

**Husqvarna
motorcycles**

OWNER'S MANUAL

250 CR, 390 CR



you and your Husqvarna

Welcome to the ranks of Husqvarna riders, which we feel sure you will find yourself at home!

Husqvarna have been making motor cycles since 1903. The experience thus gained both in the laboratory and on racing circuits throughout the world has been built into your machine. It has been manufactured with the greatest care in accordance with methods based on long experience, thereby the highest possible performance and maximum reliability.

In order to help you to take proper care of your motor cycle we have compiled the following instructions and advice. Please study this manual carefully – by doing so you will be assured of many pleasant hours with your Husqvarna.

Good luck and good riding!

HUSQVARNA AB
HUSQVARNA – SWEDEN



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| | | | |
|-------------------|---------------|---------------|------------------------------|
| Engine: | 250 CR | 390 CR | |
| Displacement (cc) | 245 | 384 | |
| Bore std (mm) | 69,50 | 83,00 | } Tolerance +0,02 -0,0 |
| 1 st over. | 69,75 | 83,50 | |
| 2nd over. | 70,00 | 84,00 | |
| 3rd over. | 70,25 | - | |
| Stroke (mm) | 64,50 | 71,00 | |
| Compression ratio | 12,3:1 | 11,5:1 | |

Transmission

| | | |
|-----------------------------|---------------|--|
| Primary transmission ratio: | | |
| 250 CR | 390 CR | |
| 2,41 (29:70) | 2,27 (30:68) | |

| | | |
|-------------------------------|---------------|--|
| Secondary transmission ratio: | | |
| 250 CR | 390 CR | |
| 4,81 (11:53) | 4,08 (13:53) | |

Chain dimension ($\frac{5}{8}'' \times \frac{1}{4}''$)

| | | |
|----------------------------------|---------------|---------------|
| Number of cogs, gearbox (MS:AS). | | |
| | 250 CR | 390 CR |
| 1st | 15:31 | 15:31 |
| 2nd | 18:28 | 18:28 |
| 3rd | 21:26 | 21:26 |
| 4th | 23:24 | 23:24 |
| 5th | 25:22 | 25:22 |
| 6th | 27:21 | 27:21 |

Total gear ratios (crankshaft:rear wheel):

| | | |
|-----|---------------|---------------|
| | 250 CR | 390 CR |
| 1st | 24,04:1 | 19,09:1 |
| 2nd | 18,09:1 | 14,37:1 |
| 3rd | 14,40:1 | 11,44:1 |
| 4th | 12,14:1 | 9,64:1 |
| 5th | 10,23:1 | 8,13:1 |
| 6th | 9,05:1 | 7,19:1 |

Oil capacity in gearbox: 1,6 lit.
Oil recommendation: Engine oil SAE 20.

Fuel System:

| | |
|---------------------|----------------------------|
| Fuel: | Gas Min. 94 oct. |
| Lubrication: | Oil-gas-mixture 4% |
| Gastank capacity: | 7,8 lit. |
| Oil recommendation: | Shell super M Castrol R |

Carburettor:

Mikuni 38 mm

| | |
|------------------|------------|
| Venturi ϕ : | 38 mm |
| Main jet: | 430 |
| Needle jet: | Q-8 |
| Idling jet: | 45 |
| Needle position: | 4 from top |
| Air jet: | 2,0 |
| Throttle | 2,0 |

Airscrew opening: 1,5 turn from
bottom position

| | | |
|---------------------------------------|---------------|---------------------------|
| Electrical system: | 250 CR | 390 CR |
| Type: | CDI | CDI |
| | Motoplat | Motoplat |
| | ϕ 116 | ϕ 139 |
| | 20° | 18° |
| Ignition advance: | | |
| Ignition adv. on piston before TDC: | 2,43 mm | 2,18 mm |
| Ignition adv. on flywheel before TDC: | 20,1 mm | 21,8 mm |
| Ignition coil: | 35 W vell. | 35 W yellow 15 W white |
| Spark plug: | Champion | N 2 |

- 020 299

Front fork:

| | |
|----------------------------|-------------------------------|
| Travel | 242 mm |
| Lead distance: | 152 mm |
| Fork angle (caster): | 29° |
| Oil capacity per fork leg: | |
| Oil change: | 0,24 l/leg |
| Disassembling leg: | 0,25 l/leg |
| Oil recommendation: | Engine oil SAE 10- SAE 30. |

Rear suspension:

| | |
|--------|--------|
| Travel | 254 mm |
|--------|--------|

Wheels and brakes:

| | | |
|---------------------|--------------|-------------|
| | Front | Rear |
| Tyres: | 3,00x21" | 5,50x17" |
| Spoke ϕ : | 4 mm | 4 mm |
| Brake drum ϕ : | 160 mm | 160 mm |
| Air pressure, min. | 70 kPa | 60 kPa |
| Air pressure, max. | 120 kPa | 150 kPa |

Dimensions:

| | |
|-------------------|---------|
| Length: | 2155 mm |
| Height: | 1200 mm |
| Handlebar width: | 850 mm |
| Wheelbase: | 1455 mm |
| Seat height: | 927 mm |
| Ground clearance: | 325 mm |

Weight:

250 CR: 101 kg

390 CR: 105 kg

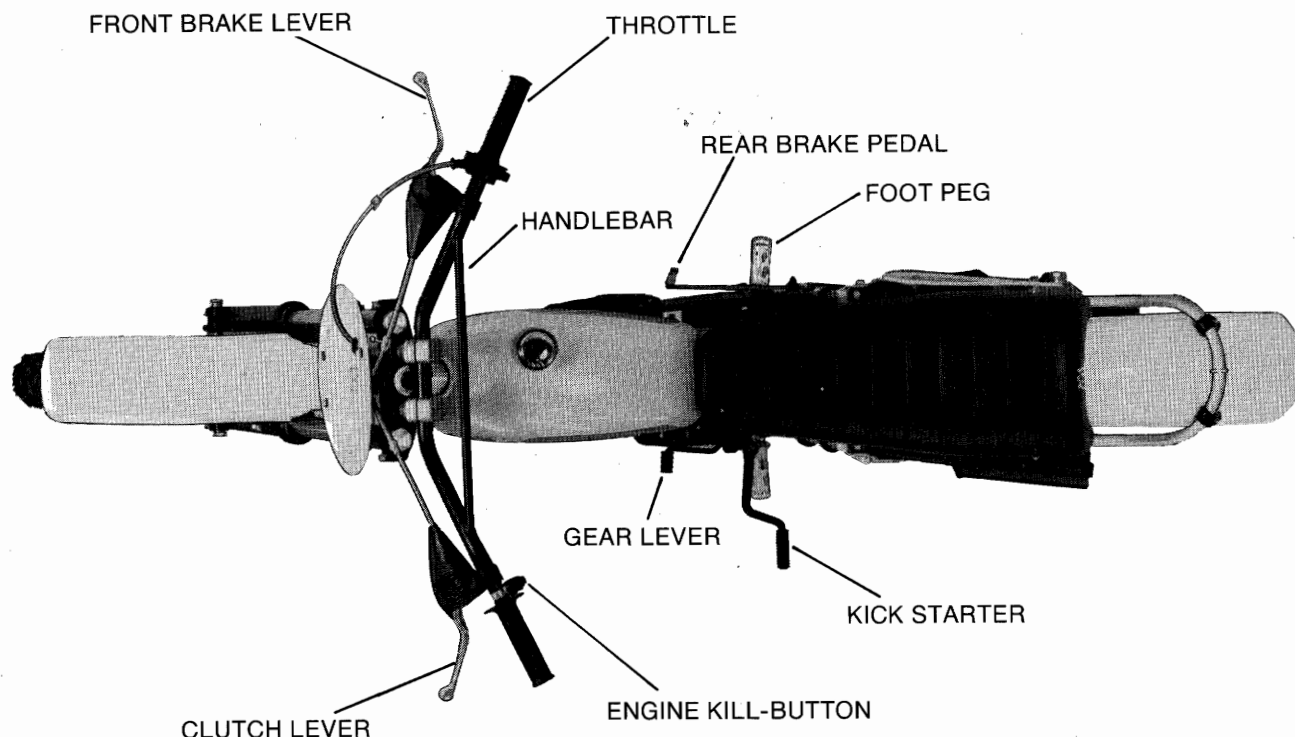
Load, rear wheel: 55%.
Load, front wheel: 45%.

Screwed joints:

| | |
|--------------------------------------|------------------|
| Flywheel nut 250 CR: | 70 Nm |
| Flywheel nut 390 CR: | 90 Nm |
| Cylinder head nuts: | 25 Nm |
| Cylinder head screws: | 20 Nm |
| Engine mounting bolts: | 35 Nm |
| Crankcase screws: | 8 Nm |
| Rear fork bolt nuts: | 35 Nm |
| Reed valve housing screws: | 2 Nm |
| Screws, reed valve housing cylinder: | 8 Nm |
| Clutch spring screws: | 5 Nm+Loctite EV |
| Clutch ring screws/nuts: | 8 Nm+Loctite AAV |
| Spark plug: | 40 Nm |
| Handlebar-holder screw: | 40 Nm |

NOTE! See conversion tables on page 75.

Controls



Starting:

1. Make sure you have petrol in the gastank.
See page 14: Fuel mixture.
2. Open the fuel cock beeneth the gas tank.
3. Pull the chocke lever downwards until the start valve is fully open.
4. Place the gear lever in neutral position.
5. Open the throttle some what and pull the kick starter pedal sharply downwards.
6. Let the engine run for a while with the start valve still open, then close the start valve by pulling the choke lever upwards.
7. Pull the clutch lever towards the handlebar and pull the gear lever down to the 1 st gear.
8. Turn the throttle somewhat and release the clutch lever and the motorcycle stars to move.

Warning

This motor cycle is designed for off road competition. Port timing, exhaust system and carburation allows the engine to reach high r.p.m. very easy. Running for long time and light load (i.e. small throttle opening) at high r.p.m. may not give the engine necessary lubrication.

To avoid trouble the following is recommended:

1. Do not overrev with small throttle openings. More throttle at lower r.p.m. gives the engine better lubrication.
2. Use proper gearing. Let the engine pull instead of rev.
3. Ask your dealer for the correct carburettor setting for your area.

After the first running with the motorcycle, you ought to check these things.

1. Tighten the spokes in both front and rear-wheel.

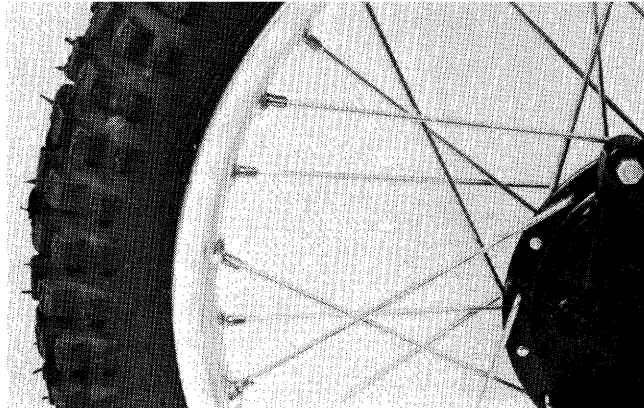


Fig. 7.1

2. Tighten the bolts in both front and rear-wheel.

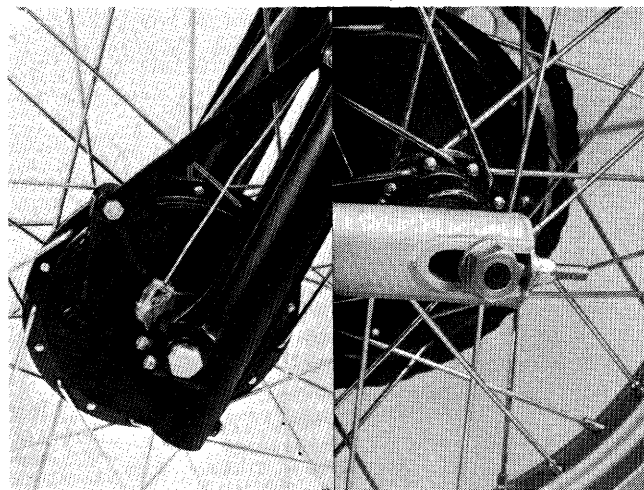


Fig. 7.2

3. Tighten the bolts holding the rear-fork.

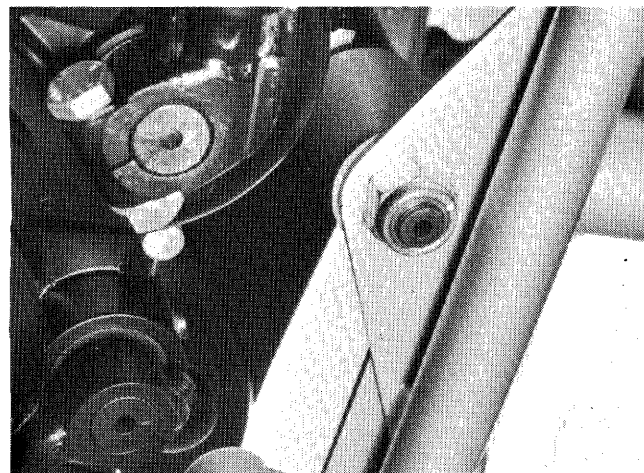


Fig. 7.3

4. Drive chain

The tension of the drive chain should be checked as follows:

1. Press down the machine until the three shafts in fig. 7.4 lie on a straight line. In this position the chain is maximally extended.
2. When the three shafts are in a straight line there shall be a play in the middle of the chain on 5-10 mm.

Both excessive and insufficient chain tension can cause unnecessary loading on the chain, sprockets, shafts and bearings.

In order to reduce wear, the chain should also be lubricated with engine oil every time before use. See also page 34 "**Adjusting the chain tension**".

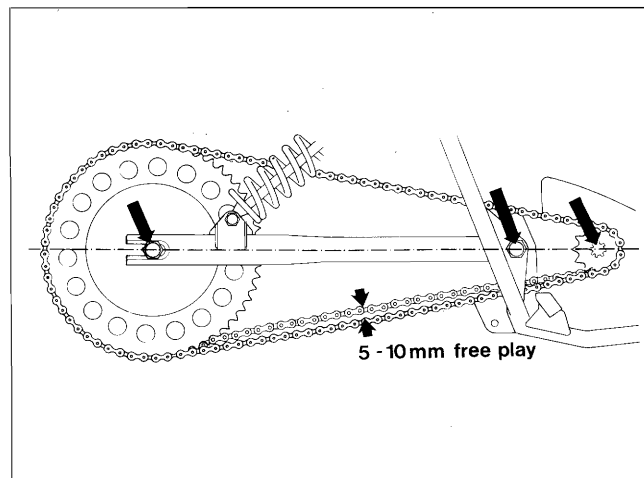


Fig. 7.4

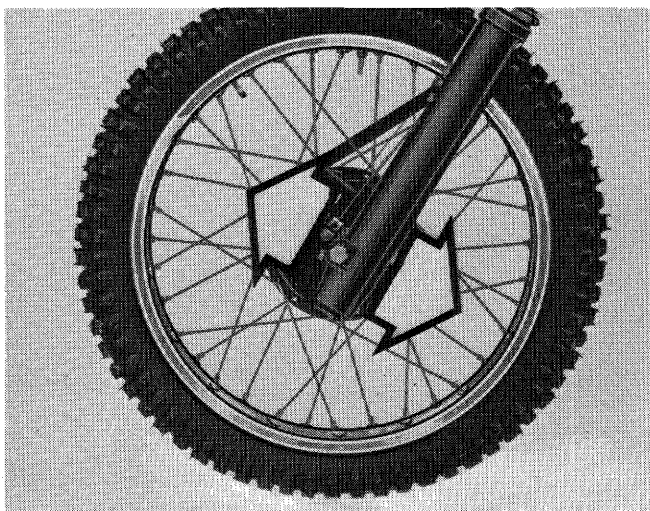


Fig. 8.1

5. Adjusting steering bearings

The play in the steering bearings is checked with the motorcycle blocked up so that the front wheel can rotate freely.

Grasp the lower part of the fork legs and try to move them backwards and forwards in the longitudinal direction of the machine.

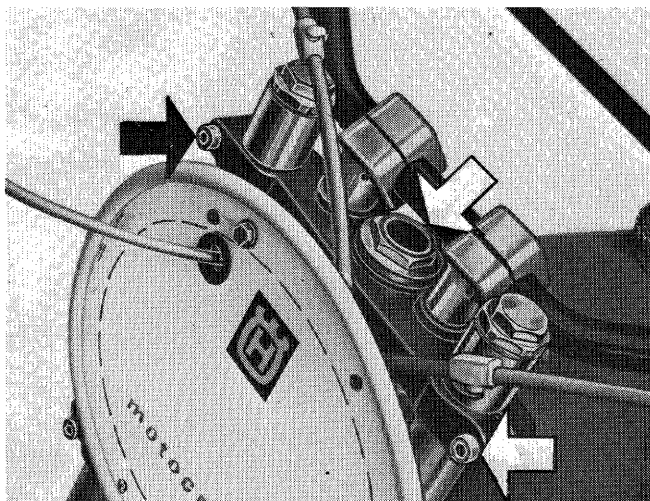


Fig. 8.2

If any play can be noticed, loose the cap nut and the two upper clamping bolts. See fig. 8.2.

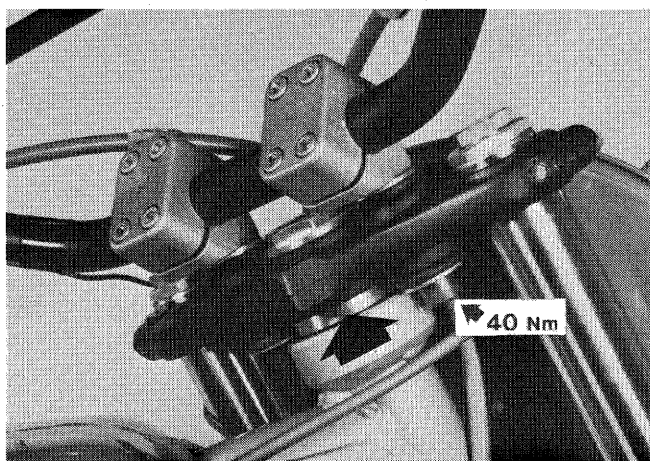


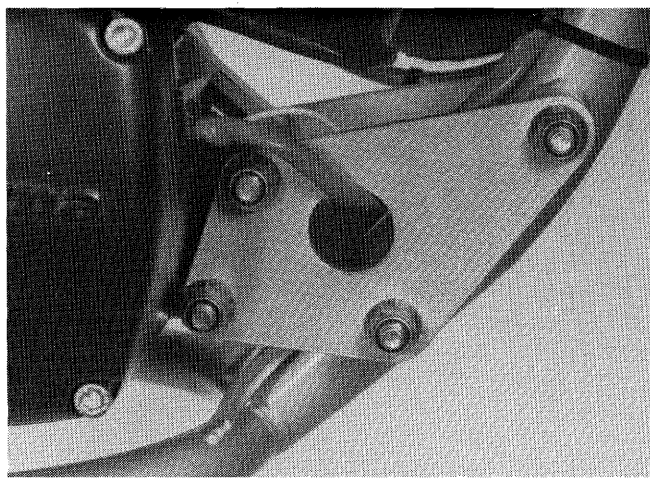
Fig. 8.3

Tighten the upper guide bearing shell with a polygrip plier and then back it off about 1/8 of a turn.

Tighten the cap nut and the fork plate clamping bolts. Check that the bearing does not move stiffly.

6. Handlebar screws

Tighten the screws holding the handlebar-holder to a torque of 40 Nm.



7. Engine bolts.

Tighten the engine bolts, both front and rear.

390 CR, a torque of 90 Nm.

NOTE! Tighten the flywheel nut three times, by assembling, after about 2 min running and then after about 2 hours.

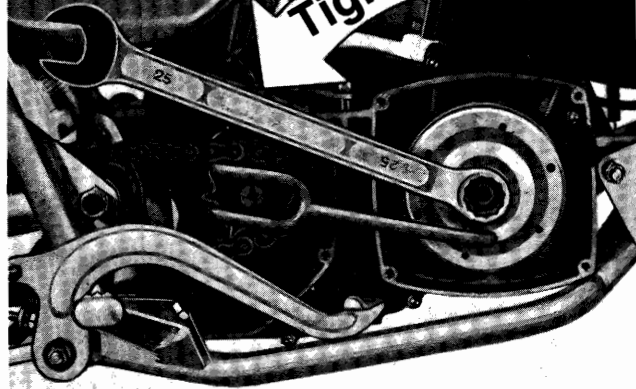


Fig. 9.1

9. Reed valve

Tighten the screws holding reed valve house.

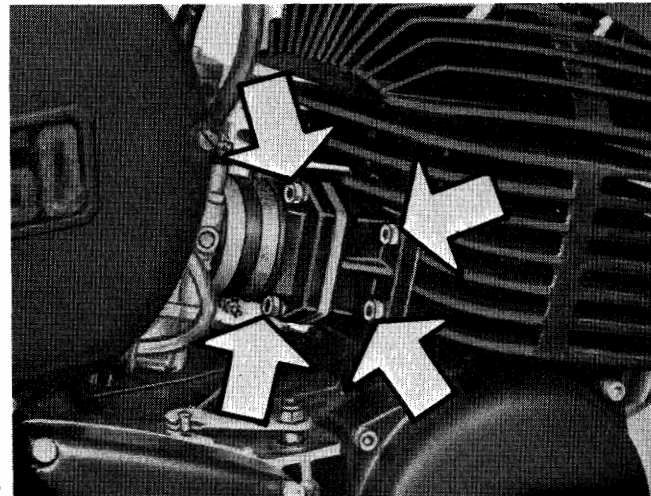


Fig. 9.2

10. Cylinder and cylinderhead

Tighten the nuts holding the cylinder and cylinderhead. Torque: 25 Nm.

Tighten the nuts alternately up.

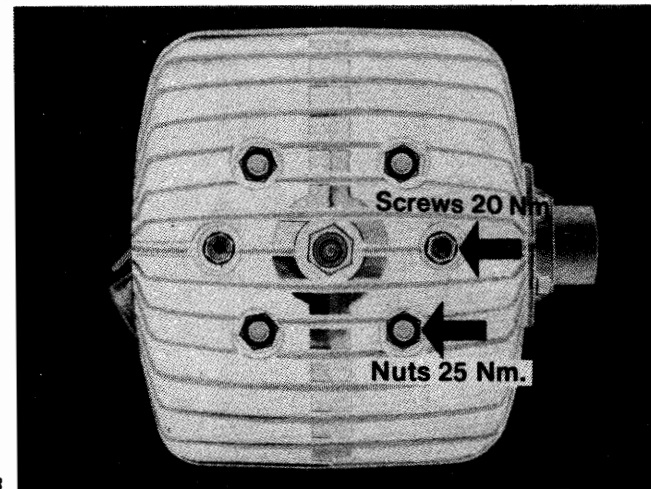
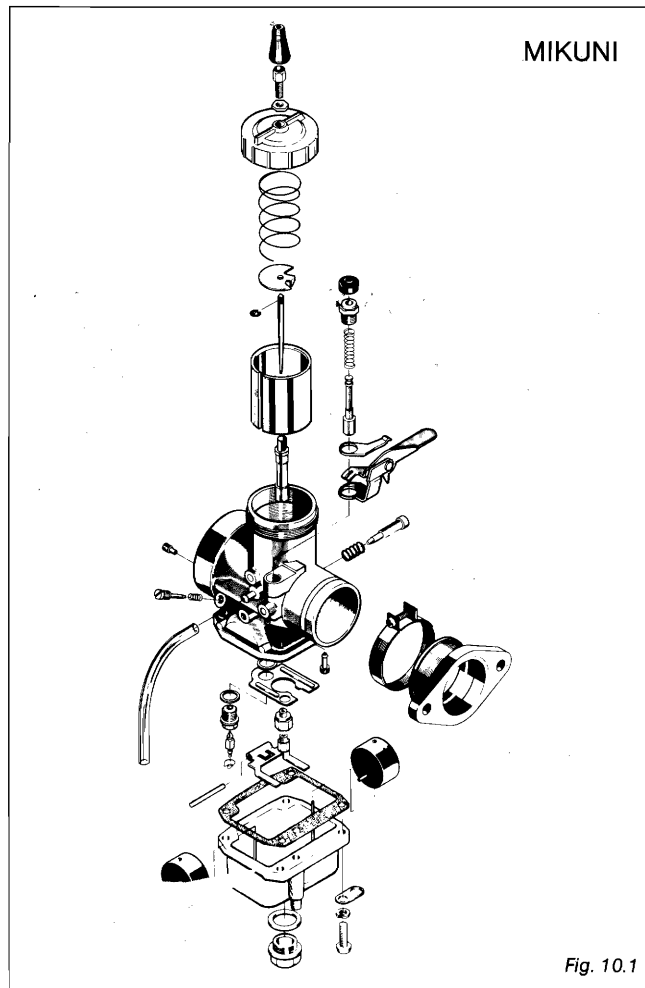


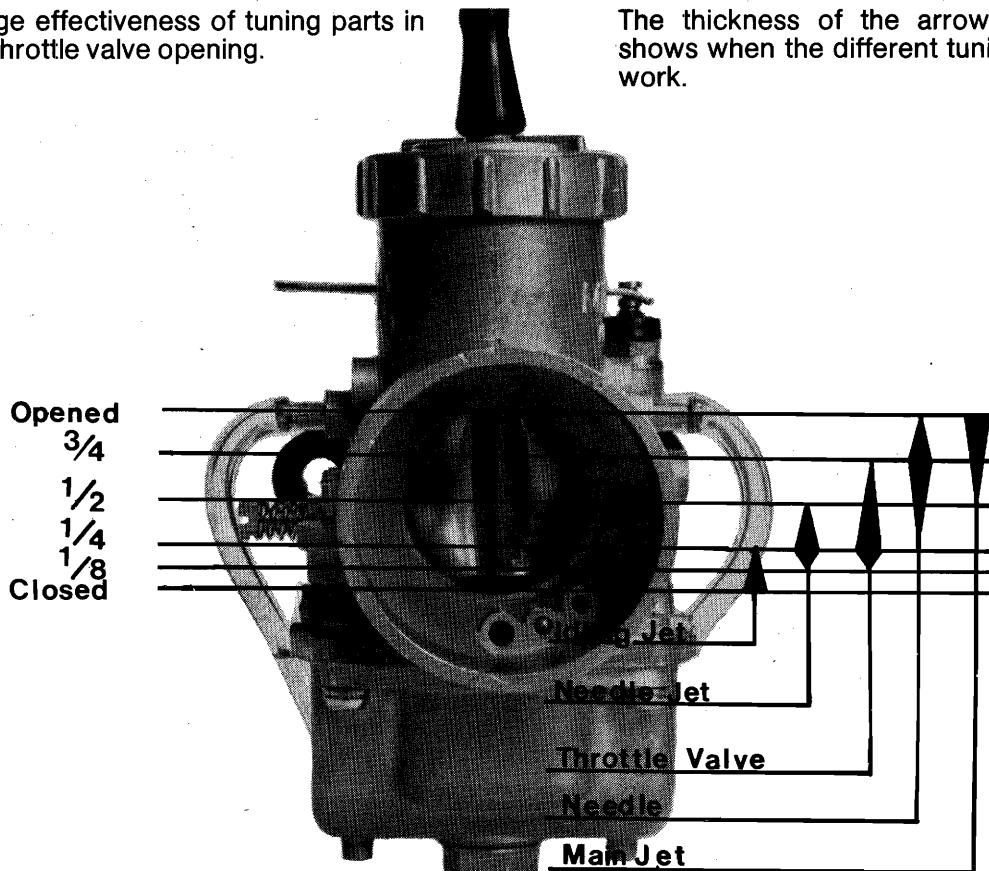
Fig. 9.3

Fuel system



Functional range effectiveness of tuning parts in relation to the throttle valve opening.

The thickness of the arrows in fig. shows when the different tuning parts work.



To get a richer fuel-air mixture to be sucked into the engine, press the choke-button down and turn the throttle-handle to zero.

NOTE! Do not use the choke when the engine is warm.

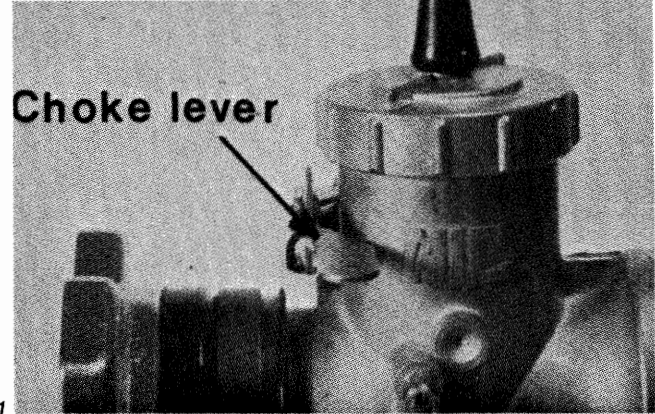


Fig. 11.1

Carburettor adjustment

Idling

Always warm up the engine before adjusting. Gently turn the air screw right home. Then screw it back 1,5 turn.

NOTE! Do not turn it too hard against the bottom.

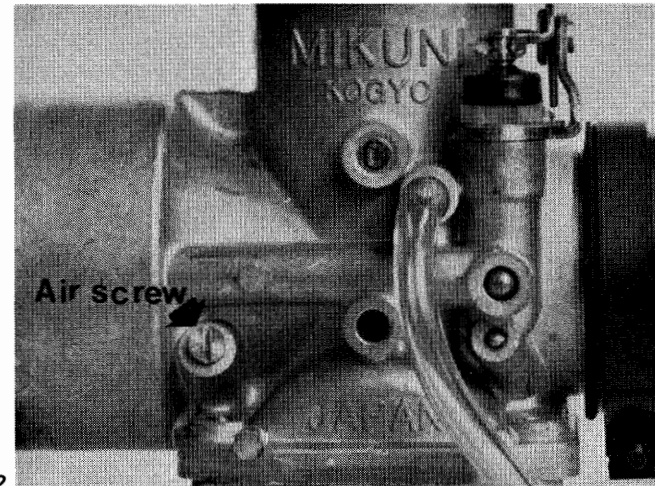


Fig. 11.2

Start the engine and adjust the throttle stop screw until a satisfactory slow running speed is achieved.

Adjust the air screw until the engine runs smoothly (turning clockwise gives a richer mixture, anticlockwise gives a leaner mixture).

If necessary, re-adjust the throttle stop screw for a satisfactory, slow running speed.

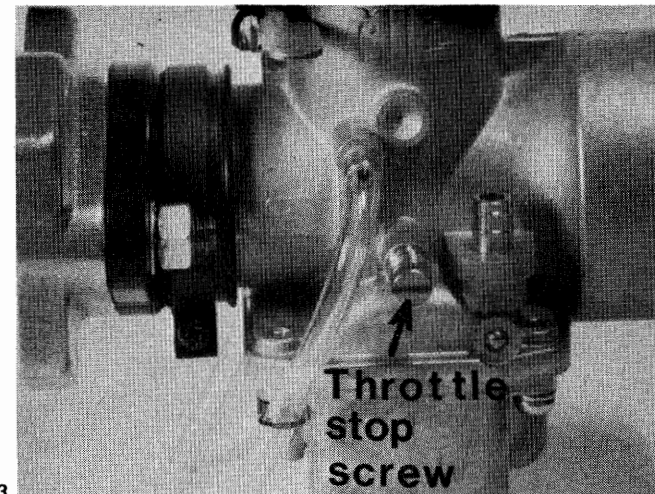


Fig. 11.3

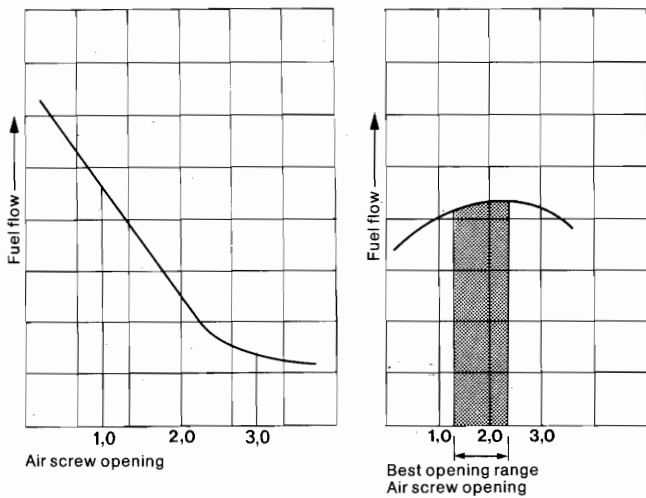


Fig. 12.1

The selection of the opening of the idling jet and the air screw is important. Turn the grip a little at no-load operation and see if the engine revolutions increases smoothly.

If the idling jet is too small, increase in the engine speed is slow and irregular. Too big idling jet, on the other hand, would give rise to heavy exhaust smoke as well as a dull exhaust noise. If you cannot maintain the speed in the range of 12–25 M.P.H. (30–40 km/h) with the grip held constant, the idling jet is too small.

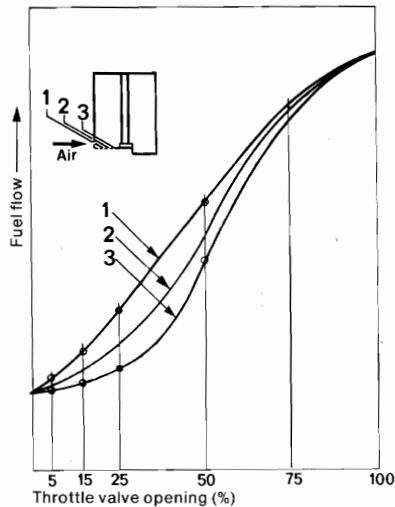


Fig. 12.2

The cutaway size of the throttle valve

The size of the cutaway of the throttle valve affects the air-fuel mixture ratio when the degree of the throttle valve opening is between 1/8 and 1/2. As the cutaway gets larger in size, with the throttle valve opening kept unchanged, air inflow resistance is reduced and causes the amount of air intake to increase, resulting in a lean mixture. On the other hand, the smaller the size of the cutaway, the richer the air-fuel mixture will become. Fig. shows the fuel flow curve in relation to the size of the cutaway.

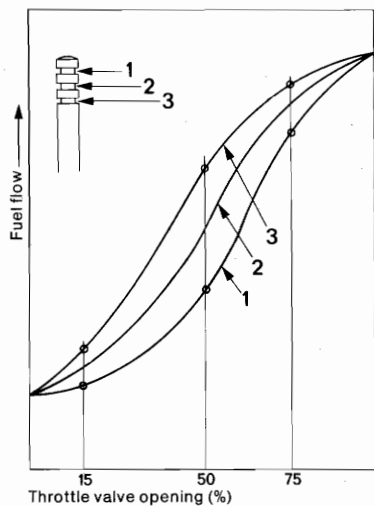


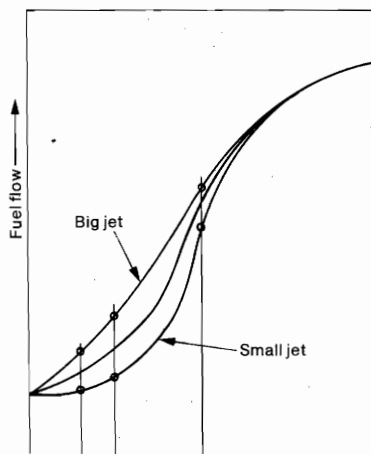
Fig. 12.3

Needle and needle jet

The needle jet and the needle serve to control a proper air-fuel mixture ratio during the so-called medium throttle valve opening (between 1/4 and 3/4 opening).

The needle has 5 of settings, the uppermost giving the leanest and the lowest the richest mixture. As you see on fig, the needle setting is mostly noticeable at 50% throttle opening.

Needle position: See page 5.



By changing needle jet you can get richer or leaner air-fuel mixture. A small needle jet will give you a leaner mixture and on the other hand a big needle jet gives you a richer air-fuel mixture.

As you can see on fig, the changing of the needle opening is mostly noticeable at 25 % throttle valve opening.

throttle in 6th gear and reduce jet size by one number at a time, until 4-stroking is eliminated. If the main jet is too small, acceleration may suffer. Use the largest possible size without 4-stroking at high revs.

The fig. shows the throttle valve opening in relation to fuel flow, with different kinds of main jets. In the range 50–100 % throttle opening is the fuel mostly noticeable.

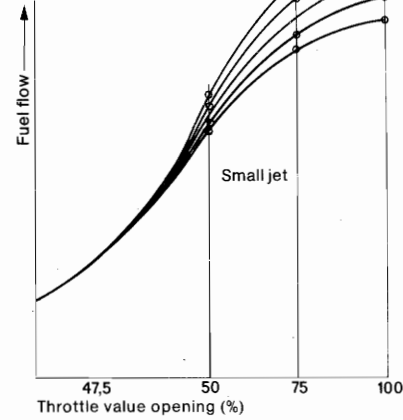


Fig. 13.1

Finally

High temperature, high elevation above sea level and lower barometric pressure generally require leaner settings. However, remember to restore the richer setting when conditions are normal again. If settings are too lean, acceleration and top speed will be less and there will be risk of engine damage.

The fig. shows the amount of air decreases in proportion to a rise in elevation. Reduction in the amount of air sucked into the cylinder changes the air-fuel mixture ratio, with the result that the power output drops markedly.

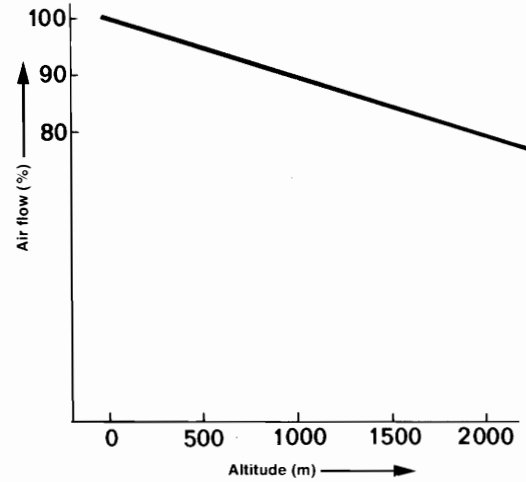


Fig. 13.2

The fig. shows the relations between a rise in temperature and the amount of air drawn into the cylinders.

In the case of the engine for racing where the maximum output is constantly called for, it is best to tune up the engine by making a matching test of the carburettor in accordance with the temperature and other conditions on the racing course.

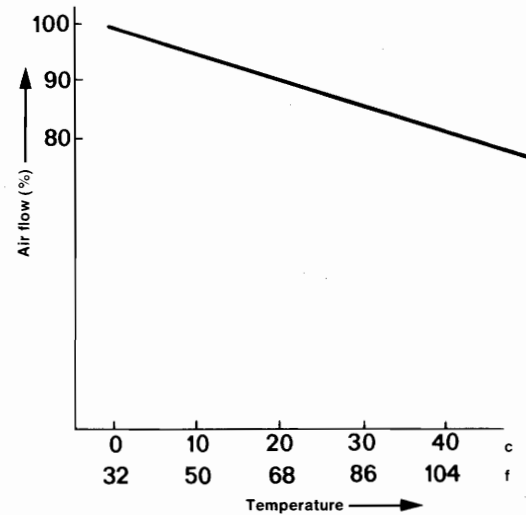


Fig. 13.3

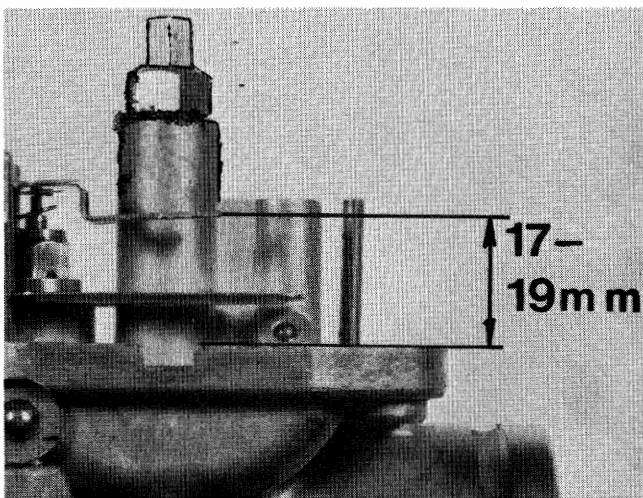


Fig. 14.1

Fuel level (Mikuni)

The fuel level can be checked by removing the float chamber from the carburettor. Hold the carburettor horizontal, and move the float lever with your finger. When the float lever is 17–19 mm from the carburettor flange, the needle should just close the valve. See fig. 14.1.

Engine trouble-shooting

When the carburettor setting is not correct for the engine, various irregularities are noticed. These can be traced to two main reasons.

- (1) When the air-fuel mixture is too rich:
 - a) The engine noise is dull and intermittent.
 - (b) The condition grows worse, when the starter is opened.
 - (c) The condition grows worse, when the engine gets hot.
 - (d) Removal of the air cleaner will improve the condition somewhat.
 - (e) Exhaust gases are heavy.
 - (f) Spark plug is fouled.
- (2) When the air-fuel mixture is too lean:
 - (a) The engine gets overheated.
 - (b) The condition improves, when the starter is opened.
 - (c) Acceleration is poor.
 - (d) Spark plug burns.
 - (e) The revolution of the engine fluctuates and lack of power is noticed.

| Ready fuel mixture | Fuel at least 94 oct. | Vegetable Oil |
|--------------------|-----------------------|---------------|
| 5 l | 4,8 l | 0,2 l |
| 10 l | 9,6 l | 0,4 l |
| 15 l | 14,4 l | 0,6 l |
| 20 l | 19,2 l | 0,8 l |

Fig. 14.2

Fuel mixture

The engine is lubricated by oil mixed with the fuel. Always use high-quality petrol with an octane rating of at least 94 oct.

Vegetable type of racing oil should be used. If no vegetable type oil is available we recommend a two-stroke type mineral oil with a weight of SAE 50 for 4% mixture proportion.

A two-stroke oil intended for 2% mixture proportion is not recommended. Fuel additives offered for sale on the market should be avoided. No special oil or mixture proportion is required in the case of a completely new engine.

Octane number

The octane number assigned to a fuel is a measure of its anti-knock quality. Generally speaking, engines with higher compression ratios require fuels with higher octane ratings. There is no point in using fuel of a higher octane rating than an engine requires, as no extra power will be obtained. To use fuel with too low an octane rating is uneconomical and possibly dangerous. This can lead to detonation which wastes power and can cause engine damage.

Carefully mix the oil and petrol in a separate vessel before filling it into the fuel tank of the machine. Shake the vessel thoroughly for a few minutes to make sure that the fuel is properly mixed. This is particularly important when using vegetable oil, since this does not mix so easily with the petrol as mineral oil. At temperatures below freezing point it has also a tendency to separate out, so that extra care should be taken



The vacuum in the engine crankcase sucks air through the carburettor. Partly pass the throttle which is adjusted by means of the large screw. Partly through the throat (B) pass the adjustment screw; this air breaks up the fuel in the mixing section of the idling jet to facilitate carburation.

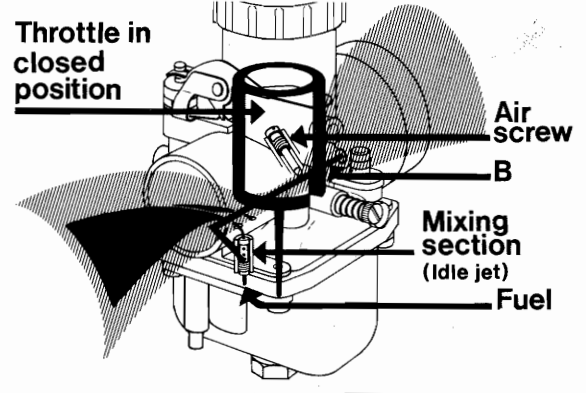


Fig. 15.1

High speed

Air is sucked through the passage (B). This air breaks up the fuel in the mixing tube. The atomized fuel is then sucked up into the venturi of the carburettor and mixed with the air flowing through the throttle opening.

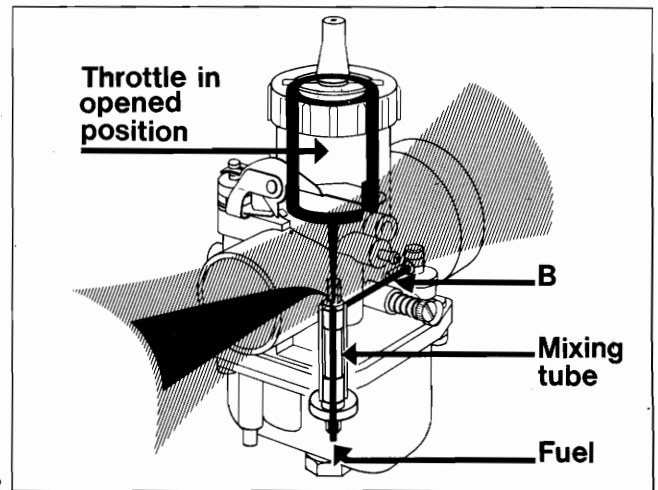


Fig. 15.2

Cold start system

When the cold start valve is open, fuel is sucked directly from the float chamber through the channel, into the venturi.

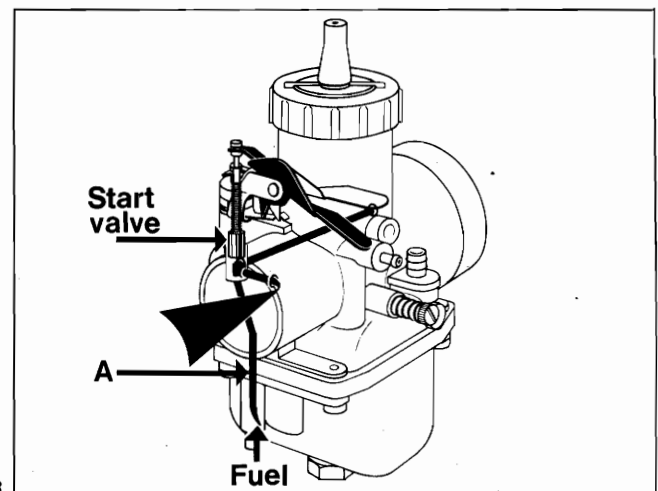


Fig. 15.3

Fuel supply system

Fuel flows through the needle valve (G) when the float is below the pre-set position. As the fuel level rises, so does the float and closes the needle valve. This procedure is repeated with the result that the fuel level in the float chamber of the carburettor remains constant.

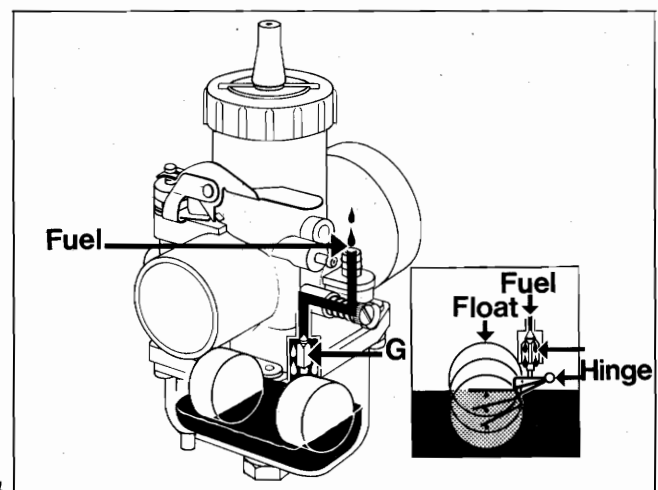


Fig. 15.4

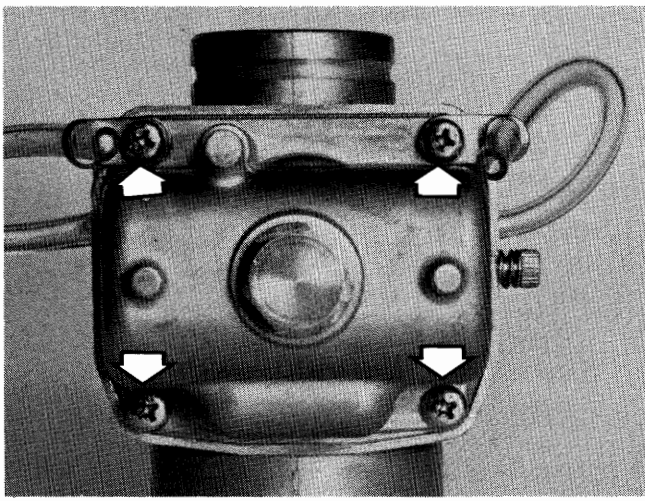


Fig. 16.1

Dismantling and cleaning the carburettor

Lift out the throttle from the carburettor. Loosen the carburettor attaching clamps and remove the carburettor from the intake manifold, and air filter housing. Remove the float chamber from the carburettor by loosening the four screws.

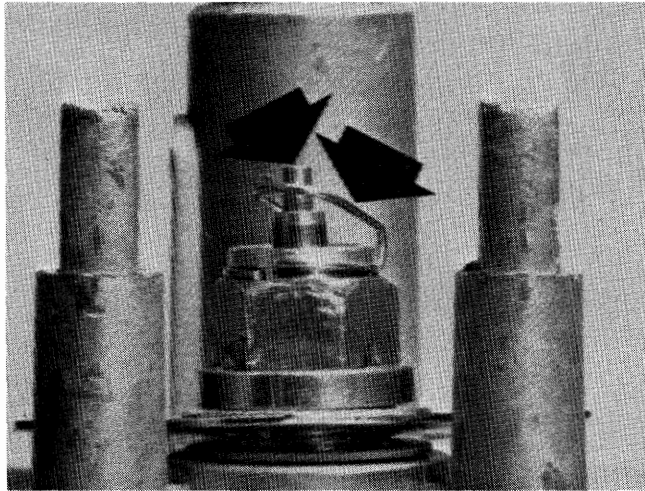


Fig. 16.2

Remove the peg and take out the float lever.

Remove the spring and take out the float needle. Thoroughly clean all parts in petrol and blow dry with compressed air.

Assemble the carburettor in the reverse order. See fig. 10.1.

NOTE! Make sure that the float chamber is fitted correctly on the carburettor housing and that the rubber hose between the carburettor and air filter holder is intact.

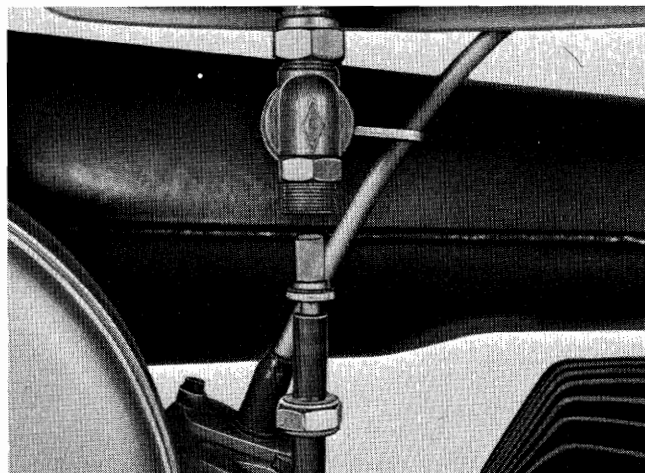
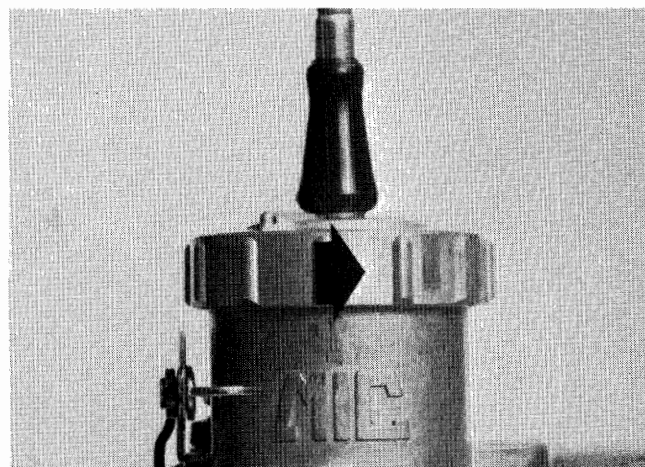


Fig. 16.3

Clean the fuel cock filter free from dirt.



Changing throttle wire

1. Remove carburettor cover and take out the throttle.

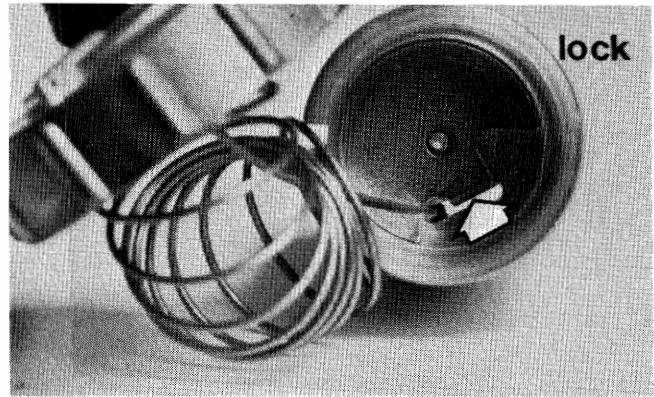


Fig. 17.1

3. Remove the cover of the throttle handgrip and remove the wire.
4. Fix a new wire in handgrip and the throttle in reverse order.

NOTE! Don't forget the wire lock.

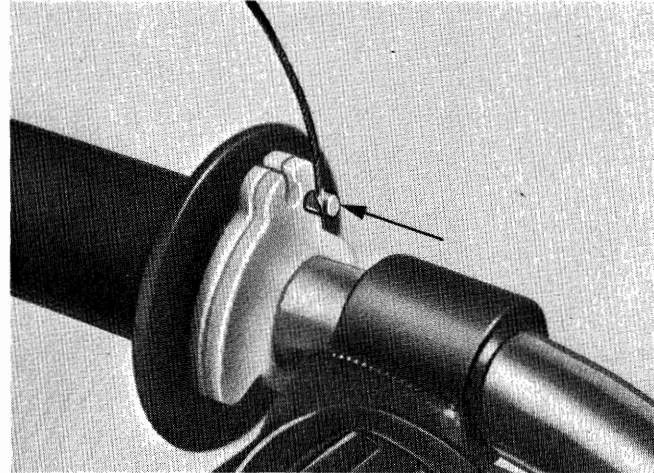


Fig. 17.2

Throttle cable adjustment

Screw in the carburettor adjusting screw fully and screw it back until there is no play at the throttle handle.

NOTE! Don't forget to lock up the carburettor adjusting screw.

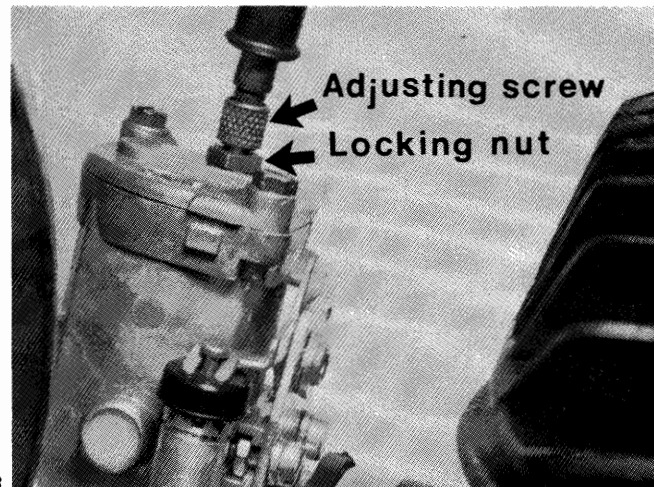


Fig. 17.3

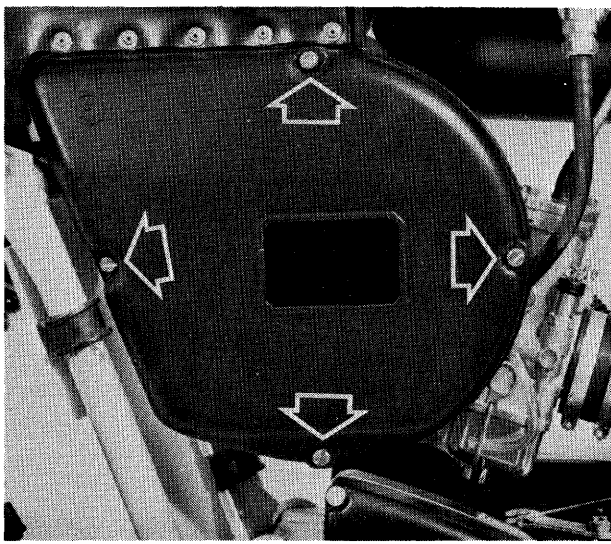


Fig. 18.1

Dismantling and cleaning the air filter
1. Take a screwdriver and screw out the four screws and remove the air filter cover.

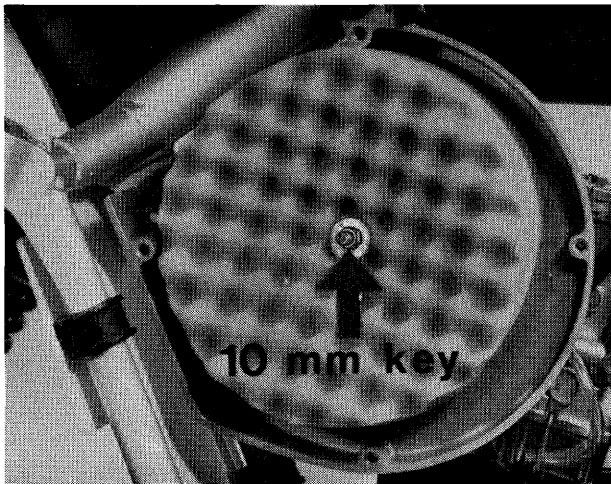


Fig. 18.2

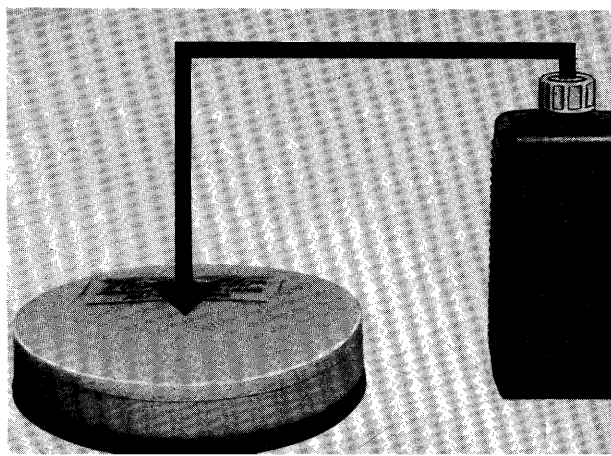
2. Screw out the nut which holds the filter (10 mm key) and remove the air filter with its case.
3.



Fig. 18.3

Clean the filter in petrol or kerosine by squeezing it easily in the fluid a few times. At last squeeze it free from solvent.

NOTE! Never twist the airfilter as fig. 18.3 shows.



4. Oil in the filter with a few cc of Twin air action oil.

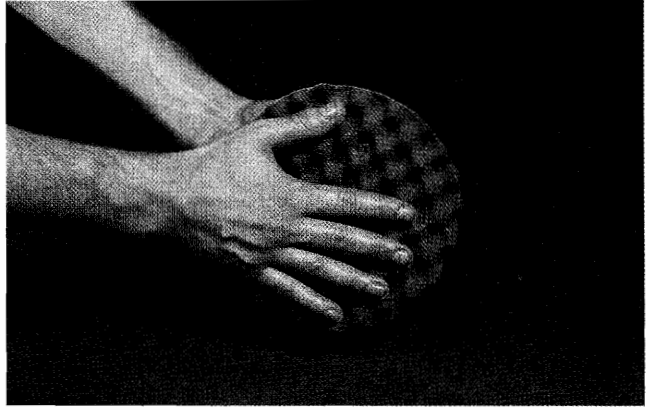


Fig. 19.1

6. Mount the filter and wait ca 10 minutes until the oil solvent has vaporated. Then start the engine.

NOTE! The engine cannot be started before the solvent in the oil has vaporated.

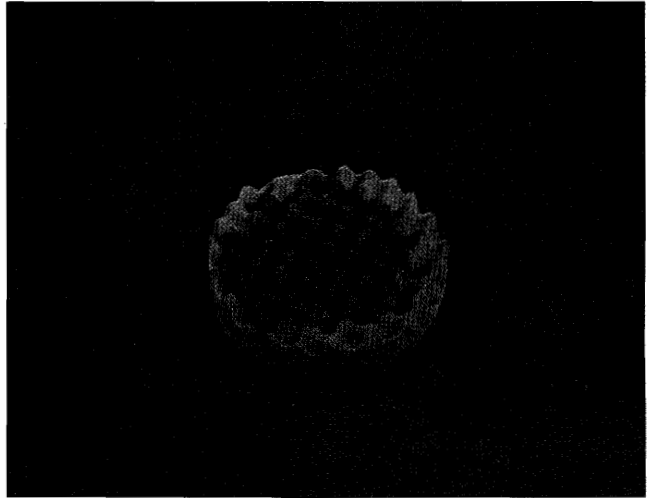


Fig. 19.2

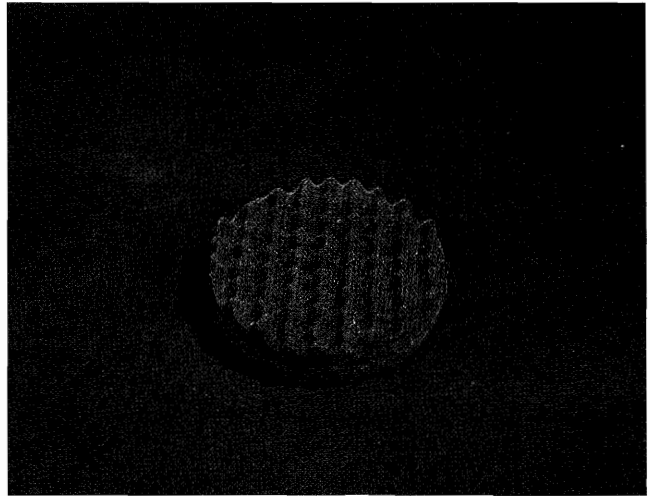


Fig. 19.3

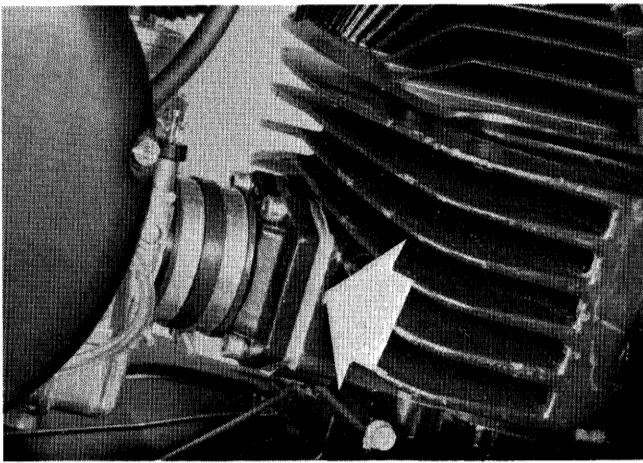


Fig. 20.1

Reed valve

The motorcycle features a valve system which prevents the fuel-air mixture from being forced back through the carburettor. The valves are located between the cylinder and the carburettor.

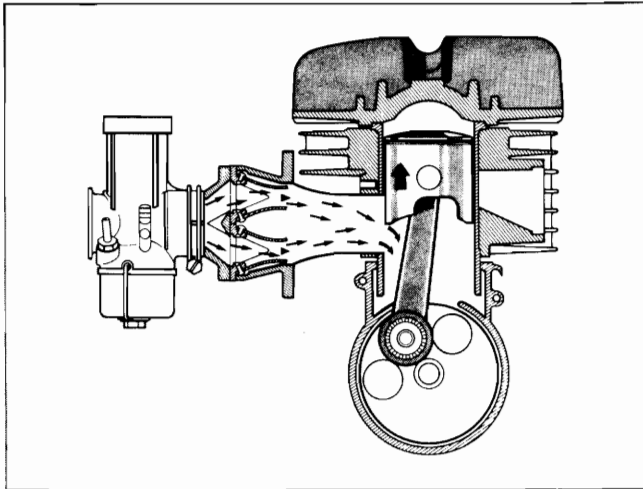


Fig. 20.2

Operation

1. When the piston uncovers the induction port the fuel-air mixture is sucked through the valves into the crankcase.

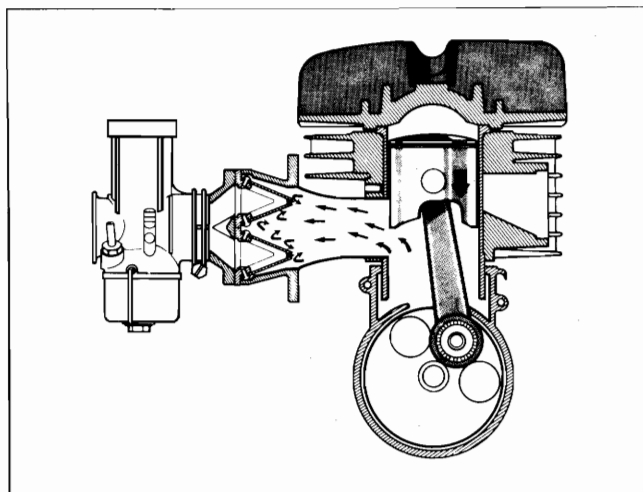
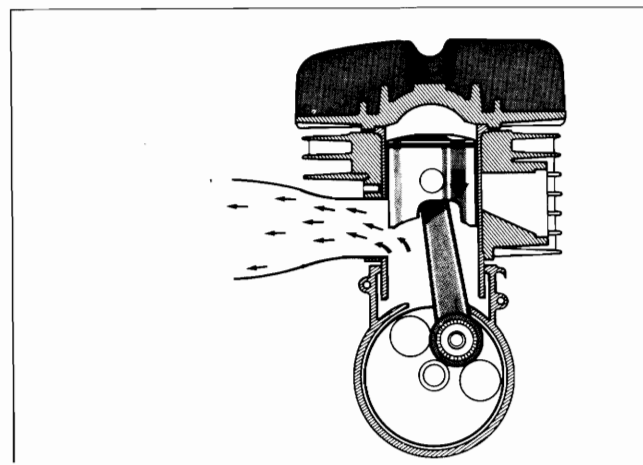


Fig. 20.3

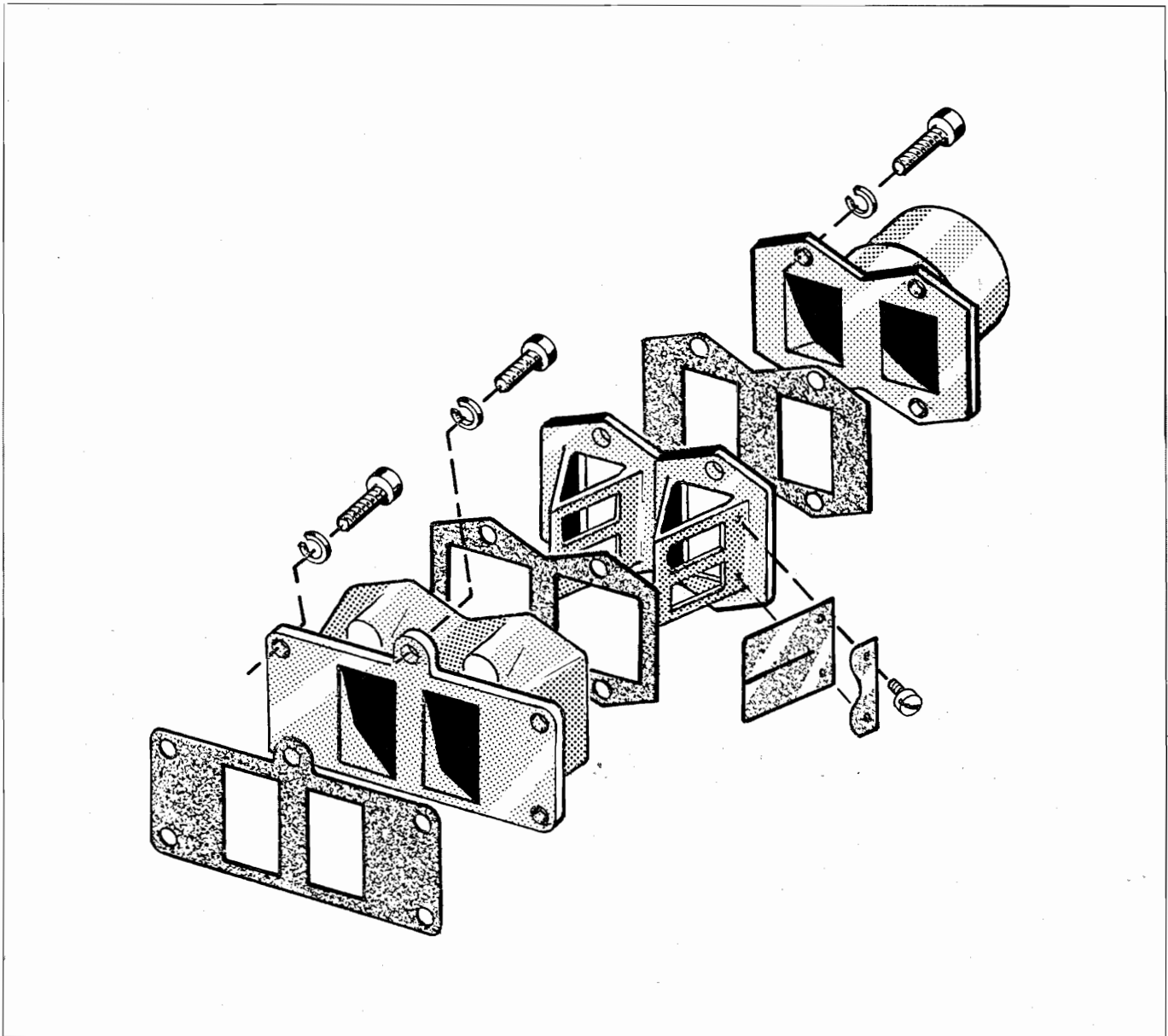
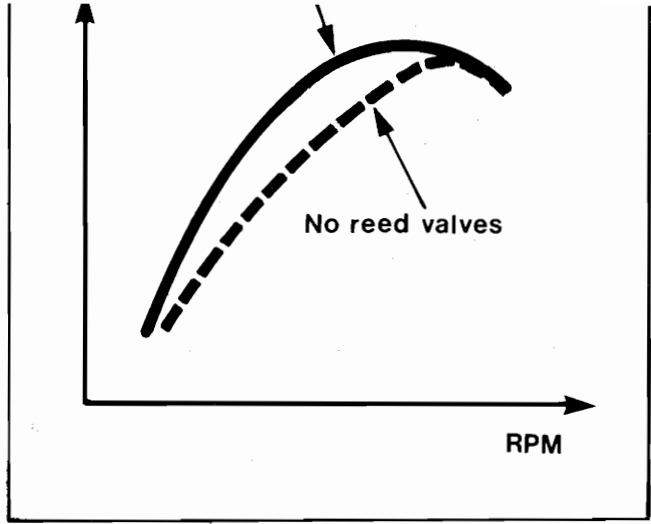
2. To keep the fuel-air mixture in the crankcase there are reed-valves as standard which keep the gas inside when pressure in the crankcase rises.



3. Without these reed valves some of the fuel-air mixture would be forced back through the carburettor.

NOTE! To give you a better view of its function, the valve housing is turned 90° in the drawings. See fig. 20.1.

- b) flatter torque curve, i.e. more power at lower rpm.
- c) more efficient carburation and less risk of flooding the engine.



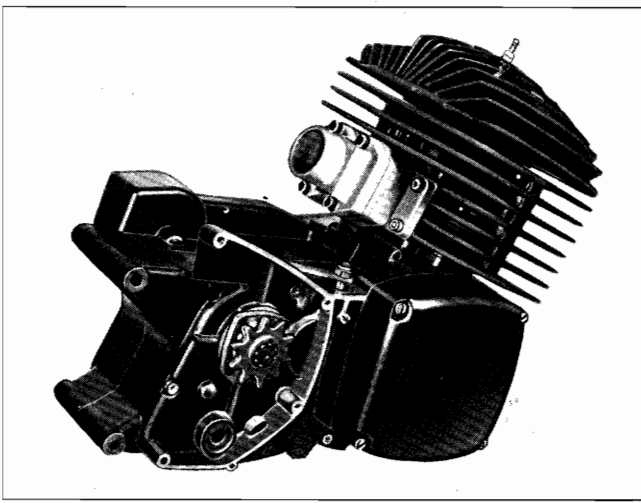


Fig. 22.1

Engine

General

The engine is a single-cylinder, air-cooled, two-stroke unit. The engine and gearbox form an integral unit. The piston ring is made of hard-chromed steel for long life and high strength.

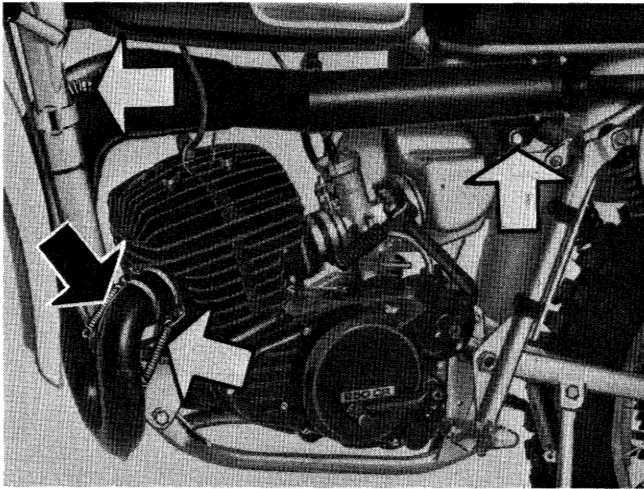


Fig. 22.2

Removing and fitting 250 CR

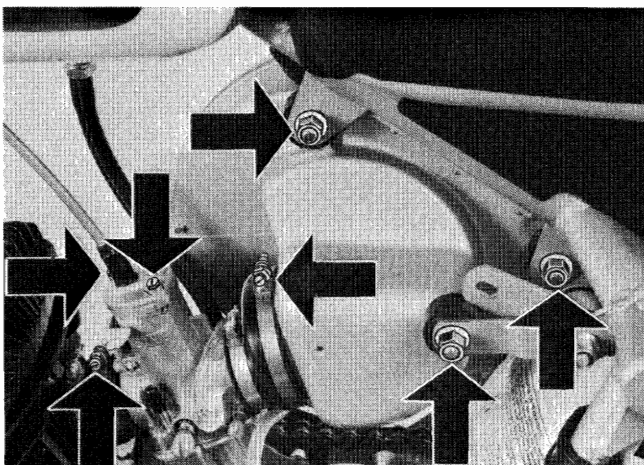
1. Remove the exhaust system by loosening the two screws and unhook the springs.



Fig. 22.3

390 CR

1. Remove the exhaust system by loosening the two screws and unhook the springs.



2. Screw out the 3 nuts, loose the clamp and take out the whole air filter.

3. Remove the carburettor by loosening the clamp and the two screws on top of the throttle.

NOTE! Blue cable to large connection.
Black cable to small connection.

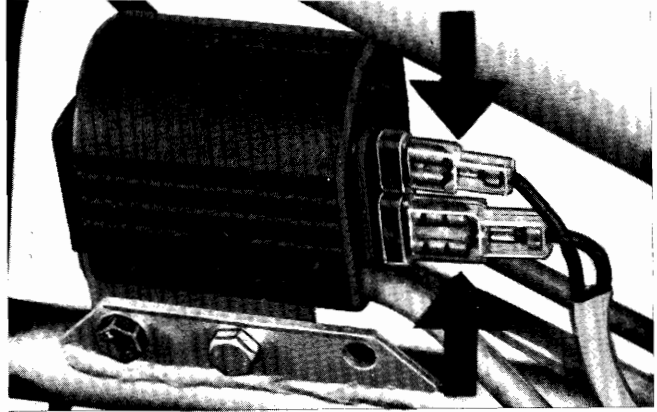


Fig. 23.1

Inspecting and changing piston ring, piston and cylinder

The cylinder and piston can be removed with the engine still in the frame.

1. Loosen the four cylinder head retaining nuts (17 mm) and the two screws (13 mm) and take off the cylinder head.

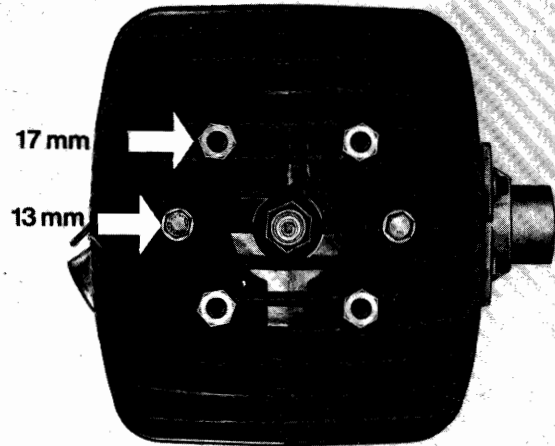


Fig. 23.2

2. Lift up the cylinder about 5 cm from the crankcase and place a piece of clean cloth in the crankcase opening to prevent dirt from entering the crankcase.
3. Lift off the cylinder.

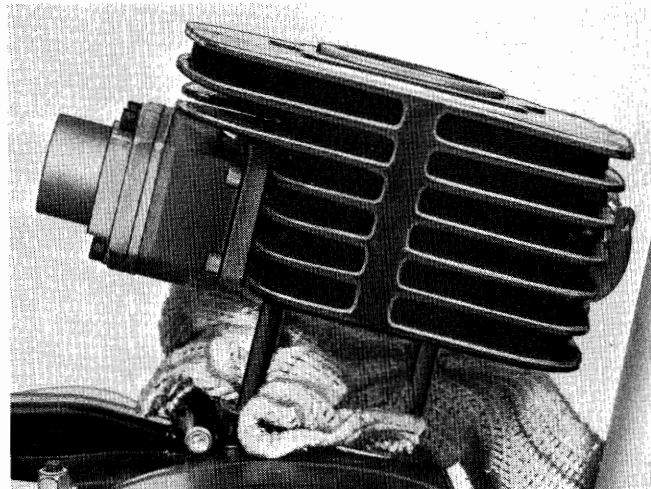


Fig. 23.3

4. Remove the piston ring from the piston.
5. Check piston ring, piston and cylinder. See "Time for repairs".

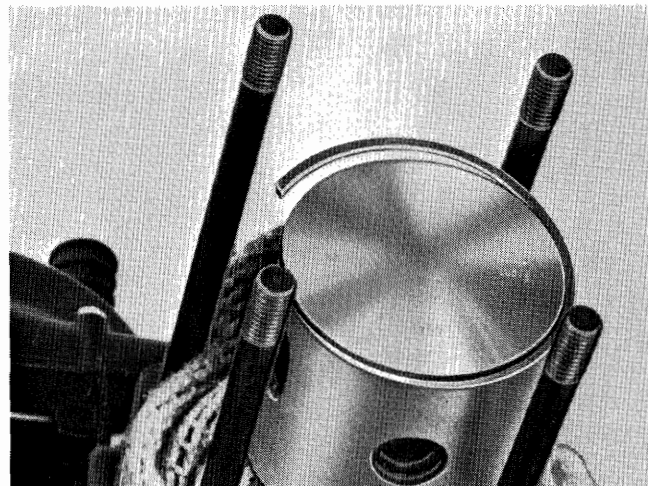


Fig. 23.4

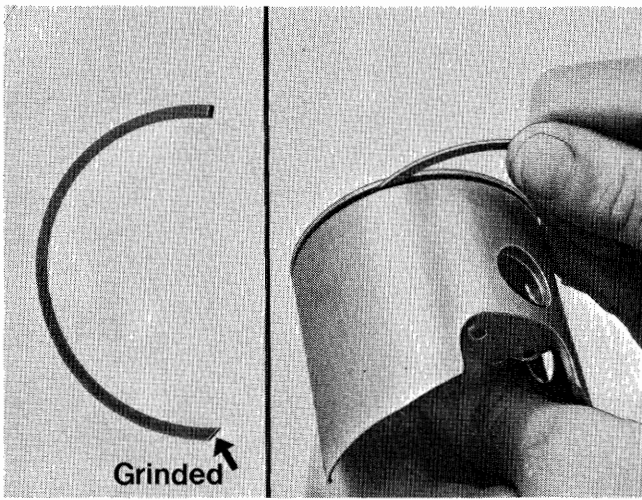


Fig. 24.1

6. Before fitting the piston ring, carefully remove any carbon deposits from the grooves in the piston. This is preferably done with an old piston ring which is grinded apart.

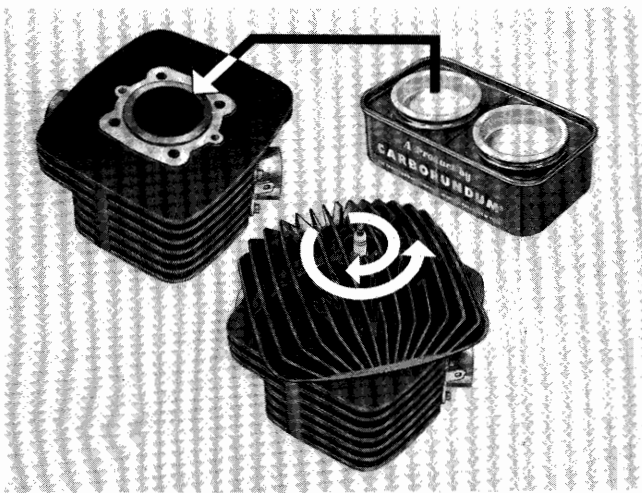


Fig. 24.2

7. Lap in the cylinder head against the cylinder with fine grinding paste.

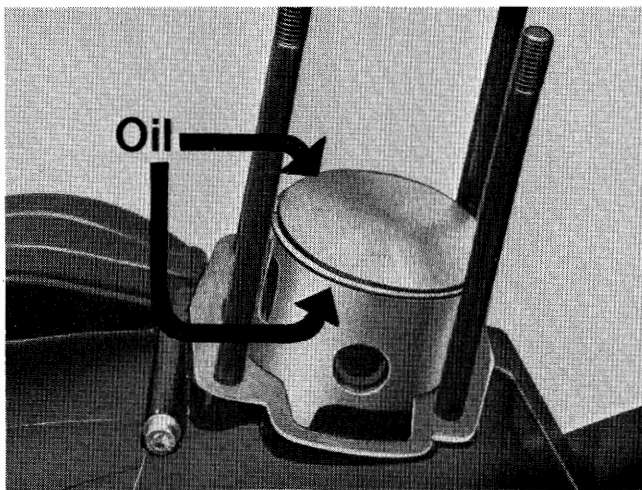
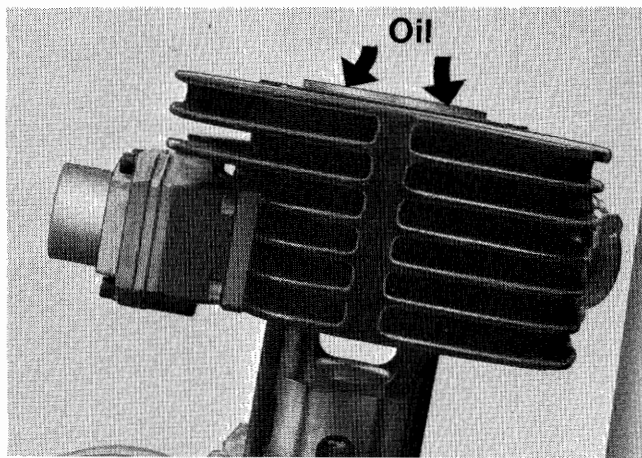


Fig. 24.3

8. Place the piston at bottom dead centre.



9. Carefully oil the cylinder bore and piston ring and fit the cylinder over the piston.

NOTE! Make sure that the piston ring is placed correctly in relation to its locking pins and carefully push on the cylinder so as not to damage the piston ring.

11. Then tighten the screws alternately.

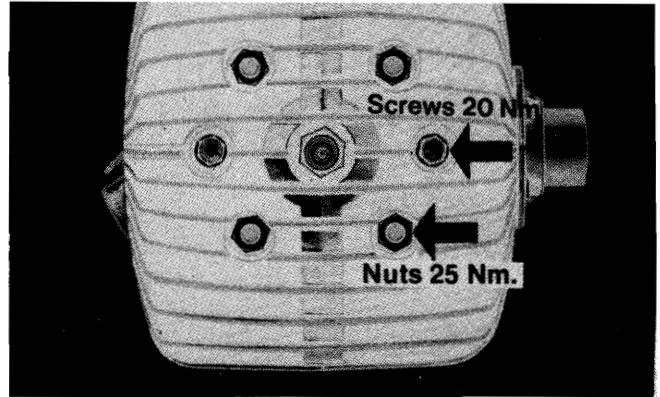


Fig. 25.1

Time for repairs

Big-end bearing

Replace this bearing when the radial play amounts to 0,07–0,10 mm. Radial play can be measured by a dial indicator.

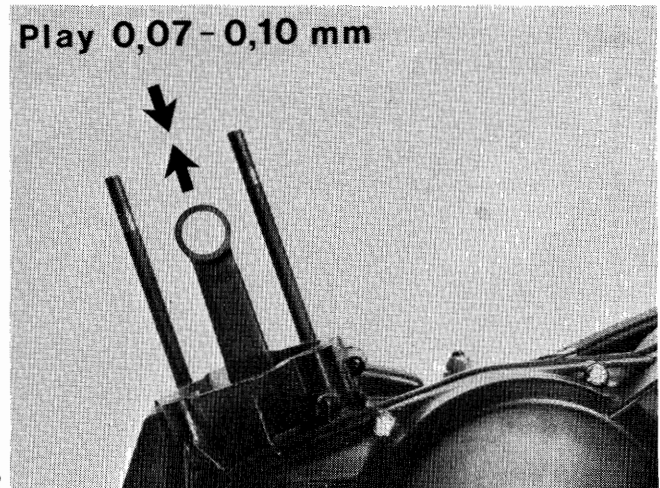


Fig. 25.2

Main bearings

Replace these bearings as soon as any play is detected. Check for play by pulling at the two ends of the crank-shaft in the radial direction.

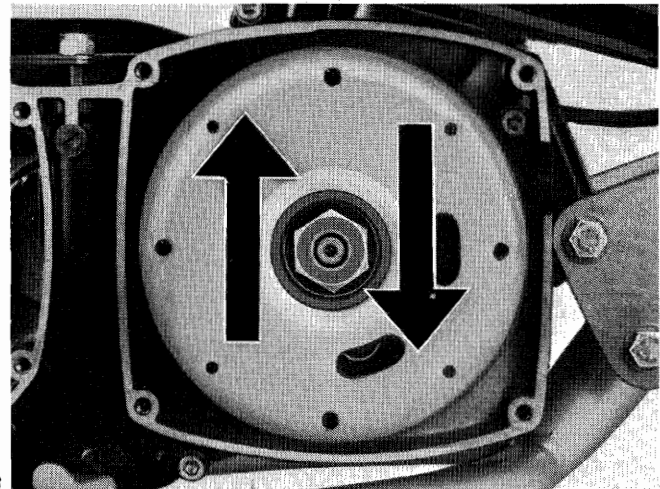


Fig. 25.3

Cylinder

The cylinder should be bored up to oversize when the wear on its top section amounts to 0,15 mm, i.e. when the difference between measurements A and B in fig. 25.4. amounts to 0,15 mm.

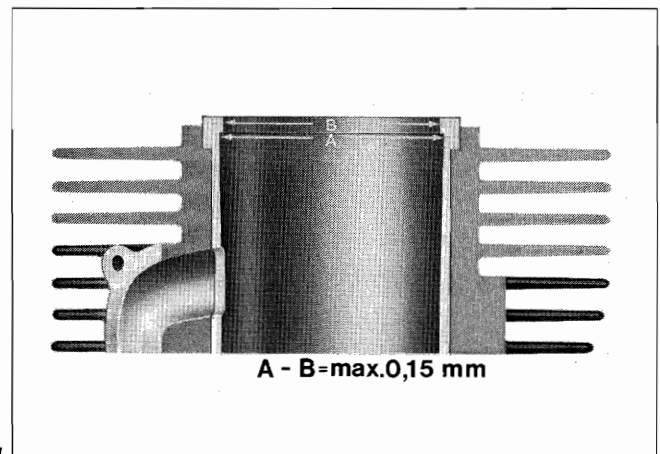


Fig. 25.4

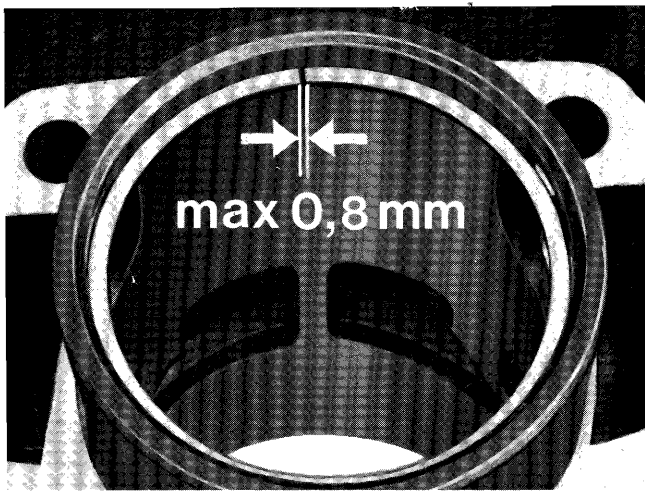


Fig. 26.1

Piston ring

Check the wear on the piston ring by placing it in the lower part of the cylinder bore. Measure the distance between the piston ring ends with a feeler gauge. If this exceeds 0,8 mm it is recommended that a new piston ring should be fitted. See fig. 26.1. Before fitting, carefully remove any carbon deposits from the grooves in the piston. Also scrape clean the piston crown and combustion chamber.

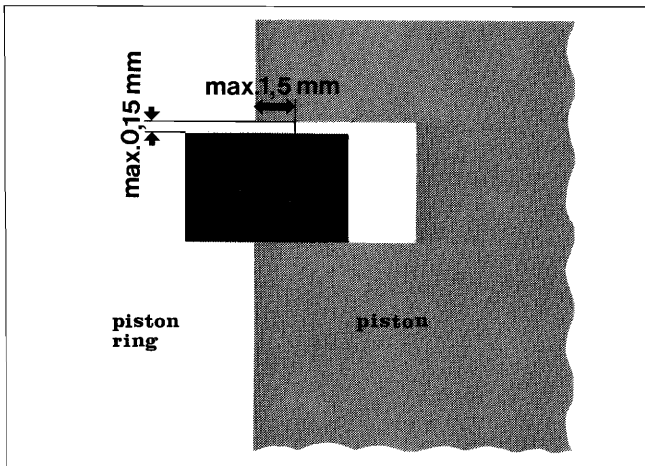


Fig. 26.2

Piston

The piston has two points of wear: its ring groove and its skirt.

A. When the play in the ring groove amounts to 0,15 mm to a depth of approx 1,5 mm, replace the piston.

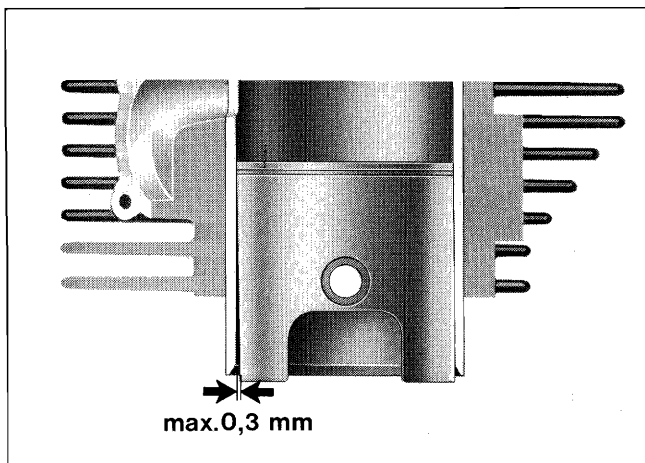
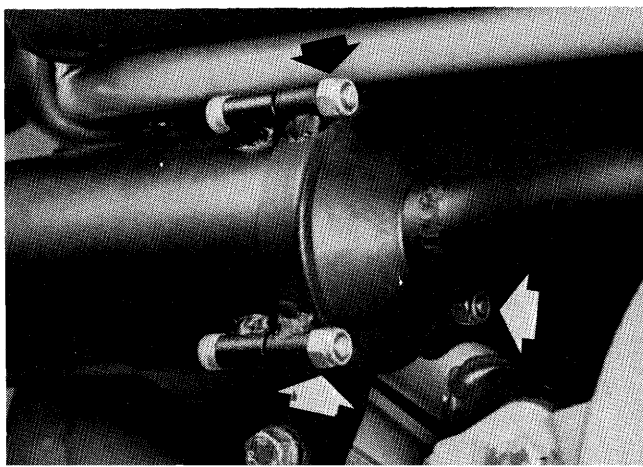


Fig. 26.3

B. When the piston skirt is worn down so that a measurement of approx 0,3 mm can be taken as illustrated in fig. 26.3, scrap the piston.

For taking the crankcase halves apart or for other serious mechanical works, we recommend you to take contact with your dealer. Regarding service tools see page 60.



250 CR

Changing inerttube-silencer

The exhaust system is equipped with an extra absorber.

Remove the three screws and nuts and take away the cover. Now you can change the absorber. NOTE! 390 CR has only two screws and nuts.

General

The drive from the engine crankshaft is transmitted to the clutch through a gear drive.

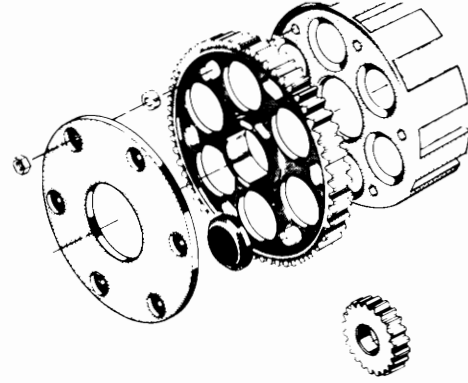


Fig. 27.1

The clutch ring has a built-in damping system and the power is continued by eleven aluminium discs, six with linings and five without. The discs are forced apart by a clutch rod which is actuated by a lever on the upper side of the gearbox. There is a cable between the lever and clutch control handle. When the handle is pulled in, the lever turns and declutches the engine.

The gearbox has six speeds. The gear wheels, shafts and gear shifter of the gearbox are enclosed in a gearbox housing which is integrally built with the engine. The gearbox housing contains a certain amount of oil which is splashed around by the gear wheels and lubricates the contact surfaces.

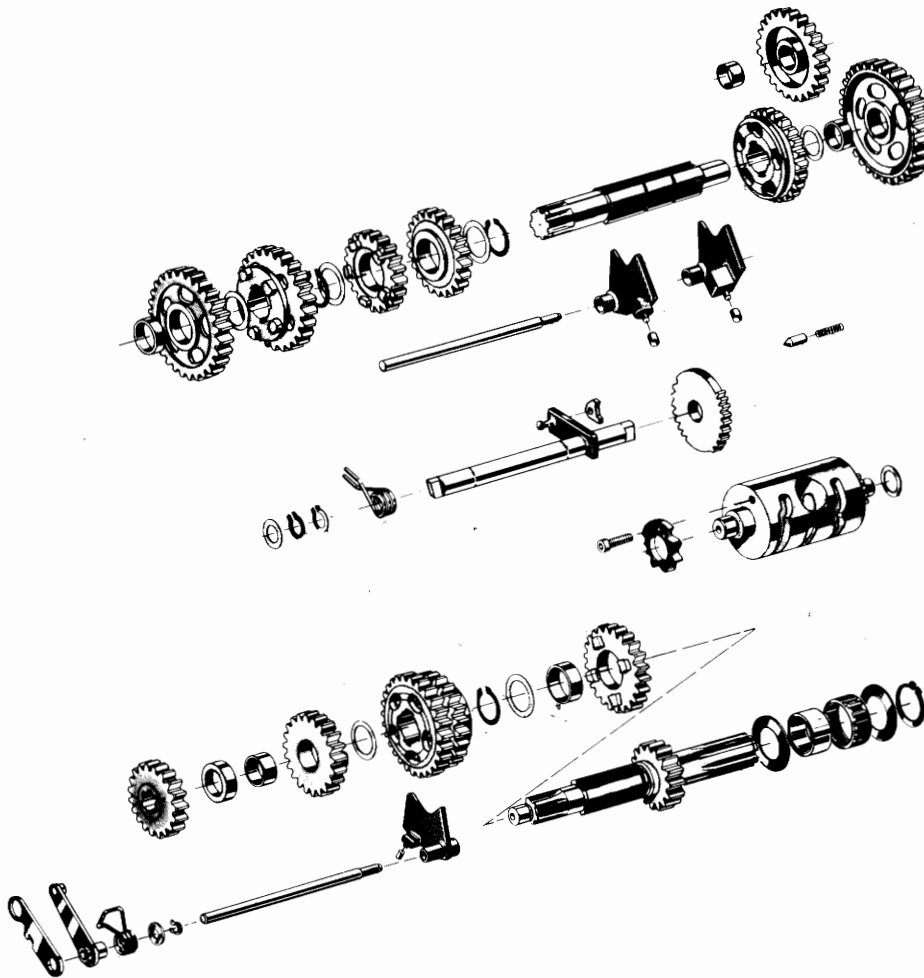
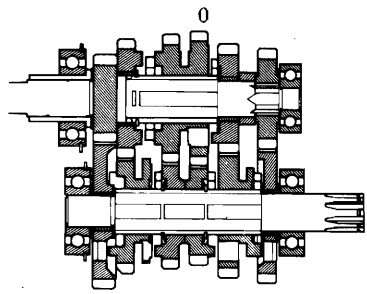


Fig. 27.2



The six gear positions are shown below.

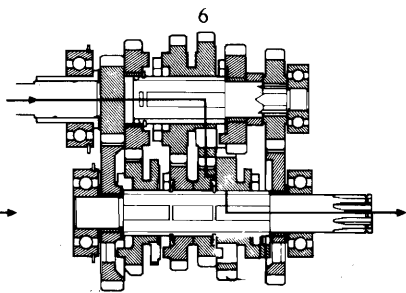
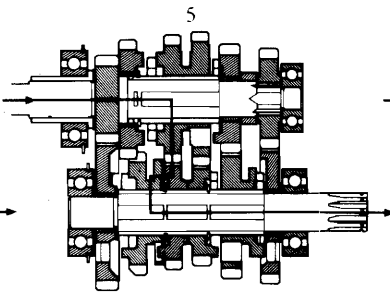
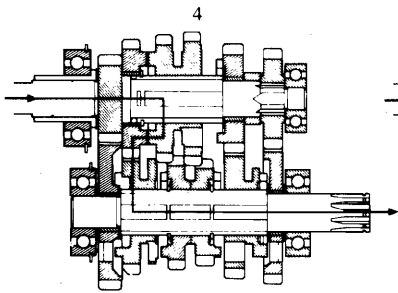
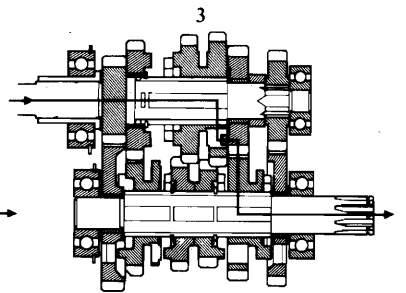
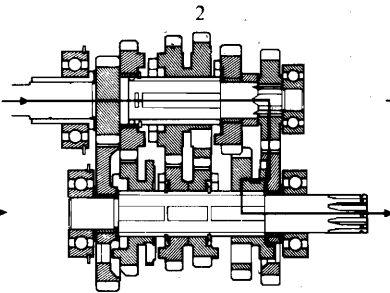
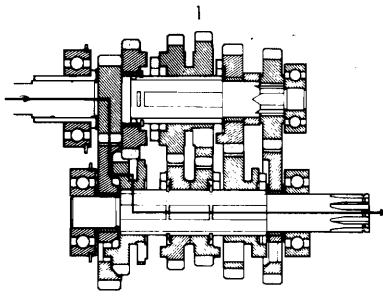


Fig. 28.1

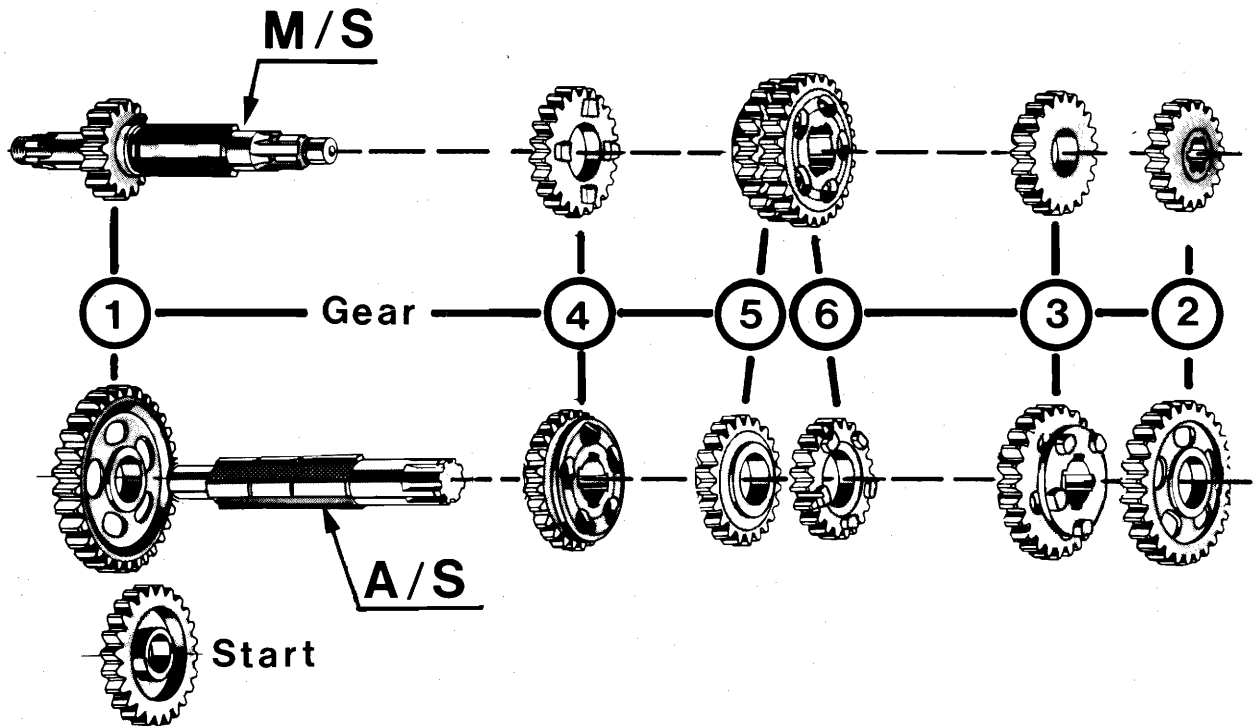


Fig. 28.2

loosening the seven screws.

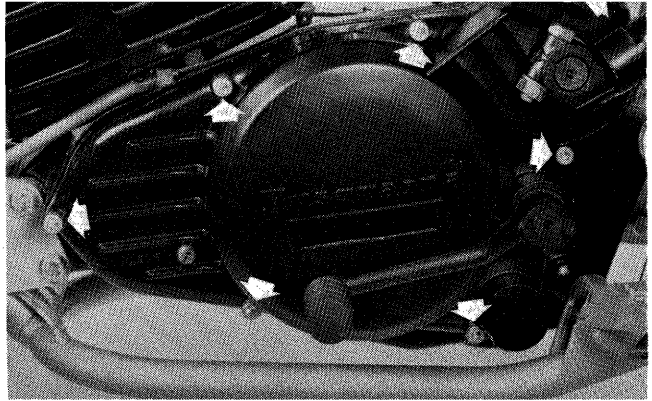


Fig. 29.1

2. Screw out the spring tension screws and remove the pressure plate with springs sleeves washers and screws.

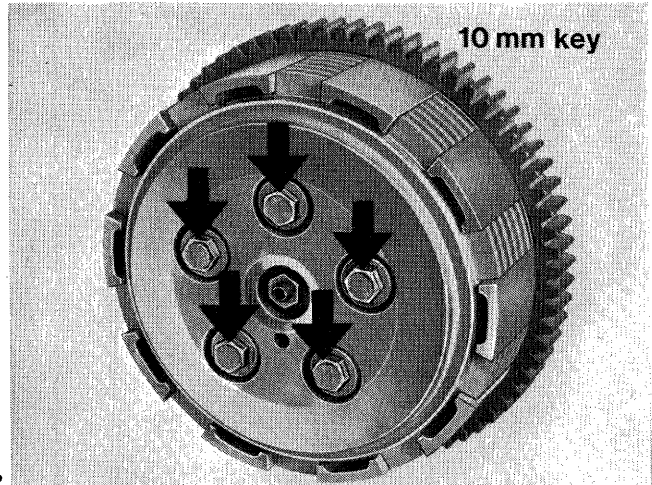


Fig. 29.2

3. Take out the push rod, remove the circlip and take out the clutch hub with discs.

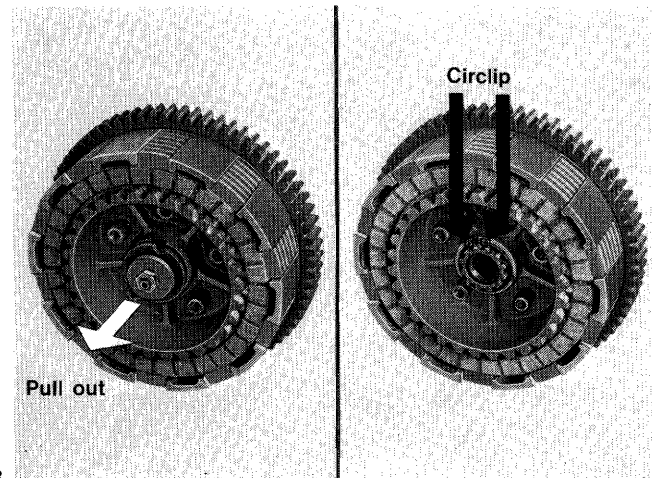


Fig. 29.3

4. Take out the clutch ring.

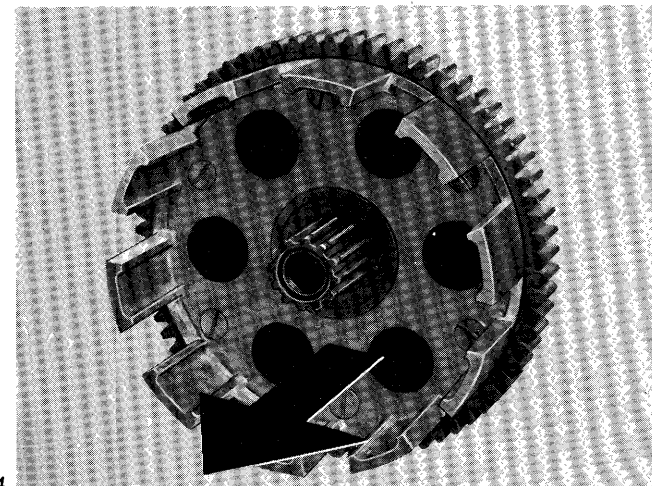


Fig. 29.4

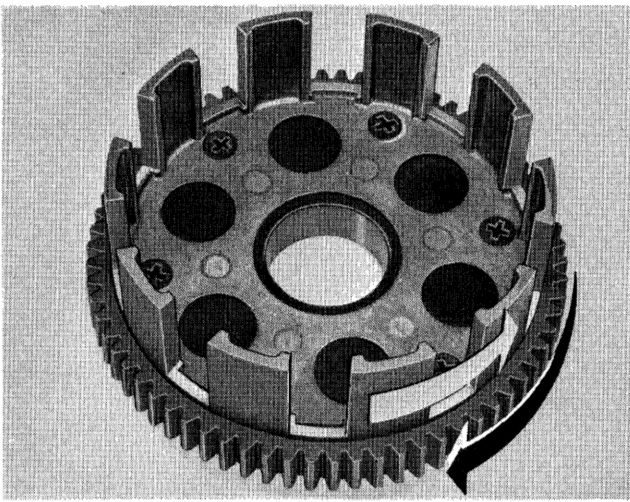


Fig. 30.1

5. Check that no radial play has occurred between the cogwheel and the clutch ring.

If it has, replace the rubber buffers with new ones.

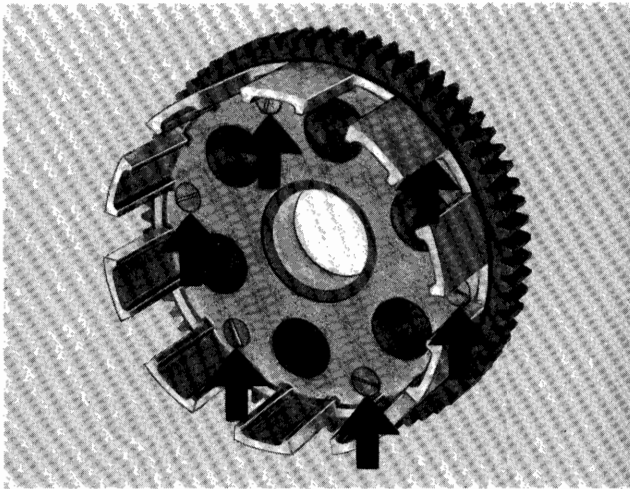


Fig. 30.2

6. Screw out the 6 screws.

NOTE! The nuts on the back-side are locked with lock-tite.

NOTE! Don't disassembly the clutch ring if not absolutely necessary.

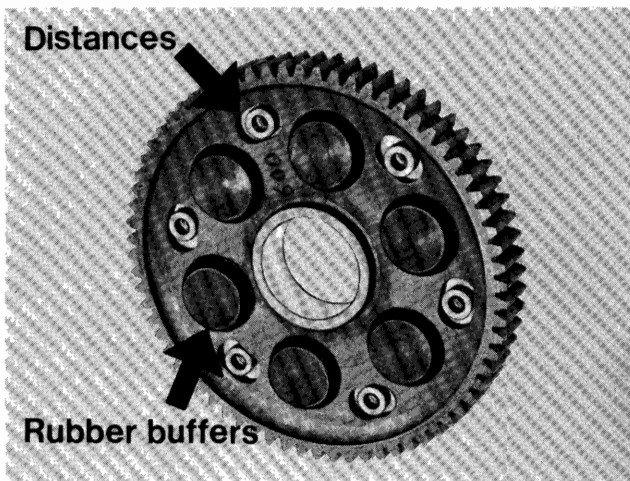
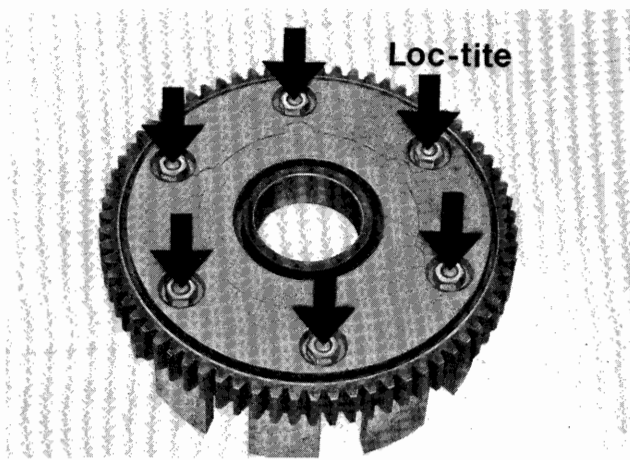


Fig. 30.3

7. Mounting is done in reverse order.

NOTE! Don't forget the distance washers! Lock the six screws with Loctite AAV and tighten them to 8 Nm.



8. Mount the pressure plate with:

- a. Springs
- b. Distances
- c. Washers
- d. Screws

The torque of the 6 screws is 5 Nm+Loctite EV.

lining. The discs are placed as shown in fig. 31.1.

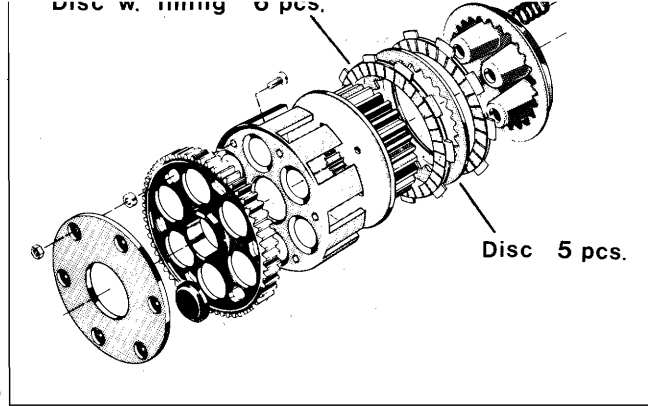


Fig. 31.1

10. Adjust the play on the clutch arm with the screw in the pressure plate. To prevent the shaft sleeve to go round use a lock pin in the hole.

11. Mount the transmission cover and check the oil. See "Oil changing"

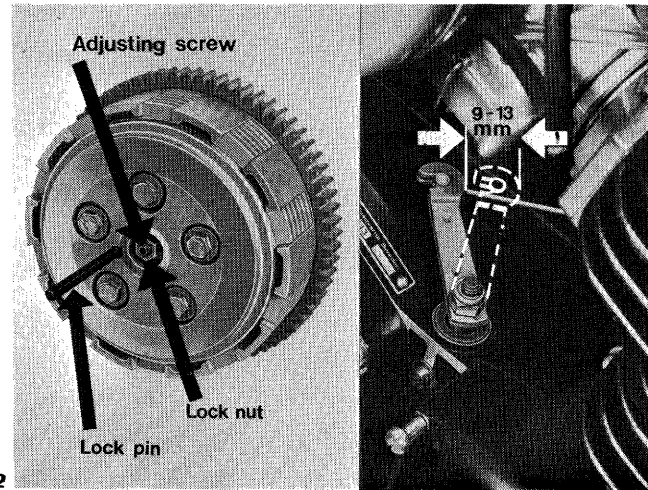


Fig. 31.2

12. Adjust the play at the clutch handle. The play should be 1-3 mm.

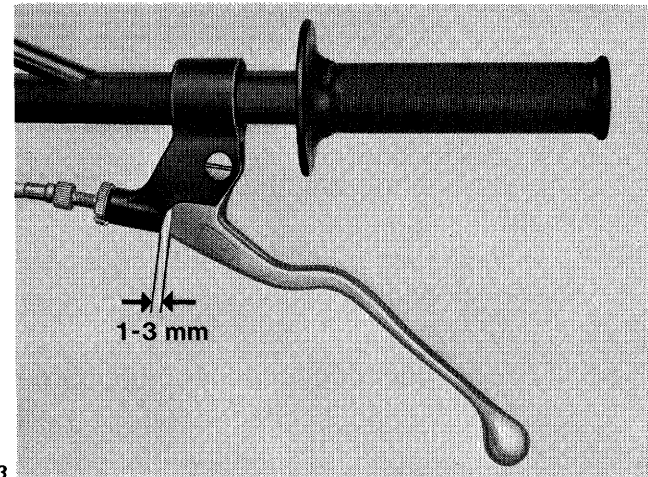


Fig. 31.3

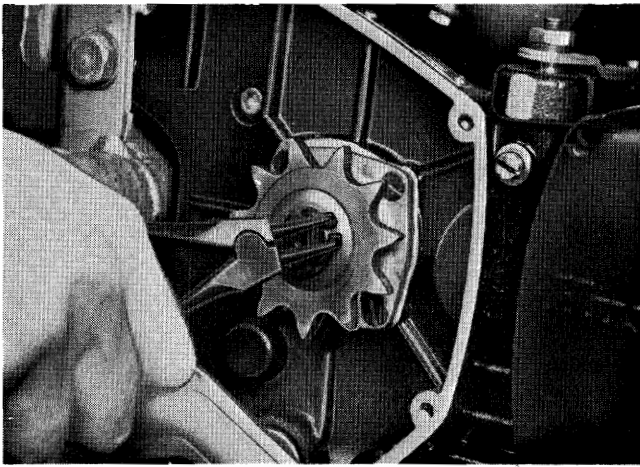


Fig. 32.1

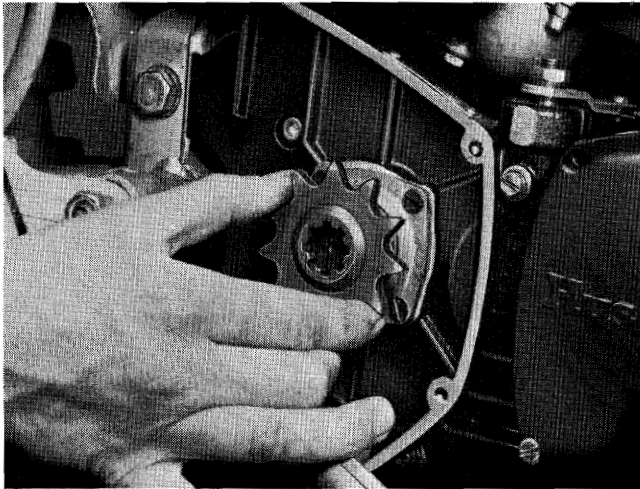


Fig. 32.2

Changing chain sprocket

1. Take off the sprocket cover.
2. Remove the drive chain.
3. Take off the circlip. See fig. 32.1.
4. Remove the sprocket. See fig. 32.2.

Mounting is done in reverse order.

NOTE! See to it that the circlip really is in its groove!

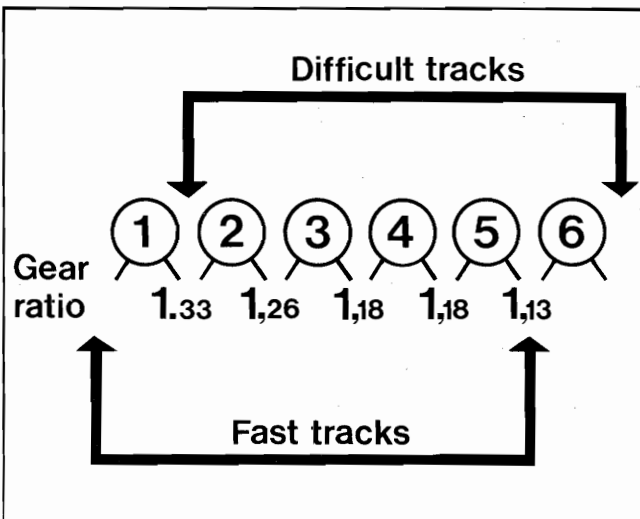


Fig. 32.3

Gearing

All the six speeds are never used in moto-cross. Therefore you can choose to go on 1st-5th speed or 2nd-6th speed just by changing the front sprocket. On a difficult track you preferably use 2nd-6th speed since they have a closer ratio between each other than 1st-5th speed have. See fig. 32.3.

Gear ratio curves

To make comparison between the different possible gear ratios you can get with different chain sprockets (rear and front), the table on next side can be used. The three curves to the left represent the different rear sprockets ($z = 48-56$). Under the curves you can find the different front sprockets ($z = 10-17$). To the right of the curves there is for every gear a gear ratio scale, which numbers can be read on the sloping lines.

Example 1

Which total gear ratios do I get with $z = 16$ front and $z = 48$ rear?

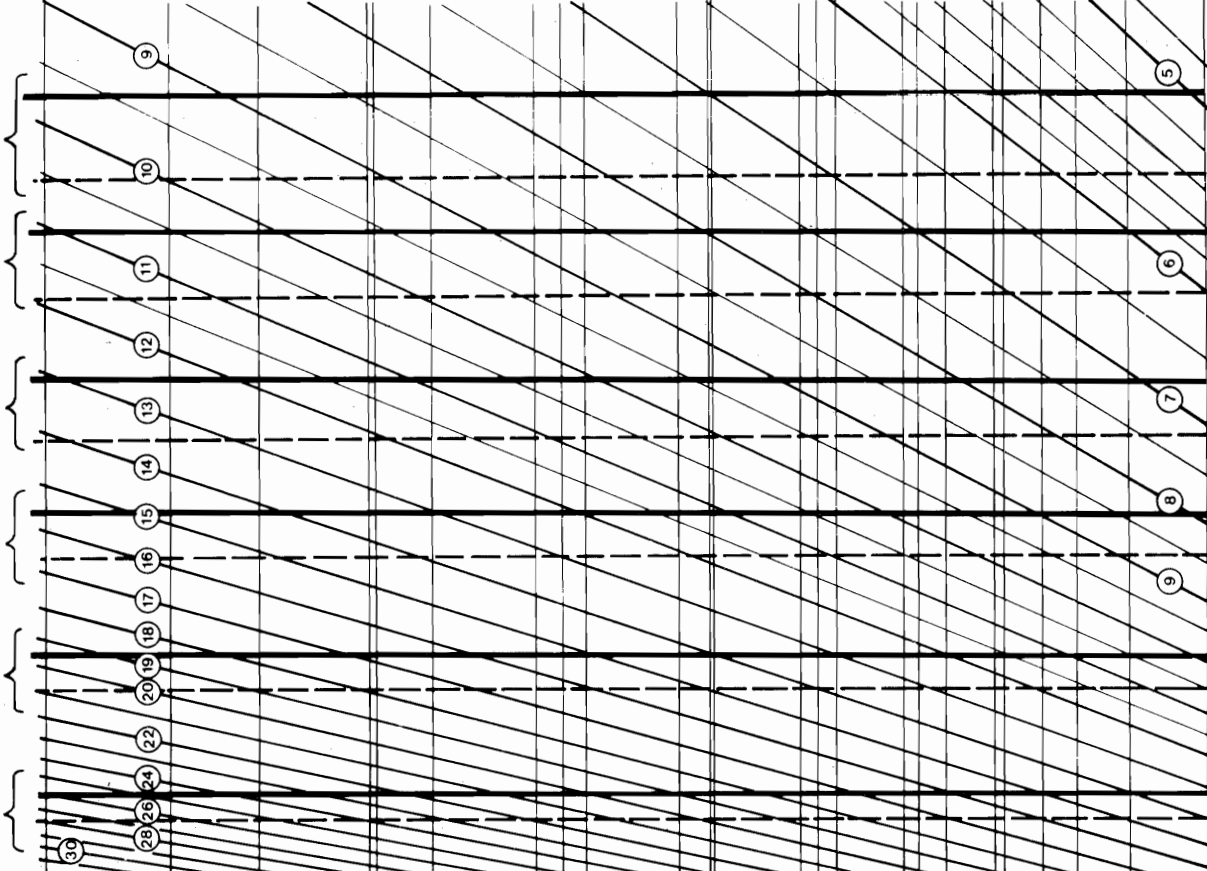
- a) Find $z = 16$ under the curves and go straight up until you intersect the curve $z = 48$.

Example 2

I have $z = 12$ front and $z = 56$ rear and use the five first gears. Which chain sprockets shall I mount to use second to sixth speeds, but still be able to drive in the same maximum speed?

- a) Do exactly as in example 1 a. Note: $Z = 12$, $Z = 56$.
- b) Go horizontal to the right and read the number of the 5th speed (9,91).
- c) Follow the sloping lines and find the point with the same number on the 6th speed scale (9,91).
- d) Go from this point on the 6th speed scale horizontal to the left to the curves of the rear sprockets.
- e) The nearest point on these curves is on $z = 53$ curve. Then go down and find $z = 10$ for

1:st 2:nd 3:rd 4:th 5:th 6:th



250 CR - - -

390 CR —

REAR SPROCKET

56

53

48

10 11 12 13 14 15 16 17

FRONT SPROCKET

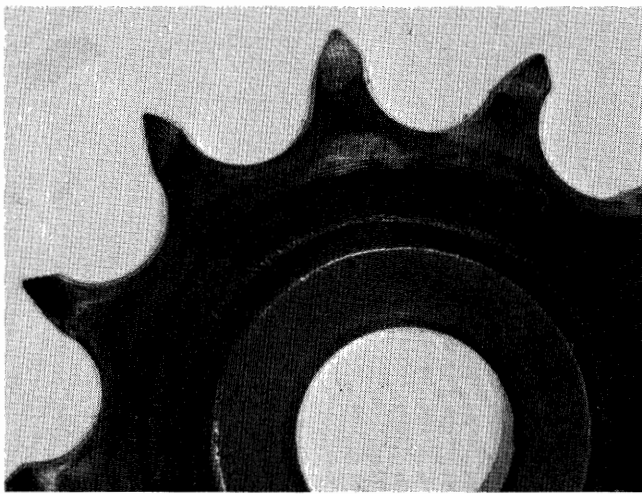


Fig. 34.1

Time for repair

Chain sprockets

Replace the sprocket when its teeth begin to approach the appearance illustrated in fig. 34.1.

Chain

Replace the chain when the difference between its length contracted and expended begins to approach 15 mm. See fig. 34.2.

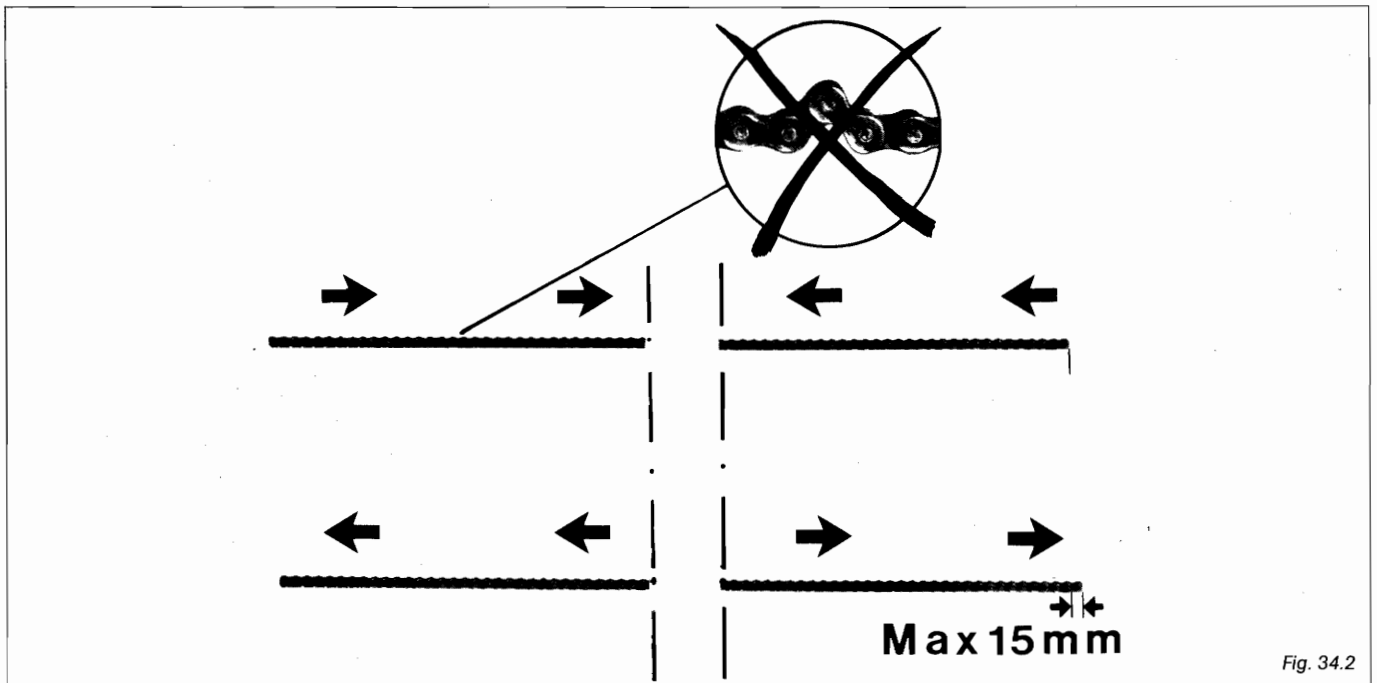
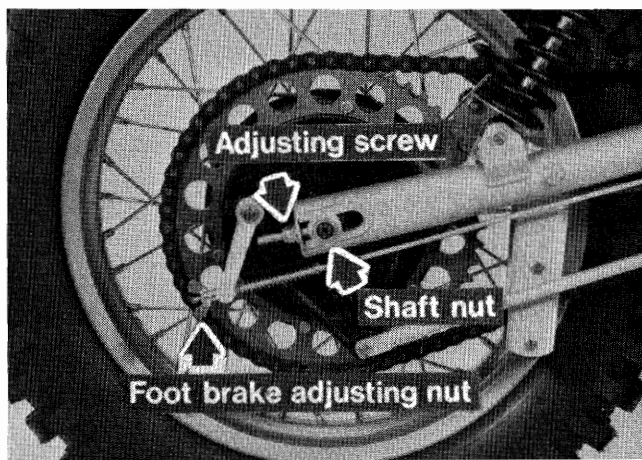


Fig. 34.2



Adjusting the chain tension

1. Loosen the right shaft nut.
2. Slacken the lock nuts of the adjusting screws.
3. Tension the chain by screwing in the adjusting screws an equal amount on both sides. If the chain is tensioned too tightly, screw out the adjusting screws.
4. Check the chain tension.
5. Tighten up the lock nuts without altering the position of the adjusting screws.
6. Check the foot brake. If the rear wheel has been moved, alter the foot brake adjustment. See page 53.
7. Check the rear wheel alignment and chain tracking. See page 52.

Rotation of the chain.

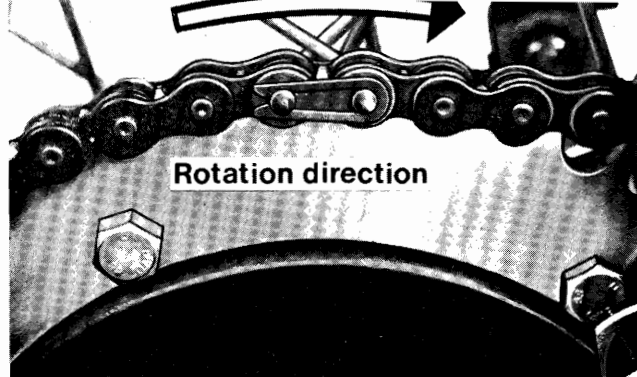


Fig. 35.1

Oil changing

Unscrew the filling cap on the crankcase, (see fig. 35.2), and the drain screw, (see fig. 35.3) on the other side of the engine and let the oil run out. Clean the magnetic plug of the drain screw and check its washer.

Screw in the drain screw again and fill up with new oil through the filling hole.

Connect the breather hose to the filling screw. When the level is correct, oil should run out through the level hole when the machine is held upright and standing on a horizontal surface.

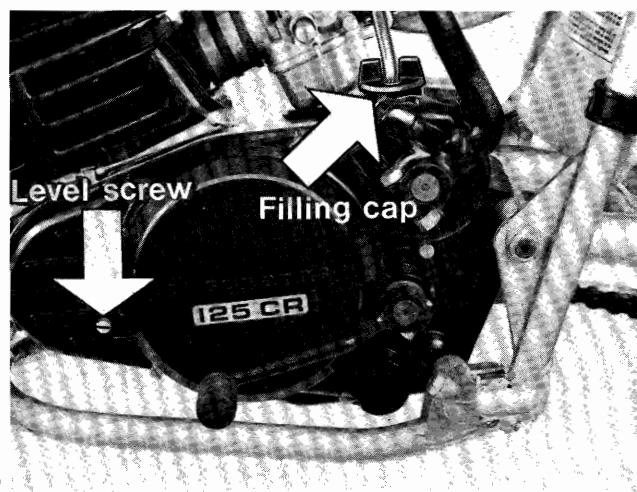


Fig. 35.2

The filling cap also serves as a breather valve. Make sure to connect the breather hose to the screw after serving.



Fig. 35.3

Electrical and ignition system

Removing and fitting

1. Remove the right-hand crankcase cover and the chain cover.

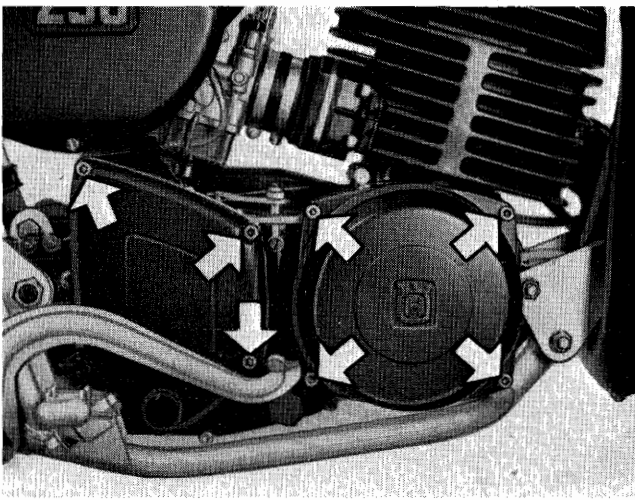


Fig. 36.1

2. Apply the holding spanner and screw off the flywheel nut.
(Note: left-hand thread)

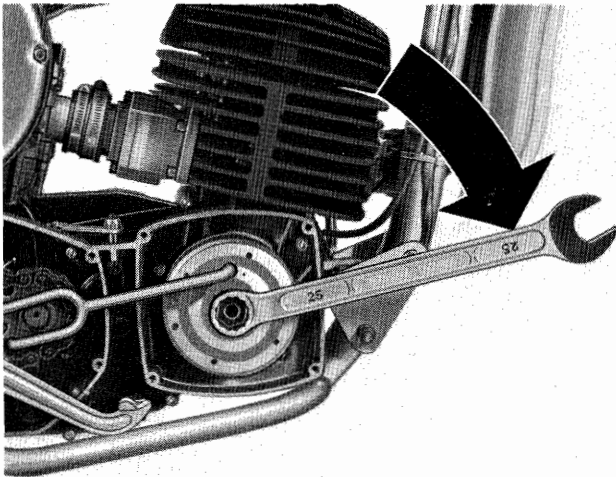


Fig. 36.2

3. Place the flywheel puller in position. Make sure that the puller is screwed in fully.

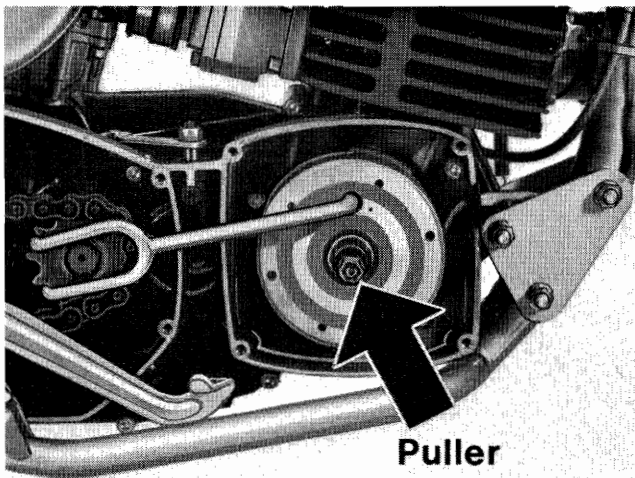
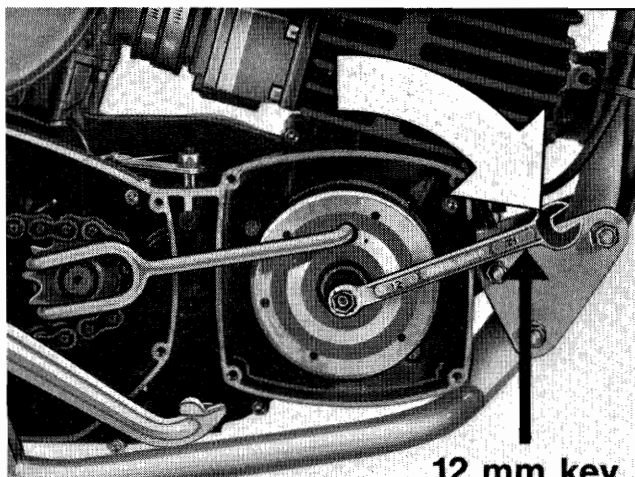


Fig. 36.3

4. Place the holding spanner in position (see figure) and pull off the flywheel.



12 mm key

NOTE! Don't forget to wipe the cone on shaft and flywheel free from grinding compound.

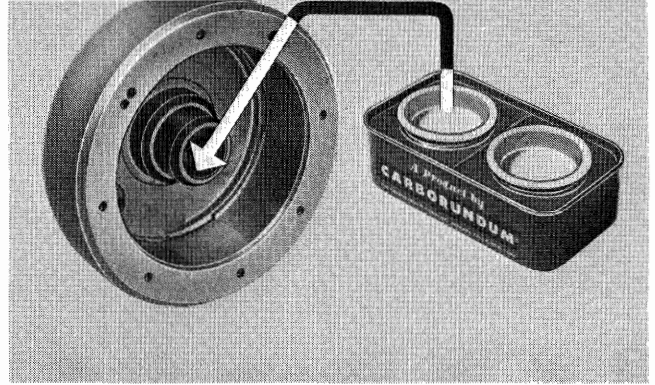


Fig. 37.1

6. Fit in the reverse order and tighten the flywheel nut to,
250 CR, a torque of 70 Nm.
390 CR, a torque of 90 Nm.

NOTE! Tighten the flywheel nut three times, by assembling, after about 2 min running and then after about 2 hours.

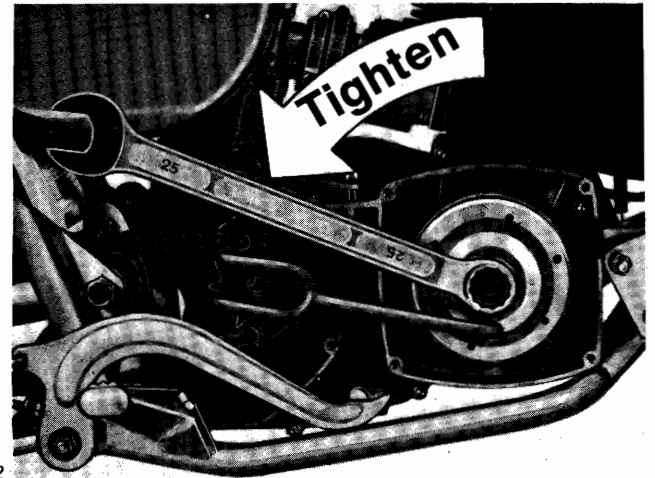


Fig. 37.2

Ignition system

This ignition system has no mechanical contact breaker. Instead, the current is interrupted by a transistor which is magnetically actuated by the flywheel via a coil.

Since this ignition system has no moving parts (except the flywheel, of course), it is less sensitive to moisture and dirt and is more reliable than common conventional systems.

1. Alimentation coil condenser charging
2. Pick-up coil
3. Limiting resistor
4. Rectification diode
5. Thyristor
6. Condenser
7. Return diode damped waves
8. High Tension coil
9. Spark plug

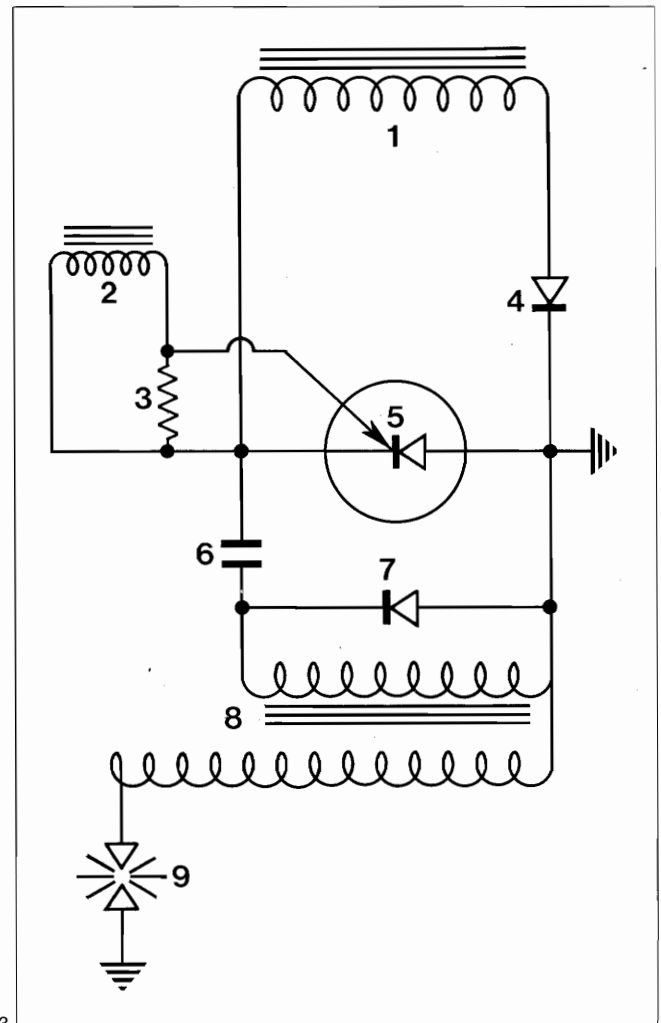


Fig. 37.3

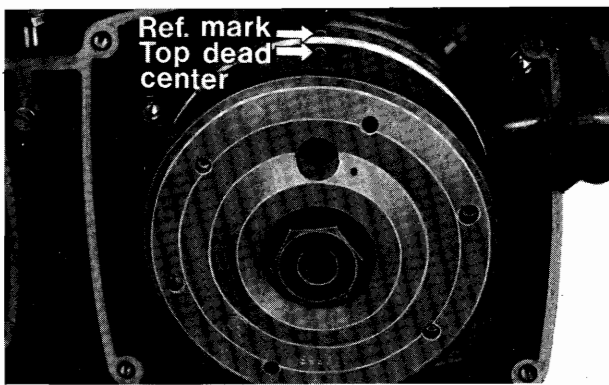


Fig. 38.1

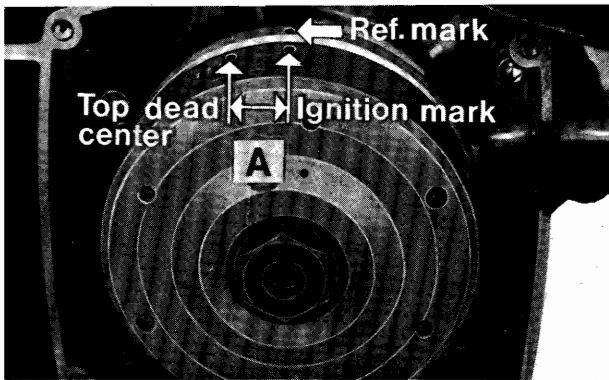


Fig. 38.2

Searching ignition point

1. Place the piston in the upper dead center.
2. Put a mark on the flywheel and a reference mark on the crankcase. See fig. 38.1.

3. Turn the flywheel (the ignition advance A) backwards and put a new mark in the flywheel, beside the reference mark in the crankcase. See fig. 38.2.

250 CR A=20,1 mm
390 CR A=21,8 mm

NOTE! Also see technical data, concerning ignition advance.

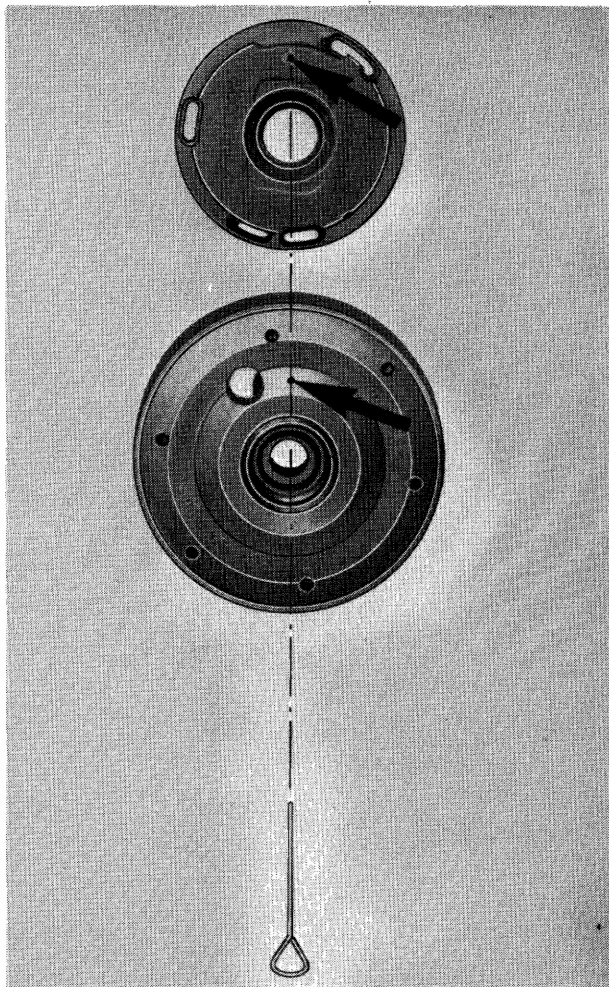


Fig. 38.3

Timing will be done by introducing the attached 2 mm pin through the hole in the flywheel and the hole in the stator (see fig. 38.3). As these holes coincide this will indicate the moment at which the spark jumps.

Put the pin through the flywheel into the hole of the armature plate and turn the whole ignition system until the ignition mark in the flywheel and the mark in the crankcase are beside each other.

NOTE! See to it that the armature plate moves easily so that the pin is not being deformed.

4. Remove the flywheel and fix the armature plate in this position.

When running for long periods at full output or in hot weather it is advisable to use a sparking plug with a higher heat range.

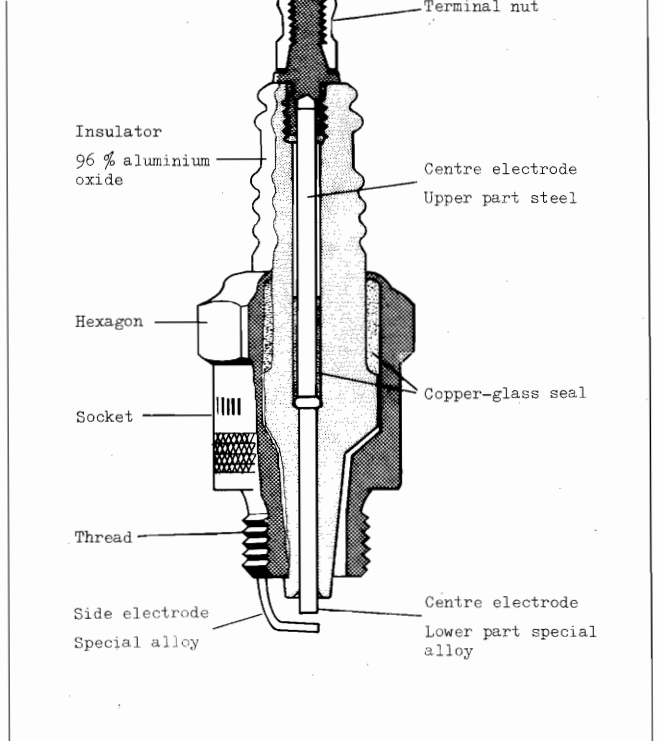


Fig. 39.1

Heat rating of the spark plug

The heat rating indicates the degree of heat load which a spark plug can withstand. A plug with a high heat rating can withstand a higher heat load than one with a lower heat rating. The higher the heat rating, the greater the resistance to glow ignition and the less the resistance to carbonizing and oiling up.

The working temperature of the spark plug should be between 500° and 850°C. 500°C is the self-cleaning temperature, i.e. the temperature which the plug must obtain in order not to carbonize or oil up. At above 850°C the spark plug can cause glow ignition which will reduce the engine output and may cause damage to the engine.

A plug with too low a heat rating and which glows, usually causes overheating and piston seizure. In doubtful cases it is better to fit a plug with too cold a rating than one with too hot a rating.

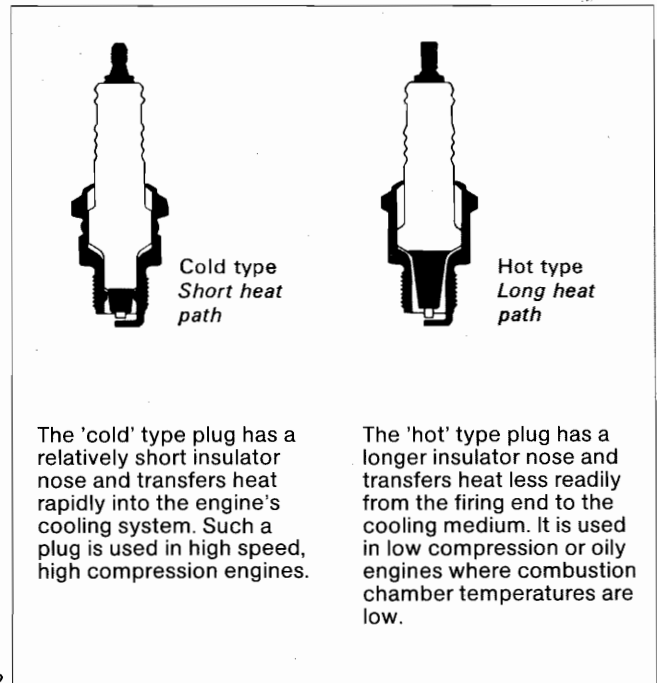


Fig. 39.2

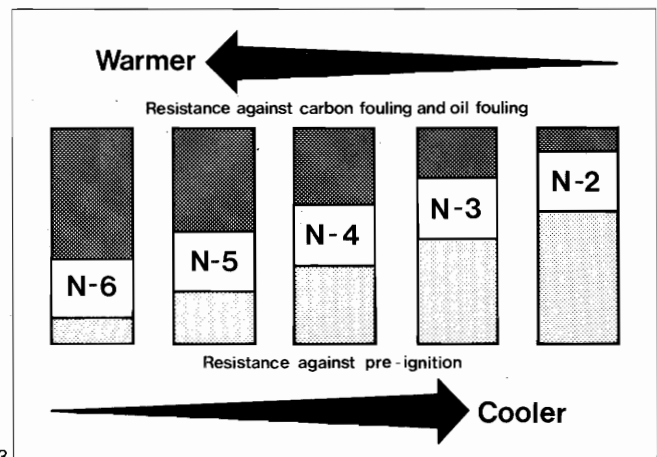


Fig. 39.3

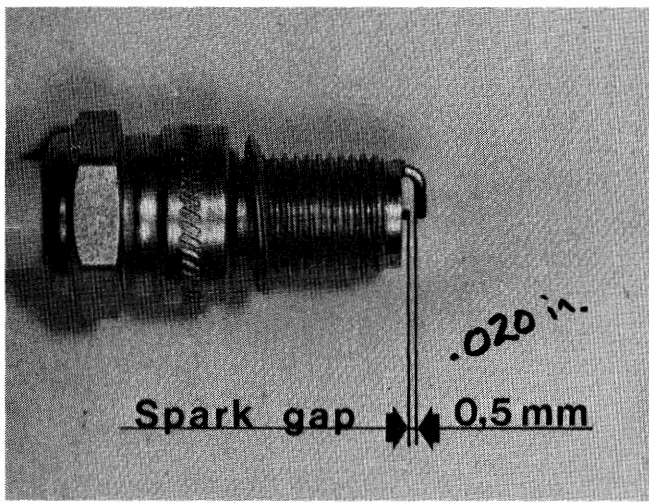


Fig. 40.1

Spark gap

The spark gap should be 0,5 mm. Too large a spark gap can cause starting difficulties as well as overloading and burning-out of the ignition coil. On the other hand, too small a spark gap can impair the acceleration, idling and low-speed characteristics.

The gap is checked with a wire gauge (not feeler gauge). Adjustment should be done on the side electrode, which is bent towards or away from the central electrode.

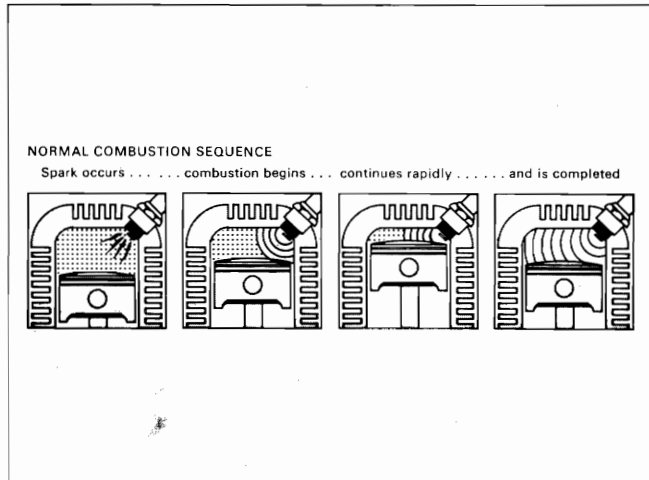


Fig. 40.2

Normal combustion

The power in an internal combustion engine is developed by the expanding gases resulting from the burning of the air/fuel charge. If the ignition timing is correct and the anti-knock quality of the fuel meets the engine requirements, the burning process should progress steadily across the combustion chamber until completed.

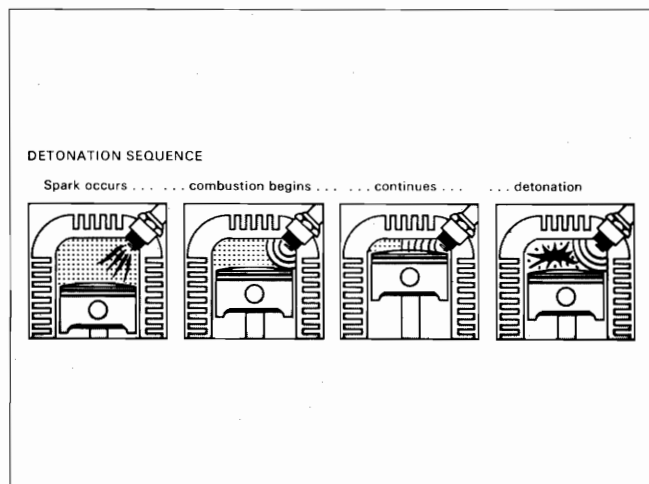


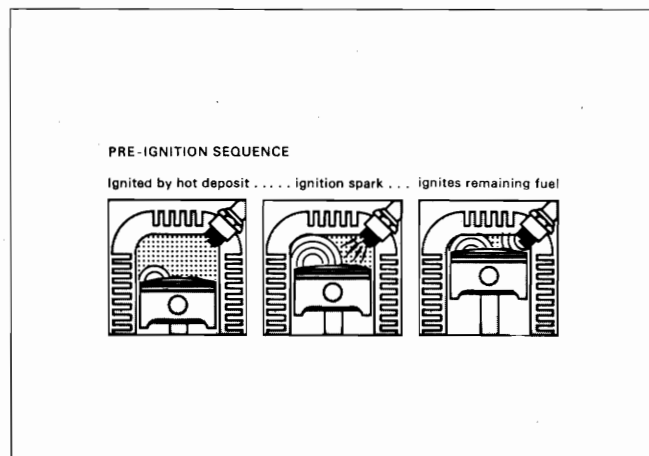
Fig. 40.3

Detonation

Detonation can occur when the anti-knock quality of the fuel does not meet the engine requirements.

Apart from the use of fuel with a lower octane value than recommended, there can be other reasons for this, e.g. over-advanced ignition timing, or build-up of deposits in the combustion chamber which will affect the rate of heat transfer to the cooling medium.

Detonation can occur in various ways but probably the most common is that in which combustion is initiated normally from the spark plug, the flame front advances part way across the combustion chamber – when the remaining fuel/air charge “explodes”. This explosion imparts a hammering pressure to the piston crown, and combustion is completed too early. Together with the abnormal stresses, detonation causes greatly increased combustion chamber temperatures.



Pre-ignition

Pre-ignition is the term used to define the ignition of the fuel/air charge before the spark occurs. Any hot-spot within the combustion chamber, such as carbon deposits, rough metallic edges, improperly seated valves, or overheated spark plugs can be capable of starting combustion.

As a result of this early combustion, the piston compresses the already expanding gas, causing an abnormal increase in combustion chamber temperature and pressure which may ultimately

Correct appearance:

Medium-brown insulator base, dark grey socket with grey carbon deposit. No excessive burning of the electrodes.

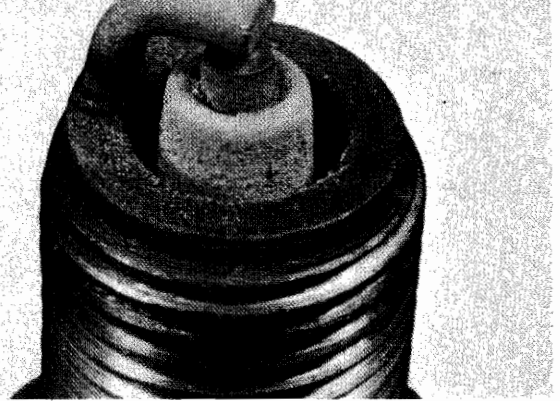


Fig. 41.1

Incorrect appearance:

Beads on insulator base, which is burnt white. Electrodes "blued".

Possible fault: Heat rating too low. Fuel/air mixture too lean. Ignition too early. Sparking plug insufficiently tightened.



Fig. 41.2

Insulator base, socket and electrodes coated with oil and carbon deposits.

Possible fault: Heat rating too high. Too much oil in the petrol.



Fig. 41.3

Insulator base, socket and electrodes coated with dry, black soot.

Possible fault: Heat rating too high. Fuel/air mixture too rich. (Air cleaner blocked.)



Fig. 41.4

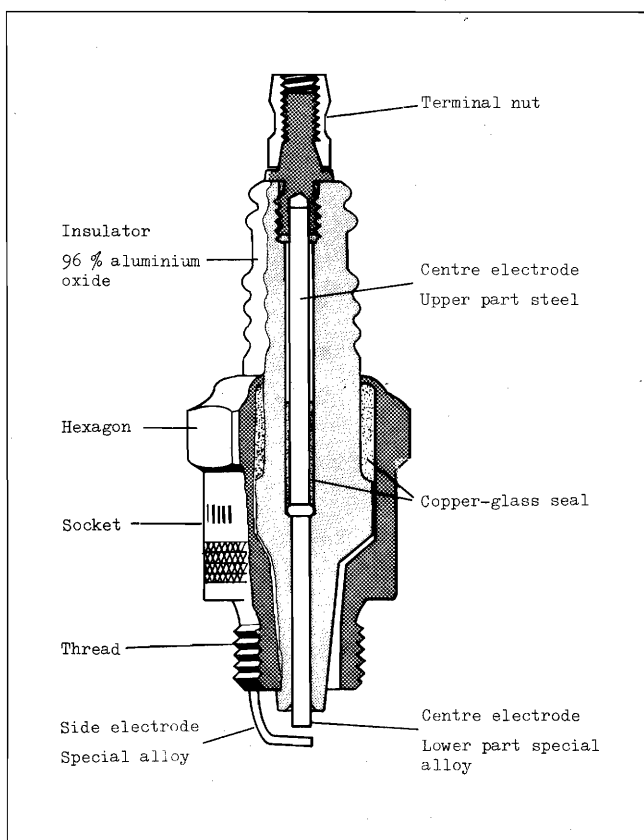


Fig. 42.1

If your motorcycle will not start, the fault will most probably lie either in the Ignition System or in the Fuel System. A few simple checks may help to pinpoint the problem.

Ignition system

Check that the plug cover is unbroken and making good contact.

Inspect the H.T. lead for signs of wear. Cracked cable should be replaced.

Remove and inspect the spark plug. Look for the conditions described under "Appearance of the spark plug". Page 41.

Check to see that enough voltage is reaching the spark plug. Disconnect the high-tension lead from the spark plug terminal and while kicking the engine over, hold the end about 1/4" to 3/8" (6 to 8 mm) from the engine block. A flat blue spark across the gap between the lead and block while kicking the engine over indicates the ignition system is working properly.

If spark is weak, yellow or reddish, the ignition system should be checked by a qualified technician.

Service-informations

Tank, lines and filters

Obstructed or choked fuel tank or filters will cause engines to run weak or stop altogether. Air and fuel filters should be cleaned or replaced at regular intervals.

Washable element fuel filters often become clogged due to rust or sediment from fuel tanks. Moisture and contaminants should be flushed out of the tank periodically removing the fuel line and allowing a small amount of fuel to drain out.

Fuel oil mixture: Two stroke engines

Since the crankcase of a two-stroke engine is part of the fuel induction system, it is necessary to mix a small amount of lubricating oil with the petrol. As this fuel/oil mixture is carried through the crankcase, it lubricates the engine's internal moving parts. Lubrication requirements for two-stroke engines differ somewhat from four-stroke engines. Oils especially prepared for two-stroke air-cooled engines are highly recommended because they reduce exhaust port deposits, piston and cylinder wall scuffing and spark plug fouling. The ratio of petrol to oil may vary from one engine to another, but in all cases, recommended fuel/oil mixtures must be carefully followed. Too much oil results in excessive smo-

cause cylinder wall, piston and piston rings scuffing and bearing damage. Premix the petrol and oil before putting it into the fuel tank. Pour half the petrol into a clean container; then pour in all the oil. Shake this partial mixture well. Then add the rest of the petrol and shake the mixture again. Do not use paraffin or fuel oil as mixing agents. Mixing should be done where temperatures are above freezing (preferably at room temperature). Oil and petrol will not mix well at 0°C or below . . . and incomplete mixing will cause engine damage from lack of lubrication. However, in many countries pre-mixed two-stroke fuel is readily available at service stations.

Exhaust system

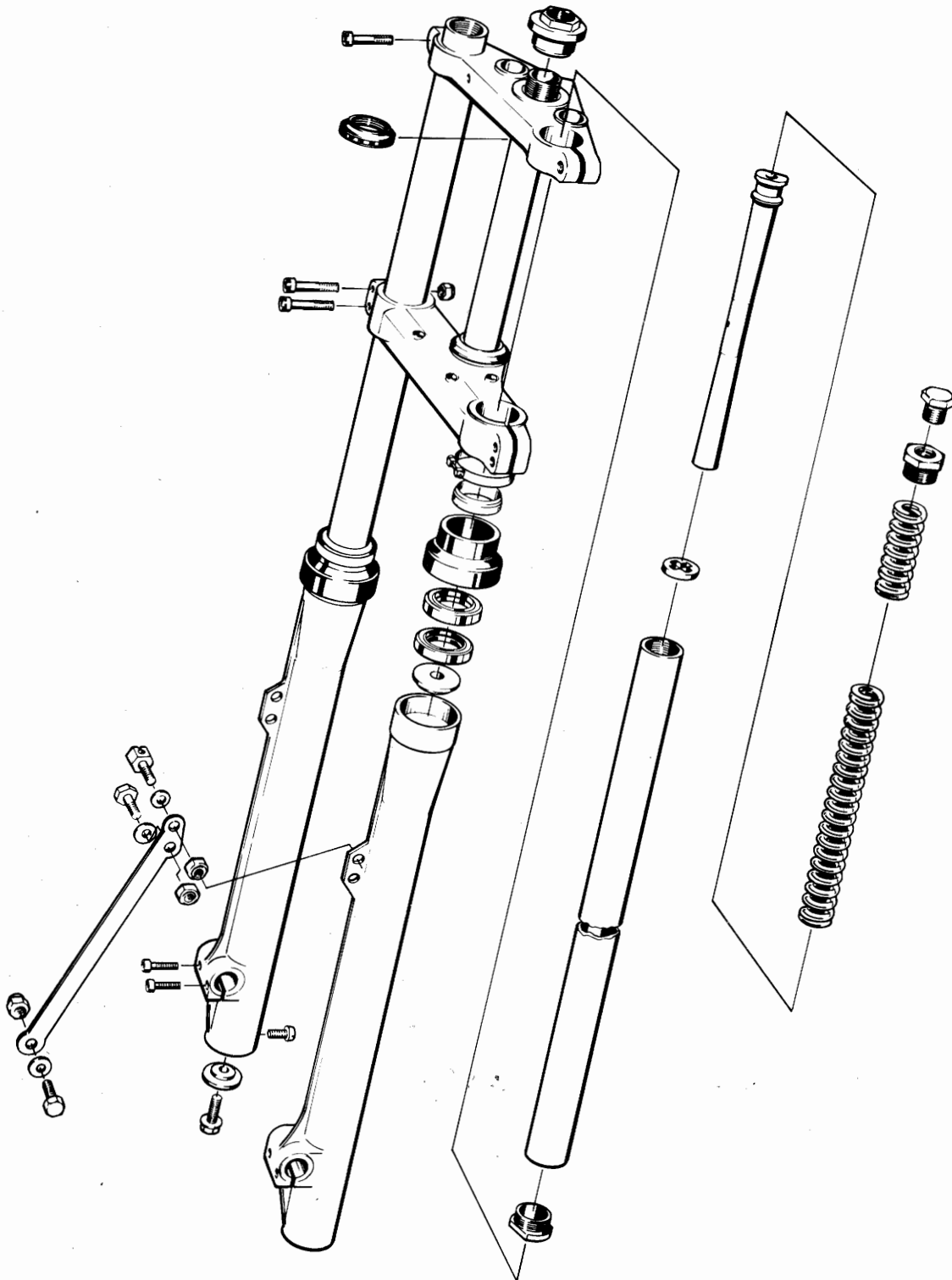
Two-stroke engines, especially those operating on a rich fuel/air mixture will tend to build up carbon in the exhaust ports.

Remove the cylinder head and clean the combustion chamber. Make sure that exhaust system is free of deposits. Combustion chamber cleaning should be done with care to avoid deep scratches on head or piston. Brush or scrape away deposits with a soft material such as wood or plastic.

At the same time you can inspect the piston rings. Questionable piston rings should be replaced to

Function

The front fork is of the telescopic type with hydraulic damping. The damping action is obtained by means of a damping spindle which is attached to the fork leg in such a way that the fork tube runs over the spindle. The oil in the fork is thereby forced to pass through an area which alternates with the spring movement of the machine and which is dimensioned so that the correct oil flow resistance is obtained for each particular position of the suspension system. This means that heavier oil increases the damping effect (harder suspension), whereas a thinner oil reduces the damping effect (softer suspension).



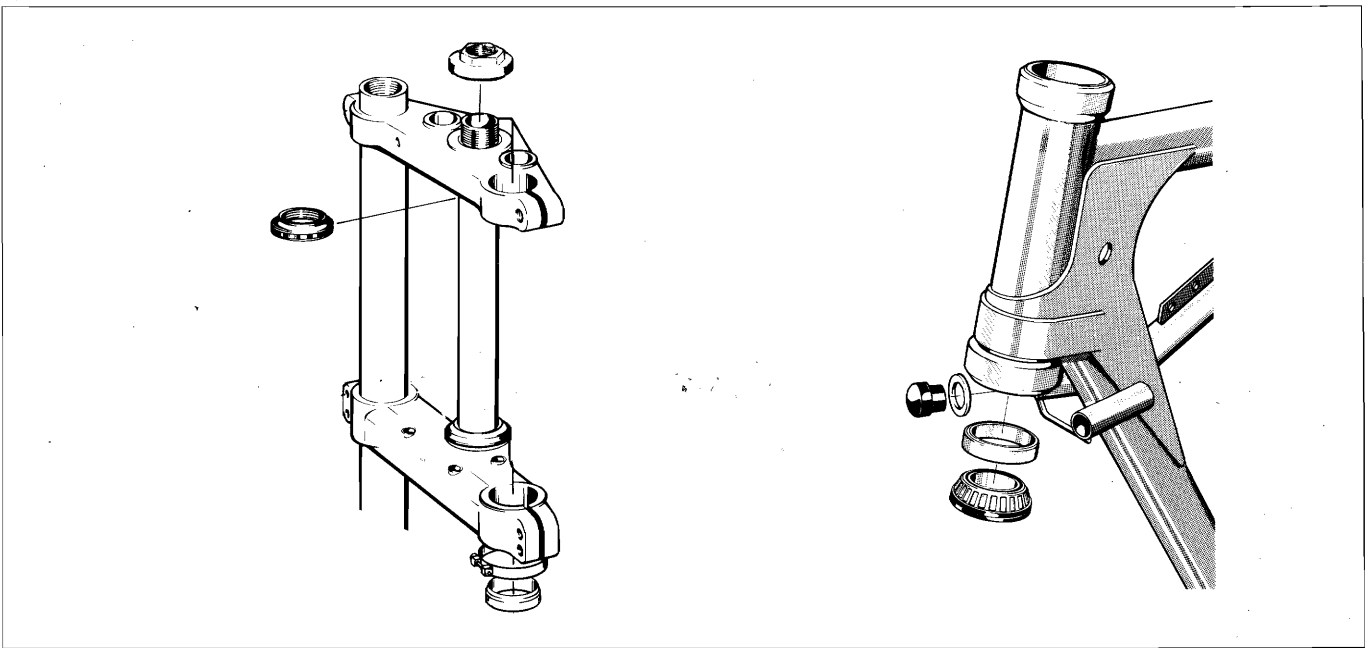


Fig. 44.1

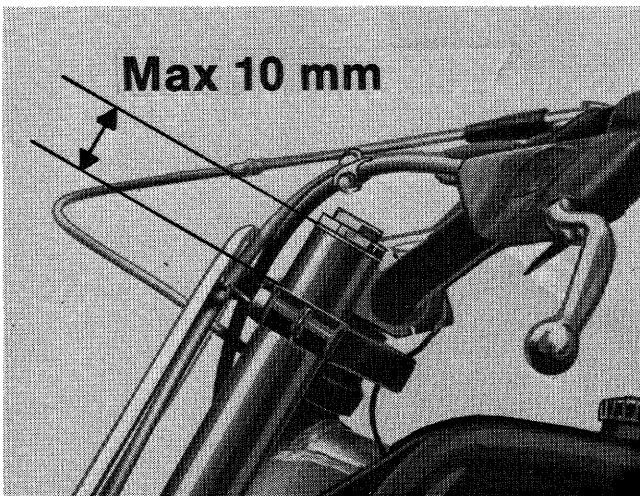
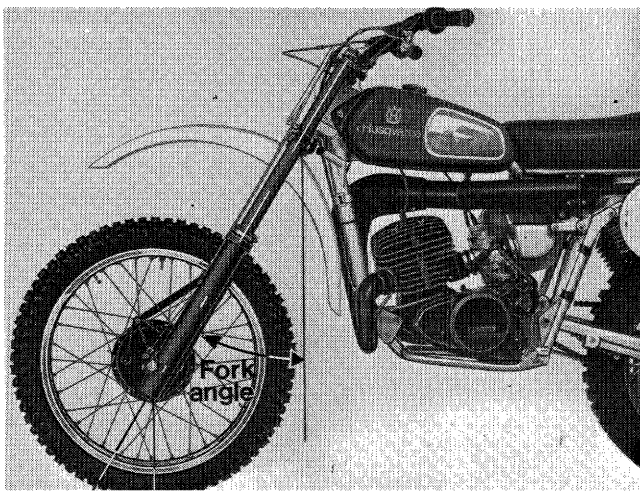


Fig. 44.2

Changing fork angle

The fork angle and the lead distance can be altered by moving the fork up in the fork crown. We recommend a maximum distance on 10 mm. When moving the fork up you get a smaller fork angle.



Character

Big fork angle (fork down as standard) gives even ride in bumpy tracks, but difficulties in sharp bends. Small fork angle (fork upwards, max 10 mm) makes the machine easy to go round sharp bends, but difficult to ride on bumpy straights.

NOTE! Don't push up the fork through the fork crown so the wheel can be able to hit the mud-guard!

run out. Fill up with 0,24 l of a suitable type of oil in each fork leg.
Screw in and tighten up the filling screws.

Oil recommendation: Engine oil SAE 10–SAE 30 depending on temperature, rider and course.

NOTE! Oil change 0,24 l/leg.
Disassembling leg 0,25 l/leg.

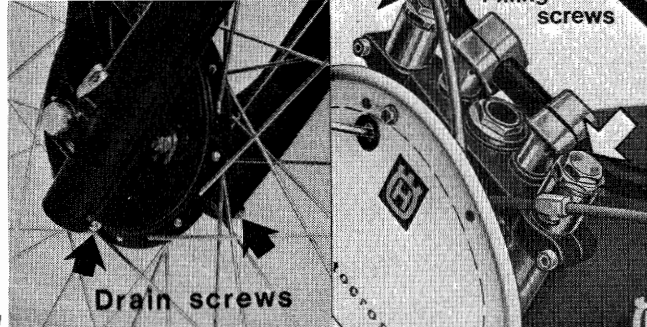


Fig. 45.1

Adjustment of front fork parallelism

In a crash, the fork shanks may be distorted in relation to one another as shown in fig.

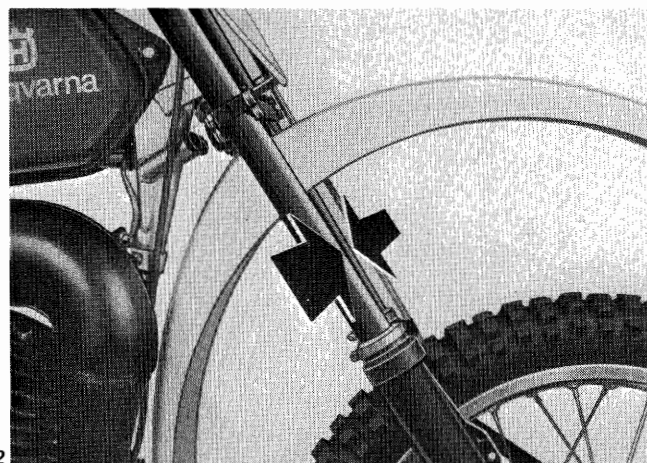


Fig. 45.2

This can be corrected by slackening the two clamping bolts.

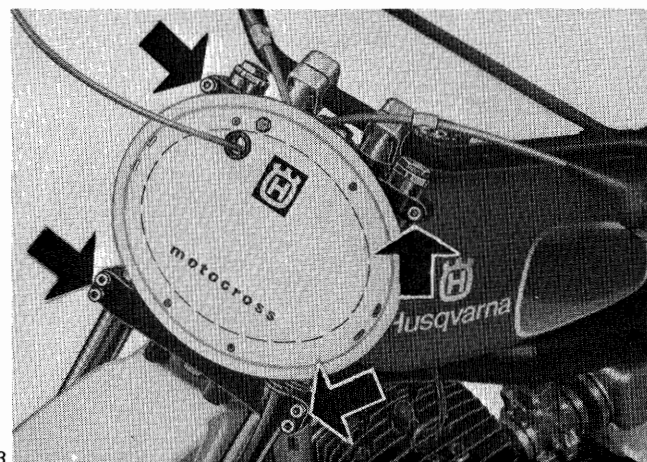


Fig. 45.3

Adjust the fork until the shanks are parallel again.



Fig. 45.4

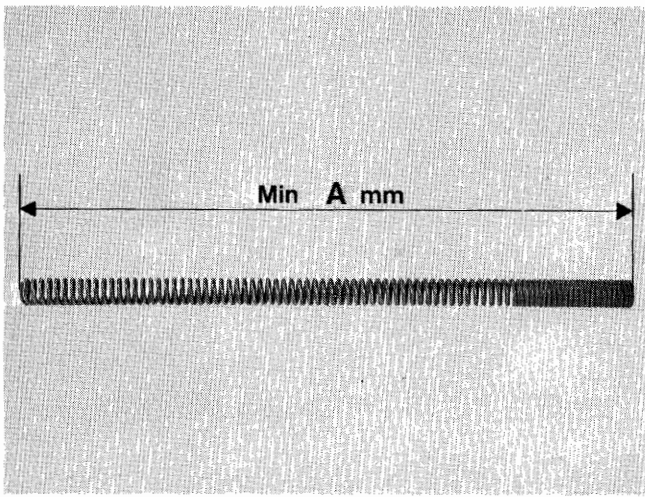


Fig. 46.1

Spring "time for change"

Put the two springs in each forkleg together on a flat surface. When the springs are shorter than 690 mm they must be changed. A=690 mm.

NOTE! Never renew springs in one forkleg alone – renew the springs in both legs.

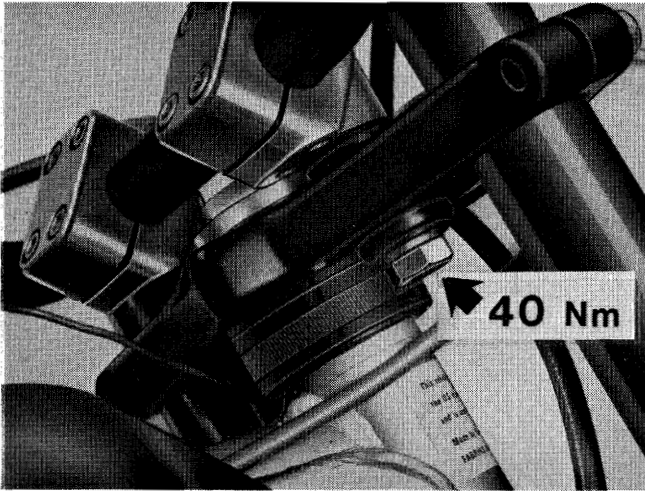


Fig. 46.2

Rubber mounted handlebar

The handlebar is connected with rubber element and mounted to the fork-crown.

Rubber mounted handlebar gives you less vibrations.

Tighten the handlebar screws to a torque of 40 Nm.

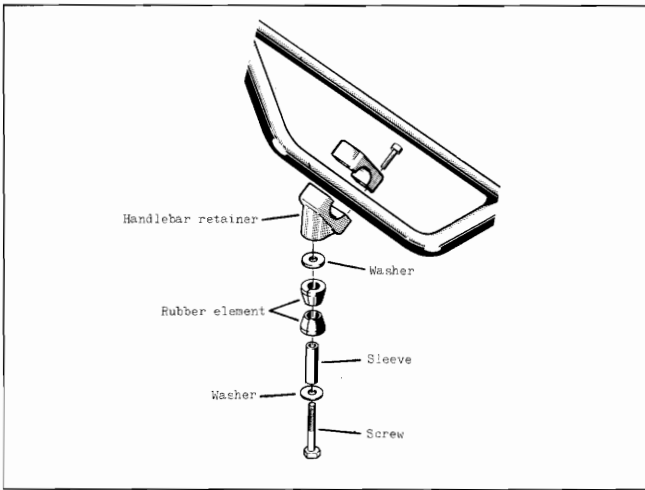
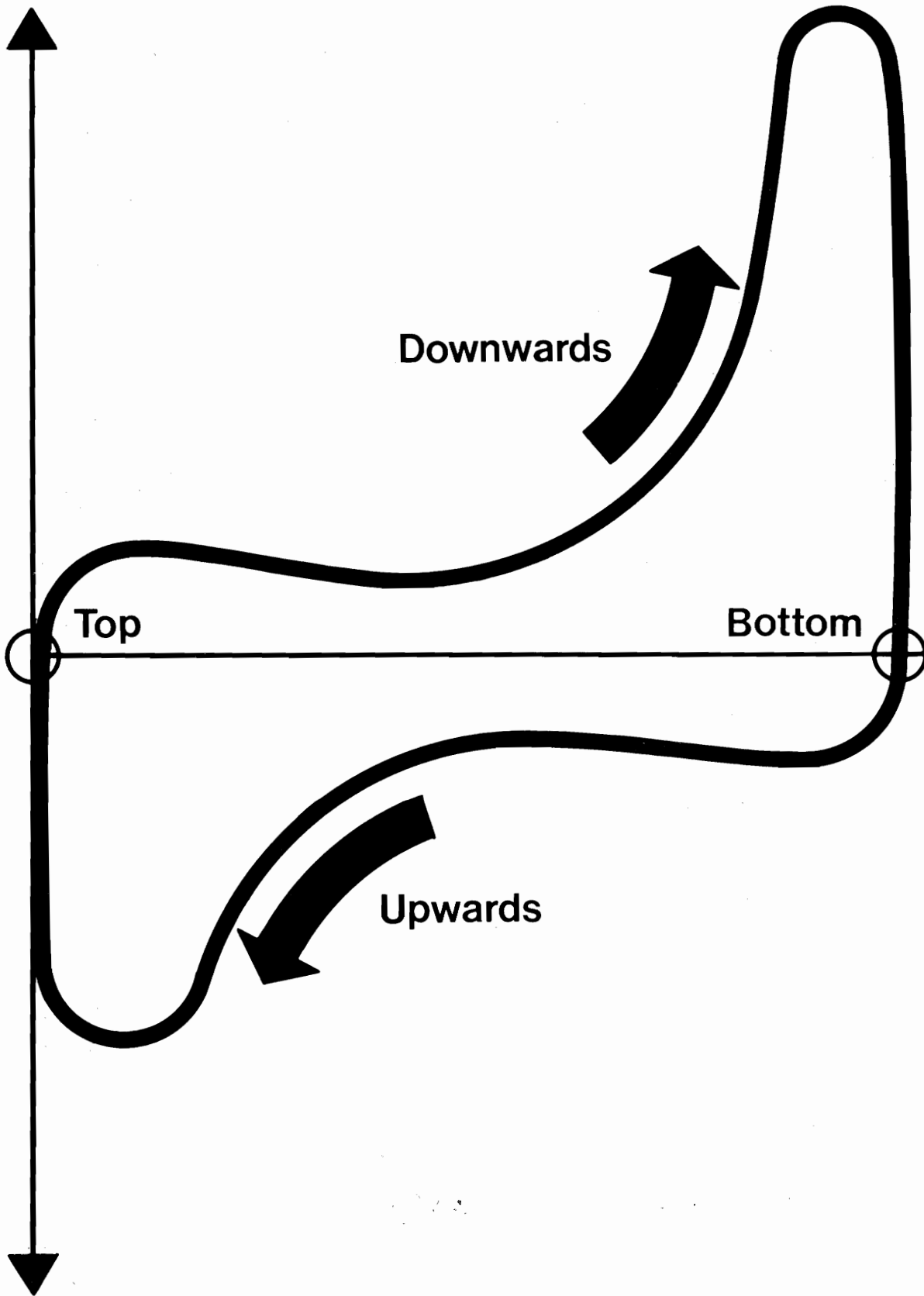


Fig. 46.3

The fig. shows you what the rubber arrangement looks like.

"fork downwards"



Damping power
"fork upwards"

Fig. 47.1

Rear suspension

General

The shock absorber is of gas-damping-type. The damping system works in oil, but the pressure is controlled by a gas volume in the upper part of the shock absorber.

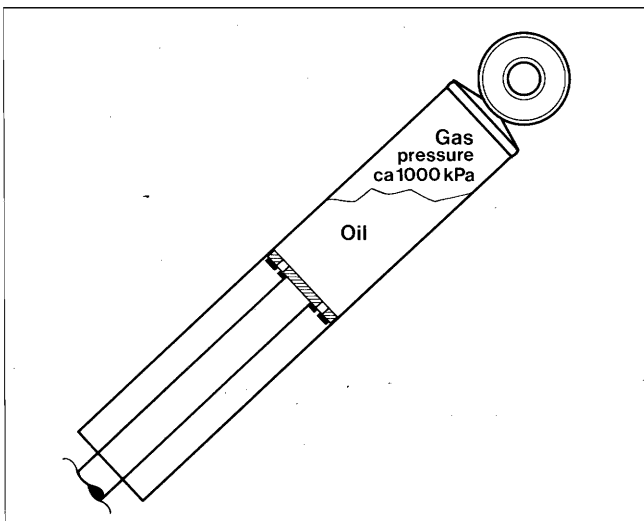


Fig. 48.1

Function

When the unit compresses, the oil flow will bend the membran and only pass the big holes in the piston. That gives a small damping resistance at compressing.

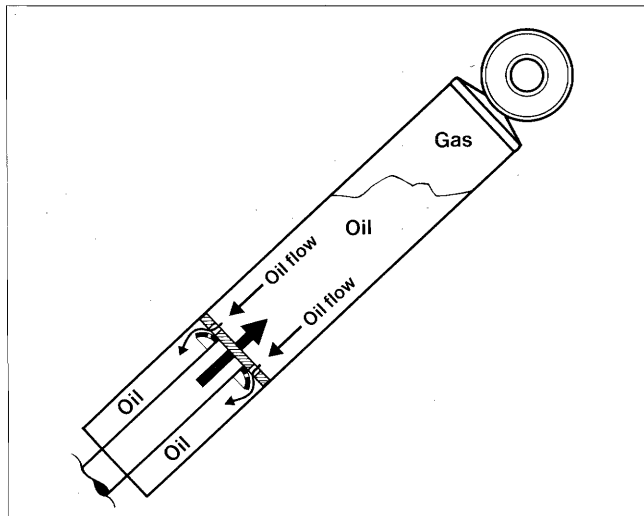


Fig. 48.2

When the unit releases, the membran lies tight to the piston and the oil must flow through the small holes in the membran when piston is moving downwards. That gives a hard damping resistance.

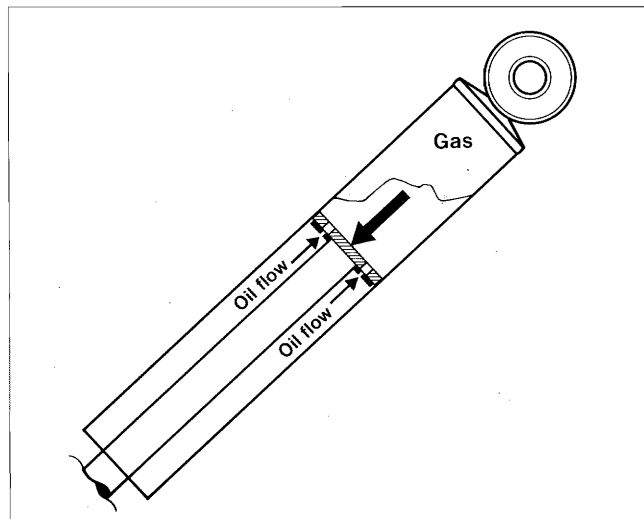
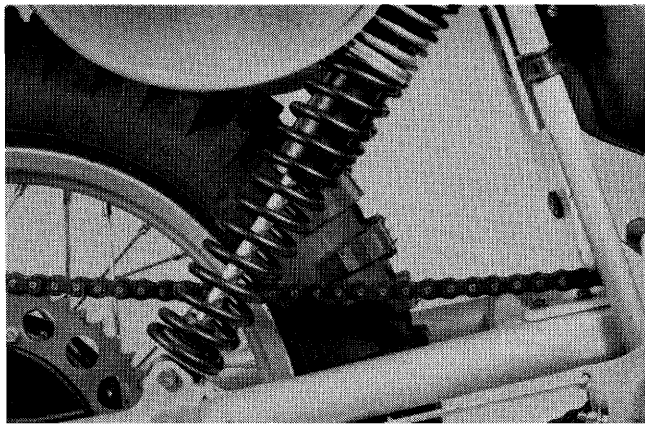


Fig. 48.3



Mounting

It is very important to keep the gas volume in the upper part of the unit. Therefore, always mount the shock absorber as fig. 48.4 shows.

The shock absorber is equipped with two springs. The upper one is soft, and the lower is hard.

The rear fork is equipped with needlebearings. Two in each leg. Inside the bearings there is a sleeve and around the sleeve there is also two O-rings.

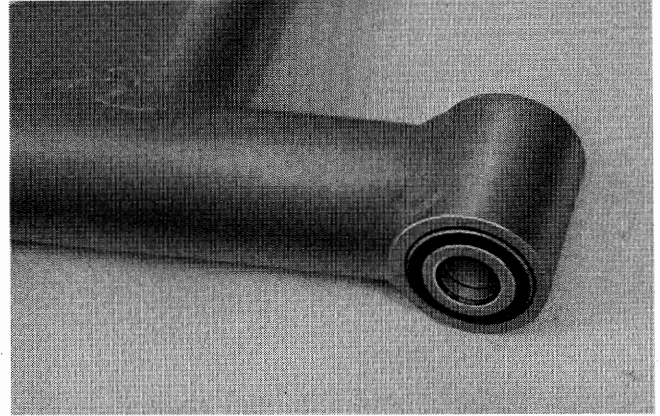


Fig. 49.1

Changing needle-bearings

Remove the bearings with help of the support 15 19 855-01 and press with help of the drift 15 19 856-01.

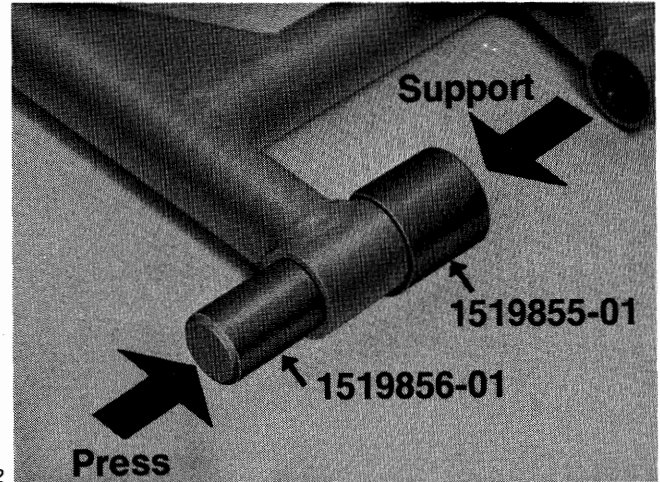


Fig. 49.2

Mounting of new bearings is done in the following order.

1. Take the drift 15 19 857-01.
2. Put on a new needlebearing on the drift.
NOTE! Text on the edge of the bearing shall be out.
3. Put the steering-sleeve 15 19 854-01 on the drift, and then press the bearing into the swing-arm with help of a hydraulic press.
4. Put another bearing on the drift and press it in from the other side of the leg.
NOTE! Text shall be out. See fig. 49.3.
5. Mount the sleeve and the two O-rings. See fig. 49.1.

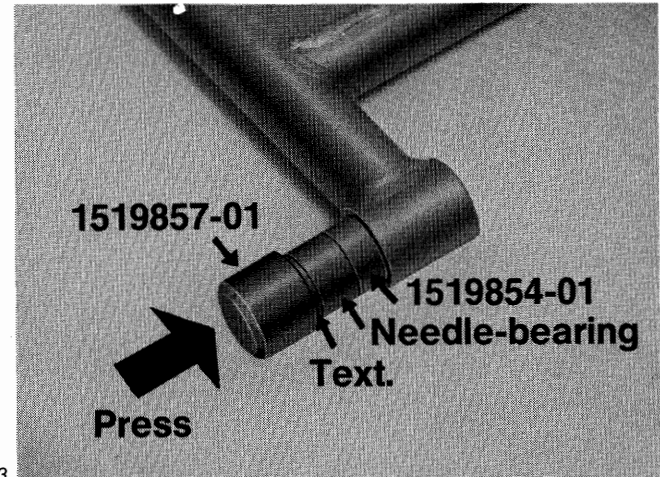


Fig. 49.3

Wheels and brakes

Front wheel

General

The front wheel has a solid hub and is fitted on a removable axle. The wheel has a brake hub, the shoes which are actuated by a control cable attached to the brake handle.

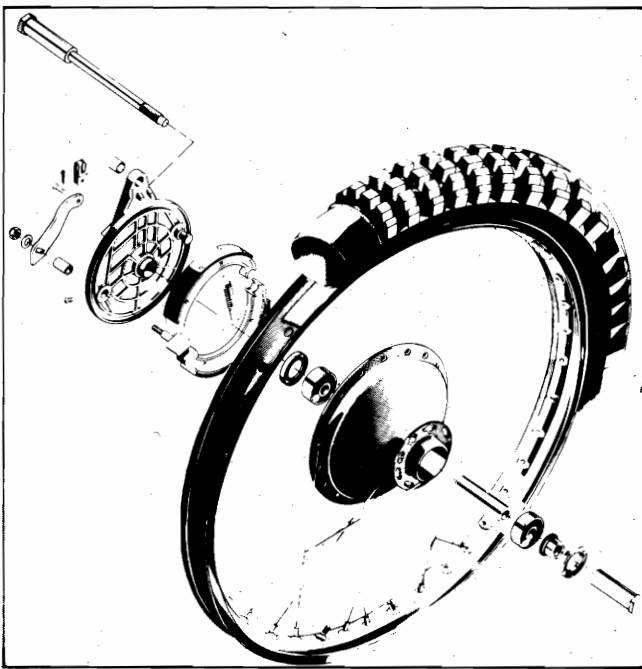


Fig. 50.1

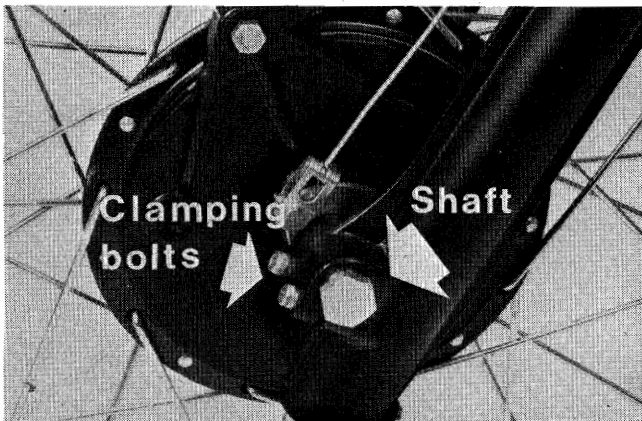


Fig. 50.2

Removing the front wheel

Block up the motor cycle so that the front wheel can rotate freely.

Loosen the right-hand fork leg clamping bolt and screw out the axle.

Pull out the axle.

N. B. Do not loosen the left-hand fork leg clamping bolt or axle nut.

Lift the front wheel out of the fork and remove the brake shield. Fitting is done in the reverse order.

NOTE! Don't forget to tighten up the clamping bolt.

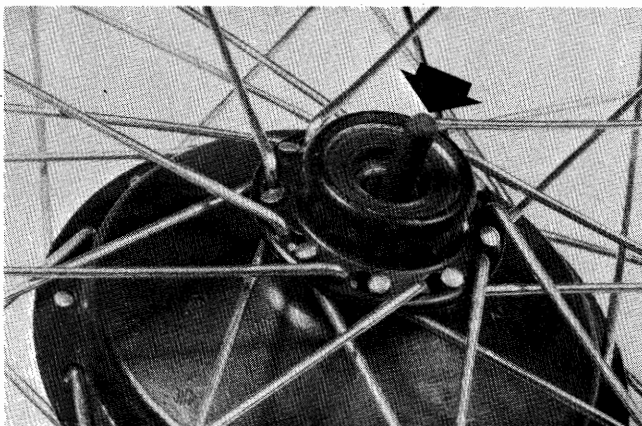
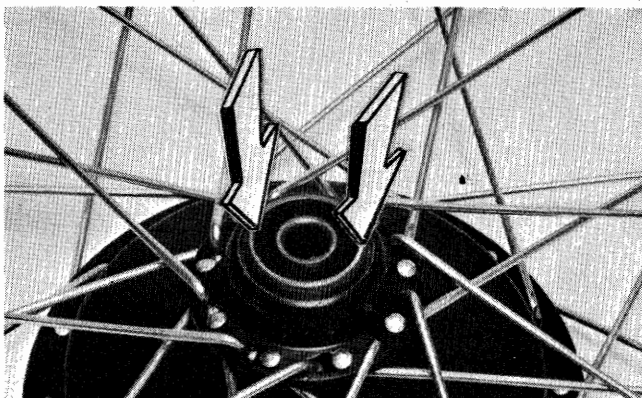


Fig. 50.3

Replacing bearings

Apply a plain drift on the edge of the inner track on one bearing. Drive out the bearing by alternating the position of the drift.



When mounting the bearing put the drift on the outer track. See fig. 50.4.

NOTE! Remember to fit the spacing sleeve between the bearings.

ected to a "low-edged" rim with extra strong spokes.

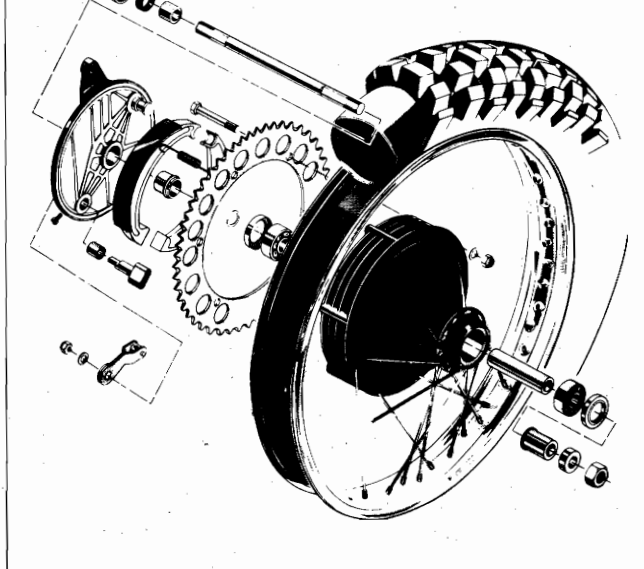


Fig. 51.1

Removing rear wheel

Block up the machine so that the rear wheel can rotate freely.

- a) Part the drive chain by opening the chain master link.
- b) Disconnect the brake link at the bearing point on the frame (i.e. not at the brake shield!).
- c) Screw off the wing nut from the brake rod and remove its return spring.
- d) Remove the axle and pull out the wheel.

Lift off the brake shield and distance pieces. Watch out for the spacing sleeve in the brake shield.

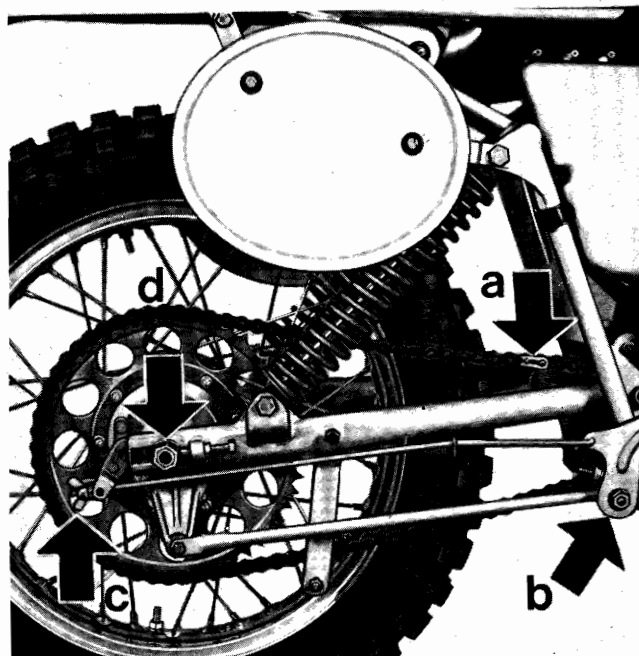


Fig. 51.2

Replacing wheel bearings

Check the bearing play by grasping the rear wheel with one hand and the rear part of the frame with the other. See fig. 51.3. Push the wheel backwards and forwards alternately. If any play can be noticed, the wheel bearings should be replaced with new ones. Bearing replacement is carried out in the same way as for the front wheel, but note the spacing washer between the ball bearing and oil seal on the brake drum side.

Lubricate the spacing sleeve in the brake shield bearing and fit the brake shield.

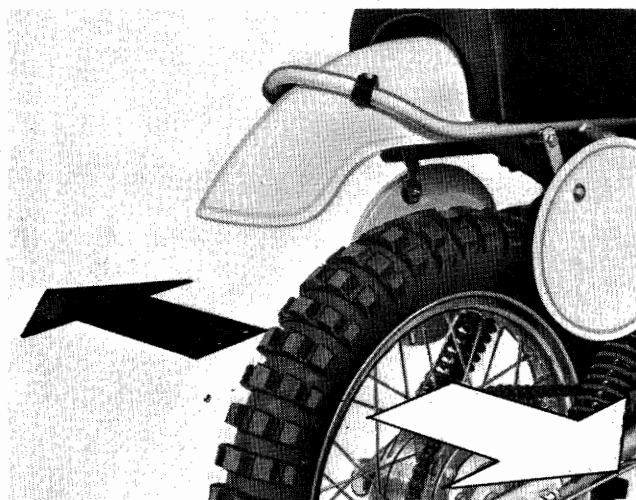


Fig. 51.3

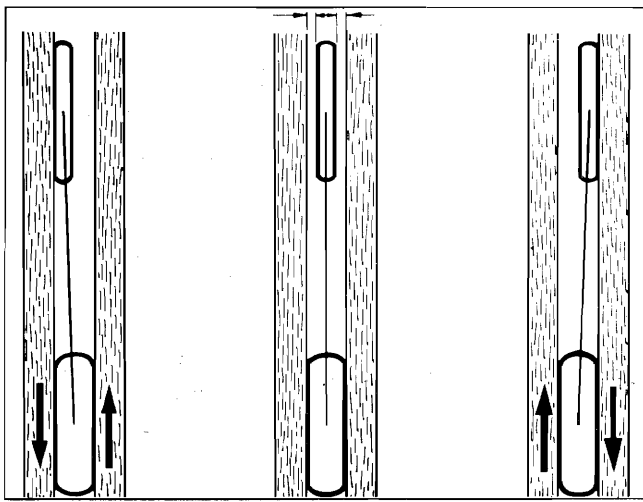


Fig. 52.1

Fitting rear wheel in rear fork

Place the wheel in the rear fork and fit the distance pieces, axle and axle nuts. Tighten the axle nuts loosely and fit on the brake linkage and brake rod with the pedal. Check the drive chain tension. See page 7. Adjust the chain tension if necessary with the tensioning screws. Check that the rear wheel tracks with the front wheel. Tighten up the axle nuts.

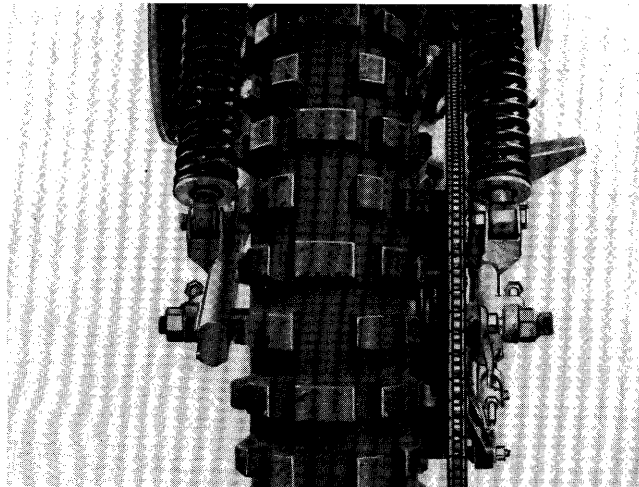


Fig. 52.2

Front and rear wheel alignment

Wheel tracking is best checked with the aid of two wooden planks about 2 m long. Position the planks on either side of the motorcycle about 10 cm above the ground, making sure that they are close up against the tyre on the rear wheel. The front wheel should now be exactly in the center of the space between the planks and parallel with them. See fig. 52.1. If adjustment of wheel tracking is required, it is also necessary to check the tension of the chain.

Chain track

Also check the chain tracking by looking from the back of the machine. See fig. 52.2.

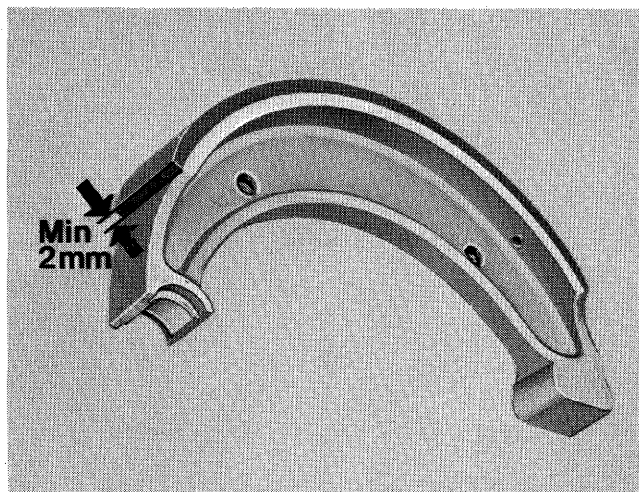


Fig. 52.3

Brakes

Replacing brake shoes

If the brake linings are worn down to 2 mm, replace the brake shoes with new ones.



Clean all the parts and make sure that no oil comes into contact with the brake linings. Check that the return springs are intact and that there is no excessive play on the brake cam bearing. Replace the bush in the event of excessive play. Lubricate the bearing lightly with grease oil. Mounting is done as per fig. 52.4.

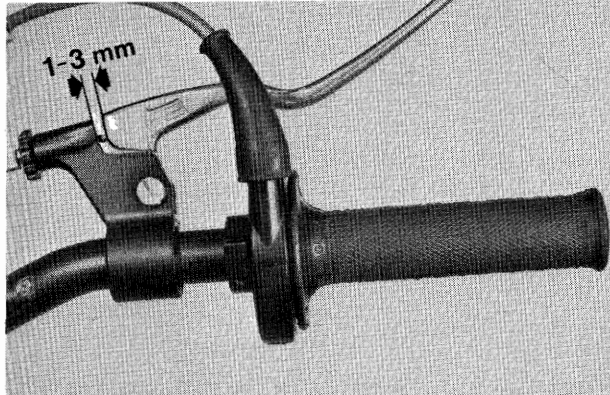


Fig. 53.1

Full braking effect should be obtained when the handle is parallel to the handlebar.

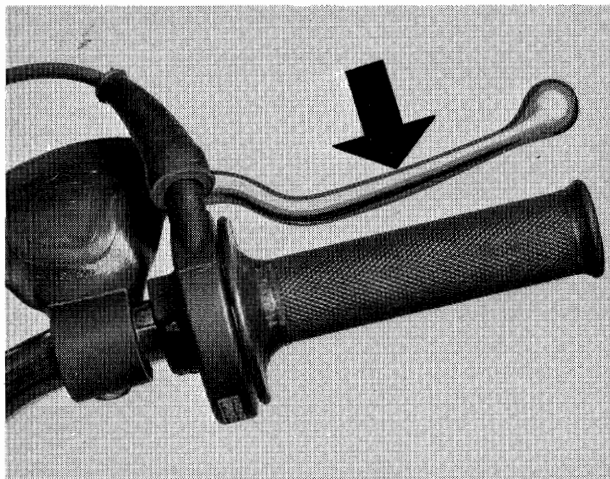


Fig. 53.2

The handle clearance is adjusted in the first place by means of the adjusting screw on the brake handle, and in the second place with the adjusting screw on the lower cable attachment.

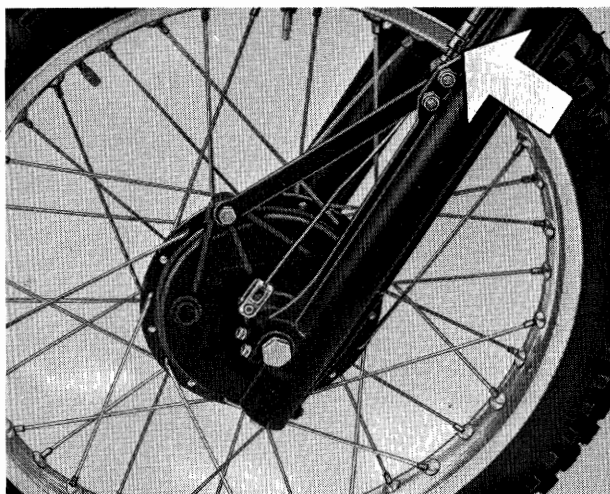


Fig. 53.3

Adjusting foot brake

The foot brake pedal should have a play of at least 15 mm measured at the front edge of the pedal.

The upper position of the pedal can be adjusted by the screw (A) behind the pedal.

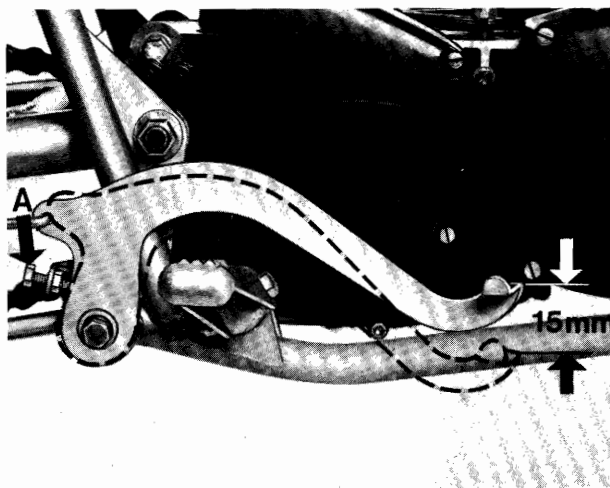
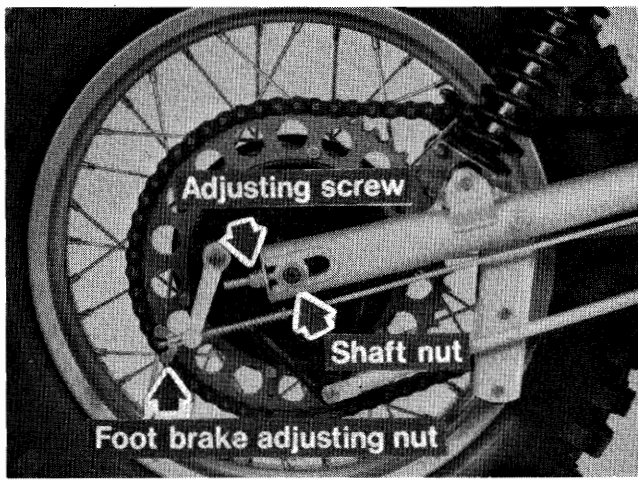
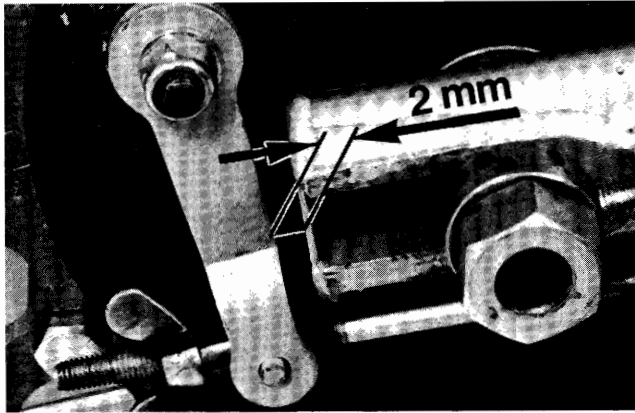


Fig. 53.4



Adjust by turning the wing nut on the end of the brake rod.

Fig. 54.1



Also check that the lever on the brake shield does not hit the rear fork. There should be a clearance of at least 2 mm when the brake pedal is pressed hard down.

Fig. 54.2

1. Remove the wheel and let the air out of the tyre by unscrewing the valve. Put the parts of the valve in a place where they will not get dirty or lost.

2. Protect the wheel bearings with a piece of cloth or cotton waste.

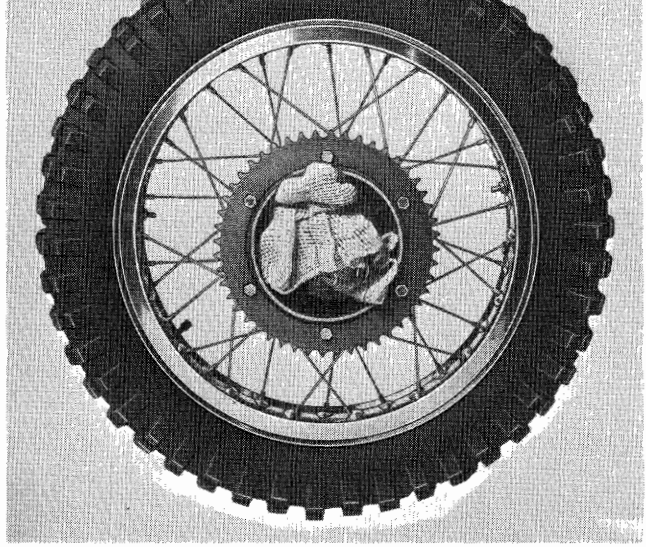


Fig. 55.1

4. Loosen the tyre from the rim and lay the wheel down.

5. Insert one of the tyre irons close to the valve. Pry up the bead of the tyre carefully, at the same time pressing the opposite side down into the well of the rim with your knees.

6. Insert the other tyre iron about 10 cm from the first one and pry the tyre off the wheel rim. Move the iron round the rim 5–10 cm at a time and lever off the tyre about one-third of the way round the wheel. Remove the tyre the rest of the way round the wheel, using your hands.

7. Push the valve out of the wheel rim and remove the inner tube.

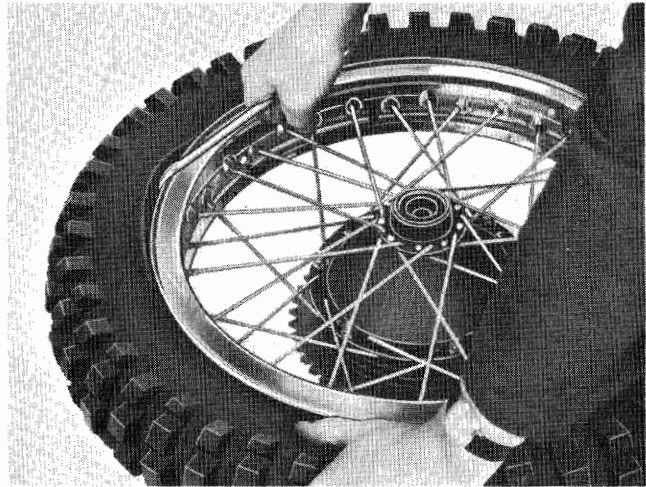


Fig. 55.2

8. Stand the wheel upright and, from the inside of the rim, insert a tyre iron between the other tyre bead and the rim.

9. Lever the tyre off the rim.

10. Remove the rim band and check that the rim is free from rust and dirt etc. which may damage the tube.

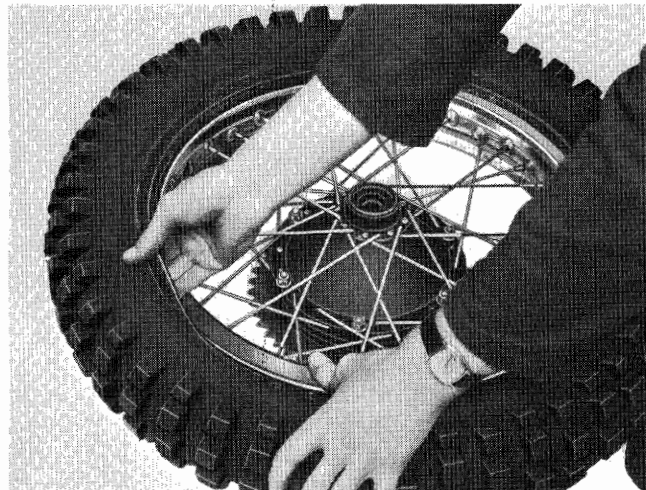


Fig. 55.3

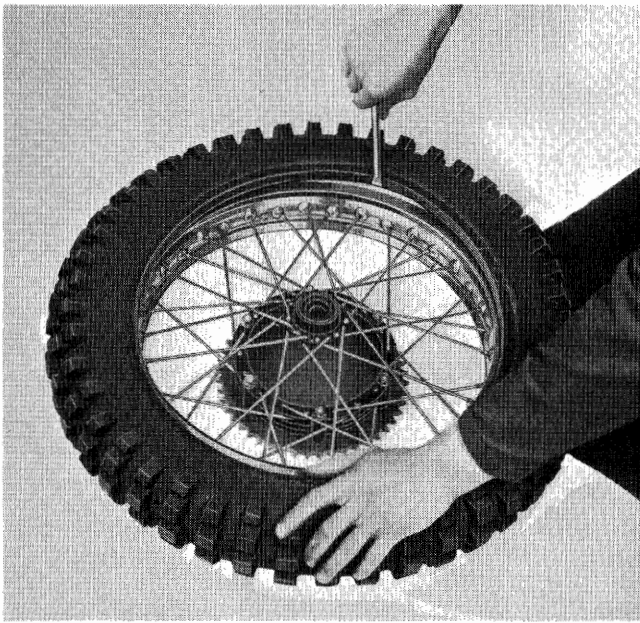


Fig. 56.1

Fitting

1. Fit the rim band, making sure that it is correctly positioned and covers all spoke nipples.
2. Pull one side of the tyre in place on the wheel rim. This will be facilitated if the beading is coated with a soap solution.
3. Inflate the tube partially so that when held from the hand it forms an ellipse with two folds, one at top and one at bottom. Powder the inside of the type with talc and the tube as well, if necessary.
4. Fit the valve in the rim and push the tube into the tyre. Check that the valve is at right angles to the rim.
5. Push the tyre over the rim of the wheel by hand. Begin at the side opposite the valve and finish off at the valve position with the aid of tyre irons.
6. Push the valve inwards and check that the hose is not pinched against the rim.
7. Inflate the tyre and check that the marking on the tyre is concentric with the wheel rim.

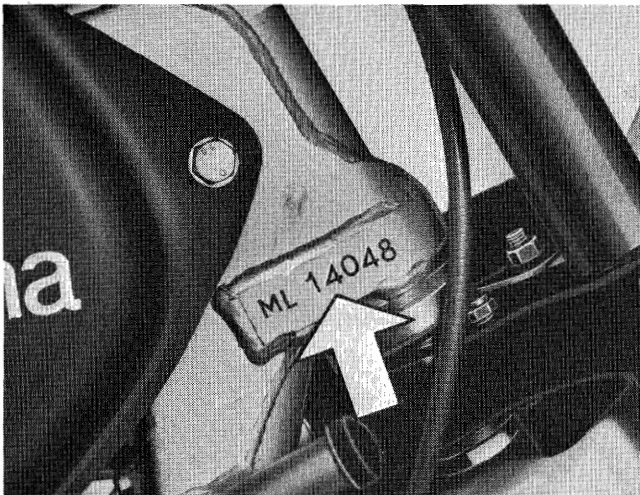


Fig. 56.2

Framenumber

The framenumber of the bike is placed on the steering-head. See fig. 56.3.

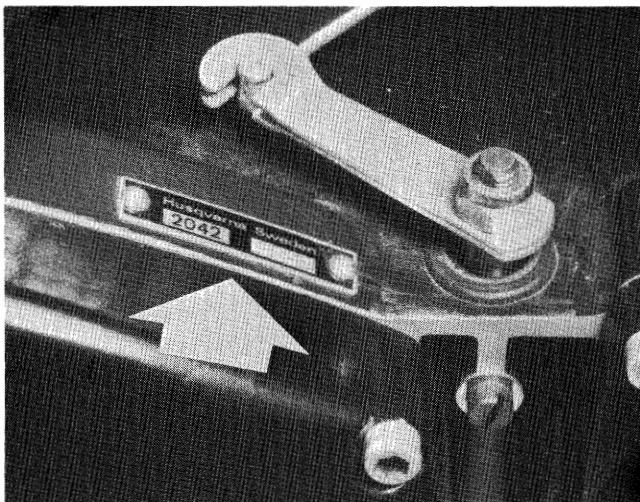


Fig. 56.3

Enginenumber

The enginenumber is placed on the top of the right crankcase. See fig. 56.4.

Clutch handle

Declutching is done by pulling the lever towards the handlebar. See fig. 57.1.
Declutching must be done at every gear change.

Kill button

The short circuit contact is located on the left part of the handlebar. See fig. 57.1.

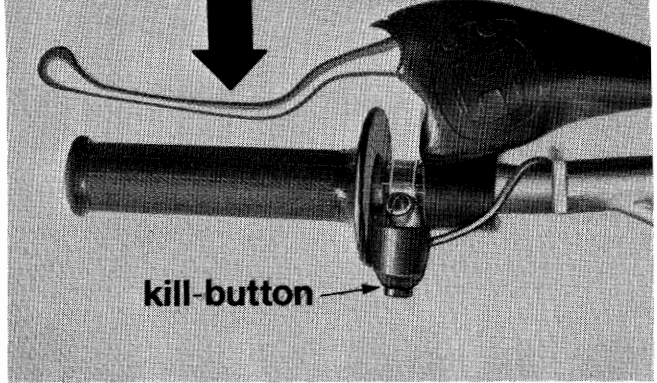


Fig. 57.1

Brake handle

The front wheel brake is actuated when pulling the lever towards the handlebar. See fig. 57.2.

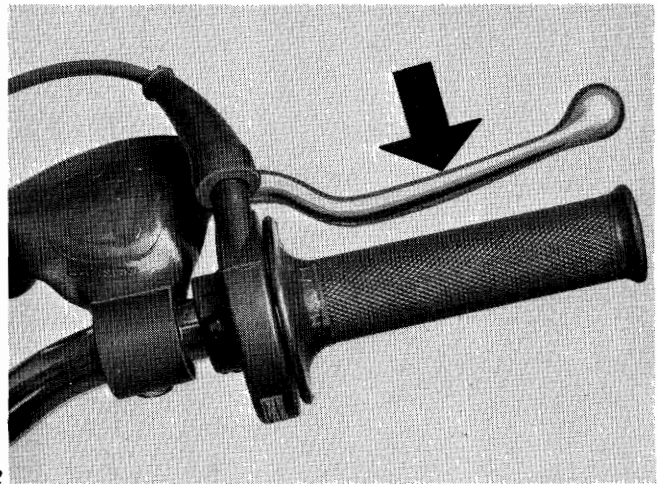


Fig. 57.2

The handles can be twisted on the handlebar by loosening the screws.
Don't forget to tighten the screws.

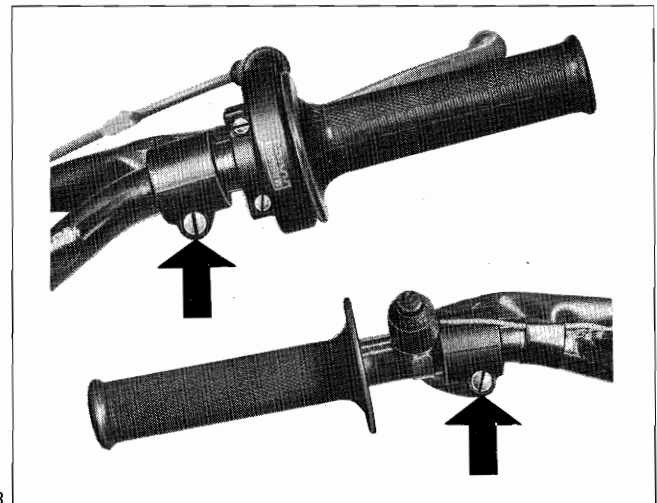


Fig. 57.3

Throttle control handle

The throttle control handle is fitted on the right part of the handlebar. It can be adjusted after the screws have been loosened.

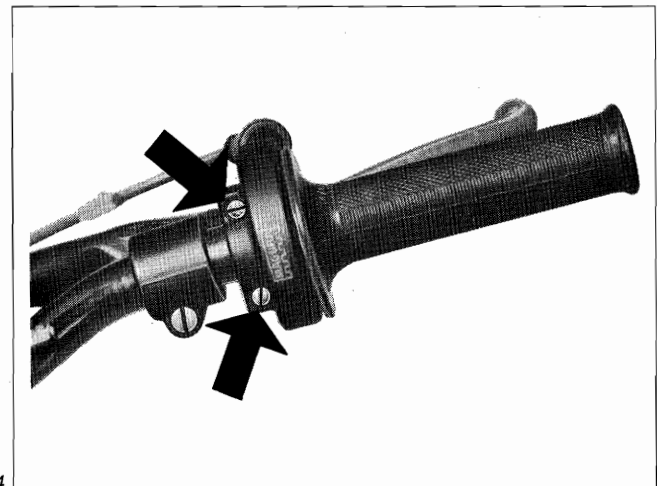


Fig. 57.4

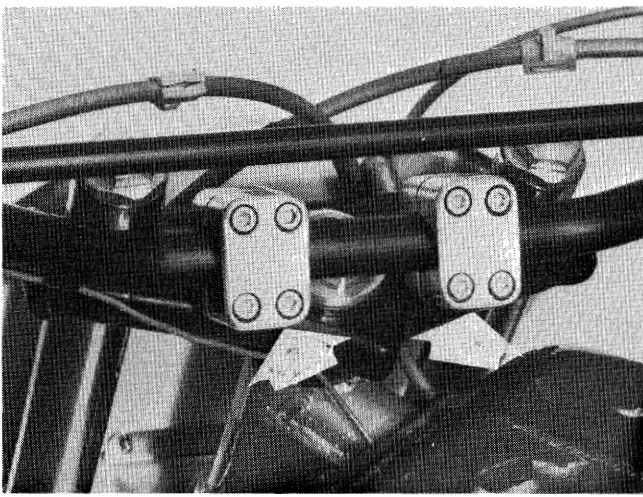


Fig. 58.1

Handlebar

Adjust the handlebar to suit your riding posture. An angle of about $120-160^\circ$ at the elbows is generally to prefer. A straight-arm riding posture should be avoided.

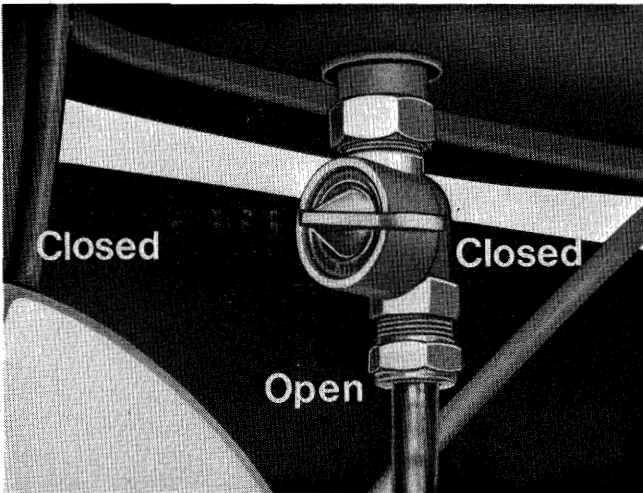


Fig. 58.2

Fuel cock

The fuel cock is located underneath the tank.

NOTE! There is no reserve fuel supply.

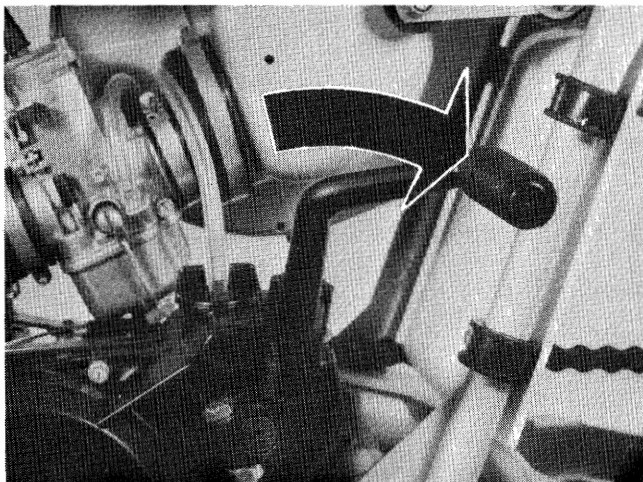
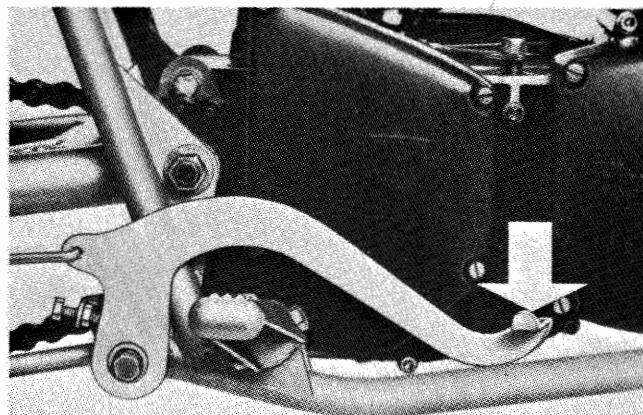


Fig. 58.3

Kick-starter pedal

The engine is started by kicking the pedal sharply downwards and backwards, with the gearbox in the neutral position. See to it that your toes are under the foot pedal when starting the engine.

NOTE! Do not alter the position of the starter crank on the shaft in order to get an earlier meshing, as there is then a risk that the pedal-stop on the motor cover is broken at back firing.



Brake pedal

The brake pedal controls the rear wheel brake through a pull rod.

The pedal returns automatically to its original position between each gear change movement. See fig. 59.1.

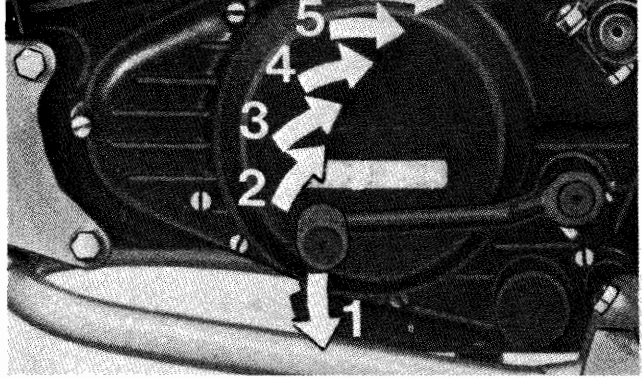


Fig. 59.1

The lever can be twisted on its shaft by loosening the screw (A) pull out the pedal (B) push it in the wanted position.

NOTE! Tighten the screw.

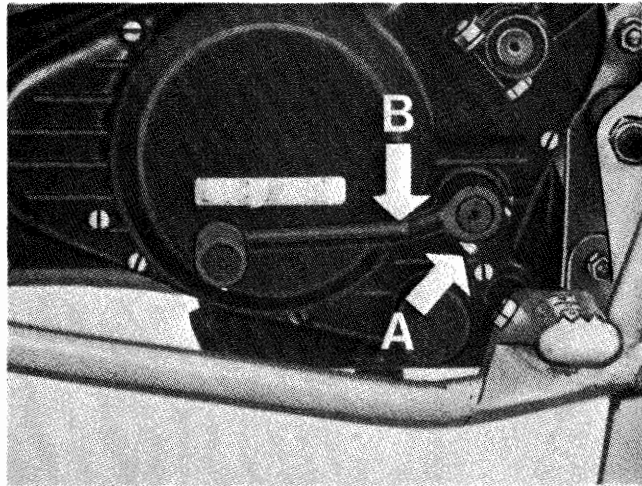


Fig. 59.2

WORKSHOP MANUAL

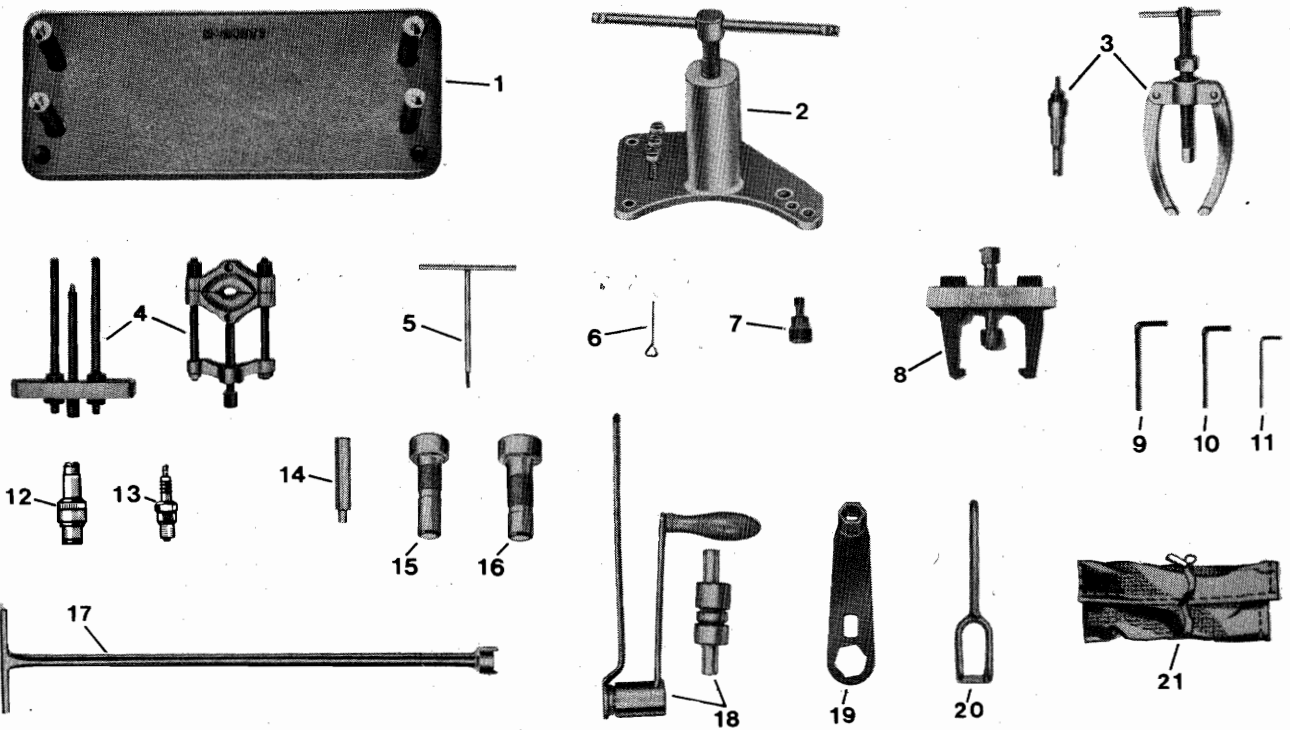
For complete disassembling of your motorcycle we have now a new WORKSHOP MANUAL. With that book you can do your mechanical work yourself. Ask your dealer for the book and the booknumber is 10 18 035-26.

SPARE PARTS MANUAL

For every motorcycle we have also a SPARE PARTS MANUAL. If you want every number of the details and a exploded view of the bike the spare parts manual is the best thing. Ask your dealer for the book and the booknumber is:

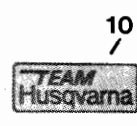
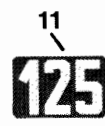
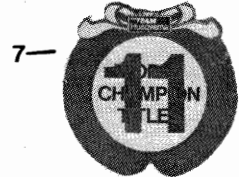
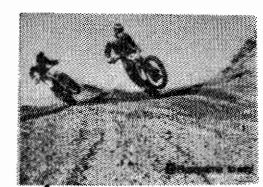
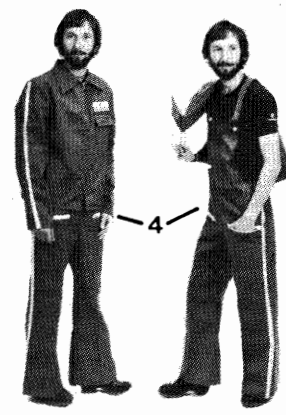
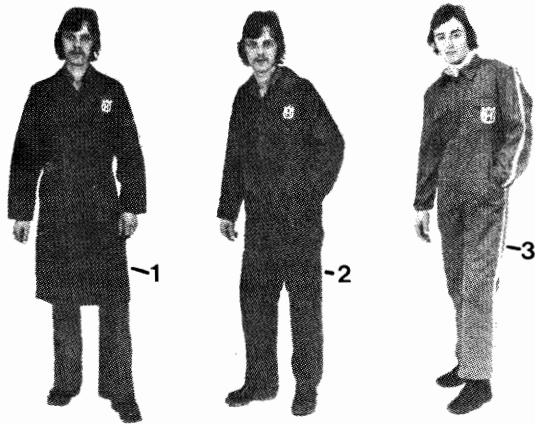
250 CR 10 18 065-96
390 CR 10 18 066-96

Tools



| Pos | Part Number | Description |
|-----|--------------|--------------------------|
| 1 | 15 19 243-01 | Mounting stand |
| 2 | 15 19 810-01 | Puller for crankcase |
| 3 | 15 19 105-01 | Puller for ball bearings |
| 4 | 50 11 930-01 | Puller for ball bearings |
| 5 | 17 10 229-01 | Allen key for M6 |
| 6 | 15 19 322-01 | Ignition timing pin |
| 7 | 15 19 324-01 | Puller for flywheel |
| 8 | 15 19 805-01 | Puller for driving wheel |
| 9 | 95 02 67-109 | Allen key for M6 |
| 10 | 95 02 67-106 | Allen key for M5 |
| 11 | 95 02 67-103 | Allen key for M4 |

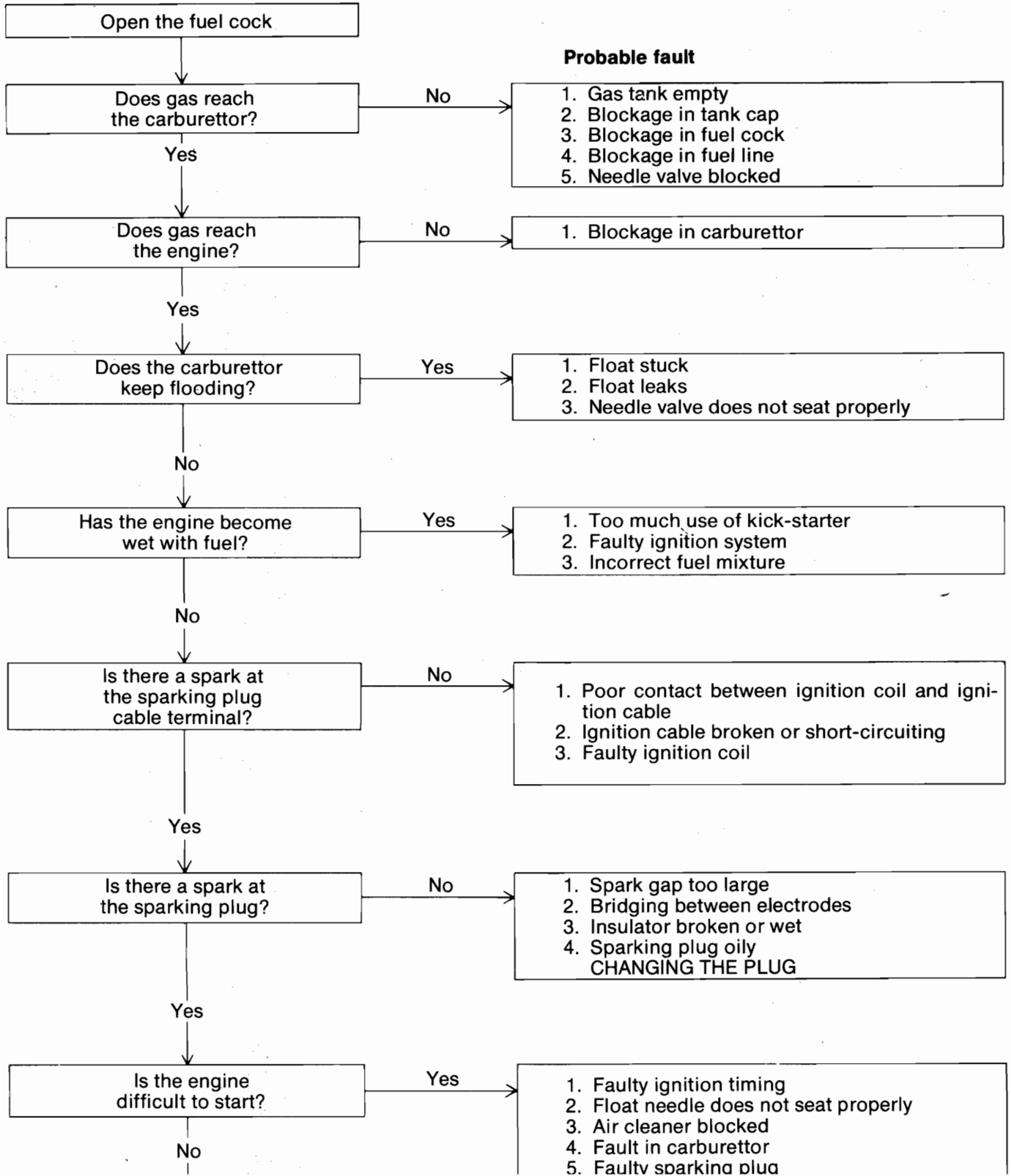
| Pos | Part Number | Description |
|-----|--------------|-----------------------------|
| 12 | 50 11 953-01 | Spark plug cover |
| 13 | 12 27 233-02 | Spark plug Bosch W240 T2 |
| 13 | 12 27 233-03 | Spark plug Bosch W260 T2 |
| 14 | 15 19 248-01 | Drift for piston pin |
| 15 | 15 19 178-01 | Drift Ø=40 mm |
| 16 | 15 19 179-01 | Drift Ø=44 mm |
| 17 | 15 19 122-01 | Holder for damping spindle |
| 18 | 15 19 280-01 | Mounting tool for crankcase |
| 19 | 15 19 347-01 | Spark plug key |
| 20 | 15 19 334-01 | Holder for flywheel |
| 21 | 50 11 922-01 | Tool set cover |



| Fig. | Part number | Description |
|------|--------------|------------------------------|
| 1 | 50 19 992-01 | Coats, size 48 |
| | 50 19 991-01 | |
| | 50 19 990-01 | |
| | 50 19 989-01 | |
| | 50 19 988-01 | |
| | 50 19 987-01 | |
| | 50 19 986-01 | |
| 2 | 50 19 999-01 | Coverall, size 48 |
| | 50 19 998-01 | |
| | 50 19 997-01 | |
| | 50 19 996-01 | |
| | 50 19 995-01 | |
| | 50 19 994-01 | |
| | 50 19 993-01 | |
| 3 | 15 19 833-46 | Coverall blue, size 46 |
| | 15 19 833-48 | |
| | 15 19 833-50 | |
| | 15 19 833-52 | |
| 4 | 15 19 865-46 | 2-Piece coverall, size 46 |
| | 15 19 865-48 | |
| | 15 19 865-50 | |
| | 15 19 865-52 | |
| 5 | 10 15 019-26 | Poster |
| 6 | 15 19 048-01 | Decal, air filter |

| Fig. | Part number | Description |
|------|----------------|---|
| 8 | 10 93 007-01 A | Textile badge, coverall |
| 9 | 10 96 038-96 | Textile badge |
| 10 | 15 19 835-01 | Textile badge |
| 11 | 16 19 618-01 | Decal air filter cover 125 cc |
| | 16 19 619-01 | |
| | 16 19 620-01 | |
| | 16 19 621-01 | |
| 12 | 15 19 828-46 | Jackets, blue w. yellow sides, size 46 |
| | 15 19 828-48 | |
| | 15 19 828-50 | |
| | 15 19 828-52 | |
| | 15 19 828-54 | |
| 13 | 15 19 821-03 | Jerseys, yellow w. blue arms, size 3 |
| | 15 19 821-04 | |
| | 15 19 821-05 | |
| | 15 19 821-06 | |
| 14 | 10 96 041-96 | Training suit, size 4 |
| | | |
| | | |
| | | |

Fault-tracing schedule



- a) Air cleaner element dirty
- b) Needle jet worn
- c) Jets too large
- d) Too much oil in the petrol
- e) Faulty ignition timing
- f) Exhaust port and exhaust pipe blocked
- g) Needle position too high.

2. "Spitting" in carburettor

- a) Fuel filter blocked
- b) Dirt in carburettor
- c) Dirt in needle valve
- d) Carburettor not secured properly
- e) Needle position too low
- f) Faulty ignition timing
- g) Sparking plug loose or dirty
- h) Incorrect spark gap
- i) Incorrect heat rating of sparking plug
- j) Ignition cable loose or poorly insulated
- k) Piston rings stuck
- l) Crankshaft oil seal worn out

3. Engine "knocks"

- a) Faulty ignition timing
- b) Poor fuel supply
- c) Heavy carbon deposits in cylinder ports (Glow ignition)
- d) Play in gudgeon pin
- e) Big-end bearing or cylinder bore worn

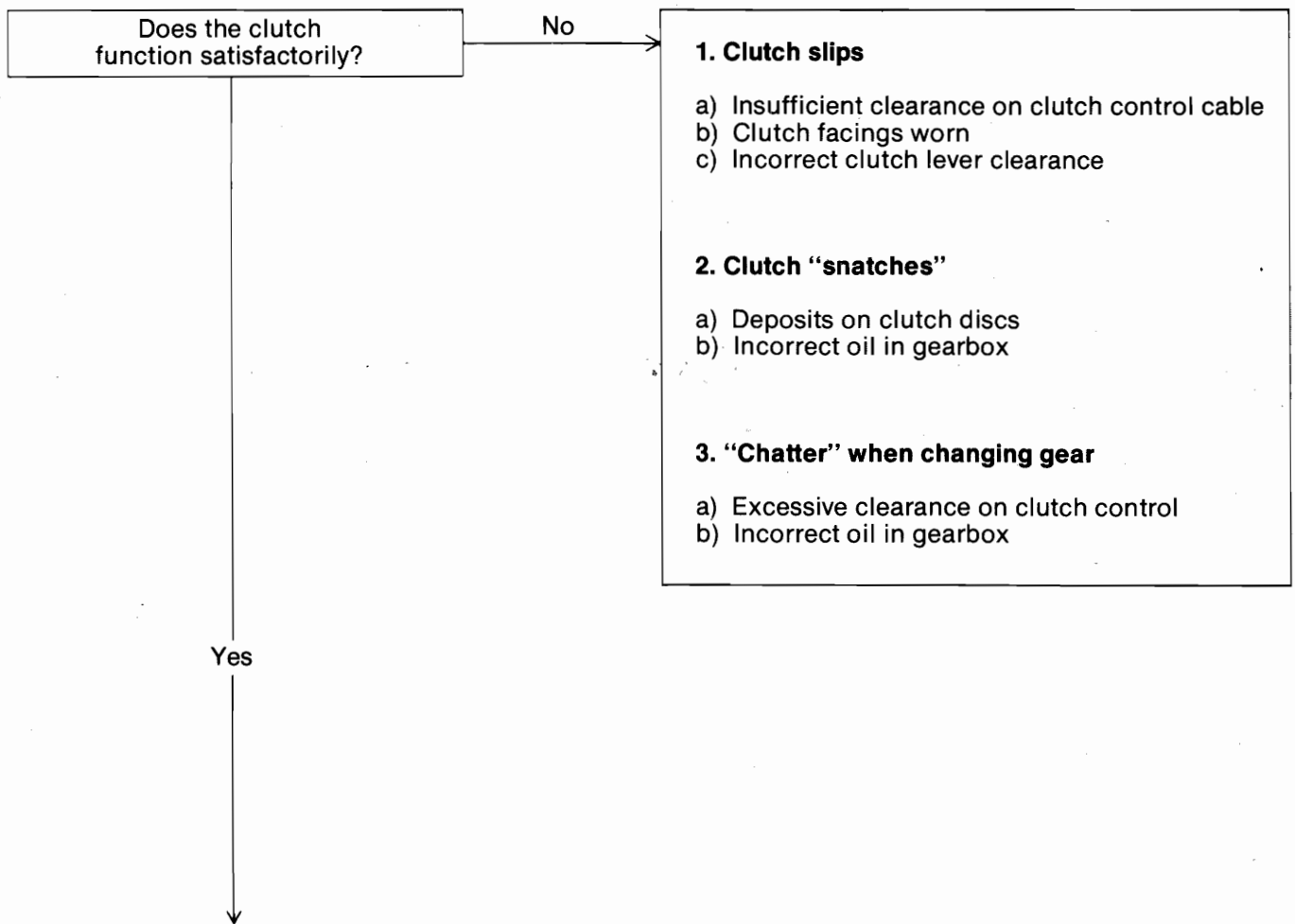
Yes

Does the engine run well when idling?

No

- 1. Incorrect idle adjustment
- 2. Faulty ignition timing
- 3. Faulty sparking plug
- 4. Poor cylinder sealing

Yes



NOW ALL SHOULD BE WELL – GOOD LUCK!!!
but REMEMBER

**to work in a methodical sequence
when tracing faults!**

Think before acting and don't just
fiddle about the engine parts!

Finally: Don't leave any tools lying about!

KEEP CLEAN!

Torque:**Pressure:**

| Nm | ft. lb | kPa | lb/sq.in |
|-----------|---------------|------------|-----------------|
| 2 | 1,5 | 60 | 8,5 |
| 5 | 3,5 | 70 | 10 |
| 8 | 5,5 | 120 | 17 |
| 20 | 14 | 150 | 21,5 |
| 35 | 25 | | |
| 40 | 28,5 | | |
| 70 | 50 | | |