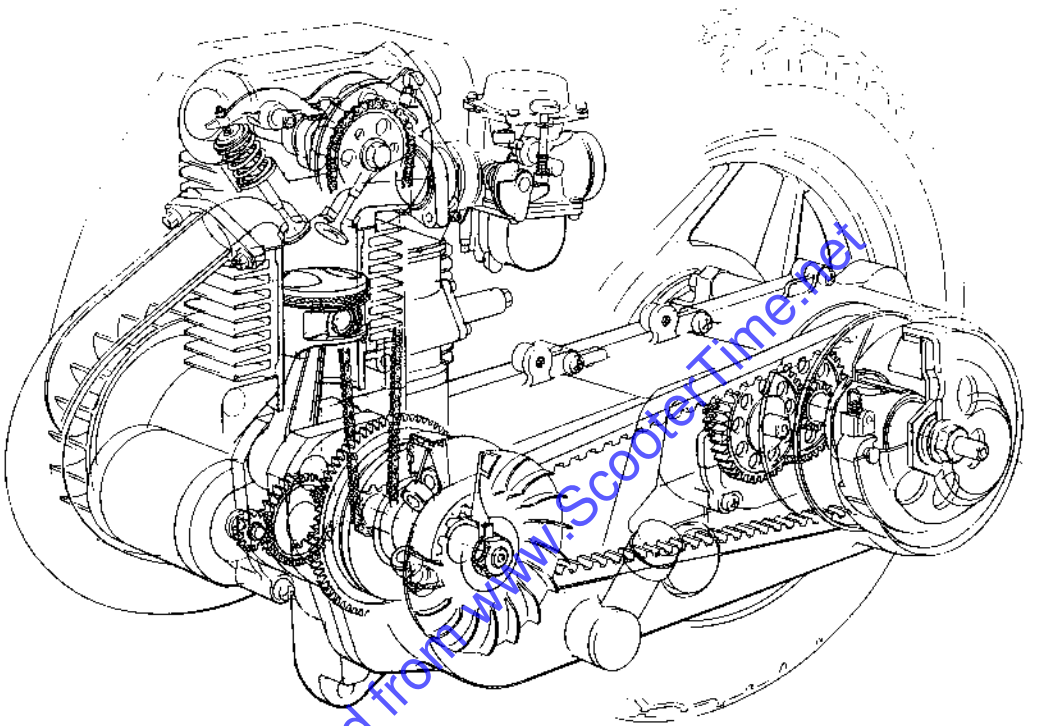


YAMAHA

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Model :

1WA281972000



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XC125S

SERVICE MANUAL

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1st Edition, August 1985

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Printed in Japan

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's eductaion into one manual, so it is assumed that presons using this book to perform maintenance and repairs on Yamaha scooter have a basic understanding of the mechanical concepts and procedures inherent in scooter 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 scooter.

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

MANUAL FORMAT

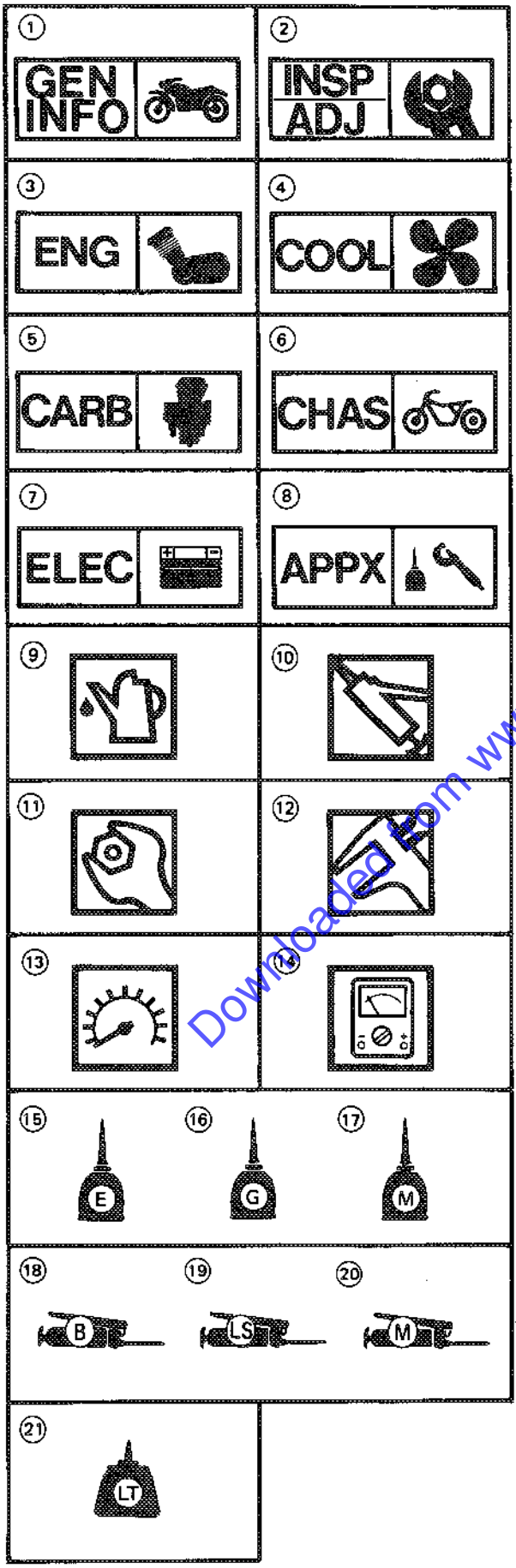
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised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

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ILLUSTRATED SYMBOLS (Refer to the illustration)

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

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

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

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

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

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

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CHASSIS — CHAS 5

ELECTRICAL — ELEC 6

APPENDICES — APPX 7

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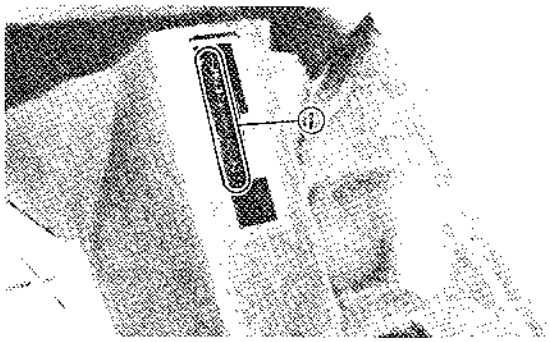
CHAPTER 1.
GENERAL INFORMATION

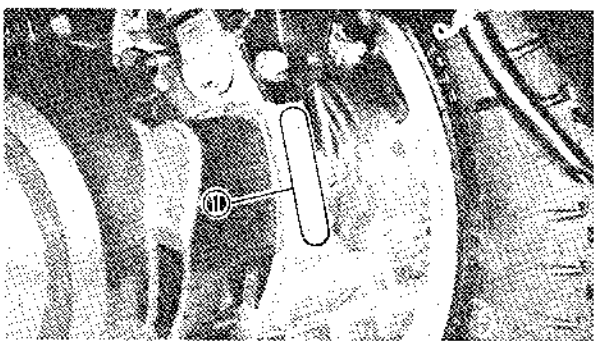
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GENERAL INFORMATION

SCOOTER IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the frame.

Starting Serial Number:
JYA1WA00 * GA000101

NOTE:

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

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the elevated part of the left rear section of the transmission case.

NOTE:

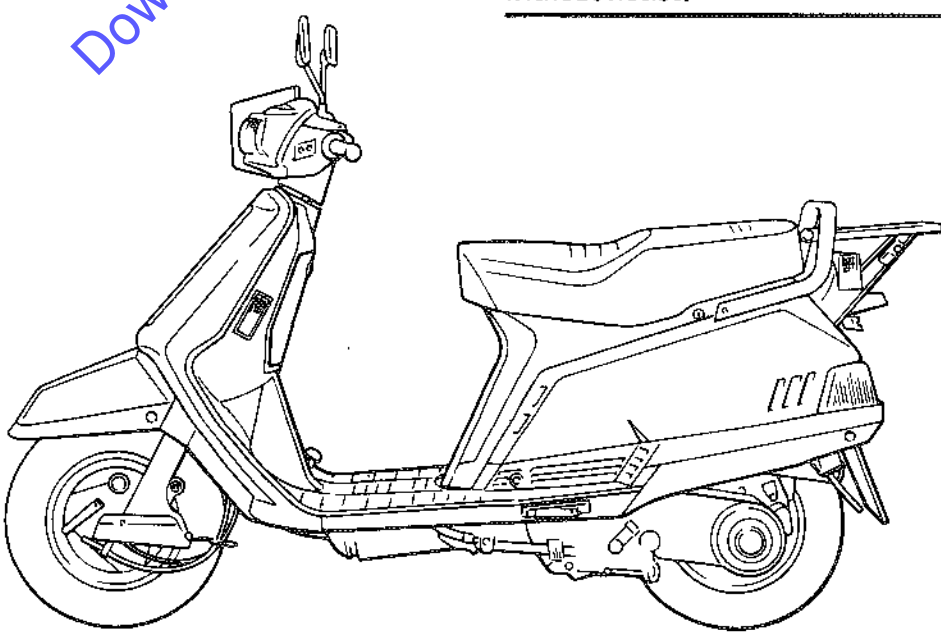
The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

Starting Serial Number:
1WA-000101

NOTE:

Designs and specifications are subject to change without notice.

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IMPORTANT INFORMATION

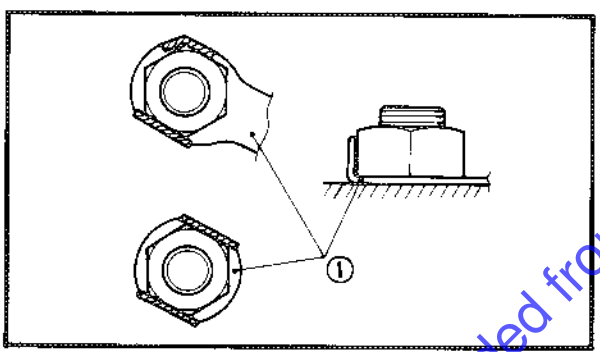
ALL REPLACEMENT PARTS

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

GASKETS, OIL SEALS, AND O-RINGS

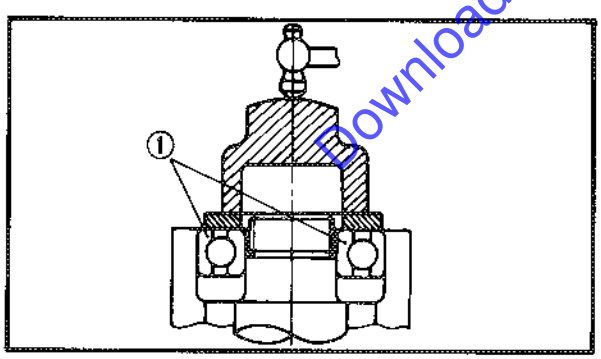
1. All gaskets, seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.

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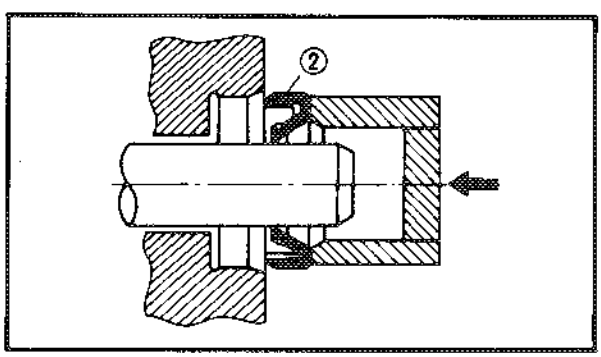
LOCK WASHERS/PLATES AND COTTER PINS

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.



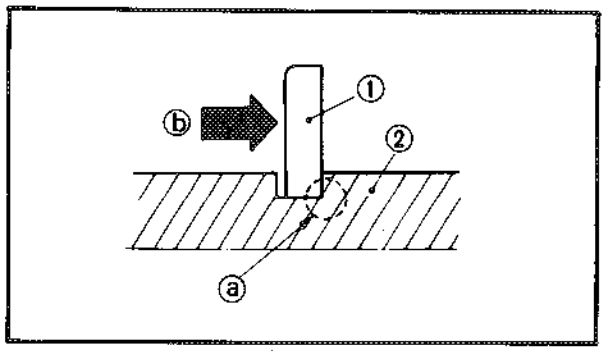
BEARINGS AND OIL SEALS

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

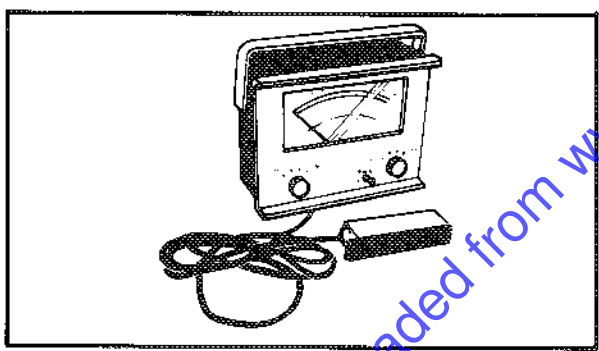
1. All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp-edged corner ⓐ is positioned opposite to the thrust ⓑ it receives. See the sectional view.

② 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.

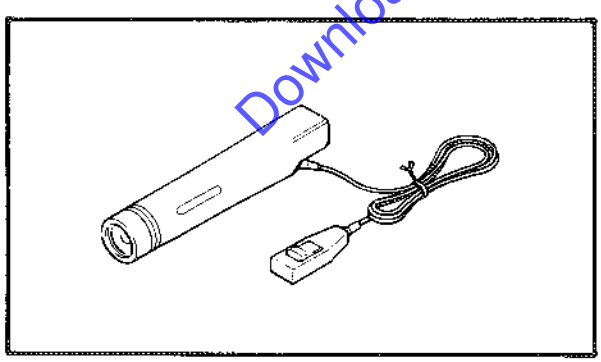
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FOR TUNE-UP

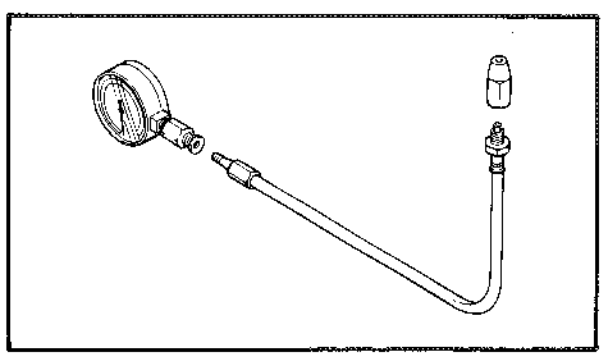
1. Inductive Tachometer
   P/N YU-8036

This tool is needed for detecting engine rpm.



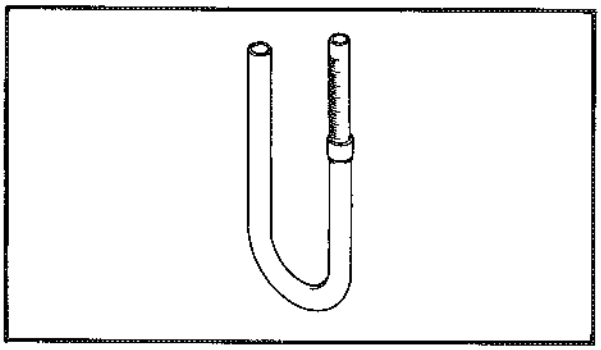
2. Timing Light
   P/N YU-08037

This tool is necessary for checking timing.



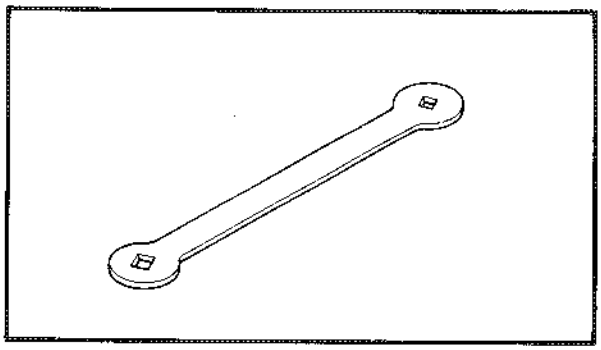
3. Compression Gauge
   P/N YU-33223

This gauge is used to measure engine compression.



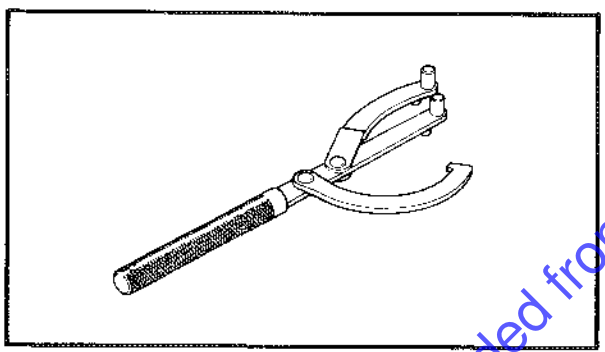
4. Fuel Level Gauge
P/N YM-01312-A

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.

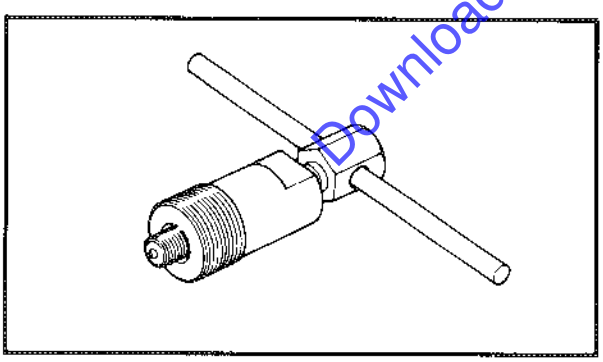


FOR ENGINE SERVICE

1. Rotor Holder
P/N YU-01235

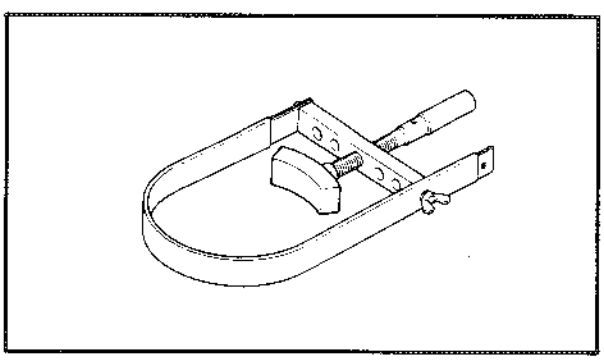
This tool is used to hold the flywheel magneto when removing or installing the flywheel magneto securing nut.

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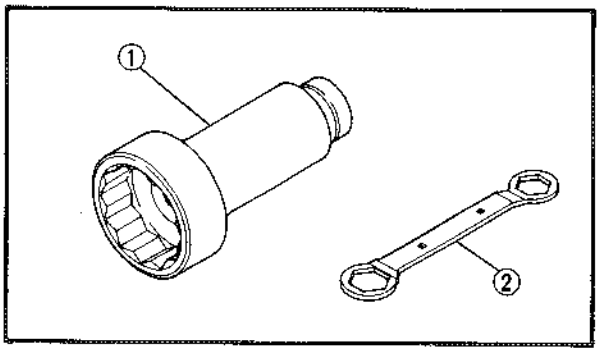
2. Flywheel Magneto Puller
P/N YM-01189

This tool is used to remove the flywheel.



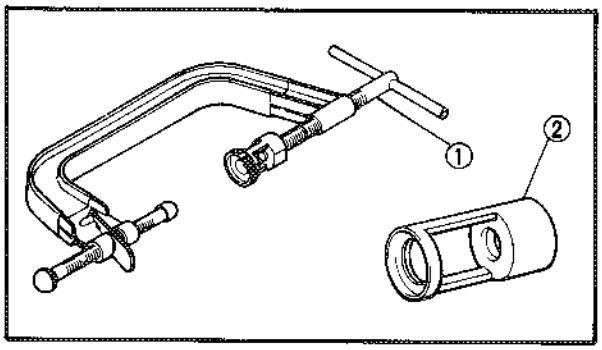
3. Primary Sheave Holder
P/N YU-01701

This tool is used when holding the clutch hub.



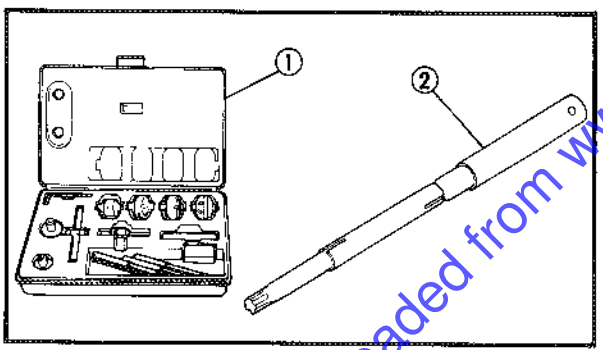
4. Middle Drive Shaft Nut Wrench – ①
   P/N YM-04045-A
   Locknut Wrench – ②
   P/N YM-4045-A

These tools are used to remove and install the secondary sheave nut.



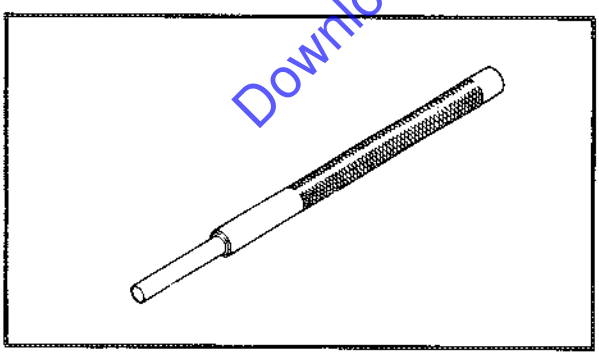
5. Valve Spring Compresser
   P/N YM-04019 – ①
   Adapter
   P/N YM-4108 – ②

These tools are used to remove and install the valve assemblies.



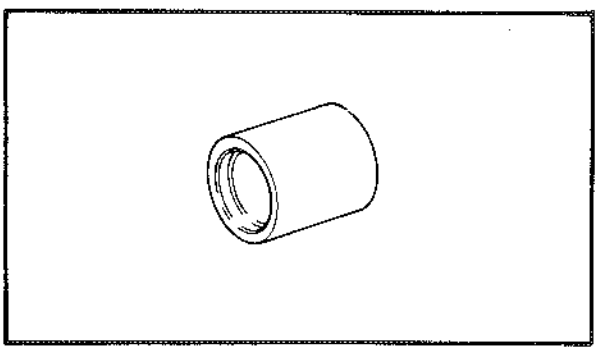
6. Valve Seat Cutter
   P/N YM-91043 – ①
   5 mm Pilot
   P/N YM-91043-50 – ②

These tools are used to resurface the valve seat.



7. Valve Guide Remover
   P/N YM-4097

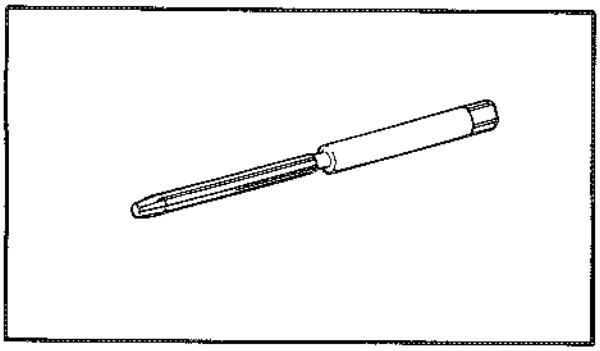
This tool is needed to install the valve guides properly.



8. Valve Guide Installer
   P/N YM-4098

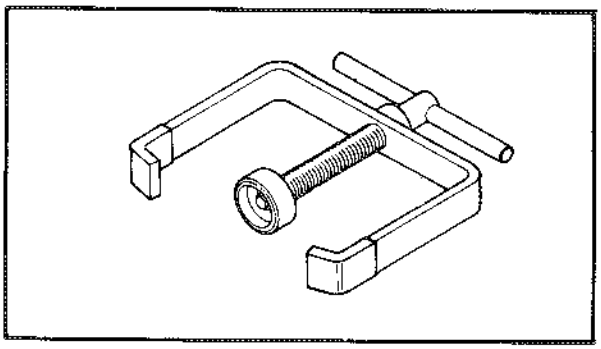
This tool is needed to install the valve guides properly.

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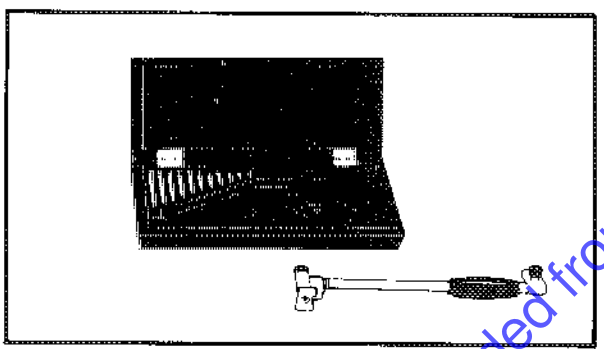
9. Valve Guide Reamer
P/N YM-4099

This tool is used to rebore the new valve guide.



10. Clutch Spring Holder
P/N YS-28891

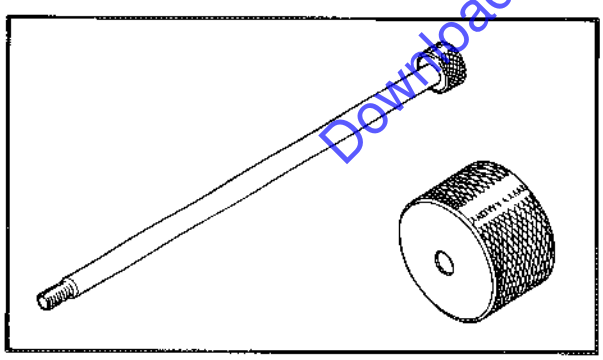
This tool is used to disassembly and assembly the secondary sheave.



11. Cylinder Gauge
P/N 90890-03016

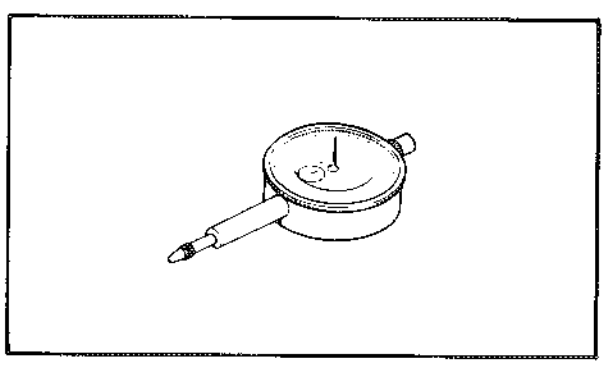
This tool is used to measures cylinder bore.

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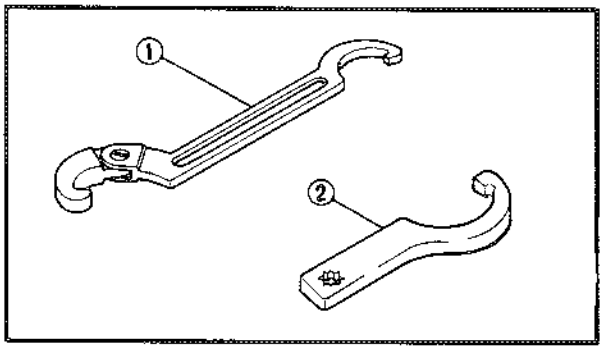


12. Slide Hammer Set (M6)
P/N YU-01083

These tools are used to remove and install the rocker arm shafts.



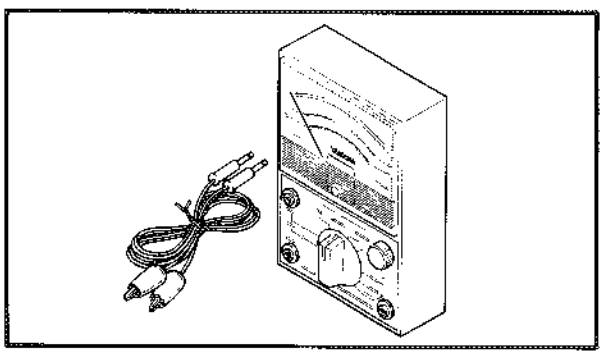
13. Dial Gauge
P/N YU-03097



FOR CHASSIS SERVICE

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

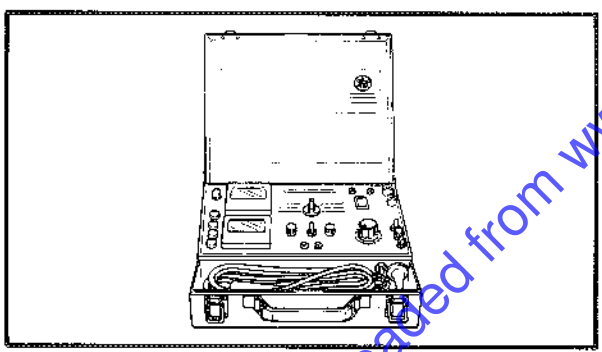
These tools are used to loosen and tighten the steering ring nut.



FOR ELECTRICAL COMPONENTS

1. Pocket Tester
   P/N YU-03112

This instrument is invaluable for electrical system inspection and adjustment.



2. Electro Tester
   P/N YU-33260

This instrument is necessary for ignition system inspection.

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CHAPTER 2.
PERIODIC INSPECTION AND ADJUSTMENTS

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PERIODIC MAINTENANCE/LUBRICATION INTERVALS 2-1

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- FUSE INSPECTION 2-20

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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 INTERVALS

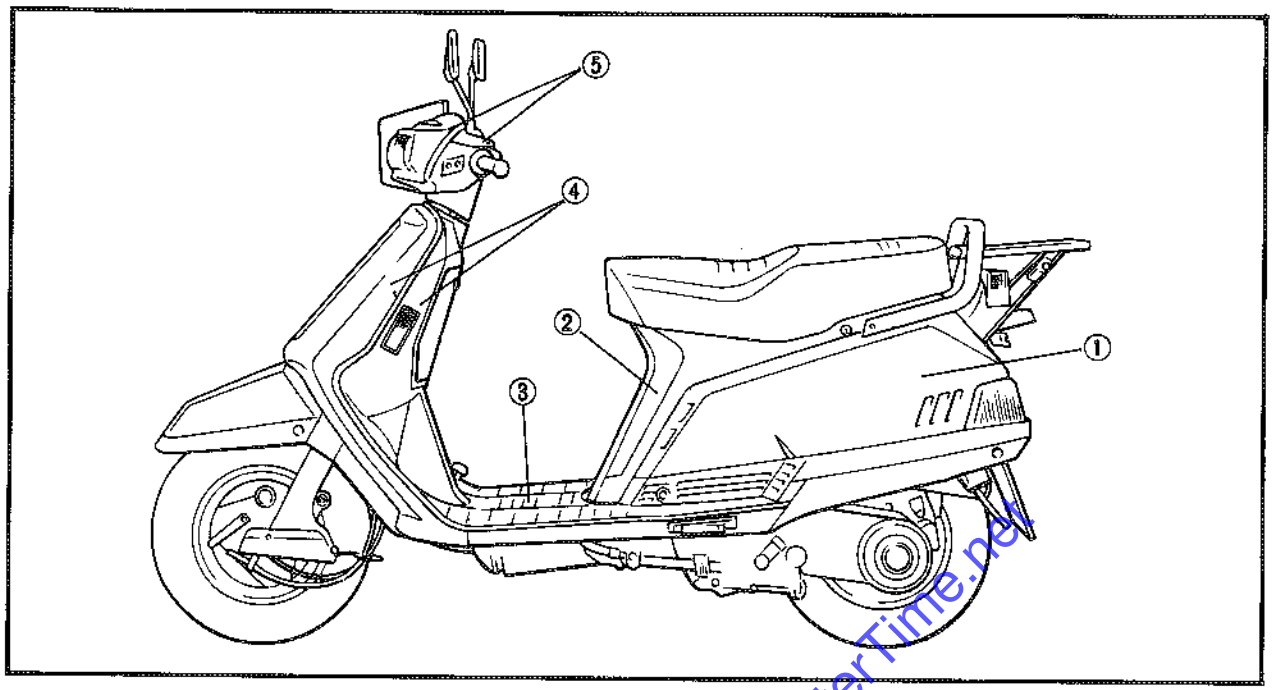
Unit: km (miles)

ITEM	REMARKS		EVERY	
		BREAK-IN 1,000 (600)	6,000 (4,000) or 6 months	12,000 (8,000) or 12 months
Valve(s)*	Check valve clearance. Adjust if necessary.	○	○	○
Spark plug(s)	Check condition. Clean or replace if necessary.	○	○	○
Air filter	Clean. Replace if necessary.		○	○
Crankcase filter	Clean. Replace if necessary.			○
Carburetor*	Check idle speed/starter operation. Adjust if necessary.	○	○	○
Fuel line*	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○
Engine oil	Replace (Warm engine before draining).	○	○	○
Final gear oil	Check oil level/oil leakage. Replace every 24,000 (16,000) or 24 months.	REPLACE	○	○
Brake	Check operation. Adjust if necessary.		○	○
Clutch	Check operation. Adjust if necessary.		○	○
Front brake tensionbar pivots and bottom link pivots	Apply until new grease shows.***		○	○
Front axle	Apply grease lightly.***		○	○
Wheels*	Check balance/damage/runout. Repair if necessary.		○	○
Wheel bearings*	Check bearings assembly for looseness/damage. Replace if damaged.		○	○
Steering bearing*	Check bearings assembly for looseness. Correct if necessary. Moderately repack every 24,000 (16,000) or 24 months.**	○		○
Front forks*	Check operation/oil leakage. Repair if necessary.		○	○
Rear shock absorber*	Check operation/oil leakage. Repair if necessary.		○	○
V-belt	Check damage and wear. Replace if necessary. Replace every 18,000 km (12,000 mi).		○	○
Fittings/Fasteners*	Check all chassis fittings and fasterners. Correct if necessary.	○	○	○
Center and sidestand*	Check operation. Repair if necessary.	○	○	○
Sidestand switch*	Check operation. Clean or replace if necessary.	○	○	○
Battery*	Check specific gravity. Check breather pipe for proper operation. Correct if necessary.		○	○

*: It is recommended that these items be serviced by a Yamaha dealer.
**: Medium weight wheel bearing grease.
***: Lithium soap base grease.

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REMOVING THE COVERS AND PANELS

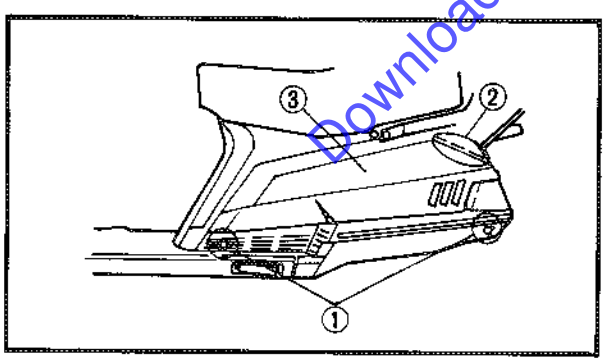


① Side covers (Right/Left)
② Front cover
③ Footrest board
④ Front and rear leg shield
⑤ Front and rear handlebar cover

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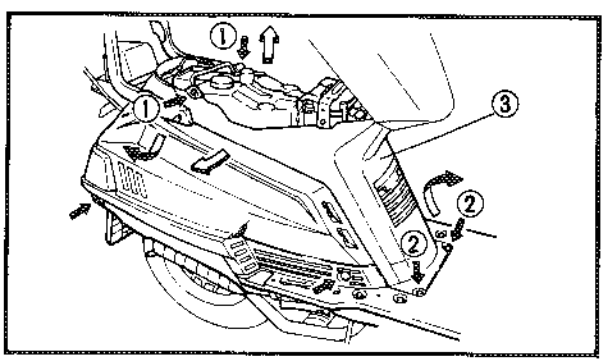
CAUTION:

- **Before removing the cover(s), make sure that all hooks are free.**
- **After installing the cover(s), make sure that all hooks are securely fitted.**



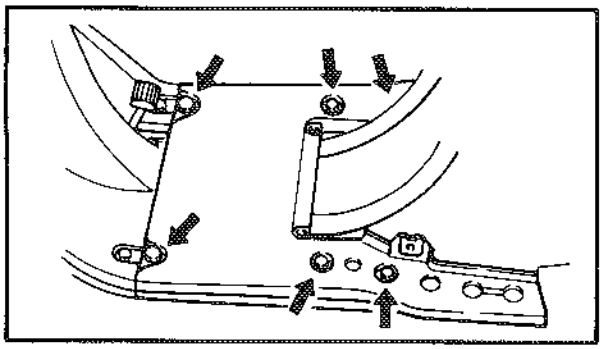
SIDE COVER (Right/Left)

1. Remove:
   - Screws (Side cover) ①
2. Unhook:
   - Hooks ②
3. Remove:
   - Side cover ③



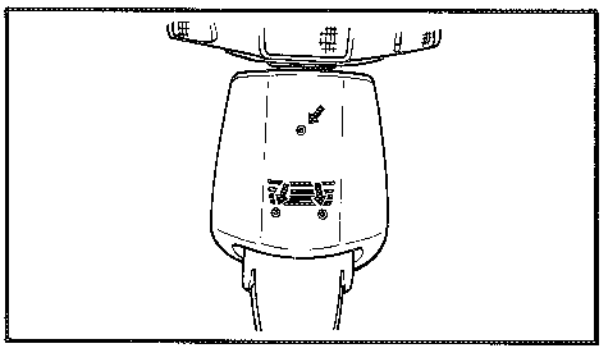
FRONT COVER

1. Open the seat.
2. Remove:
   - Screws (Front cover) ①
   - Bolts (Front cover) ②
3. Close the seat.
4. Remove:
   - Front cover ③



FOOTREST BOARD

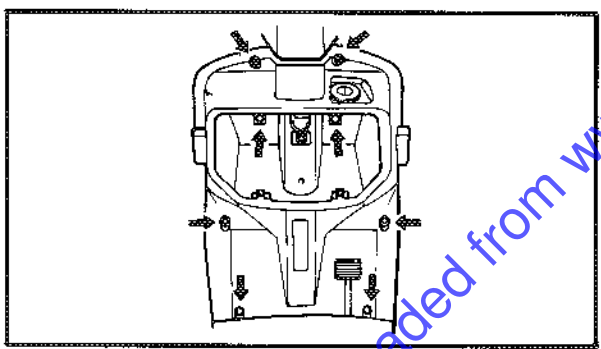
1. Remove:
   - Side covers (Right/Left)
   - Front cover
   - Footrest mat
   - Bolts (Footrest board)
   - Footrest board



FRONT AND REAR LEG SHIELD

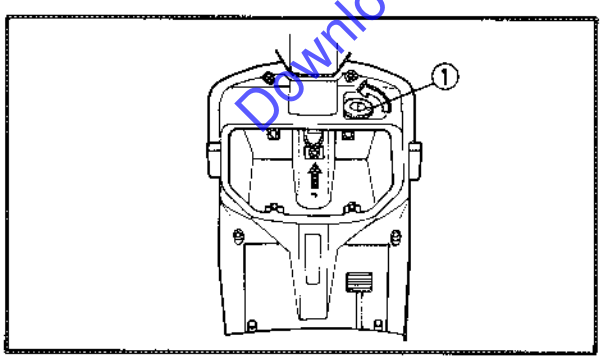
Front Leg Shield

1. Remove:
   - Nuts (Leg shield)



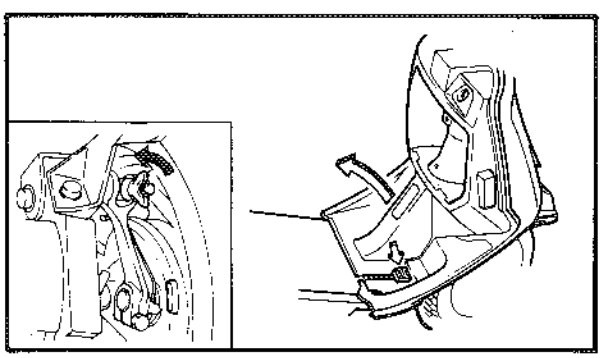
2. Remove:
   - Screws (Leg shield)
   - Bolts (Footrest board)
   - Front leg shield

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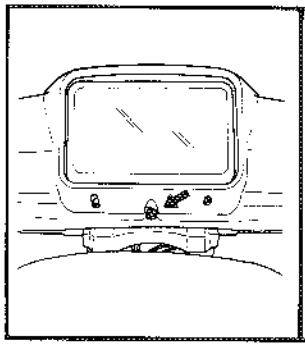


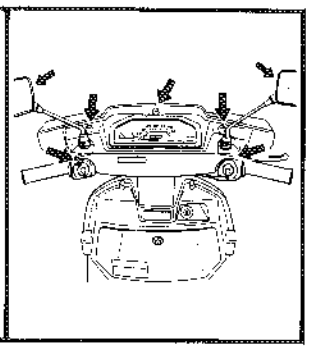
Rear Leg Shield

1. Remove:
   - Footrest board
   - Front leg shield
   - Screws (Rear leg shield)
   - Nut (Rear leg shield)
   - Main switch cap ①
     Turn counterclockwise and pull off.



2. Loosen:
   - Rear brake adjuster
3. Apply the rear brake fully, move the leg shield then remove the leg shield.
4. Remove:
   - Rear leg shield

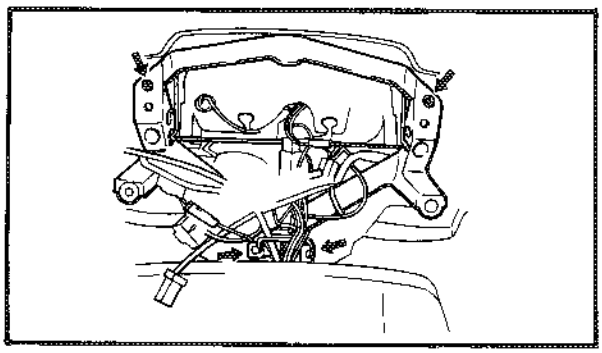




FRONT AND REAR HANDLEBAR COVERS

Front Handlebar Cover

1. Remove:
   - Rear view mirrors
   - Screws (Handlebar cover)
2. Remove:
   - Front handlebar cover



Rear Handlebar Cover

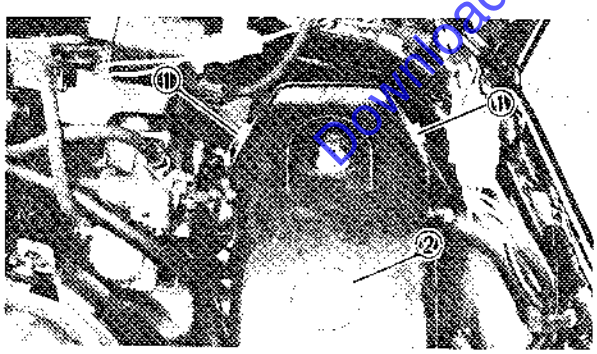
1. Remove:
   - Front handlebar cover
2. Disconnect:
   - Speedometer cable
3. Remove:
   - Screws (Handlebar cover)
   - Rear handlebar cover

ENGINE

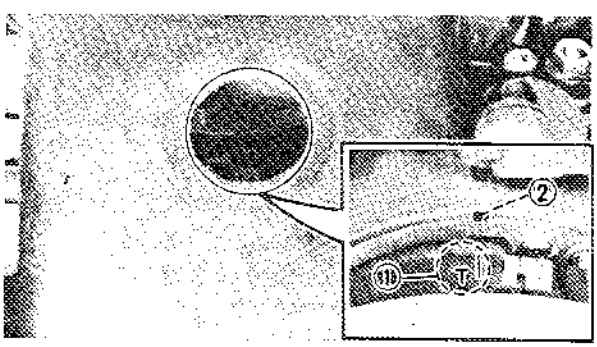
VALVE CLEARANCE ADJUSTMENT

NOTE:
Valve clearance must be measured when the engine is cool to the touch.

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1. Remove:
   - Side cover (Right)
   - Front cover
   - Valve covers ① (Intake/Exhaust)
   - Spark plug
   - Timing check window plug ②

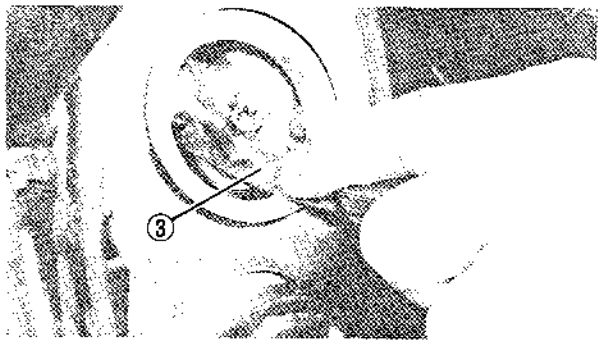


2. Measure:
   - Valve clearance

   By the following measurement steps.

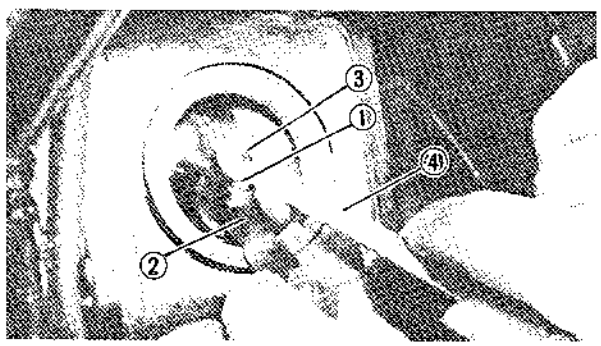
Valve clearance measurement steps:
- Align the "T" mark ① on the flywheel with the stationary pointer ② on the crankcase. When the "T" mark is aligned with the stationary pointer, the piston is at Top Dead Center (TDC).

VALVE CLEARANCE ADJUSTMENT



- Measure the valve clearance using a Feeler Gauge ③ .
  Out of specification → Adjust clearance.

Intake Valve (Cold):
0.08 ~ 0.12 mm (0.003 ~ 0.005 in)
Exhaust Valve (Cold):
0.10 ~ 0.14 mm (0.004 ~ 0.006 in)



3. Adjust:
   - Valve clearance
     By the following adjustment steps.

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 counterclockwise with the Valve Adjusting Tool ④ (YM-08035) until proper clearance is attained.

Intake Valve (Cold):
0.08 ~ 0.12 mm (0.003 ~ 0.005 in)
Exhaust Valve (Cold):
0.10 ~ 0.14 mm (0.004 ~ 0.006 in)

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

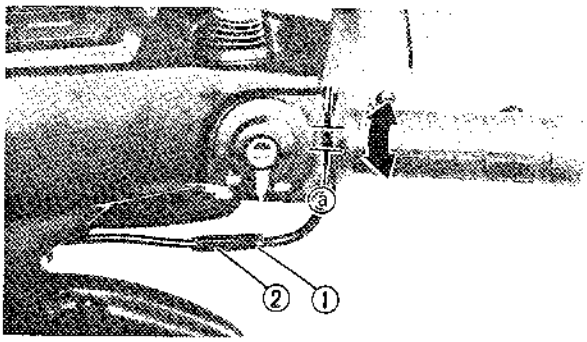
Valve Clearance Adjusting Locknut:
7 Nm (0.7 m·kg, 5.1 ft·lb)

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

4. Install:
   Reverse the applicable removal steps. (See page 2-4)

Spark Plug:
12.5 Nm (1.25 m·kg, 9.0 ft·lb)
Valve Cover (Intake/Exhaust):
7 Nm (0.7 m·kg, 5.1 ft·lb)

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THROTTLE CABLE ADJUSTMENT

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

Throttle Cable Free Play ⓐ :
1.5 ~ 3.5 mm (0.06 ~ 0.14 in)

2. Adjust:
   - Throttle cable free play
     By the following adjustment steps.

Throttle cable free play adjustment steps:
- Loosen the locknut ① .
- Turn the adjuster ② clockwise or counterclockwise until proper free play is attained.
- Tighten the locknut.
- Measure the throttle cable free play.
- If the free play is incorrect, repeat above steps until the proper free play is obtained.

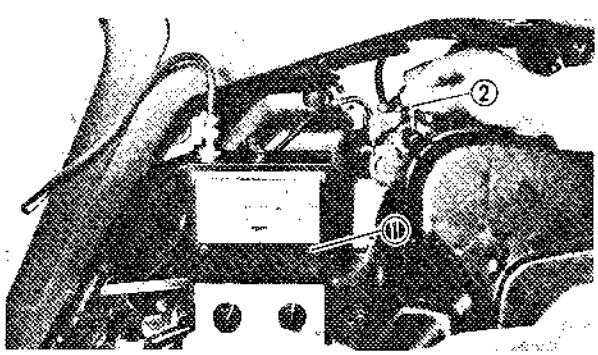
NOTE:
After adjusting, turn the handlebars to right and left and make sure that the engine idling does not run faster.

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IDLE SPEED ADJUSTMENT

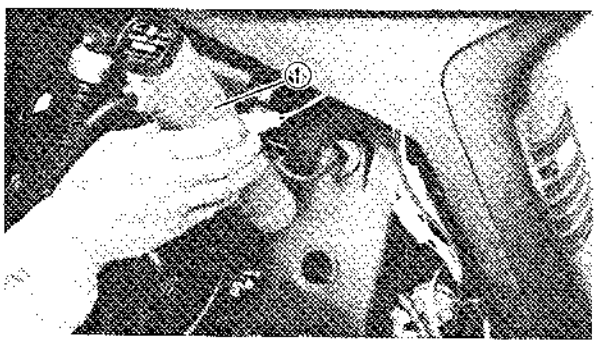
1. Remove:
   - Side covers (Right/Left)
2. Start the engine and warm it up before setting idle-speed.

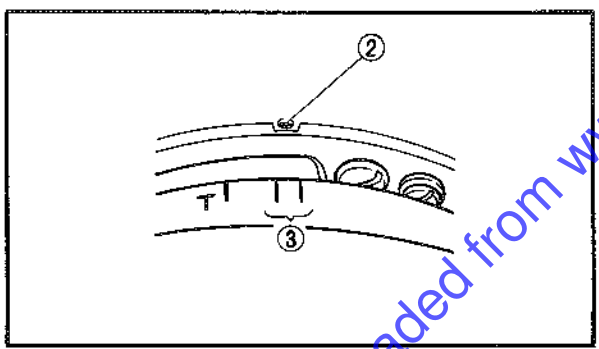
NOTE:
A wam engine is difined as one which had been operated for about 3 minutes at 3,000 r/min with no load.



3. Attach:
   - Inductive Tachometer (YU-8036) ①
4. Adjust:
   - Idle speed
     Turn the throttle stop screw ② clockwise to increase engine speed and counterclockwise to decrease engine speed.

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





IGNITION TIMING CHECK

WARNING

The ignition timing is adjusted for maximum performance at the factory. DO NOT attempt to change this setting.

1. Check:
   - Ignition timing

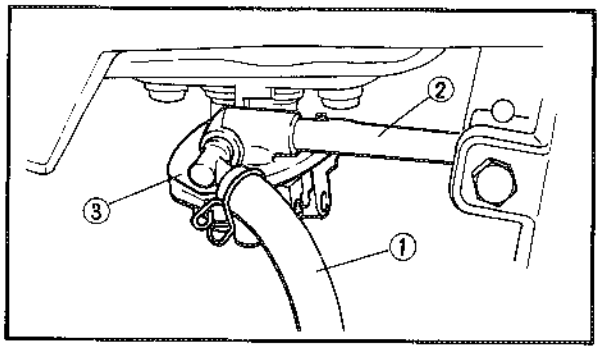
   By the following steps.

Ignition timing check steps:
- Remove the timing check window.
- Connect the timing light (YU-08037) ① to spark plug lead.
- Warm up the engine and allow it to idle at the specified engine speed.
  Use the tachometer

	Engine Speed: 1,400 r/min

- Visually check the stationary pointer ② on the crankcase to verify it is within the required firing range ③ indicated on the flywheel.
  Incorrect firing range → Check flywheel and/or pickup assembly (tightness damage). Refer to "CHAPTER 6. ELECTRICAL" for further information.

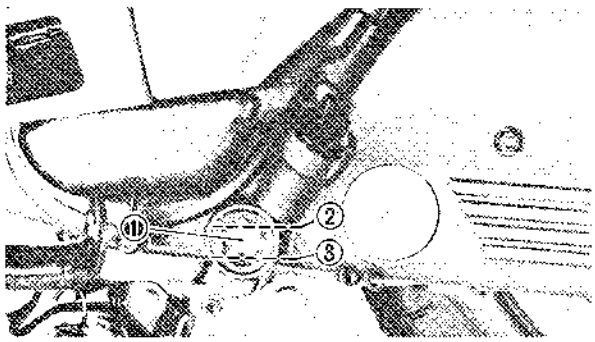
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FUEL LINE INSPECTION

1. Inspect:
   - Fuel hose ①
   - Vacuum hose ②
   - Fuel cock ③

   Crack/Damage → Replace.



ENGINE OIL LEVEL INSPECTION

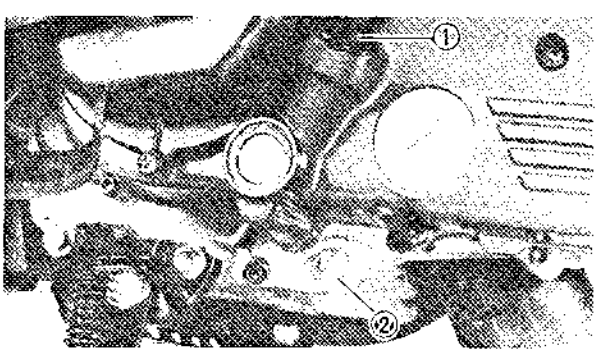
1. Inspect:
   - Oil level

   Oil level low → Add sufficient oil.
   By the following inspection steps.

Engine oil level measurement steps:
- Place the scooter on its centerstand.
- Warm up the engine for a few minutes.
- Stop the engine.
- Observe the oil level through the level window ① located at the lower part of left side crankcase cover.
- If the level is lower, add the oil up to the proper level.

NOTE:
- Position scooter straight up when checking oil level; a slight tilt to the side can produce false readings.
- Wait a few minutes until level settles before checking.
- Oil level should be between maximum ② and minimum ③ marks.

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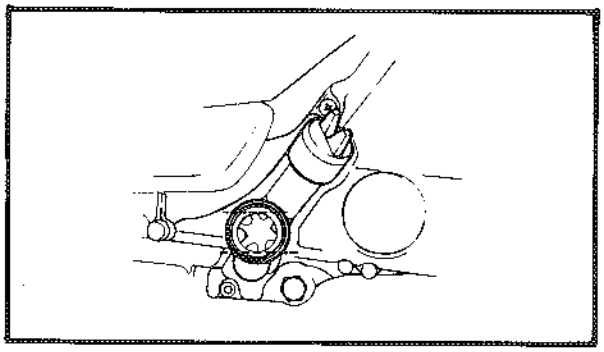


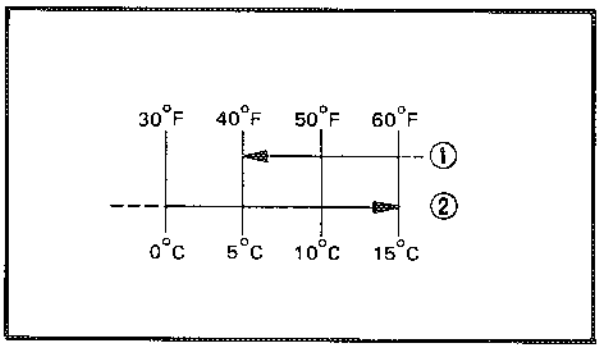
ENGINE OIL REPLACEMENT

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

   Drain the engine oil.

FINAL GEAR OIL (SUB TRANSMISSION OIL) REPLACEMENT





5. Tighten:
   - Drain plug

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

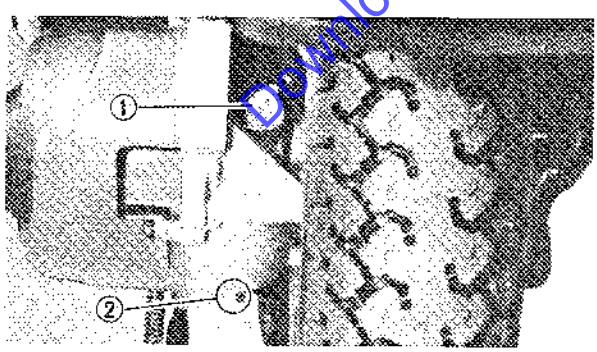
6. Fill:
   - Crankcase

Recommended Oil:
At 5°C (40°F) or Higher:
Yamalube 4-cycle Oil or
SAE 20W40 Type SE Motor Oil①
At 15°C (60°F) or Lower:
SAE 10W30 Type SE Motor Oil②
Periodic Oil Change:
1.0 L (0.9 Imp qt, 1.1 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 crankcase.

7. Observe:
   - Oil level
8. Install:
   - Oil filler cap



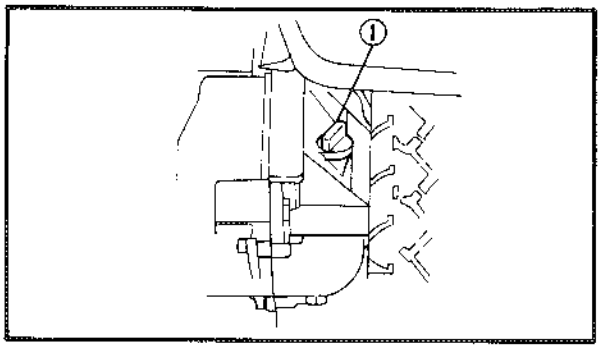
FINAL GEAR OIL (SUB TRANSMISSION OIL) REPLACEMENT

1. Place the scooter on a level place.
2. Warm up engine for several minutes, and stop it.
3. Place an oil pan under the final gear case.
4. Remove:
   - Oil filler cap ①
   - Drain plug ②

   Drain the engine oil.
5. Tighten:
   - Drain plug

Drain Plug:
16 Nm (1.6 m·kg, 11 ft·lb)

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6. Fill:
   - Final gear case

Final Gear Oil:
SAE 10W30 Type SE Motor Oil
Total Amount:
0.15 L (0.13 Imp qt, 0.16 US qt)

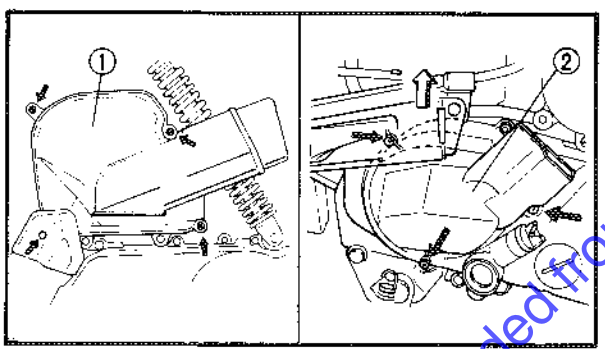
CAUTION:

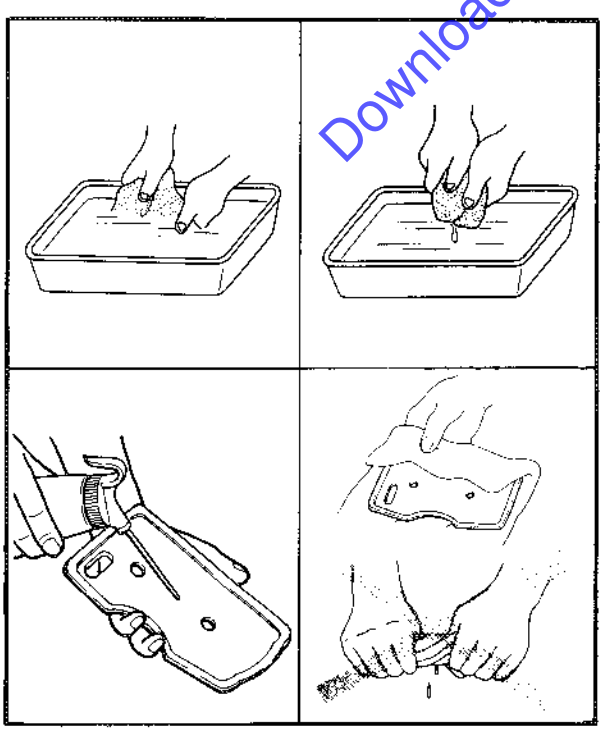
Wipe off any oil split on tire or wheel.

7. Install:
   - Oil filler cap ①

AIR FILTER AND CRANKCASE FILTER CLEANING

1. Remove:
   - Side cover (Left)
   - Bolts (Footrest board)
   - Air filter case cover ①
   - Crankcase filter cover ②
   - Air filter element
   - Crankcase filter element
2. Clean:
   - Air filter element
   - Crankcase filter element





Filter elements cleaning steps:
- Wash the filter gently, but thoroughly, in solvent.
- Squeeze the solvent out of the filter, and allow the filter to dry.
- Pour a small quantity of Air cooled 2 stroke engine oil on the filter and work it thoroughly into the foam.
- Wrap it with a clean cloth, and squeeze it lightly.

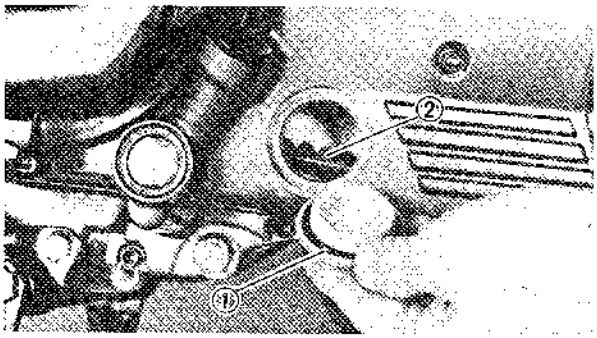
NOTE:
- Don't squeeze the filter in the manner as shown.
- Replace the filter, if damaged.

3. Install:
   - Above components list (step 1)

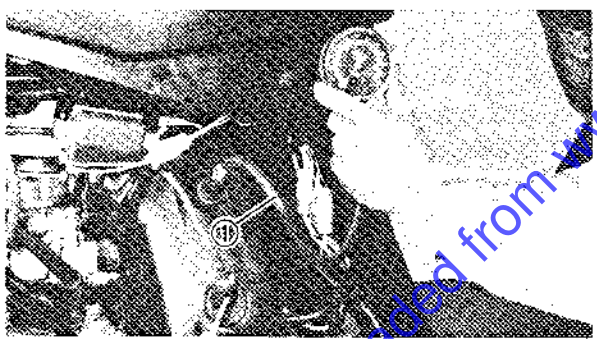
NOTE:
After installing the filter, make sure it is positioned correctly in place.

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V-BELT INSPECTION/ COMPRESSION PRESSURE MEASUREMENT







V-BELT INSPECTION

1. Remove:
   - V-belt check window plug ①
     (from the left side crankcase cover)
2. Inspect:
   - V-belt ②
     Damage/Crack/Wear/Chipping → Replace.
     Oil/Grease → Check sheaves.
     (Refer to page 3-27)

COMPRESSION PRESSURE MEASUREMENT

NOTE:
Insufficient compression pressure will result in performance loss.

1. Remove:
   - Side cover (Right)
   - Valve covers (Intake/Exhaust) ①
2. Measure:
   - Valve clearance
     Out of specification → Adjust.
3. Warm up the engine for a few minutes, and stop it.
4. Remove:
   - Spark plug
5. Measure:
   - Compression pressure
     By the following measurement steps.

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

Compression Pressure (at sea level):
Standard:
882 kPa (9 kg/cm², 128 psi)
Minimum:
785 kPa (8 kg/cm², 114 psi)
Maximum:
1,079 kPa (11 kg/cm², 156 psi)

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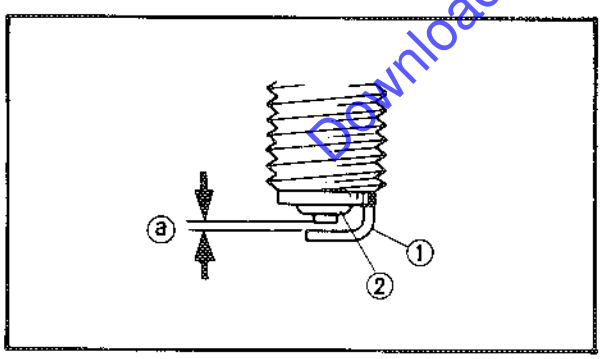
WARNING:

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 cylinder.
  2) Measure the compression again.

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

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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.

ⓐ 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:
U20FSR-U (N.D.)

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

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

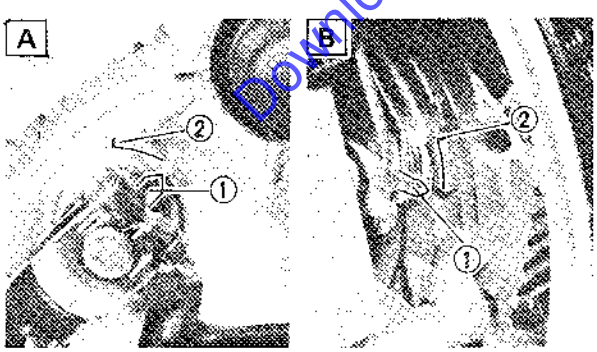
5. Tighten:
   - Spark plug

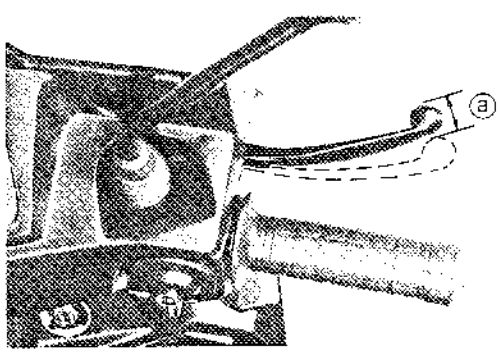
NOTE:
Before installing a spark plug, clean the gasket surface and plug surface.

Spark Plug:
12.5 Nm (1.25 m·kg, 9.0 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.

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CHASSIS

BRAKE LINING INSPECTION

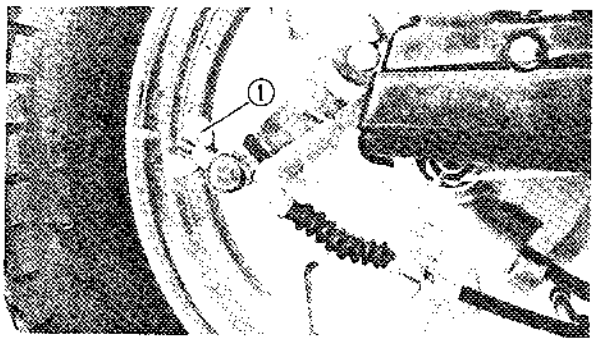
1. Activate the brake lever or brake pedal.
2. Inspect:
   - Wear indicator ①
     Indicator reaches the wear limit line ②
     → Replace brake shoes.

A FRONT
B REAR

FRONT BRAKE ADJUSTMENT

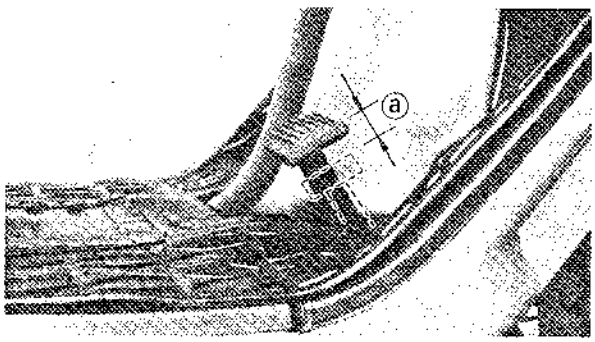
1. Check:
   - Free play ⓐ
     Out of specification → Adjust.

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



2. Adjust:
   - Free play
     Turn the adjuster ① until the free play is within the specified range.

NOTE:
After adjusting, check the operation of the brake light.



REAR BRAKE ADJUSTMENT

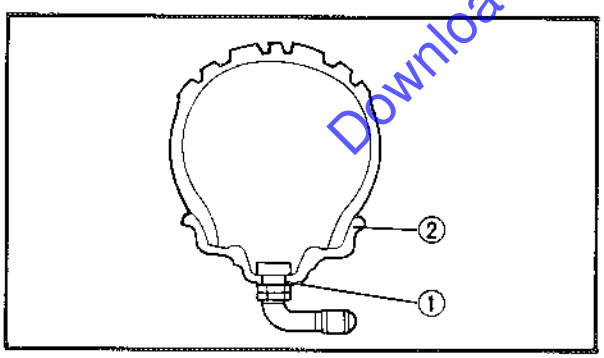
1. Check:
   - Free play ⓐ
     Out of specification → Adjust.

Rear Brake Pedal Free Play ⓐ :
5 ~ 15 mm (0.2 ~ 0.6 in)



2. Adjust:
   - Free play
     Turn the adjuster ① until the free play is within the specified range.

NOTE:
After adjusting, check the operation of the brake light.



TIRES AND CAST WHEELS CHECK

This scooter is equipped with cast wheels designed for tubeless tires only.
Tubeless tires are installed as standard equipments.

1. Measure:
   - Air pressure
     Use an air gauge.
     Out of specification → Adjust pressure.

Maximum load*	168 kg (370 lb)	
Cold tire pressure	Front	Rear
Up to 75 kg (165 lb) load*	147 kPa (1.5 kg/cm², 21 psi)	196 kPa (2.0 kg/cm², 28 psi)
75 kg (165 lb)-155 kg (341 lb) load* (Maximum load)	147 kPa (1.5 kg/cm², 21 psi)	294 kPa (3.0 kg/cm², 43 psi)

* Load is the total weight of cargo, rider, passenger, and accessories.
① Air valve
② Cast wheel (Tubeless wheel)

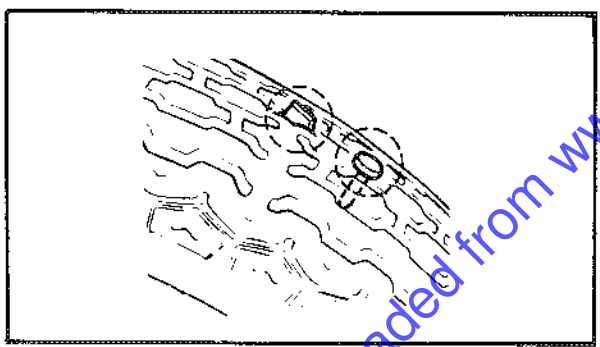
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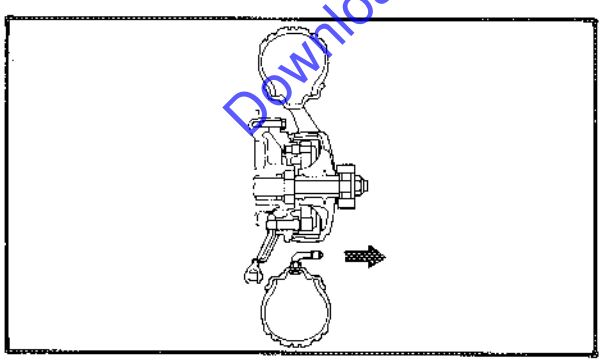
TIRES AND CAST WHEELS CHECK

WARNING

Proper loading of your scooter is important for the handling, braking, and other performance and safety characteristics of your scooter. Do not carry loosely packed items that can shift. Securely pack your heaviest items close to the center of the scooter, and destribute the weight evenly from side to side. And check the condition and pressure of your tires. NEVER OVERLOAD YOUR SCOOTER. Make sure the total weight of the cargo, rider, passenger, and accessories (fairing, saddlebags, etc. if approved for this model) does not exceed the maximum load of the scooter. Operation of an overloaded scooter could cause tire damage, an accident, or even injury.

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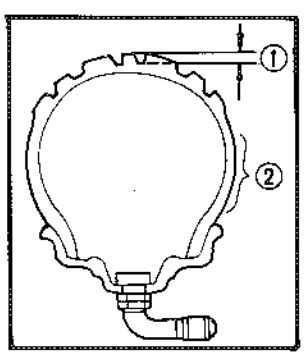


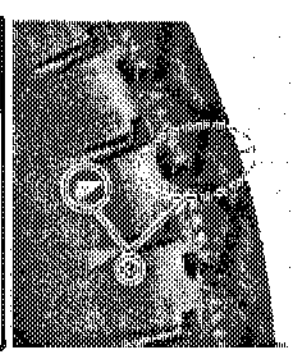


2. Inspect:
   - Tire surface
     Wear/Damage/Cracks/Road hazards → Replace.
   - Aluminum wheels
     Damage/Bends → Replace.

WARNING

- **Never attempt even small repairs to the wheel.**
- **Install the rear wheel air valve on the right of the scooter (on the muffler side).**
- **Ride conservatively after installing a tire to allow it to seat itself properly on the rim.**

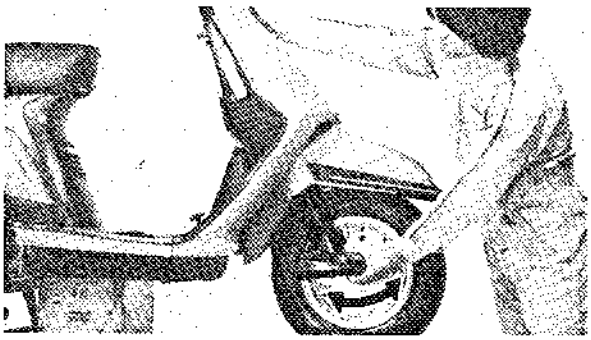


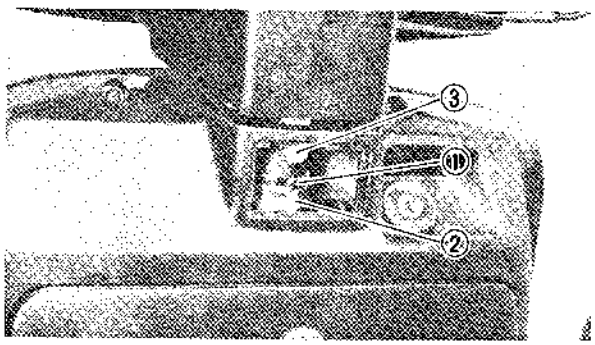


3. Measure:
   - Tire tread depth
     Out of specification → Replace.

Minimum Tire Tread Depth:
(front and rear)
1.0 mm (0.04 in)

① Tread depth
② Side wall
③ Wear indicator





STEERING HEAD INSPECTION

1. Place the scooter on its centerstand, then elevate the front wheel.
2. Check:
   - Steering assembly bearings
     Grasp the bottom of the forks and gently rock the fork assembly back and forth.
     Looseness → Adjust.

STEERING HEAD ADJUSTMENT

1. Remove:
   - Steering nut cover
2. Loosen:
   - Ring nut (Upper) ①
   - Ring nut (Lower) ②
     Use the Ring Nut Wrench (YU-33975).
3. Tighten:
   - Ring Nuts (Lower and upper)
     By the following tightening steps.

Ring nuts tightening steps:

- Tighten the ring nut (lower) ② using the Ring Nut Wrench (YU-33975).

NOTE:
Set the Torque Wrench to the Ring Nut Wrench so that they form a right angle.

WARNING
Do not over-tightening.

Ring Nut (Lower):
30 Nm (3.0 m·kg, 22 ft·lb)

- Loosen the ring nut ② 1/4 turn.
- Hold the ring nut (lower), and tighten the ring nut (upper) ① using the Ring Nut Wrench.

NOTE:
Set the Torque Wrench to the Ring Nut Wrench so that they form a right angle.

WARNING
Do not over-tightening.

Ring Nut (Upper):
30 Nm (3.0 m·kg, 22 ft·lb)

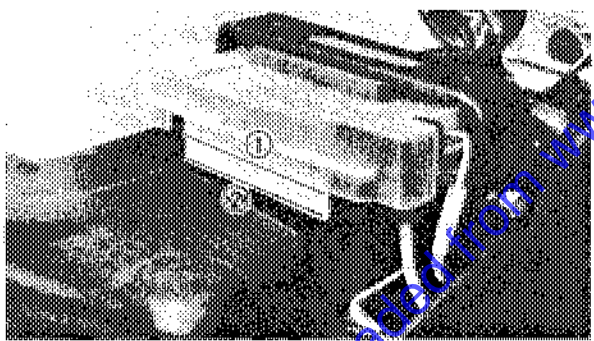
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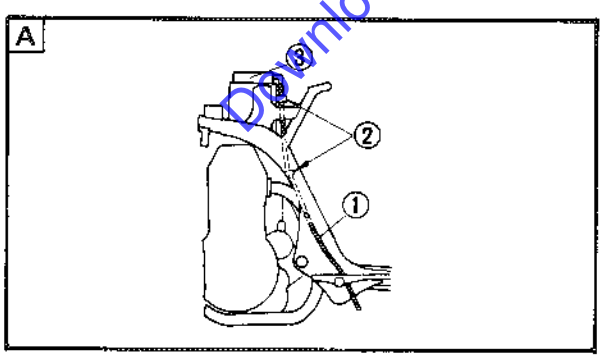
- Check the steering stem by turning it lock to lock. If there is any binding, inspect the steering bearing. Refer to "CHAPTER 6. STEERING HEAD" for more details.
- Tighten the bolt (handlebar mounting) ③ .

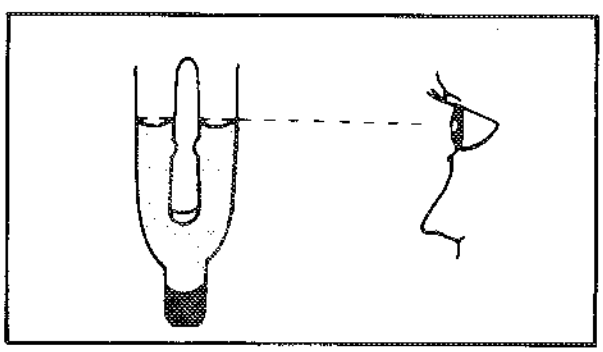
Bolt (Handlebar Mounting):
34 Nm (3.4 m·kg, 24 ft·lb)

4. Install:
   - Steering nut cover

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ELECTRICAL

BATTERY INSPECTION

1. Check:
   - Fluid level
     Incorrect → Refill.
     Fluid level should be between upper ① and lower ② level marks.

CAUTION:

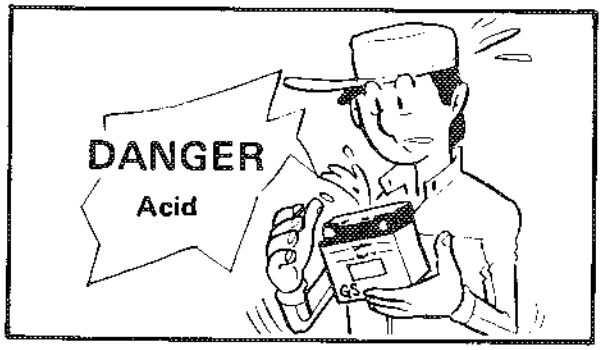
Refill with distilled water only; tap water contains minerals harmful to a battery.

2. Connect:
   - Breather hose ①
     Be sure the hose is properly attached and routed.
3. Inspect:
   - Breather hose
     Obstruction → Remove.
     Damage → Replace.

A HOW TO LAYOUT BATTERY BREATHER HOSE
② Battery
③ Clamp

CAUTION:

Always charge a new battery before using it to ensure maximum performance.



Charging Current:
0.7 amps/10 hrs
Specific Gravity:
1.280 at 20°C (68°F)

WARNING:

Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.

Always follow these preventive measures:

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

Antidote (EXTERNAL):

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

Antidote (INTERNAL):

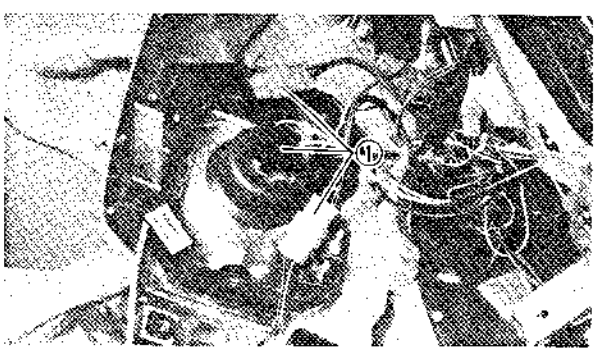
- Drink large quantities of water or milk follow with milk of magnesia) beaten egg, or vegetable oil. Get immediate medical attention.

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

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

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

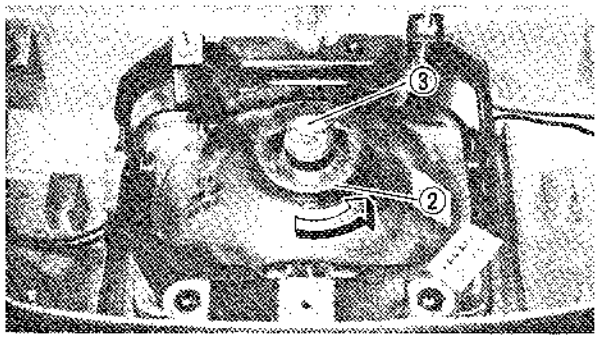
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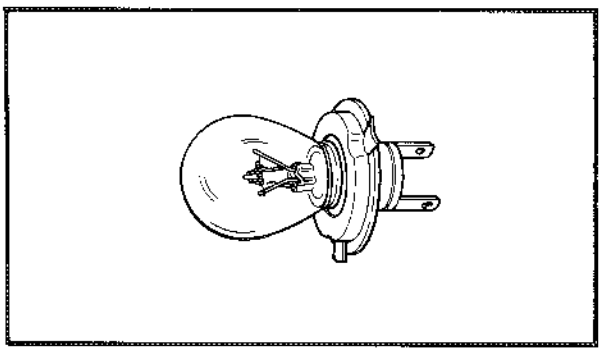


HEADLIGHT BULB REPLACEMENT

1. Remove:
   - Handlebar cover (Front)
2. Disconnect:
   - Headlight lead connecters ①
   - Bulb holder ②
     Turn it counterclockwise.
   - Defective bulb ③

HEADLIGHT BEAM ADJUSTMENT





WARNING:

Do not touch headlight bulb when it is on as the bulb generates enormous heat; keep flammable objects away.

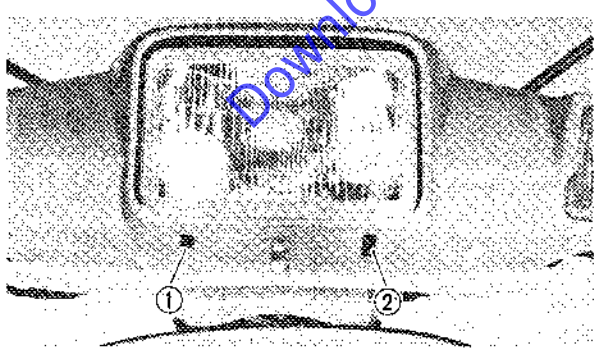
3. Install:
   - Bulb (New)
   - Bulb holder

CAUTION:

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

4. Connect:
   - Headlight lead connnecters
5. Install:
   - Handlebar cover (Front)

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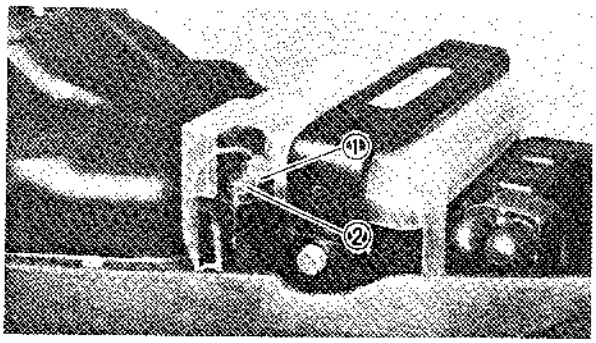
HEADLIGHT BEAM ADJUSTMENT

1. Adjust:
   - Headlight beam (Horizontally)

Horizontal Adjustment	
Right	Turn adjusting screw ① clockwise.
Left	Turn adjusting screw ① counterclockwise.

2. Adjust:
   - Headlight beam (Vertically)

Vertical Adjustment	
Higher	Turn adjusting screw ② counterclockwise.
Lower	Turn adjusting screw ② clockwise.



FUSE INSPECTION

1. Open the seat.
2. Inspect:
   - Fuse ①
     Defective → Replace.
     Blow fuse (New) → Inspect circuit.

① Main fuse
② Spare fuse

Blown fuse procedure steps:
- Turn off ignition and the circuit.
- Install a new fuse of proper amperage.
- Turn on switches to verify operation of electrical device.
- If fuse blows immediately again, check circuit in question.

WARNING:

Do not use fuses of higher amperage rating than recommended. Extensive electrical system damage and fire could result from substitution of a fuse of improper amperage.

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CHAPTER 3.
ENGINE OVERHAUL

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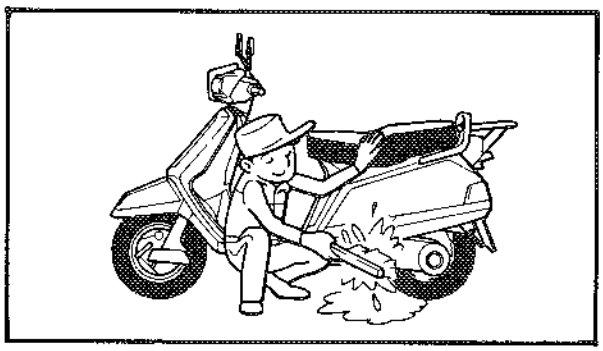
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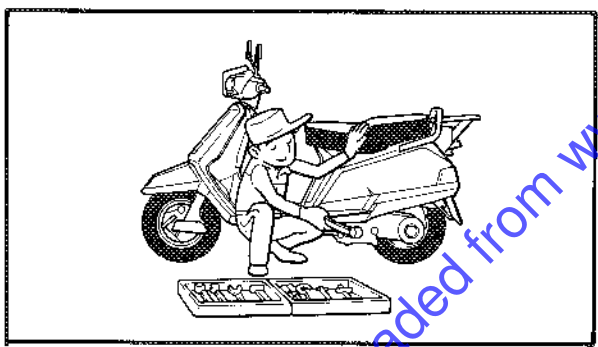
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ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:
It is not necessary to remove the engine in order to remove the following components.
- Primary and secondary sheeve
- Carburetor
- CDI Magneto
- Starter motor



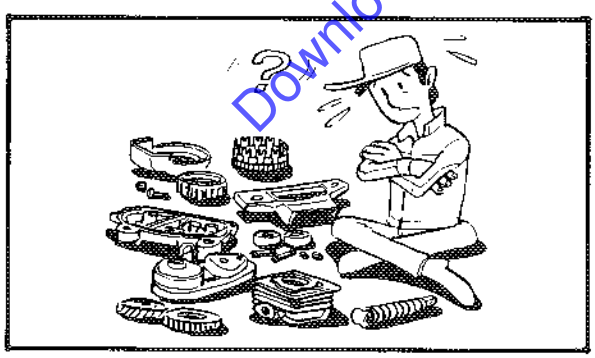


PREPARATION FOR REMOVAL

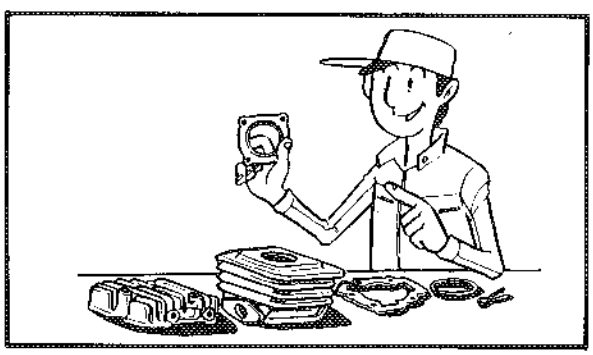
1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.

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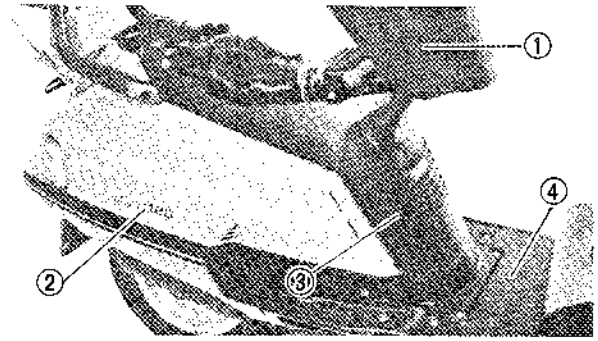
2. Use proper tools and cleaning equipment. Refer to "CHAPTER 1. SPECIAL TOOL".



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

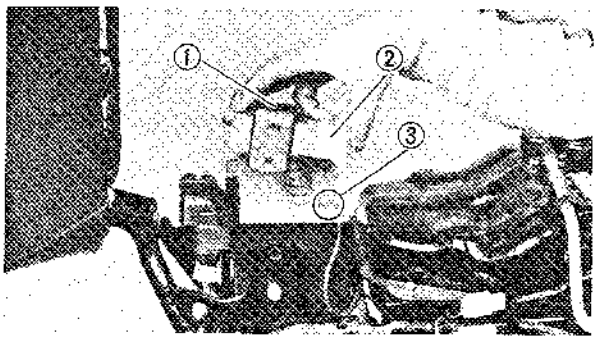


3. During the engine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled in the engine.



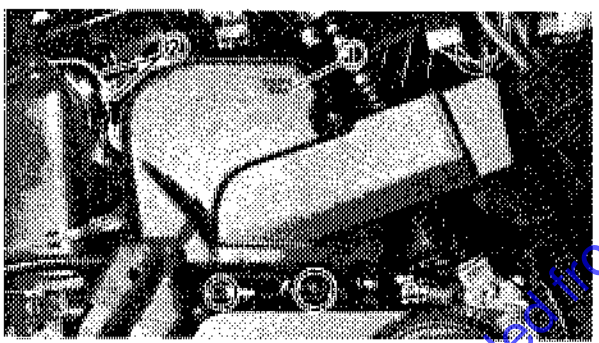
COVERS AND FOOTREST BOARD

1. Place the scooter on the centerstand.
2. Drain:
   - Engine oil
   - Final gear oil
3. Open the seat ①.
4. Remove:
   - Side covers ② (Right/Left)
   - Front cover ③
   - Footrest board ④



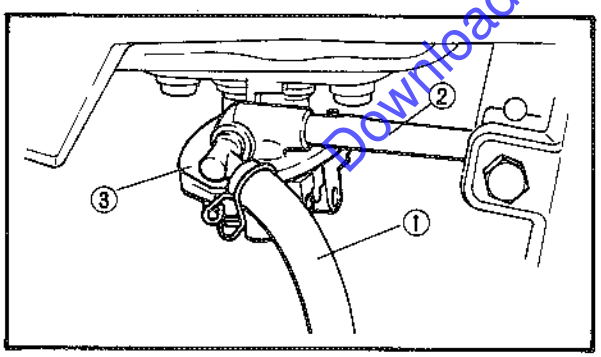
BATTERY LEAD

1. Remove:
   - Bridge plate ①
   - Cover ②
2. Disconnect:
   - Battery negative lead ③



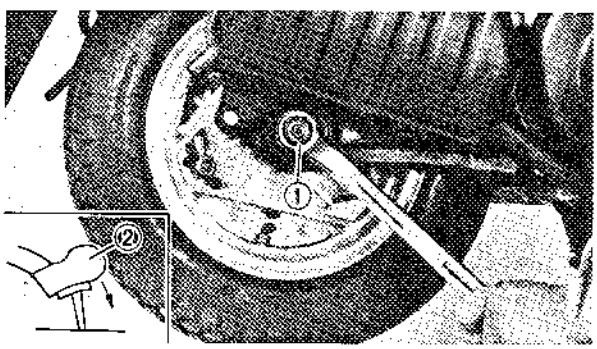
AIR FILTER ELEMENT CASE AND THROTTLE CABLE

1. Remove:
   - Air filter element case ①
   - Throttle cable ②



CARBURETOR HOSES

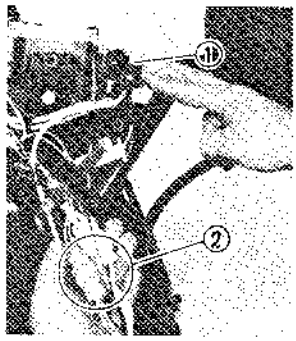
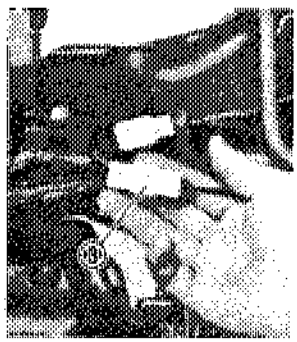
1. Remove
   - Fuel hose ①
   - Vacuum hose ②
   - Fuel cock ③



REAR WHEEL

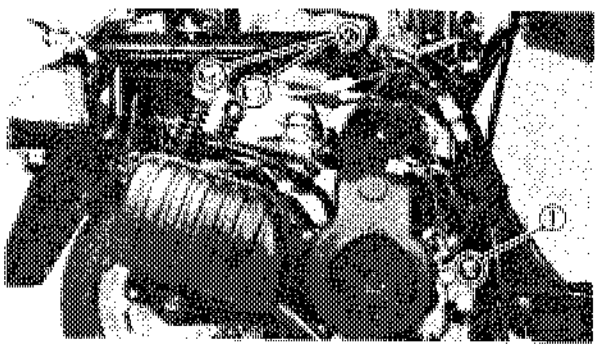
1. Remove:
   - Cotter pin
2. Loosen:
   - Axle nut ①
     (by applying the rear brake ②)
3. Remove:
   - Brake cable support
   - Brake cable

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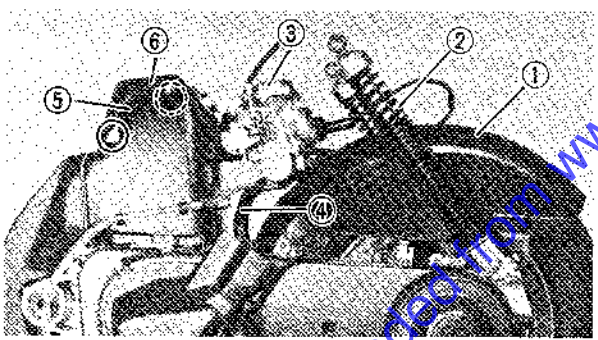
CONNECTORS

1. Disconnect:
   - Starter motor lead (Red) ①
     (from starter relay)
   - AC magneto leads ②
   - Starter choke unit lead ③
   - Spark plug cap



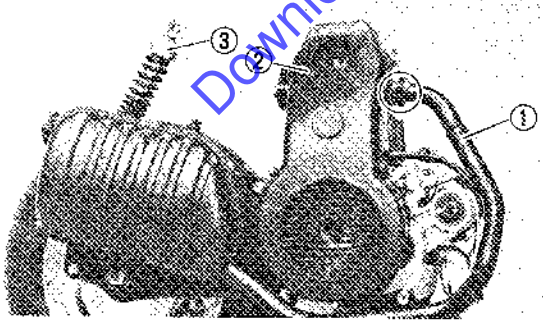
ENGINE

1. Remove:
   - Mounting bolt ①
   - Rear shock absorber pivot bolts (Upper) ②
   - Frame
     (from the engine assembly)
2. Place the frame on a suitable stand.

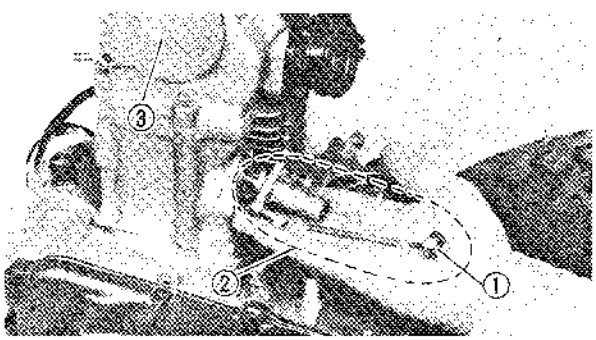


COMPONENTS

1. Remove:
   - Rear fender ①
   - Shock absorber (Left) ②
   - Carburetor ③
   - Ventilation hose ④
   - Air shroud 1 ⑤
   - Air shroud 2 ⑥



2. Remove:
   - Muffler ①
   - Air shroud 3 ②
   - Shock absorber (Right) ③
3. Loosen:
   - Spark plug

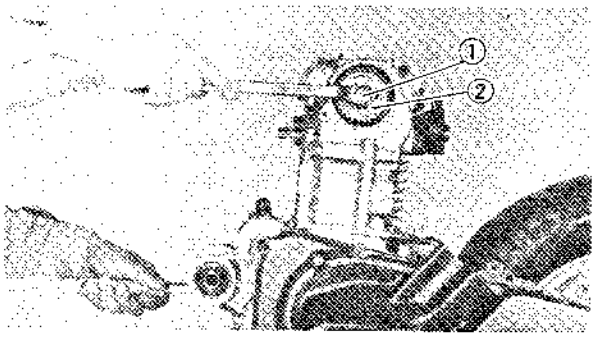


ENGINE DISASSEMBLY

CAM CHAIN TENSIONER AND CYLINDER HEAD

1. Loosen:
   - Bolt (Cam chain tensioner) ①
2. Remove:
   - Cam chain tensioner assembly ②
   - Cam sprocket cover ③

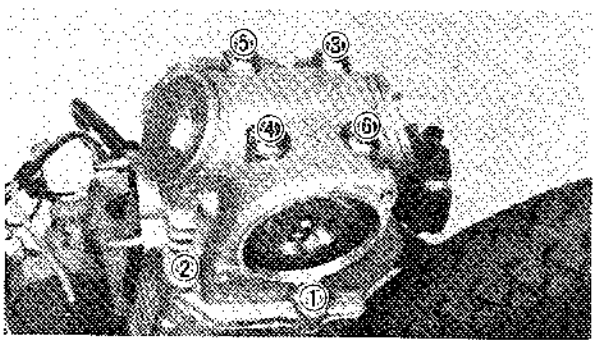
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3. Remove:
   - Bolt (Cam sprocket) ①

NOTE:
Hold the flywheel securing nut to remove the sprocket bolt.

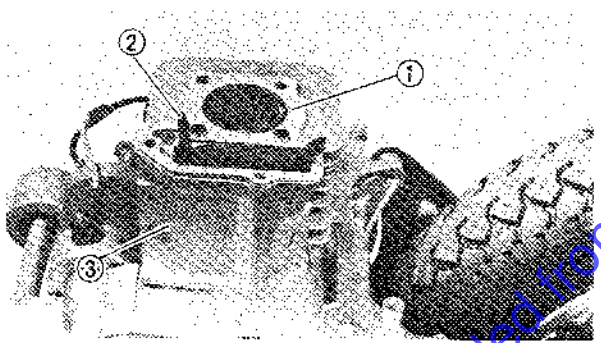
   - Cam chain sprocket ②



4. Remove:
   - Bolts (Cylinder head)

NOTE:
Follow numerical number shown in photo. Start by loosening each nut 1/2 turn until all are loose.

   - Cyinder head



CYLINDER AND PISTON

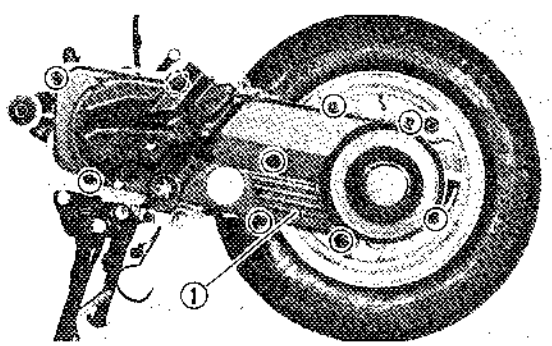
1. Remove:
   - Cylinder head gasket ①
   - Cam chain guide (Front) ②
   - Cylinder ③



2. Remove:
   - Piston pin clips 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.

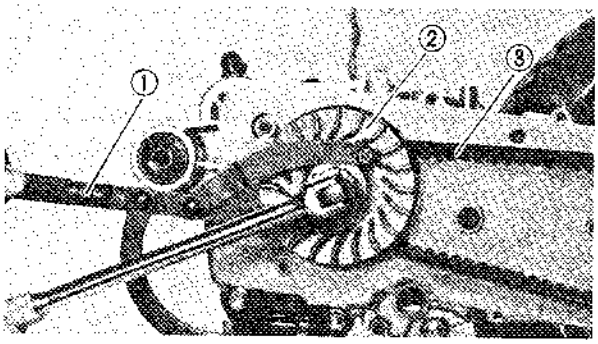
   - Piston pin ②
   - Piston ③



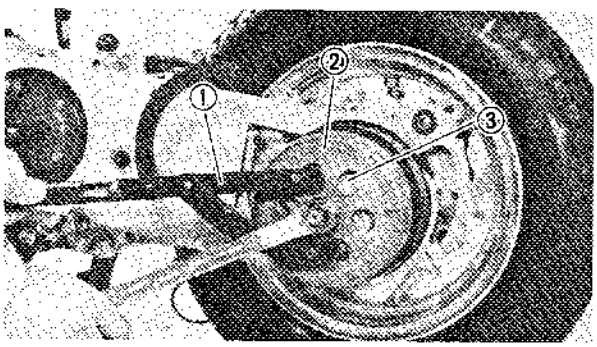
PRIMARY AND SECONDARY SHEAVE

1. Remove:
   - Screws (Crankcase cover)
   - Crankcase cover 1 ①

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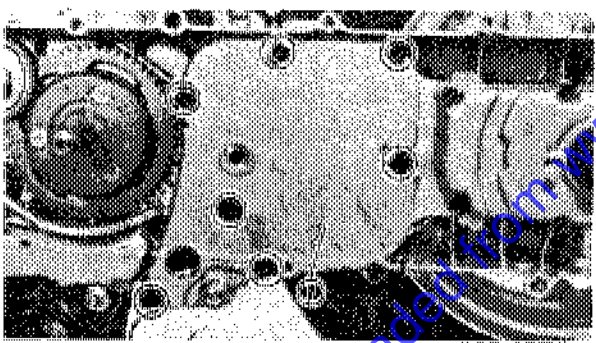


2. Remove:
   - Nut (Primary sheave)
     Use the Rotor Holder (YU-01235) ① .
   - Washer
   - Primary fixed sheave ②
   - V-belt ③
   - Collar
   - Primary sheave assembly



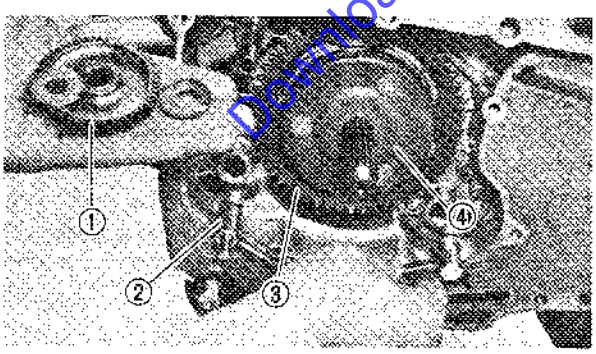
3. Remove:
   - Nut (Secondary sheave)
     Use the Rotor Holder (YU-01235) ① .
   - Clutch housing ②
   - Secondary sheave assembly ③

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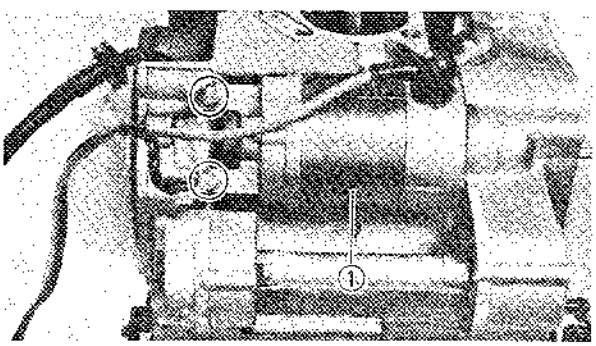


STARTER SYSTEM

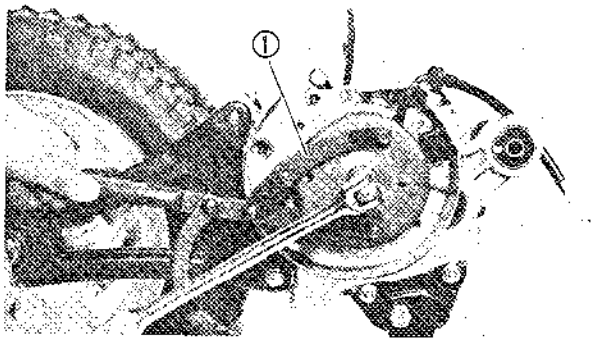
1. Remove:
   - Crankcase cover ①



2. Remove:
   - Starter idle gear ①
   - Oil gallery pipe ②
     (pull out)
   - Starter driven gear ③
     (together with starter clutch ④)

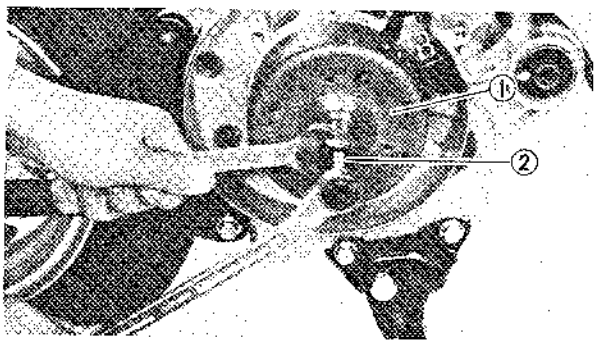


3. Remove:
   - Starter motor assembly ①

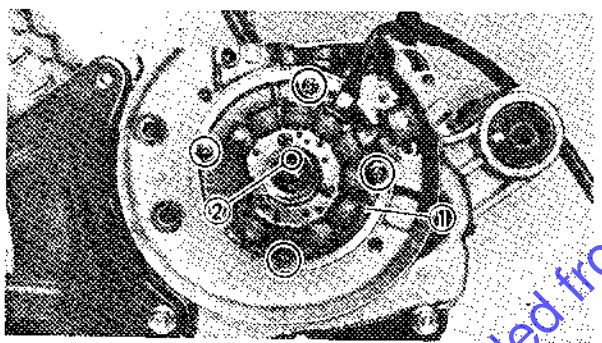


CDI MAGNETO

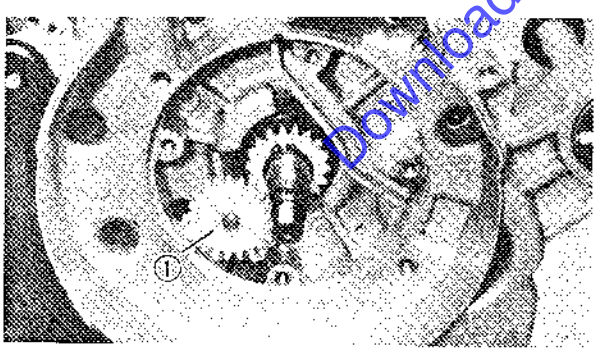
1. Remove:
   - Cooling fan
   - Nut (Magneto)
     Use the Rotor Holder (YU-01235) ① .
   - Spring washer
   - Washer



2 Remove:
- Magneto rotor ①
  Use the Flywheel Magneto Puller (YM-01189) ② .

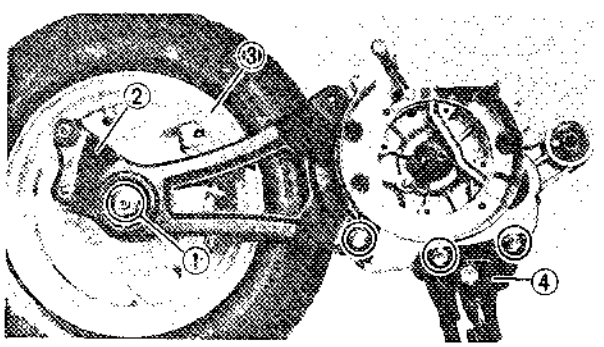


3. Remove:
   - Generator assembly ①
   - Woodruff key ②



OIL PUMP

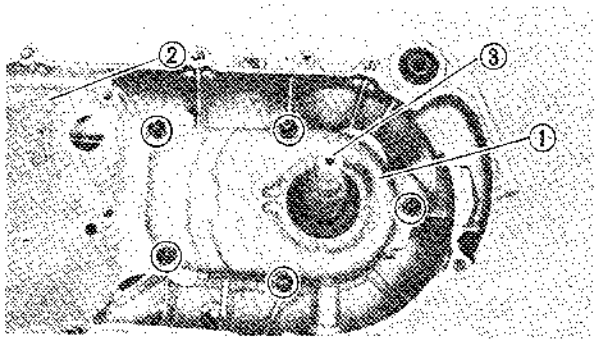
1. Remove:
   - Oil pump idler gear ①



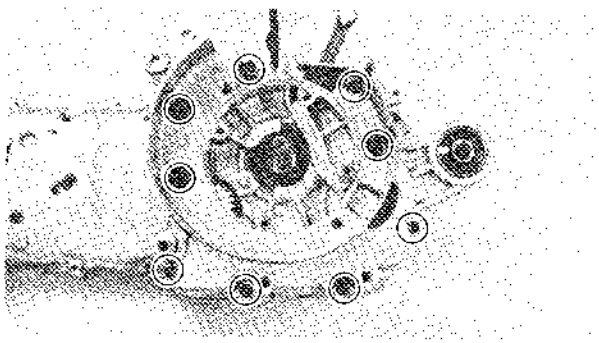
TRANSMISSION

1. Remove:
   - Nut (Rear wheel axle) ①
   - Rear arm ②
   - Rear wheel ③
   - Main stand assembly ④

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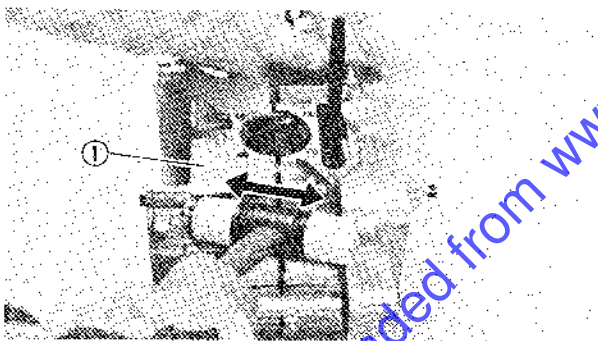


2. Remove:
   - Transmission cover ①
   - Gasket ②
   - Main axle
   - Drive axle ③



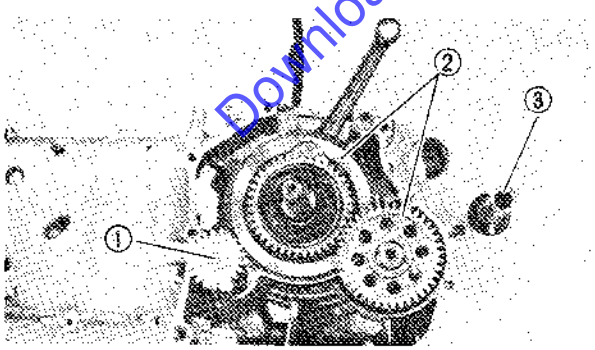
CRANKCASE AND CRANKSHAFT

1. Remove:
   - Bolts (Crankcase)

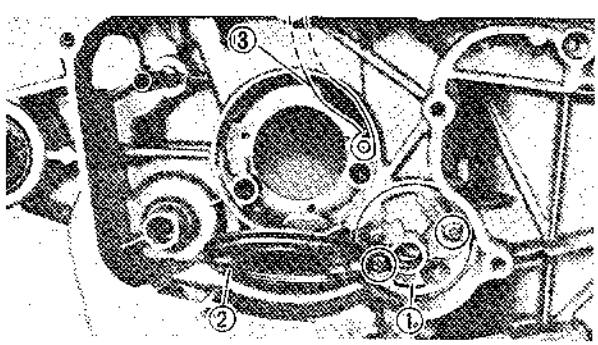


2. Remove:
   - Crankcase (Right) ①

   Use a soft hammer.

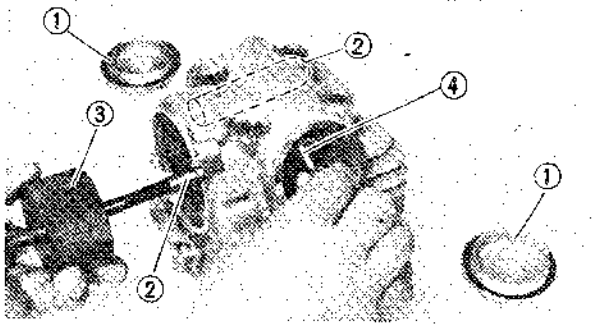


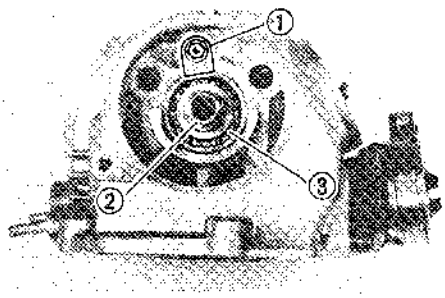
3. Remove:
   - Oil pump driven gear shaft assembly ①
   - Crank shaft/Balancer ②
   - Engine mount spacer ③
   - Cam chain

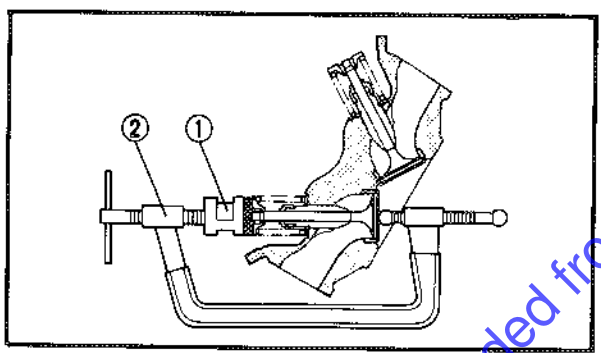


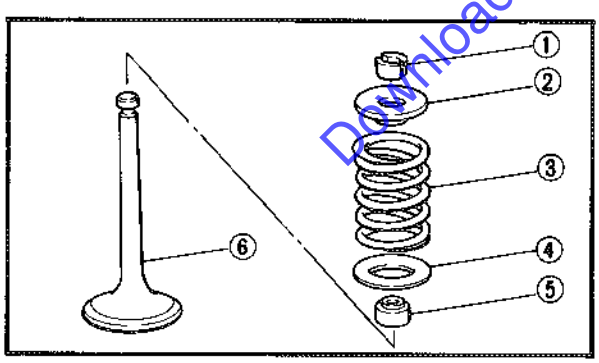
4. Remove:
   - Oil pump assembly ①
   - Cam chain case cover ②
   - Cam chain guide (Rear) ③

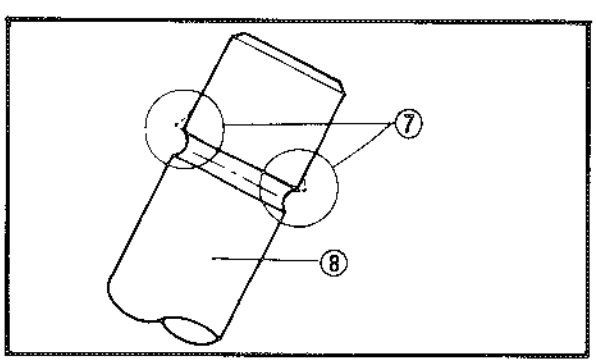
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INSPECTION AND REPAIR

CYLINDER HEAD

1. Remove:
   - Valve covers (Intake/Exhaust) ①
   - Rocker arm shafts (Intake/Exhaust) ②
     Use the Slide Hammer Set (YU-01083) ③.
   - Rocker arms (Intake/Exhaust) ④

2. Remove:
   - Stopper plate ①
   - Camshaft ② and camshaft bearing ③
     Use the Slide Hammer Set (YU-01083).

3. Attach:
   - Adapter (YM-4108) ①
   - Valve Spring Compressor (YM-04019) ②

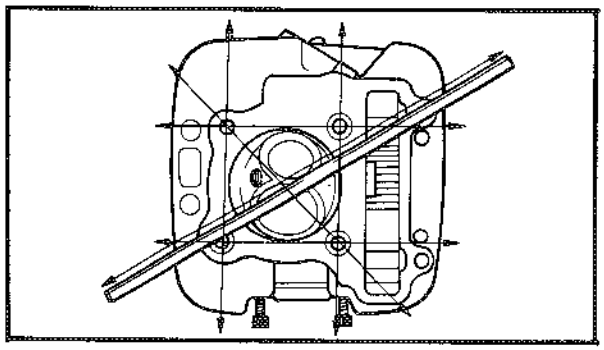
4. Remove:
   - Valve retainers ①
     Use Magneto or Tweezers.
   - Valve spring seat (Upper) ②
   - Valve spring ③
   - Valve spring seat (Lower) ④
   - Oil seal ⑤
   - Valve ⑥

NOTE:
Deburr ⑦ any deformed valve stem ⑧ end. Use an oil stone to smooth the stem end.

5. Eliminate:
   - Carbon deposit
     Use rouded scraper.

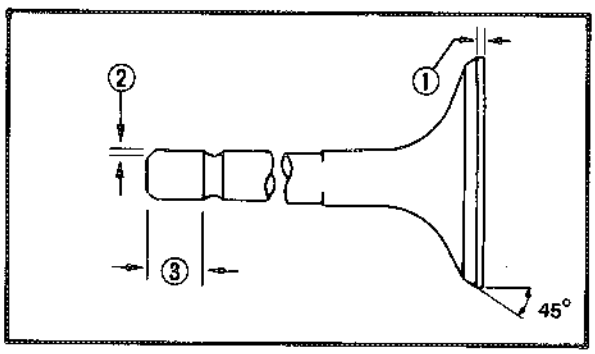
NOTE:
Do not a sharp instrument and avoid damaging or scratching:
- Spark plug threads
- Valve seat
- Cylinder head

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6. Measure:
   - Cylinder head warpage
     Out of specification → Resurface/Replace.

Cylinder Head Warp Limit:
Less than 0.05 mm (0.002 in)

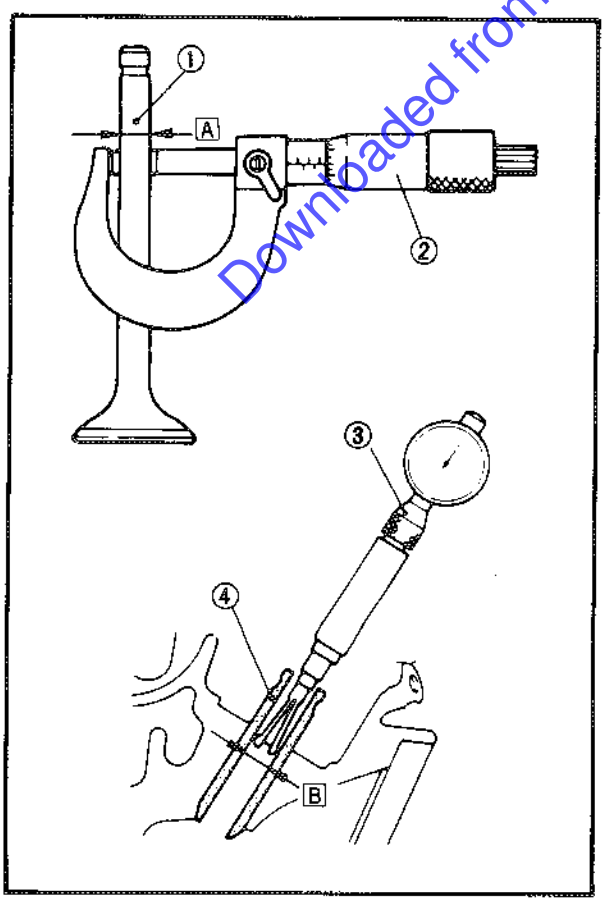


VALVE, VALVE GUIDE, AND VALVE SEAT

Intake and Exhaust Valve

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

Margin Thickness (Service limit) ①:
Intake 0.3 mm (0.012 in)
Exhaust 0.7 mm (0.027 in)
Beveled ②: 0.25 mm (0.010 in)
Minimum Length (Service limit) ③:
4.5 mm (0.177 in)



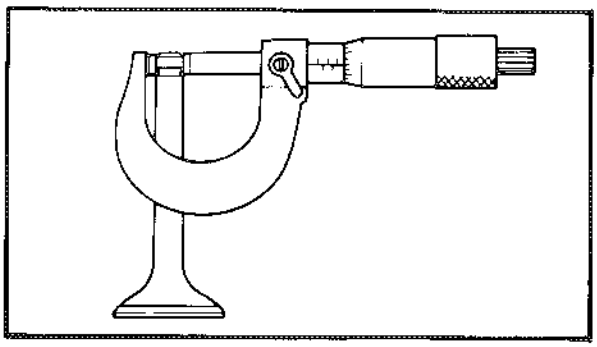
2. Measure:
   - Valve stem clearance (Cold)
     Use Micrometer ② and Bore Gauge ③.
     Out of specification → Replace either valve and/or guide.

Valve Stem Clearance = B − A

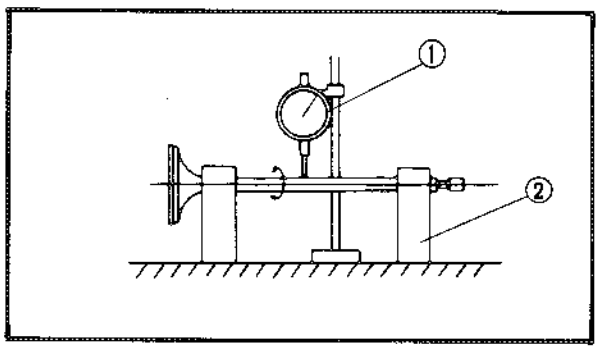
	Valve Stem. Clearance	Maximum
Intake	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.08 mm (0.0031 in)
Exhaust	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)	0.10 mm (0.0039 in)

① Valve
④ Valve guide
A VALVE STEM OUTSIDE DIAMETER
B VALVE GUIDE INSIDE DIAMETER

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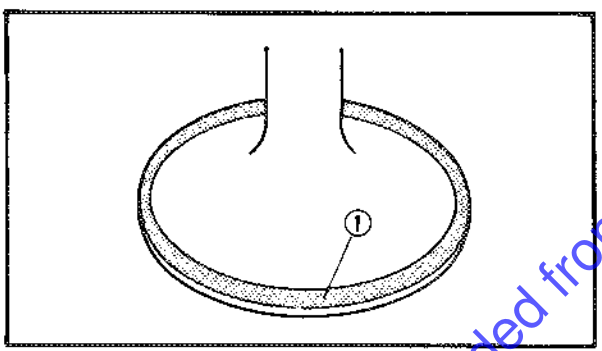
3. Inspect:
   - Valve stem end
     Mushroom shape/Larger diameter than rest of stem → Replace valve, valve guide, and oil seal.



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

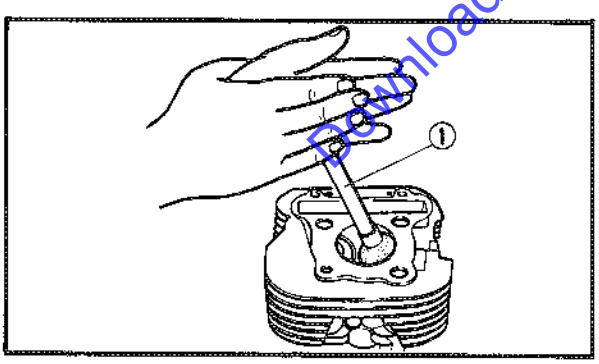
Maximum Runout:
0.02 mm (0.0008 in)

① Dial gauge
② V-block

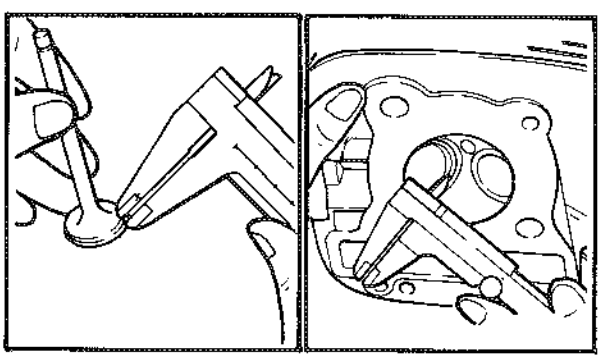


Valve Seat

1. Remove:
   - Carbon
     (from valve seat and valve face)
2. Apply:
   - Mechanics bluing dye (Dykem) ①
     (to valve face)

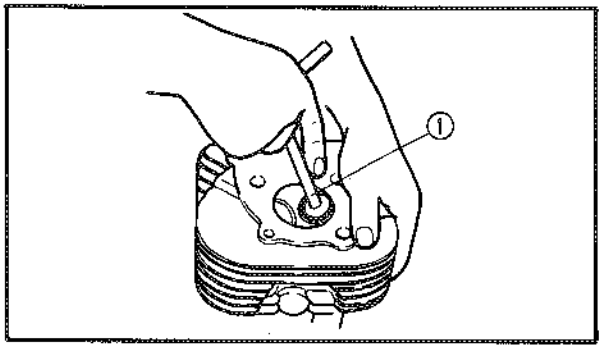


3. Insert:
   - Valves
     (to cylinder head)
     Lap the valve to the seat by rotating the lapping stick ① in both directions.
4. Remove:
   - Valves
5. Measure:
   - Valve face/Valve seat contact surface.
     Wherever valve seat and valve face made contact, bluing will have been removed.
     Out of specification/Pitting/Variation of valve seat width → Cut valve seat further.



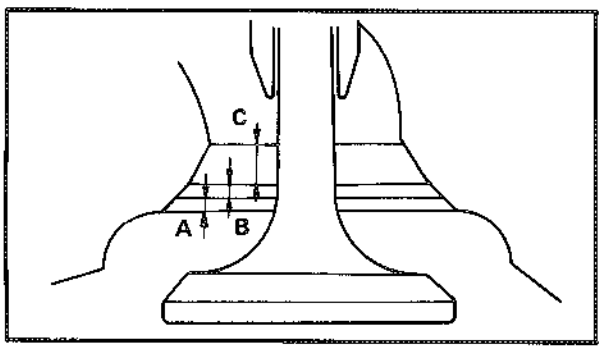
Seat Width:
Standard: 0.9 ~ 1.1 mm
(0.035 ~ 0.043 in)
Wear Limit: 1.6 mm (0.063 in)

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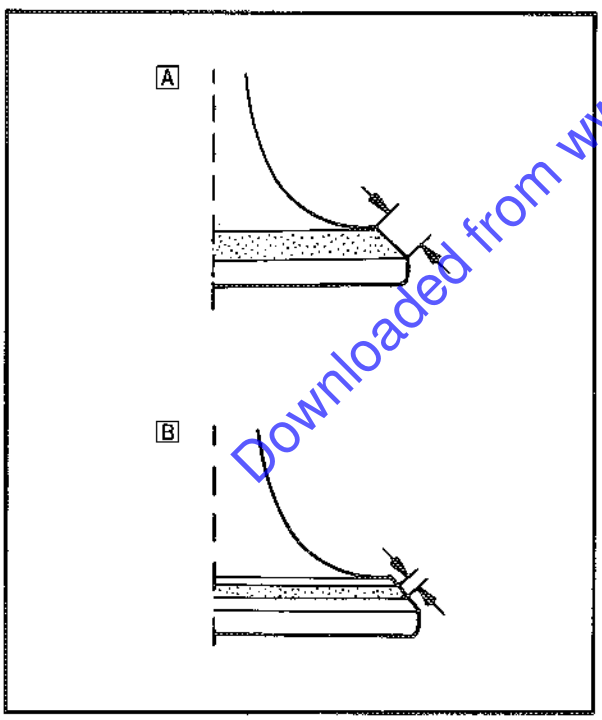


6. Resurface:
   - Valve seats
     Use a 30°, 45° and 60° Valve Seat Cutter (YM-91043) ① .

CAUTION:
When twisting cutter, keep an even down ward pressure (4 ~ 5 kg) to prevent chatter marks.



Cut sections as follows	
Section	Cutter
A	30°
B	45°
C	60°



Valve seat recutting steps:

- 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	30° cutter	To centar the seat or to reduce its width
	45° cutter	
	60° cutter	

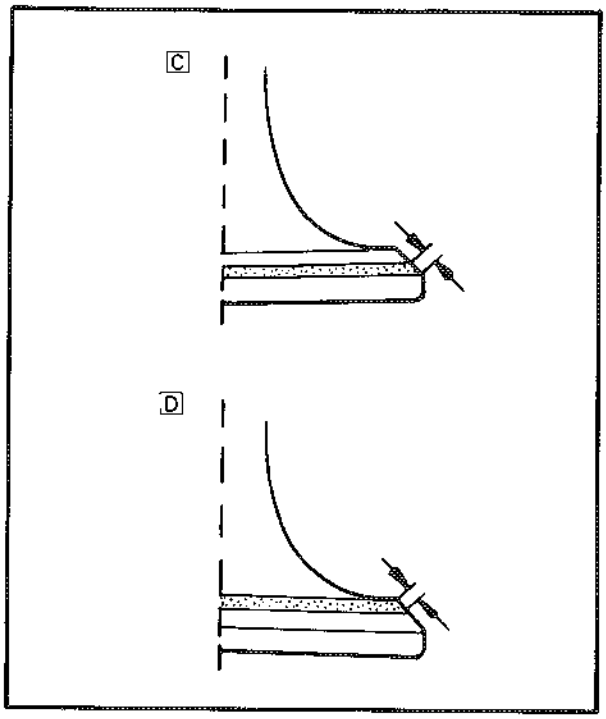
- Valve face indicates that valve seat is centered on valve face but is too wide (see "A" diagram).

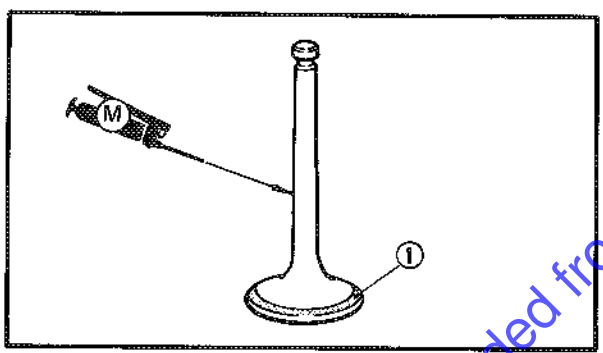
Valve Seat Cutter Set		Desired result
Use lightly	30° cutter	To reduce valve seat width to 1.0 mm (0.039 in)
	60° cutter	

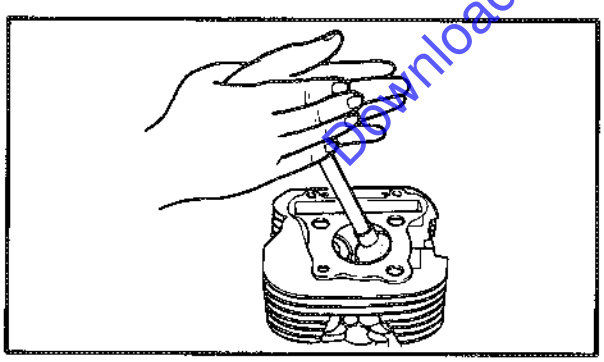
- Valve seat is in the middle of the valve face but too narrow (See "B" diagram).

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

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

Valve Seat Cutter Set		Desired Result
Use	30° cutter, first	To center the seat and to achieve its width of 1.0 mm (0.039 in)
	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 achieve its width of 1.0 mm (0.039 in)
	45° cutter	

Valve/Valve Seat Assembly Lapping

1. Apply:
   - Coarse lapping compound ① (Small amount)
     (to valve face)
   - Molybdenum disulfide oil
     (to valve stem)

CAUTION:

Be sure no compound enters into the gap between the valve stem and guide.

2. Insert:
   - Valves
     (to cylinder head)
3. Rotate:
   - Valve
     Turn until valve and valve seat are evenly polished, then clean off all compound.

NOTE:

To obtain the best lapping results, lightly tap the valve seat while rotating the valve back and forth between your hands.

4. Apply:
   - Fine lapping compound (Small amount)
     (to valve face)

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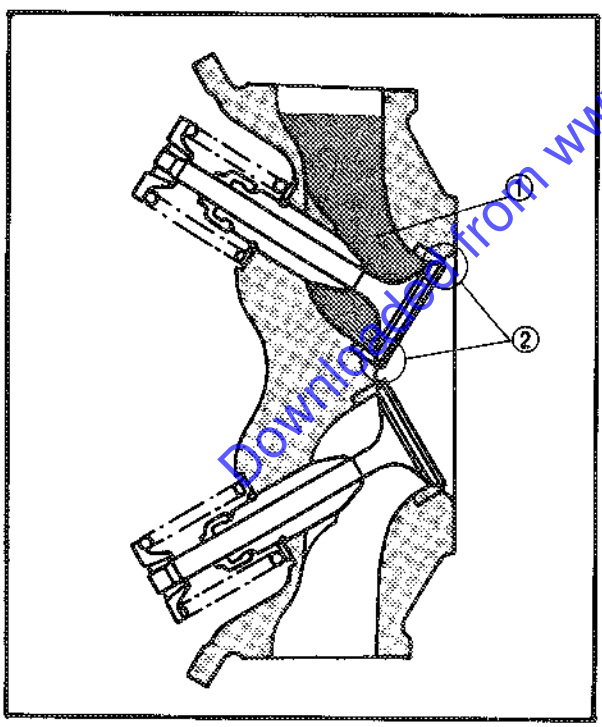
5. Repeat steps 2 and 3.

NOTE:
Be sure to clean off all compound from valve face and valve seat 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. Lap:
   - Valve
9. Inspect:
   - Valve face
     Valve must make full seat contact indicated by gray surface all around. The valve face where bluing was removed.
     Faulty contact → Replace.
     (See procedure below)
10. Clean:
    - Intake/Exhaust port and valve assembly
      (spray solvent with compressed air)

NOTE:
After the lapping has been completed and the valve assemblies have been reinstalled the valve seal should be tested.
Pour solvent ① into intake and exhaust ports. There should be no leakage past the seat ② .

11. Check:
    - Valve seal
      Leakage past valve seat → Relap.
      (See procedure below)



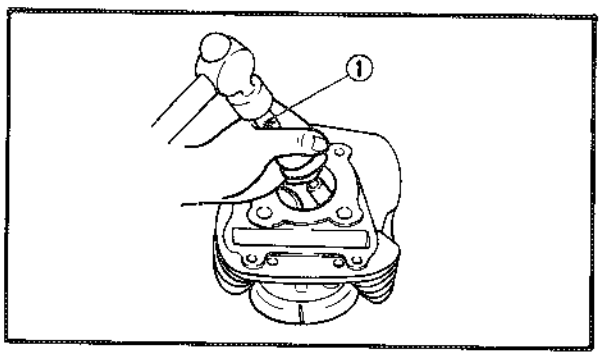
Relapping steps:
- Disassemble head parts.
- Repeat lapping steps using fine lapping compound.
- Clean all parts thoroughly.
- Reassemble and check for leakage again using solvent.
- Repeat steps as often as necessary to achieve a satisfactory seal.

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Valve Guide

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

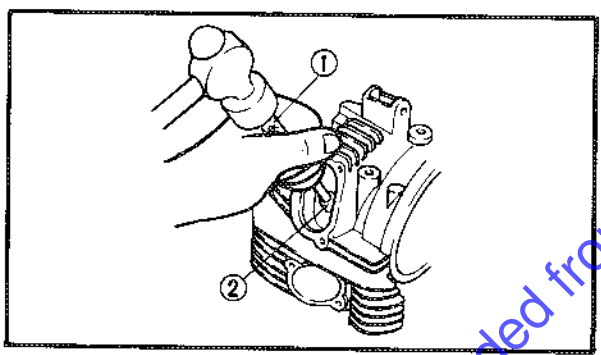
1. Inspect:
   - Valve guides
     Wear/Oil leakage into cylinder → Replace.



Valve Guide Removal

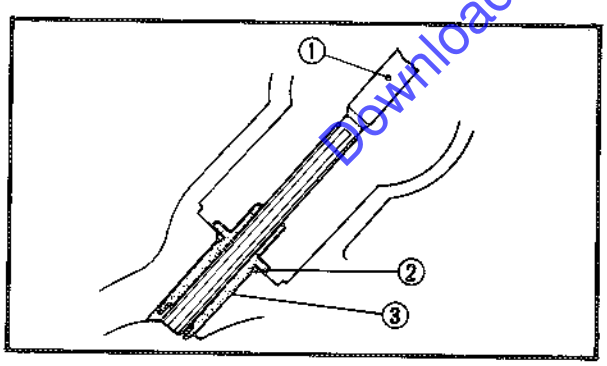
NOTE:
Heat the head in an oven to 100°C (212°F) to ease guide removal and installation and to maintain correct interference fit.

1. Remove:
   - Valve guide
     Use the Valve Guide Remover (YM-04097) ①.



Valve Guide Installation

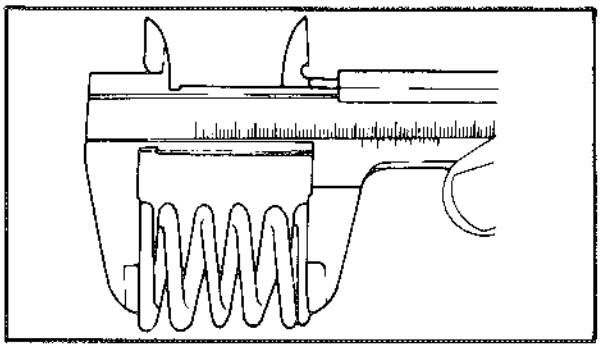
1. Install:
   - O-ring (New)
   - Valve guide (Oversize)
     Use the Valve Guide Remover (YM-04097) ① with Valve Guide Installer (YM-04098) ②.



NOTE:
After installing valve guide:
- Use 5 mm Valve Guide Reamer (90890-04099) ① to obtain proper valve guide ③ /valve stem clearance.
- Valve guide reamer must be turned clockwise when inserting or drawing.

② O-ring

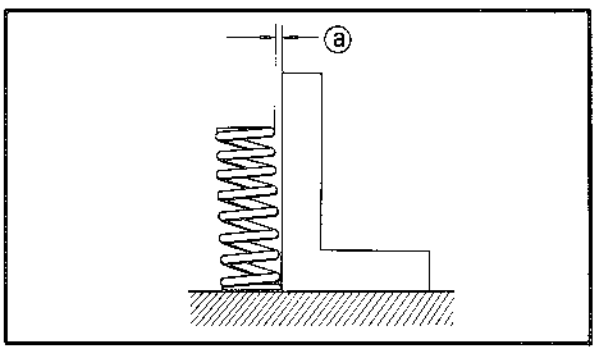
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Valve Spring

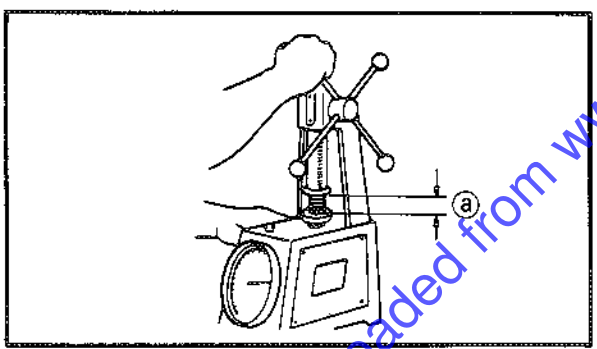
1. Measure:
   - Spring free length
     Out of specification → Replace.

Valve Spring Free Length (IN/EX):
Standard: 28.63 mm (1.127 in)
Limit: 25.40 mm (1.000 in)



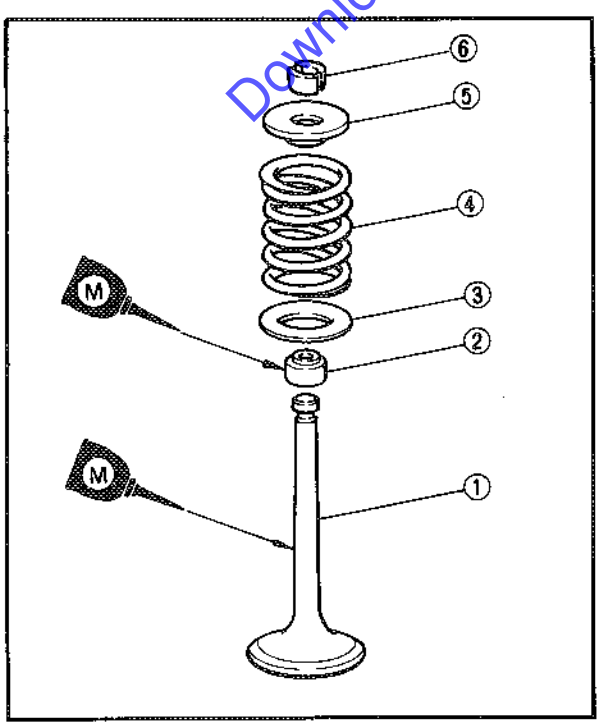
2. Measure:
   - Spring tilt ⓐ
     Out of specification → Replace.

Tilt Limit:
2.5° or 1.2 mm (0.047 in)



3. Measure:
   - Spring force (Installed length)
     Out of specification → Replace.

Valve Compressed Force:
9.8 kg (21.5 lb)/
ⓐ= 24.9 mm (0.98 in)



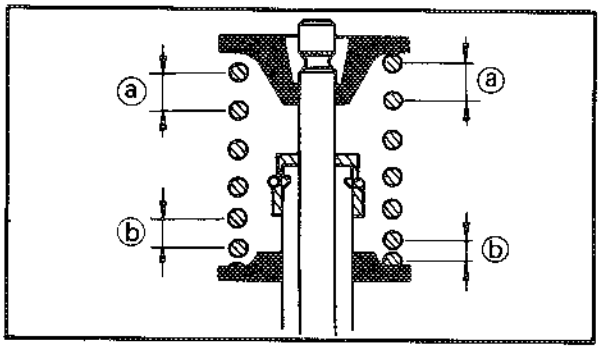
Valve Installation

1. Lubricate:
   - Valve stem
   - Oil seal

High-Quality Molybdenum Disulfide Motor Oil or Molybdenum Disulfide Grease.

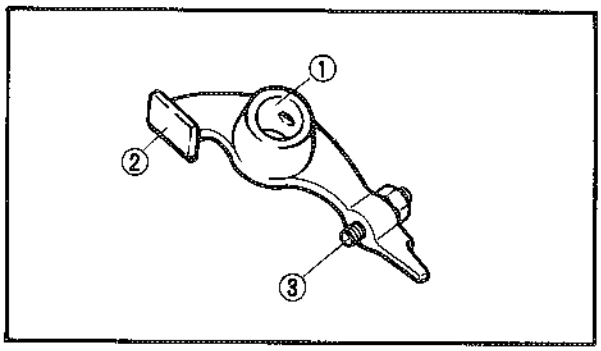
2. Install:
   - Valve ①
   - Oil seal ②
   - Valve spring seat (Lower) ③
   - Valve spring ④
   - Valve spring seat (Upper) ⑤
   - Valve retainers ⑥

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

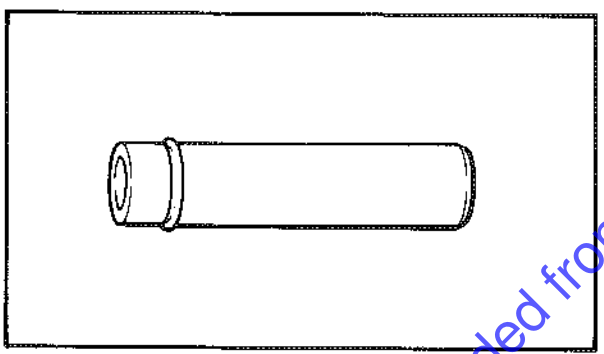
ⓐ LARGER PITCH
ⓑ SMALLER PITCH



ROCKER ARM AND ROCKER ARM SHAFTS

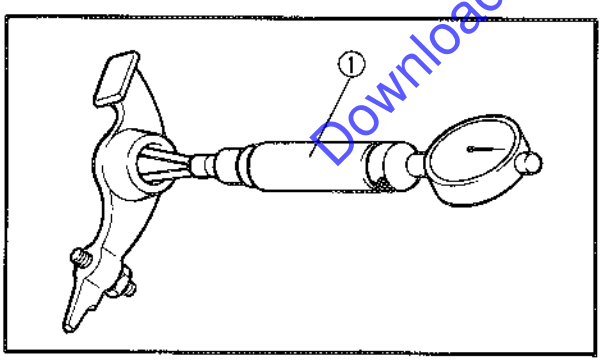
1. Inspect:
   - Rocker arm shaft hole ①
   - Cam lobe contact surface ②
   - Adjuster surface ③

   Wear/Pitting/Scratches/Blue discoloration → Replace.



2. Inspect:
   - Rocker arm shaft

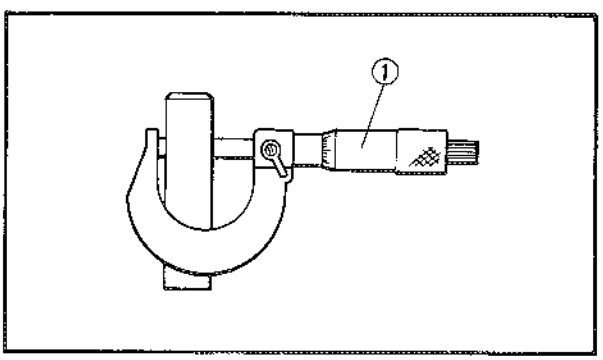
   Groove can be felt (bearing surface)/Blue discoloration (rocker arm shaft) → Replace then inspect lubrication system.



3. Measure:
   - Rocker arm inside diameter

   Use a Bore Gage ① .
   Out of specification → Replace.

Rocker Arm Inside Diameter:
10.00 ~ 10.015 mm
(0.3937 ~ 0.3943 in)

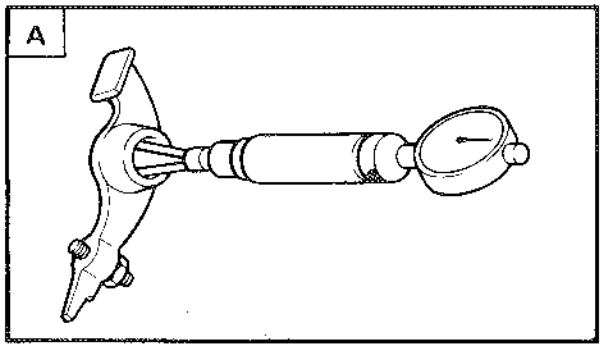


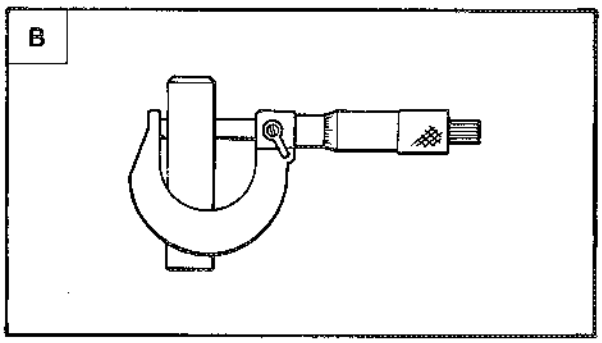
4. Measure:
   - Rocker arm shaft outside diameter

   Use a Micrometer ①
   Out of specification → Replace.

Rocker Arm Shaft Outside Diameter:
9.81 ~ 9.91 mm
(0.386 ~ 0.390 in)

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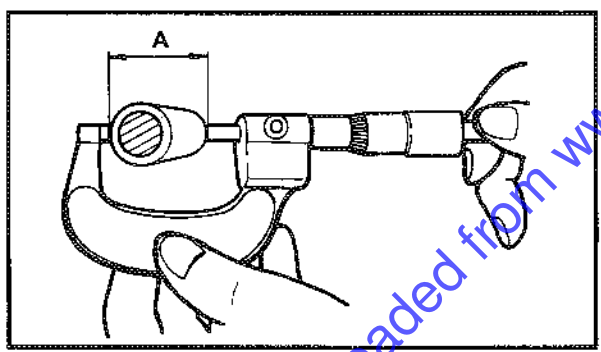


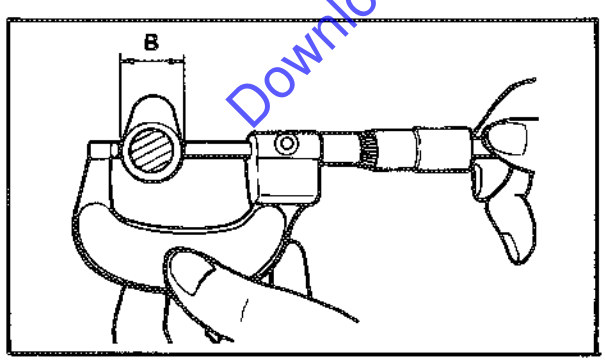
5. Measure:
   - Arm-to-shaft clearance

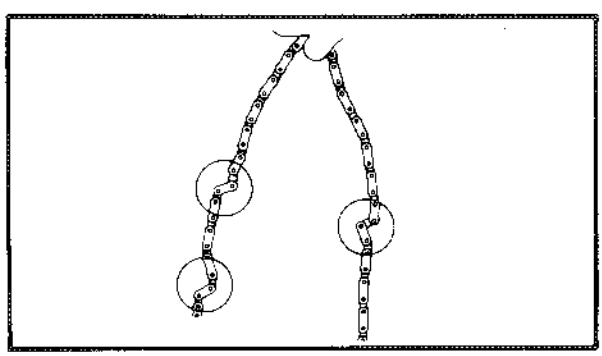
Arm-to-shaft Clearance = [B] − [A]

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

Arm-to-Shaft Clearance:
0.09 ~ 0.34 mm
(0.0035 ~ 0.0134 in)
Limit: 0.08 mm (0.0032 in)







CAMSHAFT

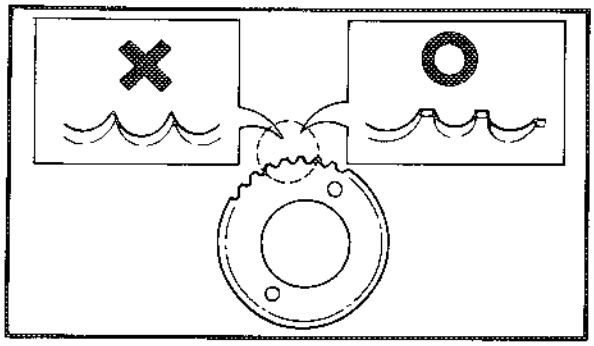
1. Inspect:
   - Cam lobes
     Pitting/Scratches/Blue discoloration → Replace.
2. Measure:
   - Cam lobes
     Use a Micrometer.
     Out of specification → Replace.

	Cam Lobe "A"	Cam Lobe "B"
Intake	26.169 ~ 26.269 mm (1.030 ~ 1.034 in)	21.061 ~ 21.161 mm (0.829 ~ 0.833 in)
Exhaust	26.169 ~ 26.269 mm (1.030 ~ 1.034 in)	21.061 ~ 21.161 mm (0.829 ~ 0.833 in)

CAM CHAIN

1. Inspect:
   - Cam chain
     Chain stretch/Cracks/Damaged → Replace.

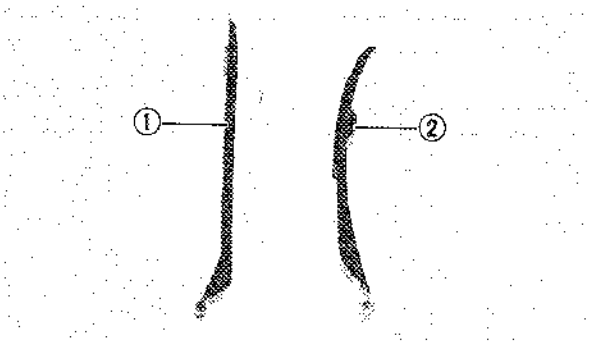
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Cam Sprocket

1. Inspect:
   - Cam sprocket teeth
   - Cam chain drive sprocket

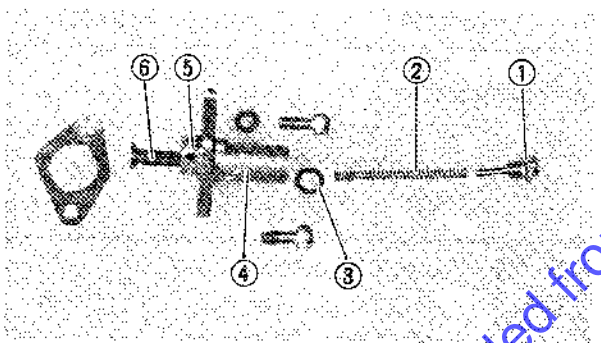
   Wear/Damage → Replace.



Cam Chain Guide

1. Inspect:
   - Front guide ①
   - Rear guide ②

   Wear → Replace.



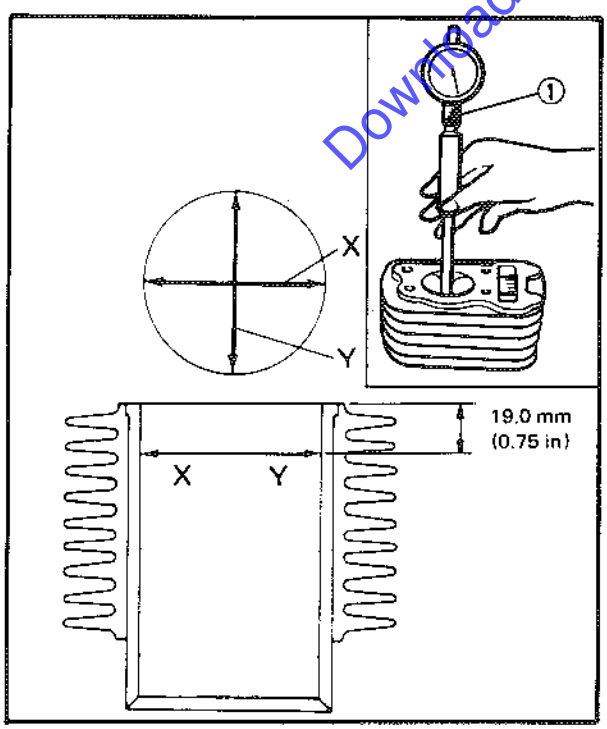
Cam Chain Tensioner

1. Check:
   - One-way cam ⑤ operation

   Unsmooth operation → Replace.
2. Inspect:
   - All parts

   Damage/Wear → Replace.

① End plug
② Spring
③ O-ring
④ Tensioner body
⑥ Tensioner rod



CYLINDER

1. Inspect:
   - Cylinder wall

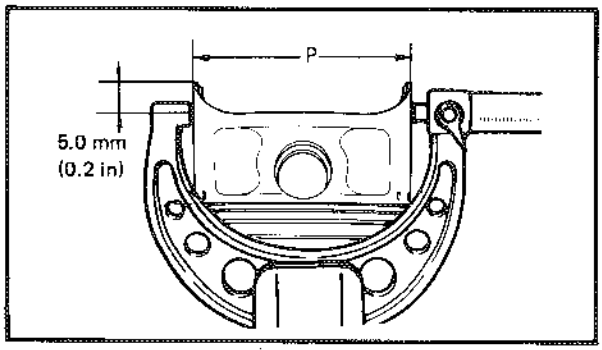
   Wear/Scratches → Rebore or replace.
2. Measure:
   - Cylinder bore "C"

   Use a Cylinder Bore Gauge ① .
   Measure the cylinder bore "C" horizontally and laterally at 19.0 mm (0.75 in) from the cylinder top.
   Then find the coverage of the measurements.
   Out of specificaiton → Rebore.

	Standard	Wear limit
Cylinder Bore "C"	49.00 ~ 49.01 mm (1.929 ~ 1.930 in)	49.1 mm (1.933 in)

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

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PISTON, PISTON RING, AND PISTON PIN

Piston

1. Inspect:
   - Piston wall
     Wear/Scratches/Damage → Replace.
2. Measure:
   - Piston outside diameter "P"
     Use a Micrometer.
     Out of specification → Replace.

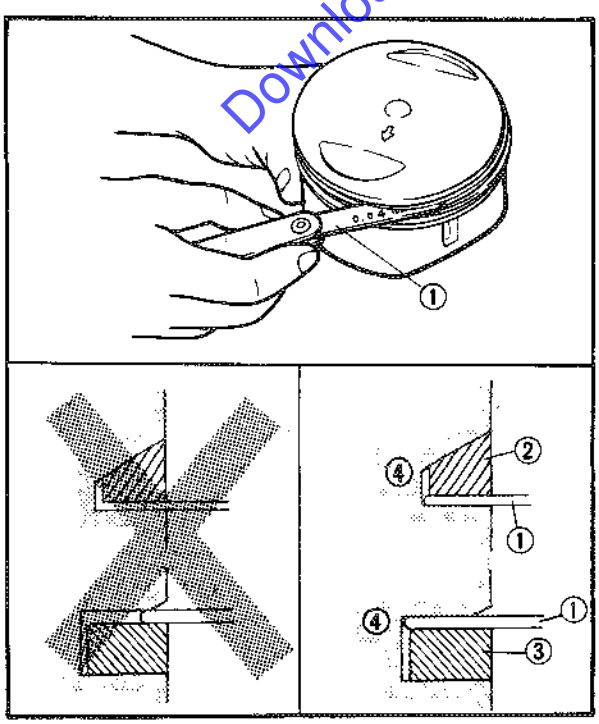
NOTE:
Measurement should be made at a point 5.0 mm (0.2 in) above the bottom edge of the piston.

Piston Outside Diameter "P"	
Standard	48.945 ~ 48.985 mm (1.927 ~ 1.929 in)
Oversize 2	49.50 mm (1.949 in)
Oversize 4	50.00 mm (1.969 in)

3. Measure:
   - Piston clearance
     Out of specification → Rebore cylinder or replace piston.

Piston Clearance = C — P:
0.020 ~ 0.040 mm (0.0008 ~ 0.0016 in)

C: Cylinder bore P: Piston outside diameter



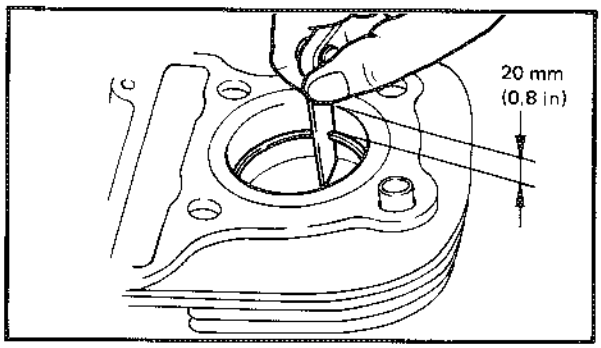
Piston Ring

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

Side Clearance		
	Top	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
	2nd	0.02 ~ 0.06 mm (0.0008~0.0024 in)
Limit: 0.12 mm (0.0047 in)		

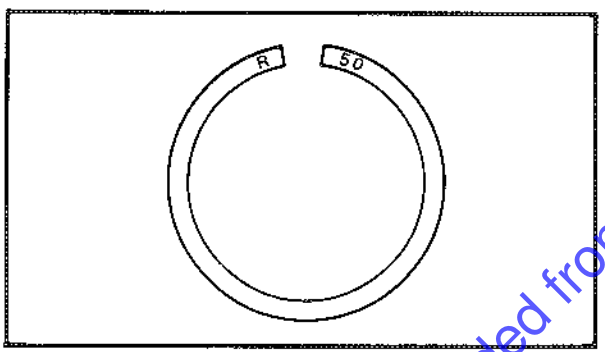
② Piston ring (taper)
③ Piston ring (barrel)
④ Piston

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

	Standard	Limit
Top Ring	0.15 ~ 0.30 mm (0.006 ~ 0.012 in)	0.40 mm (0.16 in)
2nd Ring	0.15 ~ 0.30 mm (0.006 ~ 0.012 in)	0.40 mm (0.16 in)
Oil Control (Rails)	0.30 ~ 0.90 mm (0.012 ~ 0.035 in)	0.40 mm (0.16 in)

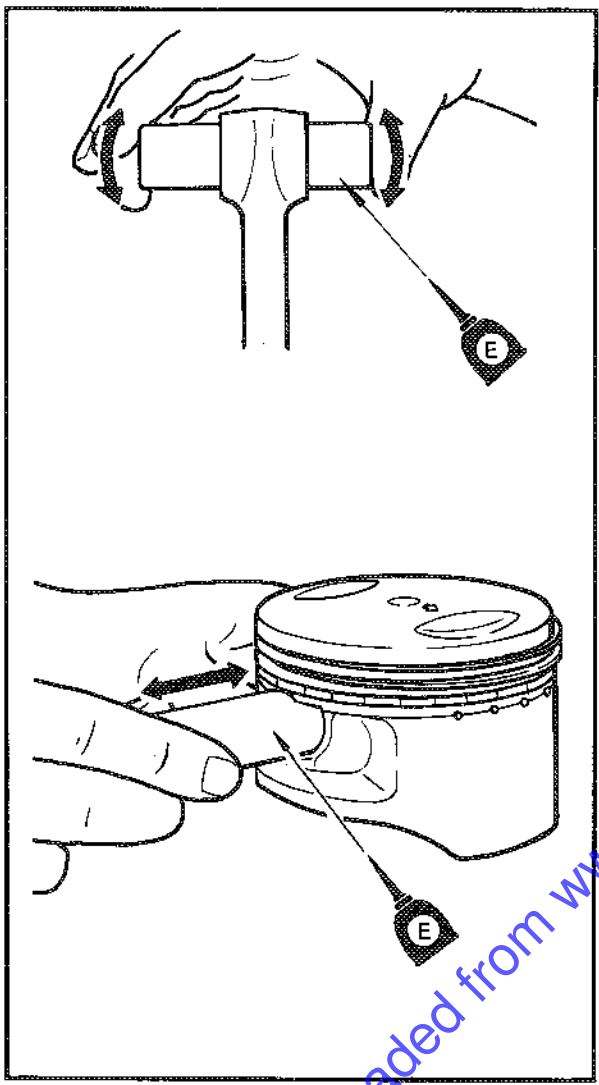


Oversize Piston Rings

- The oversize top and middle ring sizes are stamped on top of the ring.

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

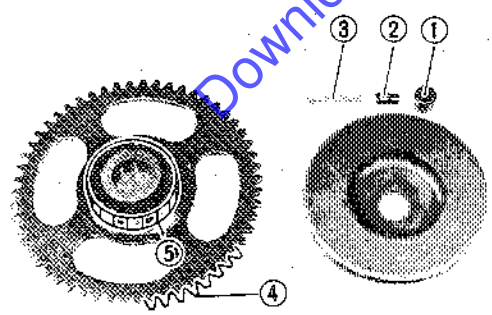
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Piston Pin

1. Lubricate:
   - Piston pin (Lightly)
2. Install:
   - Piston pin
     (into small end of connecting rod)
3. Check:
   - Free play
     Free play → Inspect connecting rod for wear.
     Wear → Inspect connecting rod and piston pin.
4. Position:
   - Piston pin
     (into piston)
5. Check:
   - Free play
     When pin is in place in piston.
     Free play → Replace piston pin and/or piston.

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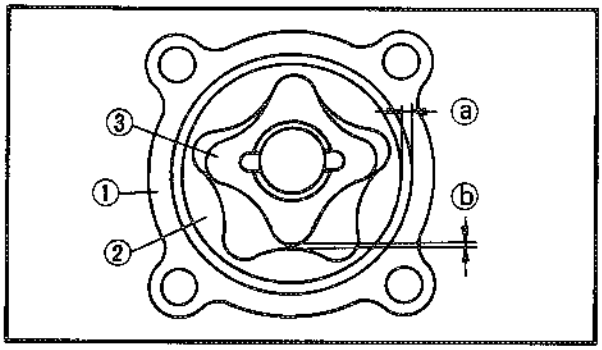
STARTER DRIVES

Electric Starter Clutch

1. Check:
   - Roller ① operation
   - Spring cap ② operation
   - Spring ③ operation
     Unsmooth operation → Replace one-way clutch.
2. Apply:
   - Molybdenum disulfide oil
     (with the hole in which the spring is installed)

Starter Gear

1. Inspect:
   - Idle gear teeth ④
   - Contacting surfaces with the clutch ⑤
     Pitting/Wear/Damage → Replace.



OIL PUMP

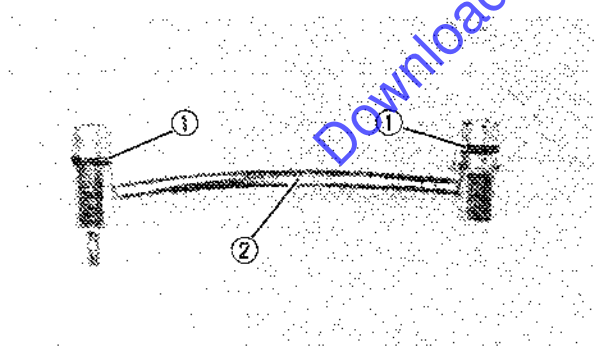
1. Measure:
   - Housing ① /Outer rotor ② clearance
     Use a Feeler Gauge.
     Out of specification → Replace oil pump assembly.

Side Clearance "A":
0.06 ~ 0.10 mm
(0.0024 ~ 0.0039 in)
Limit: 0.15 mm (0.006 in)

2. Measure:
   - Outer rotor ② /Inner rotor ③ clearance
     Use a Feeler Gauge.
     Out of specification → Replace oil pump assembly.

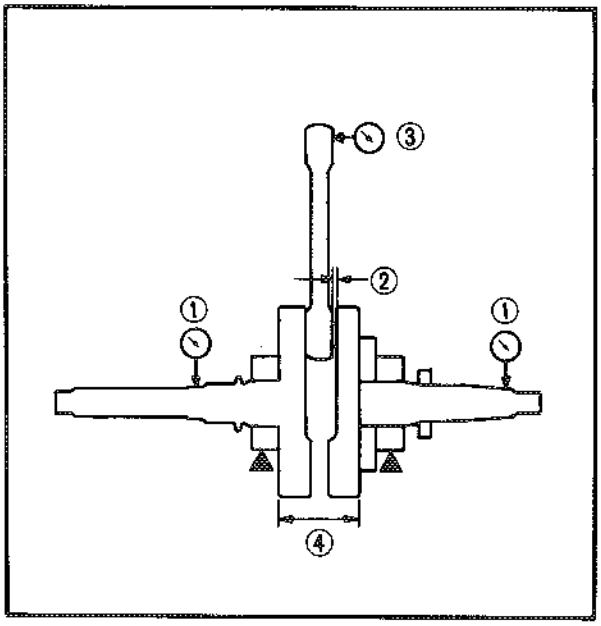
Tip Clearance "B":
0.15 mm (0.0059 in)
Limit: 0.2 mm (0.008 in)

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OIL GALLERY PIPE

1. Inspect:
   - O-rings ①
     Wear/Cracks/Damage → Replace.
   - Gallery pipe ②
     Cracks/Damage/Clog → Replace.



CRANKSHAFT AND CONNECTING ROD

Crankshaft Runout

1. Measure:
   - Crankshaft runout ①
     Use V-Blocks and Dial Gauge (YU-03097).
     Out of specification → Replace.

Runout Limit:
Left: 0.01 mm (0.0004 in)
Right: 0.03 mm (0.0012 in)

   - Big end side clearance ②
     Out of specification → Replace connecting rod.

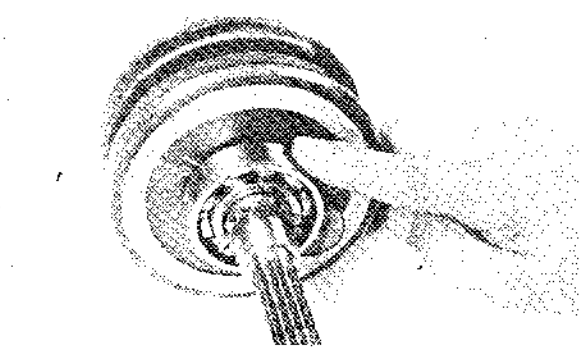
STD Big End Side Clearance:
0.05 ~ 0.45 mm
(0.0020 ~ 0.0177 in)
Limit: 0.5 mm (0.0197 in)

   - Small end free play ③
     Out of specification → Replace connecting rod.

Small End Free Play:
Standard: 0.8 ~ 1.0 mm
(0.031 ~ 0.039 in)
Limit: 1.5 mm (0.059 in)

   - Crank width ④
     Out of specification → Replace crankshaft.

Crank Width:
44.95 ~ 45.00 mm
(1.770 ~ 1.772 in)

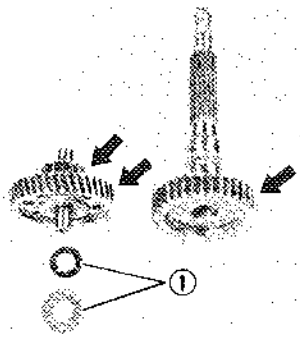


Crankshaft Bearings

1. Inspect:
   - Bearing races
     Pitting/Rust/Scoring → Replace.

NOTE:
- Clean and dry bearing before checking.
- Lubricate bearings immediately after examining them to prevent rust.

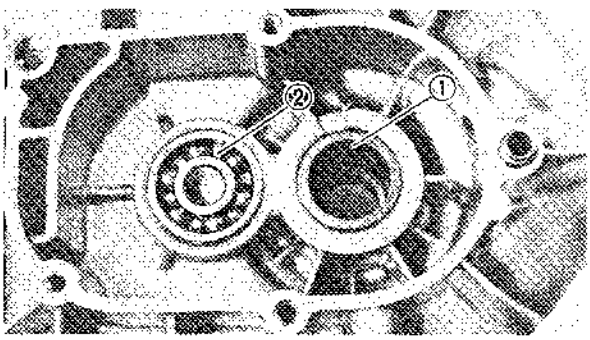
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TRANSMISSION

Gears

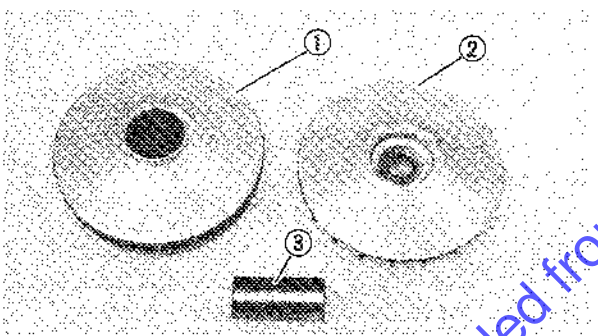
1. Inspect:
   - Gear teeth
     Pitting/Galling/Wear → Replace.
   - Washers ①
     Damage/Wear → Replace.



Bearings

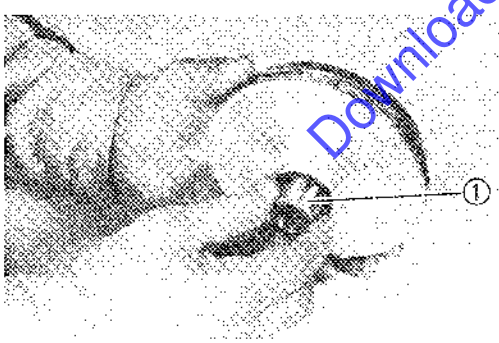
1. Inspect:
   - Drive axle bearing ①
   - Main axle bearing ②
     Pitting/Damage → Replace.

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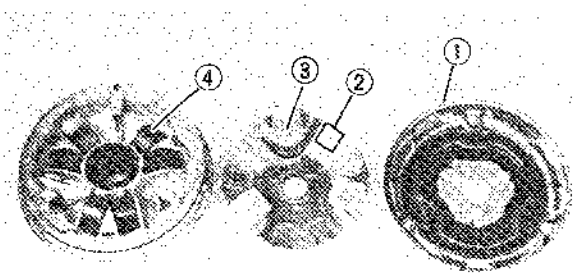


PRIMARY SHEAVE

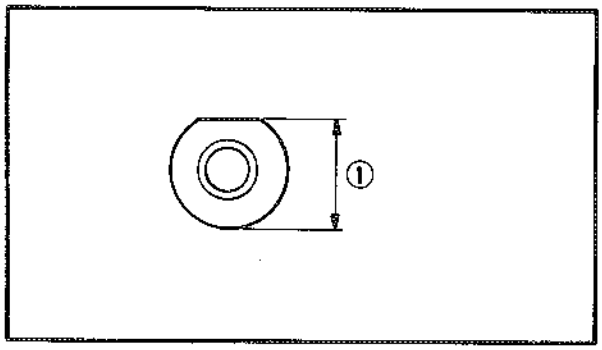
1. Inspect:
   - Primary sliding sheave ①
   - Primary fixed sheave ②
   - Collar ③
     Wear/Cracks/Scratches/Damage → Replace.



2. Position:
   - Collar ①
     (into primary sliding sheave)
3. Check:
   - Freely
     Free play → Replace.

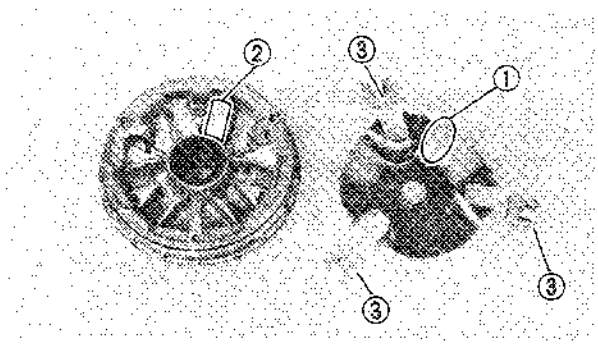


4. Remove:
   - Primary sheave cap ①
   - Cam ②
   - Slider bushings ③
   - Weights ④



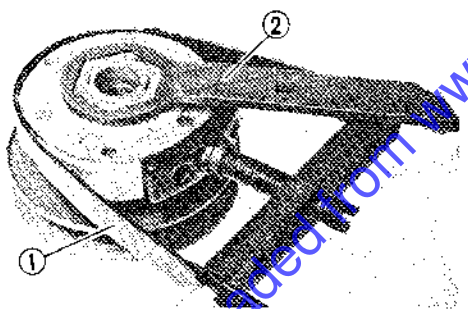
5. Measure:
   - Weight minimum outside diameter ①
     Out of specification → Replace.

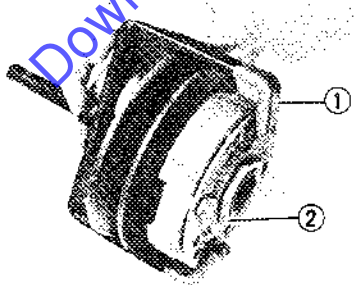
Weight Outside Diameter:
Standard: 18.0 mm (0.71 in)
Limit: 17.5 mm (0.69 in)



6. Inspect:
   - Cam ①
   - Ramps ②
     (in the sliding sheave)
   - Slider bushing ③
     Scratches/Wear → Replace primary sheave assembly.

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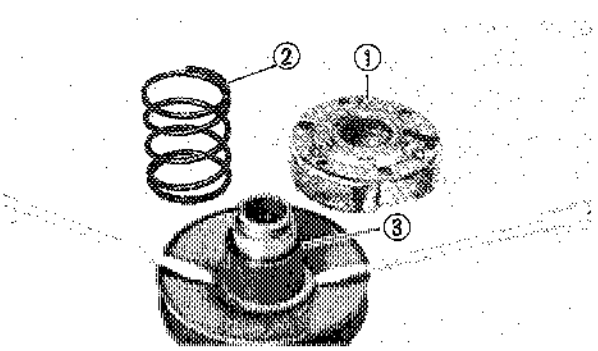


SECONDARY SHEAVE

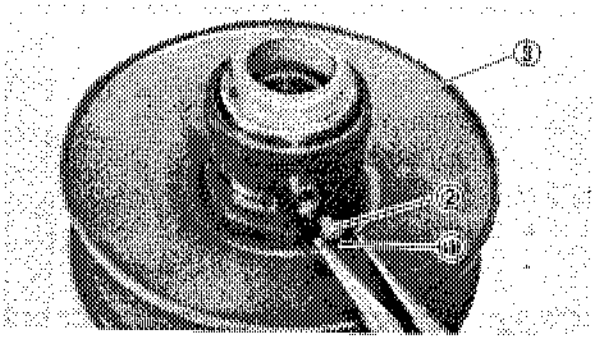
1. Attach:
   - Primary Sheave Holder (YU-01701) ①
   - Nut Wrench (YM-04045A) ②
2. Loosen:
   - Nut (Clutch)

CAUTION:
Do not remove the clutch securing nut yet.

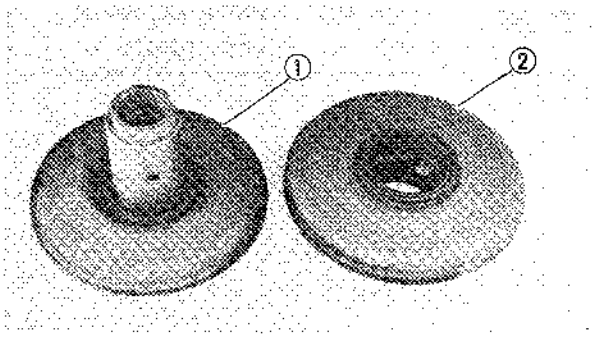
3. Using a proper bolt ①, washers, nuts ② and spacers ③, with Crankcase Separator (YU-01135) ④ compress the clutch spring.
4. Remove:
   - Nut (Clutch) ⑤



5. Remove:
   - Clutch assembly ①
   - Spring ②
   - Spring seat ③

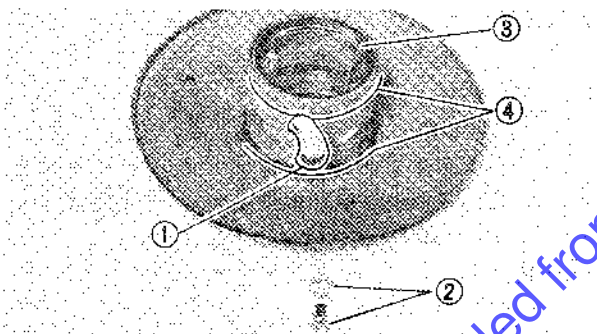


6. Remove:
   - Guide pin ①
   - Guide collar ②
   - Sliding sheave ③



7. Inspect:
   - Secondary fixed sheave ①
   - Secondary sliding sheave ②

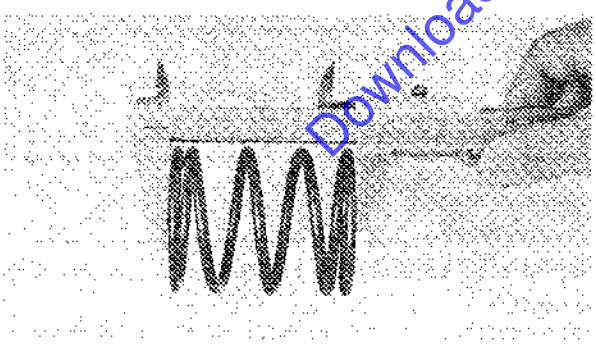
   Scratches/Damage → Replace as a set.



8. Inspect:
   - Torque cam groove ①
   - Guide pin/Collar ②

   Wear/Damage → Replace as a set.
   - Oil seal ③
   - O-rings ④

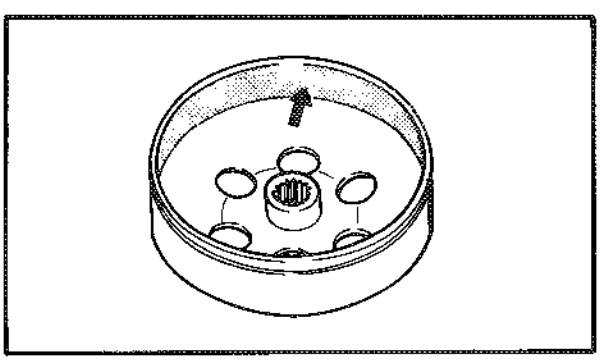
   Damage/Wear → Replace.



9. Measure:
   - Sliding spring free length

   Out of specification → Replace.

Sliding Spring Free Length:
Standard: 76.8 mm (3.02 in)
Limit: 71.0 mm (2.80 in)

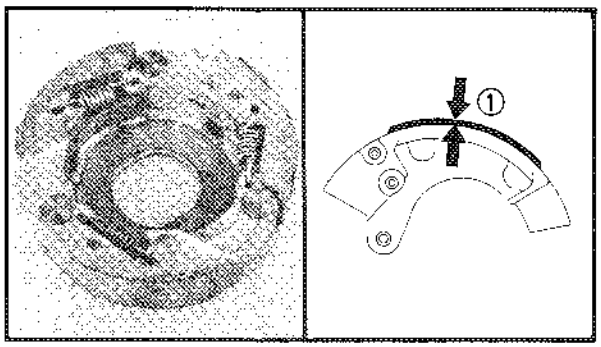


10. Inspect:
    - Clutch housing (Inner surfaces)

    Scratches/Damage → Replace.
    Oil/Grease → Check oil seals and O-rings of the secondary fixed sheave and sliding sheave.

Clutch Housing Wear Limit:
120.3 mm (4.736 in)

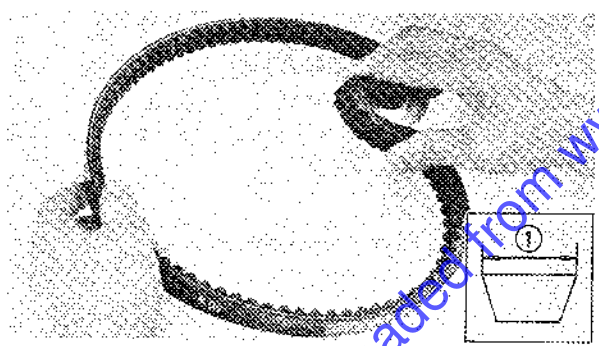
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11. Inspect:
    - Clutch shoes
      Scratches → Glazing using the Coarse Sandpaper.
      Wear/Damage → Replace.
12. Measure:
    - Clutch shoe thickness ①
      Out of specification → Replace.

Clutch Shoe Thickness:
Standard: 3.5 mm (0.138 in)
Limit: 2.0 mm (0.079 in)

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V-BELT

1. Inspect:
    - V-belt
      Cracks/Wear/Scaling/Chipping→ Replace.
      Oil/Grease → Check primary sheave and secondary sheave.
2. Measure:
    - V-belt width ①
      Out of specification → Replace.

V-belt Width:
Standard: 19.5 mm (0.77 in)
Limit: 17.5 mm (0.69 in)

WARNING

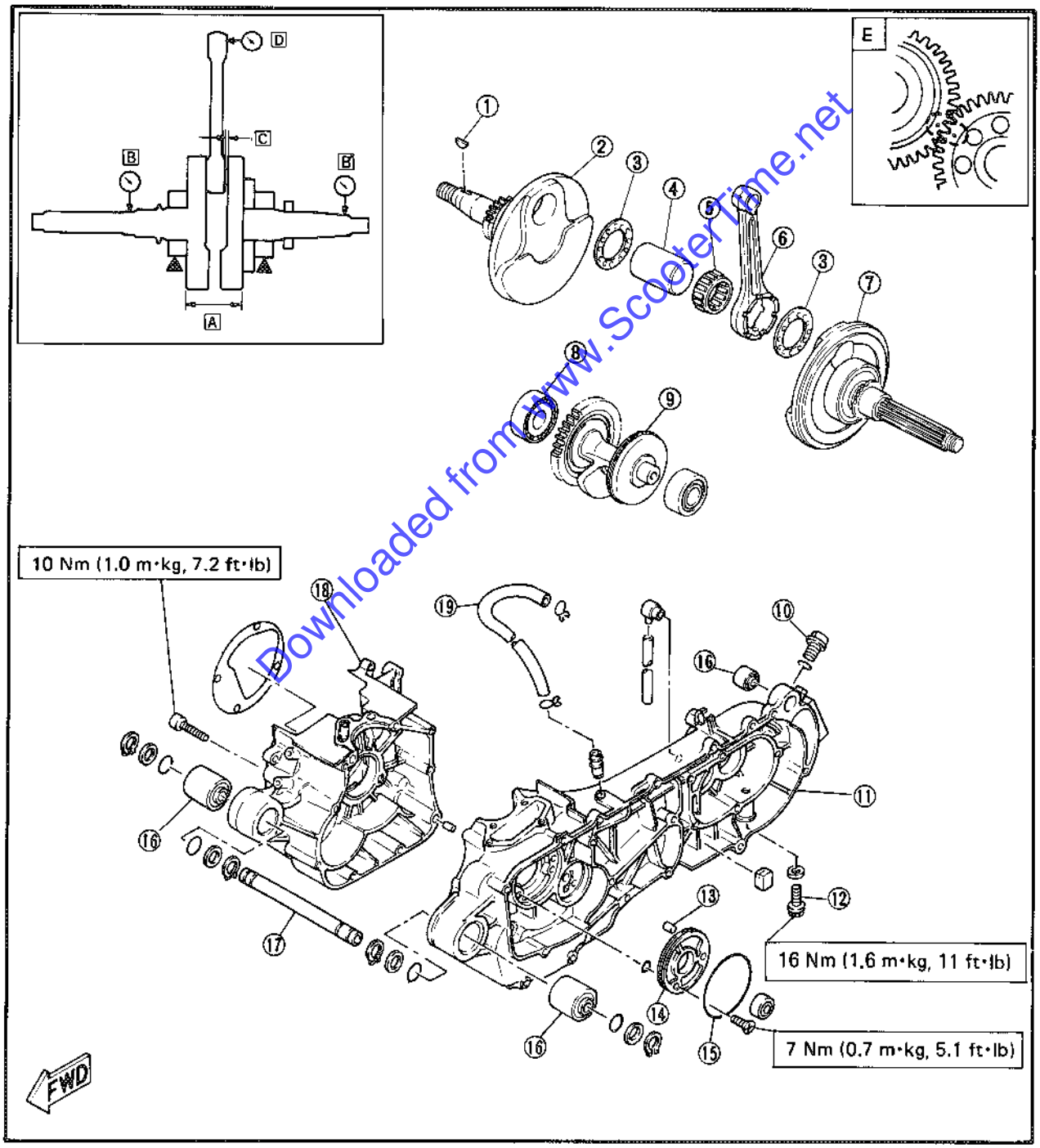
Replace at 18,000 km (11,400 mi) irrespective at limit.

ENGINE ASSEMBLY AND ADJUSTMENT

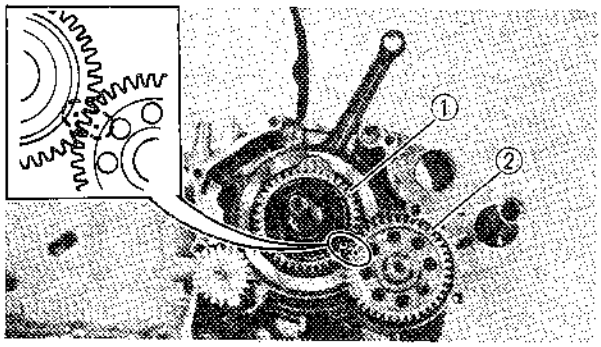
CRANKSHAFT AND CRANKCASE

① Woodruff key
② Crank (Right)
③ Thrust washer
④ Crank pin
⑤ Big end bearing
⑥ Connecting rod
⑦ Crank (Left)
⑧ Balancer bearing
⑨ Balancer
⑩ Filler cap
⑪ Crankcase (Left)
⑫ Final gear drain plug
⑬ Dowel pin
⑭ Cam chain case cover
⑮ O-ring
⑯ Engine mount damper
⑰ Engine mount spacer
⑱ Crankcase (Right)
⑲ Ventilation hose

A	CRANK WIDE: 44.95 ~ 45.00 mm (1.770 ~ 1.772 in)
B	RUNOUT LIMIT: B: 0.01 mm (0.0004 in) B': 0.03 mm (0.0012 in)
C	SIDE CLEARANCE: 0.05 ~ 0.45 mm (0.0020 ~ 0.0177 in)
D	SMALL END FREE PLAY: 0.8 ~ 1.0 mm (0.031 ~ 0.039 in)
E	BALANCER GEAR ALIGN MARKS



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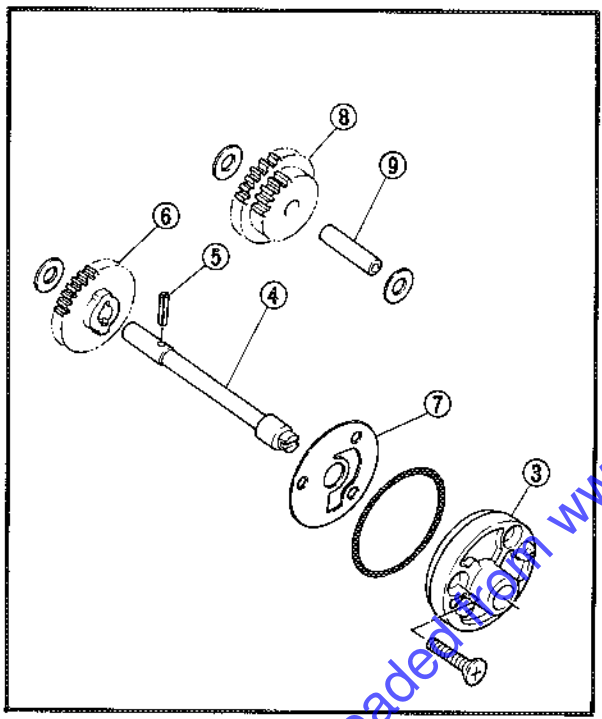


1. Install:
   - Crankshaft with gear ①/Balancer ②

NOTE:
Align the mark on the balancer gear ② with the mark on the crankshaft gear ①.

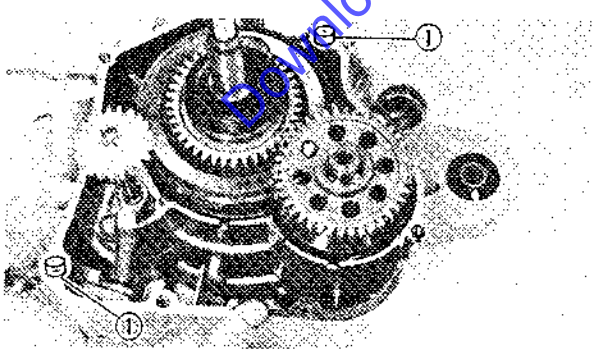
2. Install:
   - Oil pump assembly ③

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

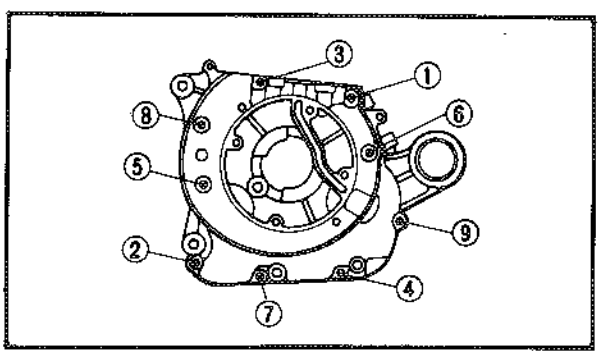


- Oil pump drive shaft ④
- Spring pin ⑤
- Driven gear ⑥
- Spacer

⑦ Oil pump body plate
⑧ Oil pump idler gear
⑨ Idle gear shaft



3. Apply:
   - Quick Gasket® (ACC-11001-05-01) (to the mating surfaces)
4. Install:
   - Dowel pins ①
5. Install:
   - Crankcase (Right)
     Tap the crankcase on lightly using a Soft Hammer.

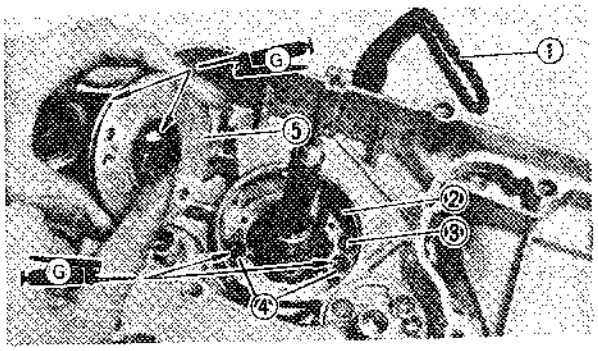


6. Tighten:
   - Bolts (Crankcase)

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

NOTE:
Tighten the bolt using crisscross pattern.

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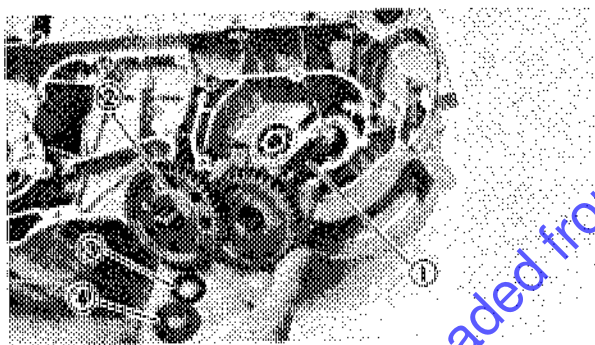


7. Install:
   - Cam chain ①
   - Cam chain guide (Rear) ②
   - Dowel pin ③
   - O-rings ④
   - Cam chain case cover ⑤

   Apply grease to the O-ring and oil seal.
8. Tighten:
   - Cam chain case cover

Bolt (Cam Chain Case): 7 Nm (0.7 m·kg, 5.1 ft·lb)

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TRANSMISSION

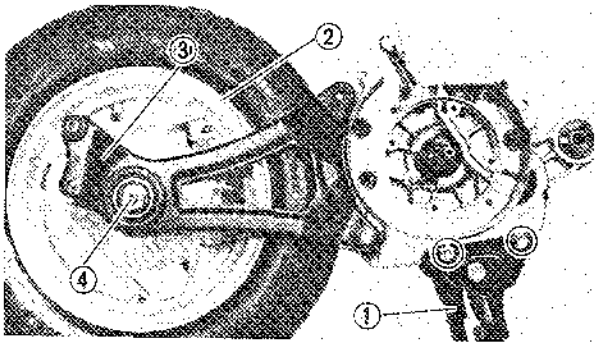
1. Install:
   - Drive axle ①

NOTE:
Be careful so that the oil seal lip is not turned over by edge of the drive axle when installing the drive axle.

   - Main axle ②
   - Conical spring washer ③
   - Plate washer ④
2. Install:
   - Gasket (New)
   - Transmission cover
3. Tighten:
   - Bolts (Transmission cover)

   (in two steps)

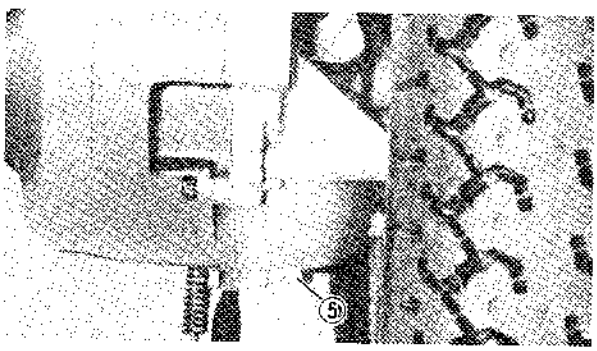
Bolts (Transmission Cover): 10 Nm (1.0 m·kg, 7.2 ft·lb)



4. Install:
   - Main stand assembly ①

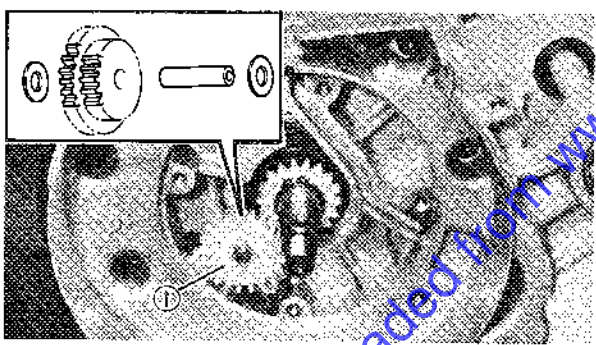
Bolt (Main Stand):
27 Nm (2.7 m·kg, 19 ft·lb)

   - Rear wheel ②
   - Washer
   - Rear arm ③



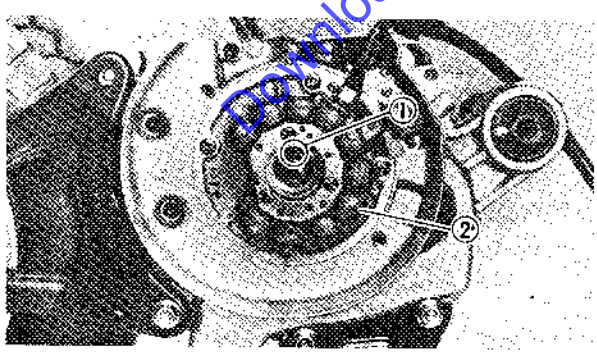
5. Tighten:
   - Rear wheel axle nut ④
     (Tighten temporarily)
   - Final gear drain plug ⑤

Final Gear Drain Plug:
16 Nm (1.6 m·kg, 11 ft·lb)



OIL PUMP GEARS

1. Install:
   - Oil pump idle gear ①

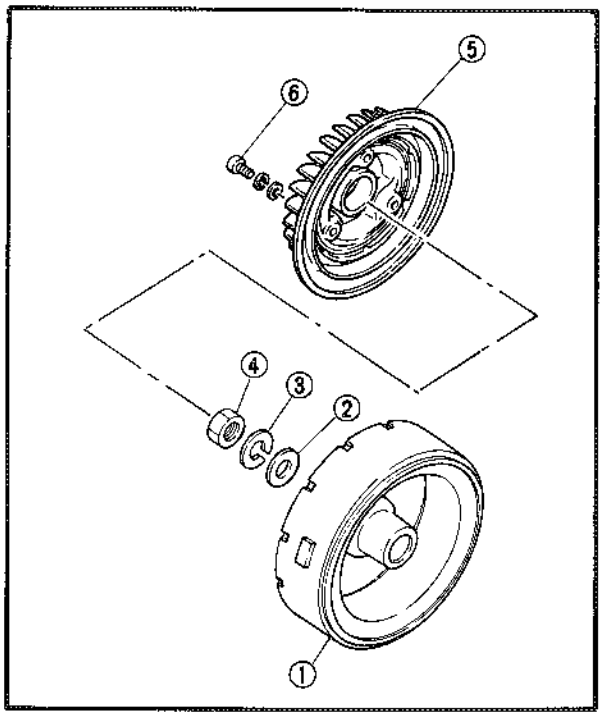


CDI MAGNETO

1. Install:
   - Woodruff key ①
   - Gasket (New)
2. Tighten:
   - Generator assembly ②

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

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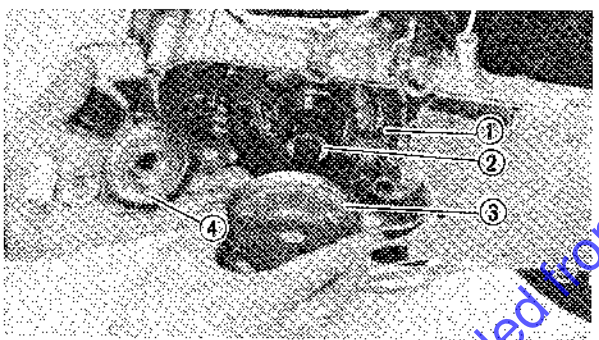
3. Install:
   - Magneto rotor ①
   - Washer ②
   - Spring washer ③
4. Tighten:
   - Nut (Magneto) ④

Nut (Magneto):
70 Nm (7.0 m·kg, 50 ft·lb)

5. Install:
   - Cooling fan ⑤
     (onto magneto rotor)
6. Tighten:
   - Screws (Cooling fan) ⑥

Screws (Cooling Fan):
7 Nm (0.7 m·kg, 5.1 ft·lb)

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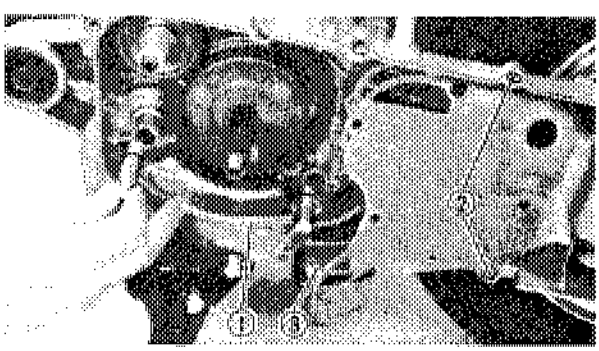


STARTER SYSTEM

1. Install:
   - Starter motor assembly

Bolts (Starter Motor):
7 Nm (0.7 m·kg, 5.1 ft·lb)

- Starter driven gear ①
- Plate washer ②
- Starter clutch assembly ③
- Starter idle gear ④



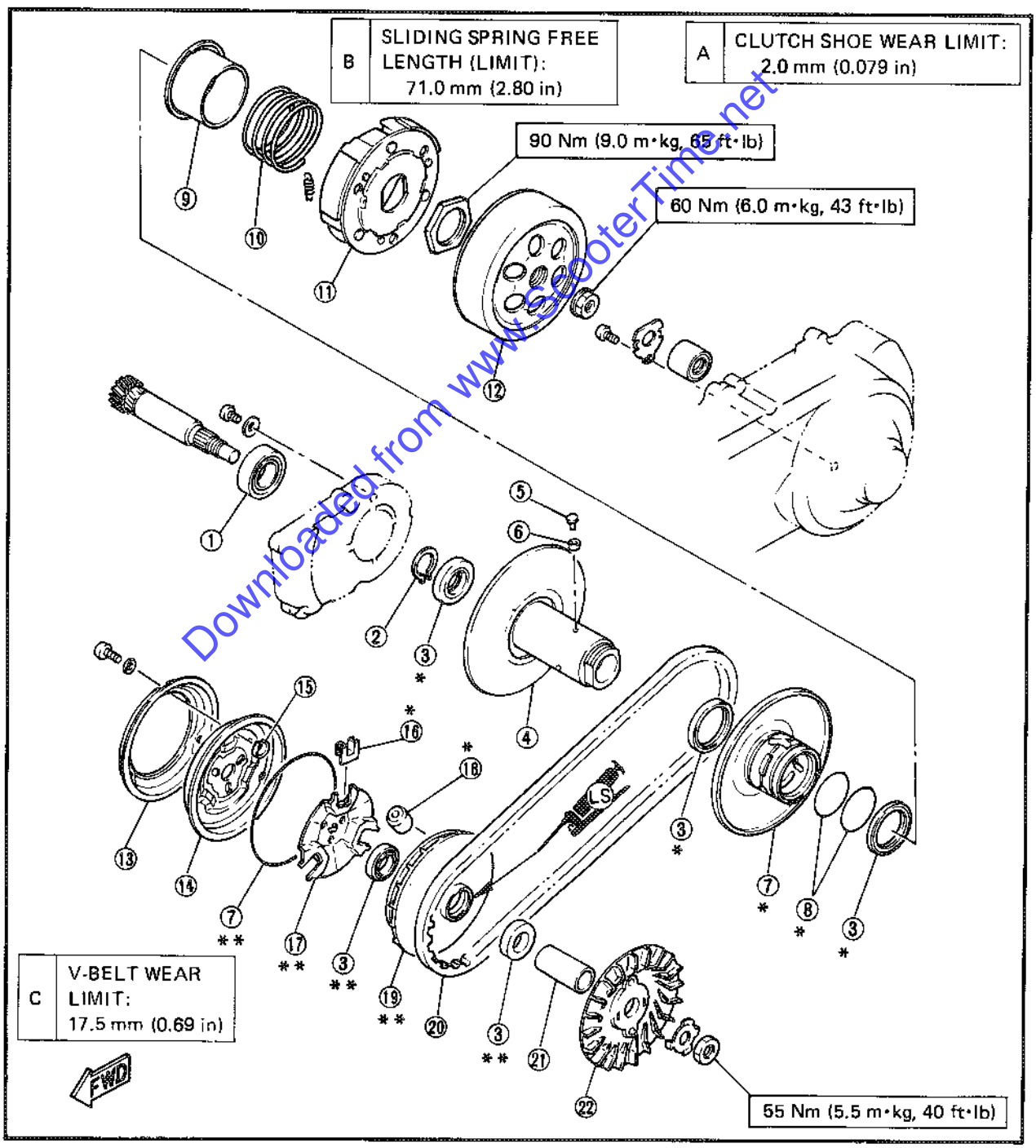
2. Install:
   - Oil gallery pipe ①
     Apply grease to the O-rings (New).
   - Dowel pins ②
   - Oil filter screen ③
   - Crankcase cover

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

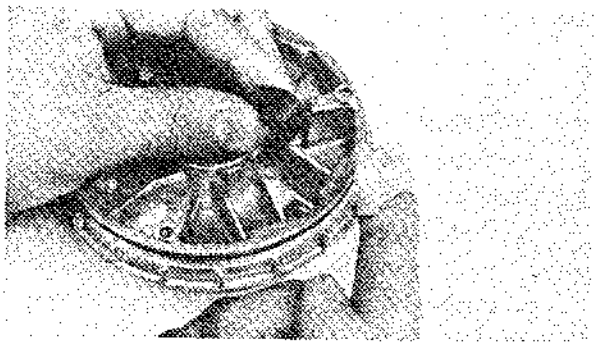
PRIMARY SHEAVE/SECONDARY SHEAVE/V-BELT

① Bearing
② Circlip
③ Oil seal
④ Secondary fixed sheave
⑤ Guide pin
⑥ Guide collar
⑦ Secondary sliding sheave
⑧ Oil seal
⑨ Spring seat
⑩ Spring
⑪ Clutch assembly
⑫ Clutch housing
⑬ Hold plate
⑭ Cap
⑮ Claw washer
⑯ Slider bushing
⑰ Cam
⑱ Weight
⑲ Primary sliding sheave
⑳ V-belt
㉑ Collar
㉒ Primary fixed sheave

* : Apply BEL-LAY Assembly Lube®
** : Apply Shell BT Grease No. 3 or equivalent

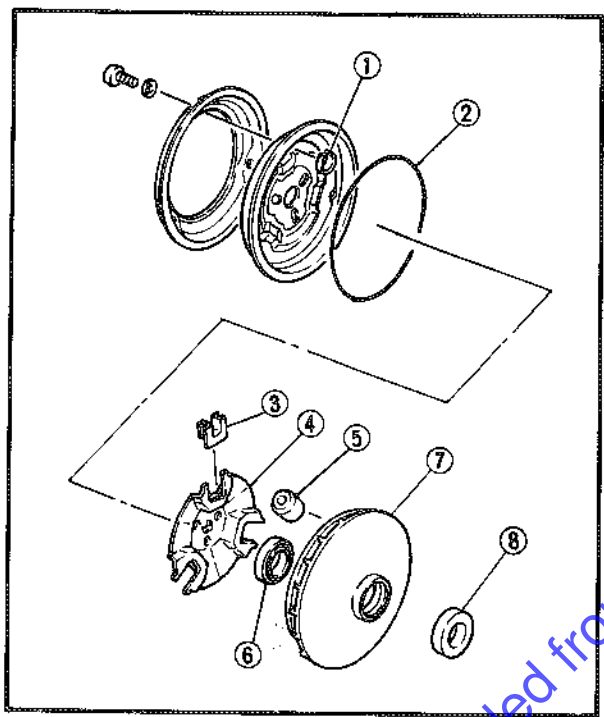


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Primary Sheave

1. Apply:
   - Shell BT Grease No. 3 or equivalent
     Thinly: Slider bushing
     Heavily: Weights-sliding sheave ramps (approximately 2cc of grease per ramp and weight)



2. Assemble:
   - Primary sheave

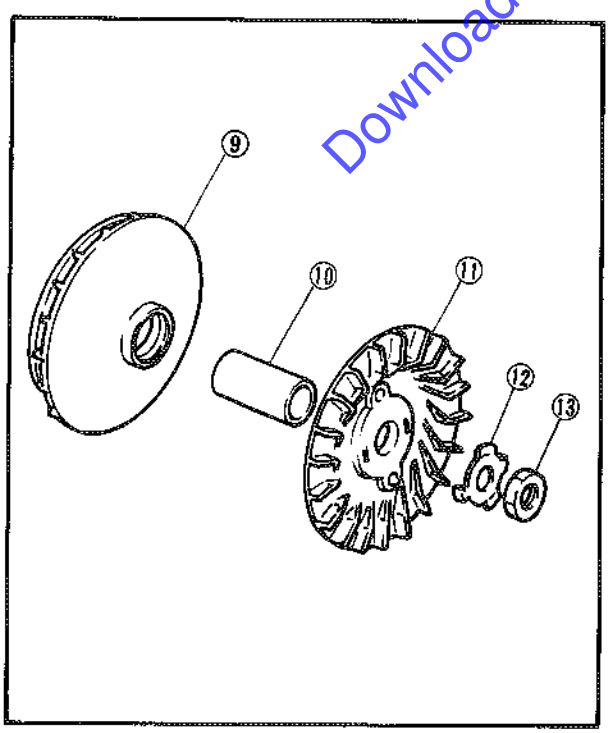
NOTE:
Install the claw washers①so the slits are outside.

CAUTION:
Remove any excess grease.

3. Apply:
   - Shell BT Grease No. 3 or equivalent (thinly to inside diameter of the primary sheave bore)

CAUTION:
- **Never apply grease to the collar.**
- **Be careful so that the oil seal lips are not turned over when installing the collar.**

① Claw washer
② O-ring
③ Slider bushing
④ Cam
⑤ Weight
⑥ Oil seal
⑦ Primary sliding sheave
⑧ Oil seal

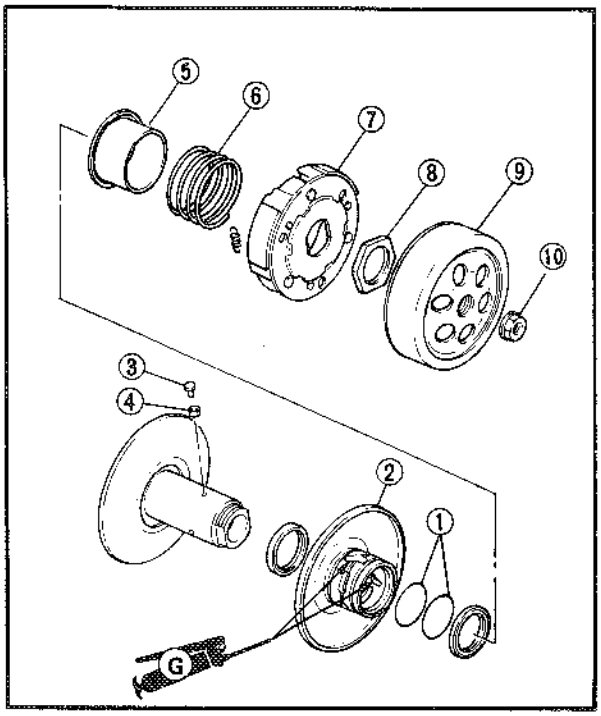


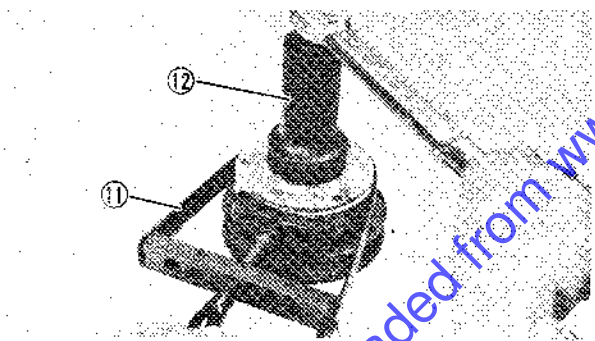
4. Install:
   - Primary sliding sheave ⑨
   - Collar ⑩
   - Primary fixed sheave ⑪
   - Rock washer (New) ⑫
   - Nut (Primary sheave) ⑬
5. Tighten:
   - Nut (Primary sheave)
     Use the Rotor Holder (YU-01235).

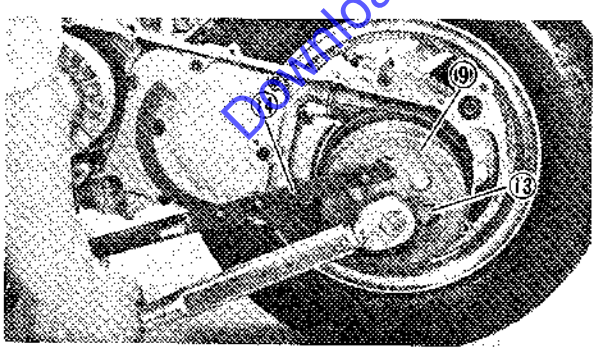
Nut (Primary Sheave):
55 Nm (5.5 m·kg, 40 ft·lb)

NOTE:
- Bend the lock washer tab against the nut falt.
- Be sure to remove the any oil and or grease from the primary sheaves and collar with a thinner.

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Secondary Sheave

1. Install:
   - O-rings ①
     (onto the fixed sheave)
2. Apply:
   - BEL-RAY Assembly Lube®
     (to the inside diameter of the secondary sliding sheave ② and fixed sheave)
3. Install:
   - Sliding sheave ②

NOTE:
Be carefull so that the oil seal lips are not turned over when installing the sheave.

   - Guide pins ③
   - Guide collars ④
4. Apply:
   - BEL-RAY Assembly Lube®
     (to the torque cam grooves on the sliding sheave ②)
5. Install:
   - Spring seat ⑤
   - Spring ⑥
   - Clutch assembly ⑦
6. Attach:
   - Primary Sheave Holder (YU-1701) ⑪
   - Nut Wrench (YM-04045-A) ⑫
7. Tighten:
   - Nut (Clutch) ⑧

Nut (Clutch):
90 Nm (9.0 m·kg, 65 ft·lb)

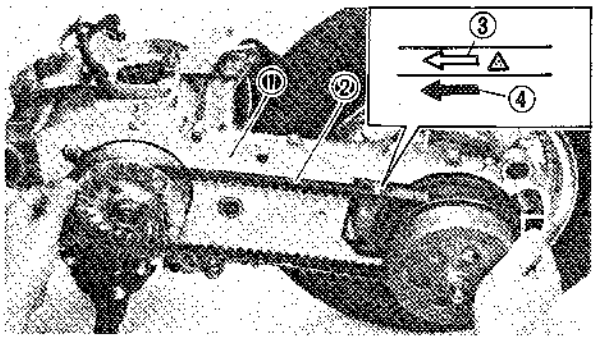
8. Install:
   - Secondary sheave assembly ⑬
   - Clutch housing ⑨
   - Nut (Secondary sheave) ⑩

NOTE:
Before installation, remove the any oil and or grease from the clutch, clutch housing and sheaves with a thinner.

9. Tighten:
   - Nut (Secondary sheave)
     Use the Rotor Holder (YU-01235) ⑭ .

Nut (Secondary Sheave):
60 Nm (6.0 m·kg, 43 ft·lb)

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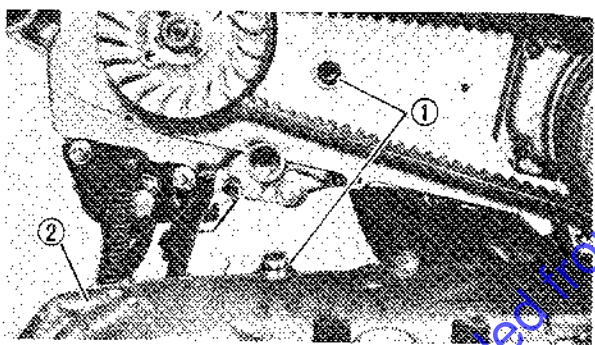
V-Belt

1. Install:
   - Gasket ①
   - V-belt ②

   Place the V-belt around the secondary sheave, and compress the secondary sheave spring hard so that the V-belt moves toward the clutch hub. And hook onto the primary sheave.

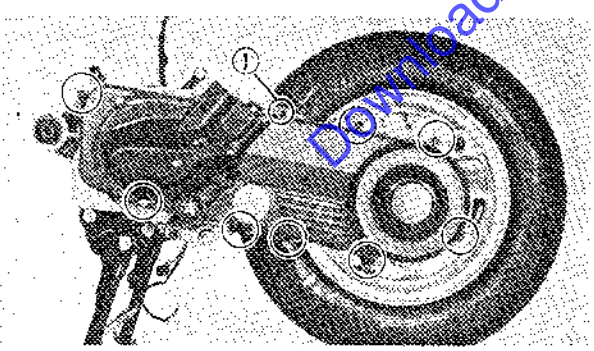
NOTE:
- The V-belt must be installed with the arrow marks ③ facing the direction of travel ④.
- Be sure to remove the any oil and/or grease.

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CRANKCASE COVER

1. Install:
   - Dowel pins
   - O-rings ①
   - Crankcase cover ②



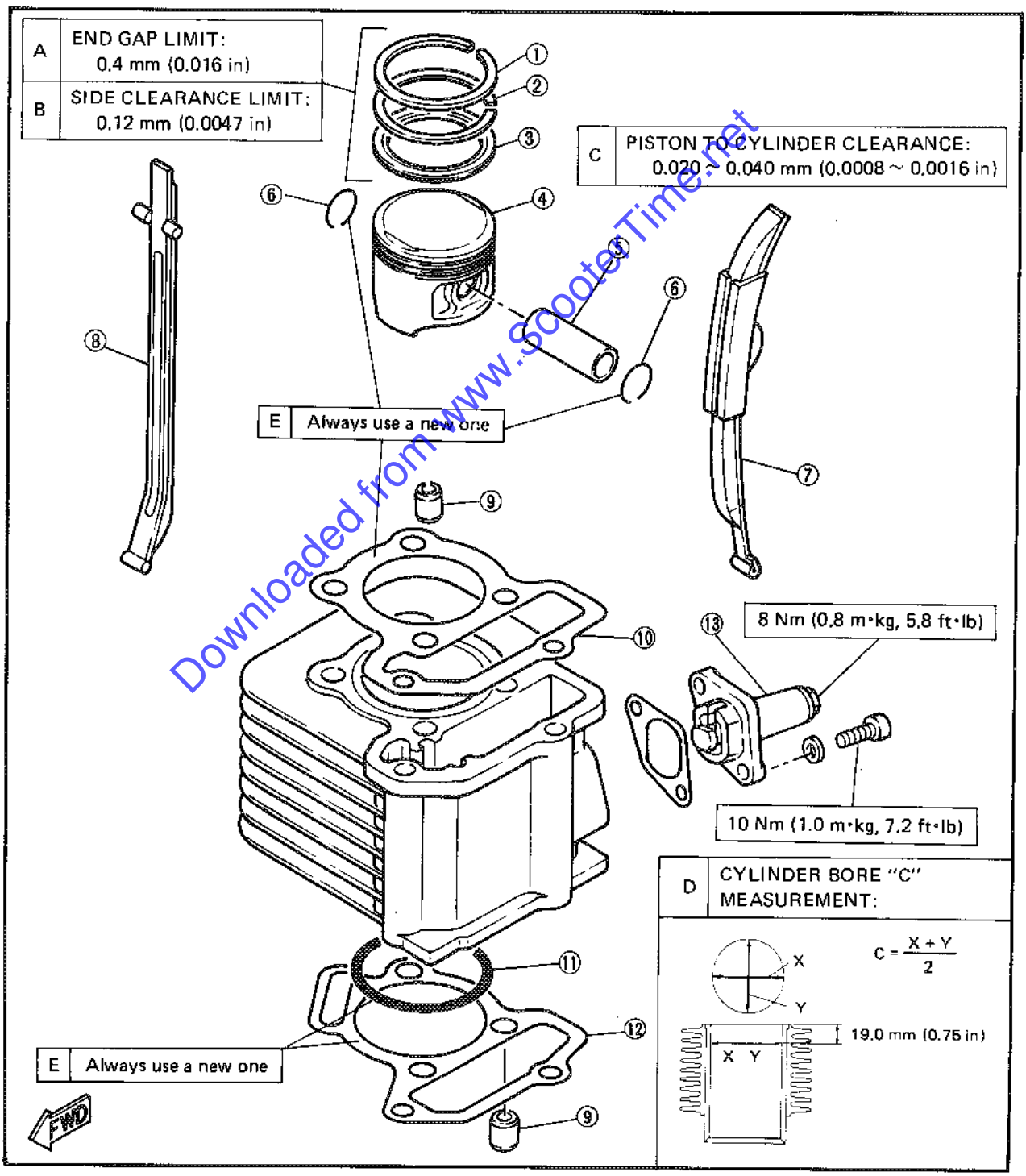
2. Tighten:
   - Screws (Crankcase cover)

NOTE:
Do not install the screw ① as it is tighten with rear fender.

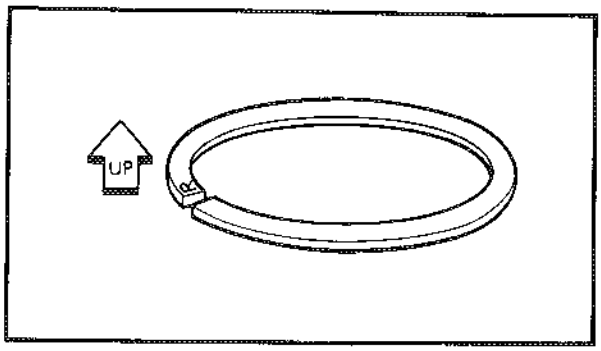
Screw (Crankcase Cover): 10 Nm (1.0 m·kg, 7.2 ft·lb)

CYLINDER AND PISTON

① Top ring
② 2nd ring
③ Oil ring
④ Piston
⑤ Piston pin
⑥ Piston pin clip
⑦ Cam chain guide (Front)
⑧ Cam chain guide (Rear)
⑨ Dowel pin
⑩ Head gasket
⑪ O-ring
⑫ Cylinder gasket
⑬ Cam chain tensioner



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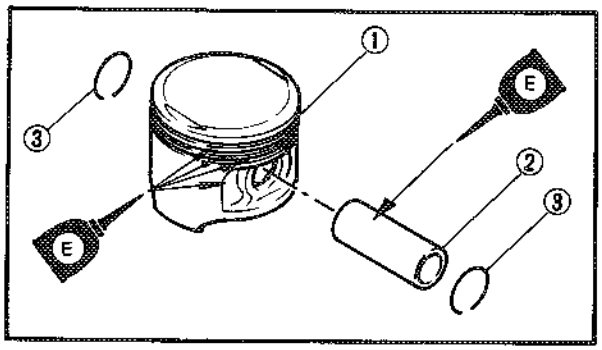


Piston

1. Install:
   - Piston rings

NOTE:

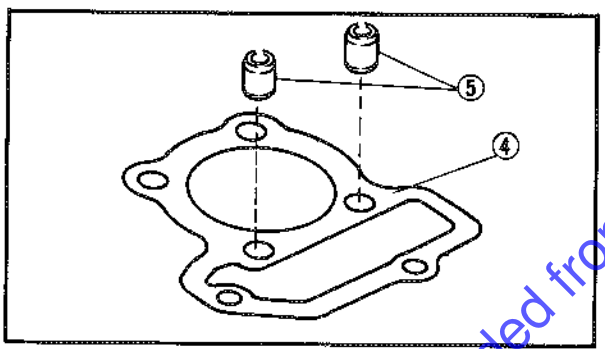
Be sure to install rings so that manufacturer's marks or numbers are located on the top side of the rigns. Oil the piston and rings liberally.



2. Install:
   - Piston ①
   - Piston pin ②
     Lubricate engine oil.
   - Piston pin clips ③

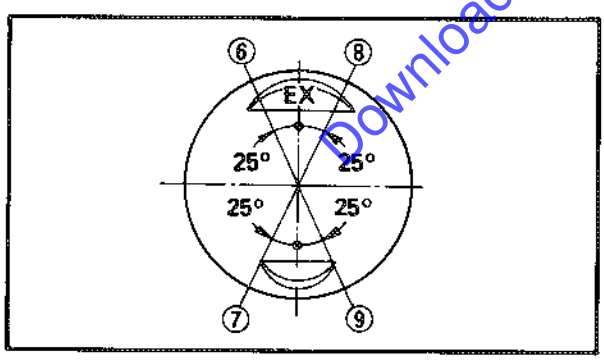
NOTE:

- Be sure the piston is positioned correctly.
- Always install new piston pin clips.
- Cover crankcase with clean rag before installing piston pin clips to prevent clips from falling into crankcase cavity.



   - Gasket ④ (New)
   - Dowel pins ⑤

3. Lubricate:
   - Piston
   - Piston rings
     Use the engine oil.



4. Align:
   - Top ring ⑥
   - Oil ring (Lower rail) ⑦
   - Oil ring (Upper rail) ⑧
   - 2nd ring ⑨
     Align the above components as shown.

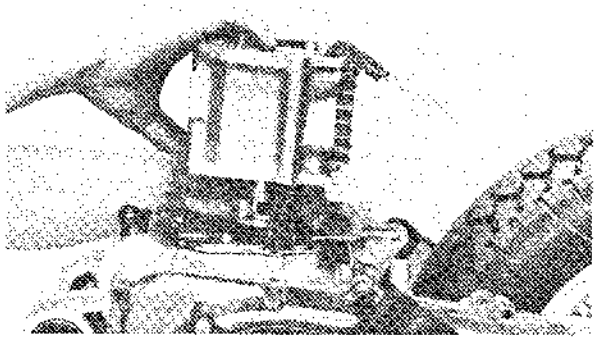
NOTE:

Manufacturer's marks or numbers stamped on rings should face upwards.

CAUTION:

Be sure ends of oil ring expander do not overlap.

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5. Attach a length of wire to cam chain.
6. Install:
   - Cylinder

   Route the cam chain and the cam chain guide through the cam chain journal.
7. Install:
   - Cam chain guide (Front)

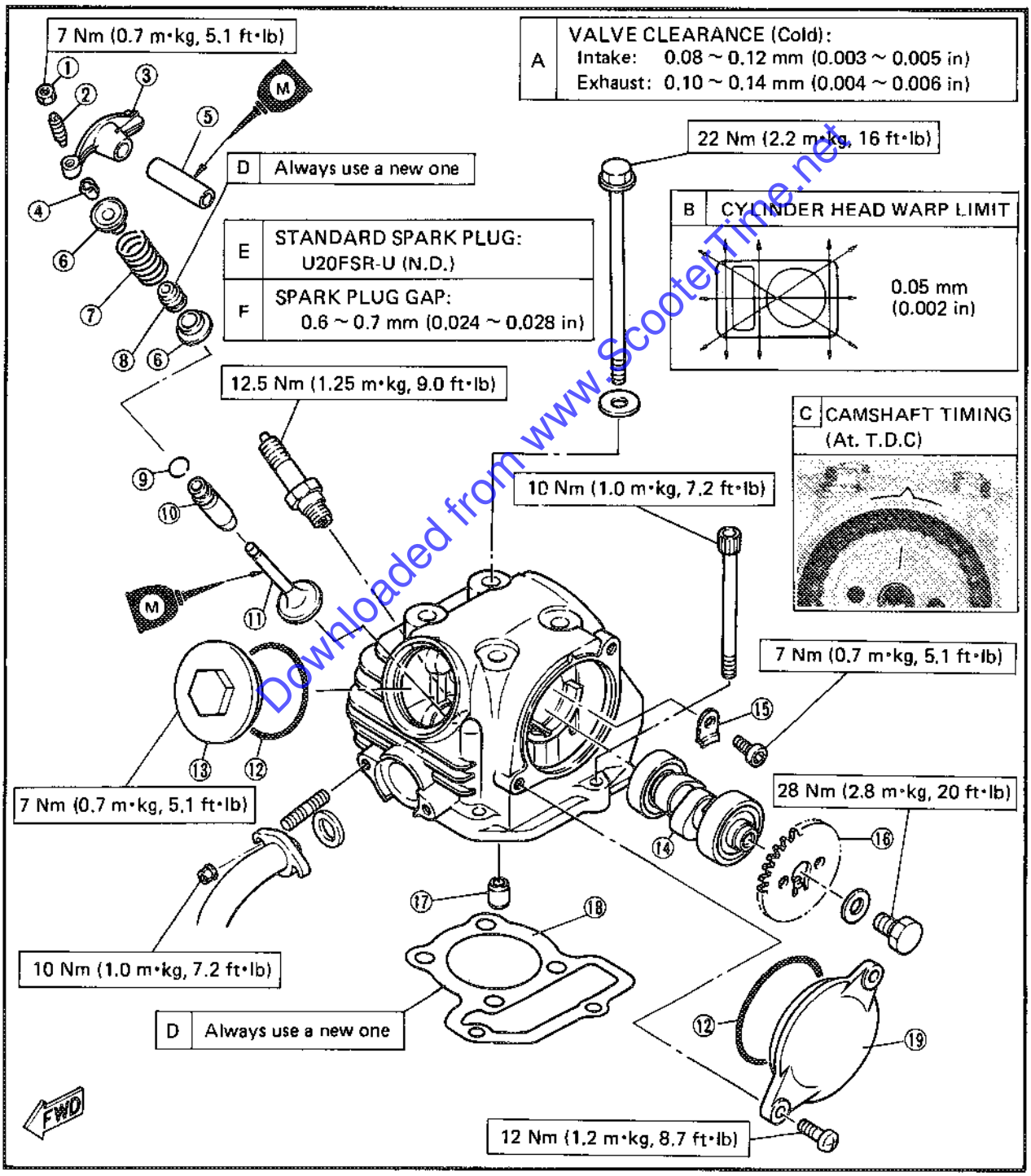
CAUTION:

The lower end and the upper end of the guide must rest in slot in the crankcase and the cylinder.

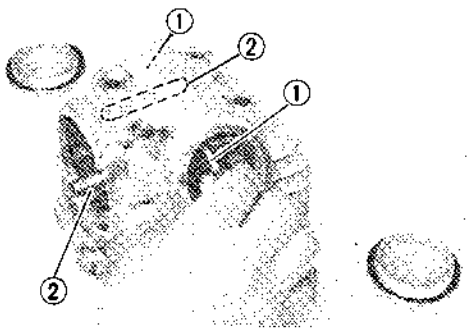
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CYLINDER HEAD

① Locknut
② Adjuster
③ Rocker arm
④ Valve retainer
⑤ Rocker arm shaft
⑥ Spring seat
⑦ Spring
⑧ Oil seal
⑨ Circlip
⑩ Valve guide
⑪ Valve
⑫ O-ring
⑬ Valve cover
⑭ Camshaft
⑮ Stopper plate
⑯ Cam sprocket
⑰ Dowel pin
⑱ Cylinder head gasket
⑲ Cam sprocket cover

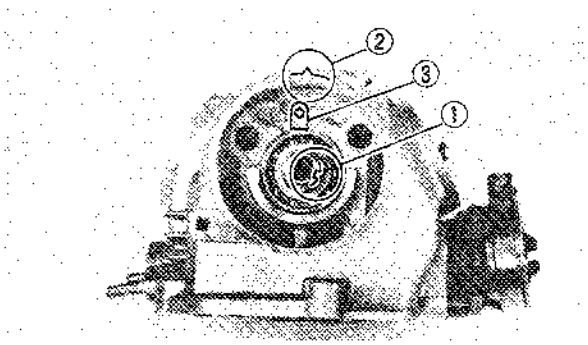


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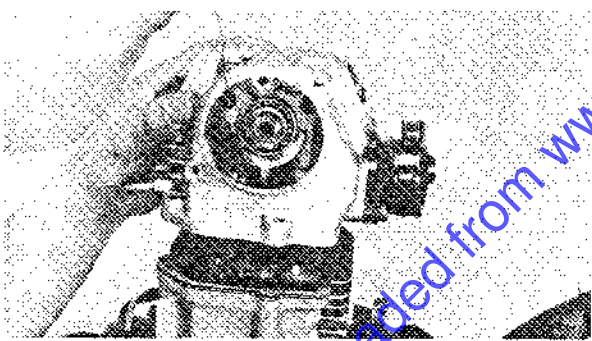
1. Install:
   - Rocker arms ①
   - Rocker arm shafts ②

NOTE:
Rocker arm shaft end with inside thread, must face out of cylinder head otherwise rocker arm shaft cannot be removed.



2. Install:
   - Camshaft
     Loosen the valve adjusters on both valves before installing. Align the slot ① on the camshaft end with the timing mark ② on the cylinder head.
   - Stopper plate ③

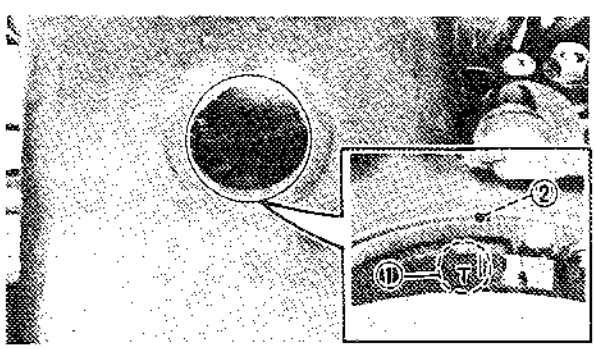
Bolt (Stopper Plate):
7 Nm (0.7 m·kg, 5.1 ft·lb)



3. Install:
   - Cylinder head gasket (New)
   - Dowel pins
4. Install:
   - Cylinder head
     Route the cam chain through the cam chain journal in the cylinder head.
   - Washers
   - Bolts (Cylinder head)

5. Tighten:
   - Bolts (Cylinder head)
     Tighten the bolts in numerical order.

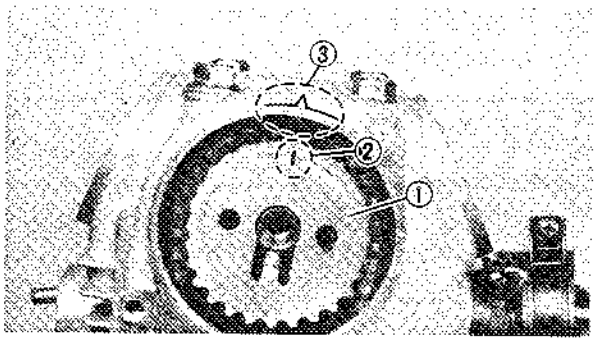
Bolt (Cylinder Head):
M8: 22 Nm (2.2 m·kg, 16 ft·lb)
M6: 10 Nm (1.0 m·kg, 7.2 ft·lb)



6. Align:
   - Flywheel "T" mark ①
     (with stationary pointer ②)

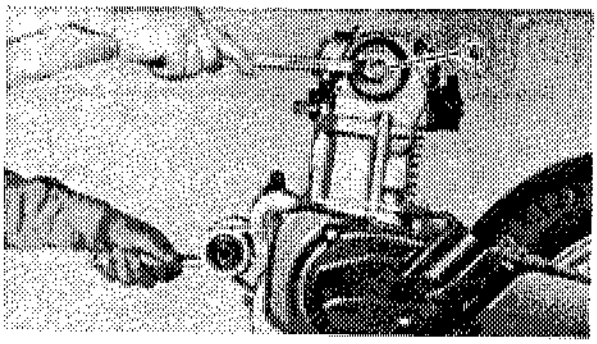
NOTE:
Be sure to keep cam chain taut while turning crankshaft.

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7. Install:
   - Cam sprocket ①
     Align the timing mark ② on the sprocket with the mark ③ on the cylinder head.
8. Tighten:
   - Bolts (Cam sprocket) ④

Bolt (Cam Sprocket):
28 Nm (2.8 m·kg, 20 ft·lb)



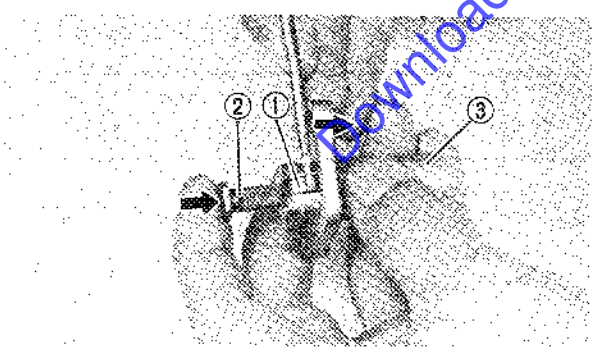
9. Adjust:
   - Valve clearance
     Refer to "CHAPTER 2. VALVE CLEARANCE ADJUSTMENT" on page 2-5.
10. Install:
    - Cam sprocket cover

NOTE:
Left lower screw is fasten together with the air shroud 1.

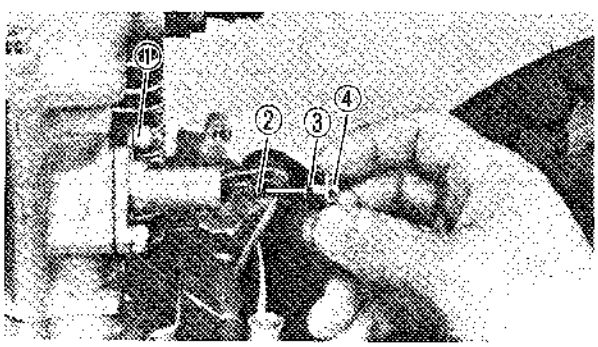
- Valve covers (Intake/Exhaust)

Screw (Cam Sprocket Cover):
12 Nm (1.2 m·kg, 8.7 ft·lb)
Valve Cover:
7 Nm (0.7 m·kg, 5.1 ft·lb)

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11. Release the cam chain tensioner oneway cam ① and insert the tension rod ② into the tensioner body. ③

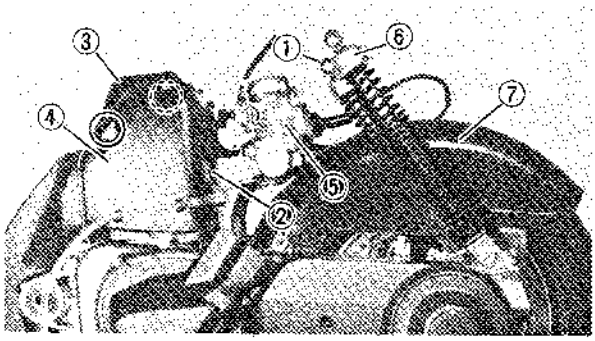


12. Install:
    - Gasket
    - Tensioner body
    - Copper washer ①

Bolt (Tensioner Body):
10 Nm (1.0 m·kg, 7.2 ft·lb)

- Tension spring ②
- O-ring ③
- End plug ④

End Plug:
8 Nm (0.8 m·kg, 5.8 ft·lb)



13. Install:
    - Spark plug

Spark Plug:
12.5 Nm (1.25 m·kg, 9.0 ft·lb)

- Shock absorber (Right) ①
- Air shroud 3 ②
- Air shroud 2 ③
- Air shroud 1 ④

Screws (Air Shroud):
7 Nm (0.7 m·kg, 5.1 ft·lb)

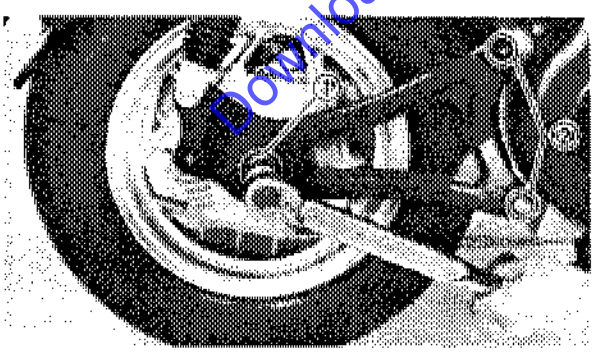
- Carburetor ⑤
- Shock absorber (Left) ⑥
- Rear fender ⑦

3

ENGINE MOUNTING

1. Place:
   - Frame
     (on the engine assembly)
2. Tighten:
   - Engine mounting bolt

Engine Mounting Bolt:
74 Nm (7.4 m·kg, 53 ft·lb)



- Rear shock absorber pivot bolts

Rear Shock Absorber Pivot Bolt:
16 Nm (1.6 m·kg, 11 ft·lb)

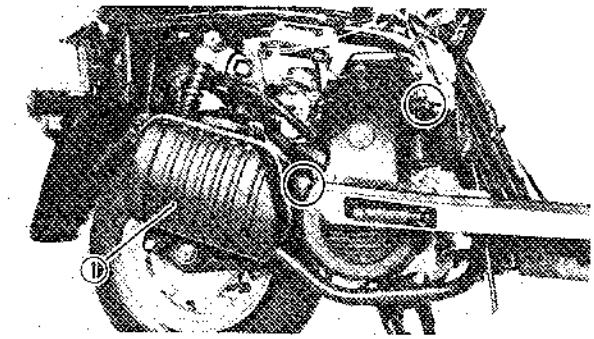
3. Install:
   - Rear brake cable
4. Tighten:
   - Rear wheel axle nut ①
   - Bolt (Rear arm) ②

CAUTION:

This tightening sequence is important. So follow this steps.

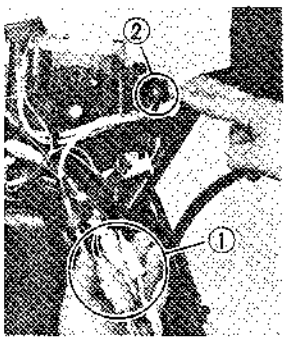
Axle Nut:
105 Nm (10.5 m·kg, 75 ft·lb)
Bolt (Rear Arm):
23 Nm (2.3 m·kg, 17 ft·lb)

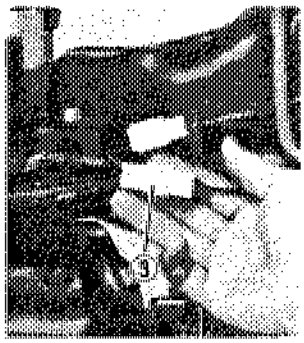
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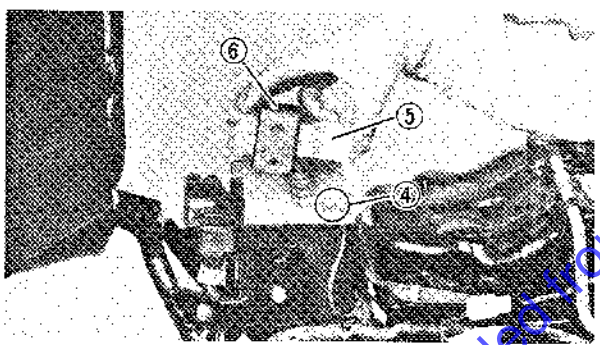
5. Install:
   - Muffler assembly ①

Exhaust:
10 Nm (1.0 m·kg, 7.2 ft·lb)
Body:
16 Nm (1.6 m·kg, 11 ft·lb)





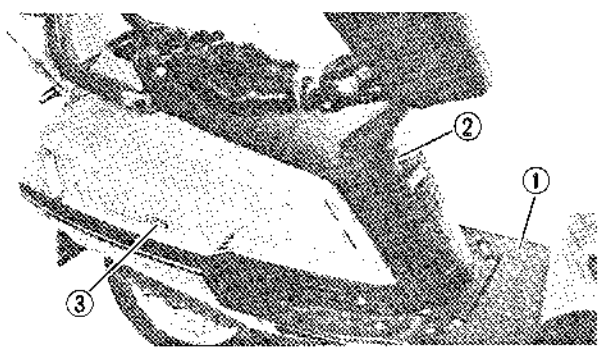
6. Connect:
   - AC magneto lead ①
   - Starter motor lead (Red) ②
   - Starter choke unit lead ③
   - Fuel hose
   - Vacuum hose
   - Fuel cock
7. Connect:
   - Throttle cable
     Adjust free play.
8. Install:
   - Air cleaner box
9. Connect:
   - Battery negative lead ④
10. Install:
    - Cover ⑤
    - Bridge plate ⑥



Bolt (Bridge Plate):
8 Nm (0.8 m·kg, 58 ft·lb)

11. Fill:
    - Engine oil
    - Final gear oil

Engine Oil:
SAE 10W30 type SE motor oil
1.1 L (1.0 Imp qt, 1.2 US qt)
Final Gear Oil:
SAE 10W30 type SE motor oil
0.15 L (0.13 Imp qt, 0.16 US qt)



12. Install:
    - Footrest board ①
    - Front cover ②
    - Side covers (Left/Right) ③

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CHAPTER 4.
CARBURETION

CARBURETOR 4-1
SECTION VIEW 4-2
AUTO CHOKE SYSTEM 4-3
REMOVAL 4-6
DISASSEMBLY 4-6
INSPECTION 4-7
FLOAT HEIGHT ADJUSTMENT 4-8
ASSEMBLY AND INSTALLATION 4-8
FUEL LEVEL ADJUSTMENT 4-9

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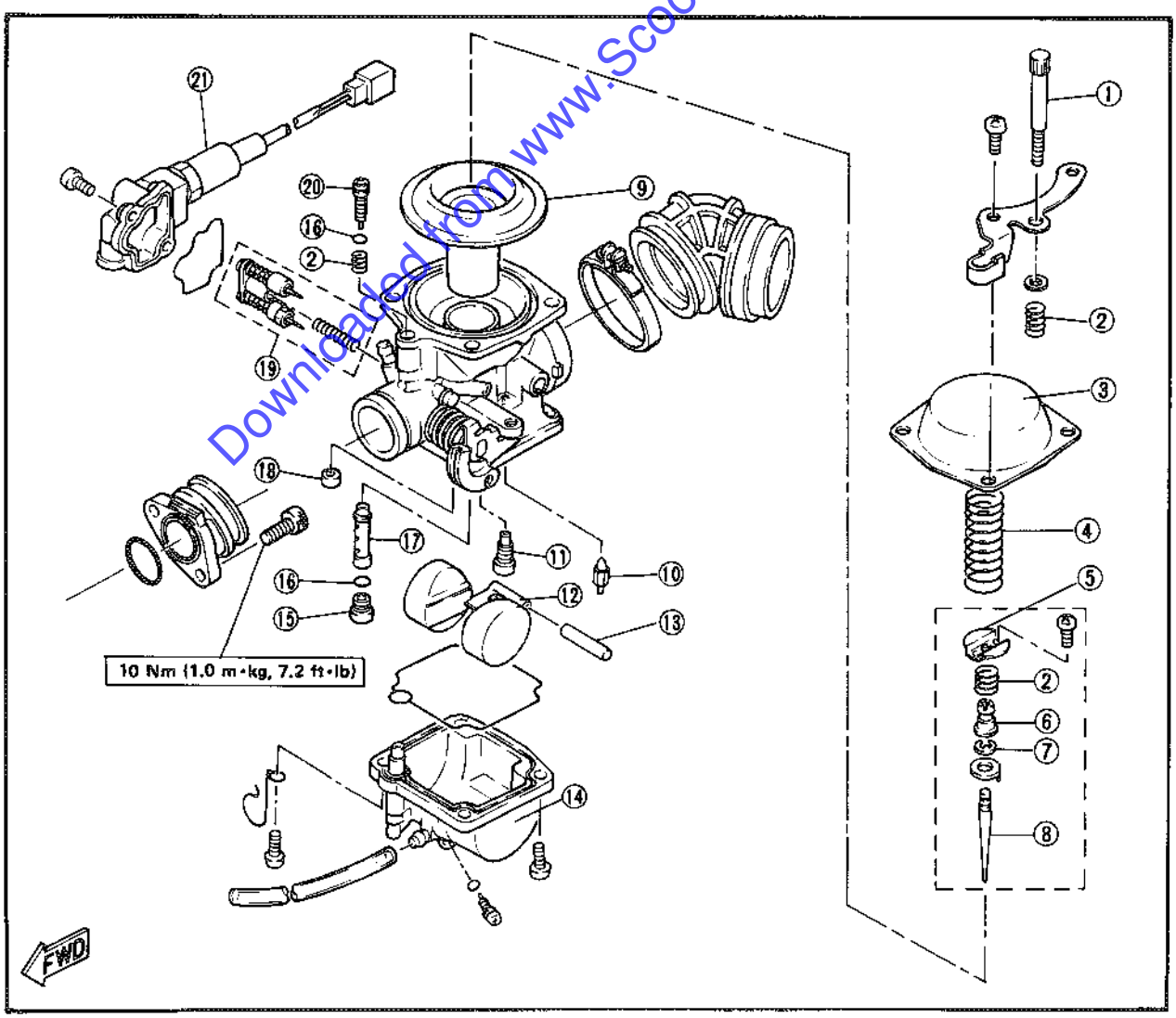
CARBURETION

CARBURETOR

① Throttle stop screw
② Spring
③ Vacuum chamber cover
④ Vacuum piston spring
⑤ Jet needle holder
⑥ Spring seat
⑦ Circrip
⑧ Jet needle
⑨ Vacuum piston
⑩ Needle valve
⑪ Pilot jet
⑫ Float
⑬ Float pin
⑭ Float chamber
⑮ Main jet
⑯ O-ring
⑰ Needle jet
⑱ Blind plug
⑲ Starter plunger assembly
⑳ Pilot screw
㉑ Starter choke unit

SPECIFICATIONS		
Main jet	(M.J.)	#108
Main air jet	(M.A.J.)	#200
Jet needle	(J.N.)	4C10
Needle jet	(N.J.)	85
Pilot jet	(P.J.)	#34
Pilot air jet	(P.A.J.)	#140
Fuel level	(F.L.)	4.5 ~ 5.5 mm (0.18 ~ 0.22 in)
Float height	(F.H.)	26.5 ~ 27.5 mm (1.04 ~ 1.08 in)
Pilot screw	(P.S.)	1-3/4
Valve seat	(V.S.)	φ2.0
Engine idle speed		1,350 ~ 1,450 r/min

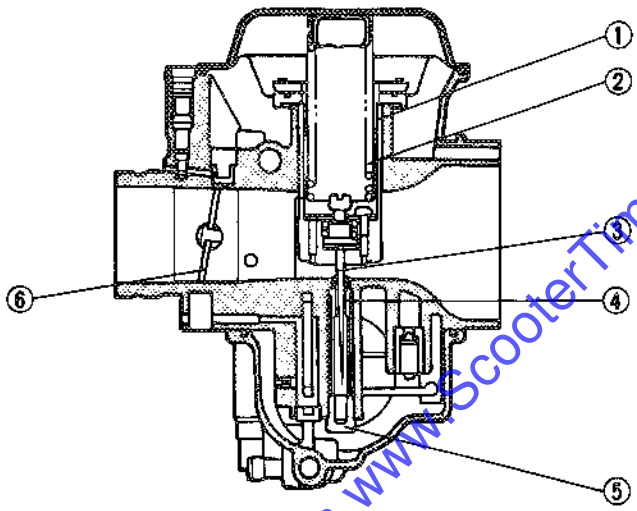
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SECTION VIEW

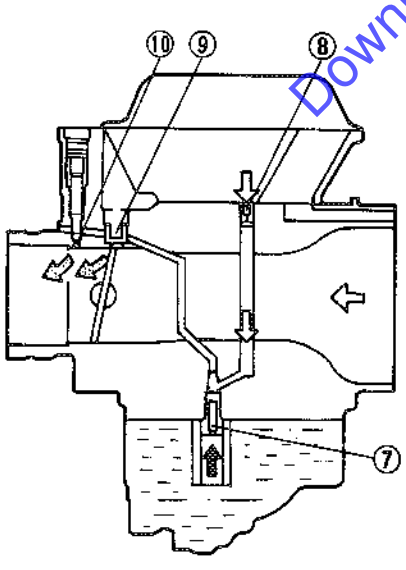
① Vacuum piston
② Vacuum piston spring
③ Jet needle
④ Needle jet
⑤ Main jet
⑥ Throttle valve
⑦ Pilot jet
⑧ Pilot air jet
⑨ Bypass holes
⑩ Pilot outlet
⑪ Main air jet

A	⇦	Air
B	⇦	Fuel
C	⇦	Mixture

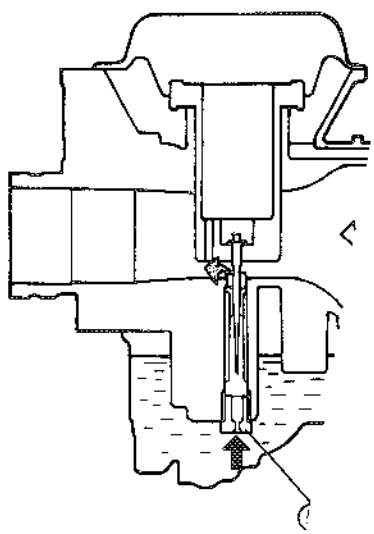


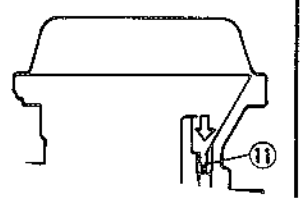
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D SLOW METERING SYSTEM



E MAIN METERING SYSTEM

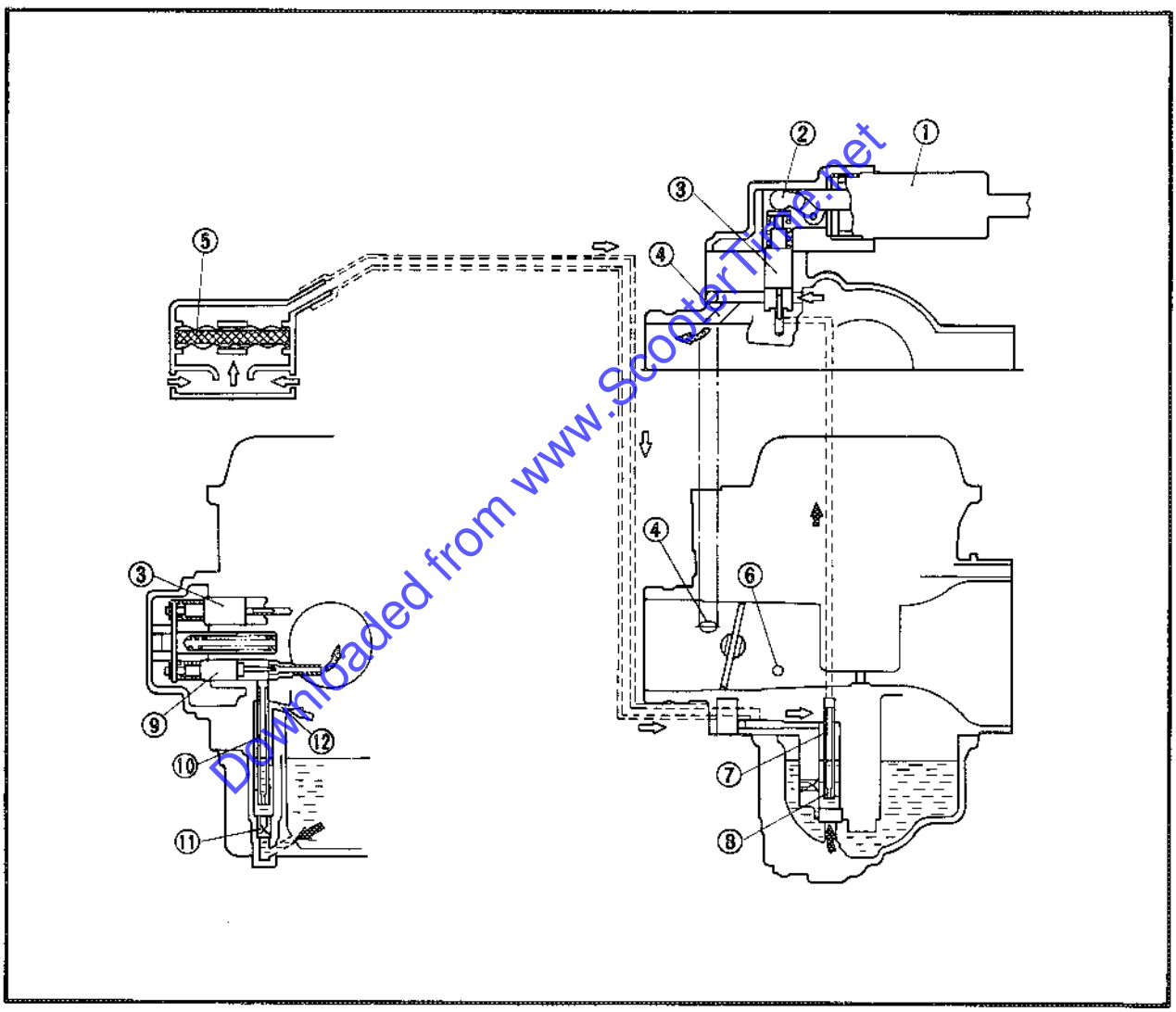




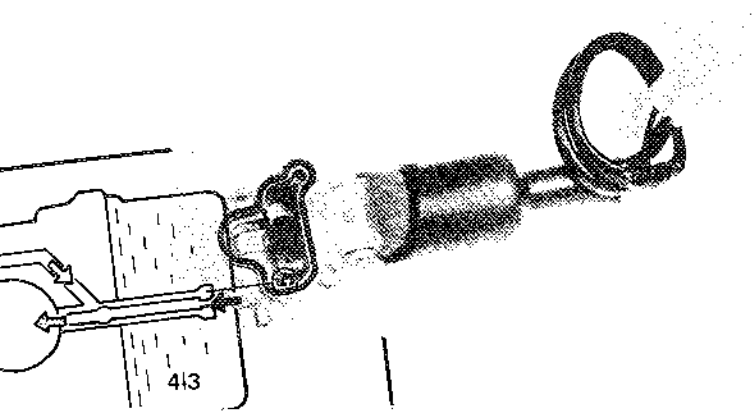
AUTO CHOKE SYSTEM

① Choke unit
② Cam
③ Starter plunger
④ Starter outlet
⑤ Starter air filter
⑥ Cold starter outlet
⑦ Starter nozzle
⑧ Starter jet
⑨ Cold starter nozzle plunger
⑩ Cold starter nozzle
⑪ Cold starter jet
⑫ Cold starter air jet

A	⇦	Air
B	⇦	Fuel
C	⇦	Mixture



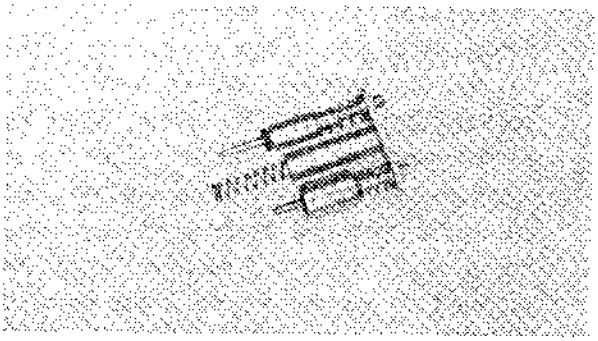
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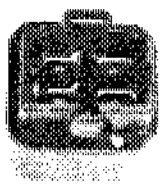
Construction

1. Choke unit

The choke unit which is composed of wax and thermostat, controls the plunger assembly after the engine is started. Heat generated in the thermostat due to an electric current flow causes the wax to expand and push the cam which controls the plunger assembly.

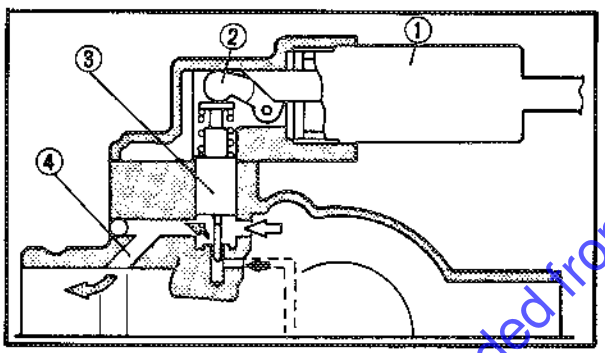


2. Plunger assembly
The plunger assembly is composed of the starter plunger and cold starter plunger. The starter plunger provides air-fuel an mixture for starting and idling, the cold starter plunger provides a cold engine with a rich fuel mixture for smooth acceleration.



3. Choke relay
The choke relay provides electric current from the generator to the thermostat. When the engine rpm reaches 600 rpm, the choke relay is activated.

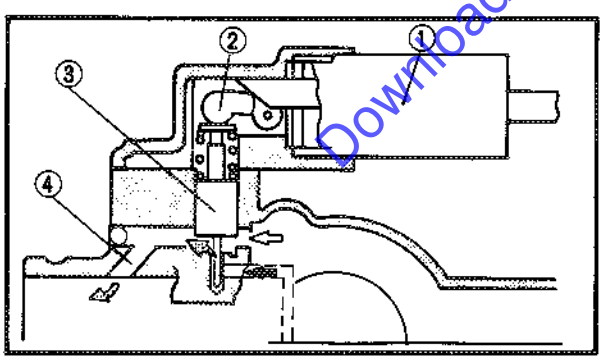
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Operation

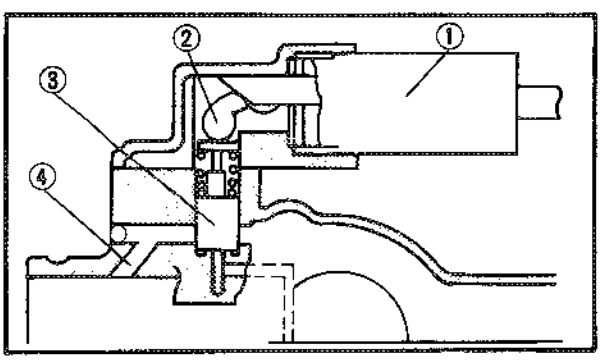
1. With a cold engine
When the starter plunger is fully open due to unexpanded wax in the choke unit, a rich mixture is provided for starting the engine.

① Choke unit
② Cam
③ Starter plunger
④ Starter outlet



2. With a slightly warm engine
The wax contracts slowly since it is covered with a heat insulating material, thus a leaner mixture than that produced for a cold engine is provided.

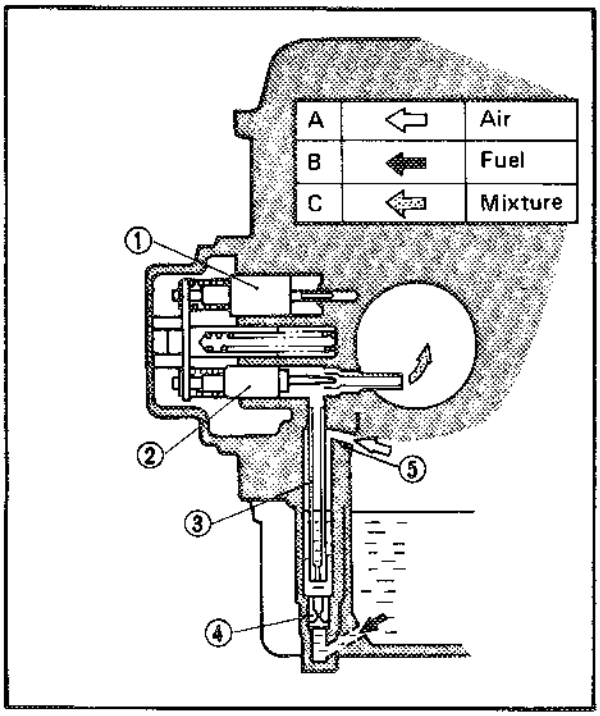
① Choke unit
② Cam
③ Starter plunger
④ Starter outlet



3. With a warm engine
The plunger is fully closed since the wax has expanded. The engine starts with only the mixture produced by the main bore.

① Choke unit
② Cam
③ Starter plunger
④ Starter outlet

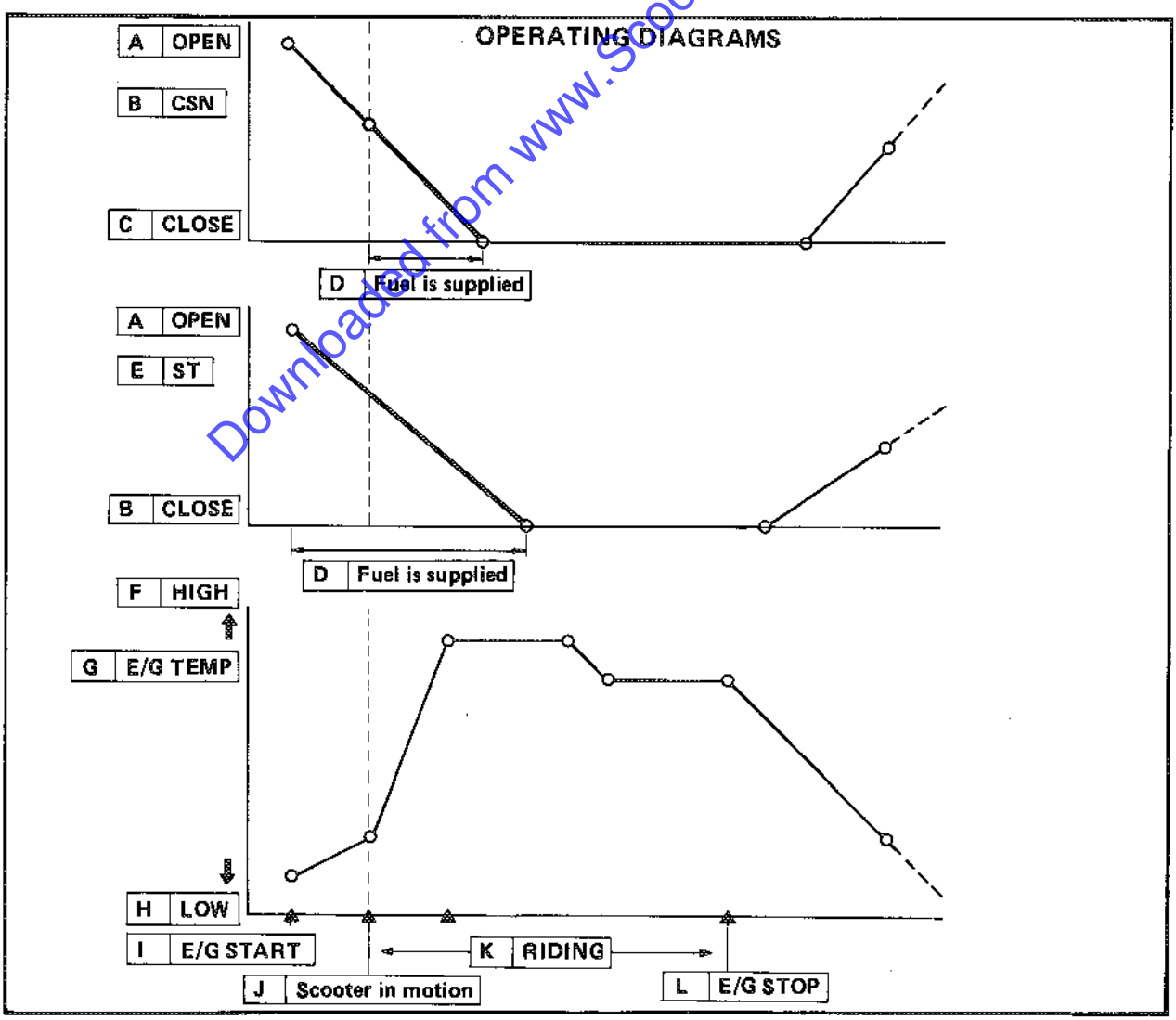
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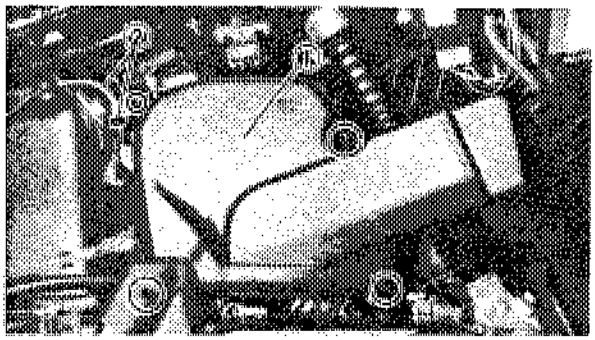


4. Accelerating with a cold engine
When an engine is not warmed-up sufficiently, the mixture will be lean during acceleration. The CSN system provides a rich mixture for smooth acceleration when the engine is cold, because the CSN plunger is open due to the cold wax in the thermostat. However, fuel will not be supplied unless the engine is accelerated. When the engine warms up sufficiently, the plunger will close due to the warmed wax in the thermostat.

① Starter plunger
② CSN plunger
③ CS nozzle
④ CS Jet
⑤ CS Air jet

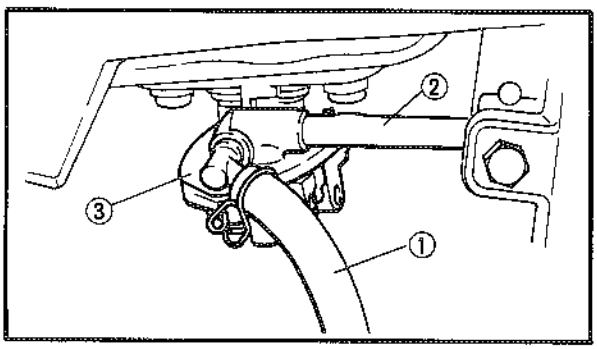
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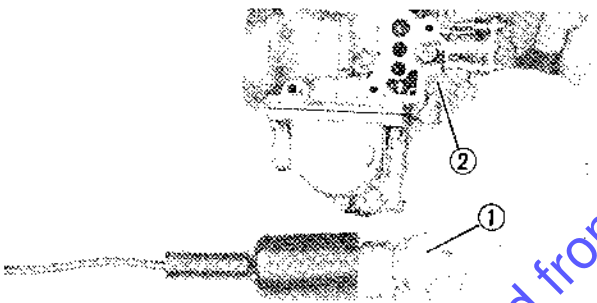


REMOVAL

1. Remove:
   - Side covers
   - Air cleaner box ①
2. Disconnect:
   - Throttle cable ②

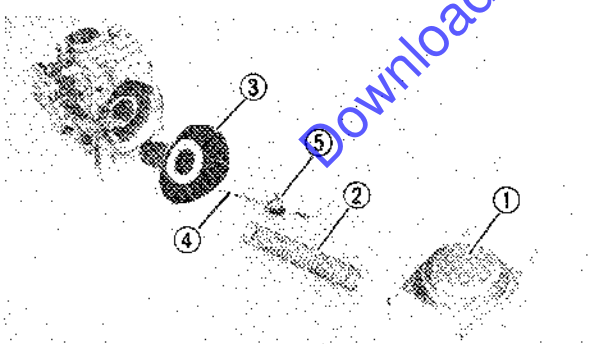


3. Disconnect:
   - Fuel hose ①
   - Starter choke unit lead
   - Vacuum hose ②
   - Fuel cock ③
4. Loosen:
   - Carburetor joint screw
5. Remove:
   - Carburetor



DISASSEMBLY

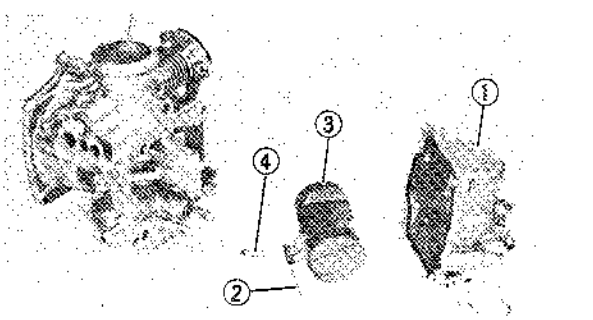
1. Remove:
   - Over flow hose
   - Air vent hose
   - Starter choke unit assembly ①
   - Starter plunger assembly ②



2. Remove:
   - Vacuum chamber cover ①
   - Spring ②
   - Vacuum piston ③
   - Jet needle ④

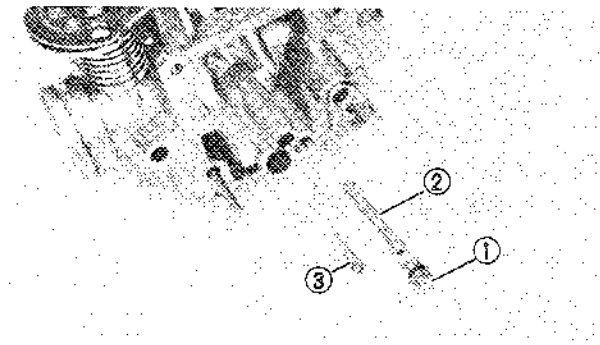
NOTE:

When removing the jet needle be sure not to loose the small spring ⑤ that may fall out. This spring holds the jet needle.

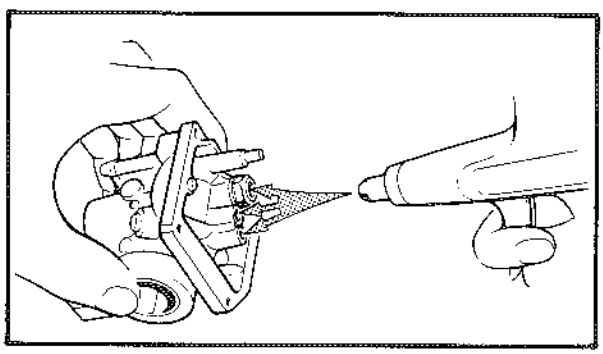


3. Remove:
   - Float chamber ①
   - Float pin ②
   - Float ③
   - Float valve ④

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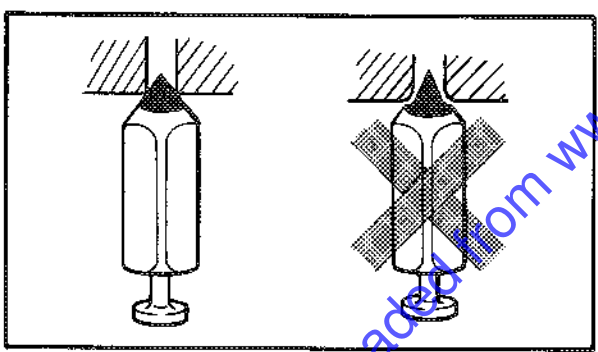


4. Remove:
   - Main jet ①
   - Needle jet ②
   - Pilot jet ③

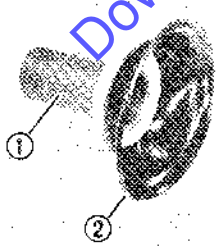


INSPECITON

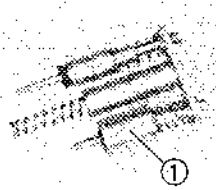
1. Inspect:
   - Carburetor body
   - Fuel and air passages
     Contamination → Wash in petroleum-based solvent.
2. Blow out all passages and jets with compressed air.



3. Inspect:
   - Float
     Damage/Torn → Replace.
   - Needle valve and valve seat
     Wear → Replace as a set.

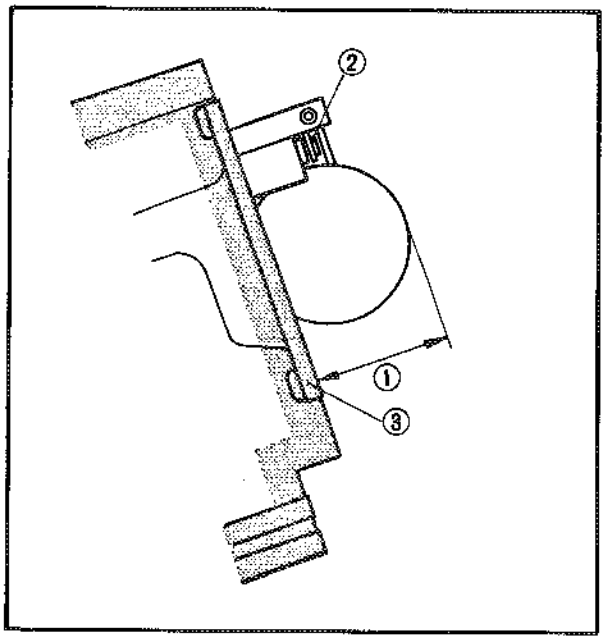


4. Inspect:
   - Vacuum piston ①
     Scratches → Replace as a set.
   - Rubber diaphragm ②
     Damage/Torn → Replace as a set.



5. Inspect:
   - Starter plunger ①
     Damage/Wear → Replace.
6. Install the starter pluger into the carburetor body and check for smooth movement with finger.
   Not smooth → Replace plunger assembly.

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FLOAT HEIGHT ADJUSTMENT

1. Measure:
   - Float height ①
     Out of specificaiton → Adjust.

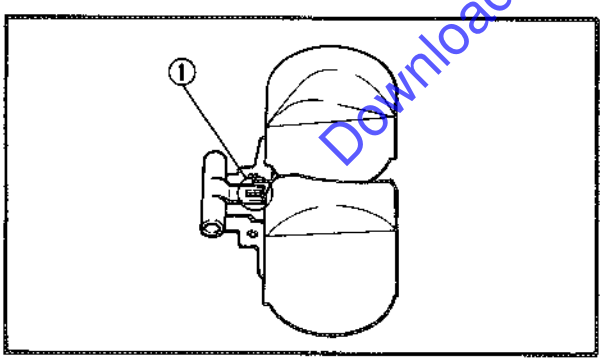
Float height measurement steps:
- Hold the carburetor in an upside down position.
- Incline the carburetor at 60 ~ 70° (so that the end of the float valve ② does not hand down as a result of float weight).
- Measure the distance from the mating surface ③ of the float chamber (gasket removed) to the top of the float.

NOTE:
The float should be just resting on, but not depressing, the spring loaded inlet needle.

Float Height:
26.5 ~ 27.5 mm (1.04 ~ 1.08 in)

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

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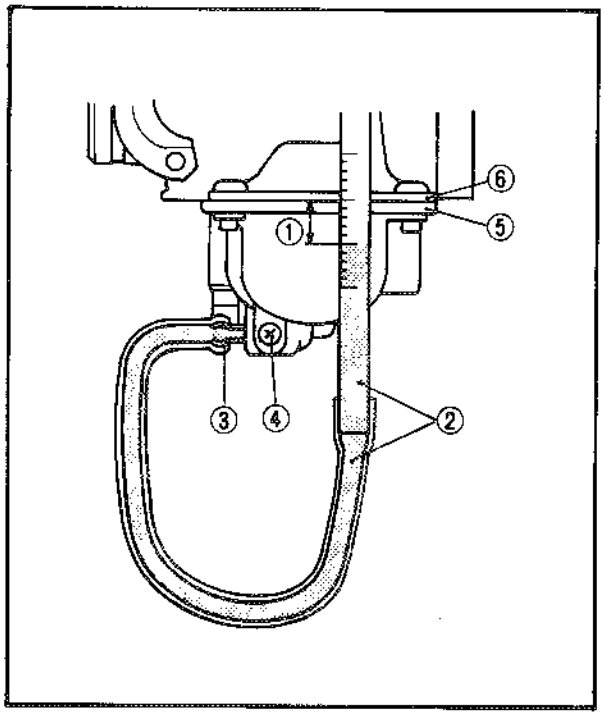


2. Adjust:
   - Float height
     By the following steps.

Float height adjustment step:
- Remove the float.
- Adjust float height by bending the float tang ① slightly.
- Recheck the fuel height.

ASSEMBLY AND INSTALLATION

1. Reverse disassembly and removal steps.



FUEL LEVEL ADJUSTMENT

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

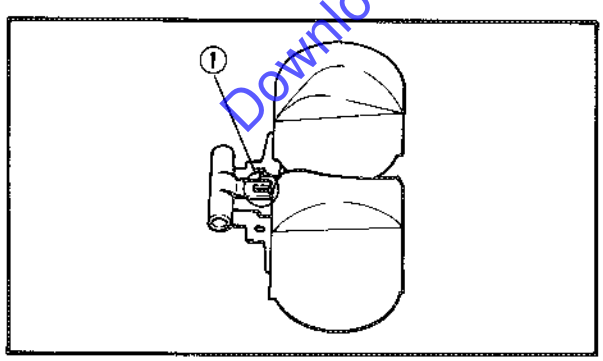
1. Measure:
   - Fuel level ①
     Out of specification → Adjust.

Measurement steps:
- Place the scooter on a level surface.
- Use a garage jack under the engine to ensure that the carburetor is positioned vertically.
- Connect the Fuel Level Gauge ② (YM-01312) to the drain nozzle ③.
- Loosen the drain screw ④ and start the engine.
- Measure the fuel level.

Fuel Level:
Below the carburetor body
4.5 ~ 5.5 mm (0.18 ~ 0.22 in)

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

⑤ Float chamber
⑥ Carburetor body



2. Adjust:
   - Fuel level
     By the following steps.

Adjustment steps:
- Remove the carburetor.
- Adjust float level by bending the float tang ① slightly.
- Recheck the fuel level.

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CHAPTER 5.
CHASSIS

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INSPECTION 5-2
INSTALLATION 5-4

REAR WHEEL 5-5
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BRAKE DISASSEMBLY 5-6
INSPECTION 5-6
INSTALLATION 5-7

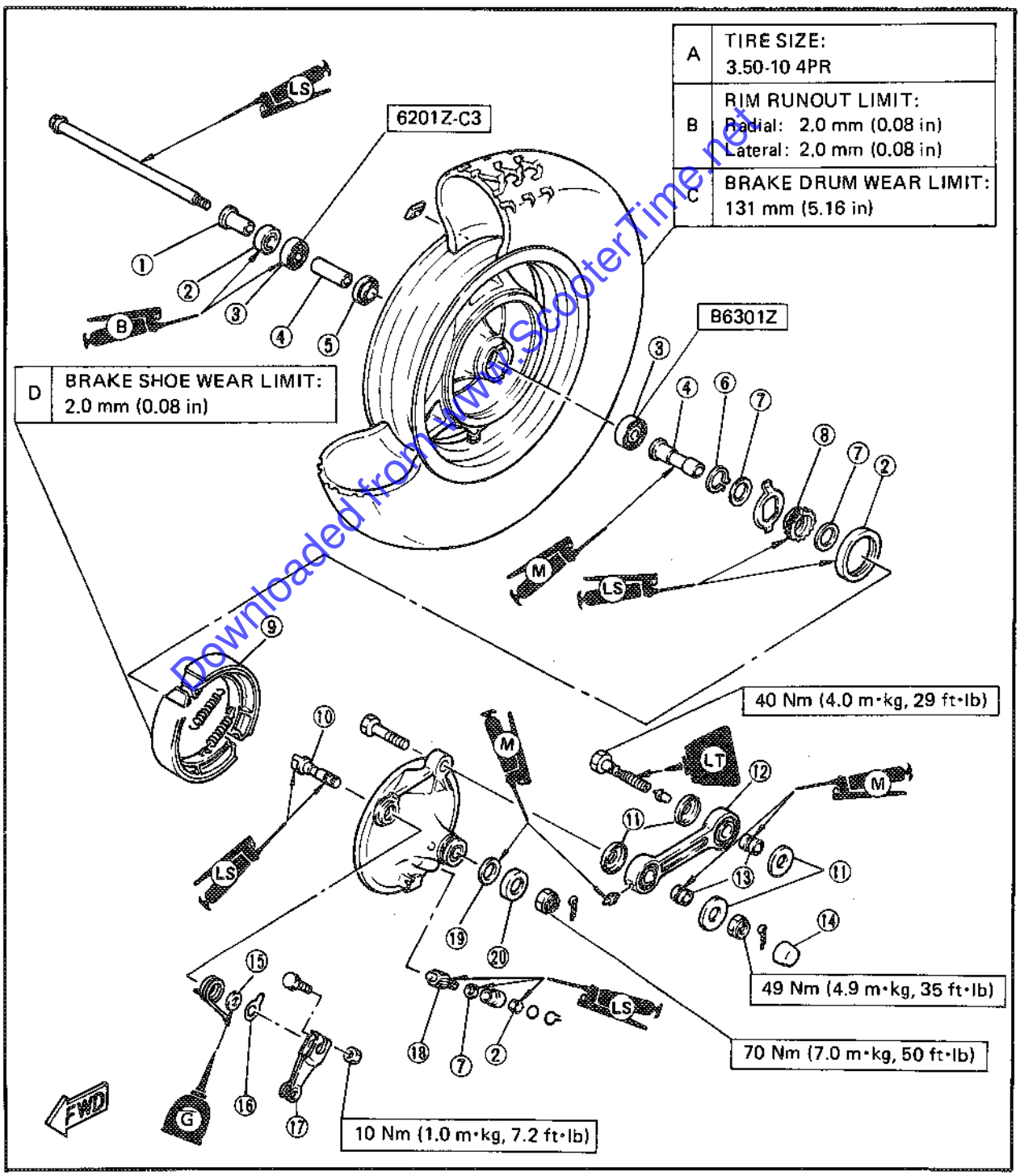
FRONT FORKS AND STEERING HEAD 5-8
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CHASSIS

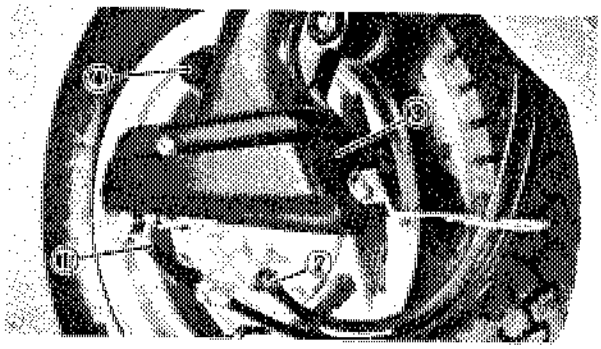
FRONT WHELL

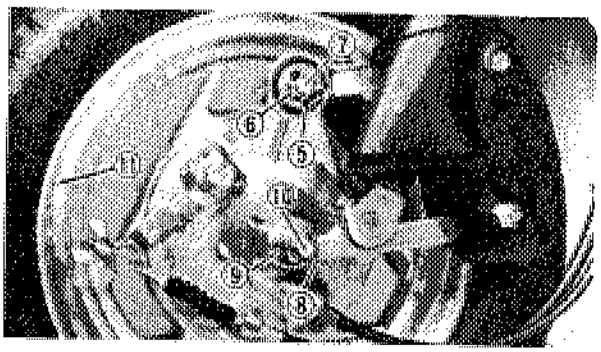
① Collar
② Oil seal
③ Bearing
④ Spacer
⑤ Spacer frange
⑥ Circlip
⑦ Washer
⑧ Speedometer drive gear
⑨ Brake shoe
⑩ Brake camshaft
⑪ Seal cover
⑫ Tension bar
⑬ Collar
⑭ Rubber cap
⑮ Felt
⑯ Wear indicator
⑰ Brake cam lever
⑱ Meter gear
⑲ O-ring
⑳ Washer



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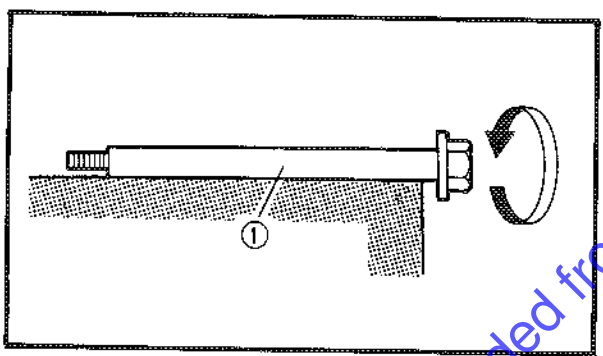
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REMOVAL

1. Place the scooter on its centerstand.
2. Disconnect:
   - Brake cable ①
   - Speedometer cable ②
3. Remove:
   - Front suspension covers ③
   - Rubber cap ④
   - Cotter pin ⑤
   - Nut (Tension bar) ⑥
   - Bolt ⑦
   - Cotter pin (Front axle) ⑧
   - Axle nut ⑨
   - Front axle ⑩
   - Front wheel ⑪

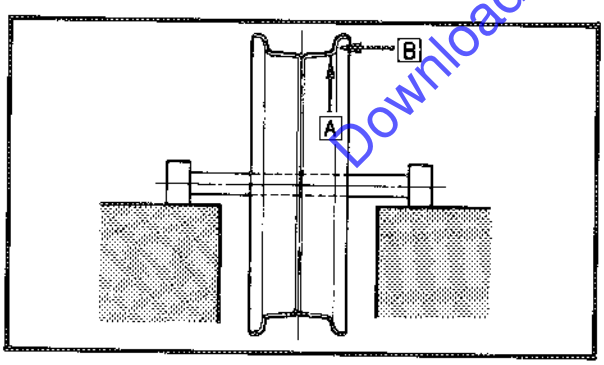


INSPECTION

1. Inspect:
   - Front axle ①
     Roll the axle on a Flat Surface.
     Bends → Replace.

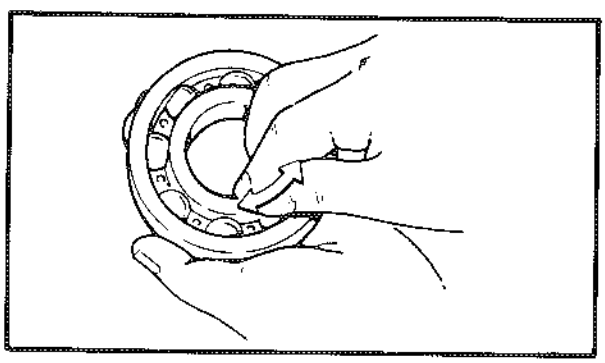
WARNING

Do not attempt to straighten a bent axle.



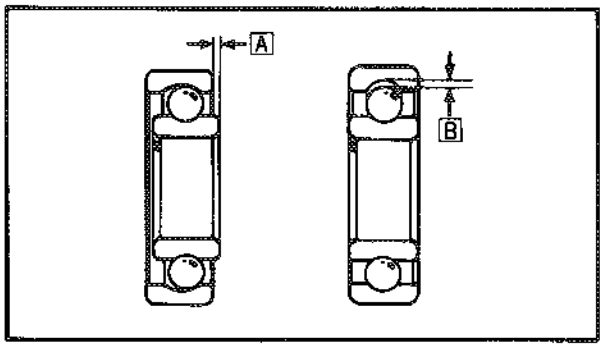
2. Inspect:
   - Wheel
     Cracks/Bends/Warpage → Replace.
3. Measure:
   - Wheel runout
     Out of specification → Replace.

Rim Runout Limits:
Radial A : 2.0 mm (0.08 in)
Lateral B : 2.0 mm (0.08 in)



4. Inspect:
   - Wheel bearings
     Bearings allow play in the wheel hub or wheel turns roughly → Replace.

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

A Lateral free play
B Radial free play

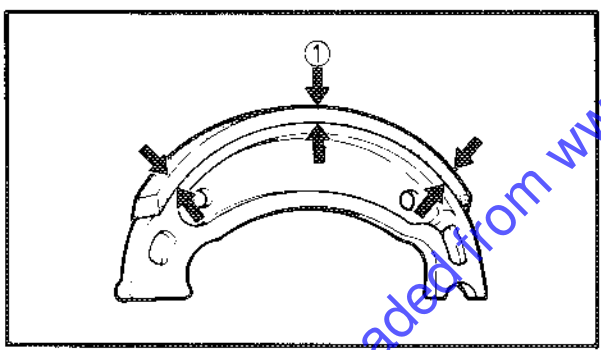
WARNING:

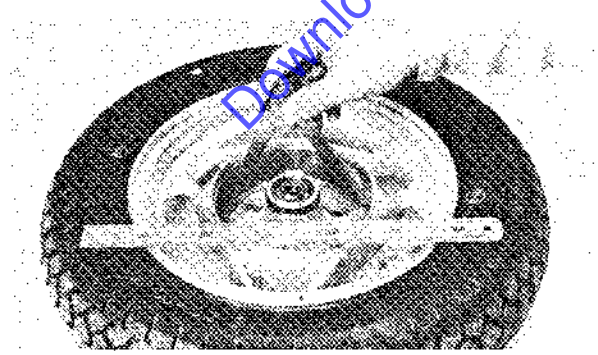
Eye protection is recommended when using striking tools.

- Install the new bearing by reversing the previous steps.

CAUTION:

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





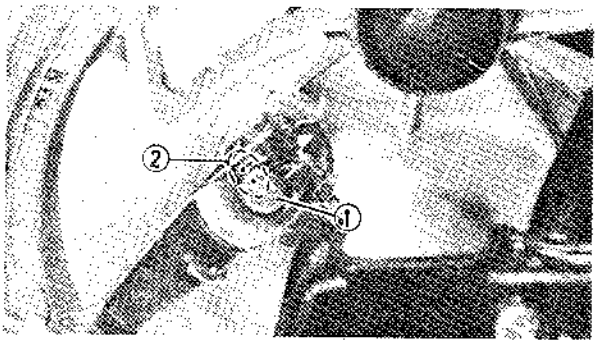
5. Inspect:
   - Brake shoes
     Glazed parts → Sand with coarse sandpaper.
6. Measure:
   - Brake shoe (Thickness) ①
     Out of specification → Replace.

Brake Shoe Thickness:
Standard: 4.0 mm (0.16 in)
Limit: 2.0 mm (0.08 in)

7. Inspect:
   - Brake drum (Inner surface)
     Oil → Wipe off brake drum with rag soaked in lacquer thinner or solvent.
     Scratches → Polish brake drum lightly and evenly with emery cloth.
8. Measure:
   - Brake drum inside diameter
     Out of specification → Replace.

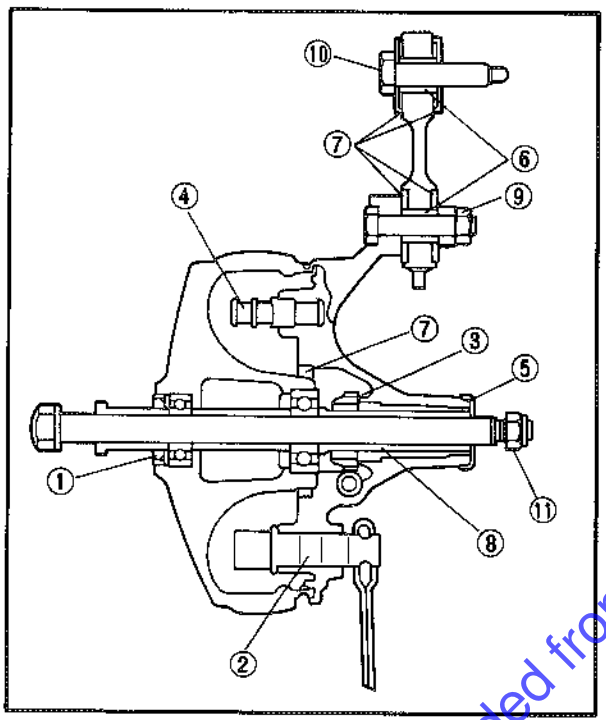
Brake Drum Inside Diameter:
Standard: 130 mm (5.12 in)
Limit: 131 mm (5.16 in)

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9. Inspect:
   - Camshaft ①
     Wear → Replace camshaft.
     Condition OK → Grease camshaft.

NOTE:
Place alignment marks ② on the cam lever and camshaft when assembly.



INSTALLATION

1. Install
   - Front wheel
     Reverse removal procedure.

Front wheel installation points:

1. Apply grease to the following parts:
   - Oil seals ① (lips)
   - Camshaft ② (shaft and cam)
   - Speedometer drive gear ③
   - Pivot shaft ④

Lightweight Lithium-soap Base Grease

- O-ring ⑤
- Collars ⑥ (insides and outside)
- Seal covers ⑦ (inside)
- Collar ⑧ (inside and outside)

Molybdenum Disulfide Grease

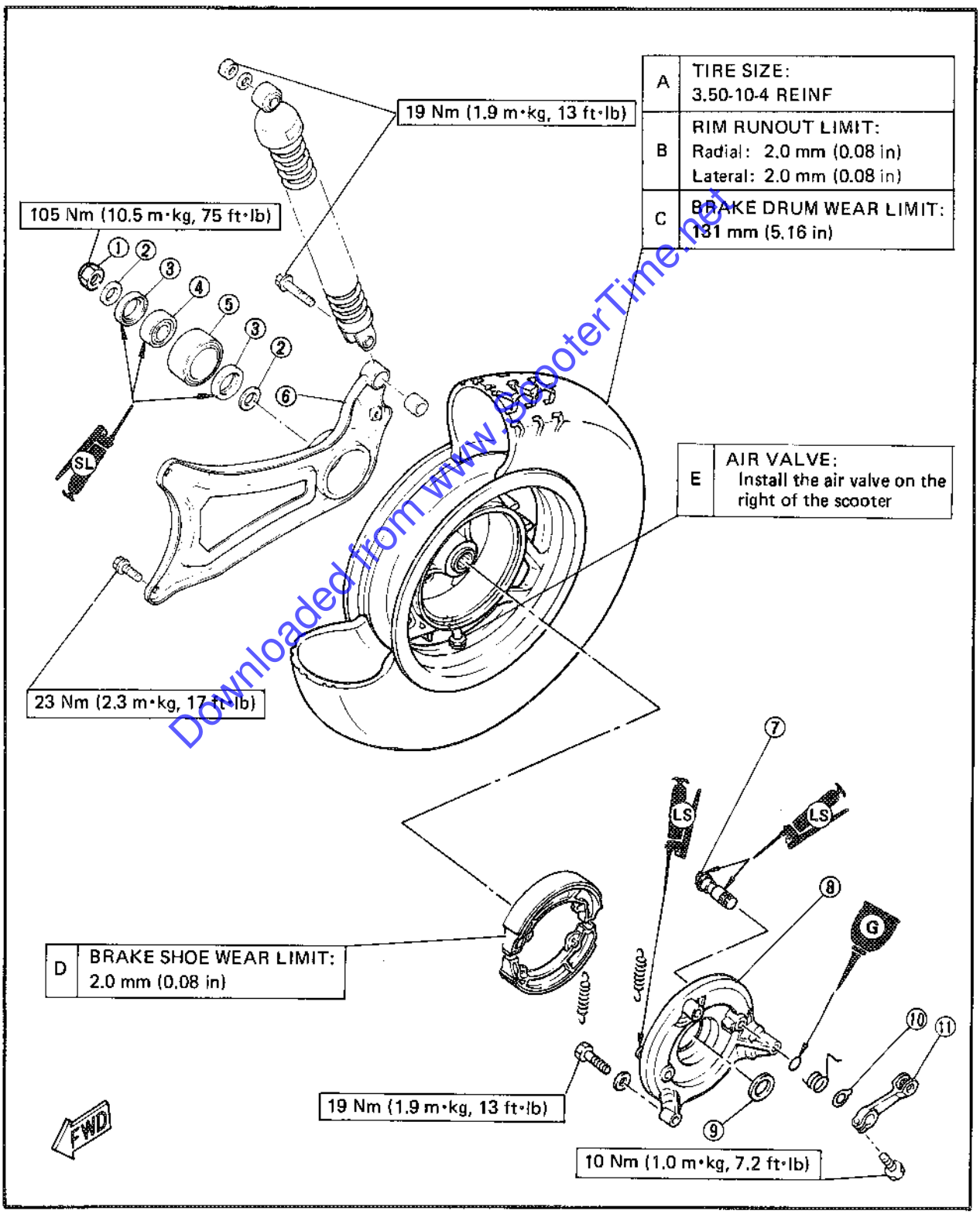
2. Tighten:
   - Nut (Tension bar) ⑨
   - Bolt (Tension bar) ⑩
   - Axle nut ⑪

Nut (Tension Bar) ⑨ :
49 Nm (4.9 m·kg, 35 ft·lb)
Bolt (Tension Bar) ⑩ :
40 Nm (4.0 m·kg, 29 ft·lb)
Axle Nut ⑪ :
70 Nm (7.0 m·kg, 50 ft·lb)

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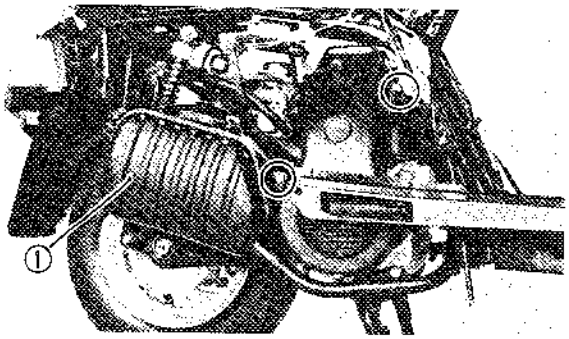
REAR WHEEL

① Axle nut
② Washer
③ Oil seal
④ Bearing
⑤ Bushing
⑥ Rear arm
⑦ Camshaft
⑧ Brake shoe plate
⑨ Washer
⑩ Wear indicator
⑪ Camshaft lever



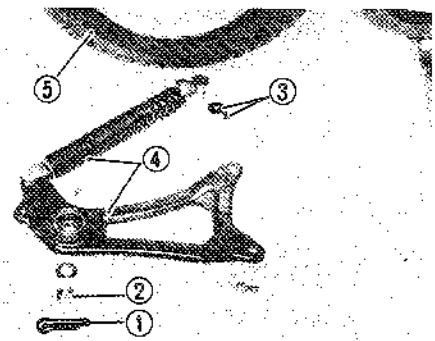
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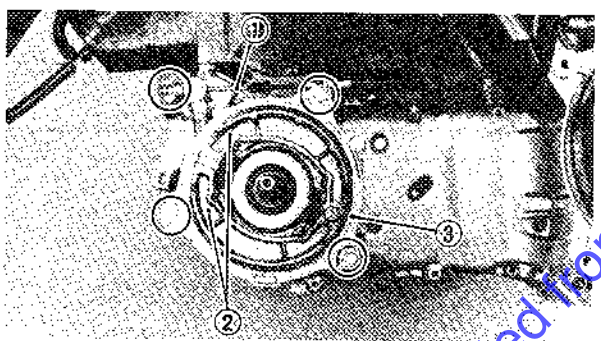


REMOVAL

1. Remove:
   - Side cover (Right)
   - Front cover
   - Muffler ①



2. Remove:
   - Cotter pin ①
   - Axle nut ②
     (by applying the rear brake)
   - Shock absorber pivot nut (With washer) ③
   - Shock absorber/Rear arm ④
   - Rear wheel ⑤



BRAKE DISASSEMBLY

1. Disconnect:
   - Rear brake cable ①
2. Remove:
   - Brake shoes ②
   - Brake shoe plate ③

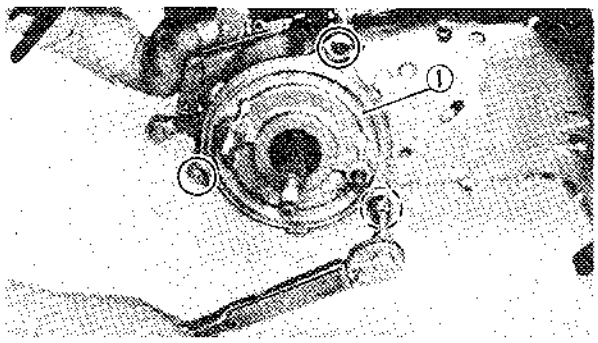
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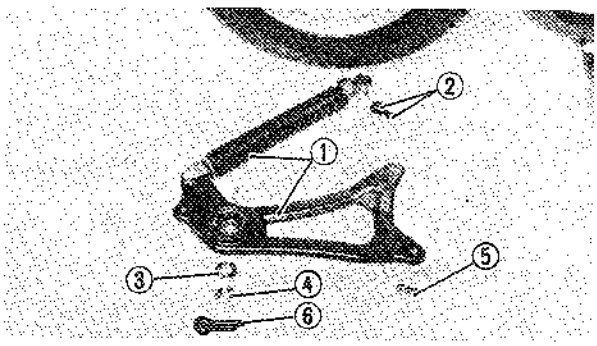
INSPECTION

1. Inspect:
   - Front axle
   - Wheel
   - Wheel bearings
   - Brake shoes
   - Brake drum (Inner surface)
   - Camshaft

   Refer to "FRONT WHEEL—INSPECTION" section.
2. Measure:
   - Wheel runout
   - Brake shoe (Thickness)
   - Brake drum inside diameter

   Refer to "FRONT WHEEL—INSPECTION" section.





INSTALLATION

1. Install:
   - Brake shoe plate ①

Bolt (Brake Shoe Plate):
19 Nm (1.9 m·kg, 13 ft·lb)

   - Brake shoes
   - Rear wheel

2. Install:
   - Rear arm/Shock absorber ①
   - Shock absorber pivot nut ②
   - Washer ③
   - Axle nut ④
3. Tighten:
   - Axle nut ④
   - Bolt (Rear arm) ⑤
   - Shock abosrber pivot nut ②

CAUTION:
This tightening sequence is important. So follow this steps.

Axle Nut:
105 Nm (10.5 m·kg, 75 ft·lb)
Rear Arm:
23 Nm (2.3 m·kg, 17 ft·lb)
Shock Absorber:
16 Nm (1.6 m·kg, 11 ft·lb)

4. Install:
   - Cotter pin (New) ⑥
5. Install:
   - Muffler

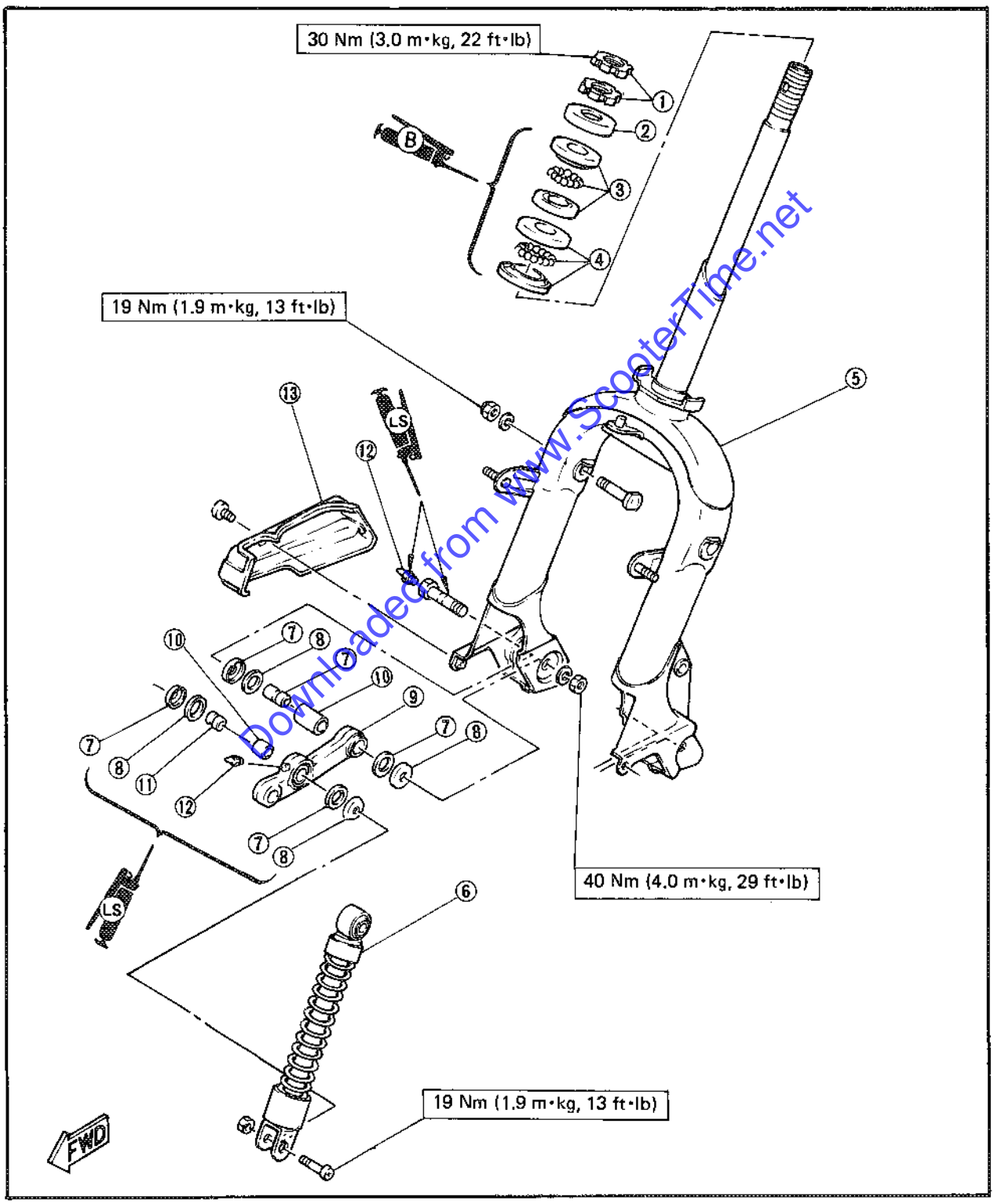
Exhaust:
10 Nm (1.0 m·kg, 7.2 ft·lb)
Body:
16 Nm (1.6 m·kg, 11 ft·lb)

   - Front cover
   - Side cover (Right)

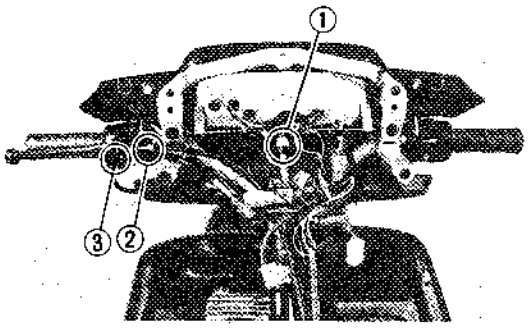
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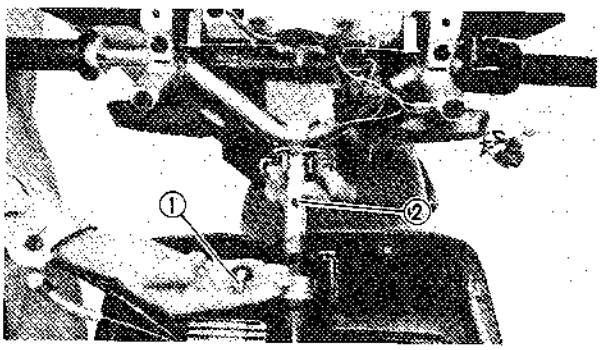
FRONT FORKS AND STEERING HEAD

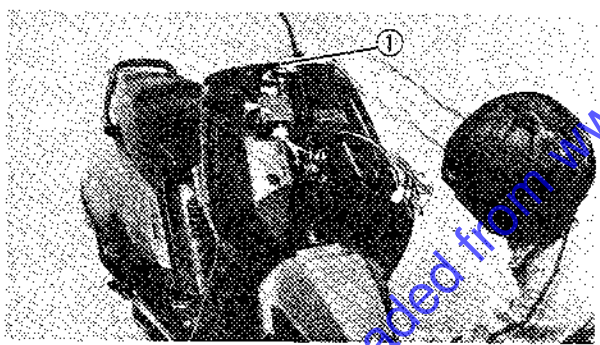
① Ring nut
② Bearing cover
③ Upper bearing
④ Lower bearing
⑤ Fork cover
⑥ Shock absorber
⑦ Thrust cover
⑧ Oil seal
⑨ Arm
⑩ Bushing
⑪ Collar
⑫ Grease nipple
⑬ Arm cover

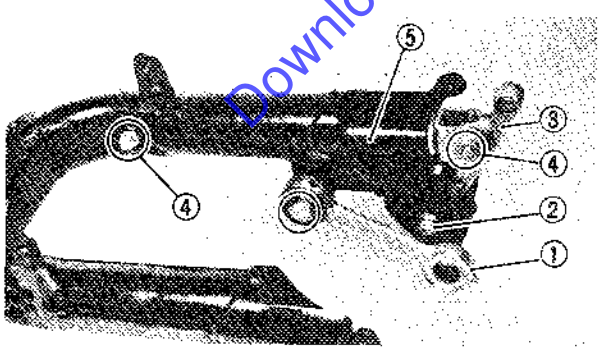


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REMOVAL

1. Remove:
   - Front wheel
   - Leg shield (Front)
   - Handlebar cover (Front)
2. Disconnect:
   - Electrical leads
   - Speedometer cable ①
   - Front brake cable ②
   - Throttle cable ③
3. Remove:
   - Bolt (Handlebar mounting) ①
   - Handlebar assembly ②

4. Remove:
   - Ring nuts (Upper and lower) ①
     Use the Ring Nut Wrench (YU-33975).

NOTE:
Support the forks not to drop the ball bearings.

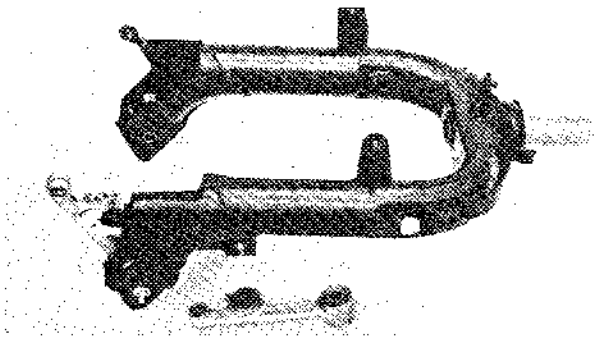
   - Front fork cover
   - Front fender (Front)
   - Front fender (Rear)

5. Remove:
   - Tension bar ①
   - Bolts (Arm) ②
   - Arms ③
   - Bolts (Shock absorber) ④
   - Shock absorbers ⑤

INSPECTION

1. Inspect:
   - Shock absorber assembly
     Leakage/Damage → Replace.

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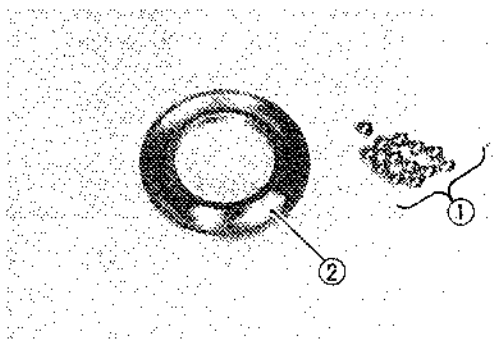


2. Inspect:
   - Fork cover
   - Arms

   Cracks/Bends → Replace.

WARNING:

Do not attempt to straighten a bent fork cover: this may dangerously weaken the cover.



3. Wash the ball bearings in a solvent.
4. Inspect:
   - Ball bearings ①

     Pitting/Damage → Replace.
   - Bearing race ②

     Pitting/Damage → Replace.

NOTE:

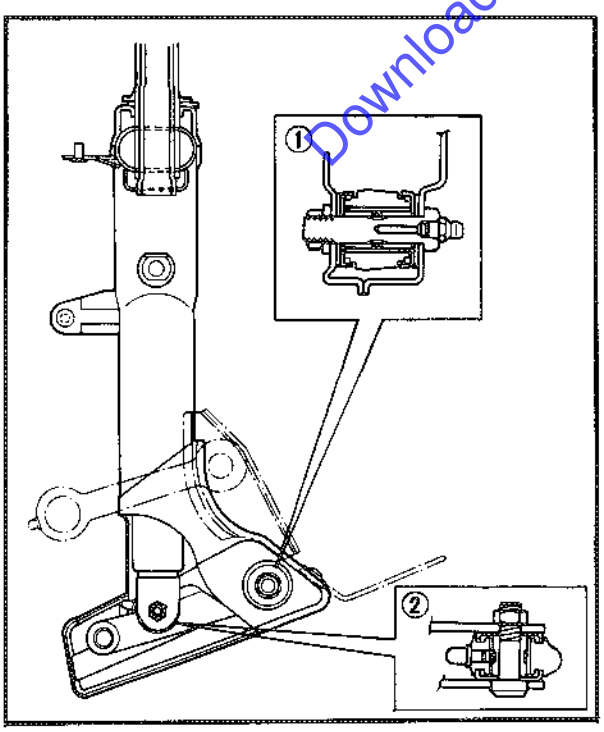
Always replace bearing and race as a set.

5. When removing the race, drive out by striking it in steps. And fit the race squarely in the head pipe.

CAUTION:

If the bearing race is fitted not squarely, the head pipe could be damaged.

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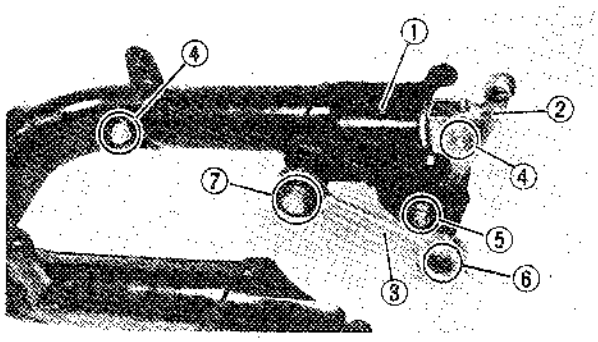
ASSEMBLY

1. Apply:
   - Arm pivot ①
   - Shock absorber lower mount ②

Lightweight Lithium-soap Base Grease

   - Tension bar and front wheel

     Refer to "FRONT WHEEL–WHEEL INSTALLATION" section.

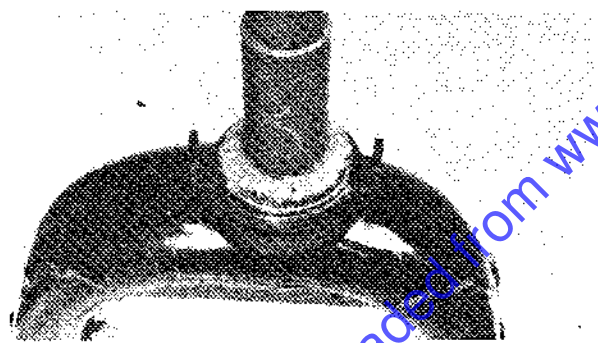


2. Install:
   - Shock absorbers ①
     (into the fork cover)
   - Arms ②
   - Tension bar ③

Shock Absorber ④ :
19 Nm (1.9 m·kg, 13 ft·lb)
Arm Pivot ⑤ :
40 Nm (4.0 m·kg, 29 ft·lb)
Tensionbar-Brake Plate ⑥ :
49 Nm (4.9 m·kg, 35 ft·lb)
Tensionbar-Fork Cover ⑦ :
40 Nm (4.0 m·kg, 29 ft·lb)
Axle Nut:
70 Nm (7.0 m·kg, 50 ft·lb)

3. Install:
   - Front fender (Rear)
   - Front fender (Front)

4. Grease the races and put the balls in it.



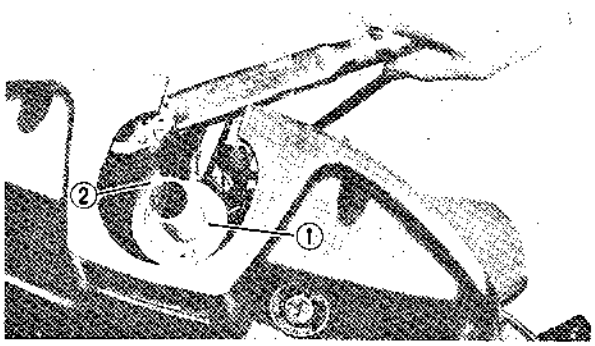
Wheel Bearing Grease:

NOTE:
Make sure the balls are of the same size and the quantity is correct.

Upper	22 pcs	3/16 in
Lower	19 pcs	1/4 in

5. Install:
   - Bearing Race (Upper)
   - Bearing cover
   - Front fork cover
   - Ring nuts (Lower and upper)

NOTE:
The tapered side of ring nut must face downward.



6. Tighten:
   - Ring nuts (Lower and upper)
     By the following tightening steps.

Ring nuts tightening steps:
- Tighten the ring nut (lower) ① using the Ring Nut Wrench (YU-33975) ② .

NOTE:
Set the Torque Wrench to the Ring Nut Wrench so that they form a right angle.

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WARNING:

Do not over-tightening.

Ring Nut (Lower):
30 Nm (3.0 m·kg, 22 ft·lb)

- Loosen the ring nut (lower) 1/4 turn.
- Hold the ring nut (lower), and tighten the ring nut (upper) using the Ring Nut Wrench.

NOTE:

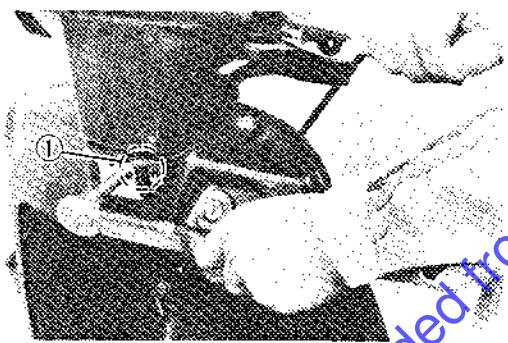
Set the Torque Wrench to the Ring Nut Wrench so that they form a right angle.

WARNING:

Do not over-tightening.

Ring Nut (Upper):
30 Nm (3.0 m·kg, 22 ft·lb)

- Check the smooth operation of the steering shaft, and readjust it as required.



7. Install:
   - Handlebar assembly
8. Tighten:
   - Bolt (Handlebar mounting) ①

Bolt (Handlebar Mounting):
34 Nm (3.4 m·kg, 24 ft·lb)

NOTE:

Take care for handlebar-front wheel alignment.

9. Continue Assemble; Reverse the disassembly procedures and note the following points.
   - Check for smooth throttle operation and quick spring return. Make certain that the housing does not rotate on the handlebar.
   - Before installing the leg shield, check for electrical component operations.
   - Adjust the front brake for free play and operation. Refer to "CHAPTER 2. FRONT BRAKE ADJUSTMENT" section.

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CHAPTER 6.
ELECTRICAL

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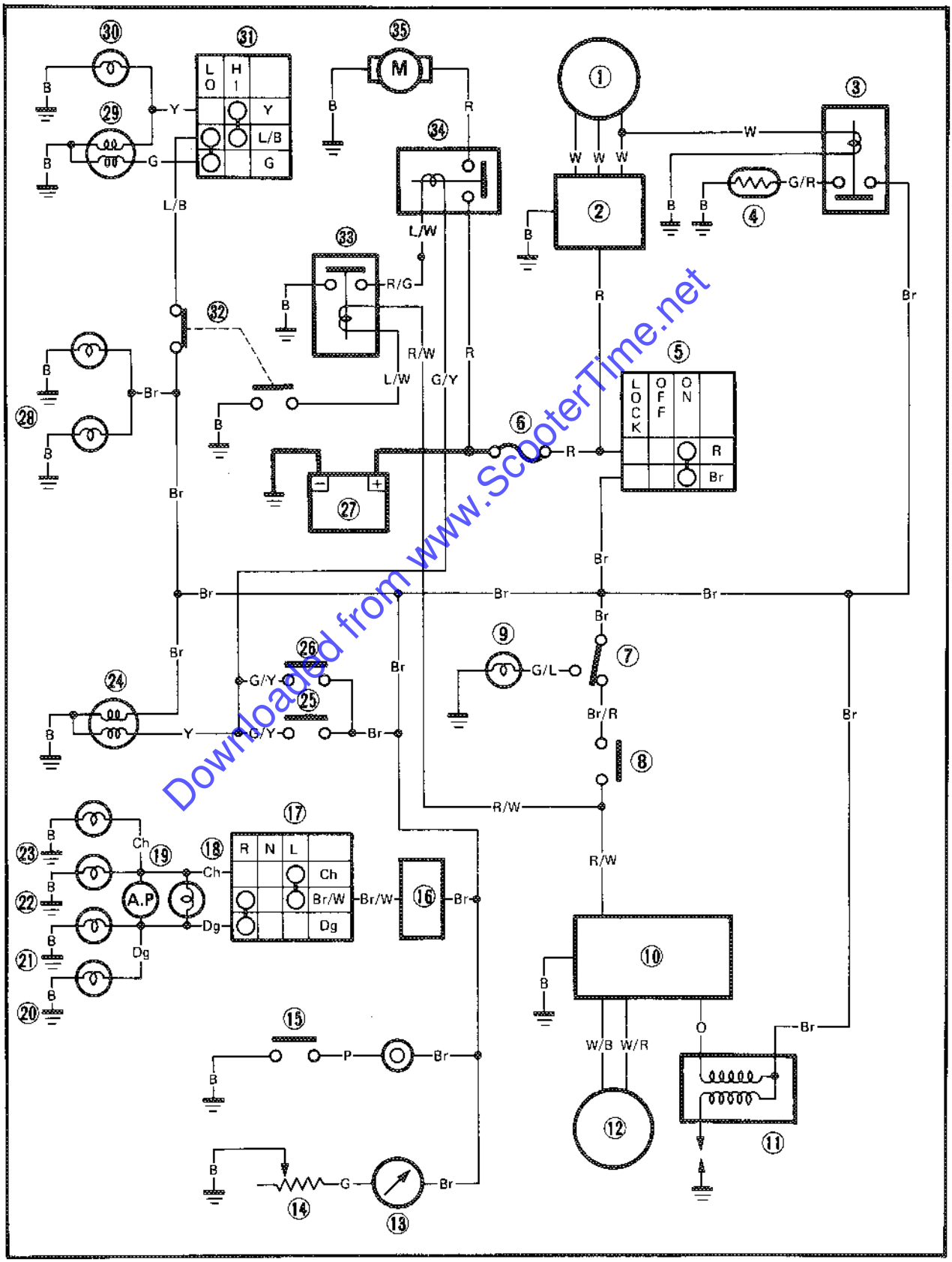
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ELECTRICAL

CIRCUIT DIAGRAM



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① AC generator
② Rectifier/Regulator
③ Choke relay
④ Choke unit
⑤ Main switch
⑥ Fuse
⑦ Sidestand switch
⑧ "ENGINE STOP" switch
⑨ "STAND" indicator light
⑩ Ignitor unit
⑪ Ignition coil
⑫ Pickup coil
⑬ Fuel meter
⑭ Fuel sender
⑮ "HORN" switch
⑯ Flasher relay
⑰ "TURN" switch
⑱ "TURN" indicator light
⑲ Audio pilot
⑳ Rear flasher light (Right)
㉑ Front flasher light (Right)
㉒ Rear flasher light (Left)
㉓ Front flasher light (Left)
㉔ Tail/Brake light
㉕ Rear brake switch
㉖ Front brake switch
㉗ Battery
㉘ Meter lights
㉙ Headlight
㉚ "HIGH BEAM" indicator light
㉛ "LIGHTS" (Dimmer) switch
㉜ "START" switch
㉝ Starting circuit cut-off relay
㉞ Starter relay
㉟ Starter motor

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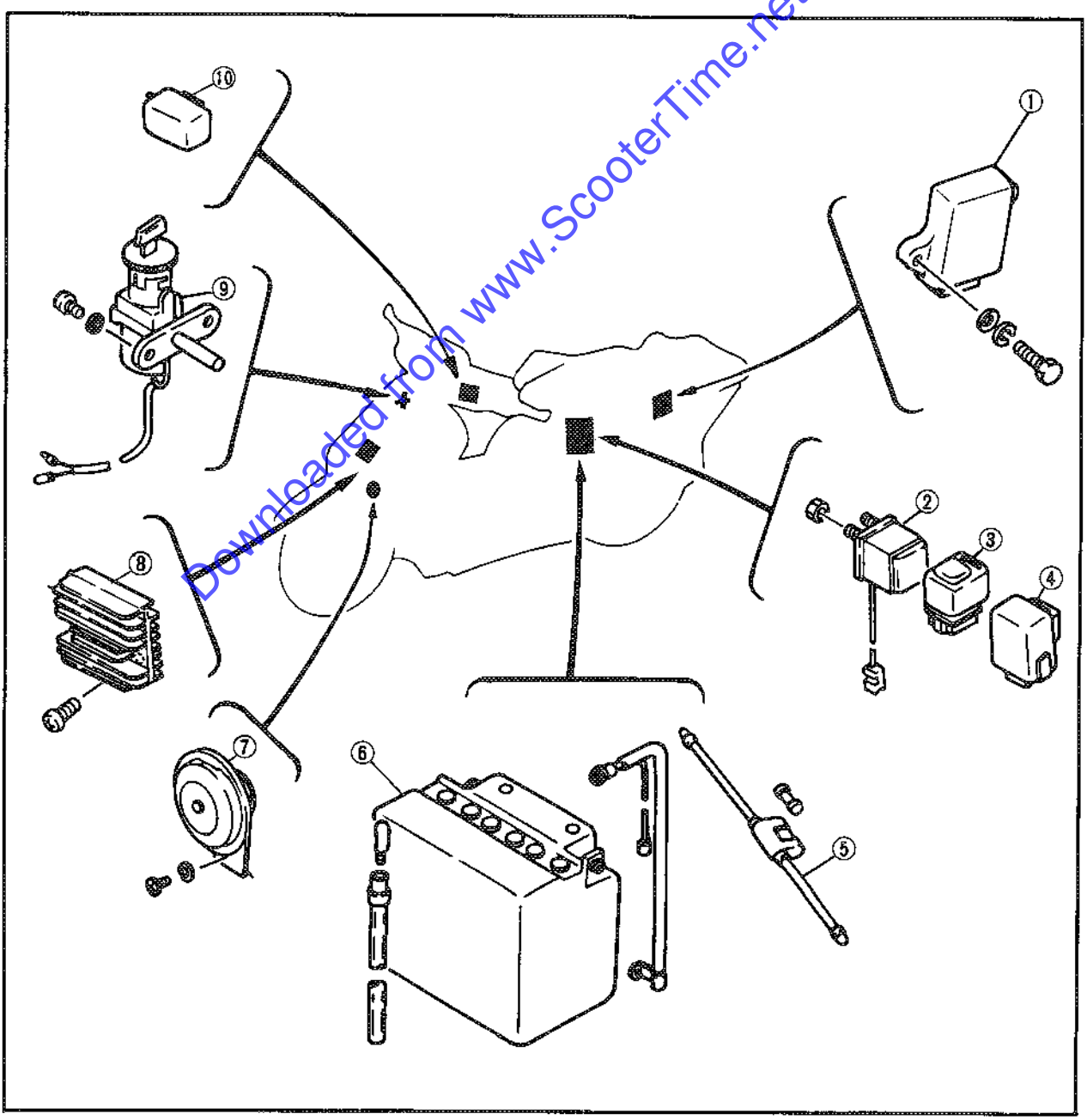
COLOR CODE

B . . . . . .Black	Br. . . . . .Brown	L/W . . . . .Blue/White
L . . . . . .Blue	Ch . . . . . .Chocolate	L/B. . . . . .Blue/Black
O . . . . . .Orange	Dg . . . . . .Dark green	G/W . . . . .Green/White
G . . . . . .Green	W/B . . . . .White/Black	G/R . . . . .Green/Red
R . . . . . .Red	W/R . . . . .White/Red	G/Y . . . . .Green/Yellow
Y . . . . . .Yellow	R/G . . . . .Red/Green	G/L . . . . .Green/Blue
W. . . . . .White	R/W . . . . .Red/White	Br/W. . . . .Brown/White
P . . . . . .Pink	B/W . . . . .Black/White	Br/R . . . . .Brown/Red

ELECTRICAL COMPONENTS 1

① Ignitor unit
② Starter relay
③ Flasher relay
④ Starting circuit cut-off relay
⑤ Fuse
⑥ Battery
⑦ Horn
⑧ Rectifire/Regulater
⑨ Main switch
⑩ Audio pilot

A	Starter Relay Coil Resistance: 2.7 ~ 3.3Ω at 20°C (68°F) (Blue/White – Green/Yellow)
B	Starting Circuit Cut-off Relay Coil Resistance: 68 ~ 83Ω at 20°C (68°F) (Blue/White – Red/White)
C	Battery: Capacity: 12V 7AH Specific gravity: 1.280
D	Rectifire Regulated Voltage: 14 ~ 15V

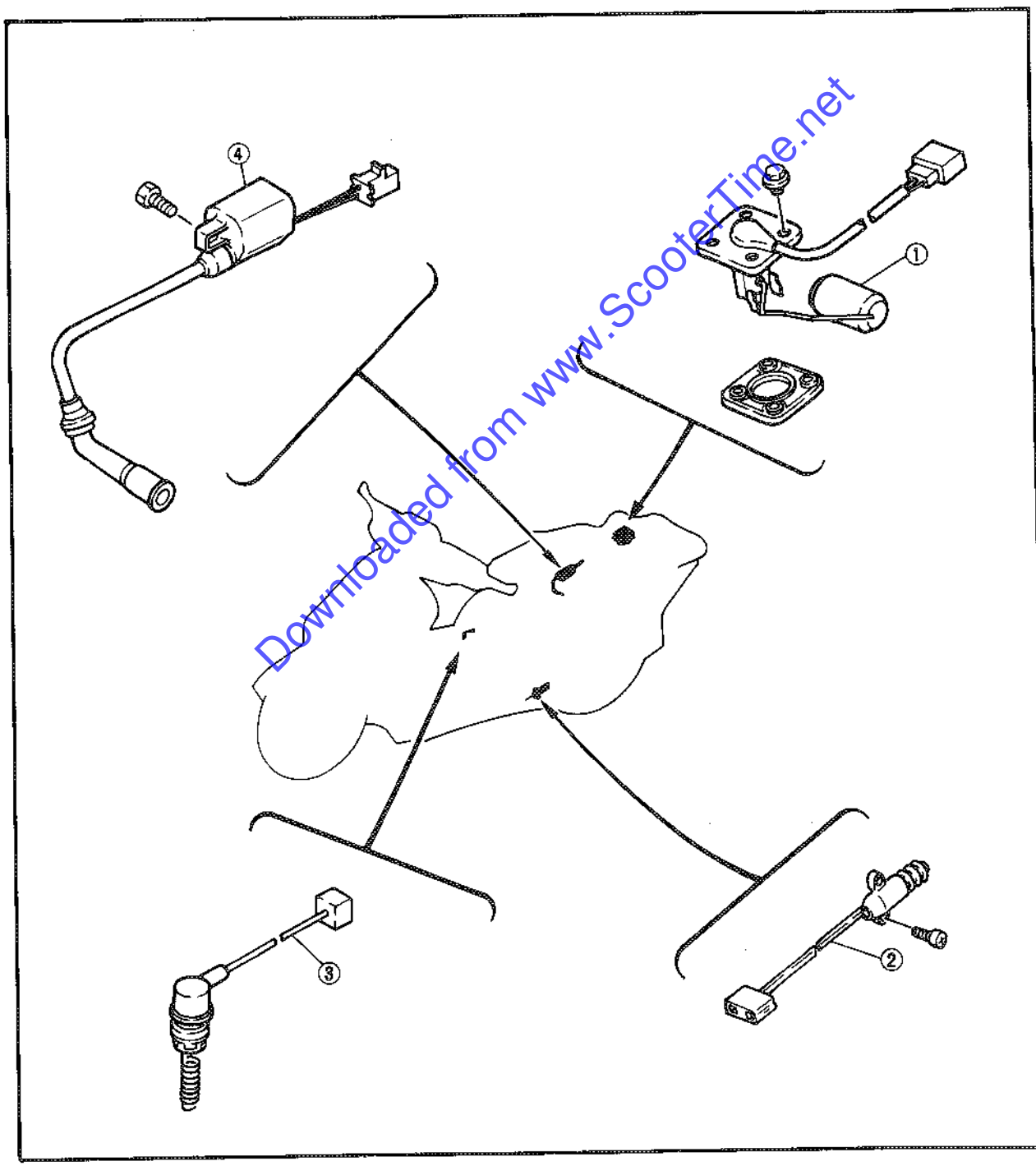


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ELECTRICAL COMPONENTS 2

① Fuel sender
② Side stand switch
③ Rear brake switch
④ Ignition coil

A	Fuel Sender Resistance: Full position: 4 ~ 10Ω at 20°C (68°F) Empty position: 90 ~ 100Ω at 20°C (68°F)
B	Ignition Coil: Primary winding resistance: 2.43 ~ 2.97Ω at 20°C (68°F) Secondary winding resistance: 10.6 ~ 15.8kΩ at 20°C (68°F)

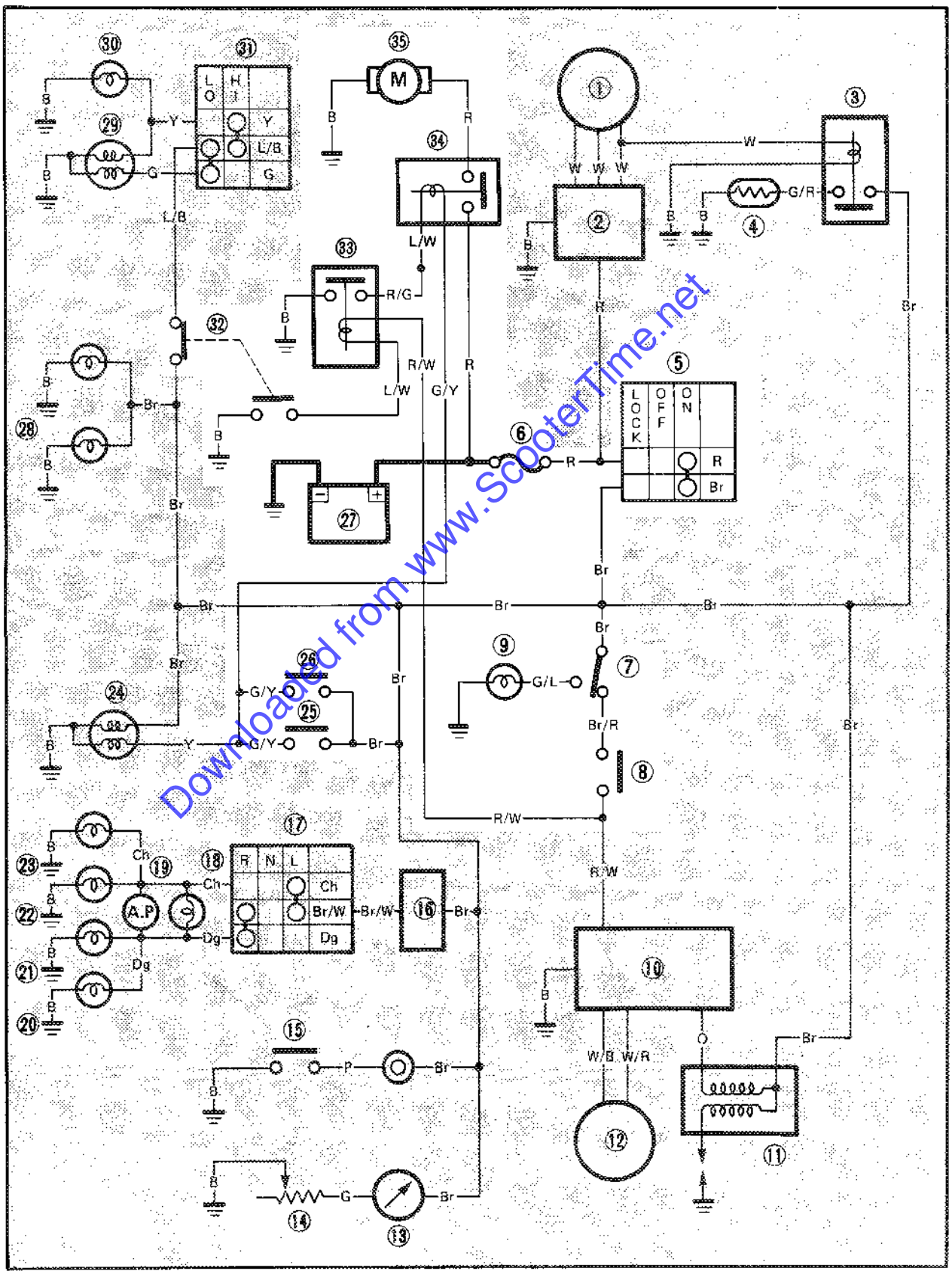


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ELECTRIC STARTING SYSTEM

CIRCUIT DIAGRAM

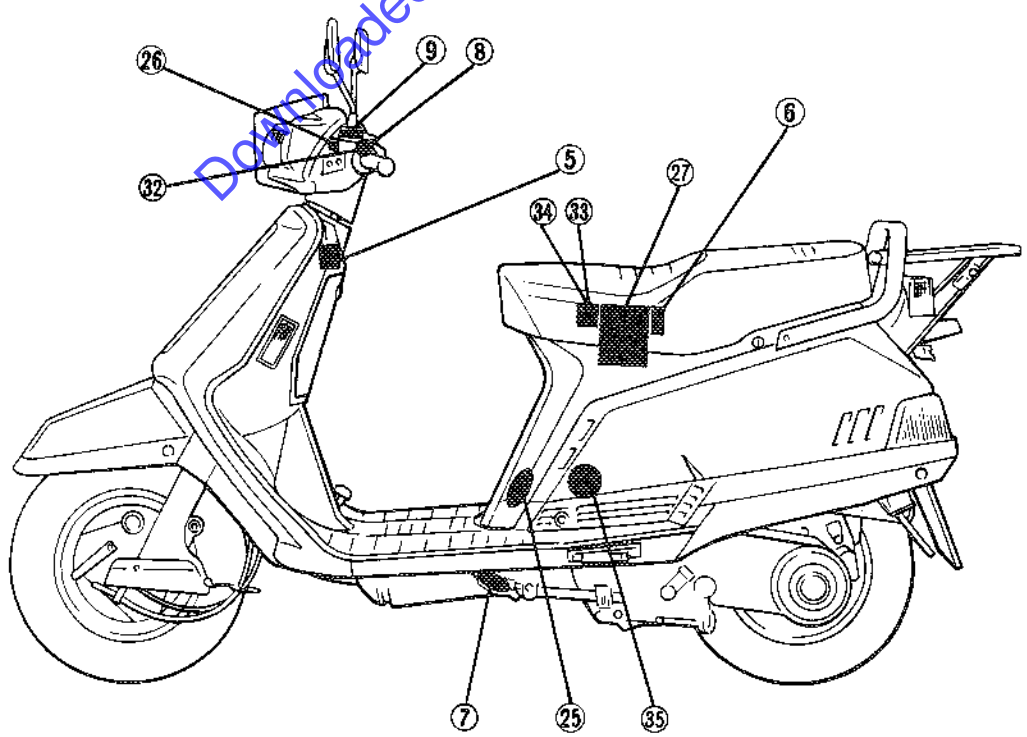
Below circuit diagram shows starter circuit.



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⑤ Main switch
⑥ Fuse
⑦ Sidestand switch
⑧ "ENGINE STOP" switch
⑨ "STAND" indicator light
㉕ Rear brake switch
㉖ Front brake switch
㉗ Battery
㉜ "START" switch
㉝ Starting circuit cut-off relay
㉞ Starter relay
㉟ Starter motor

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TROUBLESHOOTING

Troubleshooting Chart (1)

THE STARTER MOTOR DOES NOT OPERATE.

↓

Open the seat, and disconnect the 2-pin coupler (R/G and G/Y) from the starter relay.

↓

Turn the main switch to "ON", and then hold the brake lever or step down the brake pedal.

↓

Check the battery voltage (12V) on the "G/Y" lead into the 2-pin coupler.

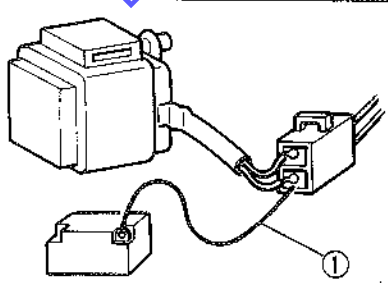
NO → Check for an open or poor connection between the battery and starter relay.

↓

Connect the 2-pin coupler (R/G and G/Y) to the starter relay.

↓

Connect the "L/W" lead into the 2-pin coupler to the battery negative (–) terminal; use a jumper lead ①.



↓

The starter motor operates.

↓

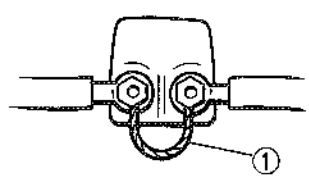
The starting circuit cut-off relay circuit is faulty. Go to CHAPTER (2).

The starter motor does not operate.

↓

If the starter relay does not click; replace the relay.

If the starter relay clicks; check the starter motor operation using the heavy duty jumper lead ①.



↓

If the starter motor does not operate, check the starter motor.

If the starter motor operates, replace the starter relay.

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Troubleshooting Chart (2)

THE STARTER MOTOR DOES NOT OPERATE.

↓

Check the starter relay and starter motor; refer to CHART (1).

↓

Disconnect the 4-pin coupler (R/G, R/W, B and L/W) from the starting circuit cut-off relay.

↓

Turn the main switch to "ON" and "ENGINE STOP" switch to "RUN", and then the sidestand is up.

↓

Check the battery voltage (12V) on the "R/W" lead into the 4-pin coupler.

→ Check for an open or poor connection between the battery and starting circuit cut-off relay.



↓

Connect the 4-pin coupler (R/G, R/W, B and L/W) to the starting circuit cut-off relay.

↓

Connect "L/W" lead into the 4-pin coupler to "ground" on the frame; use a jumper lead.

→ If the starting circuit cut-off relay does not click; replace the relay.

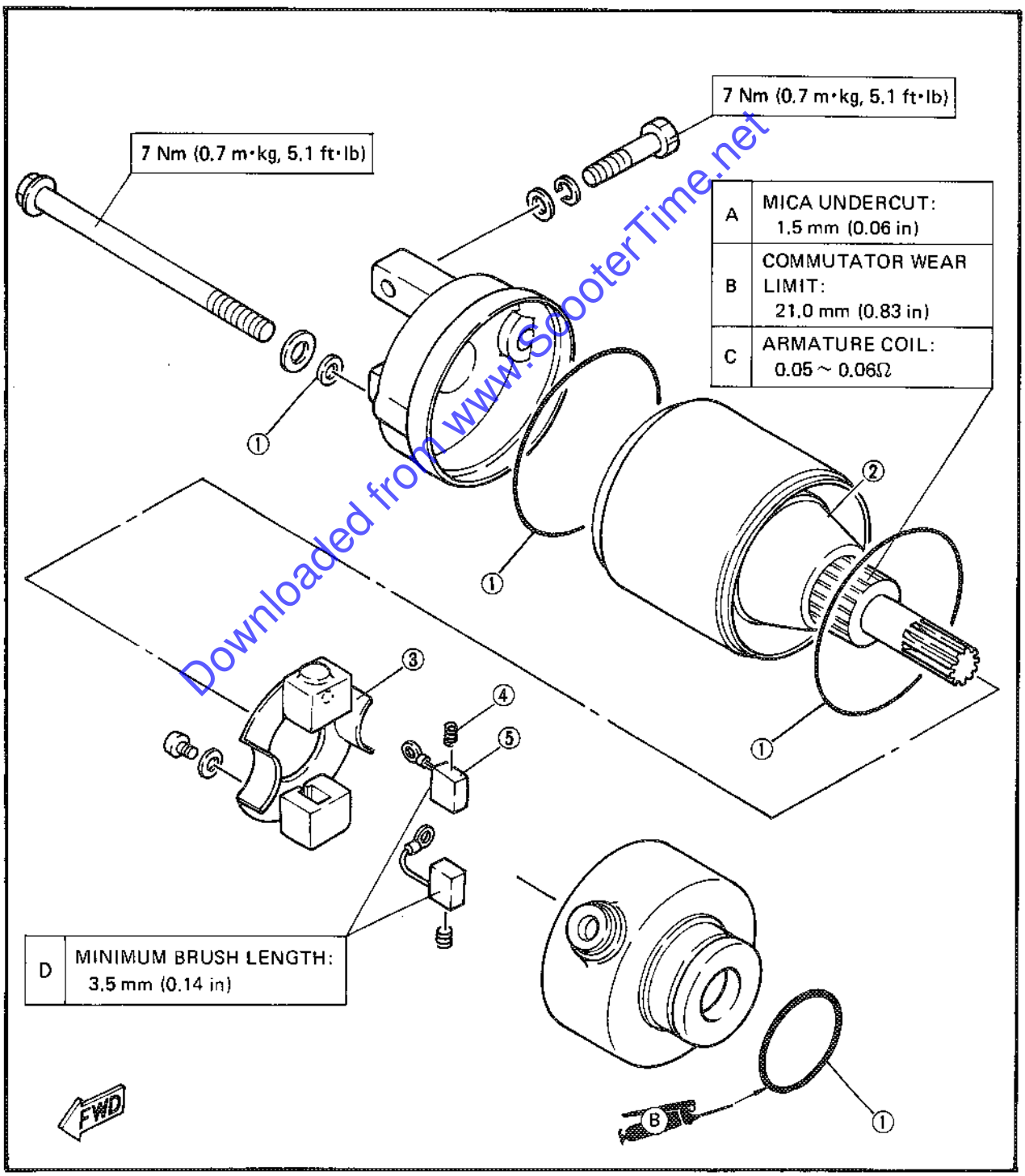
↓

If the starting circuit cut-off relay clicks; check the "START" switch. Replace switch if necessary.

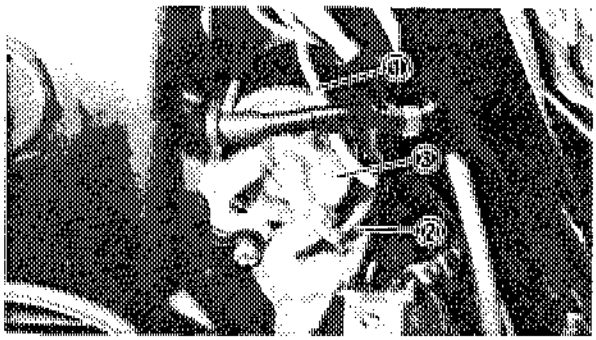
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STARTER MOTOR TEST

① O-ring
② Armature
③ Brush holder
④ Spring
⑤ Brush



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Removal

1. Remove:
   - Side cover (Right)

Refer to "CHAPTER 3. ENGINE DISASSEMBLY".

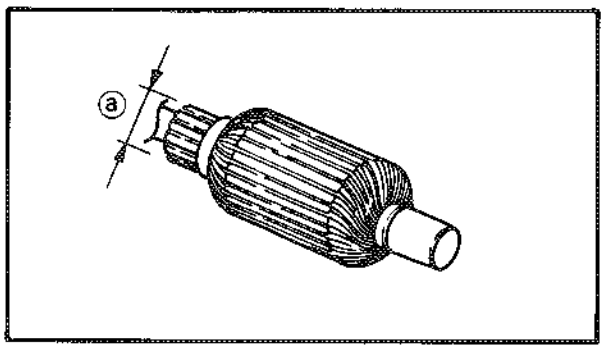
2. Disconnect:
   - Starter motor negative lead ①
   - Starter motor positive lead ②
3. Remove:
   - Starter motor ③

Inspection and Repair

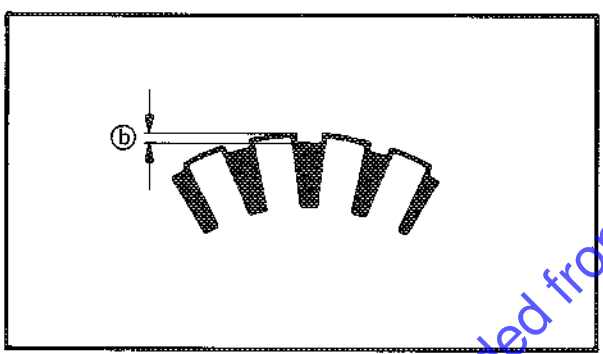
1. Inspect:
   - Commutator

   Dirty → Clean it with #600 grit sandpaper.
2. Measure:
   - Commutator diameter ⓐ

   Out of specification → Replace starter motor.



Commutator Wear Limit:
21.0 mm (0.83 in)



3. Measure:
   - Mica undercut ⓑ

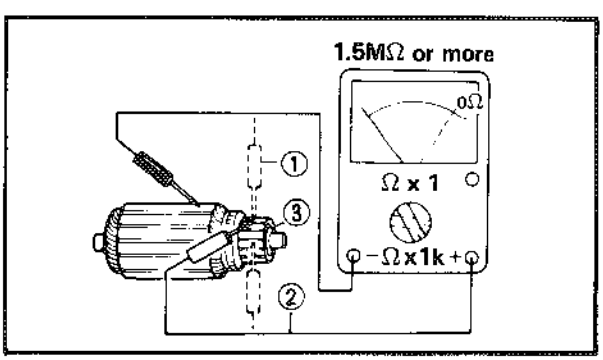
   Out of specification → Scrape the mica to proper value use a hacksaw blade can be ground to fit.

Mica Undercut ⓑ :
1.5 mm (0.06 in)

NOTE:

The mica insulation of the commutator must be undercut to ensure proper operation of commutator.

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4. Inspect:
   - Armature coil (insulation/continuity)

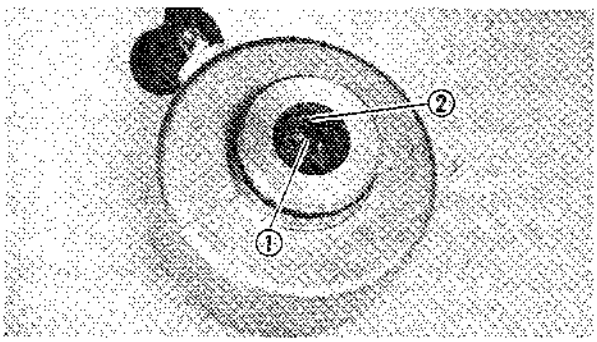
   Defect(s) → Replace starter motor.

   By the following inspecting steps.

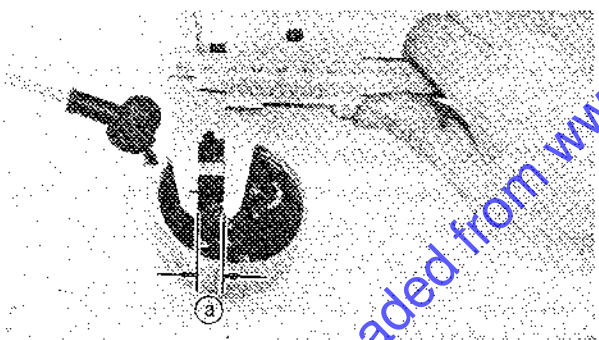
Armature coil inspecting steps:
- Connect the Pocket Tester (YU-03112) for continuity check ① and insulation check ②.
- Measure the armature coil ③ resistances.

Armature Coil Resistance:
Continuity Check ① :
0.05 ~ 0.06Ω at 20°C (68°F)
Insulation Check ② :
More than 1.5MΩ at 20°C (68°F)

- If the resistance is incorrect, replace the starter motor.



5. Inspect:
   - Bearings ①
     Wear/Damage → Replace.
   - Oil seal ②
     Wear/Damage → Replace.



6. Measure:
   - Brush length (Each) ⓐ
     Out of specification → Replace.

Minimum Brush Length:
3.5 mm (0.14 in)

7. Inspect:
   - Brush springs
     Compare with new spring.
     Wear/Damage → Replace.

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6

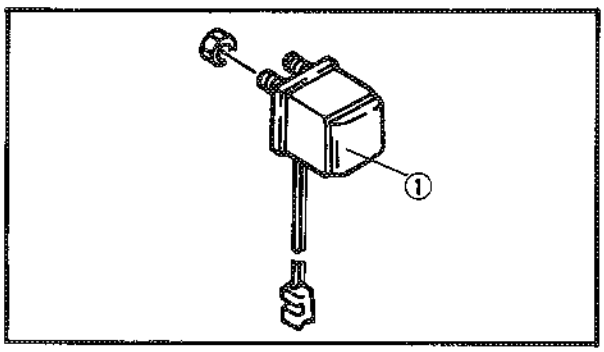
Installation

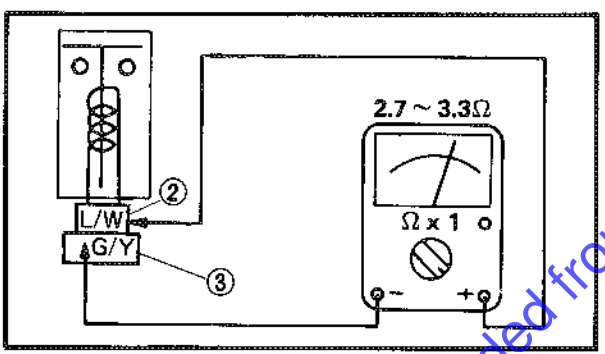
1. Apply grease to the starter motor O-ring and install the starter motor assembly.
2. Tighten:
   - Bolts

Starter Motor:
7 Nm (0.7 m·kg, 5.1 ft·lb)

BATTERY

Refer to "CHAPTER 2. BATTERY INSPECTION" section.





STARTER RELAY TEST

1. Open the seat.
2. Inspect:
   - Starter relay ①
     Poor condition → Replace.
     By the following inspecting steps.

Starter relay inspecting steps:

- Disconnect the starter cable from the starter relay.
- Turn ignition switch to "ON", and then hold the brake lever or step-down the brake pedal.
- Push the "START" switch and check to see if the starter relay clicks.
  Starter relay clicking → Starter relay OK.
  Starter relay not clicking → Measure coil resistance.
- Connect the Pocket Tester (YU-03112) leads to the starter relay.

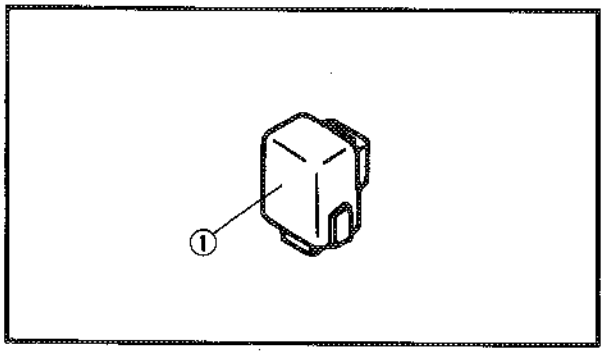
② Blue/White
③ Green/Yellow

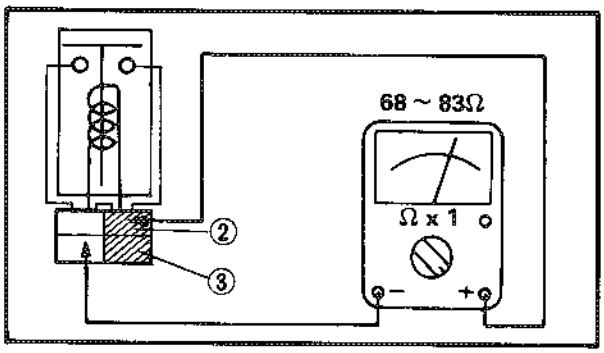
- Measure the coil resistance.

Starter Relay Resistance:
2.7 ~ 3.3Ω at 20°C (68°F)

- If the resistance is not within specification, replace the starter relay.

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STARTING CIRCUIT CUT-OFF RELAY TEST

1. Open the seat:
2. Inspect:
   - Starting circuit cut-off relay ①
     Poor condition → Replace.
     By the following inspecting steps.

Starting circuit cut-off relay inspecting steps:

- Disconnect the starter cable from the starter relay.
- Turn ignition switch to "ON", engine stop switch to "RUN" and sidestand is up.
- Push the "START" switch and check to see if the starting circuit cut-off relay clicks.
  Starting circuit cut-off relay clicking → Starting circuit cut-off relay OK.
  Starting circuit cut-off relay not clicking → Measure coil resistance.
- Connect the Pocket Tester (YU-03112) leads to the starter relay.

② Red/White
③ Blue/White

- Measure the coil resistance.

Starter Relay Resistance:
68 ~ 83Ω at 20°C (68°F)

- If the resistance is not within specification, replace the starter relay.

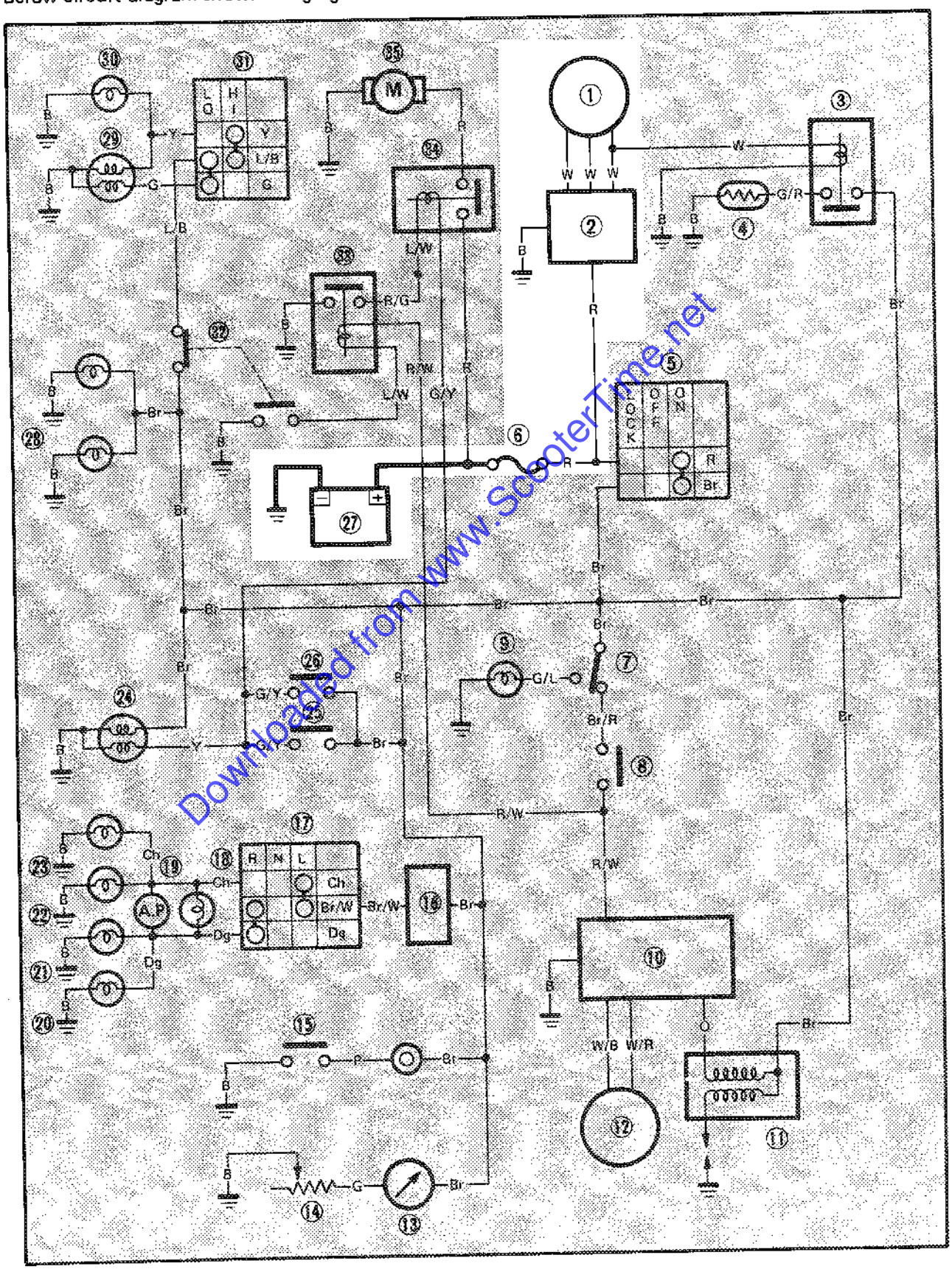
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CHARGING SYSTEM

CIRCUIT DIAGRAM

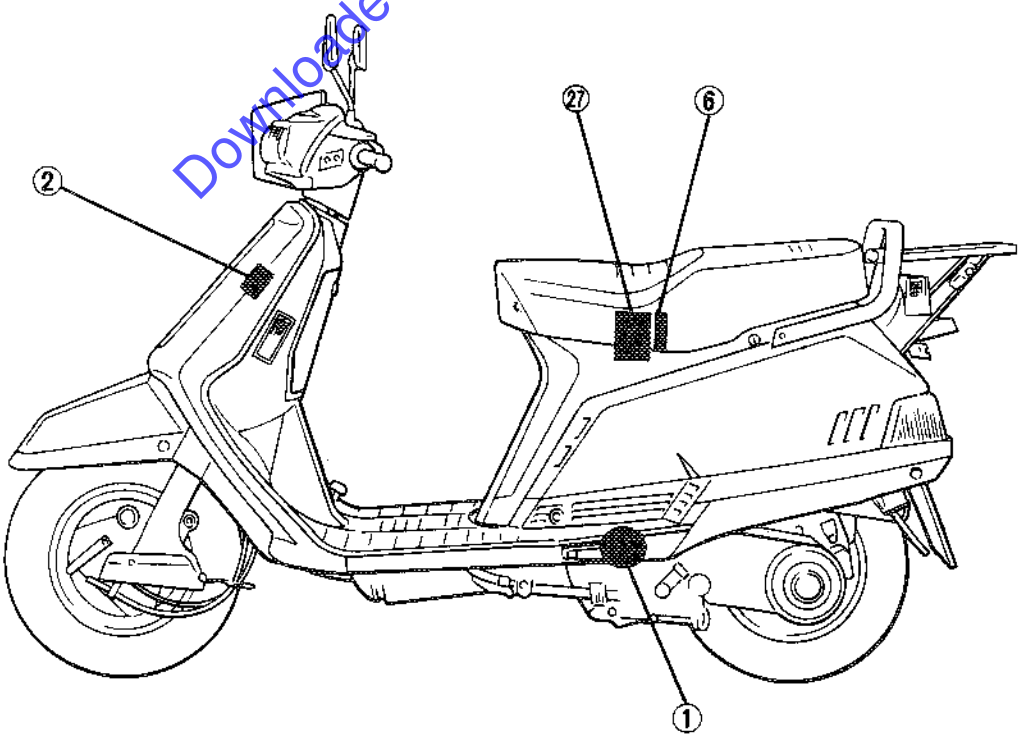
Below circuit diagram shows charging circuit.



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① AC generator
② Rectifier/Regulator
⑥ Fuse
㉗ Battery

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TROUBLESHOOTING

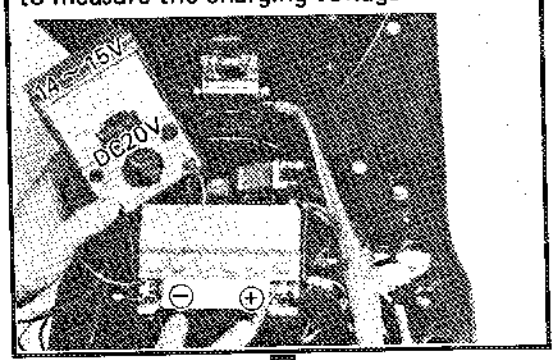
THE BATTERY IS NOT CHARGED

Measure the battery for voltage and specific gravity.
Battery voltage: More than 12V
Specific gravity: 1,280

No → Recharge the battery.

Yes

Connect the Pocket Tester to the battery to measure the charging voltage



Start the engine and accelerate to about 2,000 r/m or more.

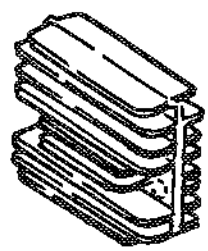
Charging Voltage: More than 15V

Charging Voltage: Less than 14V

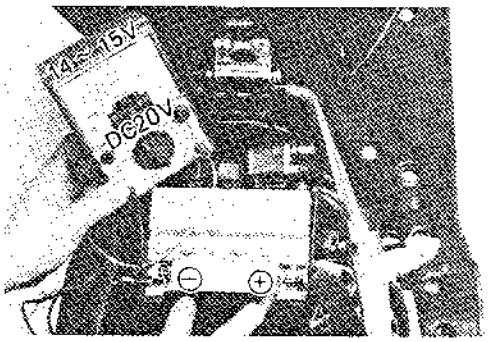
Measure the charging coil resistance and check the rectifier/regulator.
Charging coil resistance: (White – White)
0.64 ~ 0.96Ω at 20°C (68°F)

Replace the defective part(s).

Replace the rectifire/regulator.



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CHARGING VOLTAGE TEST

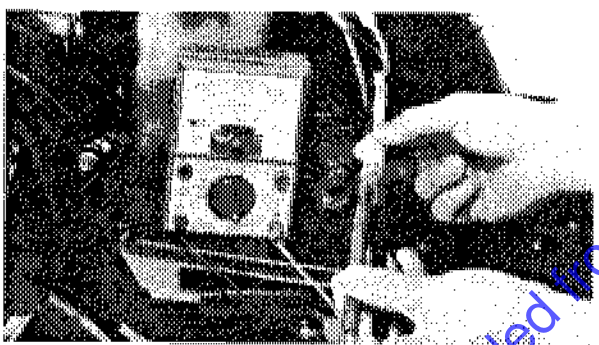
1. Connect:
   - Pocket Tester (YU-03112)
     (to the battery terminals in parallel)
2. Start the engine and accelerate to about 2,000 r/min or more.
3. Measure:
   - Charging voltage

   Out of specification → Check battery, stator coil, and rectifier/regulator.

Charging Voltage:
14 ~ 15V

CAUTION:

Never disconnect the leads from the battery while the generator is operating, otherwise the voltage across the generator terminals will increase and damage the semiconductors.



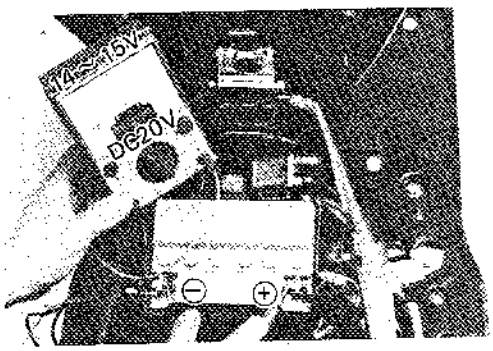
CHARGING COIL RESISTANCE TEST

1. Remove:
   - Front cover
2. Disconnect:
   - Stator leads connector
3. Connect:
   - Pocket Tester (YU-03112)
4. Measure:
   - Charging coil resistance

   Out of specification → Replace the charging coil assembly.

Charging Coil Resistance:
0.64 ~ 0.96Ω at 20°C (68°F)
(White — White)

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RECTIFIRE/REGULATOR TEST

Since I.C. regulator is sealed with a resin, it is impossible to check or replace any of inner parts. If the regulator is found to be defective, it must be replaced with a new one.

Checking method:
(Regulator)

- Connect D.C. voltmeter to the battery terminals.
- Start engine.
  Accelerate engine to approximately 2,000 r/min or more and check regulated voltage.

Regulated Voltage:
14 ~ 15V

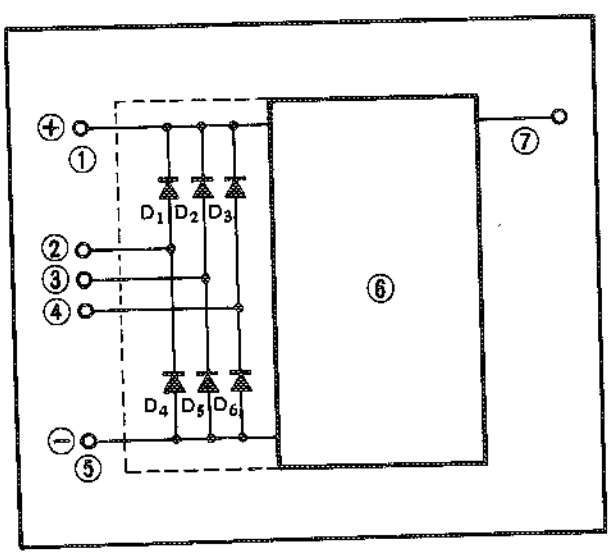
- If voltage is off, check battery, generator and rectifier. If generator, rectifier and battery are good, then I.C. regulator is broken and it should be replaced.

NOTE:

1) Never disconnect wires from the battery while the generator is in operation. If the battery is disconnected, the voltage across the generator terminals will increase, damaging the semiconductors.
2) When checking the regulator being installed on a machine, the battery should not be removed, and it should be fully charged.
3) Never use a high voltage insulation ohmmeter such as a megaohmmeter for such a test. If high voltage is applied to the regulator terminals, the regulator will be damaged.

(Rectifier)

- Check silicon rectifier as specified using ohmmeter.



① B (Red)
② U (White)
③ V (White)
④ W (White)
⑤ E (Black)
⑥ I.C. regulator
⑦ Br (Brown)

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Checking element	Pocket tester connecting point		Checking result		
	(+) (red)	(−) (black)	Good	Replace (element shorted)	Replace (element opened)
D_1	B U	U B	○ ×	○ ○	× ×
D_2	B V	V B	○ ×	○ ○	× ×
D_3	B W	W B	○ ×	○ ○	× ×
D_4	U E	E U	○ ×	○ ○	× ×
D_5	V E	E V	○ ×	○ ○	× ×
D_6	W E	E W	○ ×	○ ○	× ×

○..... Continuity
×..... Discontinuity

NOTE:

The results "○" or "X" should be reversed according to the pocket tester polarity.

- Even if one of elements is broken, replace assembly.

CAUTION:

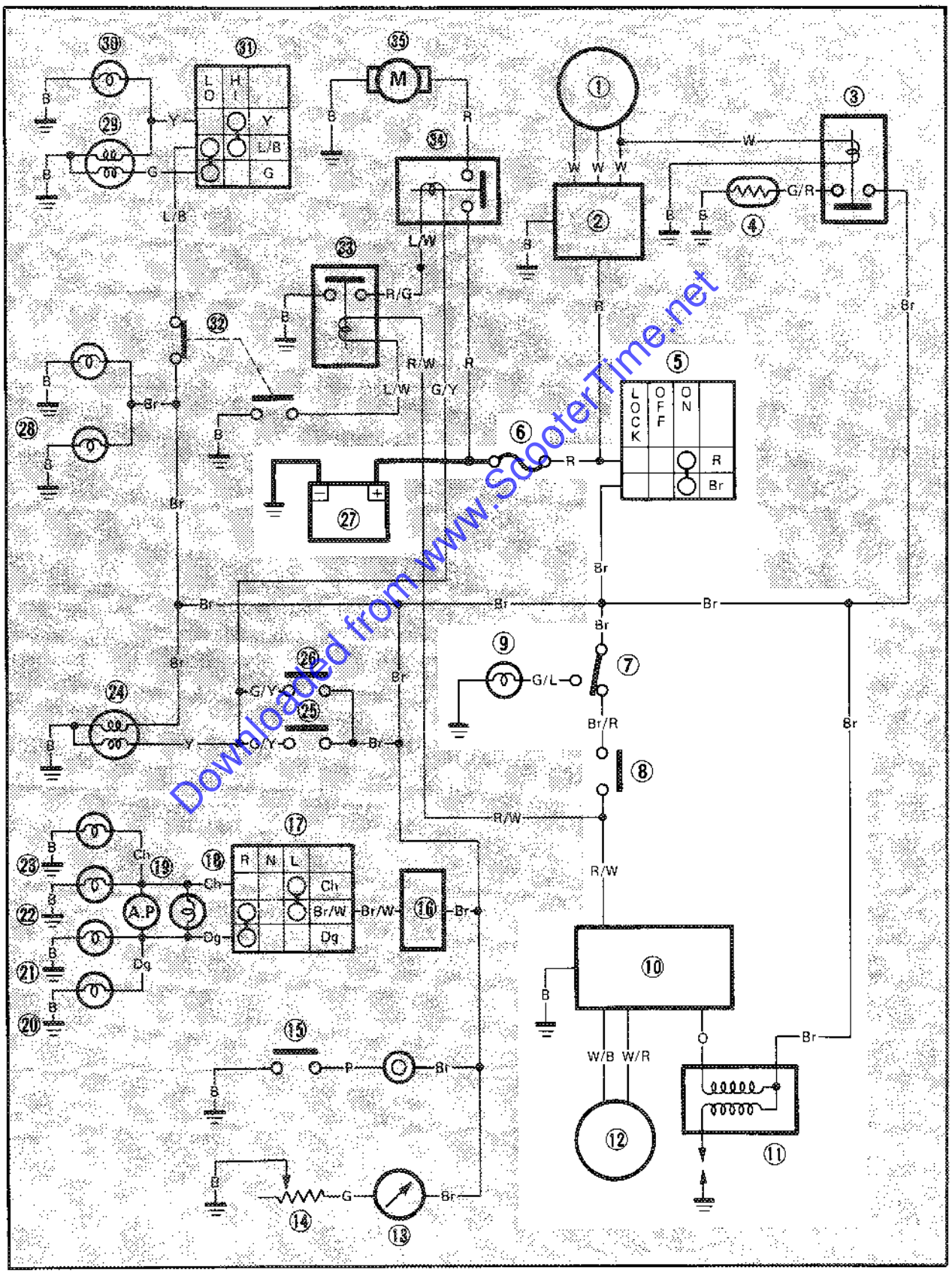
The silicon rectifier can be damaged if subject to overcharging. Special care should be taken to avoid a short circuit and/or incorrect connection of the positive and negative leads at the battery. Never connect the rectifier directly to the battery to make a continuity check.

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IGNITION SYSTEM

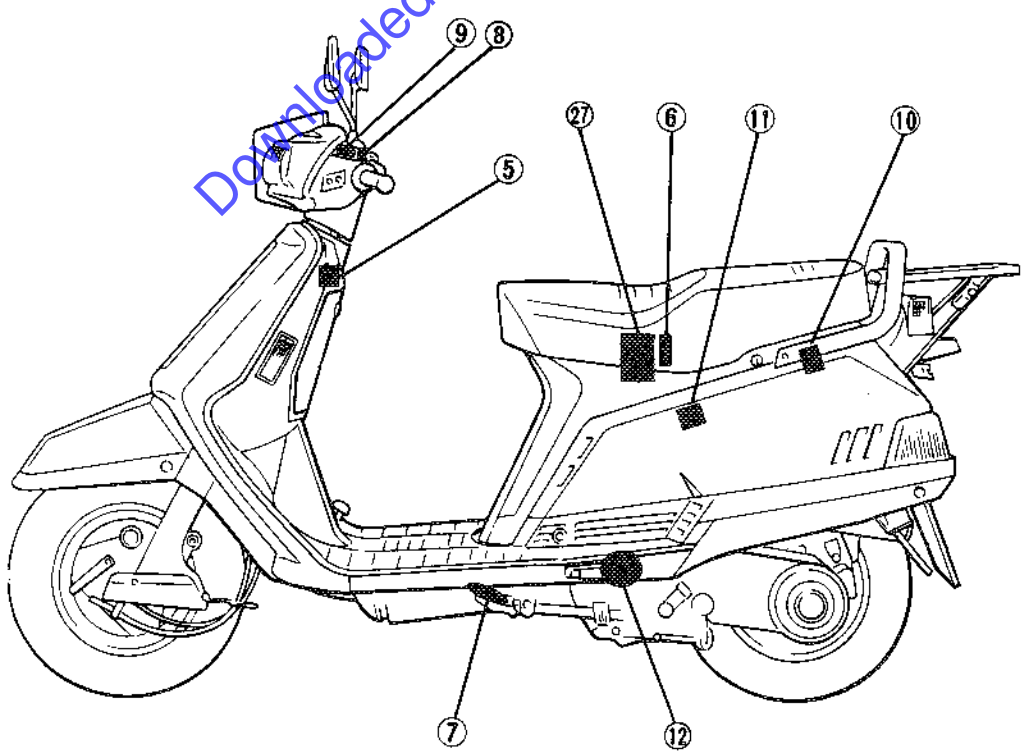
CIRCUIT DIAGRAM

Below circuit diagram shows ignition circuit



⑤ Main switch
⑥ Fuse
⑦ Sidestand switch
⑧ "ENGINE STOP" switch
⑨ "STAND" indicator light
⑩ Ignitor unit
⑪ Ignition coil
⑫ Pickup coil
㉗ Battery

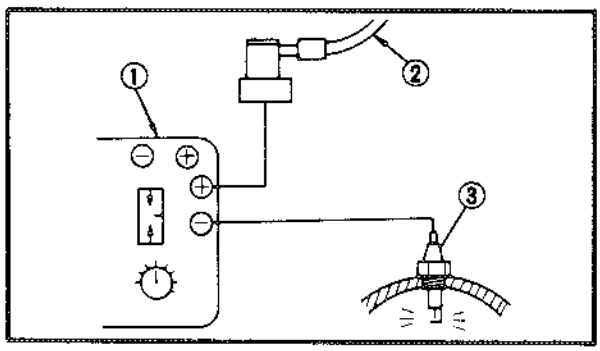
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TROUBLESHOOTING

The entire ignition system can be checked for misfire and weak spark by using the Electro Tester.

1. Warm up the engine so that all of the electrical components are at operating temperature.



2. Connect:
   - Electro Tester (YU-03021) ①
3. Check:
   - Minimum spark gap

   Start the engine, and increase the spark gap until misfire occurs. (Test at various r/min between idle and red line.)

   Faulty ignition system operation (at the minimum spark gap or smaller) → Follow the troubleshooting chart until the source of the problem is located.

② Spark plug lead
③ Spark plug

CAUTION:

Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

Minimum Spark Gap: 6 mm (0.24 in)

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Troubleshooting Chart

Check the entire ignition for connections. — Faulty → Correct

OK ↓

Measure the battery for voltage and specific gravity.
Battery voltage: More than 12V
Specific gravity: 0.128 — No → Recharge the battery.

OK ↓

Check fuse and fuse connections. — No → Correct connection or replace fuse.

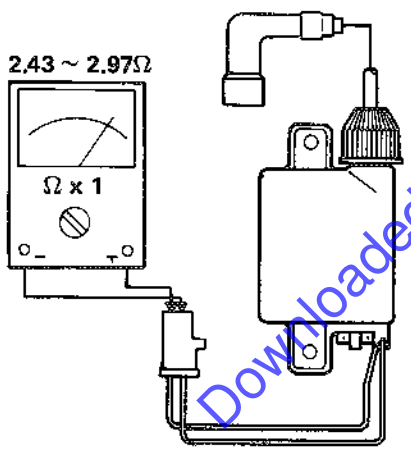
OK ↓

Check sidestand and engine stop switches. — Faulty → Repair or replace.

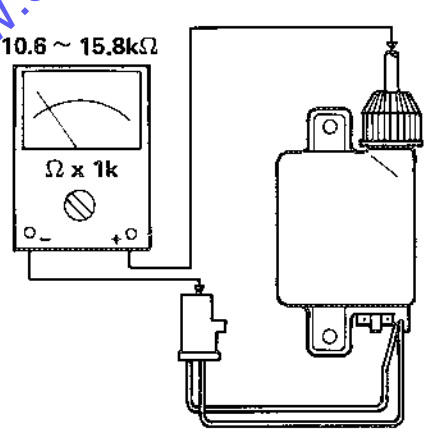
OK ↓

Check the ignition coil for resistance (primary and secondary).

Primary: 2.43 ~ 2.97Ω at 20°C (68°F)

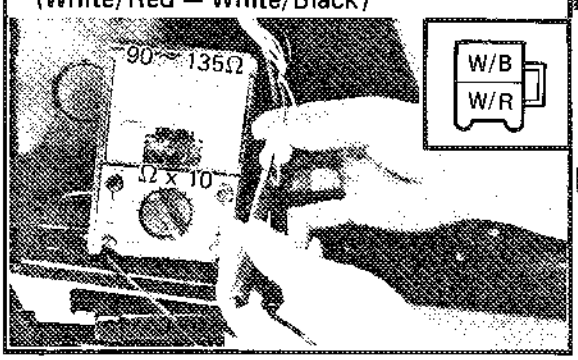


Secondary: 10.6 ~ 15.8kΩ at 20°C (68°F)



OK ↓

Measure the pickup coil for resistance.
Pickup coil: 90 ~ 135Ω at 20°C (68°F)
(White/Red — White/Black) — No → Replace the pickup coil assembly.

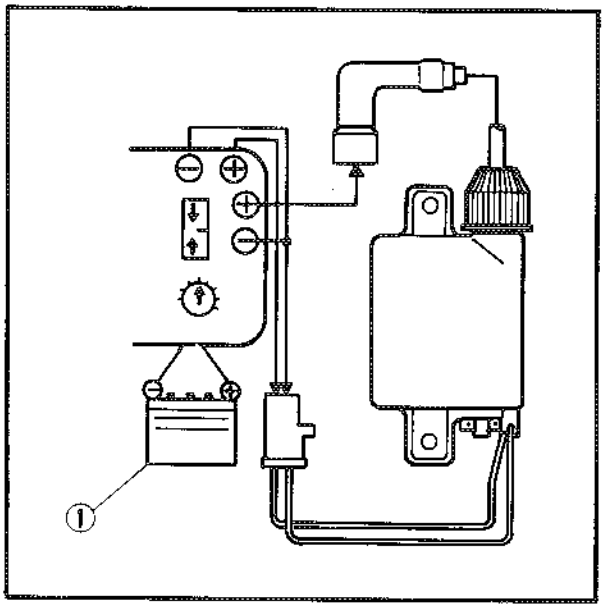


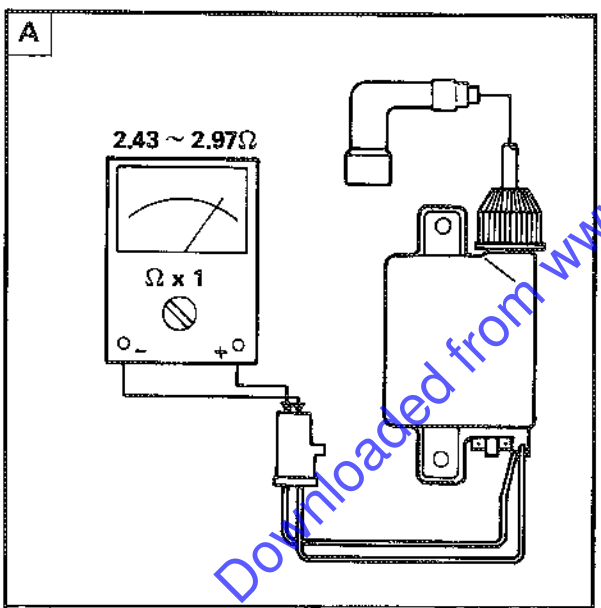
OK → Ignitor unit is faulty, replace the unit.

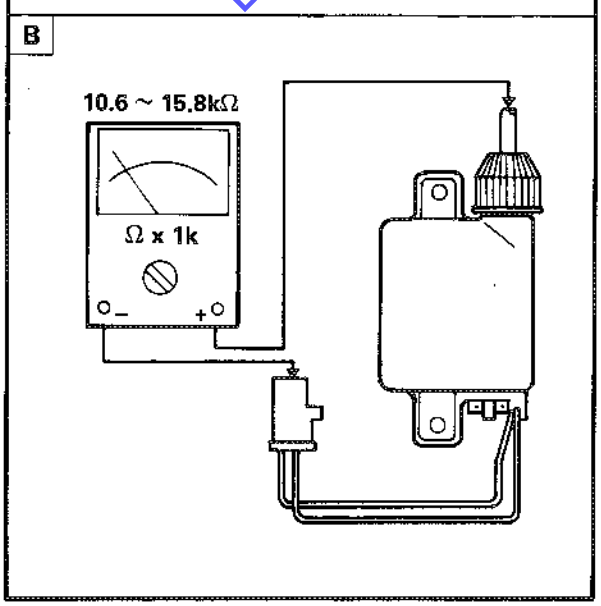
No → Replace the ignition coil.

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IGNITION SPARK GAP TEST

1. Remove:
   - Side cover (Right)
2. Disconnect:
   - Ignition coil lead
   - Spark plug lead
3. Connect:
   - Electro Tester (YU-03021)

NOTE:

Be sure to use a fully charged battery (12V) ① .

4. Turn the spark plug gap adjuster and increase the gap to the maximum limit unless misfire occurs first.

Minimum Spark Gap:
6 mm (0.24 in)

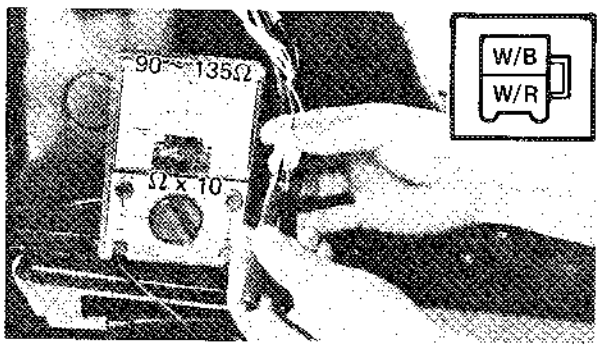
IGNITION COIL RESISTANCE TEST

1. Connect:
   - Pocket Tester (YU-03112)
2. Measure:
   - Primary coil resistance [A]
   - Secondary coil resistance [B]

   Out of specification → Replace.

Primary Coil Resistance:
2.43 ~ 2.97Ω at 20°C (68°F)
Secondary Coil Resistance:
10.6 ~ 15.8kΩ at 20°C (68°F)

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PICKUP COIL RESISTANCE TEST

Inspection

1. Remove:
   - Side cover (Right)
2. Disconnect:
   - Pickup coil connector
3. Measure
   - Pickup coil resistance
     Use a Pocket Tester. (YU-03112)
     Out of specification → Replace.

Pickup Coil Resistance:
90 ~ 135Ω at 20°C (68°F)
(White/Red — White/Black)

SPARK PLUG INSPECTION

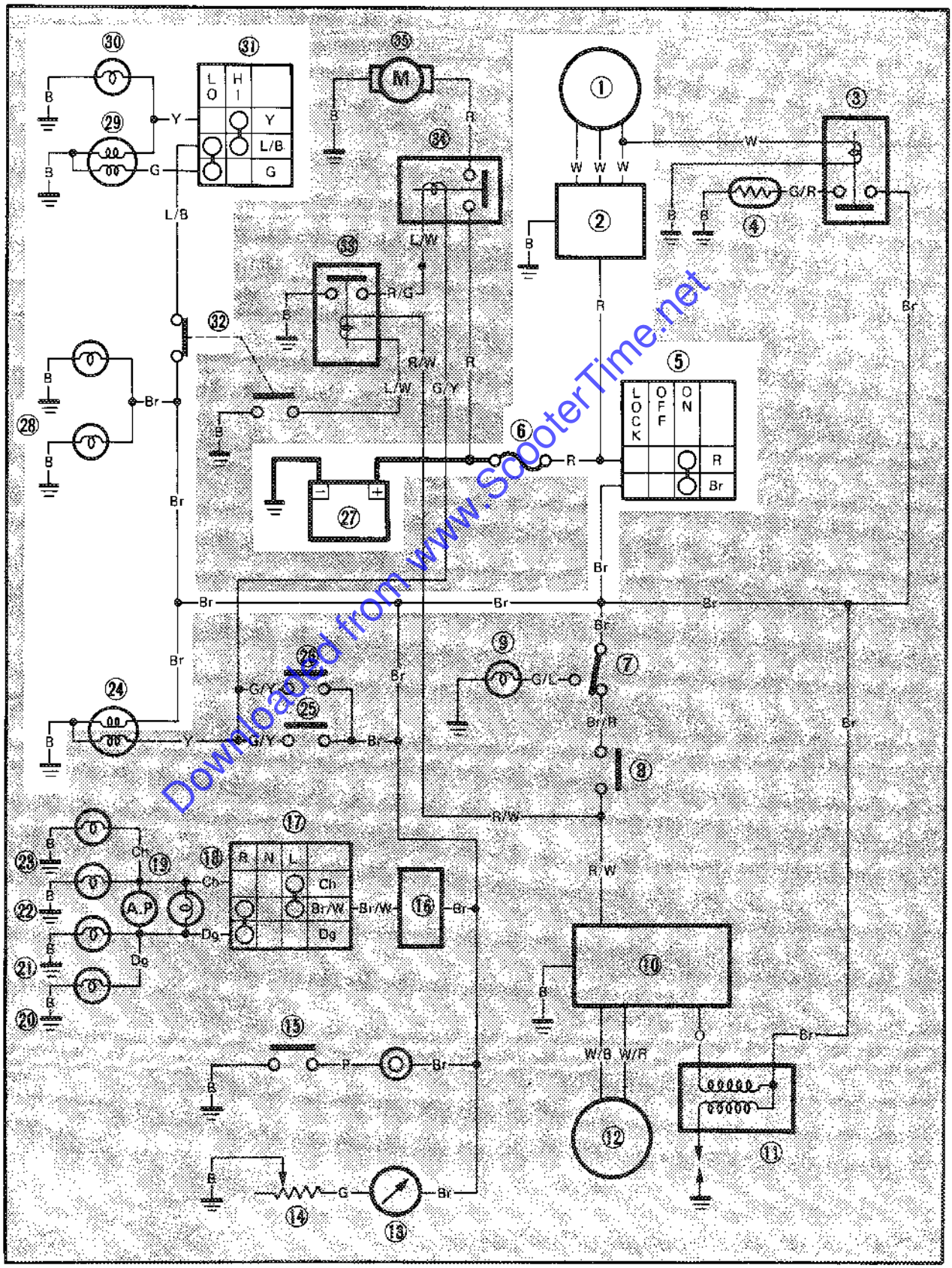
Refer to "CHAPTER 2. SPARK PLUG INSPECTION" section.

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LIGHTING SYSTEM

CIRCUIT DIAGRAM

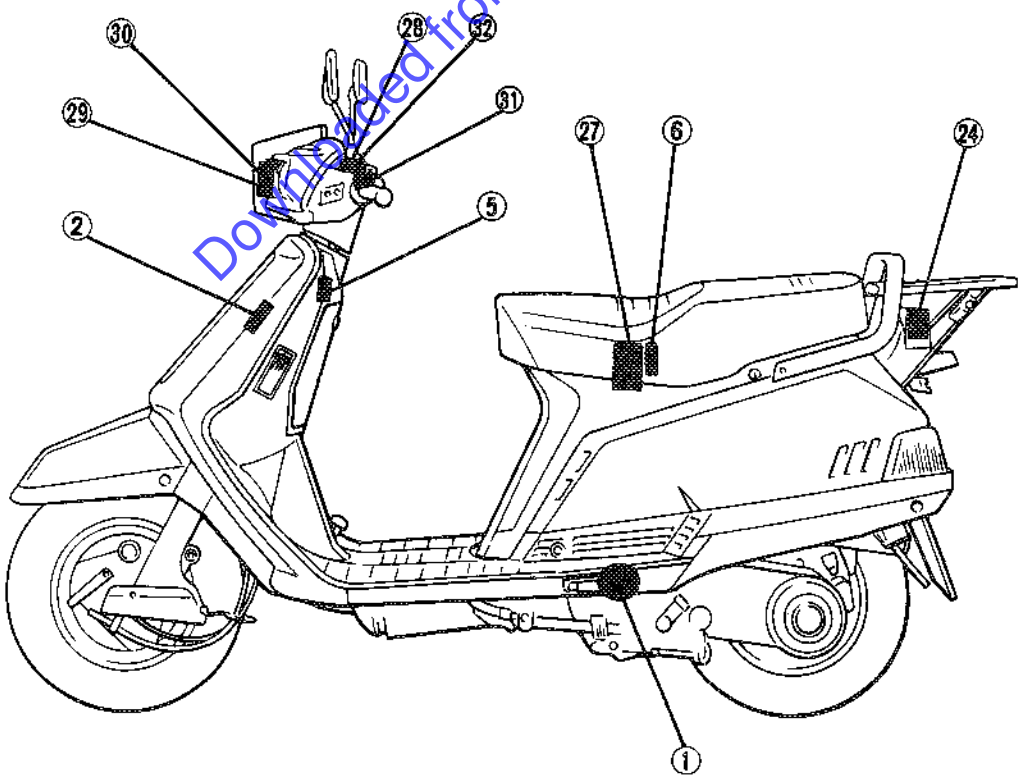
Below circuit diagram shows lighting circuit



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① AC generator
② Rectifier/Regulator
⑤ Main switch
⑥ Fuse
㉔ Tail/Brake light
㉗ Battery
㉘ Meter lights
㉙ Headlight
㉚ "HIGH BEAM" indicator light
㉛ "LIGHTS" (Dimmer) switch
㉜ "START" switch

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LIGHTING TESTS AND CHECKS

The battery provides power for operation of the headlight, taillight, and meter lights. If none of the above fail to operate proceed further. Low battery voltage indicates either a faulty battery, low battery fluid level, or a defective charging system.

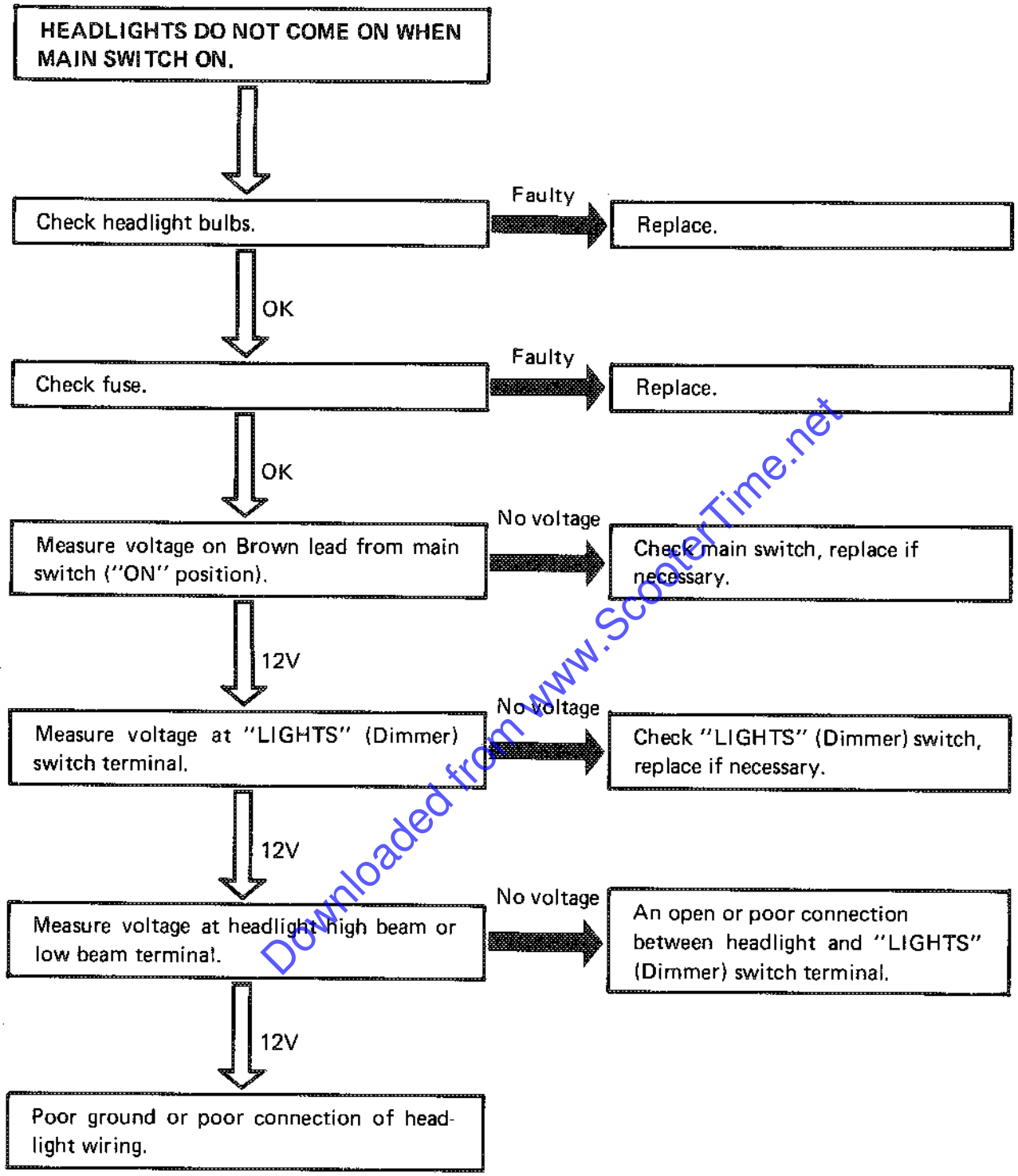
Also check fuse condition. Replace any "open" fuses. There are individual fuses for various circuits (see complete Circuit Diagram).

NOTE:

Check each bulb first before performing the following check.

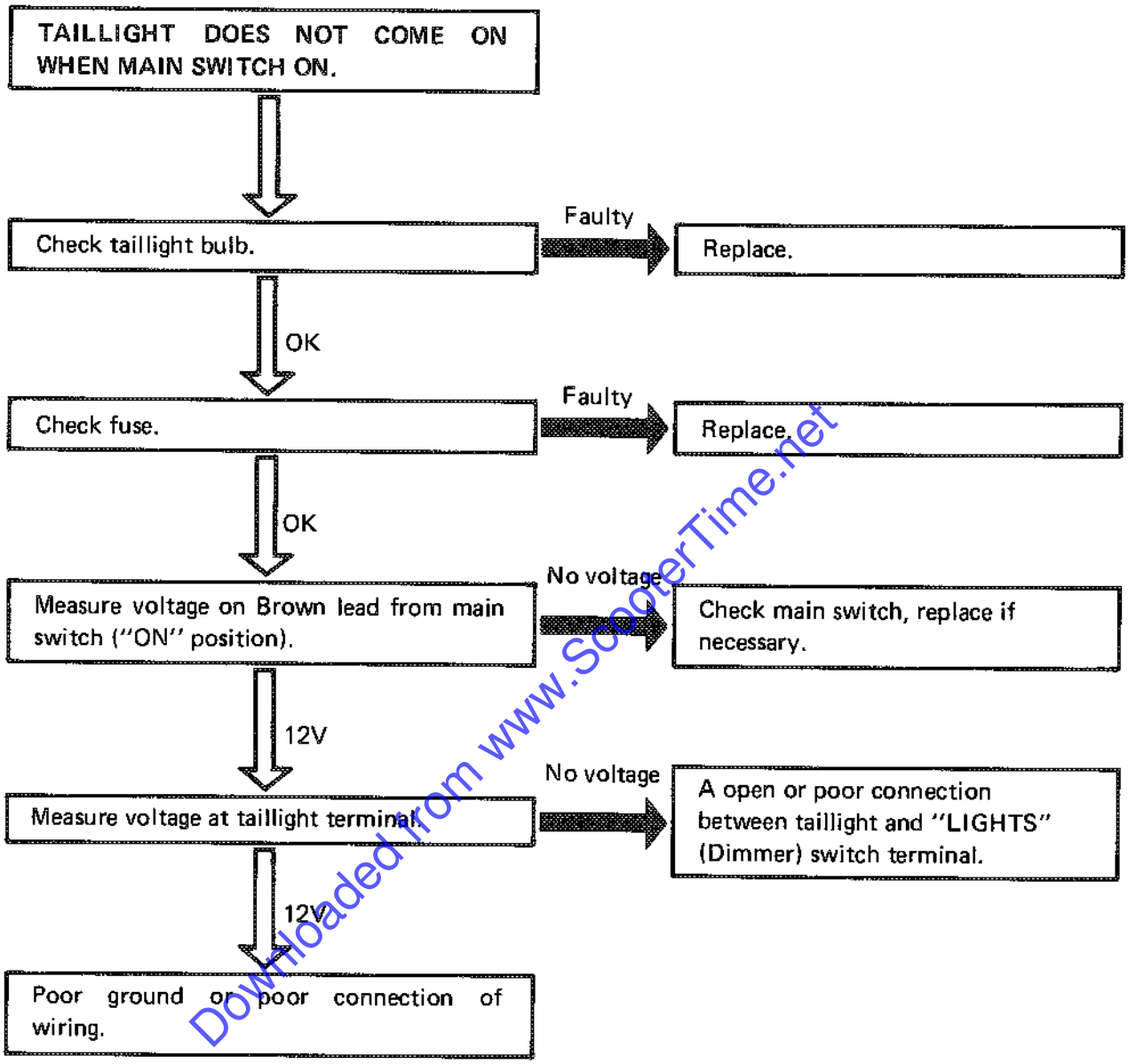
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Headlight Troubleshooting



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Taillight Troubleshooting



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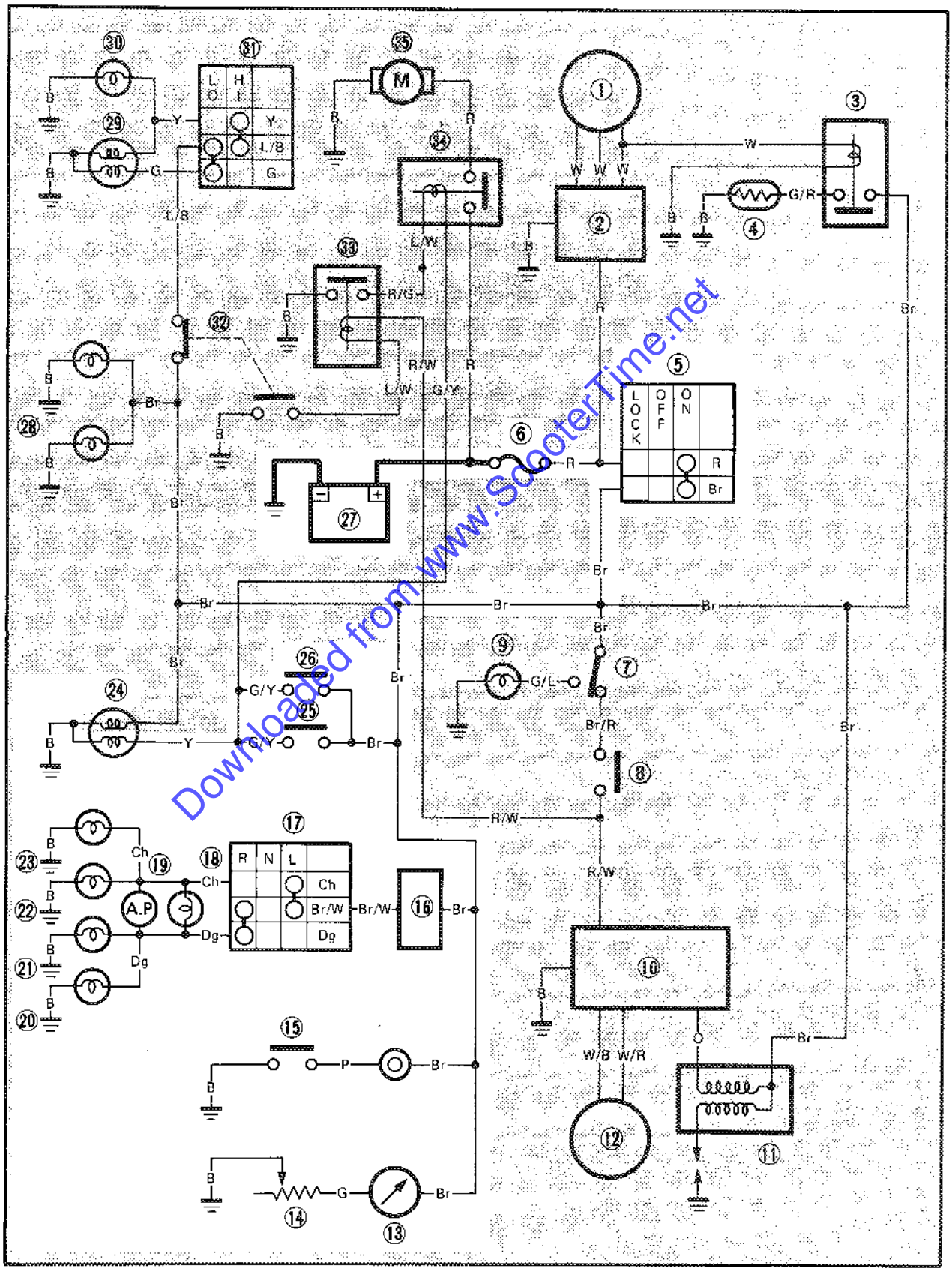
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SIGNAL SYSTEM

CIRCUIT DIAGRAM

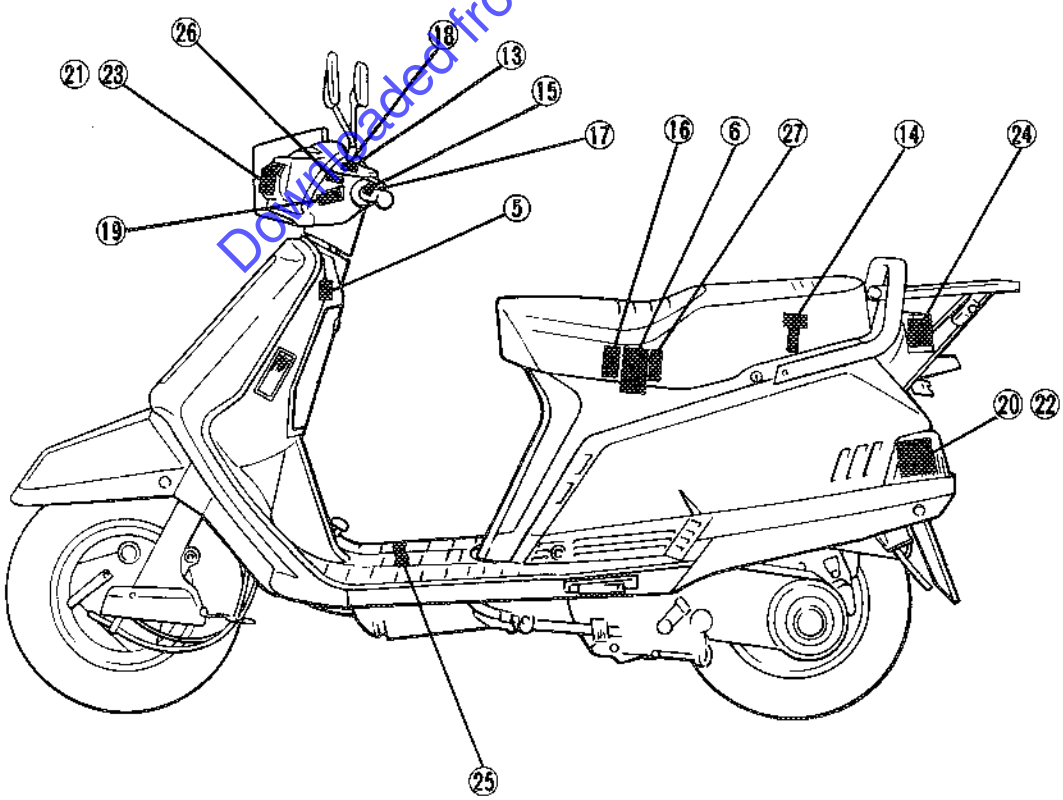
Below circuit diagram shows signal circuit.



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⑤ Main switch
⑥ Fuse
⑬ Fuel meter
⑭ Fuel sender
⑮ "HORN" switch
⑯ Flasher relay
⑰ "TURN" switch
⑱ "TURN" indicator light
⑲ Audio pilot
⑳ Rear flasher light (Right)
㉑ Front flasher light (Right)
㉒ Rear flasher light (Left)
㉓ Front flasher light (Left)
㉔ Tail/Brake light
㉕ Rear brake switch
㉖ Front brake switch
㉗ Battery

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TROUBLESHOOTING

FLASHER LIGHTS DO NOT COME ON.

↓

Open the seat and disconnect the flasher relay connector.

↓

Turn the main switch to "on".

↓

Check for the battery voltage (12V) on the "Br" lead from the wire harness.

No → Check for an open or poor connection between the flasher relay and main switch.

↓

Connect the flasher relay connector and check for the battery voltage (12V) on the "Br/W" lead at the connector.

No → Replace the flasher relay.

↓

Connect the "Br" lead and "Br/W" lead; use a jumper lead.

↓

Turn the "TURN" switch to "L" and/or "R", and check to see if the lights come on.

→ If any flasher light does not come on, replace the bulb.

↓

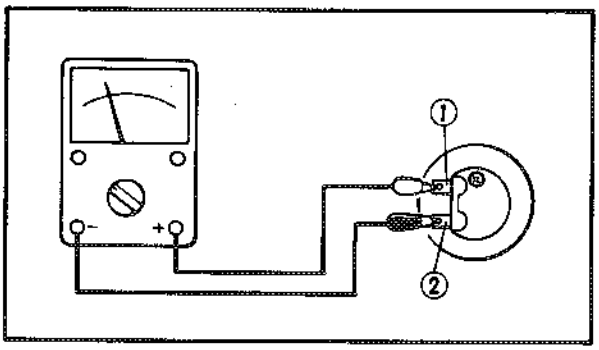
If all flasher lights come on, replace the "TURN" switch.

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HORN TEST

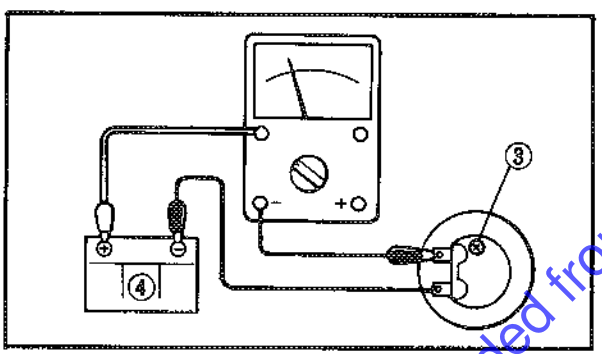
1. Check:
   Defective components → Replace.

Check for:	Horn inoperative
	12V on brown lead to horn
	Good ground (horn/pink lead) when horn button is pressed
	Faulty fuse



2. Measure:
   - Horn resistance
     Out of specification → Replace.

Tester's lead		Standard resistance	Tester's range
Red lead (+)	Black lead (–)		
Brown lead ①	Pink lead ②	1.05Ω ± 10%	R x 1



3. Adjust:
   - Volume
     Turn the adjuster ③ in and out so that the volume is maximum at the maximum amperage.

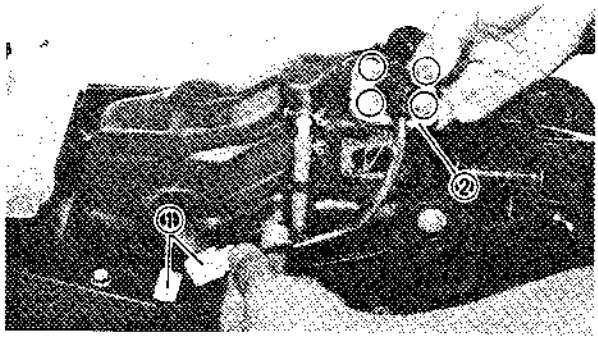
④ Battery (12V)

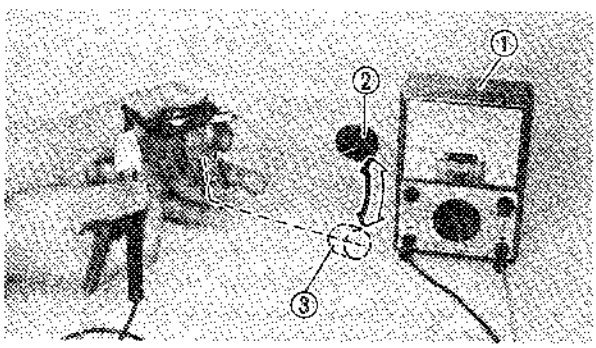
Tester's lead		Maximum Amperage	Tester's range
Red lead (+)	Black lead (–)		
Battery (+) lead	Horn lead and Battery (–) lead	1.5A	DC5A

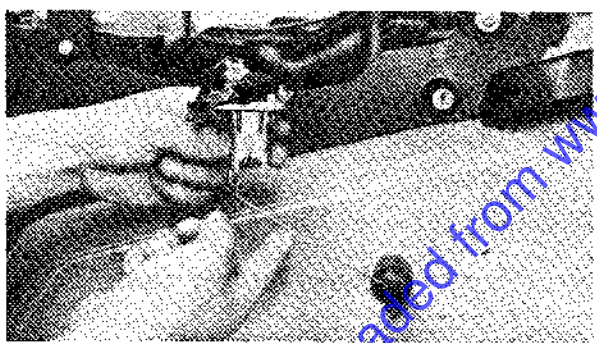
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BRAKE LIGHT TEST

Check for:	Brake light inoperative
	Defective bulb
	12V on yellow lead to brake light
	12V on brown lead to each brake light switch (Front and rear brake switch)







FUEL METER SYSTEM TEST

1. Disconnect:
   - Fuel sender connector ①
2. Remove:
   - Fuel sender assembly ②

3. Connect:
   - Pocket Tester (YU-03112) ①
4. Move the sender float up ② and down ③.
5. Measure:
   - Sender resistance (full position)
   - Sender resistance (empty position)

   Out of specification → Replace.
   In specification → Go to next test.

Fuel Sender Resistance:
Full Position:
4 ~ 10Ω at 20°C (68°F)
Empty position:
90 ~ 100Ω at 20°C (68°F)

6. Connect:
   - Connections
7. Check:
   - Fuel meter operation

   Move the sender float up and down.
   Not operating → Replace the fuel meter.

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SWITCHES TEST

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

Main Switch

Switch Position	Lead Color	
	R	Br
LOCK		
OFF		
ON	○———	———○

"ENGINE STOP" Switch

Switch Position	Lead Color	
	Br/R	R/W
OFF		
RUN	○———	———○

"START" Switch

Switch Position	Lead Color			
	L/W	B	Br	L/B
OFF			○———	———○
PUSH	○———	———○		

"LIGHTS" (Dimmer) Switch

Switch Position	Lead Color		
	Y	L/B	G
LO		○———	———○
HI	○———	———○	

"HORN" Switch

Switch Position	Lead Color	
	P	B
PUSH	○———	———○
OFF		

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"TURN" Switch

Switch Position	Lead Color		
	Ch	Br/W	Dg
R		○——○	
N			
L	○——○		

"BRAKE" Switches (Front and Rear)

Switch Position	Lead Color	
	Br	G/Y
FREE		
DEPRESS	○———	———○

Sidestand Switch

Switch Position	Lead Color		
	Br/R	Br	G/L
FREE	○——○		
PUSH		○——○	

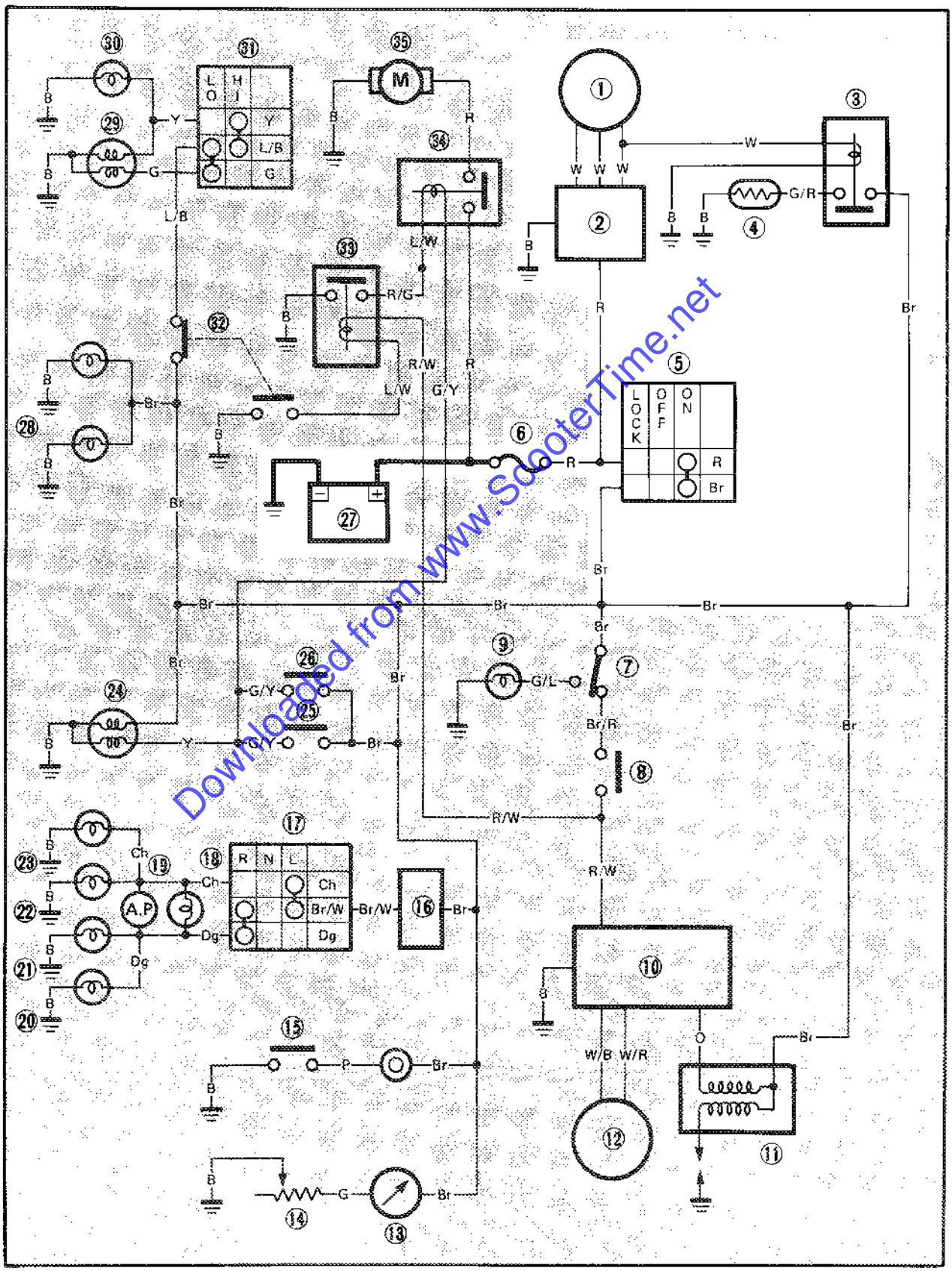
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AUTO CHOKE SYSTEM

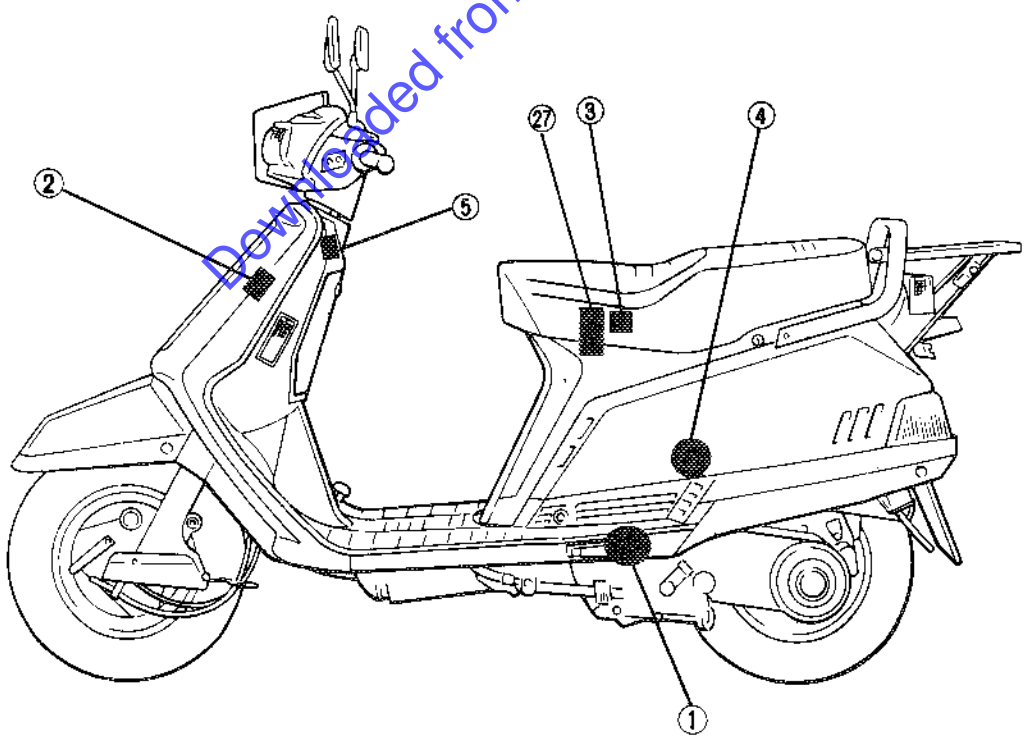
CIRCUIT DIAGRAM

Below circuit diagram shows auto choke circuit.



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① AC generator
② Rectifier/Regulator
③ Choke relay
④ Choke unit
⑤ Main switch
㉗ Battery

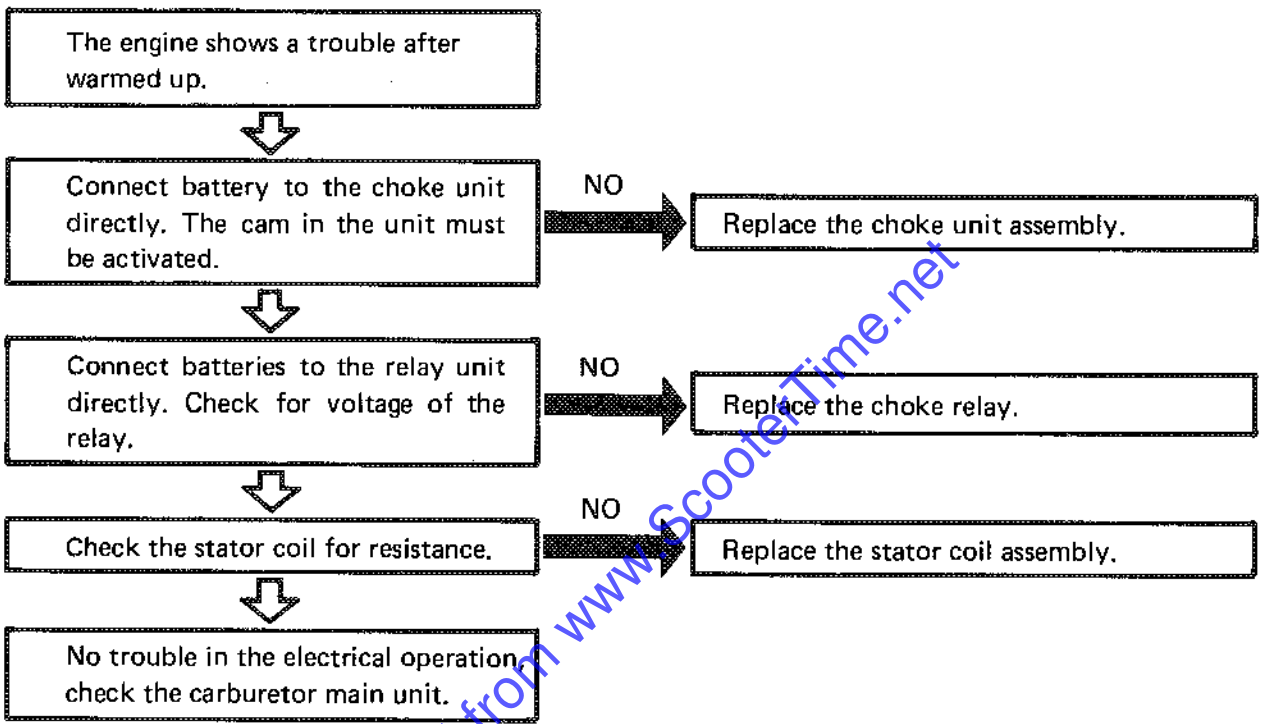


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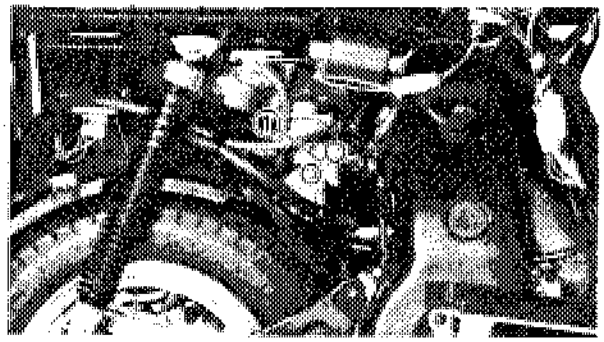
AUTO CHOKE SYSTEM

TROUBLESHOOTING

After starting the engine, the AUTO CHOKE system provides a leaner fuel-air mixture according to the increased engine temparature. Thus, if the cold engine is hard to start, the carburetor unit is defective and an overhaul of the unit is necessary. An electrical trouble in the AUTO CHOKE system causes the engine to be a trouble or hard to start when the engine is warmed up. Check the engine as follows:

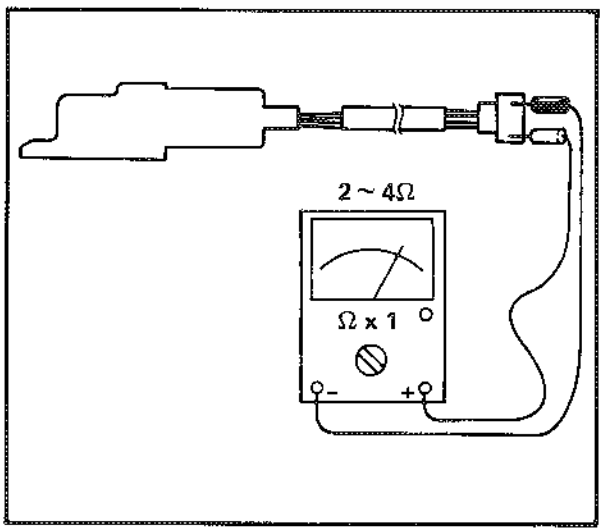


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CHOKE UNIT TEST

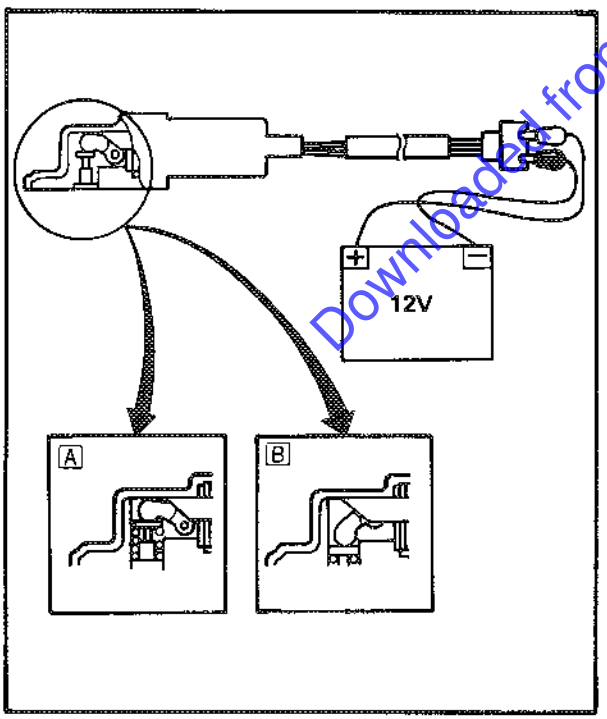
1. Remove:
   - Side cover (Both)
2. Disconnect:
   - Choke unit lead
3. Remove:
   - Choke unit ①



4. Measure:
   - Choke unit resistance
     Out of specification → Replace.

Choke Unit Resistance:
2 ~ 4Ω at 25°C (77°F)

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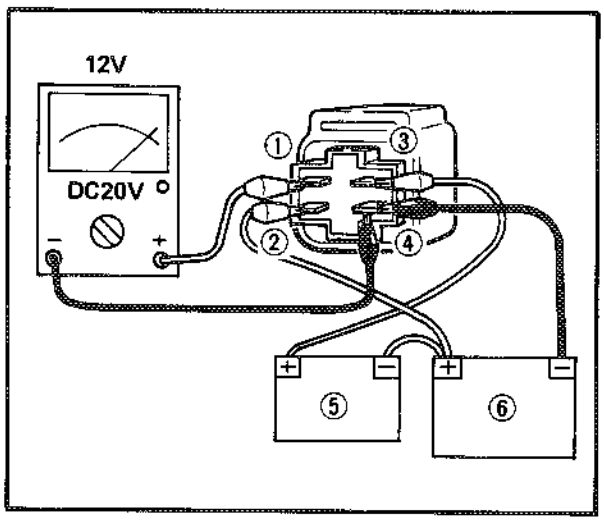
5. Connect:
   - 12V Battery
6. Check:
   - Cam movement
     Incorrect movement → Replace.

A BATTERY IS NOT CONNECTED (WAX IS COLD)
B BATTERY IS CONNECTED (WAX IS WARM)

6

CHOKE RELAY TEST

1. Remove:
   - Choke relay
2. Inspect:
   - Choke relay



Choke unit inspection steps:

- Connect batteries by which the applied voltage is 18V between the White ③ and the Black ④ terminals.

NOTE:

The relay unit needs at least 13.5V to be activated.

- Set the tester selector to "DC20V" position.
- Measurement of the voltage between the Green/Red ① and the Black ④ terminals is should be 12V.

② Brown terminal
⑤ Battery (6V)
⑥ Battery (12V)

STATOR COIL RESISTANCE TEST

1. Measure:
   - Stator coil resistance
     Refer to "Charge Coil Resistance Measurement".

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CHAPTER 7
APPENDICES

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LUBRICATION DIAGRAM 7-14

CABLE ROUTING 7-15

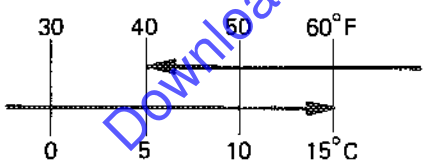
COLOR WIRING DIAGRAM

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APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	XC125S
Model Code	1WA
Vehicle Identification Number	JYA1WA00 * GA000101
Engine Starting Number	1WA-000101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 1,880 mm (74.0 in) 650 mm (25.6 in) 1,095 mm (43.1 in) 760 mm (29.9 in) 1,250 mm (49.2 in) 110 mm (4.3 in)
Basic Weight: With Oil and Full Fuel Tank	 102 kg (225 lb)
Minimum Turning Radius	1,800 mm (71.0 in)
Engine: Engine Type Cylinder Arrangement Displacement Bore x Stroke Compression Ratio Compression Pressure Starting System	 Air cooled, 4-stroke, gasoline, SOHC Single, Forward Inclined 124 cm^3 49.0 x 66.0 mm (1.929 x 2.598 in) 10.0 : 1 90 kPa (9.0 kg/cm^2, 128 psi) Electric starter
Lubrication System	Wet sump (Pressure lubricated)
Oil Type or Grade: Engine Oil:  Final Gear Oil	 Yamalube 4-cycle or SAE 20W40 type SE motor oil (If temperature does not go below 5°C (40°F)) SAE 10W30 type SE motor oil (If temperature does not go above 15°C (60°F)) SAE 10W30 type SE motor oil
Oil Capacity: Engine Oil: Periodic Oil Change Total Amount Final Gear Oil: Total Amount	 1.0 L (0.9 Imp qt, 1.1 US qt) 1.1 L (1.0 Imp qt, 1.2 US qt) 0.15 L (0.13 Imp qt, 0.16 US qt)
Air Filter:	Wet type element
Fuel: Type Tank Capacity	 Regular Gasoline 7.0 L (1.5 Imp gal, 1.8 US gal)
Carburetor: Type/Manufacturer	 Y22V/TEIKEI

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Model	XC125S	
Spark Plug: Type/Manufacturer Gap	 U20FSR-U (N.D.) 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)	
Clutch Type	Dry, Centrifugal Automatic	
Transmission: Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Transmission Type Operation	 Helical gear 43/14 (3.071) Spur gear 36/14 (2.571) V-Belt Automatic	
Chassis: Frame Type Caster Angle Trail	 Steel Tube Underbone 27° 78 mm (3.07 in)	
Tire: Type Size (F) Size (R)	 Tubeless 3.50-10 4PR 3.50-10 4REINF	
Cold Tire Pressure: Maximum Load* Up to 75 kg (165 lb) load* 90 kg (198 lb) ~ Maximum load*	 168 kg (370 lb)	
	Front	Rear
	147 kPa (1.5 kg/cm², 21 psi)	196 kPa (2.0 kg/cm², 28 psi)
	147 kPa (1.5 kg/cm², 21 psi)	294 kPa (3.0 kg/cm², 43 psi)
Brake: Front Brake Type Operation Rear Brake Type Operation	 Durm Brake Right Hand Operation Drum Brake Right Foot Operation	
Suspension: Front Rear	 Bottom Link Fork Unit Swing	
Shock Absorber: Front Rear	 Coil Spring, Oil Damper Coil Spring, Gas-Oil Damper	
Wheel Travel: Front Rear	 85 mm (3.3 in) 70 mm (2.8 in)	
Electrical: Ignition System Generator System Battery Type or Model Battery Capacity	 Full Transistor Ignition AC Magneto GM7CZ-3D 12V 7AH	
Headlight Type	Bulb	

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

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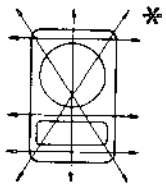
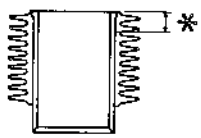
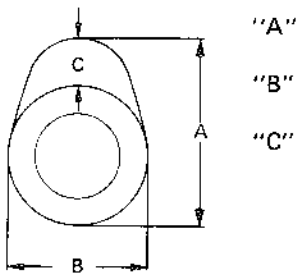
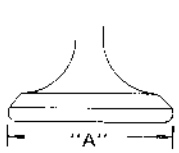
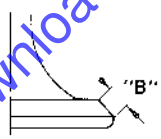
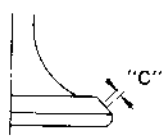
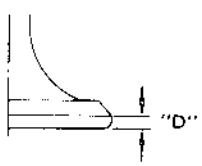
SPECIFICATIONS

Model	XC125S
Bulb Wattage x Quantity:	
Headlight	12V, 45W/40W
Tail/Brake Light	12V, 8W/27W
Flasher Light	12V, 27W x 4
Licence Light	12V, 8W
Meter Light	12V, 3.4W x 2
Indicator Light Wattage x Quantity:	
"HIGH BEAM"	12V, 3.4W
"TURN"	12V, 3.4W
"STAND"	12V, 3.4W

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MAINTENANCE SPECIFICATIONS

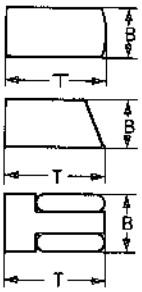
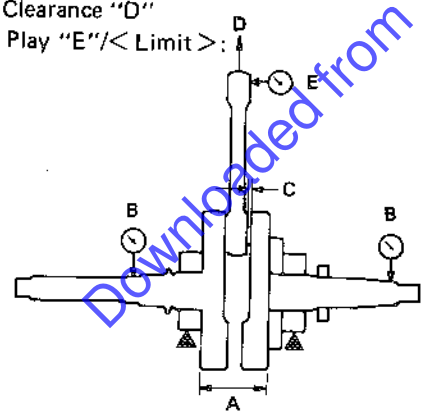
Engine

Model		XC125S
Cylinder Head: Warp Limit		< 0.05 mm (0.002 in) > * Lines indicate straightedge measurement.
Cylinder: Bore Size/Masuring Point* < Limit >		49.00 ~ 49.01 mm (1.929 ~ 1.930 in)/ 19.0 mm (0.75 in) (From the top of the cylinder) < 49.1 mm (1.933 in) >
Camshaft: Drive Method Cam Dimensions: Intake & Exhaust		Chain (Left) 26.169 ~ 26.269 mm (1.030 ~ 1.034 in) 21.061 ~ 21.161 mm (0.829 ~ 0.833 in) 5.264 ~ 5.274 mm (0.207 ~ 0.208 in)
Rocker Arm/Rocker Arm Shaft: Shaft Outside Diameter Arm-to-shaft Clearance < Limit >		9.81 ~ 9.91 mm (0.386 ~ 0.390 in) 0.09 ~ 0.34 mm (0.0035 ~ 0.0134 in) < 0.08 mm (0.0032 in) >
Valve, Valve Seat, Valve Guide: Valve Clearance (Colde):	IN. EX.	0.08 ~ 0.12 mm (0.003 ~ 0.005 in) 0.10 ~ 0.14 mm (0.004 ~ 0.006 in)
Valve Dimensions:	 Head Dia.	 Face Width
	 Seat Width	 Margin Thickness
"A" Head Diameter:	IN.	25.9 ~ 26.1 mm (1.020 ~ 1.028 in)
	EX.	21.9 ~ 22.1 mm (0.862 ~ 0.870 in)
"B" Face Width:	IN.	1.4 ~ 3.0 mm (0.055 ~ 0.118 in)
	EX.	1.7 ~ 2.8 mm (0.067 ~ 0.110 in)
"C" Seat Width/< Limit >:	IN.	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)/ < 1.6 mm (0.063 in) >
	EX.	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)/ < 1.6 mm (0.063 in) >
"D" Margin Thickness:	IN.	0.4 ~ 0.8 mm (0.016 ~ 0.031 in)
	EX.	0.8 ~ 1.2 mm (0.031 ~ 0.047 in)
Stem Outside Diameter/< Limit >:	IN.	4.975 ~ 4.990 mm (0.1959 ~ 0.1965 in)/ < 4.950 mm (0.1949 in) >
	EX.	4.960 ~ 4.975 mm (0.1953 ~ 0.1959 in)/ < 4.953 mm (0.1950 in) >

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Model		XC125S
Guide Inside Diameter/< Limit >:	IN.	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)/ < 5.03 mm (0.1980 in) >
	EX.	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)/ < 5.03 mm (0.1980 in) >
Stem-to-guide Clearance/< Limit >:	IN.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)/ < 0.08 mm (0.0031 in) >
	EX.	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)/ < 0.10 mm (0.0039 in) >
Stem Runout Limit:		0.02 mm (0.0008 in)
Valve Spring:		
Free Length/Limit	IN.	28.63 mm (1.127 in)/25.4 mm (1.00 in)
	EX.	28.63 mm (1.127 in)/25.4 mm (1.00 in)
Compressed Length (Valve Closed)	IN.	24.9 mm (0.98 in)
	EX.	24.9 mm (0.98 in)
Spring Rate	IN.	25.8 N/mm (2.62 kg/mm, 147 lb/in)
	EX.	25.8 N/mm (2.62 kg/mm, 147 lb/in)
Tilt Limit *:	IN. & EX.	2.5° or 1.2 mm (0.047 in)
Direction of Winding (Top view)		IN / EX
Piston:		
Piston Size "D"/ Measuring Point "H"		48.945 ~ 48.985 mm (1.927 ~ 1.929 in)/ 5 mm (0.2 in) (From bottom line of piston skirt)
Piston Clearance		0.020 ~ 0.040 mm (0.0008 ~ 0.0016 in)
Oversize:	2nd	49.50 mm (1.949 in)
	4th	50.00 mm (1.969 in)

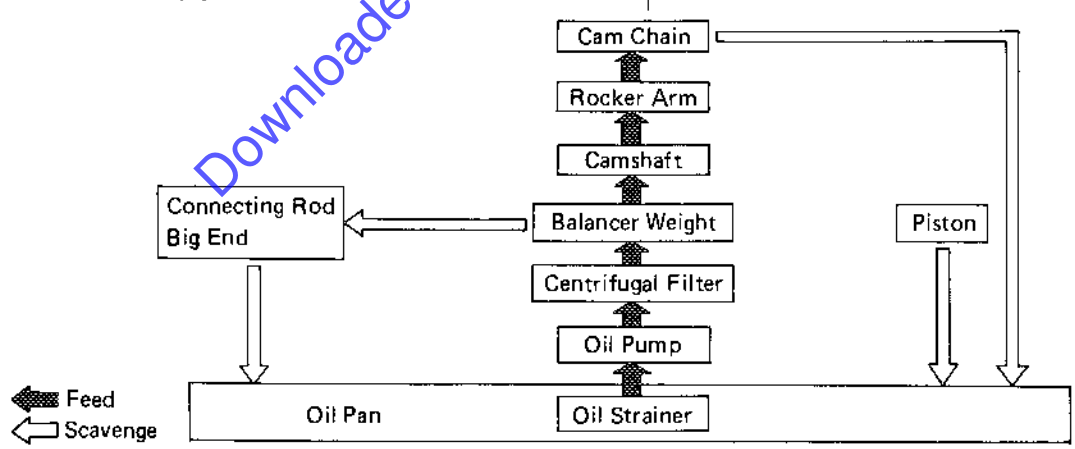
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Model		XC125S
Piston Ring:		
Sectional Sketch		
	Top Ring	Barrel B = 1.0 mm (0.039 in) T = 2.0 mm (0.079 in) Taper B = 1.0 mm (0.039 in) T = 2.0 mm (0.079 in)
	2nd Ring	
	Oil Ring	B = 2.0 mm (0.079 in) T = 2.2 mm (0.087 in)
End Gap (Installed)/< Limit >:	Top Ring	0.15 ~ 0.30 mm (0.006 ~ 0.012 in)/ < 0.4 mm (0.016 in) >
	2nd Ring	0.15 ~ 0.30 mm (0.006 ~ 0.012 in)/ < 0.4 mm (0.016 in) >
	Oil Ring	0.3 ~ 0.9 mm (0.012 ~ 0.035 in)/ < 0.4 mm (0.016 in) >
Side Clearance/< Limit >:	Top Ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)/ < 0.12 mm (0.0047 in) >
	2nd Ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)/ < 0.12 mm (0.0047 in) >
Crankshaft:		
Crank Width "A"		44.95 ~ 45.00 mm (1.770 ~ 1.772 in)
Runout Limit "B":		Left: 0.01 mm (0.0004 in) Right: 0.03 mm (0.0012 in)
Big End Side Clearance "C"/< Limit >:		0.05 ~ 0.45 mm (0.0020 ~ 0.0177 in)/ < 0.5 mm (0.0197 in) >
Big End Radial Clearance "D"		0.004 ~ 0.019 mm (0.00016 ~ 0.00075 in)
Small End Free Play "E"/< Limit >:		0.8 ~ 1.0 mm (0.031 ~ 0.039 in)/ < 1.5 mm (0.059 in) >
		
Balancer Drive Method:		Gear
Clutch:		
Clutch Shoe Thickness		3.5 mm (0.138 in)
< Wear Limit >		< 2.0 mm (0.079 in) >
Sliding Spring Free Length		76.8 mm (3.02 in)
< Limit >		< 71.0 mm (2.80 in) >
V-Belt Width		19.5 mm (0.77 in)
< Wear Limit >		< 17.5 mm (0.69 in) >
Clutch-In Revolution		2,500 ~ 2,900 r/min
Clutch-Stall Revolution		3,700 ~ 4,300 r/min

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Model		XC125S
Transmission:		
Main Axle Deflection Limit		< 0.08 mm (0.003 in) >
Drive Axle Deflection Limit		< 0.08 mm (0.003 in) >
Air Filter Oil Grade (Oiled Filter):		Yamalube 2-cycle oil or equivalent
Carburetor:		
Type/Manufacturer/Quantity		Y22V/TEIKEI
I.D. Mark		50M00
Main Jet	(M.J.)	#108
Main Air Jet	(M.A.J.)	#200
Jet Needle	(J.N.)	4C10
Needle Jet	(N.J.)	85
Pilot Jet	(P.J.)	#34
Pilot Air Jet	(P.A.J.)	#140
Pilot Screw	(P.S.)	1-3/4
Valve Seat	(V.S.)	ϕ2.0
Starter Jet	(G.S.)	#48
Fuel Level	(F.L.)	4.5 ~ 5.5 mm (0.18 ~ 0.22 in)
Float Height	(F.H.)	26.5 ~ 27.5 mm (1.04 ~ 1.08 in)
Engine Idling Speed		1,350 ~ 1,450 r/min
Vacuum Pressure at Idling Speed		Above 170 mmHg (6.69 inHg)
Oil Temperature		35 ~ 45°C (95 ~ 113°F)
Lubrication System:		
Oil Filter Type		Wire Mesh
Oil Pump Type		Trochoid Pump
Tip Clearance/< Limit >		0.15 mm (0.0059 in)/ < 0.2 mm (0.008 in) >
Side Clearance/< Limit >		0.06 ~ 0.10 mm (0.0024 ~ 0.0039 in)/ < 0.15 mm (0.006 in) >

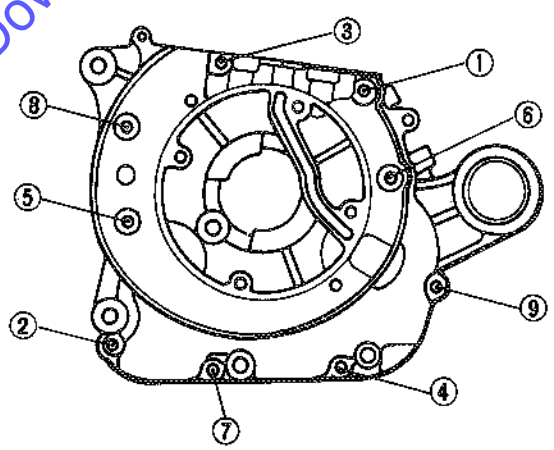
Lubrication Chart:



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Part Name		Thread Size	Q'ty	Tightening Torque		
				Nm	m·kg	ft·lb
Cylinder Head		M 8 x 1.25	4	22	2.2	16
		M 6 x 1.0	2	10	1.0	7.2
Valve Adjuster Locknut		M 5 x 0.5	2	7	0.7	5.1
Valve Cover			2	7	0.7	5.1
Cam Shaft Bearing Stopper		M 6 x 1.0	1	7	0.7	5.1
Cam Sprocket		M 8 x 1.25	1	28	2.8	20
Cam Sprocket Cover		M 6 x 1.0	2	12	1.2	8.7
Cam Chain Tensioner	– Body	M 6 x 1.0	2	10	1.0	7.2
	– Plug	M 8 x 1.25	1	8	0.8	5.8
Spark Plug		M10 x 1.0	1	12.5	1.25	9.0
Air Shroud		M 6 x 1.0	3	7	0.7	5.1
Intake Manuhold		M 6 x 1.0	2	10	1.0	7.2
Muffler	– Exhaust	M 6 x 1.0	2	10	1.0	7.2
	– Body	M 8 x 1.25	1	16	1.6	11
Crankcase		M 6 x 1.0	9	12	1.2	8.7
Crankcase Cover-1		M 6 x 1.0	9	10	1.0	7.2
Crankcase Cover-2		M 6 x 1.0	8	12	1.2	8.7
Cam Chain Case Cover		M 6 x 1.0	2	7	0.7	5.1
Oil Pump		M 6 x 1.0	3	7	0.7	5.1
Drain Plug	– Engine	M12 x 1.5	1	20	2.0	14
	– Transnission	M 8 x 1.25	1	16	1.6	11
Primary Sheave		M12 x 1.0	1	55	5.5	40
Secondary Sheave	– Clutch	M36 x 1.5	1	90	9.0	65
	– Clutch Housing	M14 x 1.25	1	60	6.0	43
Crankcase Cover		M 6 x 1.0	23	10	1.0	7.2
Air Duct		M 6 x 1.0	3	7	0.7	5.1
Air Filter		M 6 x 1.0	2	7	0.7	5.1
Fuel Cock		M 6 x 1.0	2	7	0.7	5.1
Stater Assembly		M 6 x 1.0	4	7	0.7	5.1
Flywheel		M12 x 1.25	1	70	7.0	50
Cooling Fan		M 6 x 1.0	3	7	0.7	5.1
Starter Motor		M 6 x 1.0	2	7	0.7	5.1

Crankcase Tightening Sequence:



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7

Chassis

Model		XC125S
Steering System:		
Steeing Bearing Type		Ball Bearing
No./Size of Steel Balls:		
	Upper	22 pcs/3/16 in
	Lower	19 pcs/1/4 in
Front Suspension:		
Front Fork Travel		60 mm (2.36 in)
Fork Spring Free Length		196.5 mm (7.74 in)
< Limit >		< 195 mm (7.68 in) >
Spring Rate/Stroke:		K_1 = 10.23 N/mm (1.043 kg/mm, 58.34 lb/in)/ 0 ~ 46 mm (0 ~ 1.8 in)
		K_2 = 16.89 N/mm (1.722 kg/mm, 96.40 lb/in)/ 46 ~ 64 mm (1.8 ~ 2.5 in)
Optional Spring		No.
Rear Suspension:		
Shock Absorber Travel		75 mm (2.95 in)
Spring Free Length		245.1 mm (9.65 in)
< Limit >		< 243.6 mm 9.59 in) >
Fitting Length		235.1 mm (9.26 in)
Spring Rate/Stroke		K_1 = 9.92 N/mm (1.011 kg/mm, 56.60 lb/in)/ 0 ~ 47.5 mm (0 ~ 1.87 in)
		K_2 = 18.31 N/mm (1.867 kg/mm, 104.51 lb/in)/ 47.5 ~ 70 mm (1.87 ~ 2.76 in)
		K_3 = 42.49 N/mm (4.333 kg/mm, 242.56 lb/in)/ 70 ~ 85 mm (2.76 ~ 3.35 in)
Optional Spring		No.
Wheel:		
Front Wheel Type		Cast Wheel
Rear Wheel Type		Cast Wheel
Front Rim Size/Material		MT2.50 x 10/Aluminum
Rear Rim Size/Material		MT2.50 x 10/Aluminum
Rim Runout Limit		
Vertical		< 2.0 mm (0.08 in) >
Lateral		< 2.0 mm (0.08 in) >
Drum Brake:		
Type	Front	Leading and Trailing
	Rear	Leading and Trailing
Drum Inside Diameter/< Limit >:		
	Front	130 mm (5.12 in)/ < 131 mm (5.16 in) >
	Rear	130 mm (5.12 in)/ < 131 mm (5.16 in) >
Lining Thickness		4 mm (0.16 in)
< Limit >		< 2 mm (0.08 in) >
Shoe Spring Free Length:		
	Front	36.5 mm (1.44 in)
	Rear	36.5 mm (1.44 in)

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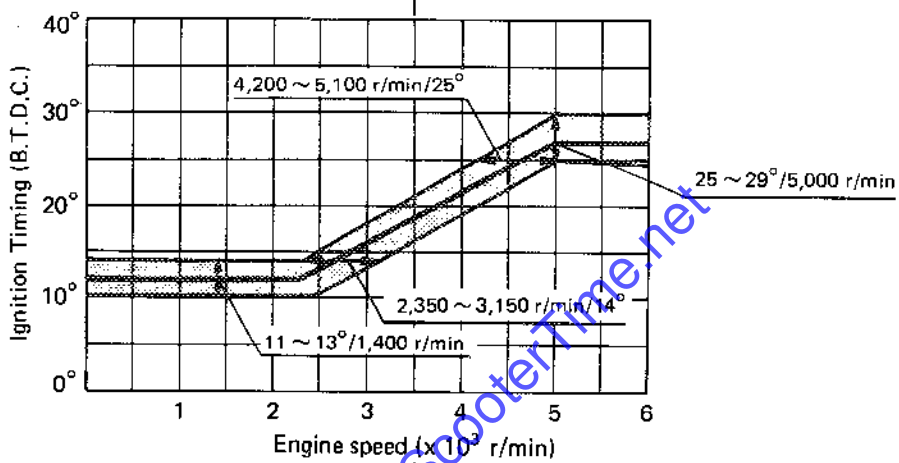
Model	XC125S
Brake Lever & Brake Pedal:	
Brake Lever Free Play/Position	10 ~ 20 mm (0.4 ~ 0.8 in)/at lever end
Brake Pedal Position	61 mm (2.40 in) (Vertical height above footrest mat.)
Brake Pedal Free Play	5 ~ 15 mm (0.2 ~ 0.6 in)

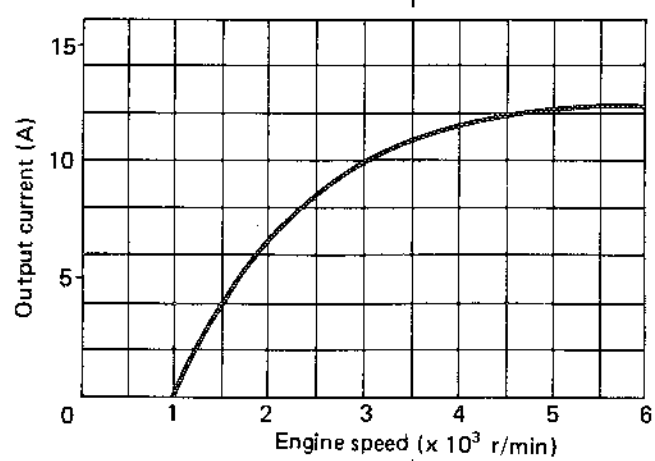
Part Name	Thread Size	Q'ty	Tightening Torque		
			Nm	m•kg	ft•lb
Engine Pivot Shaft	M12 x 1.25	1	74	7.4	53
Bridge Plate — Battery	M 6 x 1.0	2	8	0.8	58
Seat Bracket	M 8 x 1.25	2	20	2.0	15
Taillight Bracket	M 6 x 1.0	3	7	0.7	5.1
Rear Arm	M 8 x 1.25	2	23	2.3	17
Rear Shock Absorber	M 8 x 1.25	4	16	1.6	11
Steering Ring Nut	M25 x 1.0	7	30	3.0	22
Front Shock Absorber	M 8 x 1.25	4	19	1.9	13
Arm Pivot	M10 x 1.25	2	40	4.0	29
Fuel Tank	M 6 x 1.0	3	11	1.1	8
Fuel Cock	M 6 x 1.0	2	7	0.7	5.1
Fuel Sensor	M 5 x 0.8	4	2	0.2	1.4
Seat Hinge	M 6 x 1.0	1	7	0.7	5.1
Seat Lock	M 6 x 1.0	2	7	0.7	5.1
Carrier Stay	M 6 x 1.6	4	8	0.8	5.8
Carrier (Front)	M 6 x 1.0	2	8	0.8	5.8
(Rear)	M 8 x 1.25	2	16	1.6	11
Front Axle Shaft	M12 x 1.25	1	70	7.0	50
Front Brake Cam Lever	M 6 x 1.0	1	10	1.0	7.2
Tension Bar — Brake plate	M10 x 1.25	1	49	4.9	35
— Fork	M10 x 1.25	1	40	4.0	29
Rear Axle Shaft	M14 x 1.5	1	105	10.5	75
Rear Brake Plate	M 8 x 1.25	3	19	1.9	13
Rear Brake Cam Lever	M 6 x 1.0	1	10	1.0	7.2
Handlebar Mounting Bolt	M10 x 1.25	1	34	3.4	24
Footrest Board	M 8 x 1.25	2	16	1.6	11
	M 6 x 1.0	4	7	0.7	5.1
Sidestand	M10 x 1.25	1	32	3.2	23
Main Stand Bracket	M 8 x 1.25	4	27	2.7	19
Trank Lock	M22 x 1.5	1	2	0.2	1.4
Plastic Parts	M 6 x 1.0	—	7	0.7	5.1
	M 5 x 0.8	—	1	0.1	0.7

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Electrical

Model	XC125S
Voltage	12V
Ignition System: Ignition Timing (B.T.D.C.) Advanced Timing (B.T.D.C.) Advancer Type	 12° at 1,400 r/min 27° at 5,000 r/min Electrical
TCI: Pickup Coil Resistance (Color) TCI Unit-Model/Manufacture	 90 ~ 135Ω at 20°C (68°F) (White/Black – White/Red) TID11-07/HITACHI
Ignition Coil: Model/Manufacturer Primary Winding Resistance Secondary Winding Resistance	 CM11-61/HITACHI 2.43 ~ 2.97 at 20°C (68°F) 10.6 ~ 15.8 kΩ at 20°C (68°F)
Charging System/Type	A.C. Magneto
AC Generator: Model/Manufacturer Normal Output	 FL112-10/HITACHI 12V, 12A at 5,000 r/min
Charging Coil Resistance (Color)	0.64 ~ 0.96Ω at 20°C (68°F) (White – White)





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Model	XC125S
Voltage Regulator:	
Type	Short Control
Model/Manufacturer	SH553/SHINDENGEN
No Lead Regulated Voltage	14 ~ 15V
Rectifier:	
Model/Manufacturer	SH553/SHINDENGEN
Capacity	12A
Withstand Voltage	400V
Battery:	
Capacity	12V, 7AH
Specific Gravity	1.280
Electric Starter System:	
Type	Constant mesh type
Starter Motor: Model/Manufacturer	50M/YAMAHA
Output	0.3 kW
Armature Coil Resistance	0.05 ~ 0.06Ω at 20°C (68°F)
Brush: Overall Length	10.0 mm (0.39 in)
< Limit >	< 3.5 mm (0.14 in) >
Spring Pressure	700 g (24.7 oz)
Commutator: Diameter	22.0 mm (0.87 in)
< Wear Limit >	< 21.0 mm (0.83 in) >
Mica Undercut (Width x Depth)	0.8 x 1.5 mm (0.03 x 0.06 in)
Starter Relay:	
Model/Manufacturer	50W/TATEISHI (OMRON)
Amperage Rating	80A
Coil Winding Resistance (Color)	2.7 ~ 3.3Ω at 20°C (60°F)
	(Blue/White – Green/Yellow)
Horn:	
Type/Quantity	Plain type
Model/Manufacturer	MF-12/NIKKO
Maximum Amperage	1.5A
Flasher Relay:	
Type	Condenser type
Model/Manufacturer	FZ26TSD/NIPPON DENSO
Self Cancelling Device	No
Flasher Frequency	75 ~ 95 cycle/min
Wattage	27W x 2 + 3.4W + Audio Pilot
Fuel Gauge:	
Model/Manufacturer	50W/NIPPON SEIKI
Sender Unit Resistance	
Full	4 ~ 10Ω at 20°C (68°F)
Empty	90 ~ 100Ω at 20°C (68°F)
Starting Circuit Cut-off Relay:	
Model/Manufacturer	25G/TATEISHI (OMRON)
Coil Winding Resistance (Color)	68 ~ 83Ω at 20°F (68°F)
	(Blue/White – Red/White)
Choke Relay:	
Model/Manufacturer	25G/TATEISHI (OMRON)
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit/Quantity	
Main	20A x 1
Reserve	20A x 1

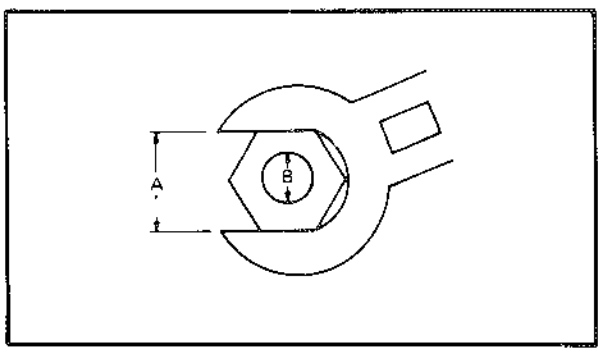
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GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m·kg	ft·lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94

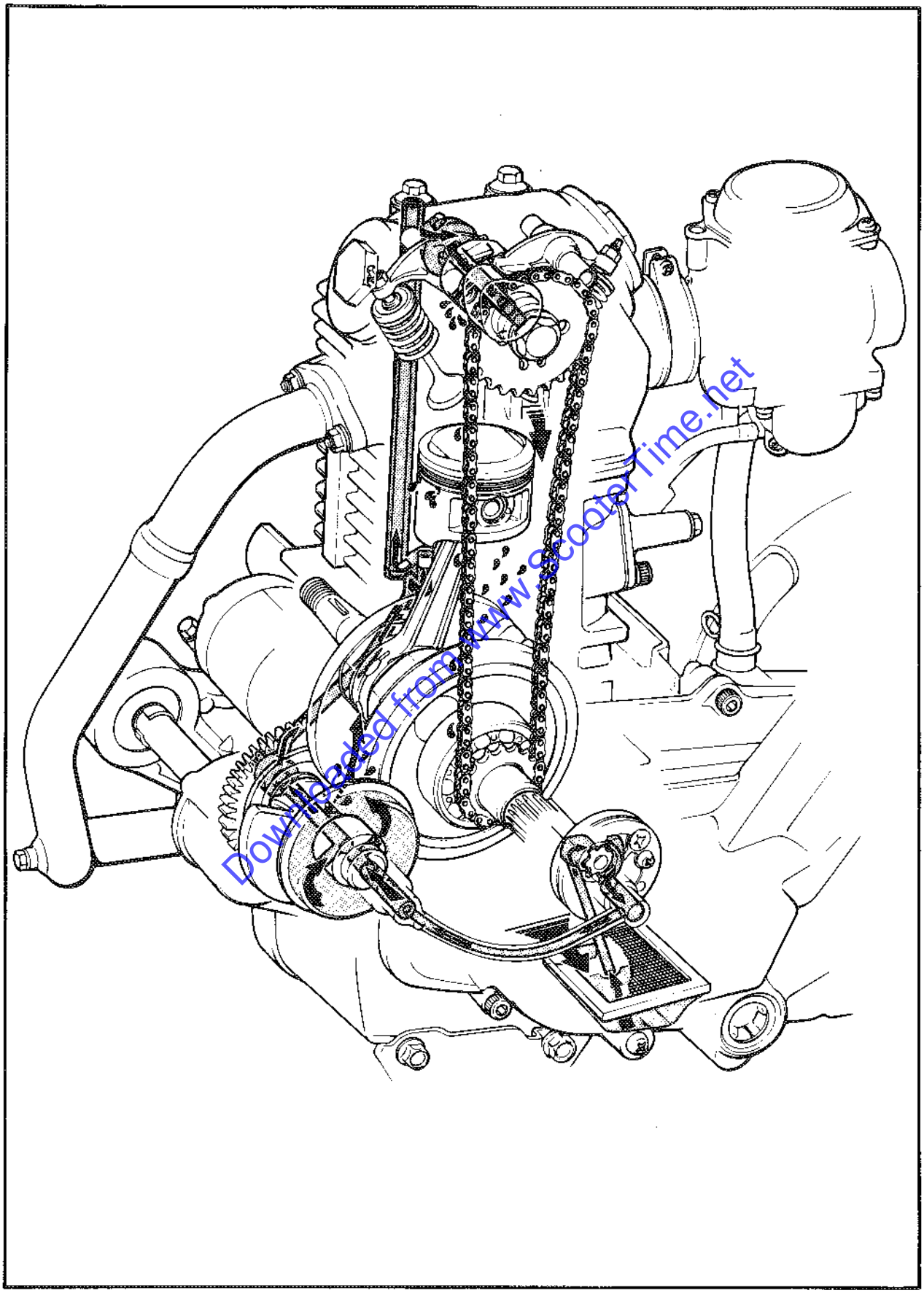


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DEFINITION OF UNITS

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

LUBRICATION DIAGRAM

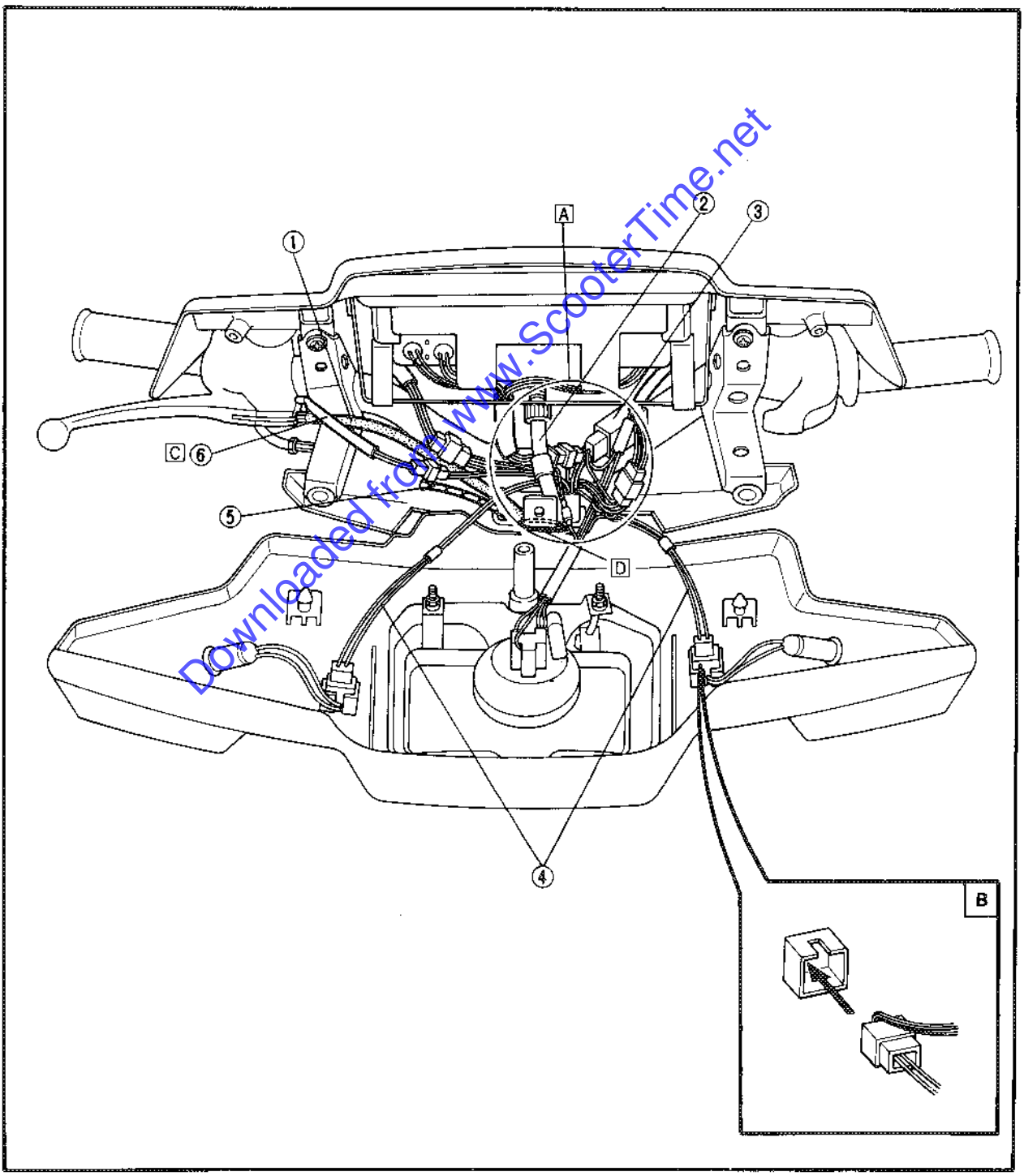


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CABLE ROUTING

① Front brake cable
② Speedometer cable
③ Flasher relay
④ Front flasher light lead
⑤ Throttle cable
⑥ Front brake switch lead

[A] Except for meter leads, pass the leads and harnesses back of the speedometer cable.
[B] Insert the flasher lead coupler into the holder cover socket
[C] Pass the brake switch lead outside the brake cable
[D] Hook the loop of the wireharness here.

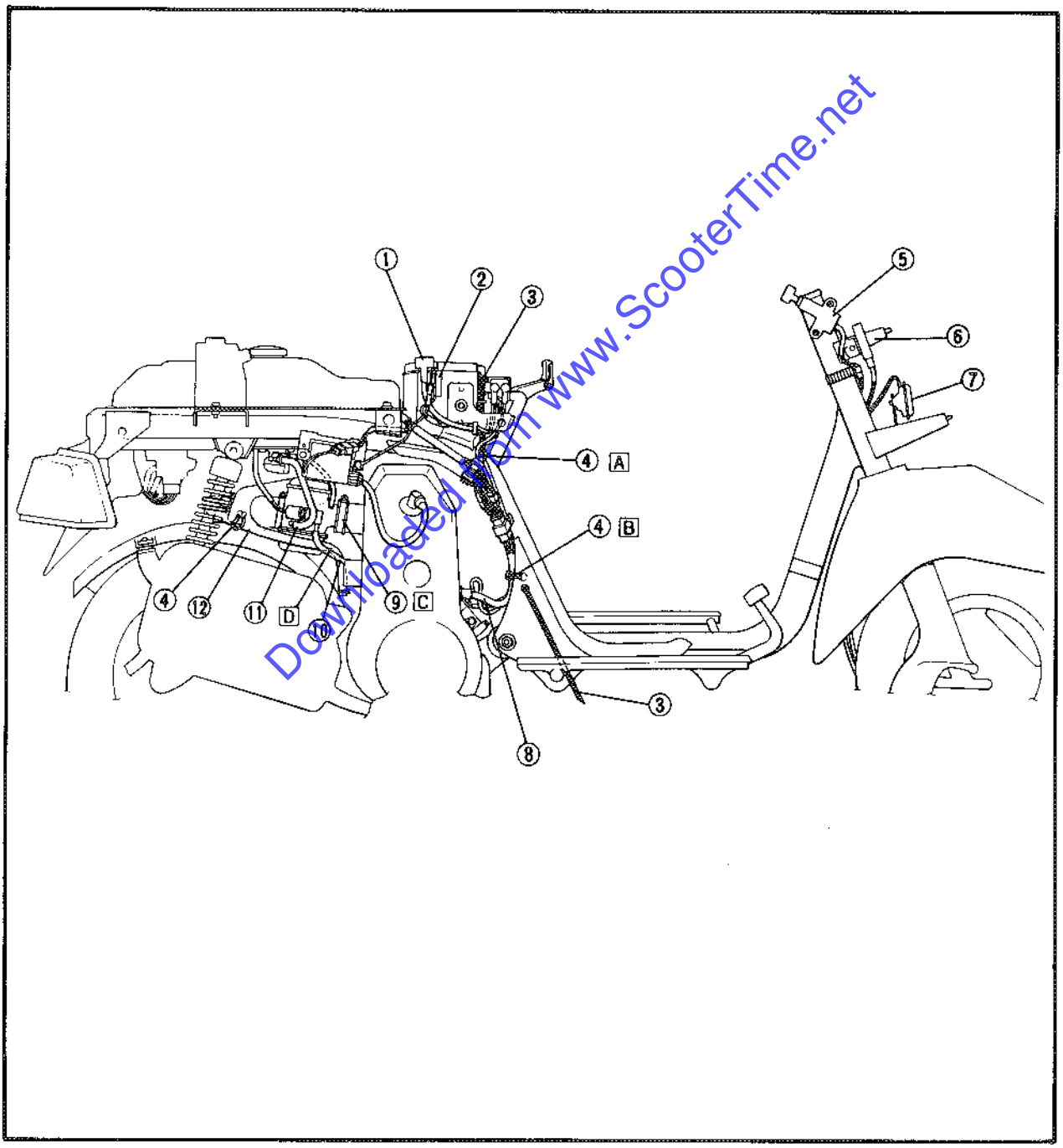


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CABLE ROUTING

① Battery positive (+) lead
② Fuse holder
③ Battery breather pipe
④ Band
⑤ Main switch
⑥ Rectifier/Regulator
⑦ Horn
⑧ Flywheel magneto lead
⑨ Carburetor clamp
⑩ Choke unit air filter hose
⑪ Fuel hose
⑫ Breather hose

[A] Clamp the starter motor lead and battery positive (−) lead and flywheel magneto lead.
[B] Clamp the starter motor lead, ground lead and flywheel magneto lead.
[C] The head of the screw is right side.
[D] Clamp the breather hose

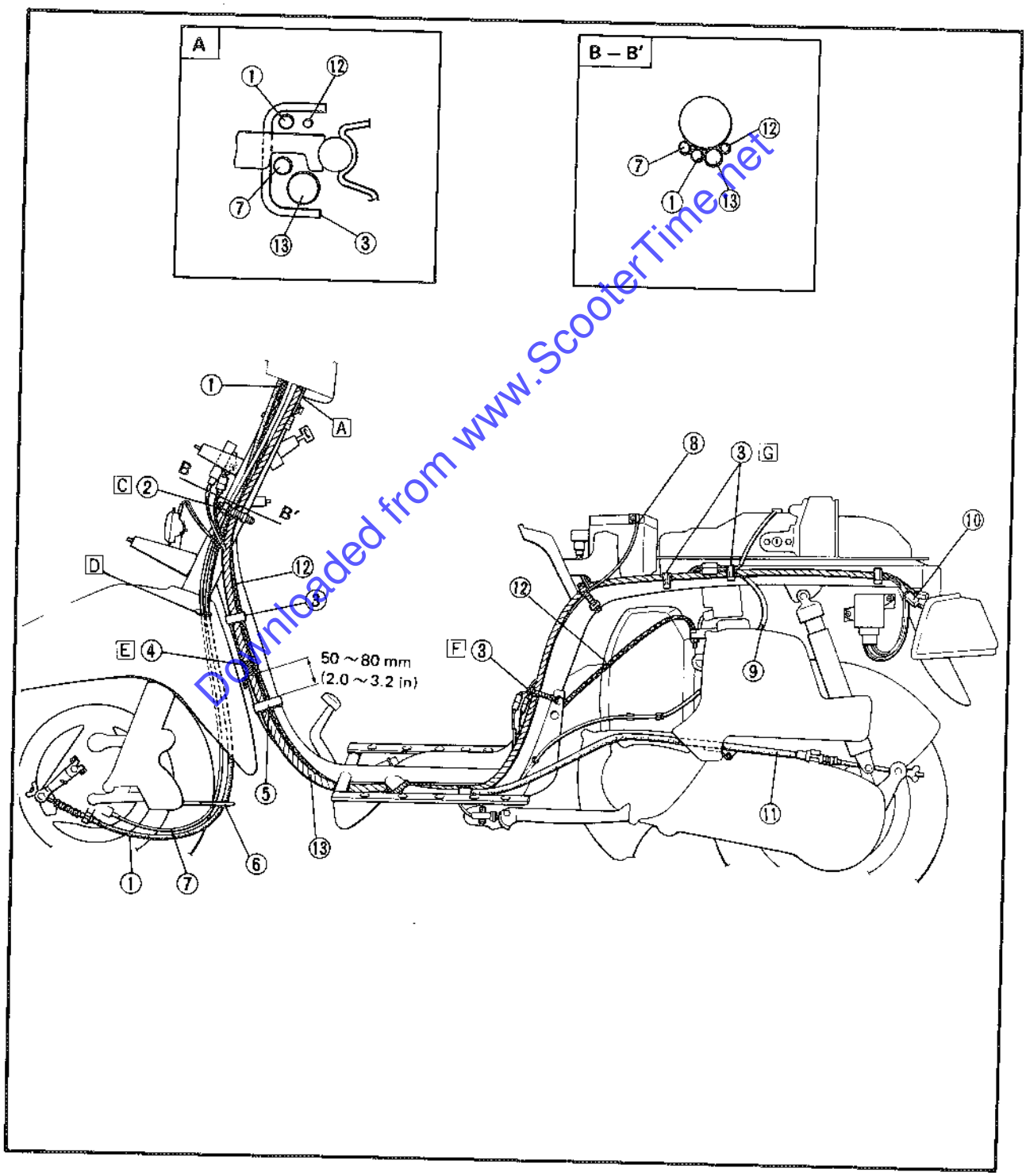


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CABLE ROUTING

① Front brake cable
② Band
③ Clamp
④ White tape
⑤ Tape
⑥ Cable holder
⑦ Speedometer cable
⑧ Battery negative (—) lead
⑨ Choke unit lead
⑩ Taillight lead
⑪ Rear brake cable
⑫ Throttle cable
⑬ Wireharness

[C] Clamp the wireharness, speedometer cable, front brake cable, and throttle cable.
[D] Pass the speedometer cable and front brake cable through the front fender hole.
[E] Clamp the wireharness and fuel sendor lead.
[F] Clamp the wireharness only.
[G] Clamp the wireharness and throttle cable.



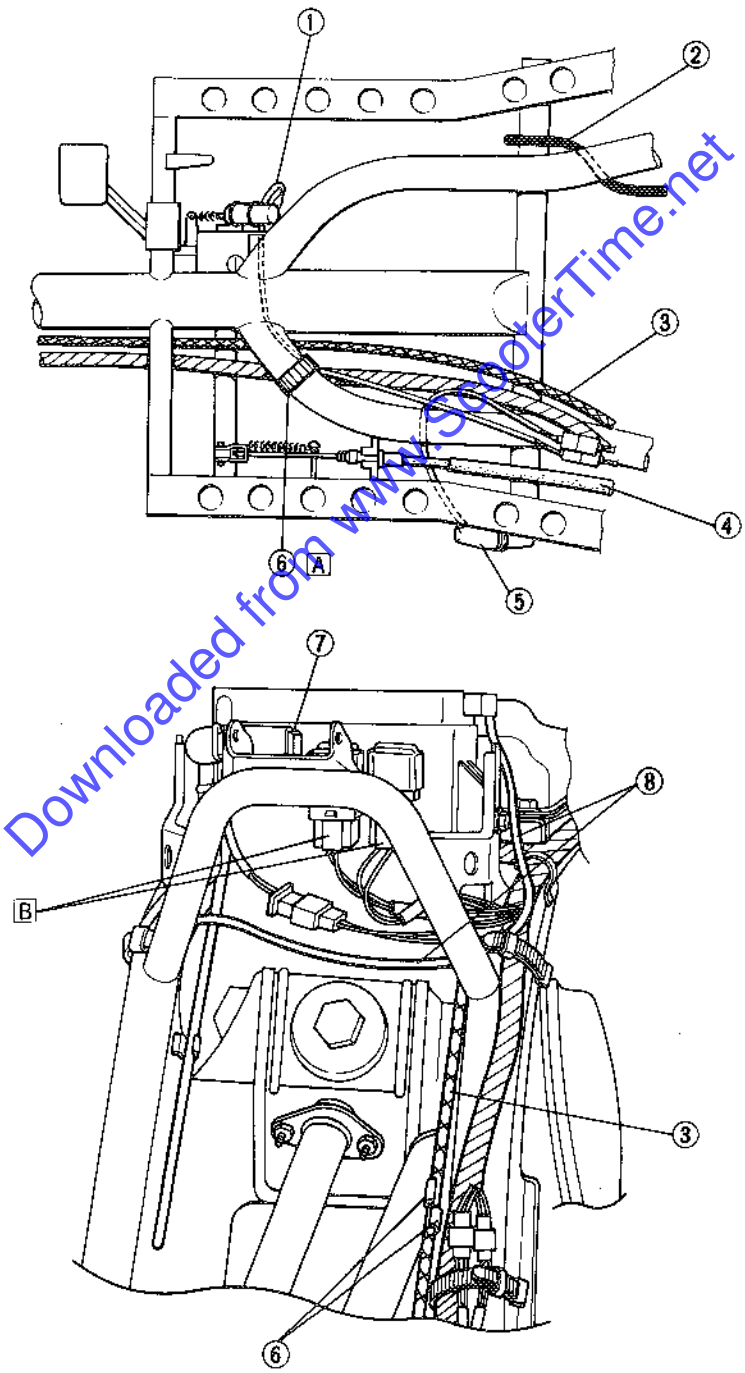
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CABLE ROUTING

① Rear brake switch lead
② Battery breather pipe
③ Throttle cable
④ Rear brake cable
⑤ Sidestand switch
⑥ Clamp
⑦ Starter switch
⑧ Battery negative (–) lead

[A] Clamp the wireharness and rear brake switch lead.
[B] Blue coupler → Relay on blue mark.
White coupler → Relay on "25G" mark.



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