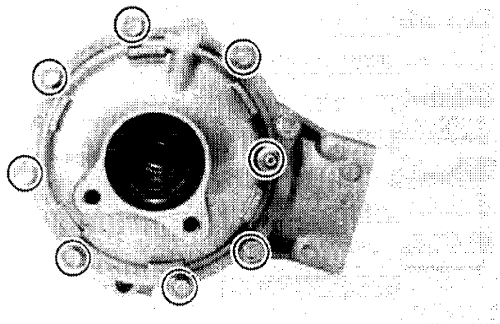
NOTE:
When installing the joint, do not fit the circlip to the joint.



3. Attach:
   - Dial Gauge (For lever type)② (YM-03110)
4. Measure:
   - Gear lash
     Gently rotate the constant velocity joint from engagement to engagement.
     Over specified limit → Adjust.

NOTE:
- When rotating the joint, do not turn the U-joint.
- Measure the gear lash at 4 positions. Rotate the ring gear 90° each time.

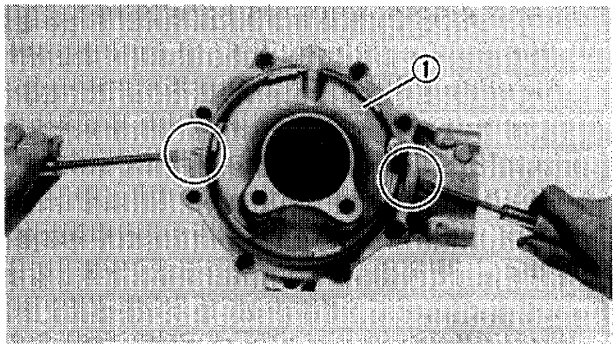
Differential Gear Gear Lash:
0.10 ~ 0.35 mm (0.004 ~ 0.014 in)

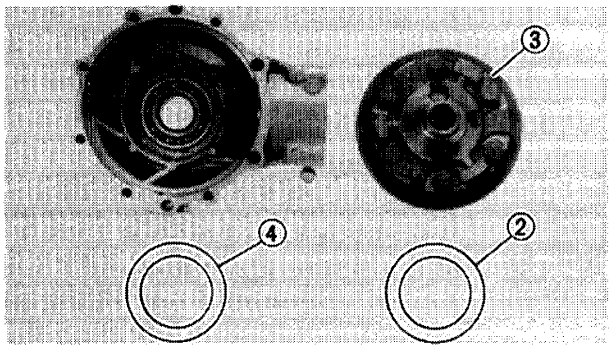


Differential Gear Gear Lash Adjustment

1. Remove:
   - 8 mm bolts (Bearing housing — Ring gear)
   - 10 mm bolts (Bearing housing — Ring gear)

NOTE:
Working in a crisscross pattern, loosen the bolt 1/4 turn each. Remove then after all loosened.





2. Remove:
   - Bearing housing (Ring gear) ①
   - Ring gear shim(s) ②
   - Differential gear assembly with ring gear ③
   - Thrust washer ④

3. Adjust:
   - Gear lash

Gear lash adjustment steps:
- Select the suitable shim(s) and thrust washer by the following chart.

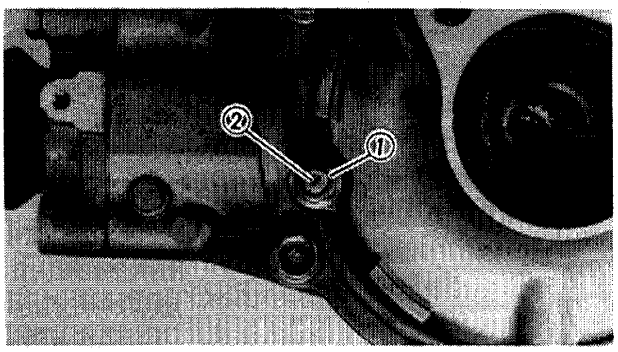
Too-little gear lash →
Reduce shim thickness.

Too-large gear lash →
Increase shim thickness.

To Add or Reduce Ring Gear Shim Thickness	
Increase by more than 0.1 mm (0.004 in)	Reduce by more than 0.1 mm (0.004 in)
Reduce thrust washer thickness by 0.1 mm (0.004 in) for every 0.1 mm of ring gear shim increase. →	Reverse procedure

Ring Gear Shim/Thrust Washer

Thickness (mm)	**0.15**	**0.20**	**0.30**	
	0.40	**0.50**		



Ring Gear Stopper Clearance Adjustment

1. Adjust:
   - Clearance (Ring gear stopper)

Ring gear stopper clearance adjustment steps:
- Loosen the locknut ① .
- Finger tighten the adjuster ② until resistance is felt.

CAUTION:

Do not over tighten the adjuster; finger tight is sufficient.

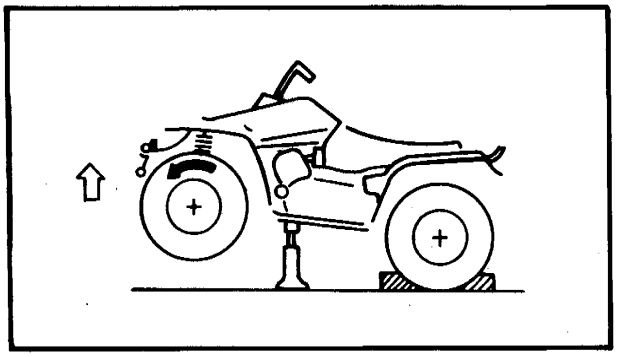
- Turn back it 1/2 rotation.
- Tighten the locknut.

Locknut (Ring Gear Stopper): 16 Nm (1.6 m·kg, 11 ft·lb)

DIFFERENTIAL GEAR OPERATION CHECK

1. Block the rear wheels, and elevate the front wheels by placing a suitable stand under the frame.
2. Remove the wheel cap and cotter pin from the axle nut (Right or left).
3. Measure the starting torque of the front wheel (i.e., differential gear preload) with the torque wrench.

NOTE:
- Repeat this step several times to obtain an average figure.
- During this test, the other front wheel will turn in the opposite direction.



Front Wheel Starting Torque:
(Differential Gear Preload):
New Unit:
40 ~ 80 Nm (4.0 ~ 8.0 m·kg,
29 ~ 58 ft·lb)
Minimum:
10 Nm (1.0 m·kg, 7.2 ft·lb)

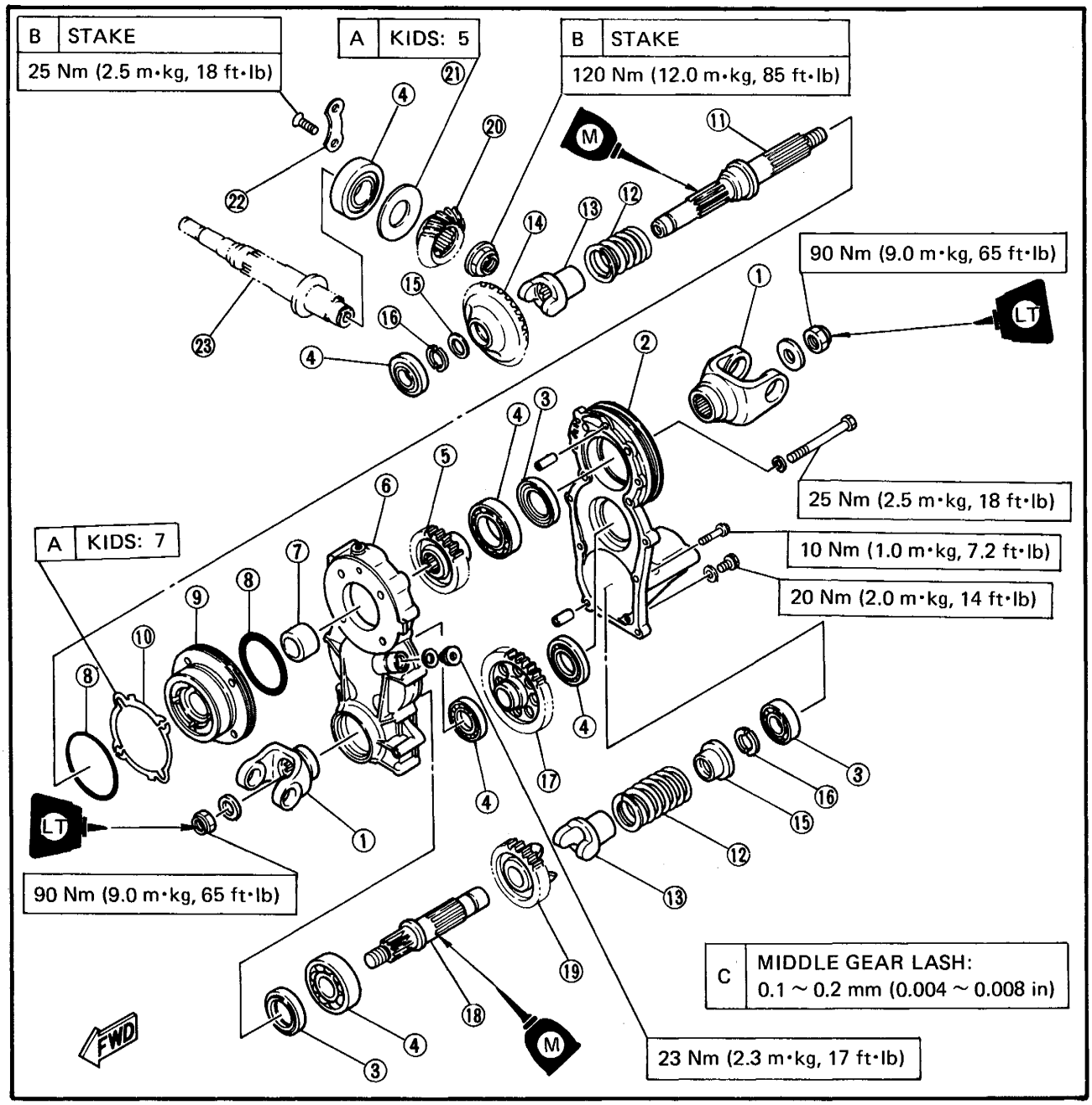
4. Out of the above specification, replace the differential gear assembly.
5. Within the above specification, install the cotter pin and wheel cap.

WARNING:

Always use a new cotter pin.

TRANSFER GEAR

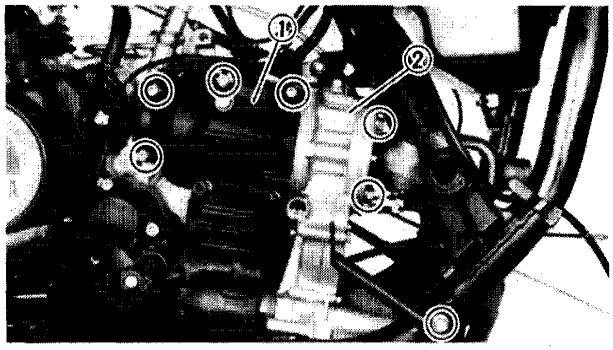
① Universal joint
② Transfer gear case (Rear)
③ Oil seal
④ Bearing
⑤ Transfer drive gear (26T)
⑥ Transfer gear case (Front)
⑦ Collar
⑧ O-ring
⑨ Bearing housing assembly
⑩ Shims
⑪ Middle driven shaft (For rear final gear)
⑫ Damper spring
⑬ Damper cam
⑭ Middle driven gear
⑮ Holder
⑯ Retainers
⑰ Idler gear (34T)
⑱ Middle driven shaft (For differential gear)
⑲ Transfer driven gear (26T)
⑳ Middle drive gear
㉑ Thrust shims
㉒ Bearing retainers
㉓ Middle drive shaft

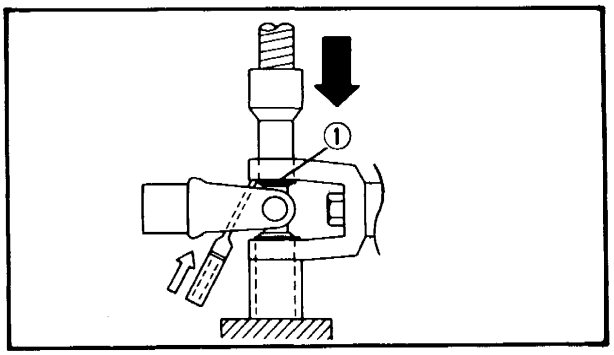


REMOVAL

1. Remove:
   - Rear carrier
   - Rear fender
   - Muffler
   - Exhaust pipe
   - Rear shock absorber
   - Rear drive assembly with swingarm
   - Engine guard (Rear)
   - Middle gear case ①
   - Transfer gear assembly ②

   Refer to "CHAPTER 3. ENGINE OVERHAUL – ENGINE REMOVAL" section.





DISASSEMBLY

Middle Driven Shaft (For Rear Final Gear)

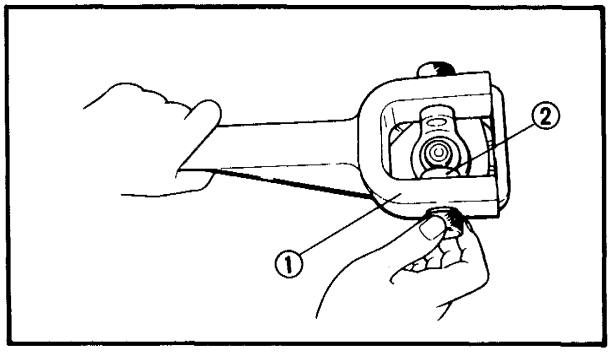
1. Remove:
   - Universal joint (For rear final gear)

Universal joint removal steps:
- Remove the circlips ①.
- Place the U-joint in a press.
- With a suitable diameter pipe beneath the yoke, press the bearing into the pipe as shown.

NOTE:
It may be necessary to lightly tap the yoke with a punch.

- Repeat the steps for the opposite bearing.
- Remove the yoke.

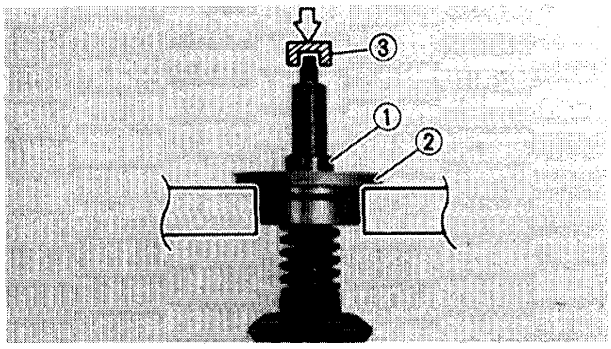
NOTE:
It may be necessary to lightly tap the yoke with a punch.



2. Attach:
   - Universal Joint Holder ① (YM-04062)
   - Attachment ② (YM-33291)

   Onto the universal joint yoke.

3. Remove:
   - Nut (Middle driven shaft — For rear final gear)
   - Washer
   - O-ring
   - Yoke
   - Middle driven shaft assembly with bearing housing (For rear final gear)
     Lightly tap the end of the axle with soft hammer.

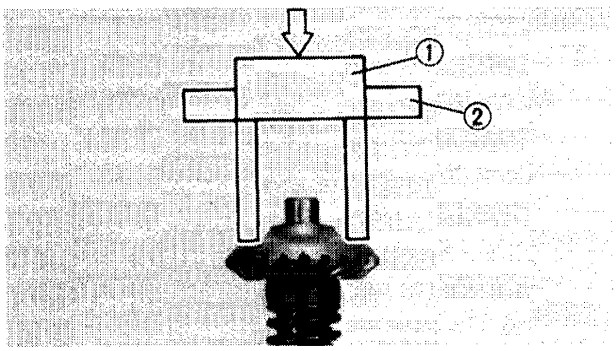


4. Remove:
   - Collar ①
   - Bearing housing assembly ②

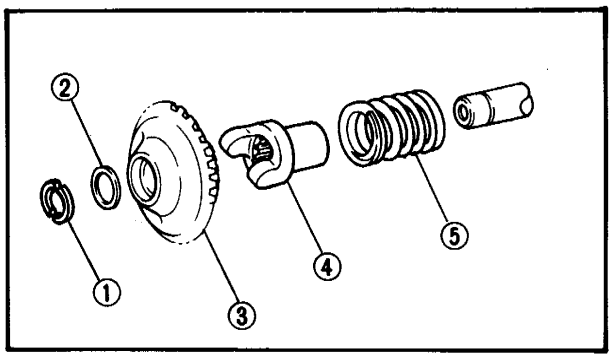
Collar and bearing housing removal steps:
- Clean the outside of the middle driven shaft.
- Place the middle driven shaft assembly onto a Hydraulic Press.

CAUTION:
- **Never directly press the shaft end with a Hydraulic Press, this will result in damage to the shaft thread.**
- **Install the suitable socket ③ on the shaft end to protect the thread from damage.**

- Press the shaft end, and remove the collar and bearing housing.



5. Attach:
   - Damper Spring Compressor ① (YM-33286)
   - Middle Drive Gear Holder ② (YM-33222)
     Onto the middle driven gear.
6. Position:
   - Middle driven shaft assembly
     Onto a Hydraulic Press.
7. Compress the damper spring on the middle driven gear assembly.



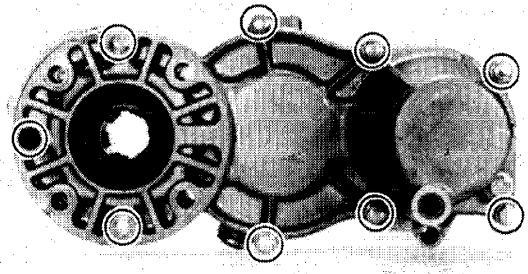
8. Remove:
   - Retainers ①
   - Holder ②
   - Middle driven gear ③
   - Damper cam ④
   - Damper spring ⑤

Middle Driven Shaft (For Differential Gear)

1. Remove:
   - Bolts (Transfer gear case — Rear)

NOTE:

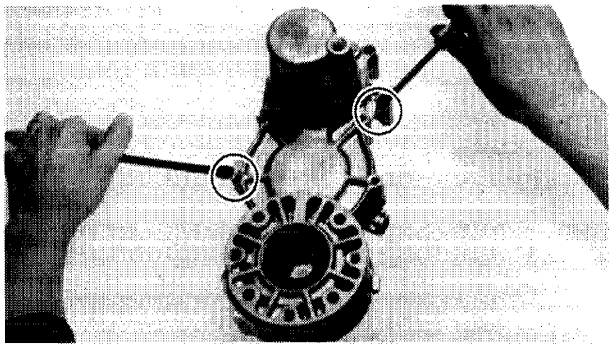
Working in a crisscross pattern, loosen bolt 1/4 turn each. Remove them after all loosened.

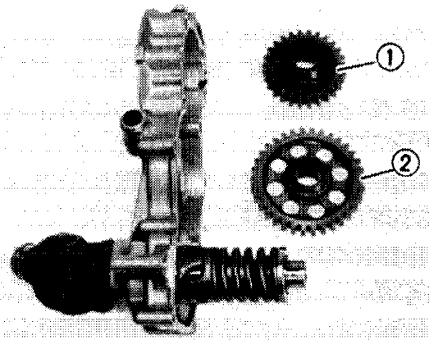


2. Remove:
   - Transfer gear case (Rear)

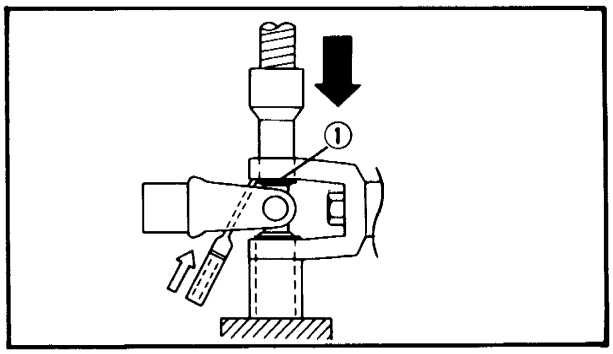
NOTE:

- For this removal, slits in the transfer gear case can be use as shown.
- When removing the transfer gear case, the dowel pins will fall off. Take care not to lose these parts.





3. Remove:
   - Transfer drive gear ①
   - Idler gear ②



4. Remove:
   - Universal joint (For differential gear)

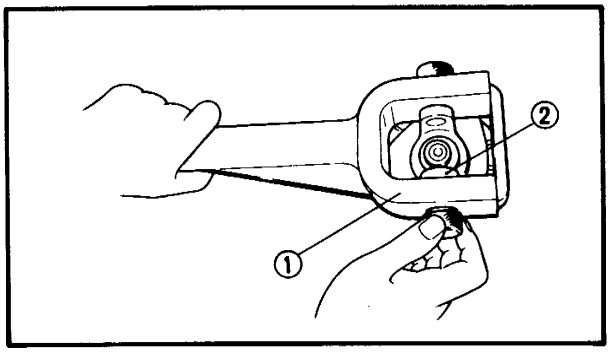
Universal joint removal steps:

- Remove the circlips ① .
- Place the U-joint in a press.
- With a suitable diameter pipe beneath the yoke, press the bearing into the pipe as shown.

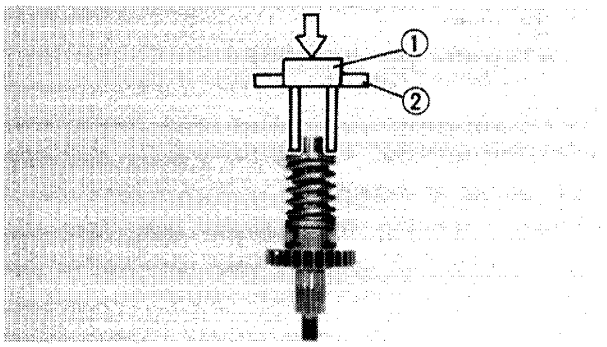
NOTE:
It may be necessary to lightly tap the yoke with a punch.

- Repeat the steps for the opposite bearing.
- Remove the yoke.

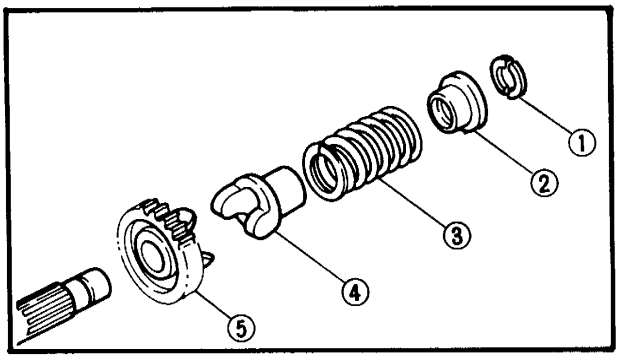
NOTE:
It may be necessary to lightly tap the yoke with a punch.



5. Attach:
   - Universal Joint Holder ① (YM-04062)
   - Attachment ② (YM-33291)
   Onto the universal joint yoke.
6. Remove:
   - Nut (Middler driven shaft – For differential gear)
   - Washer
   - Yoke
   - Middle driven shaft assembly (For differential gear)
   Lightly tap the end of the shaft with soft hammer.



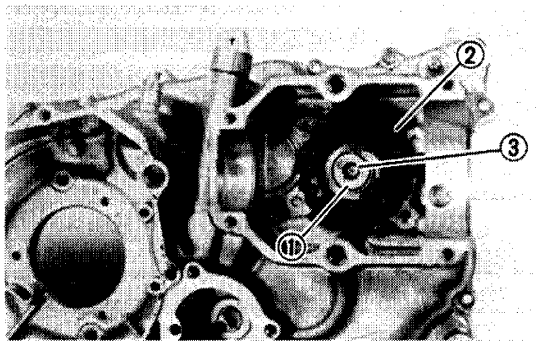
7. Attach:
   - Damper Spring Compressor ① (YM-33286)
   - Middle Drive Gear Holder ② (YM-33222)
   Onto the holder of transfer driven gear.
8. Position:
   - Middle driven shaft assembly
   Onto a Hydraulic Press.
9. Compress the damper spring on the holder.
10. Remove:
    - Retainers ①
    - Holder ②
    - Damper spring ③
    - Damper cam ④
    - Transfer driven gear ⑤



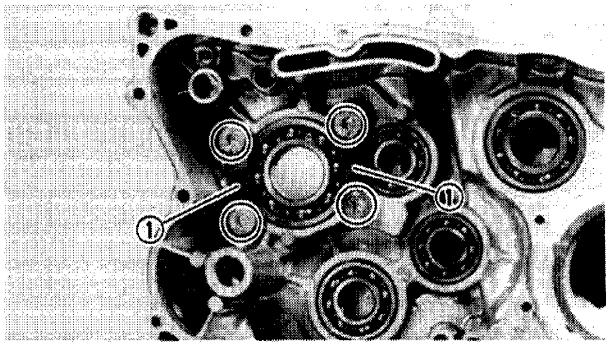
Middle Drive Shaft

NOTE:
Before removing the middle drive shaft, separate the crankcase.

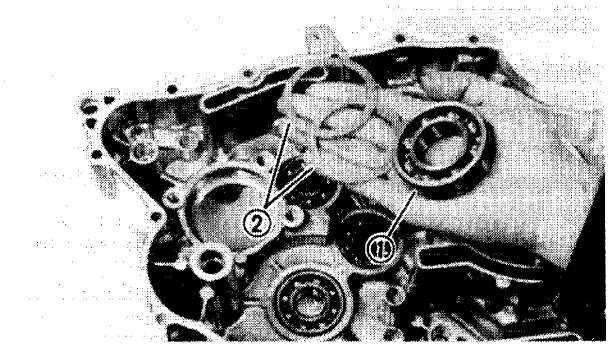
1. Secure the middle drive axle in a vice or other support.



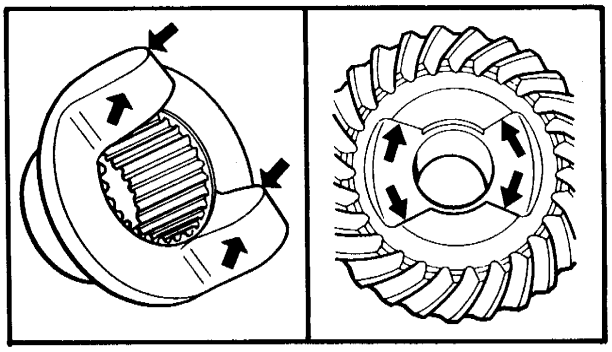
2. Flatten the punched portion of the middle drive gear nut using the drift punch.
3. Remove:
   - Nut (Middle drive gear) ①
   - Middle drive gear ②
   - Middle drive axle ③



4. Remove:
   - Bearing retainers ①
     Use #40 Torx Driver (YM-04049).



5. Remove:
   - Bearing ①
   - Shim ②



INSPECTION

Middle Driven Shafts

1. Inspect:
   - Damper cam surfaces
     Wear/Scratches → Replace damper and middle driven gear as a set.
2. Inspect:
   - Damper spring
     Damage/Cracks → Replace.
3. Inspect:
   - Gear teeth (Middle gear)
     Pitting/Galling/Wear → Replace middle gear as a set.
   - Gear teeth (Transfer gear)
     Pitting/Galling/Wear → Replace transfer gear as a set.

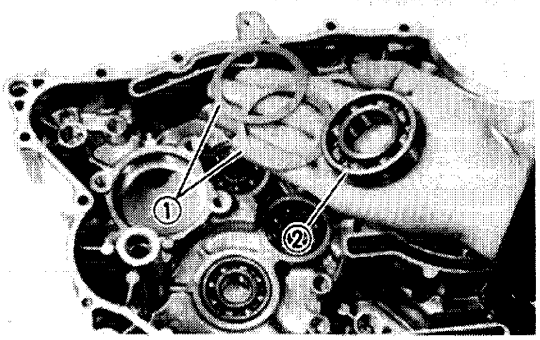
4. Inspect:
   - O-ring
   - Oil seal
     Damage → Replace.
   - Bearings
     Pitting/Damage → Replace.
5. Check:
   - U-joint movement
     Roughness → Replace U-joint.

Middle Drive Shaft

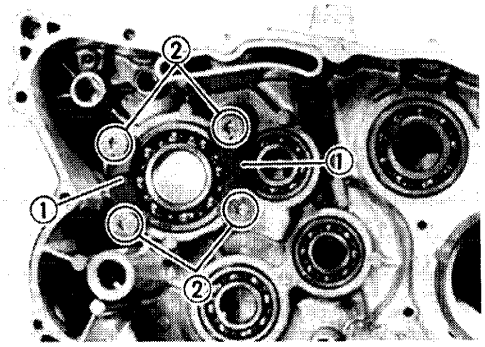
1. Inspect:
   - Gear teeth
     Pitting/Galling/Wear → Replace middle gear as a set.
   - Bearing
     Pitting/Damage → Replace.

REASSEMBLY

Middle Drive Shaft



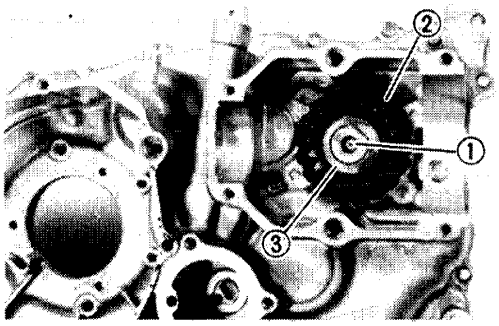
1. Install:
   - Shim ①
   - Bearing ②



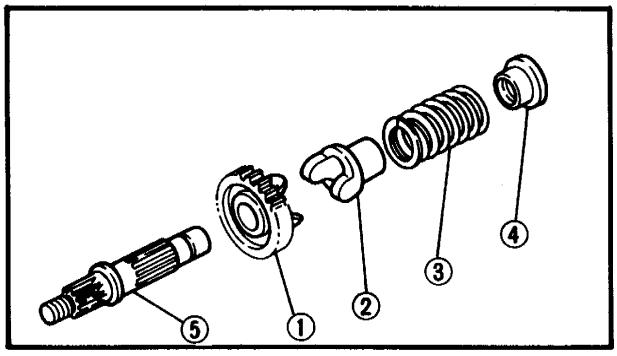
2. Install:
   - Bearing retainers ①
     Use #40 Torx Driver (YM-04049).

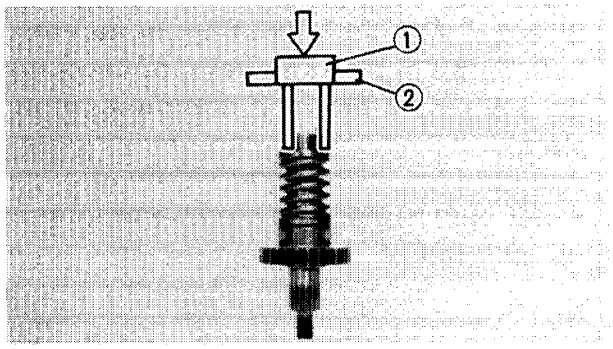
	Bearing Retainer: 25 Nm (2.5 m·kg, 18 ft·lb)

3. Lock the screw head ② with drift punch.



4. Install:
   - Middle drive axle ①
   - Middle drive gear ②
   - Nut (Middle drive gear) ③
     Secure the middle drive axle in a vice or other support.
5. Lock the threads with drift punch.





Middle Driven Shaft (For Differential Gear)

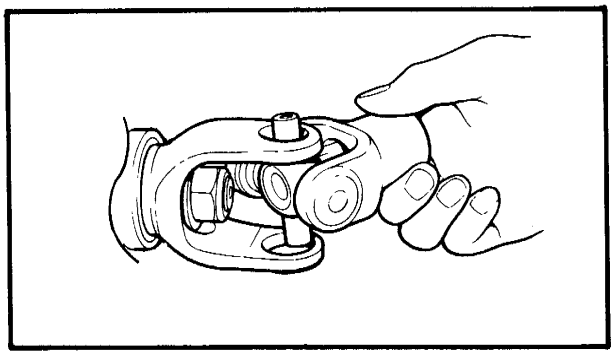
1. Apply:
   - Molybdenum disulfide grease
   To the middle driven shaft.
2. Install:
   - Transfer driven gear ①
   - Damper cam ②
   - Damper spring ③
   - Holder ④
   To the middle drive shaft ⑤.
3. Attach:
   - Damper Spring Compressor ① (YM-33286)
   - Middle Drive Gear Holder ② (YM-33222)
   Onto the holder of transfer driven gear.
4. Position:
   - Middle driven shaft assembly
   Onto a Hydraulic Press.
5. Compress the damper spring on the holder.
6. Install:
   - Retainers
   Into the middle driven shaft groove.
7. Install:
   - Middle driven shaft assembly
   To the transfer gear case.

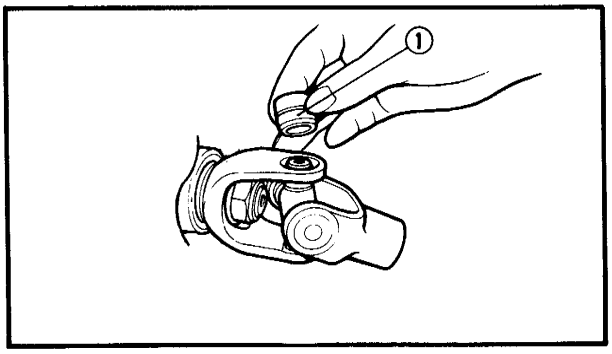
NOTE:

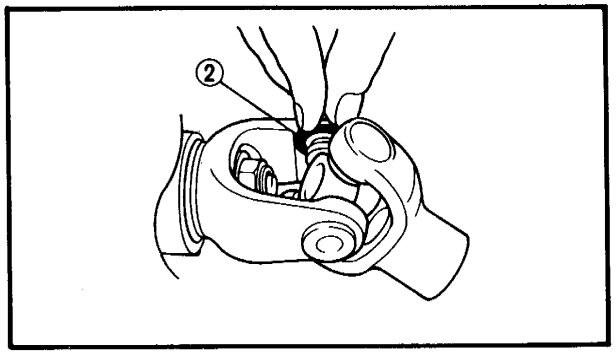
Before installing the middle driven shaft, apply the lithium base grease to the oil seal.

   - Yoke
   - Washer
   - Nut (Middle drive shaft – For differential gear)
   To the middle driven shaft.
8. Attach:
   - Universal Joint Holder (YM-04062)
   - Attachment (YM-04096)
   Onto the universal joint yoke.
9. Tighten:
   - Nut (Middle driven shaft – For differential gear)
   Torque the nut carefully, little by little.

Nut (Middle Driven Shaft – For Differential Gear):
90 Nm (9.0 m·kg, 65 ft·lb)
LOCTITE®







10. Install:
    - Universal joint (For differential gear)

Universal joint installation steps:
- Install the opposite yoke into the U-joint.
- Apply the wheel bearing grease to the bearings.
- Install the bearing ① onto the yoke.

CAUTION:

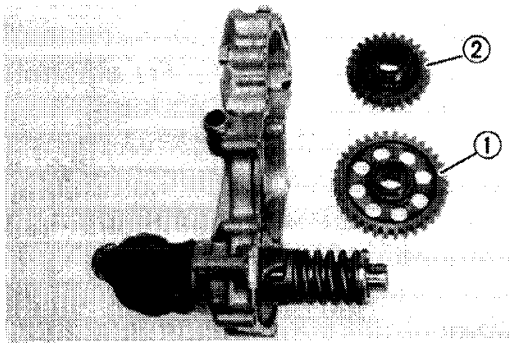
Check each bearing. The needles can easily fall out of their races. Slide the yoke back and forth on the bearings; the yoke will not go all the way onto a bearing if a needle is out of place.

- Press each bearing into the U-joint using a suitable socket.

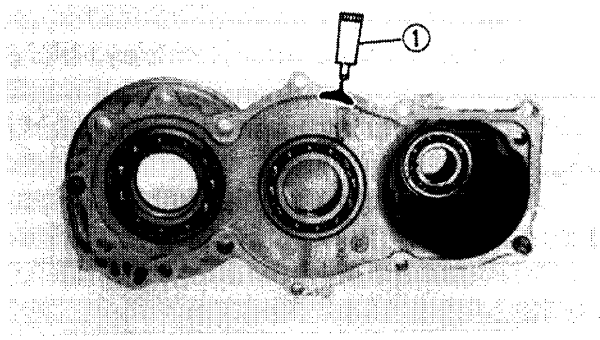
NOTE:

Bearing must be inserted far enough into U-joint so that circlip can be installed.

- Install the circlips ② into the groove of each bearing.



11. Install:
    - Idle gear ①
    - Transfer drive gear ②



12. Install:
    - Transfer gear case (Rear)

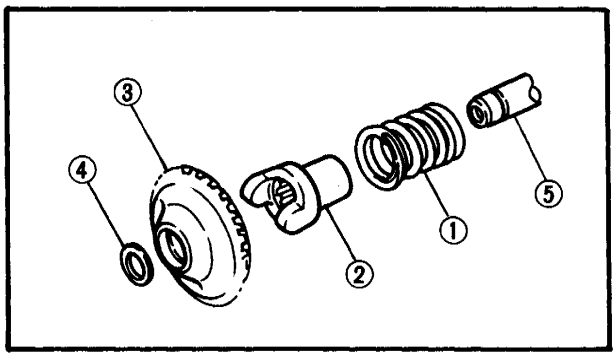
NOTE:
- Before installing the transfer gear case;
  1) Apply the Sealant (Quick Gasket®) ① (ACC-11001-05-01) to the mating surface of both case halves.

2) Do not forget to fit the dowel pins.
- Tighten the bolts in this point, using a criss-cross pattern.

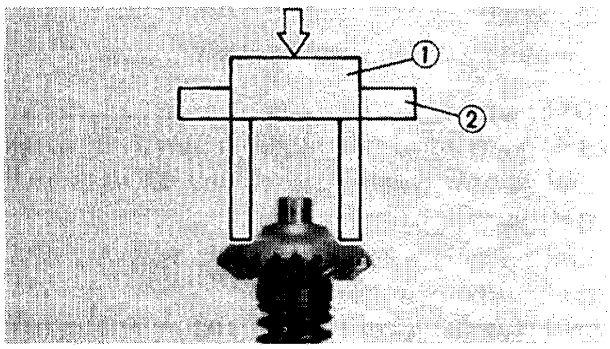
	6 mm Bolts (Transfer Gear Case): 10 Nm (1.0 m·kg, 7.2 ft·lb)

Middle Driven Shaft (For Rear Final Gear)

1. Apply:
   - Molybdenum disulfide grease
     To the middle drive shaft, oil seal and O-ring.



2. Install:
   - Damper spring ①
   - Damper cam ②
   - Middle driven gear ③
   - Holder ④
     To the middle drive shaft ⑤ .



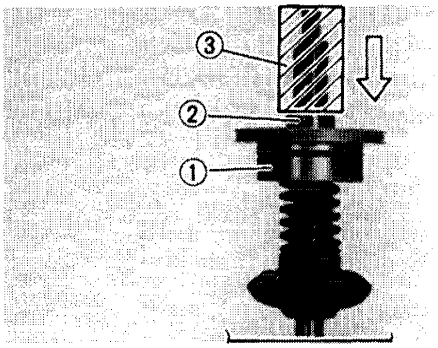
3. Attach:
   - Damper Spring Compressor ① (YM-33286)
   - Middle Drive Gear Holder ② (YM-33222)
     Onto the middle driven gear.
4. Position:
   - Middle driven gear assembly
     Onto a Hydraulic Press.
5. Compress the damper spring on the middle driven gear assembly.
6. Install:
   - Retainers
     Into the middle driven shaft groove.

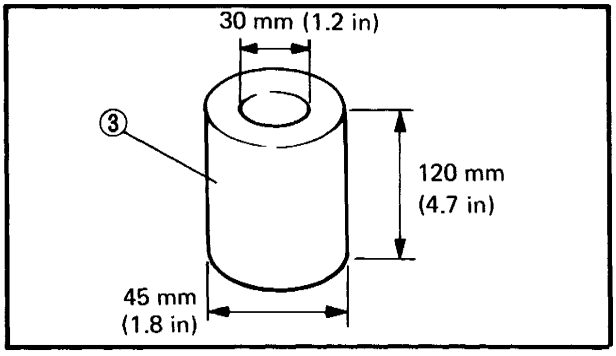
7. Install:
   - Bearing housing assembly ①
   - Collar ②

Bearing housing and collar installation steps:
- Clean the outisde of the middle driven shaft and inside of the bearing housing and collar.
- Inspect the collar for damage. If damaged, replace it.
- Fit the bearing housing and collar onto the middle driven shaft.
- Place the middle driven shaft assembly onto a Hydraulic Press.

CAUTION:
- **Never directly press the collar or bearing housing with a Hydraulic Press, this will result in damage to them.**
- **Install the hand-made tool ③ to protect the collar and bearing housing from damage.**

- Press the hand-made tool, and secure the collar and bearing housing.

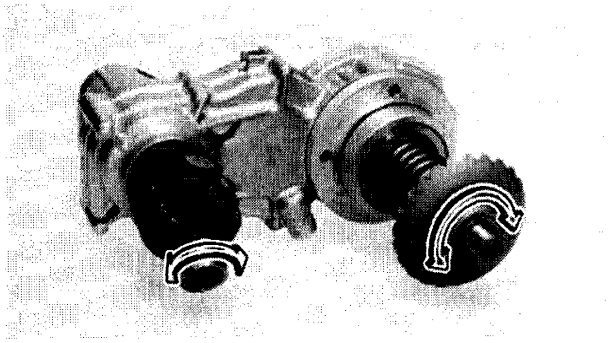




8. Install:
   - Middle driven shaft assembly

NOTE:
- Before installing the middle driven shaft, apply the lithium base grease to the oil seals and O-rings.
- Insert the middle driven shaft assembly into the transfer gear case.

9. Check:
   - Transfer gear operation
     Unsmoooth operation → Repair.



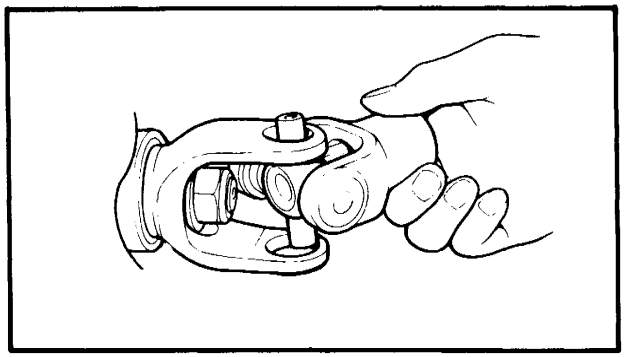
10. Install:
    - Yoke
    - Washer
    - Nut (Middle drive shaft – For rear final gear)

    To the middle drive shaft.
11. Attach:
    - Universal Joint Holder (YM-04062)
    - Attachment (YM-04096)

    Onto the universal joint yoke.
12. Tighten:
    - Nut (Middle drive shaft – For rear final gear)

    Torque nut carefully, little by little.

Nut (Middle Drive Shaft – For Rear Final Gear):
90 Nm (9.0 m·kg, 65 ft·lb)
LOCTITE®

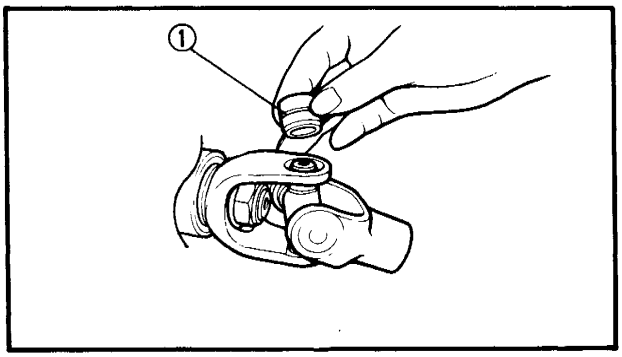


13. Install:
    - Universal joint (Middle drive shaft – For rear final gear)

Universal joint installation steps:
- Install the opposite yoke into the U-joint.
- Apply the wheel bearing grease to the bearings.
- Install the bearing ① onto the yoke.

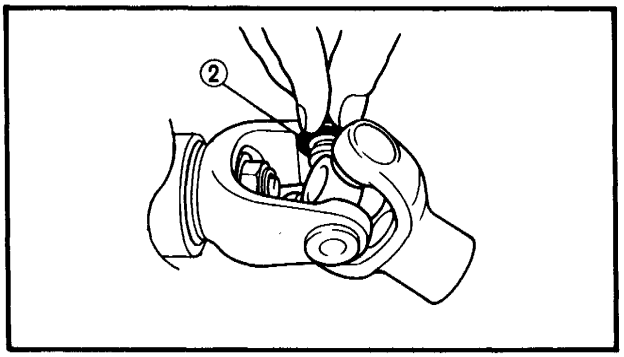
CAUTION:

Check each bearing. The needles can easily fall out of their races. Slide the yoke back and forth on the bearings; the yoke will not go all the way onto a bearing if a needle is out of place.

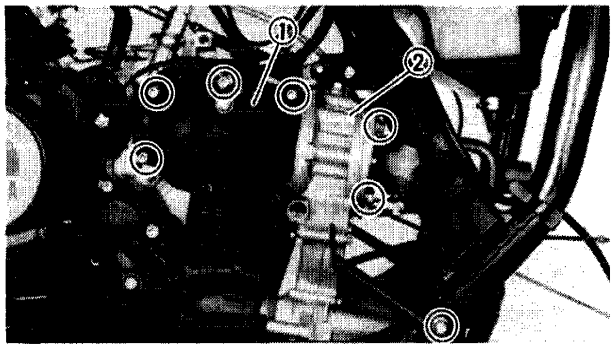


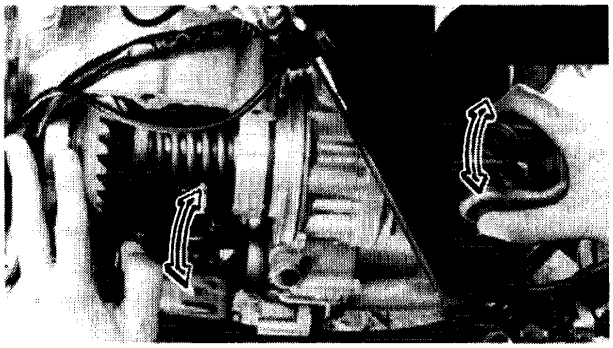
- Press each bearing into the U-joint using a suitable socket.

NOTE:
Bearing must be inserted far enough into U-joint so that cirlcip can be installed.



- Install the circlips ② into the groove of each bearing.





INSTALLATION

1. Install:
   - Middle gear case ①
   - Transfer gear case ②

NOTE:

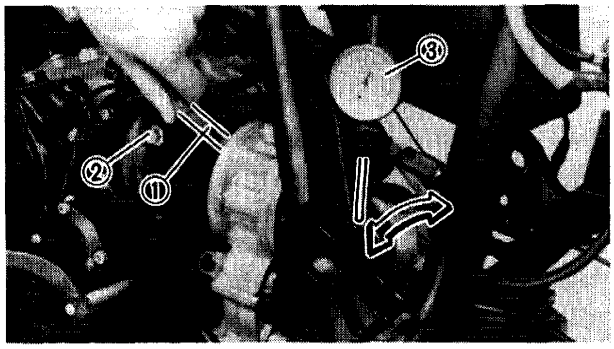
Before tightening the bolts;

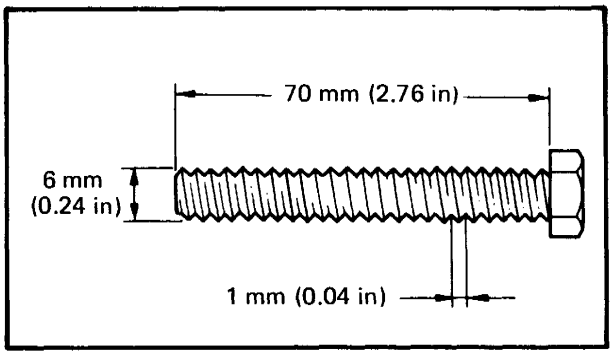
1) Adjust the gear lash of the middle gear. Refer to "ADJUSTMENT" section.
2) Check the front drive operation.

Bolts (Transfer Gear Assembly): 25 Nm (2.5 m·kg, 18 ft·lb)

2. Install:
   - Engine guard (Rear)
   - Rear drive assembly with swingarm
   - Rear fender
   - Rear carrier

   Refer to "CHAPTER 3. ENGINE OVERHAUL – REMOUNTING ENGINE" section.





ADJUSTMENT

Middle Gear Gear Lash Adjustment

1. Install:
   - Bolts (Four)

   On transfer gear case.

   Finger-tighten the bolts.

NOTE:

Clearance between the crankcase and bearing housing should be about 2 mm. Measure gap with Feeler Gauge ① .

2. Remove:
   - Blind plug
3. Install:
   - A bolt of the specified size ②

   Into the blind plug hole.

CAUTION:

Finger tighten the bolt until it holds the middle drive gear. Otherwise, the drive gear will be damaged.

③ Dial gauge

4. Position:
   - Dial Gauge (YM-03097)
     On the outside edge of U-joint.

NOTE:
Be sure the gauge is positioned over the center-line of the yoke bearing hole.

5. Rotate:
   - U-joint
     Move it gently back and forth.
6. Measure:
   - Gear lash
     Over specification → Follow next steps.
     Under or same specification → Incorrect; check for faulty parts and/or reassemble bearing housing.



Middle Gear Gear Lash:
0.1 ~ 0.2 mm (0.004 ~ 0.008 in)

NOTE:
Check the gear lash at four positions. Rotate the U-joint 90 degrees each time and repeat the gear lash check.

7. Tighten:
   - Bolt (Four)
     Tighten carefully one-thread turn only. Push in bearing housing and hold in position while tightening bearing housing bolts.

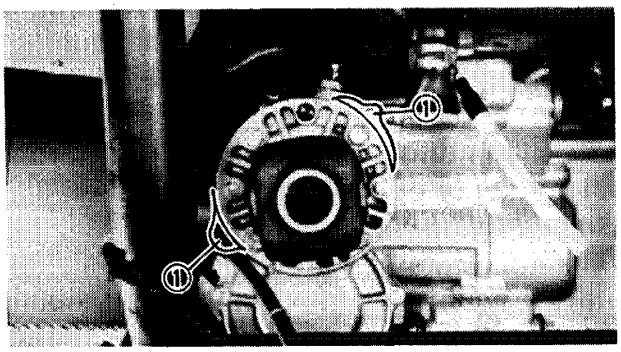
CAUTION:
Do not overtighten bearing housing bolts or you may obtain too little gear lash and cause damage to gears. If over tightened, loosen the 4 bolts so that crankcase/bearing housing clearance is about 2 mm (0.08 in) and repeat all previous steps.

8. Repeat steps 5 and 6 until correct gear lash is achieved.



Middle Gear Lash:
0.1 ~ 0.2 mm (0.004 ~ 0.008 in)

9. Measure:
   - Crankcase/bearing housing clearance
     Use a Feeler Gauge.



10. Select:
    • Shim(s) ①

Example: Selection of the driven pinion gear shim;
- If the clearance is 0.46 mm.
- The shim can only be selected in 0.05 mm increments, round off hundredths digit and select appropriate shim(s).

Hundredths	Roud Value
0, 1, 2	0
3, 4, 5, 6	5
7, 8, 9	10

- In the example above, the measured shim thickness is 0.46 mm. The chart instructs you, however, to round off the 6 to 5. Thus you should use 0.15 mm and 0.30 mm shims.
- Shim sizes are supplied in the following thickness.

Middle Driven Gear Shim			
Thickness (mm)	0.10 0.30	0.15 0.40	0.20

11. Tighten:
    • Bolts (Bearing housing)

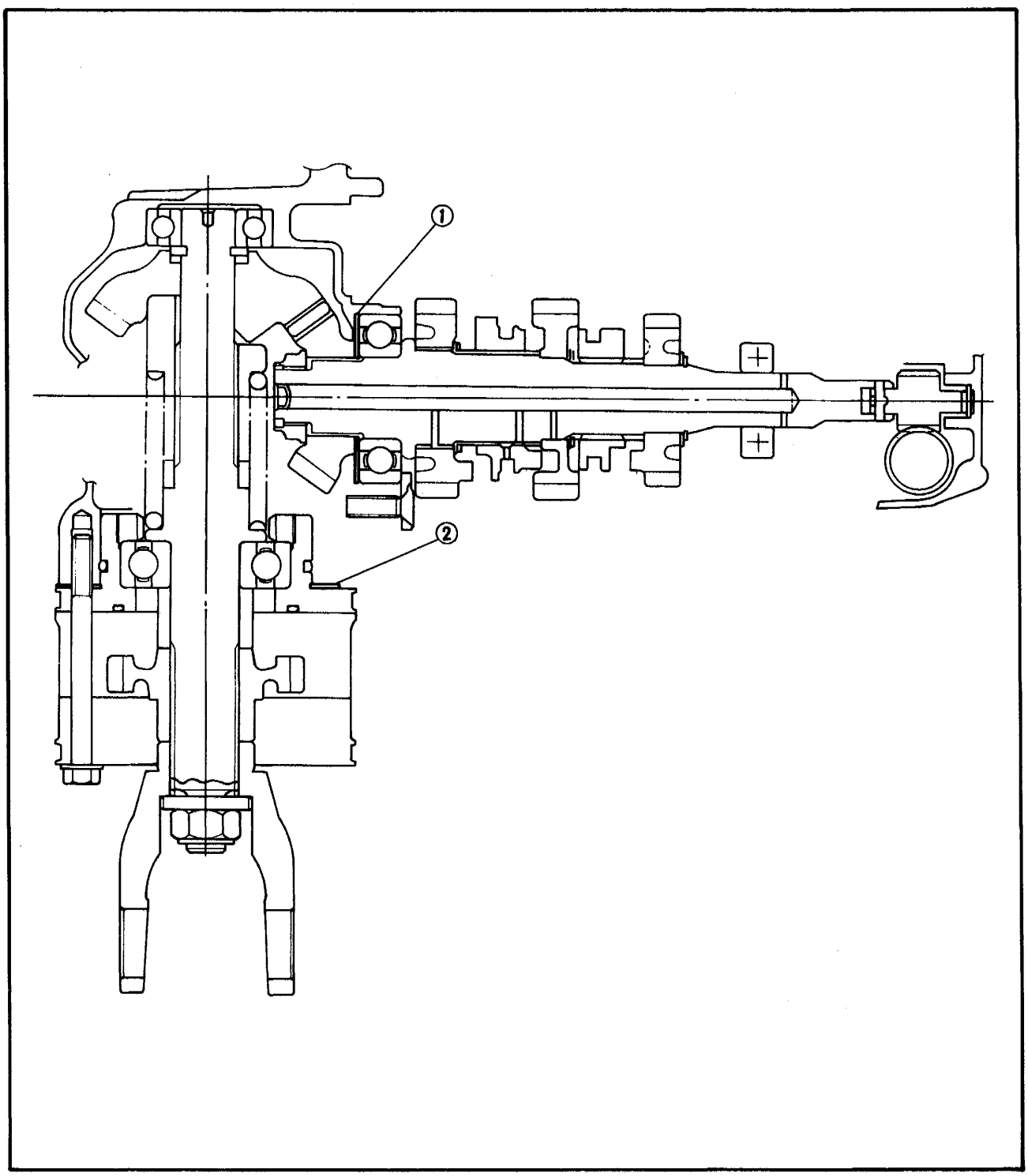
Bolts (Bearing Housing):
25 Nm (2.5 m·kg, 18 ft·lb)

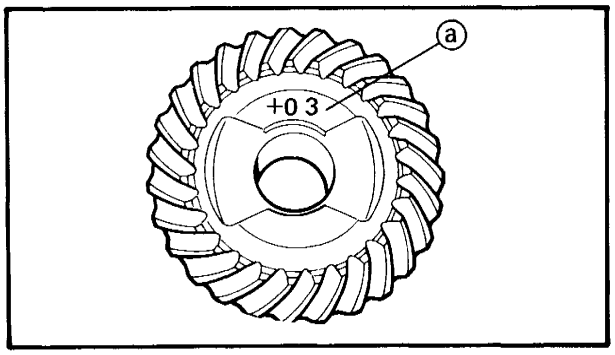
12. Measure:
    • Gear lash

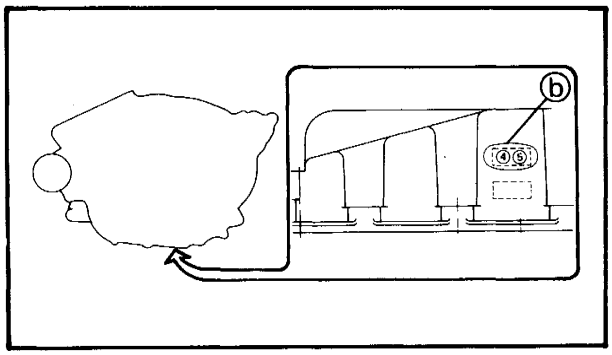
MIDDLE DRIVE AND DRIVEN GEAR POSITIONING

NOTE:
Gear positioning is necessary when any of the following parts are replaced:
- Crankcase assembly
- Middle drive shaft

1. Select:
   - Middle drive gear shim ①
   - Middle driven gear shim ②







Middle drive and driven gear shim selection steps:

- Position middle drive and driven gear by using shims ① and ② with their respective thickness calculated from information marked on crankcase, bearing housing and drive gear end.

① Shim thickness "A"
② Shim thickness "B"

- To find shim thickness "A" use following formula:

Middle Drive Gear Shim Thickness:
A = ⓐ − ⓑ

Where:
ⓐ = a numeral (usually a decimal number) on the drive gear is either added to or substracted from "55".
ⓑ = a numeral (usually a decimal number) on the crankcase is either added to or subtracted from "54".

Example:
1) If the drive gear is marked "+03"
. . . . . ⓐis 55.03
2) If the crankcase is marked "45"
. . . . . ⓑis 54.45
A = 55.03 − 54.45
= 0.58
3) Therefore, shim thickness is 0.58 mm.
Shim sizes are supplied in following thickness:

	Middle Drive Gear Shim	
Thickness (mm)	0.10 0.15 0.20 0.30	0.40 0.50 1.00

Because shims can only be selected in 0.05 mm increments, round off hundred the digit and select appropriate shim(s).

Hundredths	Round value
0, 1, 2	0
3, 4, 5, 6, 7	5
8, 9	10

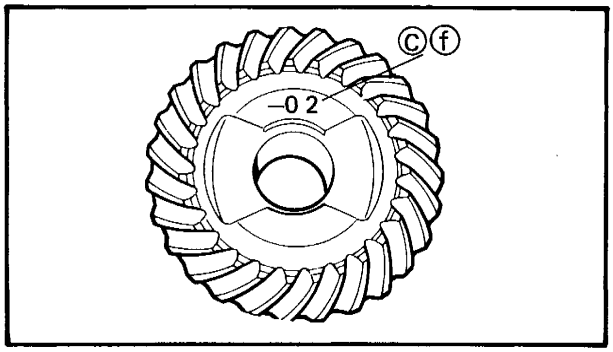
In the example above, the calculated shim thickness is 0.58 mm. The chart instructs you, however, to round off the 8 to 10.
Thus you may choose either 2 pcs. – 0.30 mm shims, or 1 pc. – 0.30 mm and 2 pcs. – 0.15 mm shims.

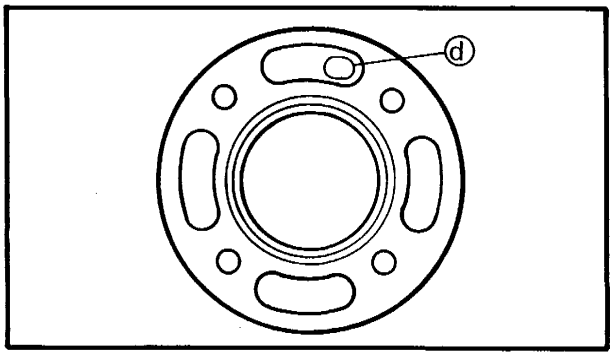
- To find shim thickness "B" use following formula:

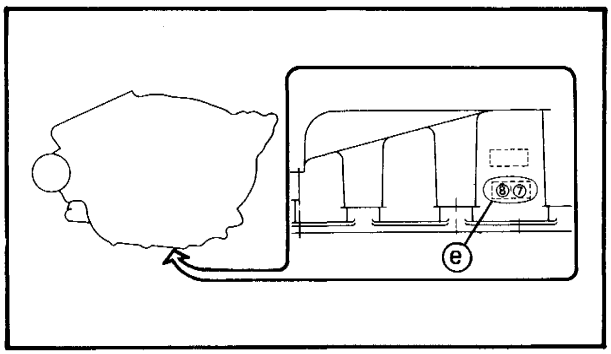
Middle Driven Gear Shim Thickness:
B = ⓓ – ⓕ – ⓒ – ⓔ

Where:
ⓓ = Numeral on bearing housing (i.e. 124.20)
ⓕ = a numeral (usually a decimal number) on the driven gear is either added to or substracted from "5".
ⓒ = a numeral (usually a decimal number) on the driven gear is either added to or substracted from "49.5".
ⓔ = a numeral (usually a decimal number) on the crankcase is either added to or substracted from "68".

Example:
1) If the bearing housing is marked "124.20"
. . . . . ⓓ is 124.20
2) If the driven gear is marked "– 02"
. . . . . ⓕ is 4.98
ⓒ is 49.48
3) If the crankcase is marked "87"
. . . . . ⓔ is 68.87
B = 124.20 – 4.98 – 49.48 – 68.87
= 0.87
4) Therefore, shim thickness is 0.87 mm.
Shim sizes are supplied in following thickness:







	Middle Driven Gear Shim
Thickness (mm)	**0.15 0.50 0.30 0.60 0.40**

Because shims can only be selected in 0.05 mm increments, round off hundredths digit and select appropriate shim(s).

Hundredths	Round value
0, 1, 2	0
3, 4, 5, 6, 7	5
8, 9	10

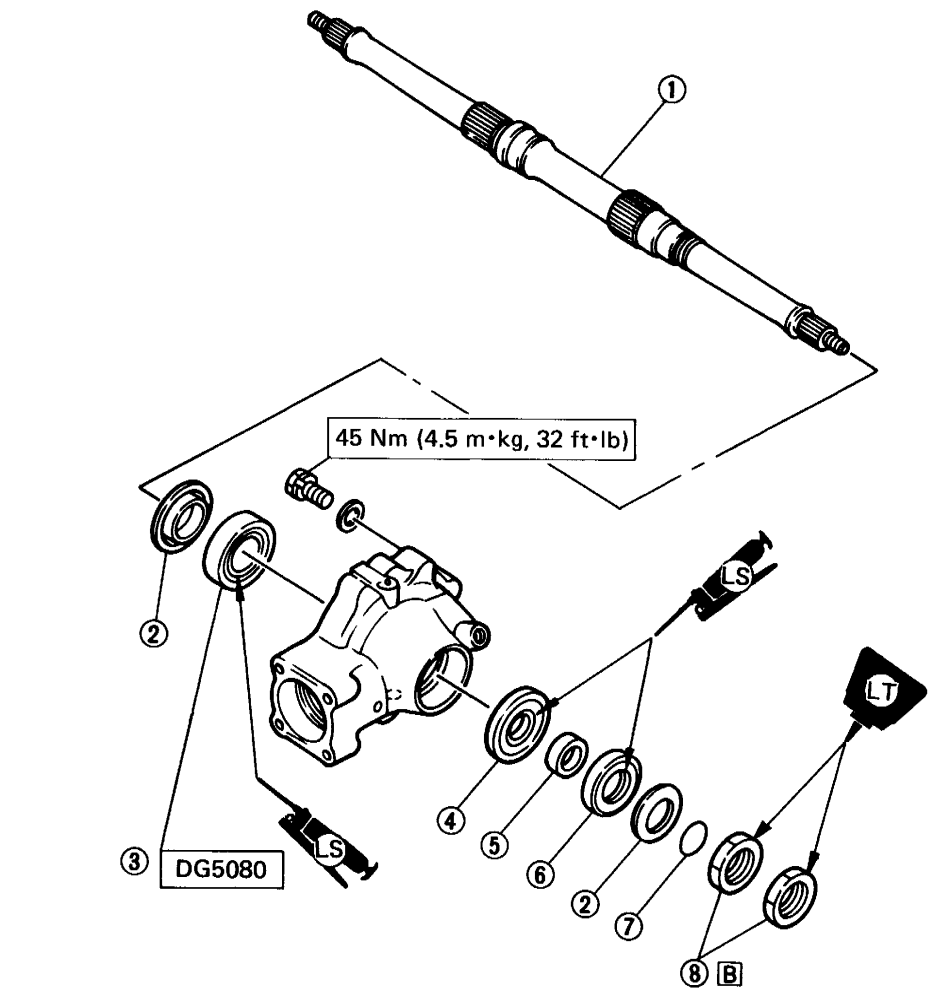
In the example above, the calculated shim thickness is 0.87 mm. The chart instructs you, however, to round off the 7 to 5.
Thus you may choose either 1 pc. – 0.40 mm shim and 3 pcs. – 0.15 mm shims or 1 pc. – 0.40 mm shim, 1 pc. – 0.30 mm shim and 1 pc. – 0.15 mm shim.

REAR AXLE/REAR FINAL GEAR AND REAR DRIVE SHAFT

① Rear axle
② Hub dust cover
③ Bearing
④ Bearing
⑤ Collar
⑥ Oil seal
⑦ O-ring
⑧ Ring nut

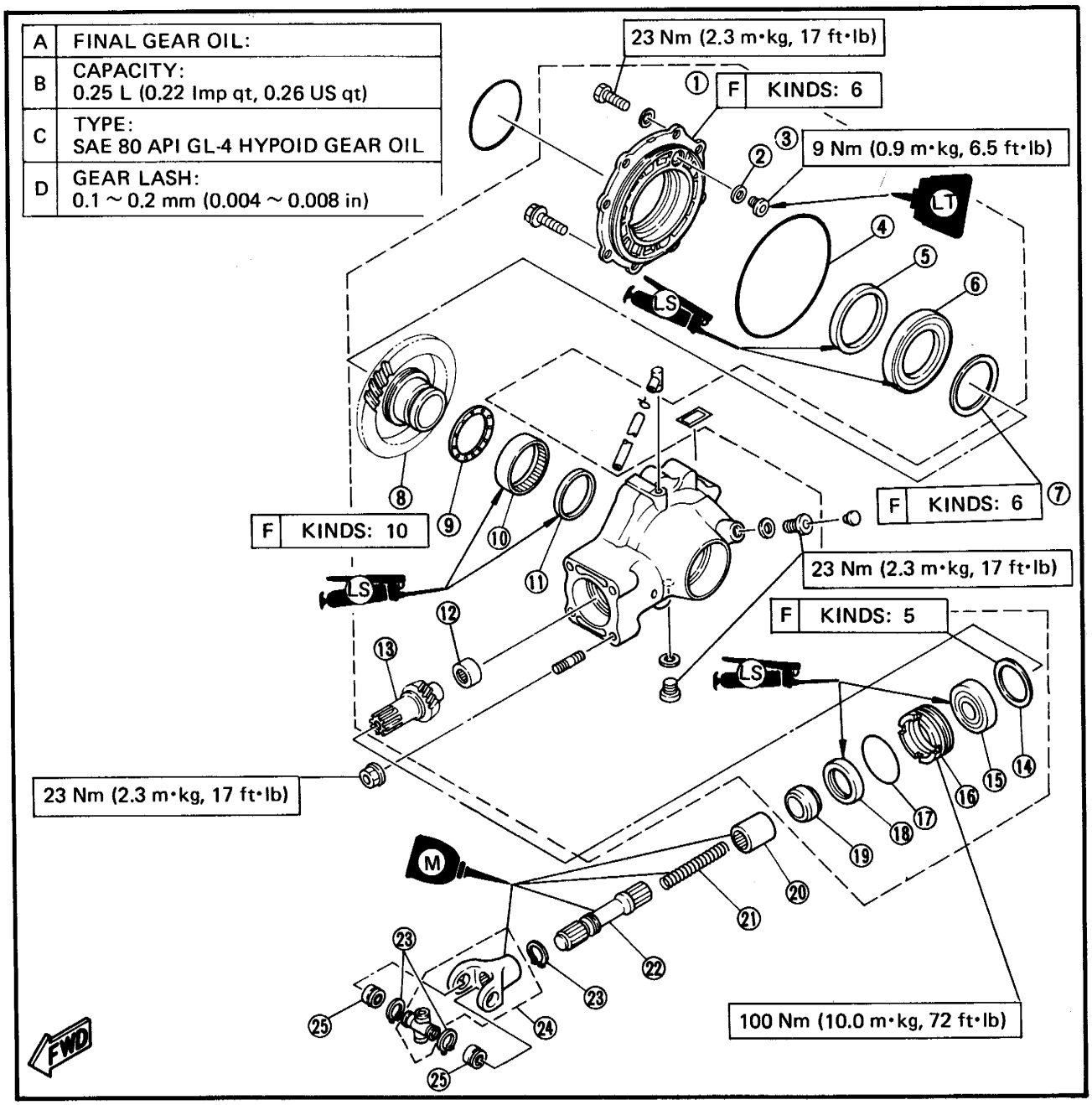
[B] 1. Apply LOCTITE® to the thread portion of the rear axle.
2. Finger tighten the inside-ring nut while checking the ring gear engagement.
3. Tighten the inside-ring nut to 30 Nm (3.0 m•kg, 22 ft•lb) while holding the rear axle.
4. Hole the inside-ring nut and tighten the outside-ring nut to 190 Nm (19.0 m•kg, 140 ft•lb)
5. Hold the outside-ring nut and tighten BACK the inside-ring nut to 240 Nm (24.0 m•kg, 170 ft•lb)

A	REAR AXLE RUNOUT LIMIT: 1.5 mm (0.06 in)



REAR AXLE/REAR FINAL GEAR AND REAR DRIVE SHAFT

① Bearing housing
② Ring gear stopper shim
③ Ring gear stopper
④ O-ring
⑤ Oil seal
⑥ Bearing
⑦ Ring gear shim
⑧ Ring gear
⑨ Thrust washer
⑩ Bearing
⑪ Oil seal
⑫ Bearing
⑬ Drive pinion gear
⑭ Final drive gear shim
⑮ Bearing
⑯ Bearing retainer
⑰ O-ring
⑱ Oil seal
⑲ Collar
⑳ Coupling gear
㉑ Spring
㉒ Rear drive shaft
㉓ Circlip
㉔ Universal joint
㉕ Bearing

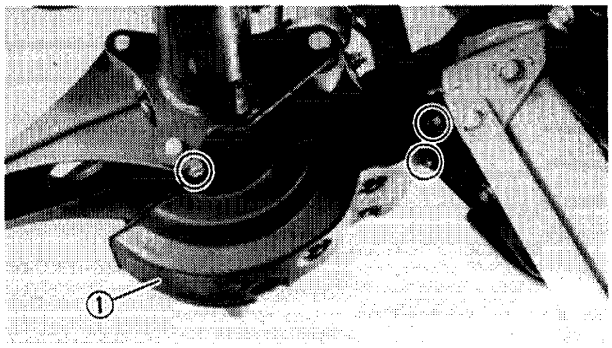


REMOVAL

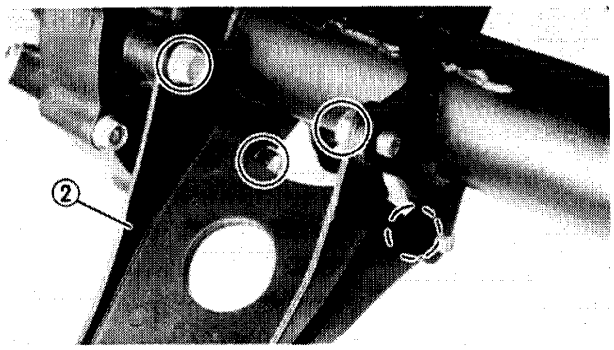
Rear Axle

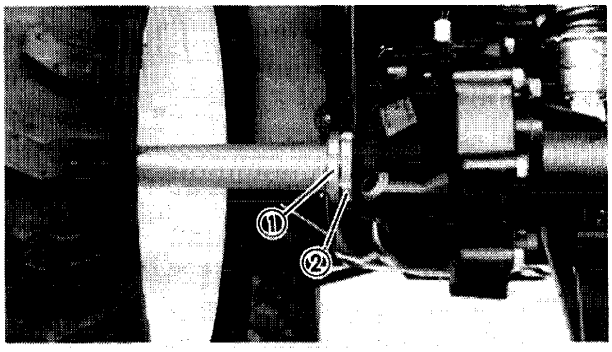
1. Remove:
   - Rear wheels
   - Rear wheel hubs

   Refer to "CHAPTER 6. CHASSIS – FRONT AND REAR WHEELS" section.
   - Adjusters (Brake pedal and brake lever)
2. Unhook the brake lever spring.



3. Remove:
   - Rear final gear protector ①
   - Trailer hitch bracket ②



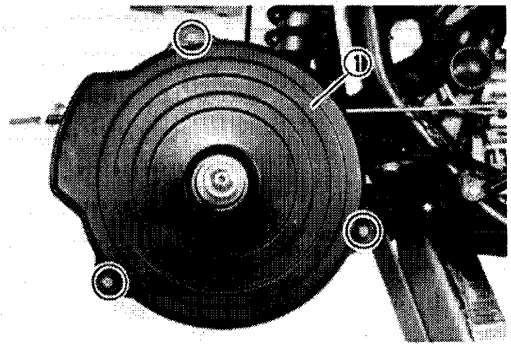


4. Loosen:
   - Ring nuts (Rear axle) ① , ②

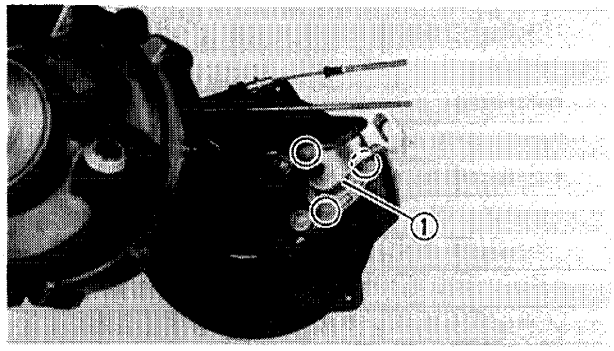
   Use the Ring Nut Wrench.

NOTE:

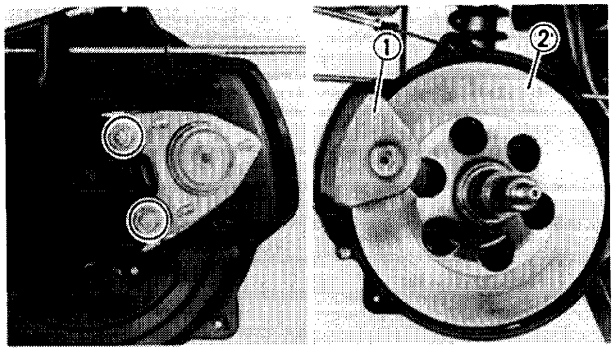
Before loosening the ring nuts, reinstall the rear wheel hub (Left) and rear wheel (Left). Use the rear wheel to hold the rear axle.



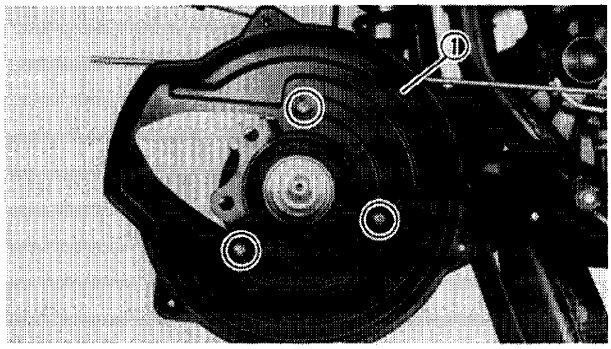
5. Remove:
   - Rear wheel (Left)
   - Rear wheel hub (Left)
   - Ring nuts (Rear axle)
6. Remove:
   - Brake cover (Outer) ①



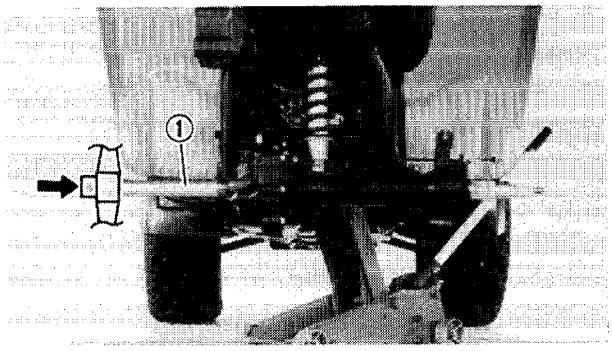
7. Remove:
   - Cam holder with brake lever ①



8. Remove:
   - Caliper ①
   - Brake disc ②



9. Remove:
   - Brake cover (Inner) ①

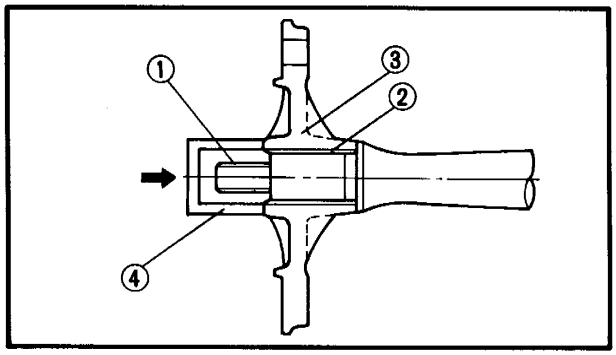


10. Remove:
    - Rear axle ①

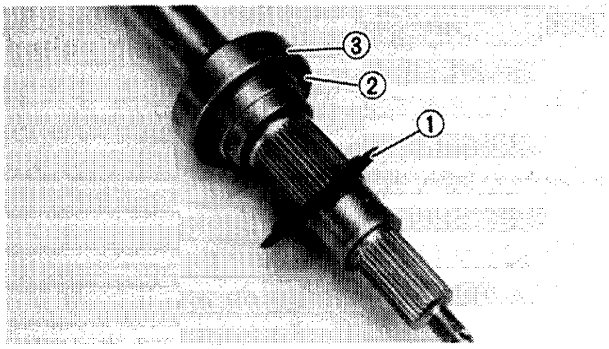
    Tap the LEFT END axle.

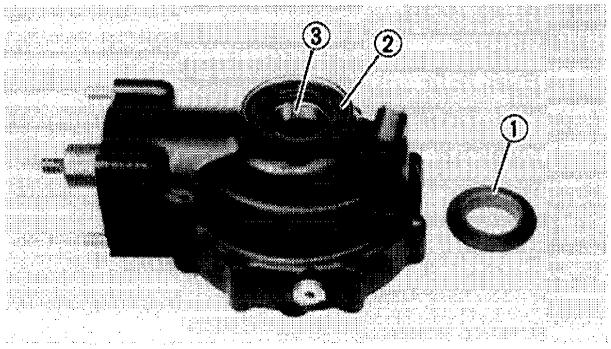
CAUTION:

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



① Axle thread ② Spline





11. Remove:
    - Hub dust cover ①
    - Oil seal ②
    - Bearing ③

Rear axle bearing replacement steps:
- Clean the outside of the drive shaft housing and rear axle.
- Drive out the bearing.

WARNING:

Eye protection is recommended when using striking tools.

- Install the new bearing ③ by reversing the previous steps.

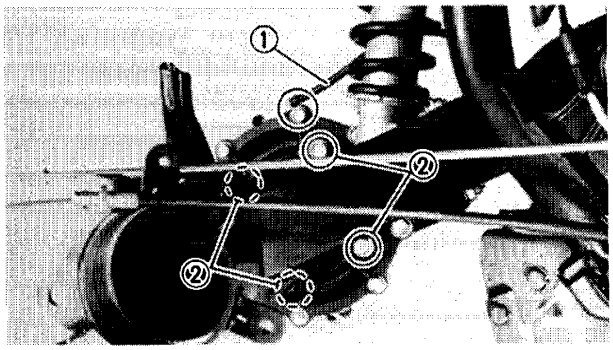
NOTE:

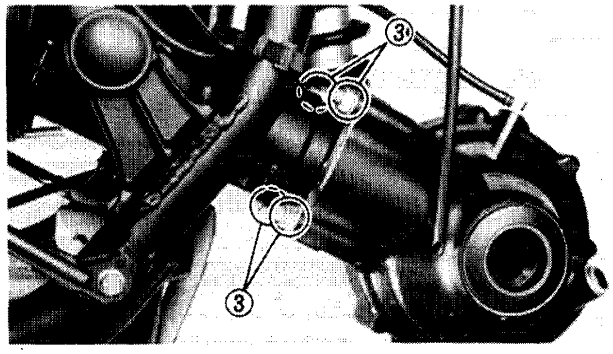
Use a socket that matches the outside diameter of the race of the bearing.

CAUTION:

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

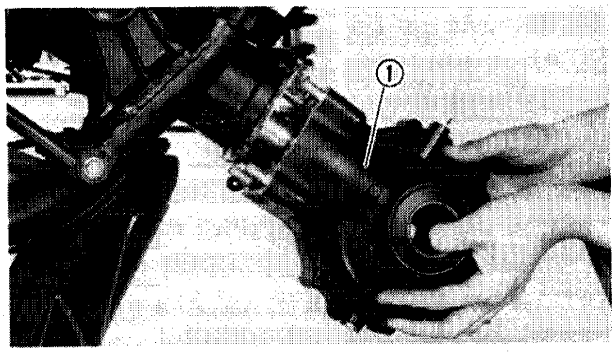
- Install the oil seals ② (New) and hub dust covers ①.



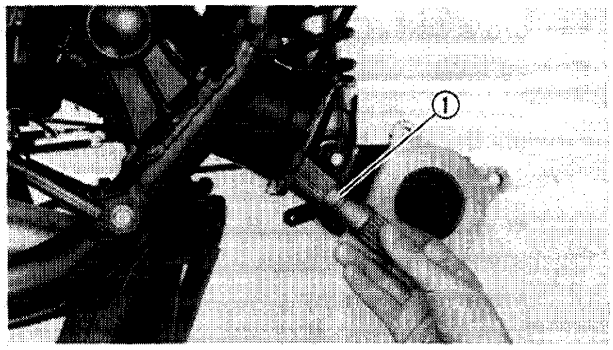


Rear Final Gear

1. Remove:
    - Rear axle
      Refer to "Rear Axle" section.
2. Remove:
    - Breather pipe (Rear final gear housing) ①
    - Bolts (Rear final gear housing) ②
    - Nuts (Rear final gear housing) ③



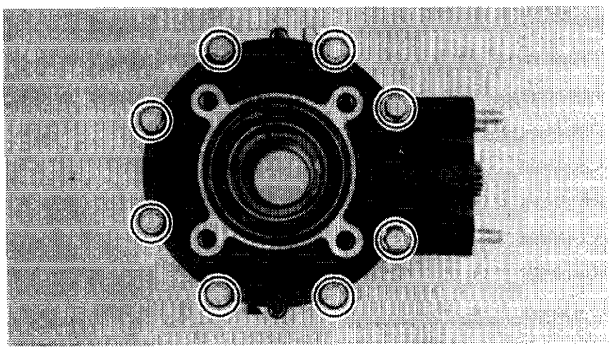
3. Remove:
   - Rear final gear assembly with coupling gear ①



Rear Drive Shaft

1. Remove:
   - Rear axle
   - Rear final gear

   Refer to "Rear Axle and Rear Final Gear" section.
2. Remove:
   - Rear drive shaft ①



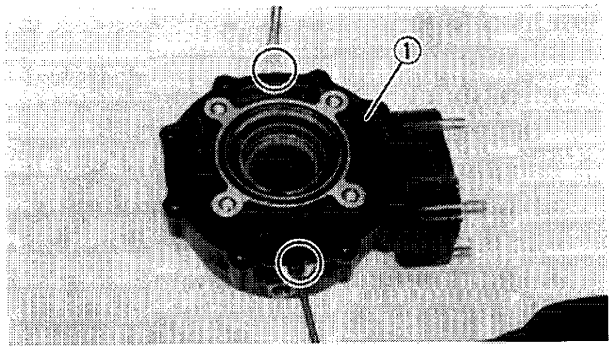
DISASSEMBLY

Rear Final Gear

NOTE:

Before disassembling the rear final gear, drain the oil completely.

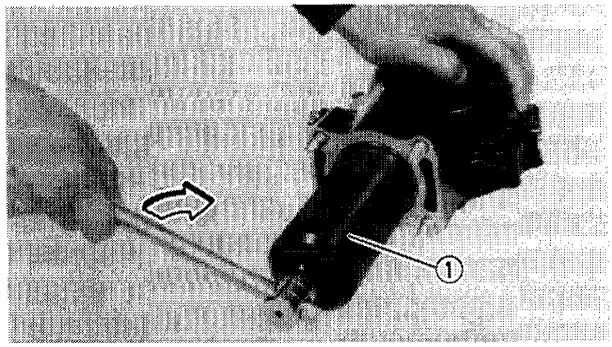
1. Remove:
   - 8 mm bolts (Bearing housing)
   - 10 mm bolts (Bearing housing)



NOTE:

Working in a crisscross pattern, loosen bolt 1/4 turn each. Remove them after all loosened.

2. Remove:
   - Bearing housing ①
   - Shim(s)
   - Thrust washer



3. Remove:
   - Coupling gear
   - Bearing retainer (Final drive shaft)

   Use a Final Drive Shaft Bearing Retainer ① (YM-33214).

CAUTION:

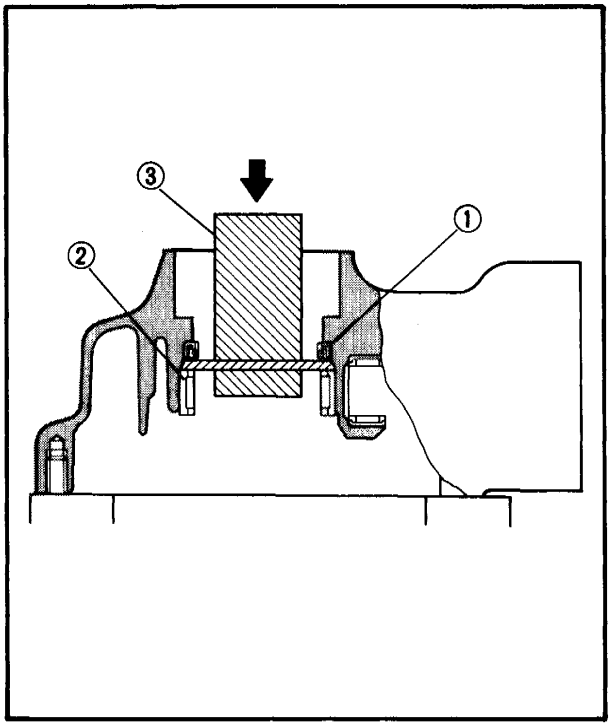
Final-drive-shaft-bearing-retainer has left-hand threads. Turn retainer clockwise to loosen it.

4. Remove:
   - Final drive pinion gear assembly

   Tap lightly on the final drive pinion gear end with a soft hammer.

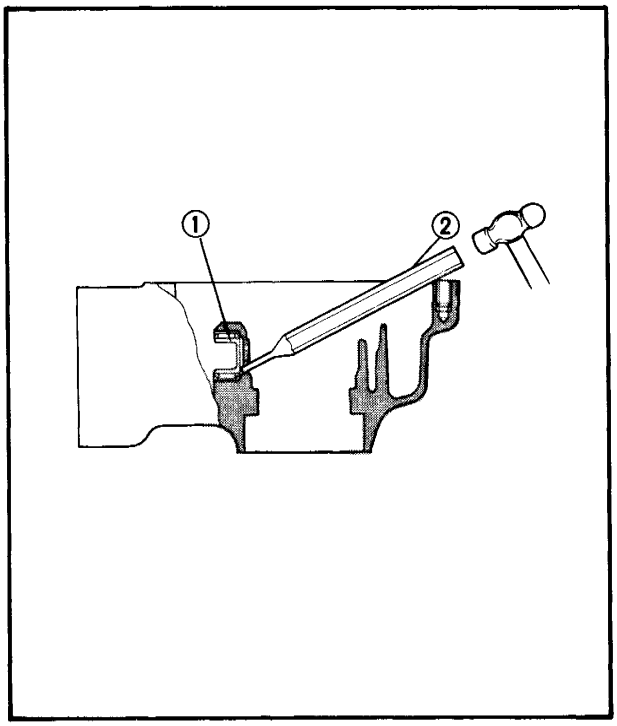
CAUTION:

Final drive pinion gear removal should be performed only if gearing replacement is necessary. Do not reuse bearings or races after removal.



5. Remove:
   - Oil seal ①
   - Roller bearing (Large) ②

   Use a suitable press tool ③ and an appropriate support for the main housing.

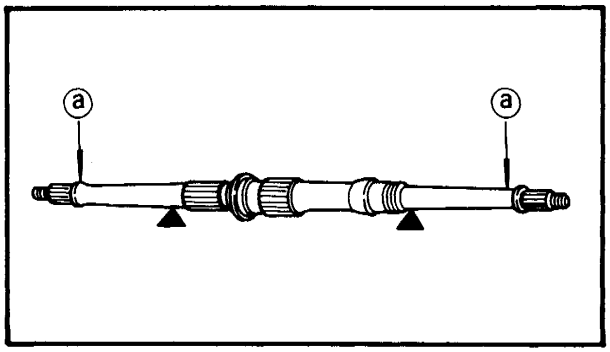


6. Remove:
   - Final drive shaft Roller bearing (Small) ①

Roller bearing (Small) removal steps:
- Heat the bare housing to 150°C (302°F)
- Remove the roller bearing outer race with an appropriately shaped punch ②.
- Remove the inner race from the final drive shaft.

NOTE:

The removal of the final drive shaft roller bearing is difficult and seldom necessary.



INSPECTION

Rear Axle

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

WARNING:

Do not attempt to straighten a dent axle.

Rear Axle Runout Limit:
1.5 mm (0.06 in)

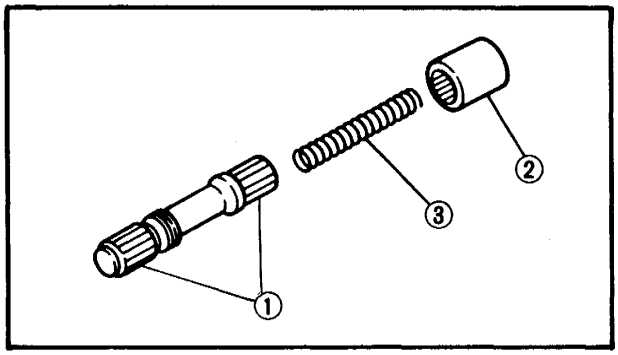
2. Inspect:
   - Oil seals
     Damage → Replace.
3. Check:
   - Bearings
     Bearings allow play in the final gear housing and rear hub or rear axle turns roughly → Replace.

Rear Final Gear

1. Inspect:
   - Gear teeth
     Pitting/Galling/Wear → Replace drive pinion gear and ring gear as a set.
   - Oil seal
   - O-ring
     Damage → Replace.
2. Inspect:
   - Roller bearing
     Damage → Replace.

NOTE:

Reuse of roller bearing OK, but Yamaha recommends installation of new bearing. Do not reuse the oil seal.



Rear Drive Shaft

1. Inspect:
   - Drive shaft splines ①
   - Coupling gear spline ②
     Wear/Damage → Replace.
   - Spring ③
     Fatigue → Replace.
     Move the spring up and down.

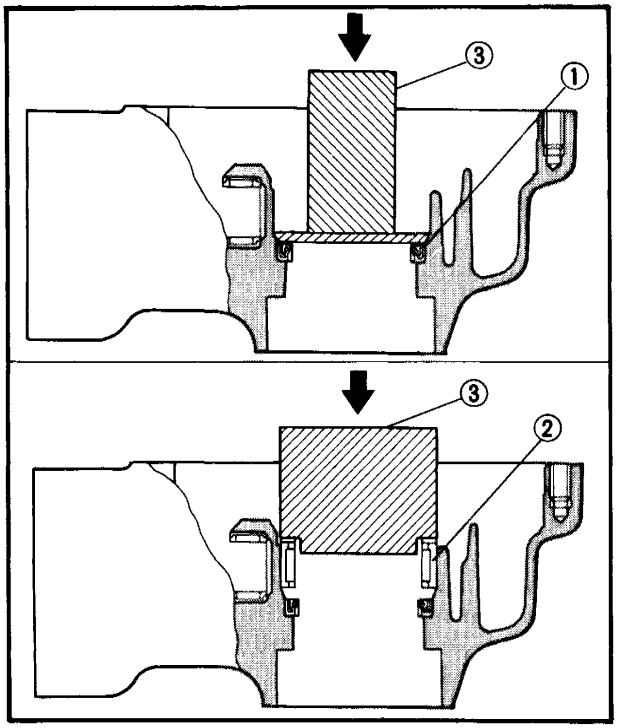
REASSEMBLY

Rear Final Gear

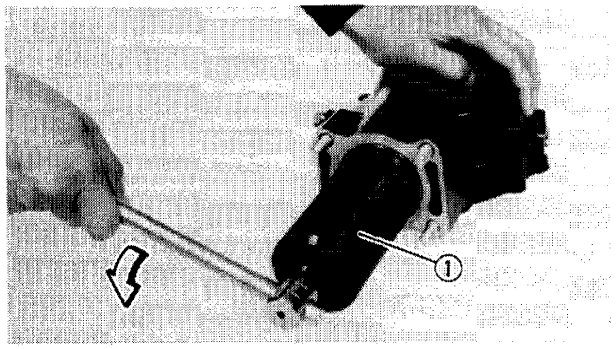
When reassembling the rear final gear, reverse the disassembly procedures. Note the following points.

1. Install:
   - Roller bearing (Small-New)

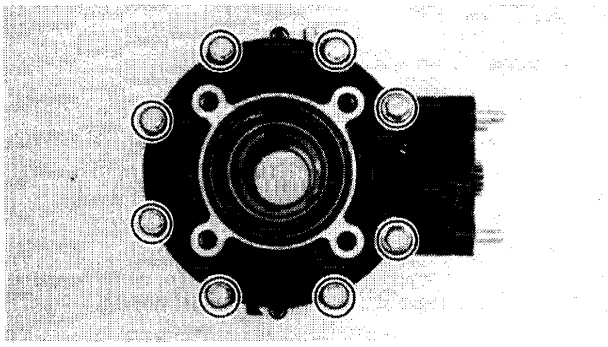
Roller bearing (Small) installation steps:
- Heat the bare bearing to 150°C (302°F)
- Install the roller bearing outer race using the proper adapted.
- Install the inner race onto the drive shaft.



2. Install:
   - Oil seal (New) ①
   - Roller bearing (Large) ②
     Use a suitable press tool ③ and a press to install the above components into the main housing.



3. Install:
   - Shims
   - Rear final drive pinion gear assembly
   - Bearing retainer (Final drive shaft)
     Use a Final Drive Shaft Bearing Retainer Wrench ① (YM-33214).



NOTE:
The bearing retainer has left-hand threads; turn retainer counterclockwise to tighten it.

Bearing Retainer:
100 Nm (10.0 m·kg, 72 ft·lb)

4. Install:
   - Thrust washer
   - Shim(s)
   - Bearing housing
5. Install:
   - 10 mm bolts (Bearing housing)
   - 8 mm bolts (Bearing housing)

NOTE:
Tighten the bolts in stage, using a crisscross pattern.

10 mm Bolts (Bearing Housing):
40 Nm (4.0 m·kg, 29 ft·lb)
8 mm Bolts (Bearing Housing):
23 Nm (2.3 m·kg, 17 ft·lb)

6. Check:
   - Gear lash
     Out of specification → Adjust.
     Refer to "MEASUREMENT AND ADJUSTMENT" section.
7. Fill:
   - Rear final gear case

WARNING:
Take care not to allow foreign material to enter the final gear case.

Oil Capacity:
0.25 L (0.22 Imp qt, 0.26 US qt)
Recommended Oil:
SAE 80 API "GL-4" Hypoid Gear Oil
If desired, and SAE 80W90 Hypoid gear oil may be used for all conditions.

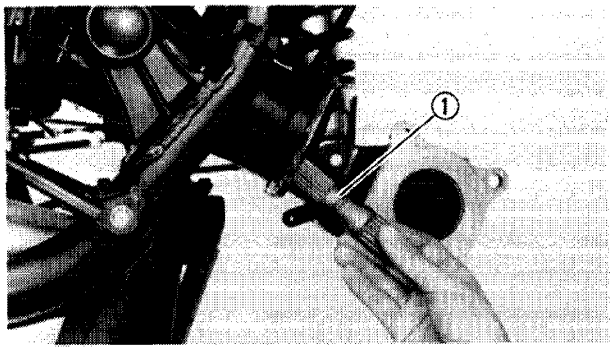
INSTALLATION

Rear Drive Shaft

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

1. Lubricate:
   - Shaft splines

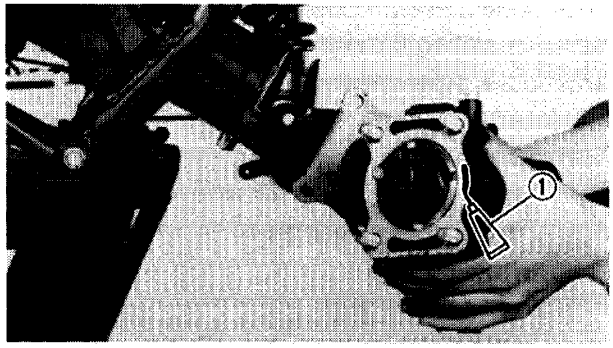
Molybdenum Disulfide Grease



2. Install:
   - Rear drive shaft ①

NOTE:

Insert the drive shaft into the universal joint (Transfer gear side) properly.



Rear Final Gear

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

1. Apply:
   - Lithium base grease

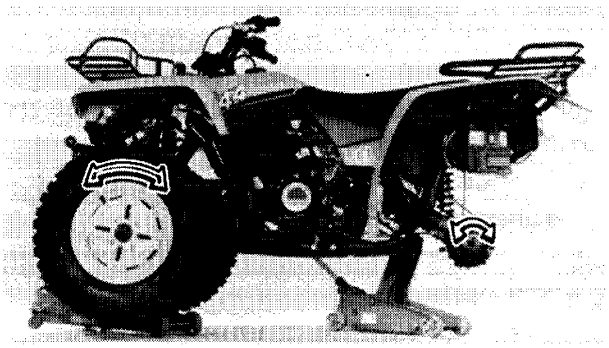
   Lightly grease to the oil seals and bearing.
2. Apply:
   - Sealant (Quick Gasket®) (ACC-11001-05-01) ①

   To the mating surfaces of both case halves.
3. Tighten:
   - Nuts (Rear final gear housing)
   - Bolts (Rear final gear housing)

Nuts (Rear Final Gear Housing): 23 Nm (2.3 m·kg, 17 ft·lb)
Bolts (Rear Final Gear Housing): 45 Nm (4.5 m·kg, 32 ft·lb)

4. Check:
   - Rear drive shaft operation

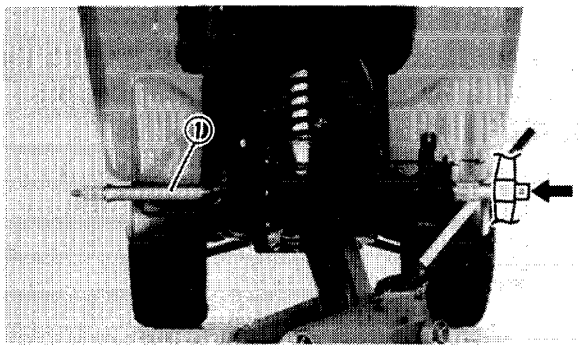
Rear drive shaft operation checking steps:
- Make sure that the machine is off the ground at the rear.
- Lift the front of the machine off the ground, too.

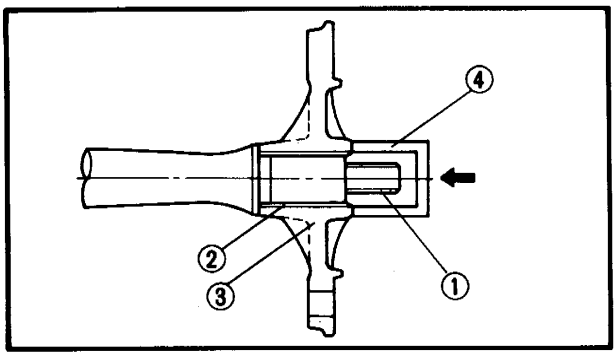


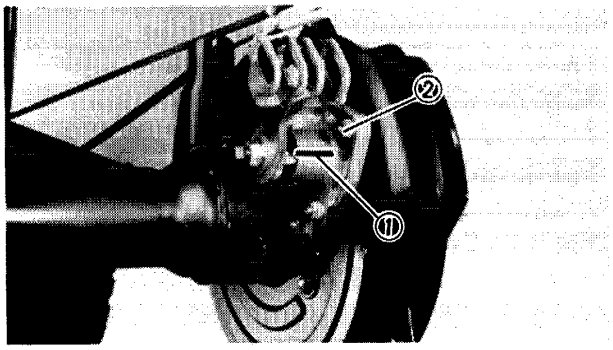
WARNING:

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

- Turn the front wheels back and forth.
- Check the rear drive shaft operation.
  If the operation is unsmooth, reinstall the rear drive shaft properly.







Rear Axle

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

1. Install:
   - Rear axle ①
     Tap the RIGHT END axle while cheking the ring gear engagement.

CAUTION:

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

2. Tighten:
   - Nuts (Caliper)
   - Nuts (Cam holder)

NOTE:

Be sure to position the cam holder ② so that the holder projection ① face backward.

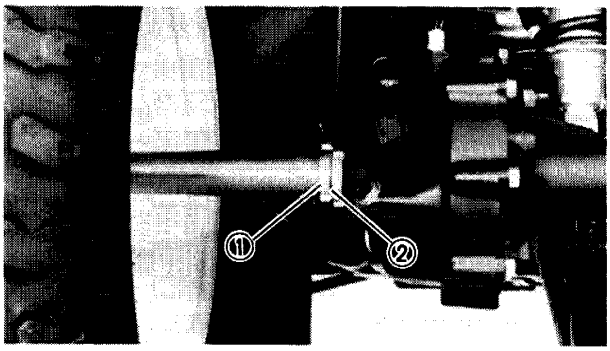
Nuts (Caliper):
50 Nm (5.0 m·kg, 36 ft·lb)
Nuts (Cam Holder):
9 Nm (0.9 m·kg, 6.5 ft·lb)

3. Install:
   - Adjusters (Brake pedal and brake lever)
4. Adjust:
   - Brake lever free play
   - Brake pedal free play

   Refer to "CHAPTER 2. REAR BRAKE LEVER AND PEDAL ADJUSTMENT" section.
5. Install:
   - Ring nuts (Rear axle)

NOTE:
- The tapered side of the ring nut must face inward.
- Before tightening the ring nuts, install the rear wheel hub (Left) and rear wheel (Left). Use the rear wheel to hold the rear axle.

6. Tighten:
   - Ring nuts (Rear axle) ① , ②



Ring nuts tightening steps:

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

- Finger tighten the inside-ring nut ② while checking the ring gear engagement.
- Tighten the inside-ring nut with Ring Nut Wrench (YU-33975) to specification while holding the rear axle.

Inside-Ring Nut (First Tightening): 30 Nm (3.0 m·kg, 24 ft·lb)

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

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

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

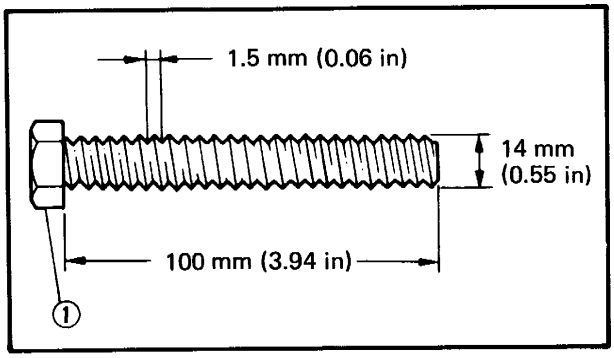
Inside-Ring Nut (Final Tightening): 240 Nm (24.0 m·kg, 170 ft·lb)

7. Tighten:
   - Trailer hitch bracket
   - Rear final gear protector

Trailer Hitch Bracket:
45 Nm (4.5 m·kg, 32 ft·lb)
Rear Final Gear Protector:
16 Nm (1.6 m·kg, 11 ft·lb)

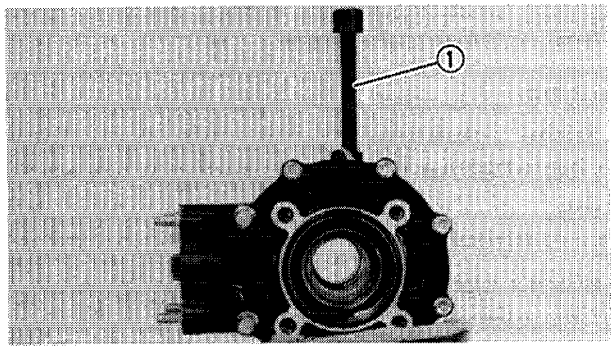
MEASUREMENT AND ADJUSTMENT

NOTE:
Before measuring and adjusting the gear back lash and stopper clearance, drain the oil completely.



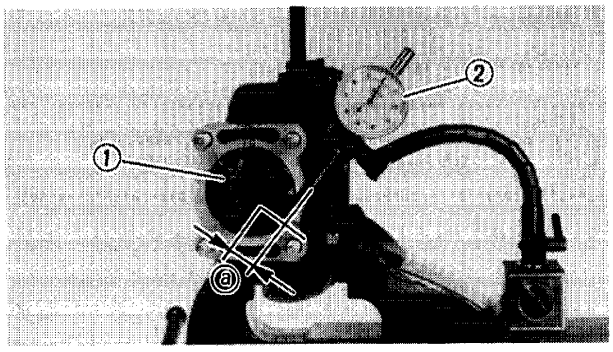
Rear Final Gear Gear Lash Measurement

1. Secure the gear case in a vise or other support.
2. Remove:
   - Drian plug
     Drian the oil.
3. Install:
   - A bolt of the specified size ①
     Into the drain plug hole.



CAUTION:
Finger tighten the bolt until it holds the ring gear. Otherwise, the ring gear will be damaged.

4. Attach:
   - Gear Lash Measurement Tool ① (YM-01230)
   - Dial Gauge ② (YM-03097)

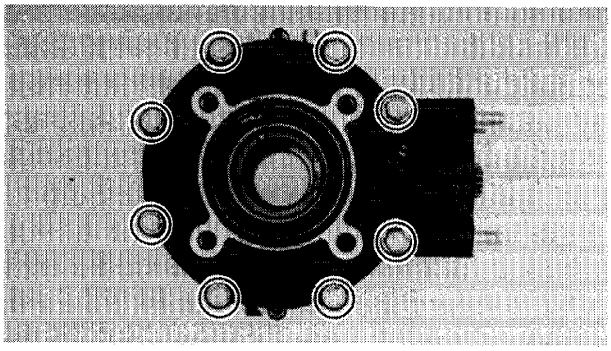


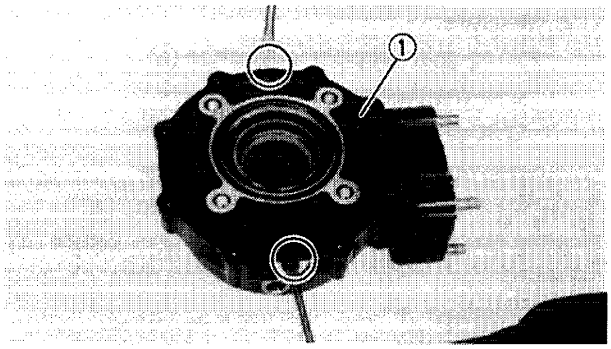
ⓐ Measuring point

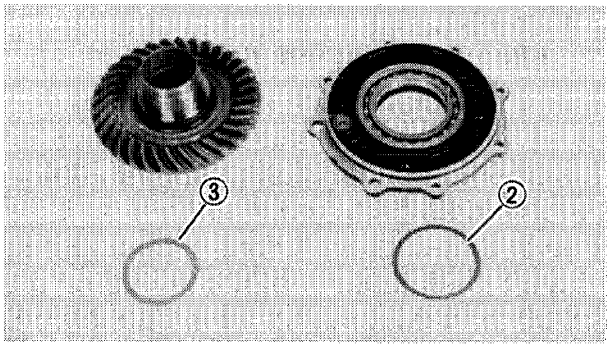
5. Measure:
   - Gear lash
     Gently rotate the gear coupling from engagement to engagement.
     Over specified limit → Adjust.

Rear Final Gear Gear Lash:
0.1 ~ 0.2 mm (0.004 ~ 0.008 in)

NOTE:
Measure the gear lash at 4 positions. Rotate the shaft 90° each time.







Rear Final Gear Gear Lash Adjustment

1. Remove:
   - 8 mm bolts (Bearing housing)
   - 10 mm bolts (Bearing housing)

NOTE:
Working in a crisscross pattern, loosen bolt 1/4 turn each. Remove them after all are loosened.

2. Remove:
   - Bearing housing ①
   - Ring gear
   - Shim(s) ②
   - Thrust washer ③
3. Adjust:
   - Gear lash

Gear lash adjustment steps:
- Select the suitable shims and thrust washer by the following chart.

Too-little gear lash →
Reduce shim thickness.

Too-large gear lash →
Increase shim thickness.

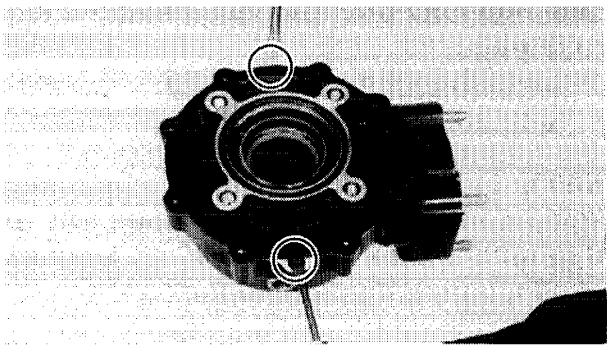
To Add or Reduce Ring Gear Shim Thickness	
Increase by more than 0.1 mm (0.004 in)	Reduce by more than 0.1 mm (0.004 in)
Reduce thrust washer thickness by 0.1 mm (0.004 in) for every 0.1 mm of ring gear shim increase. → Reverse procedure	

Ring Gear Shim

Thickness (mm)	0.25	0.30	0.35
	0.40	0.45	0.50

Thrust Washer

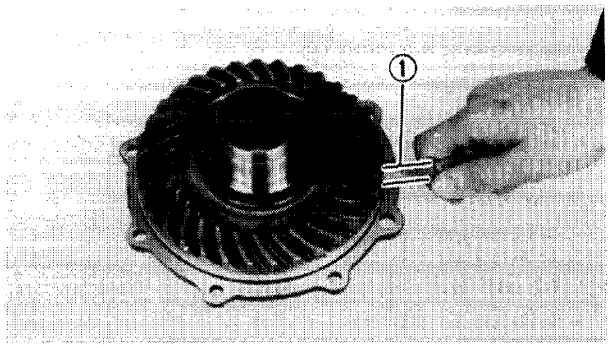
Thickness (mm)	1.2	1.3	1.4
	1.5	1.6	1.7
	1.8	1.9	2.0
	2.1		



Ring Gear Stopper Clearance Measurement

1. Remove:
   - Bearing housing with ring gear

   Refer to "Rear Final Gear Gear Lash Adjustment" section.



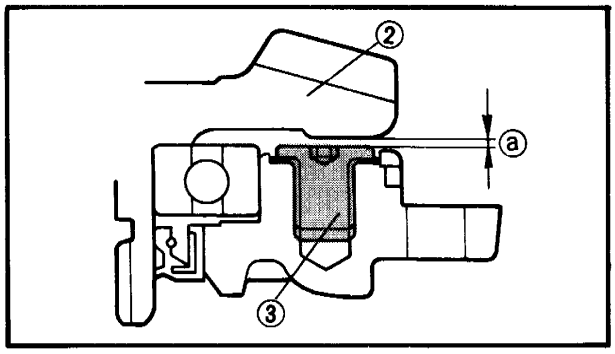
2. Measure:
   - Ring gear stopper clearance ⓐ

   Use the Feeler Gauge ①.

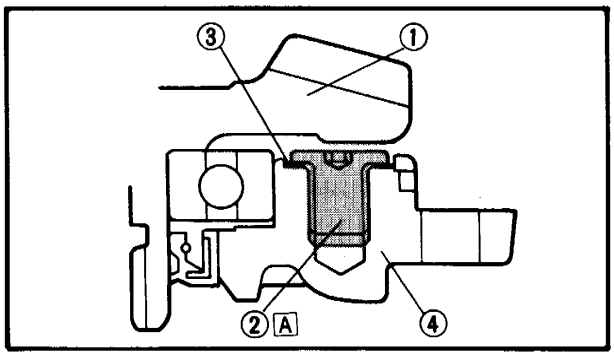
   Out of specification → Adjust.

Ring Gear Stopper Clearance ⓐ :
0.30 ~ 0.60 mm (0.012 ~ 0.024 in)

② Ring gear stopper
③ Ring gear



3. Install:
   - Bearing housing with ring gear



Ring Gear Stopper Clearance Adjustment

1. Remove:
   - Ring gear ①
   - Ring gear stopper ②
   - Shim(s) ③

④ Bearing housing
A Left-hand-threads

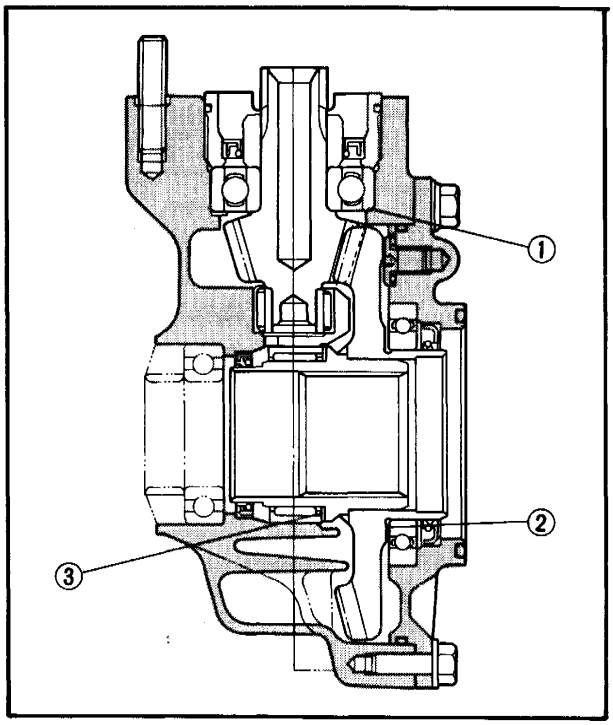
2. Select:
   - Suitable shim(s)

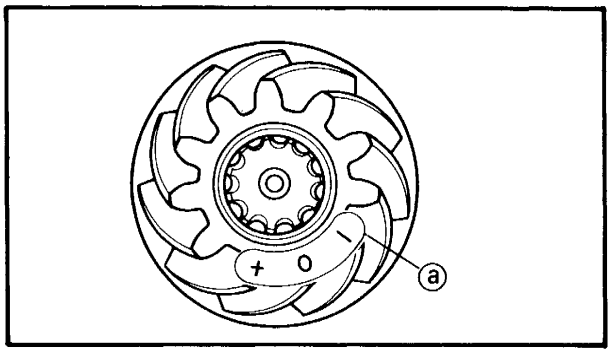
	Shim	
Thickness (mm)	0.10 0.20 0.40	0.15 0.30 0.50

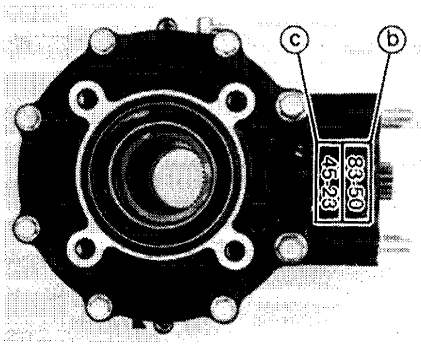
3. Install:
   - Components in above list (Step "1")

Ring Gear Stopper:
9 Nm (0.9 m·kg, 6.5 ft·lb)
LOCTITE®

4. Measure:
   - Ring gear stopper clearance







REAR FINAL DRIVE GEAR AND RING GEAR POSITIONING

NOTE:

Gear positioning is necessary when any of the following parts are replaced:
- Final gear case
- Ring gear bearing housing
- Bearing(s)

1. Select:
   - Final drive gear shim ①
   - Ring gear shim ②

Final drive/ring gear shim selection steps:
- Position final drive shaft gear and ring gear by using shims ① and ② with their respective thicknesses calculated from information marked on final gear case, drive gear end and ring gear.

① Shim thickness "A"
② Shim thickness "B"
③ Thrust washer

- To find shim thickness "A" use following formula:

Final Drive Gear Shim Thickness:
A = ⓐ − ⓑ

Where:
ⓐ= a numeral (usually a decimal number) on the gear is either added to or subtracted from "84".
ⓑ= a numeral on the gear case (i.e. 83.50)
Example:
1) If final drive shaft gear is marked "+01" . . . "ⓐ" is 84.01.
2) If the gear case is marked "83.50" . . . "ⓑ" is 83.50.
A = 84.01 − 83.50
= 0.51

3) Therefore, shim thickness is 0.51 mm. Shim sizes are supplied in following thicknesses:

	Final Drive Gear Shim	
Thickness (mm)	0.15 0.40 0.60	0.30 0.50

Because shims can only be selected in 0.05 mm increments, round off hundredths digit and select appropriate shim(s).

Hundredths	Round value
0, 1, 2	0
3, 4, 5, 6, 7	5
8, 9	10

In the example above, the calculated shim thickness is 0.51 mm. The chart instructs you, however, to round off the 1 to 0. Thus you should use a 0.50 mm shim.

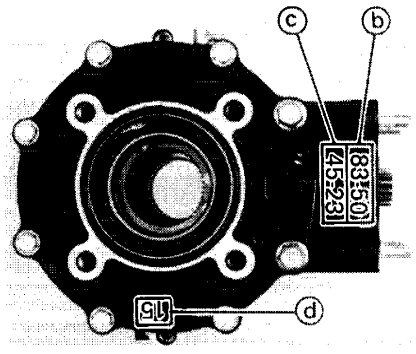
- To find shim thickness "B", use following formula:

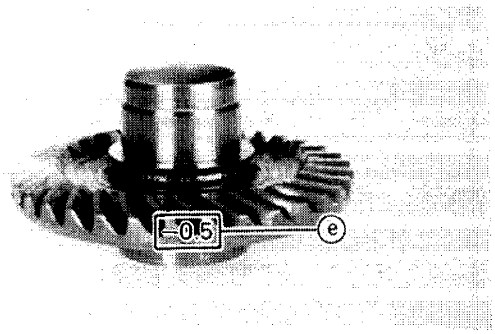
Ring Gear Shim Thickness:
B = ⓒ + ⓓ − (ⓔ + ⓕ)

Where:
ⓒ = numeral on gear case (i.e. 45.23)
ⓓ = numeral (usually a decimal number) on outside of ring gear bearing housing and added to 1.
ⓔ = numeral (usually a decimal number) on inside of ring gear either added to or subtracted from 35.00.
ⓕ = bearing thickness (considered constant).

Bearing Thickness " ⓕ " = 11.00 mm

Example:
1) If gear case is marked "45.23" . . . " ⓒ " is 45.23.
2) If ring gear bearing housing is marked "15" . . . " ⓓ " is 0.15 + 1 = 1.15.





3) If ring gear is marked "–05" . . . " ⓔ " is 35.00 – 0.05 = 34.95.
4) " ⓕ " is 11.00.
B = ⓒ + ⓓ – (ⓔ + ⓕ)
= 45.23 + 1.15 – (34.95 + 11.0)
= 46.38 – (45.95)
= 0.43
5) Therefore, shim thickness is 0.43 mm. Shim sizes are supplied in following thickness:

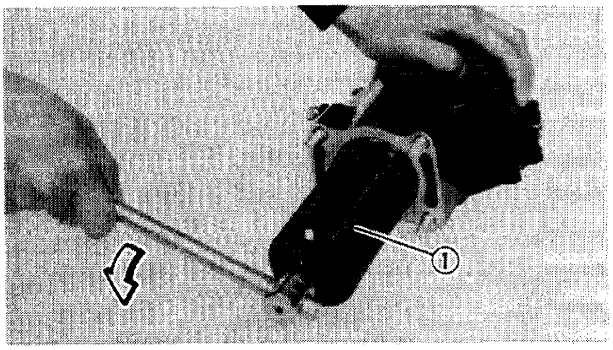
Ring Gear Shim

Thickness (mm)	0.25	0.30	0.35
	0.40	0.45	0.50

Because shims can only be selected in 0.05 mm increments, round off hundredths digit and select appropriate shim(s).

Hundredths	Round value
0, 1, 2	0
3, 4, 5, 6, 7	5
8, 9	10

In the example above, the calculated shim thickness is 0.43 mm. The chart instructs you, however, to round off the 3 to 5. Thus you should use a 0.45 mm shims.



2. Install:
- Shims (Proper size as calculated)
- Final drive pinion gear assembly
- Bearing retainer (Final drive shaft)
  Use a Final Drive Shaft Bearing Retainer Wrench ① (YM-33214).

NOTE:
The bearing retainer has left-hand threads; turn retainer counterclockwise to tighten it.

Bearing Retainer:
100 Nm (10.0 m·kg, 72 ft·lb)

3. Install:
- Coupling gear
- Ring gear assembly (Without thrust washer)

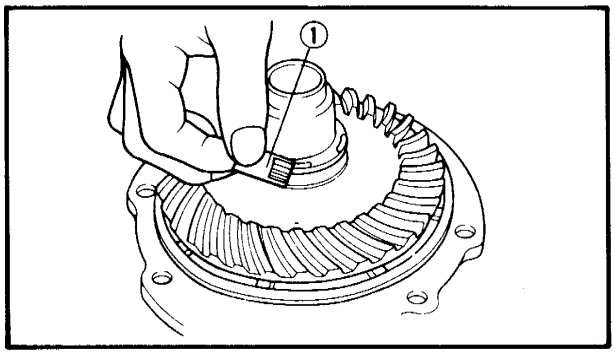
4. Adjust:
   - Gear lash

   Refer to "Gear Lash Measurement and Adjustment" section.
5. Measure/Select:
   - Ring gear thrust clearance

Thrust clearance measurement steps:
- Remove the ring gear assembly.
- Place four pieces of Plastigage® between originally fitted thrust washer and ring gear.
- Install the ring gear assembly and tighten the bolts to specification.

10 mm Bolts (Bearing Housing):
23 Nm (2.3 m·kg, 17 ft·lb)
10 mm Bolt (Bearing Housing):
40 Nm (4.0 m·kg, 29 ft·lb)

NOTE:
Do not turn the shaft drive and ring gear when measuring clearance with Plastigage®.



- Remove the ring gear assembly.
- Measure the thrust clearance. Calculate width of flattened Plastigage® ① .

Ring Gear Thrust Clearance:
0.1 ~ 0.2 mm (0.004 ~ 0.008 in)

- If the correct clearance, install the ring gear assembly.
- If the out of specification, select the correct washer.

Thrust washer selection steps:
- Select the suitable thrust washer by the following chart.

Thrust Washer			
Thickness (mm)	1.2 1.5 1.8 2.1	1.3 1.6 1.9	1.4 1.7 2.0

- Repeat measurement steps until the ring gear thrust clearance is within the specified limits.



Ring Gear Thrust Clearance:
0.1 ~ 0.2 mm (0.004 ~ 0.008 in)

CHAPTER 6.
CHASSIS

FRONT AND REAR WHEELS 6-1
- REMOVAL 6-2
- INSPECTION 6-3
- INSTALLATION 6-3

FRONT BRAKE 6-6
- REMOVAL AND DISASSEMBLY 6-8
- INSPECTION AND REPAIR 6-10
- REASSEMBLY 6-12
- AIR BLEEDING 6-16

REAR BRAKE 6-18
- REMOVAL 6-19
- INSPECTION 6-20
- INSTALLATION 6-20

STEERING SYSTEM 6-22
- REMOVAL 6-23
- INSPECTION 6-26
- INSTALLATION 6-27

STEERING KNUCKLES AND TIE-ROD ENDS 6-30
- REMOVAL 6-30
- INSPECTION 6-31
- INSTALLATION 6-32
- ADJUSTMENT 6-34

FRONT SHOCK ABSORBER AND FRONT ARMS 6-36
- REMOVAL 6-37
- FREE PLAY INSPECTION 6-37
- INSPECTION 6-38
- INSTALLATION 6-38

REAR SHOCK ABSORBER AND SWINGARM 6-40
- REMOVAL 6-41
- FREE PLAY INSPECTION 6-42
- INSPECTION 6-42
- INSTALLATION 6-43

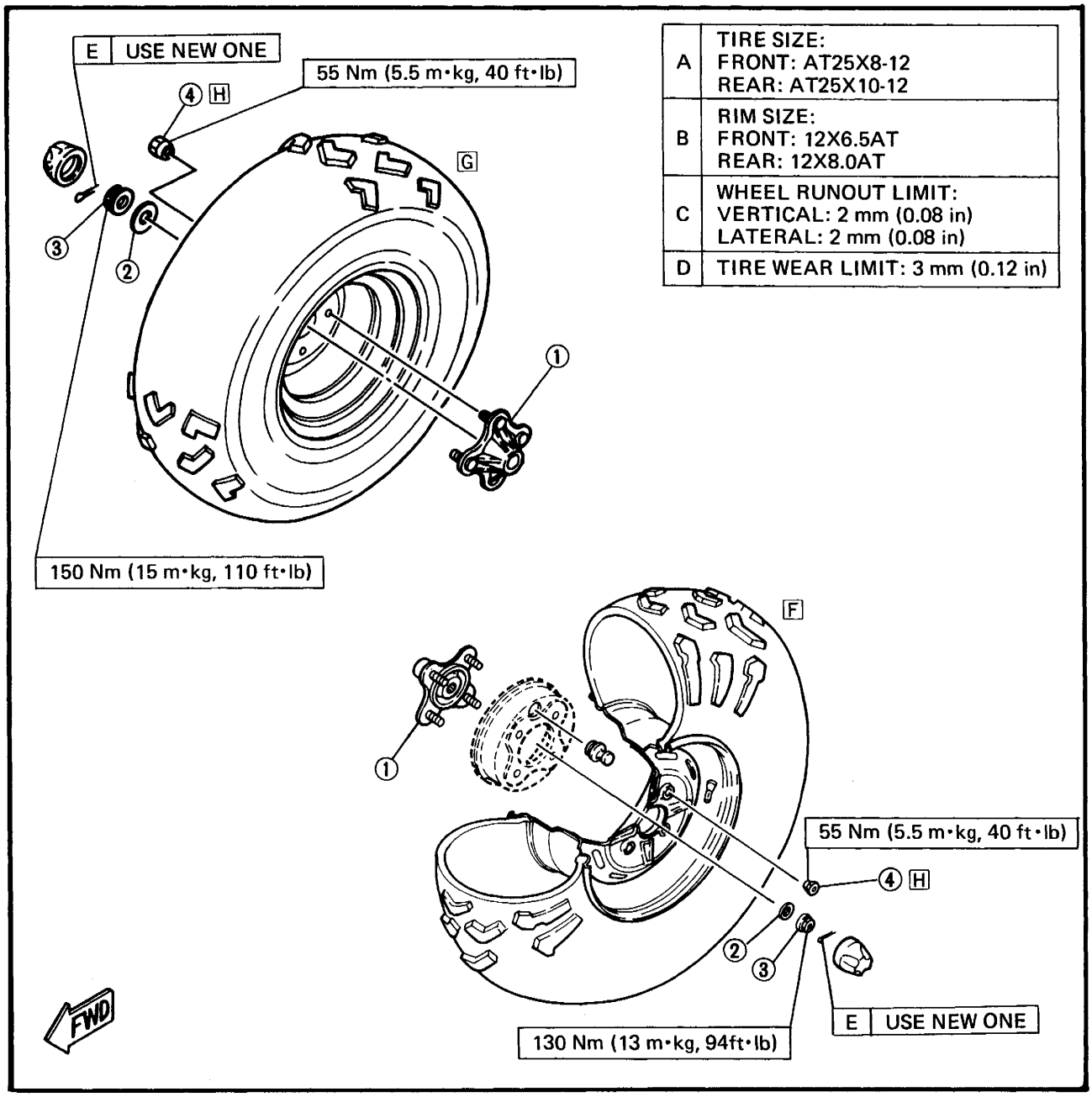
CHASSIS

FRONT AND REAR WHEELS

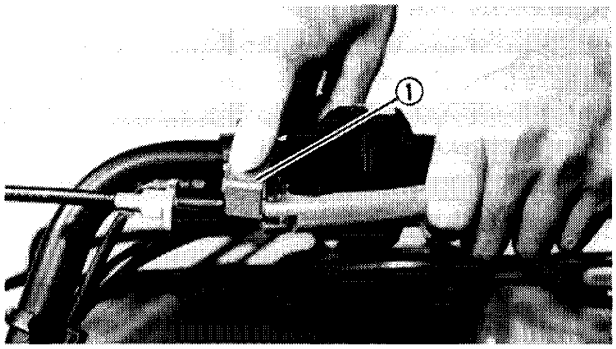
① Wheel hub
② Washer
③ Axle nut
④ Wheel nut

[F] FRONT WHEEL
[G] REAR WHEEL
[H] Tapered wheel nuts are used for both front and rear wheels. Install the nut with its tapered side towards the wheel.

TIRE AIR PRESSURE		
Cold Tire Pressure	Front	Rear
Standard	20 kPa (0.20 kg/cm², 2.8 psi)	20 kPa (0.20 kg/cm², 2.8 psi)
Minimum	17 kPa (0.17 kg/cm², 2.4 psi)	17 kPa (0.17 kg/cm², 2.4 psi)
Maximum	23 kPa (0.23 kg/cm², 3.2 psi)	23 kPa (0.23 kg/cm², 3.2 psi)



A	TIRE SIZE: FRONT: AT25X8-12 REAR: AT25X10-12
B	RIM SIZE: FRONT: 12X6.5AT REAR: 12X8.0AT
C	WHEEL RUNOUT LIMIT: VERTICAL: 2 mm (0.08 in) LATERAL: 2 mm (0.08 in)
D	TIRE WEAR LIMIT: 3 mm (0.12 in)

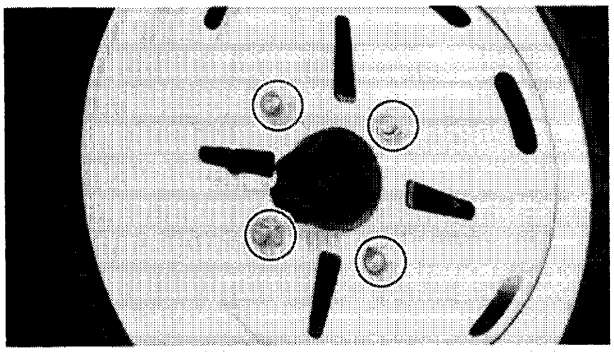


REMOVAL

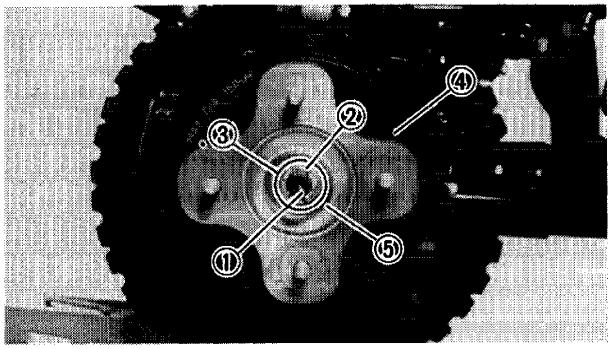
Front Wheel Removal

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

   Apply the parking brake ① .
3. Block the rear wheels, and elevate the front wheels by placing the suitable stand under the frame.



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

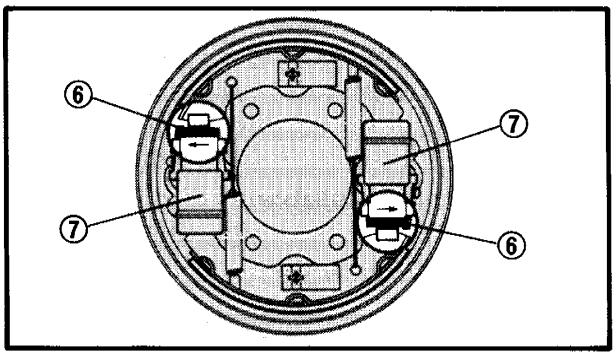


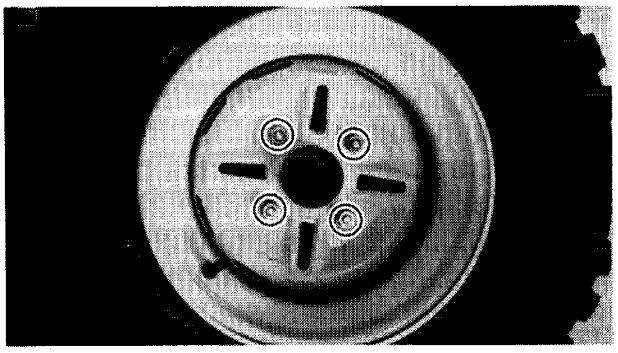
Front Wheel Hub Removal

1. Remove:
   - Wheel cap
   - Cotter pin ①
   - Axle nut ②
   - Plain washer ③
   - Brake drum ④
   - Wheel hub ⑤

NOTE:

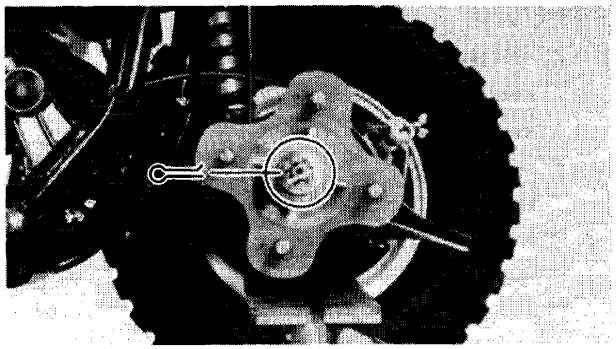
If the brake drum is difficult to removal, turn the adjusters ⑥ on both wheel cylinders ⑦ in the direction opposite to the arrow.





Rear Wheel Removal

Refer to "Front Wheel Removal" section.

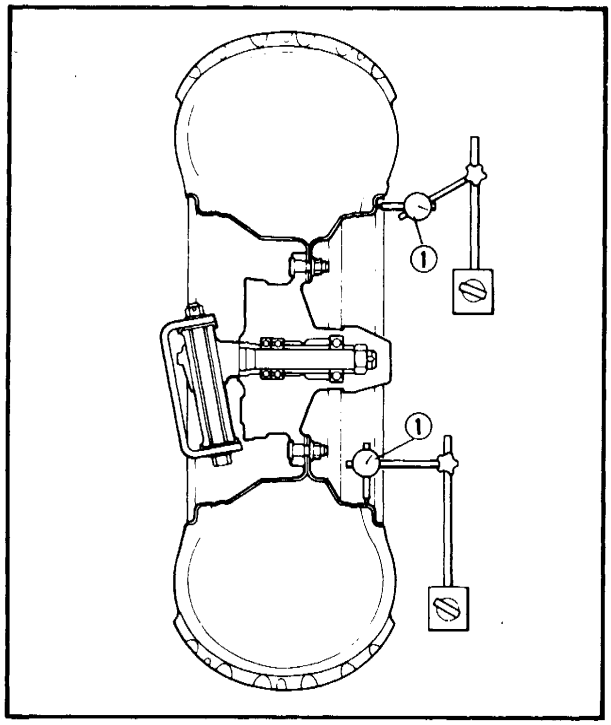


Rear Wheel Hub Removal

Refer to "Front Wheel Hub Removal" section.

NOTE:

Skip the brake drum section.



INSPECTION

1. Inspect:
   - Wheel
     Cracks/Bends/Warpage → Replace.
2. Measure:
   - Wheel runout
     Out of specification → Replace.

① Dial gauge

Rim Runout Limit:
Vertical: 2.0 mm (0.08 in)
Lateral: 2.0 mm (0.08 in)

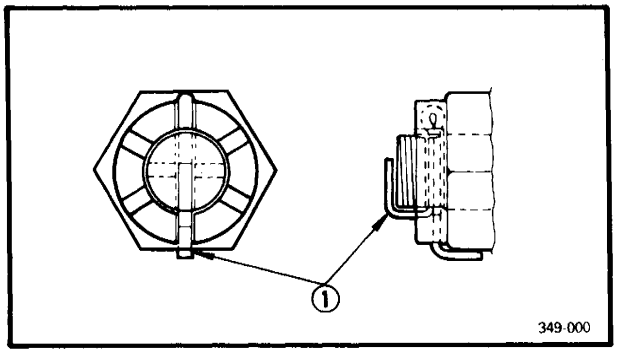
INSTALLATION

When installing the front and rear wheels, reserve the removal procedure. Note the following points.

Front Wheel Hub Installation

1. Tighten:
   - Axle nut (Front wheel)

Axle Nut (Front Wheel):
130 Nm (13 m·kg, 94 ft·lb)



2. Install:
   - Cotter pin (New) ①

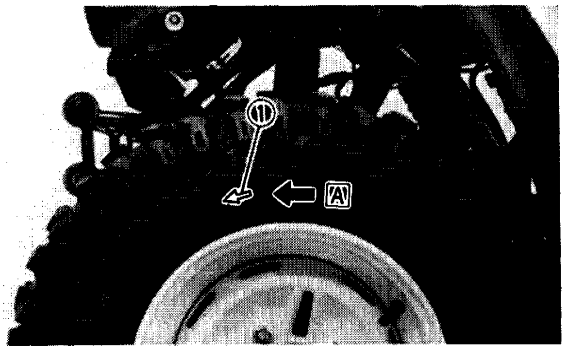
NOTE:

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

WARNING:

Always use a new cotter pin.

3. Adjust:
   - Front brake free play

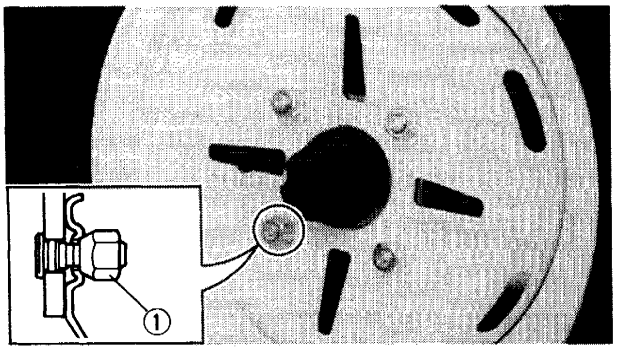


Front Wheel Installation

1. Install:
   - Front wheel

NOTE:

The arrow mark ① on the tire must point toward the rotating direction [A] of the wheel.



2. Tighten:
   - Nuts (Front wheel) ①

WARNING:

Tapered wheel nuts ① are used for both front and rear wheels. Install the nut with its tapered side towards the wheel.

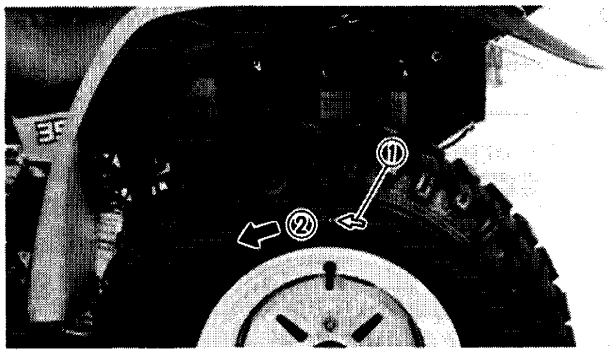
	Nut (Front Wheel): 55 Nm (5.5 m·kg, 40 ft·lb)

Rear Wheel Hub Installation

Refer to "Front Wheel Hub Installation" section.

1. Tighten:
   - Axle nut (Rear wheel)

	Axle Nut (Rear Wheel): 150 Nm (15 m·kg, 110 ft·lb)



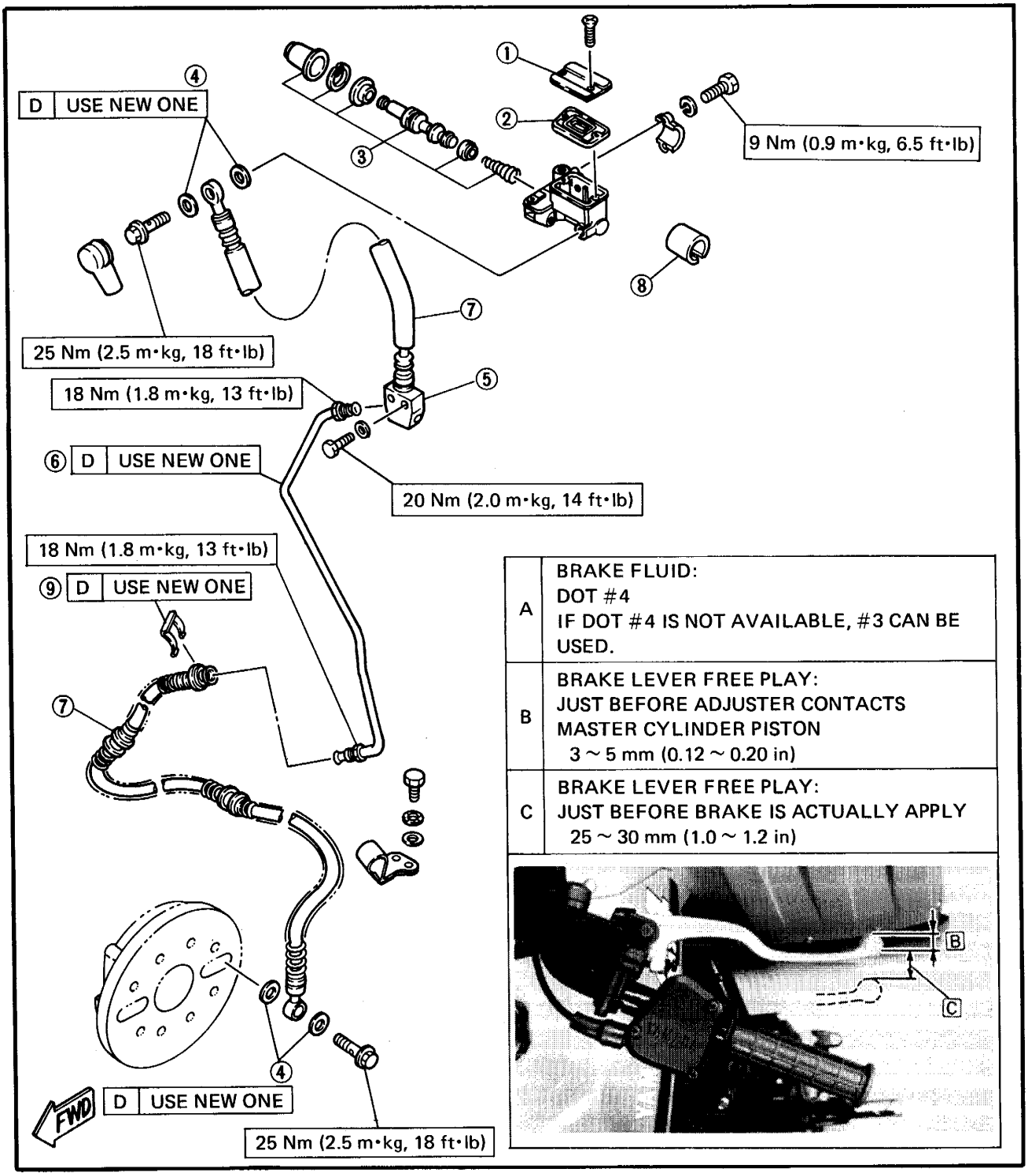
Rear Wheel Installation

Refer to "Front Wheel Installation" section.

① Arrow mark
② Rotating direction of wheel

FRONT BRAKE

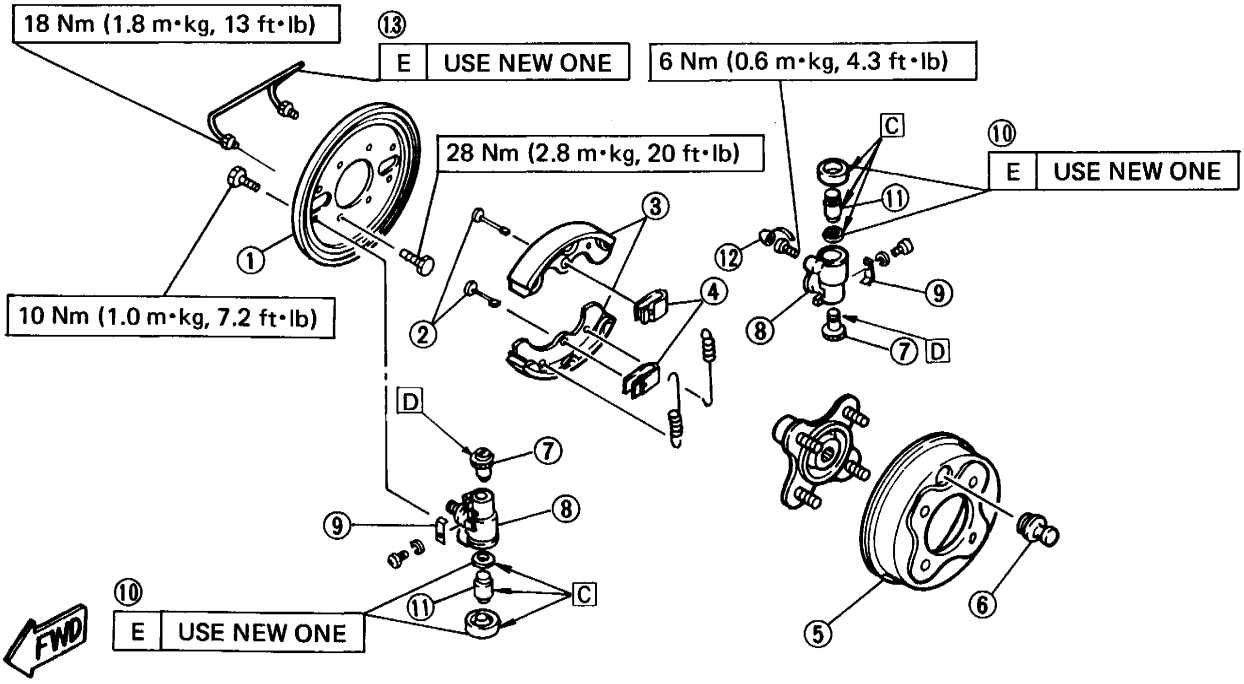
① Master cylinder cap
② Rubber seal
③ Master cylinder kit
④ Copper washer
⑤ Brake joint
⑥ Brake pipe
⑦ Brake hose
⑧ Collar
⑨ Clip



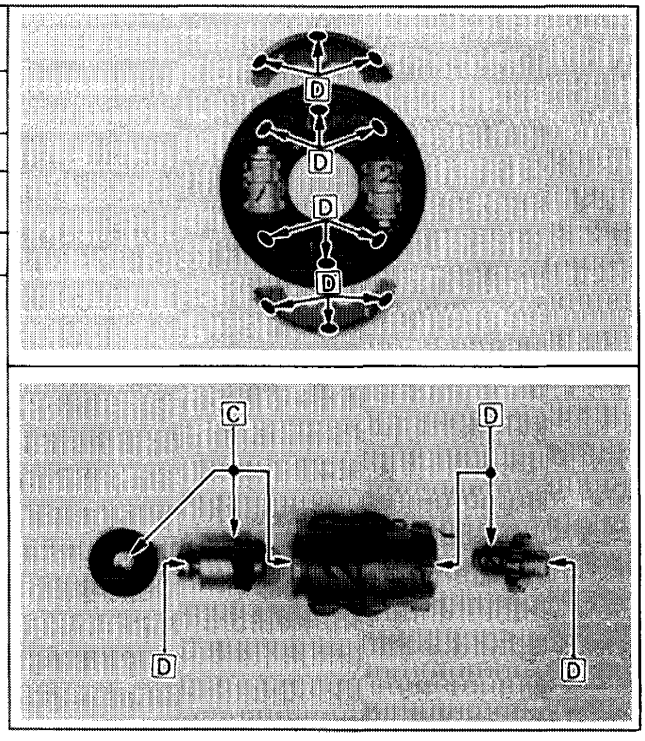
FRONT BRAKE

① Backing plate
② Pin (Brake shoe)
③ Brake shoe set
④ Holder (Brake shoe)
⑤ Brake drum
⑥ Blind plug
⑦ Adjuster (Wheel cylinder)
⑧ Wheel cylinder
⑨ Lock spring
⑩ Cup set
⑪ Piston
⑫ Bleed screw set
⑬ Brake pipe

[F] APPLY LOCTITE®(HEAT RESISTANT)



A	BRAKE LINING WEAR LIMIT: 1 mm (0.04 in)
B	BRAKE DRUM WEAR LIMIT: 161 mm (6.34 in)
C	APPLY RUBBER GREASE
D	APPLY LITHIUM BASE GREASE
F	APPLY LOCTITE® (HEAT RESISTANT)



REMOVAL AND DISASSEMBLY

WARNING:

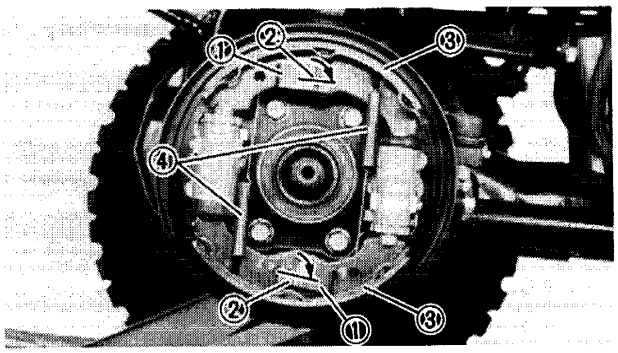
Hydraulic brake components rarely require disassembly. DO NOT:

- **Disassemble 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 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.**

Wheel Cylinder Disassembly

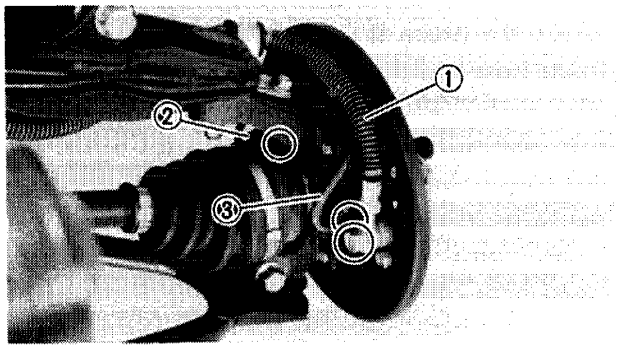
1. Remove:
   - Front wheel
   - Front wheel hub

   Refer to "FRONT AND REAR WHEELS" section.



2. Remove:
   - Holders (Brake shoe) ①
   - Pins (Brake shoe) ②
   - Brake shoes ③
   - Springs ④

   Turn the pins 90° and remove the brake shoes.

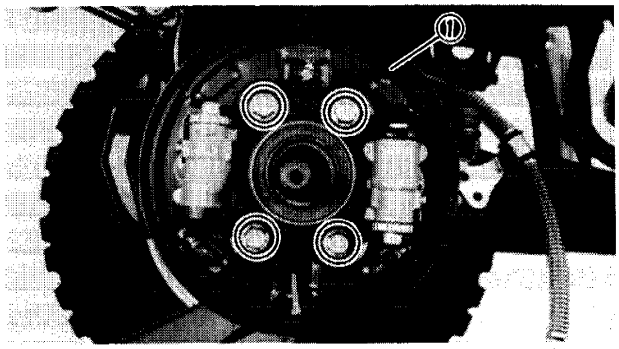


3. Disconnect:
   - Brake hose ①
   - Bleed screw ②
   - Brake pipe ③

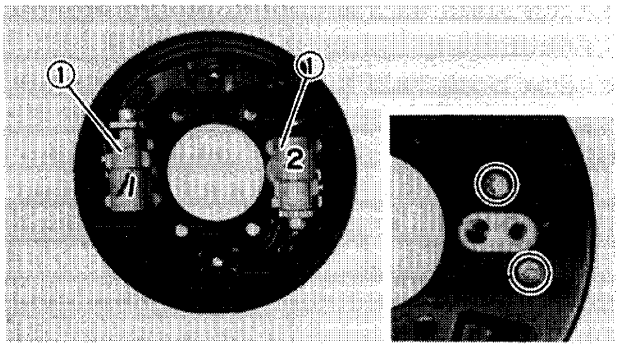
   Use the brake pipe wrench.

NOTE:

Drain the brake fluid before disconnecting the brake hose and pipe.

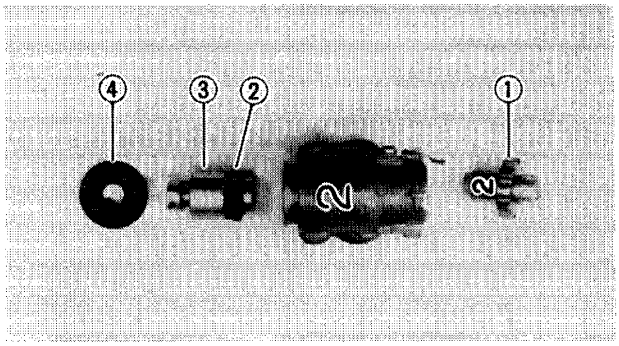


4. Remove:
   - Backing plate ①



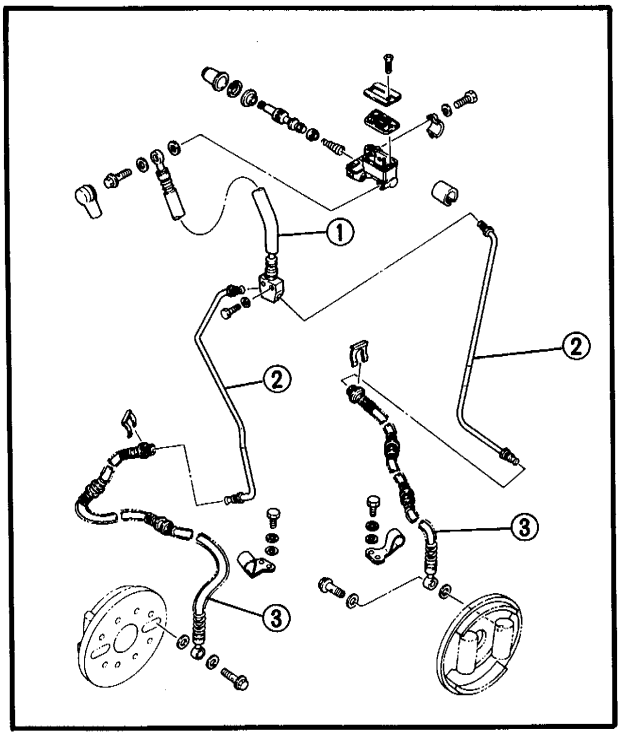
5. Remove:
   - Wheel cylinder ①

NOTE:
Identify each wheel cylinder position very carefully so that it can be reinstalled in its original place.



6. Remove:
   - Adjuster (Wheel cylinder) ①
   - Piston seal ②
   - Piston ③
   - Dust seal ④

NOTE:
Identify each adjuster position very carefully so that it can be reinstalled in its original place.

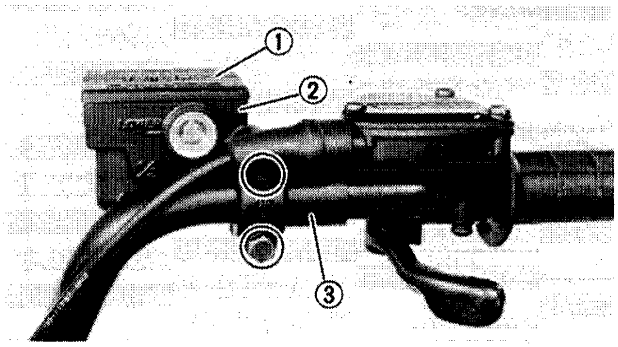


Master Cylinder and Brake Hose Disassembly

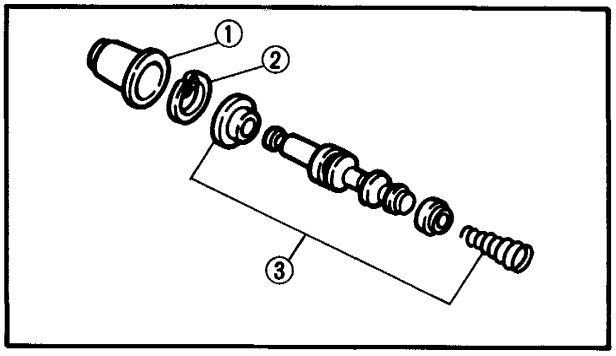
1. Remove:
   - Front carrier (If so equipped)
   - Front fender

   Refer to "STEERING SYSTEM" section.
2. Disconnect:
   - Brake hose (Upper) with brake joint ①
   - Brake pipe (Upper) ②
   - Brake hose (Lower) ③

NOTE:
Drain the brake fluid before disconnecting the brake hose and pipe.



3. Remove:
   - Master cylinder cap ①
   - Master cylinder ②
   - Collar ③



4. Remove:
   - Dust boot ①
   - Circlip ②
   - Master cylinder kit ③

   Drain the excess fluid.

INSPECTION AND REPAIR

WARNING:

All internal parts should be cleaned in new brake fluid only. Do not use solvents will cause seals to swell and distort.

Recommended Brake Component Replacement Schedule:	
Brake shoes	As required
Piston seal, dust seal	Every two years
Brake hoses	Every four years
Brake fluid	Replace only when brakes are disassembled
Brake pipes	Replace whenever brake pipes are disconnecting.

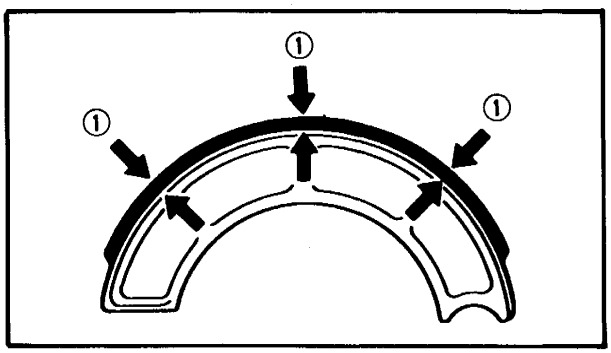
1. Inspect:
   - Brake lining surface

   Glazed areas → Remove.

   Use a coarse sand paper.

NOTE:

After using the sand paper, clean of the polished particles with cloth.



2. Measure:
   - Brake lining thickness
     Out of specification → Replace.

Brake Lining Thickness: 4 mm (0.16 in) Wear Limit: 1 mm (0.04 in)

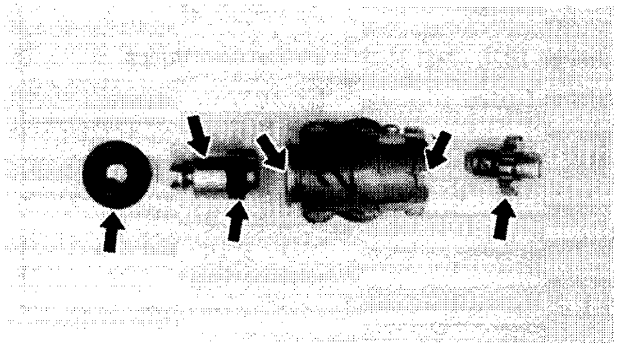
①Measuring points

NOTE:
Replace the brake shoes as a set if either is found to be worn to the wear limit.

3. Inspect:
   - Brake drum inner surface
     Fluid/Oil/Scratches → Remove.

Brake Fluid/Oil	**Use a rag soaked in lacquer thinner or solvent.**
Scratches	**Use a emery cloth (Lightly and evenly polishing)**

4. Inspect:
   - Master cylinder kit
   - Master cylinder body
   - Brake hose
     Scratches/Wear → Replace.



5. Inspect:
   - Cylinder bore (Wheel cylinder)
   - Piston surfaces (Wheel cylinder)
   - Adjuster (Wheel cylinder)
     Rust/Scratches/Damage → Repair or replace.
   - Dust seal
   - Piston seal
     Scratches/Damage → Replace.

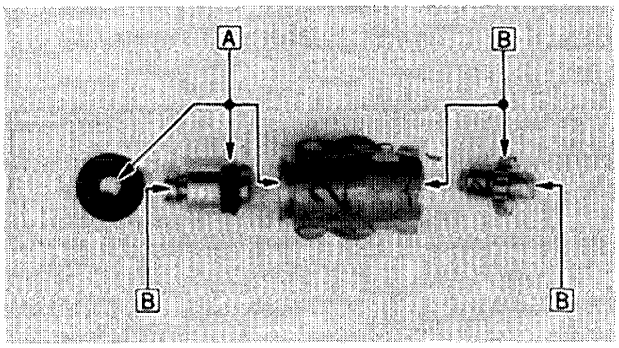
WARNING:
Replace the piston and dust seals whenever the wheel cylinder is disassembled.

REASSEMBLY

WARNING:

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

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



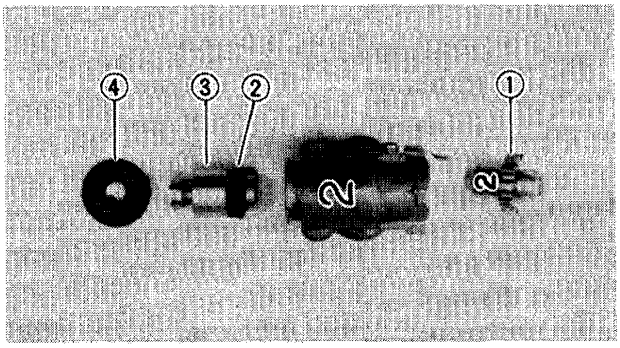
Wheel Cylinder Reassembly

When assembling the wheel cylinder, reverse the disassembly procedure. Note the following points.

1. Apply:
   - Rubber grease
     To the part [A] .
   - Lithium base grease
     To the part [B] .

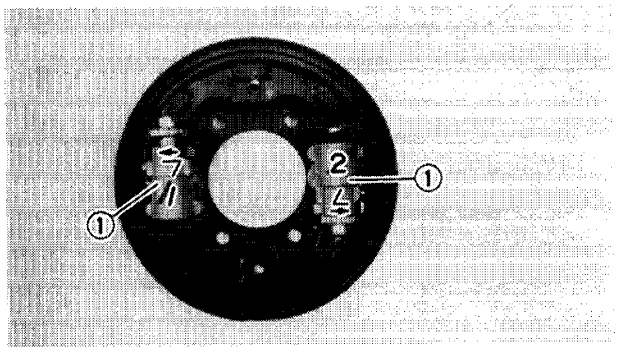
CAUTION:

Be careful not to apply too much grease to the part [A] and [B] . If grease gets on the brake lining, the brake slippage will result.



2. Install:
   - Adjuster (Wheel Cylinder) ①
   - Piston seal (New) ②
   - Piston ③
   - Dust seal (New) ④

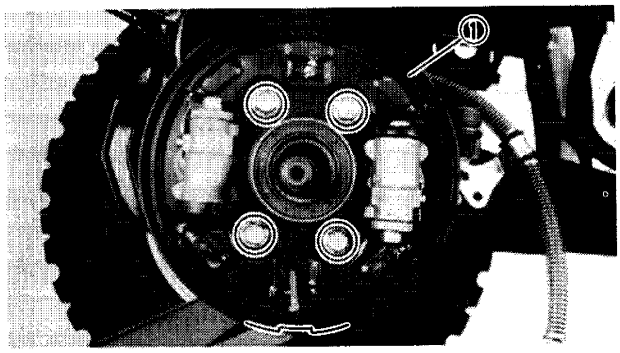
NOTE:
- Identify each adjuster position very carefully so that it can be reinstalled in its original place.
- The adjuster is right-hand theaded on the right of the cut in the backing plate and left-hand threaded on the left.



3. Install:
   - Wheel cylinder ①

NOTE:
- Identify each wheel cylinder position very carefully so that it can be reinstalled in its original place.
- To prevent confusion, there is on "L" embossed on each of the left-hand wheel cylinders and an "R" embossed on each of the right-hand wheel cylinders.
- Install the wheel cylinders with the arrow facing outward.

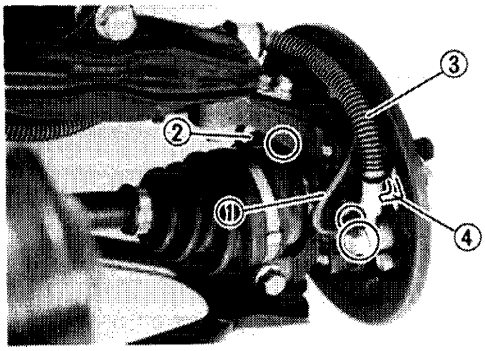
Wheel Cylinder:
10 Nm (1.0 m·kg, 7.2 ft·lb)
LOCTITE® (HEAT RESISTANT)



4. Install:
   - Backing plate ①

NOTE:
The backing plate should be installed with cut downward.

Backing Palte:
28 Nm (2.8 m·kg, 20 ft·lb)
LOCTITE® (HEAT RESISTANT)



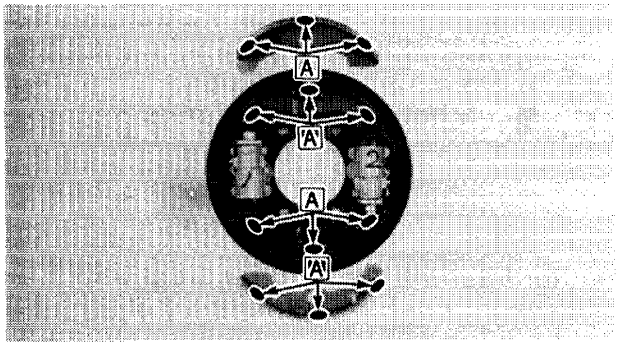
5. Connect:
   - Brake pipe (New) ①
   - Bleed screw ②
   - Brake hose ③

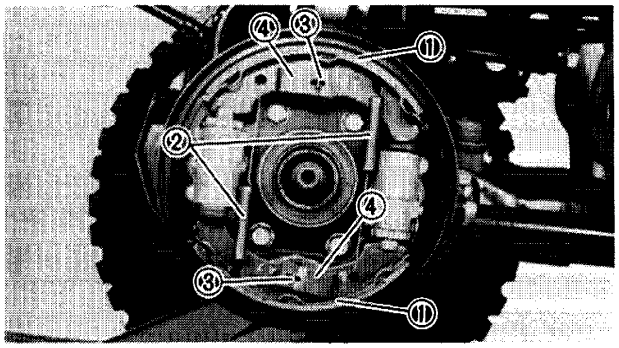
CAUTION:
Insert the brake hose end into the hose holder ④ on the backing plate.

WARNING:

- **Replace the brake pipe whenever brake pipe is disconnecting.**
- **Always use the new copper washers.**

Brake Pipe:
18 Nm (1.8 m·kg, 13 ft·lb)
Bleed Screw:
6 Nm (0.6 m·kg, 4.3 ft·lb)
Union Bolt (Brake Hose):
25 Nm (2.5 m·kg, 18 ft·lb)





6. Apply:
   - Lithium base grease

   To the part A .

CAUTION:

Be careful not to apply too much grease to the part A . If grease gets on the brake lining, the brake slippage will result.

7. Install:
   - Brake shoes ①
   - Springs ②
   - Pins (Brake shoe) ③
   - Holders (Brake shoe) ④

NOTE:

- Make sure that the above components are proper positioned as shown.
- Make sure that the pin is hitched on the holder .
- Before installing the brake drum, turn the adjuster on both wheel cylinders in the direction opposite to the arrow.

8. Fill:
   - Master cylinder

Brake Fluid:
DOT # 4
IF DOT # 4 IS NOT AVAILABLE, # 3 CAN BE USED.

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

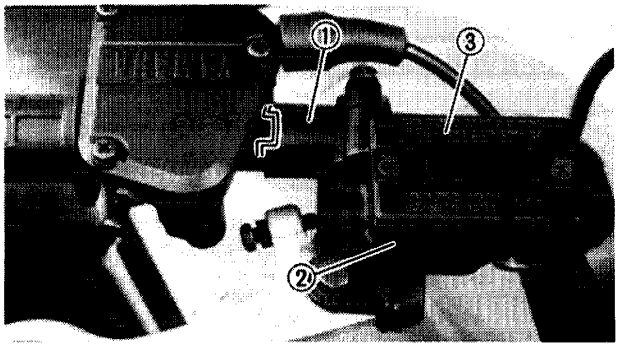
Master Cylinder and Brake Hose Reassembly

When assembling the master cylinder, reverse the disassembling procedure. Note the following points.

1. Install:
   - Master cylinder kit

WARNING:

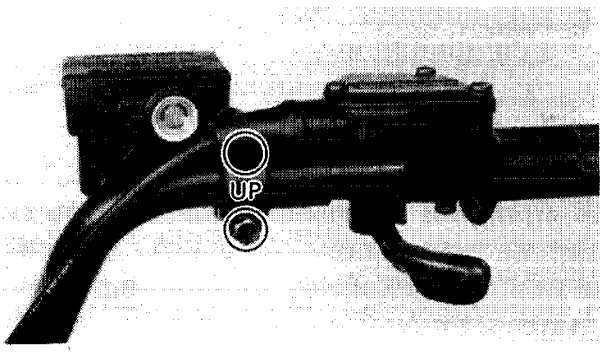
Internal parts should be lubricated with brake fluid when installed.



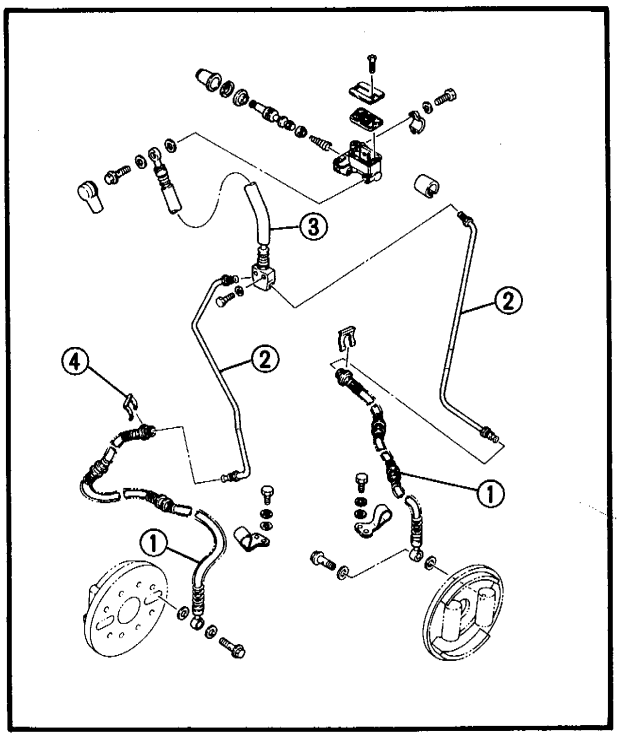
2. Install:
   - Collar ①
   - Master cylinder ②
   - Master cylinder cap ③

NOTE:

- **Engage the receptacle on the collar with the lobe on the throttle lever assembly.**
- **The "UP" mark on the master cylinder bracket should be upward.**



Master Cylinder Assembly:
9 Nm (0.9 m·kg, 6.5 ft·lb)



3. Connect:
   - Brake hose (Lower) ①
   - Brake pipe (Upper) (New) ②
   - Brake hose (Upper) with brake joint ③

NOTE:

Before reconnecting the brake pipe, do not forget to fit the clip ④.

CAUTION:

Insert the brake hose (Lower) end into the hose holder on the backing plate.

WARNING:

- **Replace the brake pipe whenever brake pipe is disconnecting.**
- **Always use the new copper washer.**



Brake Pipe:
18 Nm (1.8 m·kg, 13 ft·lb)
Union Bolts (Brake Hose):
25 Nm (2.5 m·kg, 18 ft·lb)

4. Fill:
   - Master cylinder



Brake Fluid:
DOT # 4
IF DOT # 4 IS NOT AVAILABLE, # 3 CAN BE USED.

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

AIR BLEEDING

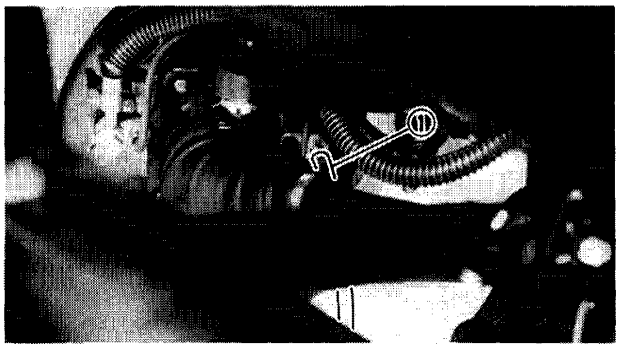
WARNING:

Bleed the brake system if:
- **The system has been disassembled.**
- **The brake hose or brake pipe have been loosened or removed.**
- **The brake fluid is very low.**
- **The brake operation is faulty.**

A dangerous loss of braking performance may occur if the brake system is not properly bled.

1. Bleed:
   - Brake fluid

Air bleeding steps:
a. Add proper brake fluid to the reservoir.
b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.



c. Connect the clear plastic tube ① tightly to the caliper bleed screw.
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.

Bleed Screw:
6 Nm (0.6 m·kg, 4.3 ft·lb)

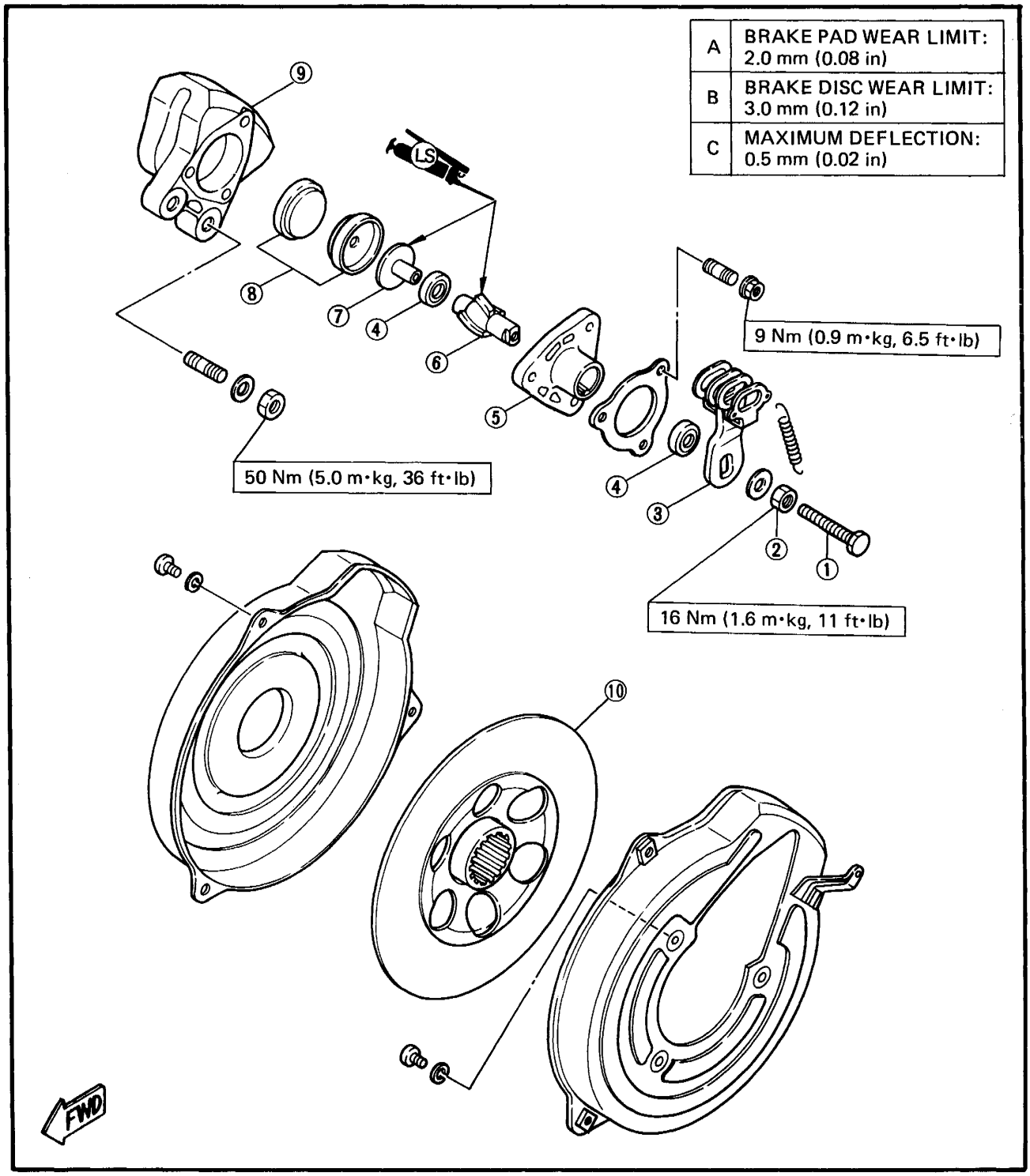
i. Repeat steps (e) to (h) until of the air bubbles have been removed from the system.

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

j. Add brake fluid to the level line on the reservoir.

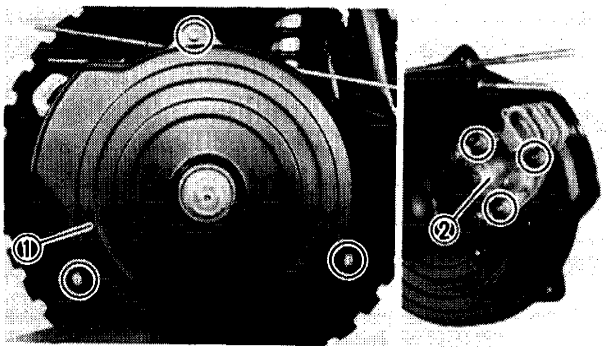
REAR BRAKE

① Adjusting bolt
② Locknut
③ Brake lever
④ Oil seal
⑤ Cam holder
⑥ Cam
⑦ Backup plate
⑧ Brake pads
⑨ Caliper
⑩ Brake disc

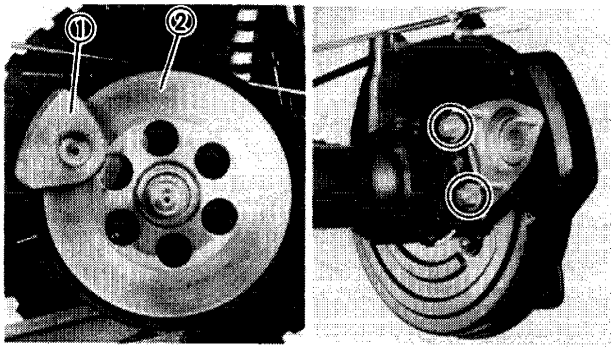


REMOVAL

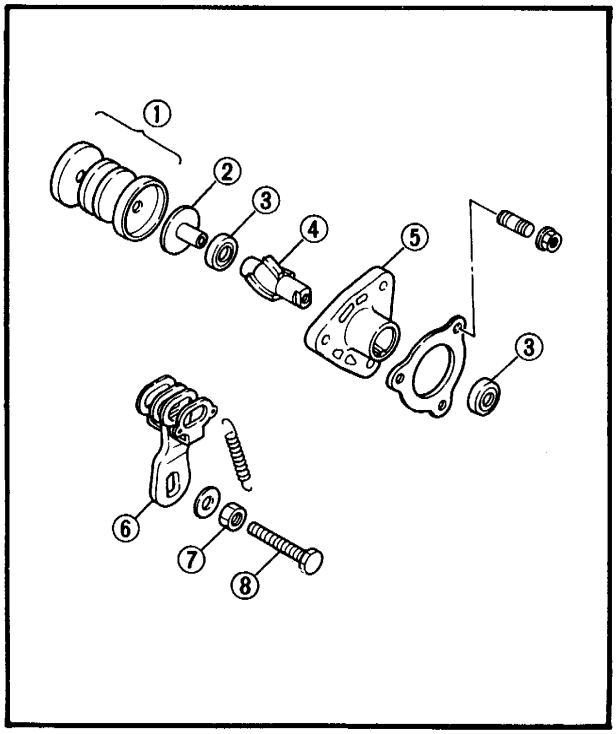
1. Place the machine on a level place.
2. Apply the parking brake. Block the front wheels, and elevate the rear wheels by placing the suitable stand under the frame.
3. Remove:
   - Rear wheel (Left)
   - Rear wheel hub (Left)
   - Adjusters (Brake pedal and brake lever)
4. Unhook the brake lever spring.
5. Remove:
   - Brake cover (Outer) ①
   - Cam holder with brake lever ②

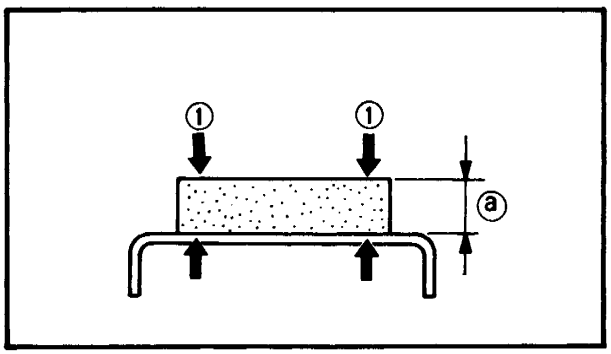


6. Remove:
   - Caliper ①
   - Brake disc ②



7. Remove:
   - Caliper pads ①
   - Backup plate ②
   - Oil seals ③
   - Cam ④
   - Cam holder ⑤
   - Brake lever ⑥
   - Locknut ⑦
   - Adjuster ⑧





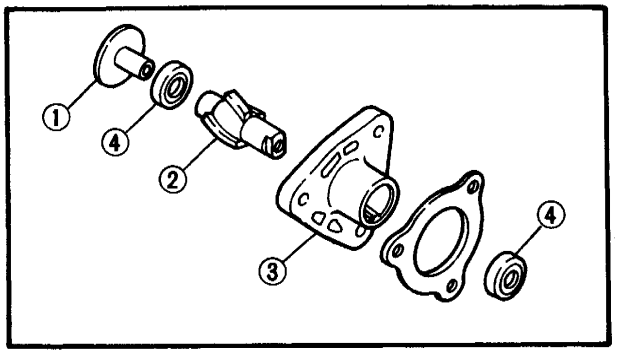
INSPECTION

1. Measure:
   - Brake pad thickness
     Out of specification → Replace.

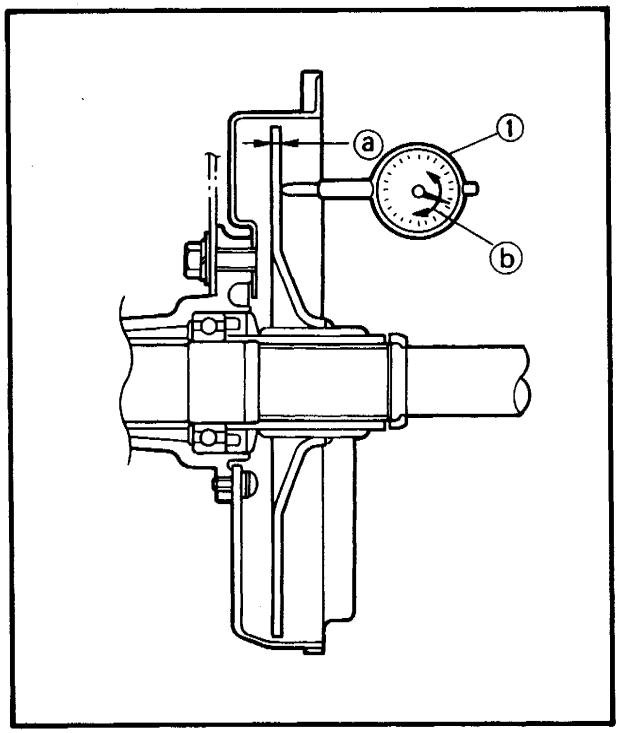
① Measuring point

Brake Pad Wear Limit ⓐ :
2.0 mm (0.08 in)

NOTE:
Always replace the brake pads as a set.



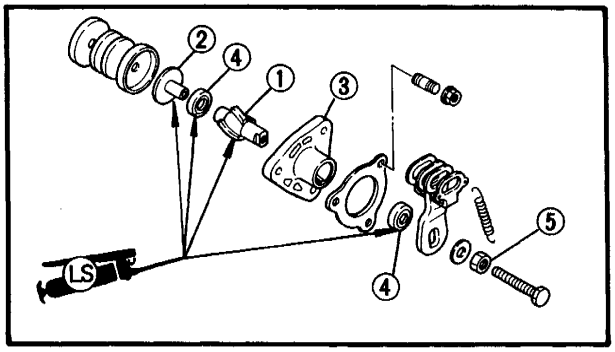
2. Inspect:
   - Backup plate ①
   - Cam ②
   - Cam holder ③
     Rust/Damage → Replace.
   - Oil seals ④
     Damage → Replace.



3. Measure:
   - Brake disc thickness
   - Brake disc deflection
     Out of specification → Replace.

① Dial gauge

Brake Disc Wear Limit ⓐ :
3.0 mm (0.12 in)
Brake Disc Maximum Deflection ⓑ :
0.5 mm (0.02 in)



INSTALLATION

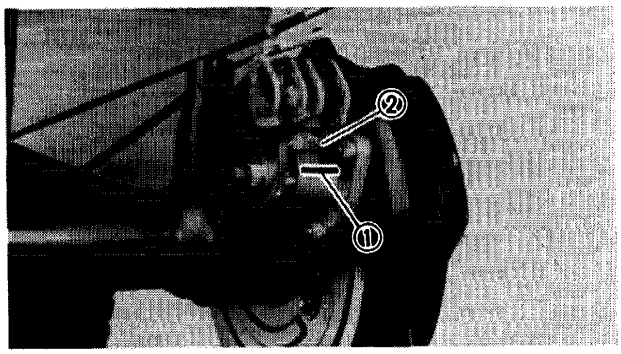
When installing the rear brake, reserve the removal procedure. Note the following points.

1. Install:
   - Cam ①
   - Backup plate ②
     To the cam holder ③.

NOTE:

- Apply the lithium base grease to the cam, oil seal lips ④ and backup plate.
- Temporaly tighten the locknut ⑤.

2. Check:
   - Cam operation
     Unsmooth operation → Repair.



3. Tighten:
   - Nuts (Caliper)
   - Nuts (Cam holder)

NOTE:

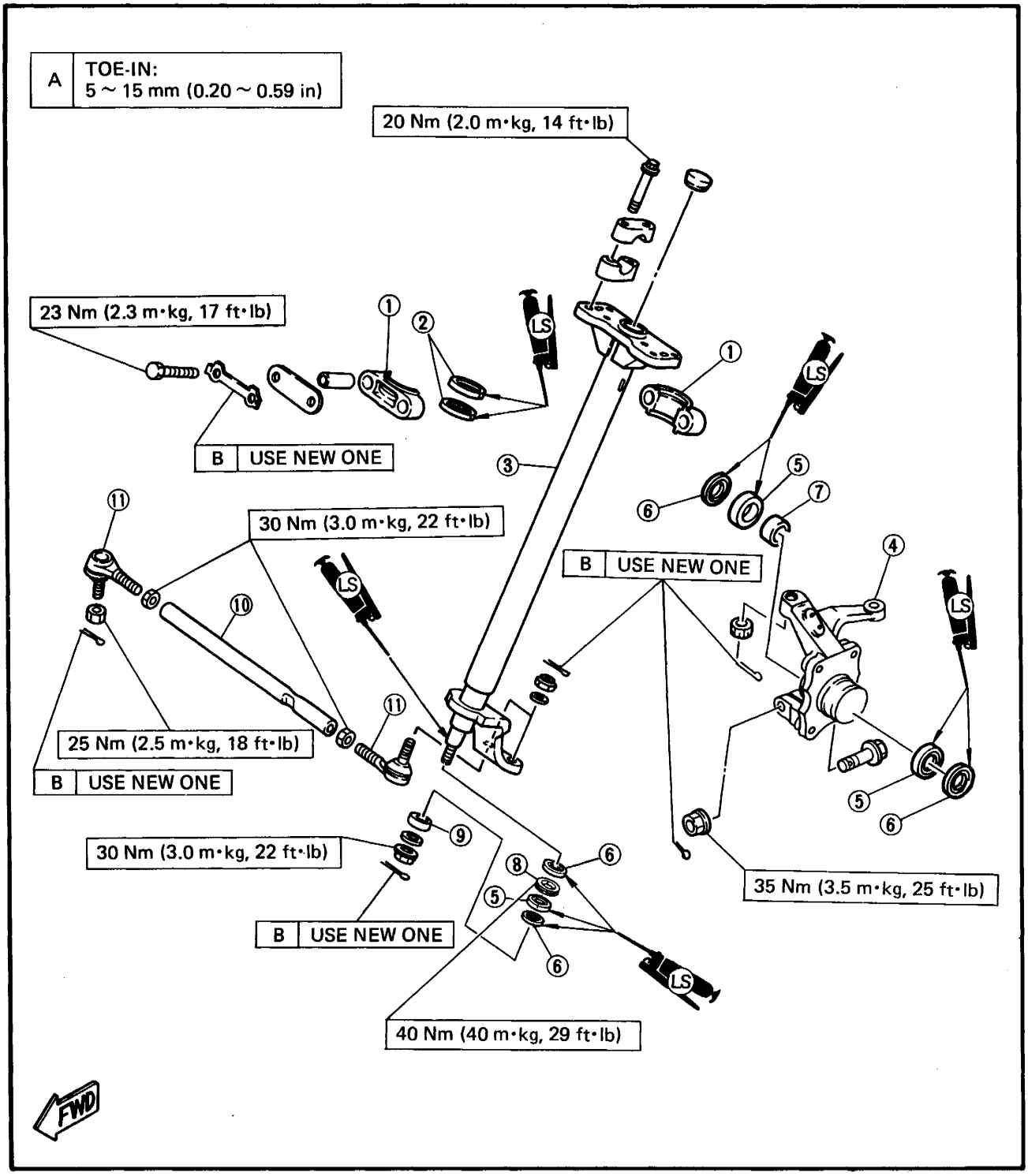
Be sure to position the cam holder ② so that the holder projection ① face backward.

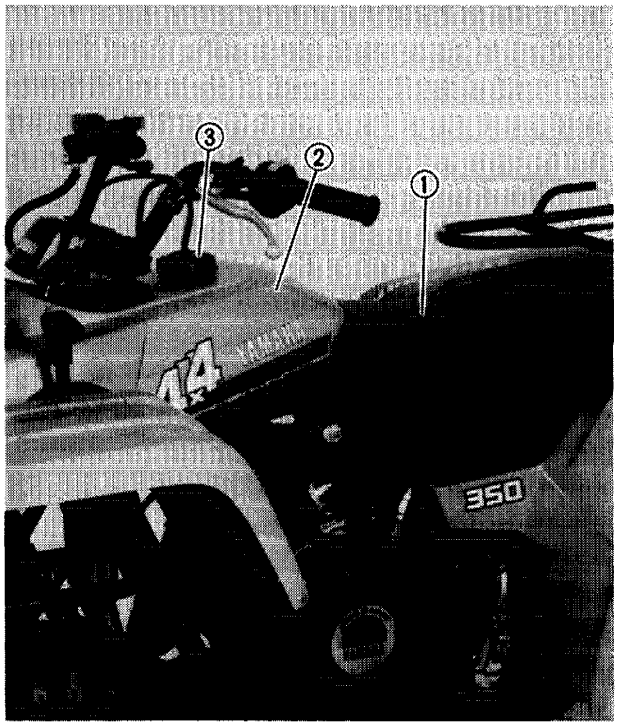
Nuts (Caliper):
50 Nm (5.0 m·kg, 36 ft·lb)
Nuts (Cam Holder):
9 Nm (0.9 m·kg, 6.5 ft·lb)

2. Install:
   - Adjusters (Brake pedal and brake lever)
3. Adjust:
   - Brake lever free play
   - Brake pedal free play
     Refer to "CHAPTER 2. BRAKE LEVER AND PEDAL ADJUSTMENT" section.
4. Install:
   - Rear wheel hubs
   - Rear wheels
     Refer to "REAR WHEEL – INSTALLATION" section.

STEERING SYSTEM

① Steering shaft bushing
② Oil seal
③ Steering shaft
④ Steering knuckle
⑤ Bearing
⑥ Oil seal
⑦ Spacer
⑧ Bearing retainer
⑨ Collar
⑩ Tie-rod
⑪ Tie-rod end



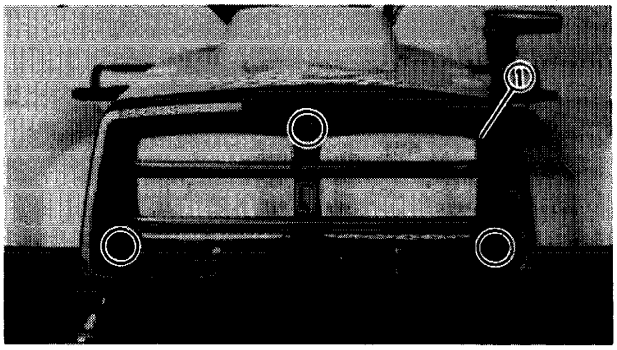


REMOVAL

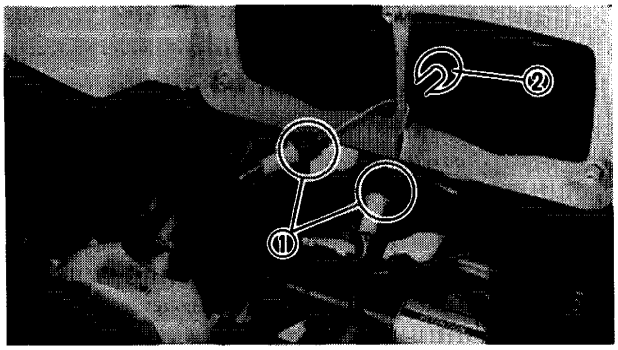
1. Remove:
   - Seat ①
   - Fuel tank cover ②
   - Fuel tank cap ③

NOTE:
After removing the tank cover, install the tank cap on the fuel tank.

Refer to "CHAPTER 2. VALVE CLEARANCE ADJUSTMENT" section.



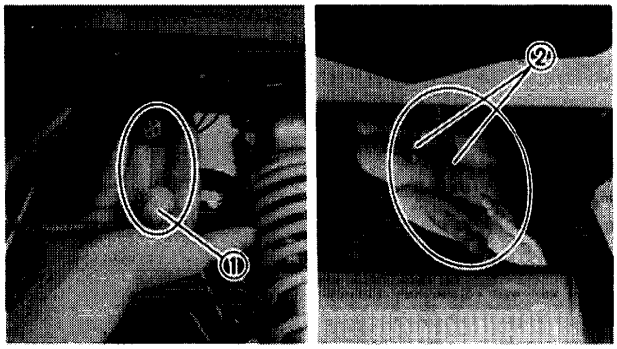
2. Remove:
   - Headlight cover ①



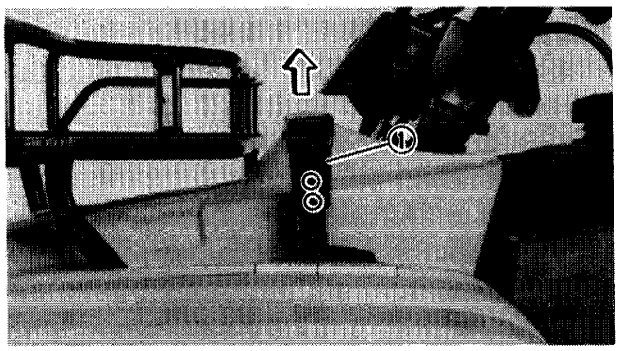
3. Disconnect:
   - Headlight couplers ①

   After disconnecting the couplers, insert the couplers to the fender hole.

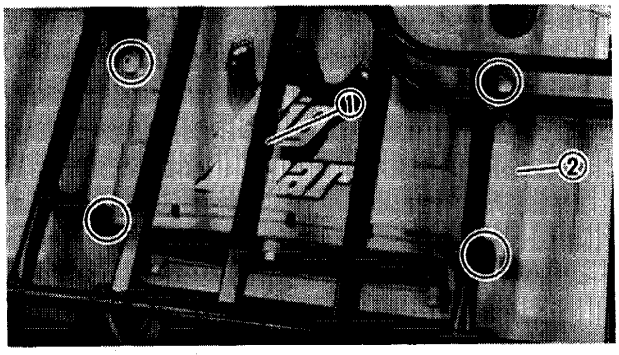
NOTE:
When disconnecting the couplers, the grommet ② will fall off. Take care not to lose this part.



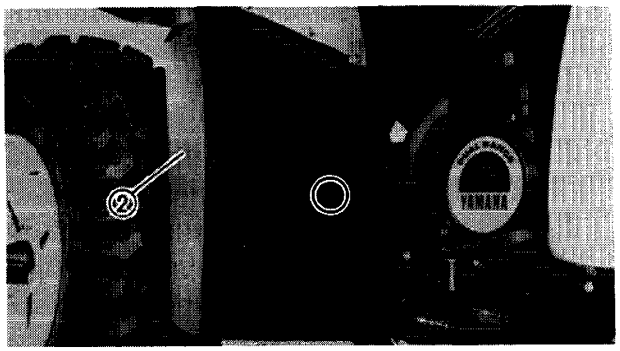
4. Disconnect:
   - Main switch coupler ①
   - Auxiliary D.C. terminal leads ②

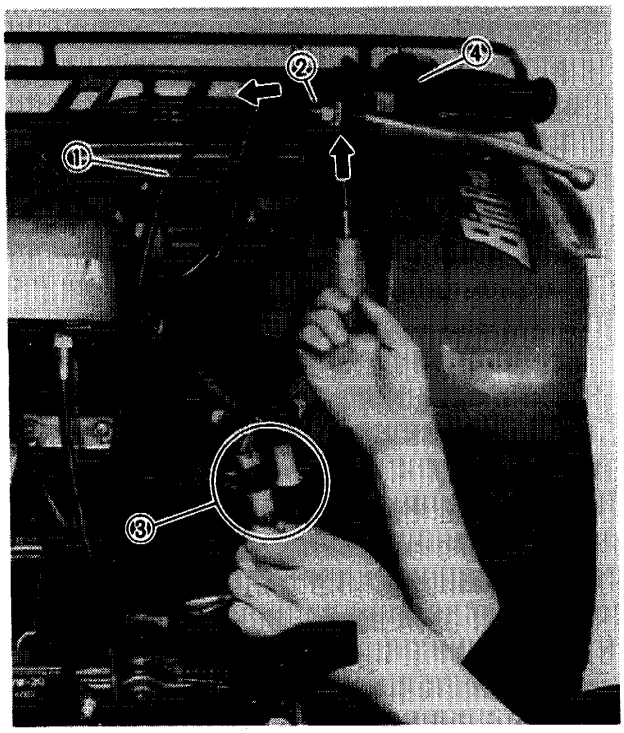


5. Remove:
   - Select lever ①

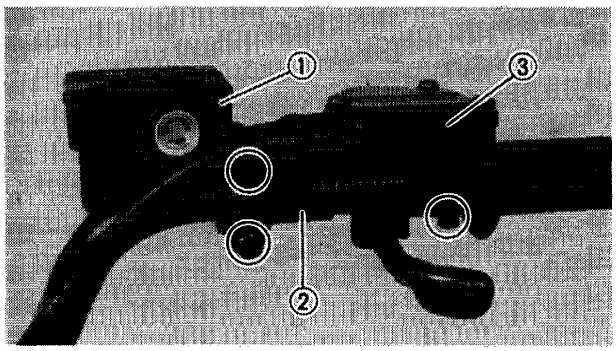


6. Remove:
   - Front carrier (If so equipped) ①
   - Front fender ②

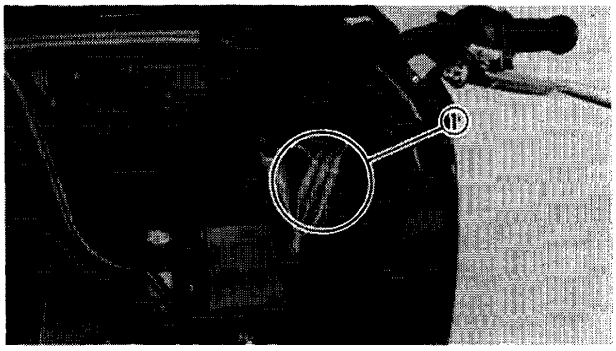




7. Disconnect:
   - Brake cable (Rear brake) ①
   - Rear brake switch ②
   - Handlebar switch coupers ③
8. Remove:
   - Bands (Handlebar)
   - Handlebar switch ④

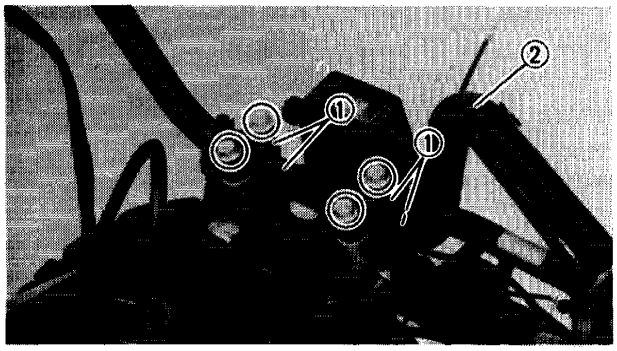


9. Remove:
   - Master cylinder assembly ①
   - Collar ②
   - Throttle lever assembly ③

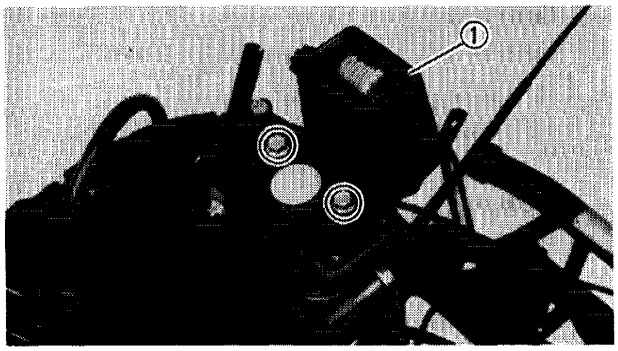


10. Disconnect:
    - Indicator leads ①

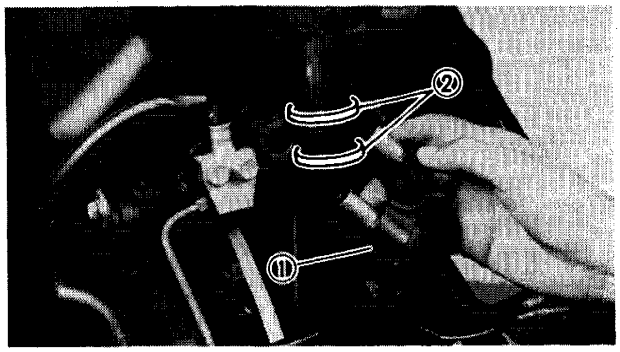
    Pull up the handlebar cover, and disconnect the leads.



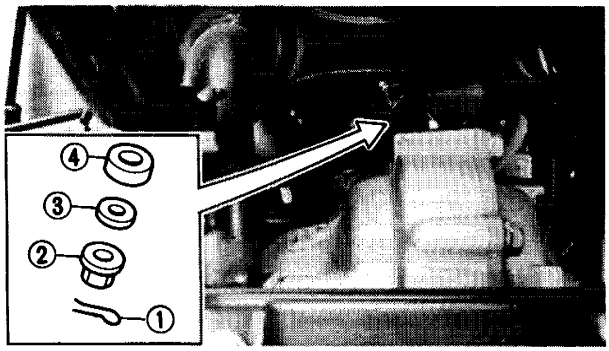
11. Remove:
    - Handlebar holders (Upper and lower) ①
    - Handlebar ②



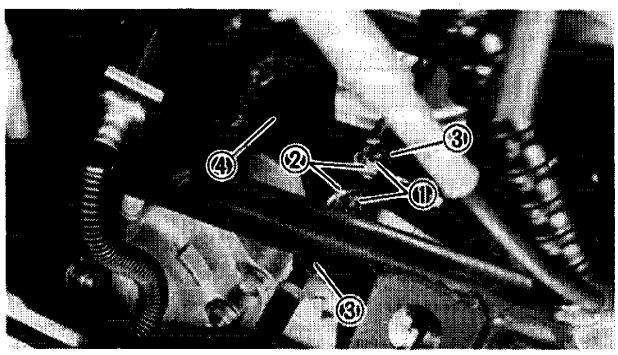
12. Remove:
    - Meter assembly ①



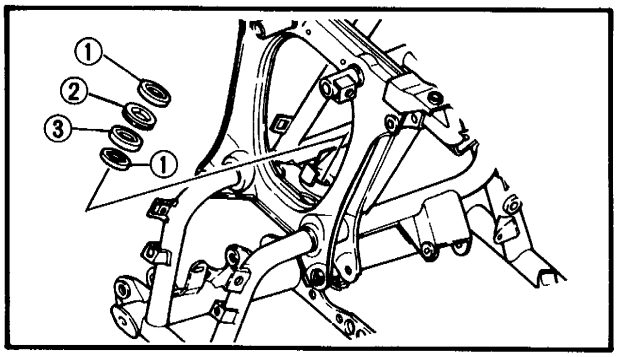
13. Straighten:
    - Lock washer tabs
14. Remove:
    - Steering shaft bracket
    - Steering shaft bushings ①
    - Oil seals ②



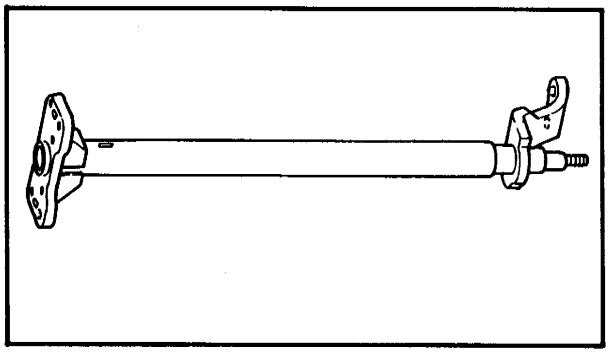
15. Remove:
- Cotter pin ①
- Nut (Steering shaft) ②
- Plain washer ③
- Collar ④



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



17. Remove:
- Oil seals ①
- Bearing retainer ②
  Use the Damper Rod Holder (YM-01327).
- Bearing ③

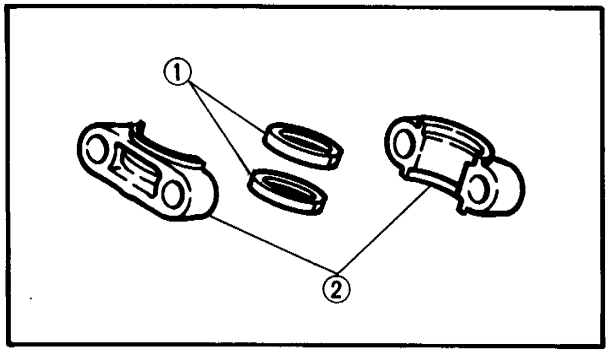


INSPECTION

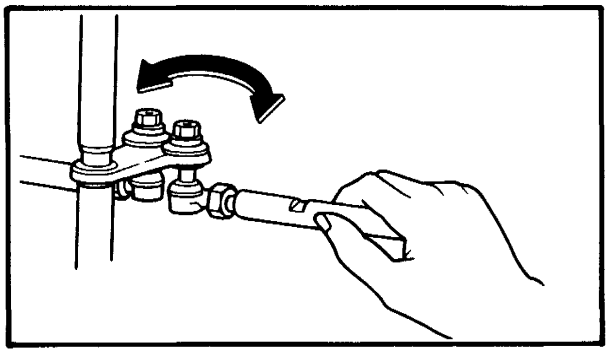
1. Inspect:
- Steering shaft
  Bends → Replace.

WARNING:

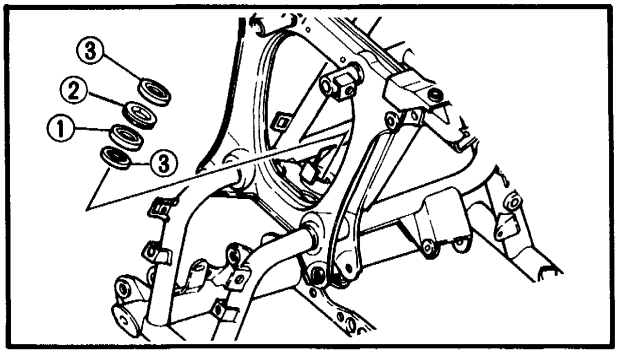
Do not attempt to straighten a bent shaft; this may dangerously weaken the shaft.



2. Inspect:
- Oil seals ①
- Steering shaft bushings ②
  Wear/Damage → Replace.



3. Check:
   - Steering shaft free play
     Steering shaft is loose → Replace bushings and oil seals.
     Insert the steering shaft into the frame, and check for free play.



INSTALLATION

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

1. Install:
   - Bearing ①
   - Bearing retainer ②
     Use the Damper Rod Holder (YM-01327).
   - Oil seals ③

NOTE:
Apply lithium base grease to the bearing and oil seals.

Bearing Retainer:
40 Nm (4.0 m·kg, 29 ft·lb)

2. Install:
   - Steering shaft

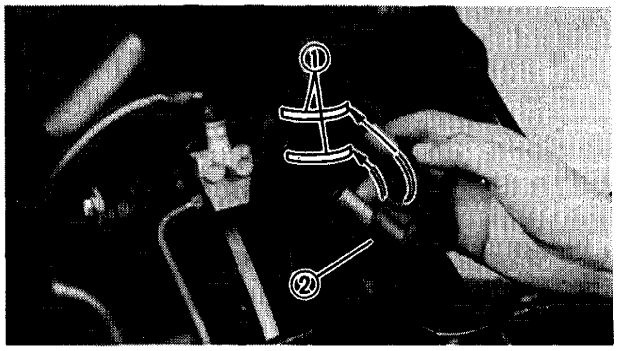
WARNING:
Make sure the brake hoses and pipes are properly routed, and are not damaged or twisted.

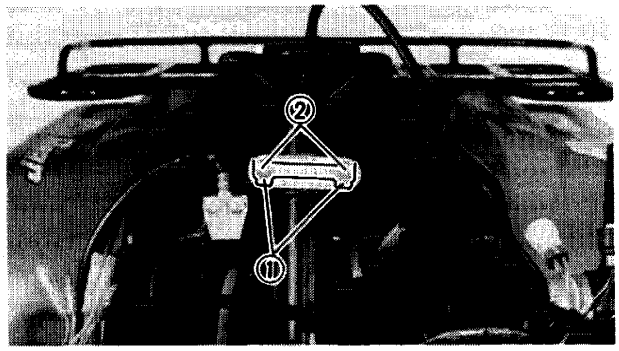
3. Tighten:
   - Nuts (Tie-rod end)
   - Nut (Steering shaft)

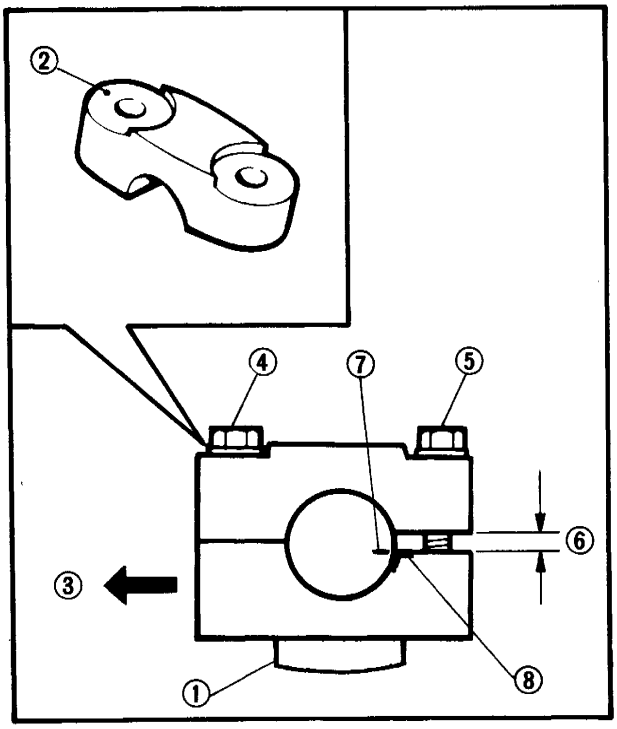
Nuts (Tie-rod End):
25 Nm (2.5 m·kg, 18 ft·lb)
Nut (Steering Shaft):
30 Nm (3.0 m·kg, 22 ft·lb)

4. Install:
   - Cotter pins (New)

WARNING:
Always use a new cotter pin.







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

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

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

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

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

8. Install:
   - Handlebar
   - Handlebar holders (Upper and lower)

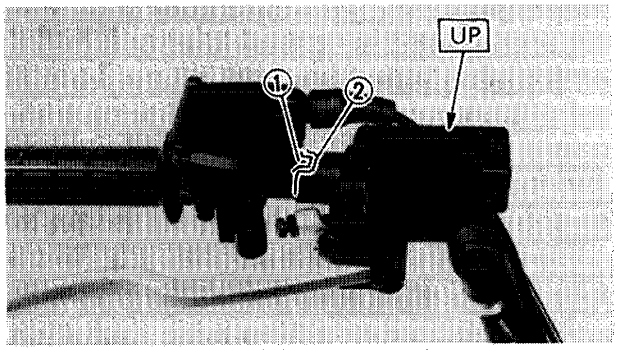
NOTE:
- Insert the projection ① of handlebar holder (Lower) into the steering shaft hole.
- The upper handlebar holder should be installed with the punched mark ② forward ③ .
- Align the slit ⑦ of handlebar with the edge ⑧ of handlebar holder (Lower).

CAUTION:

First tighten the bolts on the front side on the handlebar holder, and then tighten the bolts on the rear side.

④ 1st
⑤ 2nd
⑥ Gap

Handlebar Holder (Upper): 20 Nm (2.0 m·kg, 14 ft·lb)

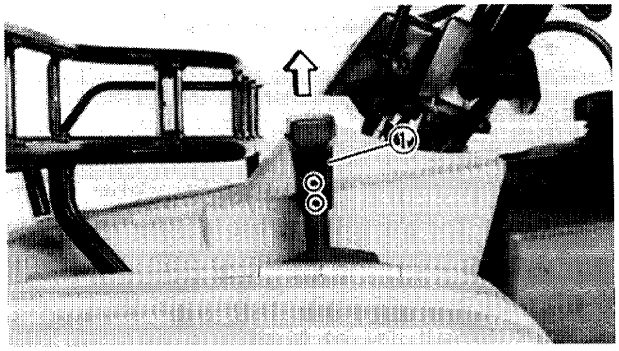


9. Install:
   - Throttle lever assembly
   - Collar
   - Master cylinder assembly

NOTE:
- Insert the lobe ① on the throttle lever assembly into the receptacle ② on the collar.
- The "UP" mark on the master cylinder bracket should be upward.

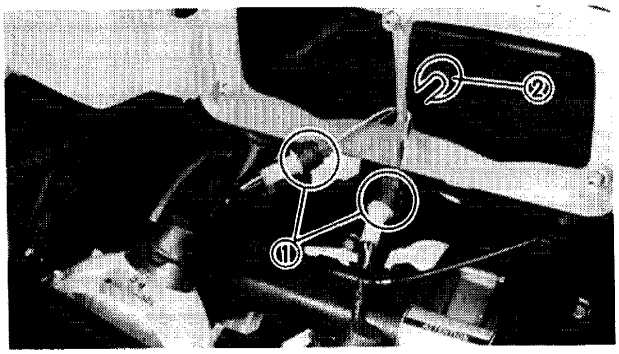
10. Install:
    - Front fender
    - Front carrier (If so equipped)

Front Carrier and Frame:
20 Nm (2.0 m·kg, 14 ft·lb)
Front Carrier and Front Bumber:
10 Nm (1.0 m·kg, 7.2 ft·lb)



11. Install:
    - Select lever ①

Screws (Select Lever):
1.5 Nm (0.15 m·kg, 1.1 ft·lb)
LOCTITE®



12. Connect:
    - Headlight couplers ①

NOTE:
Before connecting the couplers, do not forget to fit the grommet ② .

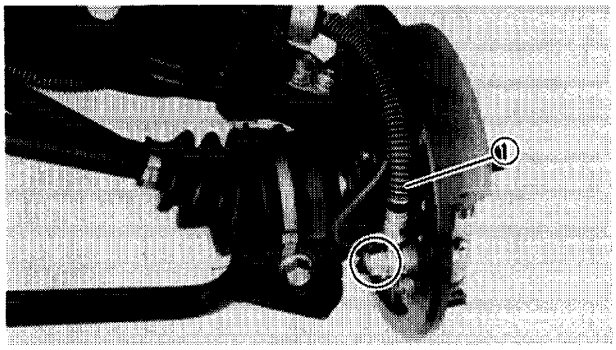
13. Adjust:
    - Brake cable free play
      Refer to "REAR BRAKE LEVER AND PEDAL ADJUSTMENT" sections.

STEERING KNUCKLES AND TIE-ROD ENDS

REMOVAL

1. Remove:
   - Front wheels
   - Front hubs

   Refer to "FRONT WHEEL – REMOVAL" section.

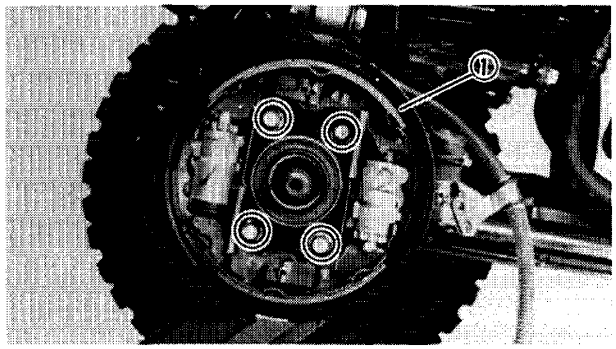


2. Disconnect:
   - Brake hose ①

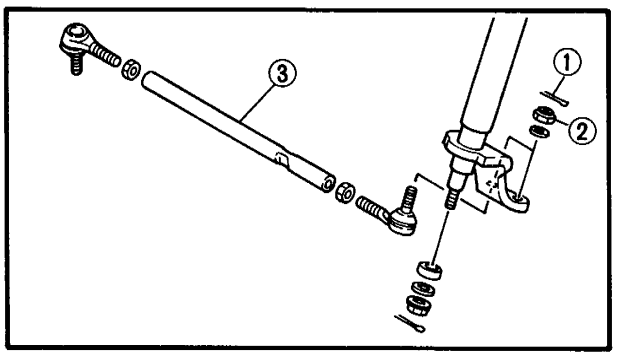
   Place the open hose end into a container, and drain the brake fluid.

CAUTION:

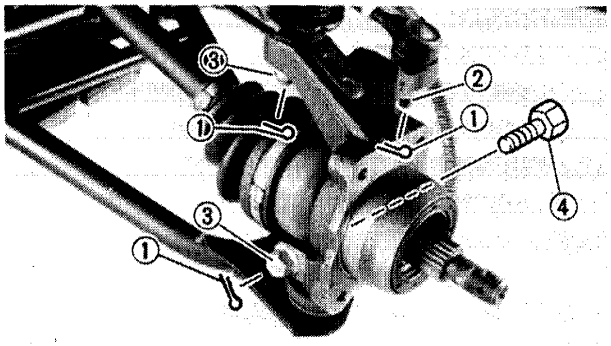
Completely wipe off any brake fluid adhering to any part of machine. The brake fluid reacts chemically with paint, plastics, rubber materials, etc.



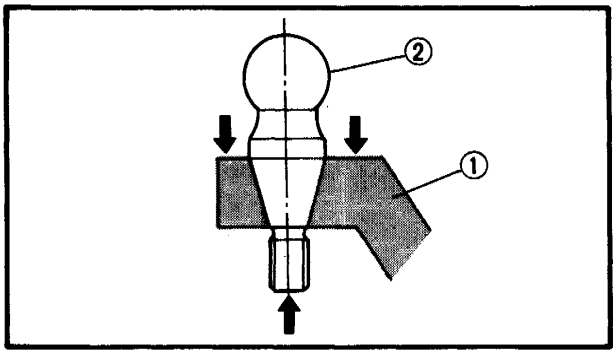
3. Remove:
   - Backing plate assembly ①



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

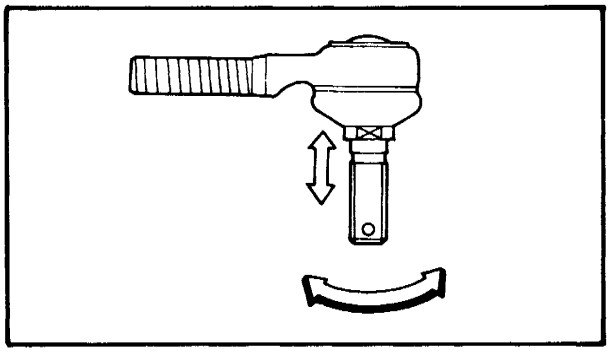


5. Remove:
   - Cotter pins ①
   - Nut (Tie-rod end) ②
   - Nuts (Steering knucke) ③
   - Bolt (Knuckle arm) ④



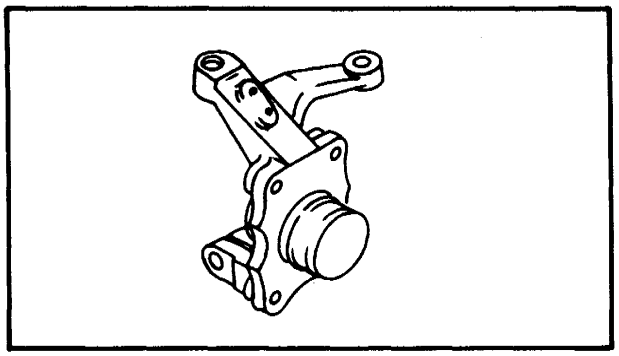
6. Remove:
   - Steering knuckle ①

NOTE:
Use the General Puller to separate the ball joint ② and steering knuckle.

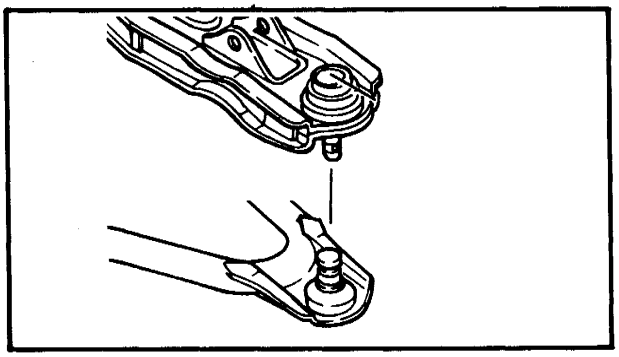


INSPECTION

1. Check:
   - Tie-rod free play and movement
     Tie-rod is exists free play → Replace tie-rod end.
     Tie-rod is turns roughly → Replace tie-rod end.

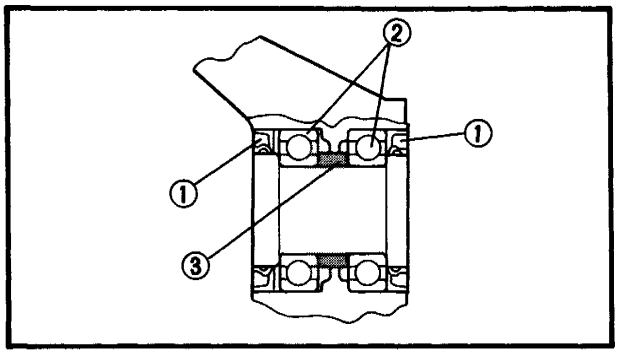


2. Inspect:
   - Steering knuckle
     Damage/Pitting → Replace.



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

4. Inspect:
   - Wheel bearings
     Bearings allow play in the wheel hubs or wheel turns roughly → Replace.
   - Oil seals
     Damage → Replace.



Wheel bearing replacement steps:
- Clean the outside of the steering knuckle.
- Remove the oil seals ① .
- Drive out the bearings ② .

WARNING:

Eye protection is recommended when using striking tools.

- Remove the spacer ③ .
- Apply the lithium base grease to the bearings and oil seals.
- Install the spacer to the steering knuckle.
- Install the new bearings.

NOTE:
Install the outside bearing first.

CAUTION:

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

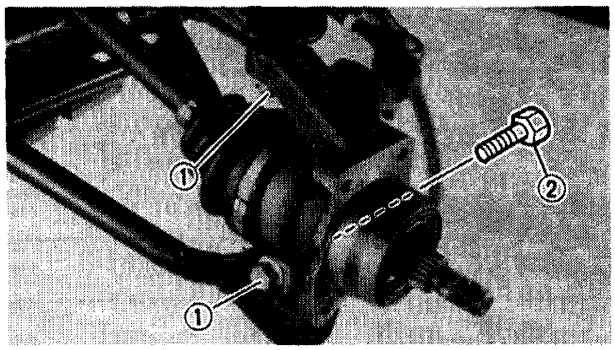
- Install the new oil seal.

NOTE:
When installing the oil seals, sealed side of oil seal comes outside.

INSTALLATION

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

1. Apply:
   - Lithium base grease
     Lightly grease to the coustant velocity joint and oil seals.
2. Tighten:
   - Nuts (Steering knuckle) ①
   - Bolt (Nuckle arm) ②



CAUTION:

Avoid over-tightening.

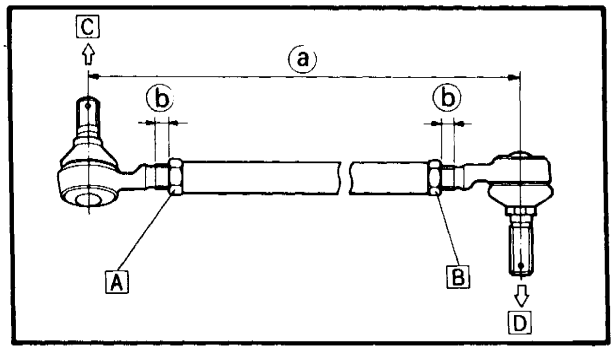
Nut (Steering Knuckle and Upper Arm):
25 Nm (2.5 m·kg, 18 ft·lb)
Nut (Steering Knuckle and Lower Arm):
35 Nm (3.5 m·kg, 25 ft·lb)

3. Install:
   - Cotter pins

WARNING:

Always use a new cotter pin.

4. Adjust:
   - Tie-rod assembly length



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

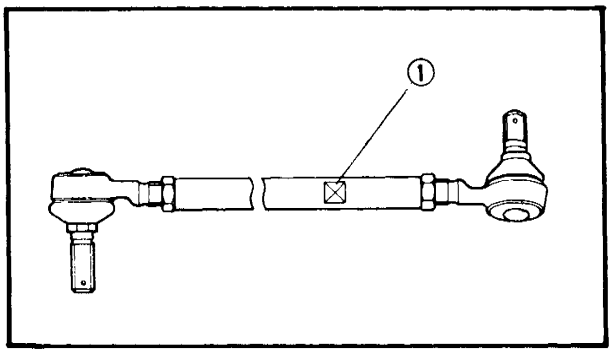
Tie-rod Assembly Length ⓐ :
344.5 mm (13.6 in)

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

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

- Tighten the locknuts.

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



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

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

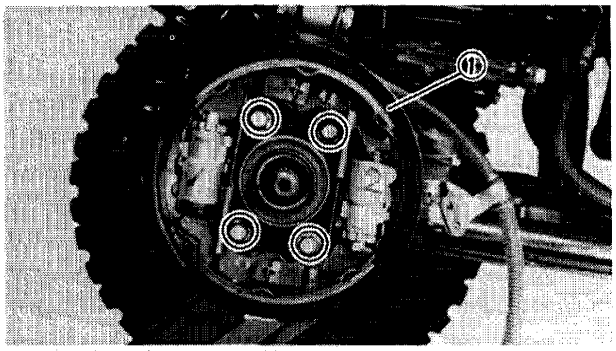
6. Tighten:
   - Nuts (Tie-rod end)

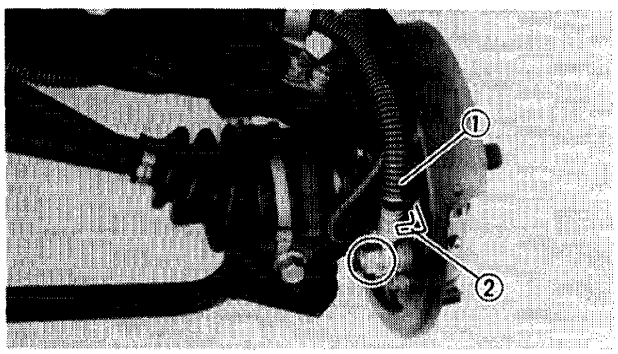
Nuts (Tie-rod End):
25 Nm (2.5 m·kg, 18 ft·lb)

7. Install:
   - Cotter pins

WARNING:

Always use a new cotter pin.





8. Install:
   - Backing plate assembly ①

Backing Plate:
28 Nm (2.8 m·kg, 20 ft·lb)
LOCTITE® (HEAT RESISTANT)

NOTE:
The backing plate should be installed with cut downward.

9. Connect:
   - Brake hose ①

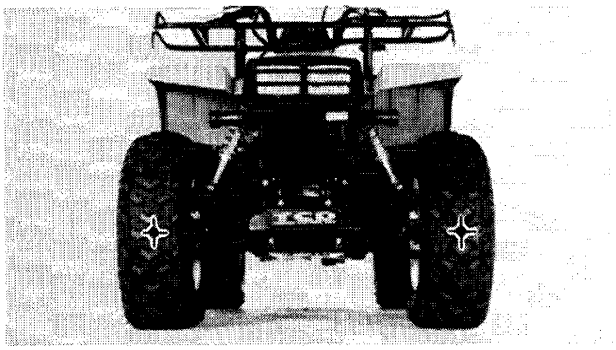
CAUTION:
- **Completely wipe off any brake fluid adhering to any part of machine. The brake fluid reacts chemically with paint, plastics, rubber materials, etc.**
- **Insert the brake hose end into the hose holder ② on the backing plate.**

WARNING:
Always use the new copper washer.

10. Fill:
    - Master cylinder

Brake Fluid:
DOT#4
IF DOT # 4 IS NOT AVAILABLE, # 3 CAN BE USED.

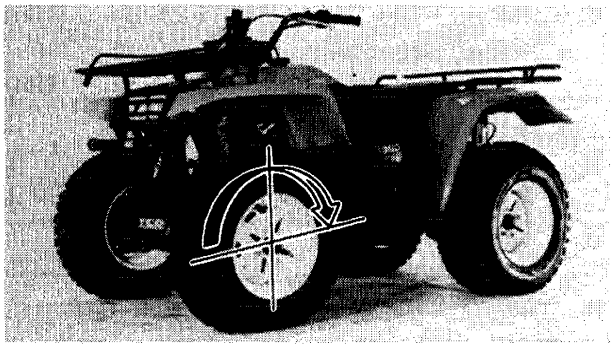
11. Bleed the air completely from the brake system. Refer to "FRONT BRAKE – AIR BLEEDING" section.

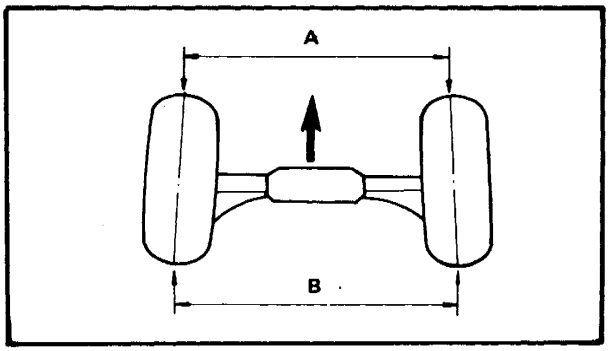


ADJUSTMENT

Toe-in Adjustment

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





Toe-in measurement steps:

NOTE:

Before measuring the toe-in, make sure that tire pressure is correct.

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

Toe-in = [B] − [A]

Toe-in:
5 ~ 15 mm (0.20 ~ 0.59 in)

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

3. Adjust:
   - Toe-in

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

WARNING:

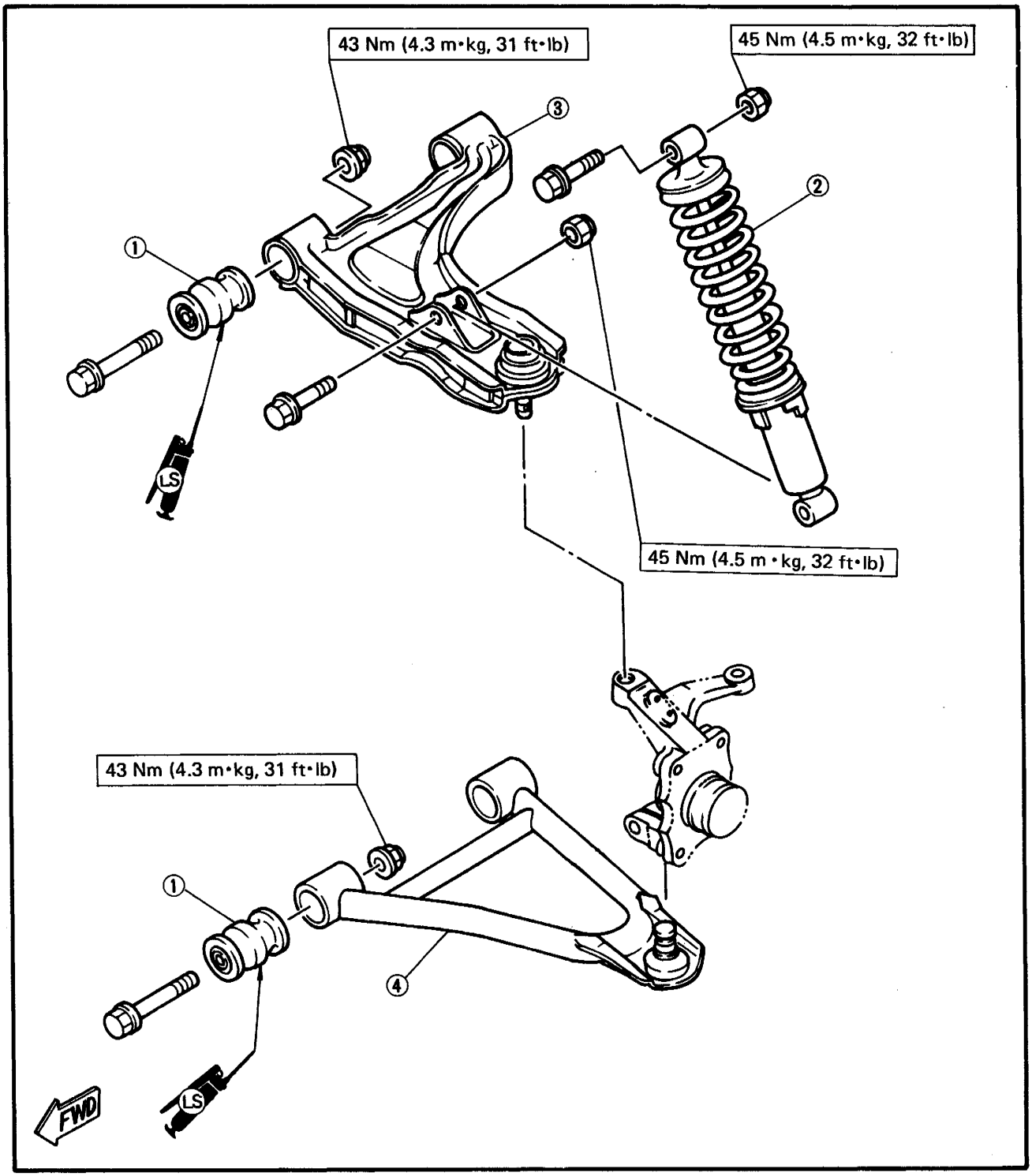
- **Be sure that both tie-rod are turned by the same amount. If not, the machine will go right or left even though the handlebar is positioned straight and it may lead to mishandling and accident.**
- **After setting the toe-in to specification, run the machine slowly for some distance with the hands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

4. Measure:
   - Toe-in

   Refer to "Toe-in Adjustment" section.

FRONT SHOCK ABSORBER AND FRONT ARMS

① Bushing
② Front shock absorber
③ Upper arm
④ Lower arm

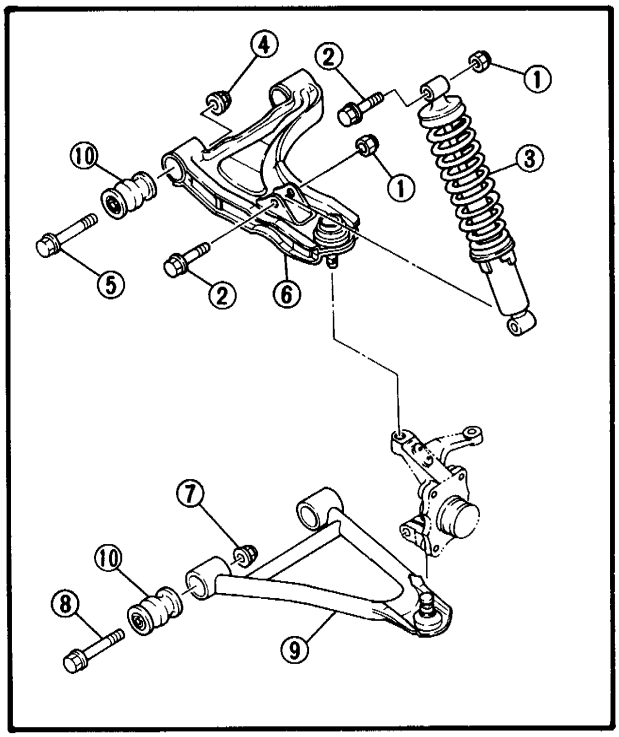


REMOVAL

1. Remove:
   - Front wheels
   - Front hubs

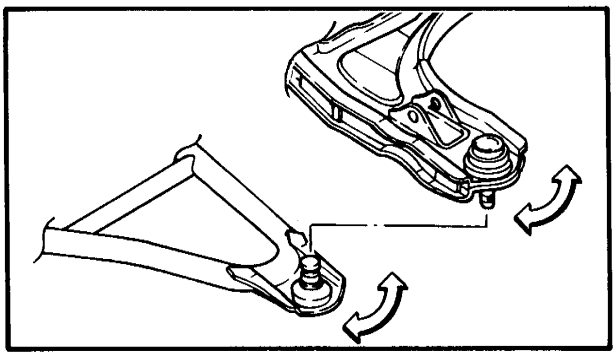
   Refer to "FRONT WHEEL-REMOVAL" section.
2. Remove:
   - Backing plate assemblies
   - Tie-rods
   - Steering knuckles

   Refer to "STEERING KNUCKLES AND TIE-ROD ENDS – REMOVAL" section.
3. Remove:
   - Nuts (Front shock absorber) ①
   - Bolts (Front shock absorber) ②
   - Front shock absorber ③
   - Nuts (Upper arm) ④
   - Bolts (Upper arm) ⑤
   - Upper arm ⑥
   - Nuts (Lower arm) ⑦
   - Bolts (Lower arm) ⑧
   - Lower arm ⑨
   - Bushings ⑩



FREE PLAY INSPECTION

1. Remove:
   - Front wheels
   - Front hubs
   - Backing plate assemblies
   - Tie-rods
   - Steering knuckles
   - Front shock absorbers

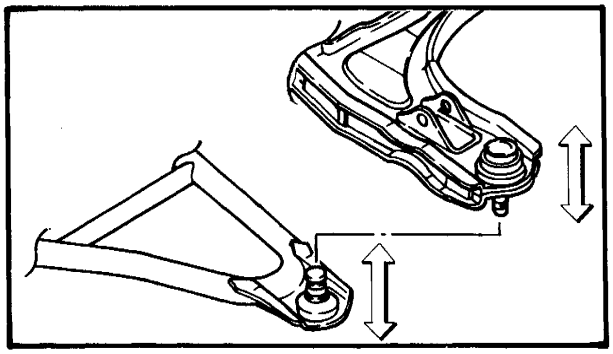


2. Check:
   - Front arms (Side play)

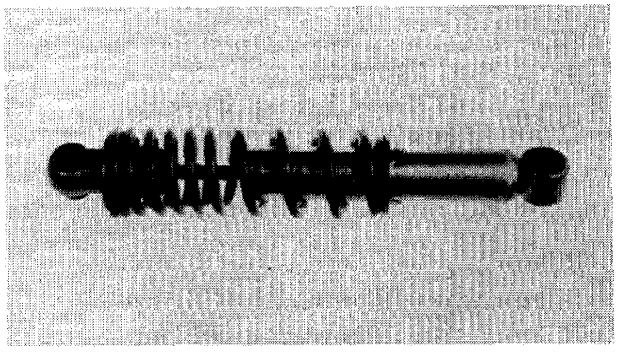
   Side play → Replace bushings.

   Move the front arms from side to side.

   There should be no noticeable side play.



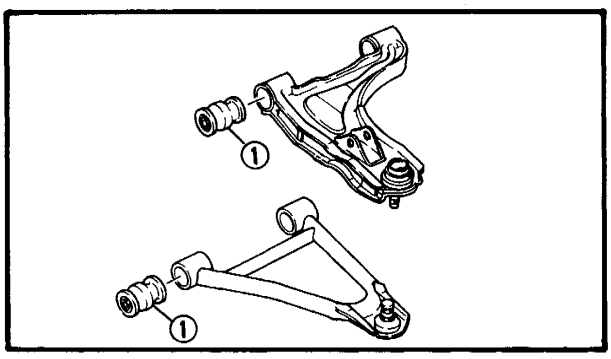
3. Check:
   - Front arms (Vertical movement)
     Tightness/Binding/Rouge spots → Replace bushings.
     Move the front arms up and down.



INSPECTION

Front Shock Absorber Inspection

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



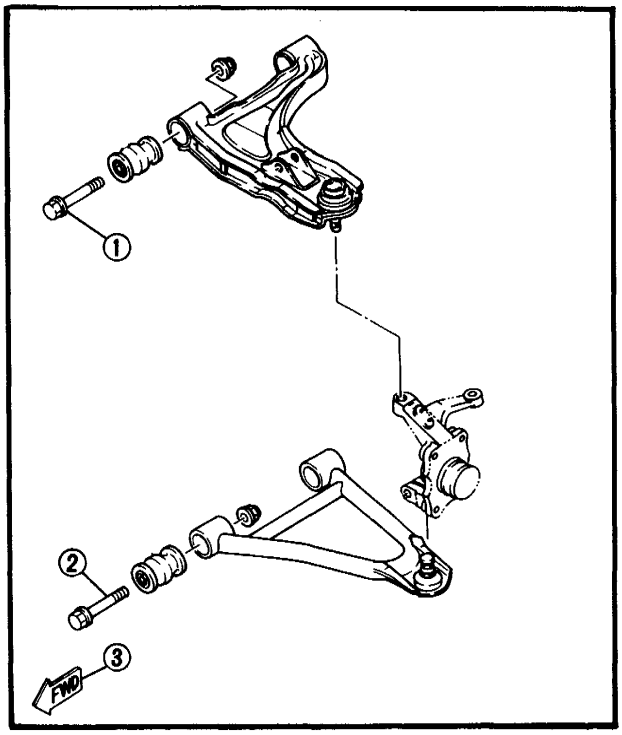
Front Arms Inspection

1. Inspect:
   - Bushings ①
     Wear/Damage → Replace.

INSTALLATION

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

1. Apply:
   - Lithium base grease
     Lightly grease to the front arms and bushings.



2. Install:

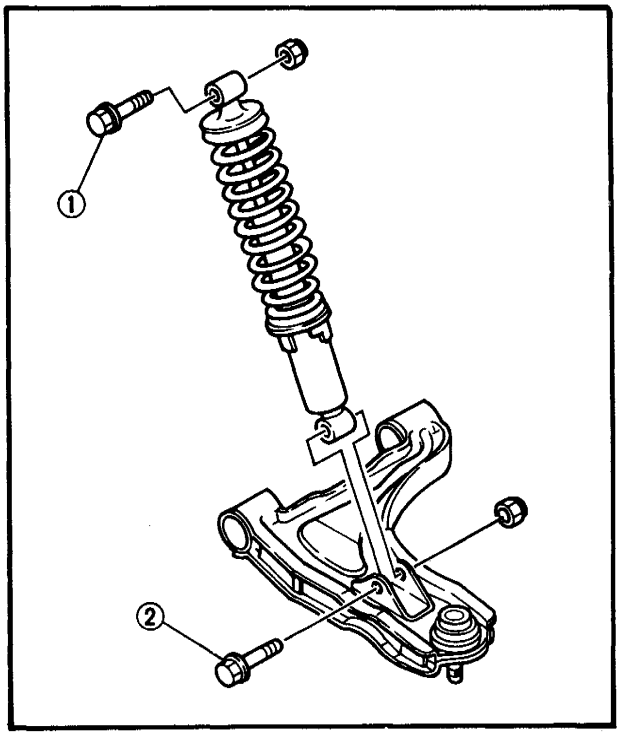
NOTE:

- Be sure to position the bolts (Upper and lower) ①, ② so that the bolt head face outward.
- When tightening the nuts, move up the front arms.

③ Forward

3. Tighten:
   - Nuts (Front arm)

	Nuts (Front Arms): 43 Nm (4.3 m·kg, 31 ft·lb)



4. Install:
   - Front shock absorber

NOTE:

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

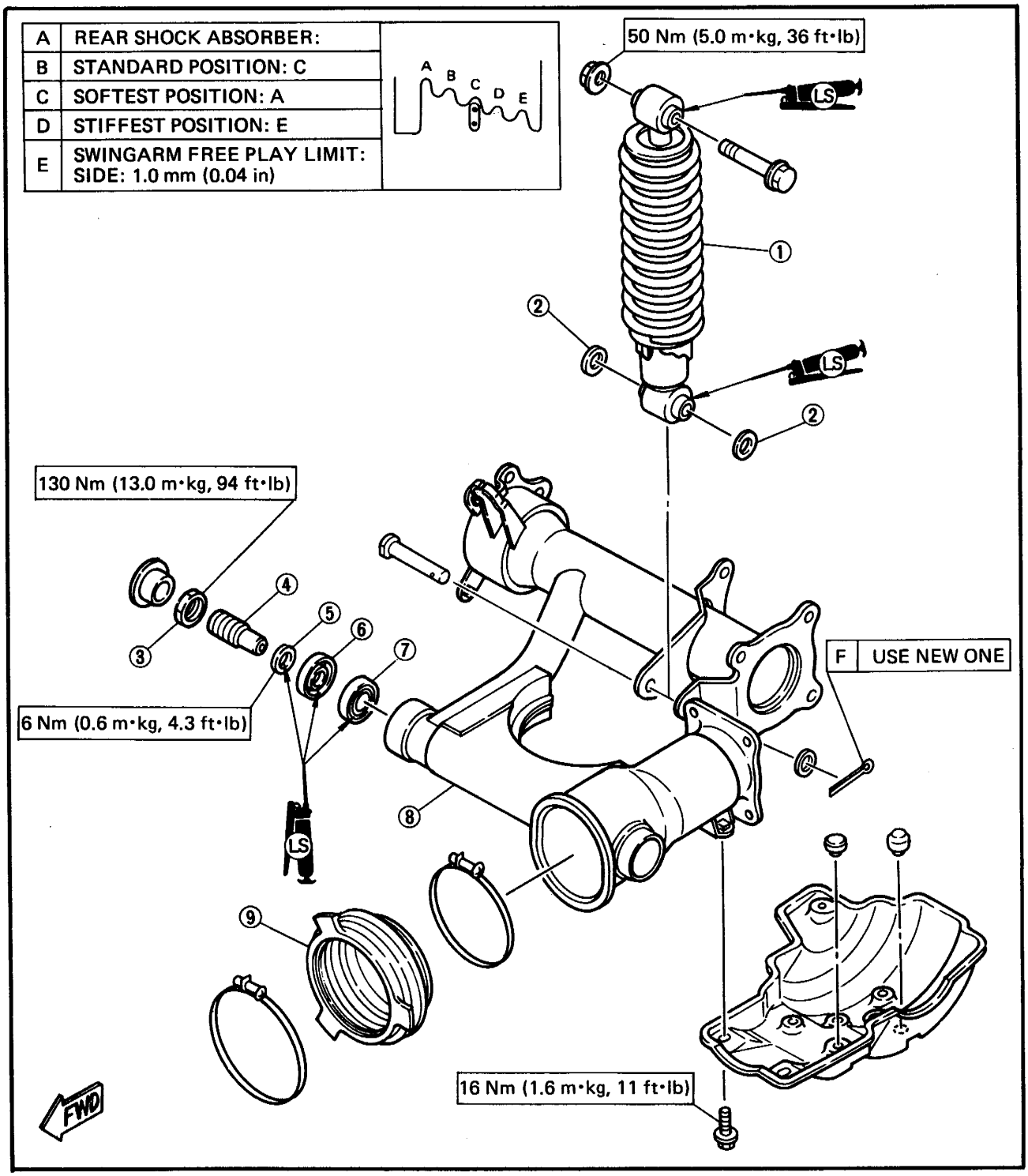
5. Tighten:
   - Nuts (Front shock absorber)

	Nuts (Front Shock Absorber): 45 Nm (4.5 m·kg, 32 ft·lb)

6. Bleed the air completely from the brake system.

REAR SHOCK ABSORBER AND SWINGARM

① Rear shock absorber
② Thrust washer
③ Locknut
④ Pivot shaft
⑤ Collar
⑥ Oil seal
⑦ Taper roller bearing
⑧ Swingarm
⑨ Rubber boot



REAR SHOCK ABSORBER AND SWINGARM

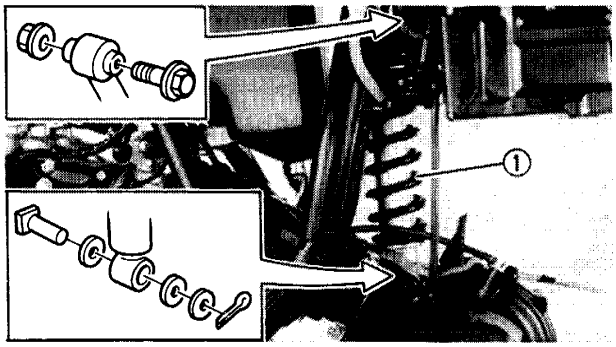
REMOVAL

1. Remove:
   - Rear wheels
   - Rear wheel hubs

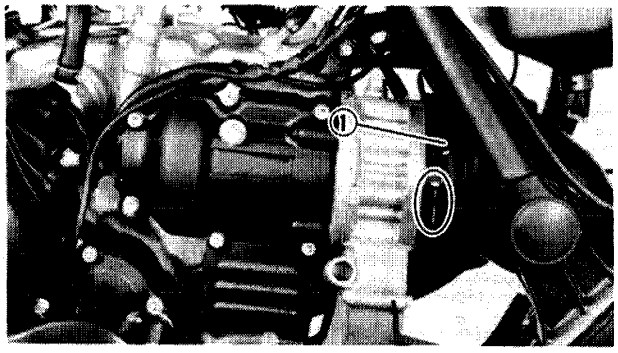
   Refer to "FRONT AND REAR WHEELS" section.
   - Rear axle

   Refer to "CHAPTER 5. DRIVE TRAIN – REAR AXLE" section.
2. Remove:
   - Rear carrier
   - Rear fender
   - Exhaust pipe
   - Muffler

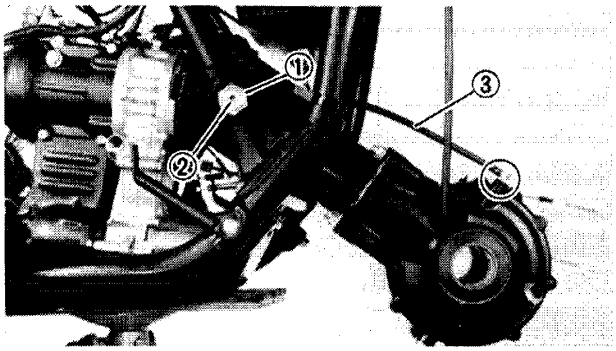
   Refer to "CHAPTER 3. ENGINE OVERHAUL – ENGINE REMOVAL" section.



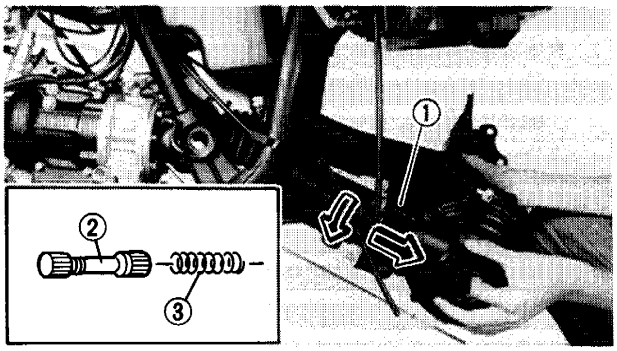
3. Remove:
   - Rear shock absorber ①



4. Remove:
   - Rubber boot ①



5. Remove:
   - Pivot shaft caps
   - Locknuts (Swingarm) ①
   - Pivot shafts (Swingarm) ②
   - Breather hose ③

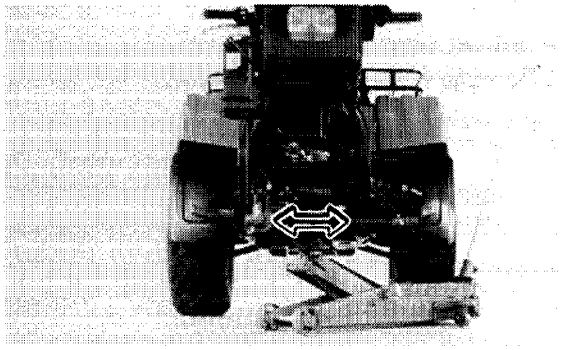


6. Remove:
   - Swingarm ①

NOTE:
When removing the swingarm, the rear drive shaft ② and spring ③ will fall off. Take care not to lose these parts.

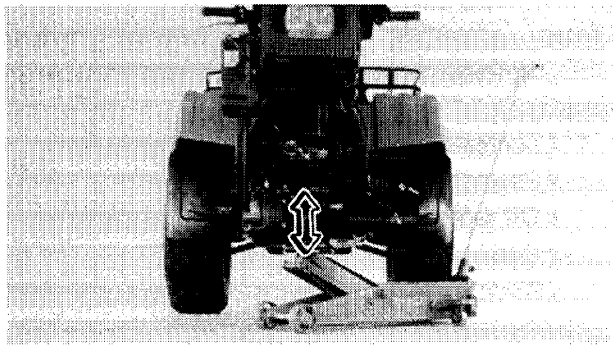
FREE PLAY INSPECTION

1. Remove:
   - Rear wheels
   - Rear wheel hubs
   - Rear axle
   - Rear carrier
   - Rear fender
   - Exhaust pipe
   - Muffler
   - Rear shock absorber

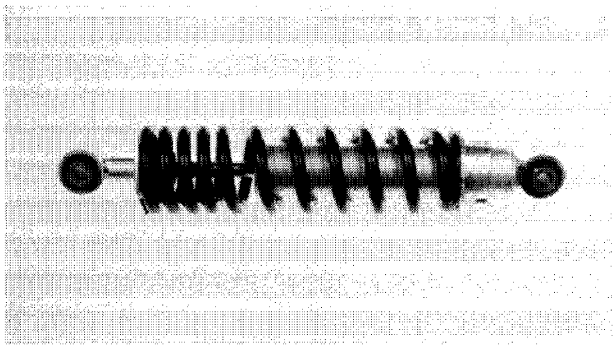


2. Check:
   - Swingarm (Side play)
     Out of specification → Replace taper roller bearings and collars.
     Move the swingarm from side to side.

Swingarm Side Free Play Limit:
1.0 mm (0.04 in)



3. Check:
   - Swingarm (Vertical movement)
     Tightness/Binding/Rough spots → Replace taper roller bearings and collars.
     Move the swingarm up and down.

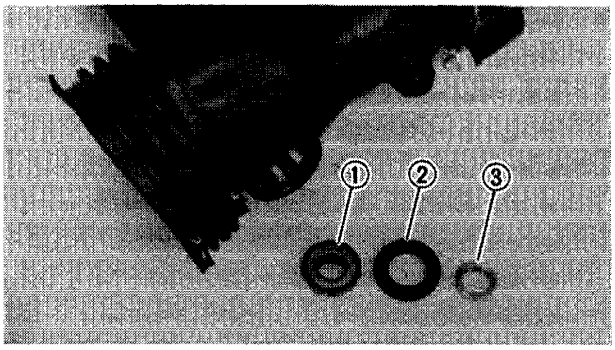


INSPECTION

Rear Shock Absorber Inspection

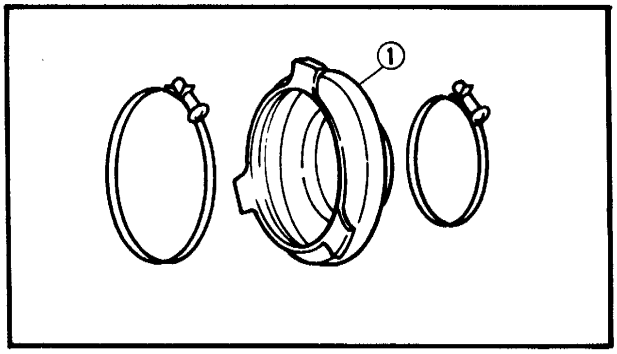
1. Inspect:
   - Shock absorber rod
     Bends/Damage → Replace the shock absorber assembly.

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



Swingarm Inspection

1. Wash the bearings in a solvent.
2. Inspect:
   - Bearing (Race/Rollers) ①
     Pitting/Damage → Replace.
   - Oil seals ②
   - Collars ③
     Damage → Replace.



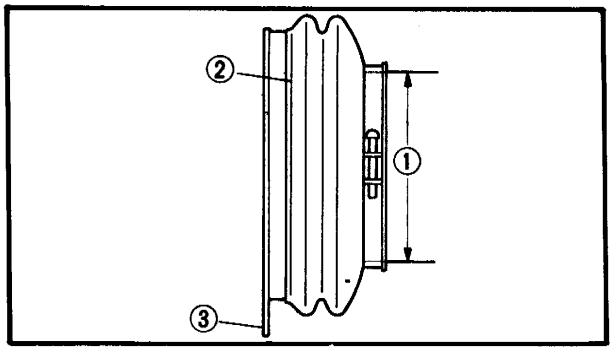
3. Inspect:
   - Rubber boot ①
     Damage → Replace.

INSTALLATION

When installing the rear wheels, reverse the removal procedures. Note the following points.

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

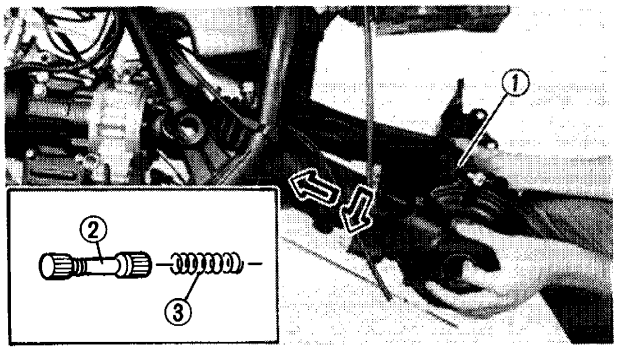
Lithium Base Waterproof Wheel Bearing Grease



2. Apply:
   - Adhesive (For rubber)

   To the swingarm end ①.
3. Install:
   - Rubber boot ②

NOTE:
Be sure to position the rubber boot so that the tang ③ face downward.

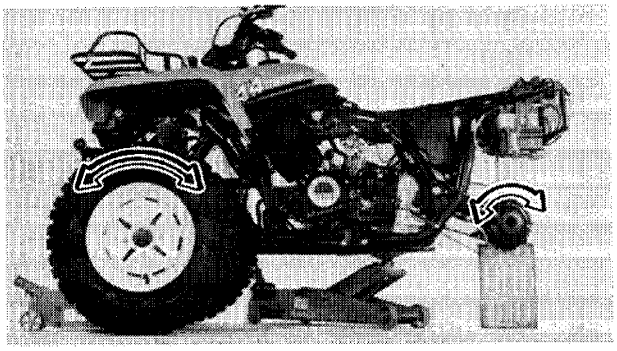


4. Install:
   - Swingarm ①

NOTE:
- Before installing the swigarm, do not forget to fit the spring ③ and rear drive shaft ②.
- Insert the rear drive shaft into the universal joint properly.

5. Install:
   - Pivot shafts
   - Locknuts (Swingarm)

NOTE:
Finger tighten the pivot shafts and locknuts, do not torque them at this point.

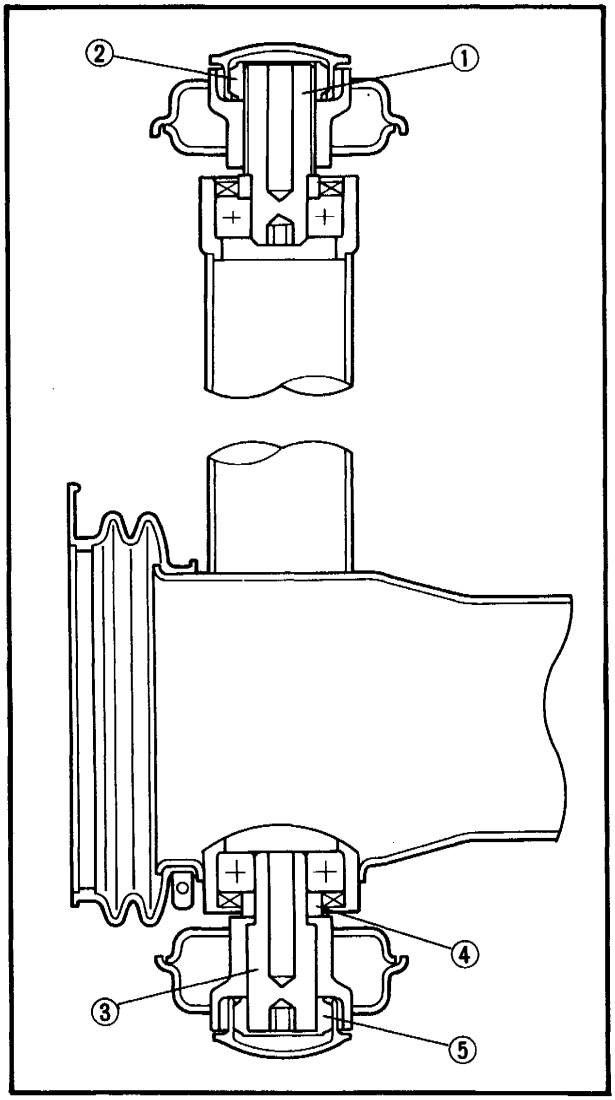


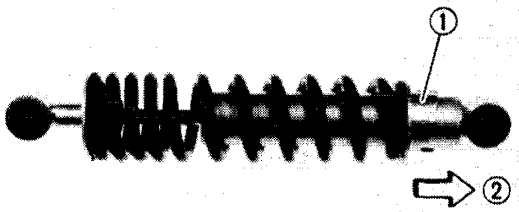
6. Check:
   - Rear drive shaft operation

Rear drive shaft operation checking steps:
- Make sure that the machine is off the ground at the rear.
- Place a suitable block under the swingarm.
- Lift the front of the machine off the ground, too.

WARNING:
Securely support the machine so there is no danger of it falling over.

- Turn the front wheels back and forth.
- Check the ring gear operation. If the operation is unsmooth, reinstall the swingarm properly.





7. Tighten:
   - Pivot shafts

Pivot shaft tightening steps:
• Tighten the pivot shaft (Right) ① to specification.
Pivot Shaft (Right): 6 Nm (0.6 m·kg, 4.3 ft·lb)
• Tighten the locknut (Right) ② to specification.
Locknut (Right): 130 Nm (13.0 m·kg, 94 ft·lb)
• Tighten the pivot shaft (Left) ③ unit it contacts the collar ④ .
Pivot Shaft (Left): 6 Nm (0.6 m·kg, 4.3 ft·lb)
• Tighten the locknut (Left) ⑤ to specification.
Locknut (Left): 130 Nm (13.0 m·kg, 94 ft·lb)

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

   Refer to "FREE PLAY INSPECTION" section.
9. Apply:
   - Lithium base grease

   To the bolt and pin (Rear shock absorber).
10. Install:
    - Rear shock absorbers

NOTE:

The rear shock absorber should be installed so that the spring seat ① on the shock absorber face downward ② .

WARNING:

Always use a new cotter pin.

Rear Shock Absorber (Upper): 50 Nm (5.0 m·kg, 36 ft·lb)

CHAPTER 7.
ELECTRICAL

YFM350FWT CIRCUIT DIAGRAM 7-1

ELECTRICAL COMPONENTS 7-3

ELECTRICAL STARTING SYSTEM 7-5
- CIRCUIT DIAGRAM 7-5
- TROUBLESHOOTING 7-7
- STARTING CIRCUIT OPERATION 7-12
- STARTER MOTOR TEST 7-13

CHARGING SYSTEM 7-17
- CIRCUIT DIAGRAM 7-17
- TROUBLESHOOTING 7-19

IGNITION SYSTEM 7-21
- CIRCUIT DIAGRAM 7-21
- TROUBLESHOOTING 7-23

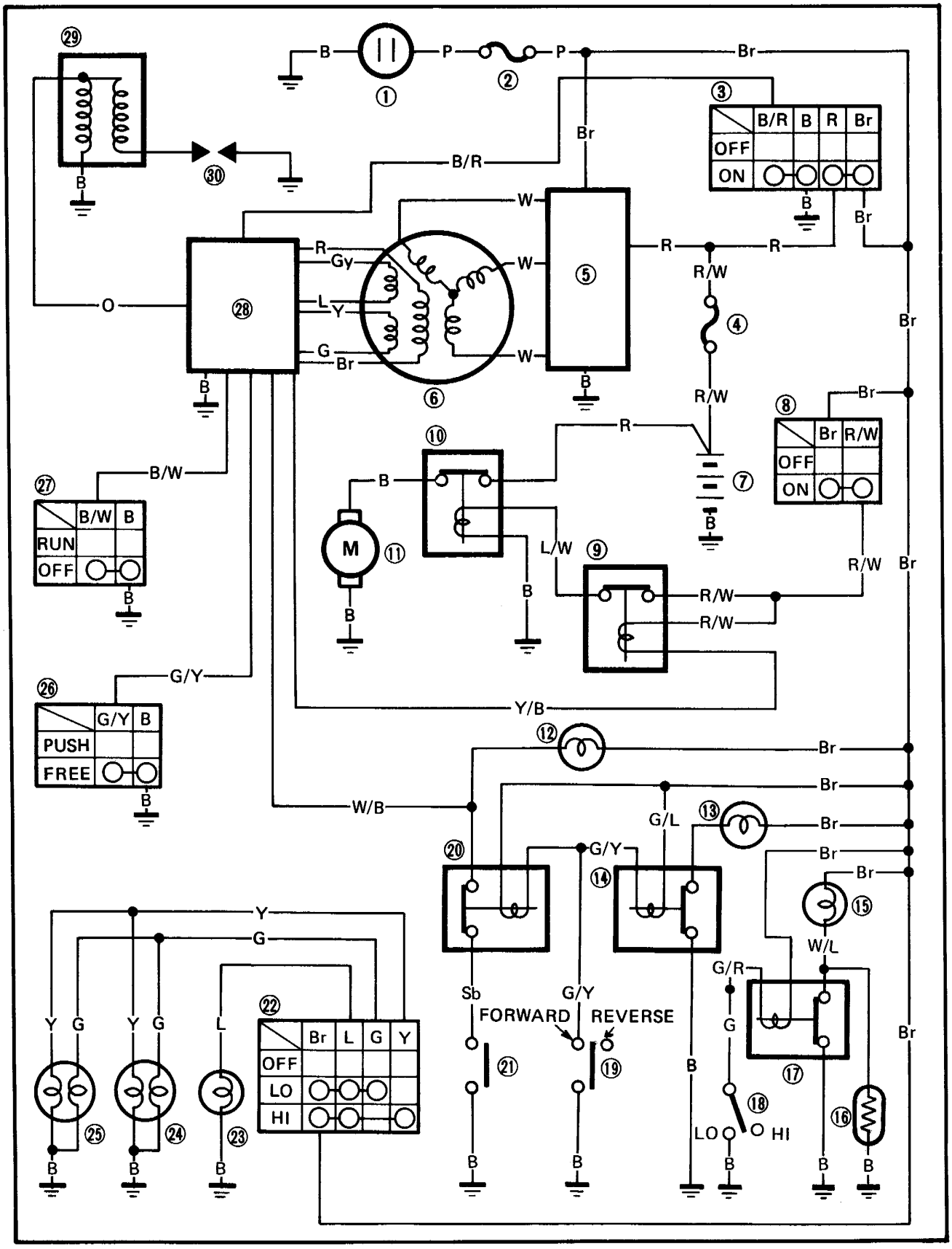
LIGHTING SYSTEM 7-27
- CIRCUIT DIAGRAM 7-27
- TROUBLESHOOTING 7-29

SIGNAL SYSTEM 7-33
- CIRCUIT DIAGRAM 7-33
- TROUBLESHOOTING 7-35
- SWITCHES TEST 7-43

ACCESSORY SYSTEM 7-45
- CIRCUIT DIAGRAM 7-45
- TROUBLESHOOTING 7-47

ELECTRICAL

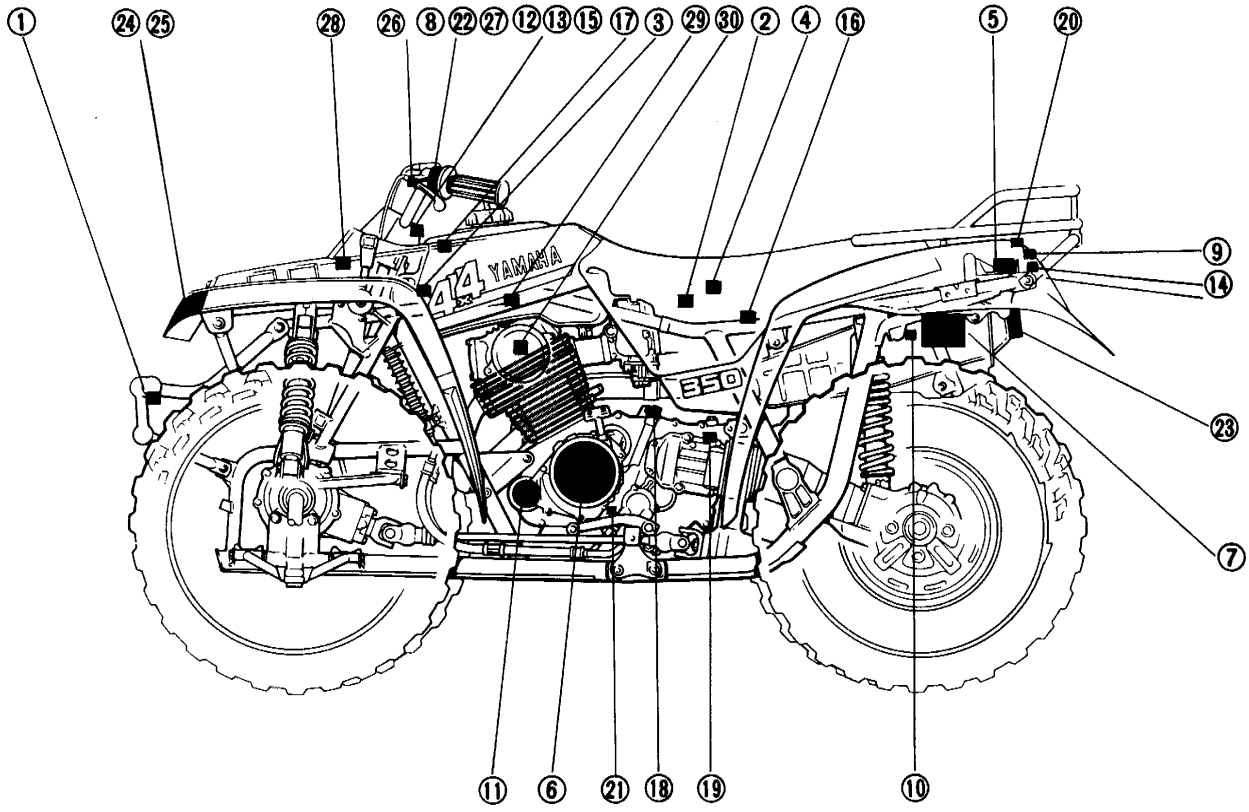
YFM350FWT CIRCUIT DIAGRAM



① Auxiliary D.C. terminal
② Circuit breaker
③ Main switch
④ Fuse
⑤ Rectifier with regulator
⑥ CDI magneto
⑦ Battery
⑧ "START" switch
⑨ Starting circuit cut-off relay
⑩ Starter relay
⑪ Starter motor
⑫ "NEUTRAL" indicator light
⑬ "REVERSE" indicator light
⑭ Reverse relay
⑮ "OIL TEMP" indicator light
⑯ Oil temperature indicator light checker
⑰ Thermo relay
⑱ Thermo switch
⑲ Reverse switch
⑳ Neutral relay
㉑ Neutral switch
㉒ "LIGHTS" (Dimmer) switch
㉓ Taillight
㉔ Headlight (Left)
㉕ Headlight (Right)
㉖ Rear brake switch
㉗ "ENGINE STOP" switch
㉘ CDI unit
㉙ Ignition coil
㉚ Spark plug

COLOR CODE

B . . . . . .Black	B/W . . . . .Black/White
R . . . . . .Red	R/W . . . . .Red/White
L . . . . . .Blue	B/R . . . . .Black/Red
Y . . . . . .Yellow	L/W . . . . .Blue/White
G . . . . . .Green	G/L . . . . .Green/Blue
O . . . . . .Orange	G/Y . . . . .Green/Yellow
W . . . . . .White	G/R . . . . .Green/Red
Br. . . . . .Brown	Y/B . . . . .Yellow/Black
P . . . . . .Pink	W/B . . . . .White/Black
Gy . . . . . .Gray	W/L . . . . .White/Blue
Sb . . . . . .Sky blue	

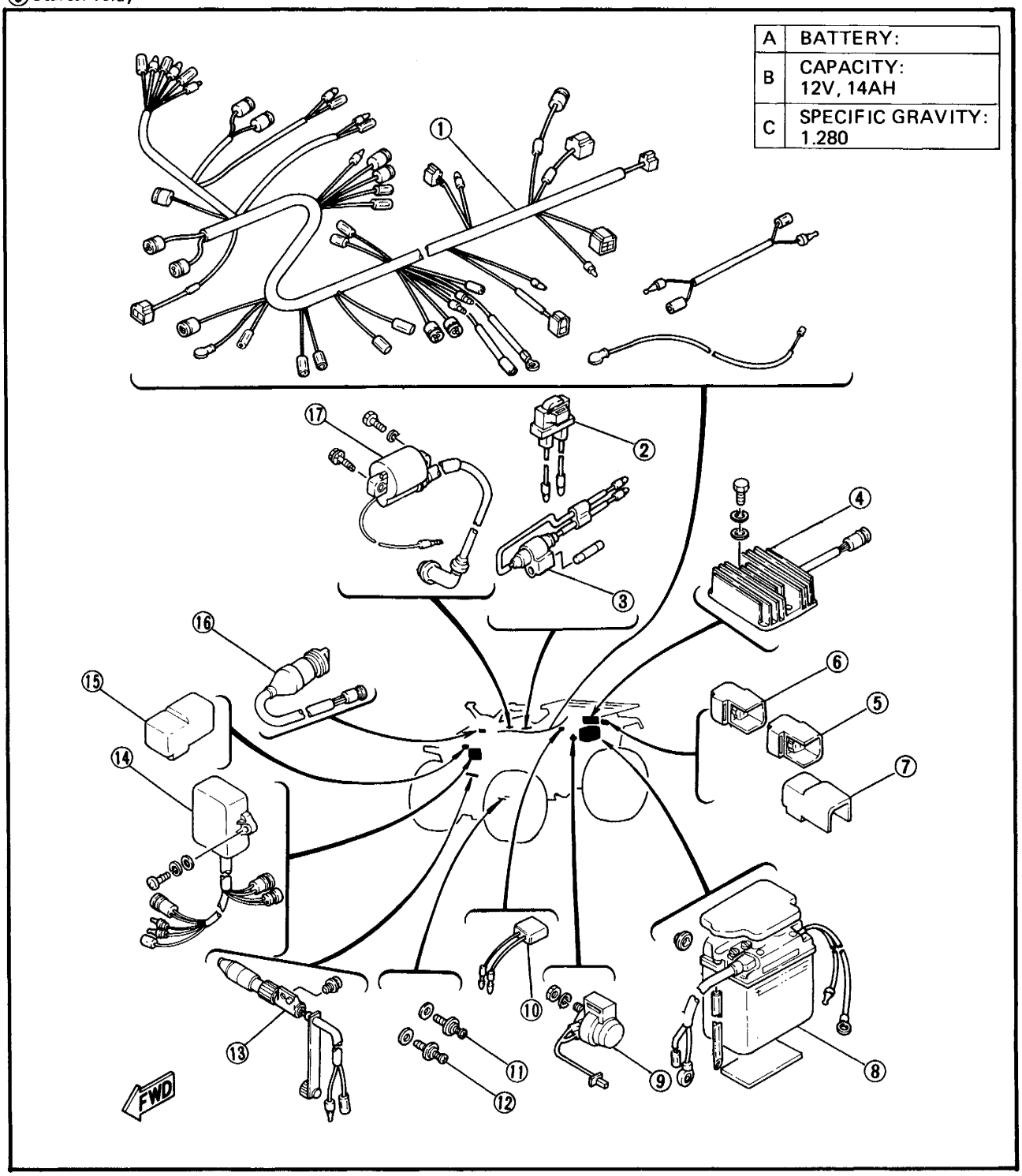


ELECTRICAL COMPONENTS

① Wireharness
② Circuit breaker
③ Fuse
④ Rectifier with regulator
⑤ Starting circuit cut-off relay
⑥ Neutral relay
⑦ Reverse relay
⑧ Battery
⑨ Starter relay
⑩ Oil temperature indicator light checker
⑪ Reverse switch
⑫ Neutral switch
⑬ Auxiliary D.C. terminal
⑭ CDI unit
⑮ Thermo relay
⑯ Main switch
⑰ Ignition coil

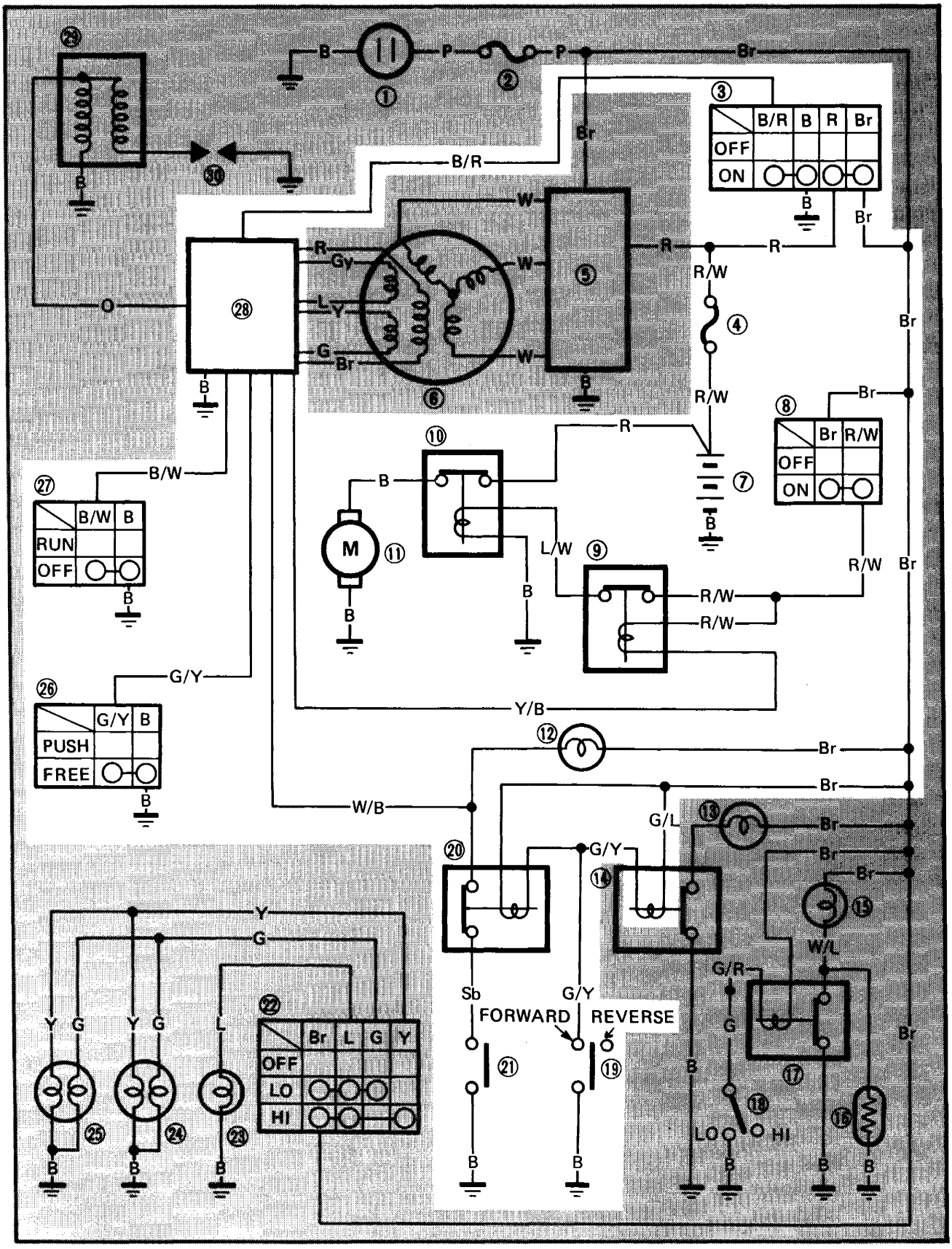
SPECIFICATIONS	RESISTANCE
IGNITION COIL:	
PRIMARY	0.72 ~ 0.98Ω
SECONDARY	5.02 ~ 6.79kΩ
PICK-UP COIL	180 ~ 220Ω
SOURCE COIL	270 ~ 330Ω
CHARGING COIL	0.70 ~ 0.86Ω

A	BATTERY:
B	CAPACITY: 12V, 14AH
C	SPECIFIC GRAVITY: 1.280



ELECTRICAL STARTING SYSTEM

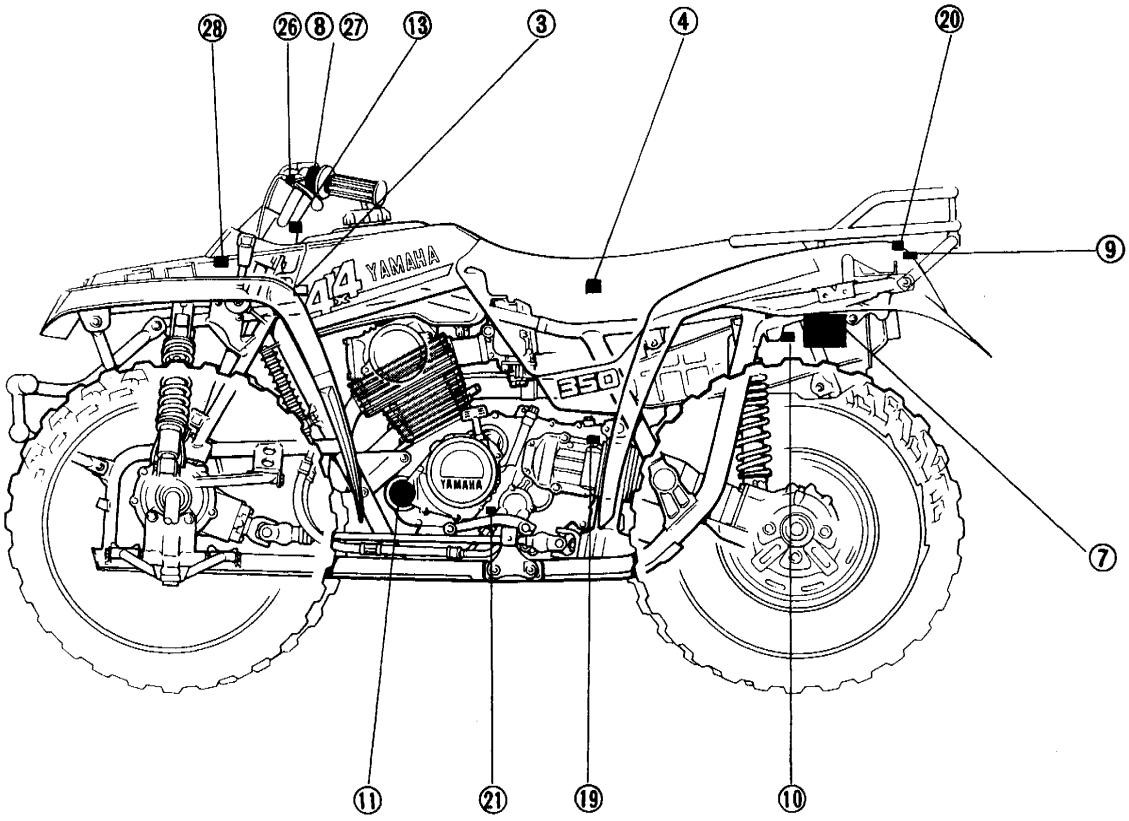
CIRCUIT DIAGRAM



Aforementioned circuit diagram shows electrical starting circuit in circuit diagram.

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

③ Main switch
④ Fuse
⑦ Battery
⑧ "START" switch
⑨ Starting circuit cut-off relay
⑩ Starter relay
⑪ Starter motor
⑫ "NEUTRAL" indicator light
⑲ Reverse switch
⑳ Neutral relay
㉑ Neutral switch
㉖ Rear brake switch
㉗ "ENGINE STOP" switch
㉘ CDI unit



TROUBLESHOOTING

NOTE:

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

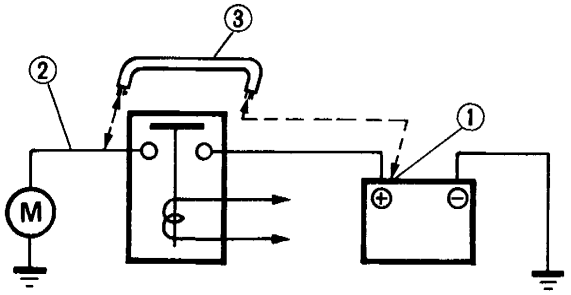
THE STARTER MOTOR DOES NOT OPERATE.

1. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

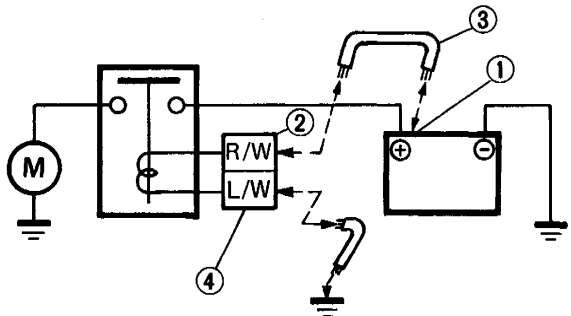
FAULTY → Battery is faulty. Recharge or replace it.

OK ↓

2. Starter relay test
   - Connect the battery positive terminal ① and starter motor cable ② using the jumper lead ③ *.
   - Check the starter motor operation.



- If the starter motor is operated, go to the next steps. If not, repair and/or replace the starter motor.
- Disconnect the starter relay coupler (Red/White and Blue/White).
- Connect the battery positive terminal ① and starter relay coupler (Red/White) ② using the jumper lead ③.
- Ground the starter relay coupler (Blue/White) ④ to the frame using the jumper lead ③.
- Check the starter motor operation.



FAULTY → Starter motor is faulty. Repair and/or replace it.

OK ↓

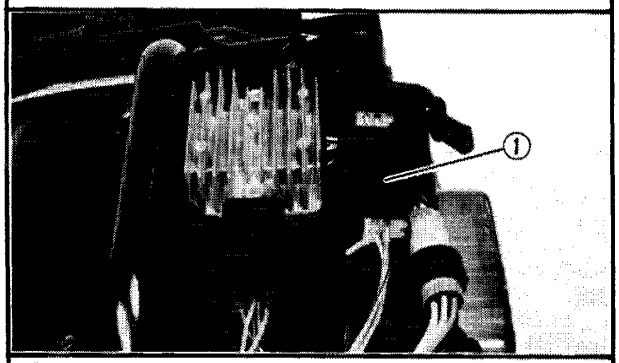
*

* **WARNING:**

- **A wire for the jumper lead must have the equivalent capacity as that of the battery lead or more, otherwise it may cause the jumper lead to be burned.**
- **This check is likely to produce sparks, so be sure that no flammable gas or fluid is in the vicinity.**

* OK

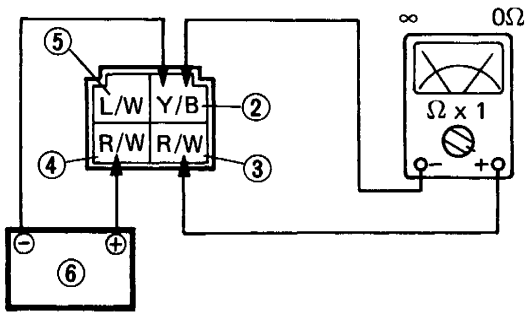
3. Starting circuit cut-off relay test
   - Disconnect the starting circuit cut-off relay ① coupler (Yellow/Black, Red/White, Red/White and Blue/White) from the wire harness.



   - Connect the Pocket Tester (YU-03112) and battery (12V) ⑥ to the relay coupler (Yellow/Black ② , Red/White ③ , Red/White ④ and Blue/White ⑤).
   - Check the relay for continuity.

	Good Condition	Bad Condition		
Battery Connected	○	○	X	X
Battery Disconnected	X	○	X	○

○: Continuity X: Discontinuity



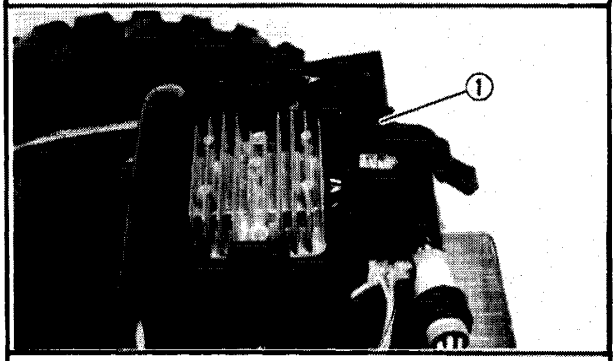
FAULTY → Starting circuit cut-off relay is faulty. Replace it.

OK

*

* OK

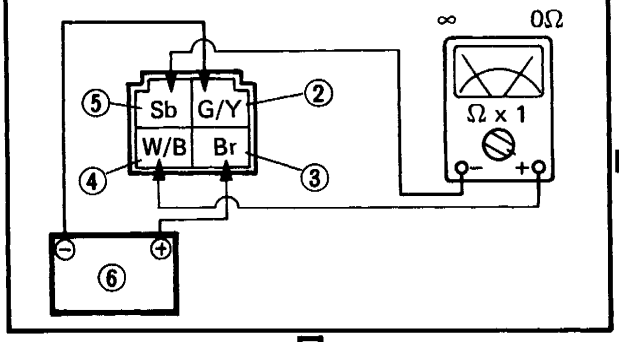
4. Neutral relay test
   - Disconnect the neutral relay ① coupler (Green/Yellow, Brown, White/Black and Sky blue) from the wire harness.



- Connect the Pocket Tester (YU-03112) and battery (12V) ⑥ to the relay coupler (Green/Yellow ② , Brown ③ , White/Black ④ and Sky blue ⑤).
- Check the relay for continuity.

	Good Condition	Bad Condition		
Battery Connected	○	○	X	X
Battery Disconnected	X	○	X	○

○: Continuity X: Discontinuity



FAULTY → Neutral relay is faulty.
Replace it.

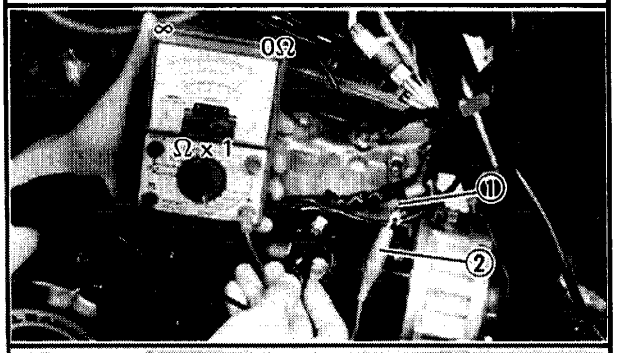
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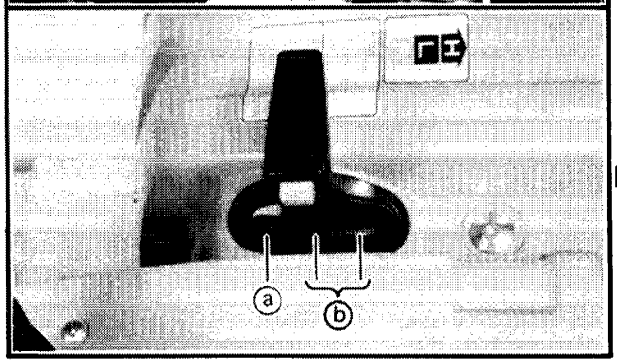
* OK

5. Reverse switch conduct test
   - Disconnect the reverse switch lead (Green/Yellow) ① from the reverse switch.
   - Connect the positive lead ② of the Pocket Tester (YU-03112) to the reverse switch lead.
   - Ground the negative lead of the Tester to the engine.
   - Move the select lever toward FORWARD ⓑ or REVERSE ⓐ, and check the switch for continuity.

Select Lever Position	Good Condition	Bad Condition		
Reverse ⓐ	X	O	X	X
Forward ⓑ	O	O	X	O

O: Continuity X: Discontinuity





BAD CONDITION → Reverse switch is faulty. Replace it.

GOOD CONDITION

*

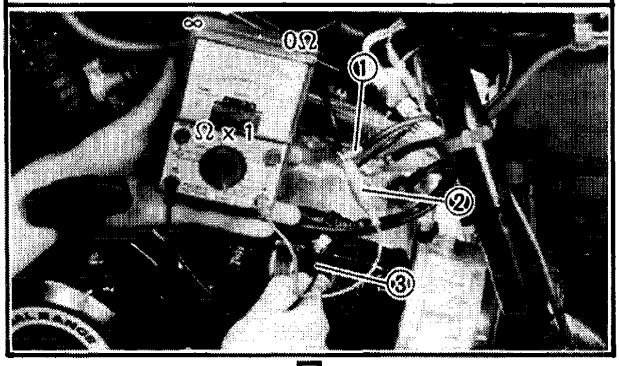
* GOOD CONDITION

6. Neutral switch conduct test
- Disconnect the neutral switch lead (Sky blue) ① from the wire harness.
- Connect the positive lead ② of the Pocket Tester (YU-03112) to the neutral switch lead.
- Ground the negative lead ③ of the Tester to the engine.
- Shift the gear, and check the switch for continuity.

BAD CONDITION → Neutral switch is faulty. Replace it.

Transmission Position	Good Condition	Bad Condition		
In neutral	○	○	X	X
In gear	X	○	X	○

○: Continuity X: Discontinuity



GOOD CONDITION

7. "ENGINE STOP", rear brake and main switches conduct test.
- Check the "ENGINE STOP", rear brake and main switches for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → Replace faulty part(s).

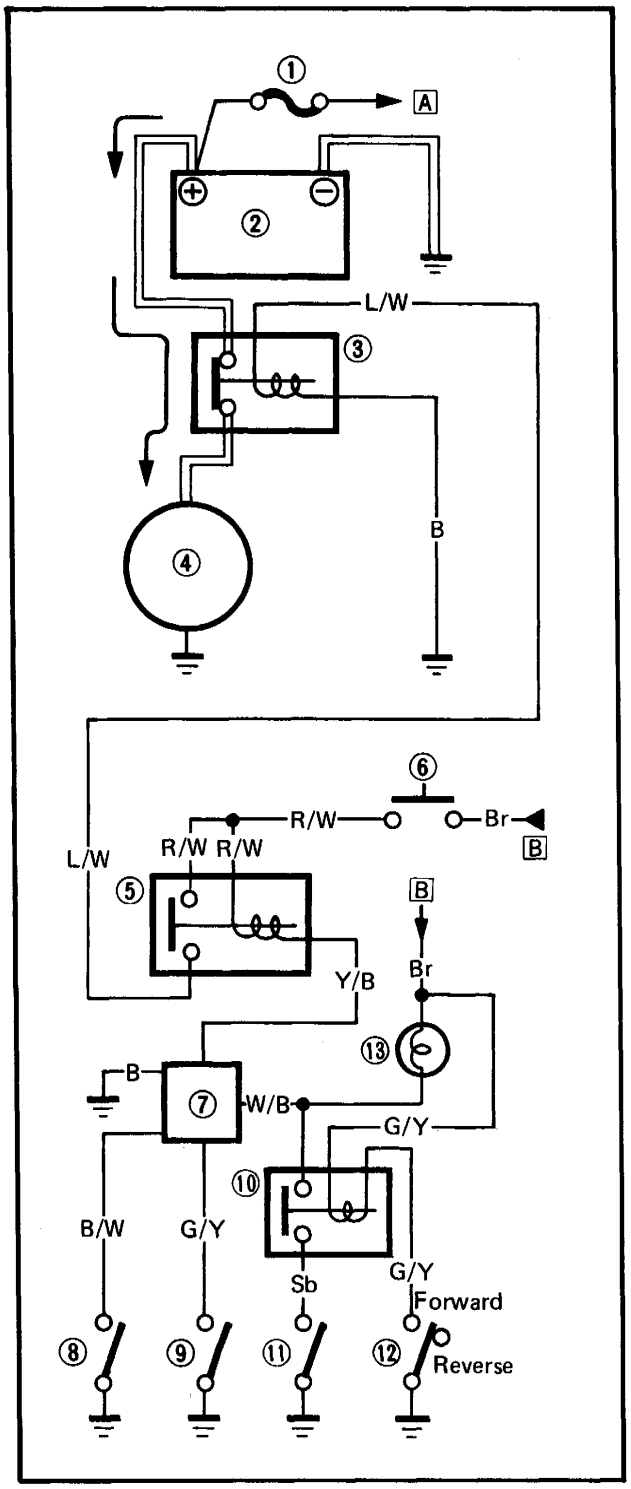
OK

8. Check entire electrical starting system for connections.
- Refer to "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

OK

CDI unit is faulty. Replace it.



STARTING CIRCUIT OPERATION

The starting circuit on this model consist of the starter motor, starter relay, neutral switch, starting circuit cut-off relay, rear brake switch, neutral relay and reverse relay. If the main switch is on and the "ENGINE STOP" switch is RUN, the starter motor can be operated only if:

- The transmission is in neutral (the neutral switch is on) and the select lever is in forward (the reverse switch is on).

or

- Pull in the rear brake lever (the brake switch is on).

NOTE:

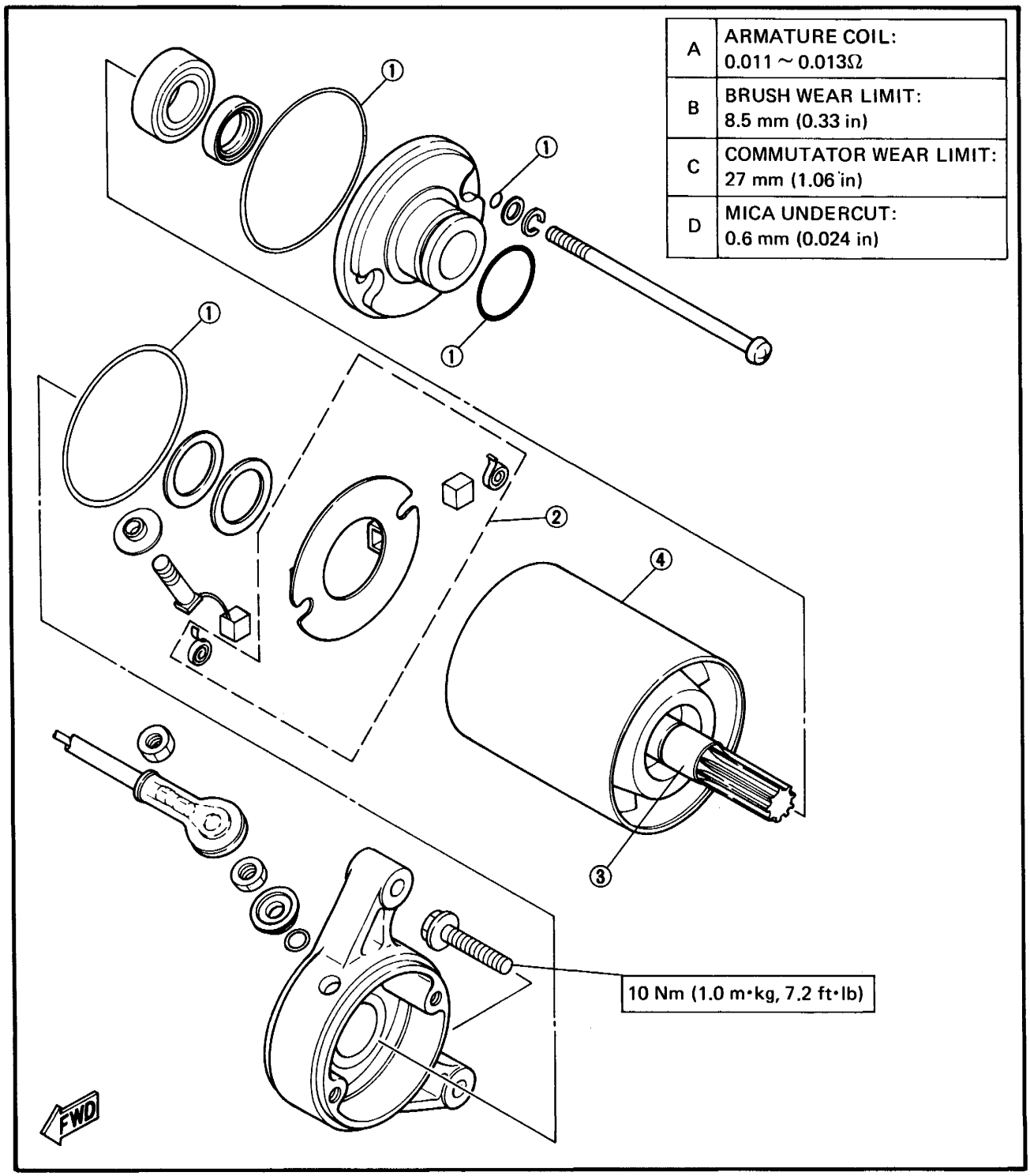
The starter motor can be operated irrespective of the engine stop switch ("OFF" or "RUN"); however, the engine can be started if the engine stop switch is at "RUN".

The starting circuit cut-off relay prevents the starter from operating when the transmission is in gear or select lever is in reverse, and rear brake lever is free. In this instance, the starting circuit cut-off relay is off so that current cannot reach the starter motor.

① Fuse
② Battery
③ Starter relay
④ Starter motor
⑤ Starting circuit cut-off relay
⑥ "START" switch
⑦ CDI unit
⑧ "ENGINE STOP" switch
⑨ Rear brake switch
⑩ Neutral relay
⑪ Neutral switch
⑫ Reverse switch
⑬ "NEUTRAL" indicator light
Ⓐ TO MAIN SWITCH
Ⓑ FROM MAIN SWITCH

STARTER MOTOR TEST

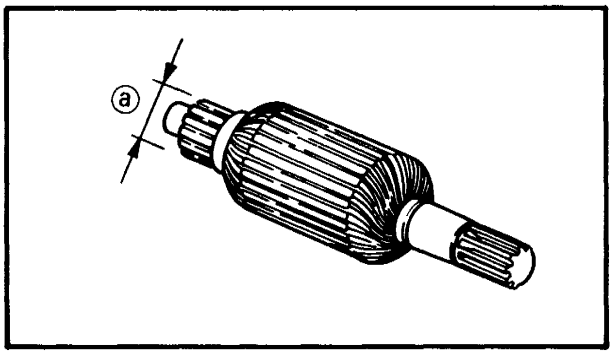
① O-ring
② Brush set
③ Armature
④ Stator

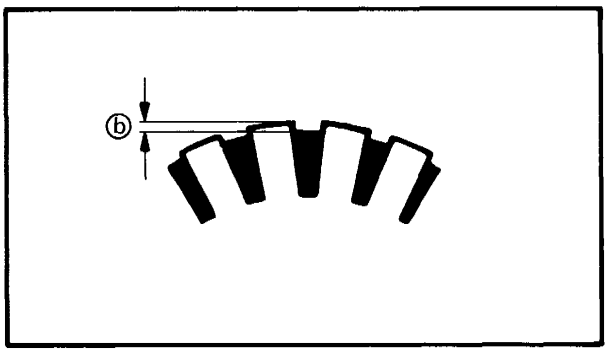


Removal

1. Remove:
   - Starter motor

   Refer to "CHAPTER 3. ENGINE OVERHAUL – ENGINE REMOVAL" section.





Inspection and Repair

1. Inspect:
   - Commutator

   Dirty → Clean it with #600 grit sandpaper.
2. Measure:
   - Commutator diameter ⓐ

   Out of specification → Replace starter motor.

Commutateur Wear Limit:
27 mm (1.06 in)

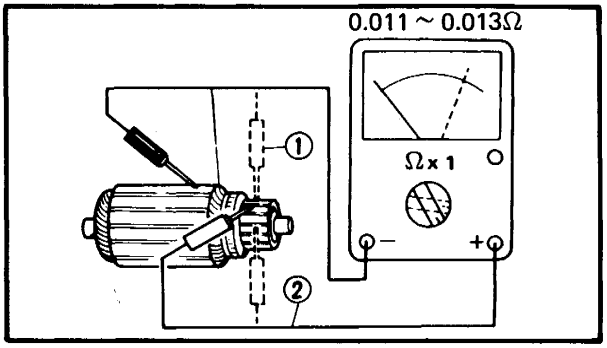
3. Measure:
   - Mica undercut ⓑ

   Out of specification → Scrape the mica to proper value use a hacksaw blade can be ground to fit.

Mica Undercut ⓑ :
0.6 mm (0.024 in)

NOTE:

The mica insulation of the commutator must be undercut to ensure proper operation of commutator.



4. Inspect:
   - Armature coil (insulation/continuity)

   Defects(s) → Replace starter motor.

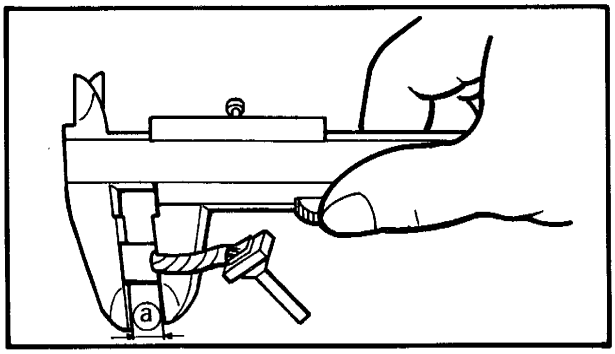
Armature coil inspecting steps:

- Connect the Pocket Tester (YU-03112) for continuity check ① and insulation check ②.
- Measure the armature coil resistances.

Armature Coil Resistance:
Continuity Check ① :
0.011 ~ 0.013Ω at 20°C (68°F)
Insulation Check ② :
More than 1MΩ at 20°C (68°F)

- If the resistance is incorrect, replace the starter motor.

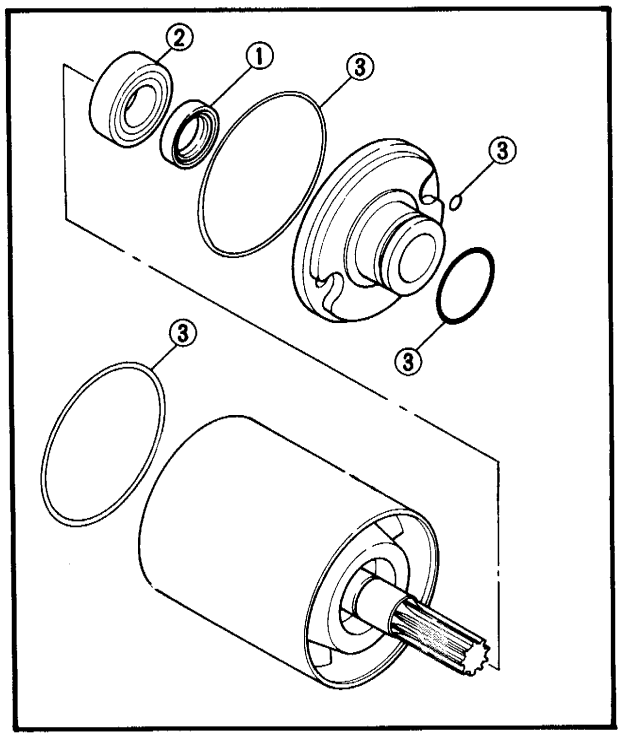
5. Measure:
   - Brush length ⓐ
     Out of specification → Replace.



Brush Length Limit:
8.5 mm (0.33 in)

6. Measure:
   - Brush spring pressure
     Fatigue/Out of specification → Replace as a set.

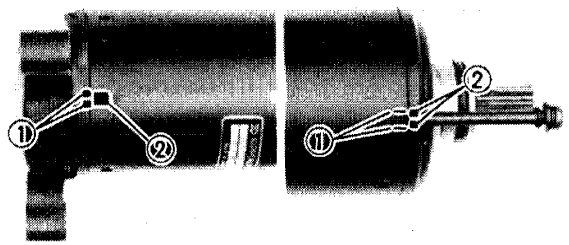
Brush Spring Pressure:
650 ~ 950 g (22.9 ~ 33.4 oz)



7. Inspect:
   - Bearing ①
   - Oil seal ②
   - O-rings ③
     Wear/Damage → Replace.

Installation

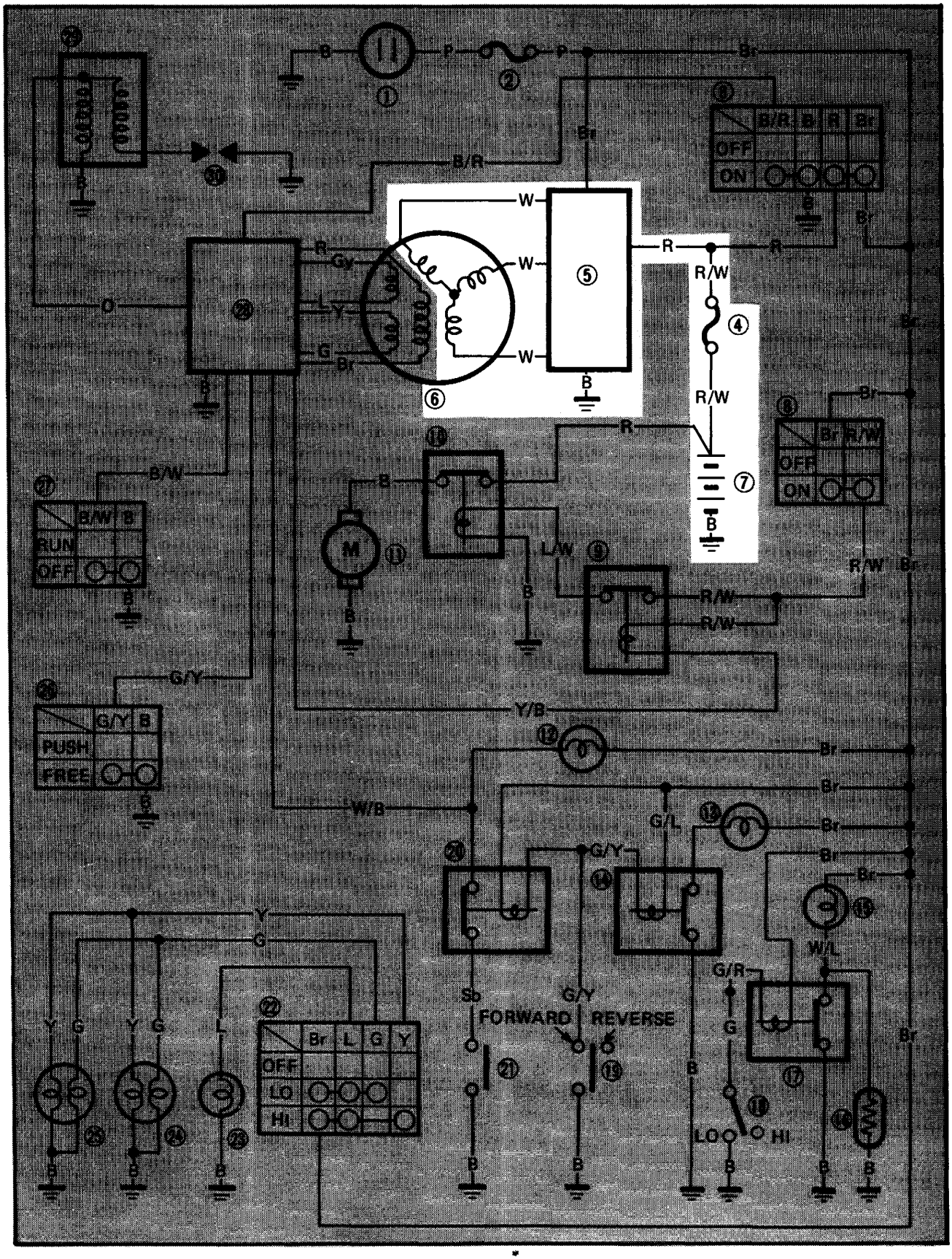
1. Install:
   - Starter motor



NOTE:
Align the match marks ① on the bracket with the match marks ② on the housing.

CHARGING SYSTEM

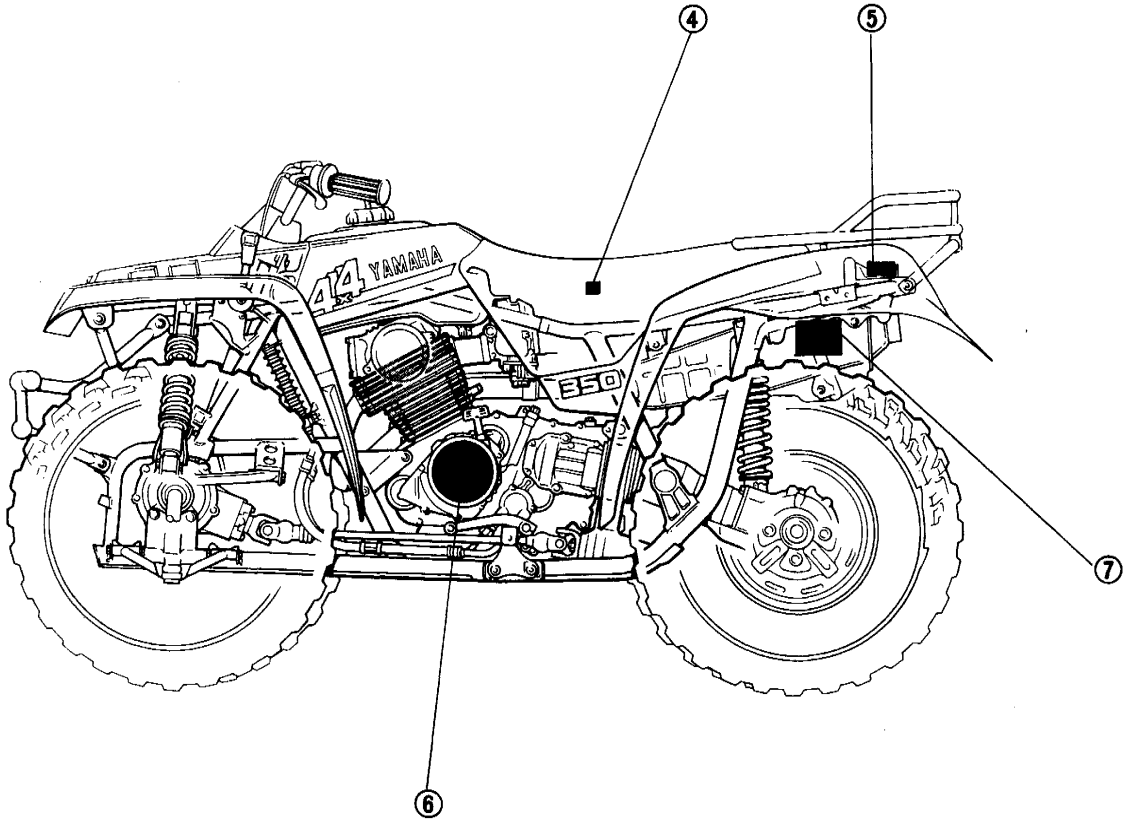
CIRCUIT DIAGRAM



Aforementioned circuit diagram shows charging circuit in circuit diagram.

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

④ Fuse
⑤ Rectifier with regulator
⑥ CDI magneto
⑦ Battery



TROUBLESHOOTING

NOTE:
Before this troubleshooting, remove the seat, rear carrier and rear fender.

THE BATTERY IS NOT CHARGED.

1. Fuse inspection
   - Check the fuse condition.
     Refer to "CHAPTER 2. FUSE INSPECTION" section.

FAULTY → Fuse is faulty.
Replace it.

OK ↓

2. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

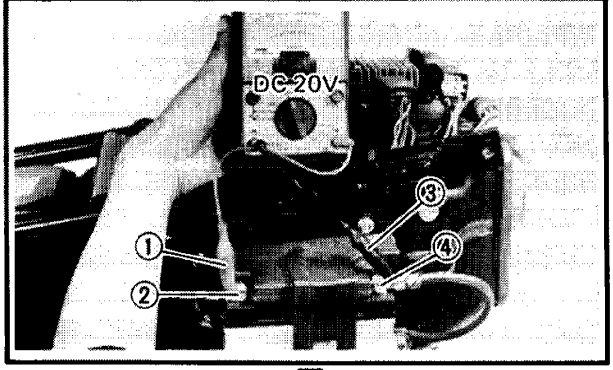
FAULTY → Battery is faulty.
Recharge or replace it.

OK ↓

3. Charging voltage test
   - Connect the Pocket Tester (YU-03112) to the battery.
   - Start the engine and accelerate to about 5,000 r/min.
   - Measure the charging voltage.

Charging Voltage:
14 ~ 15V at 5,000 r/min

① Positive lead (Pocket Tester)
② Positive terminal (Battery)
③ Negative lead (Pocket Tester)
④ Negative terminal (Battery)



CHARGING VOLTAGE MEETS SPECIFICATION → Battery is faulty.
Replace it.

OUT OF SPECIFICATION ↓

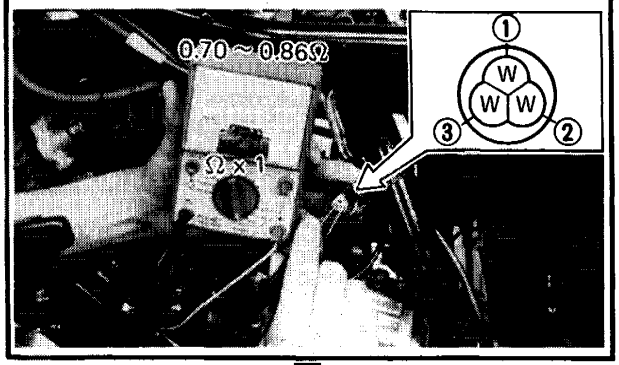
*

*

4. Charging coil resistance test
   - Disconnect the CDI magneto coupler (White ① , White ② and White ③) from the wire harness.
   - Connect the Pocket Tester (YU-03112) to the CDI matneto coupler.
   - Measure the charging coil resistance.

Charging Coil Resistance
(White ① — White ② ,
White ① — White ③):
0.70 ~ 0.86Ω at 20°C (68°F)

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



RESISTANCE MEETS SPECIFICATION

5. Check entire charging system for connections.
   - Refer to "WIRING DIAGRAM" section.

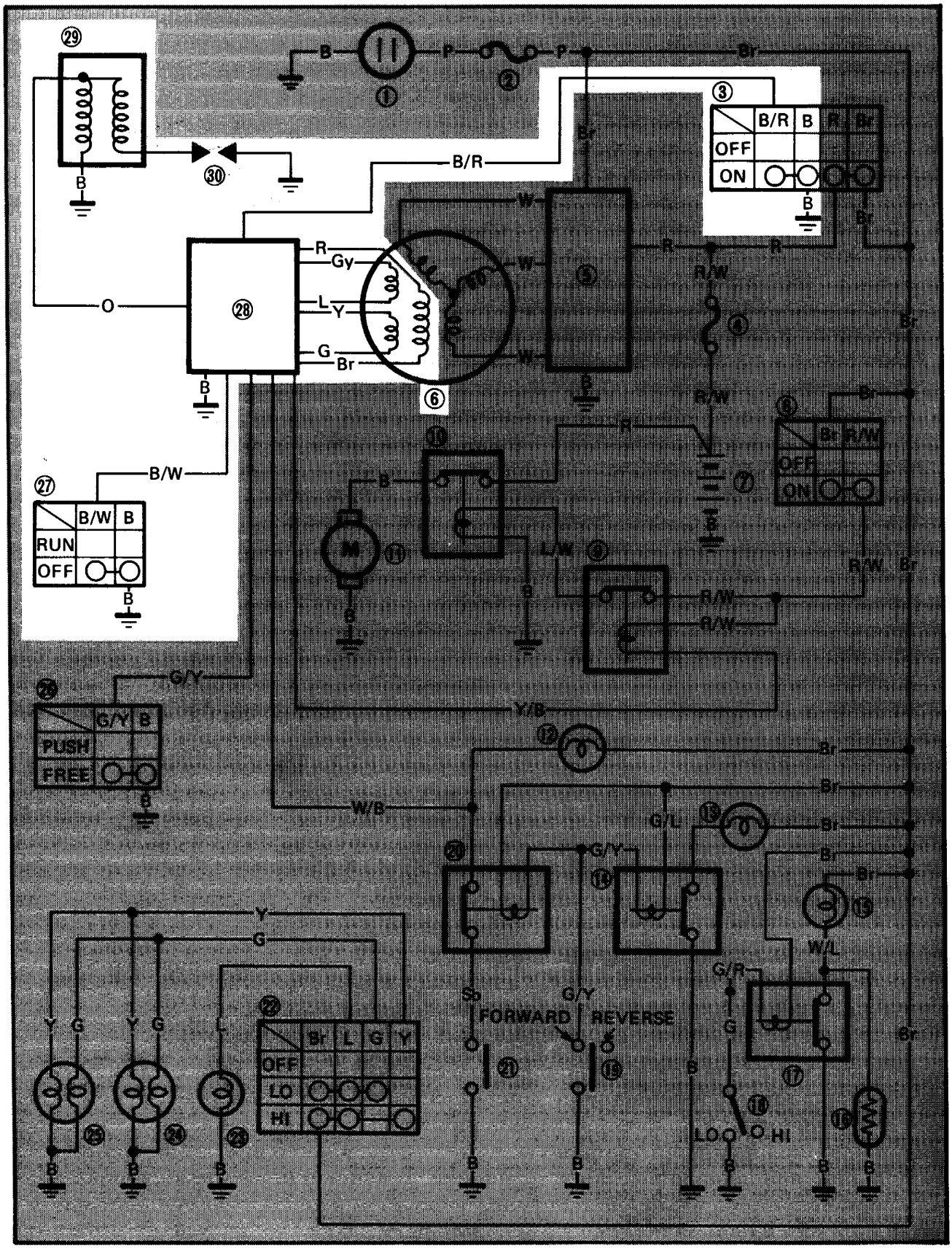
POOR CONNECTION → Correct.

OK

Rectifier/Regulator is faulty. Replace it.

IGNITION SYSTEM

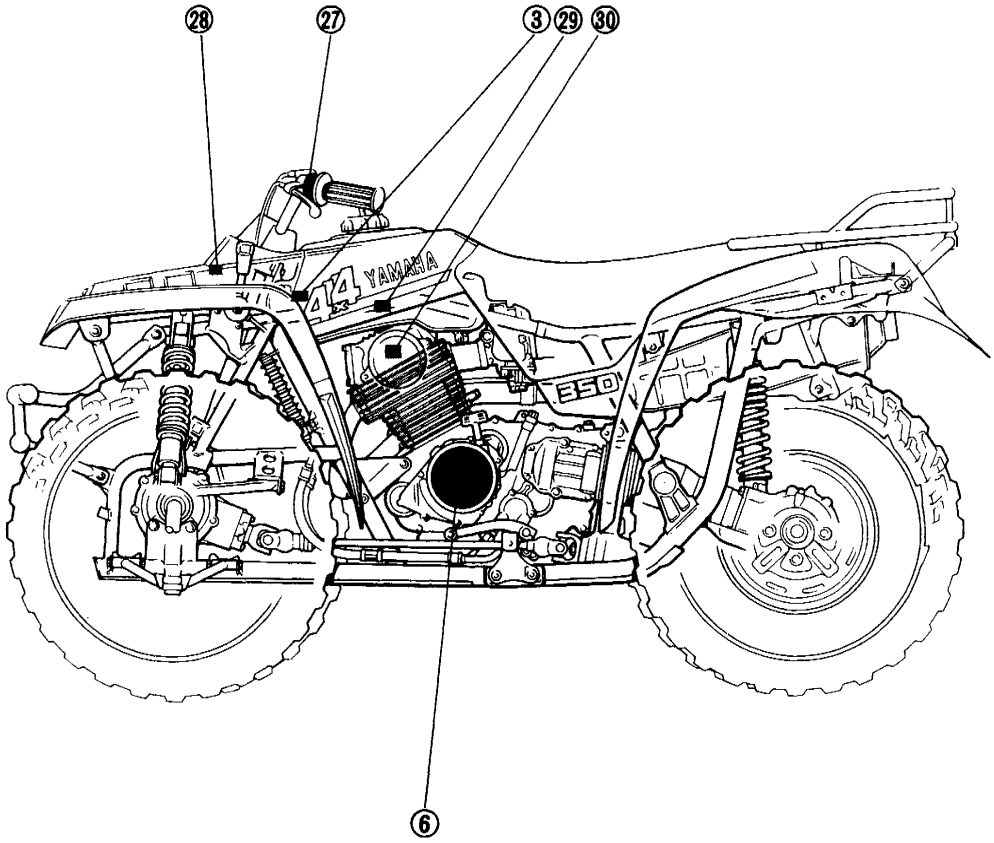
CIRCUIT DIAGRAM



Aforementioned circuit diagram shows ignition circuit in circuit diagram.

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

③ Main switch
⑥ CDI magneto
㉗ "ENGINE STOP" switch
㉘ CDI unit
㉙ Ignition coil
㉚ Spark plug



TROUBLESHOOTING

NOTE:
Before this troubleshooting, remove the seat and fuel tank.

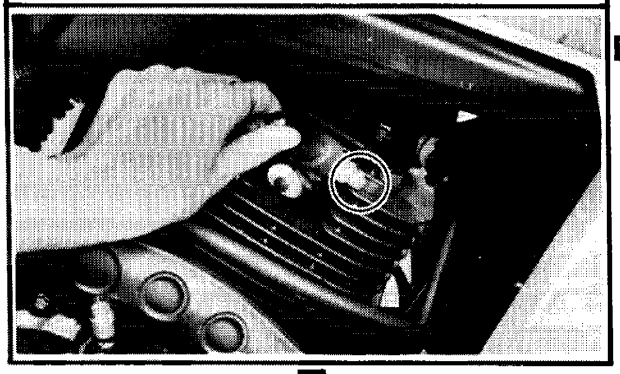
IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK).

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

FAULTY → Replace or regap spark plug.

OK ↓

2. Ignition spark test (With spark plug)
   - Install the spark plug to the plug cap.
   - Ground the spark plug to the cylinder head.
   - Turn the main switch to "ON" and "ENGINE STOP" switch to "RUN", then, shift the gear in neutral and set the panking brake.
   - Push the "START" switch.
   - Check the ignition spark condition.



SPARK → Ignition circuit is good.

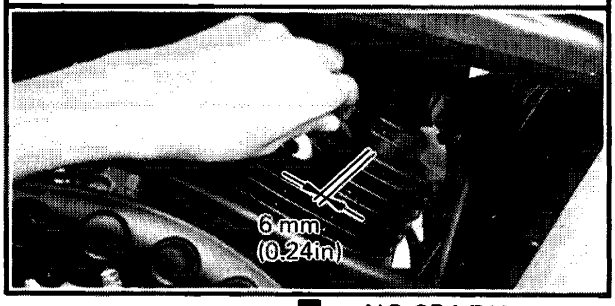
NO SPARK ↓

*

*

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

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



NO SPARK

4. "ENGINE STOP" and main switches conduct check.
- Check the "ENGINE STOP" and main switches for continuity. Refer to "SIGNAL SYSTEM" section.

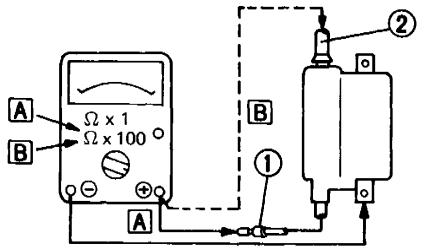
FAULTY → "ENGINE STOP" and/or main switches is faulty. Replace faulty part(s).

OK

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

Primary Coil Resistance [A] :
0.72 ~ 0.98Ω at 20°C (68°F)
Secondary Coil Resistance [B] :
5.02 ~ 6.79 kΩ at 20°C (68°F)

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

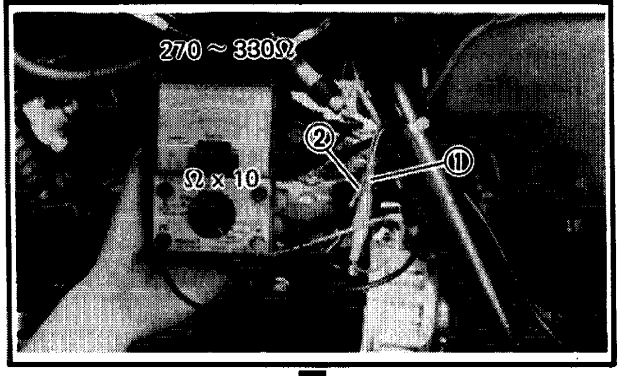


BOTH RESISTANCES
* MEET SPECIFICATIONS

*

6. Source coil resistance test
- Disconnect the CDI magneto leads (Brown ① and Red ②) from the wire harness.
- Connect the Pocket Tester (YU-03112) to the CDI magneto leads.
- Measure the source coil resistance.

Source Coil Resistance
(Brown ① – Red ②):
270 ~ 330Ω at 20°C (68°F)

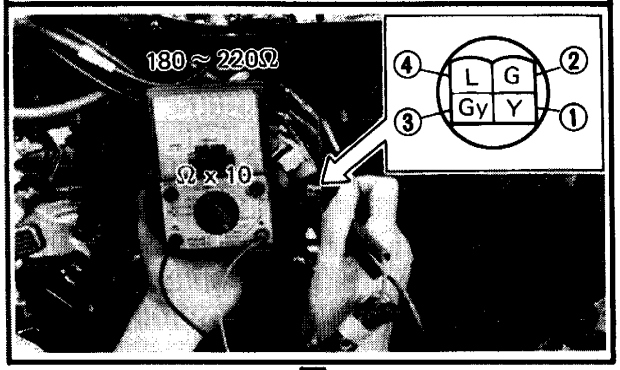


OUT OF SPECIFICATION → Source coil is faulty.
Replace stator assembly.

OK ⇩

7. Pickup coil resistance test
- Disconnect the pickup coil coupler (Yellow ① , Green ② , Gray ③ and Blue ④) from the CDI unit.
- Connect the Pocket Tester (YU-03112) to the pickup coil coupler.
- Measure the pickup coil resistance.

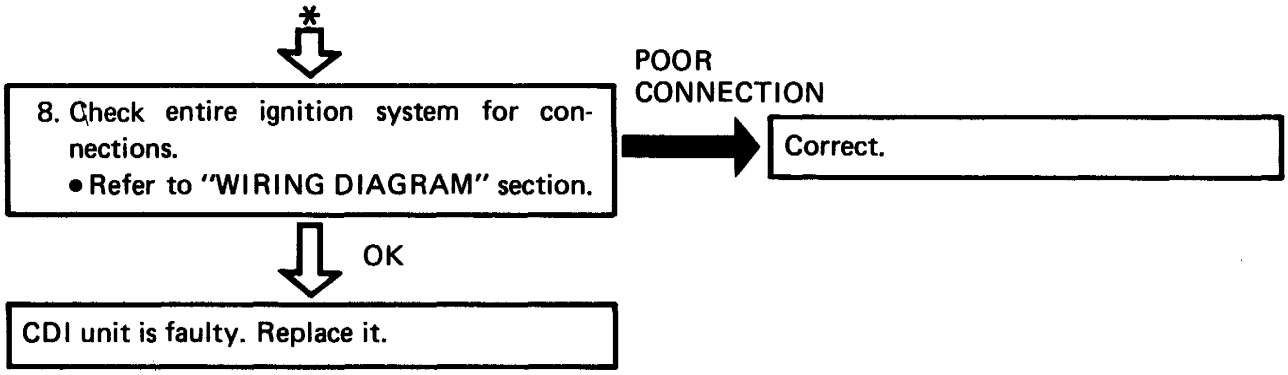
Pickup Coil Resistance
(Yellow ① – Green ② ,
Gray ③ – Blue ④):
180 ~ 220Ω at 20°C (68°F)



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

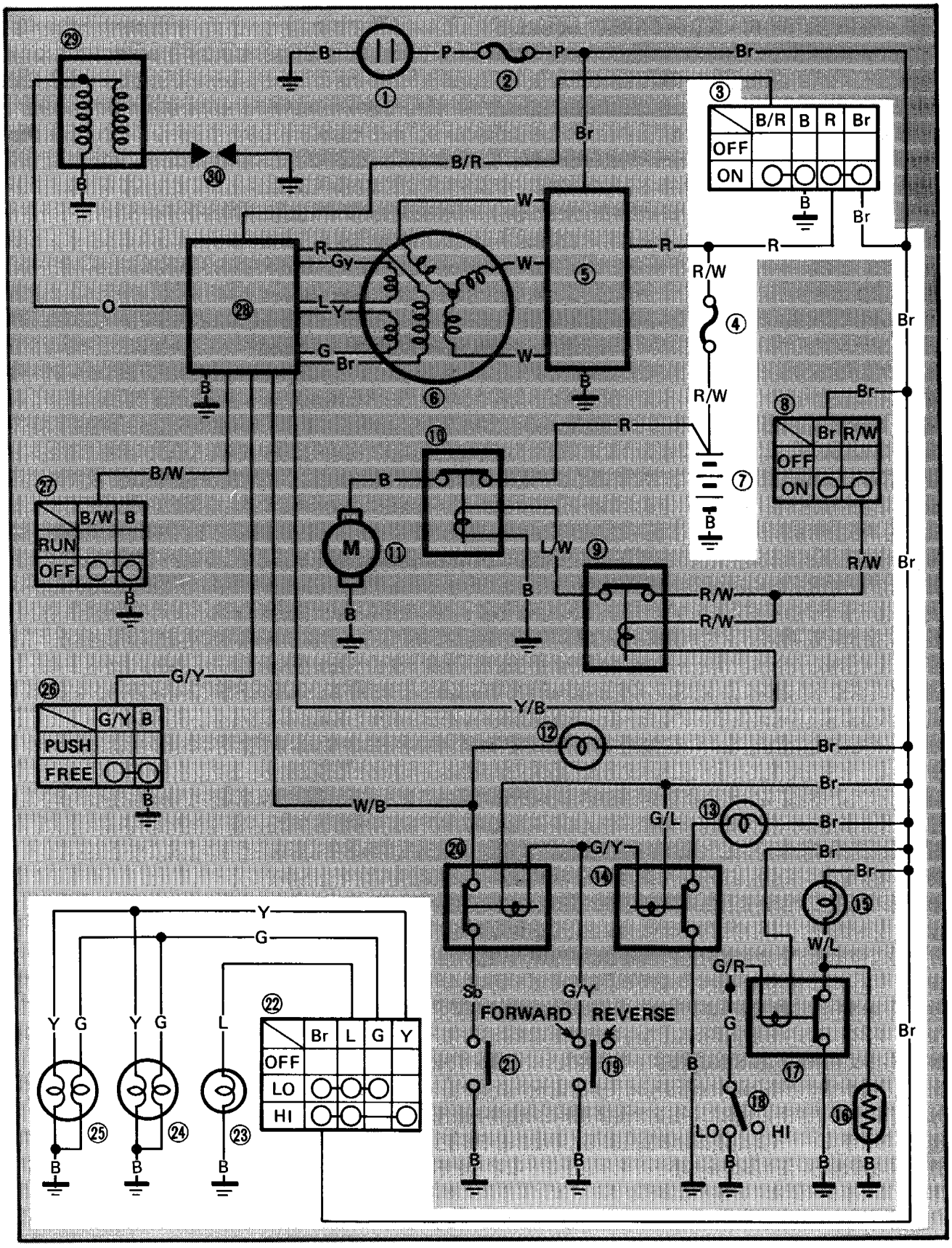
BOTH RESISTANCES MEET SPECFICATIONS ⇩

*


*
8. Check entire ignition system for connections.
• Refer to "WIRING DIAGRAM" section.
POOR CONNECTION
Correct.
OK
CDI unit is faulty. Replace it.

LIGHTING SYSTEM

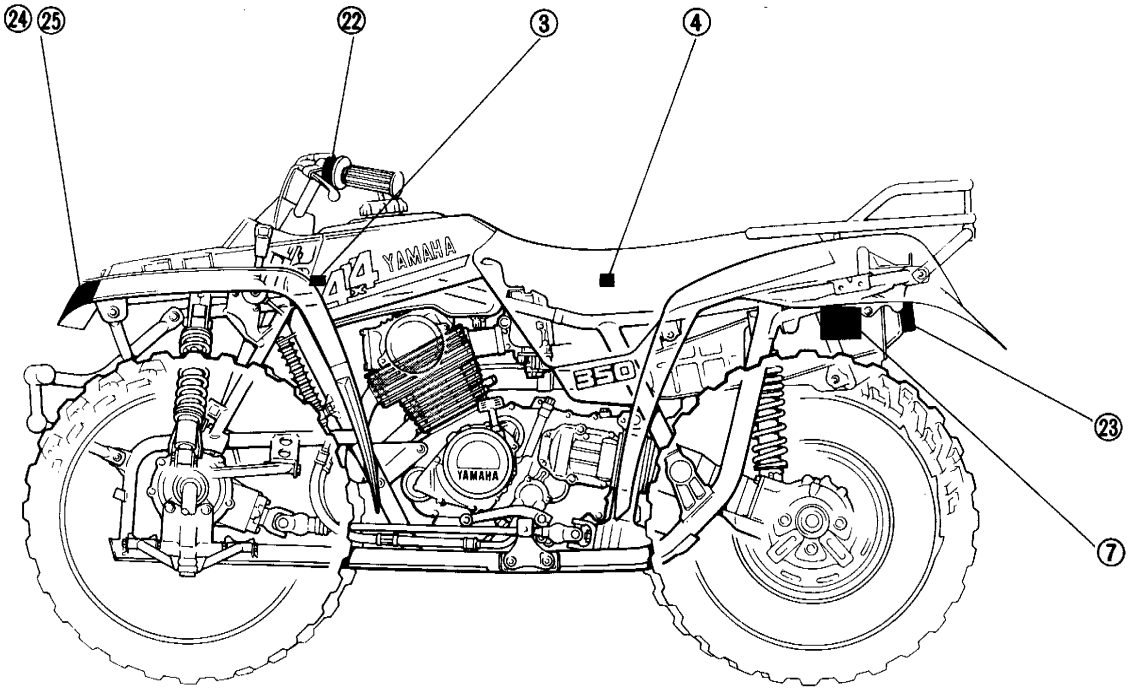
CIRCUIT DIAGRAM



Aforementioned circuit diagram shows lighting circuit in circuit diagram.

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

③ Main switch
④ Fuse
⑦ Battery
㉒ "LIGHTS" (Dimmer) switch
㉓ Taillight
㉔ Headlight (Left)
㉕ Headlight (Right)



TROUBLESHOOTING

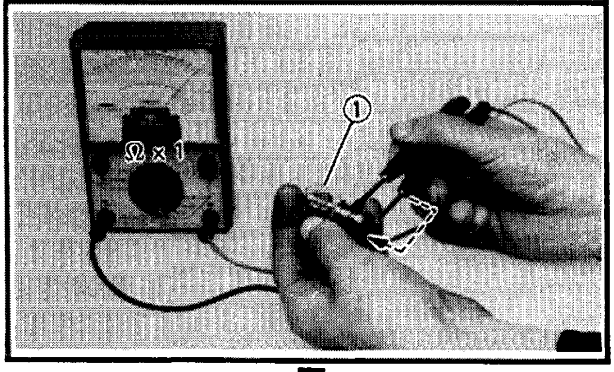
NOTE:

Before this troubleshooting, remove the headlight and rear fender.

HEADLIGHT DOES NOT COME ON.

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

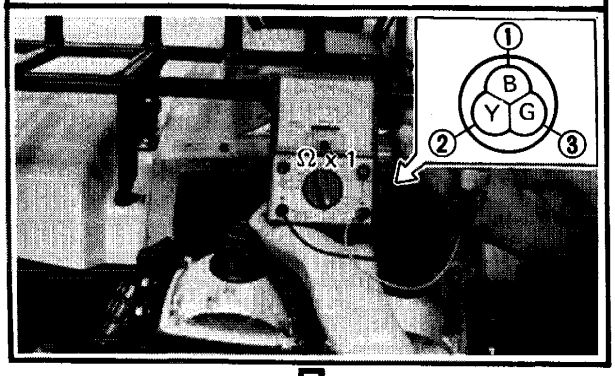
CONTINUITY DOES NOT EXIST ON CIRCUIT → Bulb is faulty. Replace it.



CONTINUITY EXISTS ON BOTH CIRCUIT

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

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



CONTINUITY EXISTS ON BOTH CIRCUIT

3. Fuse inspection
   - Check the fuse condition. Refer to "CHAPTER 2. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK

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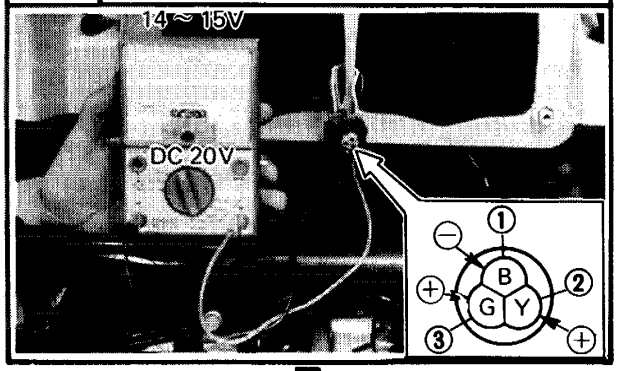
4. Battery inspection
- Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Recharge or replace it.

OK

5. Lighting voltage test
- Connect the Pocket Tester (YU-03112) to the headlight coupler (Black ① Yellow ② and Green ③).
- Turn the "LIGHTS" (Dimmer) switch to "LO" and "HI" position.
- Start the engine and accelerate to about 5,000 r/min.
- Measure the lighting voltage.

Lighting Voltage:
14 ~ 15V at 5,000 r/min



LIGHTING VOLTAGE MEETS SPECIFICATION → Lighting system (Headlight) is good.

OUT OF SPECIFICATION

6. "LIGHTS" (Dimmer) switch conduct check.
- Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → "LIGHTS" (Dimmer) switch is faulty. Replace faulty part(s).

OK

7. Main switch conduct check
- Check the main switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → Main switch is faulty. Replace it.

OK

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

POOR CONNECTION → Correct.

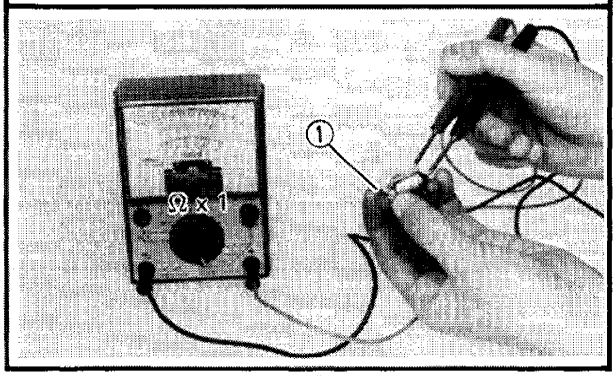
OK

Check the charging system.

TAILLIGHT DOES NOT COME ON.

1. Taillight bulb conduct check
   - Remove the taillight lens and bulb ① .
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.

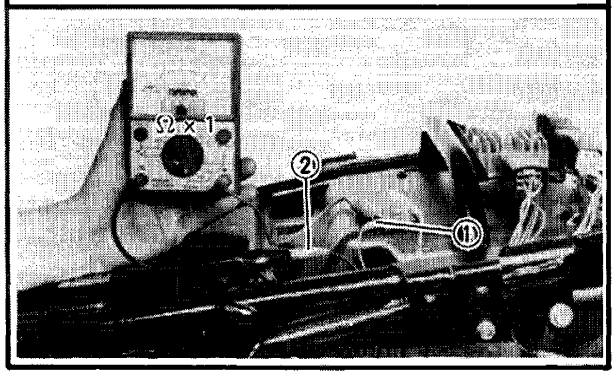
NO CONTINUITY → Bulb is faulty. Replace it.



CONTINUITY ↓

2. Taillight bulb socket conduct check
   - Install the bulb to taillight socket.
   - Disconnect the taillight coupler (Blue ① and Black ②).
   - Connect the Pocket Tester (YU-03112) to the taillight coupler as shown, and check it for continuity.

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



CONTINUITY EXISTS ON BOTH CIRCUIT ↓

3. Fuse inspection
   - Check the fuse condition.
     Refer to "CHAPTER 2. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK ↓

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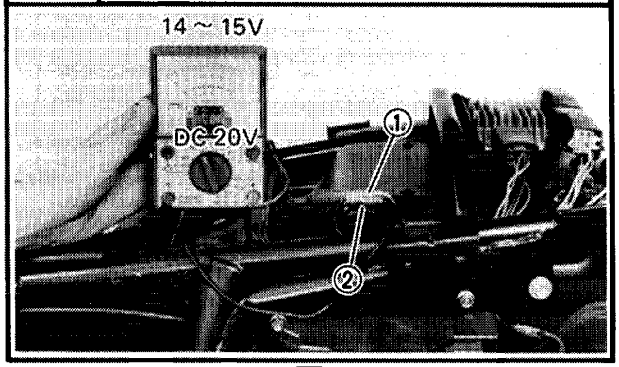
4. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Recharge or replace battery.

OK

5. Lighting voltage test
   - Connect the Pocket Tester (YU-03112) to the taillight leads (Blue ① and Black ②).
   - Start the engine and accelerate to about 5,000 r/min.
   - Measure the lighting voltage.

Lighting Voltage:
14 ~ 15V at 5,000 r/min



LIGHTING VOLTAGE MEETS SPECIFICATION → Lighting system (Taillight) is good.

OUT OF SPECIFICATION

6. Main switch conduct check
   - Check the main switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → Main switch is faulty. Replace it.

OK

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

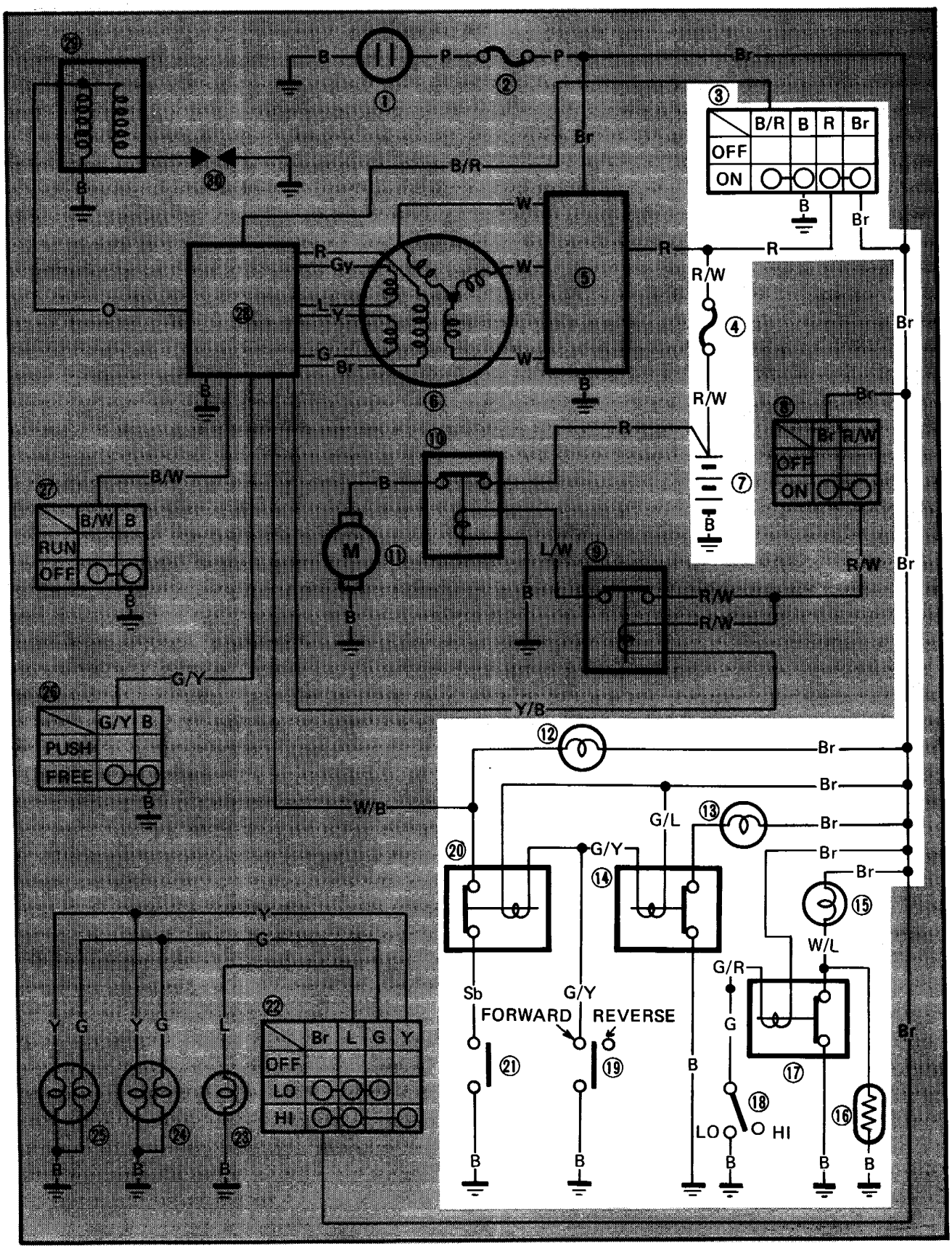
POOR CONNECTION → Correct.

OK

Check the charging system.

SIGNAL SYSTEM

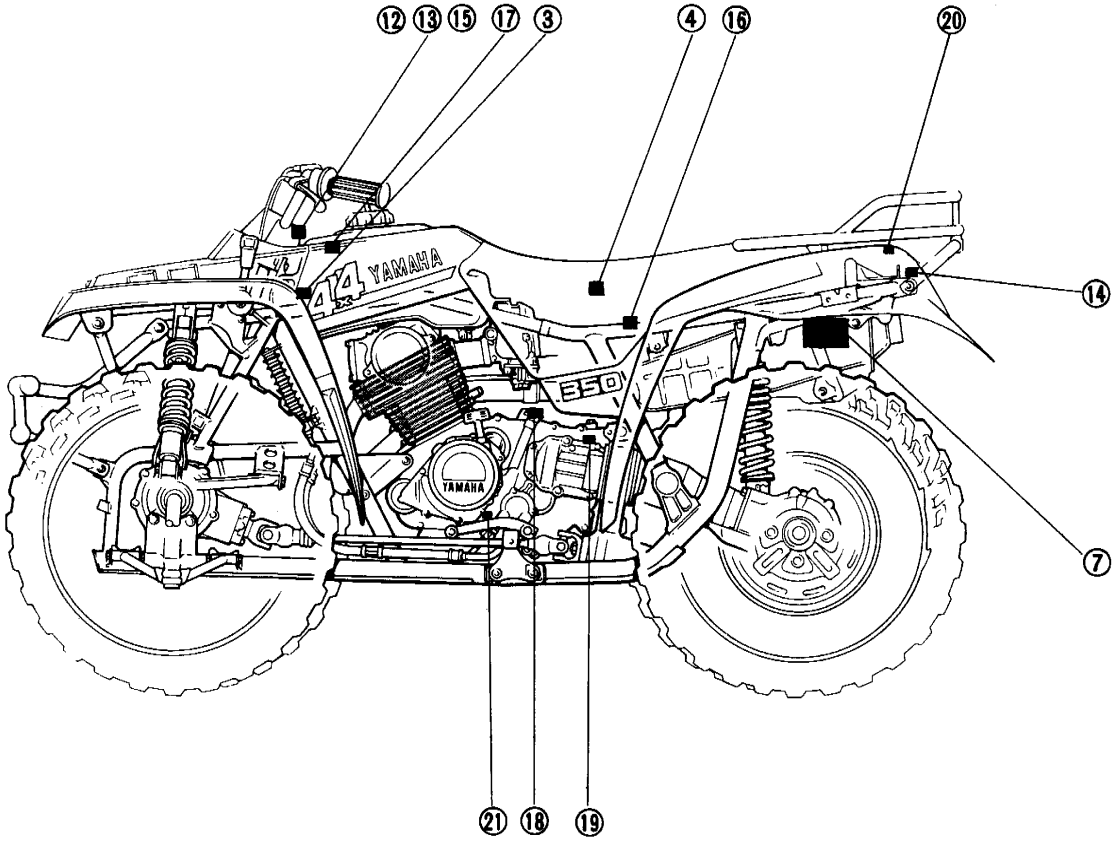
CIRCUIT DIAGRAM



Aforementioned circuit diagram shows signal circuit in circuit diagram.

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

③ Main switch
④ Fuse
⑦ Battery
⑫ "NEUTRAL" indicator light
⑬ "REVERSE" indicator light
⑭ Reverse relay
⑮ "OIL TEMP" indicator light
⑯ Oil temperature indicator checker
⑰ Thermo relay
⑱ Thermo switch
⑲ Reverse switch
⑳ Neutral relay
㉑ Neutral switch



TROUBLESHOOTING

NOTE:
Before this troubleshooting, remove the fuel tank cover and rear fender.

THE "NEUTRAL" INDICATOR LIGHT DOES NOT COME ON.

1. "NEUTRAL" indicator light bulb conduct check
   - Check the "NEUTRAL" indicator light bulb condition. Refer to "LIGHTING SYSTEM" section.

FAULTY → "NEUTRAL" indicator light bulb is faulty. Replace it.

OK ↓

2. "NEUTRAL" indicator light bulb socket conduct check
   - Check the "NEUTRAL" indicator light bulb socket condition. Refer to "LIGHTTING SYSTEM" section.

FAULTY → "NEUTRAL" indicator light bulb socket is faulty. Replace it.

OK ↓

3. Fuse inspection
   - Check the fuse condition. Refer to "CHAPTER 2. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK ↓

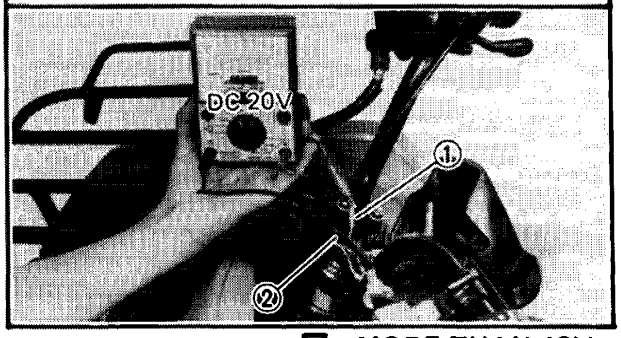
4. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Recharge or replace battery.

OK ↓

*

5. Battery voltage test
   - Connect the Pocket Tester (YU-03112) to the "NEUTRAL" indicator light leads (Brown ① and Sky blue ②).
   - Turn the main switch to "ON", and measure the battery voltage.



LESS THAN 12V → Check main switch.

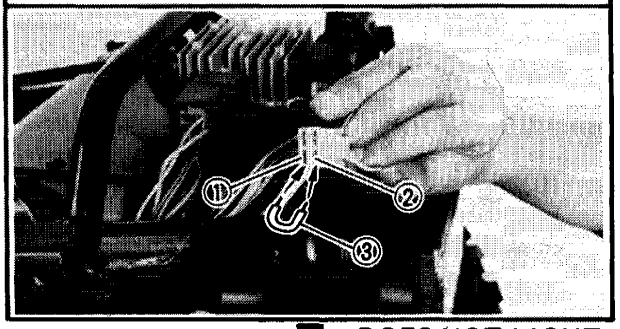
MORE THAN 12V

6. Neutral switch conduct test
   - Check the switch for continuity. Refer to "ELECTRICAL STARTING SYSTEM" section.

BAD CONDITION → Neutral switch is faulty. Replace it.

GOOD CONDITION

7. Neutral relay test
   - Disconnect the neutral relay coupler (Brown, Green/Yellow, White/Black and Sky blue).
   - Connect the neutral relay coupler (White/Black ① and Sky blue ② – Wire harness side) using the jumper lead ③.
   - Shift the gear in neutral.
   - Turn the main switch to "ON", and check the "NEUTRAL" indicator light condition.



LIGHTS → Neutral relay is faulty. Replace it.

DOES NOT LIGHT

8. Check entire signal system for connection.
   - Refer to "WIRING DIAGRAM" section.

FAULTY → Correct.

THE "REVERSE" INDICATOR LIGHT DOES NOT COME ON.

1. "REVERSE" indicator light bulb conduct check
   - Check the "REVERSE" indicator light bulb condition. Refer to "LIGHTING SYSTEM" section.

FAULTY → "REVERSE" indicator light bulb is faulty. Replace it.

OK ↓

2. "REVERSE" indicator light bulb socket conduct check
   - Check the "REVERSE" indicator light bulb socket condition. Refer to "LIGHTING SYSTEM" section.

FAULTY → "REVERSE" indicator light bulb socket is faulty. Replace it.

OK ↓

3. Fuse inspection
   - Check the fuse condition. Refer to "CHAPTER 2. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK ↓

4. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Recharge or replace battery.

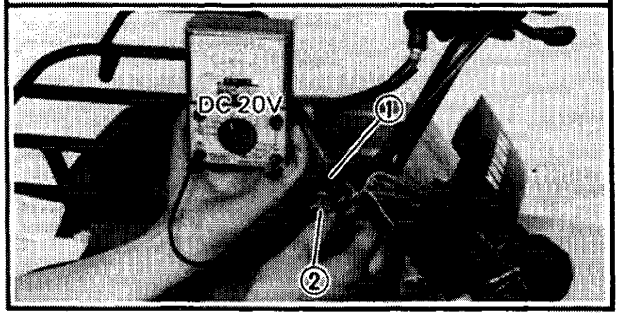
OK ↓

*

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5. Battery voltage test
- Connect the Pocket Tester (YU-03112) to the "REVERSE" indicator light leads (Brown ① and Green/Blue ②).
- Turn the main switch to "ON", and measure the battery voltage.

LESS THAN 12V → Check main switch.



MORE THAN 12V

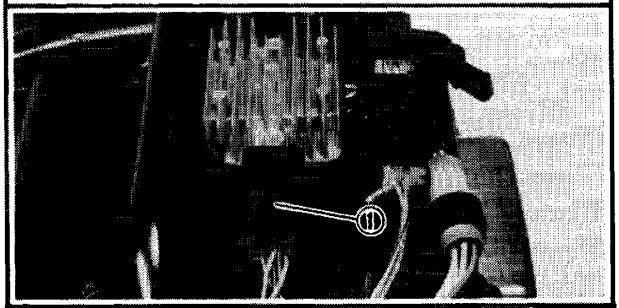
6. Reverse switch conduct test
- Check the switch for continuity
  Refer to "ELECTRICAL STARTING SYSTEM" section.

BAD CONDITION → Reverse switch is faulty. Replace it.

GOOD CONDITION

7. Reverse relay test
- Disconnect the reverse relay ① coupler (Green/Yellow, Brown, Green/Blue and Black) from the wire harness.

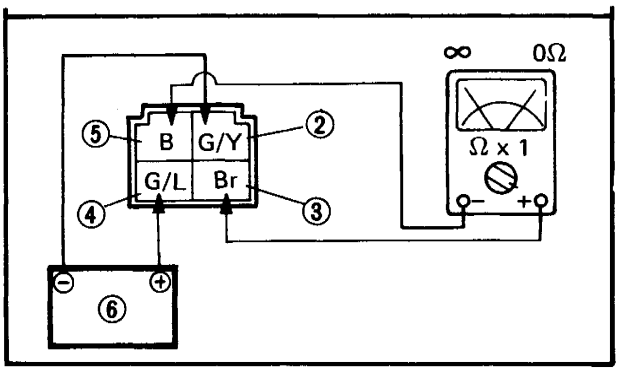
FAULTY → Reverse relay is faulty. Replace it.



- Connect the Pocket Tester (YU-03112) and battery (12V) ⑤ to the relay coupler (Green/Yellow ② , Brown ③ , Green/Blue ④ and Black ⑤).
- Check the relay for continuity.

	Good Condition	Bad Condition		
Battery Connected	X	O	X	O
Battery Disconnected	O	O	X	X

O: Continuity X: Discontinuity



OK

8. Check entire signal system for connection.
   • Refer go "WIRING DIAGRAM" section.

FAULTY → Correct.

IF "OIL TEMP" INDICATION SYSTEM SHOULD BECOME INOPERATIVE; "OIL TEMP" INDICATOR DOES NOT COME ON, OR "OIL TEMP" INDICATOR DOES NOT GO OFF, OR "OIL TEMP" INDICATOR DOES NOT COME ON AT OIL TEMPERATURE OF 132.5 ~ 147.5°C (270.5 ~ 297.5° F).

1. "OIL TEMP" indicator light bulb conduct check
   - Check the "OIL TEMP" indicator light bulb condition. Refer to "LIGHTING SYSTEM" section.

FAULTY → "OIL TEMP" indicator light bulb is faulty. Replace it.

OK ↓

2. "OIL TEMP" indicator light bulb socket conduct check
   - Check the "OIL TEMP" indicator light bulb socket condition. Refer to "LIGHTING SYSTEM" section.

FAULTY → "OIL TEMP" indicator light bulb socket is faulty. Replace it.

OK ↓

3. Fuse inspection
   - Check the fuse condition. Refer to "CHAPTER 2. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK ↓

4. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Recharge or replace battery.

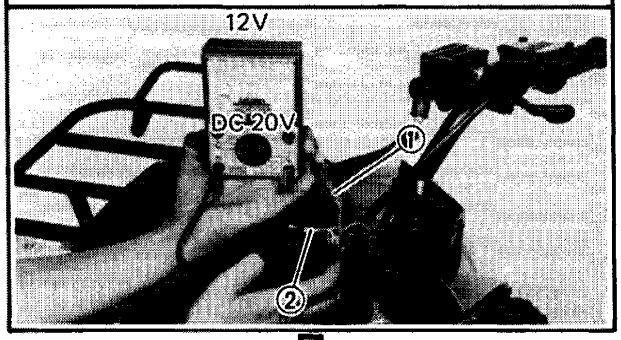
OK ↓

*

OK

5. Battery voltage test
   - Connect the Pocket Tester (YU-03112) to the "OIL TEMP" indicator light leads (Brown ① and White/Blue ②).
   - Turn the main switch to "ON", and measure the battery voltage.

LESS THAN 12V → Check main switch.



MORE TAHN 12V

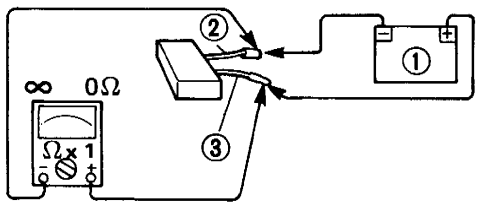
6. Conduct test for oil temperature indicator light checker
   - Disconnect the checker leads (Black and Brown) from the wire harness.
   - Connect the Pocket Tester (YU-03112) and battery (12V) ① to the checker leads (Black ② and Brown ③).
   - Check the checker for continuity.



Just After Battery Connected:
Zero Ω
Several Seconds After Battery Connected: ∞

FAULTY → Checker is faulty. Replace it.

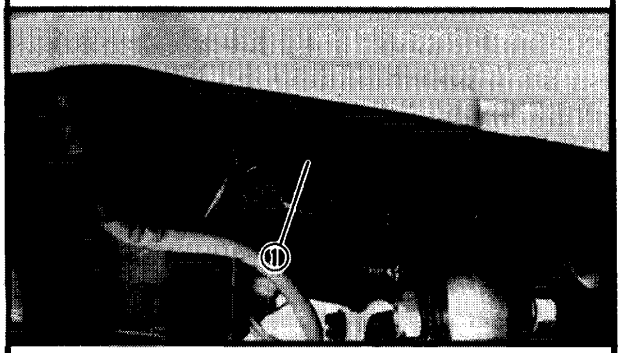
NOTE:
The time required for the checker resistance to rise is affected by anbient temperature, varying from several to several tens of seconds. This shows the correct function of the checker.



OK

OK

7. Thermo relay test
   - Disconnect the thermo relay ① coupler (Green/Red, Brown, White/Blue and Black) from the wire harness.

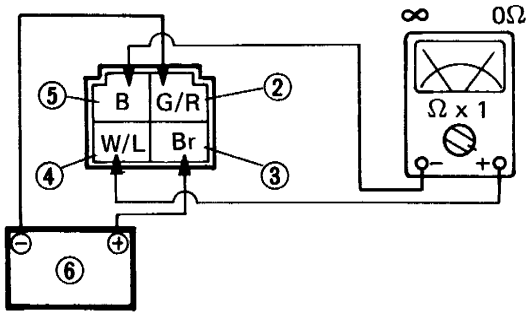


   - Connect the Pocket Tester (YU-03112) and battery (12V) ⑥ to the relay coupler (Green/Red ② , Brown ③ , White/Blue ④ and Black ⑤).
   - Check the relay for continuity.

FAULTY → Thermo switch is faulty. Replace it.

	Good Condition	Bad Condition		
Battery Connected	X	X	O	O
Battery Disconnected	O	X	O	X

O: Continuity X: Discontinuity



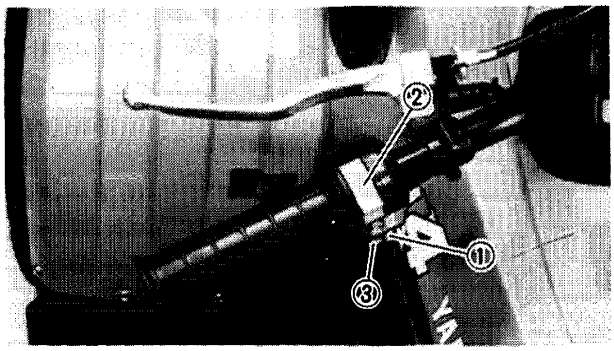
OK

8. Check entire "OIL TEMP" indication system for connection.
   - Refer to "WIRING DIAGRAM" section.

FAULTY → Correct.

OK

Thermo relay is faulty. Replace it.



SWITCHES TEST

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

① "ENGINE STOP" switch
② "LIGHTS" (Dimmer) switch
③ "START" switch

Main Switch

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

Rear Brake Switch

Switch Position	Lead Color	
	B	G/Y
FREE		
PUSH	○	○

"ENGINE STOP" Switch

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

"LIGHTS" (Dimmer) Switch

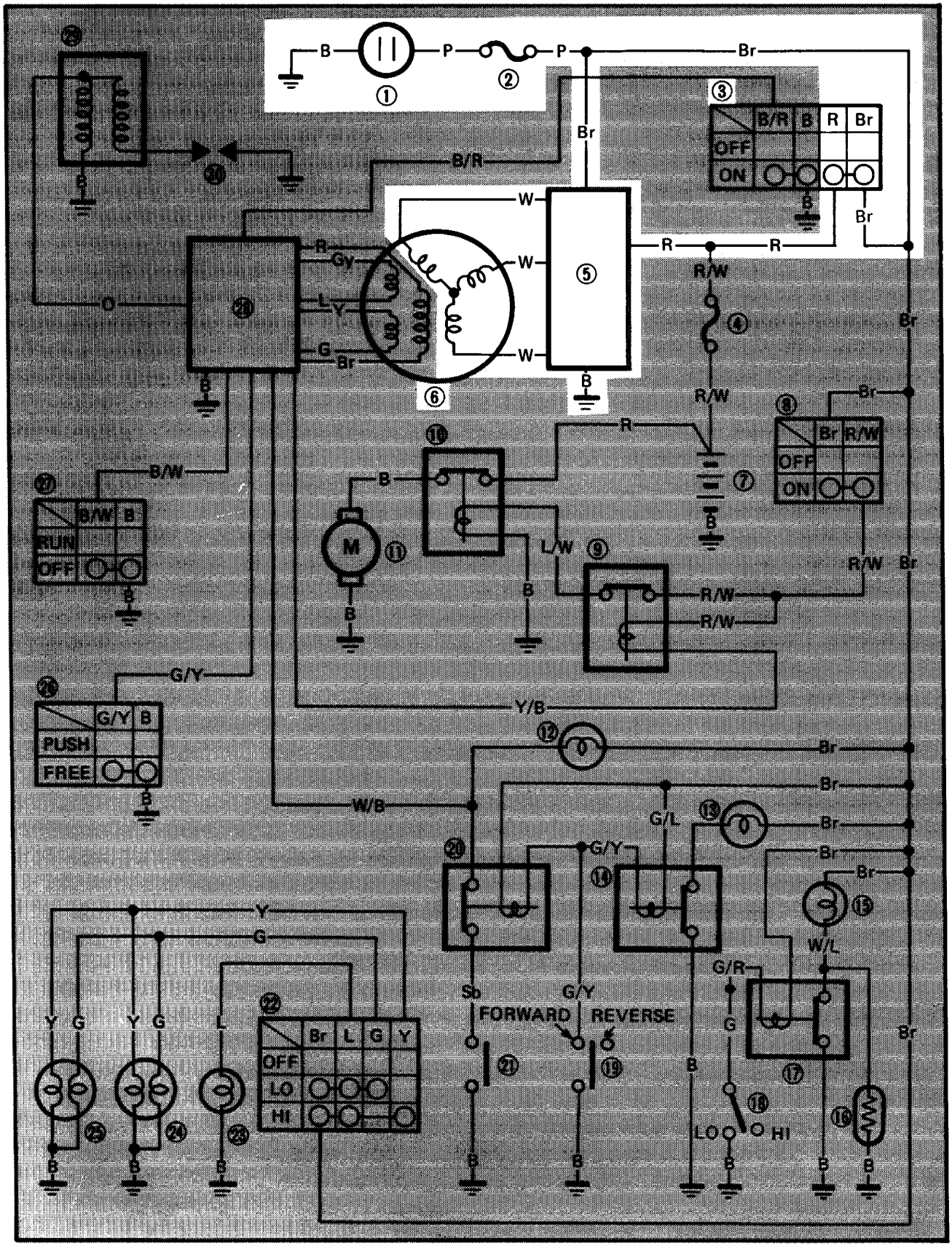
Switch Position	Lead Color			
	Br	L	G	Y
OFF				
LO	○	○	○	
HI	○	○		○

"START" Switch

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

ACCESSORY SYSTEM

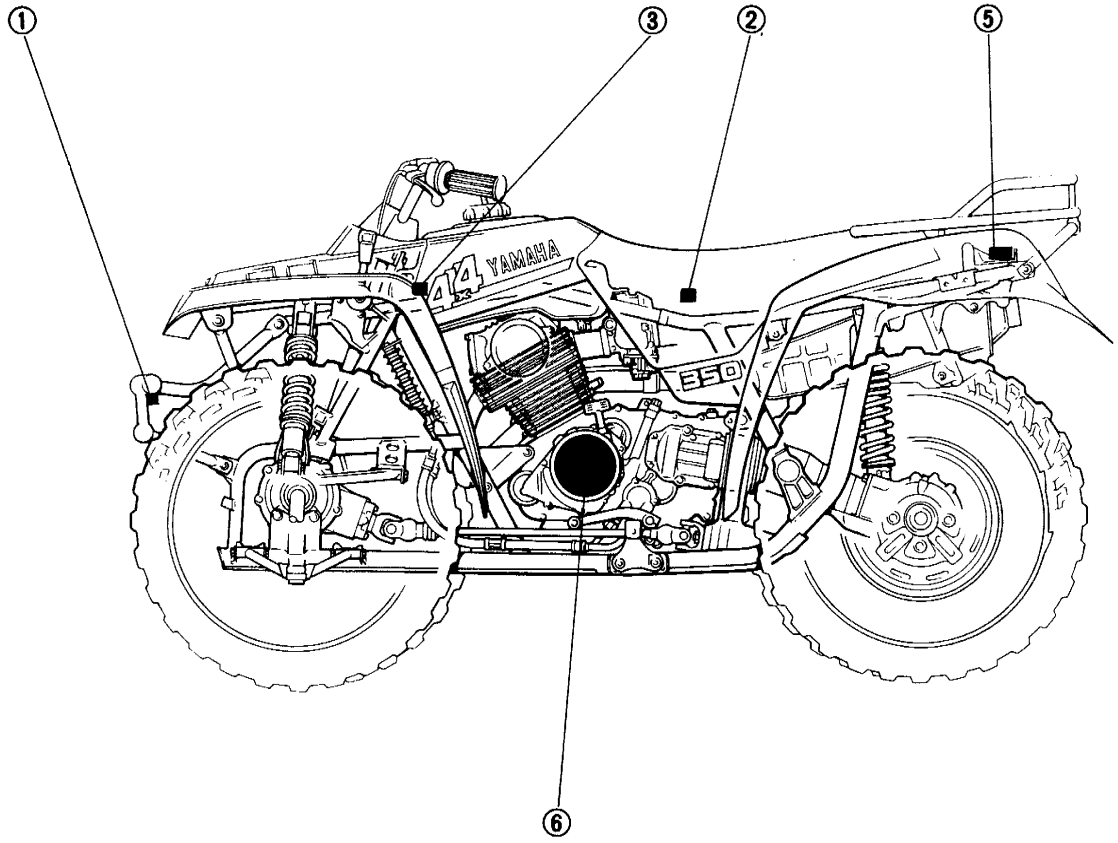
CIRCUIT DIAGRAM



Aforementioned circuit diagram show accessory circuit in circuit diagram.

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

① Auxiliary DC terminal
② Circuit breaker
③ Main switch
⑤ Rectifier with regulator
⑥ CDI magneto



TROUBLESHOOTING

NOTE:
Before this troubleshooting, remove the seat, rear carrier and rear fender.

NOT OUT PUT (12V) ON AUXILIARY DC TERMINAL.

1. Circuit breaker inspection
   - Check the circuit breaker condition. Refer to "CHAPTER 2. CIRCUIT BREAKER INSPECTION" section.

FAULTY → Circuit breaker is faulty. Replace it.

OK ↓

2. Battery inspection
   - Check the battery condition. Refer to "CHAPTER 2. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Recharge or replace it.

OK ↓

3. Main switch conduct test
   - Check the switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → Main switch is faulty. Replace it.

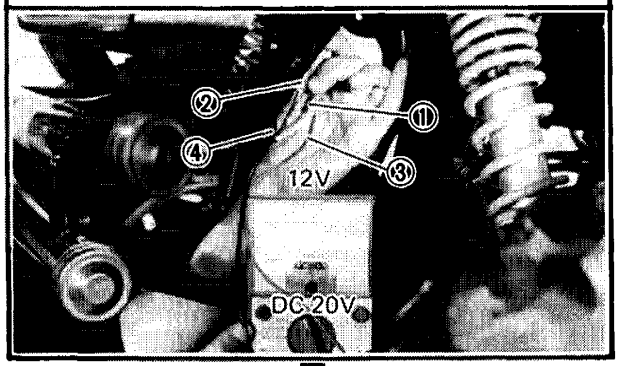
OK ↓

4. Output voltage test
   - Connect the Pocket Tester (YU-03112) to the auxiliary DC terminal leads (Black/Red ① and Black ②).
   - Start the engine and accelerate to about 5,000 r/min.
   - Measure the out put voltage.

OUT PUT VOLTAGE MEETS SPECIFICATION → Auxiliary DC terminal is faulty. Replace it.

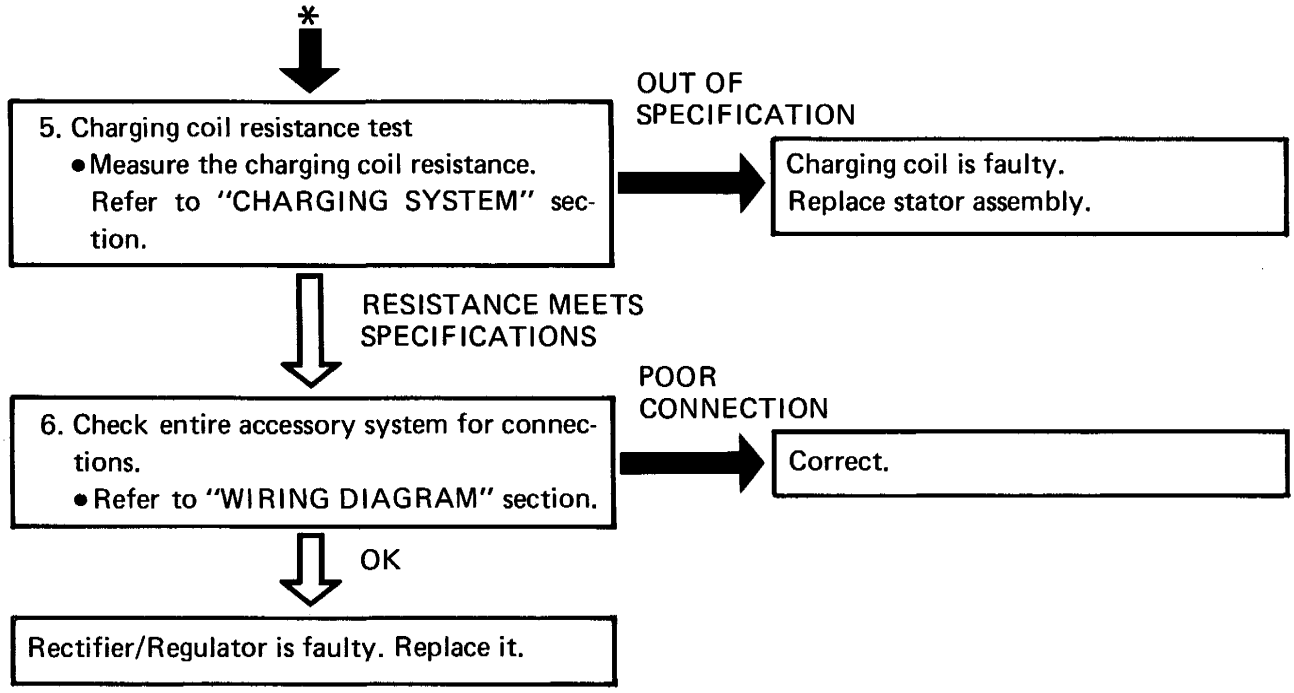
Out Put Voltage:
14 ~ 15V at 5,000 r/min

③ Positive lead (Pocket Tester)
④ Negative lead (Pocket Tester)



OUT OF SPECIFICATION ↓

*


*
5. Charging coil resistance test
• Measure the charging coil resistance.
Refer to "CHARGING SYSTEM" section.
OUT OF SPECIFICATION
Charging coil is faulty.
Replace stator assembly.
RESISTANCE MEETS SPECIFICATIONS
6. Check entire accessory system for connections.
• Refer to "WIRING DIAGRAM" section.
POOR CONNECTION
Correct.
OK
Rectifier/Regulator is faulty. Replace it.

CHAPTER 8.
APPENDICES

SPECIFICATIONS 8-1
GENERAL SPECIFICATIONS 8-1
MAINTENANCE SPECIFICATIONS 8-3

GENERAL TORQUE SPECIFICATIONS 8-15

DEFINITION OF UNITS 8-15

LUBRICATION DIAGRAM 8-16

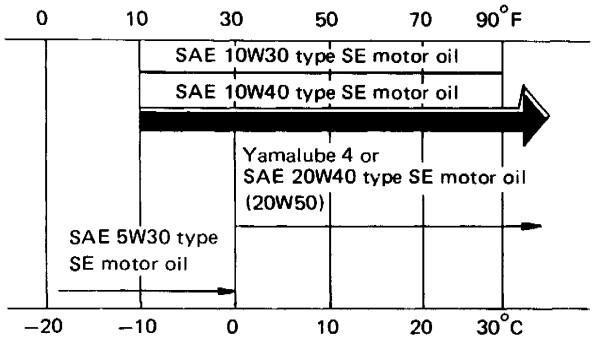
CABLE ROUTING 8-19

YFM350FWT WIRING DIAGRAM

APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YFM350FWT
Model Code Number	2HR
Vehicle Identification Number	JY42HR00 * HC000101
Engine Starting Number	2HR-000101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 1,885 mm (74.2 in) 1,095 mm (43.1 in) 1,110 mm (43.7 in) 830 mm (32.7 in) 1,210 mm (47.6 in) 180 mm (7.1 in)
Basic Weight: With Oil and Full Fuel Tank	 262 kg (578 lb) For Canada: 265 kg (584 lb)
Minimum Turning Radius:	3,000 mm (118.1 in)
Engine: Engine Type Cylinder Arrangemenet Displacement Bore x Stroke Compression Ratio Compression Pressure Starting System	 4-stroke, Air-cooled, SOHC Single cylinder, Forward inclined 348 cm^3 83.0 x 64.5 mm (3.268 x 2.539 in) 8.6 : 1 834 kPa (8.5 kg/cm^2, 121 psi) Electric starter and recoil starter
Lubrication System:	Wet sump
Oil Type or Grade: Engine Oil and Transfer Gear Oil	 SAE 10W40 type SE motor oil
	
Final Gear Oil and Differential Gear Oil	SAE 80 API GL-4 Hypoid gear oil
Oil Capacity: Engine Oil: Periodic Oil Change Total Amount Transfer Gear Case Rear Final Gear Case: Total Amount Differential Gear Case: Total Amount	 2.4 L (2.1 Imp qt, 2.5 US qt) 3.4 L (3.0 Imp qt, 3.6 US qt) 0.3 L (0.26 Imp qt, 0.31 US qt) 0.25 L (0.22 Imp qt, 0.26 US qt) 0.5 L (0.44 Imp qt, 0.53 US qt)
Air Filter	Wet type element

Model	YFM350FWT
Fuel:	
Type	Regular gasoline
Tank Capacity	10.0 L (2.2 Imp gal, 2.6 US gal)
Reserve Amount	1.3 L (0.3 Imp gal, 0.3 US gal)
Carburetor:	
Type/Manufacturer	BTM32SH/MIKUNI
Spark Plug:	
Type/Manufacturer	D8EA (N.G.K.) or X24ES-U (N.D.) For Canada: DR8ES-L (N.G.K.)
Gap	0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch Type:	Wet, Centrifugal automatic
Transmission:	
Primary Reduction System	Gear
Primary Reduction Ratio	76/24 (3.167)
Secondary Reduction System	Shaft drive
Secondary Reduction Ratio: Front	24/18 x 34/26 x 26/34 x 33/9 (4.889)
Rear	24/18 x 33/9 (4.889)
Transmission Type	Constant mesh, Dual range 5-speed forward, 1-speed reverse
Operation	Left foot operation, Left hand operation
Gear Ratio:	

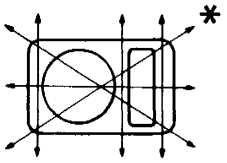
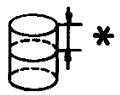
	High range	Low range
1st	38/13 x 23/24 x 24/23 (2.923)	38/13 x 27/20 x 24/23 (4.116)
2nd	34/18 x 23/24 x 24/23 (1.889)	34/18 x 27/20 x 24/23 (2.670)
3rd	30/22 x 23/24 x 24/23 (1.364)	30/22 x 27/20 x 24/23 (1.921)
4th	26/25 x 23/24 x 24/23 (1.040)	26/25 x 27/20 x 24/23 (1.464)
5th	24/29 x 23/24 x 24/23 (0.828)	24/29 x 27/20 x 24/23 (1.166)
Reverse	36/13 x 27/16 (4.673)	

Chassis:	
Frame Type	Steel tube frame
Caster Angle	3.5°
Trail	17 mm (0.67 in)
Toe-in	5 ~ 15 mm (0.20 ~ 0.59 in)
Tread (F)	840 mm (33.1 in)
Tread (R)	820 mm (32.3 in)
Tire:	
Type	Tubeless
Size (F)	AT25 x 8-12 DUNLOP KT951
Size (R)	AT25 x 10-12 DUNLOP KT955
Tire Pressure (Cold Tire):	
Front and Rear:	
Standard	20 kPa (0.20 kg/cm^2, 2.8 psi)
Minimum	17 kPa (0.17 kg/cm^2, 2.4 psi)
Maximum	23 kPa (0.23 kg/cm^2, 3.2 psi)
Wear Limit	3 mm (0.12 in)

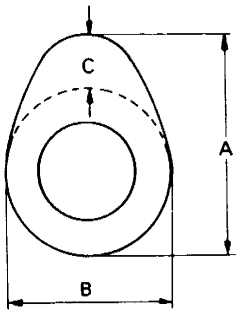
Model	YFM350FWT
Brake:	
Front Brake:	
Type	Drum brake
Operation	Right hand operation
Rear Brake:	
Type	Single, disc brake
Operation	Left hand operation and Right foot operation
Suspension:	
Front	Double wishbone
Rear	Swing arm
Shock Absorber:	
Front	Coil spring, Oil damper
Rear	Coil spring, Oil damper
Wheel Travel:	
Front	100 mm (3.94 in)
Rear	110 mm (4.33 in)
Electrical:	
Ignition System	CDI
Generator System	A.C. magneto generator
Battery Type/Capacity	GM14AZ-4A/12V, 14AH
Headlight Type	Bulb
Bulb Wattage x Quantity:	
Headlight	12V, 25W/25W x 2
Taillight	12V, 7.5W x 1
Indicator Light Wattage x Quantity:	
"NEUTRAL"	12V, 3.4W x 1
"REVERSE"	12V, 3.4W x 1
"OIL TEMP"	12V, 3.4W x 1

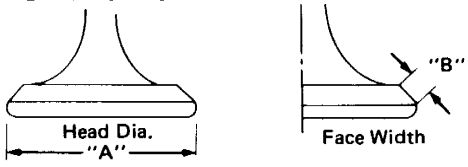
MAINTENANCE SPECIFICATIONS

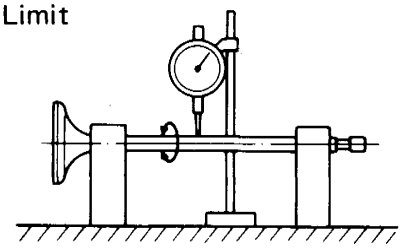
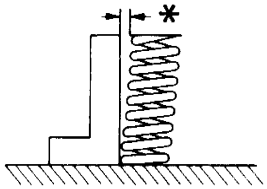
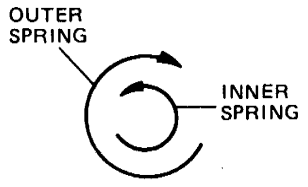
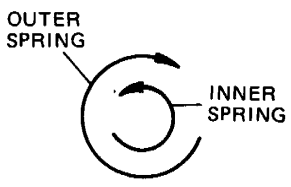
Engine

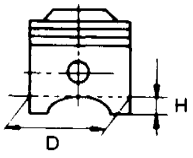
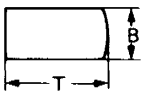
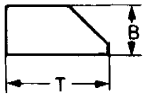
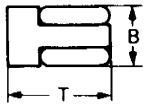
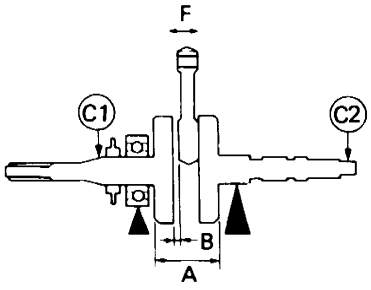
Model	YFM350FWT
Cylinder Head:	
Warp Limit 	<0.03 mm (0.0012 in)> *Lines indicate straightedge measurement.
Cylinder:	
Bore Size/Measuring Point * 	82.97 ~ 83.02 mm (3.267 ~ 3.268 in)/ 40 mm (1.57 in)
Out-of-round Limit	< 0.01 mm (0.0004 in) >

Model	YFM350FWT
Camshaft:	
Drive Method	Chain (Left)
Cam Dimensions:	
Intake:	
"A"	40.29 ~ 40.39 mm (1.586 ~ 1.590 in)
<Limit>	< 40.26 mm (1.585 in) >
"B"	32.14 ~ 32.24 mm (1.265 ~ 1.269 in)
<Limit>	< 32.11 mm (1.264 in) >
"C"	8.28 ~ 8.40 mm (0.326 ~ 0.331 in)
<Limit>	< 8.26 mm (0.325 in) >
Exhaust:	
"A"	40.28 ~ 40.38 mm (1.586 ~ 1.590 in)
<Limit>	< 40.25 mm (1.585 in) >
"B"	32.14 ~ 32.24 mm (1.265 ~ 1.269 in)
<Limit>	< 32.11 mm (1.264 in) >
"C"	8.28 ~ 8.40 mm (0.326 ~ 0.331 in)
<Limit>	< 8.26 mm (0.325 in) >
Camshaft Runout Limit	< 0.03 mm (0.0012 in) >
Cam Chain Type/Number of Links	BF05M/90 Links
Cam Chain Adjustment Method	Automatic
Rocker Arm/Rocker Arm Shaft:	
Rocker Arm Inside Diameter	12.000 ~ 12.018 mm (0.4724 ~ 0.4731 in)
<Limit>	< 12.078 mm (0.4755 in) >
Shaft Outside Diameter	11.981 ~ 11.991 mm (0.4717 ~ 0.4721 in)
<Limit>	< 11.951 mm (0.4705 in) >
Arm-to-shaft Clearance	0.009 ~ 0.037 mm (0.0004 ~ 0.0015 in)
<Limit>	< 0.08 mm (0.0032 in) >
Valve, Valve Seat, Valve Guide:	
Valve Clearance (Cold):	
IN.	0.06 ~ 0.10 mm (0.002 ~ 0.004 in)
EX.	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)
Valve Dimensions:	
"A" Head Dia. IN.	37.9 ~ 38.1 mm (1.492 ~ 1.500 in)
EX.	31.9 ~ 32.1 mm (1.256 ~ 1.264 in)
"B" Face Width IN.	2.26 mm (0.089 in)
EX.	2.26 mm (0.089 in)
"C" Seat Width IN.	1.0 ~ 1.2 mm (0.039 ~ 0.047 in)
<Limit>	< 1.6 mm (0.063 in) >
EX.	1.0 ~ 1.2 mm (0.039 ~ 0.047 in)
<Limit>	< 1.6 mm (0.063 in) >
"D" Margin Thickness IN.	1.0 ~ 1.4 mm (0.039 ~ 0.055 in)
EX.	0.8 ~ 1.2 mm (0.031 ~ 0.047 in)
Stem Outside Diameter IN.	6.975 ~ 6.990 mm (0.2746 ~ 0.2752 in)
<Limit>	< 6.95 mm (0.274 in) >
EX.	6.955 ~ 6.970 mm (0.2738 ~ 0.2744 in)
<Limit>	< 6.915 mm (0.2722 in) >

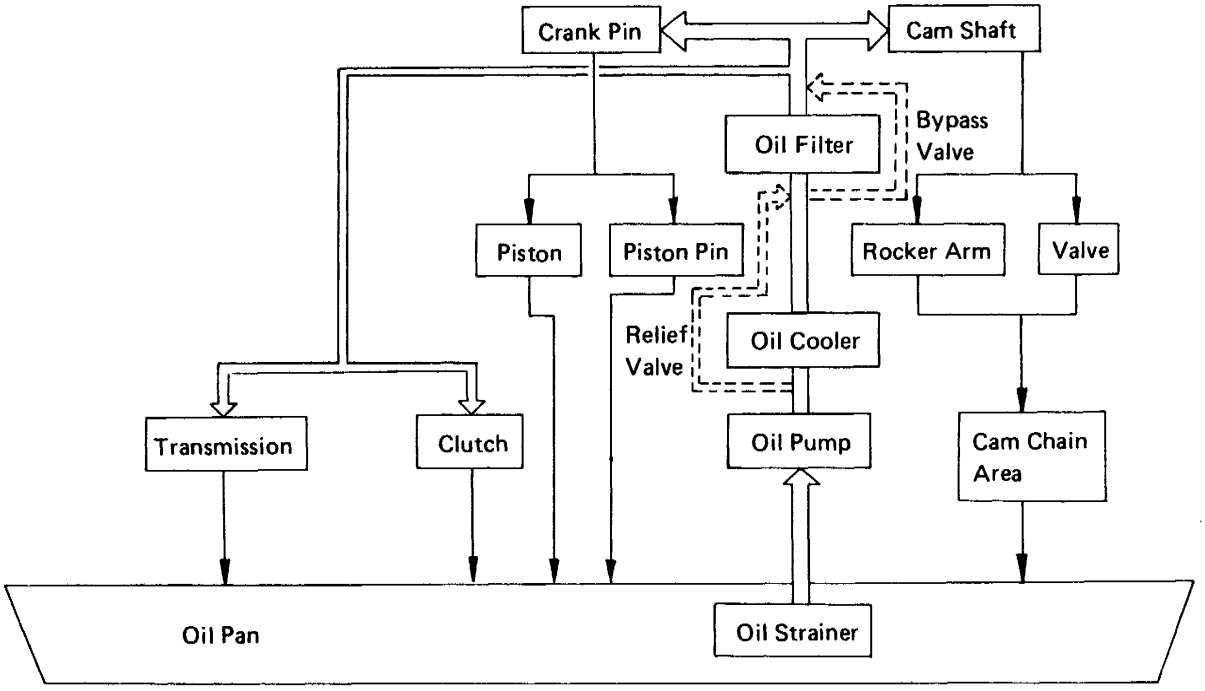




Model		YFM350FWT
Guide Inside Diameter	IN.	7.000 ~ 7.012 mm (0.2756 ~ 0.2761 in)
	< Limit >	< 7.03 mm (0.277 in) >
	EX.	7.000 ~ 7.012 mm (0.2756 ~ 0.2761 in)
	< Limit >	< 7.03 mm (0.277 in) >
Stem-to-guide Clearance	IN.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)
	< Limit >	< 0.08 mm (0.0031 in) >
	EX.	0.030 ~ 0.057 mm (0.0012 ~ 0.0022 in)
	< Limit >	< 0.1 mm (0.0039 in) >
Stem Runout Limit		0.02 mm (0.0008 in)
		
Valve Seat Width		1.0 ~ 1.2 mm (0.039 ~ 0.047 in)
< Limit >		< 1.6 mm (0.063 in) >
Valve Spring:		
Free Length:		
Inner Spring	IN.	39.9 mm (1.57 in)
	< Limit >	< 37.9 mm (1.49 in) >
	EX.	39.9 mm (1.57 in)
	< Limit >	< 37.9 mm (1.49 in) >
Outer Spring	IN.	43.27 mm (1.70 in)
	< Limit >	< 41.27 mm (1.62 in) >
	EX.	43.27 mm (1.70 in)
	< Limit >	< 41.27 mm (1.62 in) >
Compressed Length (Valve Closed):		
Inner Spring	IN.	33.6 mm (1.32 in)
	EX.	33.6 mm (1.32 in)
Outer Spring	IN.	36.6 mm (1.44 in)
	EX.	36.6 mm (1.44 in)
Tilt Limit *:	IN. & EX.	2.5° or 1.6 mm (0.06 in)
		
Direction of Winding (Top view)		IN:  EX: 

Model		YFM350FWT
Piston:		
Piston Size "D" / Measuring Point "H"		82.92 ~ 82.97 mm (3.265 ~ 3.267 in)/ 5.5 mm (0.22 in) (From bottom line of piston skirt)
Piston Over Size: 2nd		83.50 mm (3.287 in)
4th		84.00 mm (3.307 in)
Piston Clearance		0.04 ~ 0.06 mm (0.0016 ~ 0.0024 in)
Piston Ring:		
Sectional Sketch:		
Top Ring		Barrel B = 1.2 mm (0.05 in) T = 3.3 mm (0.13 in)
2nd Ring		Taper B = 1.5 mm (0.06 in) T = 3.4 mm (0.13 in)
Oil Ring		Expander B = 2.8 mm (0.11 in) T = 2.5 mm (0.10 in)
End Gap (Installed):		
	Top Ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	2nd Ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	Oil Ring	0.3 ~ 0.9 mm (0.012 ~ 0.035 in)
< Limit > :		
	Top Ring	< 0.5 mm (0.020 in) >
	2nd Ring	< 0.5 mm (0.020 in) >
	Oil Ring	–
Side Clearance:		
	Top Ring	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
	2nd Ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
< Limit > :		
	Top Ring	< 0.12 mm (0.0047 in) >
	2nd Ring	< 0.12 mm (0.0047 in) >
Crankshaft:		
Crank Width "A"		58.95 ~ 59.00 mm (2.321 ~ 2.323 in)
Big End Side Clearance "B"		0.35 ~ 0.85 mm (0.014 ~ 0.033 in)
< Limit >		< 0.9 mm (0.035 in) >
Runout Limit:	"C1"	< 0.02 mm (0.0008 in) >
	"C2"	< 0.06 mm (0.0024 in) >
Small End Free Play "F"		0.8 ~ 1.0 mm (0.03 ~ 0.04 in)
< Limit >		< 2.0 mm (0.08 in) >
Balancer Drive Method:		Gear
Clutch:		
Clutch Shoe:		
Thickness		2.0 mm (0.08 in)
Quantity		4
Wear Limit		< 1.5 mm (0.06 in) >

Model	YFM350FWT
Friction Plate:	
Thickness	2.94 ~ 3.06 mm (0.116 ~ 0.120 in)
Quantity	7
Wear Limit	<2.8 mm (0.110 in)>
Clutch Plate:	
Thickness	Type "A": 1.5 ~ 1.7 mm (0.059 ~ 0.067 in) Type "B": 1.9 ~ 2.1 mm (0.075 ~ 0.083 in)
Quantity	Type "A": 4 Type "B": 2
Warp Limit	< 0.2 mm (0.008 in) >
Clutch Spring:	
Free Length	47.8 mm (1.88 in)
Quantity	5
Wear Limit	< 45.8 mm (1.80 in) >
Clutch Release Method	Outer push
Clutch-In Revolution	1,850 ~ 2,150 r/min
Clutch-Stall Revolution	3,050 ~ 3,450 r/min
Transmission:	
Main Axle Deflection Limit	<0.08 mm (0.0031 in)>
Drive Axle Deflection Limit	<0.08 mm (0.0031 in)>
Shifter:	
Shifter Type	Guide bar, Cam drum
Decompression Device:	
Type	Manual
Air Filter Oil Grade (Oiled Filter):	Foam-air-filter oil or SAE 10W30 type SE motor oil
Carburetor:	
Type/Manufacturer/Quantity	BTM32SH/MIKUNI/1
I.D. Mark	2HR 00
Main Jet (M.J.)	#122.5
Main Air Jet (M.A.J.)	ϕ0.8
Jet Needle-clip Position (J.N.)	5H26-3
Needle Jet (N.J.)	N-8
Pilot Air Jet (P.A.J. 1)	1.0
(P.A.J. 2)	0.9
Pilot Jet (P.J.)	#45
Pilot Outlet (P.O.)	ϕ0.75
Pilot Screw (P.S.)	2-3/4
Valve Seat (V.S.)	ϕ2.5
Fuel Level (F.L.)	1.0 ~ 2.0 mm (0.04 ~ 0.08 in)
Float Height (F.H.)	11.4 ~ 13.4 mm (0.45 ~ 0.53 in)
Engine Idling Speed	1,350 ~ 1,450 r/min
Lubrication System:	
Oil Filter Type	Wire mesh
Oil Pump Type	Trochoid pump
Tip Clearance	0.15 mm (0.006 in)
<Limit>	< 0.20 mm (0.008 in) >
Side Clearance	0.04 ~ 0.09 mm (0.0016 ~ 0.0035 in)
Bypass Valve Setting Pressure	80 ~ 120 kPa (0.8 ~ 1.2 kg/cm^2, 11.4 ~ 17.1 psi)
Middle Gear:	
Gear Lash	0.1 ~ 0.2 mm (0.004 ~ 0.008 in)

Model	YFM350FWT
Rear Final Gear: Gear Lash Ring Gear Stopper Clearance	 0.1 ~ 0.2 mm (0.004 ~ 0.008 in) 0.30 ~ 0.60 mm (0.012 ~ 0.024 in)
Differential Gear: Gear Lash	 0.10 ~ 0.35 mm (0.004 ~ 0.014 in)
Lubrication Diagram: ⇨ Pressure feed ⟶ Splashed scavenge	

TIGHTENING TORQUE:

Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Cylinder Head	Bolt	M10	4	40	4.0	29	E
	Bolt	M8	2	20	2.0	14	E
Cylinder	Bolt	M6	1	10	1.0	7.2	
Cylinder Head Cover:							
Tappet Cover	Bolt	M6	5	10	1.0	7.2	
Sprocket Cover	Screw	M6	2	10	1.0	7.2	
Camshaft Bearing Plate	Bolt	M6	2	8	0.8	5.8	Use lock washer
Oil Checking Bolt	Bolt	M6	1	7	0.7	5.1	
Spark Plug	—	M12	1	17.5	1.75	12.5	
Balancer Shaft	Nut	M16	1	60	6.0	43	Use lock washer
CDI Magneto	Bolt	M10	1	50	5.0	36	
Valve Adjusting Nut	Nut	M7	2	20	2.0	14	
Cam Sprocket	Bolt	M10	1	60	6.0	43	
Chain Damper	Bolt	M6	2	10	1.0	7.2	
Oil Pump	Screw	M6	3	7	0.7	5.1	
Drain Plug	Plug	M35	1	32	3.2	23	
Filter Cover	Bolt	M6	3	10	1.0	7.2	
Carburetor	Nut	M8	2	8	0.8	5.8	
Carburetor Joint	Bolt	M8	2	16	1.6	11	
Carburetor Clamp Hose	Screw	M5	1	2	0.2	1.4	
Muffler	Bolt	M8	2	27	2.7	19	
Exhaust Pipe	Nut	M6	2	12	1.2	8.7	
Exhaust Pipe Protector	Screw	M6	4	8	0.8	5.8	LT
Crankcase	Bolt	M6	16	10	1.0	7.2	
Crankcase Cover (Left)	Bolt	M6	12	10	1.0	7.2	
Clutch Spring	Bolt	M6	5	8	0.8	5.8	
Clutch Boss	Nut	M16	1	80	8.0	58	Use lock washer
Primary Drive Gear	Nut	M16	1	78	7.8	56	Use lock washer
Drive Sprocket	Nut	M20	2	75	7.5	54	
Change Pedal	Bolt	M6	1	10	1.0	7.2	
Cam Chain Tensioner:							
End Plug	Plug	M12	1	25	2.5	18	
Tensioner body	Bolt	M6	2	10	1.0	7.2	
Muffler and exhaust pipe	Bolt	M8	1	20	2.0	14	
Pickup coil	Screw	M5	2	5	0.5	3.6	
Stator assembly	Screw	M6	3	7	0.7	5.1	
Recoil Starter	Bolt	M6	4	10	1.0	7.2	
Starter Motor	Bolt	M6	2	10	1.0	7.2	
Neutral Switch	—	M10	1	20	2.0	14	
Reverse Switch	—	M10	1	20	2.0	14	
Thermo Switch	—	M12	1	20	2.0	14	
Bearing Retainer (Right)	Screw	M6	2	10	1.0	7.2	LT
Bearing Retainer (Left)	Screw	M6	3	7	0.7	5.1	LT
Crankcase Cover (Right)	Screw	M6	9	7	0.7	5.1	
Shift Cam Segment	Screw	M6	1	12	1.2	8.7	LT
Clutch Adjuster	Nut	M8	1	15	1.5	11	
Bearing Retainer (Drive Axle)	Screw	M8	3	25	2.5	18	Stake
Bearing Retainer (Housing)	Bolt	M8	4	25	2.5	18	
Middle Drive Axle	Nut	M20	1	120	12.0	85	Stake
Middle Driven Axle (U-Joint)	Nut	M14	2	90	9.0	65	G

Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Rear Final Gear Case	Nut	M10	4	23	2.3	17	
Drain Plug (Rear Final Gear Case)	Plug	–	2	23	2.3	17	
Bearing Housing (Rear Final Gear Case)	Bolt	M10	2	40	4.0	29	
Bearing Housing (Rear Final Gear Case)	Bolt	M8	6	23	2.3	17	
Bearing Retainer (Rear Final Gear)	–	–	1	100	10.0	72	
Ring Gear Stopper (Rear Final Gear)	Bolt	M10	1	9	0.9	6.5	S
Select Lever Body	Bolt	M6	2	10	1.0	7.2	
Select Lever Control Cable	Nut	M12	2	20	2.0	14	
Select Lever Cam	Bolt	M6	1	14	1.4	10	
Oil Cooler	Bolt	M6	2	7	0.7	5.1	
Oil Cooler Hose: Oil Hose	Nut	–	2	35	3.5	25	
Hose Clamp	Screw	M6	2	7	0.7	5.1	
Crankcase	Nut	–	2	35	3.5	25	
Transfer Gear Case	Bolt	M6	9	10	1.0	7.2	
Drain Plug (Transfer Gear Case)	Plug	M8	1	20	2.0	14	
Filler Plug (Transfer Gear Case)	Plug	M14	1	23	2.3	17	
Differential Gear Case and Frame:							
Front	Bolt	M10	4	45	4.5	32	
Rear	Bolt	M8	4	23	2.3	17	
Drain Plug	Plug	M14	2	23	2.3	17	
(Differential Gear Case)	Plug	M8	1	16	1.6	11	
Bearing Housing	Bolt	M10	2	40	4.0	29	
(Differential Gear Case)	Bolt	M8	6	23	2.3	17	
Ring Gear Stopper (Differential Gear Case)	Nut	M8	1	16	1.6	11	
Differential Assembly and Ring Gear	Bolt	M8	6	64	6.4	46	Use lock washer
U-joint (Differential Case) and Nut	Nut	M14	1	–	–	–	S See NOTE Stake

NOTE:

Starting torque: 0.8 ~ 1.3 Nm (0.08 ~ 0.13 m·kg, 0.60 ~ 0.94 ft·lb)

Chassis

Model		YFM350FWT
Steering System:		
Lock to Lock Angle:		
Inside		44°
Outside		44°
Front Suspension:		
Cushion Stroke		67.5 mm (2.66 in)
Suspension Spring Free Length		198 mm (7.80 in)
< Limit >		< 196 mm (7.72 in) >
Fitting Length		178 mm (7.01 in)
Spring Rate/Stroke:	K1	22.6 N/mm (2.3 kg/mm, 129 lb/in)/ 0 ~ 70 mm (0 ~ 2.76 in)
	K2	44.1 N/mm (4.5 kg/mm, 252 lb/in)/ 70 ~ 87.5 mm (2.76 ~ 3.44 in)
Rear Suspension:		
Cushion Stroke		75 mm (2.95 in)
Suspension Spring Free Length		247.2 mm (9.73 in)
< Limit >		< 245 mm (9.65 in) >
Fitting Length		243.2 mm (9.57 in)
Spring Rate/Stroke:	K1	33.3 N/mm (3.4 kg/mm, 190 lb/in)/ 0 ~ 55 mm (0 ~ 2.17 in)
	K2	62.8 N/mm (6.4 kg/mm, 358 lb/in)/ 55 ~ 93 mm (2.17 ~ 3.66 in)
Swingarm:		
Free Play Limit:		
Side		< 1.0 mm (0.04 in) >
Wheel:		
Front Wheel Type		Disc Wheel
Rear Wheel Type		Disc Wheel
Front Rim Size/Material		12 x 6.5AT/Steel
Rear Rim Size/Material		12 x 8.0AT/Steel
Rin Runout Limit:	Vertical	< 2.0 mm (0.08 in) >
	Lateral	< 2.0 mm (0.08 in) >
Front Drum Brake:		
Type		Two leading
Drum Inside Diameter		160 mm (6.30 in)
< Limit >		< 161 mm (6.34 in) >
Lining Thickness		4 mm (0.16 in)
< Limit >		< 1 mm (0.04 in) >
Shoe Spring Free Length		104 mm (4.09 in)
Rear Disc Brake:		
Type		Single disc
Disc Outside Diameter x Thickness		224 x 4.0 mm (8.82 x 0.16 in)
< Limit >		< 3.0 mm (0.12 in) >
Pad Thickness		8.0 mm (0.31 in)
< Limit >		< 2.0 mm (0.08 in) >
Brake Lever & Brake Pedal:		
Brake Lever Free Play:		
Just before adjuster contacts master cylinder piston.		3 ~ 5 mm (0.12 ~ 0.20 in) at lever end
Just before brake is actually applied.		25 ~ 30 mm (1.0 ~ 1.2 in) at lever end
Brake Pedal Position		5 mm (0.2 in)
Brake Pedal Free Play		20 ~ 30 mm (0.8 ~ 1.2 in)

TIGHTENING TORQUE:

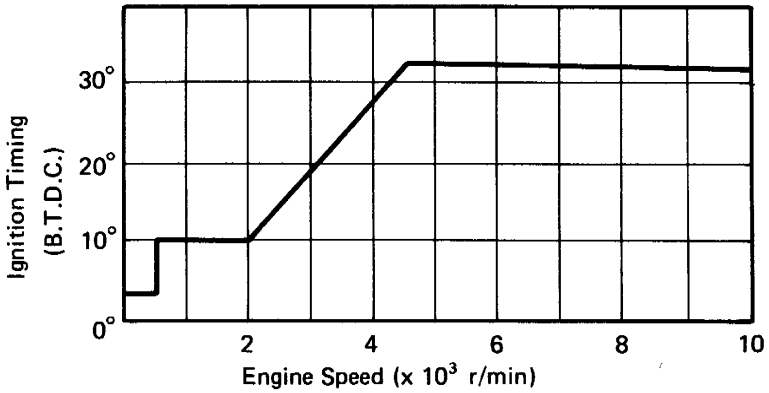
Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Constant Velocity Joint and Nut	Nut	M16 x 1.5	2	130	13.0	94	
Front Disc Wheel and Wheel Hub	Nut	M10 x 1.25	8	55	5.5	40	
Steering Knuckle and Upper Arm	Nut	M10 x 1.25	2	25	2.5	18	
Steering Knuckle and Lower Arm	Nut	M10 x 1.25	2	35	3.5	25	
Tie-rod End and Steering Knuckle	Nut	M10 x 1.25	2	25	2.5	18	
Tie-rod End and Steering Shaft	Nut	M10 x 1.25	2	25	2.5	18	
Tie-rod and Locknut	Nut	M10 x 1.25	4	30	3.0	22	
Steering Shaft and Frame	Nut	M10 x 1.25	1	30	3.0	22	
Steering Shaft Holder and Frame	Bolt	M8 x 1.25	2	23	2.3	17	Use lock washer
Steering Shaft and Upper Handlebar Holder	Bolt	M8 x 1.25	4	20	2.0	14	
Front Arms (Lower and Upper) and Frame	Nut	M10 x 1.25	4	43	4.3	31	
Front Suspension and Frame	Nut	M10 x 1.25	2	45	4.5	32	
Front Suspension and Upper Arm	Nut	M10 x 1.25	2	45	4.5	32	
Engine Mounting (Top)	Nut	M8 x 1.25	2	33	3.3	24	
Engine Mounting (Front)	Nut	M8 x 1.25	3	33	3.3	24	
Engine Mounting (Rear)	Nut	M8 x 1.25	2	33	3.3	24	
Footrest and Frame	Bolt	M12 x 1.25	4	55	5.5	40	
Front Bumper (Bottom)	Bolt	M8 x 1.25	2	23	2.3	17	
(Top)	Bolt	M8 x 1.25	2	23	2.3	17	
Front Carrier and Frame	Bolt	M8 x 1.25	2	20	2.0	14	
Front Carrier and Front Bumper	Bolt	M6 x 1.0	2	10	1.0	7.2	
Rear Bumper	Bolt	M8 x 1.25	4	33	3.3	24	
Rear Carrier and Rear Bumper	Bolt	M6 x 1.0	2	9	0.9	6.5	
Rear Carrier	Bolt	M8 x 1.25	2	33	3.3	24	
Rear Axle and Nut	Nut	M16 x 1.5	2	150	15.0	110	
Rear Axle and Ring Nut	Ring nut	M40 x 1.5	2	—	—	—	See NOTE
Rear Disc Wheel and Wheel Collar	Nut	M10 x 1.25	8	55	5.5	40	
Caliper and Rear Arm	Nut	M10 x 1.25	2	50	5.0	36	
Pad Adjuster and Locknut	Nut	M8 x 1.25	1	16	1.6	11	
Brake Caliper	Nut	M6 x 1.0	3	9	0.9	6.5	
Bearing Housing and Rear Arm	Nut	M10 x 1.25	4	23	2.3	17	
Rear Gear Housing and Rear Arm	Bolt	M10 x 1.25	4	45	4.5	32	
Rear Suspension and Frame	Bolt	M12 x 1.25	1	50	5.0	36	
Fuel Tank and Fuel Cock	Screw	M6 x 1.0	2	5	0.5	3.6	
Pivot Shaft	—	—	2	6	0.6	4.3	
Pivot Shaft Nut	—	—	2	130	13.0	94	
Bearing Retainer (Steering Shaft Holder Bearing)	Nut	M42 x 1.0	1	40	4.0	29	

NOTE:

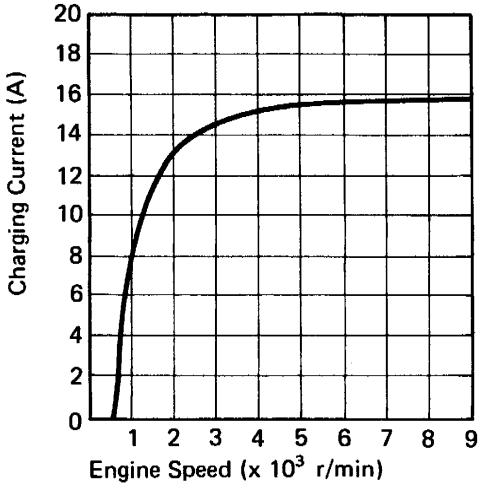
1. Apply LOCTITE® to the thread portion of the rear axle.
2. Finger tighten the inside-ring nut while checking the ring gear engagement.
3. Tighten the inside-ring nut to 30 Nm (3.0 m·kg, 22 ft·lb) while holding the rear axle.
4. Hold the inside-ring nut and tighten the outside-ring nut to 190 Nm (19.0 m·kg, 140 ft·lb).
5. Hold the outside-ring nut and tighten back the inside-ring nut to 240 Nm (24.0 m·kg, 170 ft·lb).

Electrical

Model	YFM350FWT
Voltage:	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	10° at 1,000 r/min
Advanced Timing (B.T.D.C.)	33° at 5,000 r/min
Advancer Type	Electrical



CDI:	
Magneto-Model/Manufacturer	F3T43671/MITSUBISHI
Pickup Coil Resistance (Color)	180 ~ 220Ω at 20°C (68°F) (Y – G, Gy – L)
Source Coil Resistance (Color)	270 ~ 330Ω at 20°C (68°F) (Br – R)
CDI Unit-Model/Manufacturer	F8T10572/MITSUBISHI
Ignition Coil:	
Model/Manufacturer	F6T50971/MITSUBISHI
Minimum Spark Gap	6 mm (0.24 in)
Primary Winding Resistance	0.72 ~ 0.98Ω at 20°C (68°F)
Secondary Winding Resistance	5.02 ~ 6.79 kΩ at 20°C (68°F)
Charging System/Type	A.C. magneto generator
A.C. Magneto Generator:	
Charging Current	9A or more at 1,500 r/min 12A or more at 3,000 r/min 17A ore more at 8,000 r/min
Charging Coil Resistance (Color)	0.70 ~ 0.86Ω at 20°C (68°F) (W – W)



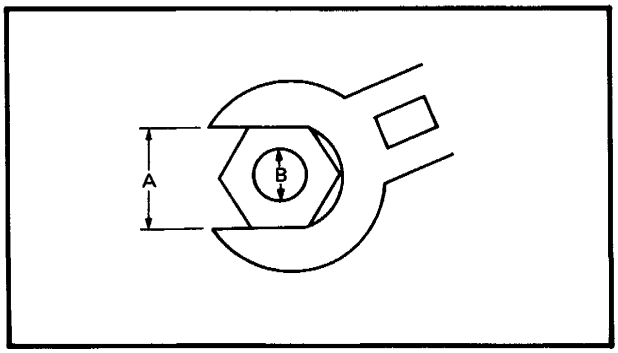
Voltage Regulator:	
Type	Short circuit type
Model/Manufacture	SH235/SHINDENGEN
No Load Regulated Voltage	14 ~ 15V

Model	YFM350FWT
Rectifier:	
Model/Manufacturer	SH235/SHINDENGEN
Capacity	15A
Withstand Voltage	200V
Battery:	
Capacity	12V, 14AH
Specific Gravity	1.280
Electrical Starter System:	
Amperage Rating	Constant mesh type
Starter Motor:	
Model/Manufacturer	DB5DV/NIPPONDENSO
Output	0.7 kW
Armature Coil Resistance	0.011 ~ 0.013Ω at 20°C (68°F)
Brush:	
Overall Length	12 mm (0.47 in)
< Limit >	< 8.5 mm (0.33 in) >
Spring Pressure	650 ~ 950 g (22.9 ~ 33.4 oz)
Commutator:	
Diameter	28 mm (1.10 in)
< Wear Limit >	< 27 mm (1.06 in) >
Mica Undercut	0.6 mm (0.024 in)
Starter Relay:	
Model/Manufacturer	I26-22011 (HONDA LOCK)
Amperage Rating	150A
Coil Winding Resistance/Color	3.1 ~ 3.7Ω at 20°C (68°F)/(R/W – B)
Starting Circuit Cut-off Relay:	
Model/Manufacturer	ACA12101/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Diode	No
Neutral Relay:	
Model/Manufacturer	ACA12101/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Diode	No
Reverse Relay:	
Model/Manufacturer	ACA2212-1/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Diode	No
Thermo Relay:	
Model/Manufacturer	ACA2212-1/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Diode	No
Oil Temperature Switch:	
Model/Manufacturer	136900-0021/N.D.
Circuit Breaker:	
Type: MAIN	Fuse
D.C. TERMINAL	CIRCUIT BREAKER
Amperage for Individual Circuit/Quantity:	
Main (MAIN)	30A x 1
Reserve (MAIN)	30A x 1
Circuit Breaker	15A x 1

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multifastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m·kg	ft·lb
10mm	6mm	6	0.6	4.3
12mm	8mm	15	1.5	11
14mm	10mm	30	3.0	22
17mm	12mm	55	5.5	40
19mm	14mm	85	8.5	61
22mm	16mm	130	13.0	94



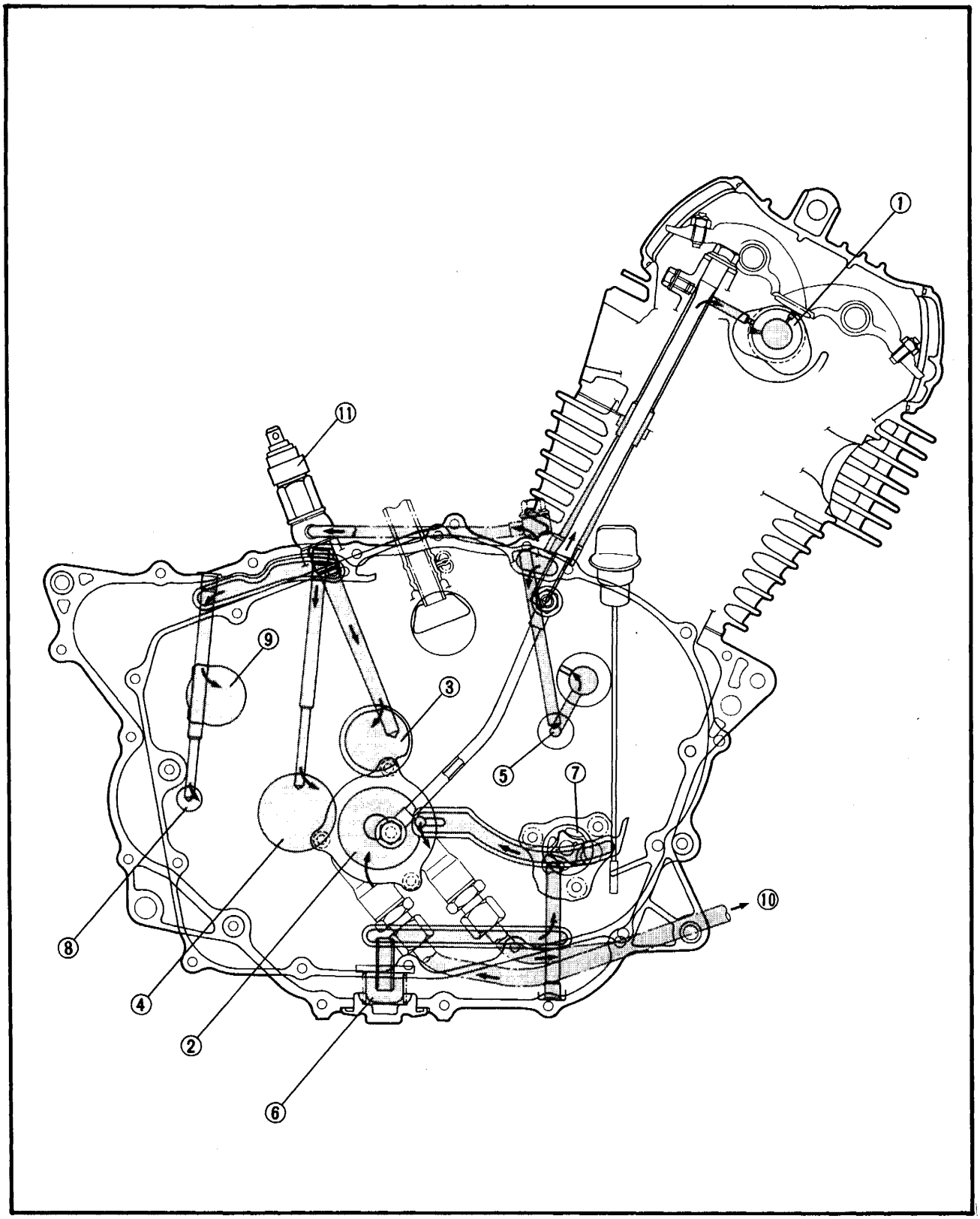
A: Distance across flats
B: Outside thread diameter

DEFINITION OF UNITS

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

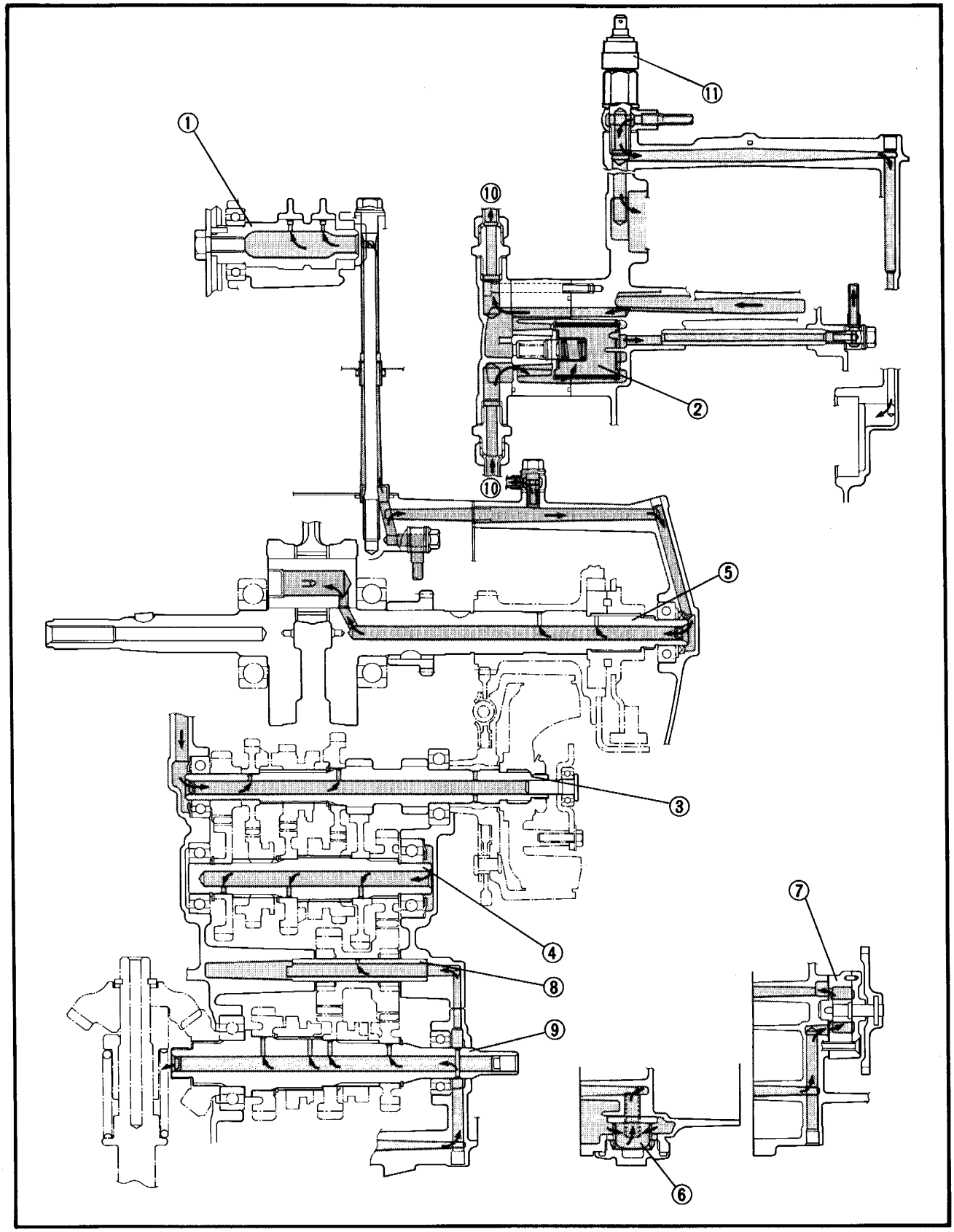
LUBRICATION DIAGRAMS

① Camshaft
② Oil cleaner
③ Main axle
④ Drive axle
⑤ Crankshaft
⑥ Oil filter
⑦ Oil pump
⑧ Idle axle
⑨ Middle drive axle
⑩ Oil cooler
⑪ Thermo switch



LUBRICATION DIAGRAMS

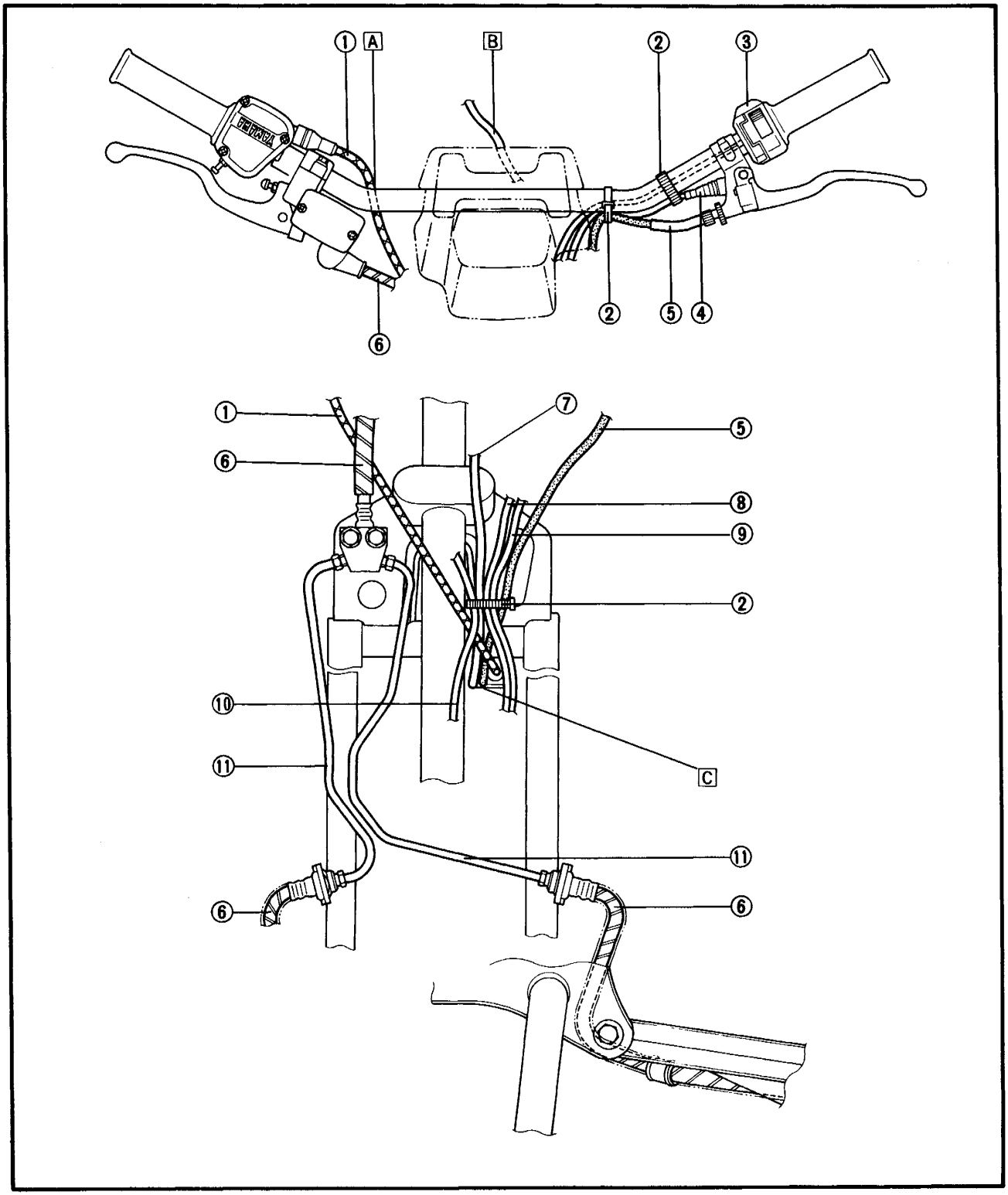
① Camshaft
② Oil cleaner
③ Main axle
④ Drive axle
⑤ Crankshaft
⑥ Oil filter
⑦ Oil pump
⑧ Idle axle
⑨ Middle drive axle
⑩ Oil cooler
⑪ Thermo switch



CABLE ROUTING

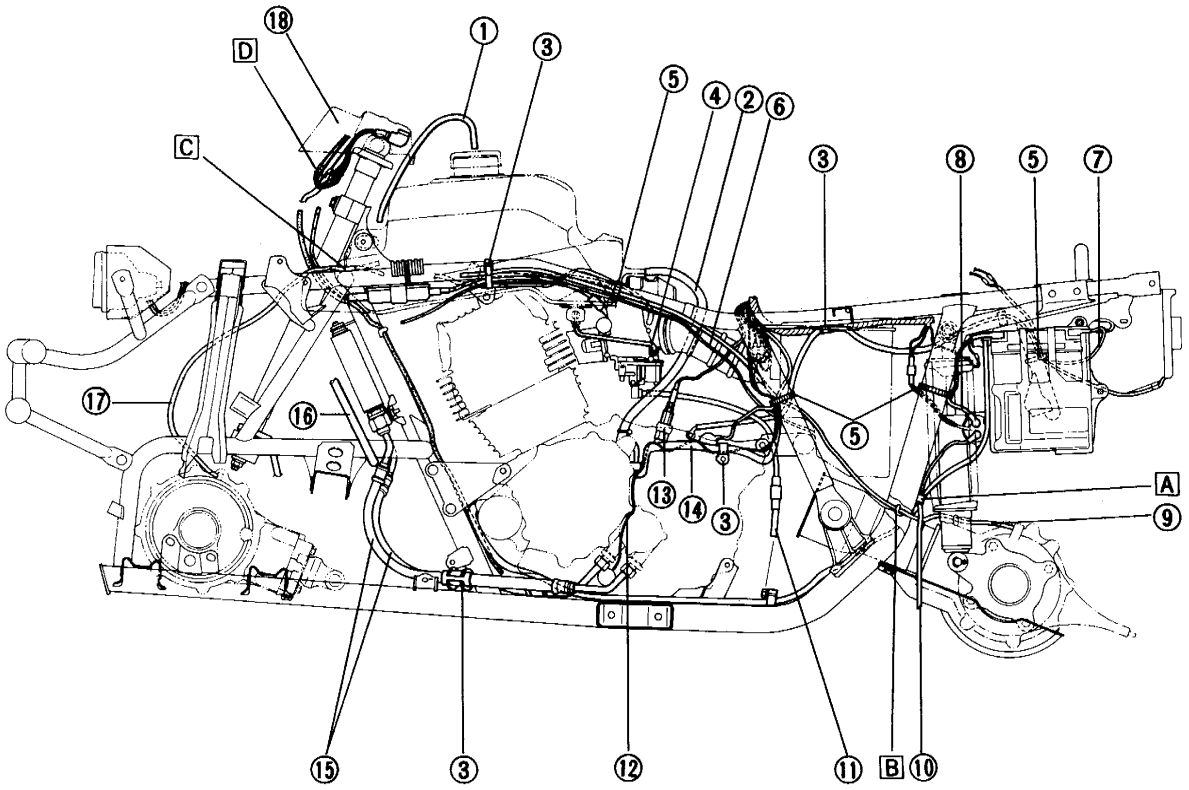
① Throttle cable
② Band
③ Handlebar switch
④ Front brake switch
⑤ Rear brake cable
⑥ Brake hose
⑦ Speedometer cable
⑧ Front brake switch lead
⑨ Handlebar switch lead
⑩ Indicator lights lead
⑪ Brake pipe

[A] Pass the cable under the handlebar throttle cable under the brake hose.
[B] Insert the breather hose into the hole of the handlebar protector.
[C] Pass the speedometer cable, rear brake cable and throttle cable in order from the inside.
[D] Pass the throttle cable under the brake hose.



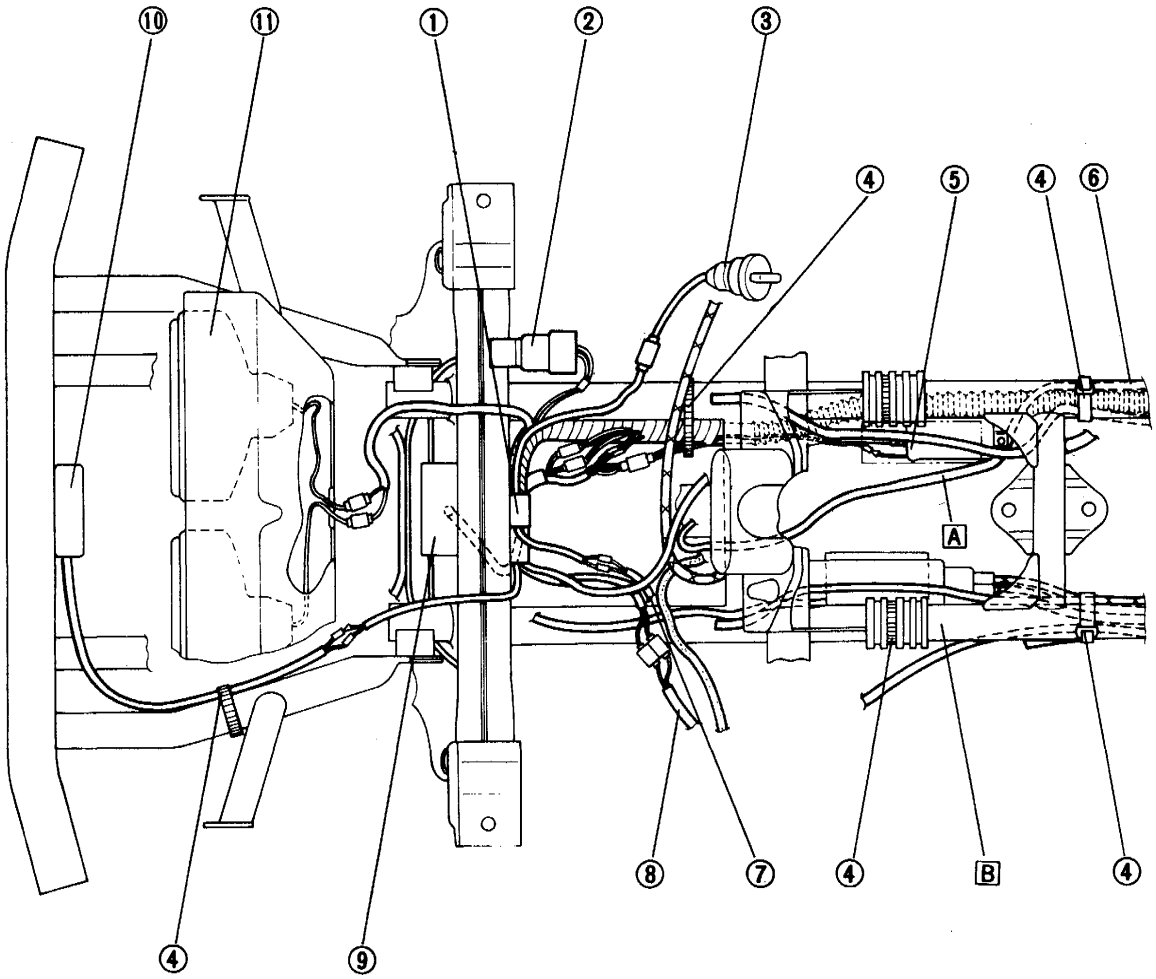
① Fuel tank breather hose
② Crankcase breather hose
③ Clamp
④ Fuel hose
⑤ Band
⑥ Select lever control cable 2
⑦ Ground lead
⑧ Positive lead
⑨ Final gear case breather hose
⑩ Battery breather hose
⑪ Carburetor over flow hose
⑫ Neutral switch lead
⑬ Thermo switch
⑭ CDI magneto lead
⑮ Oil cooler hose
⑯ Select lever control cable 1
⑰ Differential gear case breather hose
⑱ Handlebar protector

[A] Clamp the starter motor cable and battery breather hose.
[B] Pass the final gear case breather hose the clamp.
[C] Pass the hoses into the holes.
Left side: Carburetor breather hose
Differential gear case breather hose
Right side: Carburetor breather hose
[D] Pass the leads outside of the handlebar holder (Right).



① Clamp
② Thermo relay
③ Main switch
④ Band
⑤ Ignition coil
⑥ Speedometer cable
⑦ Front brake switch lead
⑧ Handlebar switch lead
⑨ CDI unit
⑩ Auxiliary D.C. terminal
⑪ Headlight

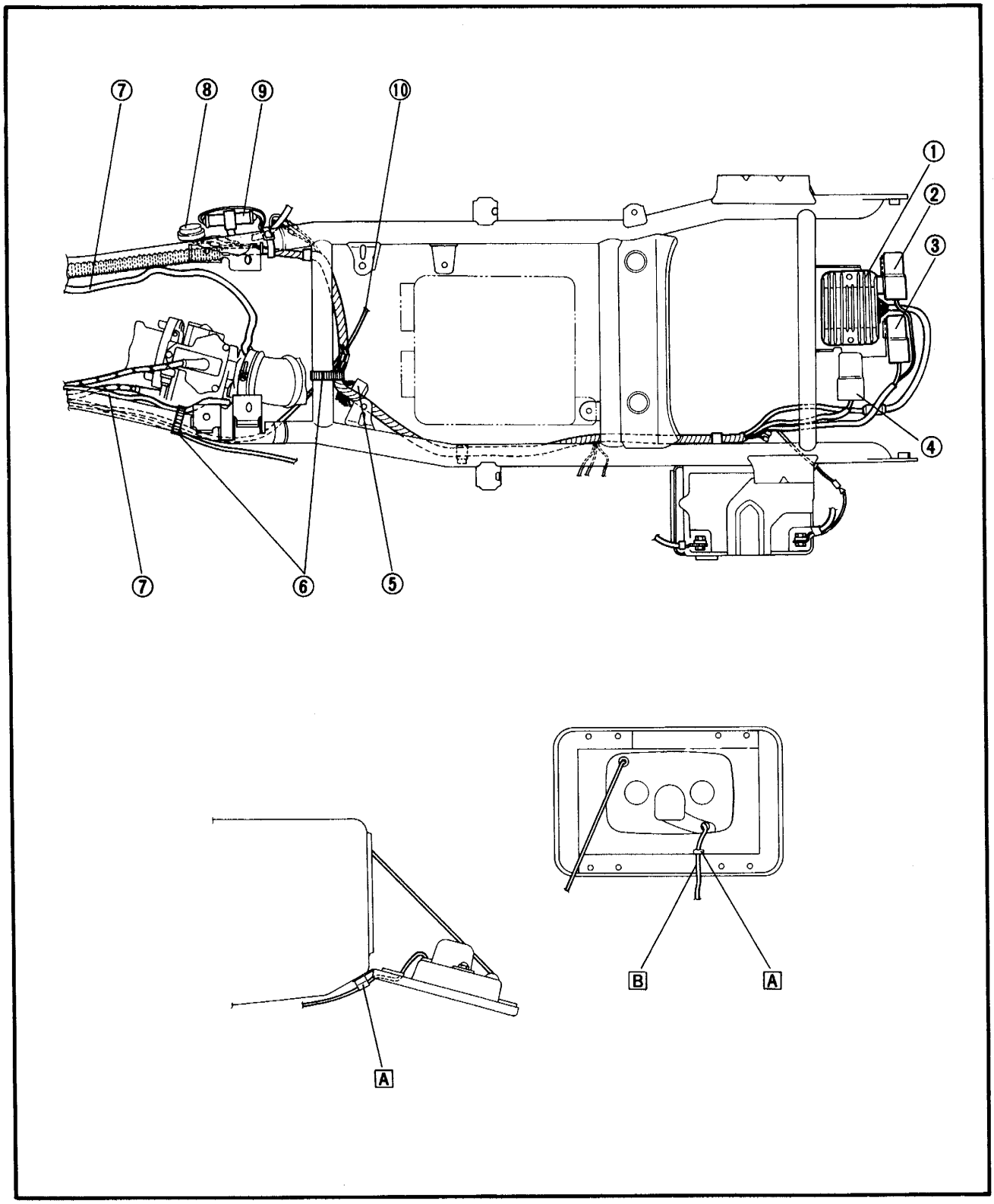
[A] Do not pinch the hoses when install the fuel tank.



CABLE ROUTING

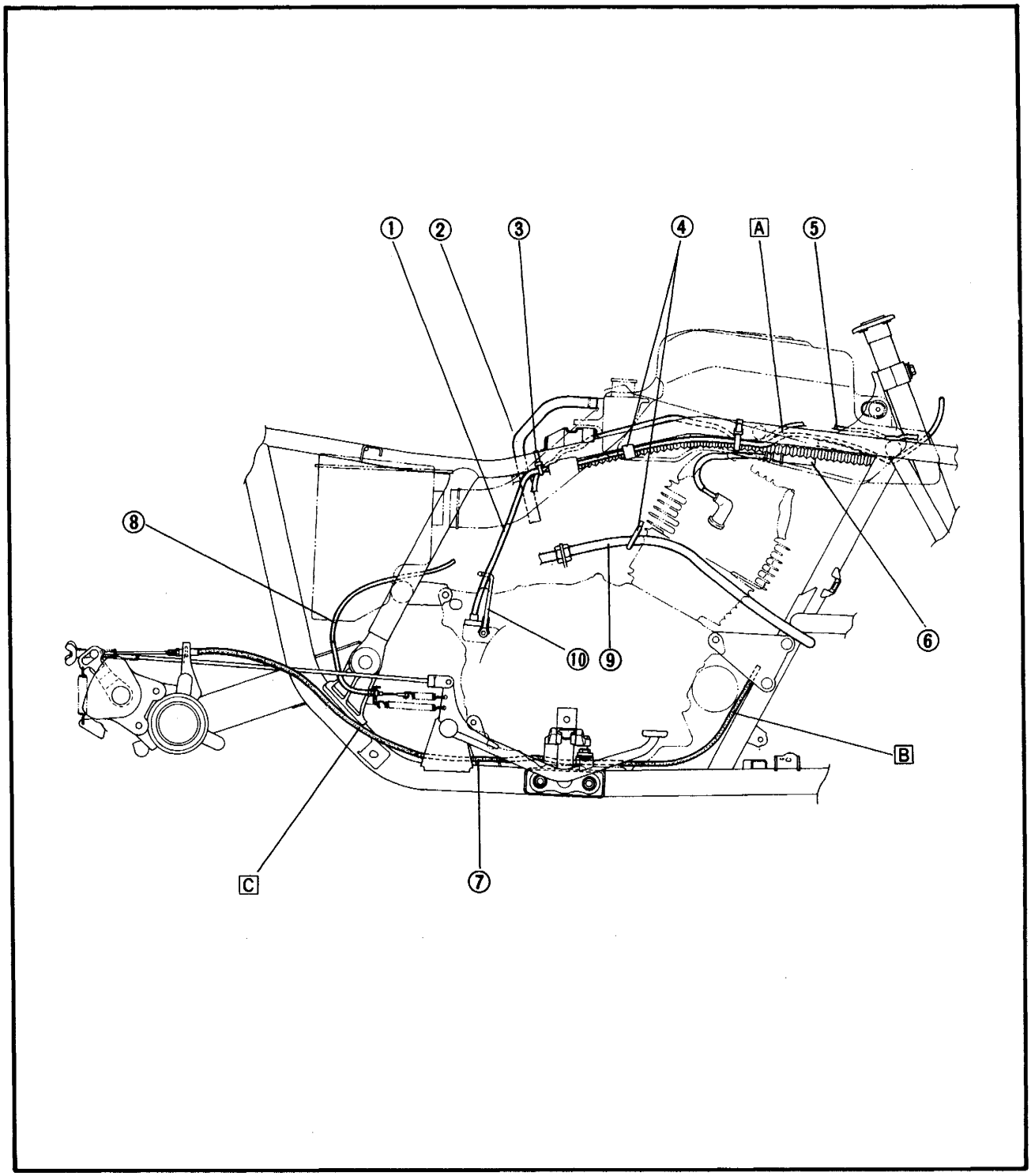
① Rectifier with regulator
② Starting circuit cut-off relay
③ Neutral relay
④ Reverse relay
⑤ Oil temperature indicator light checker
⑥ Band
⑦ Carburetor breather hose
⑧ Circuit breaker
⑨ Fuse
⑩ Select lever control cable 2

[A] Clamp the taillight lead.
[B] Pass the taillight lead into the slit.

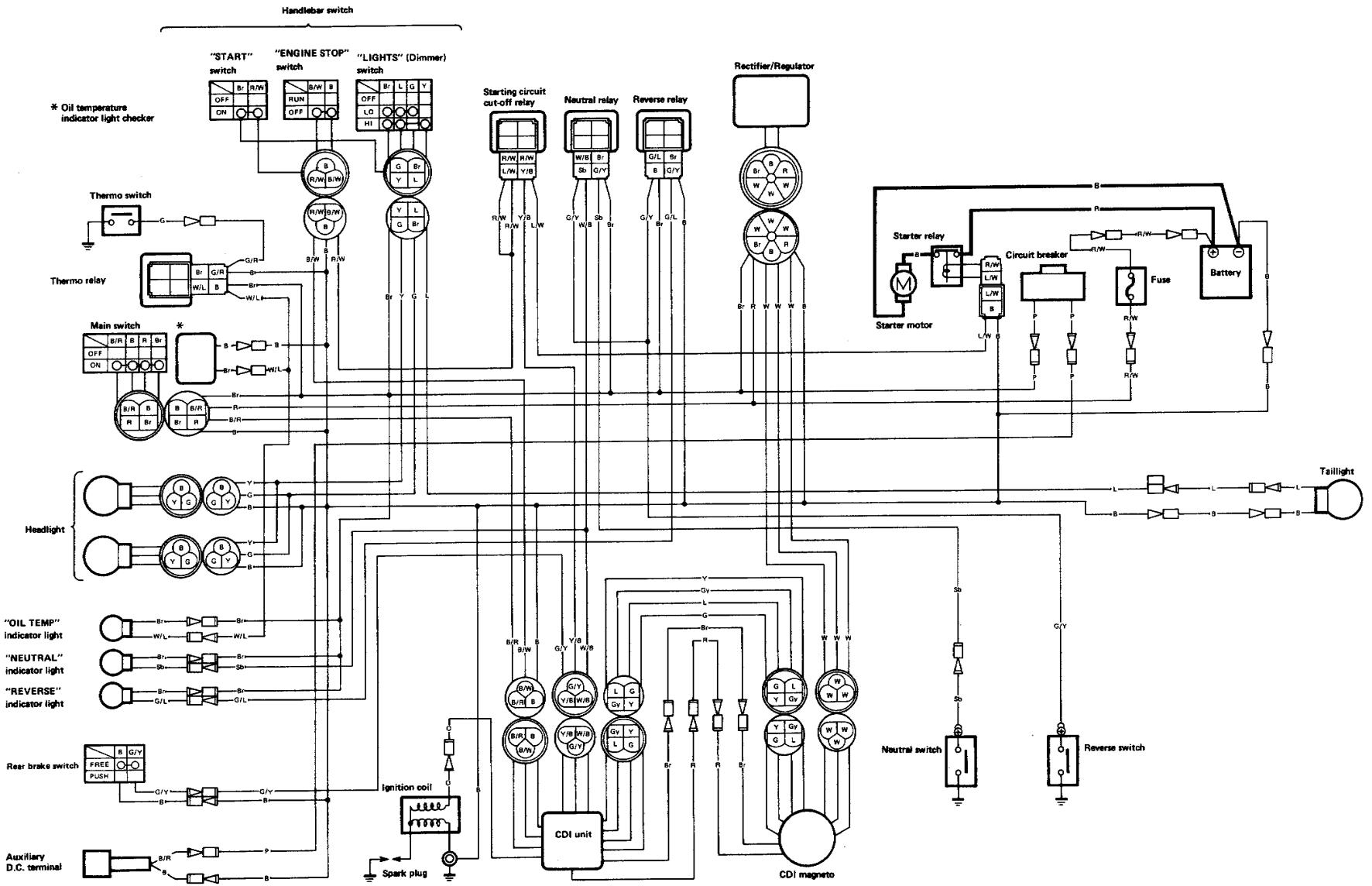


① Speedometer cable
② Crankcase breather hose
③ Band
④ Clamp
⑤ Carburetor breather hose
⑥ Ignition coil
⑦ Rear brake cable (Handlebar)
⑧ Select lever control cable 2
⑨ Select lever control cable 1
⑩ Reverse lock release wire

[A] Pass the speedometer cable copper the wire harness at back of the ignition coil.
[B] Pass the rear brake cable right side of the starter motor.
[C] Pass the rear brake cable upper the fender stay.



YFM350FWT WIRING DIAGRAM



COLOR CODE

B . . . . . .Black
Y . . . . . .Yellow
L . . . . . .Blue
R . . . . . .Red
G . . . . . .Green
P . . . . . .Pink
O . . . . . .Orange
Br. . . . . .Brown
Gy . . . . . .Gray
Sb . . . . . .Sky blue
W. . . . . .White
B/R . . . . .Black/Red
B/W . . . . .Black/White
Y/B . . . . .Yellow/Black
L/W . . . . .Blue/White
R/W . . . . .Red/White
G/Y . . . . .Green/Yellow
G/L . . . . .Green/Blue
G/R . . . . .Green/Red
W/B . . . . .White/Black
W/L . . . . .White/Blue

YAMAHA

YFM350FWW

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-06-66

FOREWORD

This Supplementary Service manual has been prepared to introduce new service and new data for the YFM350FWW. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual.

YFM350FWT Service Manual (LIT-11616-06-01)

YFM350FWW
SERVICE MANUAL

LIT-11616-06-66

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha machines have a basic understanding of the mechanical concepts and procedures inherent in machine repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.
Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE GROUP
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

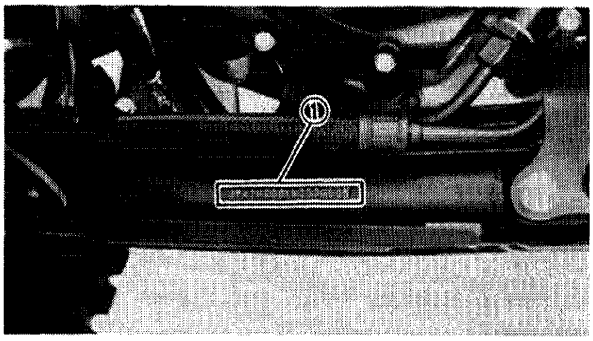
Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.

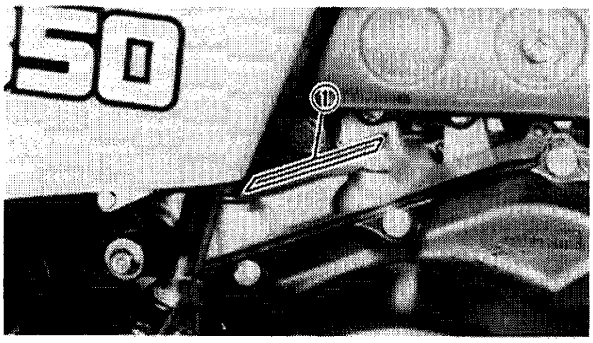
CONTENTS

GENERAL INFORMATION 1
- MACHINE IDENTIFICATION 1
  - VEHICLE IDENTIFICATION NUMBER 1
  - ENGINE SERIAL NUMBER 1
- SPECIAL TOOLS 2
  - FOR CHASSIS SERVICE 2

CHASSIS 3
- FRONT BRAKE 3
  - REMOVAL 4
  - INSTALLATION 4
- REAR AXLE 5
  - INSTALLATION 5

APPENDICES 6
- SPECIFICATIONS 6
  - GENERAL SPECIFICATIONS 6
  - MAINTENANCE SPECIFICATIONS 6





GENERAL INFORMATION

MACHINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

Starting Serial Number:
JY43HNA0 * K000101

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

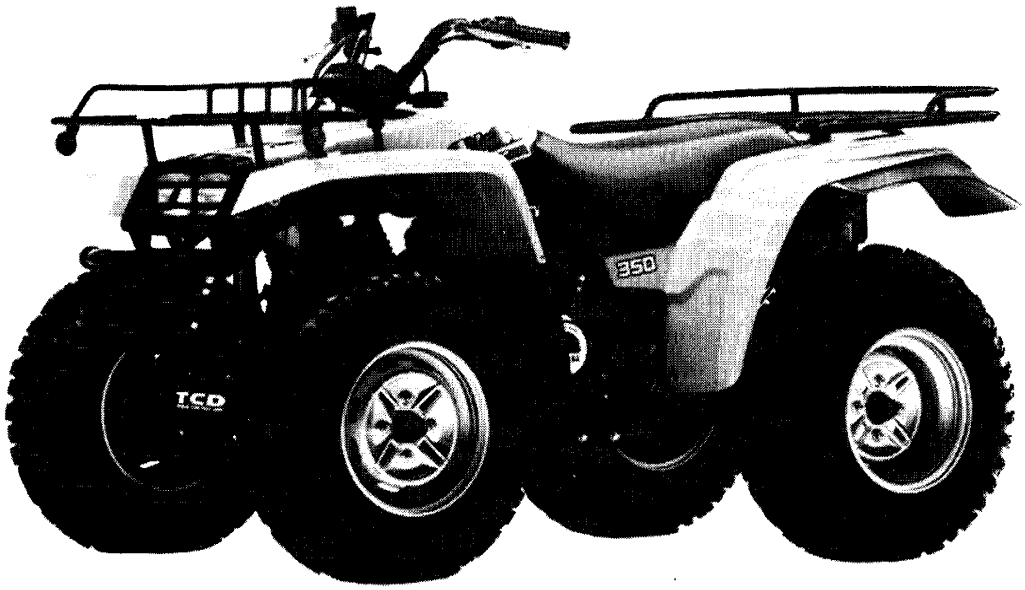
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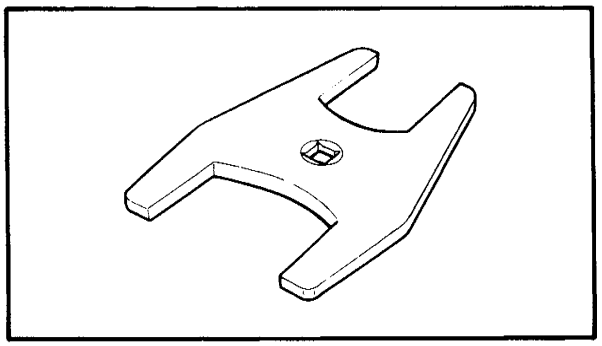
The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

Starting Serial Number:
3HN-000101

NOTE:

Designs and specifications are subject to change without notice.





SPECIAL TOOLS

The following shows only the difference(s) from the YFM350FWT.

FOR CHASSIS SERVICE

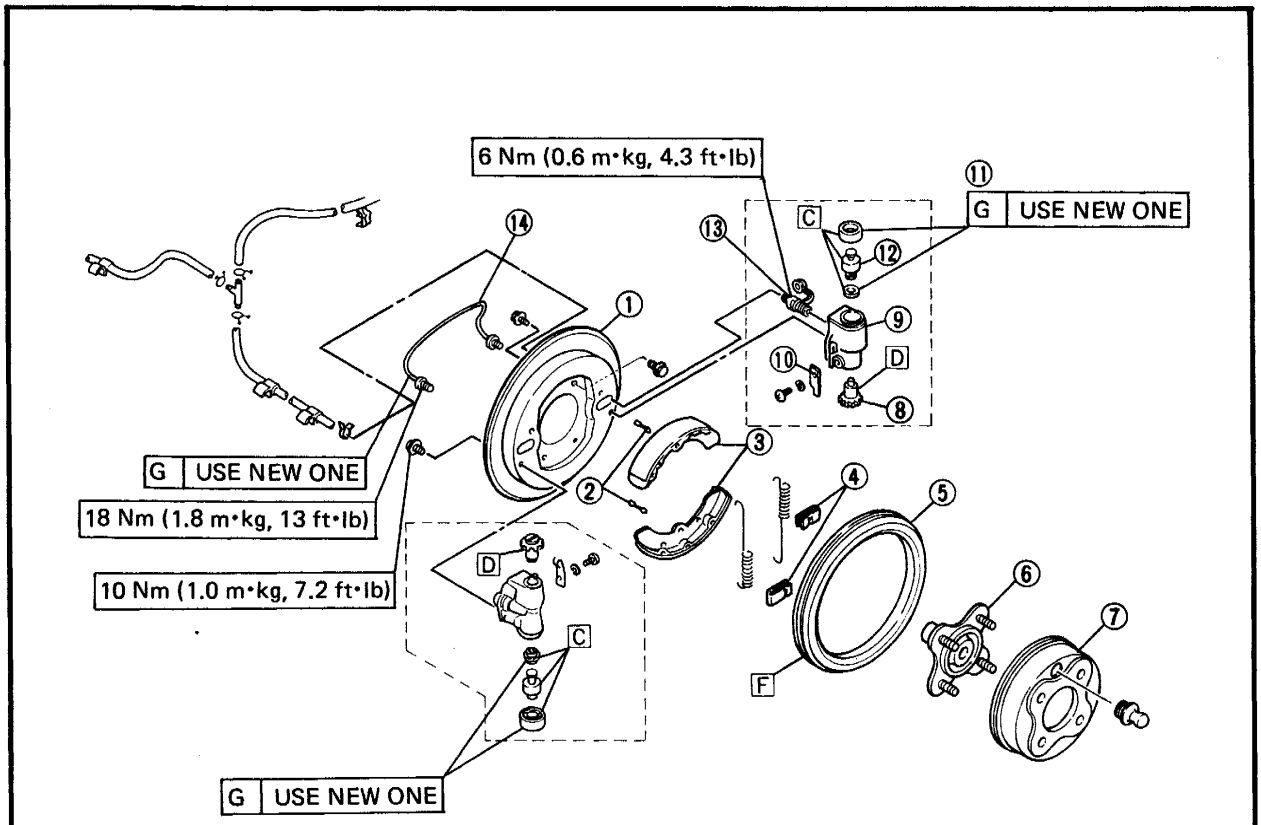
1. Rear axle nut wrench
   P/N YM-37132

This tool is used to loosen and tighten the Nut (Rear axle).

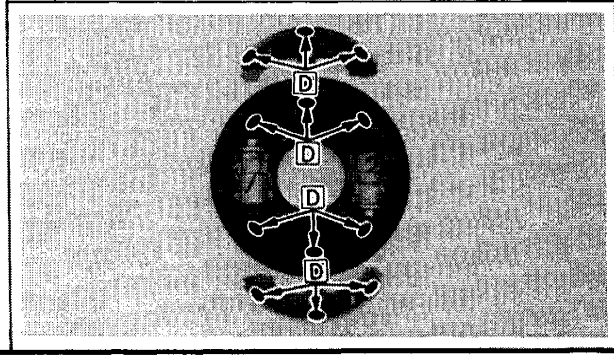
CHASSIS

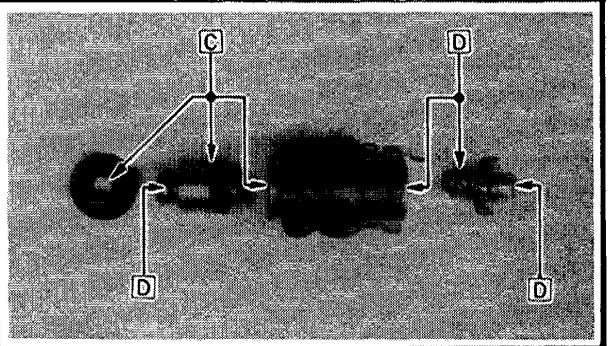
FRONT BRAKE

① Backing plate
② Pin (Brake shoe)
③ Brake shoe set
④ Holder (Brake shoe)
⑤ Brake seal
⑥ Brake drum
⑦ Blind plug
⑧ Adjuster (Wheel cylinder)
⑨ Wheel cylinder
⑩ Lock spring
⑪ Cup set
⑫ Piston
⑬ Bleed screw set
⑭ Brake pipe



A	BRAKE LINING WEAR LIMIT: 1 mm (0.04 in)	D	APPLY LITHIUM BASE GREASE
B	BRAKE DRUM WEAR LIMIT: 161 mm (6.34 in)	E	APPLY LOCTITE® (HEAT RESISTANT)
C	APPLY RUBBER GREASE	F	APPLY YAMAHA BRAKE GREASE (90793-40003)





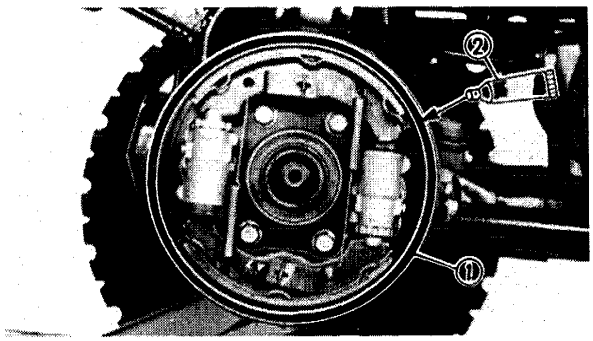
REMOVAL

The following shows only the difference(s) from the YFM350FWT.

1. Remove:
   - Front wheel
   - Castle nut
   - Brake drum

⚠ WARNING:

Before removing the brake drum, clean around the drum. Otherwise, foreign materials will damage the brake seal with the resultant loss of the brake performance.



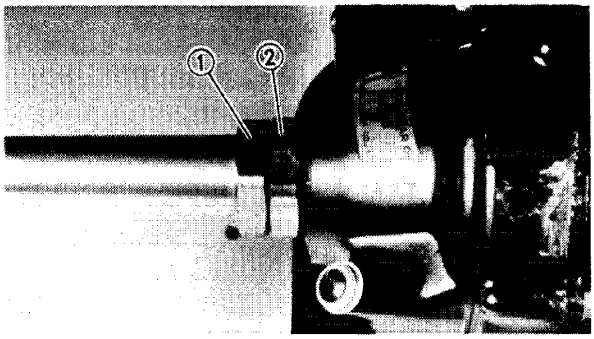
INSTALLATION

The following shows only the difference(s) from the YFM350FWT.

10. Inspect:
    - Brake seal ①
      Damage → Replace.
11. Apply:
    - Yamaha Brake Grease (90793-40003) ②
      To the seal on the backing plate.
12. Install:
    - Brake drum

NOTE:

Before installing the brake drum, arrange for each part to be symmetrical in relation to the centerline.



REAR AXLE

The following shows only the difference(s) from the YFM350FWT.

INSTALLATION

9. Tighten:
   - Nuts (Rear axle) ① , ②

Nuts tightening steps:

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

- Finger tighten the inside nut ② while checking the ring gear engagement.
- Tighten the inside nut with Rear Axle Nut Wrench to specification while holding the rear axle.

Rear Axle Nut Wrench:
YM-37132

Inside Nut (First Tightening):
55 Nm (5.5 m·kg, 40 ft·lb)

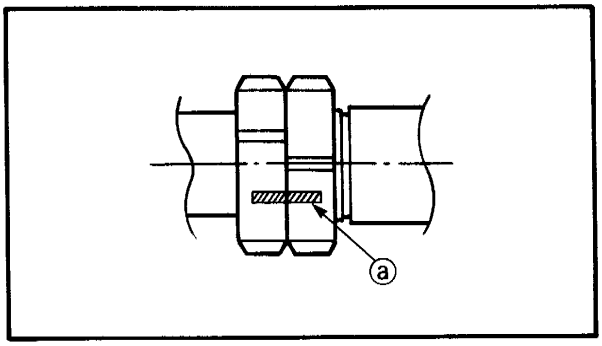
- Hold the inside nut ② and tighten the outside nut ① with Rear Axle Nut Wrench to specification.

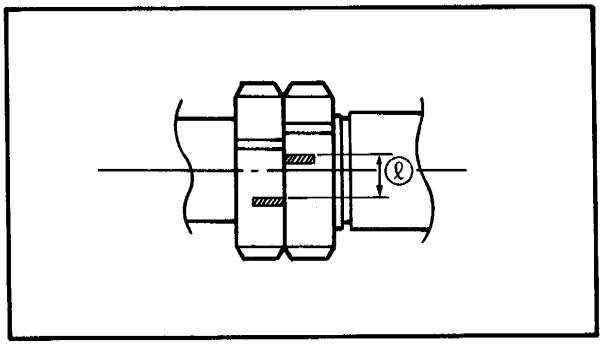
Outside Nut:
190 Nm (19.0 m·kg, 140 ft·lb)

- Draw the line ⓐ on inside and outside nut.
- Hold the outside nut ① and tighten BACK the inside nut ② with Rear Axle Nut Wrench to specification.

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

- Measure the distance ℓ between lines. If distance ℓ is less than 3 mm (0.12 in), retighten BACK the inside nut.





APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YFM350FWW
Model Code Number	3HN1
Vehicle Identification Number	JY43HNA0 * K000101
Engine Starting Number	3HN-000101
Engine:	
Engine Type	4-stroke, Air-cooled, SOHC
Cylinder Arrangement	Single cylinder, Forward inclined
Displacement	348 cm^3
Bore x Stroke	83.0 x 64.5 mm (3.268 x 2.539 in)
Compression Ratio	8.6 : 1
Compression Pressure	834 kPa (8.5 kg/cm^2, 121 psi)
Starting System	Electric starter

MAINTENANCE SPECIFICATIONS

Engine

Model		YFM350FWW
Carburetor:		
Type/Manufacturer/Quantity		BTM32SH/MIKUNI/1
I.D. Mark		2HR01
Main Jet	(M.J.)	#120
Main Air Jet	(M.A.J.)	ϕ0.8
Jet Needle-clip Position	(J.N.)	5H26-3
Needle Jet	(N.J.)	N-8
Pilot Air Jet	(P.A.J. 1)	1.0
	(P.A.J. 2)	0.9
Pilot Jet	(P.J.)	#45
Pilot Outlet	(P.O.)	ϕ0.75
Pilot Screw	(P.S.)	2-3/8
Valve Seat	(V.S.)	ϕ2.5
Fuel Level	(F.L.)	1.0 ~ 2.0 mm (0.04 ~ 0.08 in)
Float Height	(F.H.)	11.4 ~ 13.4 mm (0.45 ~ 0.53 in)
Engine Idling Speed		1,350 ~ 1,450 r/min

Chassis

Model		YFM350FWW
Rear Suspension:		
Cushion Stroke		75 mm (2.95 in)
Suspension Spring Free Length		276.3 mm (10.9 in)
< Limit >		< 275 mm (10.8 in) >
Fitting Length		256 mm (10.8 in)
Spring Rate/Stroke:	K1	39.2 N/mm (4.0 kg/mm, 224 lb/in)/ 0 ~ 64.3 mm (0 ~ 2.53 in)
	K2	58.8 N/mm (6.0 kg/mm, 336 lb/in)/ 64.3 ~ 102.3 mm (2.53 ~ 4.03 in)

TIGHTENING TORQUE:

Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Steering Knuckle and Lower Arm	Nut	M10 x 1.25	2	48	4.8	35	
Rear Axle and Nut	Nut	M40 x 1.5	2	—	—	—	See NOTE

NOTE:

1. Apply LOCTITE® to the thread portion of the rear axle.
2. Finger tighten the inside nut while checking the ring gear engagement.
3. Tighten the inside nut to 55 Nm (5.5 m · kg, 40 ft · lb) while holding the rear axle.
4. Hold the inside nut and tighten the outside nut to 190 Nm (19.0 m · kg, 140 ft · lb).
5. Hold the outside nut and tighten back the inside nut to 240 Nm (24.0 m · kg, 170 ft · lb).

YAMAHA

YFM350FWA

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-07-02

3HN-28197-11

FORWORD

This Supplementary Service manual has been prepared to introduce new service and new data for the YFM350FWA. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual.

YFM350FWT SERVICE MANUAL (LIT-11616-06-01)
YFM350FWW SUPPLEMENTARY SERVICE MANUAL (LIT-11616-06-66)

YFM350FWA
SUPPLEMENTARY
SERVICE MANUAL

LIT-11616-07-02

NOTICE

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠ The Safety Alerit Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the machine.

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

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.
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EXPLODED DIAGRAM

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

CONTENTS

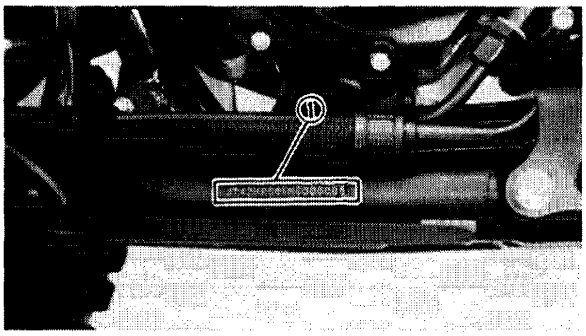
GENERAL INFORMATION 1
MACHINE IDENTIFICATION 1
VEHICLE IDENTIFICATION NUMBER 1
ENGINE SERIAL NUMBER 1

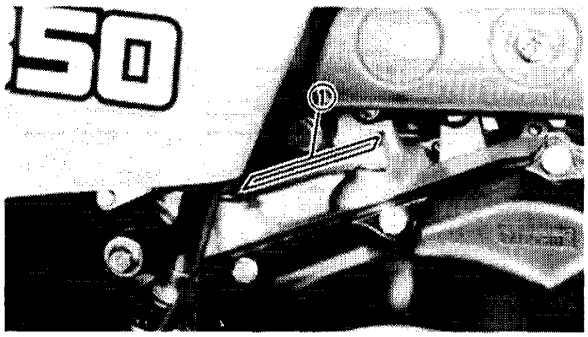
SPECIFICATIONS 2
GENERAL SPECIFICATION 2
MAINTENANCE SPECIFICATION 2
ELECTRICAL 2

PERIODIC INSPECTION AND ADJUSTMENT 3
REAR BRAKE LEVER AND PEDAL ADJUSTMENT 3

ELECTRICAL 6
YFM350FWA CIRCUIT DIAGRAM 6

YFM350FWA WIRING DIAGRAM





GENERAL INFORMATION

MACHINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

Starting Serial Number:
JY43HNW0*LC023101

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

NOTE:

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

Starting Serial Number:
3HN-023101

NOTE:

Designs and specifications are subject to change without notice.



SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YFM350FWA
Model Code Number	3HN
Vehicle Identification Number	JY43HNW0 * LC023101
Engine Starting Number	3HN-023101
Basic Weight: With Oil and Full Fuel Tank	264 kg (582 lb)
Tire: Type Size (F) Size (R)	 Tubeless AT25 x 8-12 DUNLOP KT951B AT25 x 10-12 DUNLOP KT955B

MAINTENANCE SPECIFICATIONS

ELECTRICAL

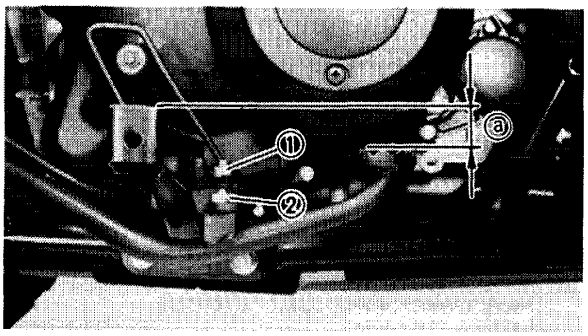
Model	YFM350FWA
CDI: Magneto-Model/Manufacturer Pickup Coil Resistance (Color) Source Coil Resistance (Color) CDI Unit-Model/Manufacturer	 F3T43573/MITSUBISHI 170 ~ 210Ω at 20°C (68°F) (L – Y) 270 ~ 330Ω at 20°C (68°F) (R – W/G) F8T30571/MITSUBISHI
Ignition Coil: Model/Manufacturer Minimum Spark Gap Primary Winding Resistance Secondary Winding Resistance	 F6T53573/MITSUBISHI 6 mm (0.24 in) 0.36 ~ 0.48Ω at 20°C (68°F) 5.44 ~ 7.36Ω at 20°C (68°F)

PERIODIC INSPECTION AND ADJUSTMENT

REAR BRAKE LEVER AND PEDAL ADJUSTMENT

⚠ WARNING

Always adjust both the brake pedal and the rear brake lever whenever adjusting the rear brake.



1. Adjust:
   - Pedal height ⓐ

Brake pedal height adjustment steps:
- Loosen the locknut ① .
- Turn the adjuster ② until the pedal height ⓐ is within the specified limits.

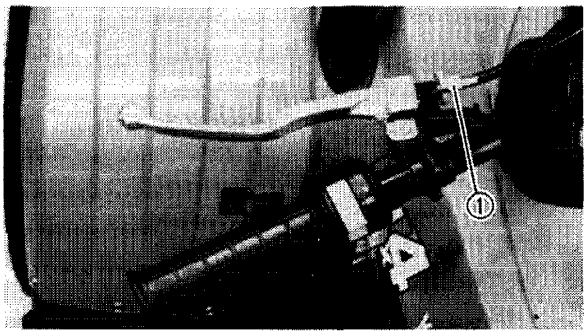
Pedal Height ⓐ :
5 mm (0.2 in)
Below the Footrest Top End

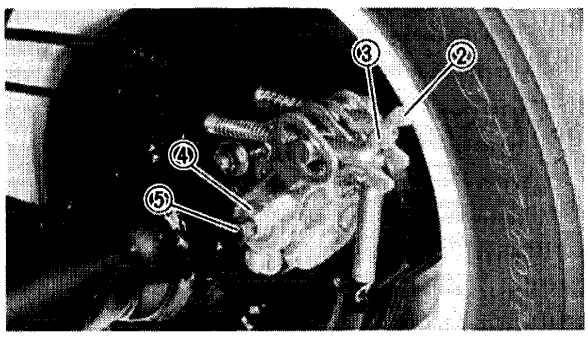
- Tighten the locknut.

2. Adjust:
   - Free play (Rear brake lever)
   - Free play (Brake pedal)

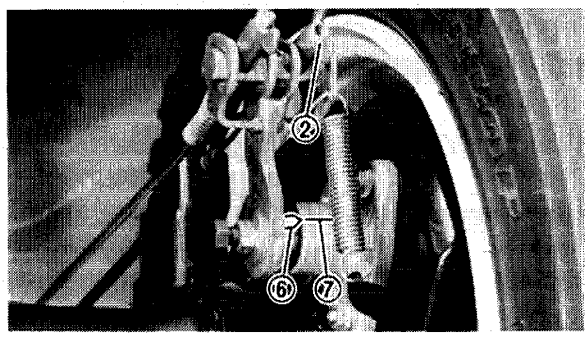
Step for rear brake lever and brake pedal free play adjustment:

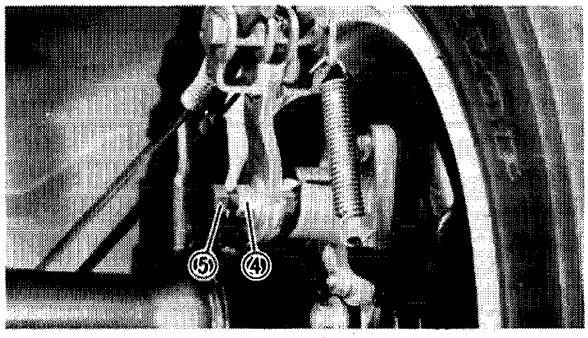
NOTE:
Before adjusting the free plays, pump the brake pedal 2 to 3 times.

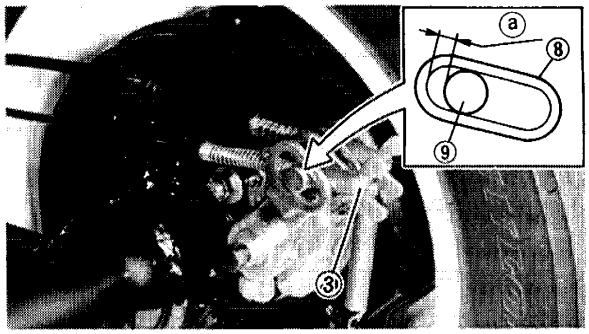


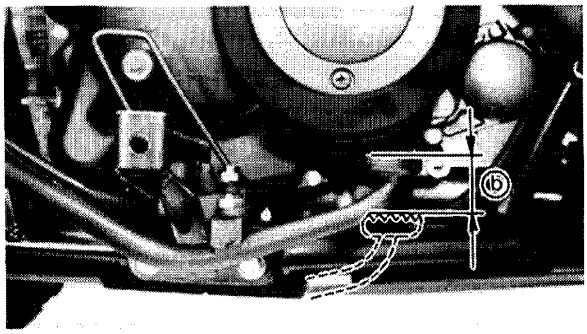


- Fully loosen the brake lever cable adjuster (Handlebar) ① .
- Fully loosen both brake lever cable adjuster (Caliper) ② and brake pedal cable adjuster (Caliper) ③ .
- Loosen the locknut (Caliper) ④ and the adjusting bolt (Caliper) ⑤ .
- Screw in the brake lever cable adjuster ② to align the caliper lever match mark ⑥ with the caliper projection ⑦ .









- Slowly turn the adjusting bolt ⑤ clockwise by hand until resistance is felt.
- Turn it 1/4 counterclockwise.
- Tighten the locknut ④.

Locknut (Caliper):
16 Nm (1.6 m·kg, 11 ft·lb)

CAUTION:

When tightening the locknut ④, hold the adjusting bolt ⑤ with a spanner so that the adjusting bolt is not turned together with the locknut.

- Turn the brake pedal cable adjuster ③ clockwise until the gap ⓐ is within the specified limits.

Gap ⓐ :
0 ~ 1 mm (0 ~ 0.04 in)

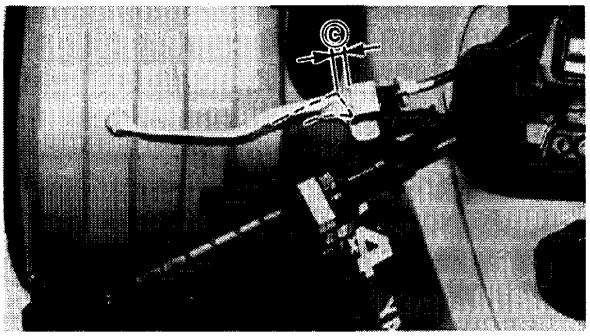
⑧ Brake caliper lever ⑨ Pin

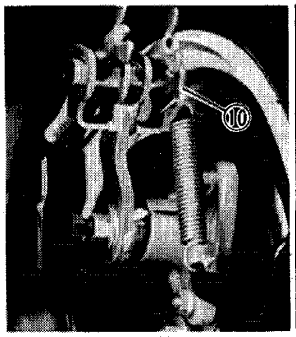
⚠ WARNING

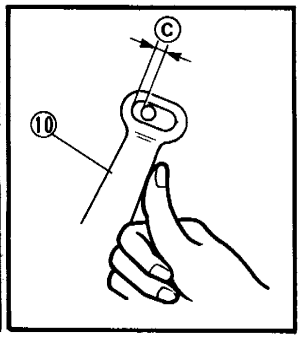
After this adjustment is performed, lift the front and rear wheels off the ground by the placing under the engine, and spin the rear wheels to ensure there is no brake drag. If any brake drag is noticed, perform the above steps again.

- Inspect the free play (Brake pedal) ⓑ whether or not it is specified value. If not, perform the aforementioned steps again.

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







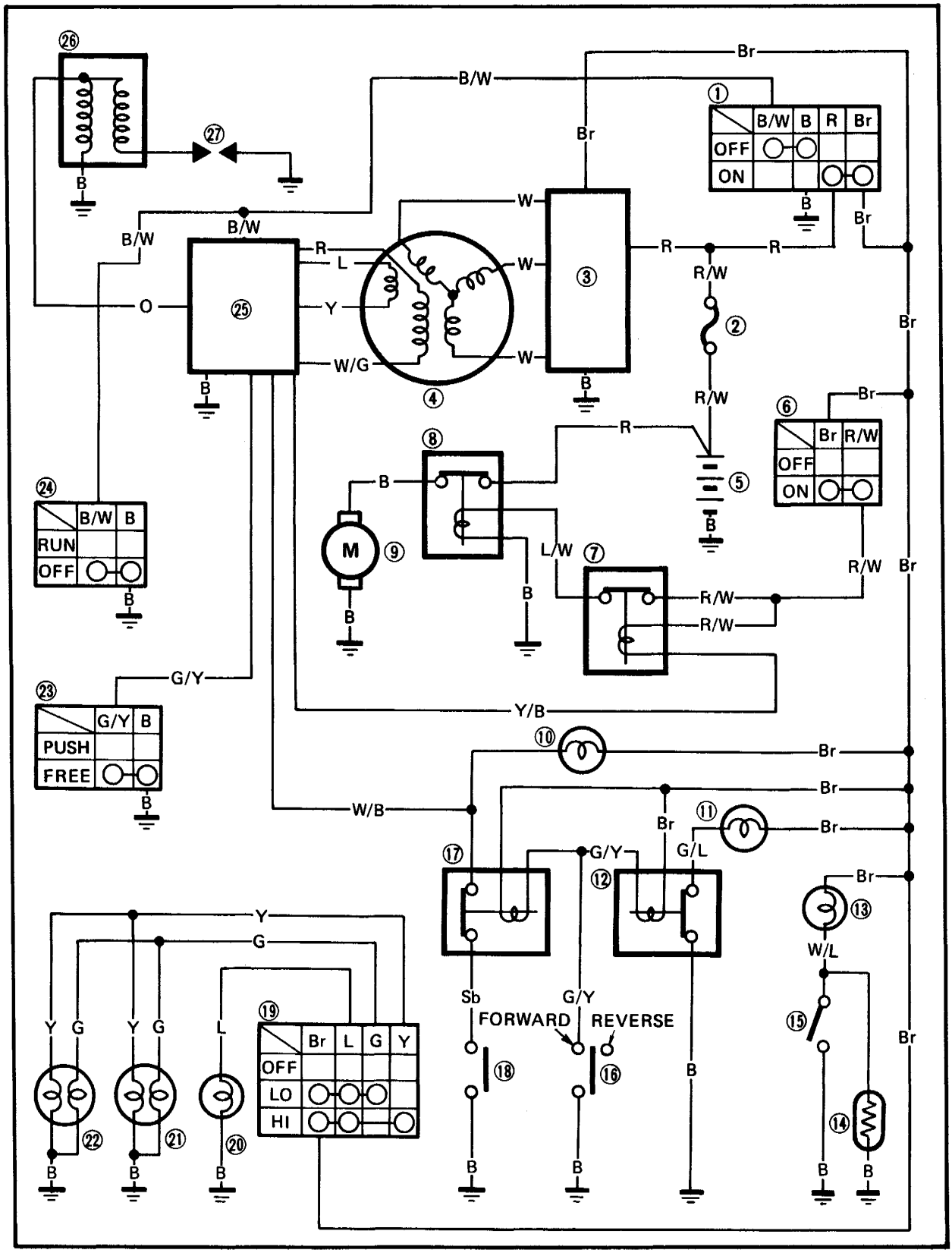
- Inspect the gap (free play) Ⓒ is within the specified limits at the handlebar lever and brake caliper lever. If not, perform the aforementioned step again.

Gap (Free Play) Ⓒ:
4 ~ 5 mm (0.16 ~ 0.20 in)

⑩ Brake caliper lever

ELECTRICAL

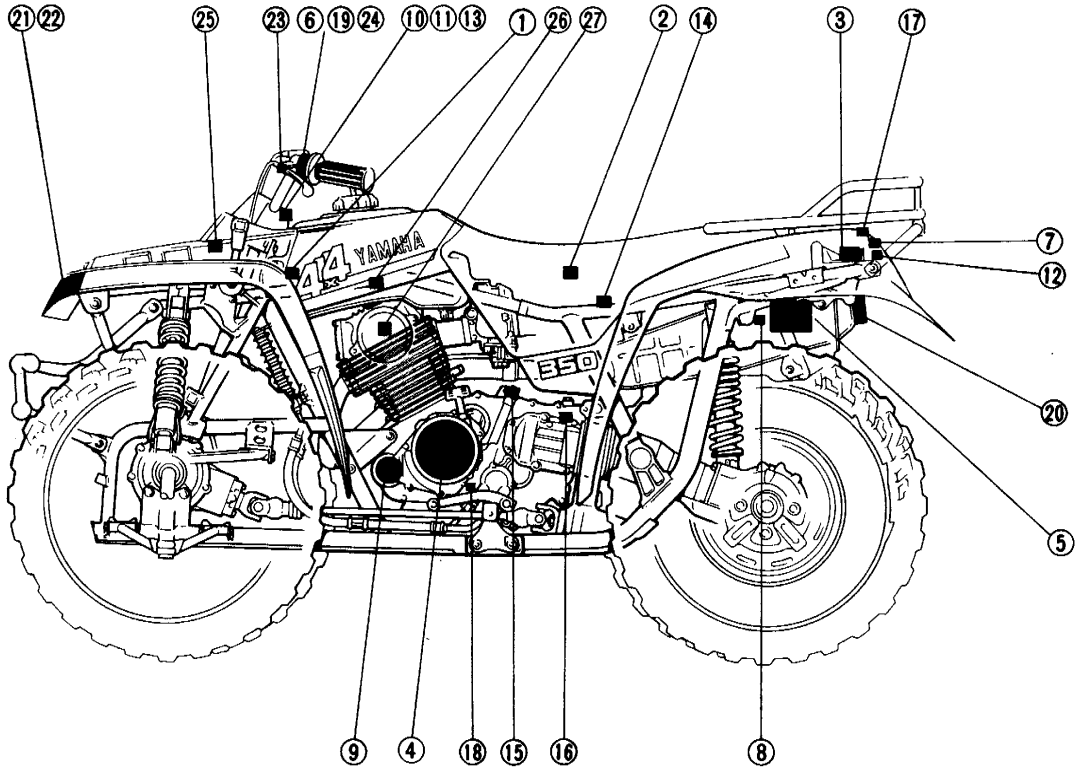
YFM350FWA CIRCUIT DIAGRAM



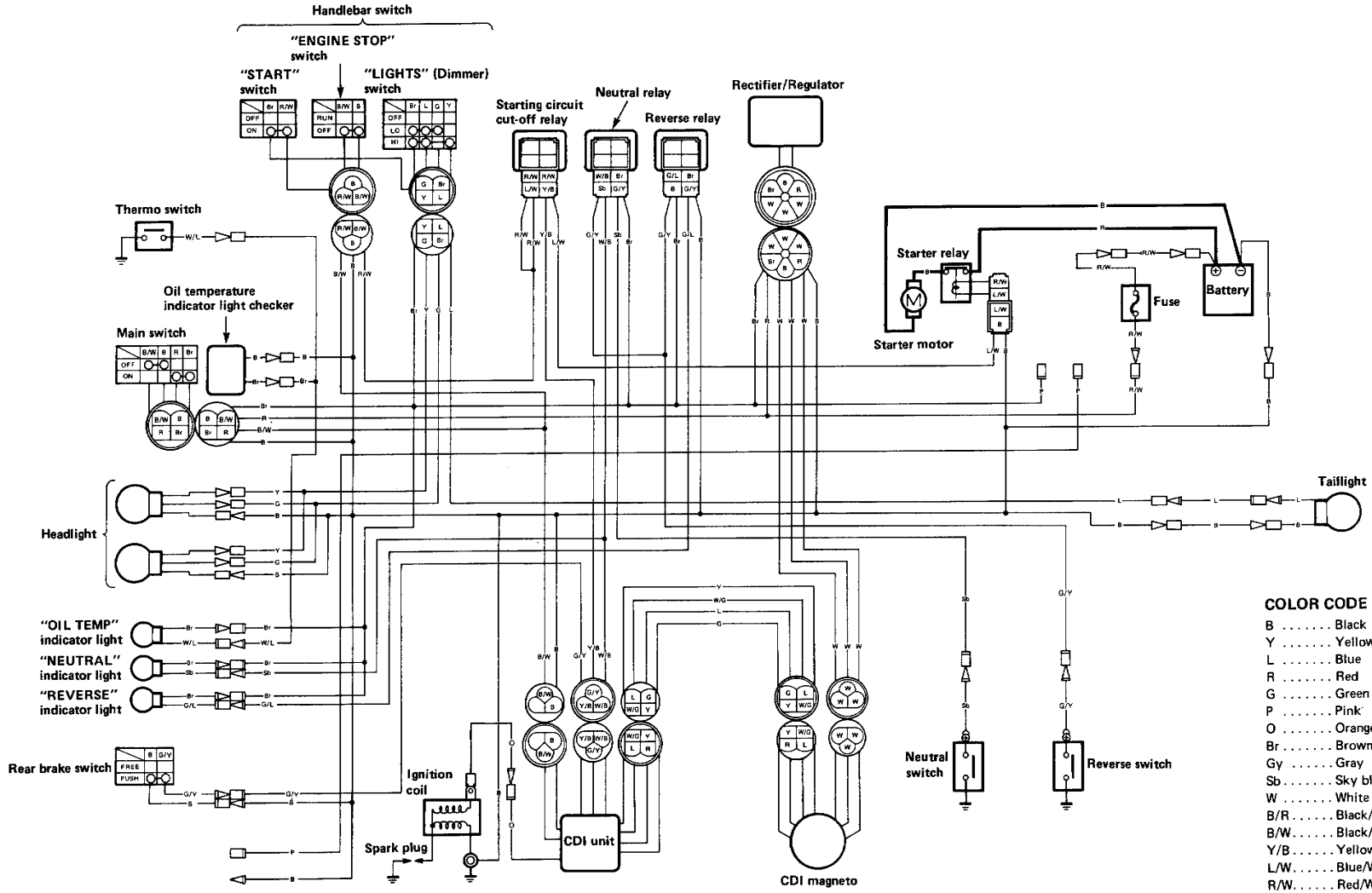
① Main switch
② Fuse
③ Rectifier with regulator
④ CDI magneto
⑤ Battery
⑥ "START" switch
⑦ Starting circuit cut-off relay
⑧ Starter relay
⑨ Starter motor
⑩ "NEUTRAL" indicator light
⑪ "REVERSE" indicator light
⑫ Reverse relay
⑬ "OIL TEMP" indicator light
⑭ Oil temperature indicator light checker
⑮ Thermo switch
⑯ Reverse switch
⑰ Neutral relay
⑱ Neutral switch
⑲ "LIGHTS" (Dimmer) switch
⑳ Taillight
㉑ Headlight (Left)
㉒ Headlight (Right)
㉓ Rear brake switch
㉔ "ENGINE STOP" switch
㉕ CDI unit
㉖ Ignition coil
㉗ Spark plug

COLOR CODE

B . . . . . .Black	B/W . . . . .Black/White
R . . . . . .Red	R/W . . . . .Red/White
L . . . . . .Blue	B/R . . . . .Black/Red
Y . . . . . .Yellow	L/W . . . . .Blue/White
G . . . . . .Green	G/L . . . . .Green/Blue
O . . . . . .Orange	G/Y . . . . .Green/Yellow
W . . . . . .White	G/R . . . . .Green/Red
Br. . . . . .Brown	Y/B . . . . .Yellow/Black
P . . . . . .Pink	W/B . . . . .White/Black
Gy . . . . . .Gray	W/G . . . . .White/Green
Sb . . . . . .Sky blue	W/L . . . . .White/Blue



YFM350FWA CIRCUIT DIAGRAM



COLOR CODE

B	Black
Y	Yellow
L	Blue
R	Red
G	Green
P	Pink
O	Orange
Br	Brown
Gy	Gray
Sb	Sky blue
W	White
B/R	Black/Red
B/W	Black/White
Y/B	Yellow/Black
L/W	Blue/White
R/W	Red/White
G/Y	Green/Yellow
G/L	Green/Blue
G/R	Green/Red
W/B	White/Black
W/G	White/Green
W/L	White/Blue

YAMAHA

YFM350FWB

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-07-58

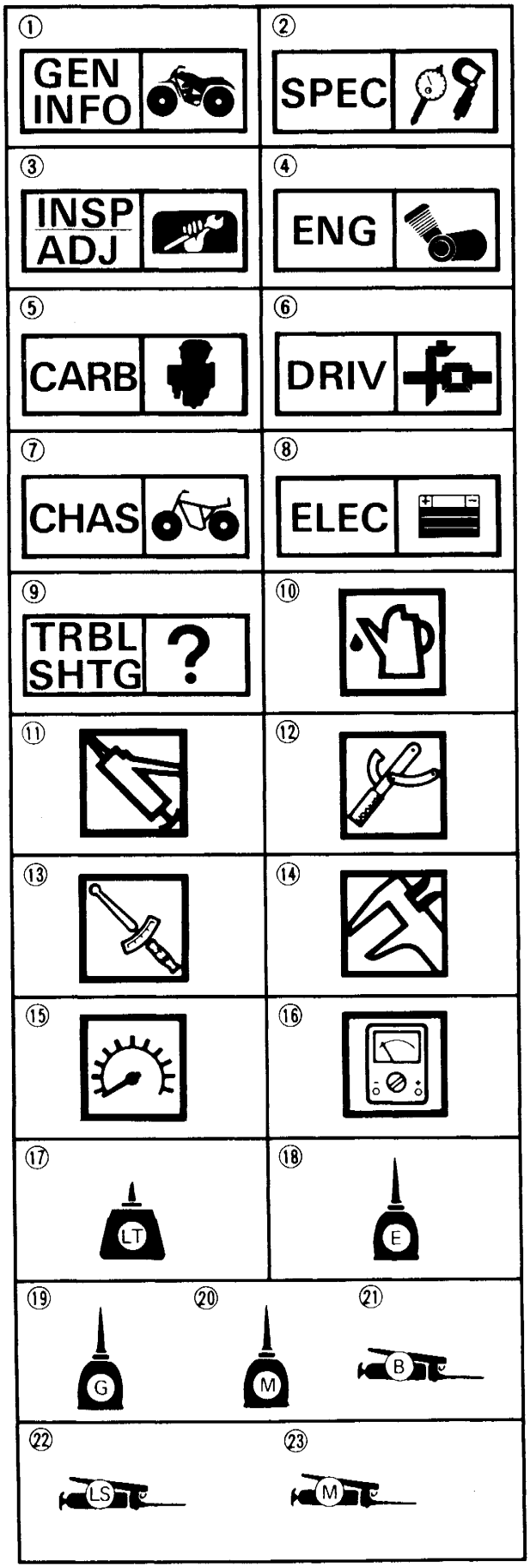
FOREWORD

This Supplementary Service manual has been prepared to introduce new service and new data for the YFM350FWB. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual.

YFM350FWT('87) SERVICE MANUAL (LIT-11616-06-01)
YFM350FWW('89) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-06-66)
YFM350FWA('90) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-02)

YFM350FWB
SUPPLEMENTARY
SERVICE MANUAL

LIT-11616-07-58



ILLUSTRATED SYMBOLS

(Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Carburetion
⑥ Drive train
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉓ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply licking agent (LOCTITE®)
⑱ Apply engine oil
⑲ Apply gear oil
⑳ Apply molybdenum disulfide oil
㉑ Apply wheel bearing grease
㉒ Apply lightweight lithium-soap base grease
㉓ Apply molybdenum disulfide grease

NOTICE

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

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

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the machine.

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

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, and assembly, 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.

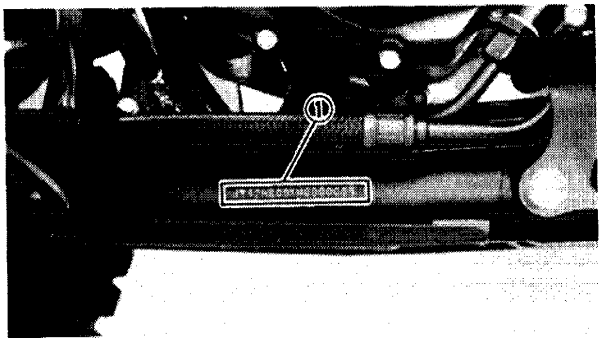
CONTENTS

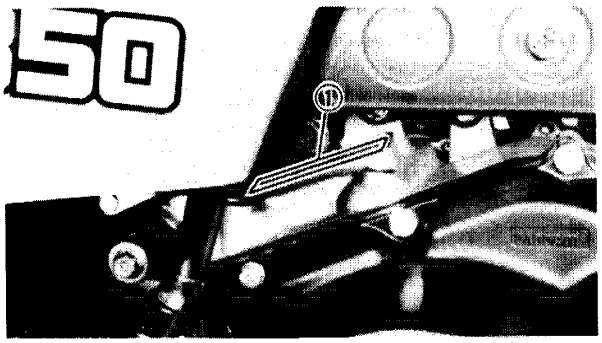
GENERAL INFORMATION 1
- MACHINE IDENTIFICATION 1
  - VEHICLE IDENTIFICATION NUMBER 1
  - ENGINE SERIAL NUMBER 1

SPECIFICATIONS 2
- GENERAL SPECIFICATIONS 2
- MAINTENANCE SPECIFICATIONS 2
  - CHASSIS 2
  - ELECTRICAL 3
- CABLE ROUTING 4

PERIODIC INSPECTION AND ADJUSTMENT 9
- INTRODUCTION 9
- PERIODIC MAINTENANCE/LUBRICATION 9

YFM350FWB WIRING DIAGRAM





GENERAL INFORMATION

MACHINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

Starting Serial Number:
JY43HNW0 * MC048101

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

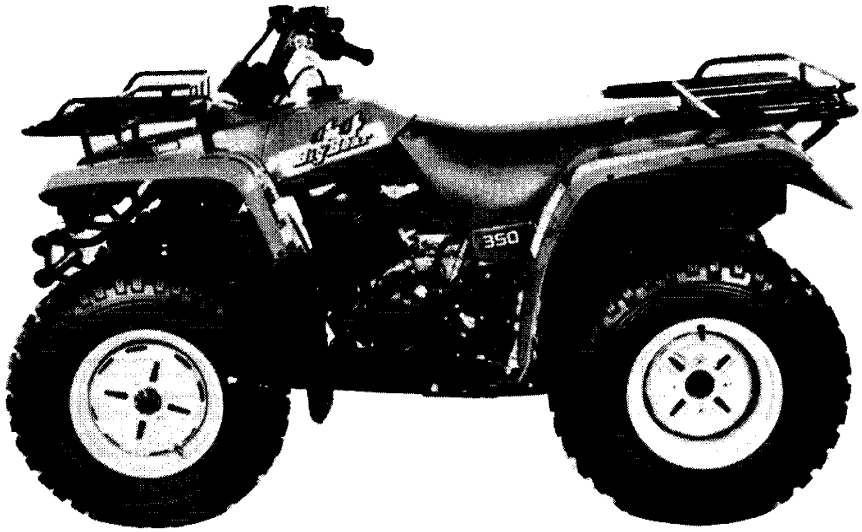
NOTE:

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

Starting Serial Number:
3HN-048101

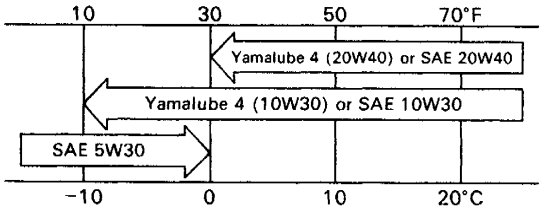
NOTE:

Designs and specifications are subject to change without notice.



SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YFM350FWB
Model Code Number	3HN6
Vehicle Identification Number	JY43HNW0 * MC048101
Engine Starting Number	3HN-048101
Basic Weight: With Oil and Full Fuel Tank	267 kg (589 lb)
Oil Type or Grade: Engine Oil and Transfer Gear Oil	Yamalube 4, SAE10W30SE/SF motor oil or SAE20W40SE/SF motor oil
	
Final Gear Oil and Differential Gear Oil	SAE80APIGL-4 Hypoid gear oil
Oil Capacity: Engine Oil: Periodic Oil Change (Engine oil) Periodic Oil Change (Transfer gear oil) Periodic Oil Change (Engine oil and transfer gear oil) Periodic Oil Change (Engine oil and transfer gear oil with oil filter replacement) Total Amount Rear Final Gear Case: Total Amount	 2.4 L (2.1 Imp qt, 2.5 US qt) 0.3 L (0.26 Imp qt, 0.32 US qt) 2.7 L (2.4 Imp qt, 2.9 US qt) 2.8 L (2.5 Imp qt, 3.0 US qt) 3.7 L (3.3 Imp qt, 3.9 US qt) 0.25 L (0.22 Imp qt, 0.26 US qt)
Fuel: Type Tank Capacity Reserve Amount	 Unleaded fuel recommended 10.0 L (2.2 Imp gal, 2.6 US gal) 1.3 L (0.3 Imp gal, 0.3 US gal)

MAINTENANCE SPECIFICATIONS

CHASSIS

Model	YFM350FWB
Front Suspension: Cushion Stroke Suspension Spring Free Length <Limit> Fitting Length Spring Rate/Stroke: K1 Optional Spring	 67.5 mm (2.66 in) 191.5 mm (7.54 in) <187.7 mm (7.39 in)> 176 mm (6.93 in) 27.0 N/mm (2.75 kg/mm, 154 lb/in)/ Zero ~ 83 mm (Zero ~ 3.27 in) No

Model	YFM350FWB
Front Drum Brake:	
Type	Two leading
Drum Inside Diameter	160 mm (6.30 in)
<Limit>	<161 mm (6.34 in)>
Lining Thickness	4 mm (0.16 in)
<Limit>	<1 mm (0.04 in)>
Shoe Spring Free Length	104 mm (4.09 in)
Master Cylinder Inside Dia.	14 mm (0.55 in)
Brake Fluid Type	DOT #4 or DOT #3

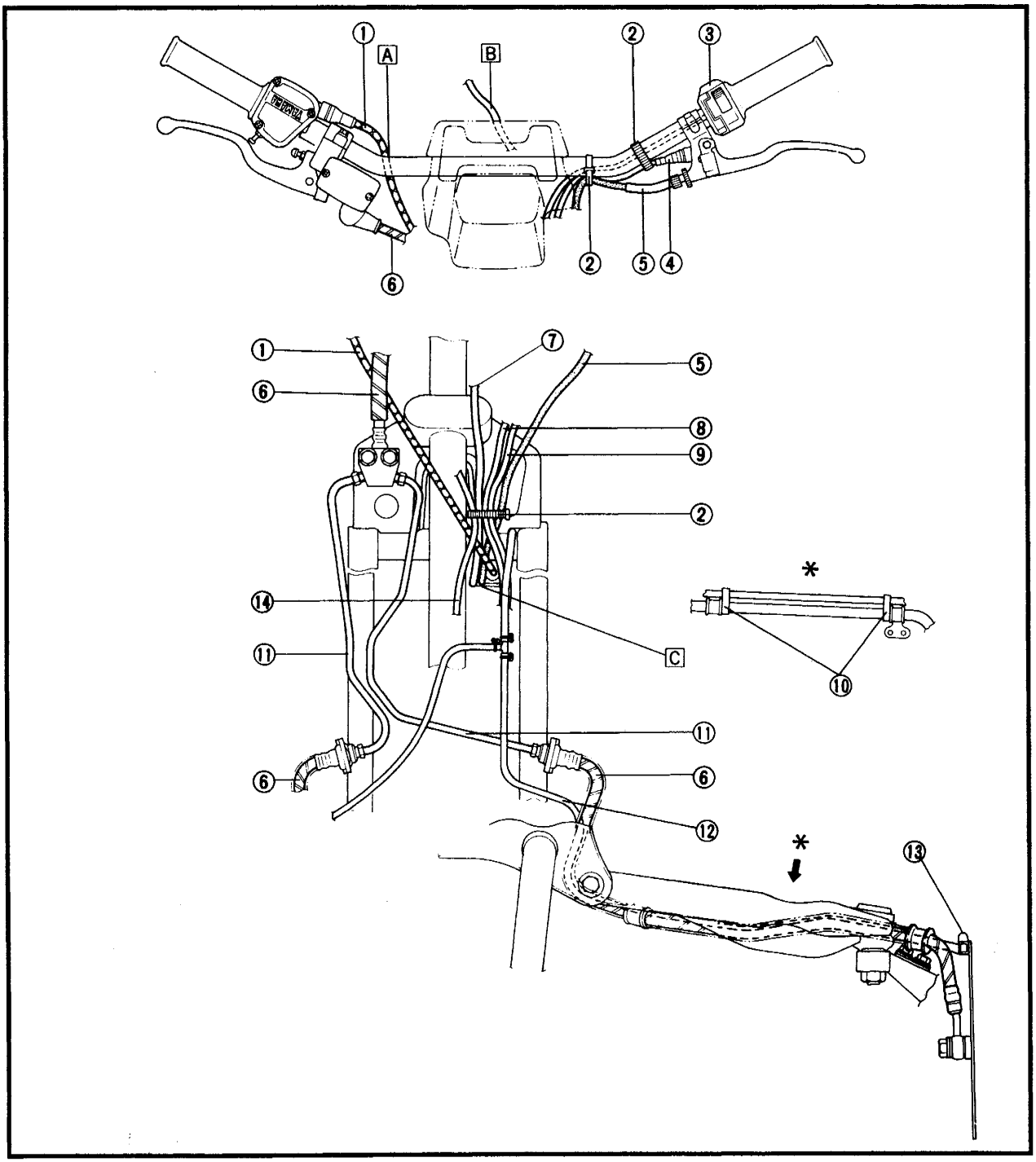
ELECTRICAL

Model	YFM350FWB
Starter Relay:	
Model/Manufacturer	MS5D-191/HITACHI
Amperage Rating	100A
Coil Winding Resistance/Color	3.9 ~ 4.7Ω at 20°C (68°F)/(R/W-L/W)
Starting Circuit Cut-off Relay:	
Model/Manufacturer	ACA1211-9/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Neutral Relay:	
Model/Manufacturer	ACA1211-9/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Reverse Relay:	
Model/Manufacturer	ACA2211-3/MATSUSHITA
Coil Winding Resistance	72 ~ 88Ω at 20°C (68°F)
Oil Temperature Switch:	
Model/Manufacturer	136900-0050/N.D.
Circuit Breaker:	
Type: MAIN	Fuse
Amperage for Individual Circuit/Quantity:	
Main (MAIN)	30A × 1
Reserve (MAIN)	30A × 1

CABLE ROUTING

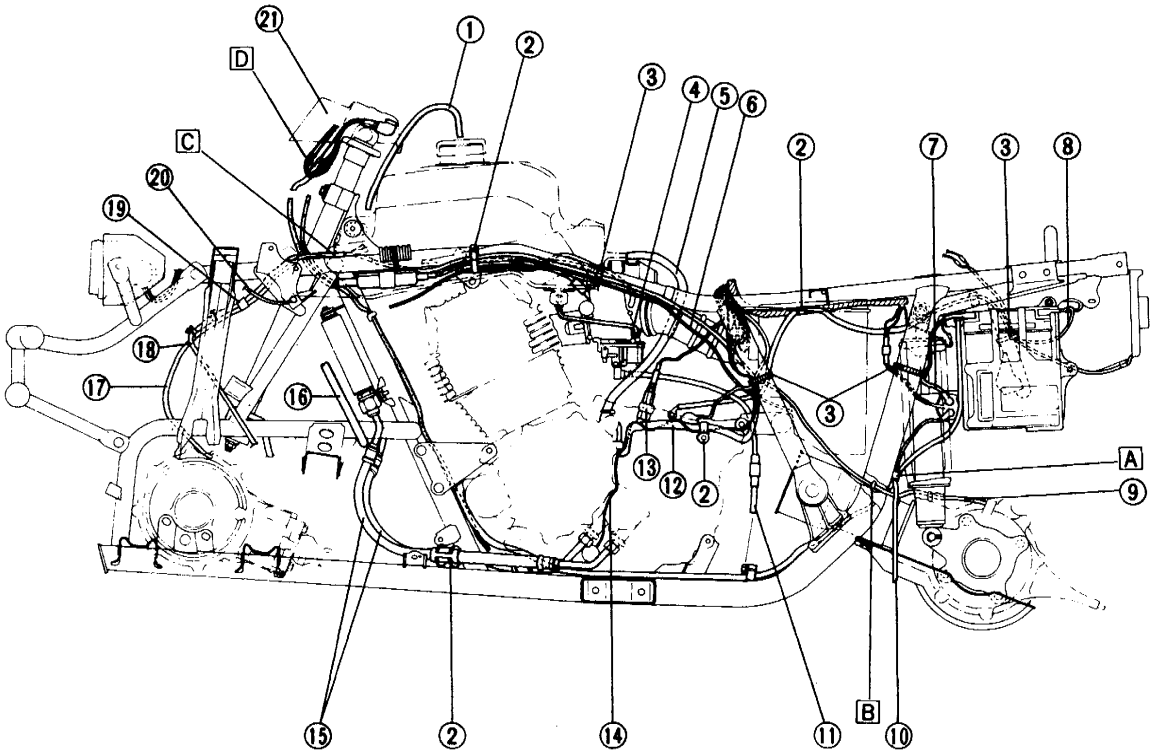
① Throttle cable
② Band
③ Handlebar switch
④ Rear brake stop switch
⑤ Rear brake cable
⑥ Brake hose
⑦ Speedometer cable
⑧ Front brake switch lead
⑨ Handlebar switch lead
⑩ Clip
⑪ Brake pipe
⑫ Breather hose (front brake)
⑬ Clamp
⑭ Indicator lights lead

[A] Pass the cable under the handlebar throttle cable under the brake hose.
[B] Insert the breather hose into the hole of the handlebar protector.
[C] Pass the speedometer cable, rear brake cable and throttle cable in order from the inside.
[D] Pass the throttle cable under the brake hose.



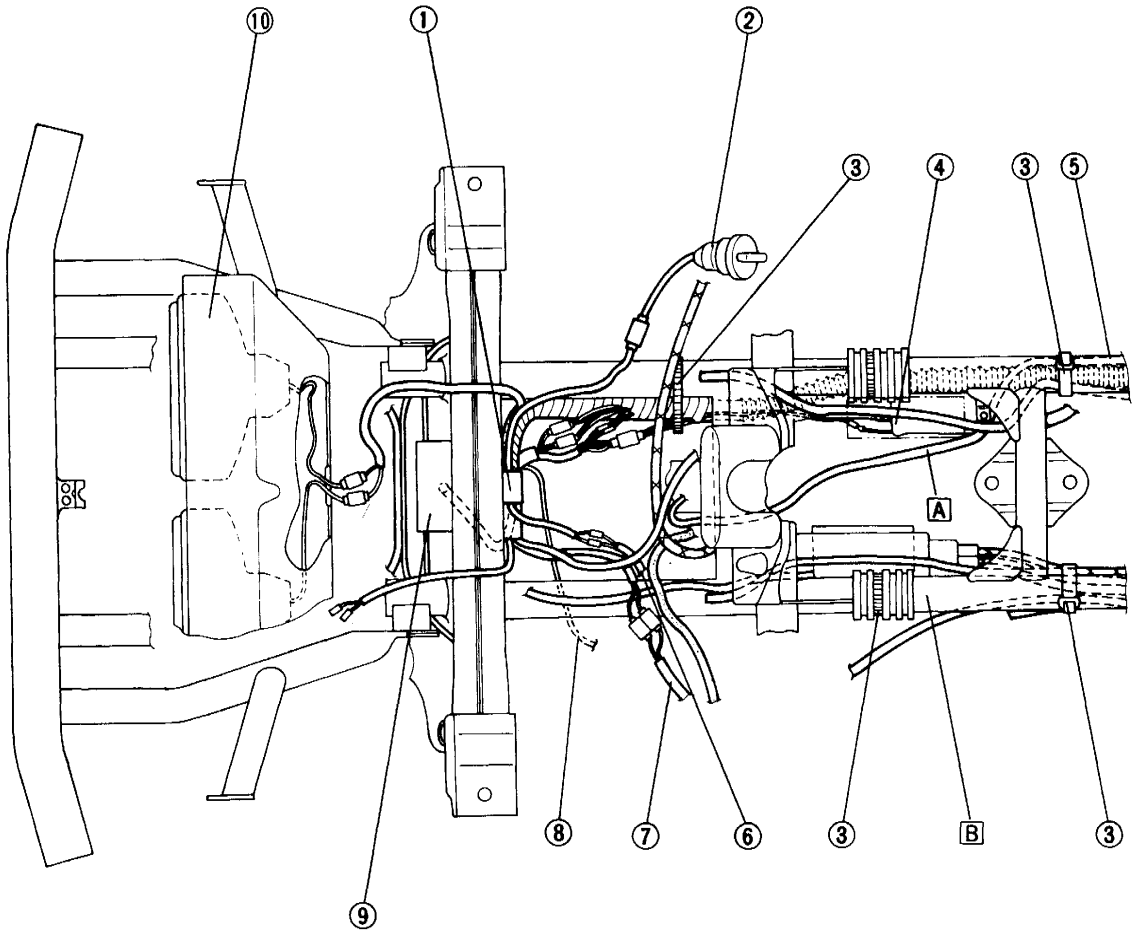
① Fuel tank breather hose
② Clamp
③ Band
④ Fuel hose
⑤ Crankcase breather hose
⑥ Select lever control cable 2
⑦ Positive lead
⑧ Ground lead
⑨ Final gear case breather hose
⑩ Battery breather hose
⑪ Carburetor over flow hose
⑫ CDI magneto lead
⑬ Thermo switch
⑭ Neutral switch lead
⑮ Oil cooler hose
⑯ Select lever control cable 1
⑰ Differential gear case breather hose
⑱ Breather hose (front brake)
⑲ Clip
⑳ Earth lead (CDI unit)
㉑ Handlebar protector

[A] Clamp the starter motor cable and battery breather hose.
[B] Pass the final gear case breather hose the clamp.
[C] Pass the hoses into the holes.
Left side: Carburetor breather hose
Differential gear case breather hose
Right side: Carburetor breather hose
[D] Pass the leads outside of the handlebar holder (Right).



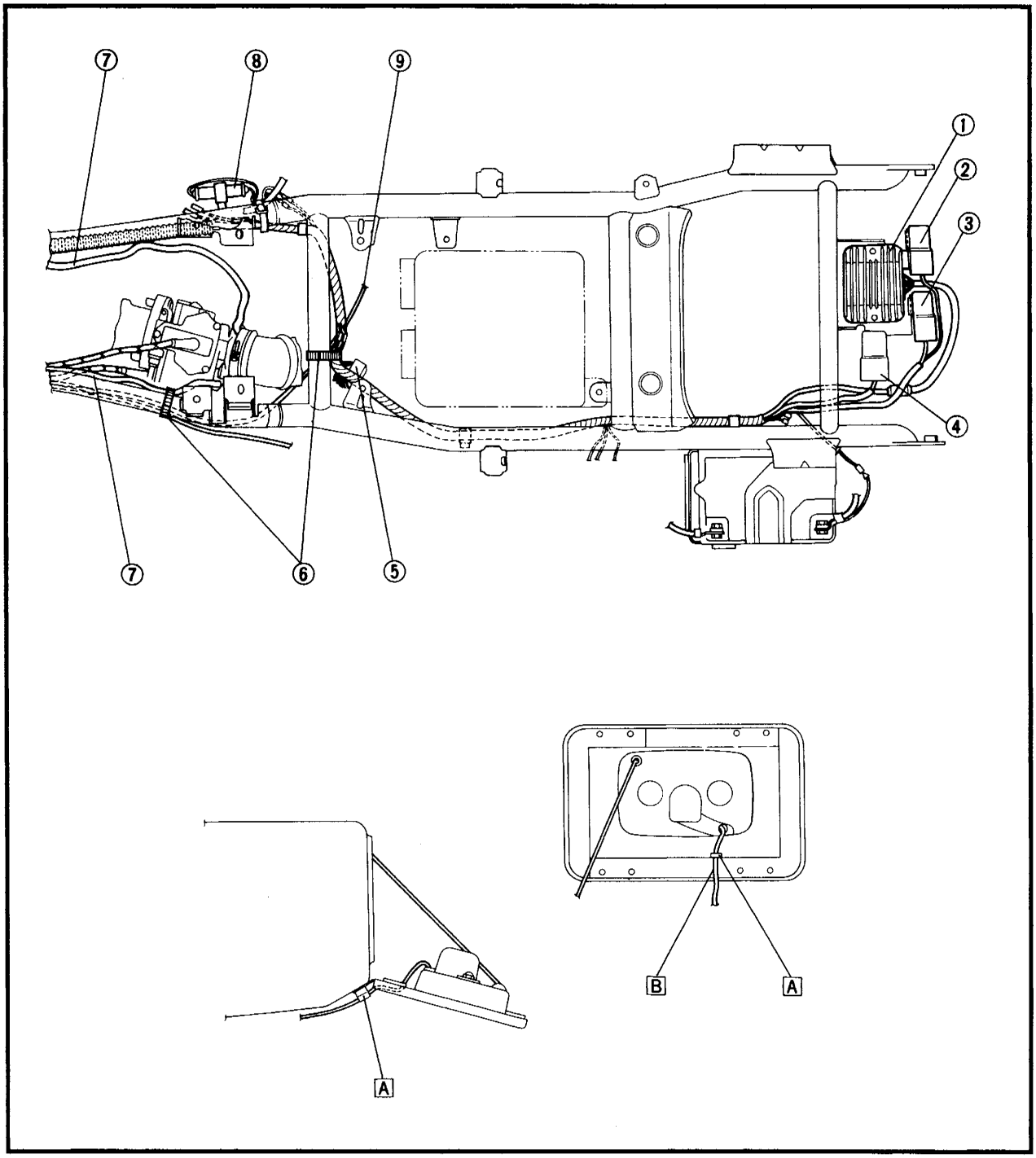
① Clamp
② Main switch
③ Band
④ Ignition coil
⑤ Speedometer cable
⑥ Front brake switch lead
⑦ Handlebar switch lead
⑧ Earth lead (CDI unit)
⑨ CDI unit
⑩ Headlight

[A] Do not pinch the hoses when install the fuel tank.



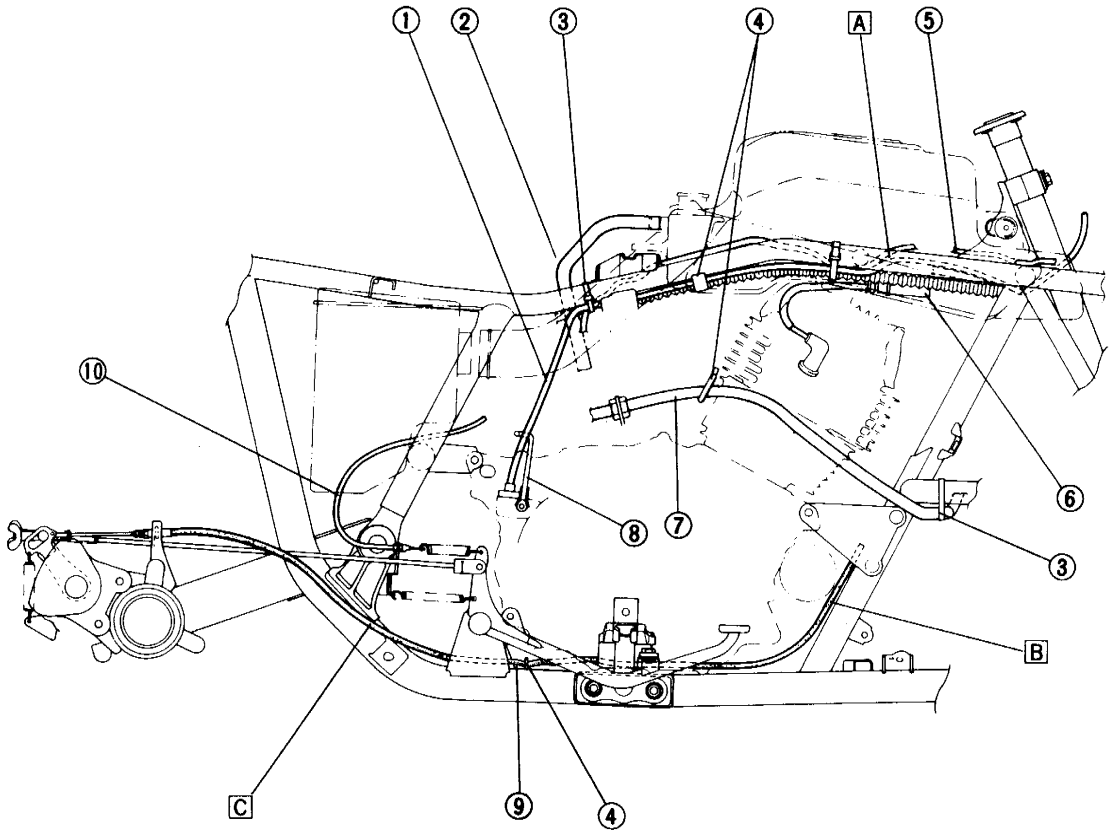
① Rectifier/Regulator
② Starting circuit cut-off relay
③ Neutral relay
④ Reverse relay
⑤ "OIL TEMP" indicator light checker
⑥ Band
⑦ Carburetor breather hose
⑧ Fuse
⑨ Select lever control cable 2

[A] Clamp the taillight lead.
[B] Pass the taillight lead into the slit.



① Speedometer cable
② Crankcase breather hose
③ Band
④ Clamp
⑤ Carburetor breather hose
⑥ Ignition coil
⑦ Select lever control cable 1
⑧ Reverse lock release wire
⑨ Rear brake cable (Handlebar)
⑩ Select lever control cable 2

[A] Pass the speedometer cable copper the wire harness at back of the ignition coil.
[B] Pass the rear brake cable right side of the starter motor.
[C] Pass the rear brake cable upper the fender stay.



PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

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

PERIODIC MAINTENANCE/LUBRICATION

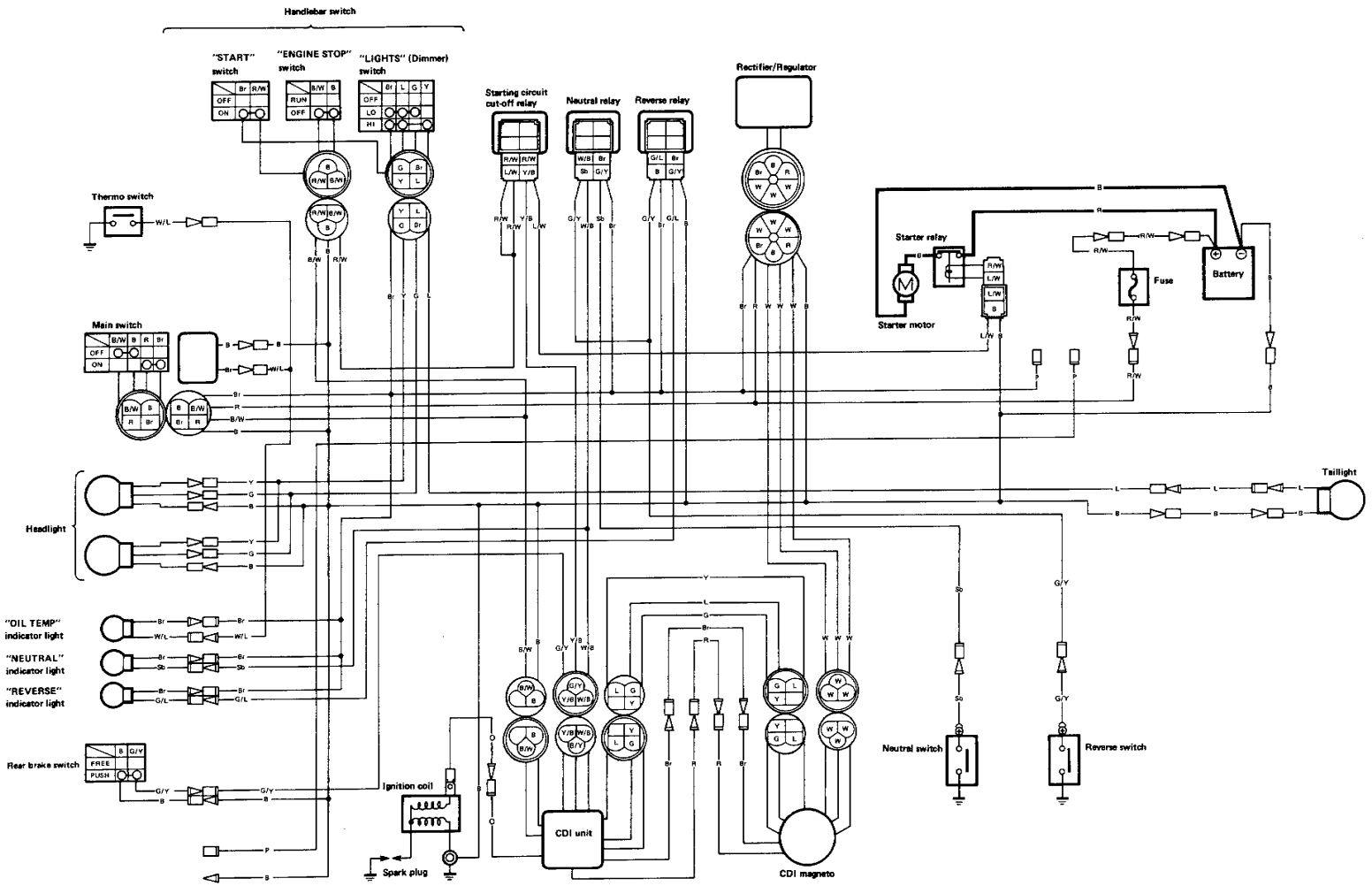
Item	Remarks	Initial			Every	
		1 month	3 months	6 months	6 months	1 year
Valve (s)*	Check valve clearance. Adjust if necessary.	O		O	O	O
Spark plug (s)	Check condition. Clean or replace if necessary.	O	O	O	O	O
Air filter	Clean. Replace if necessary.	Every 20 ~ 40 hours (More often in wet or dusty areas.)				
Carburetor*	Check idle speed/starter operation. Adjust if necessary.		O	O	O	O
Fuel line*	Check fuel hose for cracks or damage. Replace if necessary.			O	O	O
Engine oil/ Transfer gear oil	Replace (Warm engine before draining).	O		O	O	O
Engine oil filter	Clean. Replace if necessary.	O		O	O	O
Engine oil strainer	Clean.	O		O		O
Final gear oil/ Differential gear oil	Check oil level/oil leakage. Replace every 12 months.	O				O
Front brake*	Check operation/fluid leakage. See NOTE. Correct if necessary.	O	O	O	O	O
Rear brake*	Check operation. Adjust if necessary.	O	O	O	O	O
Clutch*	Check operation. Adjust if necessary.	O		O	O	O
Drive select lever system*	Check operation. Adjust if necessary.			O	O	O
Wheels*	Check balance/damage/runout. Repair if necessary.	O		O	O	O
Wheel bearings*	Check bearings assembly for looseness/ damage. Replace if damaged.	O		O	O	O
Steering system*	Check operation/replace if damaged. Check toe-in/adjust if necessary.	O	O	O	O	O
Rubber boots	Check damage. Repair or replace if necessary.	O				O
Fittings/Fasteners*	Check specific gravity. Check bearing hose. Correct if necessary.	O	O	O	O	O
Battery*	Check specific gravity. Check bearing pipe for proper operation. Correct if necessary.	O	O	O	O	O

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

NOTE:

- Brake fluid replacement:
  1. When disassembling the master cylinder or wheel cylinder, replace the fluid. Normally check the brake fluid level and add the fluid as required.
  2. On the inner parts of the master cylinder and wheel cylinder, replace the oil seals every two years.
  3. Replace the brake hoses every four years, or if cracked or damaged.
- Recommended brake fluid:
  DOT #4
  If DOT #4 is not available, #3 can be used.

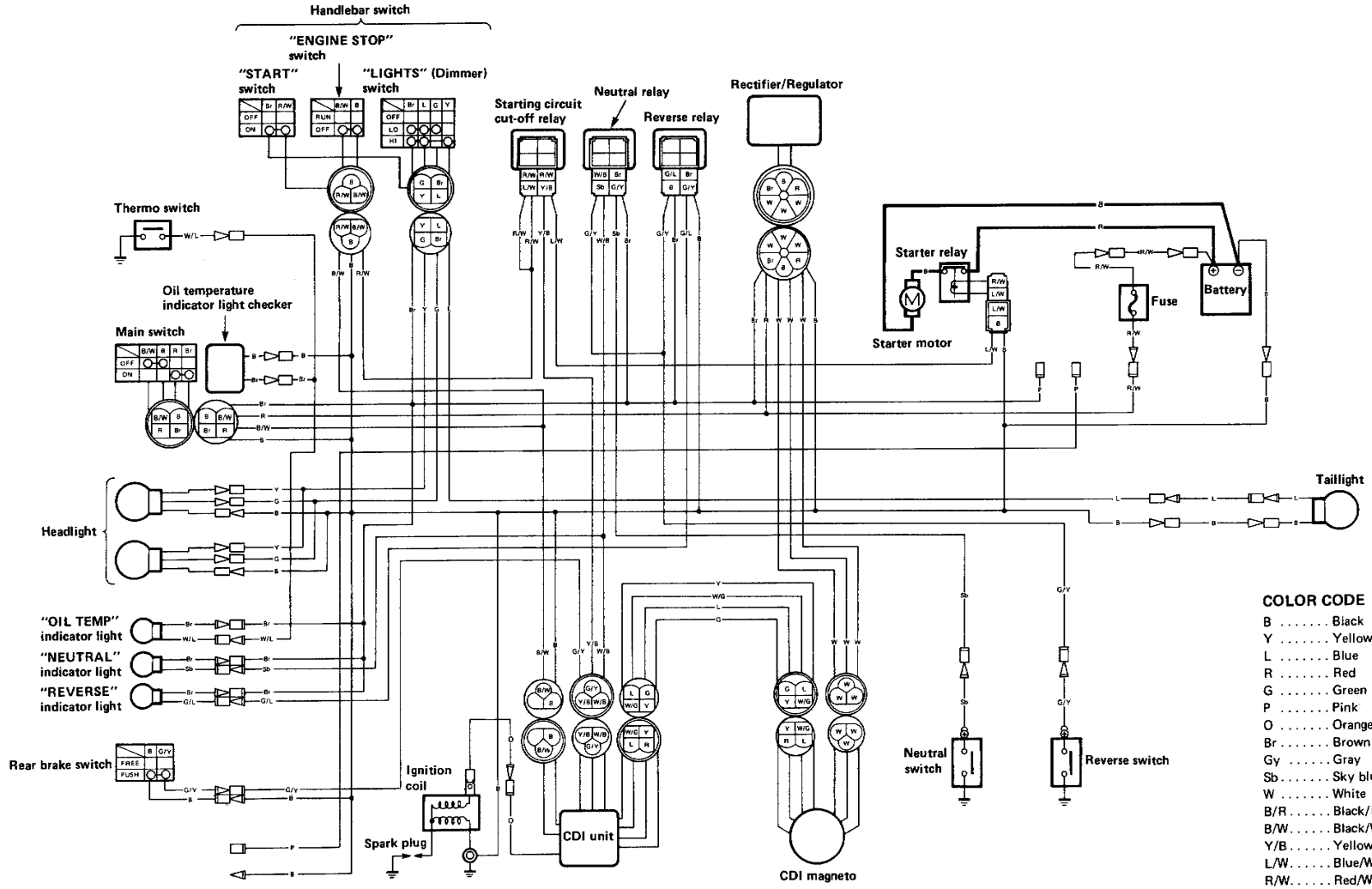
YFM350FWW WIRING DIAGRAM



COLOR CODE

B . . . . . .Black
Y . . . . . .Yellow
L . . . . . .Blue
R . . . . . .Red
G . . . . . .Green
P . . . . . .Pink
O . . . . . .Orange
Br. . . . . .Brown
Gy . . . . . .Gray
Sb . . . . . .Sky blue
W . . . . . .White
B/R . . . . .Black/Red
B/W . . . . .Black/White
Y/B . . . . .Yellow/Black
L/W . . . . .Blue/White
R/W . . . . .Red/White
G/Y . . . . .Green/Yellow
G/L . . . . .Green/Blue
G/R . . . . .Green/Red
W/B . . . . .White/Black
W/L . . . . .White/Blue

YFM350FWA CIRCUIT DIAGRAM



COLOR CODE

B	Black
Y	Yellow
L	Blue
R	Red
G	Green
P	Pink
O	Orange
Br	Brown
Gy	Gray
Sb	Sky blue
W	White
B/R	Black/Red
B/W	Black/White
Y/B	Yellow/Black
L/W	Blue/White
R/W	Red/White
G/Y	Green/Yellow
G/L	Green/Blue
G/R	Green/Red
W/B	White/Black
W/G	White/Green
W/L	White/Blue

YAMAHA

YFM350FWF

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-08-99

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the YFM350FWF. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with the following manual.

YFM350FWT ('87) SERVICE MANUAL (LIT-11616-06-01)
YFM350FWW ('89) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-06-66)
YFM350FWA ('90) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-11)
YFM350FWB ('91) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-58)

YFM350FWF
SUPPLEMENTARY
SERVICE MANUAL

LIT-11616-08-99

HOW TO USE THIS MANUAL

CONSTRUCTION OF THIS MANUAL

This manual consists of chapters for the main categories of subjects. (See "Illustrated symbols")

1st title ①: This is a chapter with its symbol on the upper right of each page.

2nd title ②: This title appears on the upper of each page on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)

3rd title ③: This is a final title.

MANUAL FORMAT

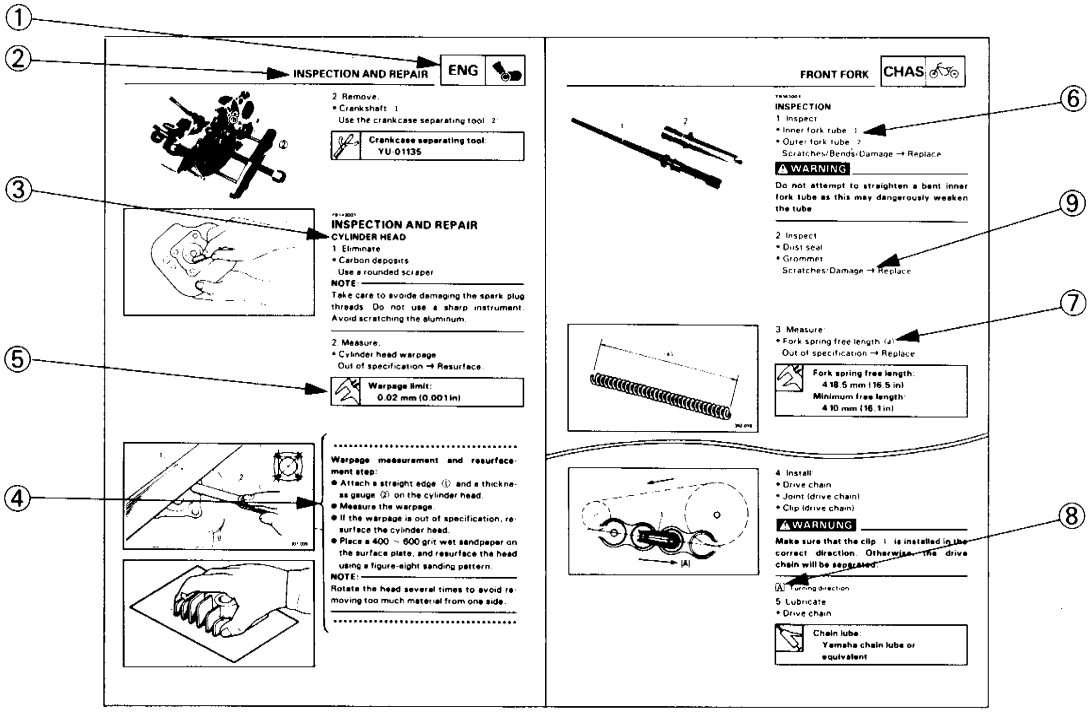
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections. A set of particularly important procedure ④ is placed between a line of asterisks " ✻ " with each procedure preceded by "●".

IMPORTANT FEATURES

- Data and a special tool are framed in a box preceded by a relevant symbol ⑤.
- An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦, the others being indicated by an alphabetical letter in a box ⑧.
- A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨.

EXPLODED DIAGRAM

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



NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and pepairs on Yamaha machines have a basic understanding of the mechanical concepts and procedures inherent in machine repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.
Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

PARTICULARY IMPORTANT INFORMATION

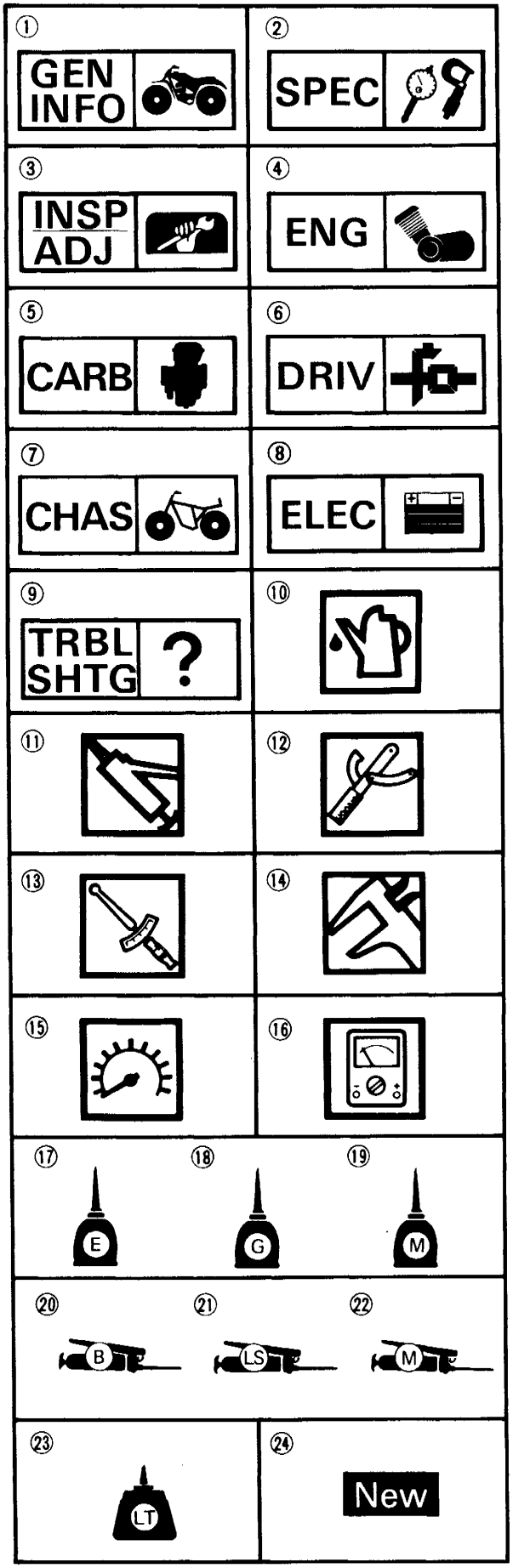
This material is distinguished by the following notation.

⚠ — The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ WARNING — Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine.

CAUTION: — A CAUTION indicates special precautions that must be taken to avoid damage to the machine.

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



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine overhaul
⑤ Carburetion
⑥ Drive train
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉔ in the exploded diagram indicate grade of lubricant and location of lubrication point.

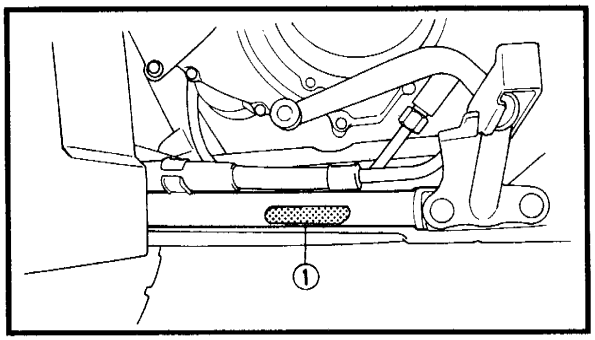
⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)
㉔ Use new one

CONTENTS

GENERAL INFORMATION 1
MACHINE IDENTIFICATION 1
VEHICLE IDENTIFICATION NUMBER 1
ENGINE SERIAL NUMBER 1

SPECIFICATIONS 2
GENERAL SPECIFICATIONS 2
MAINTENANCE SPECIFICATIONS 2
ENGINE 2
CHASSIS 3
ELECTRICAL 4
CABLE ROUTING 5

PERIODIC INSPECTION AND ADJUSTMENT 10
CHASSIS 10
SELECT LEVER CONTROL CABLE ADJUSTMENT 10
DRIVE TRAIN 12
DIFFERENTIAL GEAR AND CONSTANT VELOCITY JOINTS 12
CHASSIS 13
FRONT SHOCK ABSORBER AND FRONT ARMS 13



GENERAL INFORMATION

MACHINE IDENTIFICATION

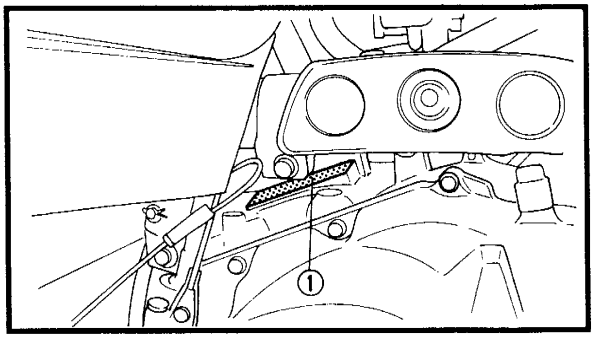
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

NOTE:

The vehicle identification number is used to identify your machine and may be used to register your machine with the licensing authority in your state.

Starting serial number:
JY43HNA0*RA149101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

NOTE:

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

Starting serial number:
3HN-149101

NOTE:

Designs and specifications are subject to change without notice.

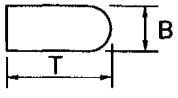
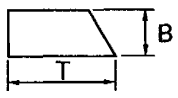
SPECIFICATIONS

GENERAL SPECIFICATIONS

Model		YFM350FWF
Model code number:		3HN
Vehicle identification number:		JY43HNA0*RA149101
Engine starting number:		3HN-149101
Dimensions:		
Overall length		1,915 mm (75.4 in)
Overall width		1,095 mm (43.1 in)
Overall height		1,130 mm (44.5 in)
Seat height		850 mm (33.5 in)
Wheelbase		1,210 mm (47.6 in)
Minimum ground clearance		180 mm (7.1 in)
Basic weight:		
With oil and full fuel tank		269 kg (593 lb)
Minimum turning radius:		3,500 mm (137.8 in)
Chassis:		
Frame type		Steel tube frame
Caster angle		2.5°
Trail		15 mm (0.59 in)
Toe-in		5 ~ 15 mm (0.20 ~ 0.59 in)
Tread	Front	840 mm (33.1 in)
Tread	Rear	820 mm (32.3 in)
Tire:		
Type		Tubeless
Size	Front	AT25 × 8-12 DUNLOP KT402
Size	Rear	AT25 × 10-12 DUNLOP KT406
Tire pressure (cold tire):		
Off road riding	Front	17 ~ 23 kPa (0.17 ~ 0.23 kg/cm², 2.4 ~ 3.3 psi)
	Rear	22 ~ 28 kPa (0.22 ~ 0.28 kg/cm², 3.6 ~ 3.9 psi)

MAINTENANCE SPECIFICATIONS

ENGINE

Model	YFM350FWF
Piston ring:	
Sectional sketch:	
Top ring 	Barrel B = 1.2 mm (0.05 in) T = 3.3 mm (0.13 in)
2nd ring 	Taper B = 1.5 mm (0.06 in) T = 3.4 mm (0.13 in)
Oil ring 	Expander B = 2.8 mm (0.11 in) T = 2.8 mm (0.11 in)

Model		YFM350FWF
End gap (installed):		
	Top ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	2nd ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	Oil ring	0.3 ~ 0.9 mm (0.012 ~ 0.035 in)
< Limit > :		
	Top ring	< 0.5 mm (0.020 in) >
	2nd ring	< 0.5 mm (0.020 in) >
	Oil ring	—
Side clearance:		
	Top ring	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
	2nd ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
< Limit > :		
	Top ring	< 0.12 mm (0.0047 in) >
	2nd ring	< 0.12 mm (0.0047 in) >
Clutch:		
Friction plate:		
Thickness		2.94 ~ 3.06 mm (0.116 ~ 0.120 in)
Quantity		7
Wear limit		< 2.8 mm (0.110 in) >
Clutch plate:		
Thickness		Type "A": 1.5 ~ 1.7 mm (0.059 ~ 0.067 in) Type "B": 1.9 ~ 2.1 mm (0.075 ~ 0.083 in)
Quantity		Type "A": 4 Type "B": 2
Warp limit		< 0.2 mm (0.008 in) >
Clutch spring:		
Free length		47.8 mm (1.88 in)
Quantity		5
Wear limit		< 46.5 mm (1.83 in) >
Clutch release method		Outer push
Clutch-in revolution		1,850 ~ 2,150 r/min
Clutch-stall revolution		3,050 ~ 3,450 r/min

CHASSIS

Model		YFM350FWF
Front suspension:		
Cushion stroke		67.5 mm (2.66 in)
Suspension spring free length		240 mm (9.45 in)
Spring rate	K1	16.7 N/mm (1.7 kg/mm, 95.2 lb/in)
Stroke	K1	0 ~ 138.5 mm (0 ~ 5.45 in)
Rear suspension:		
Cushion stroke		75 mm (2.95 in)
Suspension spring free length		267.8 mm (10.54 in)
Fitting length		224.8 mm (8.85 in)
Spring rate	K1	30.4 N/mm (3.1 kg/mm, 174 lb/in)
Stroke	K1	0 ~ 132 mm (0 ~ 5.20 in)

Model	YFM350FWF
Brake lever & brake pedal:	
Brake lever free play:	
Just before adjuster contacts master cylinder piston.	4 ~ 8 mm (0.16 ~ 0.32 in) at lever end
Just before brake is actually applied.	25 ~ 30 mm (1.0 ~ 1.2 in) at lever end
Brake pedal position	5 mm (0.2 in)
Brake pedal free play	20 ~ 30 mm (0.8 ~ 1.2 in)

ELECTRICAL

Model	YFM350FWF
Starter relay:	
Model/Manufacturer	A104-132/HITACHI
Amperage Rating	150A
Coil winding resistance/Color	3.1 ~ 3.7 Ω at 20°C (68°F) / (R/W-L/W)

TIGHTENING TORQUE:

Engine

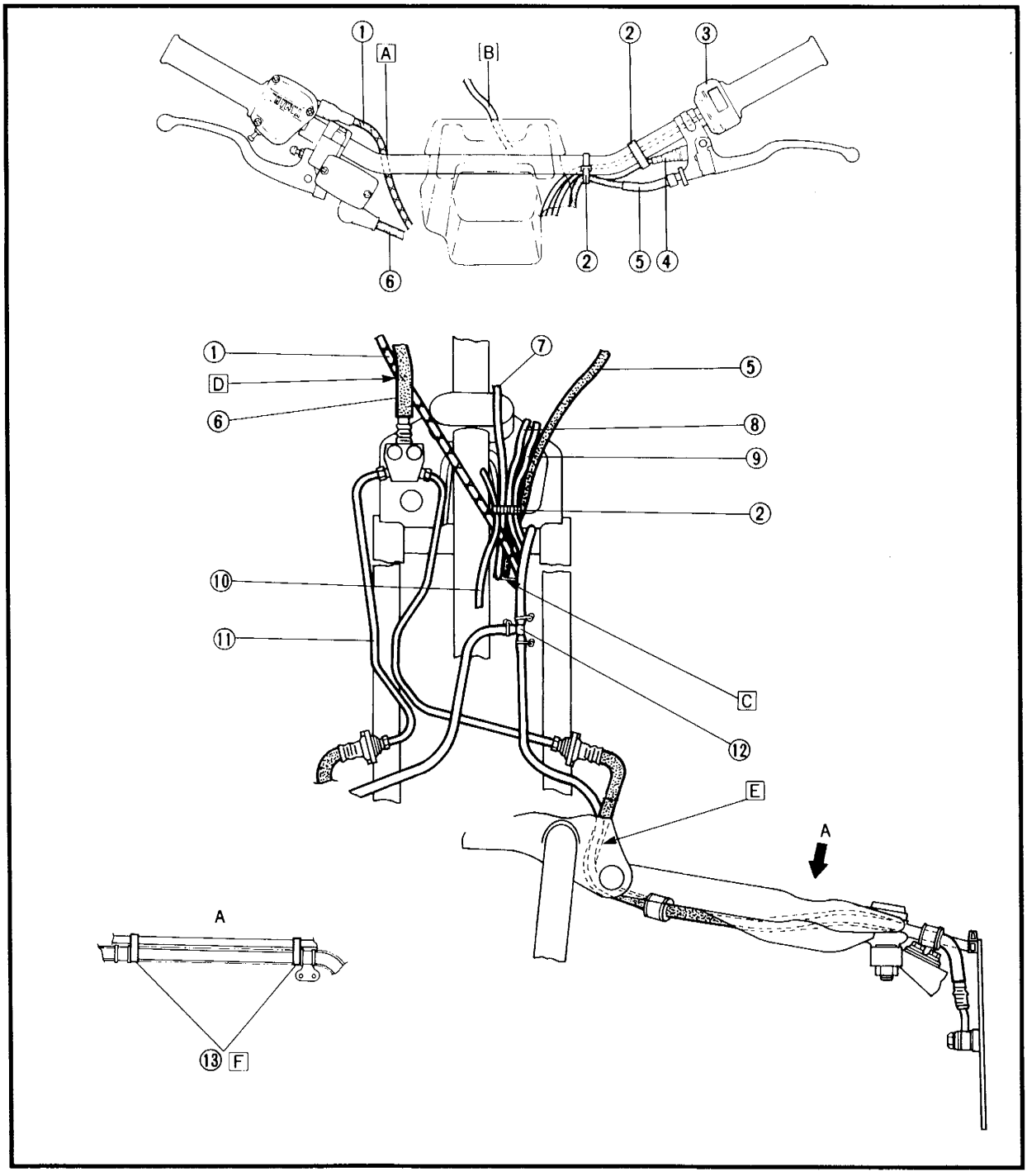
Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Select lever body and crankcase cover (left) (front)	Bolt	M6	2	12	1.2	8.7	
Select lever body and crankcase cover (left) (rear)	Bolt	M6	1	12	1.2	8.7	G
Select lever body and select lever cover	Bolt	M6	3	10	1.0	7.2	
Rink shaft and control cable (locknut)	Nut	M6	1	7	0.7	5.1	
Control cable bracket	Bolt	M10	1	35	3.5	25	
Select lever (transfer gear case side)	Bolt	M6	1	14	1.4	10	

Chassis

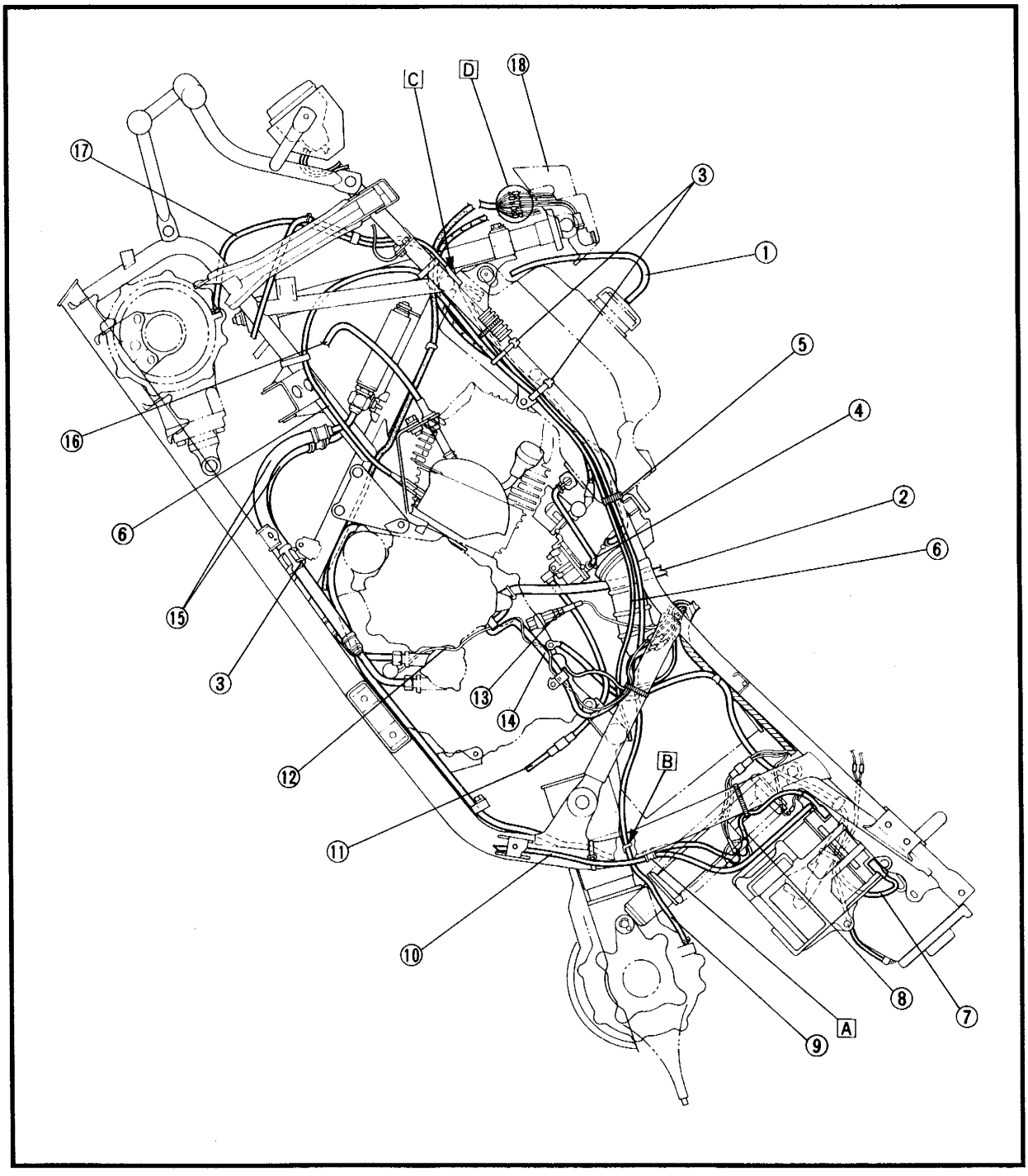
Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Steering knuckle and lower arm	Nut	M10×1.25	2	48	4.8	35	
Front arms (lower and upper) and frame	Nut	M10×1.25	4	45	4.5	32	
Engine mounting (rear)	Nut	M8× 1.25	2	42	4.2	30	
Bearing housing and rear arm	Nut	M10×1.25	4	45	4.5	32	

CABLE ROUTING

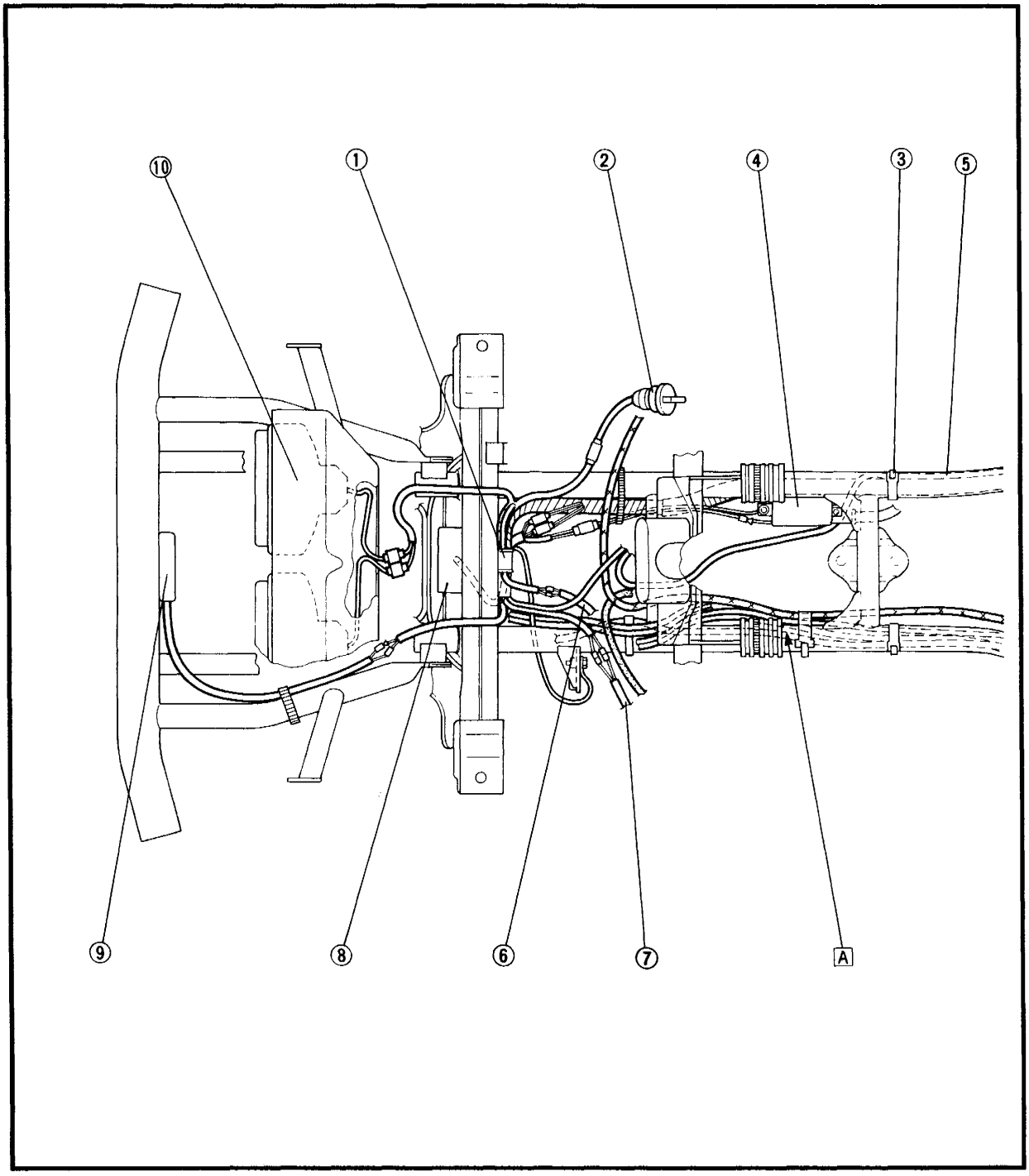
① Throttle cable
② Band
③ Handlebar switch
④ Front brake switch
⑤ Rear brake cable
⑥ Brake hose
⑦ Speedometer cable
⑧ Front brake switch lead
⑨ Handlebar switch lead
⑩ Indicator lights lead
⑪ Brake pipe
⑫ Front brake breather hose
⑬ Clips
[A] Pass the throttle cable under the handlebar.
[B] Insert the breather hose into the hole of the handlebar protector.
[C] Pass the speedometer cable, rear brake cable and throttle cable in order from the inside.
[D] Pass the throttle cable under the brake hose.
[E] Pass the bearing housing breather hose along the back of the brake hose.
[F] Attach the clip to the brake hose grommet as shown in the illustration.



① Fuel tank breather hose
② Crankcase breather hose
③ Clamp
④ Fuel hose
⑤ Band
⑥ Select lever control cable 2
⑦ Ground lead
⑧ Positive lead
⑨ Final gear case breather hose
⑩ Battery breather hose
⑪ Carburetor over flow hose
⑫ Neutral switch lead
⑬ Thermo switch
⑭ CDI magneto lead
⑮ Oil cooler hose
⑯ Select lever control cable 1
⑰ Differential gear case breather hose
⑱ Handlebar protector
[A] Clamp the starter motor cable and battery breather hose.
[B] Pass the final gear case breather hose into the holder.
[C] Pass the hoses into the holes.
Left side: Carburetor breather hose
Differential gear case breather hose
Final gear case breather hose
Front brake breather hose
[D] Pass the leads outside of the handlebar holder (right).

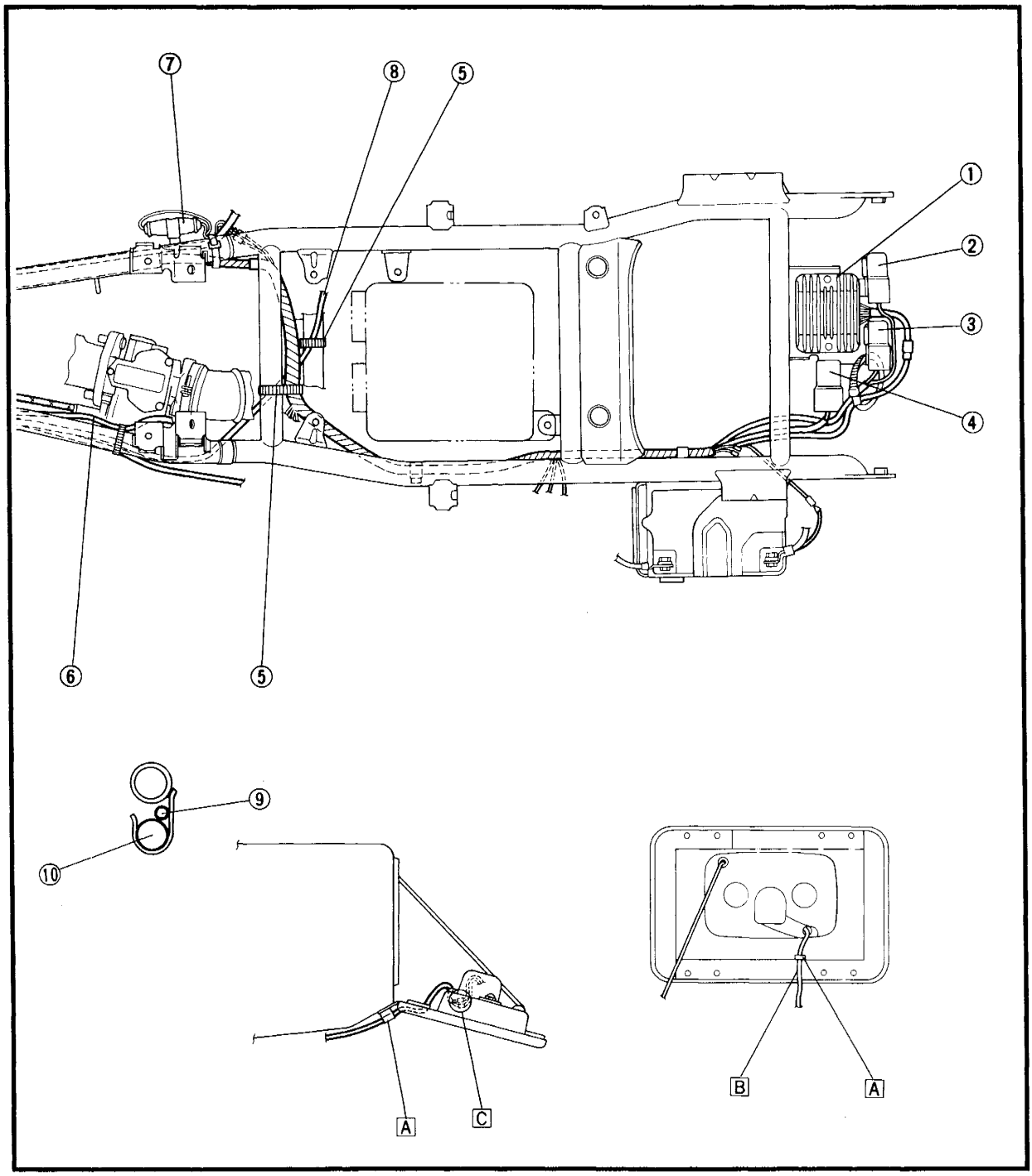


① Clamp
② Main switch
③ Band
④ Ignition coil
⑤ Speedometer cable
⑥ Front brake switch lead
⑦ Handlebar switch lead
⑧ CDI unit
⑨ Auxiliary D.C. terminal
⑩ Headlight
[A] Do not pinch the hoses when install the fuel tank.



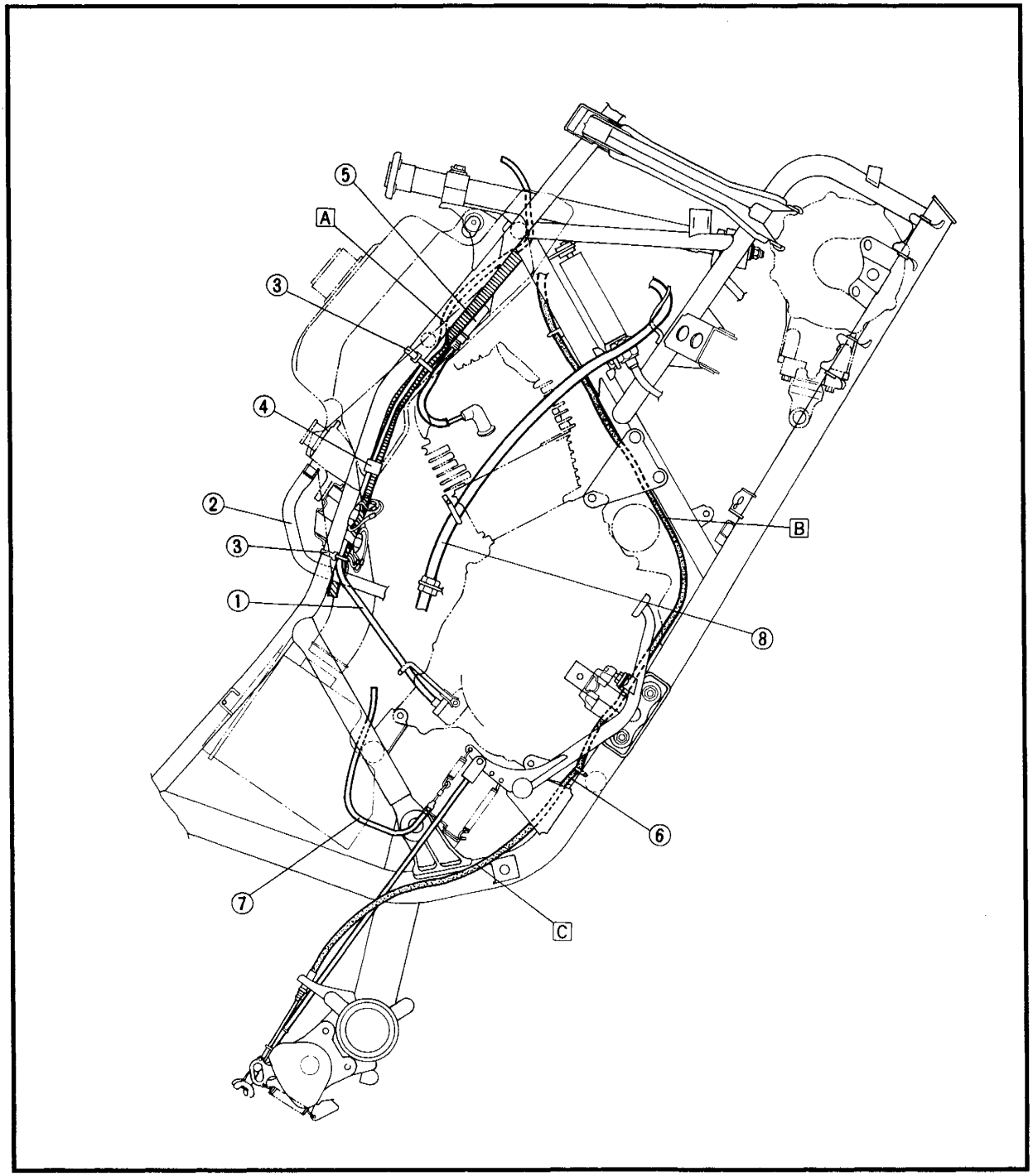
① Rectifier with regulator
② Starting circuit cut-off relay
③ Neutral relay
④ Reverse relay
⑤ Band
⑥ Carburetor breather hose
⑦ Fuse
⑧ Select lever control cable 2
⑨ Speedometer cable
⑩ Wireharness

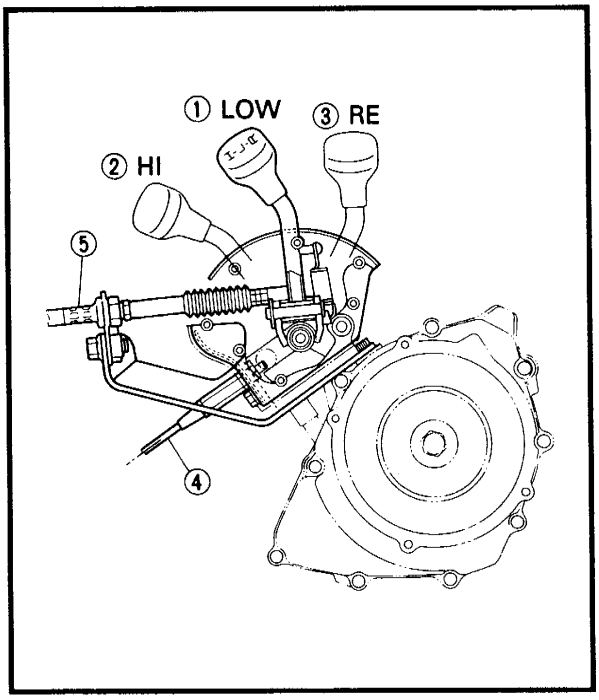
[A] Clamp the taillight lead.
[B] Pass the taillight lead into the slit.
[C] Connect the taillight leads in the lid of the taillight box.

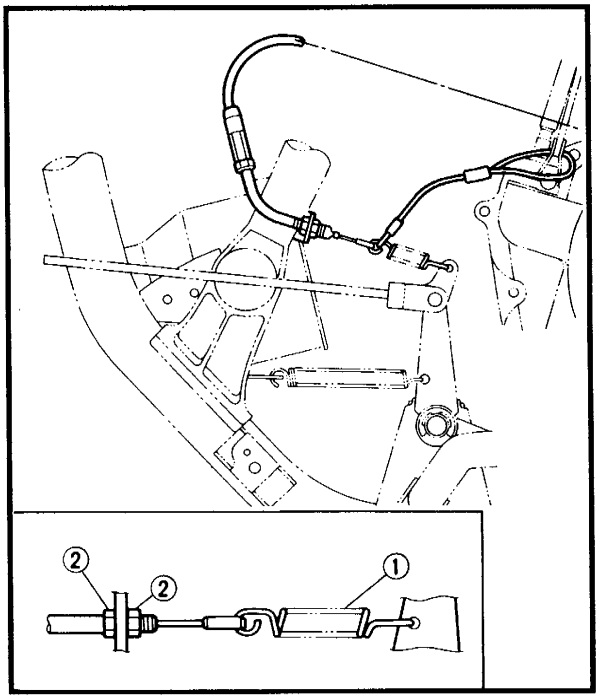


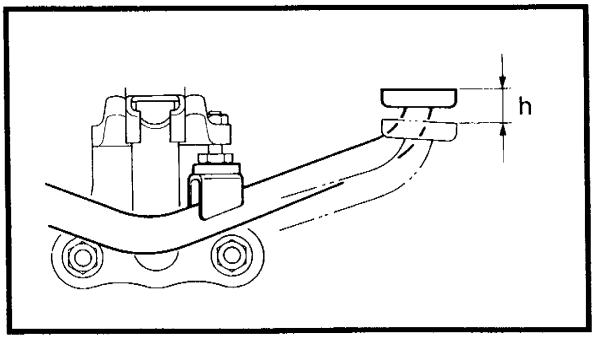
① Speedometer cable
② Crankcase breather hose
③ Band
④ Clamp
⑤ Ignition coil
⑥ Rear brake cable (handlebar)
⑦ Select lever control cable 2
⑧ Select lever control cable 1

[A] Pass the speedometer cable upper the wire harness at back of the ignition coil.
[B] Pass the rear brake cable right side of the starter motor.
[C] Pass the rear brake cable upper the fender stay.









PERIODIC INSPECTION AND ADJUSTMENT

CHASSIS

SELECT LEVER CONTROL CABLE ADJUSTMENT

① LOW
② HIGH
③ REVERSE
④ Control cable 2
⑤ Control cable 1

⚠ WARNING

Before moving the select lever, bring the machine to a complete stop and return the throttle lever to its closed position. Otherwise the transmission may be damaged.

2. Adjust:
- Select lever control cable 1
- Select lever control cable 2

3. Adjust:
- Rear brake pedal free play
  Refer to "REAR BRAKE LEVER AND PEDAL ADJUSTMENT" section in chapter 2.

****

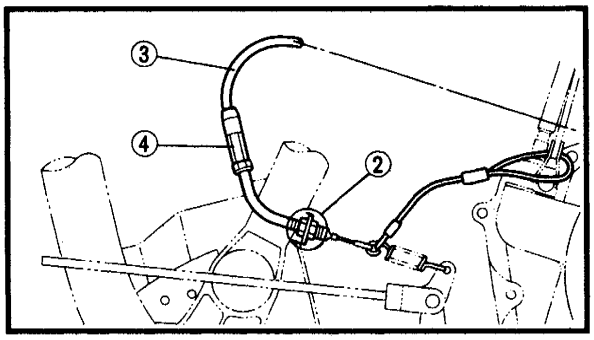
Select lever control cables adjustment steps:
Control cable 2:
- Make sure that the select lever is LOW.
- Adjust the control cable 2 so there is zero free play in the cable. When the adjustment is correct, slack in the return spring ① will be taken up.

NOTE:
In some cases it will be necessary to further adjust the cable with the locknuts ② arrangement that holds the cable to its mount.

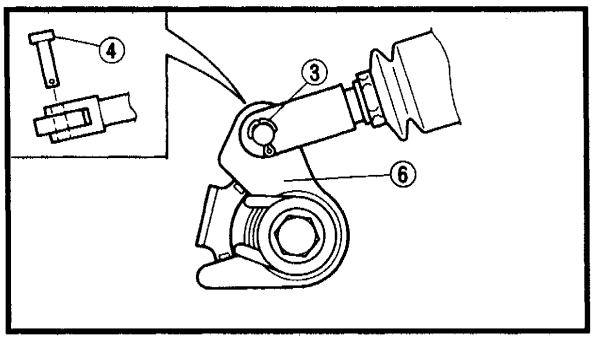
- When the brake beginning to work "h = 20 ~ 30 mm (1.0 ~ 1.2 in)", verify that the select lever can be shifted to REVERSE from HI or LO.
- Unit the brake beginning to work "h = 0 ~ 20 mm (0 ~ 1.0 in)", verify that the select lever can not be shifted to REVERSE form HI or LO.

SELECT LEVER CONTROL CABLE ADJUSTMENT

INSP ADJ

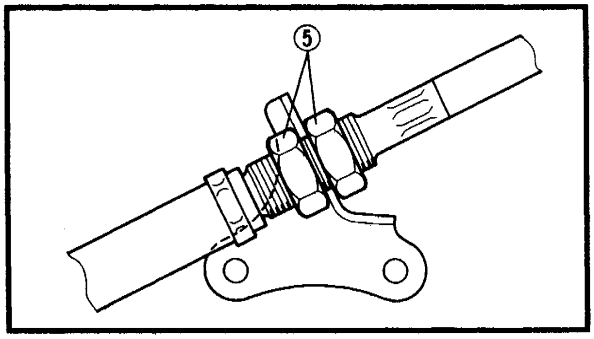


- Check that locknuts ② are tightend correctly.
- If the operation of the select lever is incorrect, adjust the select lever control 2 ③ with the adjuster ④.



Control cable 1:

- Make sure that the select lever is LOW.
- Remove the small hitch pin ③ and clevis pin ④ from the engine end of control cable 1.
- Loosen both locknuts ⑤.
- Alternately turn the locknuts so the holes in the clevis are located exactly over the hole in the arm ⑥ (attached to shift cam 2), so the clevis pin slips easily through both the eyes and arm.
- With the clevis pin removed, carefully tighten the locknuts.



- Verify that the clevis pin still slips through easily, and with a silicone lubricant, lightly lubricate the clevis pin and install it and the hitch pin.
- Tighten the locknuts.

	Locknuts (control cable 1): 25 Nm (2.5 m • kg, 18 ft • lb)

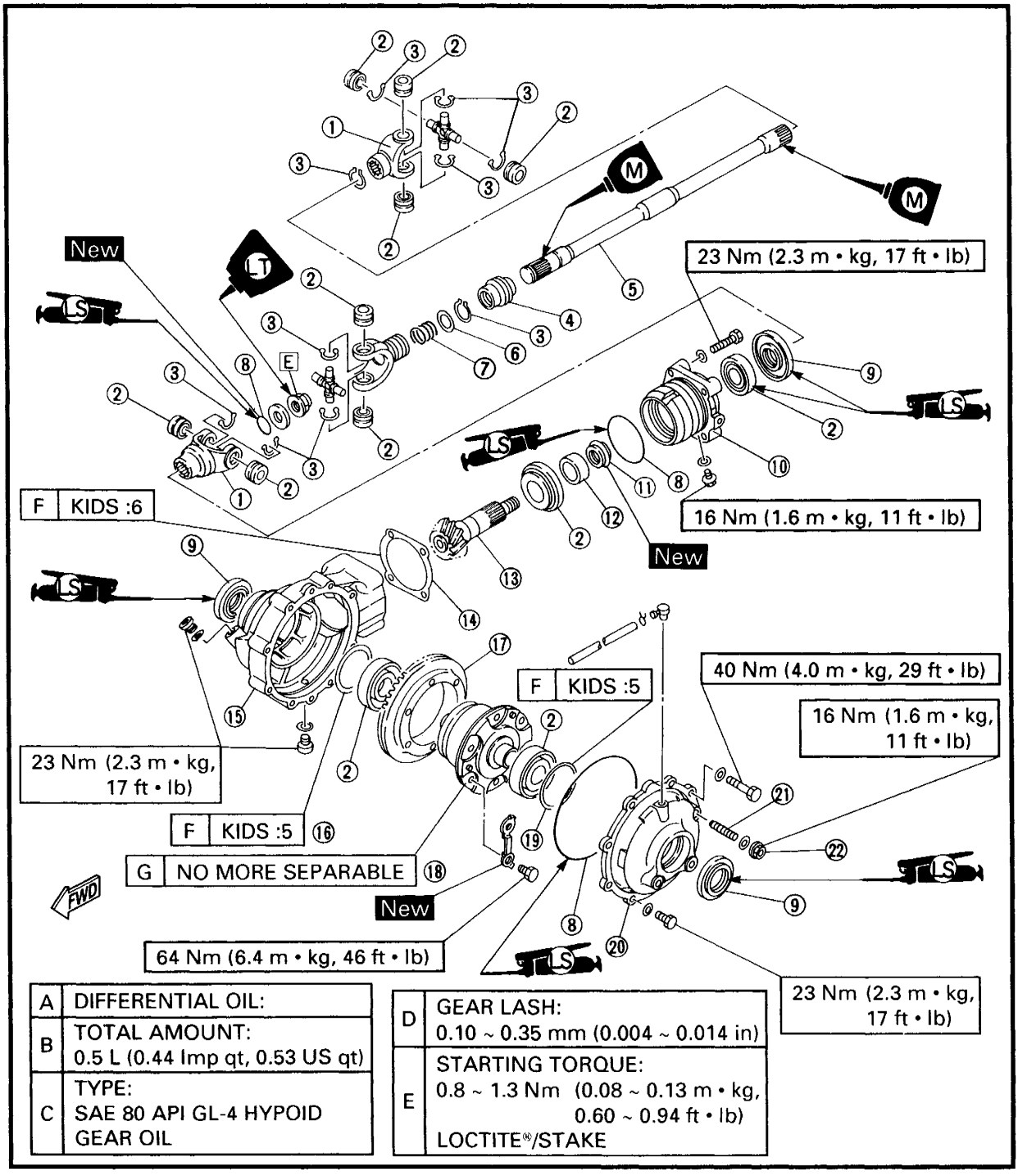
- Slide the dust bellows on the control cable in both directions, applying grease to the areas exposed.
- Check the operation of the select lever, and verify that the brake pedal must be pressed before REVERSE can be engaged. Make sure there is a positive action as another range is engaged. Usually a distinct "Click" can be heard if engagement is positive.

****

DRIVE TRAIN

DIFFERENTIAL GEAR AND CONSTANT VELOCITY JOINTS

① Universal joint
② Bearing
③ Circlip
④ Dust boot
⑤ Front drive shaft
⑥ Spring seat
⑦ Spring
⑧ O-ring
⑨ Oil seal
⑩ Bearing housing (front drive gear)
⑪ Collapsible collar
⑫ Spacer
⑬ Front drive gear
⑭ Front drive gear shim
⑮ Differential gear case
⑯ Thrust washer
⑰ Ring gear
⑱ Differential gear assembly
⑲ Ring gear shim
⑳ Bearing housing (ring gear)
㉑ Ring gear stopper
㉒ Locknut



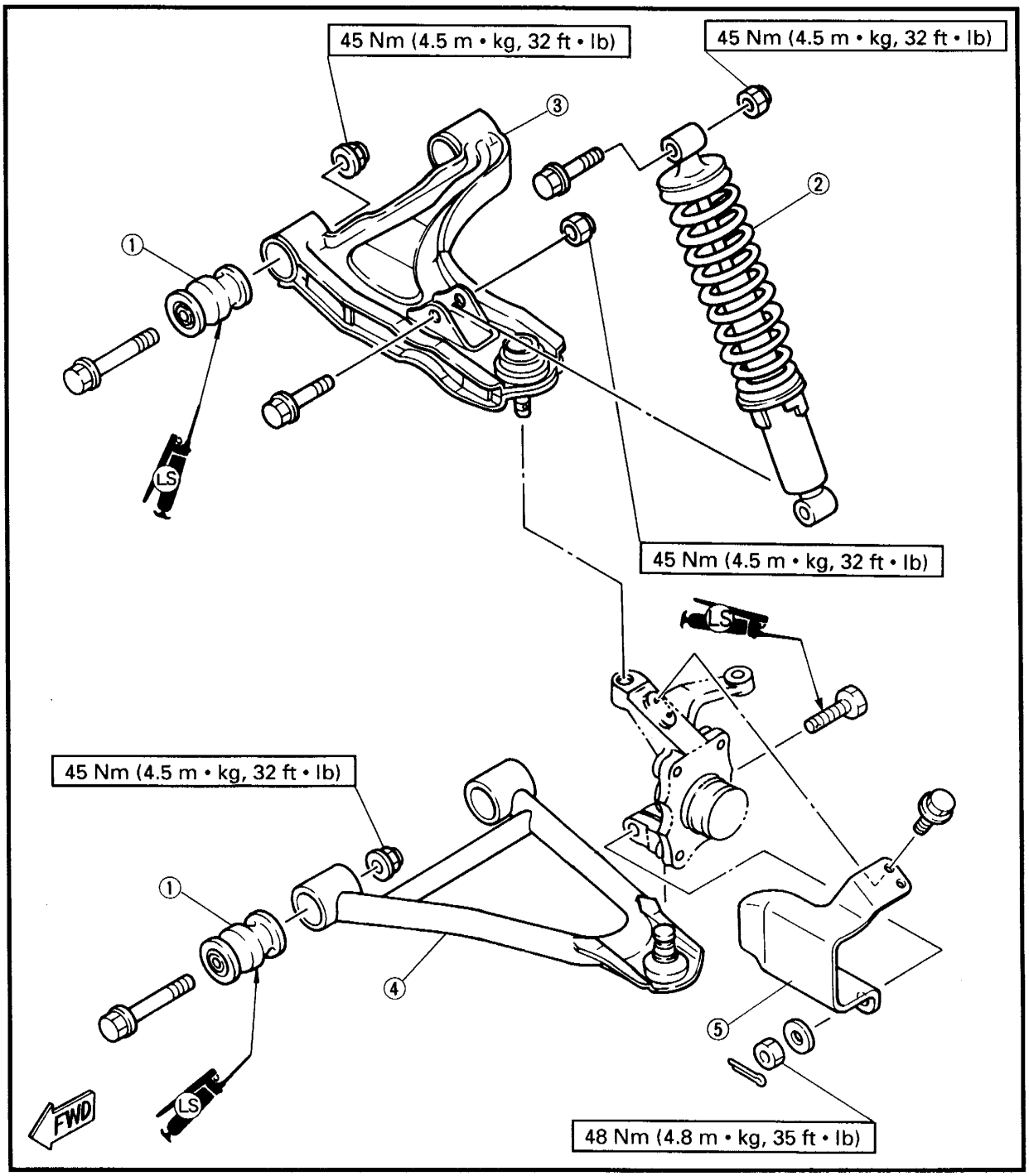
A	DIFFERENTIAL OIL:
B	TOTAL AMOUNT: 0.5 L (0.44 Imp qt, 0.53 US qt)
C	TYPE: SAE 80 API GL-4 HYPOID GEAR OIL

D	GEAR LASH: 0.10 ~ 0.35 mm (0.004 ~ 0.014 in)
E	STARTING TORQUE: 0.8 ~ 1.3 Nm (0.08 ~ 0.13 m • kg, 0.60 ~ 0.94 ft • lb) LOCTITE®/STAKE

CHASSIS

FRONT SHOCK ABSORBER AND FRONT ARMS

① Bushing
② Front shock absorber
③ Upper arm
④ Lower arm
⑤ Boot protector



YAMAHA

YFM350FWH

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-09-82

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the YFM350FWH. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with the following manual.

YFM350FWT ('87) SERVICE MANUAL (LIT-11616-06-01)
YFM350FWW ('89) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-06-66)
YFM350FWA ('90) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-02)
YFM350FWB ('91) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-58)
YFM350FWF ('94) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-08-99)

YFM350FWH
SUPPLEMENTARY
SERVICE MANUAL

LIT-11616-09-82

NOTICE

This manual was written by the Yamaha Motor Company, Ltd. primarily for use by Yamaha dealers and qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so persons using this book to perform maintenance and repairs on Yamaha machines should have a basic understanding of the machanical concepts and procedures inherent in machine repair technology. Without such knowledge, attempted repairs or service to the machine may render it unfit to use and/or unsafe.
Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠	The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
⚠ WARNING	Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine.
CAUTION:	A CAUTION indecates special precautions that must be taken to avoid damage to the machine.
NOTE:	A NOTE provides key information to make procedures easier or clearer.

HOW TO USE THIS MANUAL

CONSTRUCTION OF THIS MANUAL

This manual consists of chapters for the main categories of subjects. (See "Illustrated symbols")

1st title ①: This is a chapter with its symbol on the upper right of each page.

2nd title ②: This title appears at the top of each page, on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)

3rd title ③: This is a final title.

MANUAL FORMAT

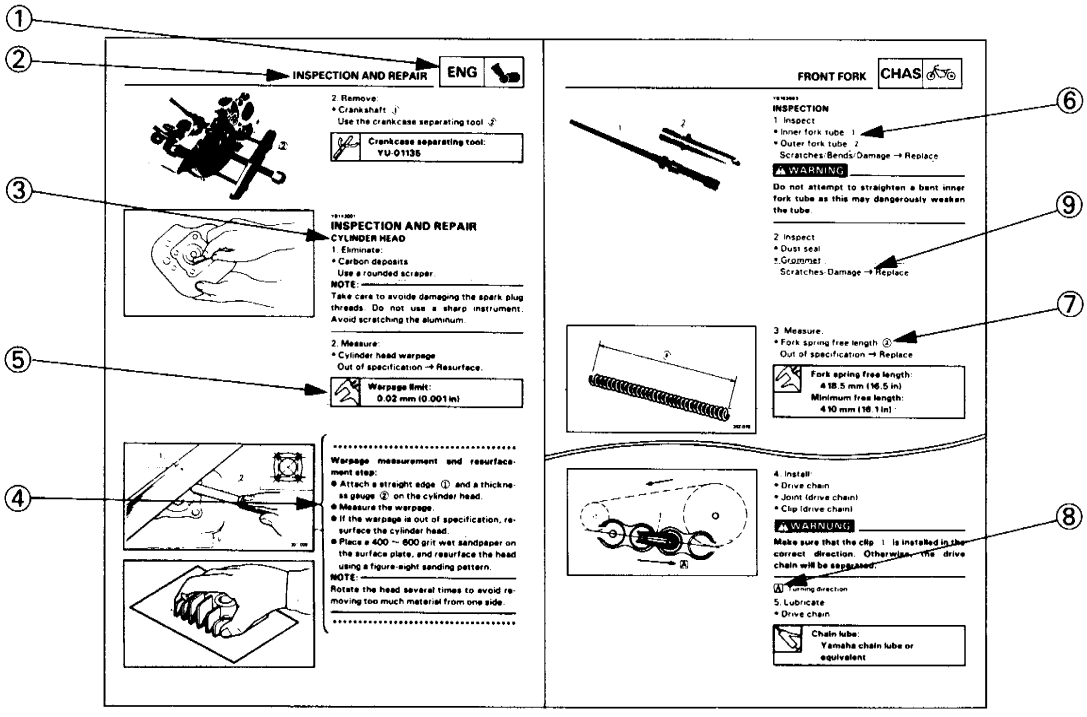
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections. A set of particularly important procedure ④ is placed between a line of asterisks "*" with each procedure preceded by "●".

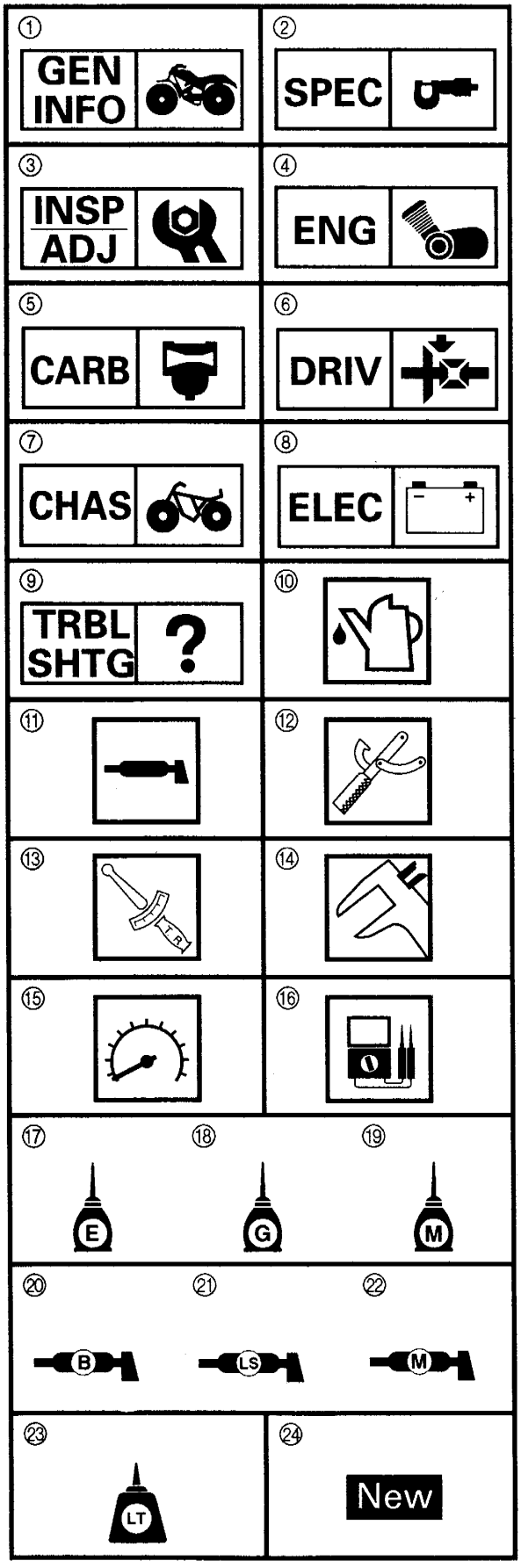
IMPORTANT FEATURES

- Data and a special tool are framed in a box preceded by a relevant symbol ⑤.
- An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦, the others being indicated by an alphabetical letter in a box ⑧.
- A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨.

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 ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Carburetion
⑥ Drive train
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉓ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)
㉔ Use new one

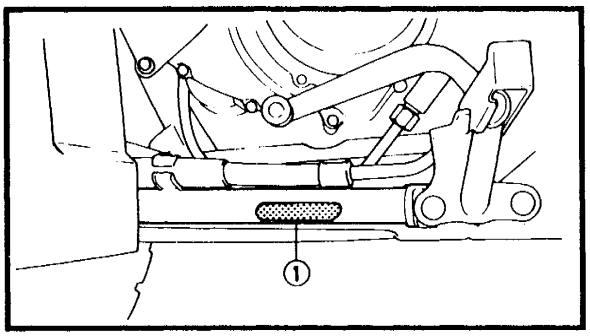
CONTENTS

GENERAL INFORMATION 1
MACHINE IDENTIFICATION 1
VEHICLE IDENTIFICATION NUMBER 1
ENGINE SERIAL NUMBER 1

SPECIFICATIONS 2
GENERAL SPECIFICATIONS 2
MAINTENANCE SPECIFICATIONS 3
ENGINE 3
CHASSIS 6
ELECTRICAL 7
CABLE ROUTING 8

PERIODIC INSPECTION AND ADJUSTMENT 13
CHASSIS 13
REAR BRAKE LEVER AND PEDAL ADJUSTMENT 13
REAR BRAKE SHOE INSPECTION 15
FRONT SHOCK ABSORBER ADJUSTMENT 16
REAR SHOCK ABSORBER ADJUSTMENT 16

CHASSIS 17
REAR BRAKE 17
REMOVAL 18
INSPECTION 19
INSTALLATION 20



GENERAL INFORMATION

MACHINE IDENTIFICATION

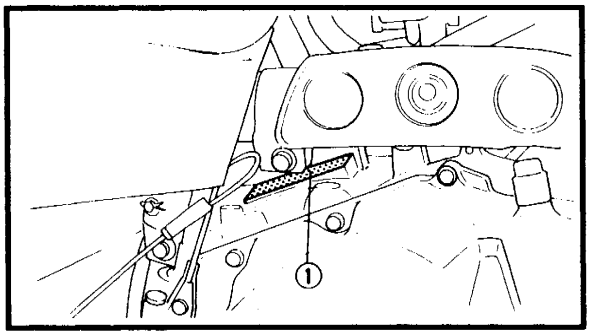
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

NOTE:

The vehicle identification number is used to identify your machine and may be used to register your machine with the licensing authority in your state.

Starting serial number:
JY43HNA0*TA209101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

NOTE:

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

Starting serial number:
3HN-209101

NOTE:

Designs and specifications are subject to change without notice.

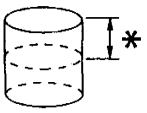
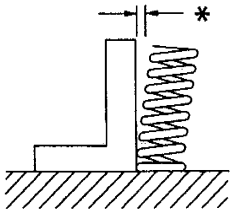
SPECIFICATIONS

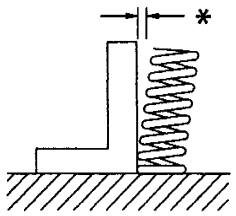
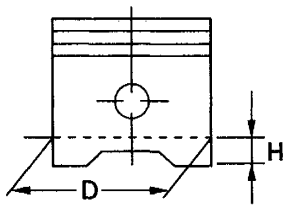
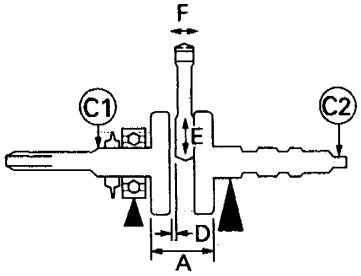
GENERAL SPECIFICATIONS

Model		YFM350FW(H)
Model code:		3HNR (USA) 3HNS (CDN) 3HNT (EUR)
Engine starting number:		3HN-209101 (USA) 3HN-222101 (CDN) 3HN-229101 (EUR)
Vehicle identification number:		JY43HNA0*TA209101 (USA) JY43HNN0*TA222101 (CDN)
Frame starting number:		3HN-229101 (EUR)
Engine:		
Engine type		Air-cooled 4-stroke, SOHC
Cylinder arrangement		Forward-inclined single cylinder
Displacement		348 cm^3
Bore x stroke		83.0 × 64.5 mm (3.27 × 2.54 in)
Compression ratio		8.6:1
Compression pressure (STD)		850 kPa (8.5 kg/cm^2, 121 psi) at 350 r/min
Starting system		Electric and recoil starter
Brake:		
Front brake	Type	Drum brake
	Operation	Right hand operation
Rear brake	Type	Drum brake
	Operation	Left hand and right foot operation

MAINTENANCE SPECIFICATIONS

ENGINE

Model		YFM350FW(H)
Cylinder:		
		
Bore size		82.97 ~ 83.02 mm (3.2665 ~ 3.2685 in)
Out of round limit		0.01 mm (0.0004 in)
*Measuring point		40 mm (1.57 in)
<Wear limit>		<83.15 mm (3.2736 in)>
Valve spring:		
Inner spring:		
Free length	IN	39.9 mm (1.57 in)
	EX	39.9 mm (1.57 in)
<Limit>	IN	<37.9 mm (1.49 in)>
	EX	<37.9 mm (1.49 in)>
Set length (valve closed)	IN	33.6 mm (1.32 in)
	EX	33.6 mm (1.32 in)
Compressed pressure (Installed)	IN	10.7 ~ 12.3 kg (23.59 ~ 27.12 lb)
	EX	10.7 ~ 12.3 kg (23.59 ~ 27.12 lb)
Tilt limit	IN	2.5°/1.6 mm (2.5°/0.06 in)
	EX	2.5°/1.6 mm (2.5°/0.06 in)
		
Direction of winding (top view)	IN	Counterclockwise
	EX	Counterclockwise
		
Outer spring:		
Free length	IN	43.27 mm (1.70 in)
	EX	43.27 mm (1.70 in)
<Limit>	IN	<41.27 mm (1.62 in)>
	EX	<41.27 mm (1.62 in)>
Set length (valve closed)	IN	36.6 mm (1.44 in)
	EX	36.6 mm (1.44 in)
Compressed pressure (Installed)	IN	24.0 ~ 25.6 kg (52.92 ~ 56.45 lb)
	EX	24.0 ~ 25.6 kg (52.92 ~ 56.45 lb)
Tilt limit	IN	2.5°/1.6 mm (2.5°/0.06 in)
	EX	2.5°/1.6 mm (2.5°/0.06 in)

Model	YFM350FW(H)
 Direction of winding (top view) IN EX	 Clockwise Clockwise 
Piston: Piston to cylinder clearance <Limit> Piston size "D"  Measuring point "H" Oversize 2 nd 4th Piston off-set Piston off-set direction Piston pin bore inside diameter Piston pin outside diameter	 0.04 ~ 0.06 mm (0.0016 ~ 0.0024 in) <0.15 mm (0.0059 in)> 82.92 ~ 82.97 mm (3.265 ~ 3.267 in) 5.5 mm (0.217 in) 83.5 mm (3.29 in) 84.0 mm (3.31 in) 0.5 mm (0.02 in) IN side 19.004 ~ 19.015 mm (0.7482 ~ 0.7486 in) 18.990 ~ 18.995 mm (0.7476 ~ 0.7478 in)
Crankshaft:  Crank width "A" Runout limit "C" Big end side clearance "D" <Limit> Big end radial clearance "E" Small end free play "F" <Limit>	 58.95 ~ 59.00 mm (2.321 ~ 2.323 in) 0.06 mm (0.0024 in) 0.35 ~ 0.85 mm (0.014 ~ 0.033 in) <0.7 mm (0.028 in)> 0.010 ~ 0.025 mm (0.0004 ~ 0.0010 in) 0.8 ~ 1.0 mm (0.0315 ~ 0.0394 in) <2 mm (0.0787 in)>

Model		YFM350FW(H)
Clutch:		
Friction plate thickness		2.94 ~ 3.06 mm (0.116 ~ 0.120 in)
Quantity		7
Friction plate wear limit		2.8 mm (0.11 in)
Clutch plate thickness		1.5 ~ 1.7 mm (0.059 ~ 0.067 in)
Quantity		4
Warp limit		0.2 mm (0.008 in)
Clutch plate thickness		1.9 ~ 2.1 mm (0.075 ~ 0.083 in)
Quantity		2
Clutch spring free length		47.8 mm (1.88 in)
Quantity		5
Minimum length		46.5 mm (1.83 in)
Clutch release method		Outer push, cam push
Automatic centrifugal clutch		
Clutch shoe thickness		2 mm (0.08 in)
<Wear limit>		<1.5 mm (0.06 in)>
Clutch shoe spring free length		42.5 mm (1.67 in)
Clutch-in revolution		1,850 ~ 2,150 r/min
Clutch-stall revolution		3,050 ~ 3,450 r/min
Carburetor:		
I. D. mark		2HR 01
Main jet	(M.J)	#120
Main air jet	(M.A.J)	0.8
Jet needle	(J.N)	5H26-3
Needle jet	(N.J)	N-8
Pilot air jet	(P.A.J.1)	1.0
Pilot air jet	(P.A.J.2)	0.9
Pilot outlet	(P.O)	0.75
Pilot jet	(P.J)	#45
Bypass 1	(B.P.1)	0.8
Bypass 2	(B.P.2)	0.8
Bypass 3	(B.P.3)	1.0
Pilot screw	(P.S)	2 - 3/8
Valve seat size	(V.S)	2.5
Starter jet	(G.S.1)	#75
Throttle valve size	(Th.V)	#130
Float height	(F.H)	11.4 ~ 13.4 mm (0.45 ~ 0.53 in)
Fuel level	(F.L)	1 ~ 2 mm (0.04 ~ 0.08 in)
		Below the float chamber mating surface
Engine idle speed		1,350 ~ 1,450 r/min
Intake vacuum		32.9 kPa (250 mmHg, 9.843 inHg)
Lubrication system:		
Oil filter type		Wire mesh type
Oil pump type		Trochoid type
Tip clearance "A" or "B"		0.15 mm (0.006 in)
<Limit>		<0.2 mm (0.008 in)>
Side clearance		0.04 ~ 0.09 mm (0.002 ~ 0.004 in)
Bypass valve setting pressure		80 ~ 120 kPa (0.8 ~ 1.2 kg/cm^2, 11.38 ~ 17.07 psi)
Relief valve operating pressure		60 kPa (0.6 kg/cm^2, 8.53 psi)
Oil pressure (hot)		8 kPa (0.08 kg/cm^2, 1.14 psi) at 1,400 r/min
Pressure check location		HEAD CYLINDER

CHASSIS

Model	YFM350FW(H)
Steering system: Steering bearing type	 Ball bearing
Swingarm: Free play limit End Side	 1 mm (0.04 in) 1 mm (0.04 in)
Rear drum brake: Type Brake drum inside diameter <Limit> Lining thickness <Limit>	 Leading, tailing 160 mm (6.30 in) <161 mm (6.34 in)> 4 mm (0.16 in) <2 mm (0.08 in>
Front brake lever: Front brake lever free play (at lever end): Brake lever free play (just before adjuster contacts master cylinder piston) Brake lever free play (just before brake is actually applied)	 2 ~ 5 mm (0.08 ~ 0.20 in) 30 mm (1.18 in)
Rear brake lever & brake pedal: Brake lever free play (at lever pivot) Brake pedal position Brake pedal free play	 4 ~ 8 mm (0.16 ~ 0.31 in) 5 mm (0.20 in) 20 ~ 30 mm (0.79 ~ 1.18 in)
Throttle cable: Throttle cable free play	 3 ~ 5 mm (0.12 ~ 0.20 in)

TIGHTENING TORQUE

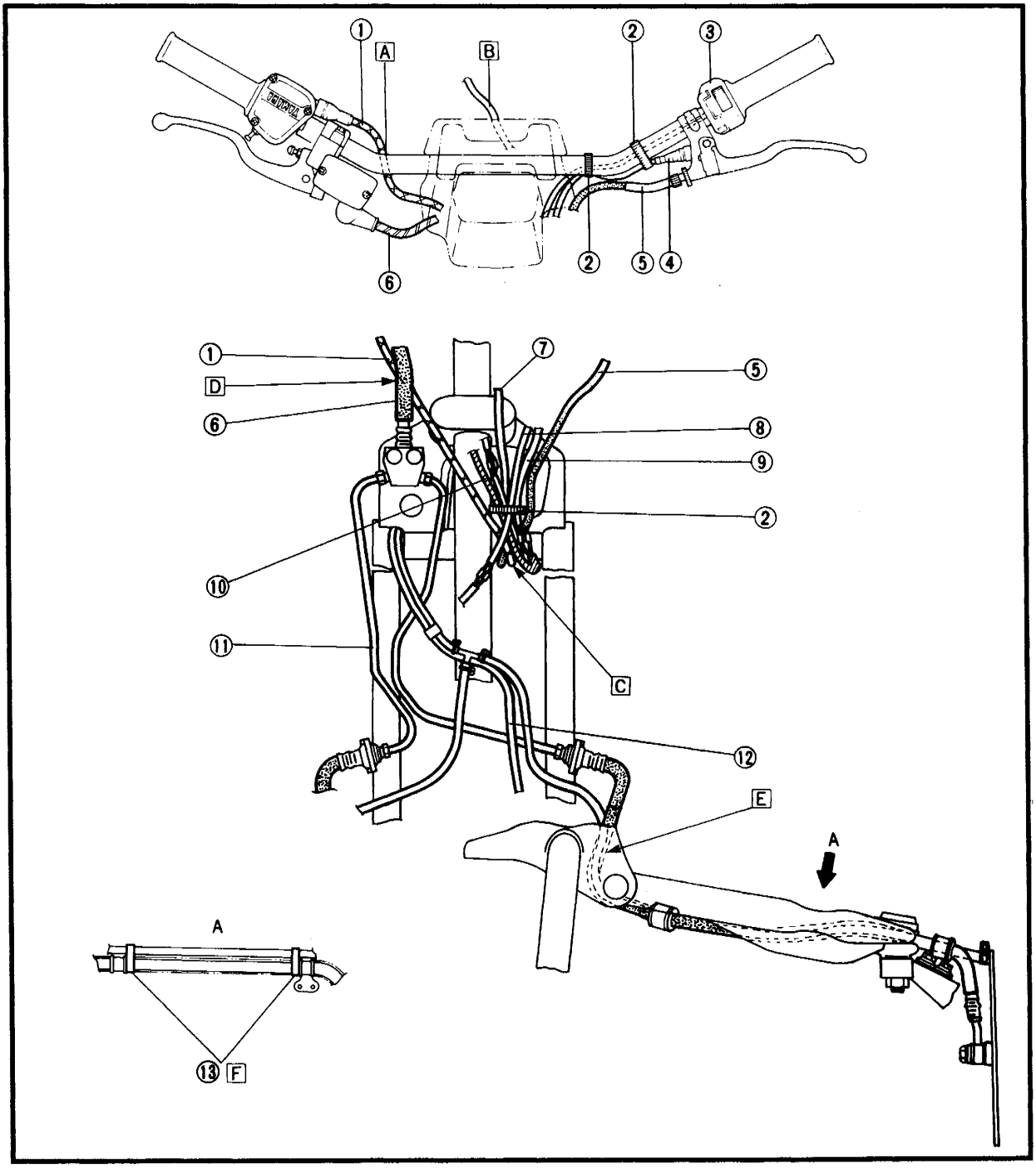
Parts to be tightened	Parts name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Rear wheel and brake drum	Nut	M10 × 1.25	4	55	5.5	40	
Rear axle and nut	Nut	M16 × 1.5	2	150	15.0	110	
Rear brake cam shaft and cam shaft lever	Nut	M6 × 1.0	1	9	0.9	6.5	
Swingarm and rear brake plate	Bolt	M8 × 1.25	4	28	2.8	20	

ELECTRICAL

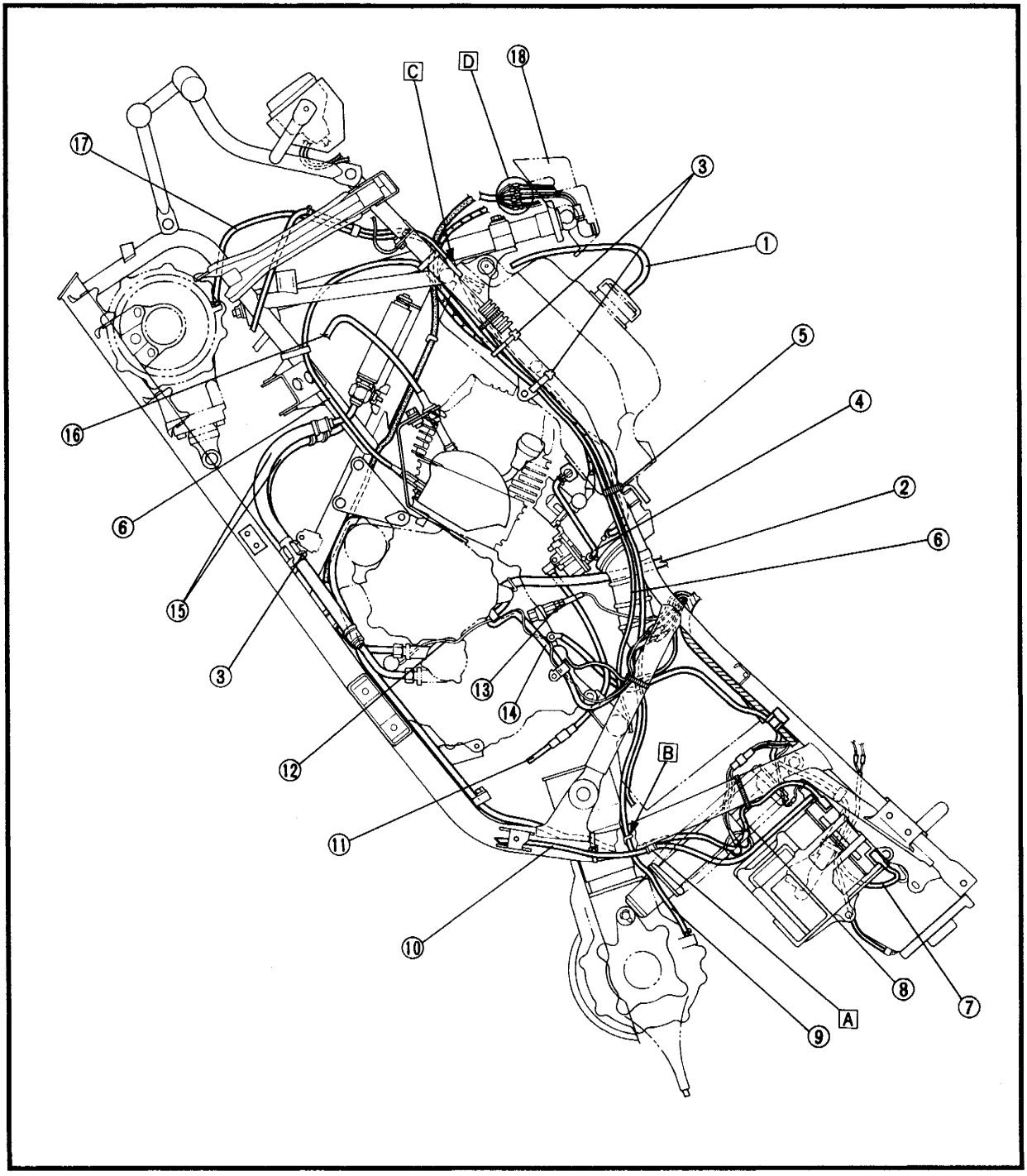
Model	YFM350FW(H)
C.D.I.:	
Magneto model / manufacturer	F3T43575/MITSUBISHI
Pickup coil resistance / color	459 ~ 561 Ω at 20°C (68°F) / (Red-White)
Source coil resistance / color	270 ~ 330 Ω at 20°C (68°F) / (Brown/Green)
C.D.I. unit model / manufacturer	F8T30576/MITSUBISHI
Spark plug cap:	
Type	Resin type
Resistance	10 kΩ
Charging system:	
Type	A.C. magneto generator
Model / manufacturer	F3T43575/MITSUBISHI
Nominal output	12 V 17 A at 3,000 r/min
Stator coil resistance / color	0.70 ~ 0.86 Ω at 20°C (68°F) / (White-White)
Rectifier:	
Model / manufacturer	SH535-12 / SHINDENGEN
Capacity	20A
Withstand voltage	200V

CABLE ROUTING

① Throttle cable
② Band
③ Handlebar switch
④ Rear brake switch
⑤ Rear brake cable
⑥ Brake hose
⑦ Speedometer cable
⑧ Rear brake switch lead
⑨ Handlebar switch lead
⑩ Indicator lights lead
⑪ Brake pipe
⑫ Front brake breather hose
⑬ Clip
[A] Pass the throttle cable under the handlebar.
[B] Insert the breather hose into the hole of the handlebar protector.
[C] Pass the speedometer cable, rear brake cable and throttle cable in order from the inside.
[D] Pass the throttle cable under the brake hose.
[E] Pass the bearing housing breather hose along the back of the brake hose.
[F] Attach the clip to the brake hose grommet as shown in the illustration.

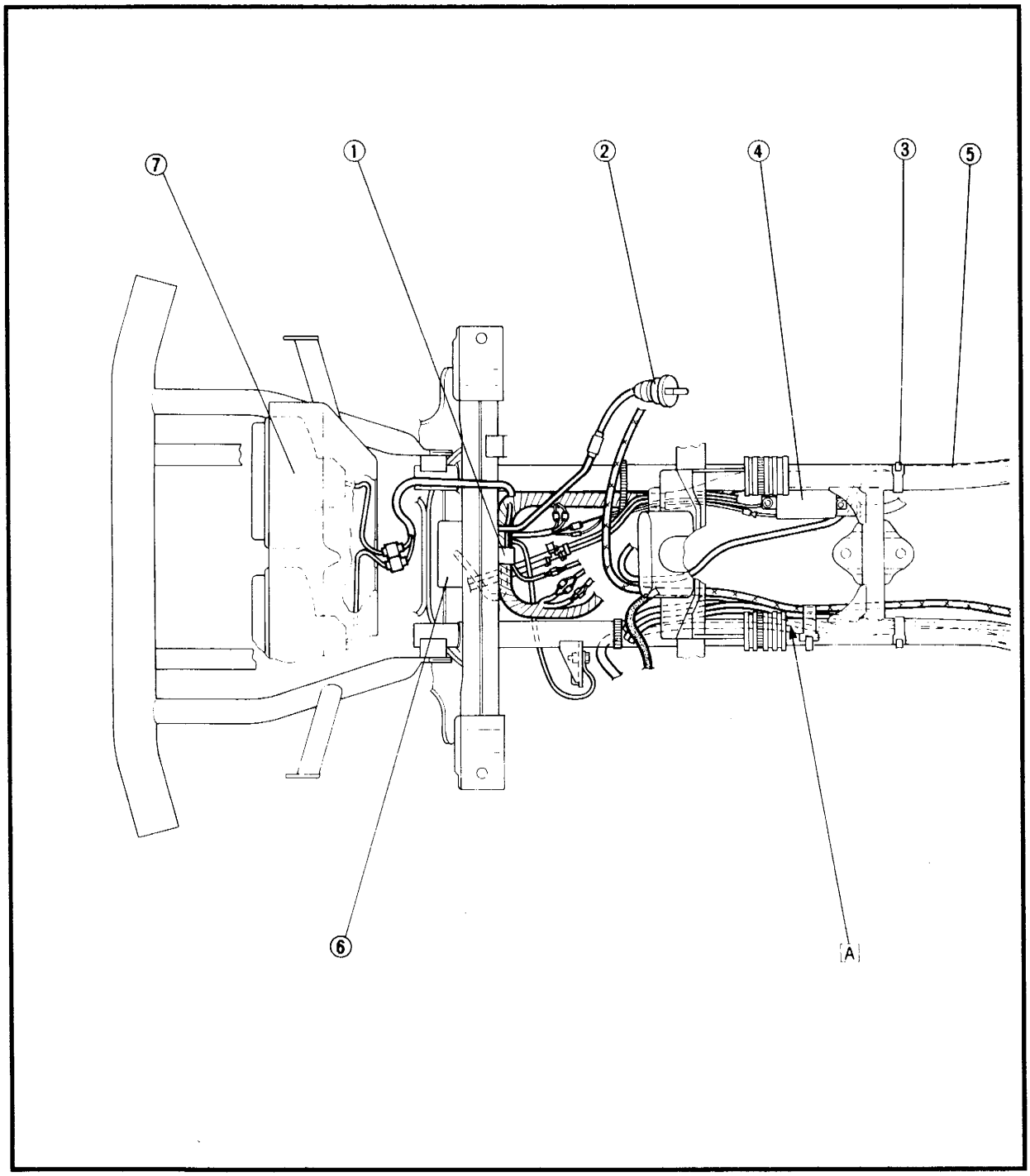


① Fuel tank breather hose
② Crankcase breather hose
③ Clamp
④ Fuel hose
⑤ Band
⑥ Select lever control cable 2
⑦ Ground lead
⑧ Positive lead
⑨ Final gear case breather hose
⑩ Battery breather hose
⑪ Carburetor over flow hose
⑫ Neutral switch lead
⑬ Thermo switch
⑭ CDI magneto lead
⑮ Oil cooler hose
⑯ Select lever control cable 1
⑰ Differential gear case breather hose
⑱ Handlebar protector
[A] Clamp the starter motor cable and battery breather hose.
[B] Pass the final gear case breather hose into the holder.
[C] Pass the hoses into the holes.
Left side: Carburetor breather hose
Differential gear case breather hose
Final gear case breather hose
Front brake breather hose
[D] Pass the leads outside of the handlebar holder (right).



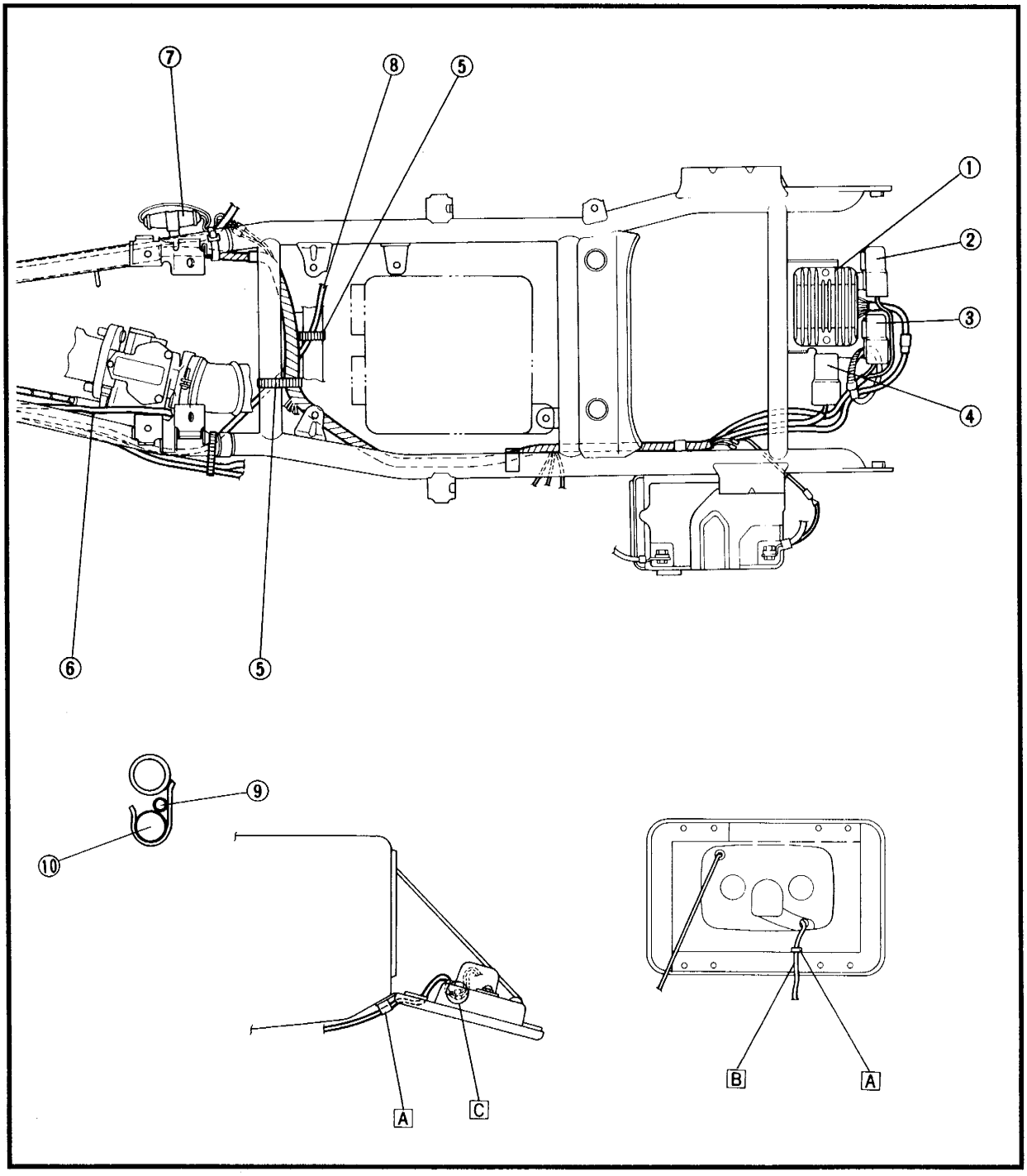
① Clamp
② Main switch
③ Band
④ Ignition coil
⑤ Speedometer cable
⑥ CDI unit
⑦ Headlight

[A] Do not pinch the hoses when install the fuel tank.



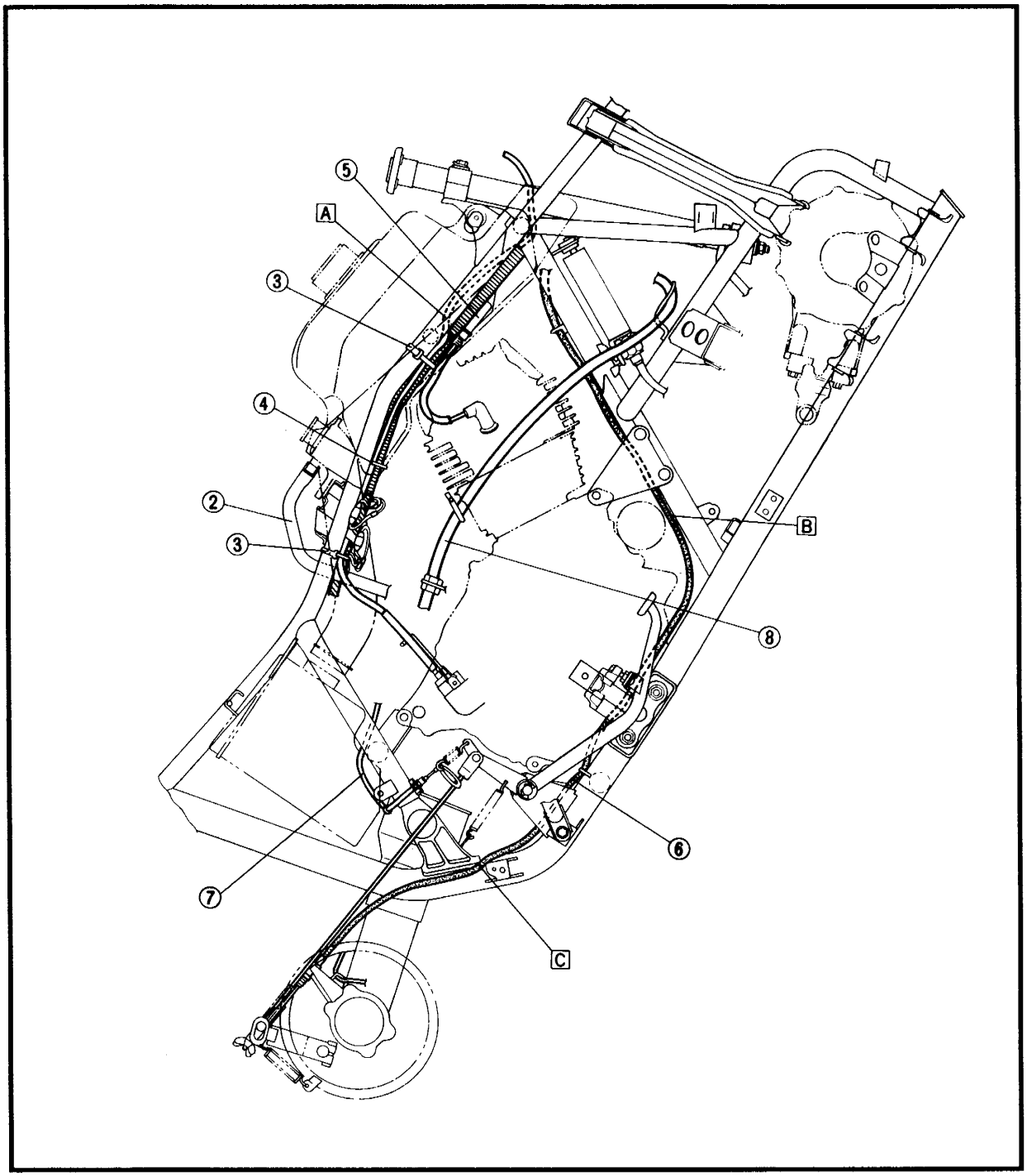
① Rectifier with regulator
② Starting circuit cut-off relay
③ Neutral relay
④ Reverse relay
⑤ Band
⑥ Carburetor breather hose
⑦ Fuse
⑧ Select lever control cable 2
⑨ Speedometer cable
⑩ Wireharness

[A] Clamp the taillight lead.
[B] Pass the taillight lead into the slit.
[C] Connect the taillight leads in the lid of the taillight box.



① Speedometer cable
② Crankcase breather hose
③ Band
④ Clamp
⑤ Ignition coil
⑥ Rear brake cable (handlebar)
⑦ Select lever control cable 2
⑧ Select lever control cable 1

[A] Pass the speedometer cable upper the wire harness at back of the ignition coil.
[B] Pass the rear brake cable right side of the starter motor.
[C] Pass the rear brake cable upper the fender stay.



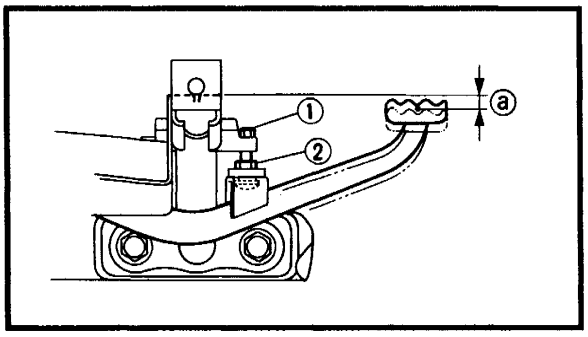
PERIODIC INSPECTION AND ADJUSTMENT

CHASSIS

REAR BRAKE LEVER AND PEDAL ADJUSTMENT

⚠ WARNING

Always adjust both the brake pedal and the rear brake lever whenever adjusting the rear brake.



1. Check:
- Brake pedal height ⓐ
  Out of specification → Adjust.

Brake pedal height:
5 mm (0.2 in)
Below the footrest

2. Adjust:
- Brake pedal height

****

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

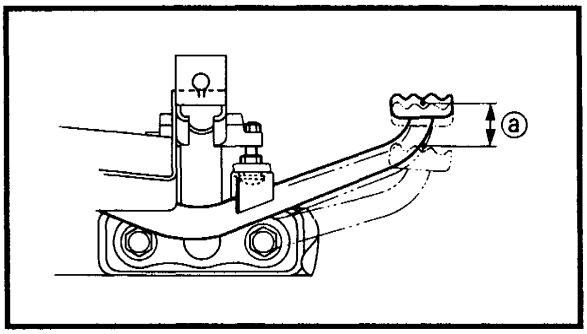
Turning in → Pedal height is upper.
Turning out → Pedal height is lower.

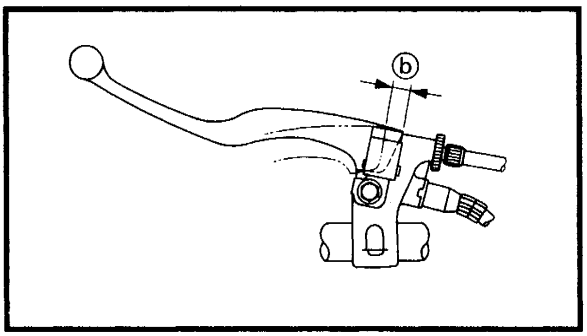
- Tighten the locknut.

⚠ WARNING

After adjusting the brake pedal height, adjust the rear brake lever and pedal free play.

****





3. Check:
- Rear brake pedal free play ⓐ
- Rear brake lever free play ⓑ
  Out of specification → Adjust.

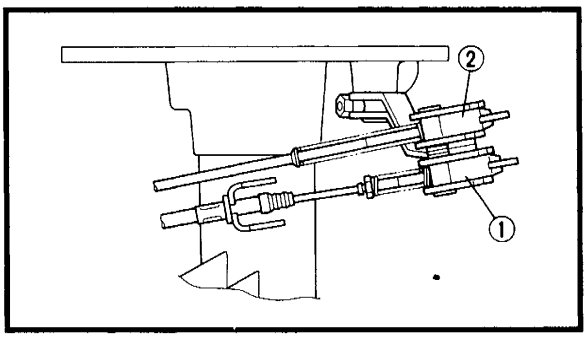
Free play (brake pedal) ⓐ:
20 ~ 30 mm (0.8 ~ 1.2 in)
Free play (brake lever) ⓑ:
4 ~ 8 mm (0.16 ~ 0.31 in)

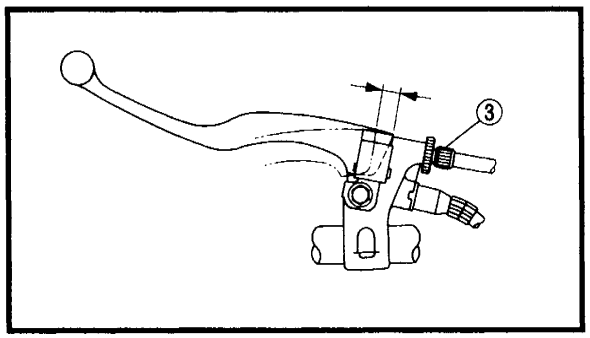
4. Adjust:
- Free play (rear brake lever)
- Free play (brake pedal)

****

Rear brake lever and brake pedal free play adjustment steps:

NOTE:
Before adjusting the free play, pump the brake pedal 2 to 3 times.

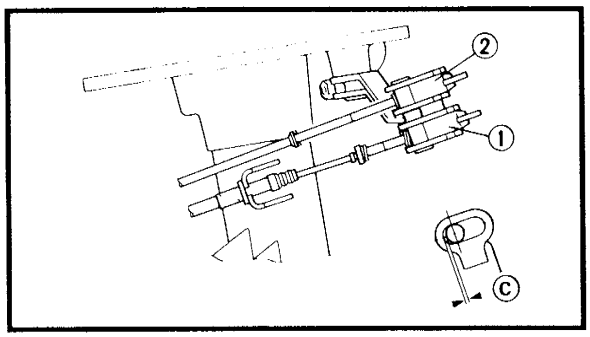


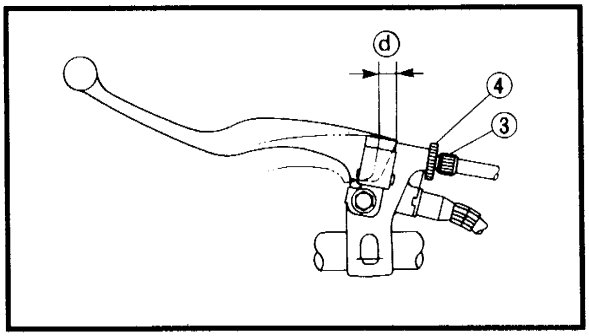


- Fully loosen the brake LEVER cable adjuster (drum) ①.
- Turn the rear brake PEDAL rod adjuster ② until the brake pedal free play is within the specified limits.

Free play (brake pedal):
20 ~ 30 mm (0.8 ~ 1.2 in)

- Fully screw in the brake LEVER cable adjuster (handlebar) ③.





- Turn the brake LEVER cable adjuster (drum) ① clockwise until the gap ⓒ is within the specified limits.

Gap ⓒ:
Zero ~ 1 mm (0.00 ~ 0.04 in)

- Inspect the free play (brake pedal) to see whether or not it is specified value. If not, perform the aforementioned steps again.

Free play (brake pedal):
20 ~ 30 mm (0.8 ~ 1.2 in)

- Loosen the locknut (handlebar) ④.
- Turn the brake LEVER cable adjuster (handlebar) ③ until the free play ⓓ (brake lever pivot) is within the specified limits.

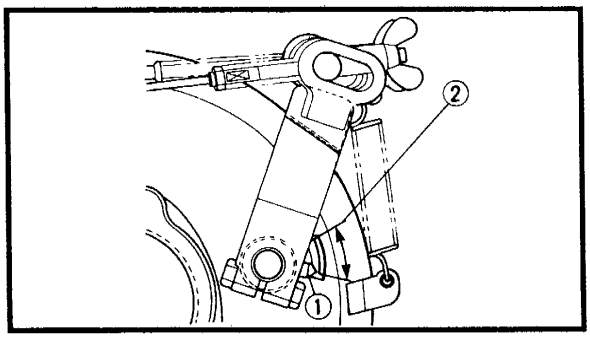
Free play (brake lever pivot):
4 ~ 8 mm (0.16 ~ 0.31 in)

- Tighten the locknut (handlebar) ④.

⚠ WARNING

After this adjustment is performed, lift the front and rear wheels off the ground by placing a block under the engine, and spin the rear wheels to ensure there is no brake drag. If any brake drag is noticed perform the above steps again.

****



REAR BRAKE SHOE INSPECTION

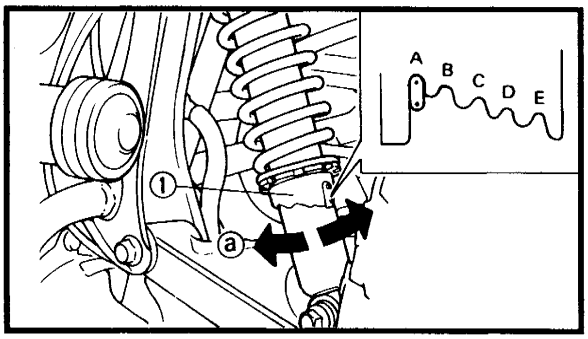
1. Depress the rear brake pedal.
2. Inspect:

- Pointer (wear indicator plate) ①
  Indicator at wear limit line ② → Replace rear brake shoes.
  Refer to "REAR BRAKE".

FRONT SHOCK ABSORBER ADJUSTMENT

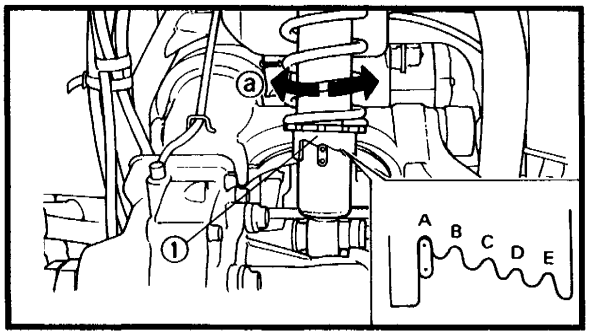
⚠ WARNING

Always adjust both front shock absorber spring preload to the same setting. Uneven adjustment can cause poor handling and loss of stability.



1. Adjust:
- Spring preload
  Turn the adjuster ① to increase or decrease the spring preload.

Front shock absorber preload		
Preload	Standard	Stiffer ⓐ →
Position	A	B, C, D, E



REAR SHOCK ABSORBER ADJUSTMENT

1. Adjust:
- Spring preload
  Turn the adjuster ① to increase or decrease the spring preload.

NOTE:

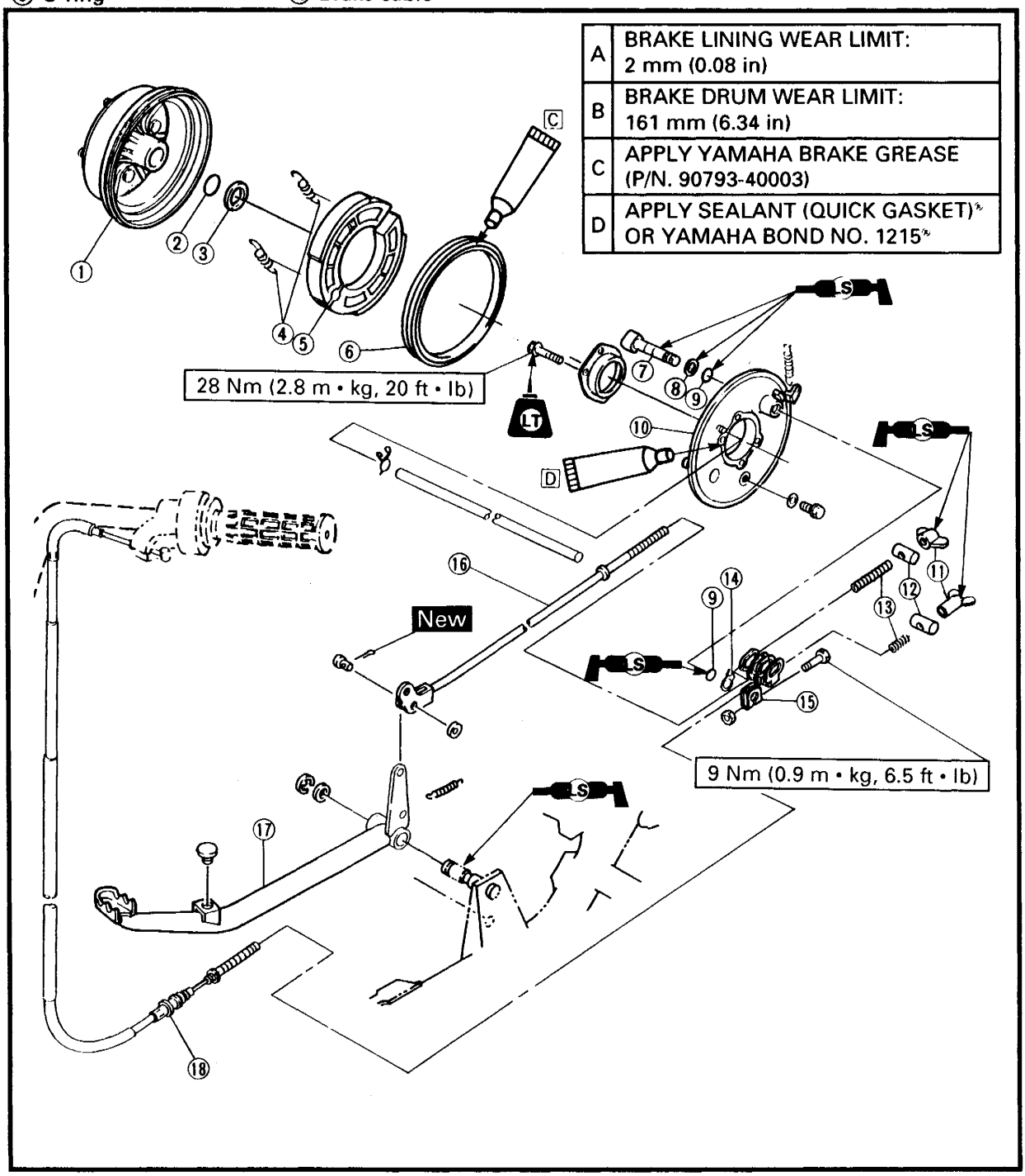
The spring preload of the rear shock absorber can be adjusted to suit rider's preference, weight, and the course conditions.

Rear shock absorber preload		
Preload	Standard	Stiffer ⓐ →
Position	A	B, C, D, E

CHASSIS

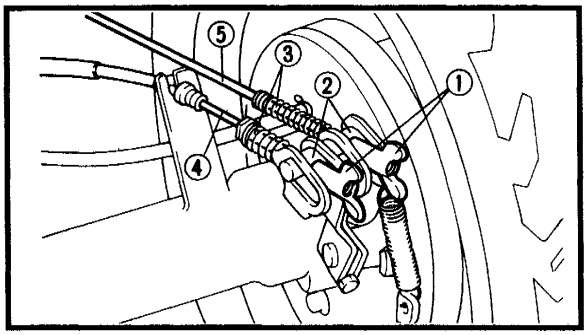
REAR BRAKE

① Rear brake drum
② O-ring
③ Plain washer
④ Brake shoe spring
⑤ Brake shoe
⑥ Dust seal
⑦ Camshaft
⑧ Plain washer
⑨ O-ring
⑩ Brake shoe plate
⑪ Adjuster
⑫ Pin
⑬ Compression spring
⑭ Wear indicator plate
⑮ Camshaft lever
⑯ Brake rod
⑰ Brake pedal
⑱ Brake cable



REMOVAL

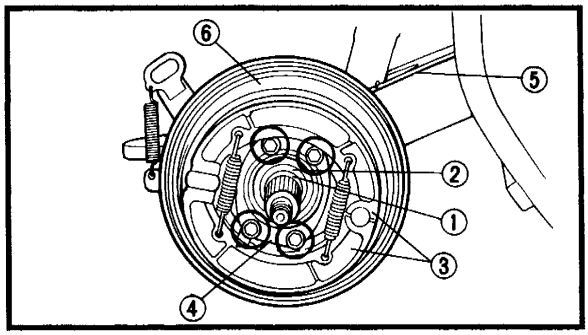
1. Place the machine on a level place.
2. Apply the parking brake. Block the front wheels, and elevate the rear wheels by placing the suitable stand under the frame.



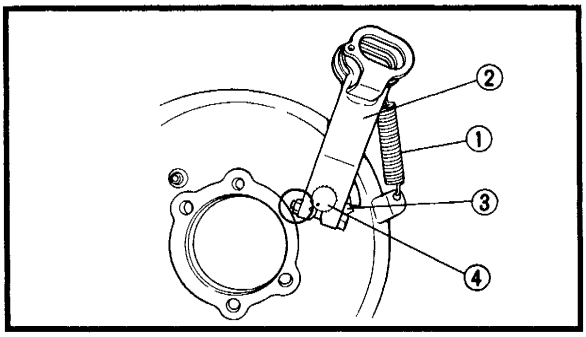
3. Remove:
   - Adjuster (brake lever and pedal) ①
   - Pins ②
   - Compression springs ③
4. Disconnect:
   - Brake cable (brake lever) ④
   - Brake rod (brake pedal) ⑤

5. Remove:
   - Rear wheel (left)
   - Rear brake drum (left)

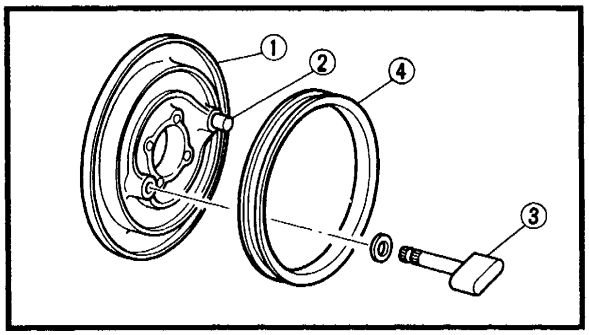
   Refer to "FRONT AND REAR WHEELS".



6. Remove:
   - O-ring ①
   - Plain washer ②
   - Brake shoe ③
   - Bearing retainer ④
   - Breather hose ⑤
   - Brake shoe plate ⑥

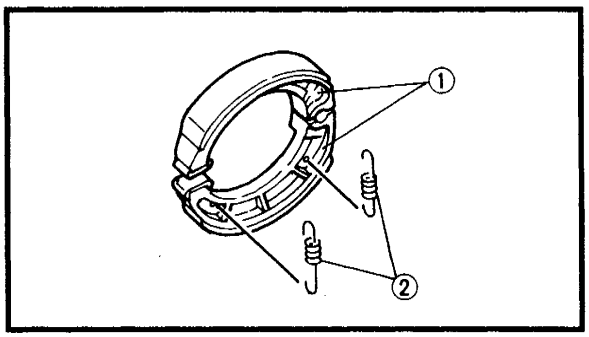


7. Remove:
   - Spring ①
   - Camshaft lever ②
   - Wear indicator plate ③
   - Camshaft ④
   - Plain washer



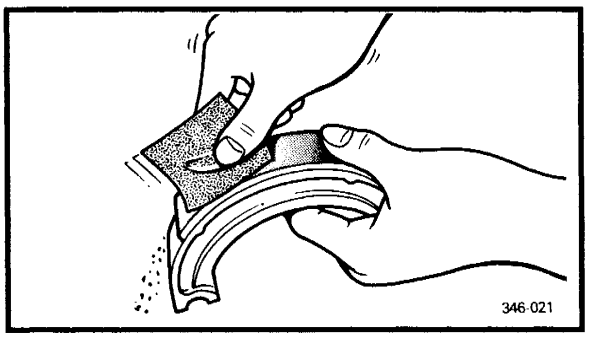
INSPECTION

1. Inspect:
- Brake shoe plate ①
- Pivot pin ②
- Camshaft ③
  Cracks/Bends/Damage → Replace.
- Dust seal ④
  Wear/Damage → Replace.



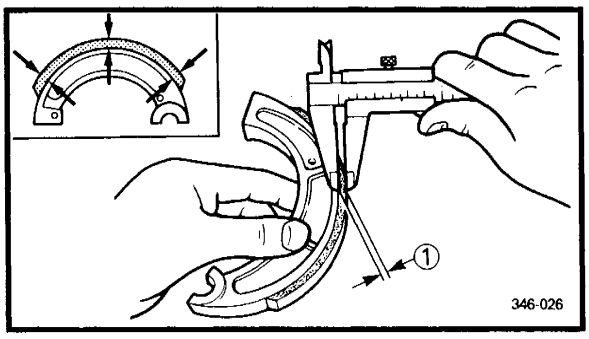
2. Inspect:
- Brake shoe ①
- Brake shoe spring ②
  Cracks/Damage → Replace as a set.

NOTE:
When replacing the brake shoes, replace the brake shoe springs at the same time.



3. Inspect:
- Brake shoe lining surface
  Glazed areas → Remove.
  Use a coarse sand paper.

NOTE:
After using the sand paper, clean of the polished particles with cloth.

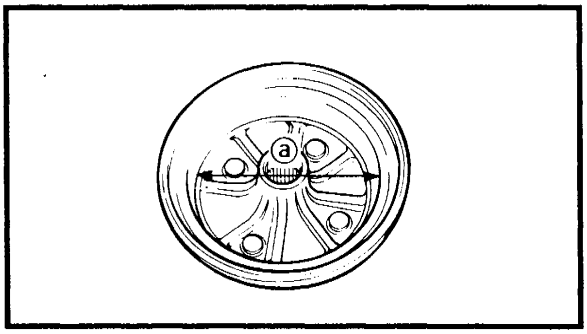


4. Measure:
- Brake shoe lining thickness
  Out of specification → Replace.

① Measuring points

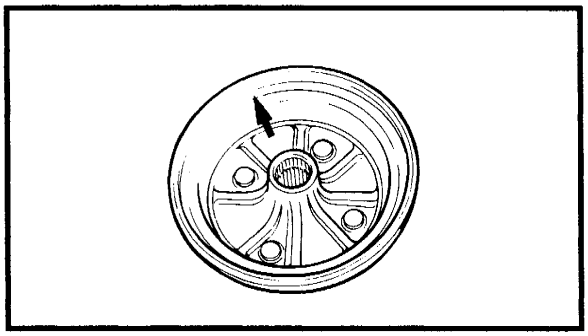
NOTE:
Replace the brake shoes as a set if either is found to be worn to the wear limit.

Brake lining thickness:
4.0 mm (0.16 in)
<Wear limit>:
2.0 mm (0.08 in)



5. Measure:
- Brake drum inside diameter ⓐ
  Out of specification → Replace.

	Front brake drum inside diameter: **160 mm (6.30 in)** **<Wear limit>:** **161 mm (6.34 in)**

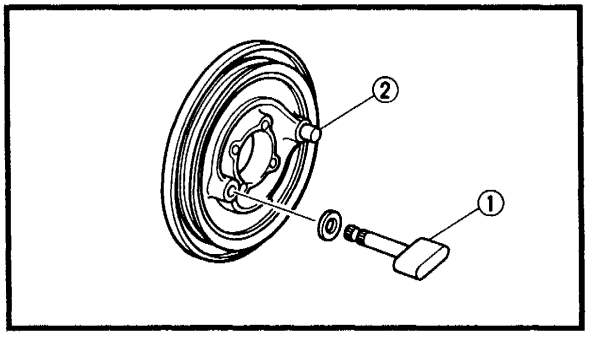


6. Inspect:
- Brake drum inner surface
  Oil/Scratches → Remove.

Oil	**Use a rag soaked in lacquer thinner or solvent.**
Scratches	**Use an emery cloth (lightly and evenly polishing)**

INSTALLATION

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

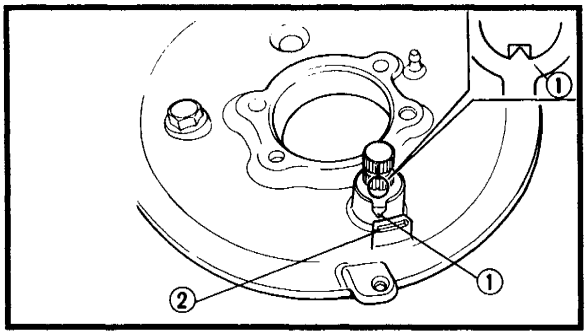


1. Lubricate:
- Camshaft ①
- Pivot pin ②

	Lithium soap base grease

CAUTION:

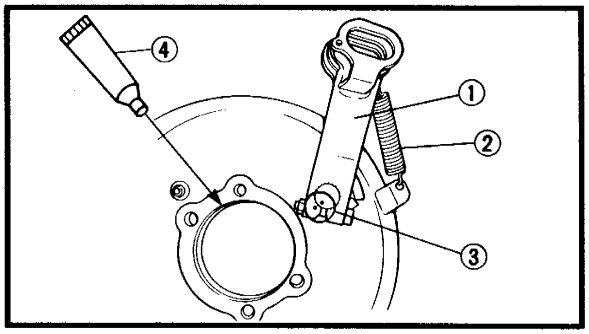
Install the camshaft and the pivot pin with lightly greased. Wipe off the excess grease.



2. Install:
- Wear indicator plate ①

NOTE:

When installing the wear indicator plate, fit the projection to the camshaft groove and align the pointer to the wear indicator ②.



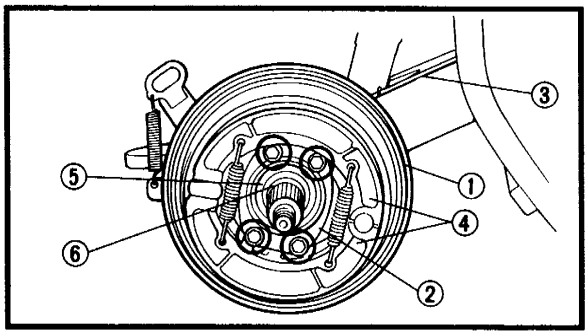
3. Install:
- Camshaft lever ①
- Spring ②

Bolt (camshaft lever):
9 Nm (0.9 m • kg, 6.5 ft • lb)

NOTE:
When installing the camshaft lever, align the punch mark ③ on the camshaft lever and camshaft.

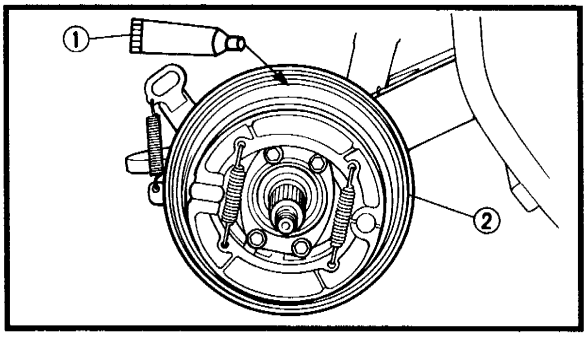
4. Apply:
- Sealant ④
  (onto mating surfaces of swingarm)

Sealant (quick gasket)®:
P/N. ACC-11001-01
Yamaha bond No 1215:
P/N. 90890-85505



5. Install:
- Brake shoe plate ①
- Bearing retainer ②
- Breather hose ③
- Brake shoe ④
- Plain washer ⑤
- O-ring ⑥

Bolt (brake shoe plate):
28 Nm (2.8 m • kg, 20 ft • lb)



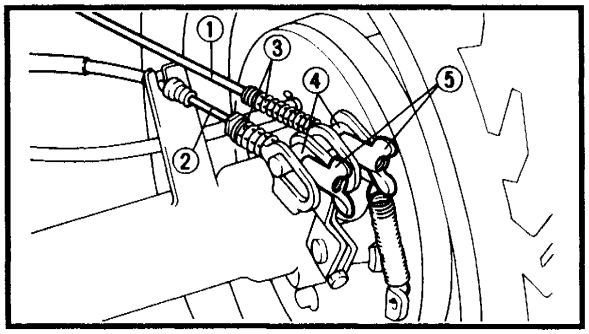
6. Check:
- Camshaft operation
  Unsmooth operation → Repair.

7. Apply:
- Yamaha brake grease ①
  (to the dust seal ②)

Yamaha brake grease:
P/N. 90793-40003

8. Install:
- Rear brake drum
- Rear wheel
  Refer to "FRONT AND REAR WHEELS".

Axle nut (rear drum):
150 Nm (15 m • kg, 110 ft • lb)
Nut (rear wheel):
55 Nm (5.5 m • kg, 40 ft • lb)



9. Connect:
- Brake rod (brake lever) ①
- Brake cable (brake pedal) ②

10. Install:
- Compression springs ③
- Pins ④
- Adjusters (brake lever and pedal) ⑤

11. Adjust:
- Rear brake pedal free play
- Rear brake lever free play

  Refer to "REAR BRAKE LEVER AND PEDAL ADJUSTMENT".

YAMAHA

YFM350FWJ

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-10-30

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and data for the YFM350FWJ. For complete service information procedures, it is necessary to use this Supplementary Service Manual together with the following manual.

YFM350FWT ('87) SERVICE MANUAL (LIT-11616-06-01)
YFM350FWW ('89) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-06-66)
YFM350FWA ('90) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-02)
YFM350FWB ('91) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-07-58)
YFM350FWF ('94) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-08-99)
YFM350FWH ('96) SUPPLEMENTARY SERVICE MANUAL (LIT-11616-09-82)

YFM350FWJ
SUPPLEMENTARY
SERVICE MANUAL

LIT-11616-10-30

EB001000

NOTICE

This manual was produced by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual, so it is assumed that anyone who uses this book to perform maintenance and repairs on Yamaha machine has a basic understanding of the mechanical ideas and the procedures of machine repair. Repairs attempted by anyone without this knowledge are likely to render the machine unsafe and unfit for use.

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

NOTE:
Designs and specifications are subject to change without notice.

IMPORTANT INFORMATION

Particularly important information is distinguished in this manual by the following notations.

⚠	The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
⚠ WARNING	Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander or a person inspecting or repairing the machine.
CAUTION:	A CAUTION indicates special precautions that must be taken to avoid damage to the machine.
NOTE:	A NOTE provides key information to make procedures easier or clearer.

EB002000

HOW TO USE THIS MANUAL

MANUAL ORGANIZATION

This manual is intended as a handy, easy-to-read reference book for the mechanic. It is divided into chapters, sections and sub-sections. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and inspection procedures are laid out with the individual steps in sequential order.

PAGE FEATURES

The circled numbers below refer to the features indicated in the sample page.

① : An abbreviation and symbol in the upper right corner of each page indicates the current chapter.

② : The current section title is shown at the top of each page.†

③ : Sub-section titles appear in smaller print than the section title.†

④ : Lines of asterisks (*) mark the beginning and end of a particularly important procedure. The steps of such procedures are marked with bullets (•).

⑤ : Important information such as fluids, special tools and torques are framed and marked with a corresponding symbol.

⑥ : A circled number refers to an illustrated part.

⑦ : A circled lower case letter refers to an illustrated dimension or alignment mark.

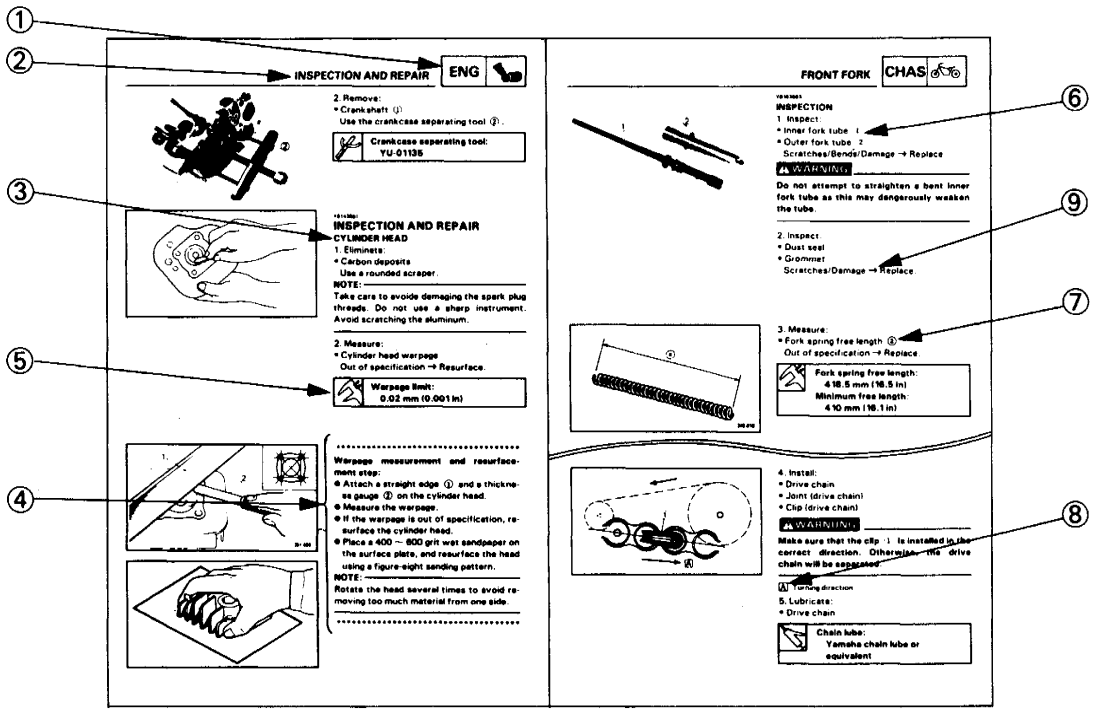
⑧ : An upper case letter in a box refers to other illustrated details.

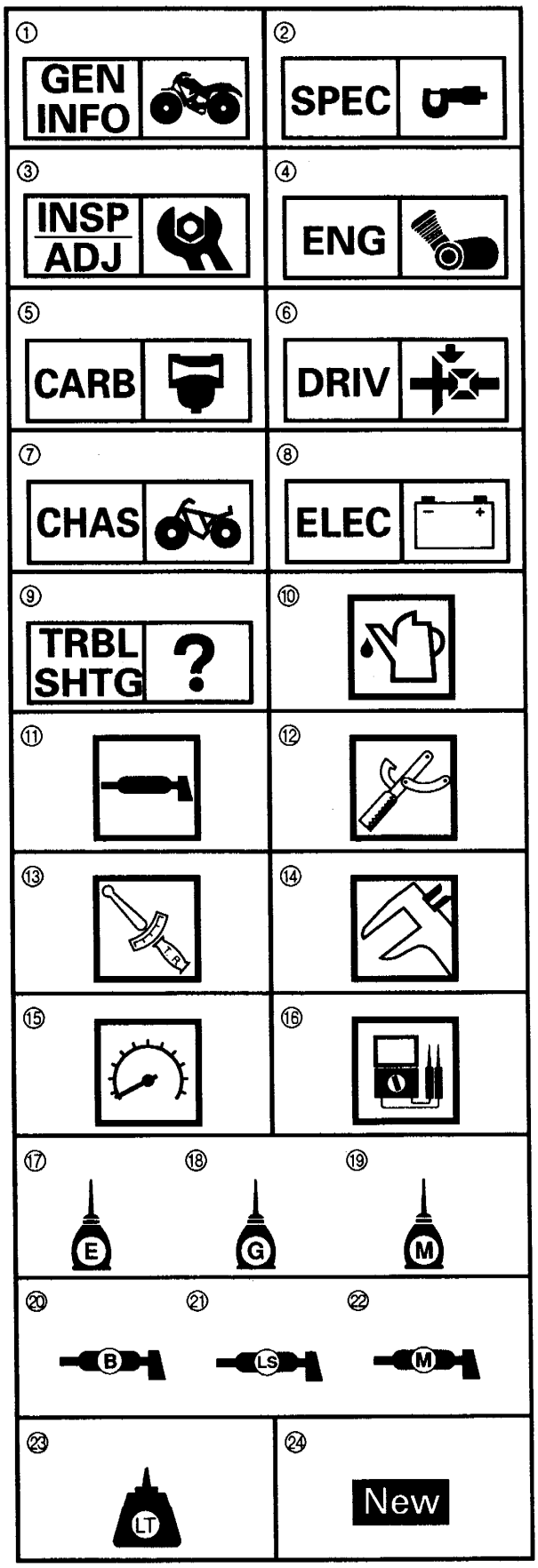
⑨ : An arrow mark after a given defect suggests the recommended course of action.

† : In Chapter 3, "Periodic Inspection and Adjustment", it is usually the current sub-section title that appears at the top of each page, instead of the current section title.

EXPLODED DIAGRAMS

To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each disassembly section.





EB003000

ILLUSTRATED SYMBOLS

Illustrated symbols ① to ⑨ are printed on the top right of each page and indicate the subject of each chapter.

① General information
② Specifications
③ Periodic inspections and adjustments
④ Engine
⑤ Carburetion
⑥ Drive train
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Torque
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉒ in the exploded diagrams indicate the types of lubricants and lubrication points.

⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease

Illustrated symbols ㉓ to ㉔ in the exploded diagrams indicate where to apply a locking agent ㉓ and when to install a new part ㉔.

㉓ Apply the locking agent (LOCTITE®)
㉔ Replace

CONTENTS

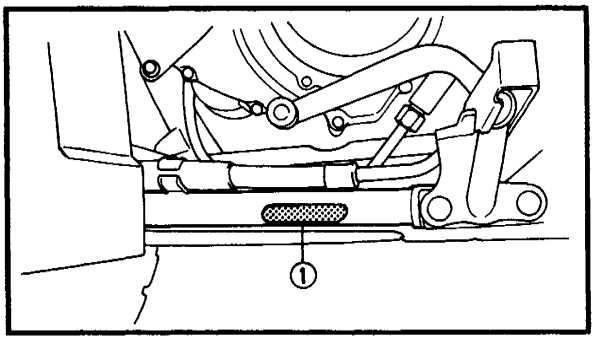
GENERAL INFORMATION 1
MACHINE IDENTIFICATION 1
VEHICLE IDENTIFICATION NUMBER 1
ENGINE SERIAL NUMBER 1
MODEL LABEL 1

SPECIFICATIONS 2
GENERAL SPECIFICATIONS 2
MAINTENANCE SPECIFICATIONS 2
ENGINE 2
ELECTRICAL 6
CABLE ROUTING 7

PERIODIC INSPECTION AND ADJUSTMENT 13
SEAT, CARRIERS, FENDERS AND FUEL TANK 13
REMOVAL 13
INSTALLATION 15

ELECTRICAL 17
ELECTRICAL COMPONENTS 17

YFM350FWJ WIRING DIAGRAM



GENERAL INFORMATION

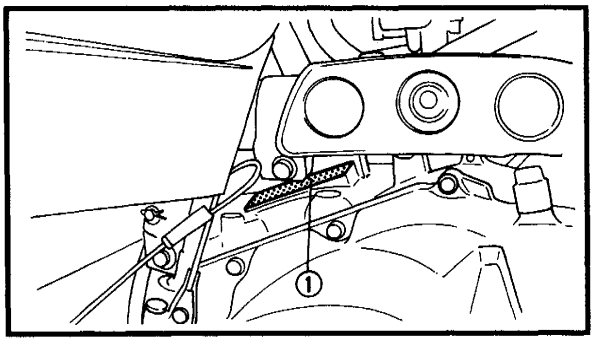
MACHINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

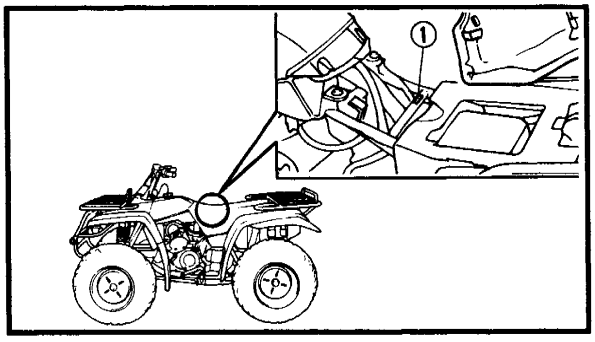
NOTE:

The vehicle identification number is used to identify your machine and may be used to register your machine with a licensing authority in your state.



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.



MODEL LABEL

The model label ① is affixed to the frame. This information will be needed to order spare parts.

SPECIFICATIONS

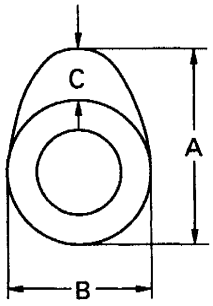
GENERAL SPECIFICATIONS

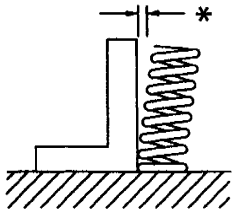
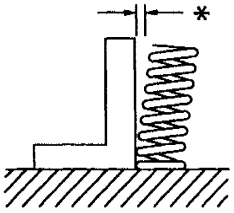
Model	YFM350FWJ
Model code number:	3HNX
Dimensions:	
Overall length	1,940 mm (76.4 in)
Overall width	1,095 mm (43.1 in)
Overall height	1,130 mm (44.5 in)
Seat height	850 mm (33.5 in)
Wheelbase	1,210 mm (47.6 in)
Minimum ground clearance	180 mm (7.1 in)

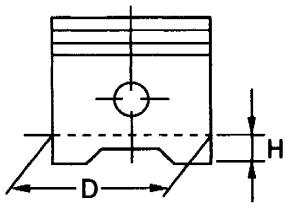
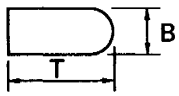
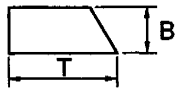
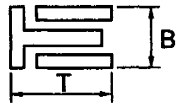
MAINTENANCE SPECIFICATIONS

ENGINE

Model		YFM350FWJ
Camshaft:		
Drive Method		Chain (Left)
Cam Dimensions:		
Intake:		
"A"		40.28 ~ 40.38 mm (1.586 ~ 1.590 in)
<Limit>		<40.26 mm (1.585 in)>
"B"		32.14 ~ 32.24 mm (1.265 ~ 1.269 in)
<Limit>		<32.11 mm (1.264 in)>
"C"		8.28 ~ 8.39 mm (0.326 ~ 0.330 in)
<Limit>		<8.26 mm (0.325 in)>
Exhaust		
"A"		40.29 ~ 40.39 mm (1.586 ~ 1.590 in)
<Limit>		<40.25 mm (1.585 in)>
"B"		32.14 ~ 32.24 mm (1.265 ~ 1.269 in)
<Limit>		<32.11 mm (1.264 in)>
"C"		8.29 ~ 8.40 mm (0.326 ~ 0.331 in)
<Limit>		<8.26 mm (0.325 in)>
Camshaft Runout Limit		<0.03 mm (0.0012 in)>
Cam Chain Type/Number of Links		BF05M/90 Links
Cam Chain Adjustment Method		Automatic
Valve spring:		
Inner spring		
Free length	IN	39.9 mm (1.57 in)
	EX	39.9 mm (1.57 in)
<Limit>	IN	<37.9 mm (1.49 in)>
	EX	<37.9 mm (1.49 in)>
Set length (valve closed)	IN	33.6 mm (1.32 in)
	EX	33.6 mm (1.32 in)
Compressed pressure (installed)	IN	10.7 ~ 12.3 kg (23.59 ~ 27.12 lb)
	EX	10.7 ~ 12.3 kg (23.59 ~ 27.12 lb)



Model		YFM350FWJ
Tilt limit	IN	2.5°/1.6 mm (2.5°/0.06 in)
	EX	2.5°/1.6 mm (2.5°/0.06 in)
		
Direction of winding (top view)	IN	Counterclockwise
	EX	Counterclockwise
		
Outer spring		
Free length	IN	43.27 mm (1.70 in)
	EX	43.27 mm (1.70 in)
<Limit>	IN	<41.27 mm (1.62 in)>
	EX	<41.27 mm (1.62 in)>
Set length (valve closed)	IN	36.6 mm (1.44 in)
	EX	36.6 mm (1.44 in)
Compressed pressure (installed)	IN	22.99 ~ 26.59 kg (50.68 ~ 58.62 lb)
	EX	22.99 ~ 26.59 kg (50.68 ~ 58.62 lb)
Tilt limit	IN	2.5°/1.6 mm (2.5°/0.06 in)
	EX	2.5°/1.6 mm (2.5°/0.06 in)
		
Direction of winding (top view)	IN	Clockwise
	EX	Clockwise
		

Model		YFM350FWJ
Piston:		
Piston to cylinder clearance		0.04 ~ 0.06 mm (0.0016 ~ 0.0024 in)
<Limit>		<0.15 mm (0.0059 in)>
Piston size "D"		82.92 ~ 82.97 mm (3.265 ~ 3.267 in)
		
Measuring point "H"		5.5 mm (0.217 in)
Oversize	2nd	83.5 mm (3.29 in)
	4th	84.0 mm (3.31 in)
Piston off-set		0.5 mm (0.02 in)
Piston off-set direction		IN side
Piston pin bore inside diameter		19.004 ~ 19.015 mm (0.7482 ~ 0.7486 in)
Piston pin outside diameter		18.991 ~ 19.000 mm (0.7477 ~ 0.7480 in)
Piston rings:		
Top ring:		Barrel
		B = 1.2 mm (0.05 in) T = 3.3 mm (0.13 in)
2nd ring		Taper
		B = 1.5 mm (0.06 in) T = 3.4 mm (0.13 in)
Oil ring		Expander
		B = 2.8 mm (0.11 in) T = 2.8 mm (0.11 in)
End gap (installed)		
	Top ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	2nd ring	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)
	Oil ring	0.3 ~ 0.9 mm (0.012 ~ 0.035 in)
<Limit>:		
	Top ring	<0.5 mm (0.020 in)>
	2nd ring	<0.5 mm (0.020 in)>
	Oil ring	—
Side clearance:		
	Top ring	0.03 ~ 0.09 mm (0.0012 ~ 0.0035 in)
	2nd ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
<Limit>:		
	Top ring	<0.12 mm (0.0047 in)>
	2nd ring	<0.12 mm (0.0047 in)>

Model		YFM350FWJ
Clutch:		
Friction plate thickness		2.94 ~ 3.06 mm (0.116 ~ 0.120 in)
Quantity		7
Friction plate wear limit		2.8 mm (0.11 in)
Clutch plate thickness		1.5 ~ 1.7 mm (0.059 ~ 0.067 in)
Quantity		4
<Warp limit>		<0.2 mm (0.008 in)>
Clutch plate thickness		1.9 ~ 2.1 mm (0.075 ~ 0.083 in)
Quantity		2
Clutch spring free length		44 mm (1.73 in)
Quantity		5
<Minimum length>		<40 mm (1.57 in)>
Clutch release method		Outer push, cam push
Automatic centrifugal clutch		
Clutch shoe thickness		2 mm (0.08 in)
<Wear limit>		<1.5 mm (0.06 in)>
Clutch shoe spring free length		43.5 mm (1.71 in)
Clutch-in revolution		1,750 ~ 1,950 r/min
Clutch-stall revolution		2,900 ~ 3,200 r/min
Carburetor:		
I. D. mark		3HN 00
Main jet	(M.J)	#120
Main air jet	(M.A.J)	0.8
Jet needle	(J.N)	5H26-3
Needle jet	(N.J)	N-8
Pilot air jet	(P.A.J.1)	1.0
Pilot air jet	(P.A.J.2)	0.9
Pilot outlet	(P.O)	0.75
Pilot jet	(P.J)	#45
Bypass 1	(B.P.1)	0.8
Bypass 2	(B.P.2)	0.8
Bypass 3	(B.P.3)	1.0
Pilot screw	(P.S)	2-3/8
Valve seat size	(V.S)	2.5
Starter jet	(G.S.1)	#75
Throttle valve size	(Th.V)	#130
Float height	(F.H)	11.4 ~ 13.4 mm (0.45 ~ 0.53 in)
Fuel level	(F.L)	1 ~ 2 mm (0.04 ~ 0.08 in)
		Below the float chamber mating surface
Engine idle speed		1,350 ~ 1,450 r/min
Intake vacuum		32.9 kPa (250 mmHg, 9.843 inHg)

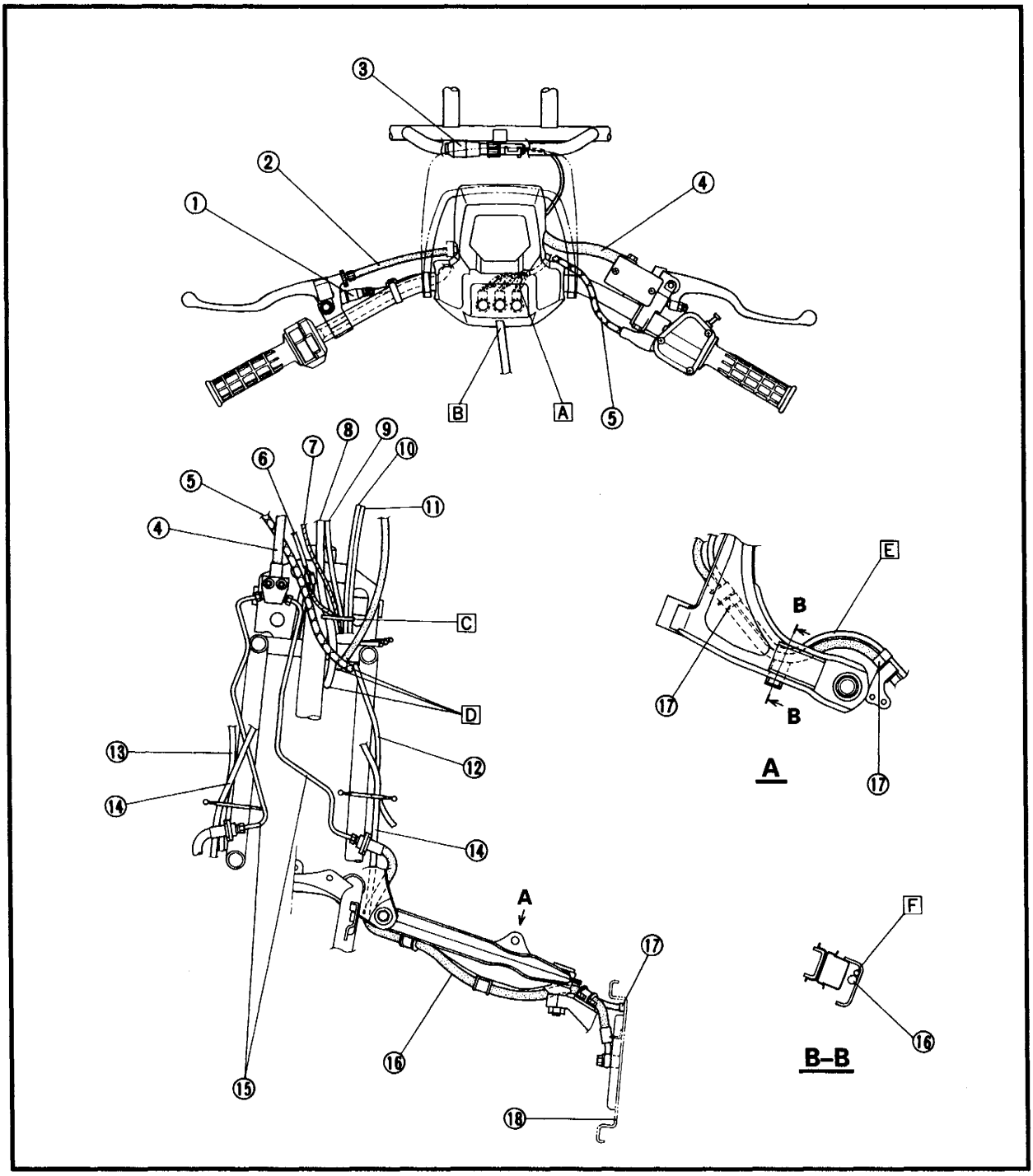
Model	YFM350FWJ
Lubrication system:	
Oil filter type	Wire mesh type
Oil pump type	Trochoid type
Tip clearance "A" or "B"	0.15 mm (0.006 in)
<Limit>	<0.2 mm (0.008 in)>
Side clearance	0.04 ~ 0.09 mm (0.002 ~ 0.004 in)
Bypass valve setting pressure	40 ~ 80 kPa (0.4 ~ 0.8 kg/cm^2, 5.55 ~ 11.09 psi)
Relief valve operating pressure	60 kPa (0.6 kg/cm^2, 8.53 psi)
Oil pressure (hot)	8 kPa (0.08 kg/cm^2, 1.14 psi) at 1,400 r/min
Pressure check location	HEAD CYLINDER

ELECTRICAL

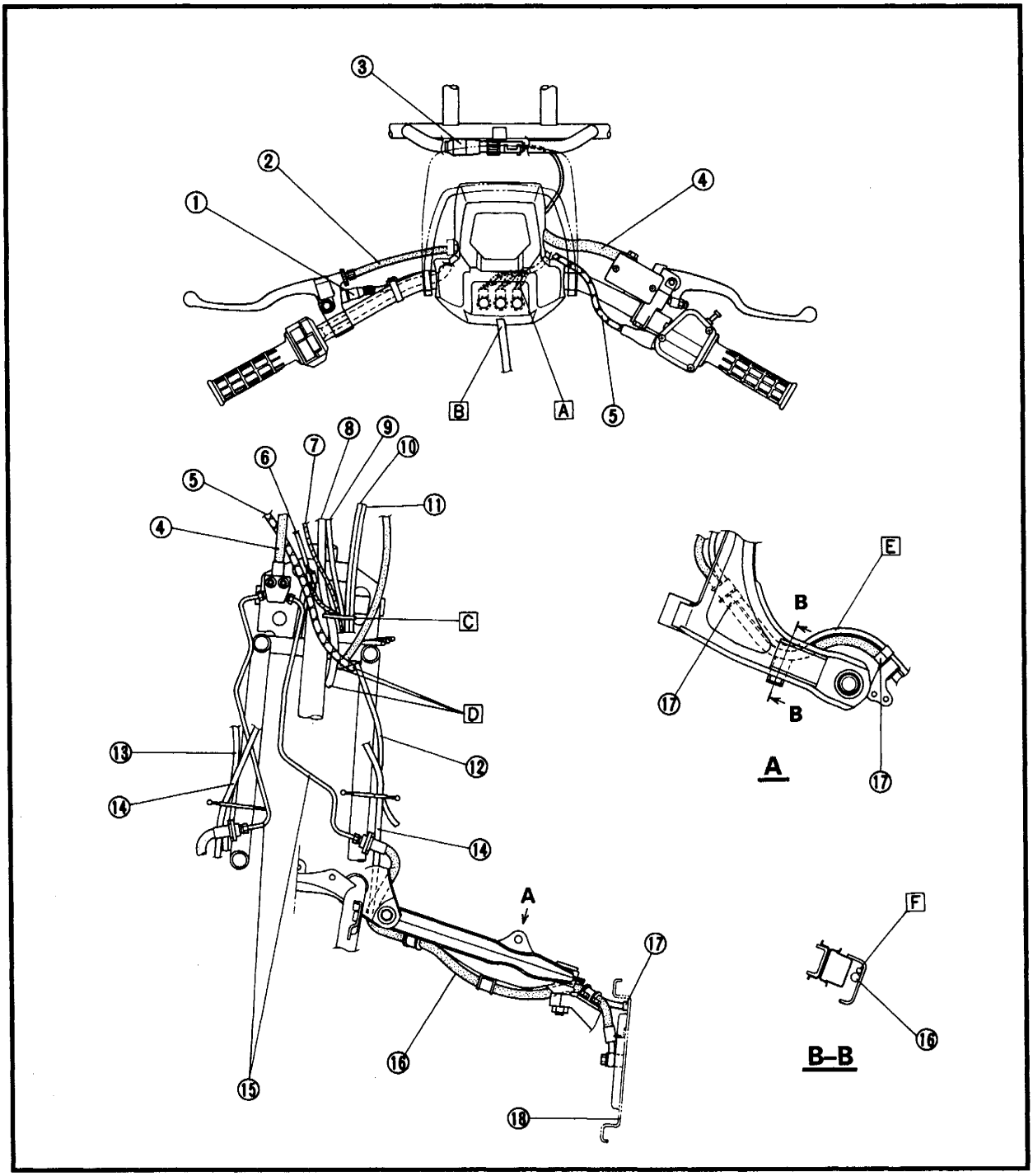
Model	YFM350FWJ
C.D.I.:	
Magneto model / manufacturer	F3T43575/MITSUBISHI
Pickup coil resistance / color	459 ~ 561 Ω at 20°C (68°F) / (Red-White)
Source coil resistance / color	270 ~ 330 Ω at 20°C (68°F) / (Brown/Green)
C.D.I. unit model / manufacturer	F8T32372/MITSUBISHI
Ignition coil:	
Model / manufacturer	F6T53573/MITSUBISHI
Minimum spark gap	6 mm (0.24 in)
Primary winding resistance	0.36 ~ 0.48 Ω at 20°C (68°F)
Secondary winding resistance	5.44 ~ 7.36 kΩ at 20°C (68°F)
Rectifier/regulator:	
Model / manufacturer	SH640-12 / SHINDENGEN
Capacity	20 A
Withstand voltage	200 V
Starter relay:	
Model / manufacturer	MS5E/JIDECO
Amperage rating	100 A
Coil winding resistance / color	4.18 ~ 4.62 Ω at 20°C (68°F) / (R/W-L/W)

CABLE ROUTING

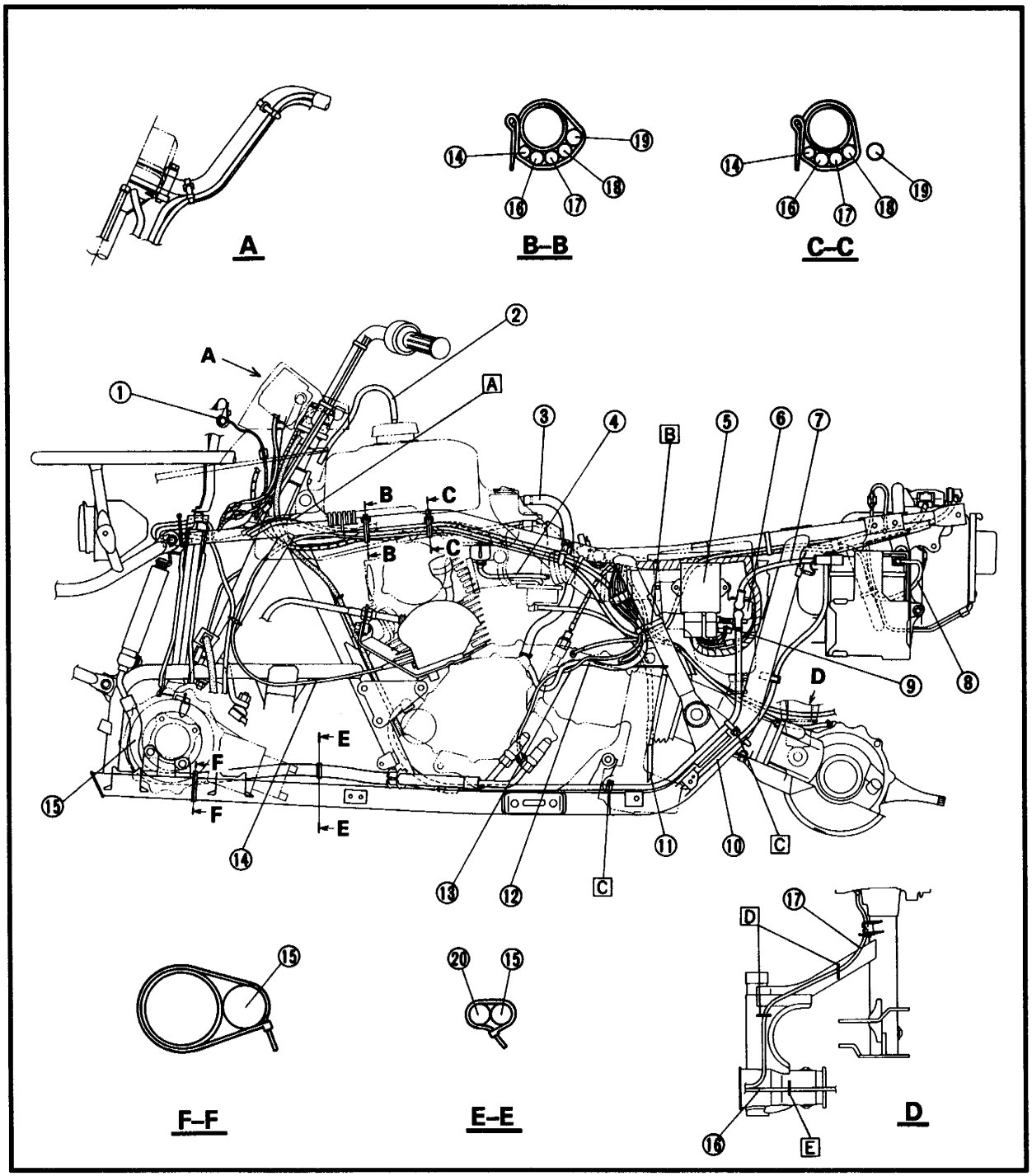
① Rear brake switch
② Rear brake cable
③ Terminal (option)
④ Front brake hose
⑤ Throttle cable
⑥ Terminal lead (option)
⑦ Indicator light lead
⑧ Speedometer cable
⑨ Speedometer light lead
⑩ Front brake switch lead
⑪ Handlebar switch lead
⑫ Select lever control cable 2
⑬ Breather hose (front differential)
⑭ Breather hose (front brake)
⑮ Brake pipe
⑯ Brake hose
⑰ Clip
⑱ Backing plate



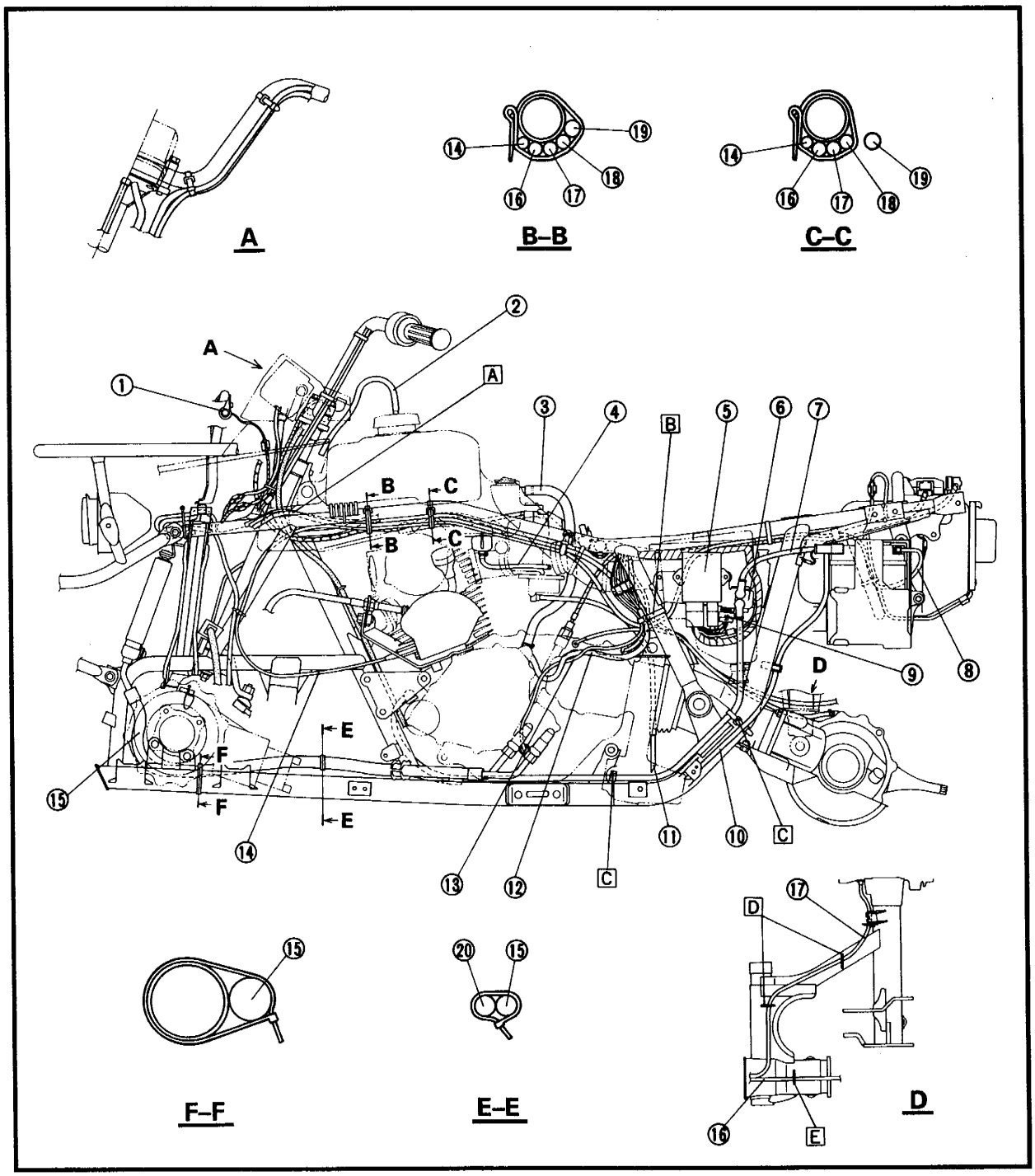
[A] Pass the indicator light leads between the speedometer and handlebar holders, then connect the leads on the inside of the handlebar cover. Be sure the indicator light leads are not caught between the handlebar cover clamps and the handlebar.
[B] Insert the breather hose (fuel tank) into the hole of the handlebar cover.
[C] Fasten the speedometer light lead, indicator light lead, handlebar switch lead, and front brake switch lead.
[D] Pass the speedometer cable, rear brake cable and throttle cable in the given order.
[E] Be sure the section of the breather hose (front brake) between the clips is as taut as the brake hose.
[F] Install the breather hose (front brake) so that it is not squeezed by the brake hose.



① Terminal (option)
② Breather hose (fuel tank)
③ Breather hose (crankcase)
④ Fuel hose
⑤ CDI unit
⑥ Starter relay
⑦ Battery positive lead
⑧ Battery negative lead
⑨ Terminal fuse (option)
⑩ Breather hose (battery)
⑪ Carburetor overflow hose
⑫ CDI magneto lead
⑬ Neutral switch lead
⑭ Select lever control cable 2
⑮ Oil hose 1
⑯ Breather hose (final gear case)
⑰ Breather hose (rear brake)
⑱ Carburetor air vent hose
⑲ Throttle cable
⑳ Oil hose 2

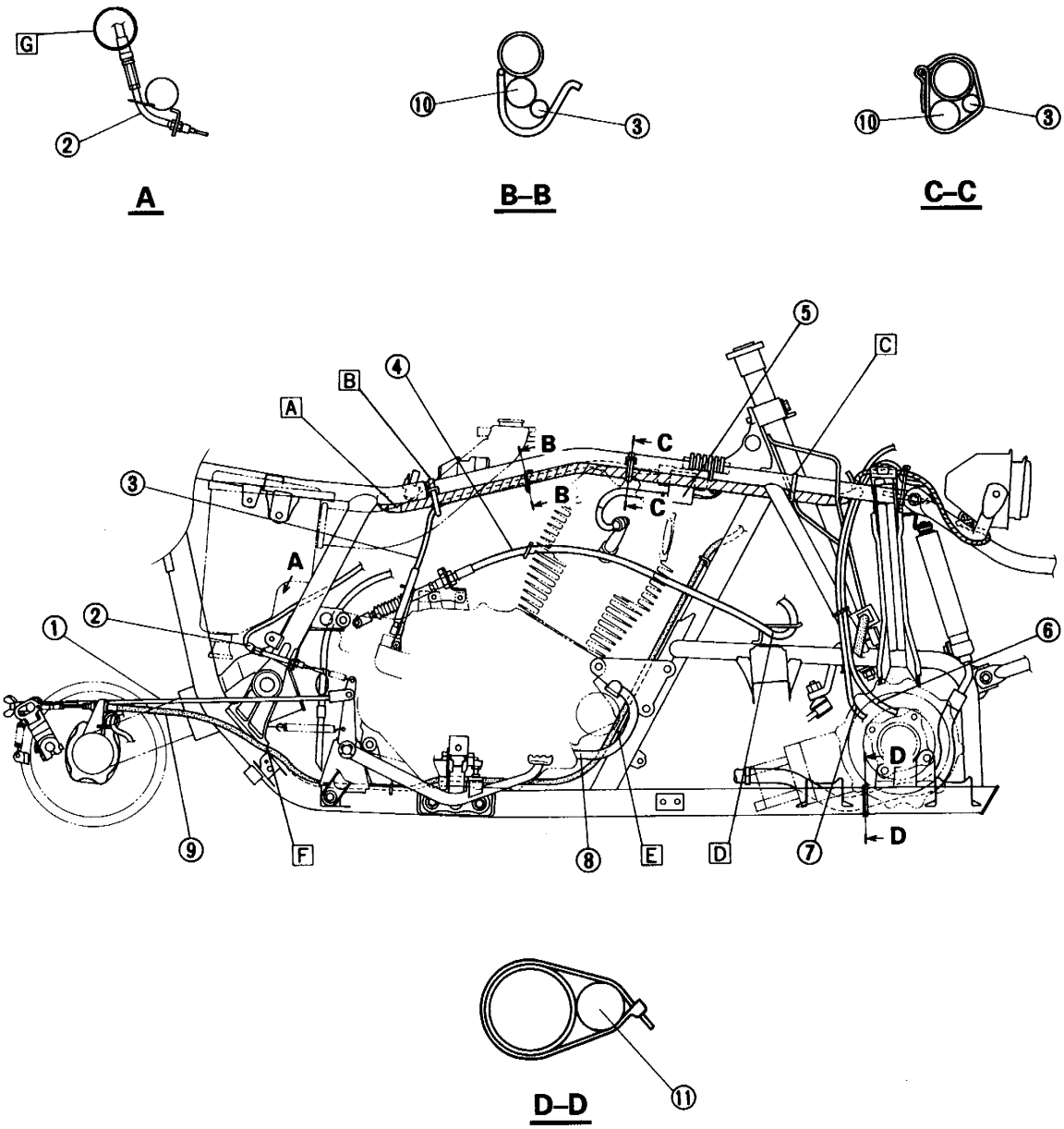


[A] Pass the breather hose (rear brake), breather hose (final gear case) and carburetor air vent hose through the hole in the bracket.
[B] Fasten the wire harness, neutral switch lead and CDI magneto lead.
[C] Fasten the starter motor lead.
[D] Pass the breather hose (rear brake) through the guide.
[E] Pass the breather hose (final gear case) through the guide.



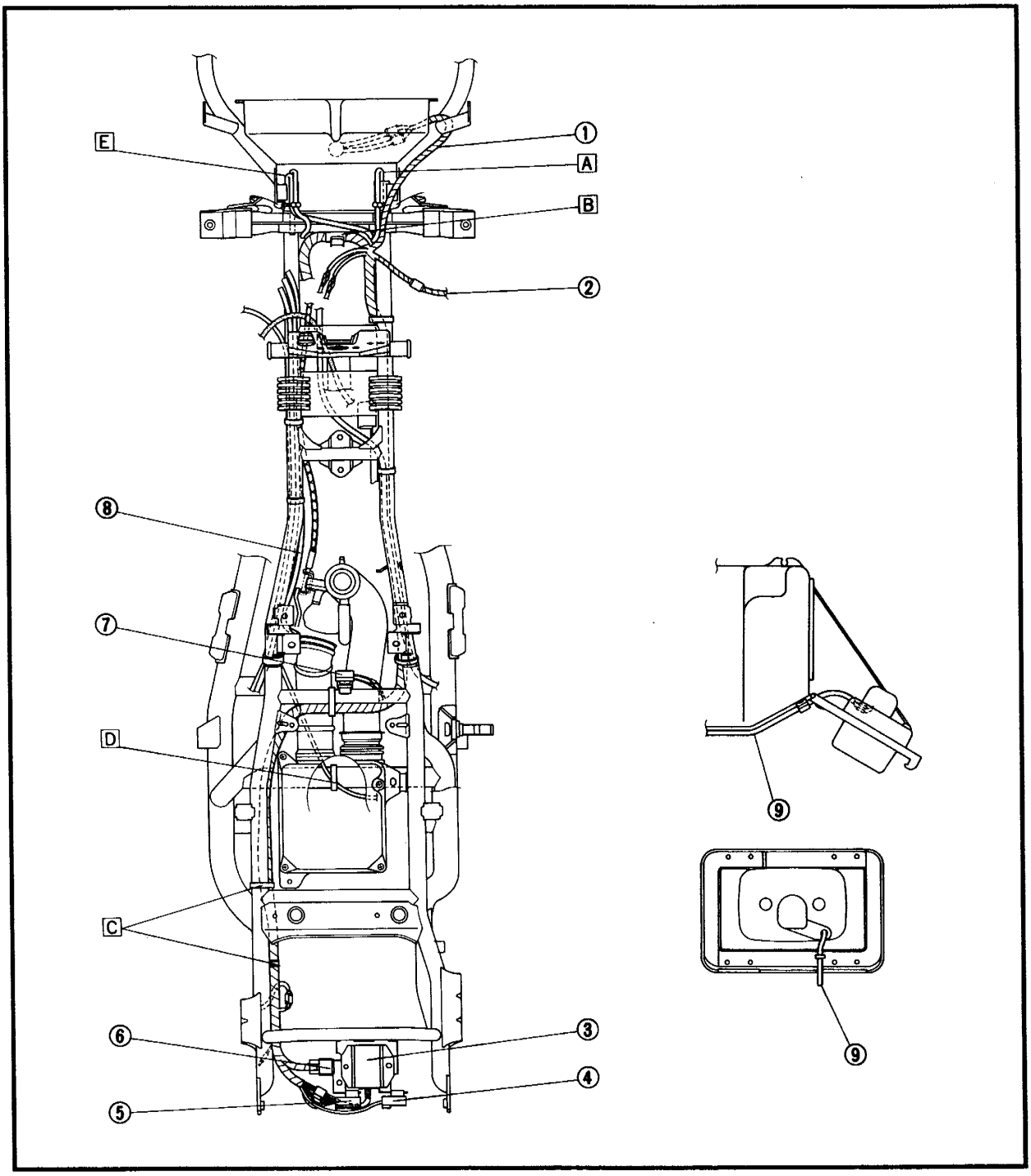
① Brake rod
② Select lever control cable 2
③ Speedometer cable
④ Select lever control cable 1
⑤ Ignition coil
⑥ Breather hose (front differential)
⑦ Breather hose (front brake)
⑧ Starter motor lead
⑨ Rear brake cable
⑩ Wire harness
⑪ Oil hose 2

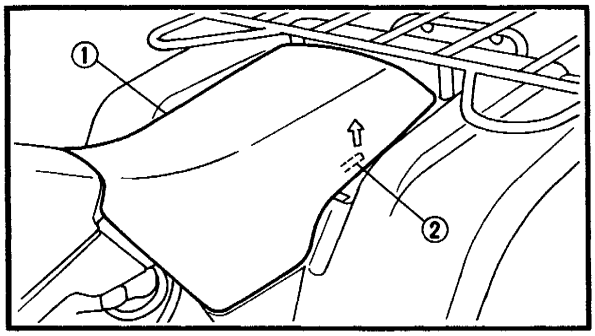
[A] Align the white tape on the wire harness with the cross pipe.
[B] With a plastic band, fasten the wire harness to the frame at the point in front of the welding.
[C] Fasten the wire harness.
[D] Pass the select lever control cable 1 through the guide.
[E] Pass the brake cable to the right of the starter motor.
[F] Pass the rear brake cable over the fender stay.
[G] Install the select lever control cable 2 without bending it.



① Headlight lead
② Main switch lead
③ Rectifier / regulator
④ Neutral relay
⑤ Starting circuit cut-off relay
⑥ Reverse relay
⑦ Main fuse
⑧ Carburetor air vent hose
⑨ Taillight lead

[A] Insert the ends of the breather hose (front differential) into the frame pipe.
[B] Fasten the wire harness at the point where the white tape is affixed to it.
[C] Fasten the wire harness and battery negative lead.
[D] Fasten the select lever control cable 2.
[E] Insert the ends of the breather hoses (front brake) into the frame pipe.





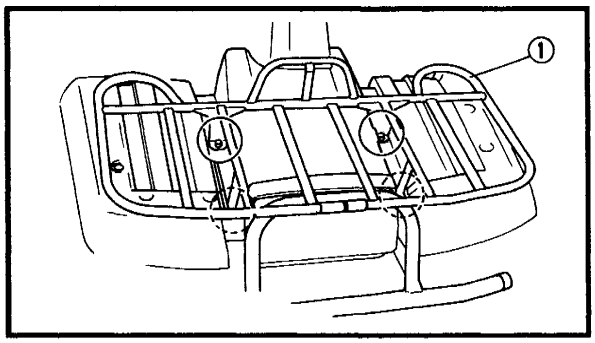
PERIODIC INSPECTION AND ADJUSTMENT

SEAT, CARRIERS, FENDERS AND FUEL TANK

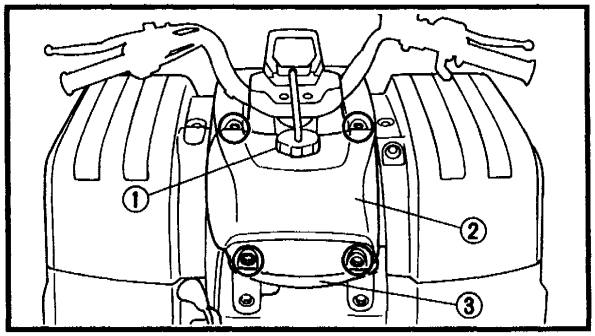
REMOVAL

1.Place the machine on a level place.
2.Remove:
• Seat ①

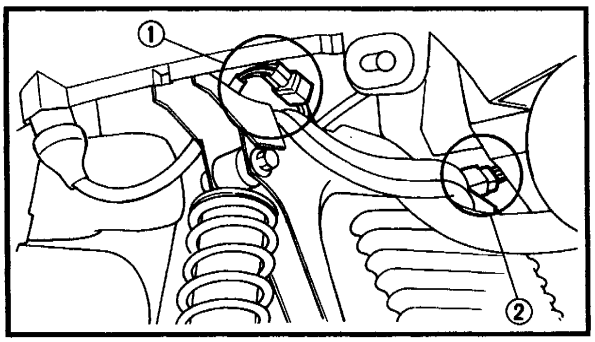
NOTE:
Pull up the seat lock lever ②, then remove by pulling up on the rear of the seat.



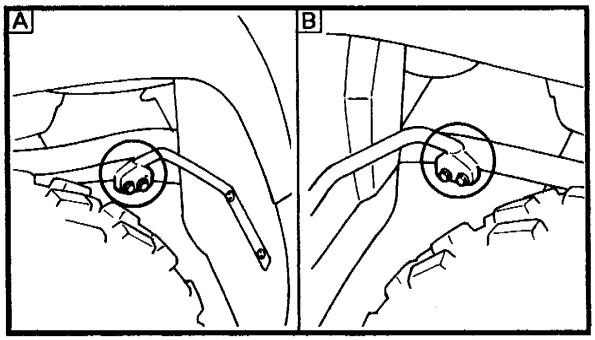
3.Remove:
• Front carrier ①



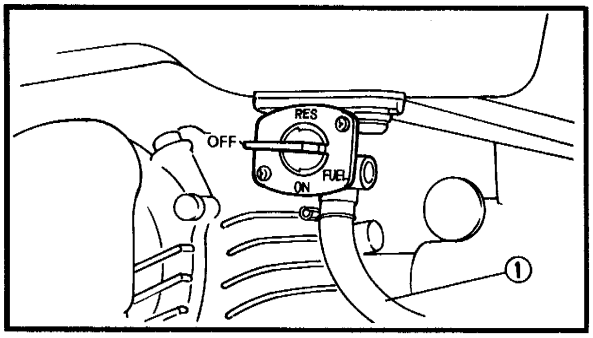
4.Remove:
• Fuel tank cap ①
• Fuel tank cover ②
• Rubber seat ③
5.Install:
• Fuel tank cap ①



6.Disconnect:
• Main switch coupler ①
• Headlight couplers ②



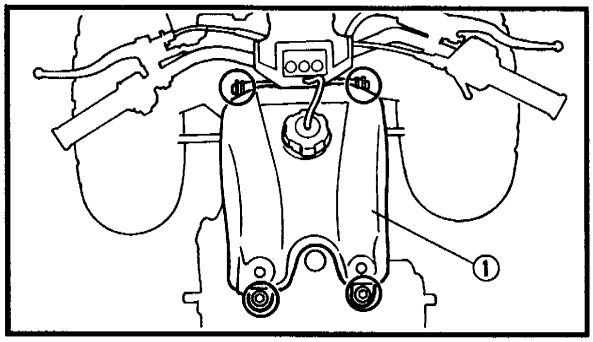
7.Remove:
• Front fender
A Left side
B Right side
• Front bumper



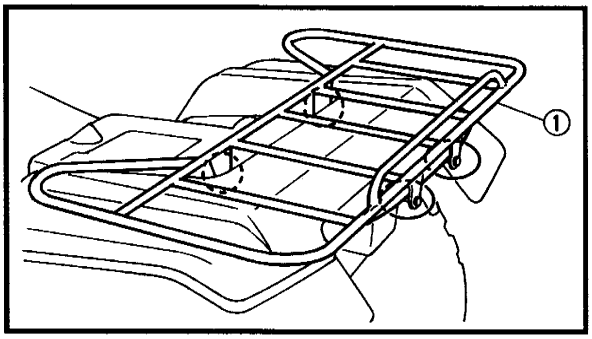
8.Turn the fuel cock lever to "OFF".
9.Disconnect:
• Fuel hose ①

NOTE:
Place a rug on the engine to absorb any spilt fuel.

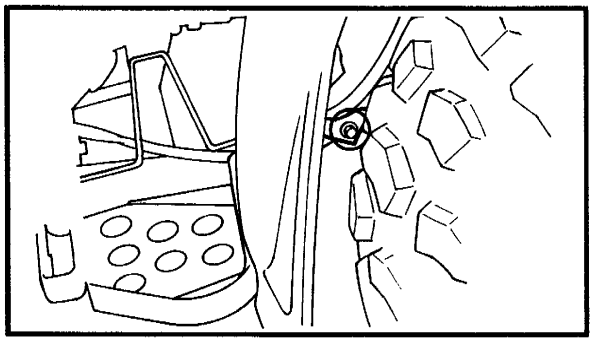
⚠ WARNING
Gasoline is highly flammable.
Avoid spilling fuel on the hot engine.



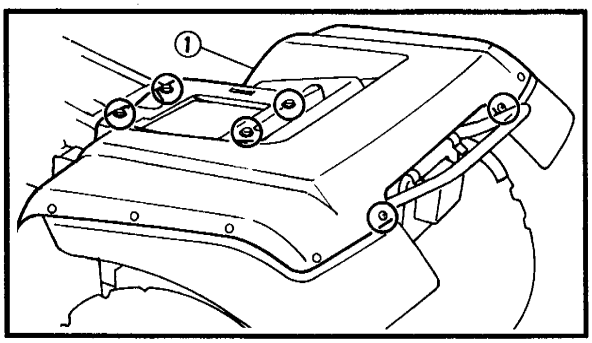
10.Remove:
• Fuel tank ①

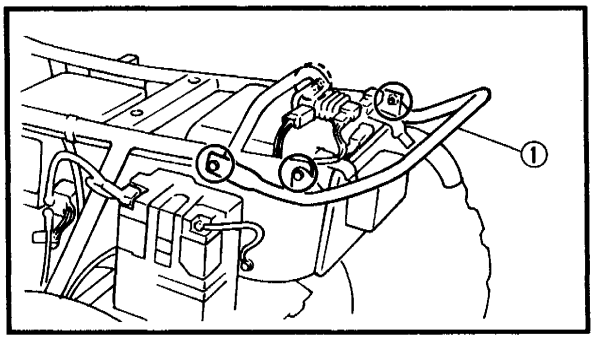


11.Remove:
• Rear carrier ①



12.Remove:
• Rear fender ①





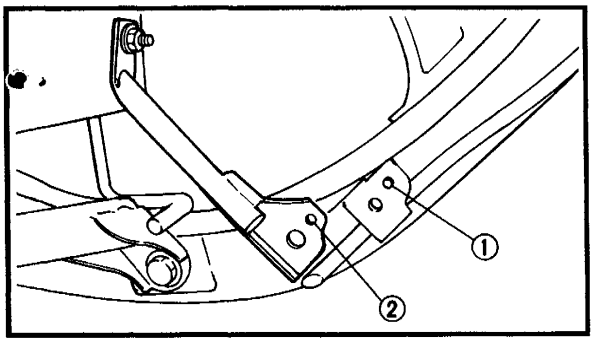
13.Remove:
- Rear bumper ①

INSTALLATION

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

1.Install:
- Rear bumper

	Bolt (rear bumper and frame): 33 Nm (3.3 m • kg, 24 ft • lb)



2.Install:
- Rear fender

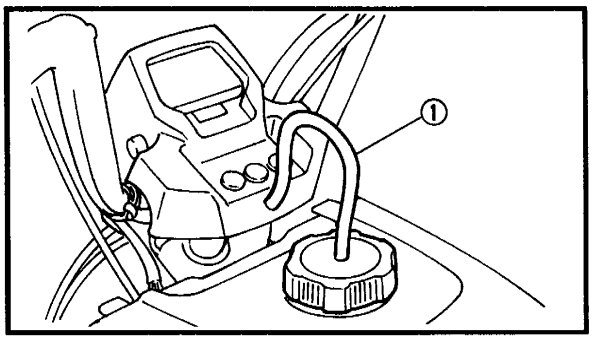
NOTE:
Be sure the projection ① on the frame correctly engages with the hole ② into the rear fender stay.

3.Install:
- Rear carrier

	Bolt (rear carrier and frame): 33 Nm (3.3 m • kg, 24 ft • lb) **Nut (rear carrier and rear bumper): 9 Nm (0.9 m • kg, 6.5 ft • lb)**

4.Install:
- Front bumper

	Bolt (front bumper and frame): 23 Nm (2.3 m • kg, 17 ft • lb)

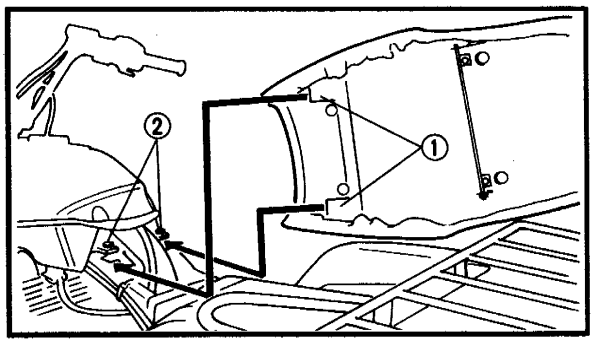


5.Install:
• Fuel tank

NOTE:
Insert the fuel tank breather hose ① into the handlebar protector hole ②.

6.Install:
• Front carrier

Bolt (front carrier and frame):
33 Nm (3.3 m • kg, 24 ft • lb)
Bolt
(front carrier and front bumper):
10 Nm (1.0 m • kg, 7.2 ft • lb)



7.Install:
• Seat

NOTE:
Insert the lobe ① on the seat front into the receptacle ② on the frame, then push down the seat at the rear.

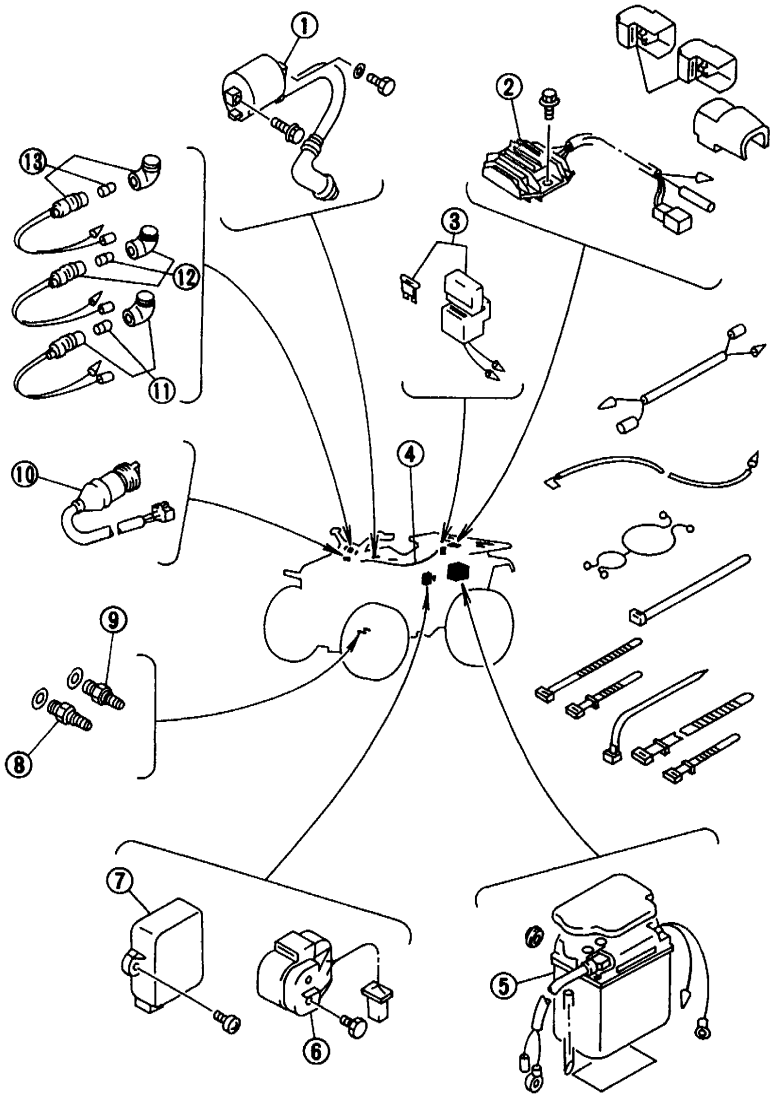
ELECTRICAL

ELECTRICAL COMPONENTS

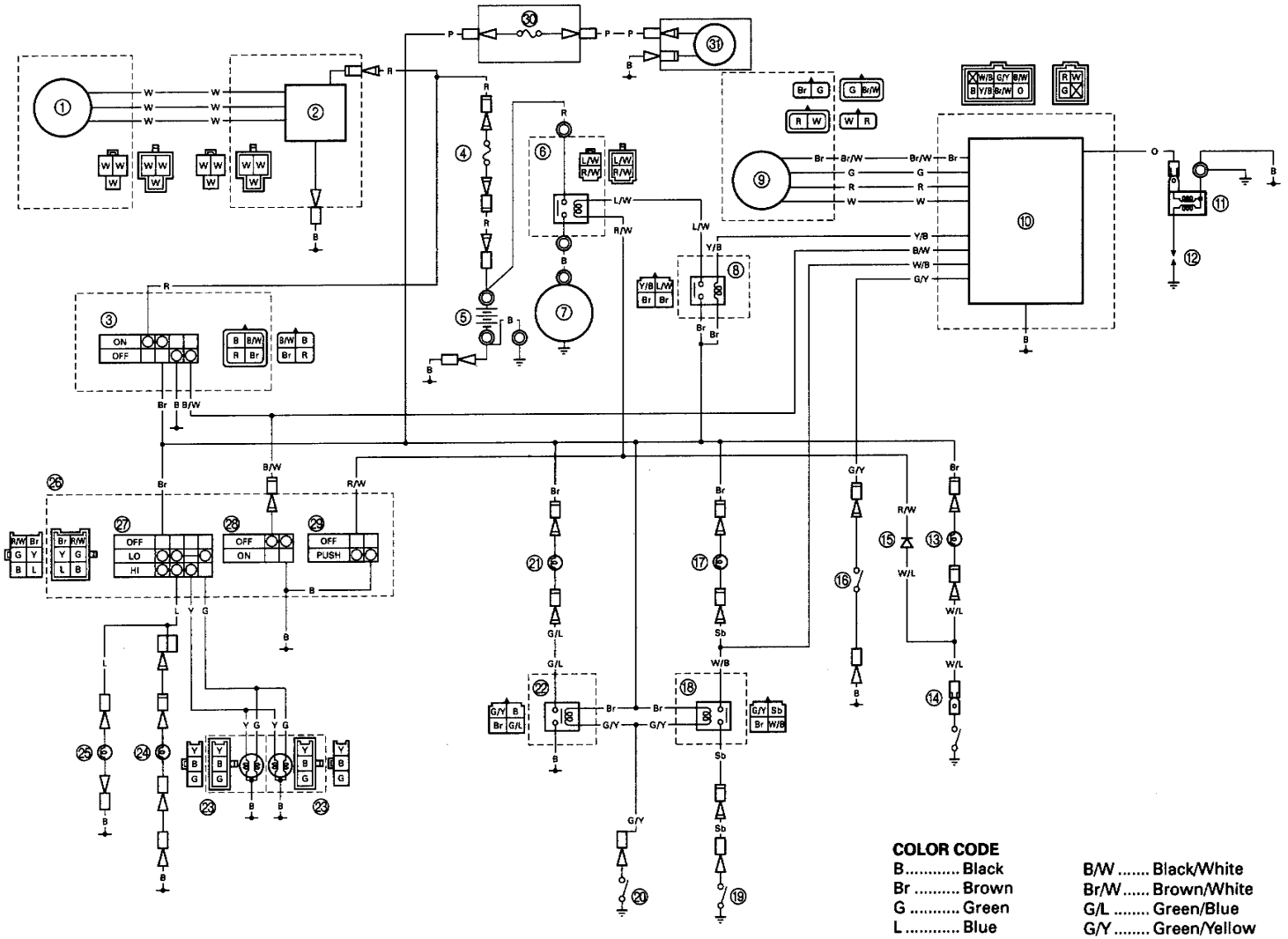
① Ignition coil
② Rectifier/regulator
③ Fuse
④ Wire harness
⑤ Battery
⑥ Starter relay
⑦ CDI unit
⑧ Neutral switch
⑨ Reverse switch
⑩ Main switch
⑪ Reverse indicator light
⑫ Neutral indicator light
⑬ Oil temp indicator light

SPECIFICATIONS	RESISTANCE
IGNITION COIL:	
PRIMARY	0.36 ~ 0.48 Ω
SECONDARY	5.44 ~ 7.36 kΩ
PICK-UP COIL	459 ~ 561 Ω
SOURCE COIL	270 ~ 330 Ω
STATOR COIL	0.70 ~ 0.86 Ω

A	BATTERY:
B	CAPACITY: 12V, 14AH
C	SPECIFIC GRAVITY: 1.280



YFM350FWJ WIRING DIAGRAM



① CDI magneto (stator coil)
② Rectifier/regulator
③ Main switch
④ Main fuse
⑤ Battery
⑥ Starter relay
⑦ Starter motor
⑧ Starting circuit cut-off relay
⑨ CDI magneto (source coil and pickup coil)
⑩ CDI unit
⑪ Ignition coil
⑫ Spark plug
⑬ Oil temperature indicator light
⑭ Thermo unit
⑮ Diode
⑯ Front brake switch
⑰ Neutral indicator light
⑱ Neutral relay
⑲ Neutral switch
⑳ Reverse switch
㉑ Reverse indicator light
㉒ Reverse relay
㉓ Headlight
㉔ Taillight
㉕ Meter light
㉖ Left handlebar switch
㉗ Lights switch
㉘ Engine stop switch
㉙ Start switch
㉚ Terminal fuse (option)
㉛ Terminal (option)

COLOR CODE

B ..... Black	B/W ..... Black/White
Br ..... Brown	Br/W ..... Brown/White
G ..... Green	G/L ..... Green/Blue
L ..... Blue	G/Y ..... Green/Yellow
O ..... Orange	L/W ..... Blue/White
P ..... Pink	R/W ..... Red/White
R ..... Red	W/G ..... White/Green
Sb ..... Sky blue	W/L ..... White/Blue
W ..... White	Y/B ..... Yellow/Black
Y ..... Yellow	