

HONDA CR250M
EL SINORE



**OWNER'S
MANUAL**

TO THE NEW OWNER

By selecting a Honda motocross "CR-250 M ELSINORE" as your new motorcycle, you have placed yourself in a distinguished family of motorcycle owners and riders.

The CR-250 M ELSINORE is designed and built by Honda engineers who spent as much time riding as at the drawing board, and it offers outstanding features.

The purpose of this manual is to acquaint you with the operation and maintenance of your new Honda CR-250 M ELSINORE.

Please take the time to read this manual carefully. Proper care and maintenance are essential for troublefree operation and optimum performance.

Your authorized Honda dealer will be glad to provide further information and is fully equipped to handle your service needs.

**HONDA MOTOR CO., LTD.
SERVICE DIVISION**



CONTENTS

I. OPERATING INSTRUCTIONS

1. Controls.....	1
2. Fuel.....	2
3. Riding the Motorcycle.....	3
• Starting the engine.....	3
• Braking the motorcycle.....	3
• Stopping the engine.....	3
• Running-in the motorcycle.....	3

II. INSPECTION AND MAINTENANCE

1. Service Precautions.....	4
2. Parts Replacement.....	4
3. Inspection Checklists.....	4
4. Maintenance Procedures.....	5
• Engine.....	5
• Transmission oil.....	5
• Spark plug.....	6
• Clutch.....	7
• Breaker point gap and ignition timing.....	8
• Decarbonizing.....	9
• Air cleaner.....	10
• Handlebar.....	10
• Throttle grip.....	11
• Front fork.....	11
• Rear suspension.....	12
• Front and rear wheels.....	12
• Front brake adjustment.....	12
• Rear brake adjustment.....	13
• Drive chain maintenance.....	14
• Fuel tank.....	17

• Fuel filter.....	17
• Expansion chamber.....	17

III. SERVICING THE ENGINE

1. Service Not Requiring Engine Removal.....	18
2. Engine Removal and Installation.....	18
3. Cylinder Head, Cylinder and Piston.....	19
4. Clutch.....	22
5. Kick Starter.....	24
6. Gearshift Mechanism.....	25
7. Crankcase and Transmission.....	27
8. Crankshaft and Connecting Rod.....	29
9. Carburetor and Air Cleaner.....	30

IV. SERVICING THE FRAME

1. Handlebar and Front Suspension.....	34
2. Rear Suspension.....	36
3. Front Wheel and Front Brake.....	37
4. Rear Wheel and Rear Brake.....	39

V. SERVICING THE ELECTRICAL SYSTEM

VI. SERVICE DATA

1. Trouble Shooting.....	41
2. Torque Specifications.....	44
3. Service Data.....	45
4. Wiring Diagram.....	46
5. Special Tools.....	47
6. Optional Parts.....	48
7. Specifications.....	49

I. OPERATING INSTRUCTIONS



1. CONTROLS

① Front brake lever

② Throttle grips

Twist the throttle grip inward to increase engine rpm. Twist it outward to decrease engine rpm.

③ Ignition switch

Place the ignition switch in "RUN" position when starting the engine. Place the switch in "Off" position to stop the engine.

④ Rear brake pedal

⑤ Kick starter pedal

⑥ Clutch lever

⑦ Fuel tank filler cap

⑧ Gear change pedal

The transmission has five speeds. Depress the pedal to shift into 1st gear. Raise the pedal to shift into 2nd, 3rd, 4th and 5th gears. Neutral is located between 1st and 2nd gears.

⑨ Front fork

Front fork height is adjustable to suit riding conditions.

⑩ Fuel mixture enrichment lever

When starting a cold engine, lower the fuel mixture lever and fully depress the kick starter pedal.

⑪ Fuel valve

The fuel valve lever has two positions, "ON" (vertical position) and "OFF" (lever pointing to rear). The fuel valve lever is located on the inner side of the fuel valve to prevent accidental movement.

⑫ Rear shock absorber

The rear shock absorber springs have five settings for precise adjustment of the rear suspension to suit riding conditions and differences in rider weight.



Fig. 1-2 (1) Fuel tank

2. FUEL

The Honda CR-250 M Elsinore has a two-stroke engine that requires a gasoline-oil mixture.

The capacity of the fuel tank is 7 l (1.8 US gal.).

- Use gasoline with an octane rating of 91 or higher.
- Use two stroke oil or high grade motor oil (SAE-40).
- Premix gasoline and oil in a ratio of 20:1. Prepare the fuel mixture in a clean container, and shake until thoroughly mixed before filling the fuel tank.

CAUTION:

Too much oil will cause excessive smoking and spark plug fouling. Too little oil will cause engine damage or premature wear. Mix fuel in a ratio of 20 parts gasoline to 1 part oil.

- Vegetable oils separated from gasoline more easily than mineral oils, especially in cold weather. It is advisable to use mineral oil when ambient temperatures of below 0°C (32°F) are expected.
- If the gasoline-oil mixture is left standing in a container for a long period of time, lubricity will become poor. Use the mixture within 24 hours.
- Once an oil container is opened, the oil must be used within one month, since oxidation may occur.

CAUTION:

Do not mix vegetable and mineral oils.

WARNING:

Gasoline is flammable and explosive under certain conditions. Always stop the engine and do not smoke or allow open flames or sparks near the motorcycle when refueling.



3. RIDING THE MOTORCYCLE

Starting the engine

- 1 Place the fuel valve lever in "ON" position.
- 2 Shift the transmission into neutral.
- 3 Place the ignition switch in "RUN" position.



Fig. 1-3 (1) Ignition switch

- 4 Lower the fuel mixture enrichment lever.
- 5 With throttle closed, operate the kick starter pedal with rapid, full strokes until the engine starts. Open the throttle when the engine fires.
- 6 Run the engine for a few minutes, blipping the throttle, until it warms up enough to idle with the fuel mixture enrichment lever raised. The lever should be raised as soon as possible to prevent spark plug fouling due to rich fuel mixture.

WARNING:

Exhaust contains poisonous carbon monoxide gas. Never run the engine in a closed garage or in a confined area.

Braking the motorcycle

For maximum deceleration, close the throttle and apply both front and rear brakes equally. Disengage the clutch as the motorcycle comes to a stop. Independent use of the front and rear brakes may be advantageous under certain conditions. Downshift progressively as speed is reduced to ensure good acceleration when speed is resumed.

Stopping the engine

- 1 Return the throttle grip to the idle position.
- 2 Shift the transmission into neutral.
- 3 Turn the ignition switch to the "OFF" position.
- 4 Turn the fuel valve lever to the "Off" position.

NOTE:

Failure to close the fuel valve may cause the carburetor to overflow, filling the crankcase with fuel and resulting in hard starting.

Running-in the motorcycle

When first riding a new or reconditioned motorcycle, or after replacing the piston, rings, or cylinder (which must be broken-in) operate the motorcycle for the first hour (about 25 km or 16 miles) using not more than half throttle and shifting gears so that the engine does not lug.

CAUTION:

Revving the engine more than necessary may cause engine damage.



Fig. 1-4 (1) Fuel mixture enrichment lever

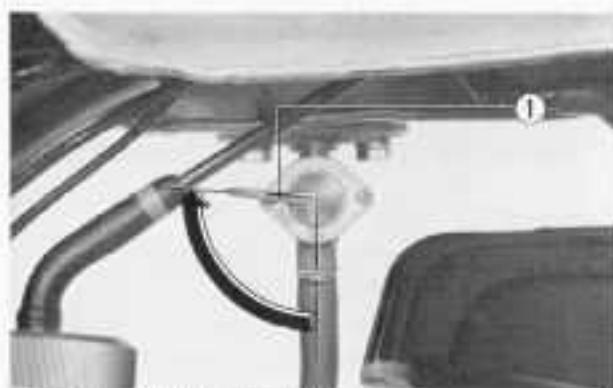
Fig. 1-5 (1) Gear change pedal
SHIFTING PATTERN

Fig. 1-6 (1) Fuel valve lever

II. INSPECTION AND MAINTENANCE

1. SERVICE PRECAUTIONS

- Replace gaskets, O-rings, cotter pins, piston pin clips, lock washers, snap rings, etc. when reassembling.
- When torquing bolts, nuts or screws, start with the larger-diameter or inner fasteners, and tighten them to the specified torque using a criss-cross pattern.
- Use only genuine Honda or Honda-recommended parts and lubricants when servicing your motorcycle.
- Be sure to use special tools where specified.
- Clean the engine before disassembly.

Clean all parts after dismantling, and when reassembling coat all sliding surfaces with good quality lubricant.

- Grease parts by coating or filling where specified.
- After reassembling, check to be sure each part is securely tightened.

NOTE

- All service data is listed at the end of this manual.
- To assemble engine and frame components, reverse the disassembly procedures.

2. PARTS REPLACEMENT (Following values are standard.)

Engine

- Piston ring Every 200 km (125 miles) (About every 2 races).
- Contact breaker Every 300 km (190 miles) (About every 3 races).
- Spark plug Every 100 km (60 miles) (About every 1 race).
- Transmission oil Every 100 km (60 miles) (About every 1 race).

Frame

- Drive chain Every 300 km (190 miles) (About every 3 races).
- Cables Every 300 km (190 miles) (About every 3 races).
- Tire Tread depth: 8~10 mm (0.32~0.4 in.).

3. INSPECTION CHECK LISTS

Prepractice inspection

Check:	Ref. page	Check:	Ref. page
● Transmission oil for proper level.	5	● Rim locks for looseness.	12
● Spark plug and hightension cord terminal for looseness.	6	● Brakes for correct play and proper operation.	12
● Clutch for proper operation.	7	● Drive chain for correct tension and proper lubrication.	34
● Carburetor throttle valve for proper operation.	—	● Every possible part for looseness (especially, cylinder head bolts, engine hanger bolts, axle holder, drive chain adjusters, drive chain guide roller,etc.,).	—
● Frame head and its related parts for condition.	—		
● Spokes for looseness.	—		
● Tires for correct inflation pressure.	17		

Prerace inspection

Check:	Ref. page	Check:	Ref. page
● All items "prepractice inspection".	—	● Air cleaner element for contamination.	10
● Breaker point gap and ignition timing.	8	● Brake shoes for wear and contact.	—
● Breaker point cam lubrication.	8	● Cables for proper lubrication and condition.	—
● Spark plug for heat range and carbon fouling.	6	● Drive and driven sprockets for wear.	14
● Cylinder head and piston for carbon fouling.	9	● Expansion chamber for cracks or damage.	17
● Clutch friction discs for wear.	—	● Fuel system for condition.	—

4. MAINTENANCE PROCEDURES

Engine

Start the engine and ride the motorcycle to check for abnormal noises or knocking. Engine knocking is often caused by incorrect ignition timing and overheating. Check and adjust ignition timing and carburetion. (If an abnormal noise such as detonation is heard, use a carburetor main jet $\pm 2 \sim \pm 5$ larger than the standard numbered jet.) If any other abnormal noise is heard, check and correct.

Check each bolt and nut for security. Loose cylinder head nuts may cause exhaust gas leak.

Transmission Oil

Transmission oil level

The transmission oil filler cap is located on the right crankcase cover and contains a dipstick for measuring oil level. Oil level must be maintained between the upper and lower marks on the dipstick.

To check the transmission oil level, insert the dipstick until the cap touches the filler opening. Do not screw in the cap while measuring oil level.

Oil level must be checked with the motorcycle standing upright on level ground.

Transmission oil change

Drain used oil from the transmission while the engine is warm. This will ensure complete and rapid draining.

1. Remove the oil filler cap from the right crankcase cover.
2. Place a pan under the engine to catch the oil, and remove the drain plug. Rock the motorcycle from side to side to drain all residual oil.
3. Install the drain plug with its sealing washer, and tighten securely.
4. Fill the transmission with the correct amount of fresh oil and install the oil filler cap.

Capacity:

1.0 l (1.0 US qt.) to fill dry assembly

0.85 l (0.9 US qt.) to refill after draining.

Transmission oil recommendation

Use only high detergent, premium quality motor oil certified to meet or exceed US automobile manufacturer's requirements for Service Classification SE. Motor oils intended for Service SE will show this designation on the container.

Viscosity selection should be based on the average atmospheric temperature in your riding area. Change to the proper viscosity oil whenever the average atmospheric temperature changes substantially.

Recommended oil viscosity:

General, all temperatures SAE 10 W-40

Alternate

Above 59°F	SAE 30
32° to 59°F	SAE 20 or 20W
Below 32°F	SAE 10W

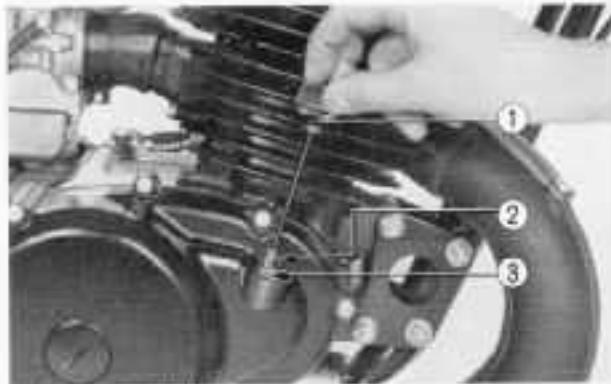


Fig. 2-1 ① Oil filler cap
② Upper mark
③ Lower mark



Fig. 2-2 ① Drain plug



Fig. 2-3 ① Transmission oil filler opening

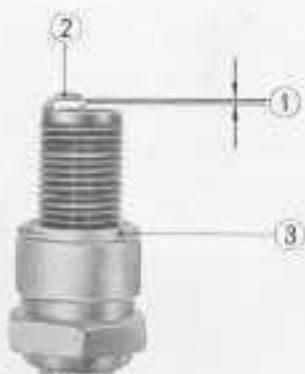


Fig. 2-4 ① Spark plug gap
② Side electrode
③ Sealing gasket



Fig. 2-5 ① Electrode



Fig. 2-6 ① Spark plug wrench

Spark Plug

The NGK B9EV spark plug is standard for this model. If replacing with any other make of spark plug, be certain to select the correct reach and heat range. Before removing the spark plug, clean the spark plug area thoroughly to prevent dirt from entering the cylinder.

1. Measure spark plug gap with a wire gauge, and adjust by carefully bending the side electrode. The recommended spark plug gap is 0.5-0.6 mm (0.020-0.024 in.).

2. Inspect the firing tip of the used spark plug. The electrodes and insulator nose should appear tan or medium gray.

To obtain accurate spark plug readings, switch ignition off at operating speed, coast to a stop with the clutch disengaged, then remove and inspect the spark plug. Idling or low speed operation will produce darker spark plug coloration or increased fouling.

If electrodes appear burnt, or the insulator nose is white or very light gray, this indicates one or more of the following conditions:

- Spark plug heat range too hot.
- Ignition timing excessively advanced.
- Fuel mixture too lean.
- Insufficient oil in fuel mixture.

If the electrodes and insulator nose are black or fouled, this indicates one or more of the following conditions:

- Spark plug heat range too cold.
- Ignition timing retarded.
- Fuel mixture too rich.
- Excessive or improper oil in fuel mixture.

3. Install the spark plug by hand until finger-tight, then tighten with a spark plug wrench until the sealing gasket is compressed (1/2 to 3/4 turn to compress a new spark plug gasket).

CAUTION:

The use of spark plug of incorrect reach or heat range can cause engine damage.

Clutch

Adjustment of clutch

- Align the clutch lifter lever with the index mark on the crankcase. To adjust, loosen the lock nut and turn the clutch cable lower adjuster.

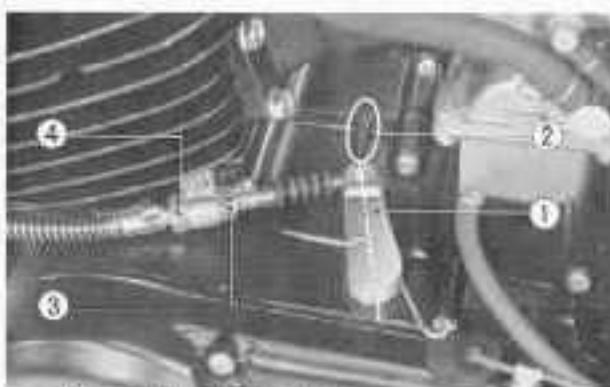


Fig. 2-7
 1 Clutch lifter lever
 2 Index mark
 3 Lock nut
 4 Clutch cable lower adjuster

- Remove the clutch adjuster cap from the right crankcase cover.
- Loosen the adjuster lock nut and turn the clutch adjuster clockwise until it no longer turns. From that position, turn the adjuster counterclockwise 1/2 turn and tighten the lock nut.

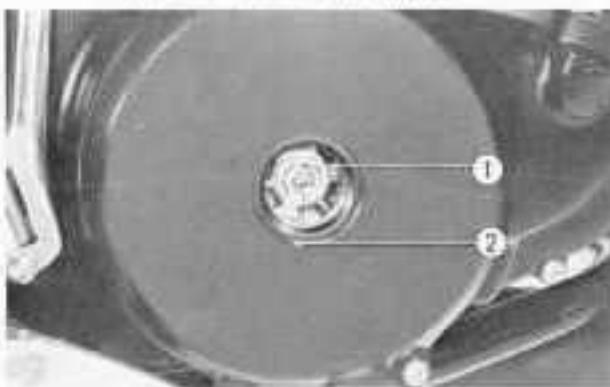


Fig. 2-8
 1 Lock nut
 2 Clutch adjuster

Check the clutch lever free play

- The normal clutch lever free play is 10~20 mm (0.4~0.8 in.) at the tip of the lever. To adjust, remove the dust cover, loosen the lock nut and turn the upper adjuster in either direction. Turning the adjuster in direction \leftarrow will increase the play and turning it in direction \rightarrow will decrease the play. After adjusting, tighten the lock nut and install the dust cover.

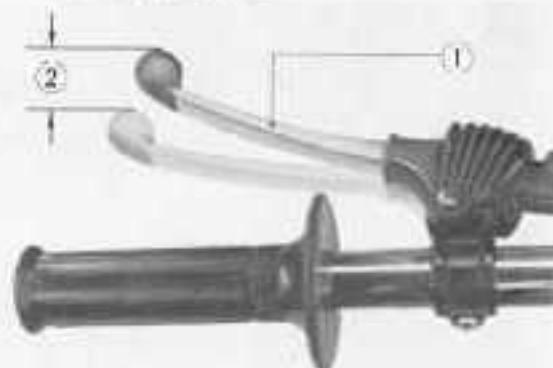


Fig. 2-9
 1 Clutch lever
 2 Clutch lever free play

- Test ride to be sure the clutch operates properly, without slip or drag. If clutch operation is not satisfactory after adjustment, check the condition of the clutch plates and friction discs (see pages 22-23).

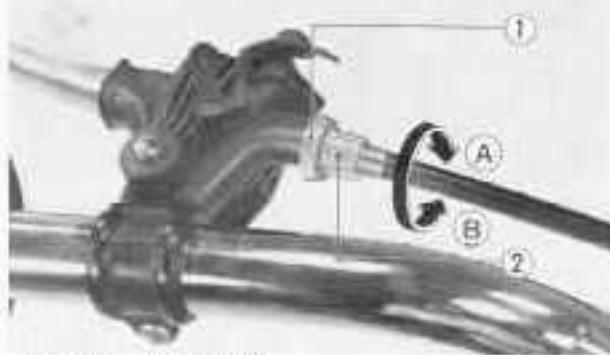


Fig. 2-10
 1 Lock nut
 2 Upper adjuster



Fig. 2-11 ① Point gap
② Locking screws
③ Breaker plate
④ Adjusting groove

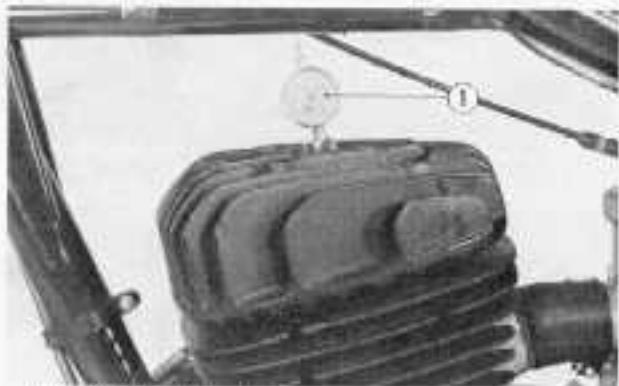


Fig. 2-12 ① Dial gauge

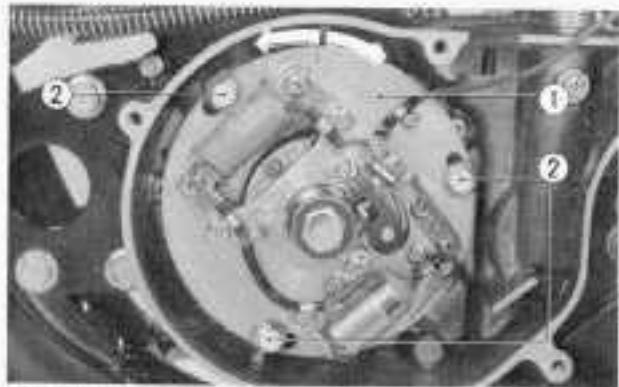


Fig. 2-13 ① Base plate
② Locking bolts

Breaker Point Gap and Ignition Timing

Breaker point gap adjustment

1. Remove the left crankcase cover. Clean and inspect the contact breaker points. Replace if worn or badly pitted. Light pitting may be removed with an ignition point file.
2. Turn the crankshaft counterclockwise until the contact breaker points open to maximum clearance. Check the contact point breaker point gap with a wire gauge. The correct gap is 0.3–0.5 mm (0.012–0.020 in.). If the gap is not within these limits, loosen the breaker plate locking-screws and move the breaker plate to obtain the correct gap. Tighten the locking screws and recheck gap.
3. Lubricate the contact-breaker point cam with a thin film of grease.

NOTE:

Contact breaker point gap adjustment will affect ignition timing. Ignition timing must be checked after contact breaker point gap adjustment.

Ignition timing

Check ignition timing after completion of the contact breaker point adjustment.

1. Clean the spark plug area thoroughly to prevent dirt from entering the cylinder, and remove the spark plug.
2. Install the dial gauge set (tool no. 07542-3370000) in the spark plug hole.
3. Turn the crankshaft counterclockwise until the dial gauge indicates that the piston is precisely at top dead center. With the piston at top dead center, set the dial gauge scale to zero.
4. Turn the crankshaft clockwise (backward) until the dial gauge indicates that the piston is 1.5 mm (0.059 in.) before top dead center. In this position, the contact breaker points should just begin to open.
5. If ignition timing is incorrect, loosen the base plate locking bolts, and rotate the base plate to obtain correct timing. Rotate the base plate counterclockwise to advance timing or clockwise to retard timing. Tighten the base plate locking bolts and recheck the contact breaker point gap.

Decarbonizing

Carbon deposits which build up in the combustion chamber and exhaust pipe will decrease engine performance. These carbon deposits must be removed periodically.

1. Remove the exhaust pipe, and scrape carbon deposits from the throat of the pipe.
2. Remove the spark plug and cylinder head nuts; then remove the cylinder head.
3. Remove the carburetor and clutch cable holder from the cylinder; then remove the cylinder. As the cylinder is raised, place a clean cloth over the crankcase bore to prevent dirt from entering the engine.
4. Remove piston pin clip and piston pin. Remove the piston.
5. Remove carbon deposits from the piston crown, cylinder head, cylinder and exhaust port, using a scraper of soft material such as wood or plastic to prevent damage to the parts.
6. Inspect the piston, piston rings, and cylinder for wear, damage, or sticking rings (see pages 19-21).



Fig. 2-14 ① Cylinder
② Cloth



Fig. 2-15 ① Cylinder head combustion chamber
② Scraper

7. Reassemble in the reverse order of disassembly, using new gaskets and piston pin clips. Coat the cylinder wall with oil before lowering the cylinder over the piston.



Fig. 2-16 ① Piston

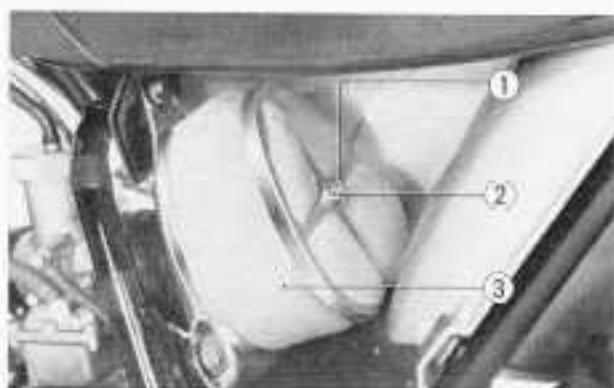


Fig. 2-17 ① Lock pin
② Lock nut
③ Air cleaner element



Fig. 2-18 ④ Air cleaner element

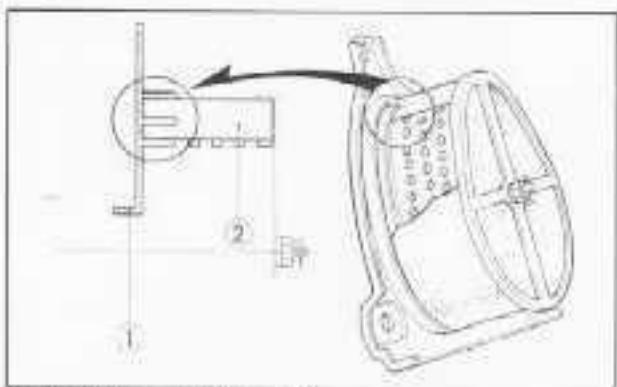


Fig. 2-19 ① Mounting base
② Air cleaner element



Fig. 2-20 ① Handlebar
② Handlebar upper holders

Air Cleaner

The air cleaner uses a polyurethane element. A dirty element will reduce engine output. To clean the element:

1. Remove the left side cover.
2. Pull out the lock pin and remove the lock nut. Then remove the element.
3. Wash the element in clean Stoddard solvent and dry it thoroughly.
4. Soak the element in clean gear oil (SAE 80~SAE 90) and squeeze it to remove excess oil.

5. Install the element on its mounting base as shown in Fig. 2-19. Install the lock nut and lock pin.

CAUTION:

If the element is not installed to the mounting base properly, dirt and dust may enter, resulting in rapid wear of the piston rings and cylinder.

Handlebar

Check the handlebar for deformation or cracks and the upper holders for proper tightness. Turn the handlebar to right and left to check for smooth operation.

Throttle Grip

The standard throttle grip free play is 5–10° of grip rotation. To adjust, loosen the lock nut and turn the throttle cable adjuster. Turn the adjuster in direction \curvearrowleft to increase free play or in direction \curvearrowright to decrease free play. Tighten the lock nut after adjustment is completed. Operate the throttle grip to see that it functions smoothly.

Front Fork

Adjustment

Front fork height can be adjusted to change the handling characteristics of the motorcycle. The upper part of each fork tube is marked in 5 mm (0.197 in.) graduations that are referenced to the surface of the upper fork bridge to indicate fork height settings.

To adjust front fork height, loosen the clamp bolts on the upper and lower fork bridges, and raise or lower the forks to the desired setting. Retighten the clamp bolts after fork height adjustment.

For low speed riding, where quick steering response is needed, move the forks upward through the fork bridge toward setting I.

To increase stability for high speed riding, move the forks downward through the fork bridge toward setting III.

Front fork height will also be determined by the rider's ability and personal preference.

Front fork oil change

1. Place a block under the engine to raise the front wheel off the ground.
2. Remove the front fork drain plugs and filler caps. Allow both forks to drain completely.
3. Install the drain plugs and tighten securely.
4. Fill each fork leg with the specified volume of ATF (Automatic Transmission Fluid).
5. Install the filler caps and tighten securely.

FRONT FORK FLUID CAPACITY

Volume required to fill dry assembly	165 cc (5.6 ozs) each fork leg
Volume required to refill after draining total capacity less volume of residual fluid	145 cc (4.9 ozs) each fork leg



Fig. 2-21 (1) Throttle grip
(2) Lock nut
(3) Throttle cable adjuster

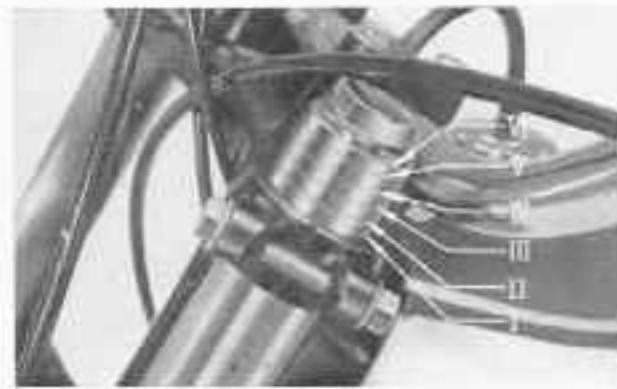


Fig. 2-22

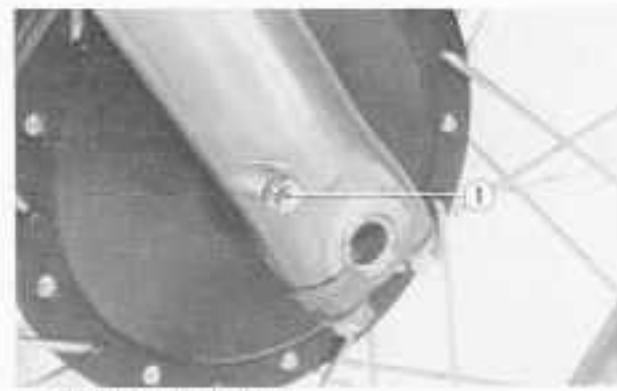


Fig. 2-23 (1) Drain plug



Fig. 2-24 (1) Filler hole



Fig. 2-25 ① Spring adjuster



Fig. 2-26 ① Pin spanner

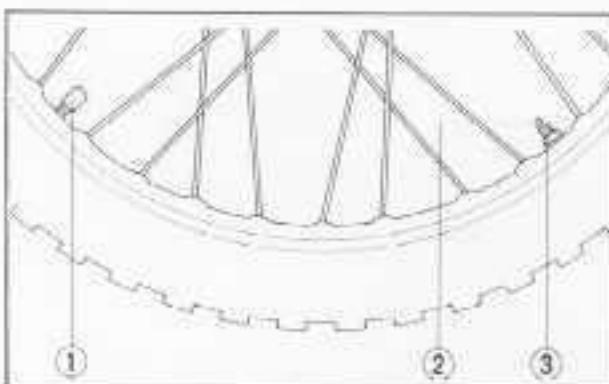
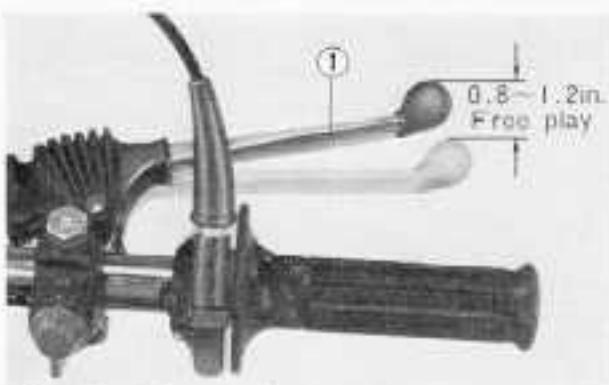
Fig. 2-27 ① Valve cap
② Rim lock
③ Lock nut

Fig. 2-28 ① Front brake lever

Rear Suspension

Inspection

Inspect shock absorbers for damage or leakage.

Inspect rear fork bushings for looseness by checking side play at the rear wheel.

Adjustment

Rear suspension spring tension is adjustable in five increments to suit riding conditions and rider weight. Turn the adjusters to the desired setting using a pin spanner. Be certain that both right and left rear suspension springs are adjusted to identical settings.

Lubrication

Lubricate the rear fork pivot with chassis grease. A grease fitting is provided at the left end of the pivot.

Front and Rear Wheels

1. Inspect tires for wear or damage.
2. Check tire pressure.
FRONT: 14.2 psi
REAR: 14.2 psi
3. Inspect wheel rims and spokes for damage.
4. Tighten any loose spokes or loose rim locks.
5. Check wheel rim runout, and true wheels if necessary.

Front Brake Adjustment

Free play, measured at the tip of the front brake lever, should be maintained at 20-30 mm. (0.8-1.2 in).

Free play is the distance the brake lever moves before the brake starts to engage.

Major adjustments should be made using the adjusting nut located at the front wheel.

1. Loosen the lock nut and then turn the front brake adjusting nut.

Turning the nut in direction **A** will decrease the brake lever free play and turning the nut in direction **B** will increase the play.



Fig. 2-29 ① Lock nut
② Front brake adjusting nut

2. Minor adjustments can be made with the front brake cable adjuster at the front brake lever.

Remove the dust cover, loosen the lock nut and turn the front brake cable adjuster. Turning the adjuster in direction **A** will decrease the brake lever free play and turning the adjuster in direction **B** will increase the play.

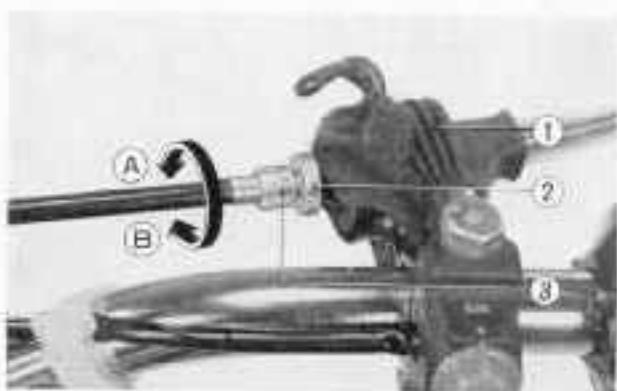


Fig. 2-30 ① Dust cover
② Lock nut
③ Front brake cable adjuster

Rear Brake Adjustment

Rear brake pedal free play, measured at the tip of the rear brake pedal, should be maintained at 20–30 mm (0.8–1.2 in.). Free play is the distance the brake pedal moves before the brake starts to engage.



Fig. 2-31 ① Rear brake pedal
② Grease fitting

Adjust brake pedal free play by turning the adjusting nut. Turn the adjusting nut in direction **A** to decrease free play or in direction **B** to increase free play. Lubricate the rear brake pedal pivot with chassis grease. A grease fitting is provided at the rear of the pivot.

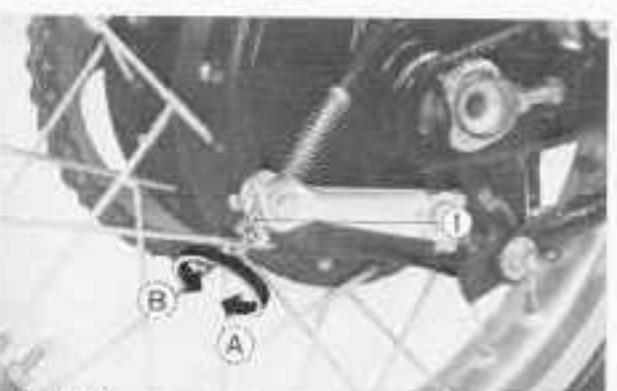


Fig. 2-32 ① Rear brake adjusting nut

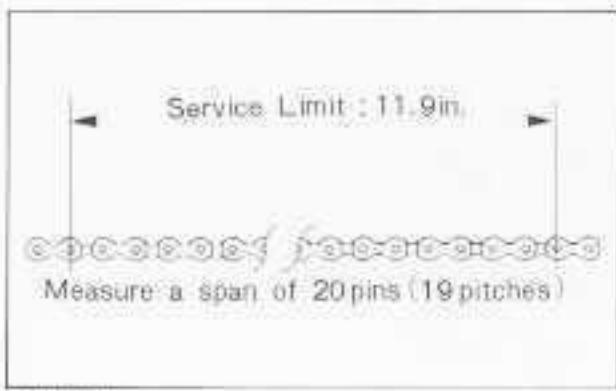
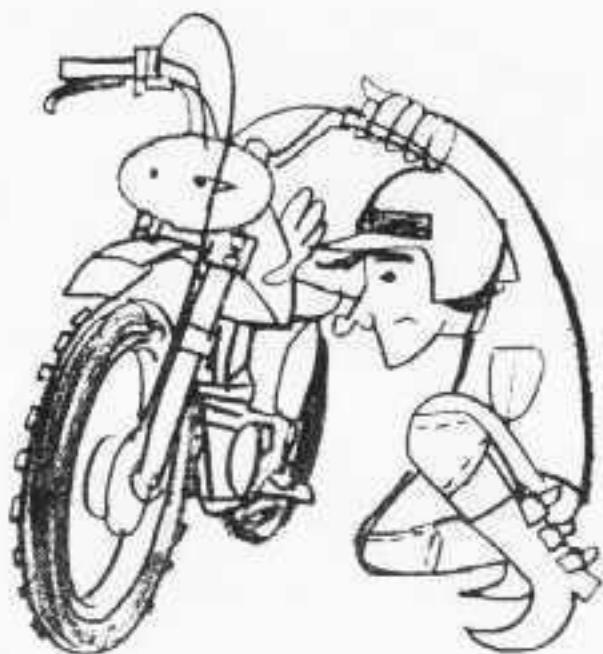


Fig. 2-33

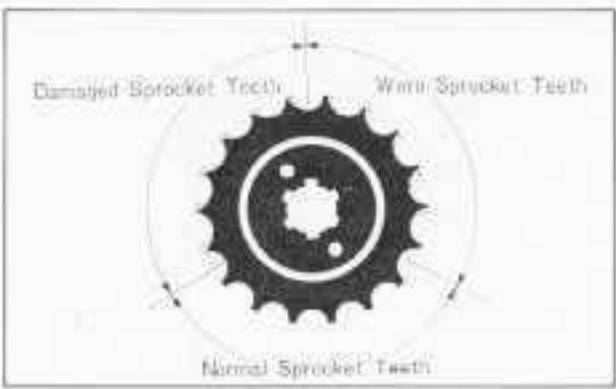


Fig. 2-34

Drive Chain Maintenance

Proper adjustment and lubrication will help to extend the service life of the drive chain. Place a wood block under the engine to raise the rear wheel off the ground. Shift the transmission into neutral. Then, turn the rear wheel slowly and check the drive chain and sprockets for any of the following conditions:

Drive Chain

- Damaged rollers
- Loose pins
- Dry and rusted links
- Kinked and binding links
- Excessive wear
- Improper adjustment

Sprockets

- Excessively worn teeth
- Broken or damaged teeth

Measuring drive chain wear

Measure a section of the drive chain to determine whether the chain is worn beyond its service limit. Put the transmission in gear, and then turn the rear wheel forward until the lower section of the chain is pulled taut. With the chain held taut and any stiff joints straightened, measure the distance between a span of 20 pins, from pin center to pin center. In a new CR-250M drive chain, this distance will measure 11.875 in. (each pitch = 0.625 in.). If the distance exceeds 11.9 in., the chain is worn out and should be replaced. After the chain is measured, shift the transmission into neutral again before proceeding with inspection and service.

Inspecting the sprockets

Check the drive and driven sprockets for wear or damage. The left rear crankcase cover must be removed for access to the drive sprocket. Excessively worn sprocket teeth have a hooked and asymmetric appearance. Replace any sprocket which is damaged or excessively worn.

Standard sprocket sizes

Drive sprocket (engine)	Driven Sprocket (rear wheel)
14 teeth	47 teeth

NOTE:

Never install a new drive chain on badly worn sprockets, or use new sprockets with a badly worn drive chain. Both chain and sprockets must be in good condition, or the new replacement chain or sprocket will wear rapidly.

Measuring drive chain slack

Check drive chain slack at a point midway between the drive sprocket and the rear wheel sprocket. Move the chain up and down with your fingers, and measure the amount of slack. Drive chain slack is adjusted to approximately $3\frac{1}{4}$ in. Slack becomes greater as the chain wears. If chain slack is found to exceed a maximum of $1\frac{1}{2}$ in., the drive chain must be readjusted.

Drive chain tension should remain constant as the wheel is rotated.

If the chain is found to be slack in one segment of its length and taut in another, this indicates that some of the links are either worn or kinked and binding. Kinking and binding can frequently be eliminated by lubrication.

Drive chain adjustment

If the drive chain is found to require adjustment, the procedure is as follows:

1. Remove the rear axle nut cotter pin and loosen the rear axle nut.
2. Loosen the lock nuts and turn the adjusting bolts to increase or decrease chain tension. Align the chain adjuster index marks to the reference marks on both sides of the rear fork.
3. Tighten the rear axle nut and secure the nut with the cotter pin (replace the cotter pin if it has become broken or damaged).
4. Tighten the adjusting bolts and secure them with the lock nuts.

5. Check alignment of the drive chain protector. If the chain protector should become bent, it may rub against the drive chain and cause rapid wear.
6. Check the drive chain roller to see that it contacts the drive chain. To adjust, loosen the locking bolt and position the drive chain roller so that it just contacts the chain. When the roller is properly positioned, retighten the locking bolt.

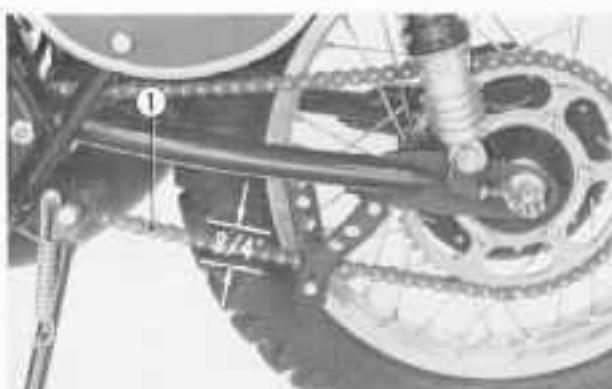


Fig. 2-35 1. Drive chain

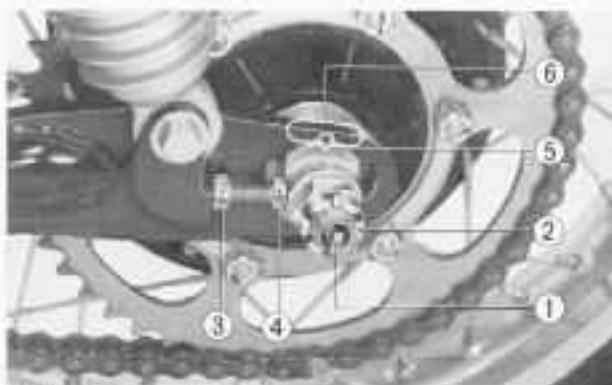


Fig. 2-36 1. Cotter pin
2. Rear axle nut
3. Lock nut
4. Adjusting bolt
5. Index mark
6. Reference marks



Fig. 2-37 1. Chain protector
2. Chain roller
3. Locking bolt

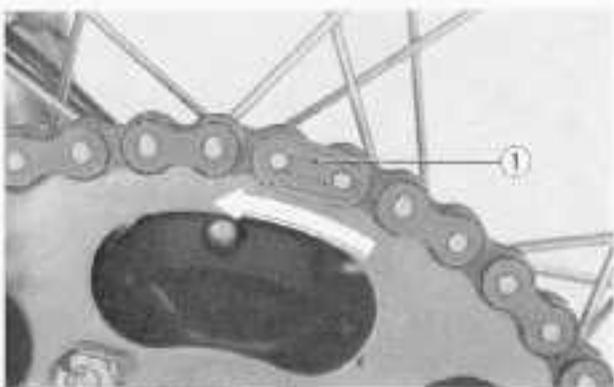


Fig. 2-38 (1) Retaining clip.

Lubrication

Commercially prepared drive chain lubricants may be purchased at most motorcycle shops and should be used in preference to motor oil or other lubricants.

Saturate each chain joint so that the lubricant will penetrate the space between adjacent surfaces of link plates and rollers.

Removal and cleaning

When the drive chain becomes extremely dirty, it should be removed and cleaned prior to lubrication.

1. Carefully remove the master link retaining clip with pliers. Do not bend or twist the clip. Remove the master link. Remove the drive chain from the motorcycle.
2. Clean the drive chain in solvent and allow to dry. Inspect the drive chain for possible wear or damage. Replace any chain that has damaged rollers, loose fitting links, or otherwise appears unserviceable.
3. Inspect the sprocket teeth for possible wear or damage. Replace if necessary. Never use a new drive chain on badly worn sprockets. Both chain and sprockets must be in good condition, or the new replacement chain or sprocket will wear rapidly.
4. Lubricate the drive chain.
5. Pass the chain over the sprockets and join the ends of the chain with the master link. For ease of assembly, hold the chain ends against adjacent rear sprocket teeth while inserting the master link. Install the master link retaining clip so that the closed end of the clip will face the direction of forward wheel rotation.
The master link is the most critical part affecting the security of the drive chain. Master links are reusable, if they remain in excellent condition, but it is recommended that a new master link retaining clip be installed whenever the drive chain is reassembled.
6. Adjust the drive chain to the proper tension, following the instructions on page 15.



Fuel Tank

Check the fuel tank, fuel valve, and fuel line for leaks.

Fuel Filter

The fuel filter is incorporated in the fuel valve which is mounted on the bottom of the fuel tank at the left side. Accumulation of dirt in the filter will restrict the flow of the fuel and cause the carburetors to malfunction, therefore, the fuel filter should be serviced periodically.

1. Drain the fuel from the fuel tank.
2. Remove the fuel valve by removing the two bolts. Wash the fuel screen filter in cleaning solvent.
3. Reassemble the fuel valve in the reverse order of removal and turn the fuel valve to "ON" position and check for leaks.

Expansion Chamber

Check the four exhaust pipe springs, and replace if damaged or stretched.

Check the chamber bolts for proper tightness.

Remove carbon deposits from the throat of the exhaust pipe.

Check the expansion chamber for cracks or deformation. A damaged chamber may cause an excessive drop in engine horsepower.



Fig. 2-39 ① Fuel screen filter
② Fuel valve

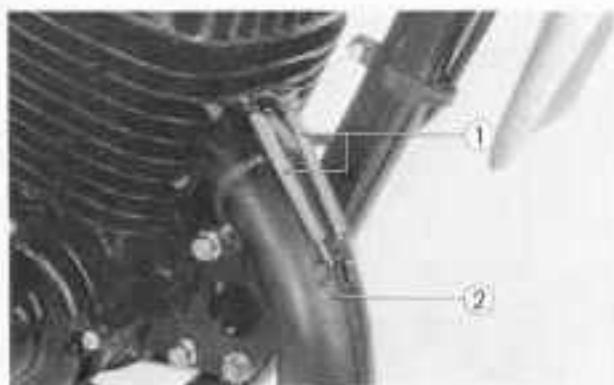


Fig. 2-40 ① Springs
② Expansion chamber

MEMO:

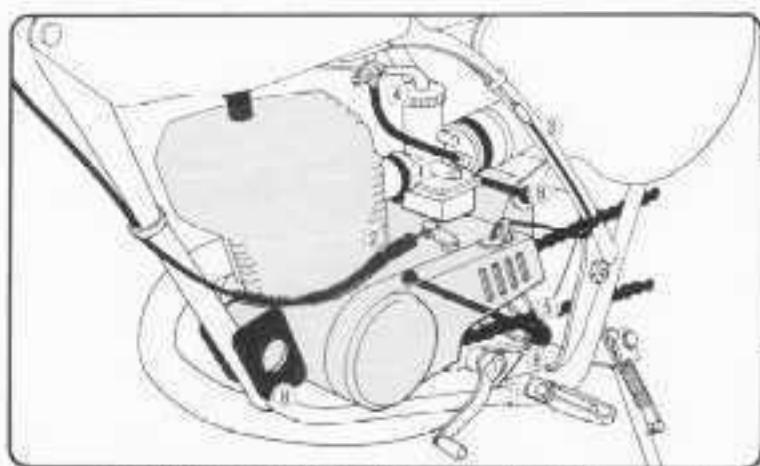
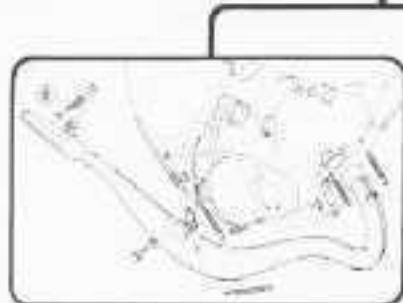
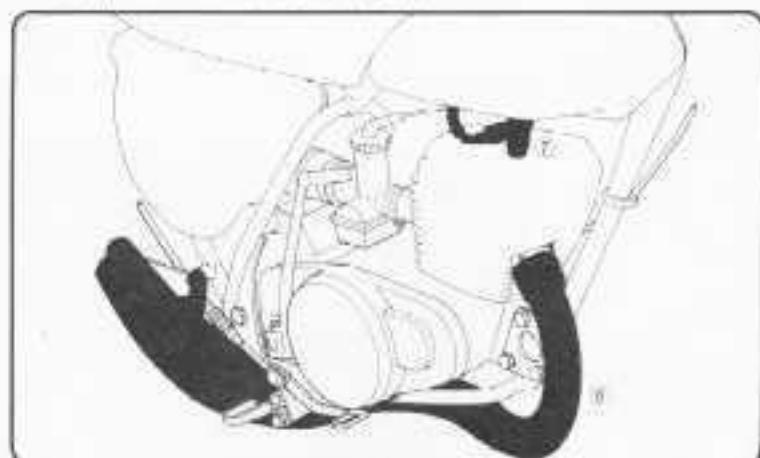
III. SERVICING THE ENGINE

1. SERVICE NOT REQUIRING ENGINE REMOVAL

Part to be serviced	Ref. page
Cylinder head, cylinder piston	19
Clutch	22
Kick starter	24
Gearshift mechanism (one part)	25
Carburetor	30
Electrical system	40

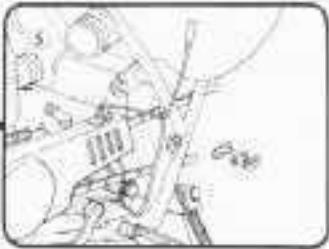
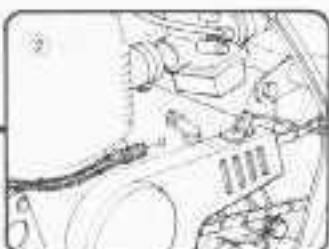
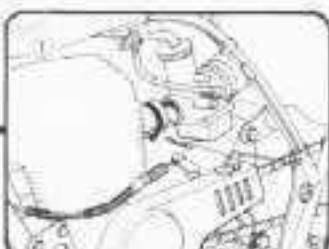
2. ENGINE REMOVAL AND INSTALLATION

Remove the engine from the frame by removing the following parts in the order shown.



1 Carburetor connecting hand
2 Clutch cable
3 Generator cord connector

4 Fuel tube and carburetor
5 Clip and drive chain
6 Four expansion chamber



7 Plug cap
8 Bolts

3. CYLINDER HEAD, CYLINDER AND PISTON

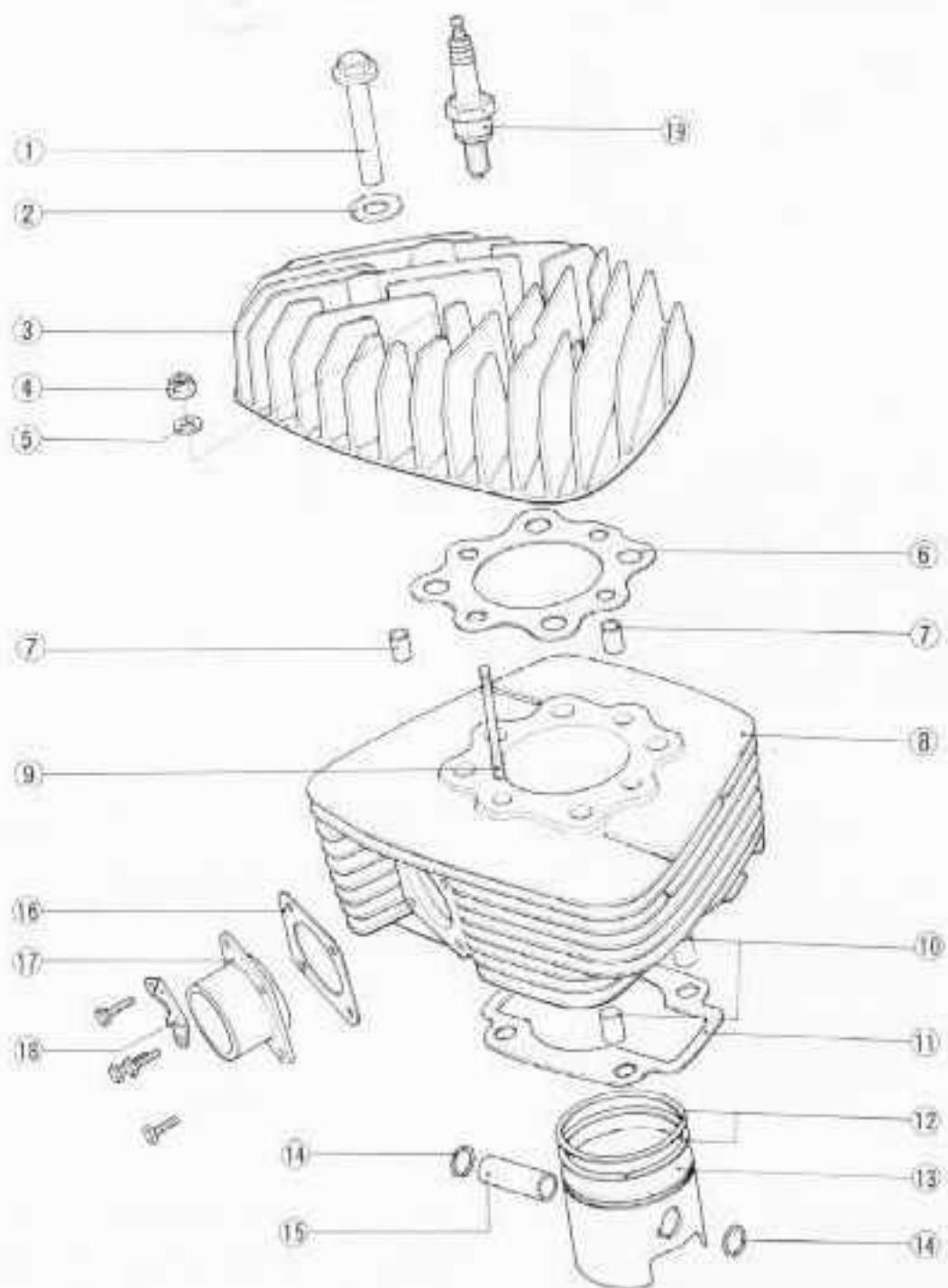


Fig. 3.2

- | | | |
|-------------------------------|----------------------------|--------------------------------|
| (1) 8mm special nut (four) | (7) 80x16 dowel pin (two) | (13) Piston |
| (2) 13mm washer (four) | (8) Cylinder | (9) 33mm piston pin clip (two) |
| (3) Cylinder head | (10) 8x55 stud bolt (four) | (10) Piston pin |
| (4) 6mm flange nut (four) | (11) 12x16 dowel pin (two) | (11) Exhaust pipe joint gasket |
| (5) 6mm sealing washer (four) | (12) Cylinder gasket | (12) Exhaust pipe joint |
| (6) Cylinder head gasket | (13) Piston ring | (13) Exhaust pipe stay |

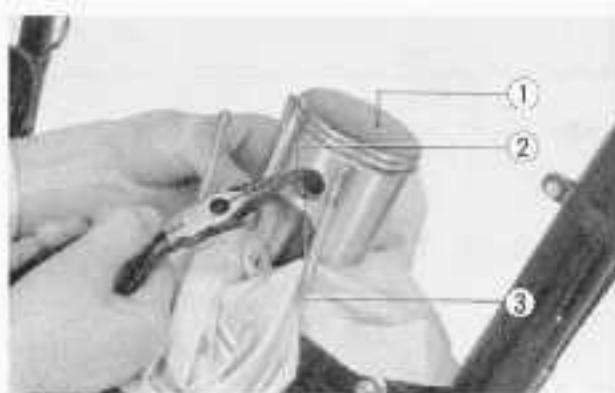


Fig. 3-3 1. Piston
2. Piston pin clip
3. Piston pin



Fig. 3-4 1. Piston ring
2. Feeler gauge

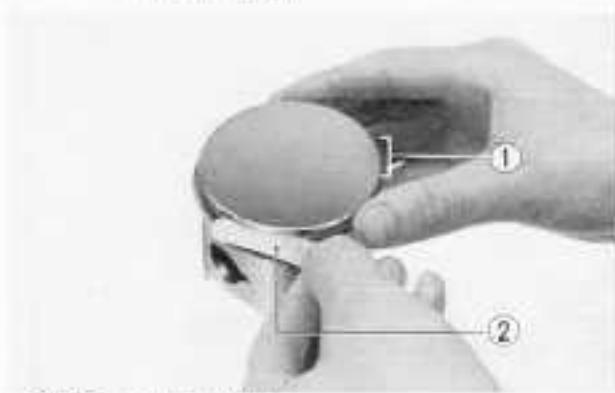


Fig. 3-5 1. Piston rings
2. Feeler gauge



Fig. 3-6 1. Piston ring
2. Ring groove

Disassembly

1. Remove the seat.
2. Remove the fuel tank.
3. Remove the 10 mm and 6 mm cylinder head bolts, and remove the cylinder head.
4. Remove the cylinder.
5. Put a clean cloth over the bore in the crankcase. Remove the piston pin clip, piston pin and piston.

Inspection

1. Carbon deposit.
Remove carbon deposits from the combustion chamber, exhaust port and piston. (See page 9)
2. Measure the cylinder bore.
Seat the piston rings squarely in the skirt of the cylinder, and measure the ring gap with a feeler gauge. If the gap exceeds 0.5 mm (0.0197 in.), replace the rings with new ones.
3. Piston ring gap.
Measure the side clearance with a feeler gauge. If the clearance exceeds the service limit, replace the rings. If the clearance is too great even with new rings, replace the piston and rings.
4. Piston ring groove side clearance.
Measure the side clearance with a feeler gauge. If the clearance exceeds the service limit, replace the rings. If the clearance is too great even with new rings, replace the piston and rings.

Assembly

1. When installing new piston rings, put them in the ring grooves and turn the rings to check for smooth movement. The piston rings should be installed with their markings facing upward. Decarbonize the ring grooves if necessary.

NOTE:

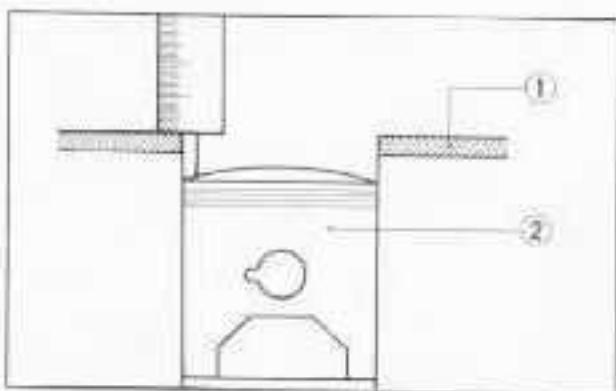
Discard the piston pin clip removed. Use a new clip.

2. When installing the piston to the connecting rod, make sure the piston ring stoppers in the ring grooves face toward the rear of the engine (intake side).



Fig. 3-7 (1) Stoppers

3. Apply a thin coat of oil to the cylinder wall and slowly lower the cylinder, taking care not to damage the cylinder. Then, install the cylinder head gasket and measure the clearance between the gasket and piston crown with the piston placed at the TDC position. The clearance should be 2.0~2.5 mm (0.0787~0.0984 in).

Fig. 3-8 (1) Gasket
(2) Piston

MEMO

4. CLUTCH

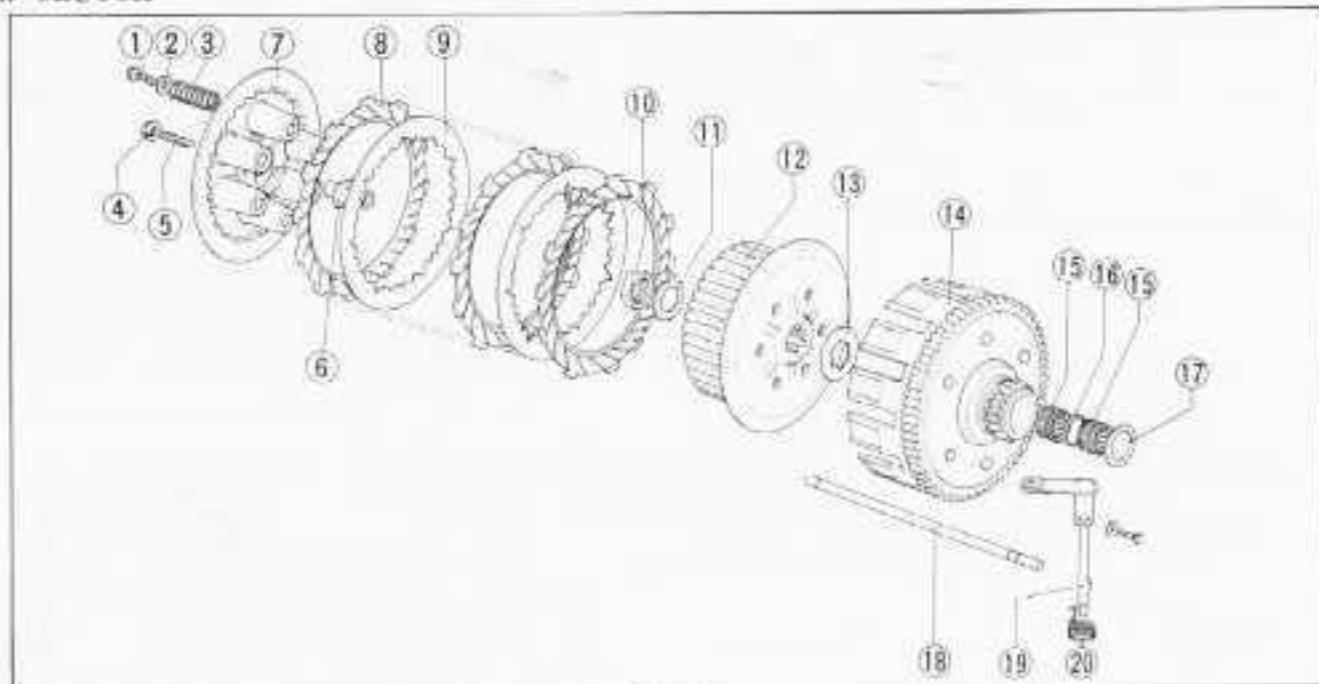
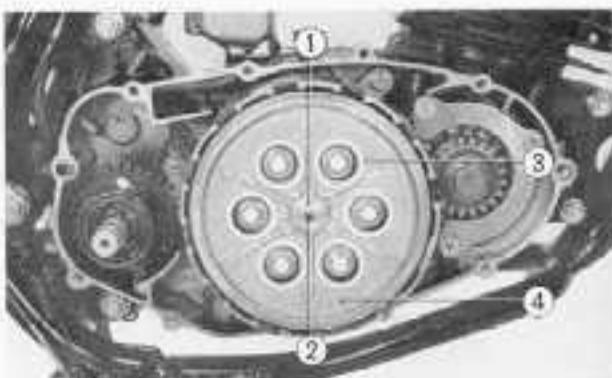


Fig. 3-9

- (1) 6x22 flange special bolt (six)
 (2) 18 mm washer (six)
 (3) Clutch spring (six)
 (4) 8 mm flange nut
 (5) Clutch adjusting screw
 (6) Pressure plate center piece
 (7) Clutch pressure plate

- (8) Clutch outer
 (9) 22 mm thrust washer
 (10) Clutch center
 (11) Clutch plate B (six)
 (12) Clutch plate A (seven)
 (13) 18 mm lock nut
 (14) 18 mm lock washer
 (15) 25 mm thrust washer C
 (16) Clutch lever
 (17) Clutch lever rod
 (18) 25x29x47 needle bearing (two)
 (19) 29 mm spacer
 (20) Clutch lever spring

Fig. 3-10 1: Lock nut
2: Clutch adjuster
3: 6 mm bolts
4: Clutch pressure plateFig. 3-11 1: Lock nut
2: Tab of lock washer
3: Clutch center

Disassembly

1. Drain oil.
2. Remove the right foot rest.
3. Remove the brake pedal pivot.
4. Remove the kick starter pedal.
5. Remove the right crankcase cover.
6. Remove the clutch adjuster lock nut and clutch adjuster.
7. Remove the six 6 mm clutch bolts, and remove the clutch pressure plate, seven friction discs and six clutch plates.

8. Straighten the tab of the lock washer and remove the clutch lock nut with a 27 mm wrench (special tool no. 07907-9350000). Then remove the clutch center.

9. Remove the 22 mm thrust washer and remove the clutch outer.
10. Remove the two needle roller bearings, 29 mm spacer, and 25 mm thrust washer C.



Fig. 3-12 ① Needle roller bearing
② Spacer
③ Thrust washer C

Inspection

1. Check the clutch friction discs for burning, wear or any other damage, and replace any damaged discs.
2. Check the clutch plates for face runout. Face runout may cause the clutch to slip when engaged. Replace the plates if necessary.
3. Check the clutch springs for fatigue and replace them if necessary.
4. Check the clutch outer for stepped wear and replace it if necessary.

Assembly

1. Put the tab of the lock washer into the hole in the clutch center as shown in Fig. 3-13, and tighten the lock nut to the specified torque. Then, bend the tab of the lock washer to lock the lock nut.
2. Install the friction discs so that their grooves face in the direction shown in Fig. 3-14.
3. Engage the pressure plate center piece in the recess in the rear side of the pressure plate.

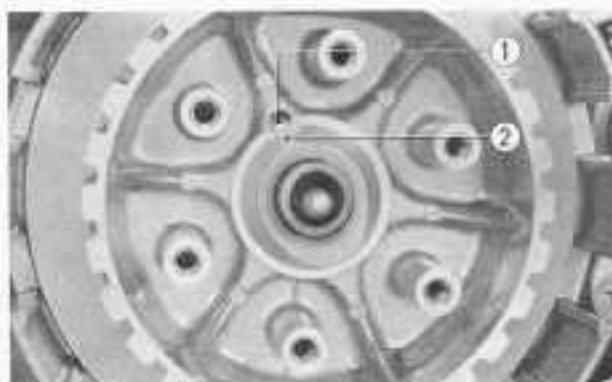


Fig. 3-13 ① Hole
② Lock washer

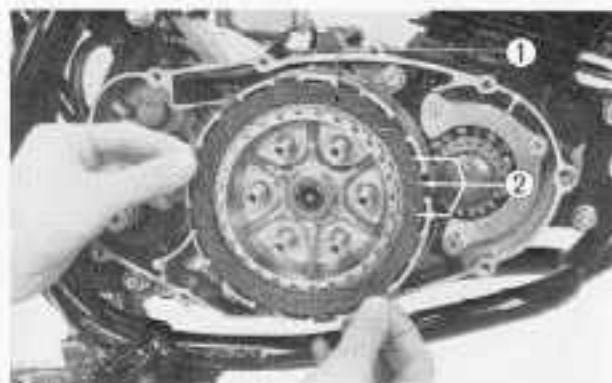


Fig. 3-14 ① Friction disc
② Grooves

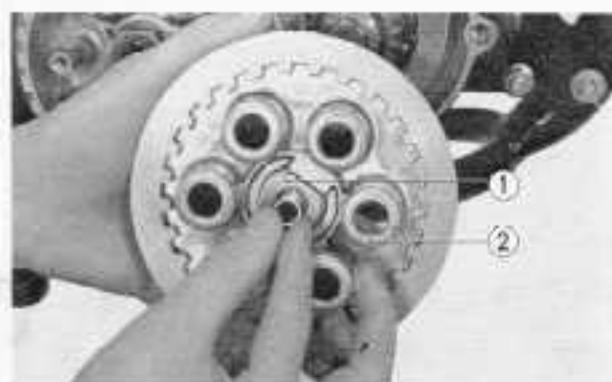


Fig. 3-15 ① Pressure plate center piece
② Pressure plate

5. KICK STARTER

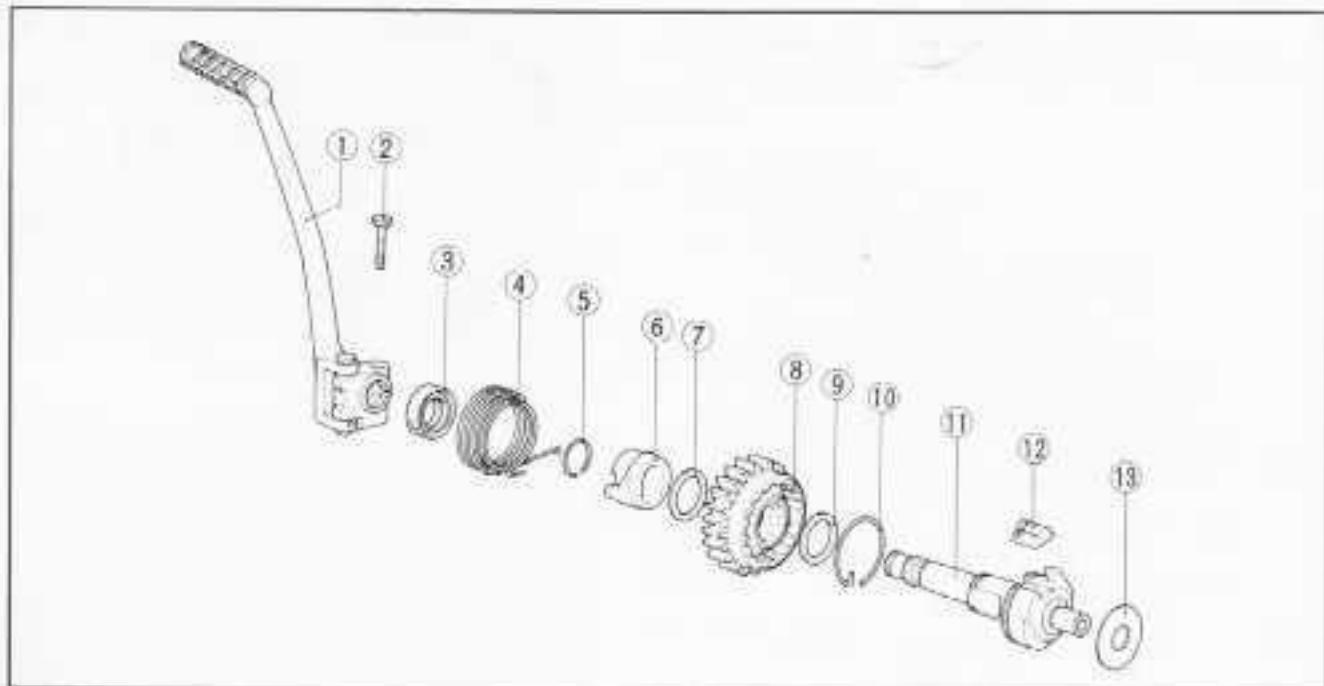


Fig. 3-16

- 1 Kick starter arm
2 8x25 mm hex. bolt
3 10x29x7 oil seal
4 Kick starter spring
5 19 mm piston pin clip

- 6 Kick starter spring retainer
7 22 mm thrust washer
8 Kick starter piston
9 22 mm thrust washer
10 Pawl set spring

- 11 Kick starter spindle
12 Starter pawl
13 36 mm washer

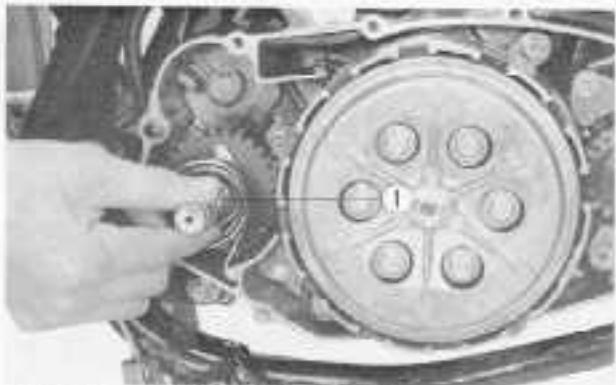
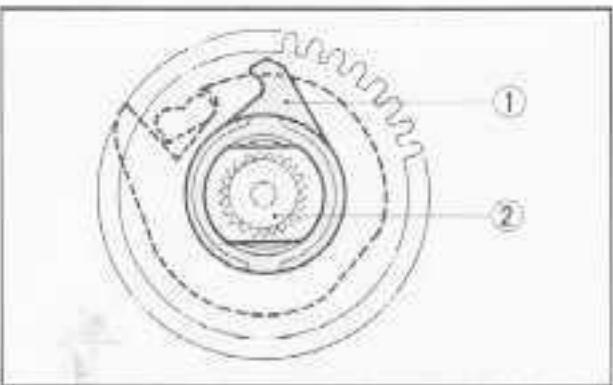


Fig. 3-17 1: Kick starter assembly

Fig. 3-18 1: Spring retainer
2: Kick starter spindle**Disassembly**

- 1 Drain oil.
- 2 Remove the right foot rest.
- 3 Remove the brake pedal pivot.
- 4 Remove the kick starter pedal.
- 5 Remove the right crankcase cover.
- 6 Remove the kick starter assembly from the crankcase.

Inspection

Check the catcher pawl for damage and the pawl spring for fatigue.

Assembly

Install the spring retainer to the kick starter spindle in the direction shown in Fig. 3-18 and secure it with the snap ring.

6. GEARSHIFT MECHANISM

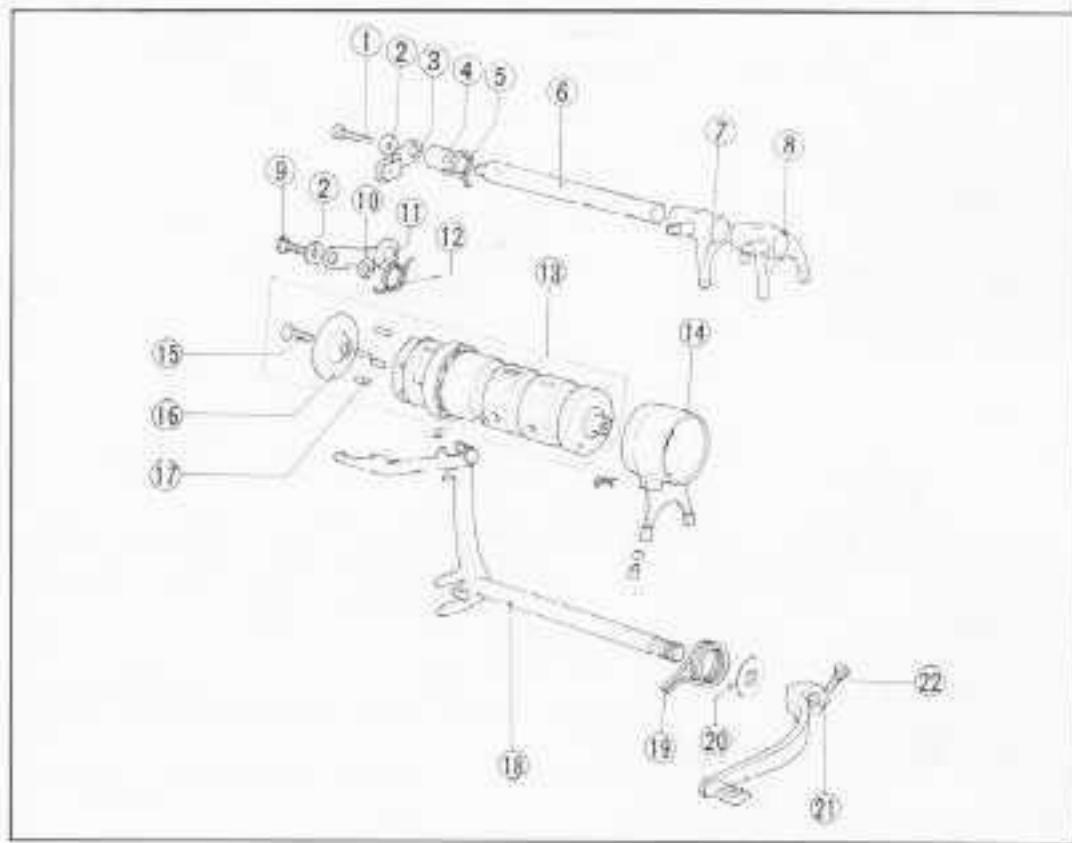


Fig. 3-19

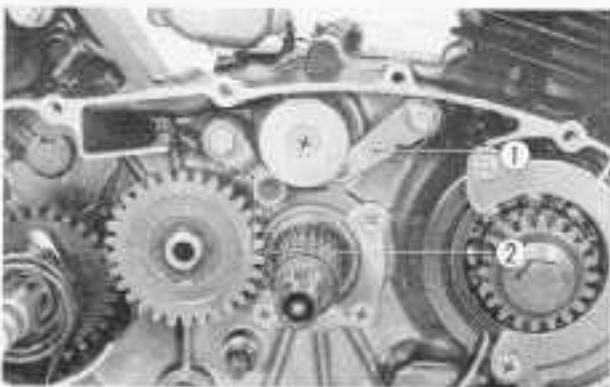
- 1: 6-20 hex. bolt
2: Shift drum stopper washer (two)
3: Neutral stopper arm
4: Neutral stopper collar
5: Neutral stopper arm spring
6: Gear shift fork shaft
7: Right gear shift fork
8: Left gear shift fork
9: 6-18 hex. bolt
10: Drum stopper arm
11: Shift drum stopper collar
12: Stopper arm spring
13: Gear shift drum complete
14: Center gear shift fork
15: 6-14 screw
16: Drum pin stopper plate
17: 4-10 roller (four)
18: Gear shift spindle
19: Gear shift return spring
20: 14x20x7 oil seal
21: Gear change pedal
22: 6-20 hex. bolt

Disassembly

1. Remove the clutch. (See pages 22-23.)
2. Remove the gear change pedal and remove the gearshift spindle.
3. Remove the gearshift drum stopper and neutral stopper.



Fig. 3-20 ① Gearshift spindle

Fig. 3-21 ① Gearshift drum stopper
② Neutral stopper

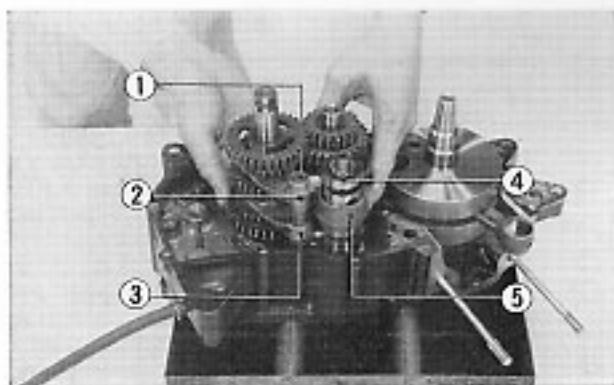


Fig. 3-22 ① Gearshift fork shaft
② Left gearshift fork
③ Right gearshift fork
④ Gearshift drum
⑤ Center gearshift fork

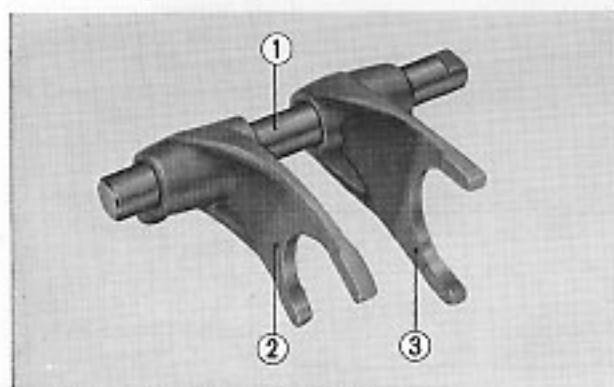


Fig. 3-23 ① Gearshift fork shaft
② Left gearshift fork
③ Right gearshift fork

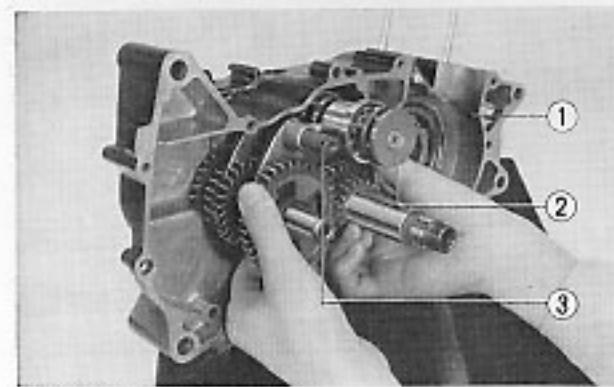


Fig. 3-24 ① Left crankcase
② Gearshift drum
③ Gearshift fork shaft

- Disassemble the right and left crankcases. (See pages 27-28.) Then, remove the gearshift drum and three gearshift forks together with the main shaft and countershaft gears.

Inspection

- Check the condition of the gearshift fork finger.
- Measure the gearshift fork guide shaft O.D.
- Measure the gearshift fork I.D.
- Measure the gearshift drum O.D.
- Check for sticking or bent gearshift forks.
- Check for broken, worn, or bent gearshift spindle spring.

Assembly

- Install the right and left gearshift forks on the fork shaft. The center gearshift fork must be installed on the shift drum.
- Install the gearshift drum and shift fork shaft in the left crankcase, together with the main shaft and countershaft gears.

7. CRANKCASE AND TRANSMISSION

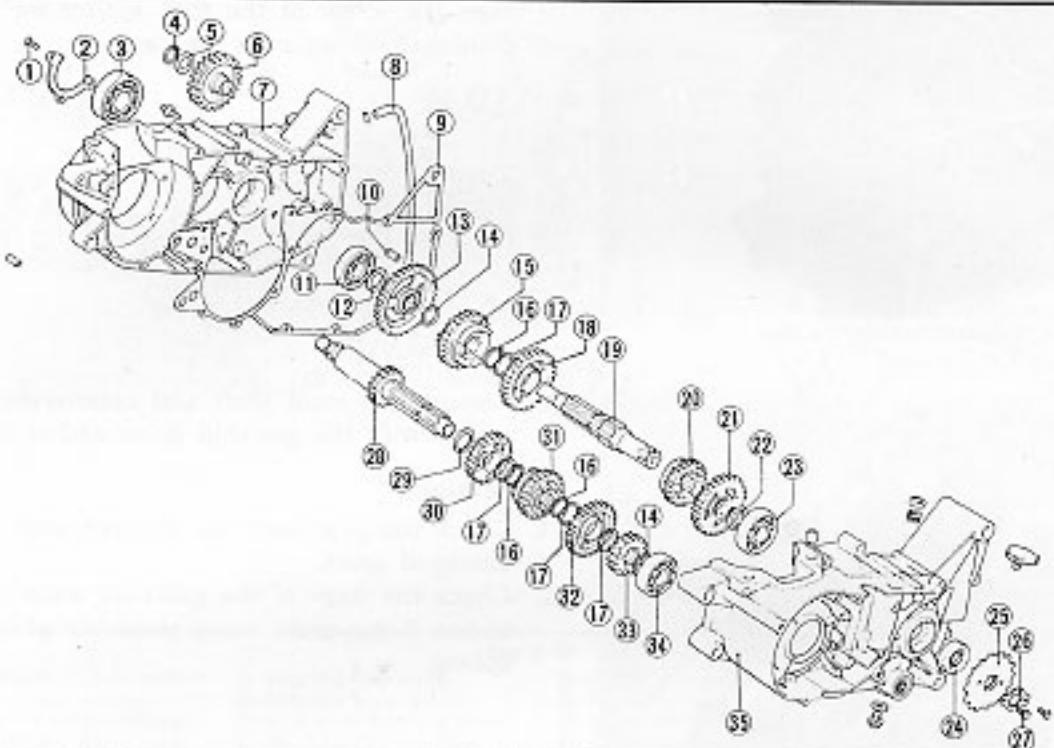


Fig. 3-25

- ① 6x14 screw
- ② Bearing stopper plate
- ③ 6205Z ball bearing
- ④ 17 mm snap ring
- ⑤ 17 mm thrust washer
- ⑥ Starter idle gear
- ⑦ (Right crankcase)
- ⑧ Breather tube
- ⑨ Crankcase gasket
- ⑩ 10x16 dowel pin (two)
- ⑪ 17x42x12 ball bearing
- ⑫ 17.2 thrust washer
- ⑬ Countershaft low gear (37 teeth)
- ⑭ 18.6 mm thrust washer
- ⑮ Countershaft fourth gear (28 teeth)
- ⑯ 22mm snap ring (three)

- ⑰ 22mm spline washer (four)
- ⑱ Countershaft third gear (30 teeth)
- ⑲ Countershaft
- ⑳ Countershaft fifth gear (25 teeth)
- ㉑ Countershaft second gear (33 teeth)
- ㉒ 20mm thrust washer
- ㉓ 6304 ball bearing
- ㉔ 20x34x7 oil seal
- ㉕ Drive sprocket (14 teeth)
- ㉖ Drive sprocket fixing plate
- ㉗ 6x10mm hex. bolt (two)
- ㉘ Main shaft (18 teeth)
- ㉙ 22mm thrust washer
- ㉚ Main shaft fourth gear (27 teeth)

- ㉛ Main shaft third gear (24 teeth)
- ㉜ Main shaft fifth gear (29 teeth)

- ㉝ Main shaft second gear (21 teeth)
- ㉞ 6203 Z ball bearing
- ㉟ (Left crankcase)

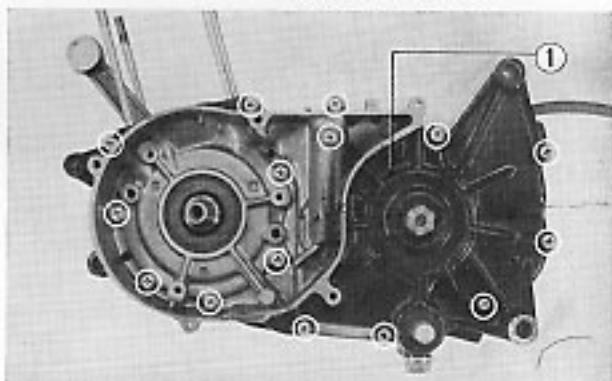
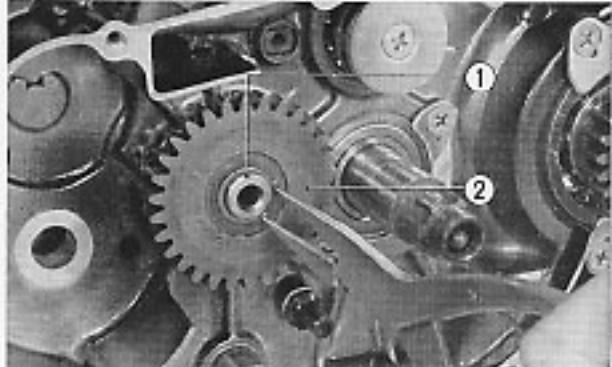


Fig. 3-26 ① Left crankcase

Fig. 3-27 ① 17 mm snap ring
② Starter idle gear

Disassembly

1. Remove the engine. (See page 18.)
2. Remove the cylinder head, cylinder and piston. (See pages 19-20.)
3. Remove the clutch. (See pages 22-23.)
4. Remove the kick starter. (See page 24.)
5. Remove the contact breaker base and A.C. generator.
6. Remove the drive sprocket.
7. Remove the 14 left crankcase screws.
8. Remove the 17mm snap ring and remove the starter idle gear.

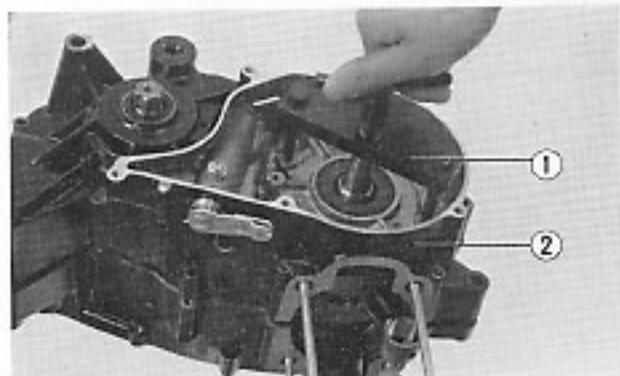


Fig. 3-28 ① Crankcase disassembly tool
② Left crankcase

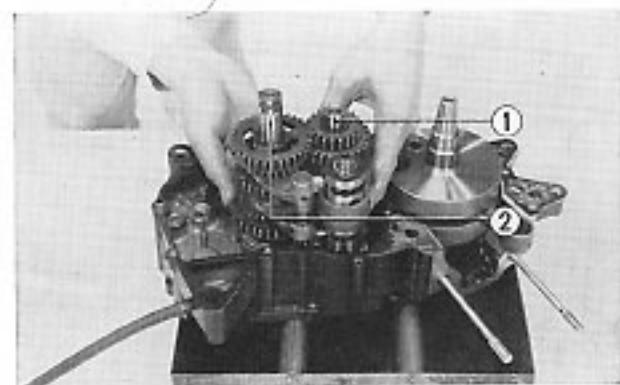


Fig. 3-29 ① Main shaft
② Countershaft

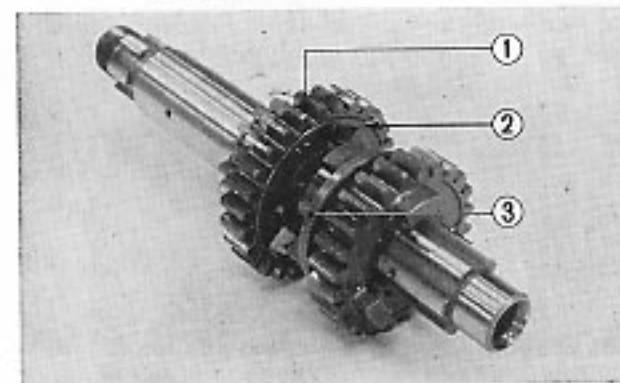


Fig. 3-30 ① Main shaft 4th gear
② Scribed line
③ 3rd gear

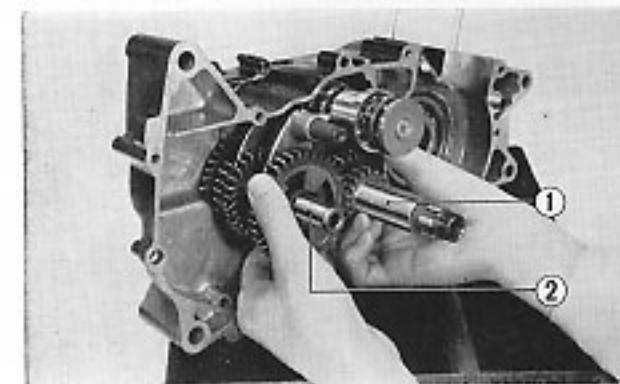


Fig. 3-31 ① Main shaft
② Countershaft

- Bolt the crankcase disassembly tool (tool no. 07937-3570000) to the left crankcase as shown in Fig. 3-28. Turn the screw of the tool against the end of the crankshaft to separate the cases.

- Remove the main shaft and countershaft gears together with the gearshift drum and shift forks.

Inspection

- Check the gear teeth for damage, and replace any damaged gears.
- Check the dogs of the gears for wear. Also check to see if the gears move smoothly along the shaft splines.

Assembly

- Install the main shaft 4th gear so that the side having a scribed line faces the 3rd gear (having a dog).
 - Install the main shaft and countershaft gears in the left crankcase, together with the gearshift drum and shift fork shaft.
- NOTE:**
Do not forget to install the main shaft and countershaft thrust washers.
- Install the crankcase, taking care not to damage the gasket.

8. CRANKSHAFT AND CONNECTING ROD

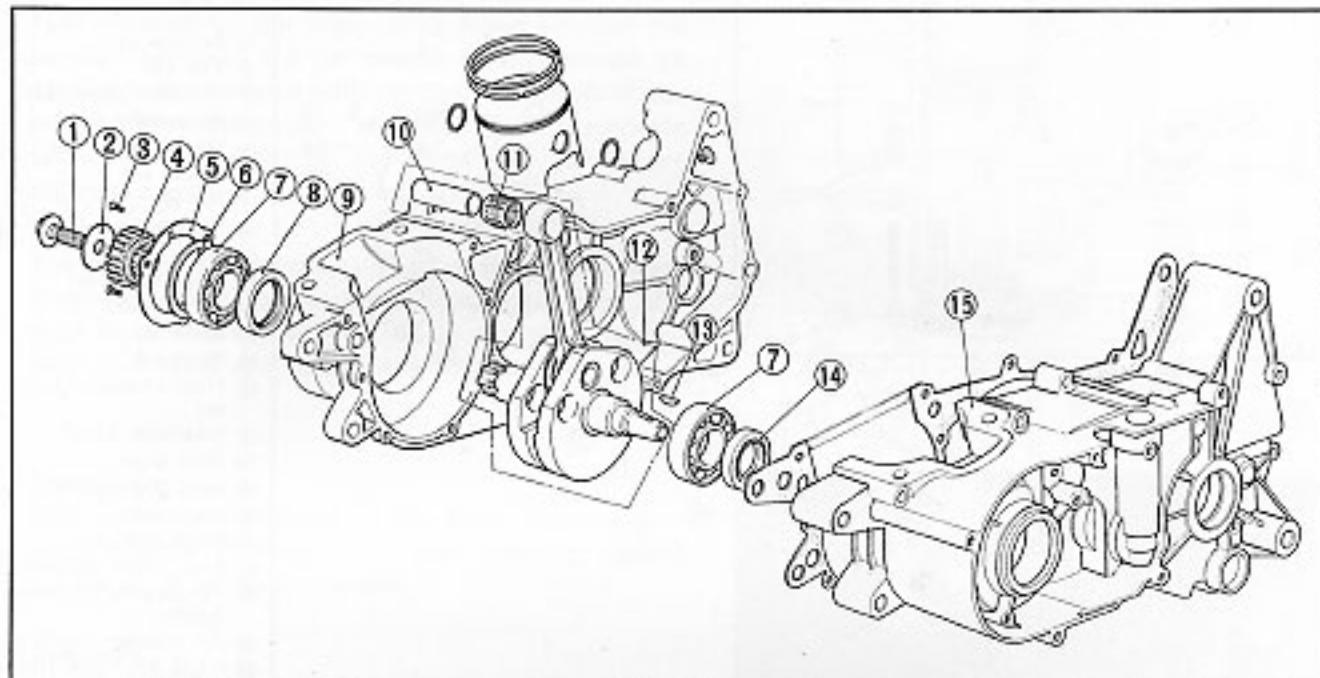


Fig. 3-32

- | | | | |
|----------------------|---------------------------|-----------------------|-----------------------|
| ① 12x30 U.B.S. bolt | ④ Bearing set plate | ⑦ (Right crankcase) | ⑩ 2.5x18 woodruff key |
| ② Primary washer | ⑤ Bearing side plate | ⑧ Piston pin | ⑪ 25x55x10 oil seal |
| ③ 6x14 screw (three) | ⑥ 6306 ball bearing (two) | ⑨ Small end bearing | ⑫ (Left crankcase) |
| ④ primary drive gear | ⑧ 38x64x13.5 oil seal | ⑬ Crankshaft complete | |

Disassembly

1. Disassemble the crankcase. (See pages 27-28.)

NOTE:

Before disassembling the crankcase, remove the primary drive gear.

2. Remove the crankshaft assembly from the crankcase.

Inspection

Before disassembling, hold both ends of the crankshaft to check for looseness. If the crankshaft rattles, check to see if the rattle is caused by loose bearings or excessive clearance between the crankcase and bearing outers.

Assembly

The connecting rod small end bearing is selective-fitted in accordance with the piston pin and connecting rod small end I.D. The connecting rod small end I.D. is identified by the number of notches and the piston pin by the presence of a notch in the end of the pin. For identification see the table below.

Piston pin identification	With notch	Without notch
Connecting rod small end I.D. identification		
One notch	Red	—
Two notches	Blue	Red
Three notches	White	Blue

NOTE:

- The connecting rod small end bearings are identified by the colors of their packaging.
- With the marking "OUTSIDE" facing outward install the primary shaft lock washer with the 12mm bolt.

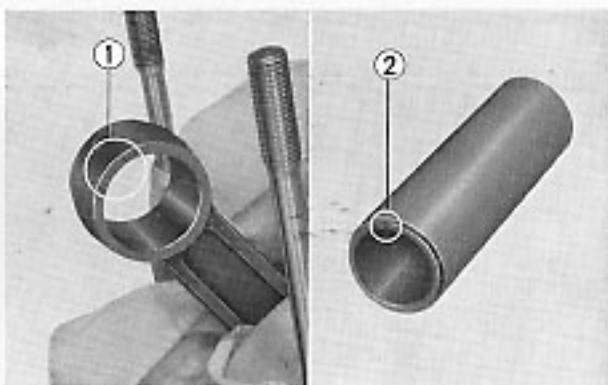


Fig. 3-33 ① Connecting rod small end I.D. identification mark
② Piston pin identification mark

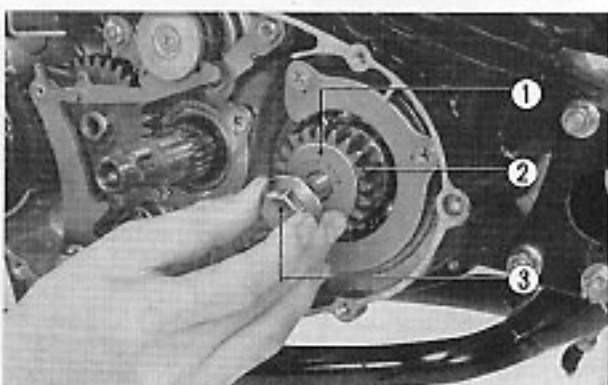


Fig. 3-34 ① Primary shaft lock washer
② Drive gear
③ 12mm UBS bolt

9. CARBURETOR AND AIR CLEANER

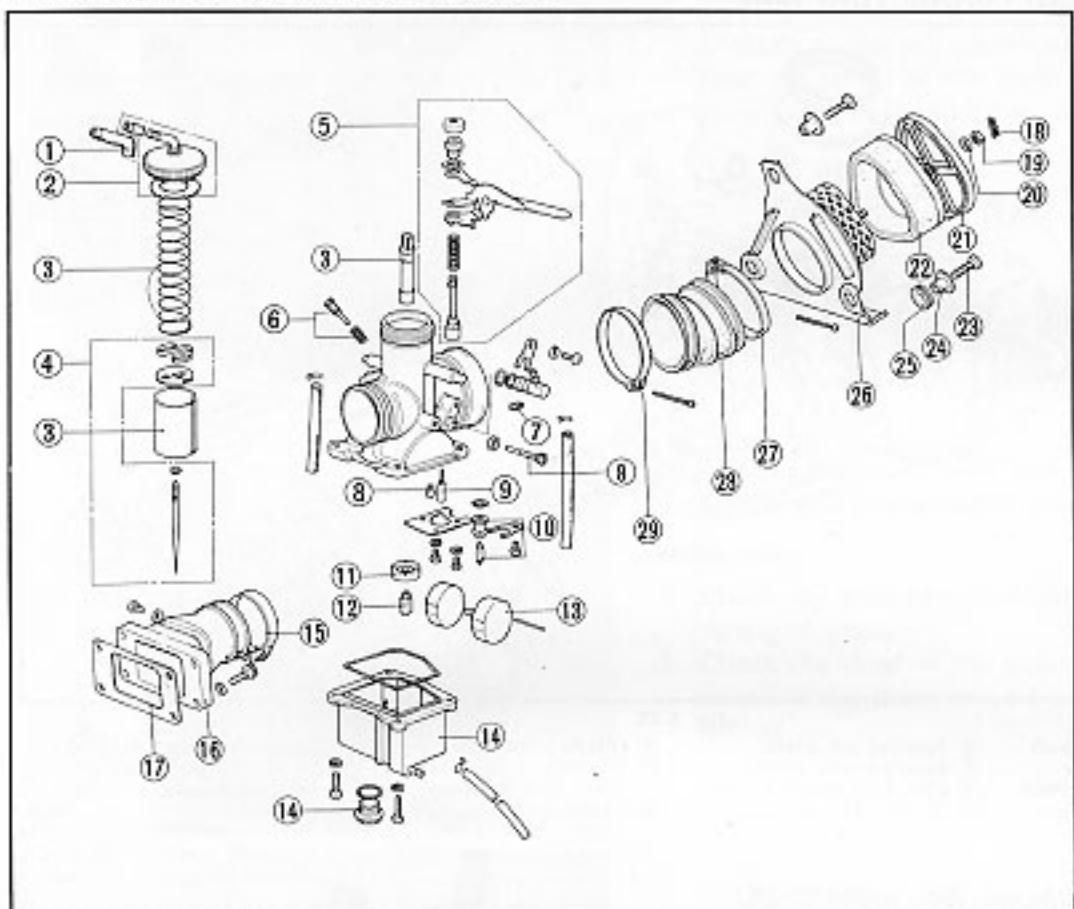
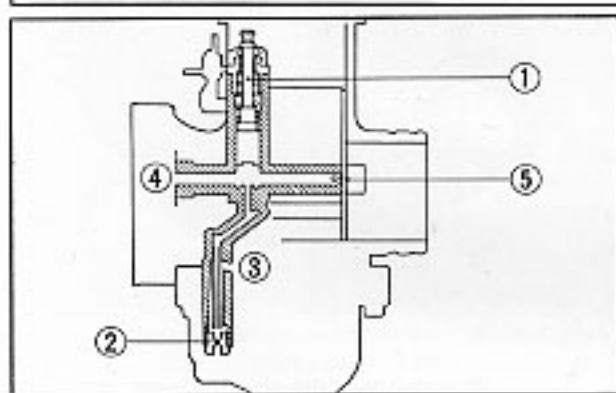


Fig. 3-35

- ① Rubber cap
- ② Top set
- ③ Throttle valve set
- ④ Jet needle set
- ⑤ Starter valve set
- ⑥ Screw set
- ⑦ Air jet
- ⑧ Starter jet
- ⑨ Slow jet
- ⑩ Float valve set
- ⑪ Jet holder
- ⑫ Main jet
- ⑬ Float set
- ⑭ Float chamber body set
- ⑮ Insulator band
- ⑯ Inlet pipe
- ⑰ Inlet pipe gasket
- ⑱ Lock pin
- ⑲ 6mm hex. nut
- ⑳ 6mm plain washer
- ㉑ Air cleaner element holder
- ㉒ Air cleaner element
- ㉓ 6×22 hex. bolt (three)
- ㉔ Collar (three)
- ㉕ Air cleaner case rubber (two)
- ㉖ Air cleaner base
- ㉗ Connecting tube band A
- ㉘ Connecting tube
- ㉙ Connecting tube band B

Fig. 3-36 ① Starter valve
② Starter jet

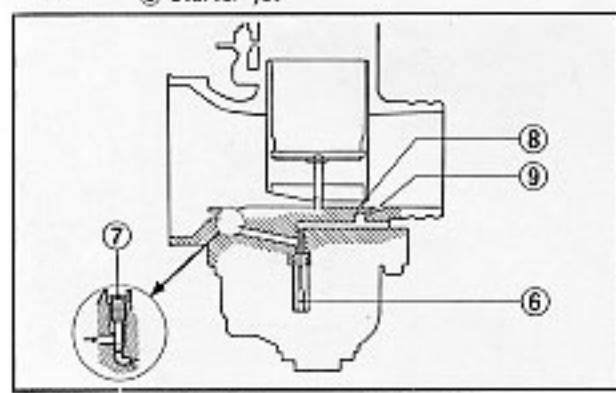
Construction

1. Starting circuit

When the starter valve ① is opened, fuel is metered by the starter jet ② and is mixed with air from the passages ③ and ④. Then, the mixture is drawn into the cylinder through the hole ⑤.

2. Slow circuit

Fuel is metered by the slow jet ⑧ and is mixed with air from the slow air passage at the bleed. Then, the mixture is squirted from the bypass ⑨ and pilot outlet ⑩.

Fig. 3-37 ⑥ Slow jet
⑦ Air screw
⑧ Bypass
⑨ Pilot outlet

3. Main circuit

Fuel metered by the main jet ⑩ flows through the passage between the jet needle ⑪ and needle jet ⑫ and is then mixed with air from air jet ⑬ at the outlet. Then the mixture is squirted from the nozzle tip. The jet holder ⑭ and the main jet ⑩ are secured together.

4. Float chamber

The float chamber maintains a constant fuel level. A spring built into the float valve ⑮ prevents the float from moving abnormally to maintain a constant fuel level and to prevent wear on float valve.

5. Baffle plate

The baffle plate installed in the float chamber prevents change of fuel level and bubbling caused by vibration of float chamber.

Disassembly

1. Loosen the connecting band.
2. Loosen the insulator band.
3. Remove the carburetor.

4. Remove the carburetor top, and remove the spring and throttle valve.

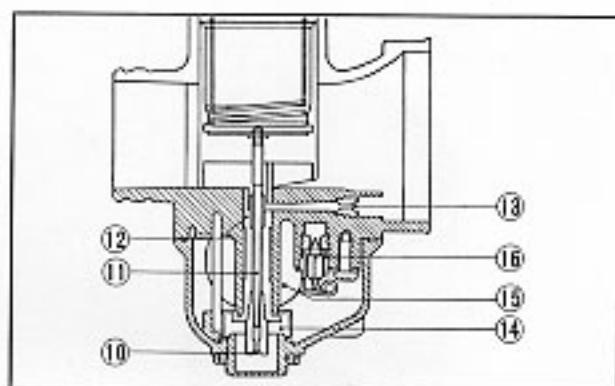


Fig. 3-38 ⑩ Main jet ⑭ Jet holder
⑪ Jet needle ⑮ Float
⑫ Needle jet ⑯ Float valve
⑬ Air jet



Fig. 3-39 ① Connecting band
② Insulator band

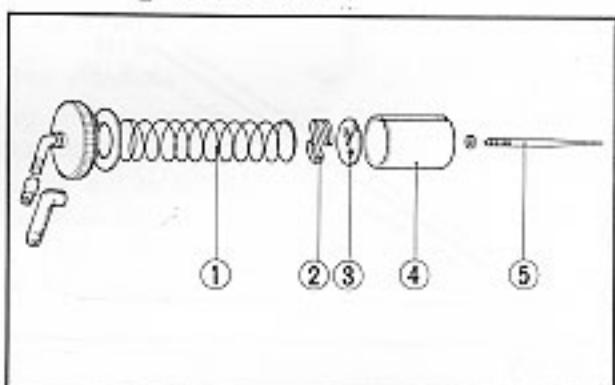


Fig. 3-40 ① Spring ④ Throttle valve
② Clip ⑤ Jet needle
③ Clip plate

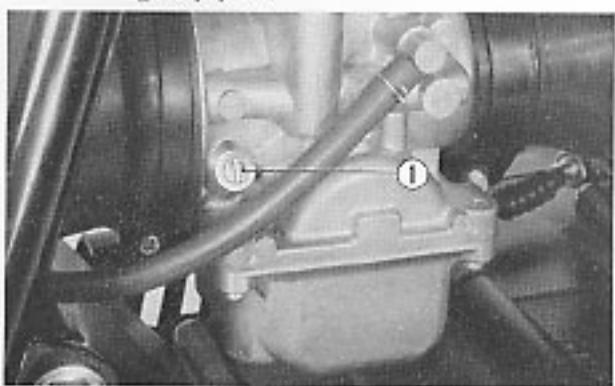


Fig. 3-41 ① Air screw

Inspection

1. Slow jet

The slow jet is a means of regulating the fuel flow in the slow circuit. Its setting is based on the adjustment of air screw.

2. Air screw

The air screw regulates the flow of air in the slow circuit. Screwing in the air screw will make the mixture rich and screwing it out will make the mixture lean.

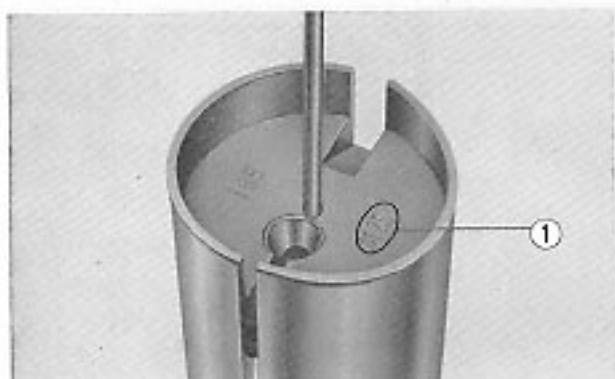


Fig. 3-42 ① Cutaway number

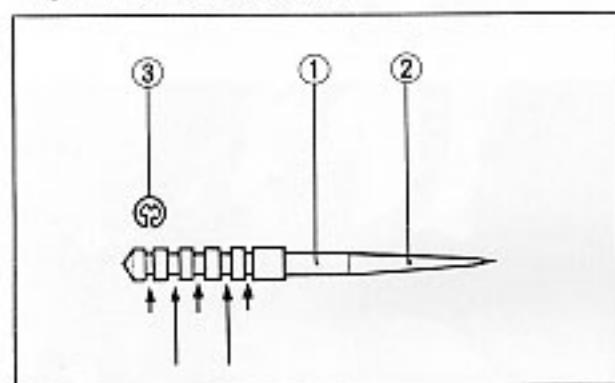
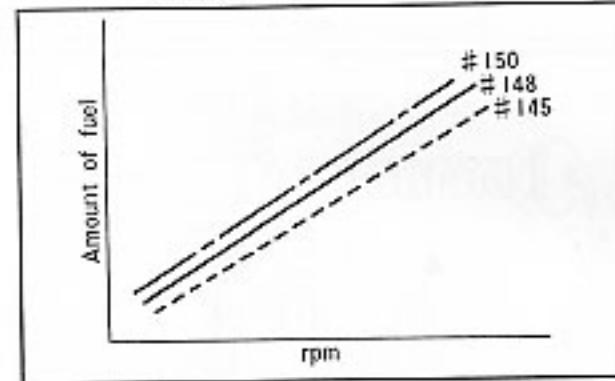
Fig. 3-43 ① Straight
② Tapered
③ Clip

Fig. 3-44

To adjust, warm up the engine and turn the screw so that the engine runs smoothly at the maximum idle speed. Open the throttle slightly and check to see if the engine revs up smoothly. If the slow jet is too small in size, the response will be slow and if too large, the response will be slow, too, due to rich mixture. Especially check smoothness of the response when the throttle valve is opened slightly.

3. Throttle valve cutaway

The throttle valve cutaway regulates the flow of air at a throttle opening of $1/8\sim1/4$. The higher the value of the marking, the leaner the mixture, and vice versa.

Road-test the motorcycle with a $1/4$ of throttle opening. Check the spark plug if any unsMOOTHNESS is felt. If the plug is wet, change the throttle valve with one having a larger number and if over-heated, use the throttle valve with a smaller number.

4. Jet needle

The jet needle regulates the flow of fuel at a throttle opening of $1/4\sim1/2$. The straight part of the needle regulates fuel flow at low throttle opening, and the tapered part at mid-throttle.

Five grooves are cut into the needle head to allow for adjustment of the needle. If throttle response is poor or if the engine will not maintain constant rpm, change the position of the needle. Before adjusting, set the main jet properly.

Example:

If the engine is running erratically with the jet needle set at the 3rd groove position, change to the 4th groove position. If the motorcycle jerks when accelerated or when running at a certain speed, change to the lower-numbered groove position.

5. Main jet

The main jet operates at $1/2$ to full throttle and is especially important in regulating the flow of fuel from $3/4$ to full throttle. Select a larger jet to obtain the maximum speed.

6. Float level

Hold the carburetor with its main bore in a vertical position, so the float arm tang will just close the float valve, without compressing the spring loaded plunger in the end of the valve. Measure float height with a float level gauge.

Float height (distance between the carburetor body and the opposite edge of the float) should be 24 mm (0.945 in.) when the float valve just closes.

If adjustment is needed, carefully bend the float arm tang toward or away from the float valve until the specified float height is obtained. Replace any damaged or leaking float.

7. Temperature and altitude correction factor

The carburetor should be adjusted for changes in temperature and altitude. Determine jet needle and air screw settings and main jet size by correction factor C in the table below. Select the correct factor to meet riding conditions.

- Main jet
specified main jet no. $\times C$ = main jet to be used
- Jet needle
specified jet needle groove no. + rating of C = groove no. to be used

C	1.20 min.	1.20 l	1.05 l	0.95 l	0.80 max.
Rating	+2	+1	—	-1	-2

(+) Raise the needle

(-) Lower the needle

- Air screw
specified number of turns + rating of C

C	1.20 min.	1.20 l	1.05 l	0.95 l	0.80 max.
Rating	-1	-1/2	—	+1/2	+1

(+) Increase the number of turns

8. For servicing of the air cleaner see page 10

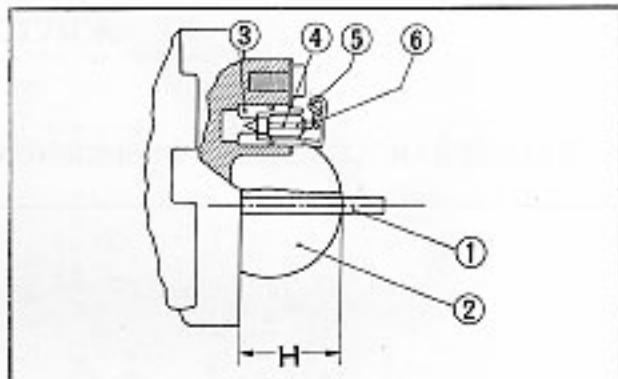


Fig. 3-45 ① Float level gauge

② Float

③ Valve seat

④ Float valve

⑤ Float arm pin

⑥ Float arm tang

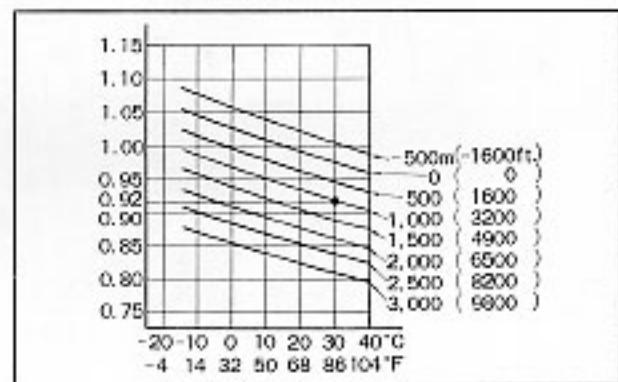


Fig. 3-46

For example:

At a temperature of 30°C (86°F) and an altitude of 1,000 m (3,200 ft.), carburetor recommendations are as follows:

- Main jet
 $148 \times 0.92 = 136.2$ ● #140
- Jet needle
 $3 - 1 = 2$ ● 2nd groove
- Air screw opening
 $3/4 + 1/2 = 1\frac{1}{8}$ ● 1 $\frac{1}{8}$ turns open

IV. SERVICING THE FRAME

1. HANDLEBAR AND FRONT SUSPENSION

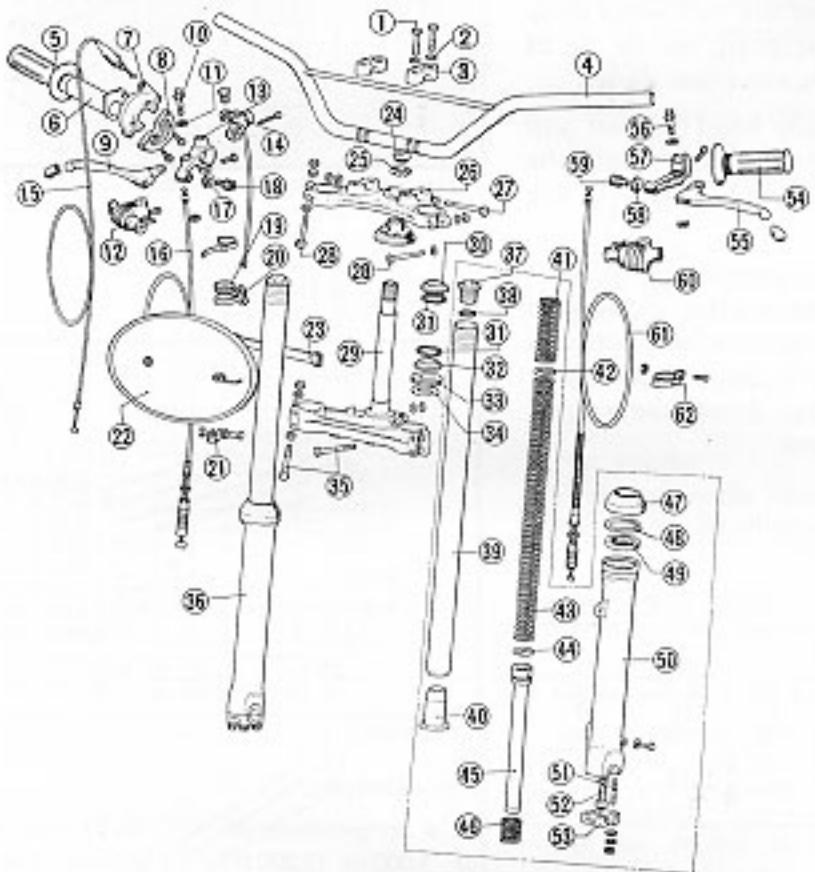


Fig. 4-1

- ① 8×36 hex bolt (four)
- ② 8mm plain washer (four)
- ③ Upper holder B 2 (two)
- ④ Handlebar
- ⑤ Right handle grip
- ⑥ Throttle grip pipe
- ⑦ Throttle grip housing A
- ⑧ Throttle grip housing B
- ⑨ Front brake lever

- ⑩ Lever pivot bolt
- ⑪ 7×12 washer
- ⑫ Handle lever cover
- ⑬ Right handle lever bracket
- ⑭ Ignition switch
- ⑮ Throttle cable
- ⑯ Front brake cable
- ⑰ Lock nut
- ⑱ Front brake upper adjuster

- ⑲ Cable guide inner
- ⑳ Cable guide bracket
- ㉑ Brake cable clip
- ㉒ Front number plate
- ㉓ Number plate band
- ㉔ Steering stem cap
- ㉕ Steering stem nut
- ㉖ Fork top bridge
- ㉗ 8×74 mm hex. bolt

- ㉘ 8×56 mm hex. bolt (two)
- ㉙ Steering stem
- ㉚ Steering top cone race
- ㉛ #8 steel ball (thirty-six)
- ㉜ Steering bottom cone race
- ㉝ Steering head dust seal
- ㉞ Dust seal washer
- ㉟ 8×56 mm hex. bolt (four)
- ㉟ Front fork assembly
- ㉟ Front fork bolt (two)
- ㉟ 23×2.8 O ring (two)
- ㉟ Front fork pipe (two)
- ㉟ Oil lock pipe (two)
- ㉟ Front suspension A (two)
- ㉟ Spring joint plate (two)
- ㉟ Front suspension spring B (two)
- ㉟ Piston ring (two)
- ㉟ Bottom pipe (two)
- ㉟ Front rebound spring (two)
- ㉟ Front fork dust seal (two)
- ㉟ 48 mm internal circlip (two)
- ㉟ 35×48×11 oil seal (two)
- ㉟ Right fork bottom case
Left fork bottom case
- ㉟ 8×50 mm stud bolt (eight)
- ㉟ 8 mm socket bolt (two)
- ㉟ Axle holder (two)
- ㉟ Left handle grip
- ㉟ Clutch lever
- ㉟ Handle lever pivot bolt
- ㉟ Left handle lever bracket
- ㉟ Lock nut
- ㉟ Clutch cable adjuster
- ㉟ Handle lever cover
- ㉟ Clutch cable
- ㉟ Clutch cable clamer

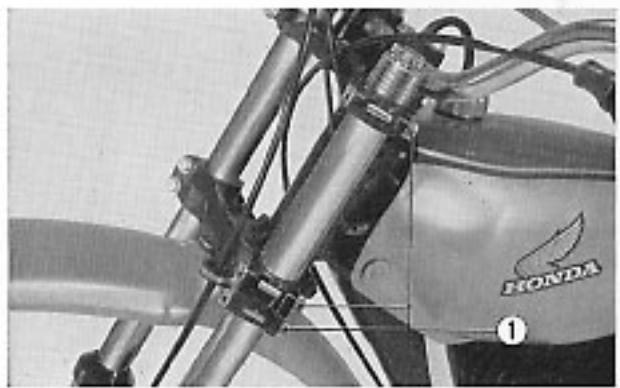


Fig. 4-3 ① 8mm front fork bolts

Disassembly

1. Disconnect the front brake cable from the brake lever.
2. Disconnect the clutch cable from the clutch lever.
3. Remove the ignition switch wiring connector.
4. Disconnect the throttle cable from the throttle grip.
5. Remove the two upper holders and remove the handlebar.
6. Remove the front wheel. (See page 37.)
7. Loosen three 8mm bolts at each front fork and pull down the forks.

8. Remove the socket bolt with the hollow set wrench (tool no. 07917-3230000) and remove the bottom pipe from the bottom case.
9. Remove the steering stem nut and 8 mm top bridge bolt, and remove the fork top bridge.
10. Remove the steering head top thread and pull out the steering stem.

NOTE:

When pulling out the steering stem, take care not to lose the steel balls.

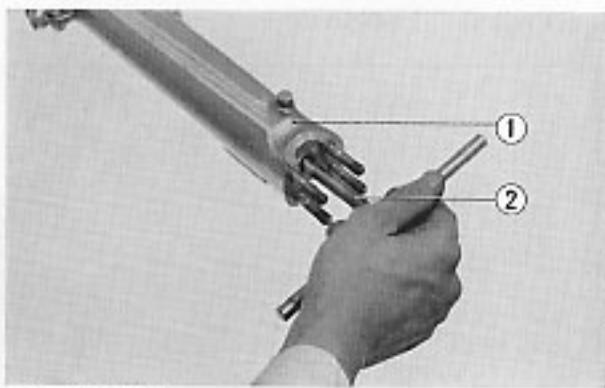


Fig. 4-3 ① Bottom case
② Hollow set wrench

Inspection

1. Check the handlebar for bends or cracks.
2. Check the steel balls for wear or cracks



Fig. 4-4 ① Top thread
② Steering stem

Assembly

1. When installing the steering stem, apply a sufficient coat of grease to the steel balls. Use eighteen balls on both upper and lower races.
2. Tighten the top thread until the steering stem rotates smoothly without any sign of looseness.



Fig. 4-5 ① Steel balls

3. To install the handlebar first place its serrated part on the lower holder. Then, secure the handlebar with the two upper holders, tightening the front bolts first. The installation height of the handlebar can be adjusted to suit the rider.
4. Route the throttle cable, front brake cable and clutch cable as shown in Fig. 5-1 (See page 40).

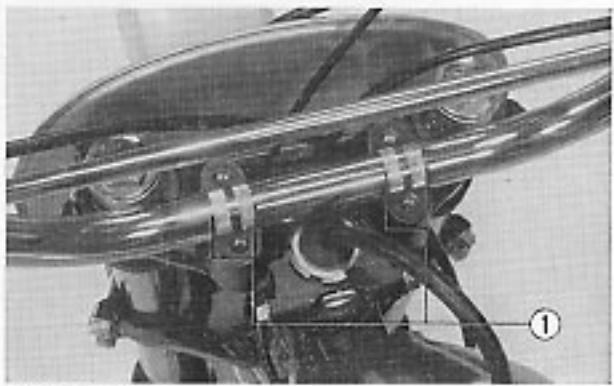


Fig. 4-6 ① Serrations

2. REAR SUSPENSION

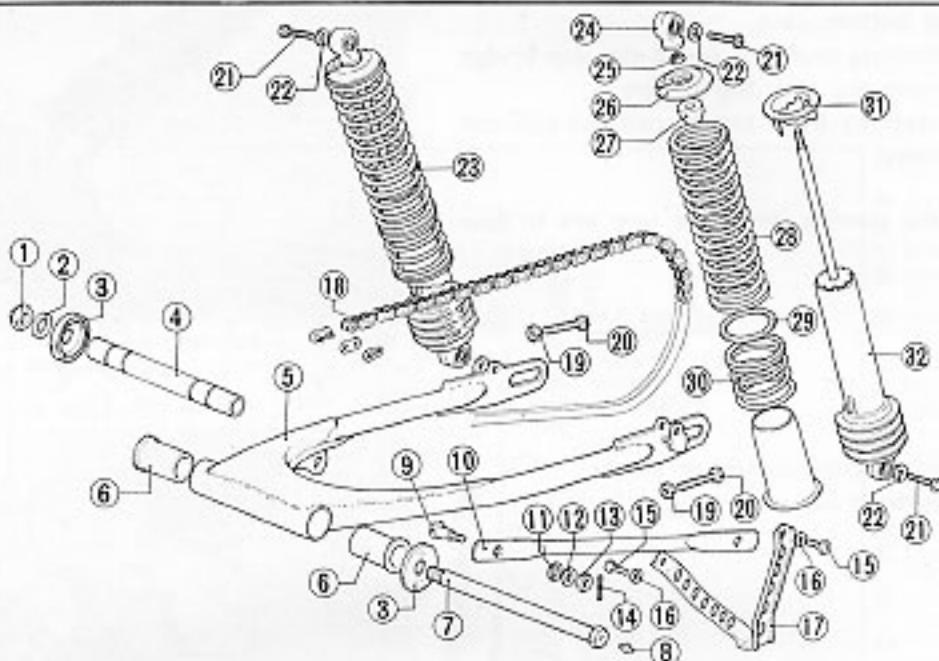


Fig. 4-7

- | | | | |
|---------------------------|---------------------------|------------------------------------|---------------------------|
| ① 14 mm self lock nut | ⑥ Stopper arm bolt | ⑪ Chain guide | ⑯ 10 mm hex. nut (two) |
| ② 14×26 washer | ⑦ Rear brake stopper arm | ⑫ Drive chain | ⑰ Spring upper seat (two) |
| ③ Dust seal cap (two) | ⑧ 10 mm spring washer | ⑬ Lock nut (two) | ⑱ Stopper rubber (two) |
| ④ Rear fork center collar | ⑨ 8 mm plain washer | ⑭ Drive chain adjusting bolt (two) | ⑲ Spring B (two) |
| ⑤ Rear fork | ⑩ 8 mm hex. nut | ⑮ 10×32 hex. bolt (two) | ⑳ Spring joint (two) |
| ⑥ Pivot thrust bush (two) | ⑪ 20×15 cotter pin | ㉑ 10 mm plain washer (two) | ㉒ Spring A (two) |
| ⑦ Rear fork pivot bolt | ⑫ 6×12 hex. bolt (two) | ㉓ Rear suspension assembly | ㉔ Spring adjuster (two) |
| ⑧ Grease nipple | ⑬ 6 mm plain washer (two) | ㉕ Upper joint (two) | ㉖ Rear damper (two) |

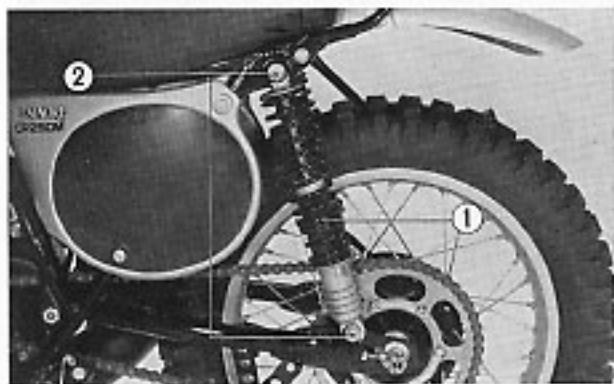
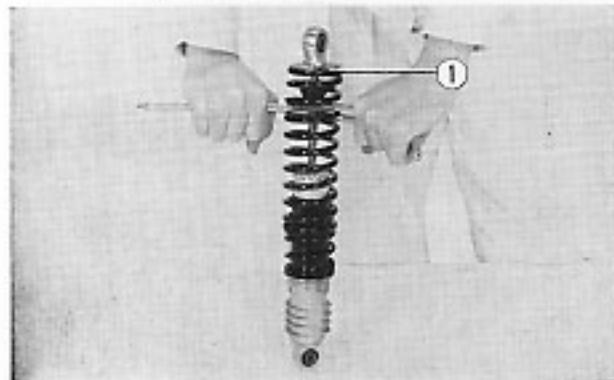
Fig. 4-8 ① Rear shock absorber
② Attaching bolts

Fig. 4-9 ① Spring upper seat

Disassembly

1. Place a wood block under the engine and remove the rear wheel. (See page 39.)
2. Remove the two rear shock absorber bolts, and remove the right and left rear shock absorbers.
3. Pull out the rear fork pivot bolt and remove the rear fork.
4. While compressing the rear shock absorber springs as shown, remove the spring upper seat.

Inspection

1. Check for bent shock absorber rods Push down on the rods with a hand to check for smooth movement. Pull them to see if a resistance is felt.
2. Check the springs for fatigue.
3. Measure the rear fork pivot bushing I.D. and center collar O.D.

Assembly

1. Tighten the rear fork pivot bolt until the rear fork will just drop under its own weight and there is no side play.

3. FRONT WHEEL AND FRONT BRAKE

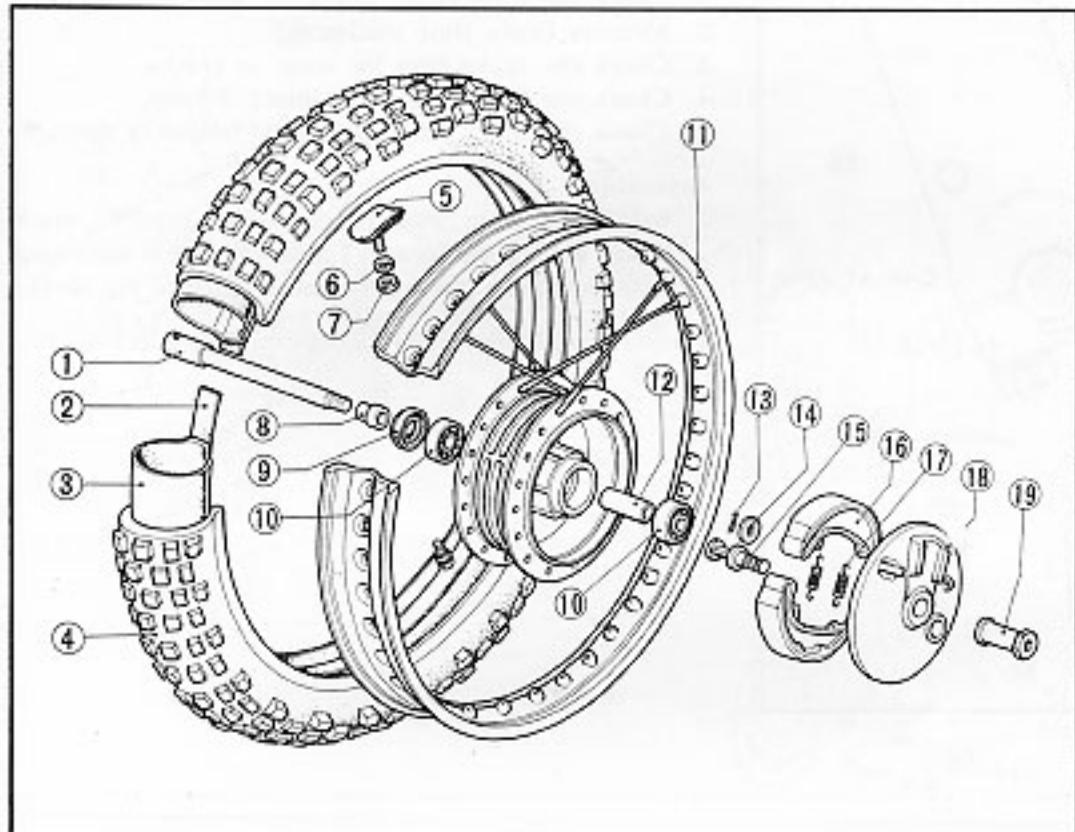


Fig. 4-10

- ① Front wheel axle
- ② Tire flap
- ③ Front wheel tube
- ④ Front wheel tire (3.00-21-4 PR)
- ⑤ 1.60A rim lock
- ⑥ 8 mm spring washer
- ⑦ 8 mm hex. nut
- ⑧ Front wheel collar
- ⑨ 26-42-7 oil seal
- ⑩ 6302 ball bearing (two)
- ⑪ Front wheel rim
- ⑫ Front axle distance collar
- ⑬ 2.0×15 cotter pin
- ⑭ Washer
- ⑮ Front brake cam
- ⑯ Front brake shoe (two)
- ⑰ Brake shoe spring (two)
- ⑱ Front brake panel
- ⑲ Front wheel axle nut

Disassembly

1. Place a wood block under the engine and raise the front wheel off the ground.
2. Disconnect the front brake cable from the brake arm.
3. Remove the right and left axle holders, and remove the front wheel.
4. Remove the front axle nut and pull out the front axle.
5. Remove the two brake shoes from the front brake panel.

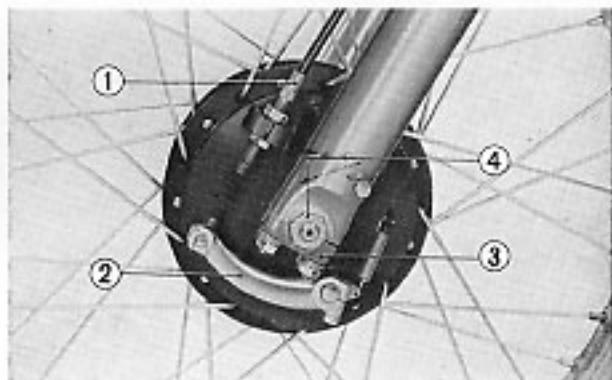


Fig. 4-11

- ① Front brake cable
- ② Brake arm
- ③ Axle holder
- ④ Axle nut

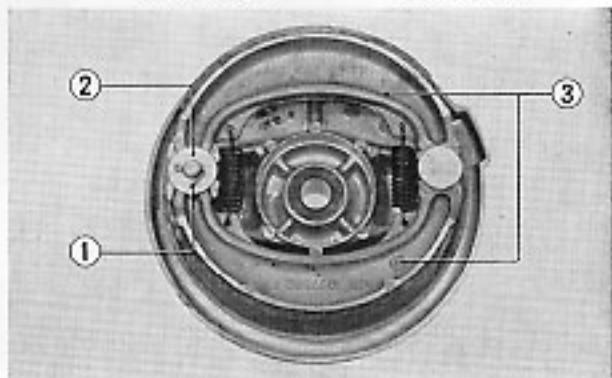


Fig. 4-12

- ① Cotter pin
- ② Washer
- ③ Brake shoes

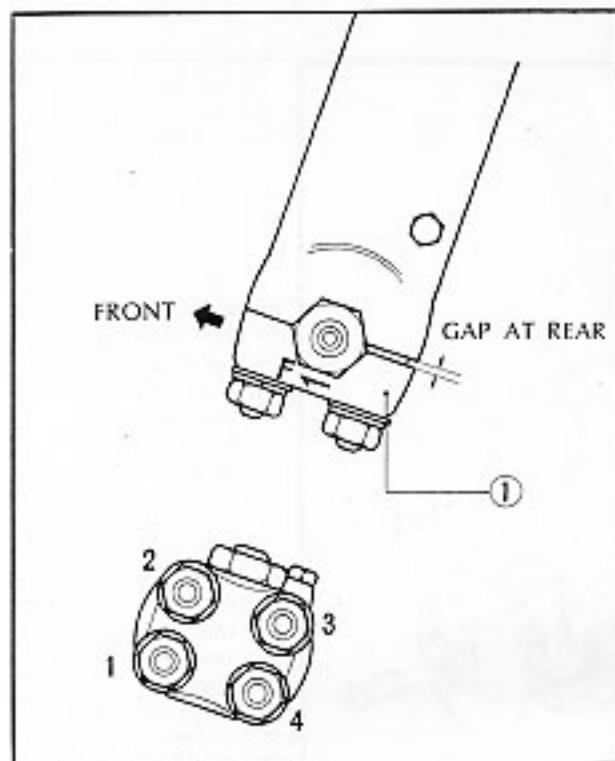


Fig. 4-13 ① Front axle holder

Inspection

1. Check the front brake drum for wear.
2. Measure brake shoe thickness.
3. Check the brake cam for wear or cracks.
4. Check the front axle and replace if bent.
5. Check the brake shoe springs for fatigue or damage.

Assembly

1. Install the front axle holders with the "F" mark facing toward the front. Tighten the front mounting nuts before tightening the rear nuts.(See Fig. 4-13.)

Torque specification: 180-250 kg-cm (13.0~18.1 lbs-ft).

MEMO:

4. REAR WHEEL AND REAR BRAKE

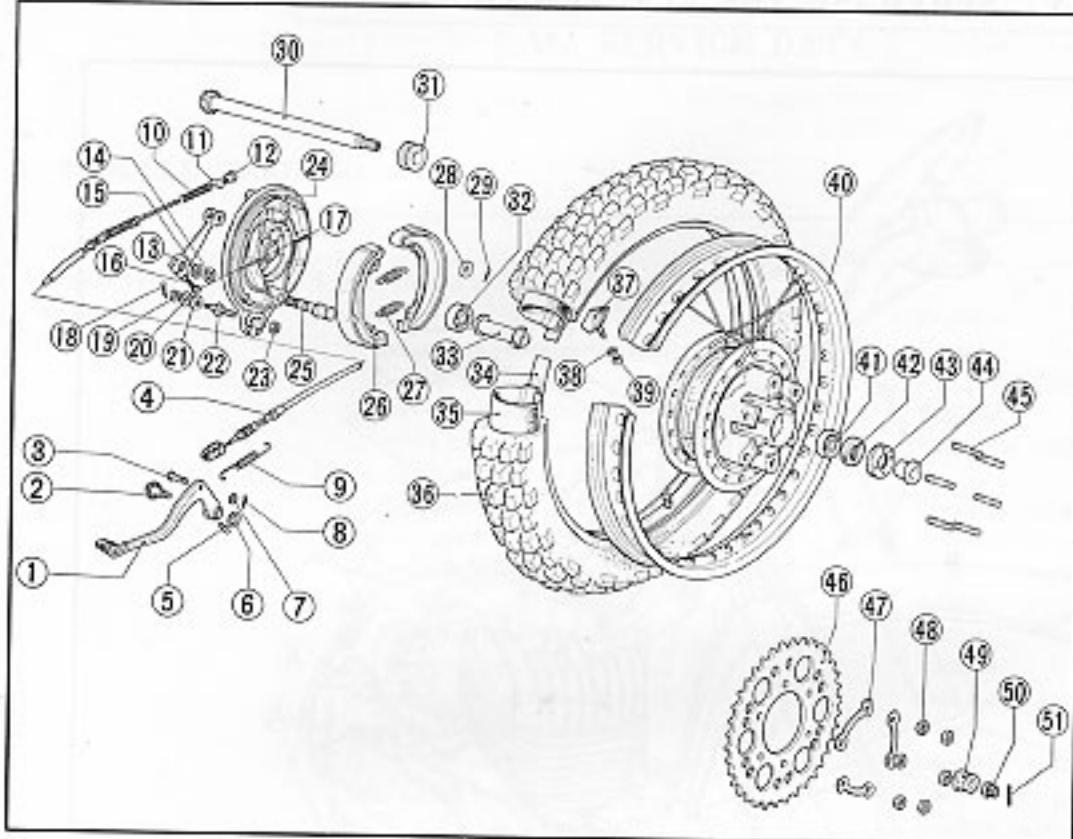


Fig. 4-14

Disassembly

1. Remove the rear brake adjusting nut.
2. Loosen the drive chain adjuster lock nut and screw in the adjuster bolt.
3. Remove the cotter pin from the rear axle nut.
4. Remove the master link clip and remove the drive chain.
5. Remove the torque arm cotter pin and remove the lock nut.
6. Remove the rear axle, and remove the rear wheel from the frame.
7. Straighten the tabs of the three lock washers, remove the six lock nuts and remove the driven sprocket.
8. Remove the brake shoes from the rear brake panel.

Inspection

Check the same items as in "Front Wheel and Front Brake" (See page 38).

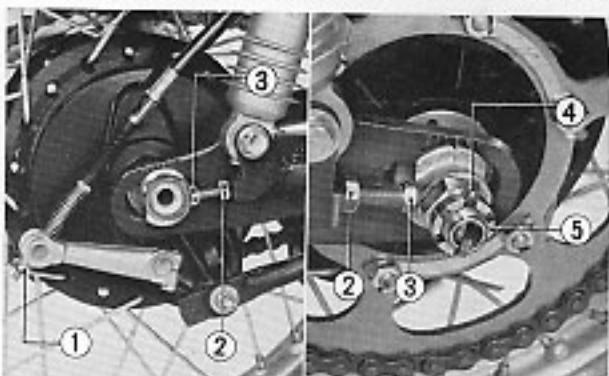


Fig. 4-15 ① Rear brake adjusting nut
② Lock nut
③ Adjuster bolt
④ Cotter pin
⑤ Axle nut



Fig. 4-16 ① Lock washers
② Lock nuts
③ Driven sprocket

- ① Brake pedal
- ② Brake pivot shaft
- ③ Cable joint pin
- ④ Rear brake cable
- ⑤ Grease nipple
- ⑥ Brake pedal dust seal
- ⑦ 6mm plain washer
- ⑧ 1.6x12 cotter pin
- ⑨ Brake pedal spring
- ⑩ Brake cable spring A
- ⑪ Brake arm joint B
- ⑫ Brake adjusting nut
- ⑬ Rear brake arm
- ⑭ 14mm plain washer
- ⑮ Brake cam dust seal
- ⑯ 6.5mm plain washer A
- ⑰ 6x25 mm hex. bolt
- ⑱ 2.0x15 cotter pin
- ⑲ 8mm hex. nut
- ⑳ Washer
- ㉑ Stopper arm cushion rubber
- ㉒ Rear brake panel stopper bolt
- ㉓ 10mm hex. nut
- ㉔ Rear brake panel
- ㉕ Rear brake cam
- ㉖ Rear brake shoe(two)
- ㉗ Brake shoe spring (two)
- ㉘ Washer A (two)
- ㉙ 20x15 cotter pin (two)
- ㉚ Rear wheel axle
- ㉛ Rear panel collar
- ㉜ 6204 ball bearing
- ㉝ Distance collar
- ㉞ Rear tire flap
- ㉟ Rear wheel tube
- ㉟ Rear wheel tire (4.00-18-4PR)
- ㉞ 215B rim lock
- ㉟ 8mm spring washer
- ㉟ 8mm hex. nut
- ㉟ Rear wheel rim
- ㉟ 6304 ball bearing
- ㉟ 30-45-9.5 dust seal
- ㉟ Rear wheel bearing retainer
- ㉟ Rear wheel side collar
- ㉟ 8x45 stud bolt (six)
- ㉟ Driven sprocket (47 teeth)
- ㉟ 8mm lock washer
- ㉟ 8mm hex. nut (six)
- ㉟ Rear axle collar
- ㉟ Rear axle nut
- ㉟ 4.0-30 cotter pin

V. SERVICING THE ELECTRICAL SYSTEM

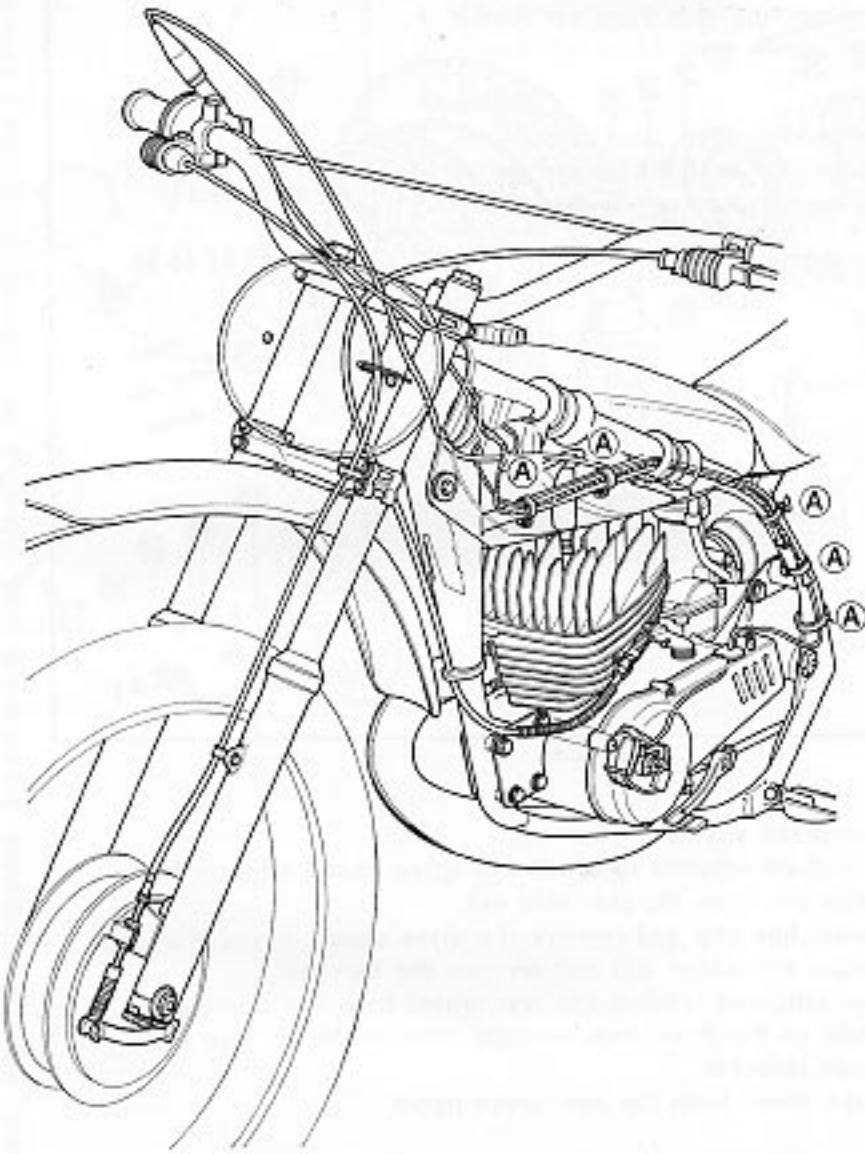


Fig. 5-1

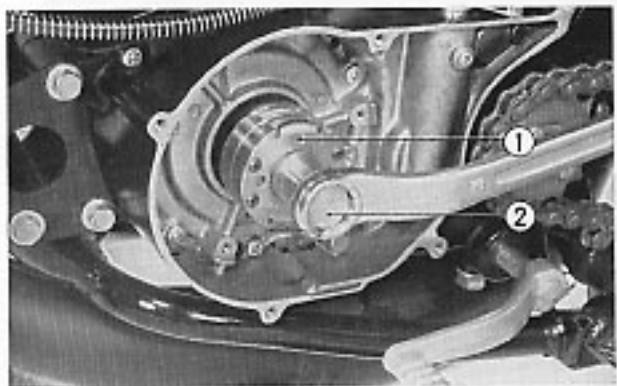


Fig. 5-2 ① Generator rotor
② Rotor removing bolt

Disassembly

A. C. generator and breaker point

1. Remove the left crankcase cover.
2. Remove the three 6 mm screws and remove the base plate.
3. Remove the generator rotor bolt and remove the rotor.

Ignition coil

1. Remove the seat.
2. Remove the fuel tank.
3. Remove the ignition coil.

Assembly

Connect wiring and cables to the frame with the clamps at position ④ in Fig. 5-1.

VI. SERVICE DATA

1. TROUBLE SHOOTING

Trouble	Cause	Remedy
Engine fails to start or does not start easily.	1. Insufficient compression pressure ① Crankcase compression leak at oil seal ② Crankcase compression leak at crankcase mating surfaces ③ Worn or stuck piston rings ④ Worn cylinder 2. No spark at plug or points ① Fouled plug ② Wet plug ③ Fouled points ④ Incorrect point gap ⑤ Incorrect ignition timing ⑥ Defective ignition coil ⑦ Open or short circuit in ignition cords ⑧ Short circuit in condenser ⑨ Short circuit in A.C. generator 3. Raw gas in crankcase 4. No fuel is fed to carburetor ① Broken or clogged breather tube ② Clogged fuel cock ③ Defective carburetor float valve ④ Clogged fuel tube 5. Deteriorated fuel-oil mixture	Replace. Repair. Replace. Repair or replace. Clean or replace. Clean or replace. Repair or replace. Adjust. Adjust. Replace. Replace. Replace. Repair or replace. Remove gas (with fuel cock in "OFF" position after stopping the engine). Repair. Clean. Clean. Clean. Replace.
Engine stalls frequently.	1. Fouled plug 2. Fouled points 3. Incorrect ignition timing 4. Clogged fuel lines 5. Clogged carburetor jets 6. Crankcase compression leak 7. Intake manifold leak 8. Deteriorated fuel-oil mixture	Clean or replace. Clean or replace. Adjust. Clean. Clean. Repair. Repair or replace. Replace.
Engine does not have sufficient power.	1. Worn cylinder and worn or stuck piston rings 2. Incorrect ignition timing 3. Defective points 4. Incorrect plug gap 5. Clogged carburetor jets 6. Incorrect float height 7. Clogged air cleaner 8. Cracked expansion chamber 9. Deteriorated fuel-oil mixture	Repair or replace. Adjust. Repair or replace. Repair or replace. Clean. Adjust. Clean or replace. Repair. Replace.
Engine overheats.	1. Carbon deposit on cylinder head 2. Lean fuel mixture 3. Overadvanced ignition timing 4. Carbon deposit in expansion chamber 5. Deteriorated gasoline	Clean. Adjust. Adjust. Clean Replace.

Trouble	Cause	Remedy
Clutch slips.	1. Misadjusted clutch 2. Weak clutch springs 3. Worn or deformed pressure plate 4. Deformed clutch plates 5. Worn or deformed friction discs	Adjust. Replace. Replace. Replace. Replace.
Clutch drags.	1. Misadjusted clutch 2. Unequal clutch spring tension 3. Deformed clutch plates	Adjust. Replace. Replace.
Transmission gears fail to shift smoothly or sequentially.	1. Deformed shift drum stopper 2. Broken shift drum 3. Deformed shift forks 4. Weak shift drum stopper spring	Repair or replace. Replace. Repair or replace. Replace.
Change pedal fails to return.	1. Broken gearshift return spring 2. Contact between cases and gearshift spindle	Repair or replace. Repair.
Transmission gears disengage accidentally.	1. Worn main shaft and countershaft shifting gears 2. Bent or worn gearshift forks	Replace. Repair or replace.
Engine operation is erratic at low speeds.	1. Incorrect ignition timing 2. Improper point contact 3. Excessive plug gap 4. Weak spark (Defective condenser or ignition coil) 5. Short circuit in A.C. generator 6. Incorrect float level 7. Misadjusted carburetor air screw	Adjust. Repair or replace. Repair or replace. Replace. Repair or replace. Adjust. Adjust.
Engine operation is erratic at high speeds.	1. Insufficient plug gap 2. Retarded ignition timing 3. Weak point arm spring 4. Defective ignition coil 5. Incorrect float level 6. Clogged air cleaner element 7. Crankcase compression leak 8. Short circuit in A.C. generator 9. Broken or cracked expansion chamber, broken tail pipe or carbon deposit	Repair or replace. Adjust. Replace. Replace. Adjust Clean or replace. Repair. Repair or replace. Repair or replace.
Engine fails to fire.	1. Fouled spark plug 2. Defective ignition coil 3. Fouled contact points or incorrect point gap 4. Short circuit in A.C. generator	Replace. Replace. Replace. Replace.
Spark plug electrodes are fouled.	1. Rich mixture (rich carburetion or clogged air filter) 2. Incorrect gasoline and oil mixing ratio 3. Incorrect spark plug heat range	Adjust or clean. Adjust. Replace.
Spark plug electrodes are burnt.	1. Incorrect heat range 2. Overheating engine 3. Incorrect ignition timing 4. Loose spark plug 5. Lean mixture	Use specified plug. Adjust. Retighten. Adjust.
Breaker points are burnt.	1. Improper point contact 2. Defective condenser	Replace. Replace.

Trouble	Cause	Remedy
Steering is hard.	1. Overtightened steering stem 2. Broken steering stem steel balls 3. Bent steering stem 4. Unevenly worn ball races	Adjust. Replace. Replace. Replace.
Front wheel shimmies.	1. Deformed rim 2. Loose front wheel bearings 3. Loose spokes 4. Loose axle and related parts	Replace. Replace. Adjust Retighten.
Front suspension is spongy.	1. Weak springs 2. Insufficient front fork fluid (ATF)	Replace. Add.
Front suspension is hard.	1. Incorrect front fork fluid; too high viscosity 2. Excessive front fork fluid	Replace. Adjust.
Rear wheel shimmies.	1. Deformed rim 2. Loose rear wheel bearings 3. Loose spokes 4. Loose axle and related parts	Replace. Replace. Adjust. Retighten.
Rear suspension is spongy.	1. Weak springs 2. Improper rear suspension adjustment	Replace. Adjust.
Rear suspension is hard.	1. Improper rear suspension adjustment 2. Spring thrust joint binding 3. Bent shock absorber rods	Adjust. Repair. Replace.
Braking effect is poor.	1. Improper brake shoe contact 2. Brake linings fouled with oil or grease 3. Broken brake cable or loose brake pedal shaft 4. Misadjusted brake	Repair or replace Replace. Repair or replace Adjust.
Brake free play is insufficient.	1. Worn brake shoes 2. Worn brake cam 3. Improper brake arm position	Replace Replace. Repair or replace.

2. TORQUE SPECIFICATIONS

Unit: kg·m (lbs·ft)

	Tightening point	Thread dia. (mm)	Torque	Remarks
Engine	Drive sprocket	6	0.8-1.2 (5.8-8.7)	
	Drum stopper	6	0.8-1.2 (5.8-8.7)	
	Neutral stopper	6	0.8-1.2 (5.8-8.7)	
	Exhaust pipe	6	0.8-1.2 (5.8-8.7)	
	Clutch pressure plate	6	0.8-1.2 (5.8-8.7)	
	A.C. generator rotor	8	2.3-2.8 (16.6-20.3)	
	Cylinder head flange nut	6	1.0-1.3 (7.2-9.4)	
	Cylinder head special nut	8	2.0-2.5 (14.5-18.1)	
	Primary drive gear	12	5.0-6.0 (36.2-43.4)	
	Clutch center	18	3.5-4.0 (25.3-28.9)	
Frame	Kick stopper pin	18	3.0-3.5 (21.7-25.3)	
	Steering stem nut	23	8.0-12.0 (57.9-86.8)	
	Front fork top bridge	8	1.8-2.5 (13.0-18.1)	
	Handlebar holder	8	1.8-2.5 (13.0-18.1)	
	Front fork bottom bridge	8	1.8-2.5 (13.0-18.1)	
	Spoke	—	0.2-0.45 (1.4-3.3)	
	Rear fork pivot bolt	14	5.5-7.0 (39.8-50.6)	
	Front wheel axle nut	12	5.5-6.5 (39.8-47.0)	
	Front axle holder	8	1.8-2.5 (13.0-18.1)	
	Front engine hanger bolt (front side)	8	1.8-2.5 (13.0-18.1)	
	Front engine hanger bolt (rear side)	8	2.8-3.3 (20.3-23.9)	UBS bolt
	Rear engine hanger bolt	10	5.0-6.0 (36.2-43.4)	UBS bolt
	Rear axle nut	18	8.0-10.0 (57.9-72.3)	
	Driven sprocket	8	1.8-2.5 (13.0-18.1)	
	Brake arm	6	0.8-1.1 (5.8-8.0)	
	Rear brake torque link	8	1.8-2.5 (13.0-18.1)	
	Rear shock absorber (upper)	10	3.0-4.0 (21.7-28.9)	
	Rear shock absorber (lower)	8	1.8-2.5 (13.0-18.1)	
	Step bar	10	3.4-4.0 (24.6-28.9)	
	Change arm, kick starter pedal	6	0.8-1.2 (5.8-8.7)	
	Rear brake pedal pivot	10	3.0-4.0 (21.7-28.9)	

Standard tightening torque

Unit: kg·m (lbs·ft)

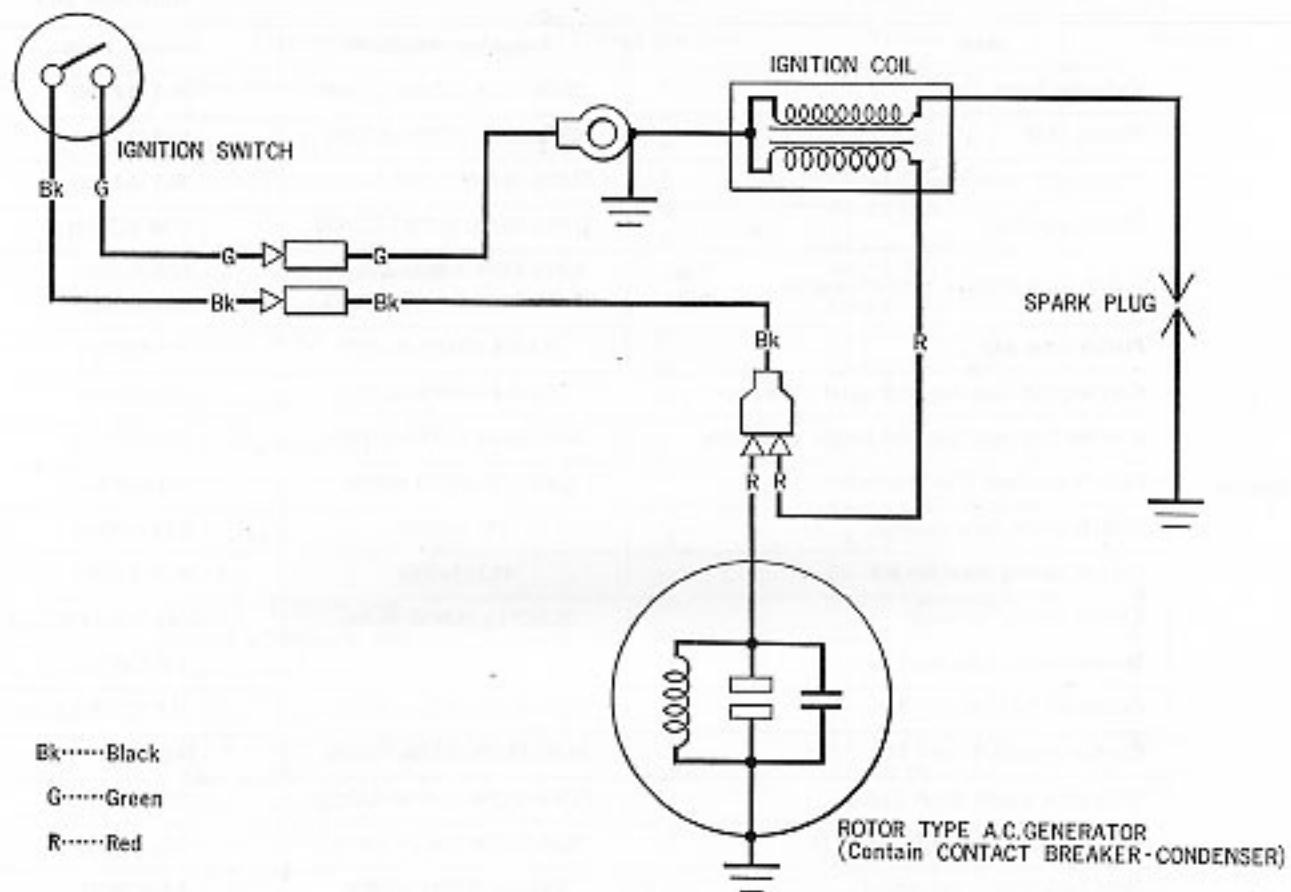
Part	Torque	Part	Torque
6 mm screw	0.7-1.0 (5.1-7.2)	6 mm flanged hex bolt	1.0-1.4 (7.2-10.1)
6 mm hex bolt	0.8-1.2 (5.8-8.7)	8 mm flanged hex bolt	2.4-3.0 (17.4-21.7)
8 mm hex bolt	1.8-2.5 (13.0-18.1)	10 mm flanged hex bolt	3.8-4.8 (27.5-34.7)
10 mm hex bolt	3.0-4.0 (21.7-28.9)		

3. SERVICE DATA

Unit: mm (in.)

	Item	Assembly standard	Service limit
Engine	Cylinder bore	70.00-70.01 (2.7559-2.7563)	70.1 (2.7598)
	Piston O.D.	69.93-69.95 (2.7531-2.7539)	69.8 (2.7480)
	Piston pin hole dia.	18.002-18.008 (0.7087-0.7090)	18.1 (0.7126)
	Piston pin O.D.	17.992-18.000 (0.7083-0.7087)	17.98 (0.7079)
	Piston ring groove side clearance	Top 0.045-0.075 (0.0018-0.0030) 2nd 0.025-0.055 (0.0010-0.0022)	0.09 (0.0035) 0.07 (0.0028)
	Piston ring gap	0.2-0.4 (0.0079-0.0157)	0.5 (0.0197)
	Connecting rod big end axial clearance	0.2-0.4 (0.0079-0.0157)	0.6 (0.0236)
	Connecting rod big end radial clearance	0.010-0.022 (0.0004-0.0009)	0.03 (0.0012)
	Clutch friction disc thickness	2.62-2.78 (0.1031-0.1094)	2.4 (0.0945)
	Clutch plate face runout	0.15 (0.0059)	0.25 (0.0098)
	Clutch spring free length	41.2 (1.6220)	40.0 (1.5748)
	Clutch spring tension	22.5/21 kg (0.8858/46 lbs)	20.5/21 kg (0.8071/46 lbs)
	Transmission gear backlash	—	0.2 (0.0079)
	Gearshift fork drum O.D.	33.95-33.975 (1.3361-1.3376)	33.9 (1.3346)
	Center gearshift fork I.D.	34.00-34.025 (1.3386-1.3396)	34.08 (1.3417)
	Shift fork guide shaft O.D.	11.976-11.994 (0.4715-0.4722)	11.92 (0.4693)
	R/H and L/H gearshift fork I.D.	12.00-12.018 (0.4724-0.4731)	12.05 (0.4744)
	Shift fork finger thickness	4.93-5.0 (0.1941-0.1969)	4.6 (0.1811)
Frame	Front fork bottom pipe O.D.	24.75-25.00 (0.9744-0.9843)	24.70 (0.9724)
	Front fork bottom case I.D.	35.0-35.039 (1.3780-1.3795)	35.18 (1.3855)
	Front wheel axle runout	0.01 (0.0004)	0.2 (0.0079)
	6302 ball bearing axial runout	0.07 (0.0028)	0.1 (0.0039)
	6302 ball bearing radial runout	0.03 (0.0012)	0.05 (0.0020)
	Front and rear wheel rim face runout	0.5 (0.0197)	2.0 (0.0787)
	Front and rear brake drum I.D.	140.0-140.3 (5.51-5.52)	141.0 (5.6)
	Front and rear brake shoe thickness	4.5 (0.1772)	2.5 (0.0984)
	Rear wheel axle runout	0.01 (0.0004)	0.2 (0.0079)
	Rear fork pivot bushing I.D.	21.60-21.65 (0.8504-0.8524)	21.8 (0.8583)
	Rear fork center collar O.D.	21.46-21.475 (0.8449-0.8455)	21.4 (0.8425)
	6204 and 6304 ball bearing axial runout	0.07 (0.0028)	0.1 (0.0039)
	6204 and 6304 ball bearing radial runout	0.03 (0.0012)	0.05 (0.0020)
	Front suspension spring free length	481.1 (18.941)	470 (18.5)

4. WIRING DIAGRAM



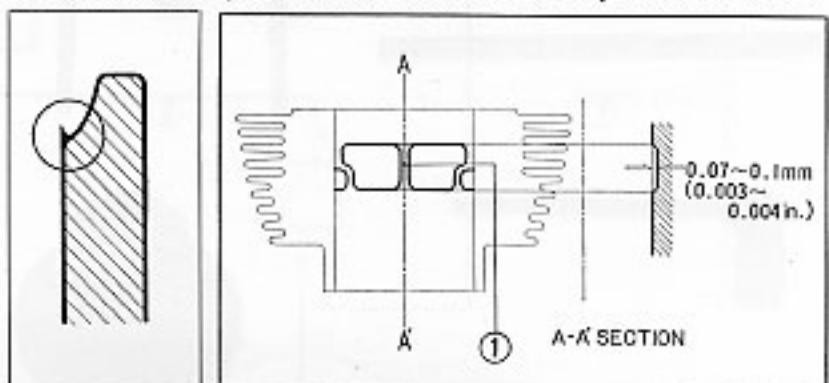
MEMO:

5. SPECIAL TOOLS



Ref. No.	Tool No.	Description	Ref. No.	Tool No.	Description
①	07900-3570000	Special tool set	⑧	07946-3290000	A.T.T., Race driver
	07907-9350000	Wrench, Lock nut	⑨	07946-3290200	Remover, Ball race
③	07908-3570000	Wrench, Clutch adjusting	⑩	07947-3290000	Driver, Fork seal
③	07910-3290000	Wrench, Retainer	⑪	07949-6110000	Handle, Driver
④	07917-3230000	Wrench, Hollow set	⑫	07542-3570000	Set, Dial gauge T.D.C.
⑤	07922-3570000	Holder, Drive sprocket	⑫-1	07542-3570100	Gauge, Dial
⑥	07937-3570000	Puller, Case	⑫-2	07510-3570100	A.T.T. A, Gauge
⑦	07946-3570000	A.T.T., Bearing driver	⑫-3	07510-3570200	A.T.T. B, Gauge

6. OPTIONAL PARTS

Optional Parts	Remarks						
<ul style="list-style-type: none"> • Piston, 0.25 mm oversize • Piston rings, 0.25 mm oversize 	<p>If the cylinder becomes excessively worn or scored, rebore to 70.25-70.26 mm (2.7657-2.7661 in.) and install 0.25 mm oversize piston and piston rings.</p> <p>NOTE: After boring, deburr the edges of the ports with fine emery paper, and relieve the center pillar with an oil stone to a depth of 0.07-0.1mm.</p>						
	 <p>The left diagram shows a vertical cylinder wall with a circular port opening. The right diagram is a detailed cross-section labeled 'A-A SECTION' showing the internal structure of the cylinder head. It includes intake and exhaust ports, a central vertical pillar, and a valve assembly. A dimension line indicates a width of '0.07~0.1mm (0.003~0.004 in.)' for the 'A-A SECTION' at point ①, which corresponds to the center pillar.</p>						
<ul style="list-style-type: none"> • High performance cylinder • 36 mm carburetor • Insulator for 36mm carburetor 	<p>The high performance cylinder and 36mm carburetor, installed as a set, will increase engine power at high rpm.</p> <p>This modification is recommended for use on high speed race courses only, as it produces a narrower power range with some reduction of low speed torque.</p>						
<ul style="list-style-type: none"> • Main jets • Slow jets • Air jets • Throttle valve set 	<p>#140~#158 (At intervals of 2 or 3. For example: #140, #142, #145, #148...) (Standard: #148)</p> <p>#50~#65 (At intervals of 5) (Standard: #55)</p> <p>#160~#240 (At intervals of 20) (Standard: #200)</p> <p>#2.0~#3.0 (At intervals of 0.5) (standard #2.5)</p>						
<ul style="list-style-type: none"> • Drive sprocket • Driven sprocket • Drive chain, 110 link 	<p>No. of teeth: 13 (Standard: 14)</p> <p>No. of teeth: 45, 49 (Standard: 47)</p> <p>110 link drive chain is supplied for use with optional sprocket combinations requiring greater chain length.</p>						
<ul style="list-style-type: none"> • Rear wheel tire (4.60-18-4PR) 	<p>Recommended for:</p> <ul style="list-style-type: none"> • Muddy surface • Soft surface • Sand 						
<ul style="list-style-type: none"> • Rear suspension springs 	<p>Optional springs A and B, installed as a set, will make the rear suspension softer.</p> <table border="1" data-bbox="546 1524 1134 1677"> <thead> <tr> <th data-bbox="546 1524 884 1569">Part name</th><th data-bbox="884 1524 1134 1569">Part number</th></tr> </thead> <tbody> <tr> <td data-bbox="546 1569 884 1615">Rear suspension spring A</td><td data-bbox="884 1569 1134 1615">52401-357-010</td></tr> <tr> <td data-bbox="546 1615 884 1660">Rear suspension spring B</td><td data-bbox="884 1615 1134 1660">52402-357-010</td></tr> </tbody> </table>	Part name	Part number	Rear suspension spring A	52401-357-010	Rear suspension spring B	52402-357-010
Part name	Part number						
Rear suspension spring A	52401-357-010						
Rear suspension spring B	52402-357-010						
<ul style="list-style-type: none"> • Mud guard 	<p>The mud guard prevents mud from entering the cylinder or from accumulating on the cylinder head.</p>						
<ul style="list-style-type: none"> • Racing stand 	<p>The racing stand is used to support the motorcycle in an upright position.</p>						

7. SPECIFICATIONS

	Item	Metric	English
Dimension	Overall length	2,140 mm	84.3 in.
	Overall width	890 mm	35.0 in.
	Overall height	1,140 mm	44.9 in.
	Wheel base	1,450 mm	57.1 in.
	Seat height	830 mm	32.7 in.
	Foot peg height	310 mm	12.2 in.
	Ground clearance	190 mm	7.5 in.
	Dry weight	97 kg	214 lbs.
Frame	Type	Semi-double cradle	
	F. suspension, travel	Telescopic fork, travel 100 mm (3.1 in.)	
	R. suspension, travel	Swing arm, travel 105 mm (4.1 in.)	
	F. tire size, pressure	3.00-21 (4PR), air pressure 1.0 kg/cm ² (14.2 psi)	
	R. tire size, pressure	4.00-18 (4PR), air pressure 1.0 kg/cm ² (14.2 psi)	
	F. brake, lining area	Internal expanding shoes, lining swept areas 100 cm ² (15.5 sq. in.)	
	R. brake, lining area	Internal expanding shoes, lining swept areas 100 cm ² (15.5 sq. in.)	
	Fuel capacity	7 lit.	1.8 U.S. gal. 1.5 Imp. gal.
	Caster angle	59°	
	Trail length	145 mm	5.7 in.
	Front fork oil capacity	165 cc	5.6 ozs.
Engine	Type	Air cooled, 2-stroke engine	
	Cylinder arrangement	Single inclined from vertical	
	Bore and stroke	70.0×64.4 mm	2.756×2.535 in.
	Displacement	248 cc	15.1 cu-in.
	Compression ratio	7.2 : 1	
	Maximum horsepower	33 HP/7,500 rpm (SAE J245)	
	Maximum torque	3.2 kg-m/6,500 rpm	23.1 lbs-ft/6,500 rpm
	Oil capacity	1.0 lit.	1.0 U.S. qt. 0.9 Imp. qt.
	Idle speed	1,800 rpm	
Carburetor	Type	Piston valve	
	Main jet (standard)	2148	
	Slow jet (standard)	555	
	Air screw opening	1-1/2±1/8	
	Float height	24 mm	0.945 in.
Drive train	Clutch	Wet, multi-plate type	
	Transmission	5-speed, constant mesh	
	Primary reduction	3.300	
	Gear ratio I	2.055	
	Gear ratio II	1.571	

	Item	Metric	English
	Gear ratio III	1.250	
	Gear ratio IV	1.037	
	Gear ratio V	0.862	
	Final reduction	3.360	
	Gear shift pattern	Left foot operated return system	
Electrical	Ignition	Ignition coil	
	Starting System	Kick starter	
	Spark plug	NGK B9EV	

MEMO: