

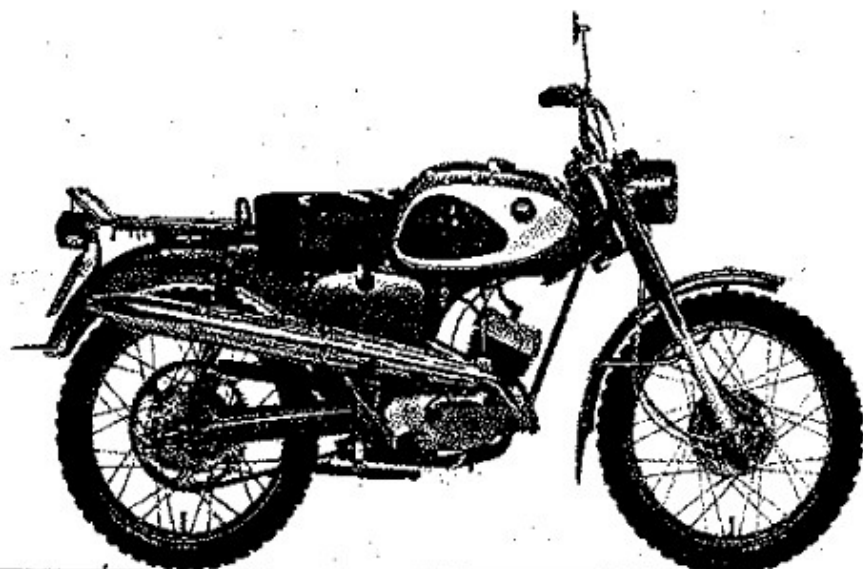
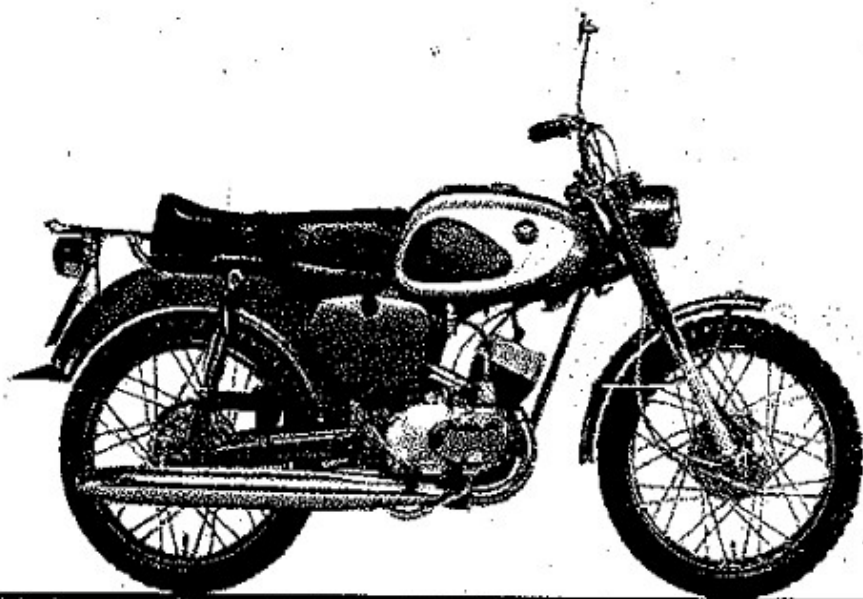
BRIDGESTONE 90

Trail-Scrambler

BRIDGESTONE 90

Mountaineer

OWNER'S MANUAL



Acknowledgment

We extend our sincere appreciation and thanks to you for selecting our new BRIDGESTONE 90T or 90M.

These machines have been designed by our experienced engineers and testers and are of the highest workmanship and finish.

We are confident that **Your** BRIDGESTONE will meet with your expectations and that you may look forward to many pleasant rides and excursions.

As with any mechanical device, proper care and maintenance are absolutely necessary to ensure freedom from trouble.

In this Owner's Manual you will find useful information to help you to get to know your machine and how to take care of it.

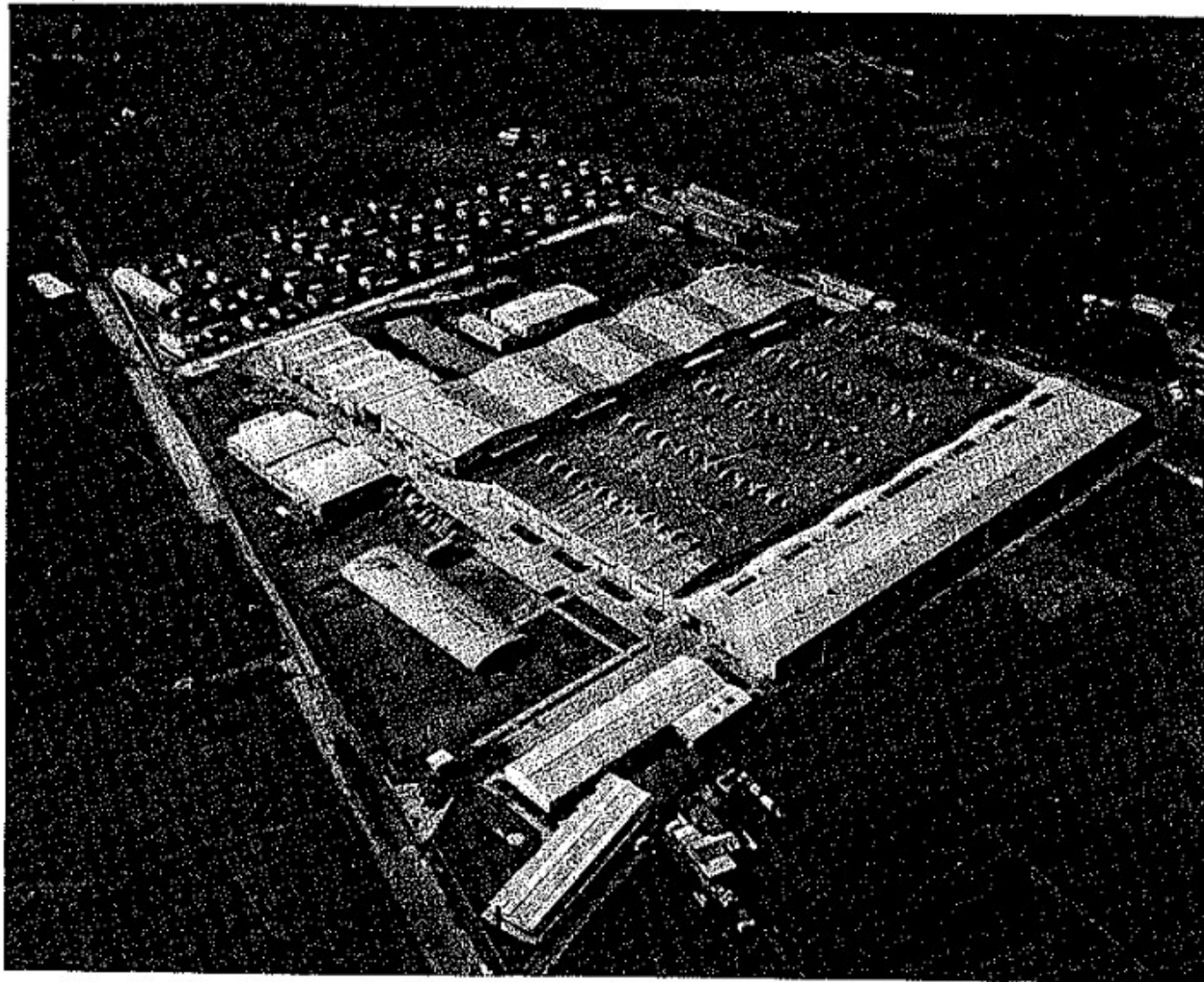
Useful pointers on driving are also given.

BRIDGESTONE TIRE CO., LTD.

Tokyo, Japan



HEAD OFFICE OF BRIDGESTONE TIRE CO., LTD. IN TOKYO



A BIRD'S-EYE VIEW OF AGEO PLANT
BRIDGESTONE CYCLE INDUSTRIES LTD.

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1. SPECIFICATION

* Engine

	BS 90T	BS 90M
(1) Type:	2-stroke, Single Cylinder	2-stroke, Single Cylinder
(2) Piston Displacement:	88 c.c. (5.39 cu-inch)	88 c.c. (5.39 cu-inch)
(3) Bore & Stroke;	50 mm×45 mm (1.97×1.77 inch)	50 mm×45 mm (1.97×1.77 inch)
(4) Compression Ratio:	6.8 : 1	5.6 : 1
(5) Max. Brake Horse Power:	7.8 HP/7,000 rpm	7.8 HP/7,000 rpm
(6) Max. Torque:	0.85 kg·m/5,000 rpm	0.85 kg·m/5,000 rpm
(7) Air Intake System:	Rotary disc valve	Rotary disc valve
(8) Starting System:	Kick Starter	Kick Starter
(9) Charging System:	A.C. Magneto	A.C. Magneto
(10) Ignition System:	Flywheel Magneto	Flywheel Magneto
(11) Ignition Timing:	22 degrees before T.D.C.	21 degrees before T.D.C.
(12) Spark Plug:	N.G.K B-7H	N.G.K B-7HZ
(13) Carburetor:	AMAL Type, VM 15 SC	AMAL Type, VM 15 SC
(14) Fuel Mixture:	20(gasoline)to 1(moter oil SEA No. 30)	20(gasolin)to 1(moter oil SEA No. 30)
(15) Transmission Oil:	0.6 litre (0.158 US gal.) in transmis- sion case. SEA No. 30 in summer and SEA No. 20 in winter or SEA No. 10W/30 in all seasons.	0.6 litre (0.158 US gal.) in transmis- sion case. SEA No. 30 in summer and SEA No. 20 in winter or SEA No. 10W/30 in all seasons.

*** Performance**

	BS 90 T	BS 90 M
(1) Max. Speed:	95 km/h (60 mph)	95 km/h (60 mph)
(2) Climbing Ability:	1 in 3 (34 T) 1 in 1.23 (47 T)	1 in 3 (34 T) 1 in 1 (64 T)
(3) Fuel Consumption:	75 km/L (177 mpg/20 mph) at 30 km/h on paved flat test road.	60 km/L (154 mpg/20 mph) at 30 km/h on paved flat test road.
(4) Min. Turning Radius:	1.8 m (70.8 inch)	1.8 m (70.8 inch)
(5) Accelenation:	13.0 seconds (0-200 m)	13.0 seconds (0-200 m)
(6) Braking Distance:	Less than 8 m at 35 km/h (26 feet, at 22 mph)	Less than 8 m at 35 km/h (26 feet, at 22 mph)

*** Frame & Suspension**

(1) Frame Type:	Pressed Steel, Backbone Type	Pressed Steel, Backbone Type
(2) Front Suspension:	Telescopic Fork with Hydraulic Damper	Telescopic Fork with Hydraulic Damper
(3) Rear Suspension:	Swinging Arm with Hydraulic Damper	Swinging Arm with Hydraulic Damper

* **Transmission**

	BS 90T	BS 90M
(1) Clutch:	Manual, Multiple discs in oil bath.	Manual, Multiple discs in oil bath.
(2) Transmission:	4 speed constant-mesh gear and foot control.	4 speed constant-mesh gear and foot control.
(3) Gear Ratio:		
Primary (Helical Gear):	1: 3.95	1: 3.95
Gear Box: 1st	1: 2.77	1: 2.77
2nd	1: 1.72	1: 1.72
3rd	1: 1.23	1: 1.23
4th	1: 0.924	1: 0.924
Secondary (Chain):	1: 2.43 (34T/14T)	1: 2.43 (34T/14T)
	1: 3.37 (47T/14T)	1: 4.58 (64T/14T)
Total Gear Ratio:	34 T (47 T)	34 T (64 T)
1st	1:26.58 (1:36.9)	1:26.58 (1:50.2)
2nd	1:16.51 (1:22.8)	1:16.51 (1:31.0)
3rd	1:11.81 (1:16.6)	1:11.81 (1:22.4)
4th	1: 8.86 (1:12.0)	1: 8.86 (1:16.3)

*** Dimensions and Weight**

	BS 90T	BS 90M
(1) Overall Length:	1.830 mm (72.0 inch)	1,830 mm (72.0 inch)
(2) Overall Width:		
with Standard Handle Bar	660 mm (26.0 inch)	668 mm (26.3 inch)
with Flat Bar	580 mm (22.8 inch)	
(3) Overall Height:	970 mm (38.1 inch)	975 mm (38.3 inch)
(4) Saddle Height:	750 mm (29.5 inch)	750 mm (29.5 inch)
(5) Wheel base:	1,160 mm (45.7 inch)	1,160 mm (45.7 inch)
(6) Road Clearance:	150 mm (5.9 inch)	140 mm (5.5 inch)
(7) Tire Size	(Front): 2.50-17,4 ply (Road Knobby)	2.50-17,4 ply (Heavy Knobby)
	(Rear): 2.50-17,4 ply (Road Knobby)	2.50-17,4 ply (Heavy Knobby)
(8) Tire Pressure	(Front): 1.6 kg/cm ² (22.8 lbs/in ²)	1.6 kg/cm ² (22.8 lbs/in ²)
	(Rear): 2.0 kg/cm ² (28.4 lbs/in ²)	2.0 kg/cm ² (28.4 lbs/in ²)
(9) Caster:	63°	63°
(10) Trail:	80 mm (3.15 inch)	80 mm (3.15 inch)
(11) Banking Angle:	45°	48°
(12) Net Weight:	79 kg (174 lbs)	82 kg (181 lbs)
(13) Fuel Tank Capacity:	7.0 L (1.85 US gal.)	7.0 L (1.85 US gal.)
	Including 1 litre (0.264 US gal.)	Including 1 litre (0.264 US gal.)
	reserve	reserve
(14) Front Brake:	Right Hand	Right Hand
(15) Rear Brake:	Right Foot	Right Foot

* **Electrical Equipment**

	Standard	Exclusively for C.H.P.
(1) Head light	6V — 15/15 W	6V — 15/15 W
(2) Tail light	6V — 2 W	6V — 3 W
(3) Stop light	6V — 8 W	6V — 8 W
(4) Turn signal light	6V — 8 W	—
(5) Battery	6V — 4 AH	6V — 4 AH

2. EIGHT OUTSTANDING FEATURES

- (1) High speed, smooth and quick acceleration obtained by the revolutionary air intake system, Rotary Disc Valve.
- (2) Equipped with new kick system assures quick and easy starting in any gear shifting position, even in neutral gear.
- (3) Carburetor completely enclosed in the transmission case for protection against dust and water.
- (4) Air cleaner located in the tool box for protection against dust and water.
- (5) Light and strong-built frame permits comfortable riding and easy handling.
- (6) Body stay (Downtube) minimizes vibration.
- (7) Large brake drums 130 ϕ mm (5.12 ϕ inch) and the completely watertight drums assure efficient braking.
- 8) Quick and easy disassembling device of rear wheel.

3. DRIVING TIPS TO LENGTHEN THE ENGINE LIFE

(1) Running In

To obtain maximum performance

It is important to follow the running in procedure exactly.

The engine is precision made to very close tolerances. Although you will probably be anxious to try the top speed of your new machine, serious damage will very probably result if this is done before the piston rings have properly worn in the cylinder during the running in period.

ITEM	PROCEDURE
Running in Period	First 250 miles
Fuel Mixture	Mix 1/4 Pint (2-cycle engine oil SAE No. 30) in 1/2 gal (Gasoline)
15 : 1	1/2 Pint („ „) in 1 gal („) in a separate clean container.
Transmission Oil	Fill transmission with 0.5 litre (0.132 US gal) of high grade motor oil SAE No. 30 in summer or SAE No. 20 in winter. If preferred SAE No. 10 W/30 all season oil may be used.
Riding	1. Never exceed 35 km/h (22 mph) in 4th gear. Do not race engine in first or second gear. 2. Change gears smoothly. 3. Allow engine to idle for 2-3 minutes to avoid rapid heating. Rapid heating will cause damage to a new engine.
Load	Do not allow engine to strain or “lug”. Do not open the throttle grip more than three quarters.

(2) After-Running In

The following details must be completed before the machine is ready for every day use.

ITEM	PROCEDURE
Fuel Mixture	Mix 1/5 Pint (2-cycle engine oil SAE No. 30) in 1/2 gal (Gasoline) 2/5 Pint (" ") in 1.0 gal (") in a separate clean container
Transmission Oil	Fill with fresh high quality motor oil of suitable grade according to season.

NOTE: It is recommended that after 400 km (250 miles), service checkup be made by an authorized service agency.

4. STARTING OPERATION

* Procedure to be followed before starting

- (1) Turn the fuel cock lever down to open position as (Fig. 1)

NOTE the "Reserve" position 2 for the fuel cock. Switch to this position for reserve fuel. The reserve fuel will carry you about 30 km (20 miles). To close the fuel cock, turn the lever to the side of the reserve position.

- (2) Set the starter lever to starting position (Fig. 2)
 - (a) In summer or when engine is warm, it may not be necessary to use choke to start.

- (3) Turn key to "on" position. (Fig. 3)

- (a) At night, turn key to "lights" position after engine has been started.

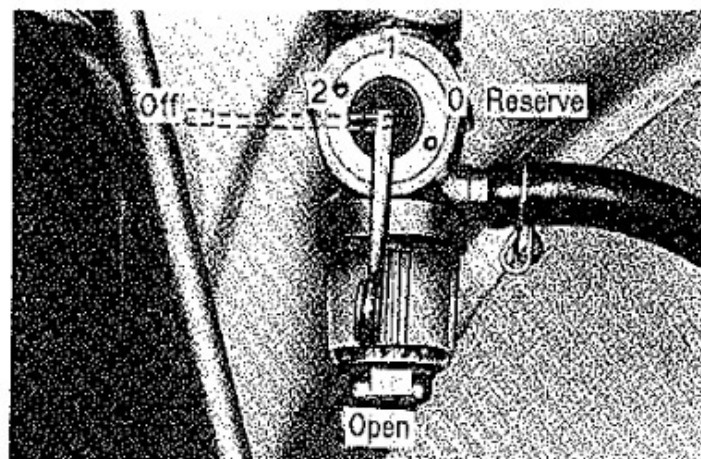


Fig. 1

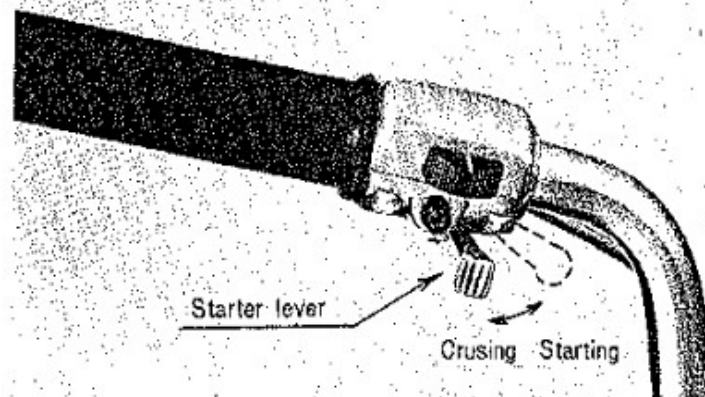


Fig. 2

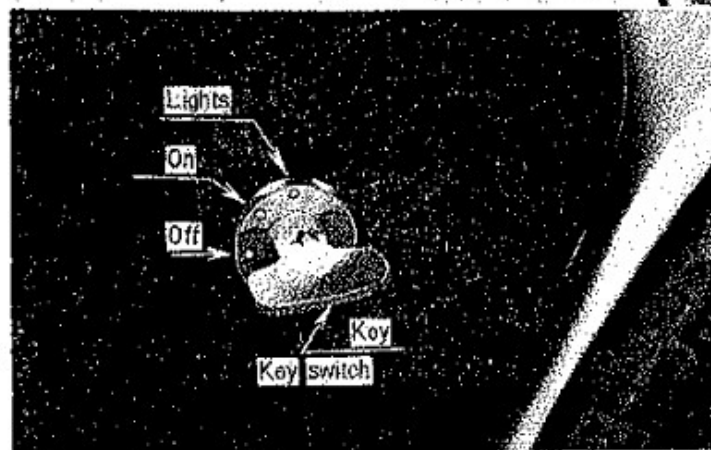


Fig. 3

- (4) Close the throttle grip.
- (5) Check neutral gear light on speedometer.
 - (a) If green light is not on, the machine is in gear.
- (6) Kick the kick pedal (equipped with new kick system)
 - (a) Kick in neutral gear position as far as possible.
 - (b) In case transmission is in any gear position, first grip the clutch lever then kick.
- (7) After the engine starts, idle at low speed for 2 minutes before driving.
- (8) Caution: Don't forget to return the starter lever to the crusing position, after the engine has warmed up.
- (9) The motorcycle is now ready to be driven.

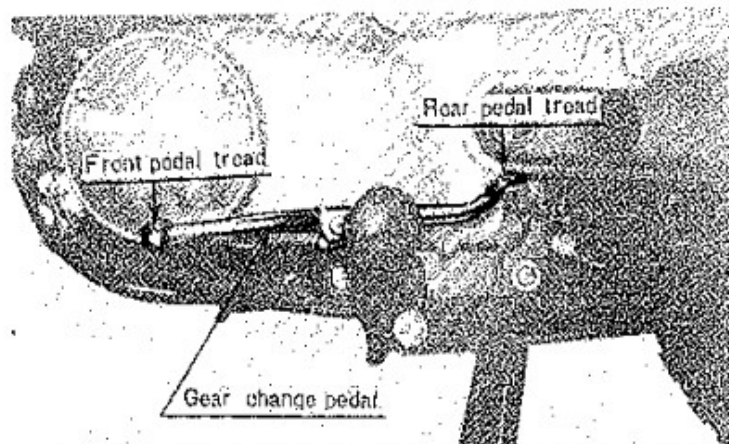


Fig. 4

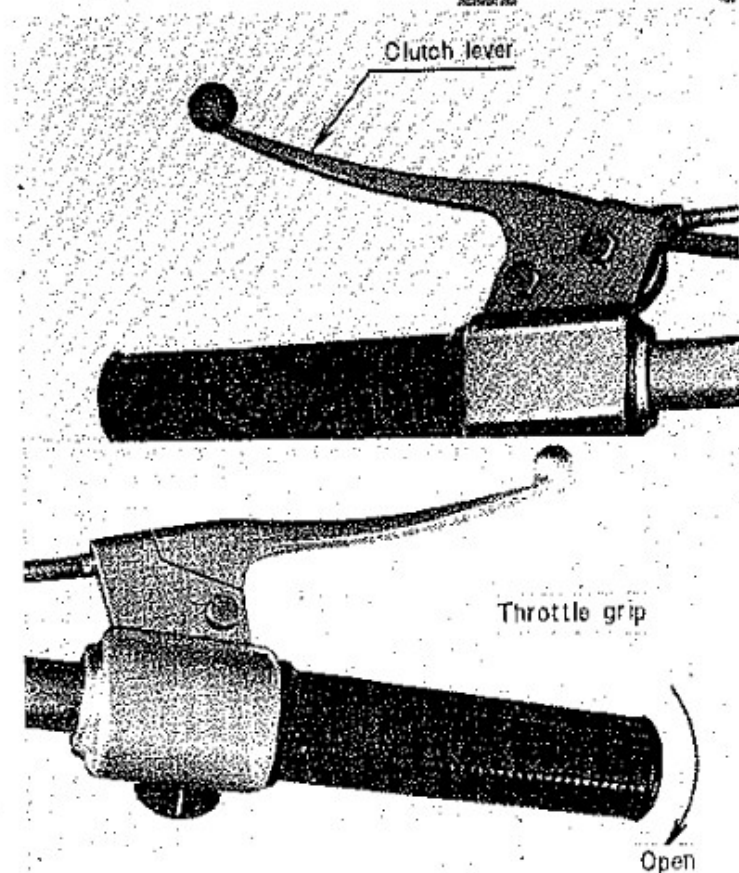


Fig. 5

5. GEAR SHIFTING

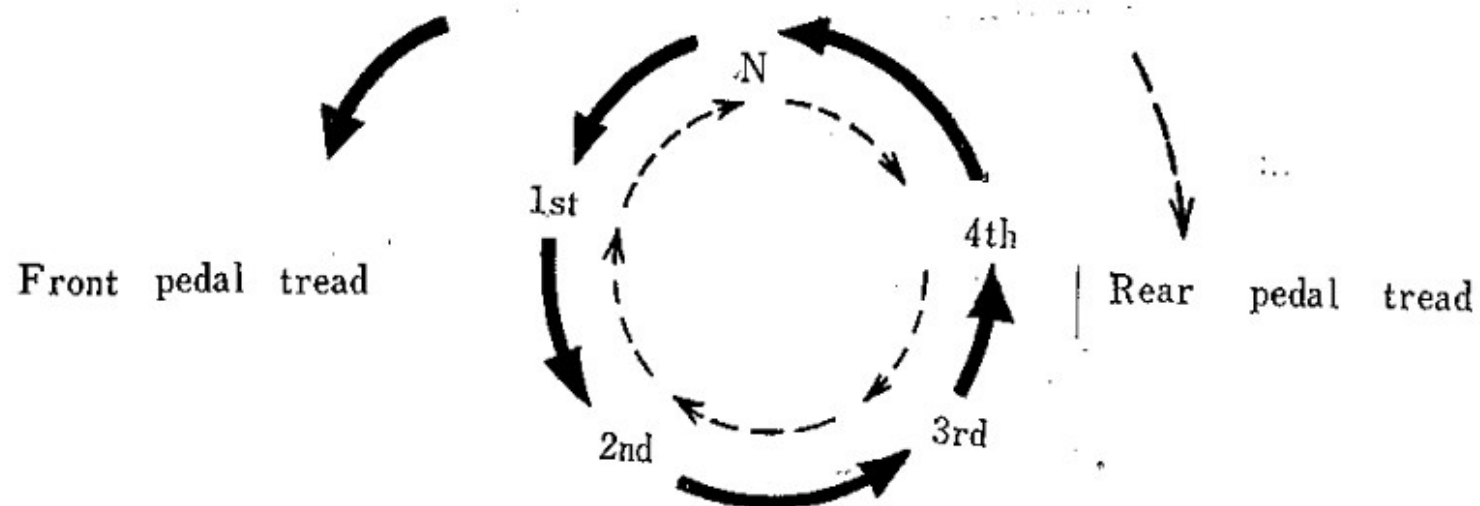
Both BRIDGESTONE 90 T and 90 M are equipped with a rotary shift mechanism.

- (a) If the change pedal is stepped on in the forward direction, gears will shift from neutral—1st—2nd—3rd—4th—neutral.
- (b) If stepped on in the backward direction the gear sequence is neutral—4th—3rd—2nd—1st—neutral.

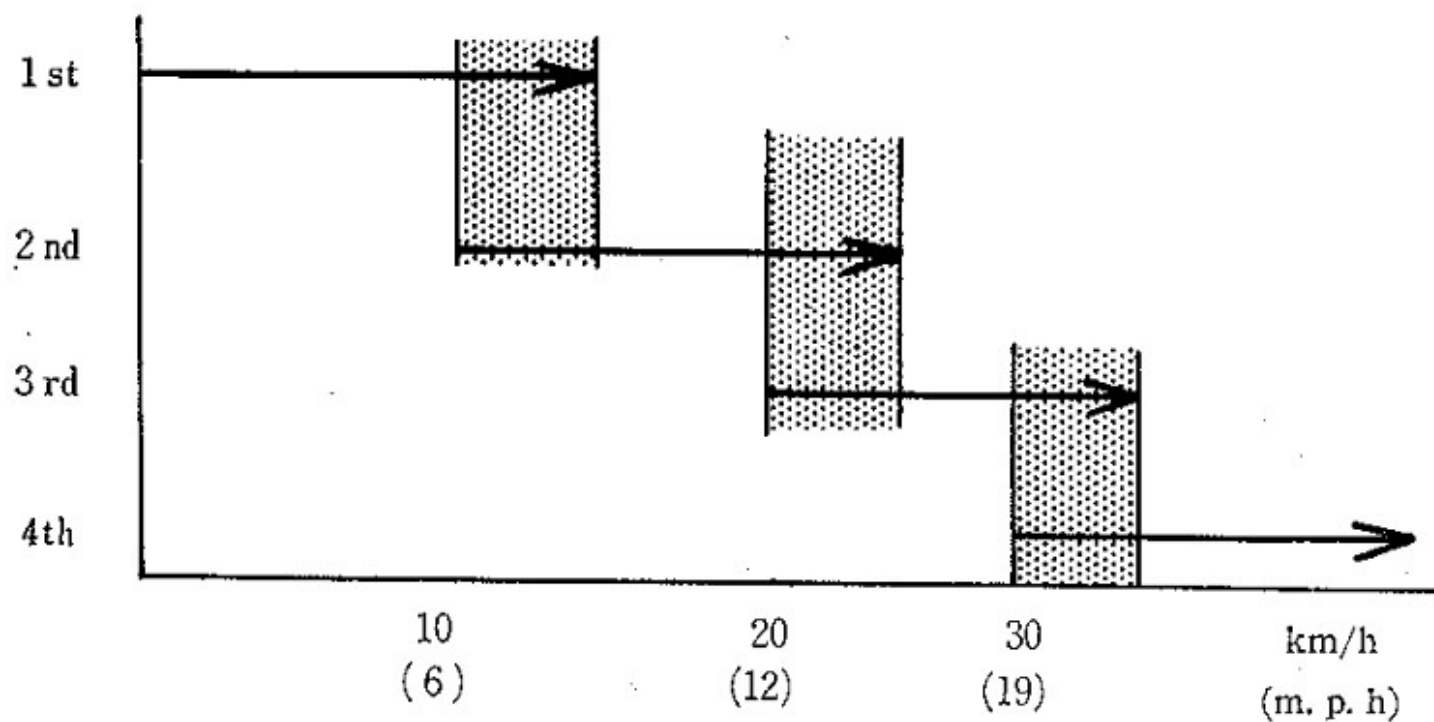
This sequence is used for down shifting. For example going up a steep grade in high, you can shift down to 3rd by stepping backwards on the change pedal (Fig. 4)

- (1) When shifting, return the throttle grip to completely close position, grip the clutch lever (cut off), and lightly step on the change pedal. (Fig. 5, 6)
- (2) Gradually release the clutch lever while slowly turning the throttle grip towards you.

Fig. 6



(3) Gear shifting is to be done within the speed ranges shown in the shaded sections in the illustration.



6. CRUISING

- (1) Fuel consumption depends on the speed. Cruising at 22 m.p.h. (35 km/h) in 4th gear is the most economical speed.

(2) **Uphill**

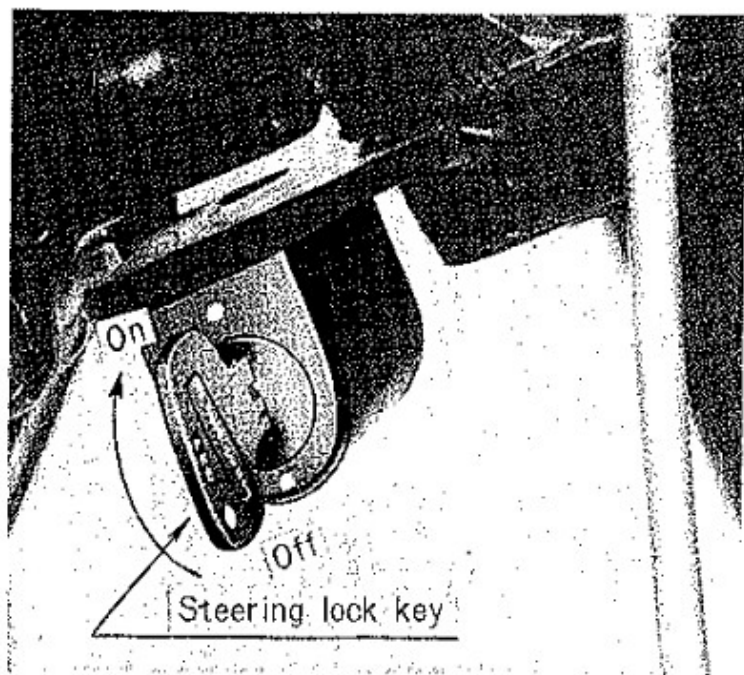
Going uphill, open throttle sufficiently to maintain a speed of not less than 20 m.p.h. (30 km/h) in 4th gear. If speed drops, shift down successively to 3rd, 2nd.

(3) **Downhill**

Going down a long grade, shift into 3rd gear and allow engine drag to assist in controlling speed.

Do not apply brakes for long periods. On very steep grades, use 2nd gear. Never completely close throttle going down hill. Keep it open slightly to assure proper engine lubrication.

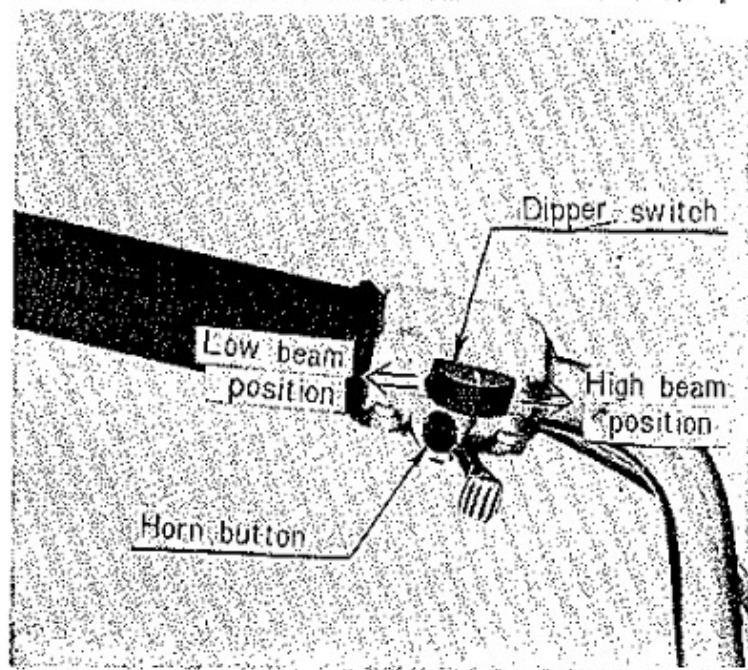
(Remember that 2-cycle engine lubrication oil comes from the mixed fuel).



7. STOPPING AND PARKING

- (1) When stopping, use both front and rear brakes. If only the rear brake is applied it may cause dangerous skidding.
- (2) When parking, pull out key and close fuel cock. To prevent theft, lock steering post. (Fig. 7)

Fig. 7



8. DIPPER SWITCH AND HORN BUTTON

Dipper switch and horn button are found on left handlebar.

Shifting the knob of the dipper switch to the left, the headlight is in low beam position and shifting it to the right, headlight is in high beam position.

Horn push button is located under the dipper switch. (Fig. 8)

Fig. 8

9. MAINTENANCE AND ADJUSTMENT

(1) Daily checking

A daily check of your machine will pay big dividends in long life and satisfactory service.

Take care of anything that needs attention at once. Don't let little problems develop into big ones.

1. Keep your machine clean. Be on the lookout for loose nuts and damaged parts.
2. When washing, avoid water getting into the electrical system.

Daily Check

Tire Air Pressure	Front 1.6 kg/cm ² (22.8 lbs./in ²)
	Rear 2.0 kg/cm ² (28.4 lbs./in ²)
Front Brake	Proper adjustment
Rear Brake	Proper adjustment
Fuel	Is it sufficient?
Horn	Does it work well?
Lights	Proper operation
Transmission Oil	Check level
Battery	Check liquid level
Carburetor	Adjust idling

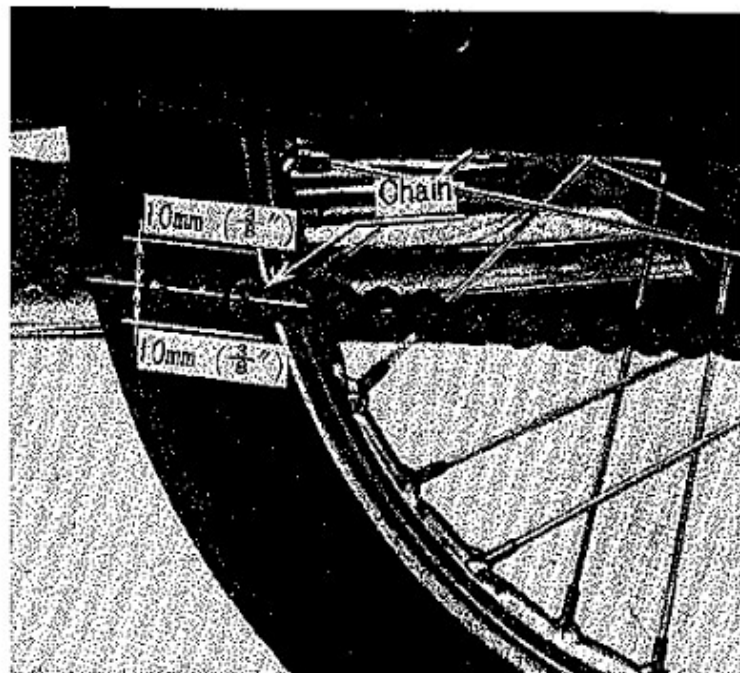


Fig. 9

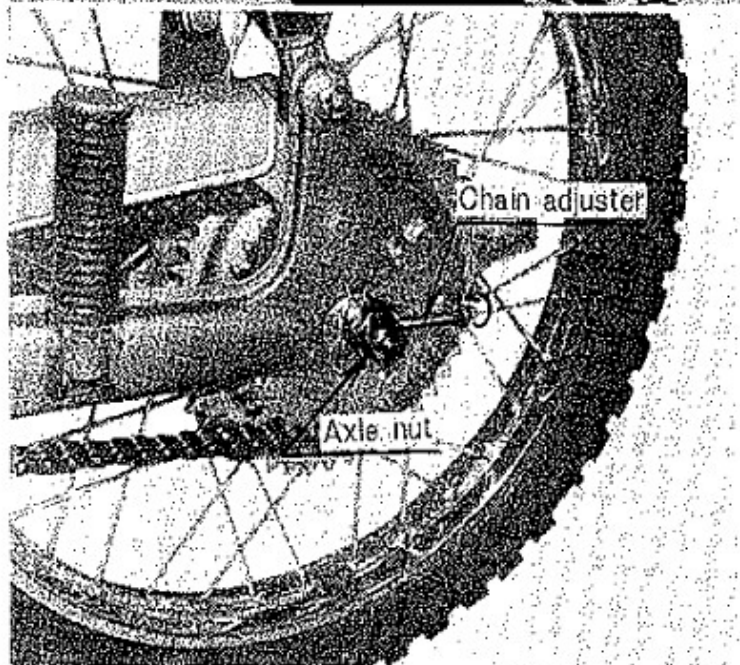


Fig. 10

(2) Adjustment and Checking

2-1) Adjusting Chain

- a) Chain adjustment is correct when chain slack is approximately 10 mm. (3/8") up or down, as refer to (Fig. 9).

- b) To adjust, loosen rear axle nut adjust with the chain adjusters on the ends of axle, turning them back or forward an equal amount to keep correct alignment chain wheels. (Fig. 10)

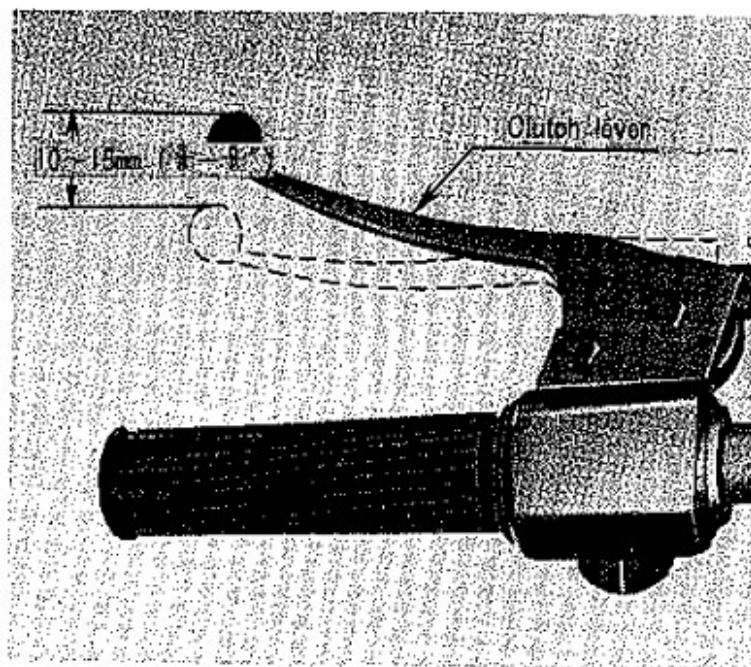


Fig. 11

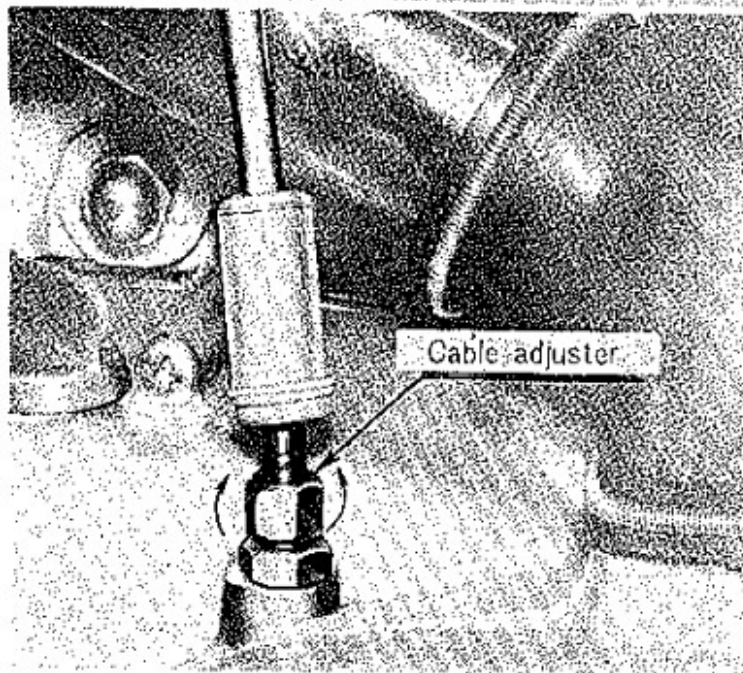


Fig. 12

2-2) Adjusting Clutch

- a) When properly adjusted, there will be approximately 10-15 mm (3/8"-5/8") free play in the clutch control before the clutch disengages (Fig. 11).

- b) Adjustment of the clutch free play is obtained by turning cable adjuster. Screw in for more free play, out for less. (Fig. 12).

2-3) Adjusting Front Brake

- a) Front brake cable hand lever should be so adjusted to allow a play of 10-20 mm. ($3/8''$ - $3/4''$) before the brake acts. (Fig. 13).

Fig. 13

- b) To adjust screw as required for proper free play. Screw in for more play and out for less. (Fig. 14)
Lift front wheel and spin to check for brake drag.

Fig. 14

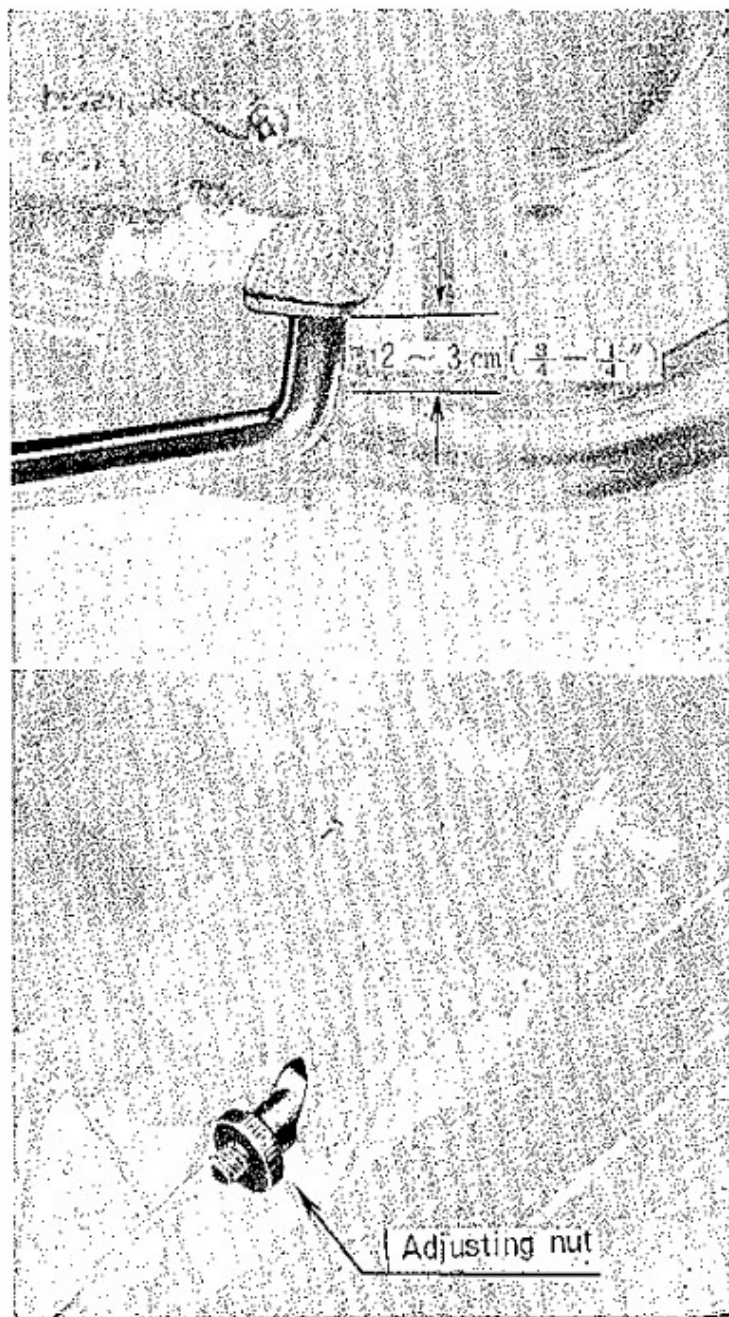


Fig. 15

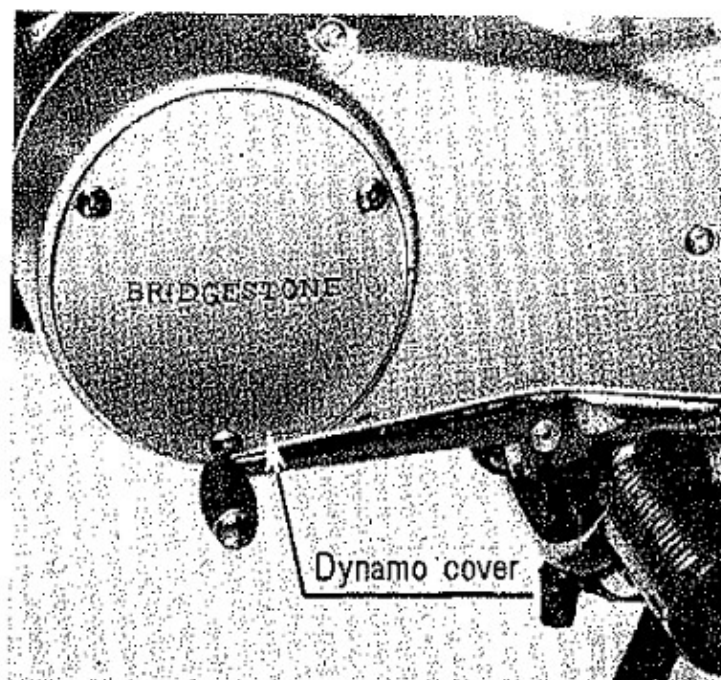
2-4) Adjusting Rear Brake

- a) Rear brake should be adjusted so that brake pedal can be depressed 20-30 mm ($3/4''$ — $1\frac{1}{4}''$) before brake acts. (Fig. 15)

- b) To adjust, turn brake adjusting nut as required for proper free play. Screw in for less play and out for more.

Spin rear wheel with transmission in neutral to check for brake drag. (Fig. 16).

Fig. 16



2-5 Adjusting Ignition Timing

Ignition Timing is $\begin{cases} 22 \text{ degrees } (22^{+1}_{-2}): \text{BS 90 T} \\ 21 \text{ degrees } (21^{+1}_{-2}): \text{BS 90 M} \end{cases}$

before Top Dead Center and point gap is 0.3 mm—0.4 mm (0.012"—0.016").

- Take off dynamo cover and check point gap. (Fig. 17)
- Loosen screw and set point gap by turning contact breaker to 0.35 mm with thickness gauge in tool kit. (Fig. 18)

(When breaker is turned to the left, gap increases.)

(When breaker is turned to the right gap decreases.)

- When point gap is correctly set, ignition timing is set simultaneously.

* It is recommended to take the machine to an authorized dealer to adjust the timing.

Fig. 17

Fig. 18

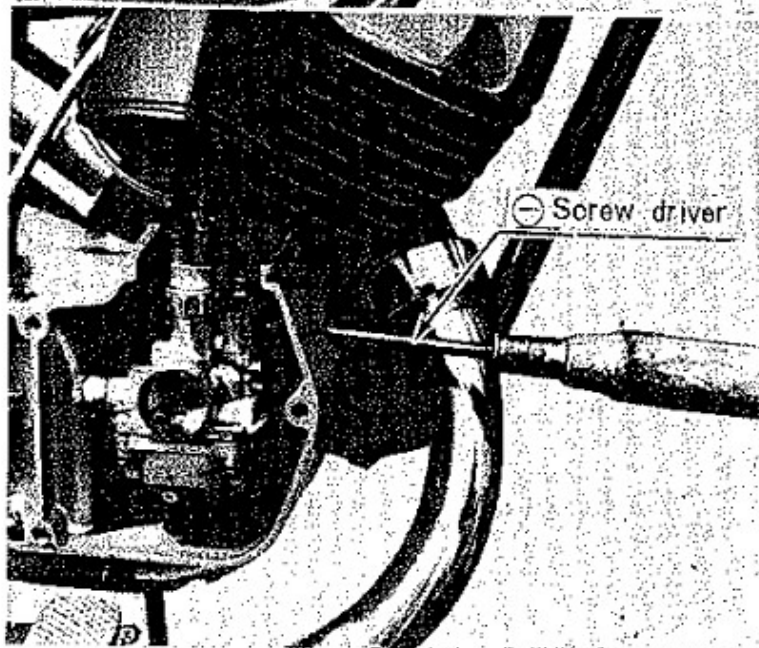
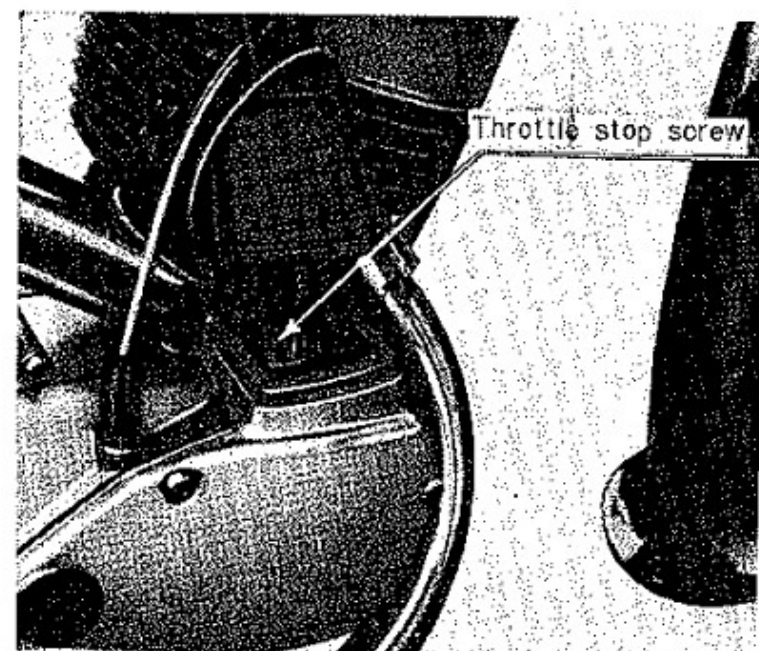


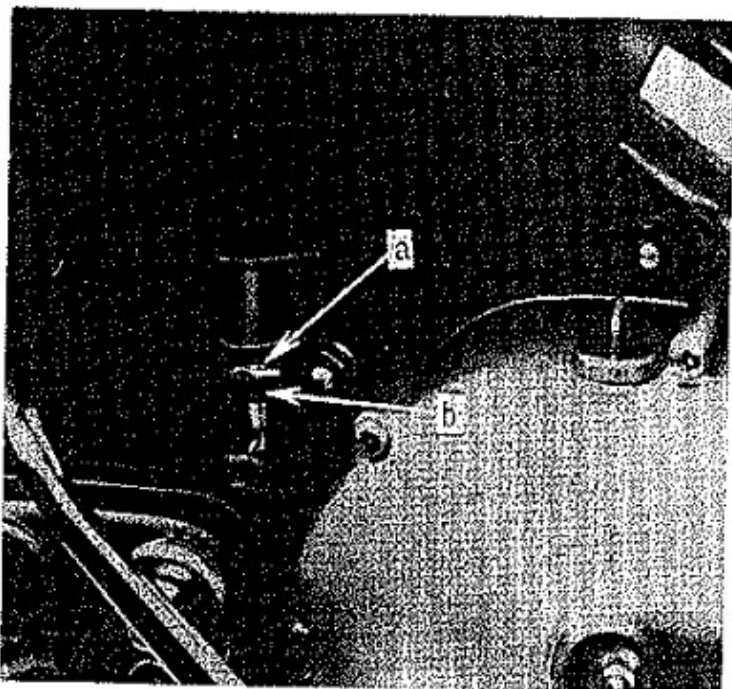
Fig. 19

Fig. 20

2-6) Adjusting Carburetor (Engine idle speed)

Carburetor is carefully adjusted at the factory. Do not overhaul or change parts in carburetor unless there is urgent necessity.

- a) To adjust the engine idling speed, remove carburetor rubber cap and set throttle stop screw. (Fig. 19)
(When screwed out, engine rpm rises.)
(When screwed in, engine rpm decreases.)
- b) Adjustment should be done while engine is sufficiently warm.
- c) To remove carburetor, take off rubber plug and use a ⊖ screw driver. (Fig. 20).



2-7) Adjusting Stoplight Switch

Stop light bulb is concealed in the tail light lens and the switch is located above brake pedal which works the switch.

- a) When key is in (1) or (2) position stoplight can be switched on.
- b) The lighting timing of stoplight is adjusted by regulating distance of stop switch.
- c) This distance can be adjusted by the nuts (a) and (b) (Fig. 21)

Fig. 21

2-8) Checking Battery

Battery is shipped dry charged.

The dealer from whom the machine is purchased will have filled it with sulfuric acid electrolyte. Do not on any account add acid once battery has been filled.

- a) When the electrolyte level falls below the lower line on the battery, and distilled water only to the level of the upper line (Fig. 22).
- b) Keep battery clean.
- c) Be careful not to bend the drain pipe.
- d) Check the liquid level once every month.

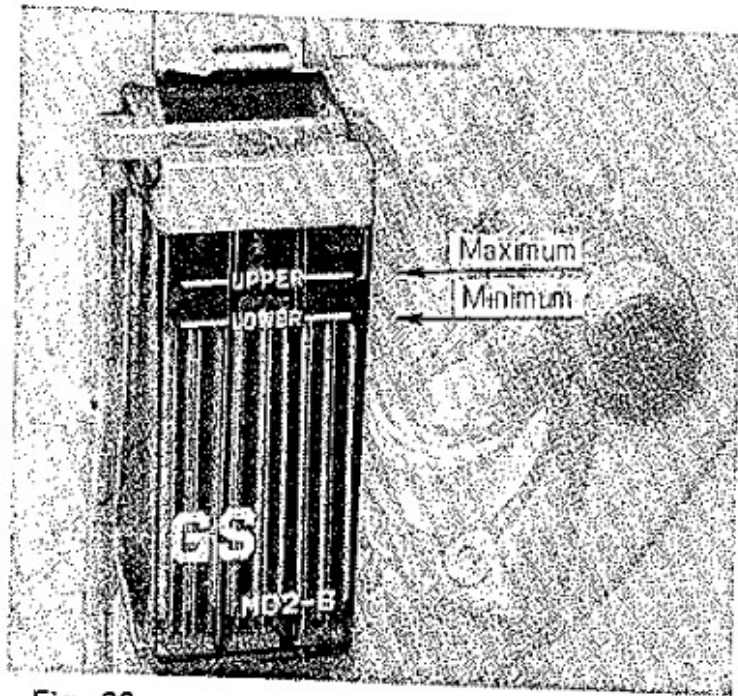


Fig. 22

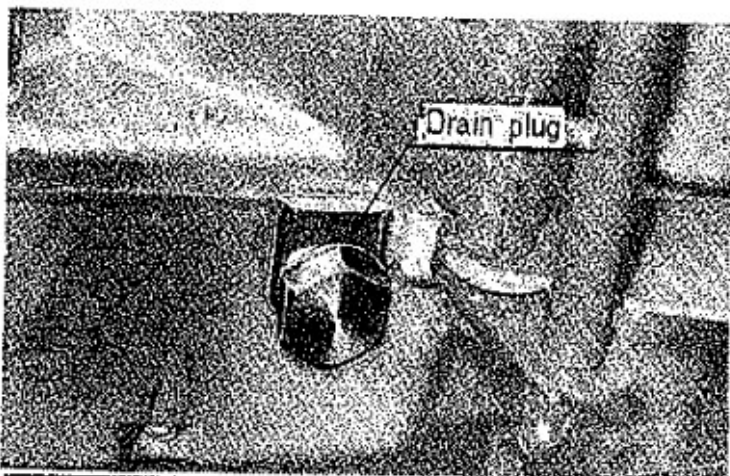


Fig. 23

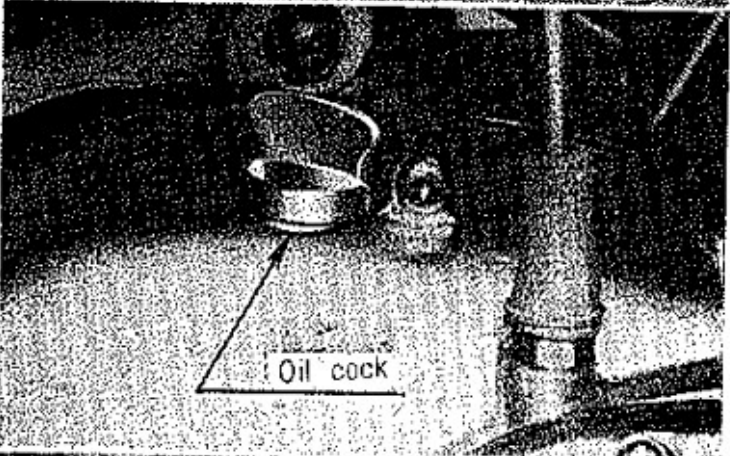


Fig. 24



Fig. 25

2-9) Changing Transmission Oil

- Drain out dirty oil after running in. (Fig. 23)
- When refilling new transmission oil, take off oil cock and fill in 0.6 litre (0.158 US gal.) (Fig. 24)
- Check the oil level, only when the oil has settled in the transmission case. Screw out the oil level screw bolt and if it is covered with oil, the case is correctly filled. (Fig. 25)



2-10) Cleaning Air Cleaner

Clean or replace air cleaner element periodically.

A clogged air cleaner will starve engine for air.

- a) Remove tool box cover which is located on the right side of the motorcycle and loosen the bolts and take off air cleaner. (Fig. 26)
- b) Tap cleaner lightly and remove accumulated dust and also blow out from inside by compressed air or clean it with soft hair brush.
- c) Replace air cleaner when it is torn or damaged.
- d) Never run engine without air cleaner.

Fig. 26

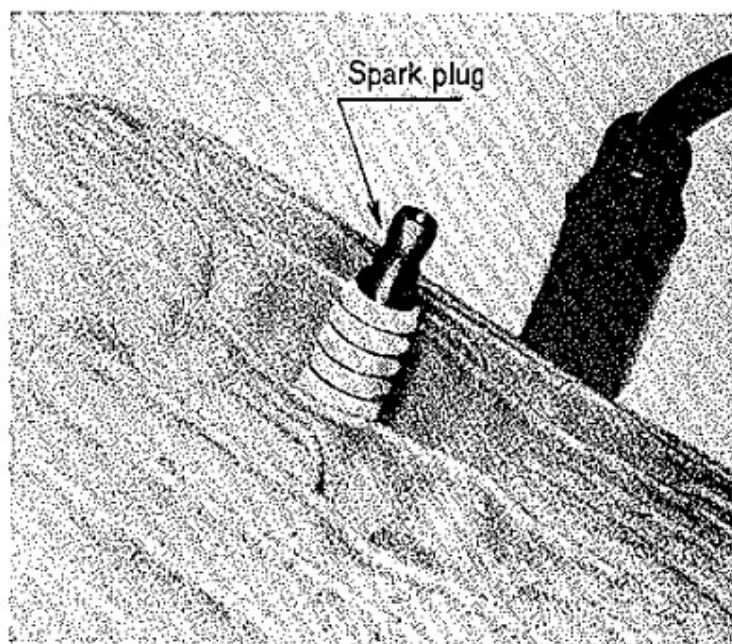


Fig. 27

2-11) Cleaning Spark Plug

- Clean Plug periodically.
This will help provide maximum engine performance (Fig. 27).
- Correct gap is 0.6–0.7 mm.
(0.024"–0.027")
- See chart below for plug recommendation.

BS 90T

BRAND	STANDARD	IF PLUG FOULS EASILY (SLOW SPEED)	IF PLUG BURNS EASILY (HIGH SPEED)
NGK	B-7H	B-6H	B-7HC B-8H
CHAMPION	L-5	L-7 L-85	LA-10
BOSCH	W240T ₁	W225T ₁	W290T ₁₆
LODGE	3HN	2HN	R49
AC	43F 42L-Com	44F	

BS 90M

BRAND	STANDARD	IF PLUG FOULS EASILY (SLOW SPEED)	IF PLUG BURNS EASILY (HIGH SPEED)
NGK	B-7HZ	B-7H (B-6H)	B-8H
CHAMPION		L-5	LA-10
BOSCH		W240T ₁	W290T ₁₆
LODGE		3HN	R47
AC		43F 42L Com	



2-12) Decarbonizing Muffler and Exhaust Pipe

- a) To decarbonize muffler, remove lock nut and inner pipe. (Fig. 28)
- b) Tap or rub with wire brush the inner pipe lightly and remove accumulated carbon.
- c) To decarbonize exhaust pipe, remove clamp nut and scrape off the carbon inside. (Fig. 29)

Muffler should be cleaned out periodically.

Fig. 28

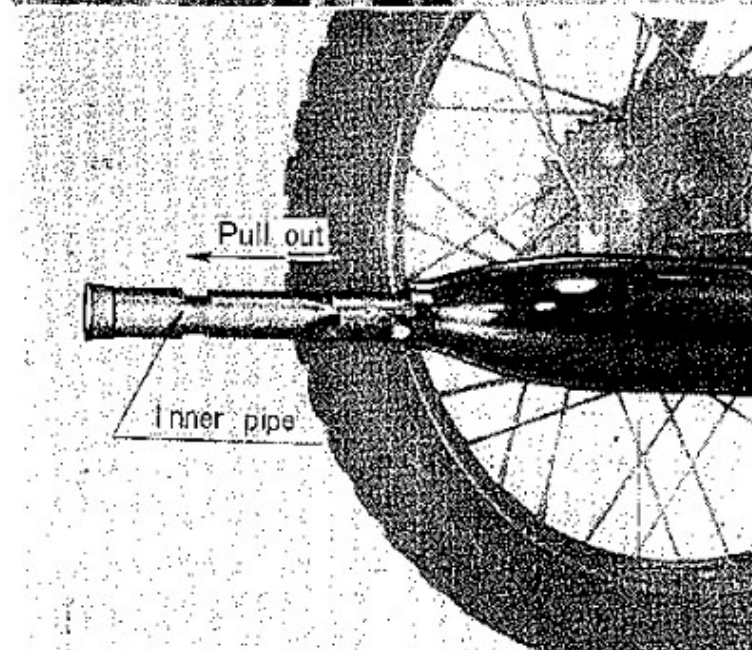


Fig. 29

2-13) Removing Front Wheel

- a) Stand the machine on its main stand, and place some block under the crank case so that front wheel can be lifted from the ground.
- b) Unscrew axle bolt and withdraw front shaft by turning it anti-clockwise. (Fig. 30, 31)

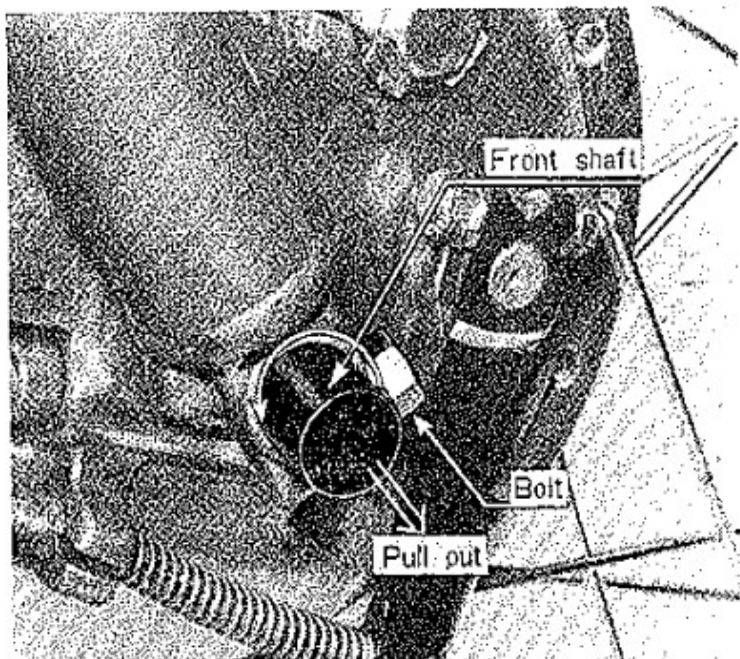


Fig. 30

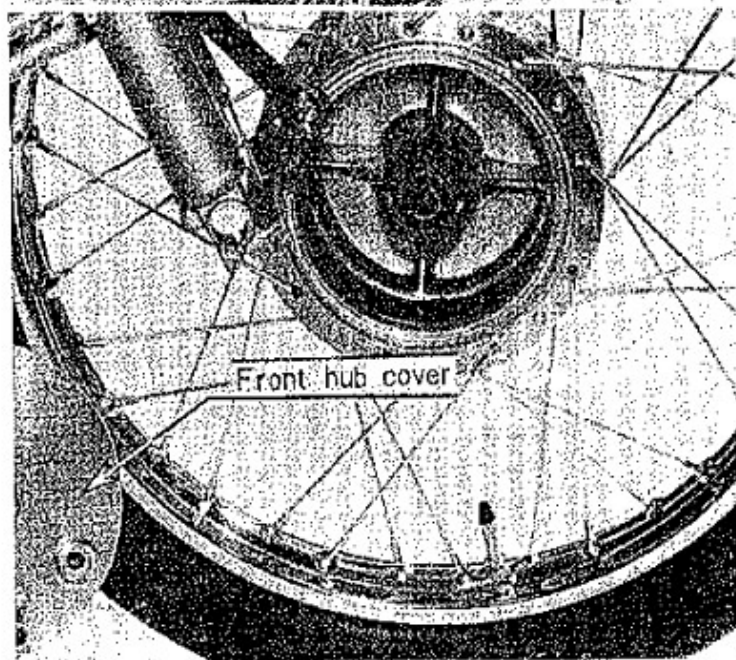


Fig. 31

2-14) Removing Rear Wheel

- a) Set the machine on its main stand.
- b) Remove the 8 mm nut, and take off tension bar from panel arm. (Fig. 32)
- c) Unscrew brake arm adjusting nut, depress brake rod spring when brake lever may be removed.

Fig. 32

- d) Unscrew the smaller axle nut on left side (The big nut need not be touched.) Withdraw axle shaft and pull the wheel off from rear wheel coupling flange with both hands. (Fig. 33, 34)

- e) When replacing rear wheel, be careful to see that the damper rubber is fitted in the groove in the wheel hub.

Fig. 33

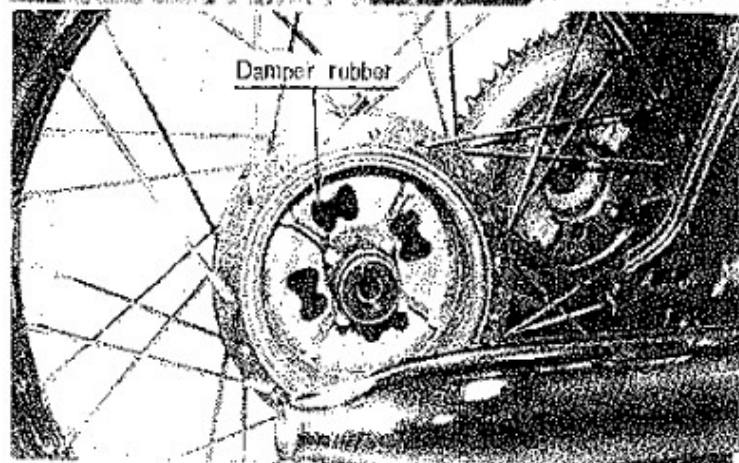
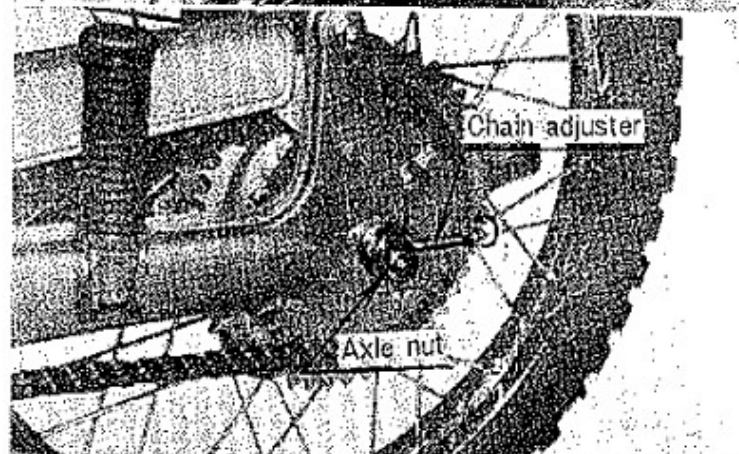
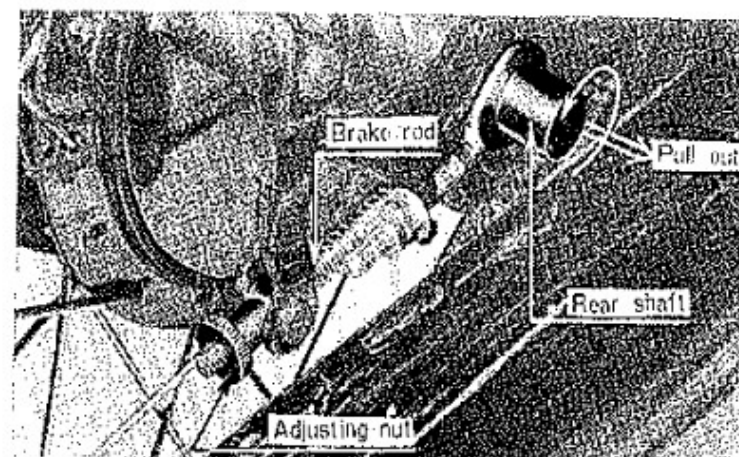


Fig. 34

(3) Periodic Checking

Periodic checking should be carried out as follows

400 km (250 miles) : 3,000 km (2,000 miles) : 6,000 km (3,500 miles) :

ITEMS	PROCEDURE	AFTER RUNNING-IN (400 km)	ONCE EVERY 3,000 km (2,000 miles)	ONCE EVERY 6,000 km (3,500 miles)
Front & Rear Brake Play	Check	×	×	×
Chain Play	Check	×	×	×
Muffler & Exhaust Carbon	Clean		○	○
Clutch Play	Check	×	×	×
Carburetor Operation	Check		○	○
Battery Liquid	Check	×	×	×
Spark Plug	Clean		×	×
Contact Points Gap	Check	○	○	○
Air Cleaner	Clean		○	○
Cylinder Head Carbon	Clean		×	×
Bolts and Nuts	Tightness	○	○	○
Fuel Cock Filter	Clean		○	○

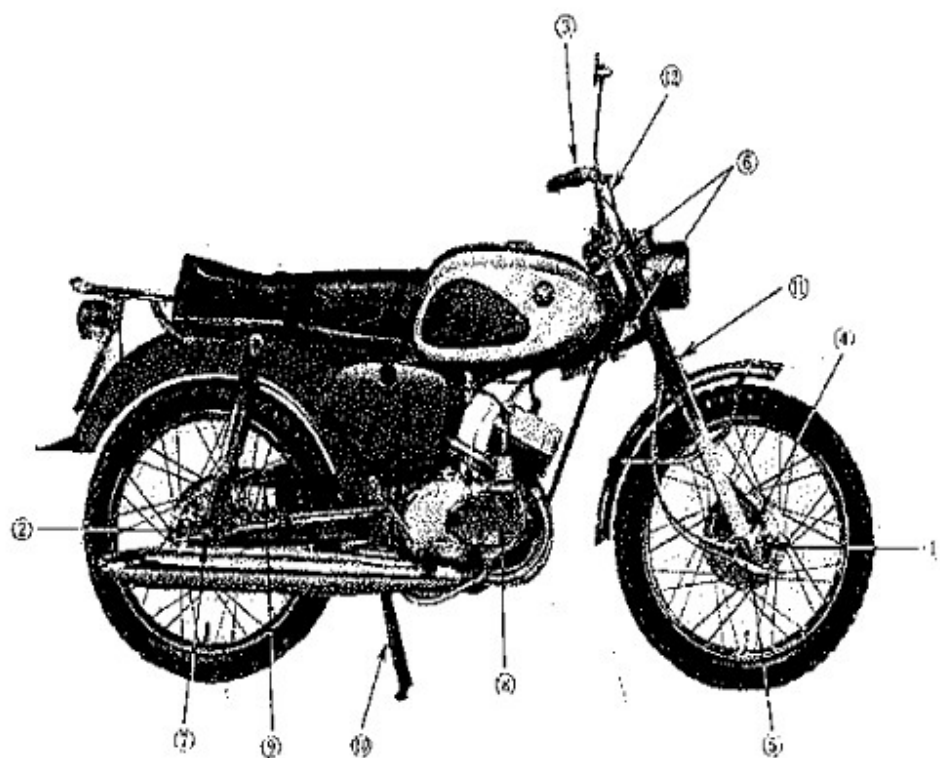
Items marked "○" should be checked frequently.

(4) Periodic Greasing

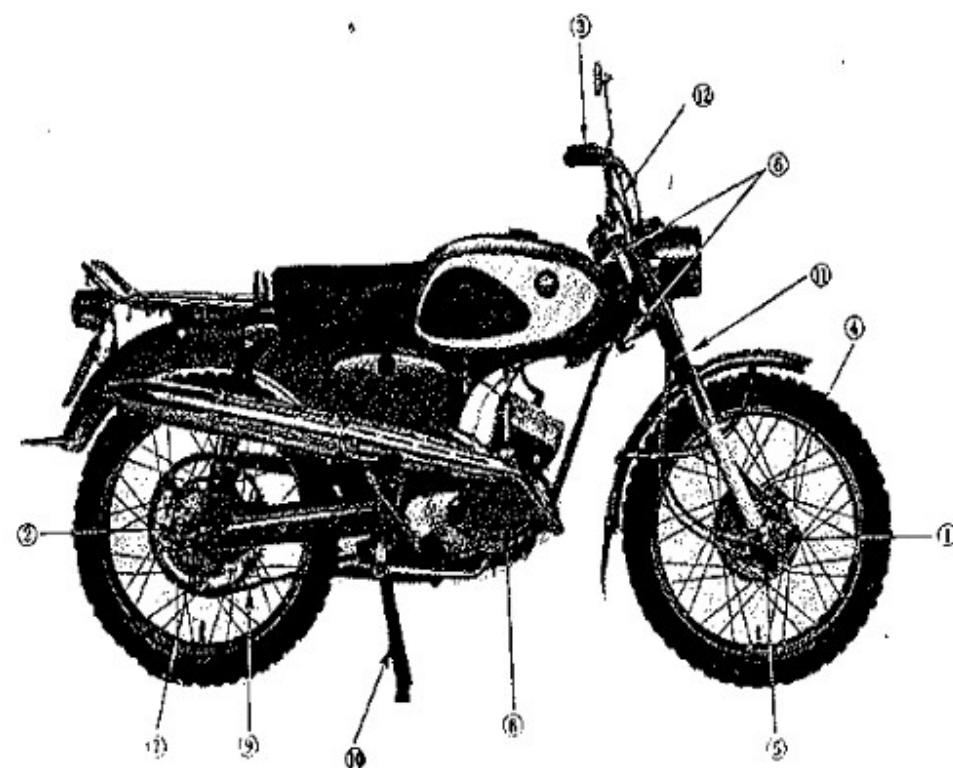
Periodic greasing with a grease gun and lubrication.

ITEMS	1ST GREASING	2nd GREASING INTERVAL MILEAGE	PROCEDURE
1. Front Brake Cam Shaft	400 km (250 miles)	3,000 km (2,000 miles)	Grease
2. Rear Brake Cam Shaft	400 km (250 miles)	3,000 km (2,000 miles)	Grease
3. Grips	400 km (250 miles)	3,000 km (2,000 miles)	Grease
4. Speedometer gear box	6,000 km (3,500 miles)	4,000 km (2,500 miles)	Grease
5. Front & Rear Wheel Bearings	3,000 km (2,000 miles)	3,000 km (2,000 miles)	Grease
6. Steering Bearings	6,000 km (3,500 miles)	6,000 km (3,500 miles)	Grease
7. Rear Wheel Bearings	3,000 km (2,000 miles)	3,000 km (2,000 miles)	Grease
8. Oil Felt (Magneto)	6,000 km (3,500 miles)	6,000 km (3,500 miles)	Grease
9. Chain	400 km (250 miles)	1,000 km (6,000 miles)	Motor Oil
10. Stand Tube	3,000 km (2,000 miles)	3,000 km (2,000 miles)	Motor Oil
11. Front Fork	10,000 km (6,000 miles)	10,000 km. (6,000 miles)	135cc of Hydraulic fork oil (or mixture of 70 parts of Spindle oil No. 60 to 30 parts of No. 30 motor oil)
12. Cables	1,500 km (1,000 miles)	3,000 km (2,000 miles)	Grease

BS 90T

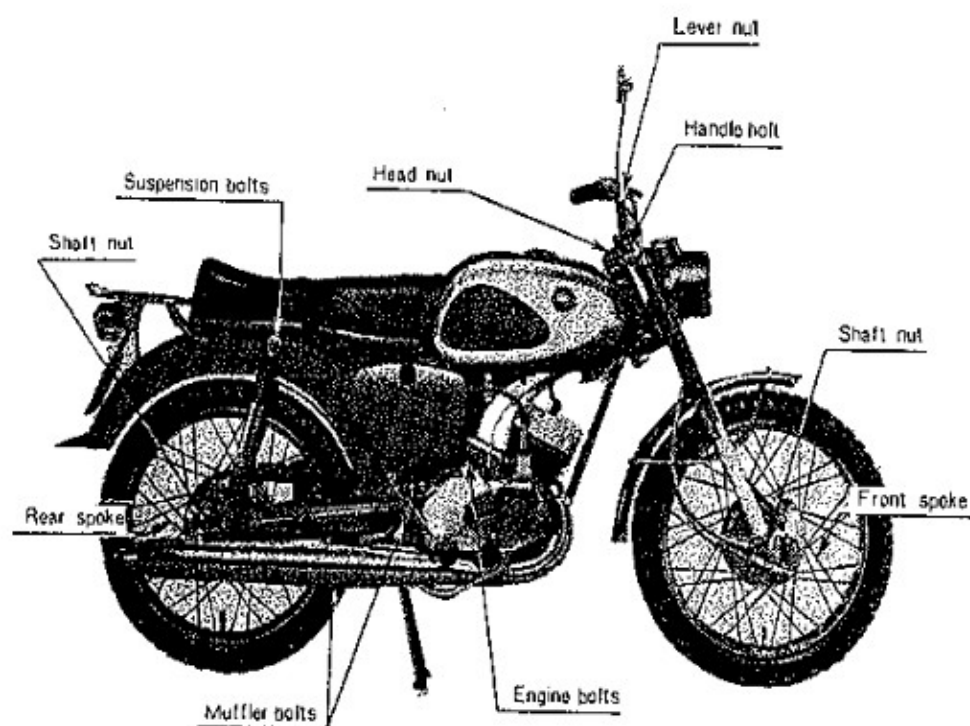


BS 90M

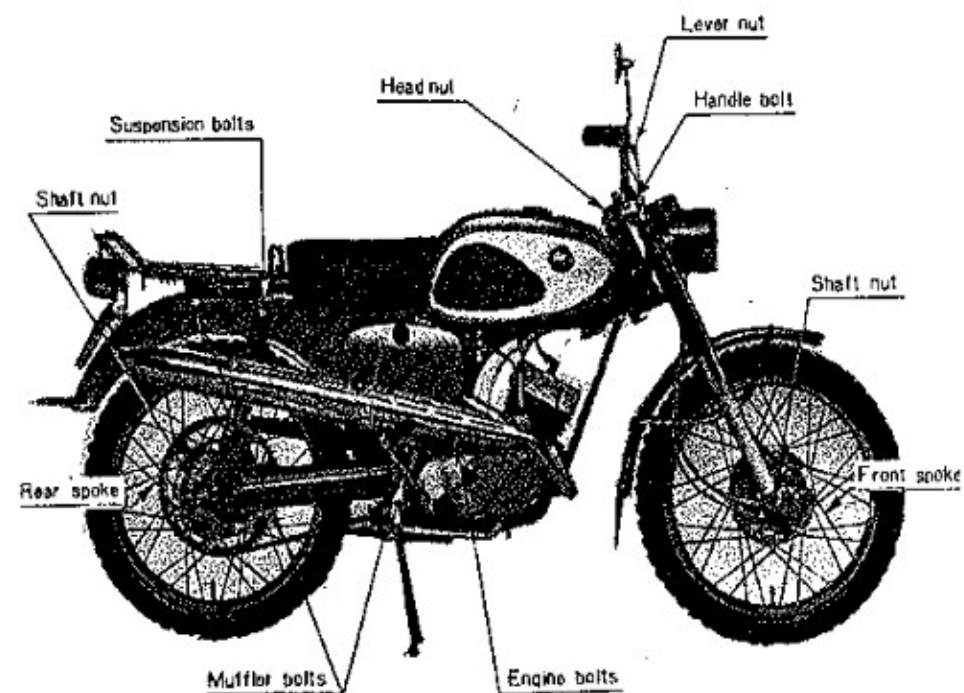


(5) Check Bolts and Nuts for Tightness

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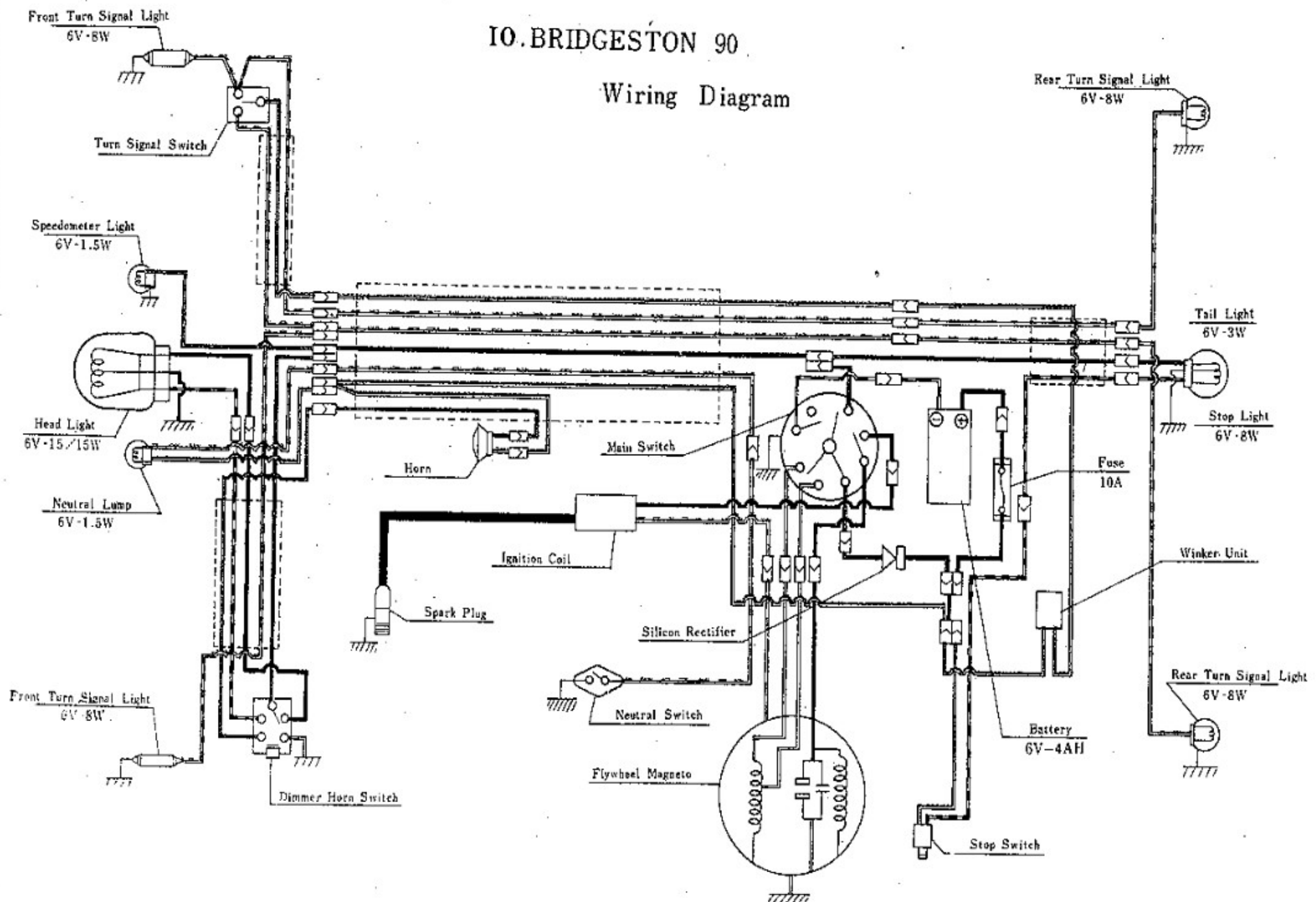


BS 90M



IO.BRIDGESTON 90

Wiring Diagram



11. DUAL REAR SPROCKETS

The system of dual sprocket {47T and 34T respectively: BS90T }
{64T and 34T respectively: BS90M} is superior to others on competitive machine, i.e.

- a) The chain runs in a straight line of either sprocket from driving sprocket.
- b) The chain may be easily changed over from one sprocket to the other in 20 minutes, or in 5 minutes after a little experience.

Instructions for Changing Over chains :

1. The Bridgestone 90 Trail-Scrambler and Mountaineer are shipped from factory with the chain fitted on the 34T rear sprocket.

Referring to Fig. 35 and 36, disconnect connecting link and lift chain off the 34T sprocket.

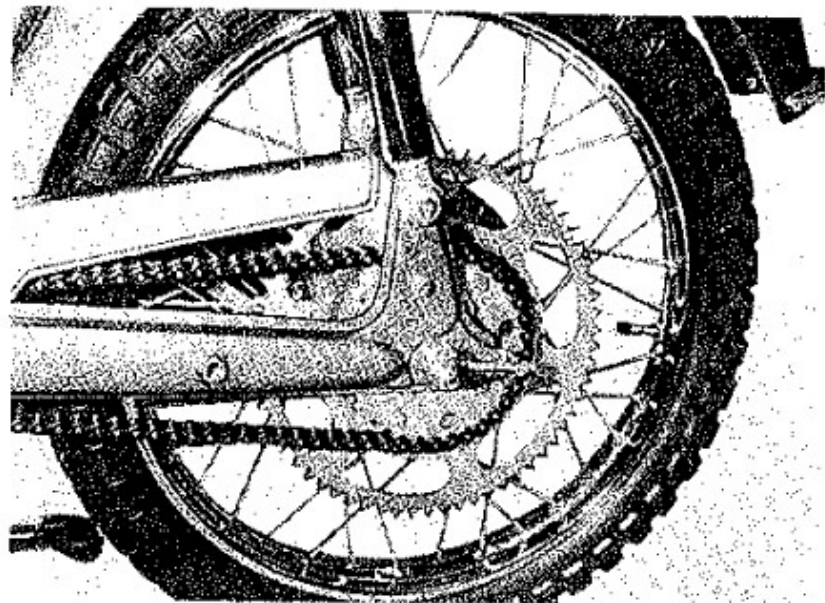


Fig. 35

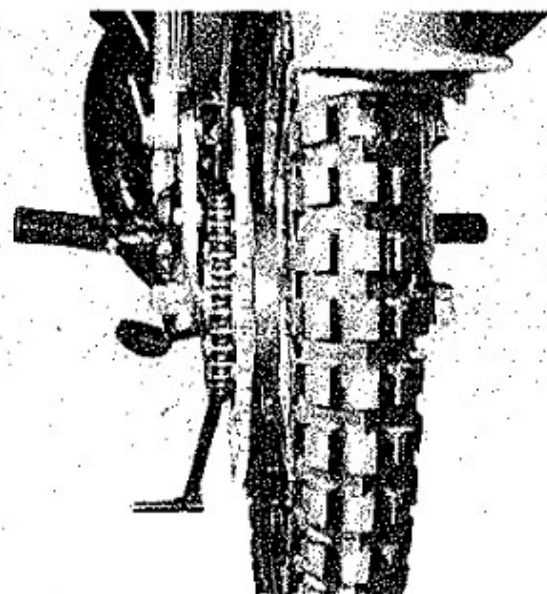


Fig. 36

2. Take out service kit. (Fig. 37)

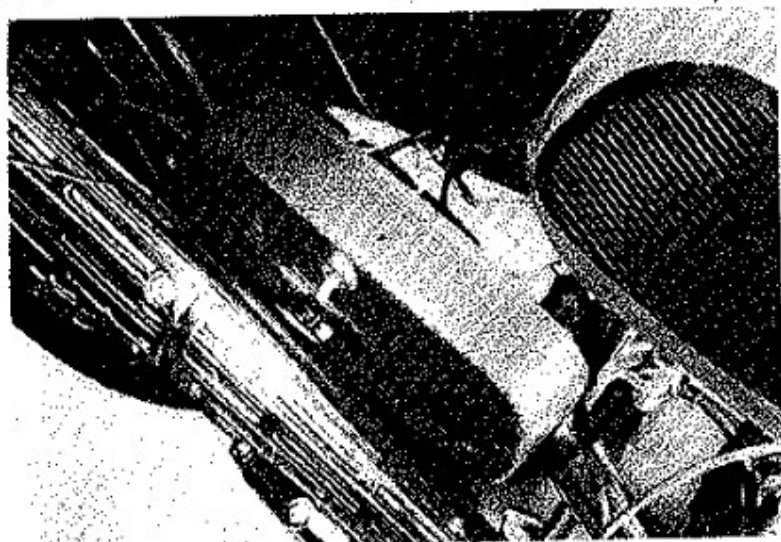


Fig. 37

3. Take out Spare Chain of { 9 links: BS90T }
(Fig. 38) { 19 links: BS90M }

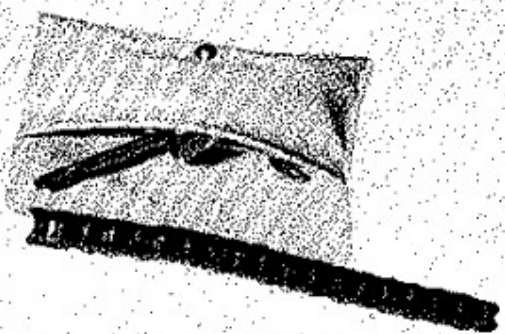


Fig. 38

4. Remove, with the service spanner, the 4 screw bolts.

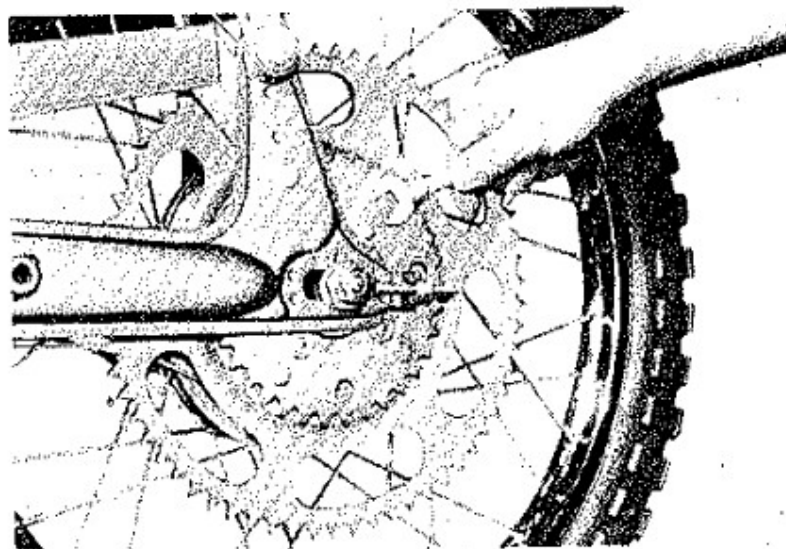


Fig. 39

5. Turn the big sprocket 45° either way and push the 4 bosses into the 4 large holes in the smaller sprocket. (Fig. 40)

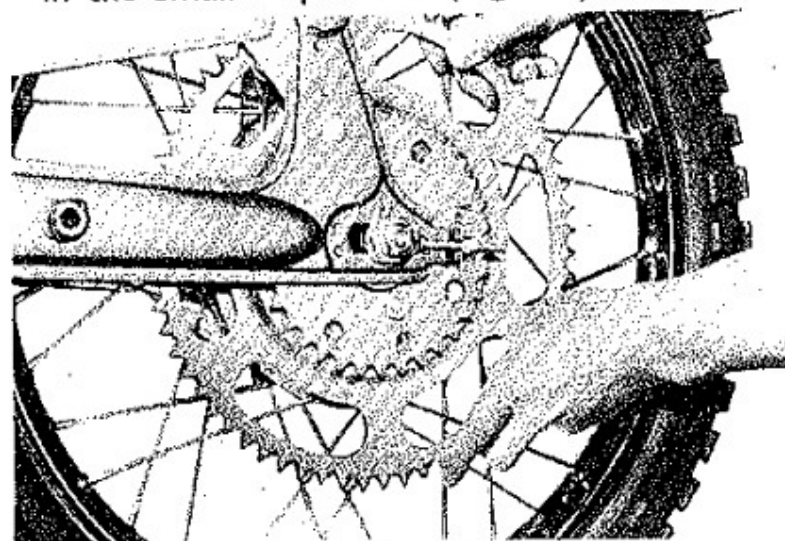


Fig. 40

6. Screw, these bosses with the screw bolts taken off ordinarily. (Fig. 41)

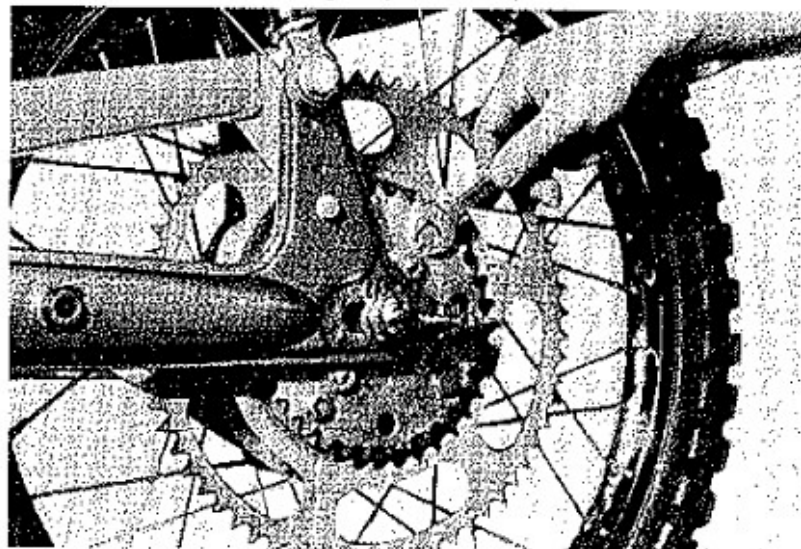


Fig. 41

7. Join the spare chain with the driving chain with the connecting link (Fig. 42)

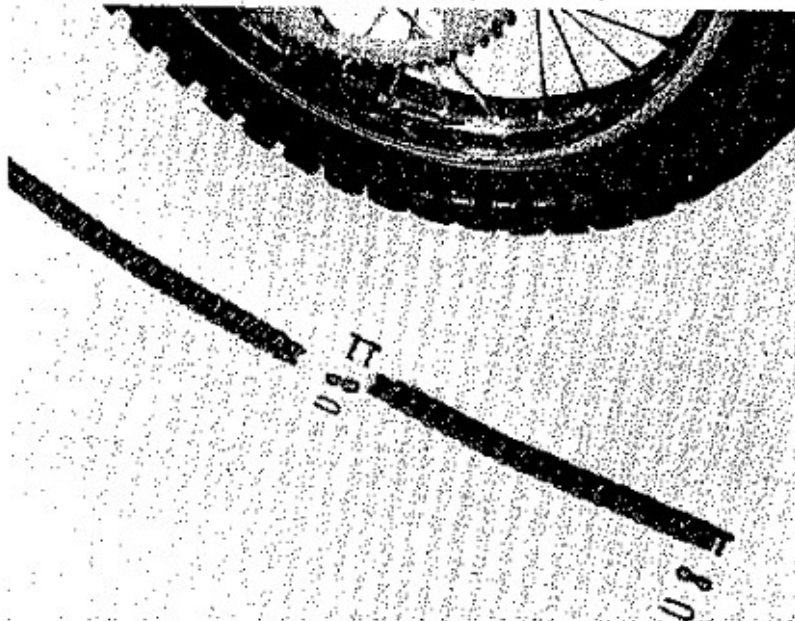


Fig. 42

8. Mount the lengthened chain in the large sprocket and connect it up.

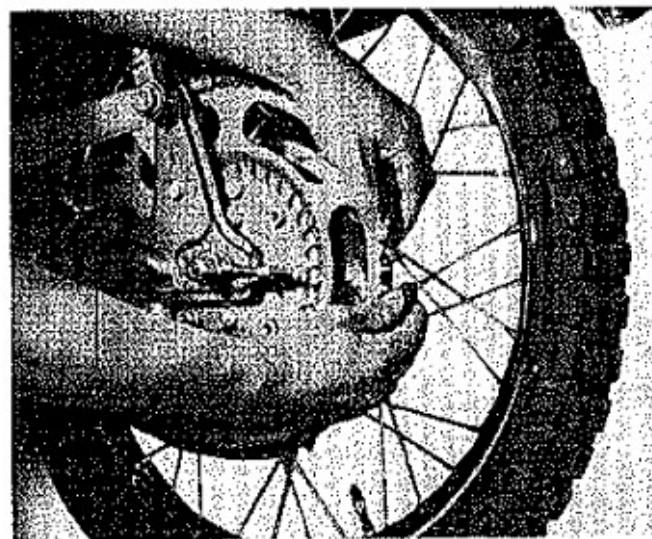


Fig. 43

9. Figs 44 and 45 show the finished job: the second picture clearly shows the larger sprocket which has covered up the smaller one, and the chain in line with driving sprocket.

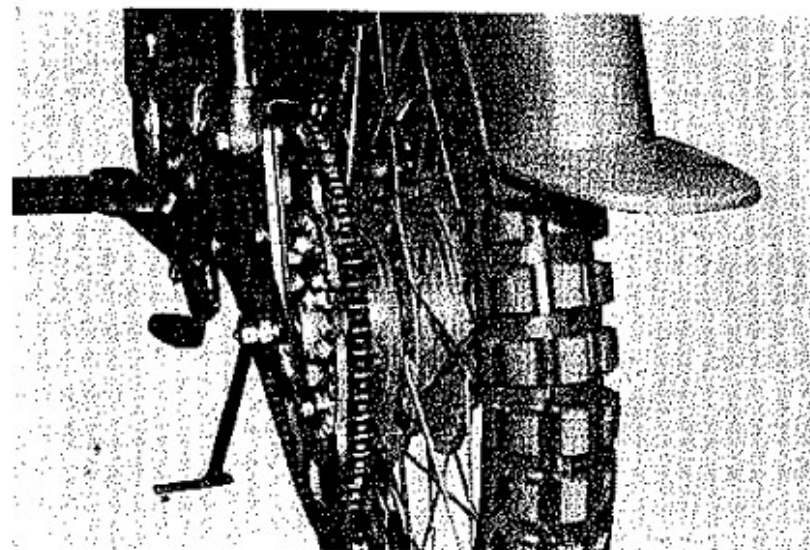


Fig. 44

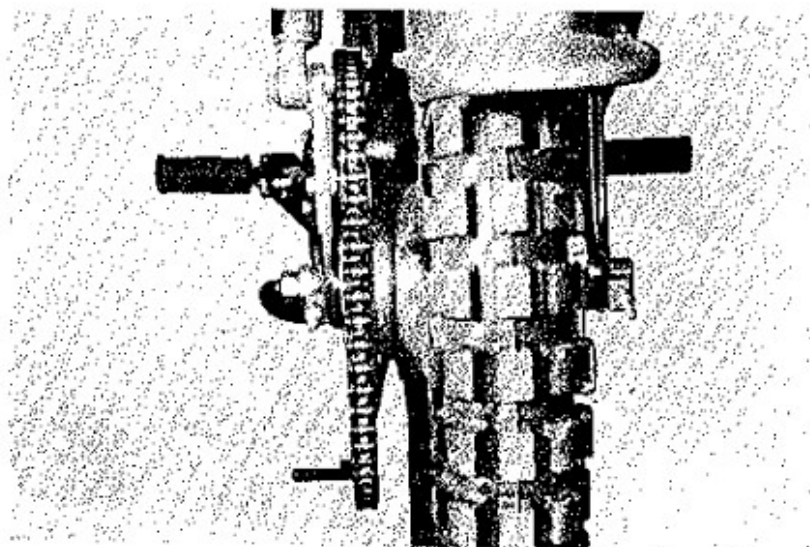


Fig. 45

12. LOCATING TROUBLES

Engine will not start

- 1) Spark plug fouled or in poor condition.
- 2) Contact breaker points fouled or out of adjustment.
- 3) Ignition timing wrong.
- 4) Dirty contact point wrong.
- 5) Damaged or short circuited wiring.
- 6) Improperly adjusted carburetor. Take motorcycle to authorized dealer and adjust jet needle and the air adjusting screw.
- 7) Insufficient compression—Tighten the cylinder head bolts, crank case jointing bolts.—Replace gaskets and piston rings if necessary.
- 8) Fuel pipe clogged.
- 9) Defective main switch.
- 10) Fouled condenser.
- 11) Fouled ignition coil.

Engine hard to start

- 1) Spark plug fouled or in poor condition.
- 2) Improperly adjusted contact point gap.
- 3) Damaged high tension wire.
- 4) Dirty contact breaker points.
- 5) Fouled condenser.
- 6) Discharged battery.
- 7) Fouled ignition coil.
- 8) Worn out piston rings.
- 9) Damaged gaskets.
- 10) Insufficient tightening of spark plug.
- 11) Insufficient tightening of cylinder head bolts.
- 12) Carburetor clogged.
- 13) Fuel tank air vent hole plugged.

If engine loses power

A. Engine misfires

- 1) Improperly adjusted carburetor.
- 2) Dirty spark plug.
- 3) Dirty contact breaker points.
- 4) Carbon on piston head and cylinder head.
- 5) Improperly adjusted spark plug gap.
- 6) Ignition timing off.
- 7) Contact breaker does not operate smoothly.

B. Engine overheats

- 1) Ignition timing wrong.
- 2) Carbon on piston head and cylinder head.
- 3) Improperly adjusted spark plug gap.

C. Abnormal noise heard in engine

- 1) Ignition timing wrong.
- 2) Carbon on piston head and cylinder head.
- 3) Improperly adjusted spark plug gap.
- 4) Worn bushing in connecting rod small end.
- 5) Worn connecting rod big end.
- 6) Worn piston ring or main bearing.
- 7) Damaged primary drive gear.
- 8) Insufficient compression.

Engine does not run smoothly or misses

A. Engine does not run smoothly at low rpm.

- 1) Ignition timing too advanced.
- 2) Dirty contact points.
- 3) Fouled spark plug.
- 4) Improperly adjusted spark plug gap.
- 5) Clogged fuel line.
- 6) Improperly adjusted point gap.
- 7) Contact breaker does not operate smoothly.

B. Engine does not run smoothly at high rpm.

- 1) Fuel tank air vent hole plugged.
- 2) Vapor lock in fuel line.
- 3) Dirty spark plug.
- 4) Improperly adjusted spark plug gap.
- 5) Ignition timing too retarded.
- 6) Defective carburetor.

C. Engine misses when accelerating.

- 1) Improperly adjusted ignition timing.
- 2) Contact breaker not operating smoothly.
- 3) Defective carburetor.
- 4) Dirty spark plug.

D. Engine stops abruptly

- 1) Loosely fitting spark plug.
- 2) Spark plug points bridged.
- 3) Fuel Tank empty.
- 4) Fuel tank air vent plugged.

E. Transmission shifts hard

- 1) Clutch dragging.
- 2) Damaged gear shift system.
- 3) Defective gear shift spring.
- 4) Defective gear shift drum stopper.
- 5) Worn gear claw.
- 6) Worn gear shift drum stopper spring.

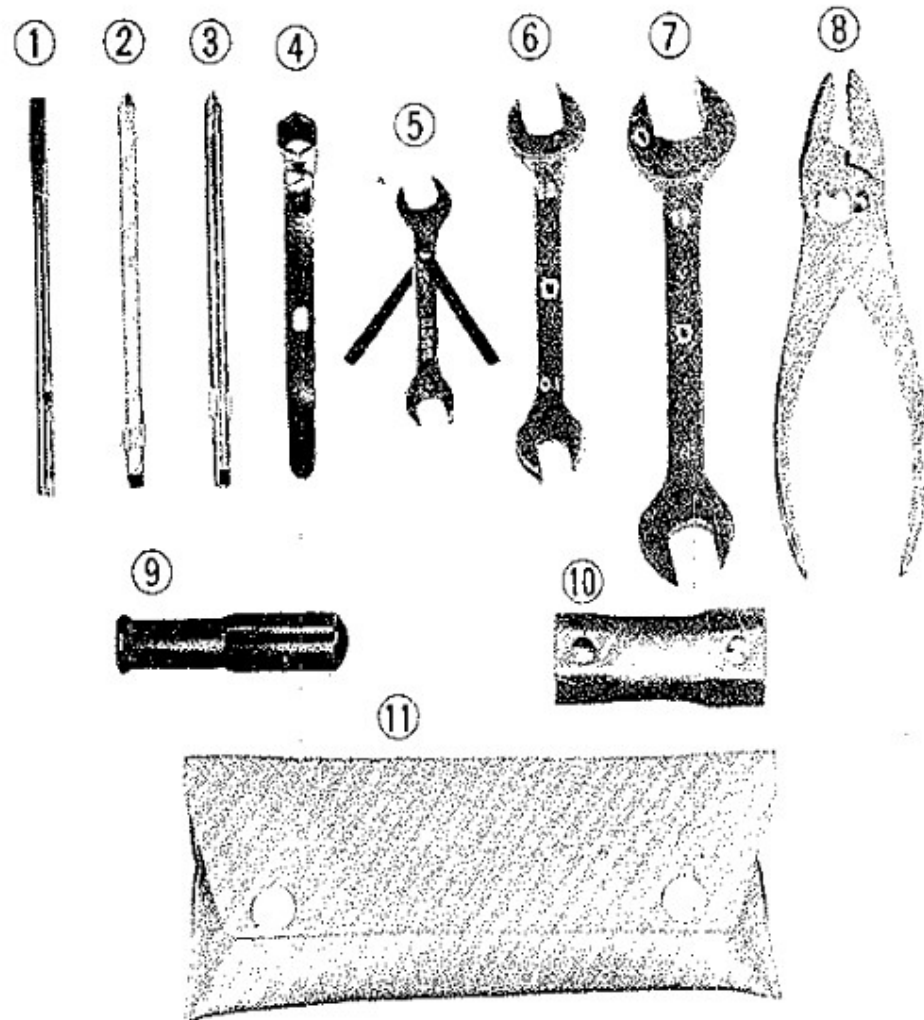
F. Brakes slip.

- 1) Improperly adjusted brakes.
- 2) Worn brake lining.
- 3) Insufficient play in brake pedal.
- 4) Dirty grease.

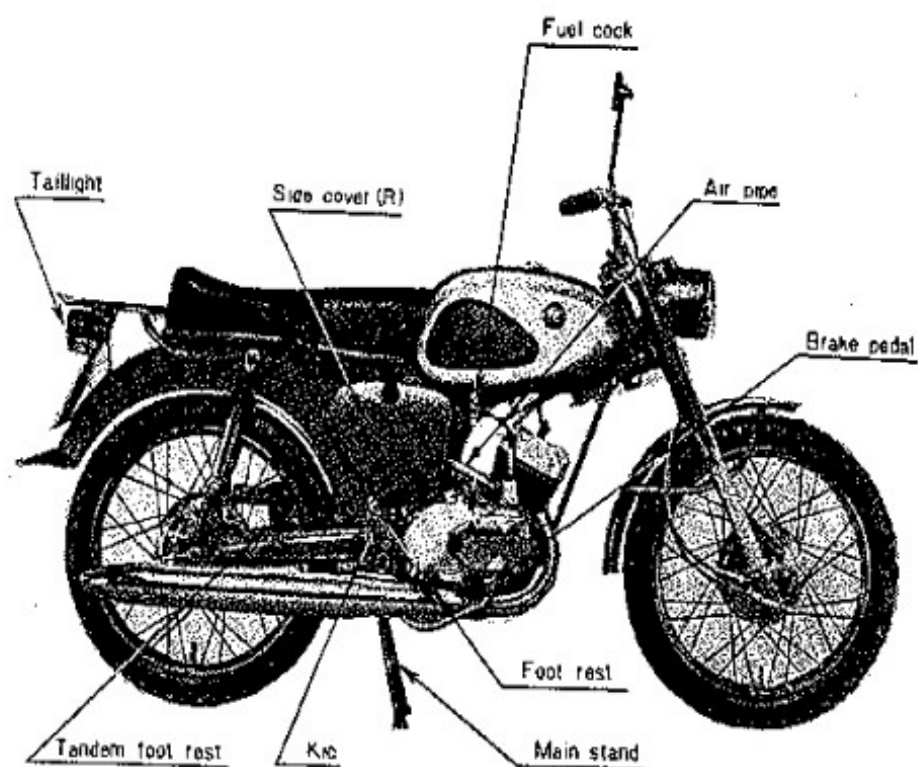
13. TOOL KIT

Tool Kit provided in the tool box located on the right side of the frame and its use.

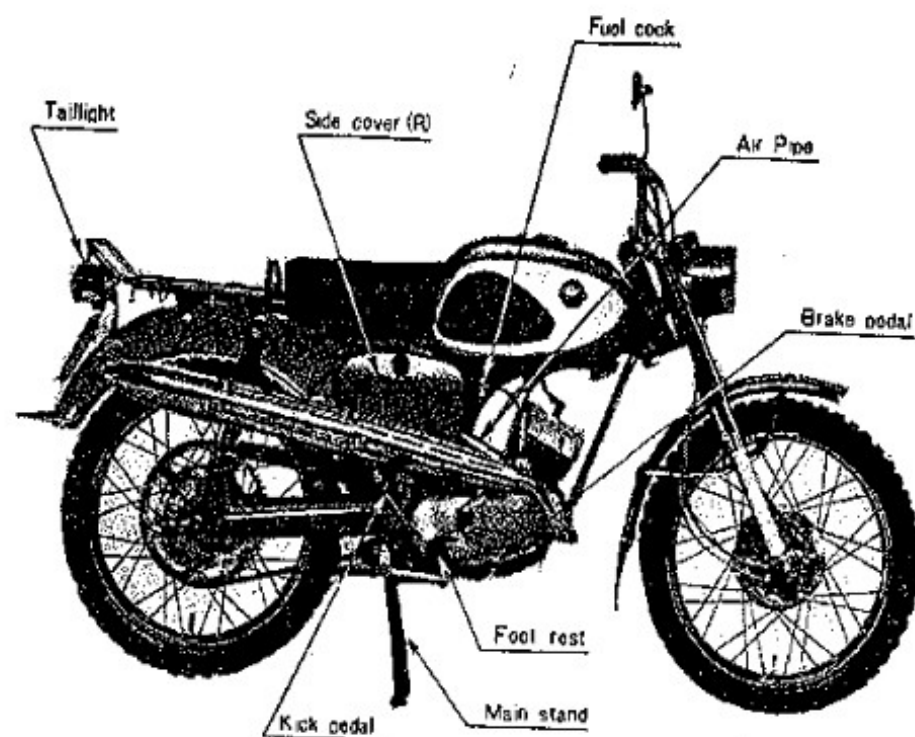
- (1) Screw driver, for removing clutch adjusting screw and point gap screw.
- (2) screw driver No. 1
- (3) Screw driver No. 2
- (4) 10 mm Axle wrench, for removing lock nut of clutch adjusting screw.
- (5) Spanner with thickness gauge for adjusting point gap.
- (6) 10×12 mm Spanner
- (7) 14×17 mm Spanner
- (8) Pliers
- (9) Grip
- (10) Spark plug wrench
- (11) Tool bag.



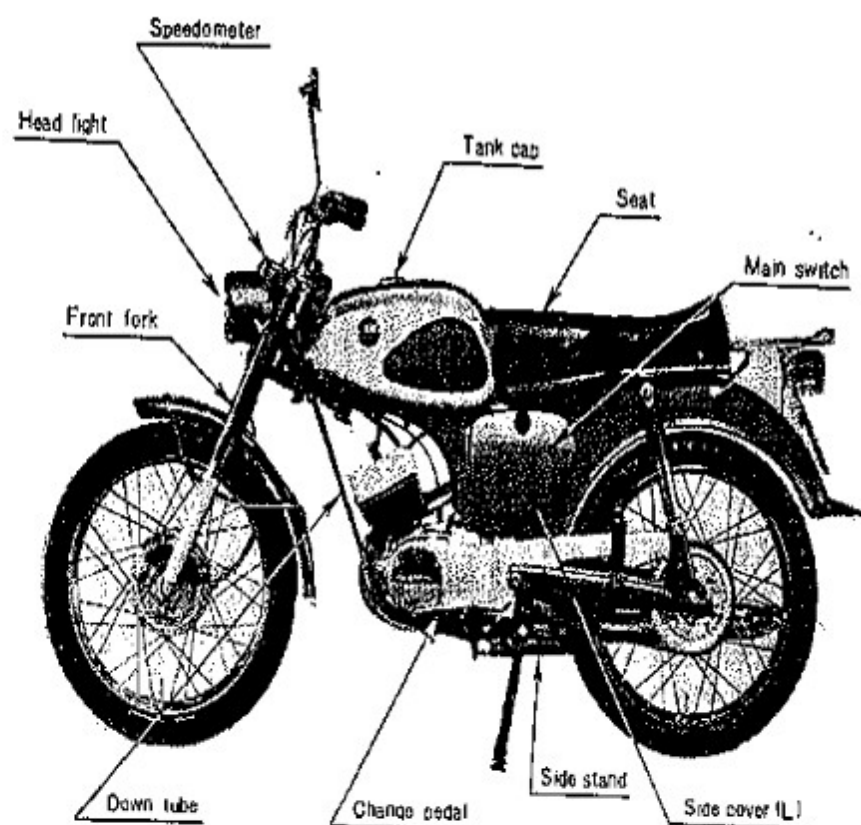
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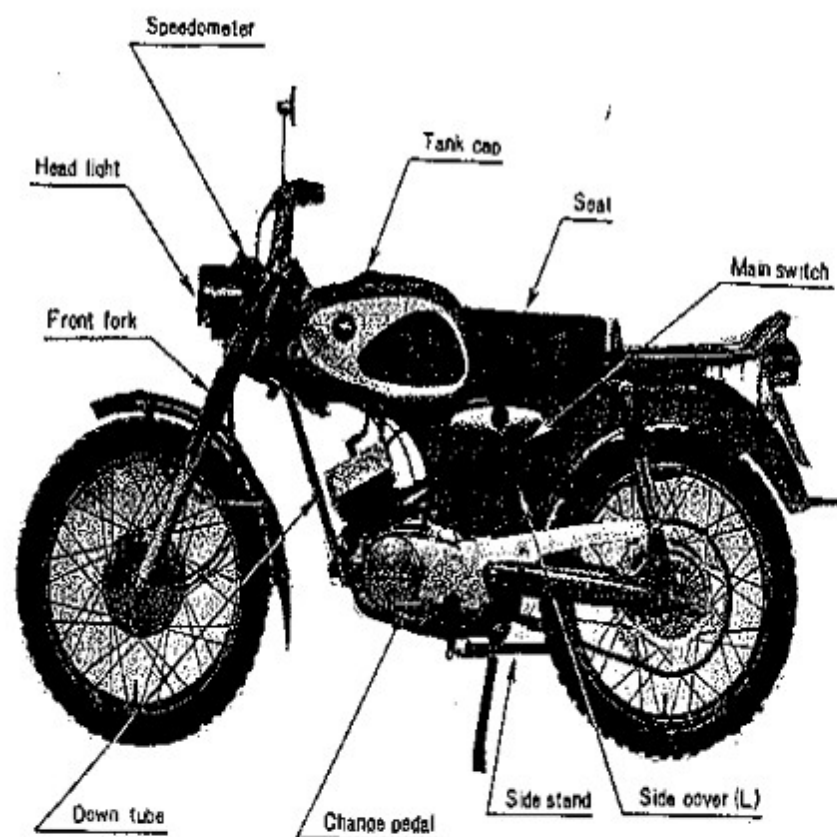
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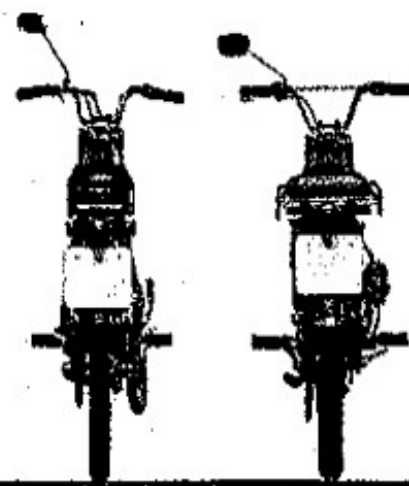


BS 90T



BS 90M





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