

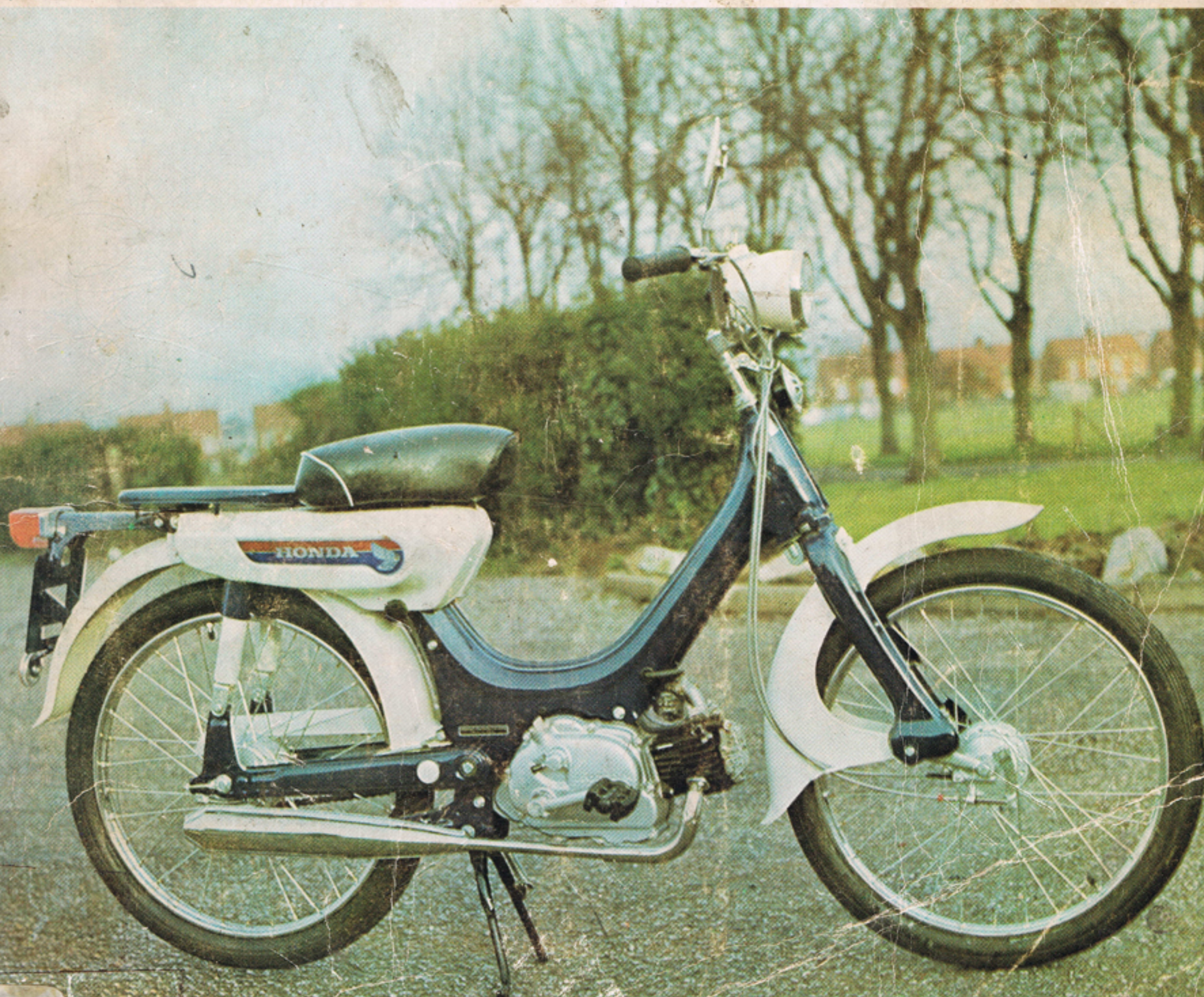
HONDA

FOUR STROKE MOPEDS

49cc □ PC & PF ohv models □ 1970 on



Owners Workshop Manual



629.
28875

Honda 4-Stroke Mopeds Owners Workshop Manual

by Mervyn Bleach

Models covered:

PF50 Graduate

Introduced into UK April 1970

Discontinued February 1974

PF50R Amigo

Introduced into UK February 1974

Discontinued February 1975

PF50 DXR Novio

Introduced into UK February 1975

Currently in production

PC50K1

Introduced into UK April 1970

Currently in production

All models 49cc capacity

Note: This manual covers only the ohv engined mopeds
and not the ohc or two-stroke variants.

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1369/317

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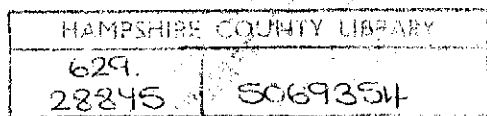
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The PC50K1 model used in most of the photographic sequences was kindly loaned by the Yeovil RAC/ACU Learner Training Scheme. Brian Horsfall gave the necessary assistance with the overhaul and devised the ingenious methods used for overcoming the lack of service tools. Les Brazier arranged and

took the photographs, Jeff Clew edited the text and Tim Parker planned the layout of each page.

Finally we would like to acknowledge the help of the Avon Rubber Company, who kindly supplied the illustrations about tyre fitting, of the Champion Sparking Plug Company Limited, for providing the illustrations about plug maintenance and electrode conditions, and of Renold Limited for advice about equivalent British-made chains.

We would particularly like to thank Arthur Vincent, of Vincent and Jerrom Ltd, East Reach, Taunton, who provided the machine for the front cover illustration.

About this manual

The author of this manual has the conviction that the only way in which a meaningful and easy to follow text can be written is first to do the work himself, under conditions similar to those found in the average household. As a result, the hands seen in the photographs are those of the author. Even the machines are not new: examples that have covered a considerable mileage were selected so that the conditions encountered would be typical of those found by the average owner.

Unless specially mentioned, and therefore considered essential, Honda service tools have not been used. There is invariably some alternative means of slackening or removing some vital component when service tools are not available and risk of damage has to be avoided at all costs.

Each of the six Chapters is divided into numbered Sections. Within the Sections are numbered paragraphs. In consequence, cross reference throughout this manual is both straightforward

and logical. When a reference is made 'See Section 5.12' it means Section 5, paragraph 12 in the same Chapter. If another Chapter were meant, the text would read 'See Chapter 2, Section 5.12'. All photographs are captioned with a Section/paragraph number to which they refer and are always relevant to the Chapter text adjacent.

Figure numbers (usually line illustrations) appear in numerical order, within a given Chapter. Fig. 1.1 therefore refers to the first figure in Chapter 1. Left-hand and right-hand descriptions of the machines and their component parts refer to the right and left of a given machine when the rider is seated normally.

Whilst every care is taken to ensure that the information in this manual is correct no liability can be accepted by the authors or publishers for loss, damage or injury, caused by any errors in or omissions from the information given.

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NB. 'Specifications' and 'General description' are given at the beginning of each Chapter, and 'Fault diagnosis' at the end of each Chapter.

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Introduction to the Honda 4-stroke ohv mopeds

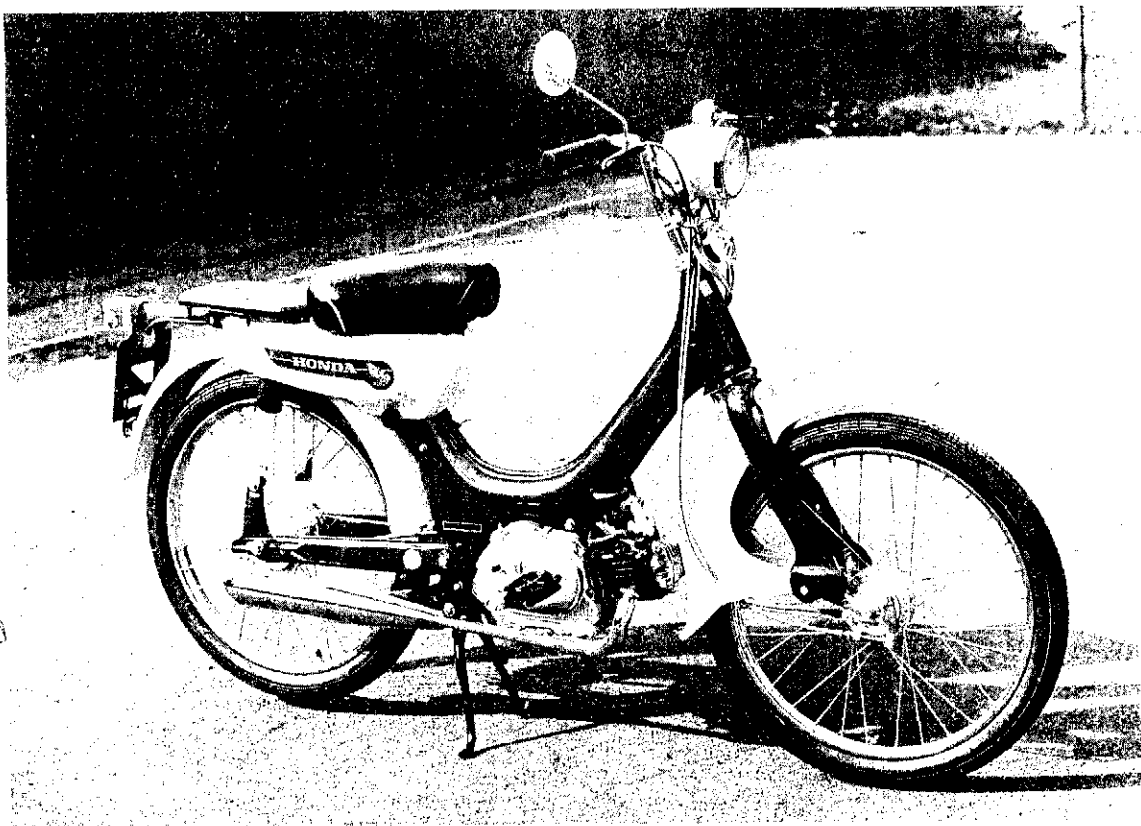
The Honda overhead valve engined mopeds were first introduced into the United Kingdom in April 1970 to replace those fitted with an overhead camshaft engine. The change in engine design was due to the fact that an overhead valve engine will produce power at a lower speed than an overhead camshaft engine, which, when coupled with an automatic transmission system, enables a more tractable machine to be produced. The mopeds were designed for the commuter, not the sporting enthusiast, so the additional top speed of the overhead camshaft

engine was not utilised as the machines were governed to comply with other European countries' own legislation.

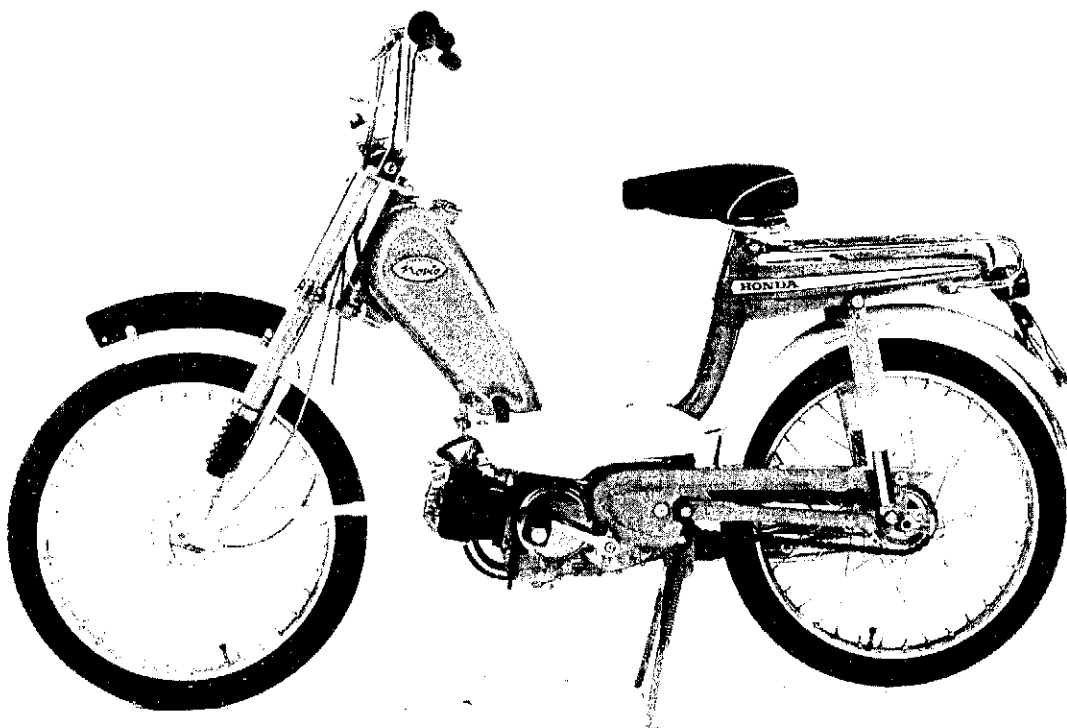
By definition in the UK, a moped is a machine fitted with an engine of less than 50cc capacity, that has pedals. There is proposed legislation to limit the top speed of mopeds in the UK to bring them in line with Common Market countries, but as the Honda mopeds already conform to the continental restrictions, no alterations will be necessary.

Model dimensions

									PF models	PC models
Overall length	1638 mm (64.5 in)	1755 mm (69.2 in)
Overall width	635 mm (25.0 in)	600 mm (23.6 in)
Overall height	1067 mm (42.0 in)	1035 mm (40.7 in)
Wheelbase	1067 mm (42.0 in)	1130 mm (44.4 in)
Ground clearance	127 mm (5.0 in)	140 mm (6.5 in)
Kerb weight:										
PF50	45.5 kg (98.1 lbs)	
PF50R	48.5 kg (106.9 lbs)	
PC50K1		50 kg (110.2 lbs)



Honda PC50K1 moped



Honda PF50 moped

Ordering spare parts

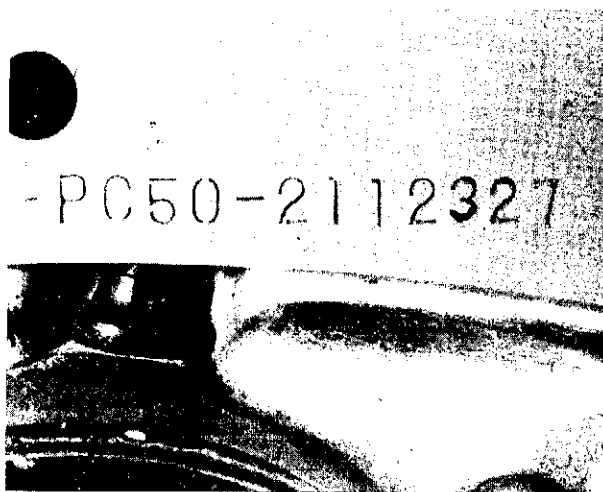
When ordering spare parts for any of the Honda models, it is advisable to deal direct with an official Honda agent, who should be able to supply most items ex-stock. Parts cannot be obtained from Honda (UK) Limited direct; all orders must be routed via an approved agent, even if the parts required are not held in stock.

Always quote the engine and frame numbers in full, particularly if parts are required for any of the earlier models. The frame number is stamped on the left-hand side of the frame, above the engine on the PC50K1 model, and is stamped on the right-hand side of the frame just to the rear of the engine on the PF50 models. The engine number is stamped on the left-

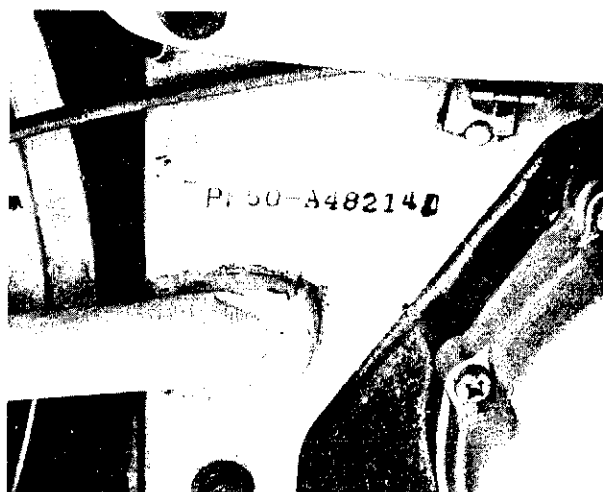
hand crankcase, immediately below the flywheel generator cover.

Use only parts of genuine Honda manufacture. Pattern parts are available, some of which originate from Japan and are packaged to resemble the originals. In many instances these parts will have an adverse effect on performance and/or reliability.

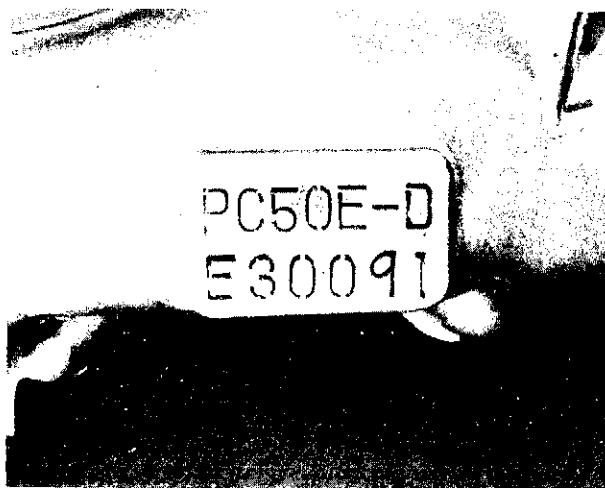
Some of the more expendable parts such as spark plugs, bulbs, tyres, oils and greases etc., can be obtained from accessory shops and motor factors, who have convenient opening hours, charge lower prices and can often be found not far from home. It is also possible to obtain parts on a Mail Order basis from a number of specialists who advertise regularly in the motor cycle magazines.



Frame number location on the PC50K1 model



Frame number location on the PF50 models



Engine number location



Engine number location on the PF50 models

Routine maintenance

Periodic routine maintenance is a continuous process that commences immediately the machine is used. It must be carried out at specified mileage recordings or on a calendar basis if the machine is not used frequently, whichever the soonest. Maintenance should be regarded as an insurance policy, to help keep the machine in the peak of condition and to ensure long, trouble-free service. It has the additional benefit of giving early warning of any faults that may develop and will act as a safety check, to the obvious advantage of both rider and machine alike.

The various maintenance tasks are described below, under their respective mileage and calendar headings. Accompanying diagrams are provided, where necessary. It should be remembered that the interval between the various maintenance tasks serves only as a guide. As the machine gets older or is used under particularly adverse conditions, it would be advisable to reduce the period between each check.

No special tools are required for the normal routine maintenance tasks. The tools contained in the tool kit supplied with every new machine are very limited and will need to be added to if the owner wishes to do any maintenance.

When buying tools, it is worth spending a little more than the minimum to ensure that good quality tools are obtained. Some of the cheaper tools are too soft or flimsy to do an adequate job. It is infuriating to have to stop part way through a job because a spanner has splayed open or broken, and a replacement must be found.

A deep rooted knowledge of engineering principles is by no means necessary before the owner undertakes his or her own maintenance tasks but familiarity with a few of the more commonly used terms and a basic knowledge of how to use tools will help.

The following list of tools will suffice to undertake the routine maintenance tasks described in this Section but where reference is made to another Chapter for the dismantling procedure additional tools may be required.

- A tyre pressure gauge*
- A tyre pump*
- A 10 mm spark plug spanner*
- A set of metric open ended spanners from 6 mm to 17 mm*
- A pair of pliers*
- A cross-head screwdriver*
- A small electrical screwdriver*
- A set of feeler gauges*
- An adjustable spanner (this tool to be used only as a last resort).*

Weekly or every 200 miles (320 km)

1 Check the tyre pressures.

The tyre pressures should be 26 psi for the front tyre and 28 psi for the rear tyre when the tyres are cold.

Remove the dust cap, flick the valve centre to blow out any dirt or water and push on the pressure gauge. If the

pressure is too low, pump up the tyre with the pump or a garage air line, to the correct pressure. If the pressure is too high, push the valve centre to release the air until the correct pressure is reached. Replace the dust cap as it is a second seal.

2 Check the engine oil level.

The engine oil capacity is 0.75 litre (1.3 pints) contained in a wet sump, and normally SAE 20W/50 but in cold climates SAE 10W/30 should be used.

Place the machine on its centre stand on level ground. If the machine has just been run, allow the oil to settle for 5 minutes before checking the level. Remove the plastic filler cap with its integral dipstick. Wipe the oil off the dipstick. Replace the dipstick without screwing it in, remove it and check that the oil level is between the upper and lower limit marks on the dipstick. Add oil if necessary, to bring the oil to the correct level, and replace the filler cap cum dipstick after ensuring that the sealing O-ring is in good condition.

3 Oil and adjust the brake cables.

The standard brake cables should be lubricated with a light machine oil, but if nylon lined cables have been fitted on no account use oil on them.

Similarly, the cable nipples and pivot points should be oiled unless plastic levers have been fitted. Normally, rain and the washing of the machine will provide sufficient lubrication for the nylon and plastic parts. Before the winter sets in each year, it is advisable to remove the cables completely and thoroughly lubricate them, as shown in the accompanying sketch to ensure troublefree riding during the more arduous conditions to be found in winter.

The brakes need adjusting when there is too much movement on the levers ie; when the brake lever comes close to the handlebar when the brake is applied. To adjust, either cable, turn the adjusting nut until the brake just starts to rub when the wheel is spun. Slacken back the adjusting nut until the brake stops rubbing. Ensure that the adjusting nut cut-outs are seating correctly on the front brake cable stop and the rear brake operating arm on the PC50K1 model and that the locknuts are tight on the PF50 models.

4 Check, adjust and lubricate the final drive chain.

Place the machine on its centre stand on level ground. Check the up and down movement on the chain, midway between the two sprockets. Rotate the back wheel until the up and down movement is at the minimum. This is the 'tight spot' on the chain and the up and down movement should be between 10 mm (0.40 in) and 20 mm (0.79 in).

If the play is greater than 20 mm (0.79 in) the chain should be adjusted as follows: Slacken the wheel spindle nut so that it is finger-tight. Make sure that each adjusting nut is turned the same amount to keep the wheels in line until the play is reduced to within the limits. Tighten the wheel spindle nut and recheck the amount of play on the chain. When the wheels are properly aligned, both the adjusters should match the frame or swinging arm markings.

An SAE 90 oil or Chain Lubricant should be spread on the chain for lubrication. The latter is applied from an

aerosol pack, to make application easier.

5 Check the lights and horn.

Check that all the lights are working properly. Renew any defective bulbs and if any lights are dim, clean the connections and earthing points, to restore the lights to their original brightness.

Check that the horn works, again checking the connections if the performance is poor.

6 Visual inspection

Give the whole machine a close visual inspection, checking for loose nuts and fittings, frayed control cables or missing parts which may have fallen off or been stolen.

Monthly or every 1000 miles (1600 km)

Check the tyres, brakes, lights and horn as described in the weekly/200 mile service and then carry out the following additional tasks.

1 Change the engine oil.

As stated before, the engine oil capacity is 0.75 litre (1.3 pints) of SAE 20W/50.

Place the machine on its centre stand on level ground. Run the engine for a few minutes to warm up the oil so that it will run out easier. Place a container under the engine and remove the drain plug, which is situated on the underside of the engine. When all the oil has drained, replace and tighten the drain plug, ensuring that the sealing washer is in good condition.

Refill the engine with oil of the correct viscosity, checking the level as described in the weekly check.

2 Remove, clean and lubricate the final drive chain.

As the final drive chain is not fully enclosed, the oil and grease lubricant on the chain will tend to pick up dust and grit, so every month it is advisable to remove the chain from the machine for thorough cleaning.

To remove the chain, place the machine on its centre stand on level ground, and rotate the rear wheel until the spring link is in a convenient position, preferably on the rear wheel sprocket. Use a pair of pliers to remove the spring clip and then remove the side plate and the link plate, thus disconnecting the chain. Connect to one end of the chain a second chain, either an old worn out one or a brand new one which is kept in readiness for fitting to the machine. Pull the first chain off the machine, feeding the second chain on, until the first chain can be disconnected from the second chain. If the second chain is usable, reconnect it, ensuring that the closed end of the spring clip is facing the direction of travel of the chain. Adjust the chain as described in the weekly maintenance Section.

The chain which has just been removed should be washed thoroughly in petrol or paraffin to remove all the dirt and grease.

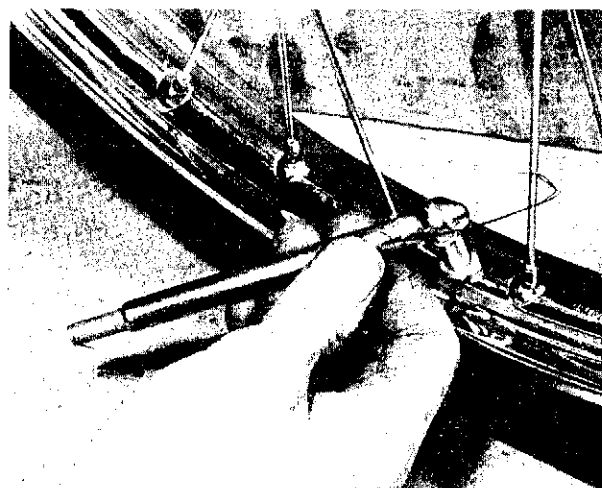
To check whether the chain is due for renewal, lay it lengthwise in a straight line and compress it so that all play is taken up. Anchor one end and then pull on the other end to take up the play in the opposite direction. If the chain extends by more than the distance between two adjacent links, it should be renewed in conjunction with the sprockets.

The chain should be lubricated by immersing it in a molten lubricant such as Linklyfe or Chainguard and then hanging it up to drain. This will ensure good penetration of lubricant between the pins and rollers, which is less likely to be thrown off when the chain is in motion.

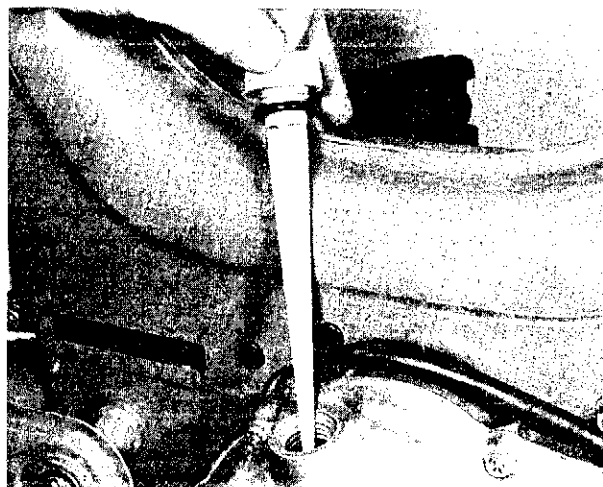
To refit the chain to the machine, connect it to the second chain, pull the second chain and feed the first chain back onto the machine. Reconnect the chain ensuring the spring clip is correctly fitted as stated before. It is easier to reconnect the chain if the ends are fitted onto the rear wheel sprocket whilst the connecting link is inserted. Adjust the chain, using the weekly maintenance procedure.

3 Check the spark plug.

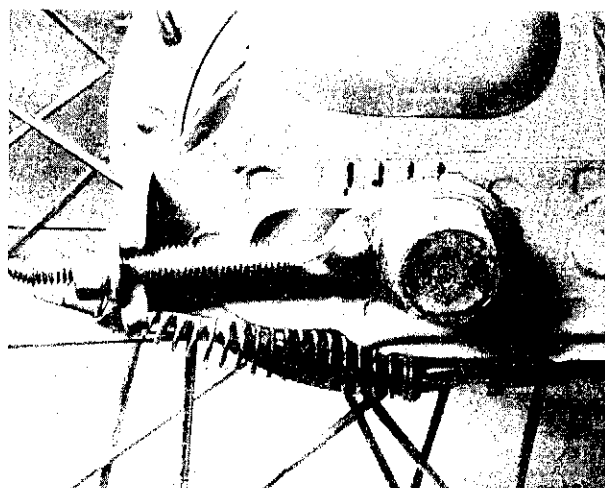
An NGK type C-7HS spark plug is fitted as standard equipment to the Honda mopeds. The recommended gap on



Check tyre pressures weekly



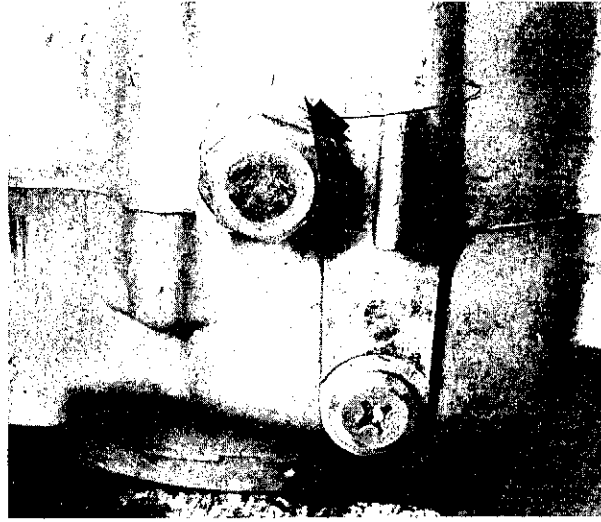
Check the oil level, using the dipstick provided



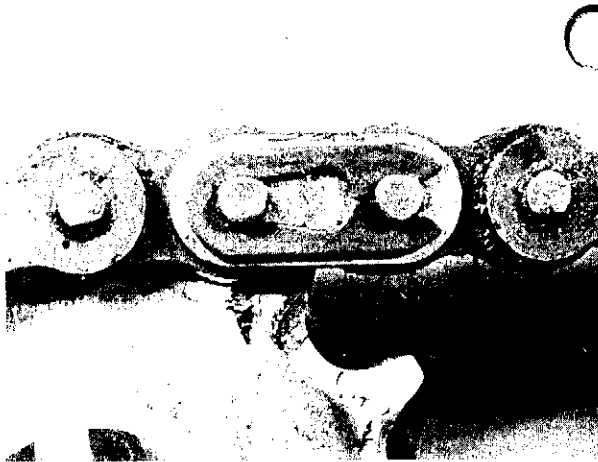
The adjusters should match the frame markings on each side



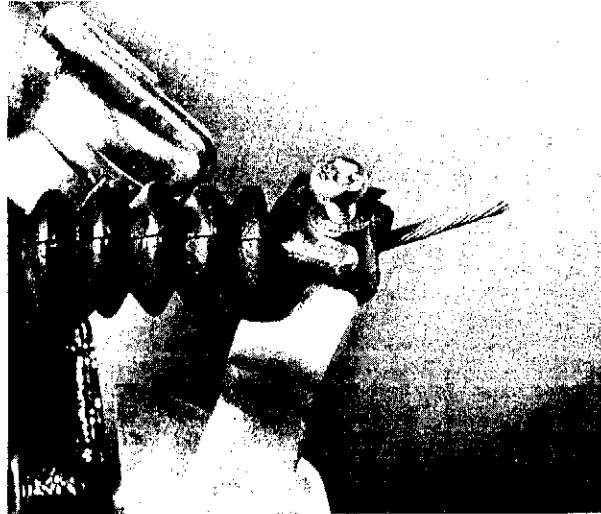
Lubricating the final drive chain



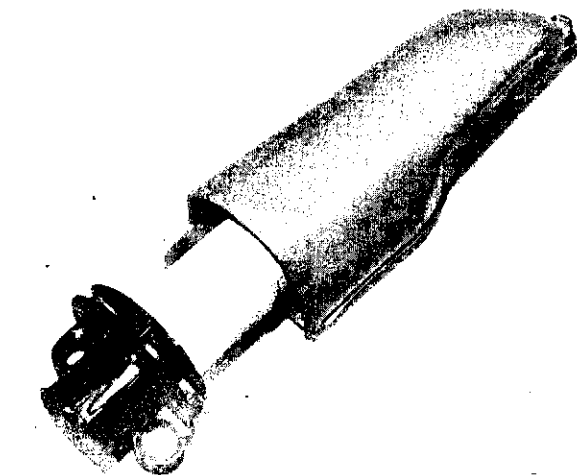
The drain plug is on the underside of the engine



Ensure the spring clip is fitted correctly



Adjustment is by means of a solderless nipple



The air filter support and gauge fit into the cover



Align the T mark on the flywheel ...
... and adjust the tappets

the plug is 0.6 mm (0.024 in) to 0.7 mm (0.028 in).

Pull off the spark plug cap and unscrew the plug. Clean the electrodes to remove any oil or carbon. Check the gap between the electrodes with a set of feeler gauges. If the gap needs resetting, bend the outer electrode to bring it closer to the central electrode. Do not try to move the centre electrode as the insulation will break and ruin the plug.

Refit the spark plug and push on the plug cap. Do not overtighten the spark plug as this can cause the thread to strip in the cylinder head. A normal plug spanner has the correct length tommy bar or handle to make overtightening impossible.

A new spark plug should be fitted every 5000 miles (8000 km) or if it is damaged or excessively worn.

4 Check and adjust the throttle cable.

The throttle should have about 10° free play movement. To adjust the amount of free play, slide the rubber sleeve on top of the carburettor up the throttle cable to reveal the adjusting nut. The adjusting nut is turned to provide the correct play and the rubber sleeve, when slid back down the cable, stops the adjusting nut from turning.

5 Check and adjust the carburettor slow running adjustment.

Any checks or adjustments that are made on the carburettor should be undertaken only when the engine has reached its normal working temperature and not when the engine is cold.

The engine should continue to run slowly when the throttle is closed. If the engine stops every time the throttle is closed, adjustment is necessary. As the machine has an automatic clutch, if the engine runs too fast, the machine will tend to creep forward all the time unless the brakes are applied to stop it.

Slacken the throttle cable to ensure that there is plenty of slack so that cable tension does not give a false adjustment on the carburettor.

On the side of the carburettor are two screws, the upper one is the throttle stop screw, the lower the air mixture screw.

To adjust the slow running of the engine, turn the throttle stop screw until the engine is running at approximately 1500 rpm. Turn the air mixture screw until the highest engine speed is obtained. If the engine speed is then too fast, unscrew the throttle stop screw to reduce it, then turn the air mixture screw to find the highest engine speed again. This process is repeated until the engine runs slowly and evenly. Readjust the throttle cable slack to the limit as set out under the previous heading.

6 Check and adjust the decompressor cable.

The decompressor lever on the cylinder head should have a slight amount of movement before it operates the rocker arm to open the valve. The engine should stop when the handlebar lever is operated.

A solderless nipple clamped on the cable can be moved to adjust the cable free play.

7 Check the tyre condition.

By law a moped does not have a minimum depth of tread but should have a clearly discernable pattern, which means it is illegal to ride on bald tyres. In the interest of safety, it is better to renew the tyre long before the legal minimum is reached.

When checking the tyre condition, remove any stones in the tread, check for any bulges, splits or bald spots and renew the tyre if any doubt exists by following the procedure given in Chapter 5, Section 18.

Six monthly or every 3000 miles (5000 km)

Complete all the checks under the weekly and monthly headings and then the following items:

1 Clean the air filter.

The air filter is located on the left-hand side of the machine above the engine.

Remove the screw and the carburettor cover on the PC50K1 or on the other models the three screws and the engine cover, to reveal the rubber hose. Slide the spring clip off the carburettor and pull the hose off. Remove the two screws and the air cleaner

assembly from the machine. The black filter support slides out of the cover, so that the filter gauze can be cleaned. A vacuum cleaner will remove most of the dirt but if the gauze is oily or torn it should be renewed. Reassembly of the air filter is the reverse to the dismantling procedure but if the carburettor is going to be removed for cleaning, as described in the next Section, there is no need to refit the rubber hose, carburettor cover or engine cover.

2 Clean the carburettor.

Over a period of time sediment and water can collect in the carburettor. A drain screw on the carburettor enables the float chamber to be flushed out with the petrol to remove nearly all of the dirt but Chapter 2, Sections 5 and 6 will describe how the carburettor itself is removed, stripped, cleaned and reassembled if any trouble still persists.

3 Clean the fuel tap filter.

The fuel tap filter should stop any dirt, rust or water from getting into the carburettor from the petrol tank.

Drain the petrol tank into a suitable container. Remove the spring clip and the feed pipe from the bottom of the petrol tap. Unscrew the nut above the tap and pull the tap clear. The plastic filter gauze can now be cleaned by washing in a small amount of petrol which can then be used to flush out the petrol tank. Refit the tap and feed pipe and refill the petrol tank.

4 Check and adjust the valve tappet clearances.

The valve tappet clearance for both the inlet and exhaust valves is 0.05 mm (0.002 in) when the engine is cold.

A small amount of dismantling is required before the tappet clearance can be checked. A new tappet cover gasket should be obtained before the job is started as the existing gasket will probably tear when the cover is removed.

Ensure that the machine is on its centre stand, standing on level ground. Prise off the flywheel cover on the left-hand side of the engine. Unhook the decompressor cable from the operating arm on the cylinder head. Remove the two bolts and the tappet cover to reveal the adjusters.

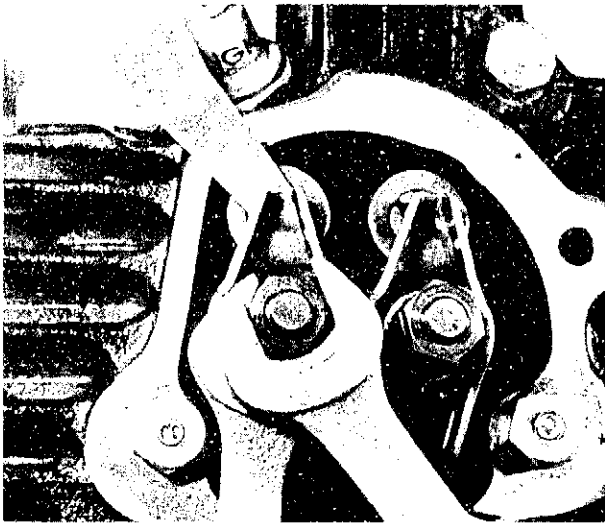
To check the tappet clearances, turn the flywheel until the line marked with a 'T' is aligned with the mark on the crankcase half. The piston will now be at top dead centre on either the compression or exhaust stroke. Checking the tappet clearances must be made on the compression stroke when both rocker arms are free, so a complete turn backwards of the flywheel is required if the piston is on the exhaust stroke. It will probably be found that when turning the flywheel, the 'T' mark tends to move on every other revolution when the piston is under compression. This is the position required for checking the tappet clearances and to avoid the 'T' mark moving, removing the spark plug and its cover will relieve the pressure in the cylinder.

A 0.05 mm (0.002 in) feeler gauge should just pass between the rocker arm and the valve stem. If adjustment is necessary, slacken the locking nut and turn the adjusting nut until the feeler gauge will just pass through the gap. Hold the adjusting nut securely and retighten the locknut. Check the gap again to ensure that it is still correct. This applies to both valves as the clearance is identical.

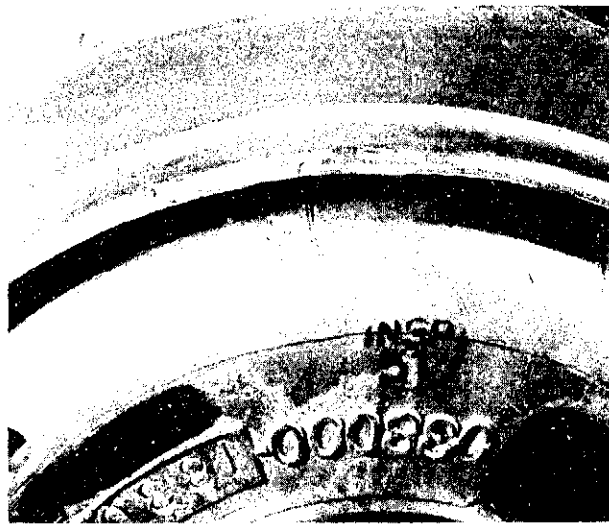
Refit the tappet cover, using the new gasket, and reconnect the decompressor cable. Check the cable as described in the monthly maintenance Section. Refit the spark plug, the plug cover and the flywheel cover, unless the next task of checking the ignition timing is about to be carried out.

5 Check and adjust the ignition timing.

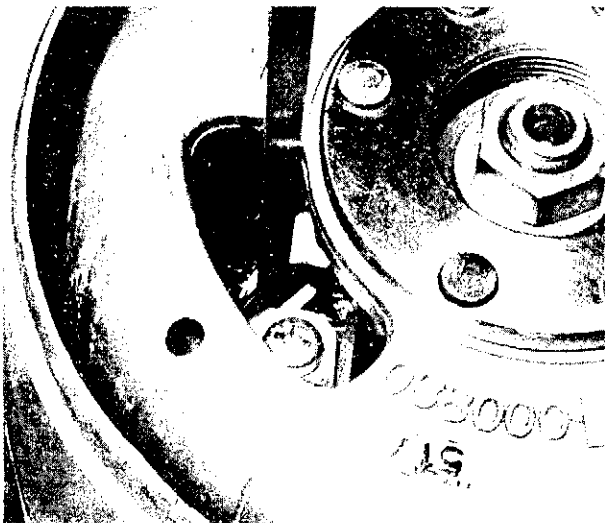
The ignition timing is determined by when the contact breaker points open. The flywheel operates the contact breaker and the heel of the contact arm will wear, altering the ignition timing. The flywheel cover should be removed so that the contact breaker can be viewed through one of the apertures in the flywheel. When the line marked 'F' on the flywheel lines up with the mark on the crankcase half, the contact breaker should just start to open. If adjustment is necessary, the fixed contact can be moved by slackening the clamping screw and using a screwdriver in the slot provided. Retighten the clamping screw



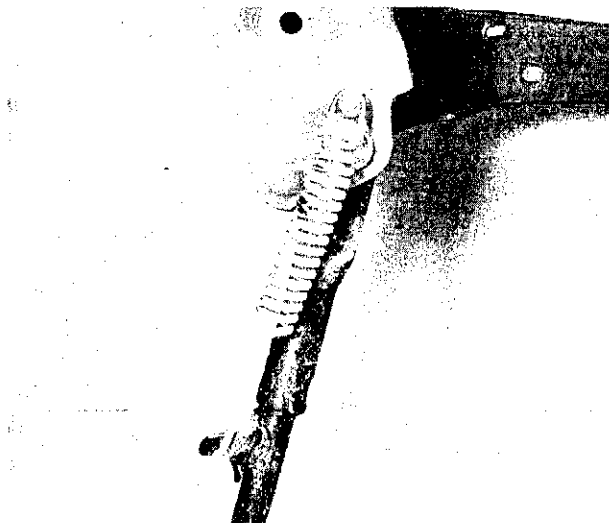
... and adjust the tappets



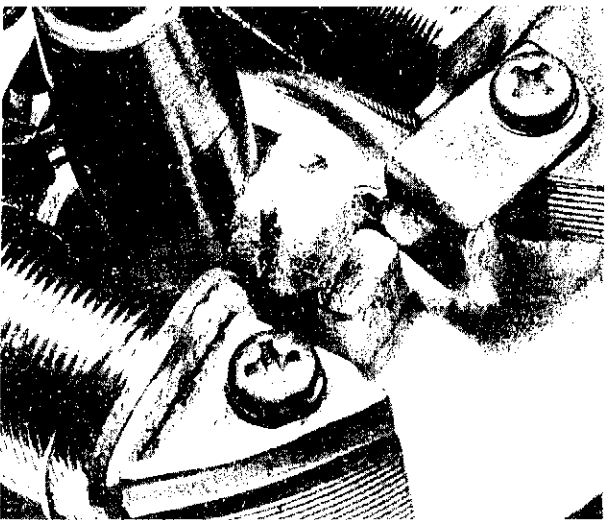
Contacts should start opening as the F mark aligns



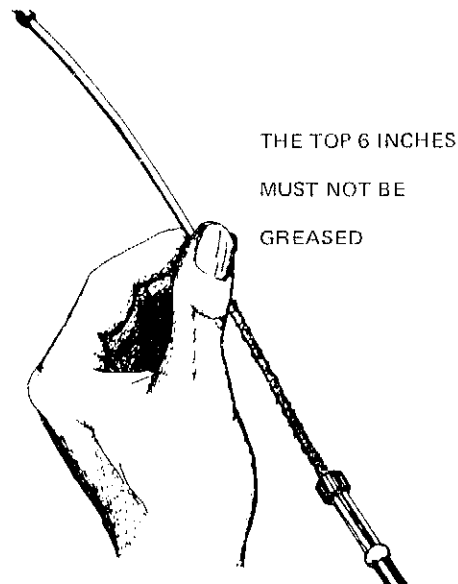
Ensure the contacts gap is not too small



Check condition of centre stand spring



Lubricate the felt wick



Greasing the speedometer cable

and check the adjustment again, to ensure that it has not altered.

When the ignition timing is correct, rotate the flywheel to determine the position at which the contact breaker points are fully open. When fully open the contact breaker gap should be between 0.3 mm and 0.4 mm (0.012 in and 0.016 in). If the gap is too small, the contact breaker points need renewing, as described in Chapter 3, Section 5.

Refit the flywheel cover and the spark plug and plug cover, if these have been removed.

6 Check the centre stand spring.

Check the condition of the centre stand spring and renew it if it is worn or heavily corroded. If the stand drops when the machine is moving it may catch in some obstacle in the road and unseat the rider. Grease the spring and the centre stand pivot points.

7 Grease the speedometer cable.

Once the headlamp lens has been removed the speedometer cable can be unscrewed from the speedometer head and pulled clear. The inner cable can then be pulled clear. Clean off the old grease by washing in petrol or paraffin. Spread new grease along the length of the cable except for the top 15 cm (6 in) and feed the cable back into the outer casing. Reconnect the cable to the speedometer head.

If the top of the cable is greased, the grease will work its way into the speedometer head and stop it functioning, thus necessitating a replacement as the speedometer head cannot be stripped for cleaning.

Yearly or every 5000 miles (8000 km)

Complete all the checks listed under the weekly, monthly

and six monthly headings, then complete the following additional tasks.

1 Lubricate the felt wick for the contact breaker cam.

When the ignition timing is checked, the felt wick for the contact breaker cam can be seen through one of the flywheel apertures. A few drops of a light machine oil, should be put on the wick to reduce wear on the heel of the contact arm. Do not over-oil. If oil finds its way on to the contact breaker points, it will act as an insulator and prevent electrical contact from being made.

2 Check the condition of the sprockets.

When the final drive chain is cleaned and checked, ensure that the sprockets are not badly worn, before replacing the chain. If the sprocket teeth are badly worn they will probably have a hooked appearance and should be renewed as described in Chapter 1, Sections 11 and 42 and Chapter 5, Section 14.

3 Adjust and lubricate the steering head bearings.

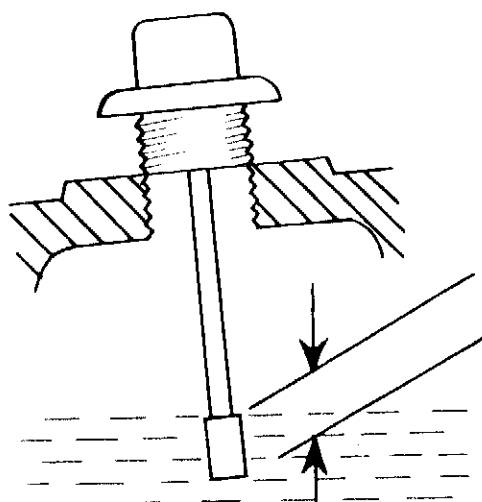
Dismantling and reassembly of the steering head is a complex task that should be undertaken only if a good understanding of the problems involved is realised. Chapter 4, Sections 2, 3, 8 and 9 fully describe the necessary procedure.

4 Adjust and lubricate the wheel bearings.

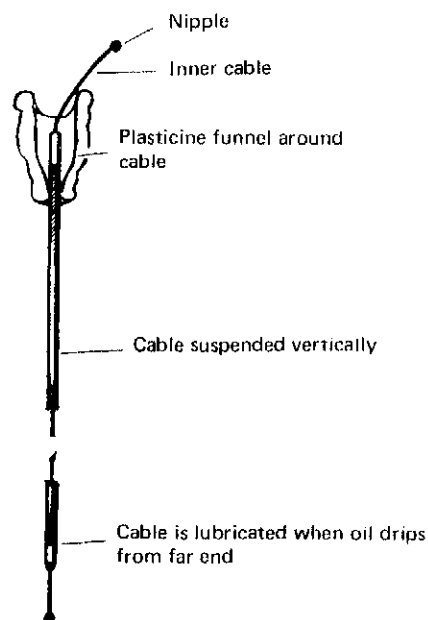
Dismantling and reassembly of the wheel bearings is also a complex task, to be undertaken only if an understanding of the problems involved is realised. Chapter 5, Sections 3 - 6, 9, 11 - 13 and 15 fully describe the necessary procedures.

5 Examine both front and rear brake assemblies.

The brake assemblies should be cleaned to remove any dust and checked to ensure that the brake linings are not wearing too thin. This task is fully described in Chapter 5, Sections 3, 4, 9, 11, 12 and 15.



Checking the engine/gearbox oil level



Oiling a control cable

Recommended lubricants

Component	Type of lubricant
Engine Normal temperatures Below freezing point	Multi-grade 20W/50 Multi-grade 10W/30
Final drive chain	Multi-grade engine oil or graphited grease
All greasing points	Multi-purpose high melting point lithium-based grease
Cables etc. (not nylon lined)	Light machine oil

General repair information

In this Section, information is given to help answer some of the more common queries that may arise in the mind of the owner. Most of the answers are relatively simple with hints for simplifying the task, but where a major operation has to be undertaken, reference is made to the main text, thus alerting the owner that all may not be quite so simple and straightforward.

1 Repair of frayed cables.

If, during the weekly maintenance session, any of the cables are found to be frayed with one or two strands of the inner cable broken they should be renewed.

Broken strands of cable can cause a cable to jam with disastrous results such as the throttle jammed wide open or the brakes jammed full on. Cables cannot be repaired successfully as once one or two of the cable strands have broken, the remainder will shortly follow. The relatively low cost of a new cable makes repair an uneconomical proposition.

2 Renewing the front brake cable.

To renew the front brake cable, it is necessary to disconnect it from the wheel end first. Slacken the adjuster, unhook the nipple from the brake arm and pull the cable out of the cable stop on the backplate. Pull the outer cable clear of the handlebar stop and pull the nipple out of the lever. The cable can then be pulled out of the cable guide on the steering head. To fit a new cable, reverse the dismantling procedure and adjust the cable as described in the weekly maintenance Section. Make sure you obtain the correct replacement.

3 Renewing the rear brake cable.

Renewal of the rear brake cable is very similar to the front brake cable, with the added problem on the PC50K1, that the cable runs through the frame. To enable the new cable to be fitted without removing the engine, tie a piece of string to the wheel end of the cable, so that when the old cable is pulled out of the frame the string can be used to pull the new cable into its correct position. Again adjust the cable as described in the weekly maintenance Section.

4 Renewing the decompressor cable.

The decompressor cable nipple will unhook from the cylinder head arm and the cable will pull out of the cable stop. Pull the outer cable clear of the handlebar stop, turn the inner cable to form a right angle with the handlebar lever and pull the nipple out of the lever. The cable can then be pulled out of the cable guide on the steering head. This cable also passes through the frame on the PC50K1 model and to enable the new cable to be fitted without removing the engine, tie the piece of string to the handlebar end of the cable so that when the old cable is

pulled out of the frame the string can be used to pull the new cable into its correct position. Fitting the new cable is the reverse of the dismantling procedure. It is recommended that a new solderless nipple is used when adjusting the cable, as described in the monthly maintenance Section.

5 Renewing the throttle cable.

The throttle cable is the most complex cable to renew, with the need to detach very small pieces of the carburettor, so extra care must be taken to avoid losing any parts. Remove the screw and the carburettor cover on the PC50K1 model or the three screws and the engine cover on the other models. Unscrew the carburettor top and pull out the slide and needle assembly. Compress the return spring and unhook the throttle cable from the slide. Remove the slide assembly, the return spring, the carburettor top and the rubber sleeve from the cable and put them in a safe place to avoid loss or damage.

The style of twistgrip varies between the PC50K1 and the other models. For the PC50K1, peel back the twistgrip rubber to reveal the retaining screw. Remove this screw and the twistgrip will turn as if closing the throttle and slide off the end of the handlebar. The sliding block can now be lifted out of the handlebar and the inner cable unhooked. The support ring will now slide off the handlebar, allowing the outer cable stop to be removed from the handlebar. Unhook the stop from the cable. As the throttle cable and the horn button wire pass through the same grommet in the handlebar, it may be necessary to remove the grommet to enable the cable to be slid out without damaging the horn wire. This cable is fed through the frame so the use of string will simplify the task, but as with the handlebars, a special grommet may have to be removed and refitted where the cable comes out of the frame, above the carburettor.

On the PF50 models, slacken the locknut and remove the screw and retaining plate. Pull the outer cable clear of the stop and feed the inner cable through the slot, to enable the twistgrip to be slid off the handlebar and the cable nipple to be detached from the twistgrip. The cable will now pull clear of the machine but if the new cable is threaded in at the same time, the new cable run will be correct.

When reassembling, some grease inside the twistgrip will ensure it rotates easily on the handlebar, and will reduce wear. The reassembly sequence is the reverse of the dismantling procedure but the following items need extra care. On the PF50 models the retaining plate screw also acts as the friction screw and should be adjusted to suit individual requirements. As the machines are automatic, it is advisable to have the throttle self-closing in case of accident, but the speed at which

it closes is a matter of personal taste. On the PC50K model, the twistgrip retaining screw must pass through the twistgrip and the support ring and screw into the outer cable stop. Do not forget to turn the twistgrip as if opening it to engage the sliding block. Adjust the cable as described in the monthly maintenance Section.

6 *Adjusting the handlebar height (PC50K model only).*

The handlebar stem is marked with three lines marked 'H', 'M' and 'L'. The top of the steering head adjusting nut should be between the 'H' and the 'L' lines. To adjust the handlebar height, slacken the cable clip bolt and slide the clip up out of the way. Unscrew the bolt in the centre of the handlebars two turns only. A sharp tap on the bolt head will release the internal tapered nut. Hold the front wheel between the knees and wriggle the handlebars to the correct height. Ensure that the handlebars and wheel are in line and tighten the centre nut. Slide the cable clip back down the stem and tighten the fixing bolt.

7 *Renewing the petrol pipe.*

The petrol pipe has clips each end which, when released, allow the pipe to be pulled off. For the PF models removal of the three screws and the engine cover exposes the run of the pipe so renewal is relatively easy. On the PC50K1 model, the petrol pipe is routed inside the frame and in this case it is necessary to remove the engine to gain access to the pipe run.

The engine removal procedure is given in Chapter 1, Section 5.

8 *Renewing the headlight bulb.*

A 6 volt 18/18 watt double filament bulb is fitted. If one of the filaments does not light it is almost certain to be the bulb at fault, whilst if neither lights then the fault probably lies elsewhere.

To renew the bulb, remove the screw below the headlamp glass and pull the headlamp unit out. Press, turn and pull clear, the contacts assembly on the back of the unit and slide the bulb out.

The new bulb will only fit in one way and is pre-focussed so no adjustment is necessary. Refit the contacts assembly, headlamp unit and retain with the screw.

9 *Renewing the tail light bulb.*

The PF50 models have a 6 volt, 6 watt single filament bulb, whilst the PC50K1 model has a 6 volt 6/18 watt double filament bulb of which only the 6 watt side is used as there is no stop light switch fitted. The most common cause of 'blown' tail light bulbs is the dipswitch 'breaking' with one filament before 'making' with the second. This allows the full electrical power to momentarily pass through the tail light bulb.

To renew the bulb, remove the two screws and the plastic lens cover. Push, twist and pull to remove the bulb. Fit the new bulb and replace the lens cover.

10 *Renewing the speedometer cable.*

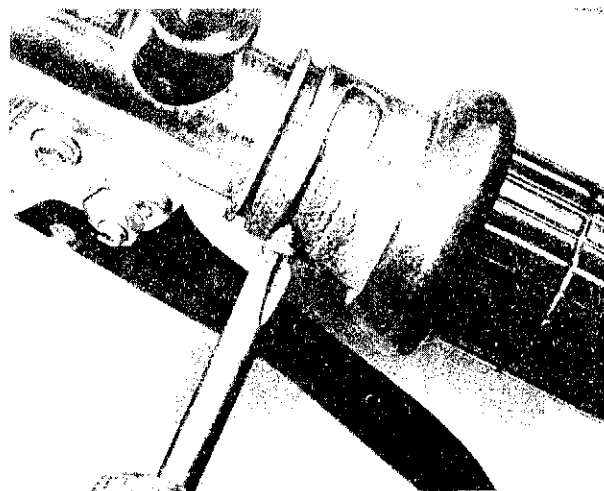
If the speedometer stops working, it is normally due to the cable breaking rather than the speedometer head itself.

It is possible to buy the inner cable on its own but if the outer cable is damaged in any way renewal of the complete cable is recommended. A typical effect of a damaged outer cable is that the speedometer needle wavers when the machine is travelling at a steady speed.

To renew the speedometer cable, remove the screw and the headlight unit. Unscrew the top of the cable and pull it clear. Unscrew the bottom of the cable on the PF50 models or remove the retaining screw and pull the cable clear on the PC50K1 model. The inner cable will now pull out but make sure all the pieces are out before refitting by sliding the new inner cable into position. Properly grease the cable before reconnecting and spin the front wheel to ensure that it is properly seated each end. Reassemble using the reverse of the dismantling procedure.

11 *Inspection of the engine sprocket.*

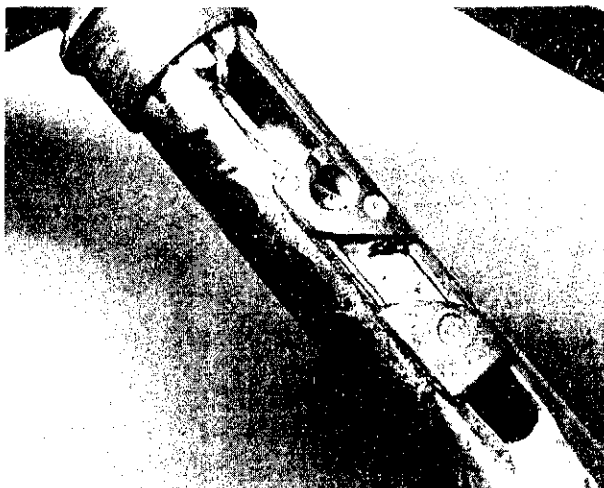
It is not necessary to remove the engine to gain access to the engine sprocket. The chainguard is held with one nut and one bolt, which, when removed, allow the chainguard to be lifted to reveal the engine sprocket. Visual inspection is possible but a



1 Peel back the rubber and remove the screw



2 Lift out the sliding block



3 The support ring retains the cable stop

pair of circlip pliers is required as described in Chapter 1, Section 11, if removal is required.

12 *Renewal of the coil or condenser.*

As the coil and condenser are mounted inside the frame, engine removal is necessary to gain access. Chapter 1, Section 5 and Chapter 2, Sections 3 and 6, fully describe the necessary

work.

13 *Renewing the pedals.*

As with bicycle pedals they unscrew from the cranks and new pedals can be fitted. The pedals are marked 'R' and 'L' to suit each side of the machine but it should be noted that the right-hand pedal has a left-hand thread.

Working conditions and tools

When a major overhaul is contemplated, it is important that a clean, well-lit working space is available, equipped with a workbench and vice, and with space for laying out or storing the dismantled assemblies in an orderly manner where they are unlikely to be disturbed. The use of a good workshop will give the satisfaction of work done in comfort and without haste, where there is little chance of the machine being dismantled and reassembled in anything other than clean surroundings. Unfortunately, these ideal working conditions are not always practicable and under these latter circumstances when improvisation is called for, extra care and time will be needed.

The other essential requirement is a comprehensive set of good quality tools. Quality is of prime importance since cheap tools will prove expensive in the long run if they slip or break and damage the components to which they are applied. A good quality tool will last a long time, and more than justify the cost. The basis of any tool kit is a set of open-ended spanners, which can be used on almost any part of the machine to which there is reasonable access. A set of ring spanners makes a useful addition, since they can be used on nuts that are very tight or where access is restricted. Where the cost has to be kept within reasonable bounds, a compromise can be effected with a set of combination spanners - open-ended at one end and having a ring of the same size on the other end. Socket spanners may also be considered a good investment, a basic 3/8 or 1/2 inch drive kit comprising a ratchet handle and a small number of socket heads, if money is limited. Additional sockets can be purchased, as and when they are required. Provided they are slim in profile, sockets will reach nuts or bolts that are deeply recessed. When purchasing spanners of any kind, make sure the correct size standard is purchased. Almost all machines manufactured outside the UK and the USA have metric nuts and bolts, whilst those produced in Britain have BSF or BSW sizes. The standard used in the USA is AF, which is also found on some of the later British machines. Other tools that should be included in the kit are a range of crosshead screwdrivers, a pair of pliers and a hammer.

When considering the purchase of tools, it should be remembered that by carrying out the work oneself, a large proportion of the normal repair cost, made up by labour charges, will be saved. The economy made on even a minor overhaul will go a long way towards the improvement of a tool kit.

In addition to the basic tool kit, certain additional tools can prove invaluable when they are close to hand, to help speed up a multitude of repetitive jobs. For example, an impact screwdriver will ease the removal of screws that have been tightened

by a similar tool, during assembly, without risk of damaging the screw heads. And, of course, it can be used again to retighten the screws, to ensure an oil or airtight seal results. Circlip pliers have their uses too, since gear pinions, shafts and similar components are frequently retained by circlips that are not too easily displaced by a screwdriver. There are two types of circlip plier, one for internal and one for external circlips. They may also have straight or right-angled jaws.

One of the most useful of all tools is the torque wrench, a form of spanner that can be adjusted to slip when a measured amount of force is applied to any bolt or nut. Torque wrench settings are given in almost every modern workshop or service manual, where the extent to which a complex component, such as a cylinder head, can be tightened without fear of distortion or leakage. The tightening of bearing caps is yet another example. Overtightening will stretch or even break bolts, necessitating extra work to extract the broken portions.

As may be expected, the more sophisticated the machine, the greater is the number of tools likely to be required if it is to be kept in first class condition by the home mechanic. Unfortunately, there are certain jobs which cannot be accomplished successfully without the correct equipment and although there is invariably a specialist who will undertake the work for a fee, the home mechanic will have to dig more deeply in his pocket for the purchase of similar equipment if he does not wish to employ the services of others. Here a word of caution is necessary, since some of these jobs are best left to the expert. Although an electrical multimeter of the Avo type will prove helpful in tracing electrical faults, in inexperienced hands it may irrevocably damage some of the electrical components if a test current is passed through them in the wrong direction. This can apply to the synchronisation of twin or multiple carburettors too, where a certain amount of expertise is needed when setting them up with vacuum gauges. These are, however, exceptions. Some instruments, such as a strobe lamp, are virtually essential when checking the timing of a machine powered by a CDI ignition system. In short, do not purchase any of these special items unless you have the experience to use them correctly.

Although this manual shows how components can be removed and replaced without the use of special service tools (unless absolutely essential), it is worthwhile giving consideration to the purchase of the more commonly used tools if the machine is regarded as a long term purchase. Whilst the alternative methods suggested will remove and replace parts without risk of damage, the use of the special tools recommended and sold by the manufacturer will invariably save time.

Chapter 1 Engine, clutch and reduction gear

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Specifications

Engine

Type	Air cooled 4 stroke ohv engine
Cylinder arrangement	Single cylinder, inclined 10° from horizontal
Bore and stroke	42 mm x 35.6 mm (1.6535 in x 1.4016 in)
Capacity	49 cc (3.0 cu in)
Compression ratio	8.5 : 1
Maximum horsepower	1.80 hp @ 5700 rpm
Maximum torque	0.29 kg m @ 3500 rpm (2.1 lb ft @ 3500 rpm)
Oil capacity	0.75 litres (1.3 pints)
Valve tappet clearance	0.05 mm (0.002 in)
Clutch	Automatic, centrifugal wet shoe type
Primary reduction ratio	3.000 : 1
Internal gear ratio	3.214 : 1
Secondary reduction ratio	1.933 : 1 (PC50K1), 1.735 : 1 (PF50)
Engine sprocket size	15 teeth
Engine weight (including oil)	12 kg (26.45 lb)

Torque wrench settings

Component	Thread diameter (mm)	kg/cm	lb/ft
Crankcases and crankcase covers	6	70 – 120	5.1 – 8.7
Cylinder head cover	6	80 – 120	5.8 – 8.7
Camshaft holder	6	80 – 120	5.8 – 8.7
Inlet stub to cylinder head	6	80 – 120	5.8 – 8.7
Generator rotor	10	300 – 380	21.7 – 27.5
Tappet adjusting locknut	5	70 – 110	5.1 – 8.0
Engine oil drain bolt	12	200 – 300	14.5 – 21.7
Cylinder head	6	90 – 120	6.5 – 8.6
Clutch centre nut	10	300 – 380	21.7 – 27.5

Wear limits

Component	Manufacturing standards mm (in)	Wear limit mm (in)
Crankshaft assembly - steel		
Alignment	0.02 (0.0008)	0.05 (0.002)
Connecting rod - aluminium alloy		
Radial clearance	0.01 (0.0004)	0.05 (0.002)
Side clearance	0.10 - 0.35 (0.004 - 0.014)	0.8 (0.032)
Main bearing - journal		
Axial looseness	0.07 (0.0028)	1.2 (0.048)
Cylinder - cast iron		
Bore diameter	42.00 - 42.02 (1.6535 - 1.6543)	42.1 (1.6575)
Piston - aluminium alloy		
Skirt diameter	41.98 - 42.00 (1.6527 - 1.6535)	
Piston ring - 2 compression and 1 oil control		
Minimum gap	0.10 (0.004)	
Valve spring - spring steel		
Free length	24.5 (0.965)	23.0 (0.906)
Valves - steel		
Stem diameter	5.5 (0.216)	5.4 (0.212)
Overall length	47 (1.850)	46.1 (1.815)
Head thickness	0.5 (0.020)	0.2 (0.008)
Seat angle	45°	
Cylinder head - cast iron		
Valve seat width	0.5 - 0.7 (0.020 - 0.028)	1.0 (0.039)
Camshaft - aluminium alloy		
Cam height:		
Inlet	21.66 (0.850)	
Exhaust	21.40 (0.842)	

1 General description

The engine unit fitted to the Honda mopeds covered in this manual is of the overhead valve type, in which the valve gear is actuated by pushrods. The engine/reduction gear unit is of aluminium alloy construction with a cast iron cylinder barrel and head. The flywheel generator is mounted on the left-hand side of the engine unit and the clutch assembly on the right-hand side of the engine, inside the aluminium alloy cover. Convention is defied by installing the engine unit in a near-horizontal position, so that the cylinder barrel is almost parallel to the ground. The exhaust system is carried on the right-hand side of the machine. Pedals are used to start the machine, normally kickstart fashion with the machine on the centre stand, but the fit and healthy can pedal the machine and release the decompressor lever.

A trochoidal oil pump driven by the camshaft supplies oil to most parts of the engine. The connecting rod has a small scoop cast on the bottom to pick up and feed oil into the big end. There is no oil filter.

When the engine unit is dismantled, because of its unit construction both the reduction gear and the crankshaft are exposed when work on either is required.

2 Operations with the engine in the frame

It is not necessary to remove the engine from the frame unless the crankshaft assembly and/or the reduction gear bearings

require attention. Most operations can be accomplished with the engine in place, such as:

- 1 Removal and replacement of cylinder head.
- 2 Removal and replacement of cylinder barrel and piston.
- 3 Removal and replacement of flywheel magneto generator.
- 4 Removal and replacement of clutch assembly.

When several operations need to be undertaken simultaneously, it will probably be advantageous to remove the complete engine unit from the frame; an operation that should take approximately twenty minutes. This will give the advantage of better access and more working space.

3 Operations with the engine removed

- 1 Removal and replacement of the main bearings.
- 2 Removal and replacement of the crankshaft assembly.
- 3 Removal and replacement of the gear and its reduction main bearings.
- 4 Removal and replacement of the oil pump.

4 Method of engine removal

As described previously, the engine and reduction gear are built in unit and it is necessary to remove the unit complete in order to gain access to either component. Separation is accomplished after the engine unit has been removed and refitting cannot take place until the crankcase has been reassembled.

5 Removing the engine unit

- 1 Place the machine on its centre stand and make sure it is standing firmly, on level ground. Remove the crankcase drain plug and drain the oil from the crankcase.
- 2 On the PF50 models remove the three screws and the engine cover. On the PC50K1 model remove the single screw and the carburettor cover.
- 3 Turn off the petrol at the tap and pull the feed pipe off the carburettor after releasing the clip. Release the spring clips on the air hose and pull the air hose clear.
- 4 Remove the two screws holding the carburettor and pull it and the spacing block clear. The carburettor overflow pipe will pull out of the guide hole on the engine.
- 5 Remove the two nuts holding the exhaust pipe to the cylinder head and the two nuts holding the silencer to the frame. The exhaust system will now pull clear.
- 6 Unhook the decompressor cable and remove the spark plug cap.
- 7 Remove the swinging arm nut and a bolt, to release the chainguard. Disconnect the final drive chain at the spring link and pull the chain off the reduction gear sprocket.
- 8 It is normally easier to remove cotter pins when the engine is still in the frame rather than when the engine is on a bench. Remove both cotter pins and pedal cranks. The cotter pins may be very tight so care should be taken not to damage the threads when driving them out.
- 9 Remove the top engine bolt and allow the engine to pivot down, exposing the wiring. The snap connectors are colour coded so no special marking is required before pulling them apart.
- 10 Remove the rear engine bolt and lift the engine clear of the machine.

6 Dismantling the engine: general

- 1 Before commencing work on the engine unit, the external surfaces should be cleaned thoroughly. A motorcycle engine has very little protection from road grit and other foreign matter, which will find its way into the dismantled engine if this simple precaution is not observed. One of the proprietary cleaning compounds, such as Gunk, can be used to good effect, particularly if the compound is allowed to work into the film of oil and grease before it is washed away. When washing down, make sure that water cannot enter the carburettor or the electrical system, particularly if these parts have been exposed.
- 2 Never use undue force to remove any stubborn parts, unless mention is made of this requirement. There is invariably good reason why a part is difficult to remove, often because the dismantling operation has been tackled in the wrong sequence. Dismantling will be made easier if a simple engine stand is constructed that will correspond with the engine mounting points. This arrangement will permit the complete unit to be clamped rigidly to the workbench, leaving both hands free.

7 Removing the cylinder head, barrel and piston

Engine in frame

As mentioned in Section 2 of this Chapter the cylinder head, barrel and piston can be removed without taking the engine out of the frame.

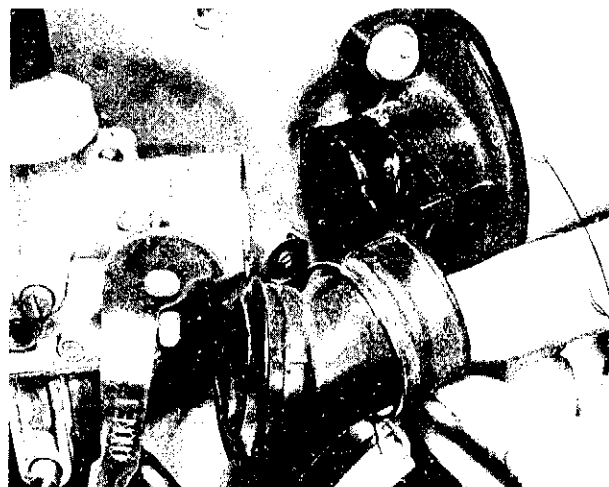
To remove the cylinder head, barrel and piston, follow Section 5 of this Chapter to paragraph 6, then continue with the procedure detailed below:

Engine removed from frame

If the engine has been removed from the frame as detailed in Section 5 and cleaned down, proceed as follows:



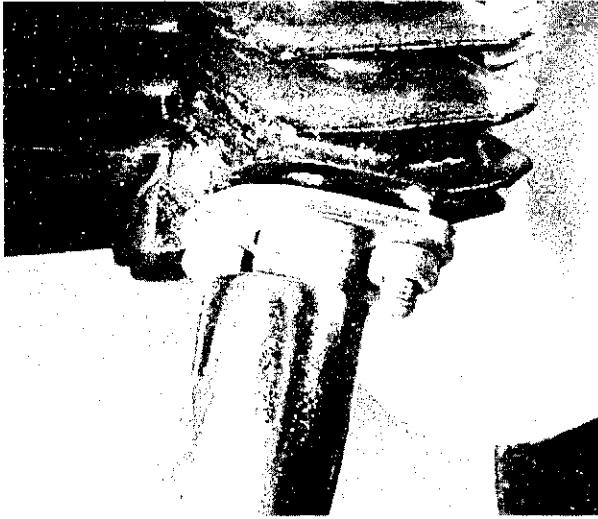
5.2 Remove the screw and carburettor cover



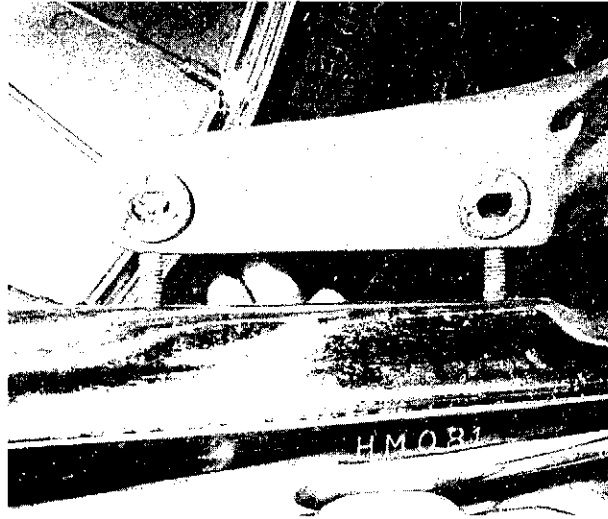
5.3 Release the clip and pull off hose



5.4 Remove two screws to release the carburettor



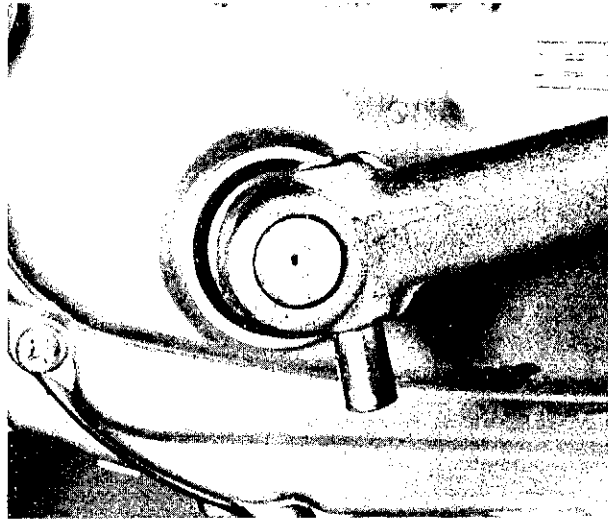
5.5a Remove two nuts holding exhaust pipe to the head ...



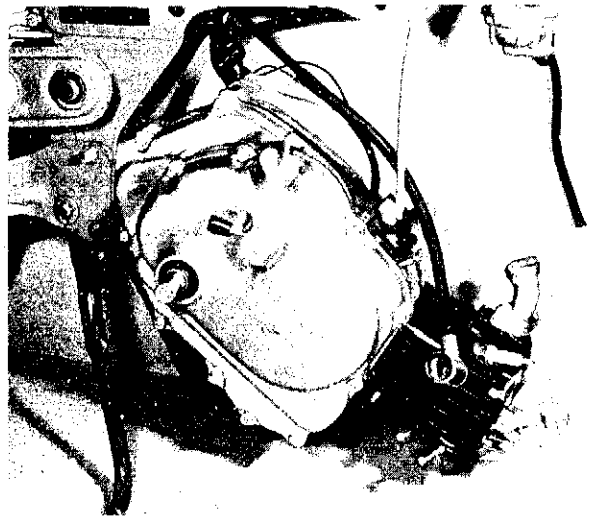
5.5b ... and two nuts holding silencer to the frame



5.6 Unhook decompressor cable



5.8 Remove the pedal crank cotter pins



5.9a Pivot the engine on the rear engine bolt ...



5.9b ... to expose the snap connectors

- 1 Remove the two bolts and the aluminium alloy tappet cover. This reveals the rocker arms and adjusting nuts. Remove the locknuts, the adjusting nuts and the rocker arms. The pushrods will now slide out.
- 2 Remove the four cylinder head bolts, making a note of which bolt carries the decompressor cable stop. Lift the cylinder head, collect the two hollow dowels and remove the cylinder head gasket.
- 3 Ensure that the piston is at top dead centre, remove the two cylinder barrel fixing bolts and slide the barrel up the piston, to enable a piece of rag to be fed into the crankcase mouth to stop any loose pieces from falling inside, necessitating further dismantling to retrieve them. Pull the cylinder barrel clear, taking care to support the piston when it falls clear of the cylinder bore. Collect the two hollow dowels and remove the gasket.
- 4 Remove the two circlips from the piston, using a pair of long nosed pliers. The gudgeon pin can now be pushed out of position allowing the piston complete with rings to be removed from the connecting rod.
- 5 If the gudgeon pin is a tight fit, warm the piston by placing a rag soaked in hot water on the crown. Never drift the gudgeon pin out of position without supporting the piston, otherwise there is risk of bending the connecting rod. Throw away the circlips; they should never be re-used.
- 6 Note the piston is marked with an arrow and must be positioned so that the arrow points downwards. If the piston is oversize, the amount will be stamped on the piston crown.
- 7 Remove the piston rings by expanding them gently, using extreme care because they are very brittle. If they prove difficult to remove, slide strips of tin behind them, to help ease them from their grooves. The top piston ring is of the chrome type and should have the mark 'top' on the uppermost face. The second ring is tapered and should have the 'top' mark in a similar position. A slotted oil scraper ring is fitted in the lower groove, which can be located with either face uppermost.

8 Removing the cam followers

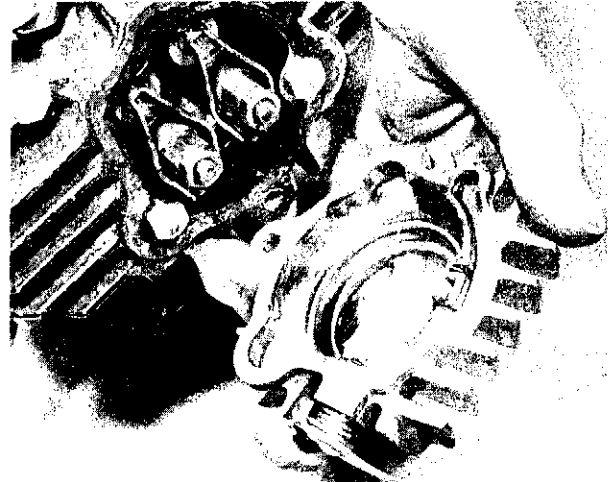
- 1 The cam followers are a slide fit in the crankcase halves and if the crankcases are tipped up and tapped, the followers should fall out.
- 2 If excessive wear is evident, the engine should be completely dismantled to remove and check the camshaft. Lack of lubrication is the most likely cause of excessive wear.

9 Removing the valves and adjuster studs

- 1 Use a small size valve spring compressor to compress the valve spring and release the two half collets. On the earlier models the spring register moves to one side to release the valve stem. As the springs are only lightly loaded, a spring compressor is not essential, but two people are normally needed for removing the half collets. Place the cylinder head on the bench with a spacer to keep the valves on their seats, use a metal prong, such as a spanner, to push down the spring register and release the valve stem as stated above.
- 2 Release the valve spring compressor and remove the spring register and the valve spring.
- 3 The valve will slide out of the head. The other valve can now be treated in exactly the same way.
- 4 The valve tappet adjuster studs can be unscrewed for renewal, if the studs are damaged. These studs also hold the pushrod guide plate in position.

10 Removing the generator

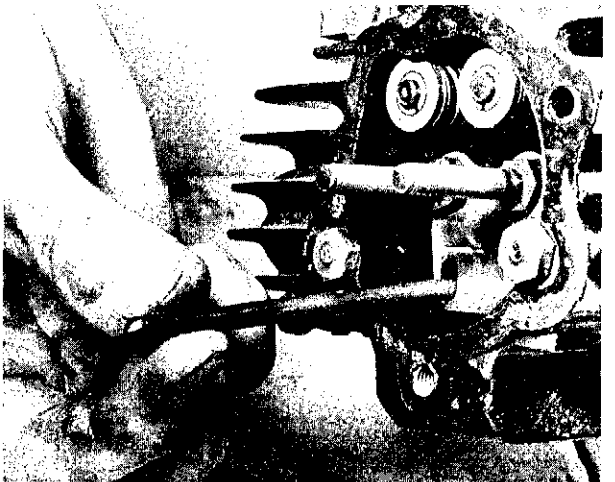
- 1 The same procedure is adopted whether or not the engine is in the machine.



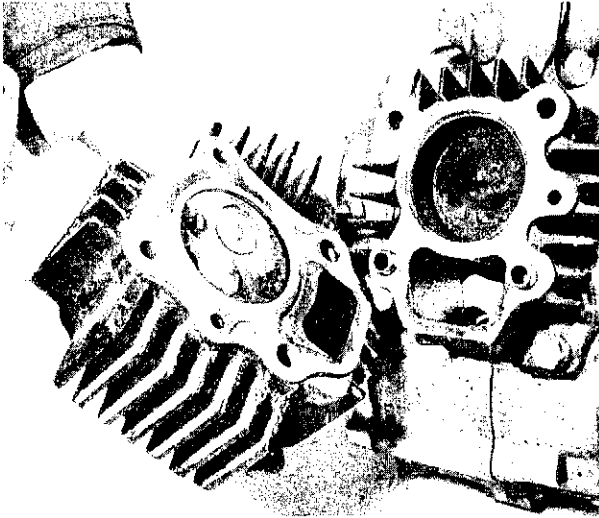
7.1a Remove the tappet cover ...



7.1b ... the nuts and rocker arms ...



7.1c ... and slide out the pushrod



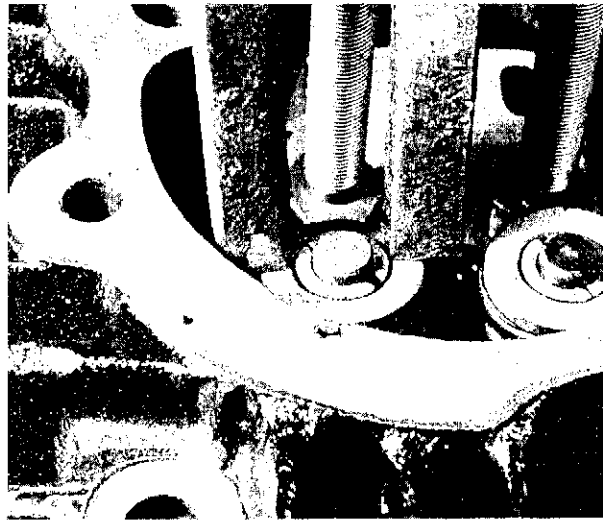
7.2 Remove the cylinder head



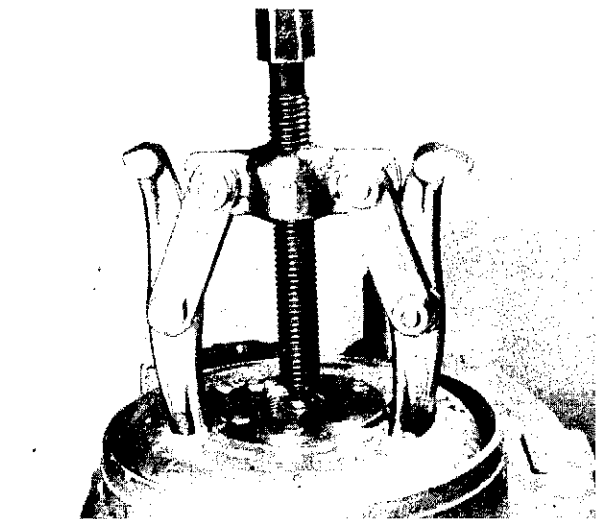
7.3 Slide the barrel up the piston



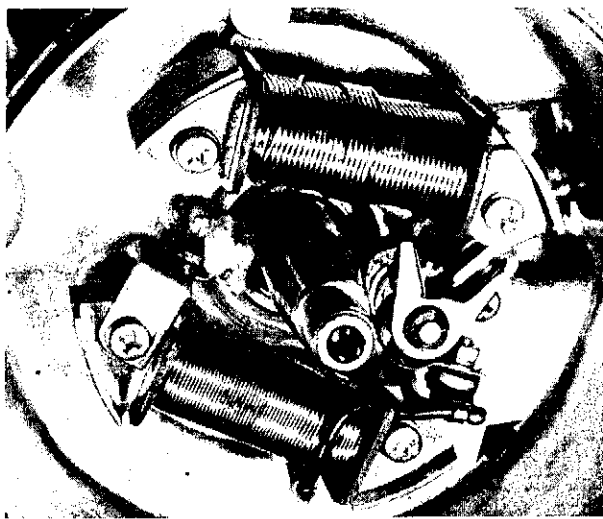
7.4 Push out the gudgeon pin to remove the piston



9.1 Use a small valve spring compressor to release the valves



10.4 Care is needed when a sprocket puller is used



10.6 The ignition coil is wired to the contact breaker

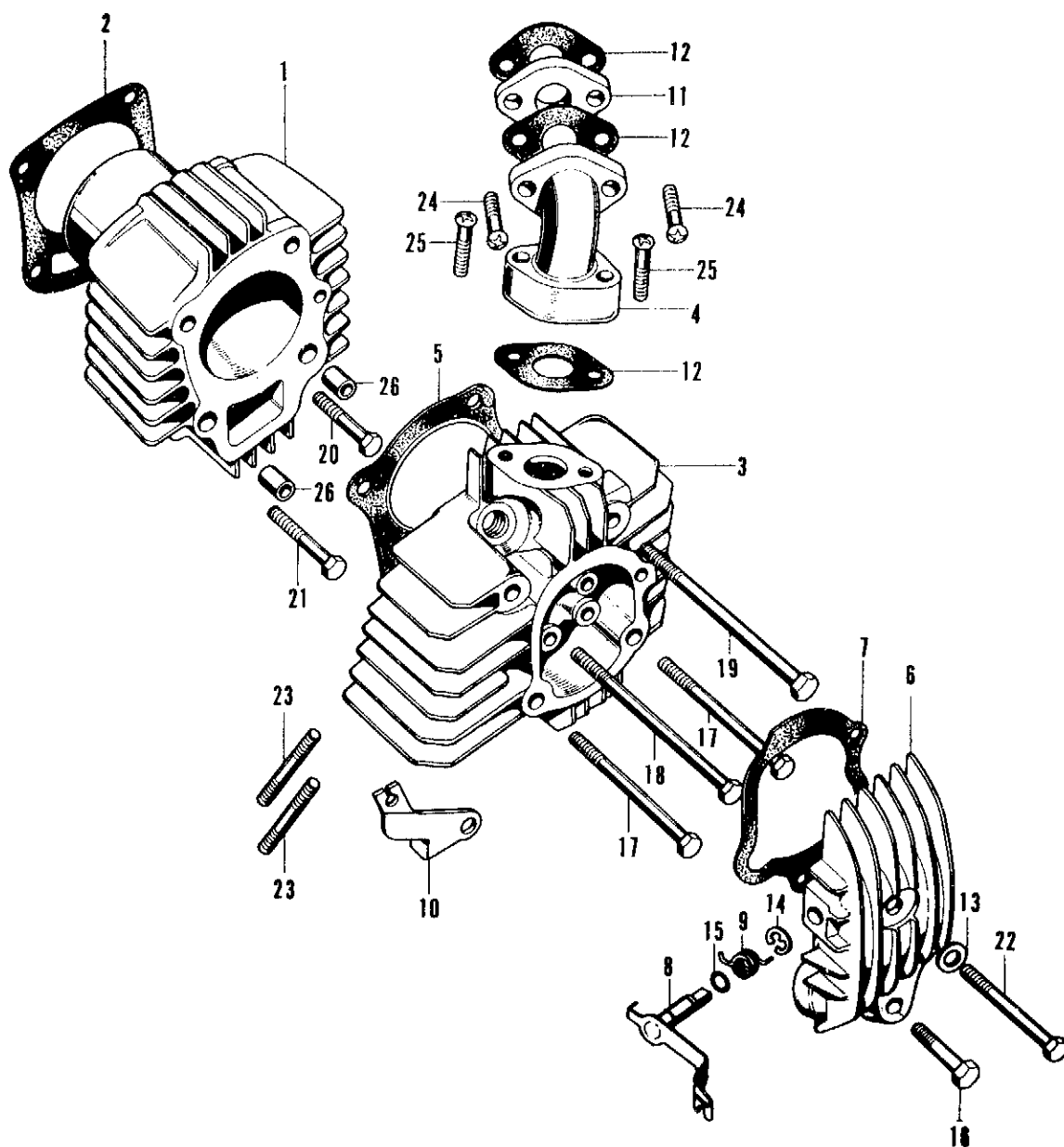


Fig. 1.1. Cylinder barrel and cylinder head

- | | | | | | | | |
|---|----------------------|----|----------------------------|----|--------------|----|----------------------|
| 1 | Cylinder barrel | 8 | Decompressor shaft | 15 | O-ring | 22 | Bolt |
| 2 | Cylinder base gasket | 9 | Decompressor return spring | 16 | Bolt | 23 | Bolt |
| 3 | Cylinder head | 10 | Cable stop | 17 | Bolt | 24 | Screw (2 off) |
| 4 | Carburettor adaptor | 11 | Carburettor heat shield | 18 | Bolt (2 off) | 25 | Screw (2 off) |
| 5 | Cylinder head gasket | 12 | Adaptor gasket (3 off) | 19 | Bolt | 26 | Screw (2 off) |
| 6 | Tappet cover | 13 | Washer | 20 | Bolt | 27 | Hollow dowel (2 off) |
| 7 | Tappet cover gasket | 14 | E clip | 21 | Bolt | | |

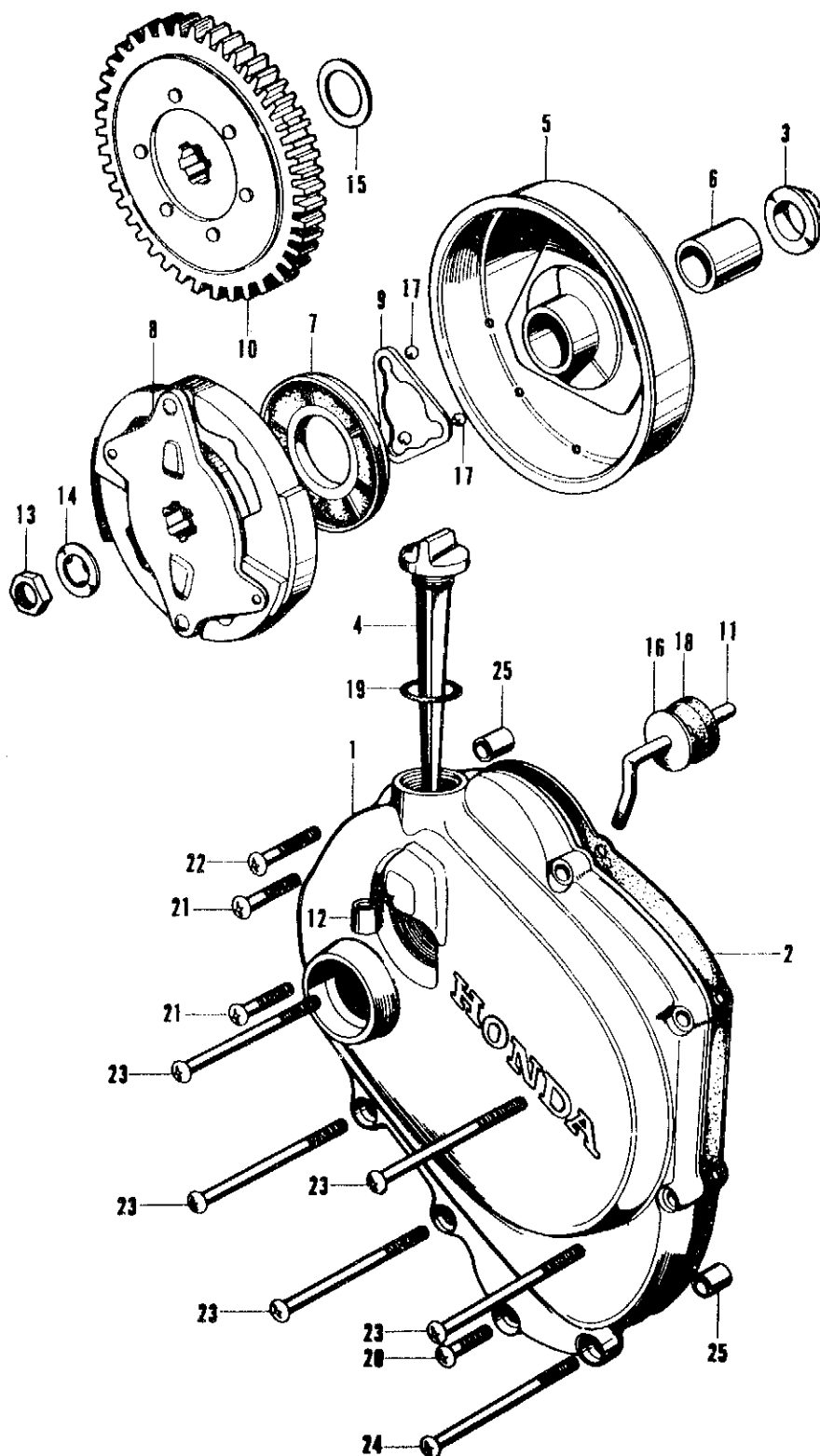


Fig. 1.2. Right hand cover and clutch

- | | | | |
|---------------------|------------------------|-------------------------|-------------------------|
| 1 Right hand cover | 8 Drive plate assembly | 14 Lockwasher | 20 Screw |
| 2 Gasket | 9 Ball retainer | 15 Thrust washer | 21 Screw (2 off) |
| 3 Collar | 10 Driven gear | 16 Washer | 22 Screw |
| 4 Dip stick | 11 Disengaging shaft | 17 Ball bearing (3 off) | 23 Screw (5 off) |
| 5 Clutch outer drum | 12 Knob | 18 Oil seal | 24 Screw |
| 6 Bearing bush | 13 Locknut | 19 O-ring | 25 Hollow dowel (2 off) |
| 7 Plate | | | |

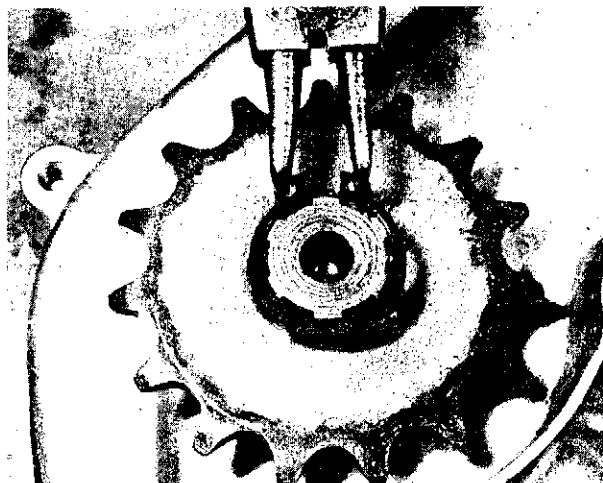
- 2 Prise off the metal cover on the left-hand side of the engine, to reveal the generator.
- 3 The flywheel should be held firmly, preferably with the Honda service tool, or a piece of strip bar with two pegs, and the rotor nut and washer removed. If the engine is partially dismantled a suitable bar in the small end eye can be used as an alternative to lock the engine in position.
- 4 A Honda flywheel extractor tool is normally required to pull off the rotor as it is a keyed taper fit, but a sprocket puller can also be used to remove the rotor, as shown in the accompanying photograph. Extreme care should be used to avoid damage to the rotor. Note that the rotor nut has been put back on the thread when using a sprocket puller, to avoid spreading the thread, which is not normally discovered until the engine is being reassembled. If the thread has spread, removal of the crankshaft is almost inevitable, for the thread to be made serviceable.
- 5 At this stage the contact breaker points can be removed, as described in Chapter 3, Section 5, if necessary, but to remove either of the coils completely for renewal, the engine must be out of the frame to gain access to the snap connectors.
- 6 The coil connected to the contact breaker assembly provides the ignition power whilst the other coil provides the lighting power. Each is retained with two screws.
- 7 The coils and contact breaker assembly do not need to be removed when separating the crankcase halves. Similarly the flywheel location pin need not be removed, but should be kept safe if it is slightly loose.

11 Removing the final drive sprocket

- 1 When the chainguard has been removed by unscrewing the swinging arm nut and the single bolt the sprocket is revealed.
- 2 Remove the retaining circlip and slide the sprocket off its splined shaft.

12 Removing the clutch and primary drive

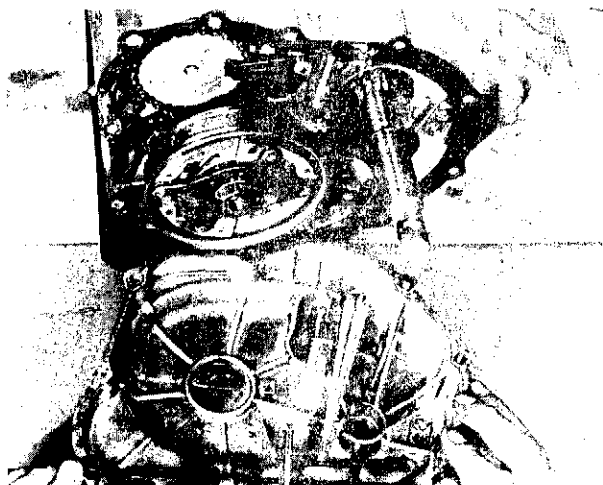
- 1 As stated in Section 2 of this Chapter, the clutch and primary drive can be removed whilst the engine is still in the frame.
- 2 Remove the three screws and the engine cover on the PF50 models. Remove the right-hand cotter pin and slide the pedal crank off its shaft.
- 3 Ensure that there is no oil in the engine before removing the cover as a deluge of oil will result if this simple precaution is not taken.
- 4 If the engine is out of the frame the tasks mentioned above will have already been completed.
- 5 Put the engine disengaging clutch lever into the 'off' position.
- 6 Remove the ten screws, noting their positions and pull off the right-hand cover. There are four lengths of screws, the longest being in the bottom front position with the shortest next to it, on the bottom. The three medium length screws fit at the back of the engine and the five long screws in the other positions. Remove the two hollow dowels and the gasket.
- 7 Hold the clutch centre or lock the engine with a suitable rod through the small end eye, and remove the clutch retaining nut and washer. Lift off the clutch assembly as a unit, followed by the centre bush and thrust washer.
- 8 The primary gear will now slide off its splines, followed by the thrust washer.
- 9 To dismantle the clutch, lift the components out of the clutch drum. Examination is covered in Section 31 of this Chapter.
- 10 A thrust washer, either on the pedal shaft or stuck inside the cover, should be collected to avoid it being lost.



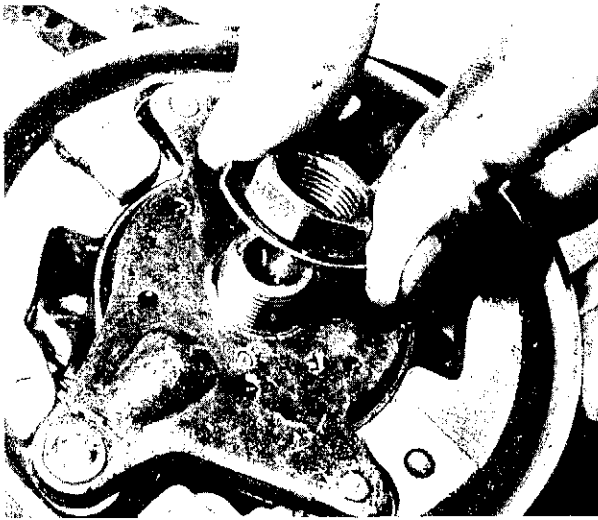
11.2 Remove circlip to release sprocket



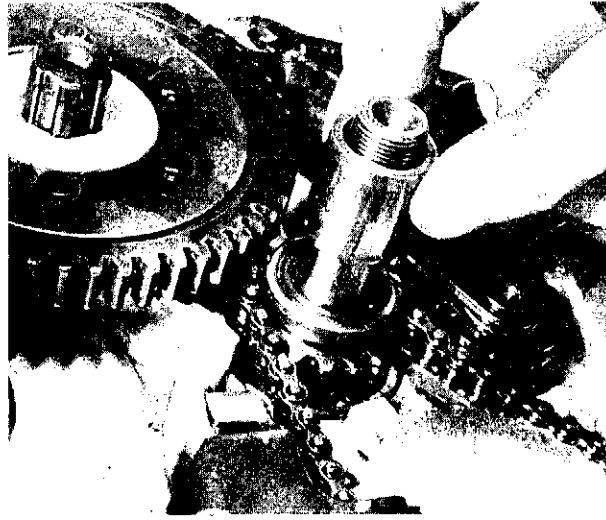
12.5 Place the disengaging lever into the 'off' position



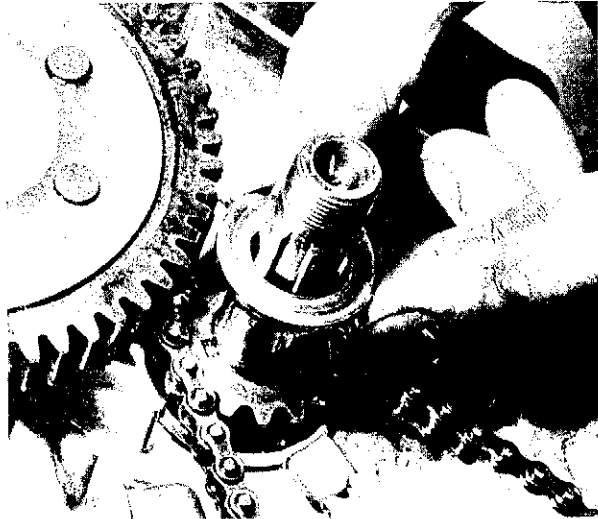
12.6 Pull off the cover to reveal the clutch



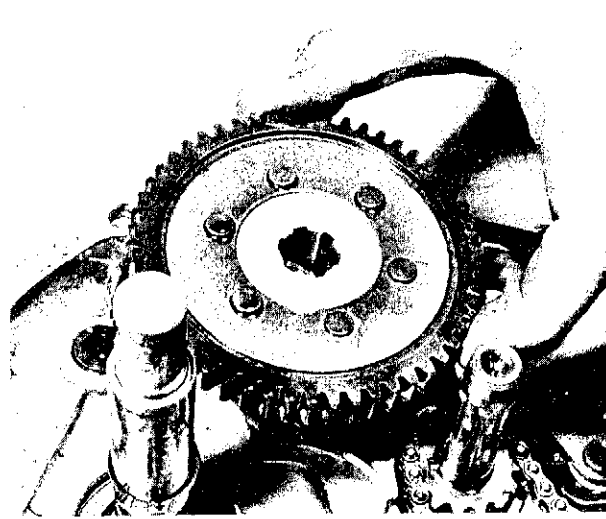
12.7a Remove the clutch retaining nut and washer ...



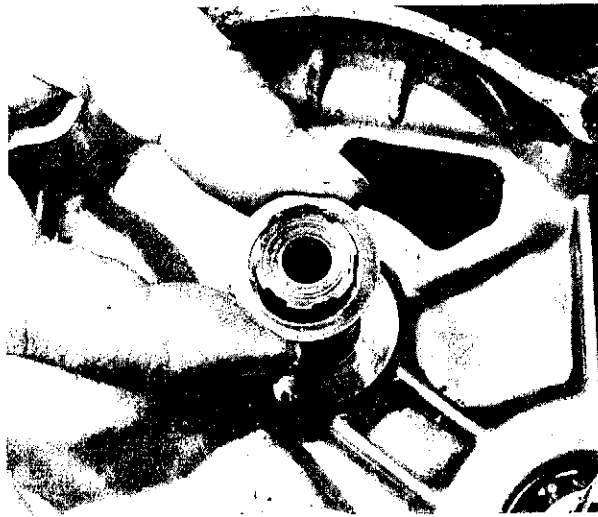
12.7b Slide off the clutch centre bush ...



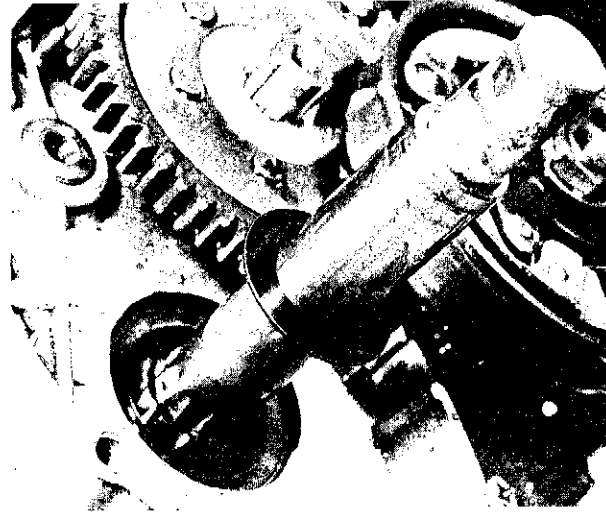
12.7c ... and the thrust washer



12.8a Slide the primary gear off its splines ...



12.8b ... followed by its thrust washer



12.10 Remove the pedal shaft thrust washer

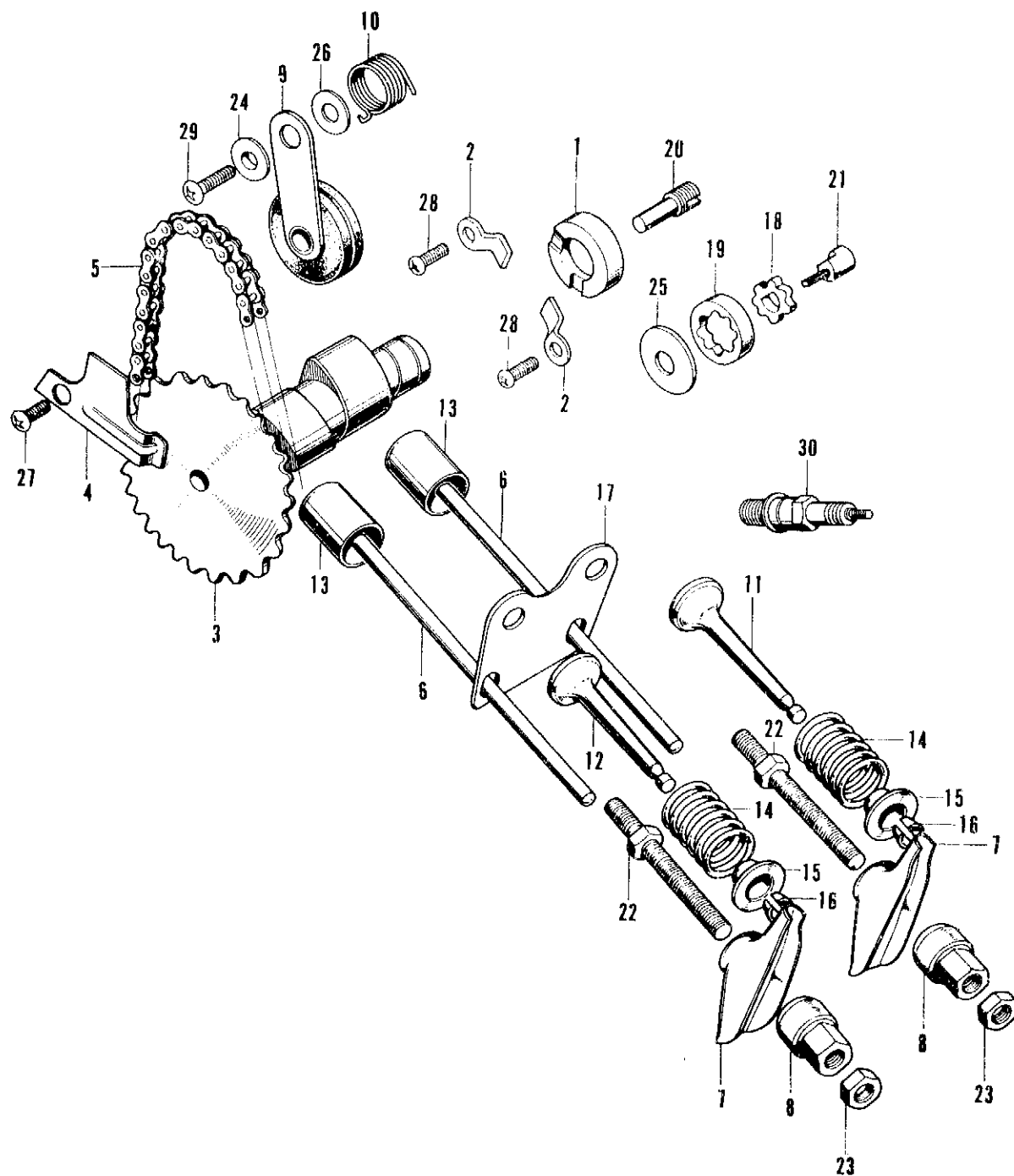


Fig. 1.3. Valves and camshaft

- | | | | |
|----------------------------|----------------------------------|--------------------|--------------------|
| 1 Bush | 9 Camchain tensioner | 17 Guide plate | 25 Oil pump washer |
| 2 Location plate (2 off) | 10 Tensioner spring | 18 Inner rotor | 26 Washer |
| 3 Camshaft | 11 Inlet valve | 19 Outer rotor | 27 Screw |
| 4 Retaining plate | 12 Exhaust valve | 20 Coupling | 28 Screw (2 off) |
| 5 Camchain | 13 Cam follower (2 off) | 21 Drive shaft | 29 Screw |
| 6 Pushrod (2 off) | 14 Valve spring (2 off) | 22 Stud (2 off) | 30 Spark plug |
| 7 Rocker arm (2 off) | 15 Valve spring retainer (2 off) | 23 Locknut (2 off) | |
| 8 Rocker arm pivot (2 off) | 16 Collet (4 off) | 24 Washer | |

13 Removing the camshaft

- 1 The camshaft is retained with a small plate, held in position with one screw. These should now be removed.
- 2 The camchain has a spring loaded tensioner and when the pivot screw is removed, it can be lifted clear.
- 3 Ensure that the cam followers have been removed. Pull both sprockets, with the camchain still in position, away from the engine.
- 4 Check that the timing pin in the crankshaft is secure and that the driveshafts between the camshaft and the oil pump have not fallen out or been lost.

14 Separating the crankcases

- 1 If all the necessary components have been removed from the engine, as previously described, there are only four screws holding the crankcases together from the right-hand side.
- 2 Before trying to separate the crankcases, ensure that the rotor Woodruff key has been removed to avoid it being lost. The timing pin for the camchain sprocket should be a tight fit in the crankshaft.
- 3 The right-hand crankcase should lift off but light tapping with a rawhide mallet may be necessary.
- 4 Never use the point of a screwdriver to aid the separation of the crankcases. It will cause irreparable damage to the jointing surfaces.
- 5 Note that there are two locating dowels fitted in the crankcases.

15 Removal of the gearbox components

- 1 The pedal shaft assembly and the output shaft are connected with an endless chain and must be pulled out of the crankcase half together. Take care not to lose the thrust washers on either of the shafts. Light tapping with a rawhide mallet may be necessary to remove the output shaft from its journal ball bearing.
- 2 The mainshaft assembly, with its thrust washer, can be lifted straight out of the crankcase half. At the bottom of the mainshaft bearing hole is a steel thrust plate that can now be removed. This thrust plate spreads the load on the crankcase half created by the mainshaft plunger.

16 Removal of the crankshaft assembly

- 1 The crankcase bearings are a sliding fit in the steel inserted housings in the crankcase. The crankshaft assembly, complete with bearings, should withdraw from the left-hand crankcase without difficulty, using only light pressure.
- 2 Although it is possible to use an extractor to remove the crankshaft bearings it should be remembered that if the main bearings need renewing the big end cannot be in the best of condition and a replacement crankshaft assembly is the safest course of action. Note that the timing pin will need to be removed before the right-hand bearing can be extracted.

17 Removal of the oil pump

- 1 The oil pump is situated in the left-hand crankcase and is of the trochoidal type. When the engine is stripped, it should be removed for inspection and cleaning, even though the engine may have been stripped for a completely different reason.
- 2 Remove the two screws and location plates. The eccentric camshaft bush will now lift out of the crankcase.
- 3 Pull the driveshaft to lift it, the inner rotor, and oil pump washer out of the recess. The outer rotor can now be removed.

- 4 Note that the oil pump inner and outer rotors have one side smoother than the other and these should always be run together.
- 5 Chapter 2 fully describes the oil pump and the lubrication system, if a fault is suspected in its operation.

18 Removal of the oil seals

- 1 Three oil seals are fitted in the left-hand crankcase, located at the crankshaft bearing housing, the pedal shaft bearing and the output shaft bearing. There is also an oil seal in the clutch cover for the pedal shaft. A special diaphragm oil seal is fitted inside the clutch cover, to seal the engine disengaging clutch lever.
- 2 The oil seals are easily removed by prising them out of position with a screwdriver. Care should be taken to ensure the lip of the bearing housing is not damaged during this operation.

19 Removal of the reduction gear bearing

- 1 The final driveshaft runs in a ball journal bearing at the final drive sprocket end. The other end and all the other shafts, run directly in the crankcase halves.
- 2 The reduction gear bearing is a light press fit in the crankcase half and can be drifted out of position, using a mandrel of the correct size and a hammer.
- 3 It may be necessary to warm the crankcase if the bearing is particularly tight, to aid its release.

20 Examination and renovation - general

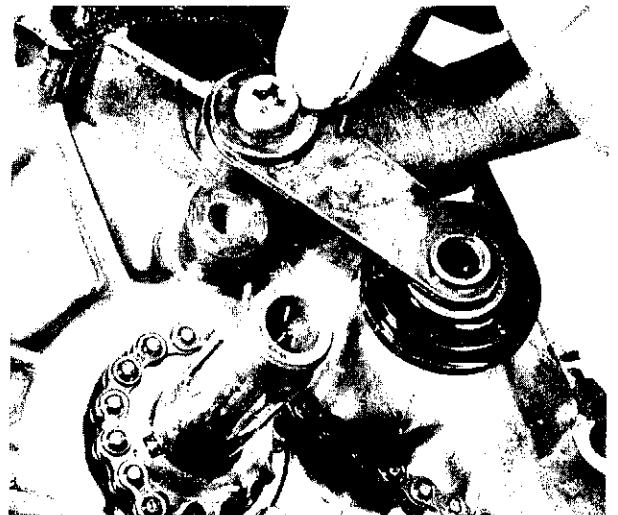
- 1 Before examining the parts of the dismantled engine unit for wear, it is essential that they should be cleaned thoroughly. Use a paraffin/petrol mix to remove all traces of old oil and sludge that may have accumulated within the engine.
- 2 Examine the crankcase castings for cracks or other signs of damage. If a crack is discovered, it will require professional repair.
- 3 Examine carefully each part to determine the extent of wear, if necessary checking with the tolerance figures listed in the Specifications Section of this Chapter.
- 4 Use a clean, lint-free rag for cleaning and drying the various components, otherwise there is risk of small particles obstructing the internal oilways.

21 Examination and renovation: crankshaft assembly

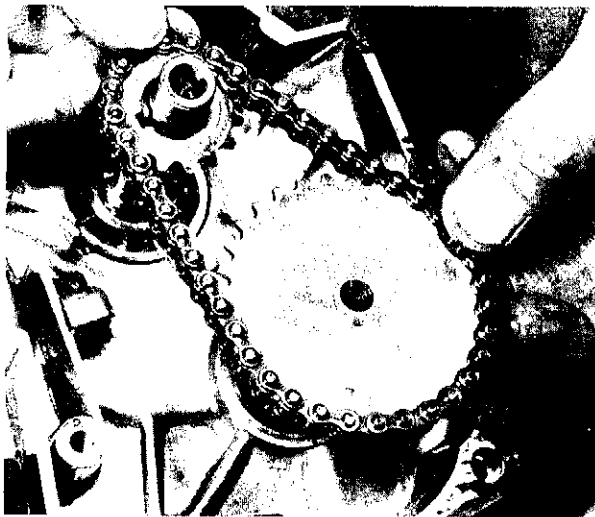
- 1 Failure of the big end bearing is invariably accompanied by a knock from within the crankcase that progressively becomes worse. Some vibration will also be experienced. There should be no vertical play in the big end bearing after the old oil has been washed out. If even a small amount of play is evident, the bearing is due for replacement. Do not run the machine with a worn big end bearing, otherwise there is risk of breaking the connecting rod or crankshaft.
- 2 It is not possible to separate the flywheel assembly in order to replace the bearing because the parallel sided crankpin is pressed into the flywheels. Big end should be entrusted to a Honda Agent, who will have the necessary repair or replacement facilities.
- 3 Failure of the main bearings is usually evident in the form of an audible rumble from the bottom end of the engine, accompanied by vibration. The vibration will be most noticeable through the pedals.
- 4 The crankshaft main bearings are of the journal ball type. If wear is evident in the form of play or if the bearings feel rough as they are rotated, renewal is necessary. To remove the main bearings if the appropriate service tool is not available, insert



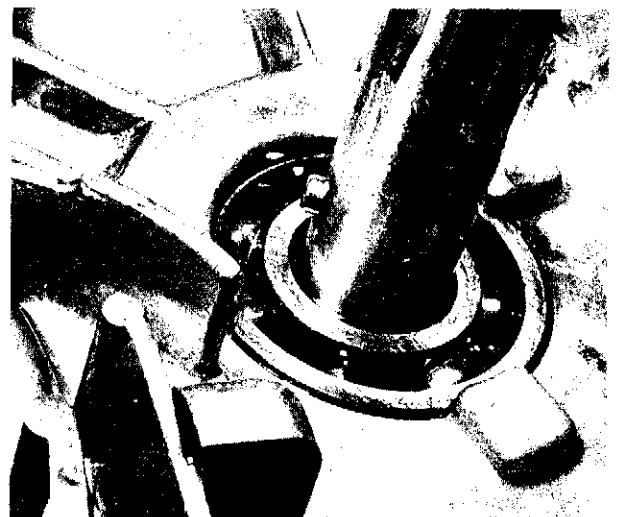
13.1 Remove the camshaft retaining plate



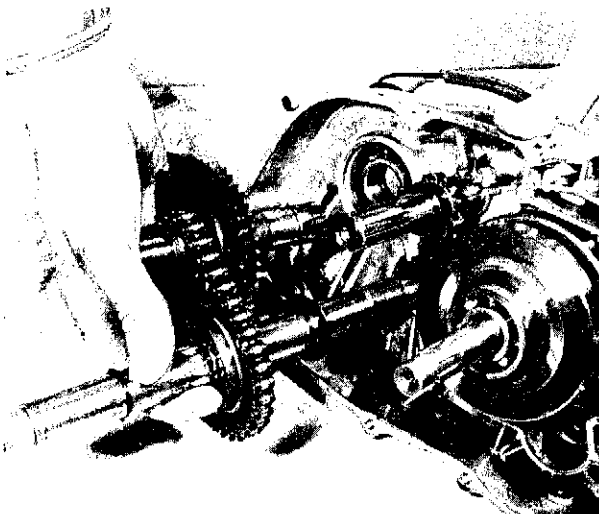
13.2 Remove the spring loaded tensioner



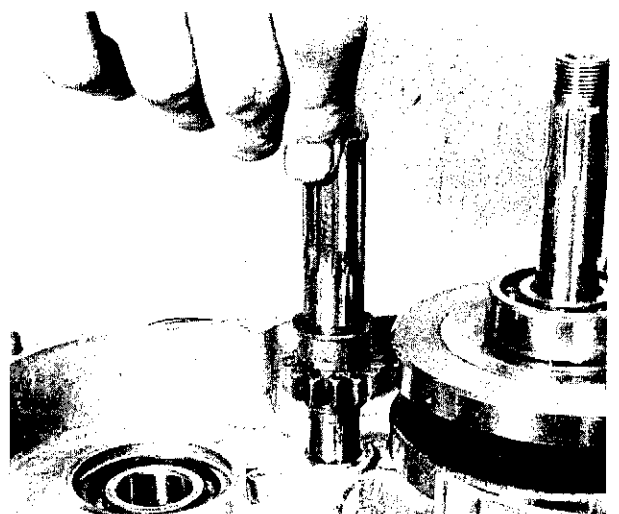
13.3 Remove the sprockets and cam chain



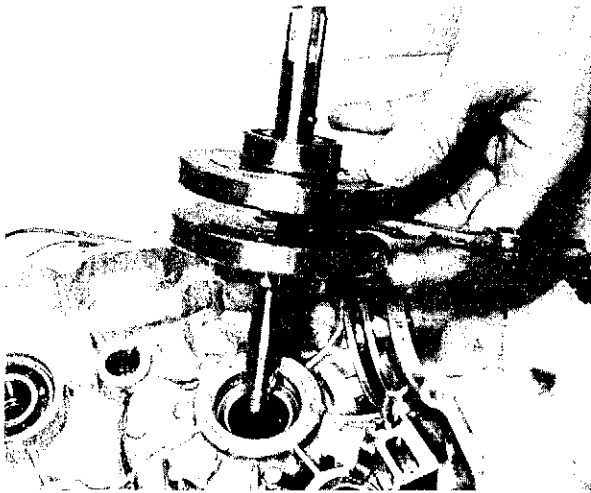
13.4 Ensure that the timing pin is secure



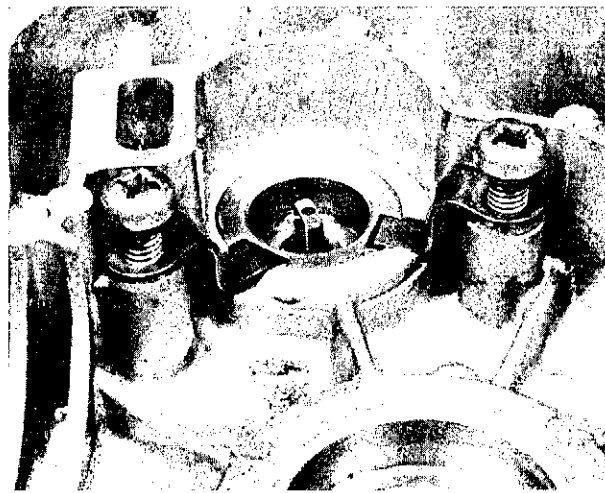
15.1 Remove the pedal shaft and output shaft together



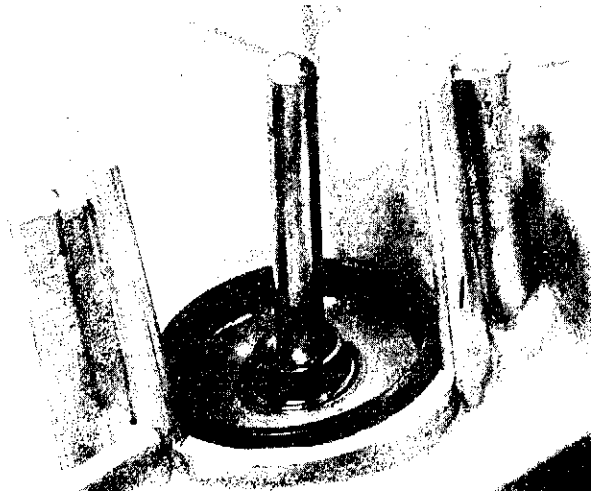
15.2 Remove the mainshaft assembly



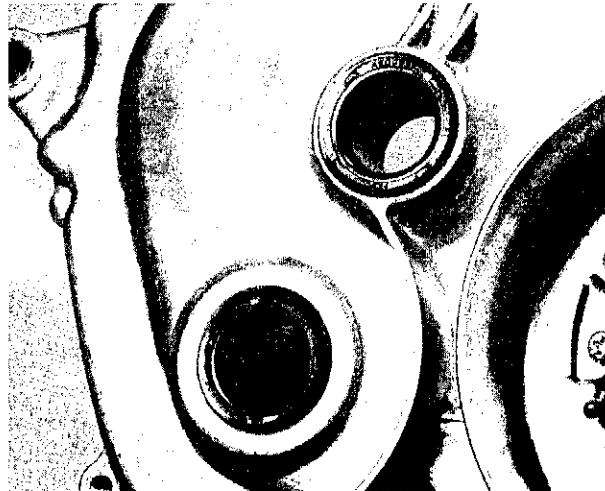
16.1 Remove the crankshaft and bearings assembly



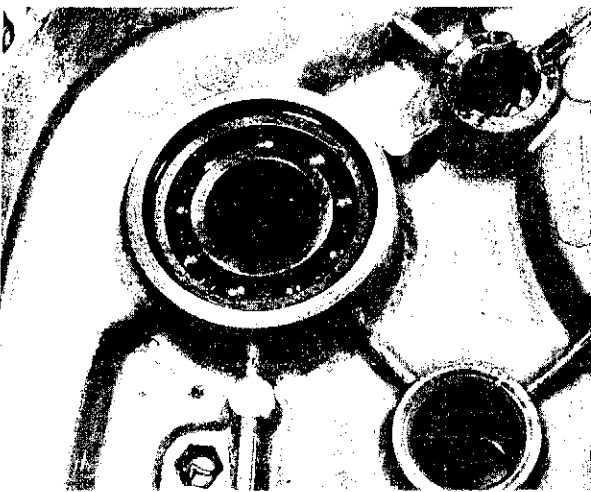
17.2 Remove screws and location plates to release oil pump



18.1 The special diaphragm seal in the cover



18.2 The oil seals can be prised out with a screwdriver



19.2 The reduction gear bearing can be drifted out

two thin steel wedges, one on each side of the bearing, and with these clamped in a vice hit the end of the crankshaft squarely with a rawhide mallet in an attempt to drive the crankshaft through the bearing. When the bearing has moved the initial amount, it should be possible to insert a conventional two or three legged sprocket puller, to complete the drawing-off action.

5 Note that the timing pin for the camchain sprocket must be removed before the right-hand bearing can be drawn off the crankshaft.

6 The small end eye should also be checked for wear as the gudgeon pin should be a good fit. As there is no separate small end bush, any wear will necessitate a new connecting rod, which will lead to a new crankshaft assembly.

22 Examination and renovation: cylinder barrel

1 The usual indications of a badly worn cylinder barrel and piston are excessive oil consumption and piston slap, a metallic rattle that occurs when there is little or no load on the engine. If the top of the bore of the cylinder barrel is examined carefully, it will be found that there is a ridge on the thrust side, the depth of which will vary according to the amount of wear that has

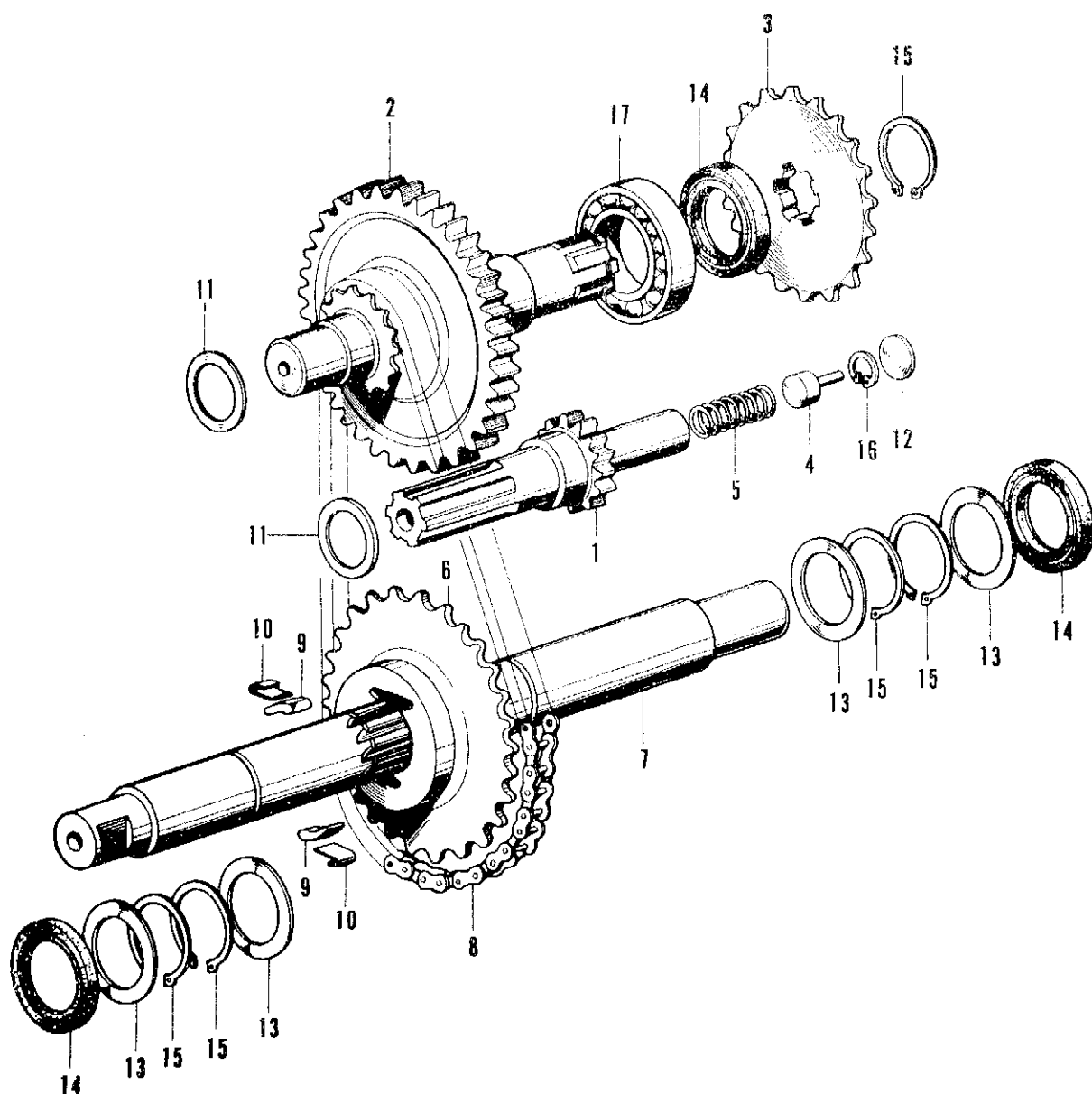


Fig. 1.4. Reduction gear components

1 Mainshaft
2 Layshaft
3 Sprocket
4 Plunger
5 Spring

6 Starting sprocket
7 Pedal shaft
8 Starting chain
9 Pawl (2 off)
10 Pawl spring (2 off)

11 Thrust washer (2 off)
12 Sealing disc
13 Washer (4 off)
14 Oil seal (3 off)

15 Circlip (5 off)
16 Circlip
17 Journal ball bearing

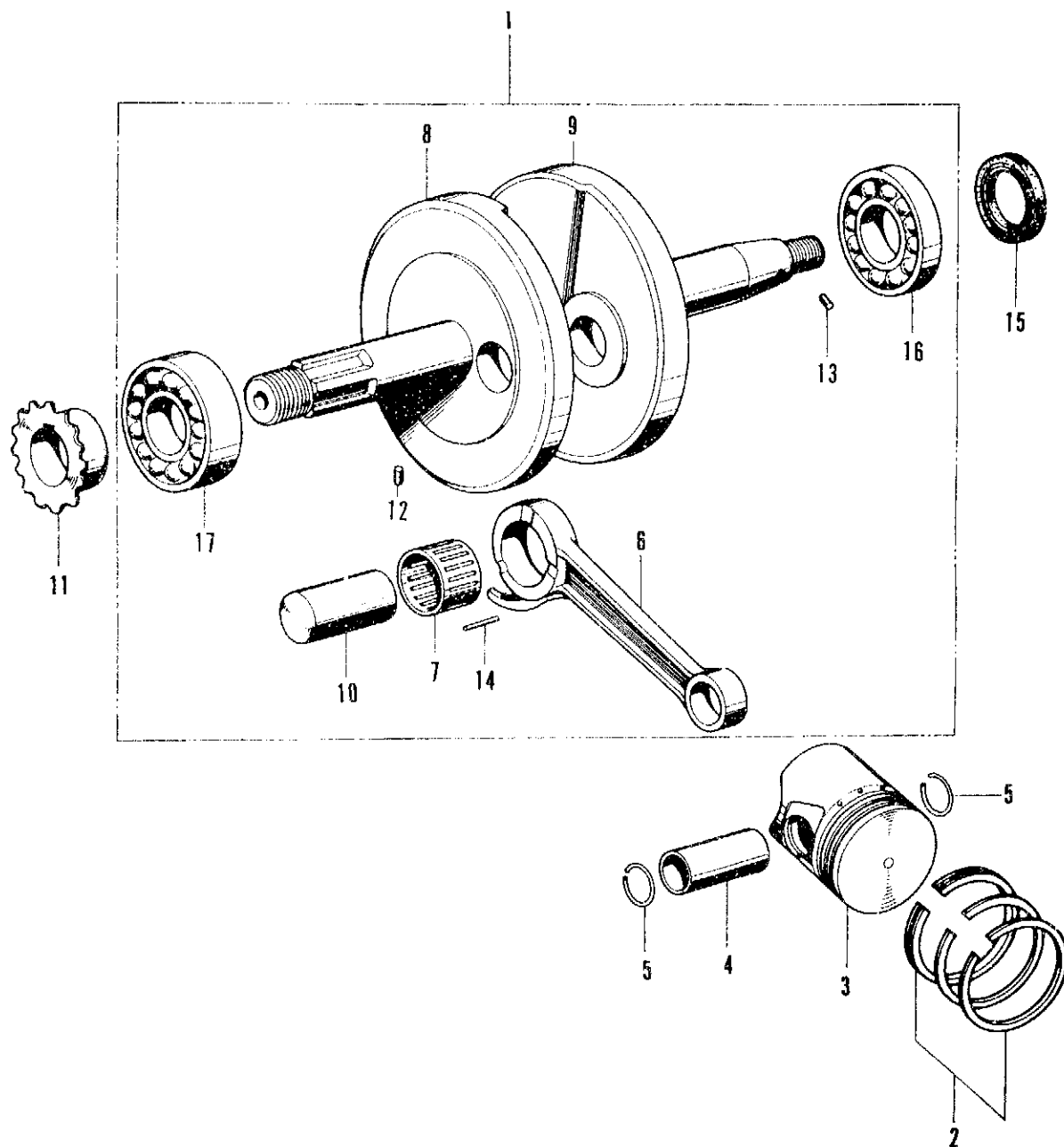


Fig. 1.5. Crankshaft assembly

- | | | | |
|-----------------------|-------------------------|--------------------|---------------------------|
| 1 Crankshaft assembly | 6 Connecting rod | 10 Crank pin | 14 Needle roller (20 off) |
| 2 Set of piston rings | 7 Roller cage | 11 Timing sprocket | 15 Oil seal |
| 3 Piston | 8 Right hand crankshaft | 12 Timing pin | 16 Journal ball bearing |
| 4 Gudgeon pin | 9 Left hand crankshaft | 13 Dowel pin | 17 Journal ball bearing |
| 5 Circlip (2 off) | | | |

taken place. This marks the limit of travel of the uppermost piston ring.

2 Measure the bore diameter just below the ridge, using an internal micrometer. Compare this reading with the diameter at the bottom of the cylinder bore, which has not been subject to wear. If the difference in readings exceeds 0.10 mm (0.004 in) it is necessary to have the cylinder rebored and to fit an oversize piston and rings.

3 If an internal micrometer is not available, the amount of cylinder bore wear can be measured by inserting the piston without rings so that it is approximately 20 mm (¾ in) from the top of the bore. If it is possible to insert a 0.10 mm (0.004 in) feeler gauge between the piston and the cylinder wall on the thrust side of the piston, remedial action must be taken.

4 Check the surface of the cylinder bore for score marks or any other damage that may have resulted from an earlier engine seizure or displacement of the gudgeon pin. A rebore will be necessary to remove any deep indentations, irrespective of the amount of bore wear, otherwise a compression leak will occur.

5 Check the external cooling fins are not clogged with oil or road dirt; otherwise the engine will overheat.

23 Examination and renovation: piston and piston rings

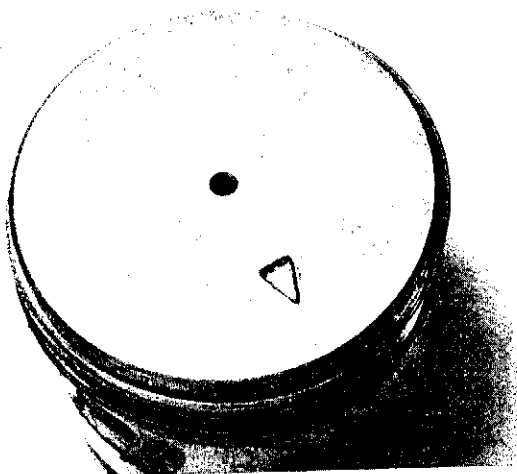
1 If a rebore is necessary, the existing piston and rings can be disregarded because they will be replaced with their oversize equivalents as a matter of course.

2 Remove all traces of carbon from the piston crown, using a soft scraper to ensure the surface is not marked. Finish off by polishing the crown, with metal polish, so that carbon does not adhere so easily in the future. Never use emery cloth.

3 Piston wear usually occurs at the skirt or lower end of the piston and takes the form of vertical streaks or score marks on the thrust side. There may also be some variation in the thickness of the skirt.

4 The piston ring grooves may also become enlarged in use, allowing the piston rings to have greater side float. If the clearance exceeds 0.15 mm (0.006 in) for the two compression rings, or 0.18 mm (0.007 in) for the oil control ring the piston is due for renewal. It is unusual for this amount of wear to occur on its own.

5 Piston ring wear is measured by removing the rings from the piston and inserting them in the cylinder bore using the crown of the piston to locate them approximately 40 mm (1½ in) from the top of the bore. Make sure they rest square with the bore.



23.2 Remove all carbon from the piston crown. Note arrow

Measure the end gap with a feeler gauge; if the gap exceeds 0.51 mm (0.020 in) they require renewal.

24 Examination and renovation: valves, valve seats and valve springs

1 After cleaning the valves to remove all traces of carbon, examine the heads for signs of pitting and burning. Examine also the valve seats in the cylinder head. The exhaust valve and its seat will probably require the most attention because these are the hotter running of the two. If the pitting is slight, the marks can be removed by grinding the seats and valves together, using fine valve grinding compound.

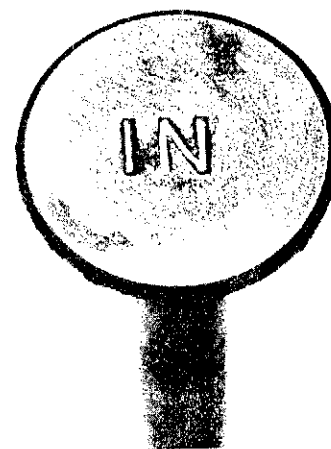
2 Valve grinding is a simple task, carried out as follows: Smear a trace of fine valve grinding compound (carborundum paste) on the seat face and apply a suction grinding tool to the head of the valve. With a semi-rotary motion, grind in the valve head to its seat, using a backward and forward action. It is advisable to lift the valve occasionally, to distribute the grinding compound evenly. Repeat this operation until an unbroken ring of light grey matt finish is obtained on both valve and seat. This denotes the grinding operation is complete. Before passing to the next operation, make quite sure that all traces of the grinding compound have been removed from both the valve and its seat and that none has entered the valve guide. If this precaution is not observed, rapid wear will take place, due to the abrasive nature of the carborundum base.

3 When deeper pit marks are encountered, it will be necessary to use a valve refacing machine and also a valve seat cutter, set to an angle of 45°. Never resort to excessive grinding because this will only pocket the valve and lead to reduced engine efficiency. If there is any doubt about the condition of a valve, fit a new replacement.

4 Examine the condition of the valve collets and the groove on the valve in which they seat. If there is any sign of damage, new replacements should be fitted. If the collets work loose whilst the engine is running, a valve will drop in and cause extensive damage.

5 Measure the valve stems for wear, making reference to the tolerance values given in the Specifications Section of this Chapter.

6 Check the free length of the valve springs against the list of tolerances in the Specifications. If the springs are reduced in length or if there is any doubt about their condition, they should be renewed.



24.1 Clean all carbon off the valves. Note IN mark

25 Examination and decarbonisation : cylinder head

- 1 Remove all traces of carbon from the cylinder head and valve ports, using a soft scraper. Extreme care should be taken to ensure the combustion chamber and valve seats are not marked in any way, otherwise hot spots and leakages may occur. Finish by polishing the combustion chamber so that carbon does not adhere so easily in the future. Use metal polish and NOT emery cloth.
- 2 Check to make sure the valve guide bores are free from carbon or any other foreign matter that may cause the valves to stick.
- 3 Make sure the cylinder head fins are not clogged with oil or road dirt, otherwise the engine will overheat. If necessary, use a wire brush.
- 4 Reassemble the valves, using a valve spring compressor to compress the springs. Make sure the valve stems have a coating of oil before they are replaced in the valve guides. Also check that the split collars are located positively before the spring compressor is released. A misplaced collar can cause a valve to drop in whilst the engine is running and cause serious damage.

26 Examination and renovation - rocker arms, adjusters and pushrods

- 1 It is unlikely that excessive wear will occur on the valve gear components unless the engine has been run without changing the oil or the machine has covered a very large mileage.
- 2 On the rocker arm there are two spherical diameters, one to locate the pushrod and one to fit the adjusting nut. These two diameters should be checked for wear and the rocker arm renewed if it is excessive.
- 3 The adjusting nut spherical diameter should also be checked for wear or damage and renewed if necessary. Check also the thread condition on the adjusting nuts, locknuts and adjuster studs.
- 4 Check the pushrods for straightness by rolling them on a flat surface. If they are bent, this is often a sign that the engine has been over-revved on some previous occasion. It is better to fit replacements than attempt to straighten the originals.

27 Examination and renovation: timing sprocket, camshaft and cam followers

- 1 As with the other valve gear components excessive wear is not normally expected but it is worthwhile checking whilst the engine is stripped.
- 2 Clean the timing sprocket so that the timing mark is clearly visible. Check that the teeth have not been damaged or broken.
- 3 Clean the camshaft, in the same way, to show the timing mark. Similarly, check the sprocket teeth for damage. The cams should have a smooth surface and be free from scuff marks or indentations. If the lubrication system has failed, the aluminium alloy cam faces will be the first to suffer and wear excessively.
- 4 Similar advice applies to the cam followers. They are designed to revolve whilst the engine is running, to even out any wear that may take place. Check that they are a good fit in the crankcase halves. If the followers are a loose fit in the crankcase, they can tip and jam, causing excessive wear on the base and the camshaft.

28 Examination and renovation: cam chain tensioner

- 1 The cam chain tensioner is spring loaded so the spring condition should obviously be checked. Ensure that the roller is free to revolve in the arm and that it is not worn excessively.
- 2 The cam chain is of the endless variety and should not contain a spring link.

29 Examination and renovation: trochoidal oil pump

As stated in Section 17 of this Chapter, the oil pump examination and renovation are fully described in Chapter 2. If any obvious damage is found, renewal is essential.

30 Examination and renovation of reduction gear components

- 1 Give the reduction gear components a close visual inspection for signs of wear or damage such as broken or chipped teeth and damaged or worn splines. Renew any parts found unserviceable since they cannot be reclaimed.
- 2 The mainshaft has a spring loaded plunger, retained with a circlip. If the spring is suspect, removal of the circlip and plunger enables the spring to be removed for inspection and renewal.
- 3 The pedal shaft has a ratchet sprocket fitted in the middle. If the ratchet mechanism is suspect, remove the outer thrust washer and circlip followed by the inner circlip and thrust washer, to reveal the spring loaded pawls. The pawls and springs should be examined for wear and damage, being slid out of the sprocket if necessary. Care should be taken to avoid losing the small springs if they are removed. The sprocket itself will slide off the pedal shaft, if it needs renewing.
- 4 The pedal chain is of the endless variety and should not contain a spring link.
- 5 Reassembly is the reverse of the dismantling procedure and care should be taken to ensure that the sprocket and pedal shaft are fitted the right way round, otherwise the pedals will freewheel instead of starting the engine.

31 Examination and renovation of the clutch assembly

- 1 The clutch is the centrifugal shoe type, running in an oil bath. In Section 12 of this Chapter the clutch assembly was removed as a unit. Place the clutch assembly on the bench with the clutch drum uppermost and lift the drum clear. The accompanying photograph shows the internal details of the clutch.
- 2 Remove the three ball bearings and the ball guide. Check the balls and the locking ramps on the clutch drum and centre for wear or damage. Wear and damage are not normally expected as the balls and locking ramps are used only to start the engine and once the engine is running release immediately.
- 3 Examine the condition of the linings on the clutch shoes. If they have worn thin or are damaged, renewal will be required. Check the condition of the shoe return springs, renewal again being necessary if any defect is found. Honda do not supply any clutch centre parts stating that the assembly must be matched and set to operate at the correct speeds, so a complete assembly must be bought if any faults are found.
- 4 Examine the surface finish in the clutch drum, renewing it if it is scored or pitted. Skimming the drum is not recommended, due to the thinness of the metal used. Check the primary gear teeth for wear or damage.
- 5 Examine the clutch drum centre bush and thrust washer for wear, renewing if necessary.
- 6 To reassemble the clutch unit, commence with the clutch drum. Fit the centre bush, place the ball guide in position, drop the three balls into place, fit the centre locking ramps plate and finish with the clutch centre assembly.

32 Examination of the primary drive gear

- 1 The primary drive gear should be examined closely, to ensure that there is no damage to the teeth or splines. The depth of mesh is predetermined by the bearing locations and cannot be adjusted.

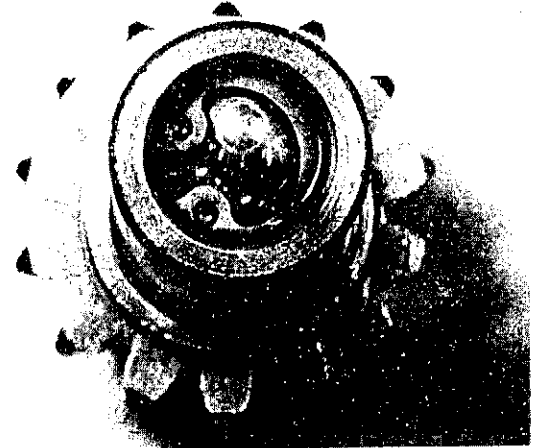
2 Excessive wear should be experienced only if the main bearings have worn appreciably or collapsed.

33 Engine reassembly: general

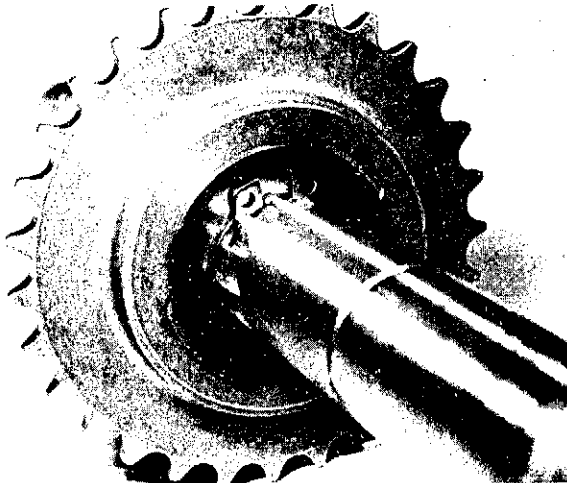
1 Before the engine, clutch and gearbox components are reassembled, they must be cleaned thoroughly so that all traces of old oil, sludge, dirt and gaskets are removed. Wipe each part clean with a dry, lint-free rag to make sure that there is nothing to block the internal oilways of the engine.

2 Make sure all traces of the old gaskets have been removed and the mating surfaces are clean and undamaged. One of the best ways to remove old gasket cement is to apply a rag soaked in methylated spirit. This acts as a solvent and will ensure the cement is removed without resort to scraping and the consequent risk of damage.

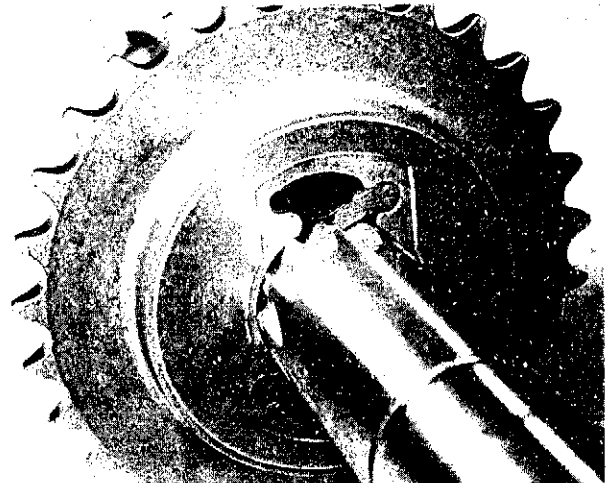
3 Lay out all the spanners and other tools likely to be required so that they are close at hand during the reassembly sequence. Make sure the new gaskets and oil seals are available - there is nothing more infuriating than having to stop in the middle of a



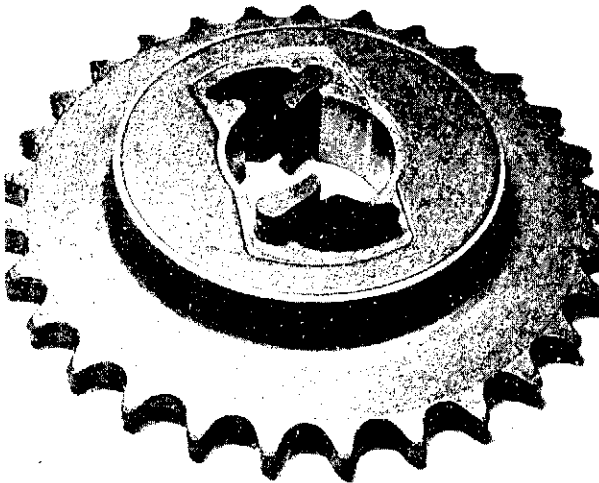
30.2 Check the mainshaft spring loaded plunger



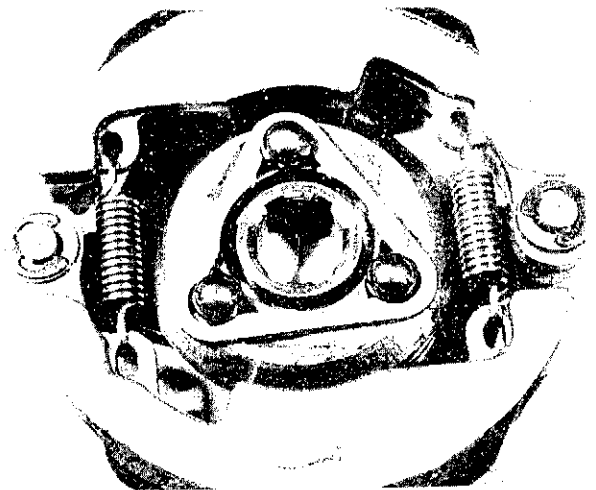
30.3a Remove the circlip and thrust washer ...



30.3b ... to reveal the pawls and springs ...



30.3c ... which can be removed for examination



31.1 The internal clutch parts should be checked for wear

reassembly sequence because a gasket or some other vital component has been overlooked.

4 Make sure the reassembly area is clean and unobstructed and that an oil can with clean engine oil is available so that the parts can be lubricated before they are reassembled. Refer back to the torque wrench settings and clearance data where necessary. Never guess or take a chance when this data is available. Many of the smaller bolts are easily sheared if they are over-tightened. Always use the correct size screwdriver bit for the crosshead screws and never an ordinary screwdriver or punch.

5 Do not rush the reassembly operation or follow the instructions out of sequence. Above all, do not use excess force when parts will not fit together correctly. There is invariably good reason why they will not fit, often because the wrong method of assembly has been used.

34 Refitting the reduction gear bearing

1 Before fitting the reduction gear bearing, make sure that the bearing housing is scrupulously clean and that there are no burrs or lips on the entry to the housing. Press or drive the bearing into the crankcase, using a mandrel and hammer, after first making sure that it is lined up squarely. Warming the crankcase will help if the bearing is a particularly tight fit.

2 When the bearing has been driven home, lightly oil and make sure it revolves smoothly.

35 Refitting the oil seals

1 Using a soft mandrel, drive the oil seals into the housings in the crankcase. Do not use more force than is necessary because the seals damage very easily.

2 Lightly grease the lips of the seals so that the shaft will slide into position more easily and not damage the delicate seal lips.

36 Refitting the oil pump

1 Fit the oil pump outer rotor into the crankcase recess with the smoothest side against the crankcase.

2 Fit the inner rotor onto the driveshaft with the smoothest side opposite the driving tang and drop them both into position inside the outer rotor. Gentle turning may be required to enable the driveshaft to seat into the crankcase properly.

3 Fit the steel oil pump washer and the eccentric camshaft bush, ensuring that the slots in the bush line up with the slots in the crankcase half.

4 Refit the two location plates in the slots and retain them with two screws.

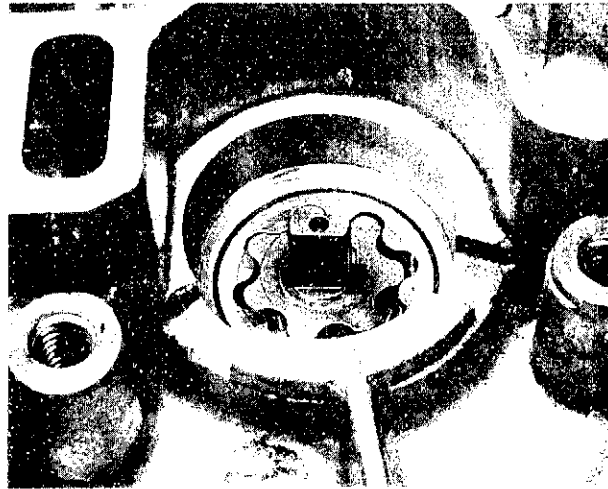
5 Squirt some oil into the pump inlet hole whilst rotating the pump by hand, to ensure that the pump revolves freely and will pump some oil through.

37 Refitting the crankshaft assembly

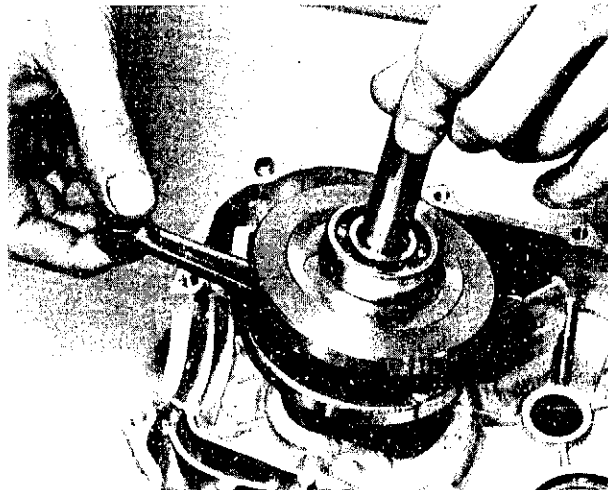
1 The crankshaft assembly should be checked to ensure that the main bearings are pushed up against their shoulders, especially if they have been disturbed.

2 The assembly should slide into the left-hand crankcase housing without difficulty, using only light pressure. Do not tap the end of the crankshaft to make the bearing fit as it is possible that the flywheel will close together and jam the connecting rod.

3 As the main bearings are the same size ensure that the crankshaft is fitted the right way round, i.e. the tapered end in the left hand crankcase.



36.2 Oil pump rotors fit into crankcase half



37.3 Ensure the crankshaft is fitted the right way round

38 Refitting the reduction gear components

1 Into the mainshaft bearing hole put the thrust plate followed by the mainshaft assembly.

2 Loop the pedalling chain round the pedal shaft assembly and the output shaft. Ensure that there is a thrust washer on the pedal shaft and feed it into the crankcase half, along with the output shaft.

3 Light tapping with a rawhide mallet may be necessary to fit the output shaft into its journal ball bearing, but care should be taken that the chain does not pull either shaft out of line.

4 Fit the thrust washers to both the pedalling and output shafts.

39 Rejoining the crankcases

1 Smear the joint face with a gasket cement such as Golden Hermatite or other jointing compound, push the two hollow dowels into position, and stick the gasket to the crankcase half.

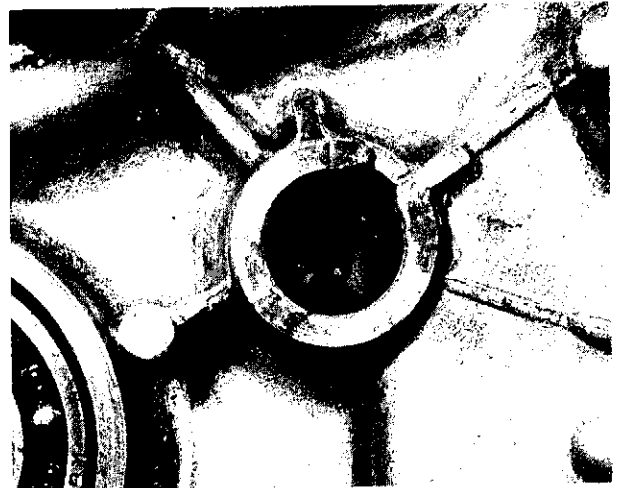
- 2 Lower the right-hand crankcase half into position. Gentle tapping may be required to fit the two halves together as the bearings and dowels are a tight fit.
- 3 Rotate all the shafts to ensure that they will turn and that no binding occurs.
- 4 Excessive force should not be used as this shows something has been wrongly assembled or is out of alignment.
- 5 Replace the four screws which hold the crankcase halves together noting that the longest screw is an internally placed one close to the mainshaft.

40 Refitting the camshaft

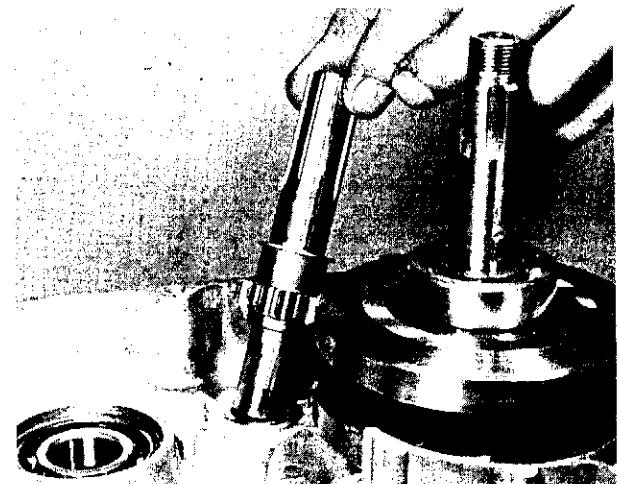
- 1 Check that the timing pin in the crankshaft is secure. This pin needs to be removed only if the main bearings need attention. It should be refitted before the crankshaft is reassembled.
- 2 Check the condition of the slotted driveshaft that is screwed into the end of the camshaft. Failure of the oil pump drive assembly will wreck an engine.
- 3 Loop the endless cam chain round the two sprockets, so that the timing mark on each lines up with the other, as shown in the accompanying photograph.
- 4 Feed the camshaft into position and the crankshaft sprocket onto the crankshaft, to locate on the timing pin. Ensure that the camshaft connects properly with the oil pump.
- 5 The cam chain tensioner, its spring and pivot screw should be refitted, with care taken to ensure that the spring is properly tensioned.
- 6 The camshaft retaining plate should be refitted with a single screw to hold it.

41 Refitting the clutch and primary drive

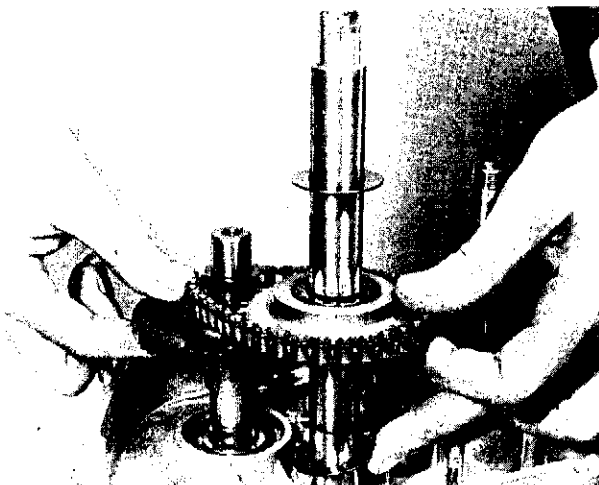
- 1 Onto the end of the mainshaft fit a thrust washer and the large primary drive gear. Check that the shaft will slide freely through the gear, when the shaft is depressed.
- 2 Fit a thrust washer and the centre bush onto the crankshaft. The clutch assembly will slide onto the crankshaft and may need turning to enable the gear teeth and the splines to engage properly. Hold the clutch centre, or lock the engine with a suitable rod through the small end eye, and refit the clutch retaining nut and washer. Tighten the nut to 300-380 kg cm (21.7-27.5 lbs ft) torque as stated in the Specifications Section.
- 3 Ensure that the thrust washer is in position on the pedal shaft.



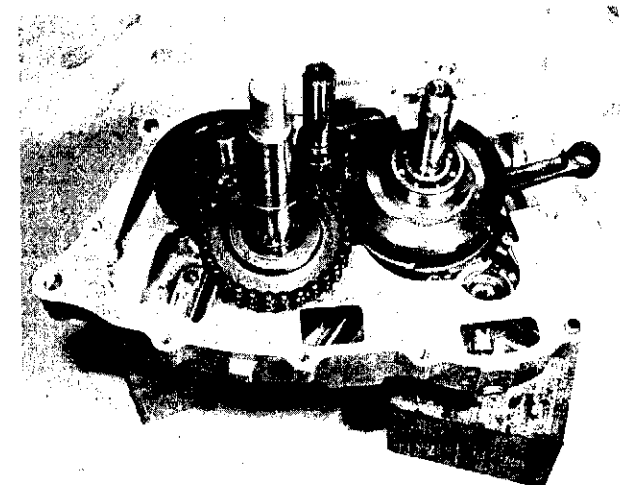
38.1a Fit the thrust plate before ...



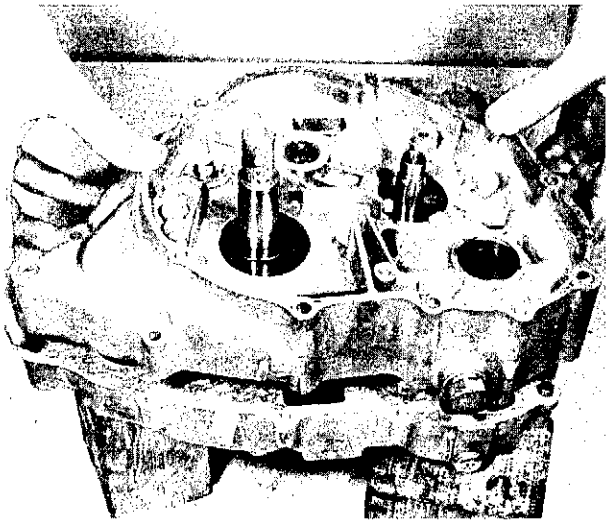
38.1b ... inserting the mainshaft assembly



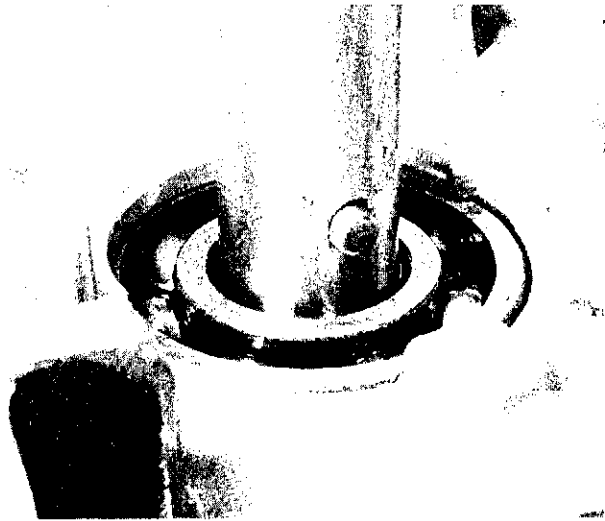
38.2 Assemble the output and pedalling shafts together



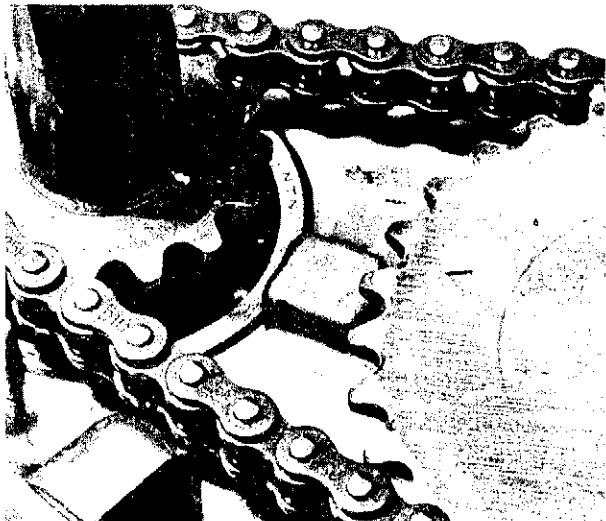
39.1 Stick the gasket to the joint face



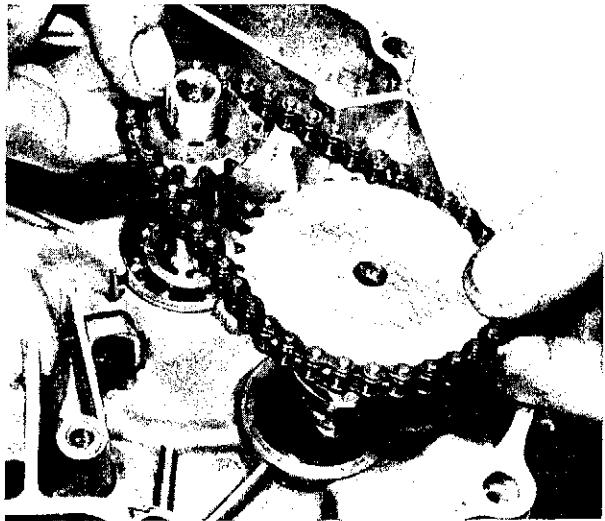
39.2 Lower the crankcase half into position



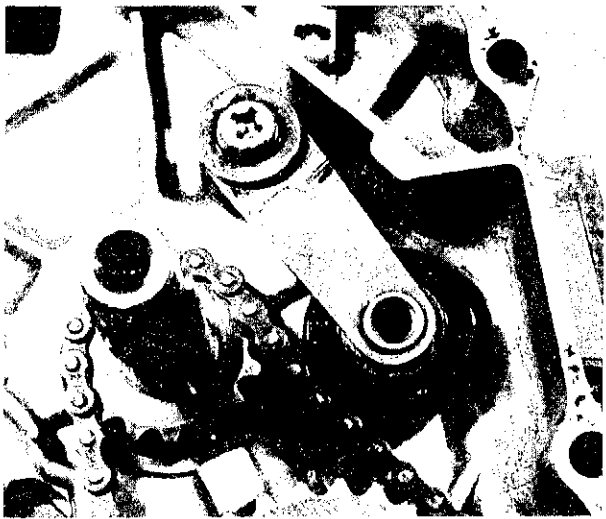
40.1 Ensure the timing pin is secure



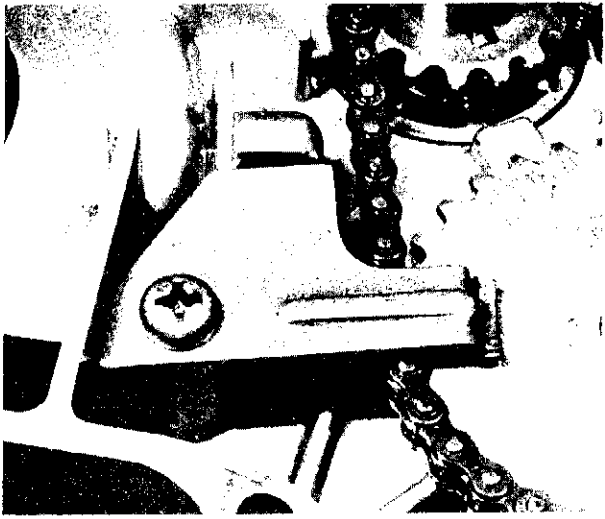
40.3 The timing marks on the sprockets must line up



40.4 Assemble the camshaft and crankshaft sprocket together



40.5 Refit the camchain tensioner



40.6 Refit the camshaft retaining plate

- 4 Smear the joint face with a gasket cement such as Golden Hermatite, or other jointing compound, push the two dowels into position, and stick the gasket to the crankcase half.
- 5 Ensure that the engine disengaging clutch lever is in the 'off' position and fit the cover, retaining it with its ten screws. Section 12 gives the positions of the screws if the screws have been mixed instead of being laid out neatly. Gentle tapping may be required to fit the cover as the dowels are a tight fit.

42 Refitting the final drive sprocket

- 1 The final drive sprocket will slide onto the output shaft splines. It is retained with a circlip.
- 2 It does not matter which way round the sprocket is fitted so further 'life' can be obtained from a partly worn sprocket as the teeth tend to wear on one side only.

43 Refitting the generator

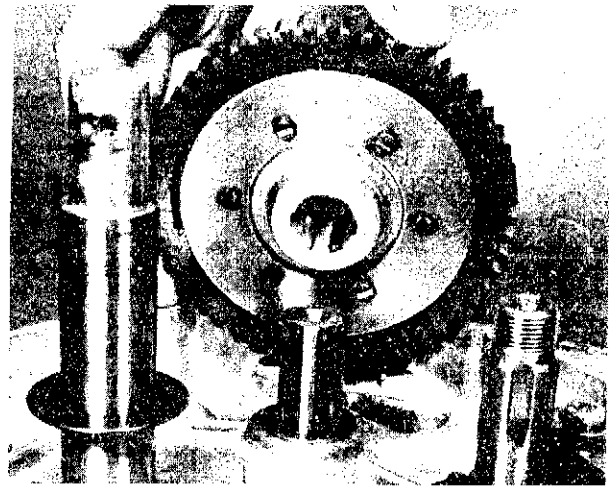
- 1 The coils and contact breaker assembly are not normally disturbed when separating the crankcase halves. If for any reason they have been removed, they should be refitted by passing the wires through the grommet in the crankcase and retained with their screws.
- 2 Before fitting the flywheel rotor, place a few drops of light oil on the felt wick which lubricates the contact breaker cam in the centre of the flywheel rotor.
- 3 It is advisable to check also whether the contact breaker points require attention at this stage, otherwise it will be necessary to withdraw the flywheel rotor again, in order to gain access. Reference to Chapter 3 will show how the contact breaker points can be renovated and adjusted.
- 4 Refit the flywheel location pin if it has been removed. Feed the rotor onto the crankshaft so that the slot lines up with the location pin. The rotor may have to be turned to clear the heel of the contact breaker before it will slide fully home.
- 5 Fit the rotor nut and washer, hold the flywheel rotor or lock the engine with a suitable rod through the small end eye and tighten the nut to a torque of 300-380 kg cm (21.7-27.5 lbs ft).
- 6 The flywheel cover is a push fit on the crankcase but should be left until a later stage if the tappets need adjusting.

44 Refitting the valves and adjuster studs

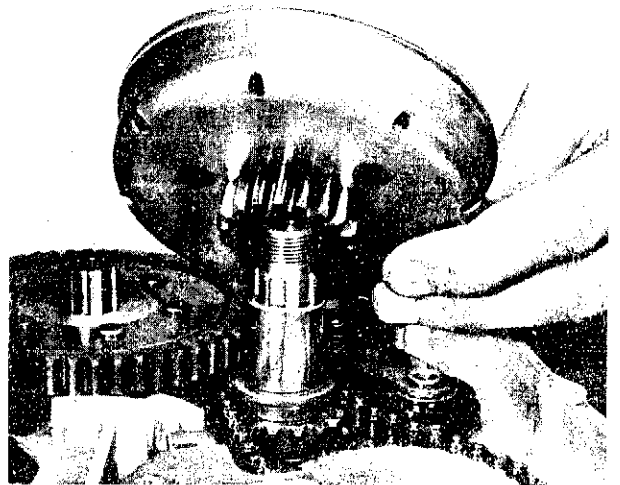
- 1 Position the push rod guide plate in the top of the cylinder head and fit the two tappet adjuster studs to retain it.
- 2 Slide the inlet valve, marked IN, into the cylinder head on the carburettor side. Fit the valve spring and the spring register. Clamp the valve and spring with a small valve spring compressor and either reposition the spring register or fit the two half collets to retain the valve. Ensure, when removing the valve spring compressor, that the spring register or half collets are seating correctly. It is possible to reassemble the valve without a valve spring compressor but this will require two people.
- 3 Repeat the above procedure for the exhaust valve.

45 Refitting the cam followers

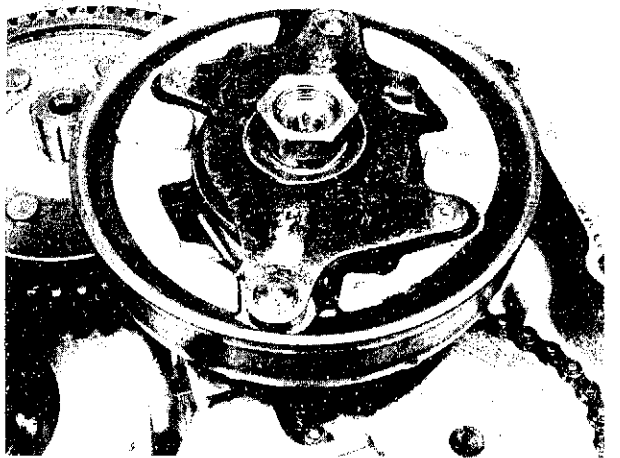
- 1 The cam followers should be oiled and pushed into their respective guides in the crankcase halves.
- 2 Ensure that the hollow end is uppermost so that it can locate the push rod.



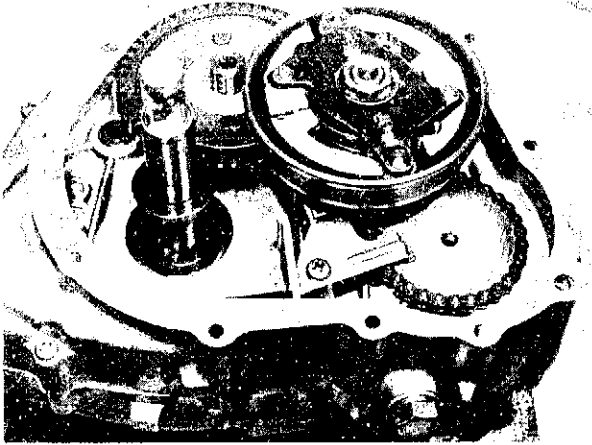
41.1 Refit the thrust washer and primary drive gear



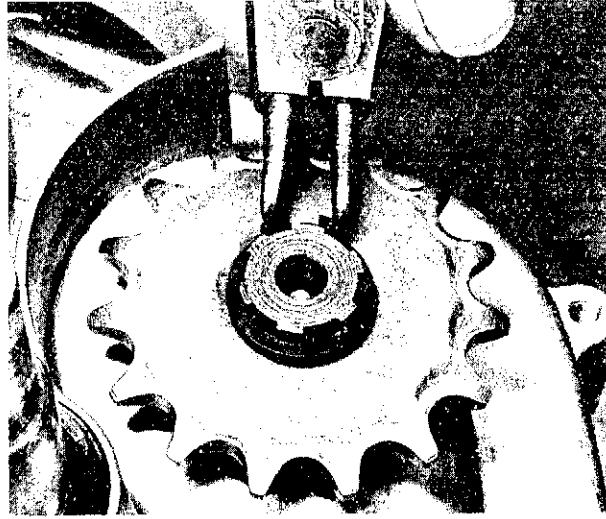
41.2a Slide the clutch onto the crankshaft ...



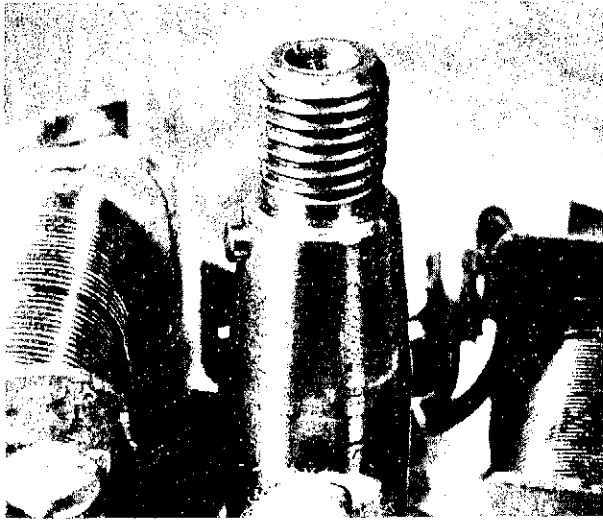
41.2b ... and retain it with a nut and washer



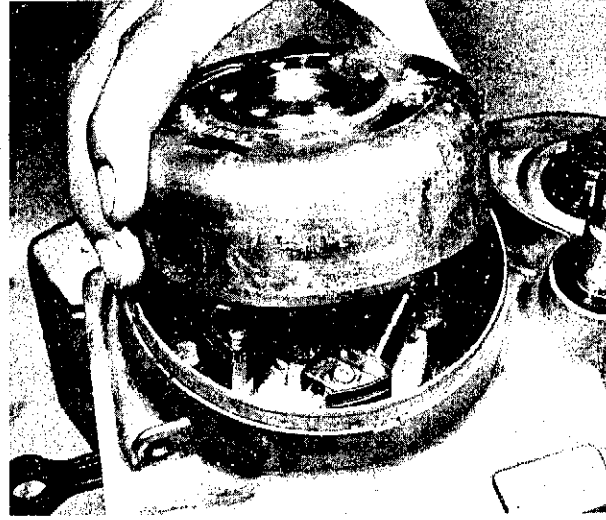
41.4 Stick the gasket to the joint face



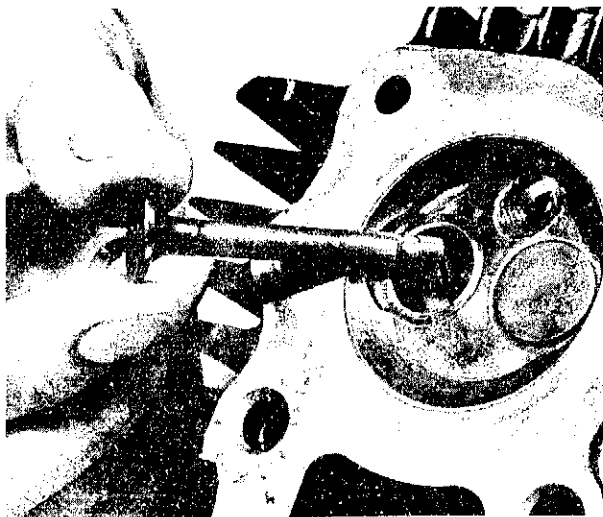
42.1 The final drive sprocket is retained with a circlip



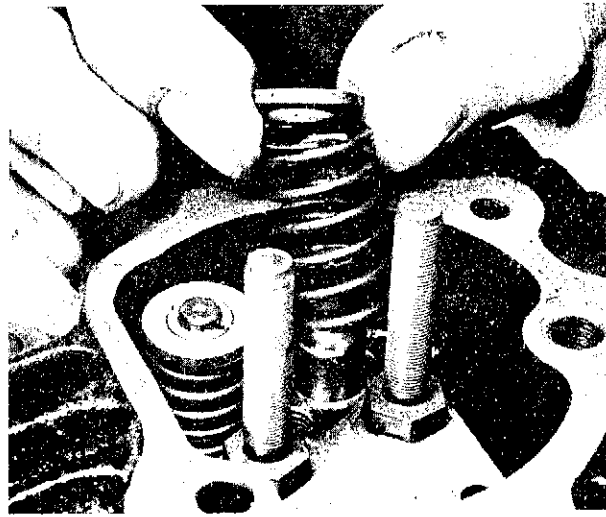
43.4a Refit the flywheel location pin ...



43.4b ... and feed the rotor into position



44.2a Replace the valve into the cylinder head ...



44.2b .. and assemble the spring and register

46 Refitting the piston, cylinder barrel, cylinder head and rocker arms

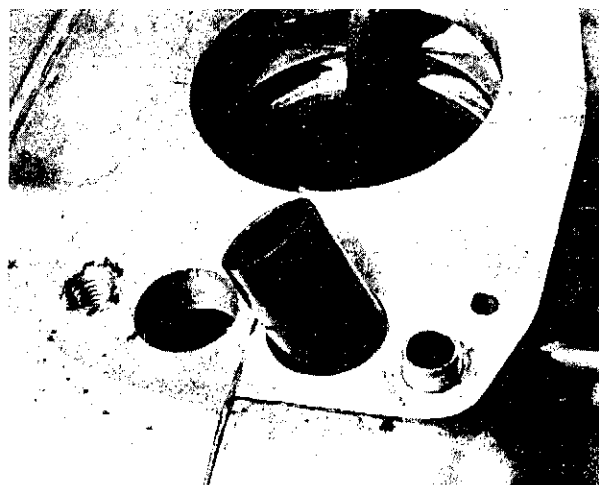
- 1 Raise the connecting rod to its highest point and pad the mouth of the crankcase with clean rag as a precaution against displaced parts falling in.
- 2 The piston is marked with an arrow which should point downwards as the gudgeon pin hole is offset from the centre of the piston.
- 3 Lightly oil and fit the piston onto the connecting rod by inserting the gudgeon pin. Replace the circlips that retain the gudgeon pin, making doubly sure that they are correctly seated in their grooves and that the circlip gap does not coincide with the slot in the piston. Always renew the circlips as it is false economy to re-use the originals.
- 4 Trim off any excess crankcase gasket from the cylinder mounting face with a sharp knife. Smear the mounting face with a gasket cement such as Golden Hermatite, or other jointing compound, push the two dowels into position, and stick the gasket to the face.
- 5 The cylinder barrel should be lightly oiled and fed onto the piston. Each piston ring should be compressed in turn and fed into the bore such that the gaps are at 120 degrees to each other.
- 6 When all three piston rings are in the bore, the padding in the crankcase can be removed and the cylinder barrel located on the two dowels and secured with two bolts.
- 7 The cylinder head gasket and two more hollow dowels should be fitted next, followed by the cylinder head which is located in position on the two dowels. Four bolts hold the cylinder barrel and head in place. Ensure that the decompressor cable stop is fitted in the correct place. Tighten the bolts gradually in a diagonal sequence to the recommended torque wrench settings.
- 8 The pushrods will pass through the guide plate and locate in the cam followers.
- 9 Place the rocker arms in position on their adjusting studs and fit the adjusting nuts to hold them in place. Fit the locknuts to the adjusting studs and adjust the tappet clearance to 0.05mm (0.002in) on both valves as described in the Routine Maintenance Section.
- 10 Smear the tappet cover face with a gasket cement such as Golden Hermatite, or other jointing compound, and stick the gasket into position.
- 11 Check the operation of the decompressor lever and the condition of the return spring before fitting and securing it with two bolts.

47 Engine reassembly: completion and final adjustments

- 1 Replace the spark plug after checking that it is gapped between 6-7mm (0.024-0.028in).
- 2 Replace and tighten the crankcase drain plug after ensuring that the sealing washer is in good condition.
- 3 The blanking screw alongside the drain plug need not be removed when dismantling the engine but check that it is tight and its sealing washer is in good condition.

48 Refitting the engine unit in the frame

- 1 Follow in reverse the procedure given in Section 5 of this Chapter bearing the following points in mind:
- 2 Check that all the wires and cables are tucked into the frame of the machine and not caught between the frame and the engine.
- 3 Check that the final drive spring link is fitted the correct way round. The closed end should lead as the chain rotates.
- 4 Ensure that the pedals are fitted to their correct side of the machine. The pedals are stamped 'L' or 'R' to avoid unscrewing in use with uncomfortable results.



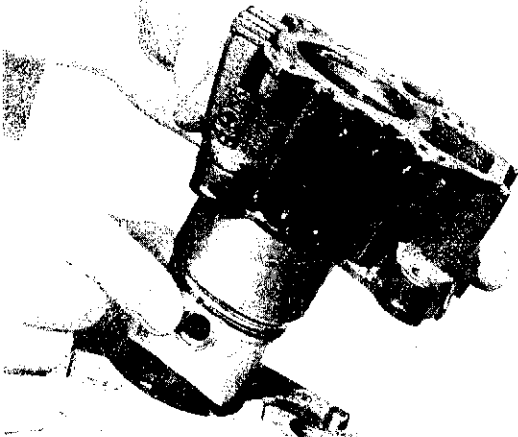
45.1 Fit the cam followers into their guides



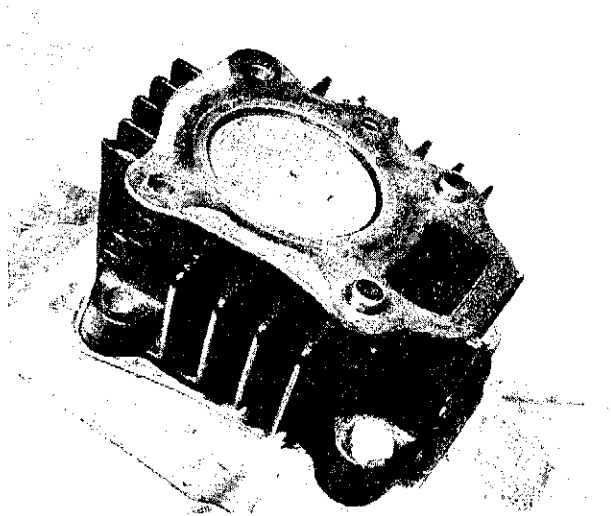
46.2 The piston arrow must point downwards



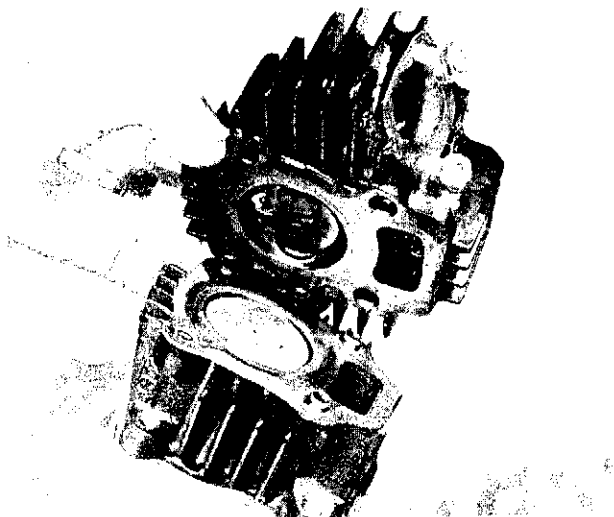
46.3 Ensure the circlip gap does not coincide with slot in piston



46.5 The cylinder barrel slides over the piston



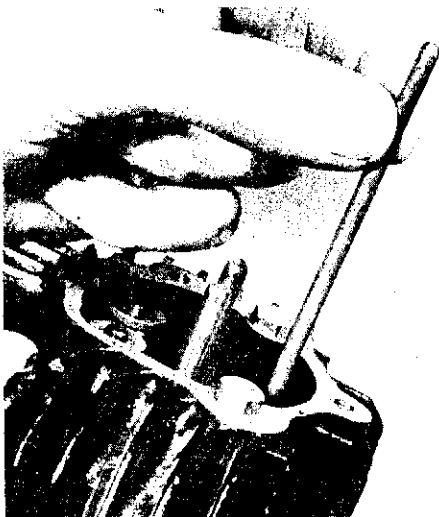
46.7a Position the cylinder head gasket and dowels ...



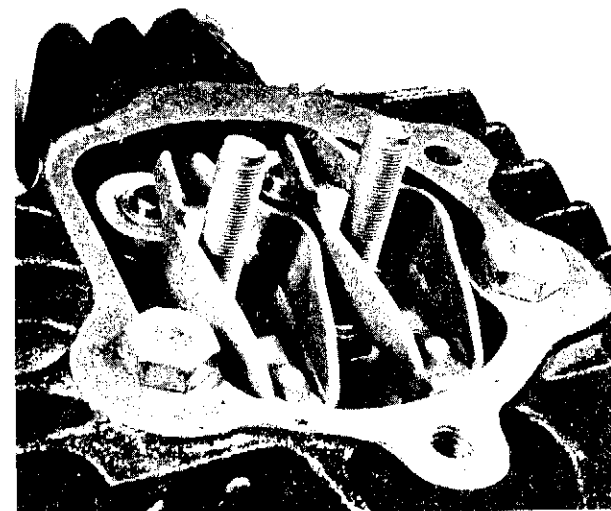
46.7b ... and refit the cylinder head



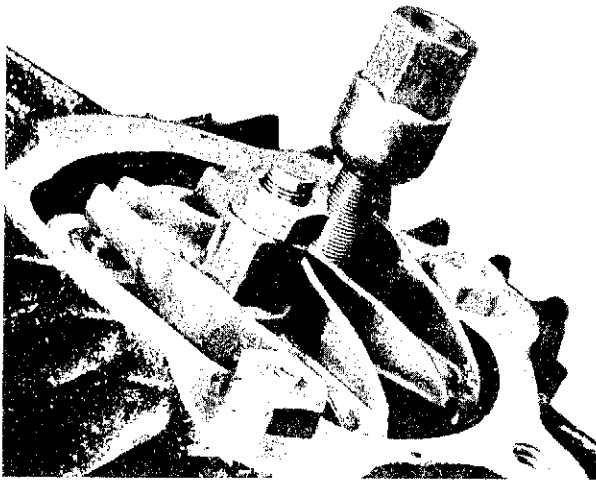
46.7c Ensure the cable stop is on the correct bolt



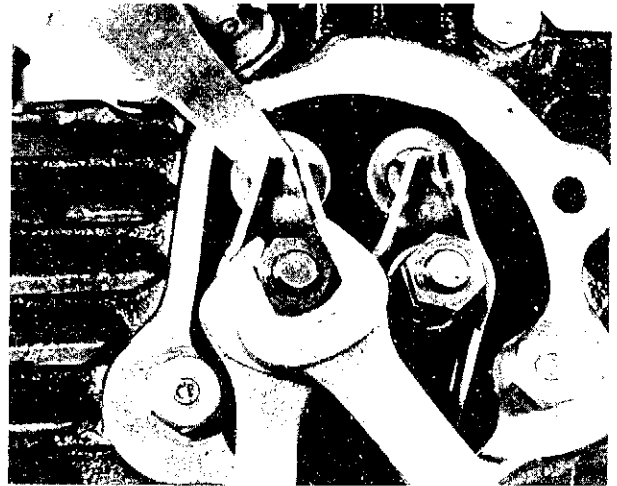
46.8 Refit the pushrods



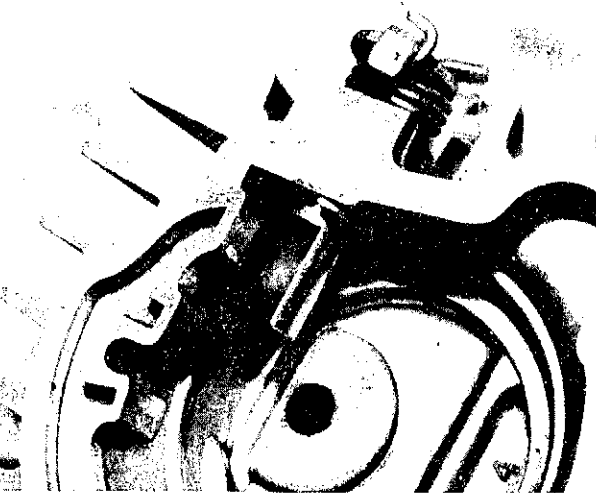
46.9a Position the rocker arms ...



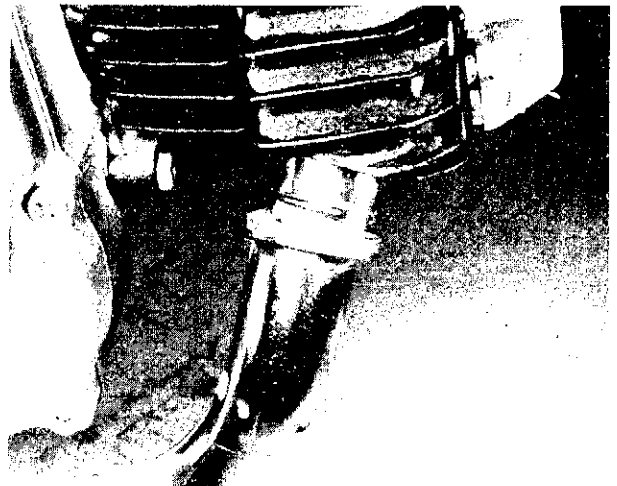
46.9b ... fit the adjusting nut and locknut ...



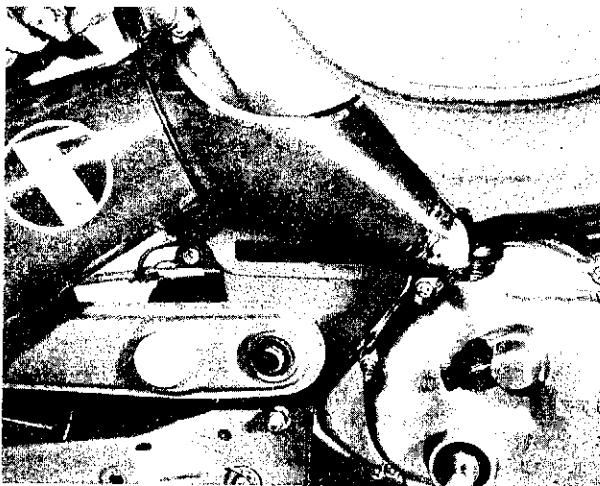
46.9c ... and adjust the tappet clearance



46.11 Check the decompression lever and spring



48.5 Always fit a new exhaust gasket



48.6 Refill the engine with oil

- 5 Ensure that the old exhaust gasket is removed and a new one fitted, to provide an air tight joint.
- 6 Refill the engine unit with oil of the recommended viscosity to the correct level.

49 Starting and running the rebuilt engine

When the initial start-up is made, run the engine gently for the first few minutes in order to allow the oil to circulate throughout all parts of the engine. Remember that if a number of new parts have been fitted or if the engine has been rebored, it will be necessary to follow the original running-in instructions so that the new parts have ample opportunity to bed-down in a satisfactory manner. Check for oil leaks and/or blowing gaskets before the machine is run on the road.

50 Fault diagnosis: engine

Symptom	Cause	Remedy
Engine does not start	Lack of compression (1) Valve stuck open (2) Worn valve guides (3) Valve timing incorrect (4) Worn piston rings (5) Worn cylinder No spark at plug (1) Fouled or wet spark plug (2) Fouled contact breaker points (3) Incorrect ignition timing (4) Open or short circuit in ignition No fuel flowing to carburettor (1) Blocked fuel tank cap vent hole (2) Blocked fuel tap (3) Faulty carburettor float valve (4) Blocked fuel pipe	Adjust tappet clearance. Renew. Check and adjust. Renew. Rebore. Clean. Clean. Check and adjust. Check wiring and cut-out switch. Clean. Clean. Renew. Clean.
Engine stalls whilst running	Fouled spark plug or contact breaker points Ignition timing incorrect Blocked fuel line or carburettor jets	Clean. Adjust. Clean.
Noisy engine	Tappet noise: Excessive tappet clearance Weakened or broken valve spring Knocking noise from cylinder: Worn piston and cylinder noise Carbon in combustion chamber Worn gudgeon pin or connecting rod small end Cam chain noise: Stretched cam chain Worn cam sprocket or timing sprocket	Check and reset. Renew springs. Rebore cylinder and fit oversize piston. Decoke engine. Renew. Adjust. Renew chain. Renew sprockets.
Engine noise	Excessive run-out of crankshaft Worn crankshaft bearings Worn connecting rod Worn transmission splines Worn or binding transmission gear teeth	Renew. Renew. Renew flywheel assembly. Renew. Renew gear pinions.
Smoking exhaust	Too much engine oil Worn cylinder and piston rings Worn valve guides Damaged cylinder	Check oil level and adjust as necessary. Rebore and fit oversize piston and rings. Renew. Renew cylinder barrel and piston.
Insufficient power	Valve stuck open or incorrect tappet adjustment Weak valve springs Valve timing incorrect Worn cylinder and piston rings Poor valve seatings Ignition timing incorrect Defective plug cap Dirty contact breaker points	Re-adjust. Renew. Check and reset. Rebore and fit oversize piston and rings. Grind in valves. Check and adjust. Fit replacement. Clean or renew.
Overheating	Accumulation of carbon on cylinder head Insufficient oil Faulty oil pump and/or blocked oil passage Ignition timing too far retarded	Decoke engine. Refill to specified level. Strip and clean. Re-adjust.

51 Fault diagnosis: clutch

Symptom	Cause	Remedy
Clutch slip	Worn clutch shoes	Renew.
Clutch drag	Engine idle speed too high Broken spring	Re-adjust. Renew.

52 Fault diagnosis: gearbox

Symptom	Cause	Remedy
Excessive mechanical noise	Lack of oil Broken pinions or chain	Refill. Renew.

Chapter 2 Fuel system and lubrication

Contents

General description	1	Air cleaner: removal, cleaning and replacement	7
Petrol tank: removal and replacement	2	Exhaust system: cleaning	8
Petrol tap: removal and replacement	3	Lubrication system	9
Petrol feed pipe: examination	4	Trochoidal oil pump	10
Carburettor: removal	5	Fault diagnosis: fuel system and lubrication	11
Carburettor: dismantling, examination and reassembling	6					

Specifications

Petrol tank

Capacity:

PF50	2.35 litres (4.1 pints)
PF50R	2.35 litres (4.1 pints)
PF50DXR	2.35 litres (4.1 pints)
PC50K1	3.0 litres (5.25 pints)

Carburettor

Make	Keihin
Type	F5A (early models)
Main jet	PA 00-10 (later models)
Slow running screw	70
Float level	1½ turns out
Needle position	4.5-5.5mm (0.177-0.215 inch)
Air filter	2nd notch from tap
Oil pump	Nylon gauge type
								Trochoidal type

1 General description

The fuel system comprises a petrol tank, from which petrol is fed by gravity to the float chamber. It is controlled by a petrol tap with a built in filter which is an on/off type with no provision for any reserve capacity. For cold starting the carburettor has a manually-operated choke which is operated at the rider's discretion. The machine should run on 'choke' for the least amount of time. The air filter is a nylon gauge mounted above the engine.

The trochoidal oil pump in the engine is driven from the end of the camshaft. It supplies oil to the engine parts especially the camshaft and cam followers where the bearing loads are high and warrant additional oil protection.

2 Petrol tank: removal and replacement

1 It is unlikely that there will be any need to remove the petrol tank completely unless the machine has been laid up and rust has formed inside or it needs reconditioning. The engine/gear unit can be removed from the frame without having to detach the tank.

2 The PF50 and PF50R models have the petrol tank mounted under the rear carrier. The tank is bolted to the rear carrier with rubber pads at the front of the tank and between the tank and rear mudguard. To remove the tank, the rear wheel must be removed as described in Chapter 5, followed by the rear mudguard which is retained with three bolts. The petrol pipe can be pulled off and the rear light disconnected at the snap connectors. Two bolts hold the rear number plate assembly and the tank to the carrier and when these are removed, the tank will drop clear of the machine. When reassembling, ensure that the rubber pads are in their correct positions and secure.

3 The PF50DXR model has the petrol tank mounted on the front downtube. To remove the tank, disconnect the petrol pipe, remove the two bolts and slide the tank off. When reassembling, ensure that the two top support rubbers are in their correct positions.

4 The PC50K1 model has the petrol tank mounted on the side of the machine, underneath the seat. To remove the tank, disconnect the petrol pipe, remove the two bolts and one nut and pull the tank clear. When reassembling, ensure that the rubber shock-absorbing washers are between the tank and the frame.

3 Petrol tap: removal or replacement

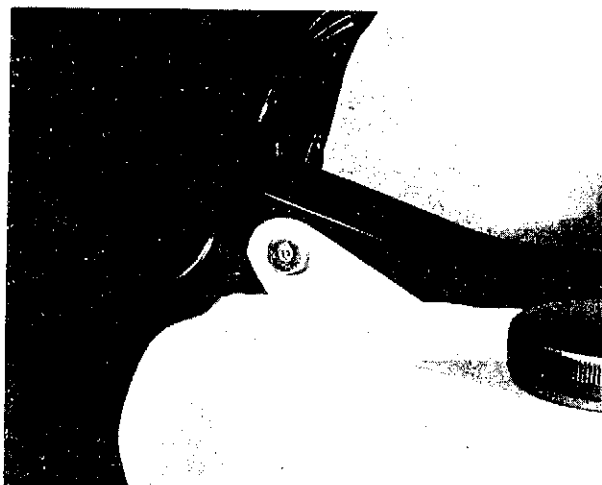
- 1 The petrol tap is an on/off type fitted to the bottom of the petrol tank.
- 2 Drain the petrol tank into a suitable container. Remove the spring clip and the feed pipe from the bottom of the petrol tap. Unscrew the nut above the tap and pull the tap clear. The plastic filter gauge can now be cleaned by washing in a small amount of petrol, which can then be used to flush out the petrol tank.
- 3 Refit the tap to the tank, ensuring that the sealing 'O' ring is in good condition. Reconnect the petrol pipe and refill the tank.

4 Petrol feed pipe: examination

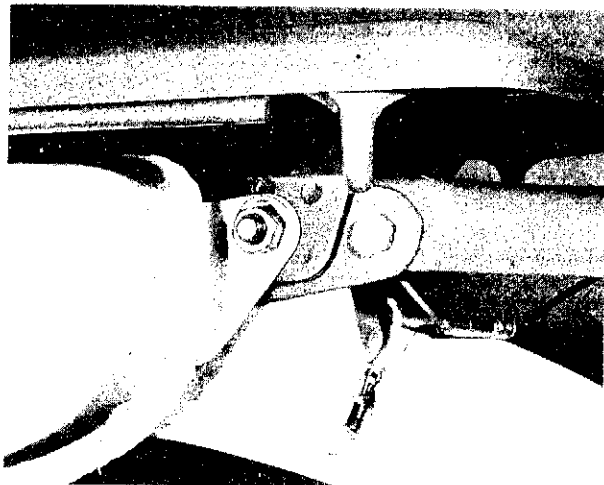
The petrol feed pipe is made of synthetic rubber and a check that it is not cracked or chafed should be made as leaking petrol can cause a fire. Pay particular attention to the places where the pipe passes through the frame. Ensure that the wire retaining clips on each end are present, in good condition and properly located.

5 Carburettor: removal

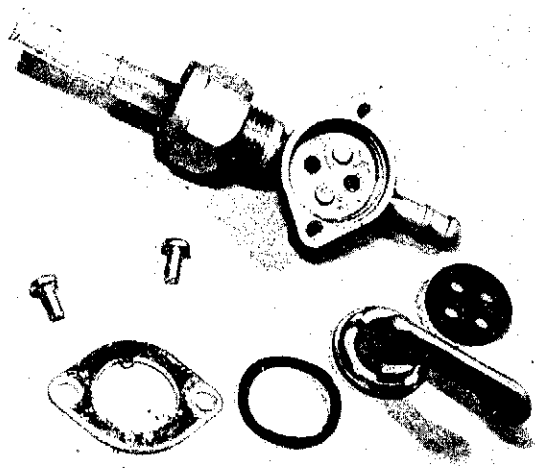
- 1 There are two types of carburettor fitted to the Honda mopeds, the later type using an 'O' ring to seal its mounting face instead of a gasket. Jet sizes are different but the basic dismantling procedure applies to both.
Engine removed from machine.
- 2 If the engine has already been removed from the machine the carburettor will be attached to the control cable and possibly tied up out of the way.
Engine still in machine.
- 3 If the engine is still in the machine and the carburettor needs to be removed complete the following steps before proceeding to Section 6.
- 4 Place the machine on its centre stand and make sure it is standing firmly on level ground.
- 5 On the PF50 models remove the three screws and the engine cover. On the PC50K1 model remove the single screw and the carburettor cover.
- 6 Turn off the petrol at the tap and pull the feed pipe off



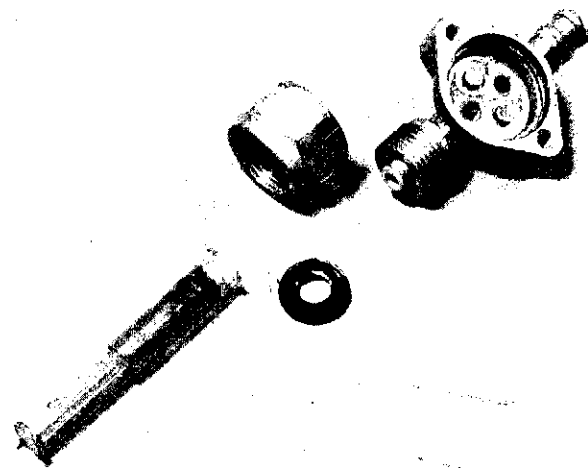
2.4a The petrol tank is held by bolts at the front ...



2.4b ... and a nut at the rear



3.2a These parts make up a tap



3.2b The nut unscrews to release the filter

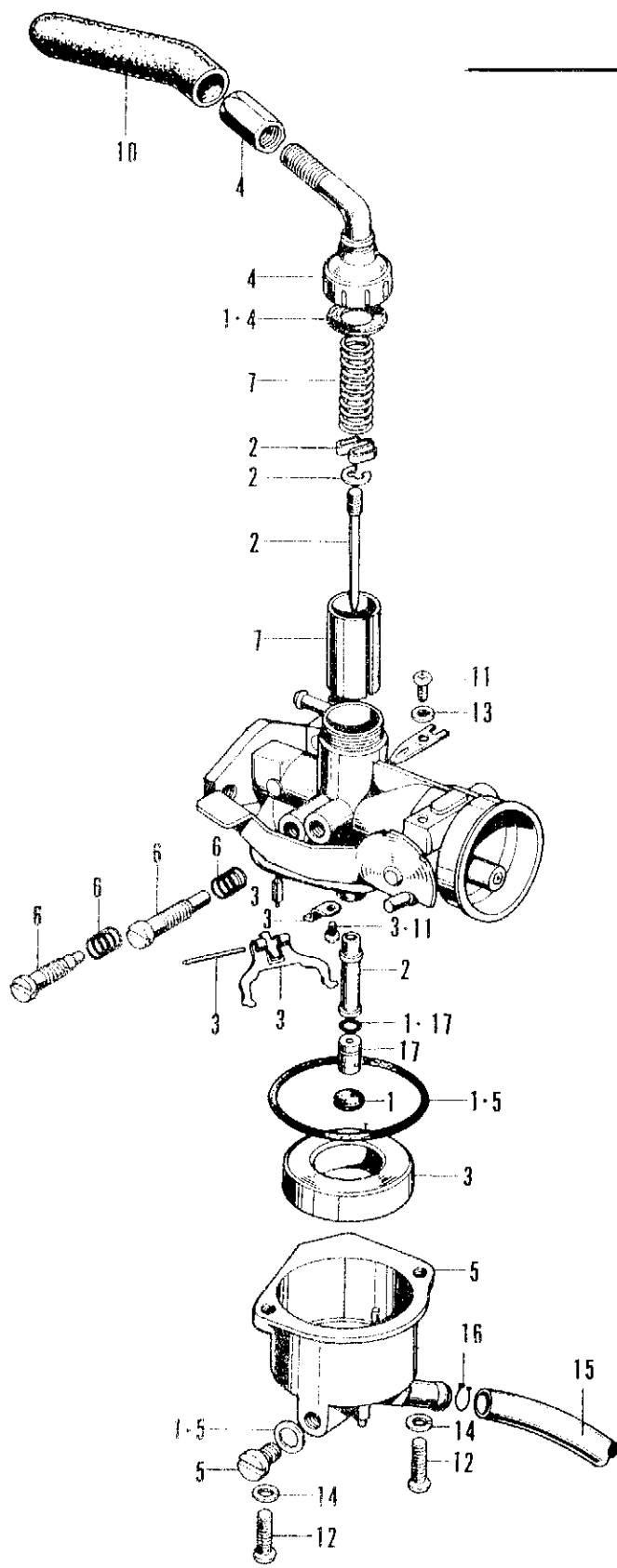


Fig. 2.1. Carburettor (Keihin)

- 1 Gasket set
- 2 Jet needle and clip assembly
- 3 Float and float needle assembly
- 4 Carburettor top assembly
- 5 Float chamber
- 6 Throttle stop and pilot jet screw assemblies
- 7 Throttle valve (slide)
- 8/9 Carburettor assembly complete
- 10 Rubber cap
- 11 Crosshead screw - 2 off
- 12 Crosshead screw - 2 off
- 13 Spring washer
- 14 Spring washer - 2 off
- 15 Overflow pipe
- 16 Pipe clip
- 17 Main jet

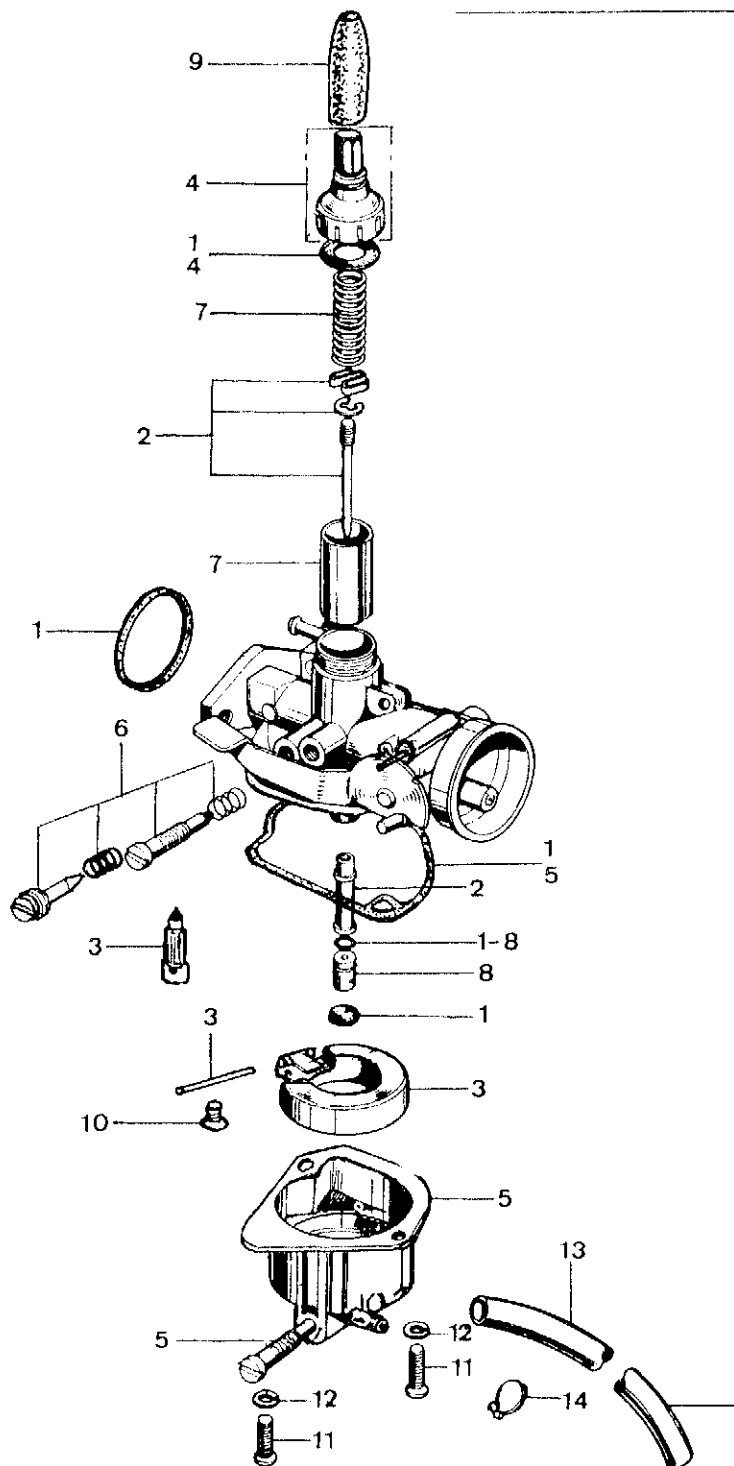


Fig. 2.2. Carburettor (alternative type)

- 1 Gasket set
- 2 Jet needle and clip assembly
- 3 Float and float needle assembly
- 4 Carburettor top assembly
- 5 Float chamber assembly
- 6 Throttle stop and pilot jet assemblies
- 7 Throttle valve (slide) assembly
- 8 Main jet
- 9 Rubber cap
- 10 Screw
- 11 Screw - 2 off
- 12 Spring washer - 2 off
- 13 Overflow pipe
- 14 Pipe clip

ASS'Y

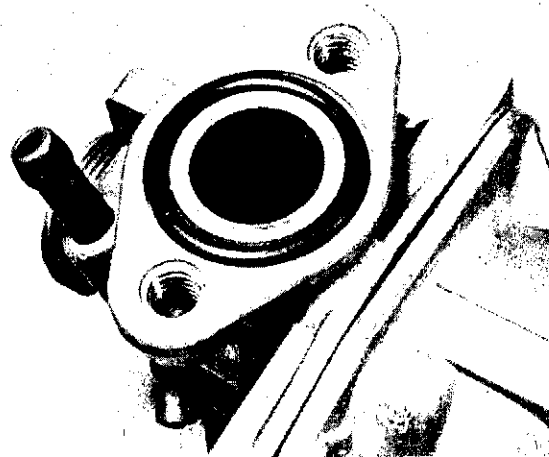
the carburettor, after releasing the clip. Release the spring clips on the air hose and pull the air hose clear.
 7 Remove the two screws holding the carburettor and pull it and the spacing block clear. The carburettor overflow pipe will pull out of the guide hole on the engine.

6 Carburettor: dismantling, examination and reassembling

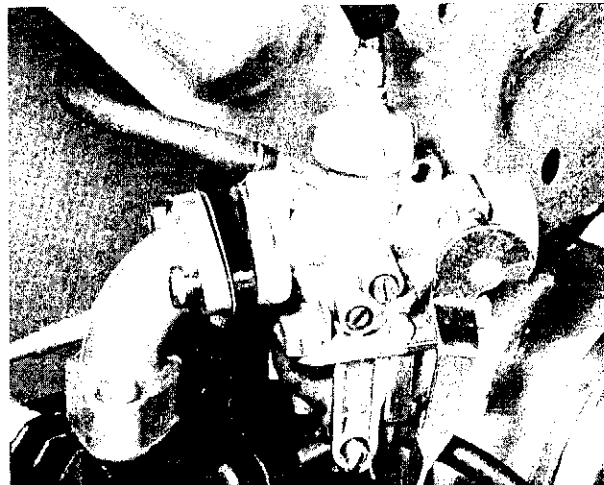
- 1 At this stage, the carburettor is still attached to the control cable and to remove it completely, the carburettor top has to be unscrewed and the slide and needle pulled out.
- 2 Compress the slide return spring and unhook the throttle cable. The slide assembly, return spring and carburettor tap will slide off the cable. A 'W' shaped clip holds the needle in position whilst a circlip on the needle determines its relative height. This circlip should not be disturbed unless expert advice is sought as the manufacturers have conducted extensive tests to determine the correct position.
- 3 Remove the two screws holding the float chamber bowl in position and pull the bowl clear. The drain screw in the bowl should be removed for cleaning.
- 4 The pivot pin for the float can be removed by slackening the screw and pushing it out, permitting the float with the float needle attached to be removed. The float needle can then be unclipped. Check the condition of the float and shake it to see if there is any petrol inside. The float cannot be repaired effectively and if damaged, should be renewed. The float needle should be cleaned and checked for wear in the form of ridges on the conical portion of the end. Renew it, if necessary.
- 5 The main jet and the needle jet are a push fit in the centre hole on the underside of the carburettor body and are held in place with a rubber pad in the float chamber bowl. These jets should be removed and cleaned by blowing or washing. Do not use pins or wire to clean them or the size and finish of the critical holes will be affected.
- 6 The throttle stop screw and the slow running screw are on the side of the carburettor and should be removed for clearing. Note their positions before removing them.
- 7 The choke lever is permanently attached to the carburettor body. Clean the carburettor body and blow out the internal passageways. Check for wear in the slide bore.
- 8 Check that none of the springs are weak or broken.
- 9 When reassembling the carburettor, follow the dismantling instructions in reverse, preferably using new gaskets and seals as leaking petrol can cause a fire. Ensure that the float height is correct at 4.5-5.5mm (0.177-0.215in) and that the petrol overflow pipe is fitted and clipped where necessary.
- 10 The various sizes of the jets, throttle slide and needle are predetermined by the manufacturer and should not require modification. Check with the Specifications list and spare parts catalogue if there is any doubt about the values fitted.
- 11 Readjust the slow running speed as described in the Routine Maintenance Section.

7 Air cleaner: removal, cleaning and replacement

- 1 The air cleaner is located above the engine on the left hand side of the machine.
- 2 On the PF50 models remove the three screws and the engine cover. On the PC50K1 model remove the single screw and the carburettor cover. Release the spring clips on the air hose and pull the air hose clear.
- 3 Remove the two screws and the air cleaner assembly from the machine. The black filter support slides out of the cover, so that the filter gauze can be cleaned. A vacuum cleaner will remove most of the dirt but if the gauze is oily or torn it should be renewed.
- 4 Reassembly of the air filter is the reverse of the dismantling procedure. On no account should the machine be run without the filter element in place because this will have an adverse effect on carburation.



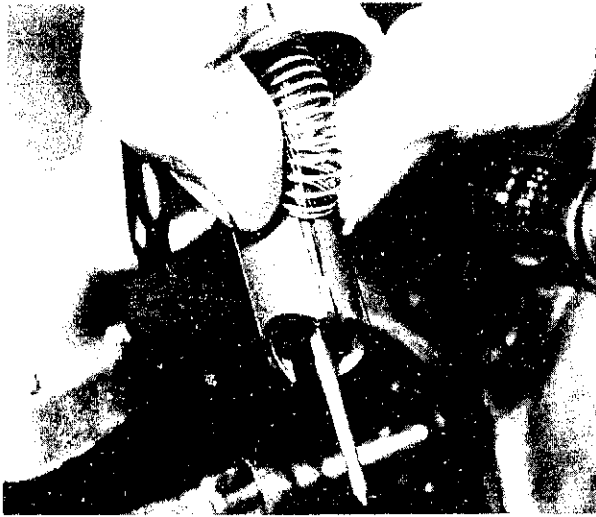
5.1 The O-ring denotes a later type carburettor



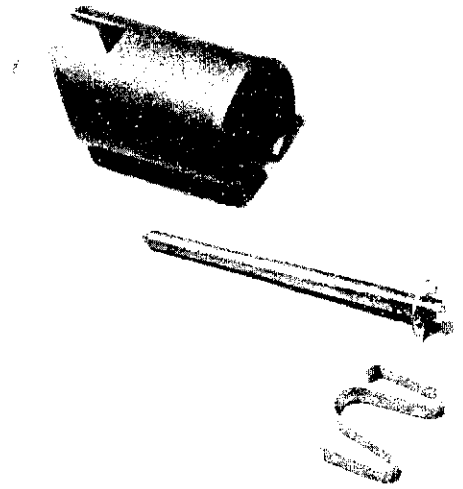
5.7 Remove the two screws to release the carburettor



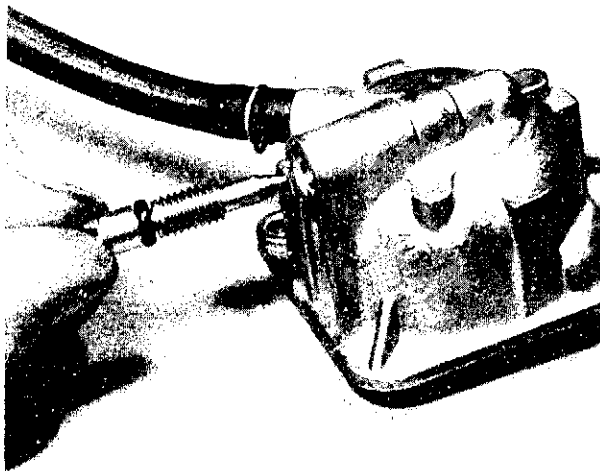
6.1 Unscrew the carburettor top and pull it clear



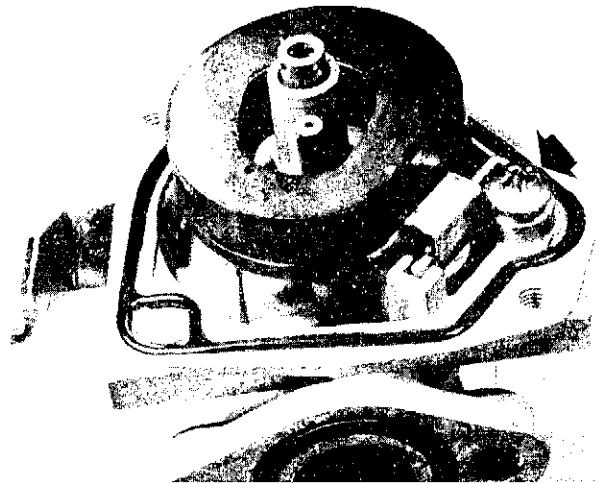
6.2a Compress the slide spring and unhook the cable ...



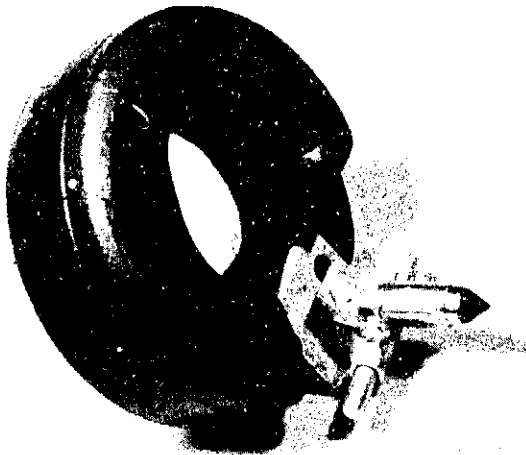
6.2b ... releasing the slide, needle and W-clip



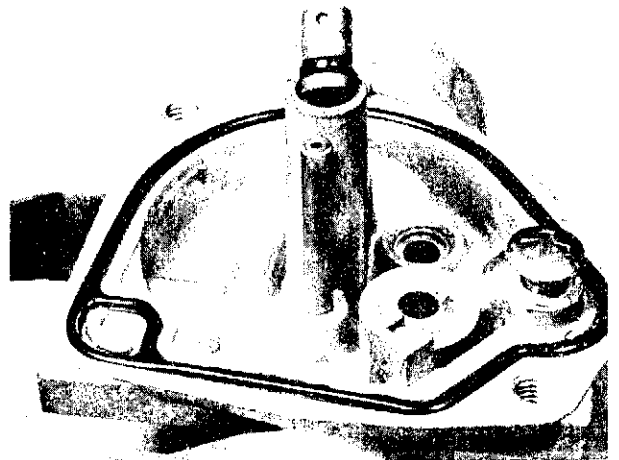
6.3 Remove the drain screw when cleaning the bowl



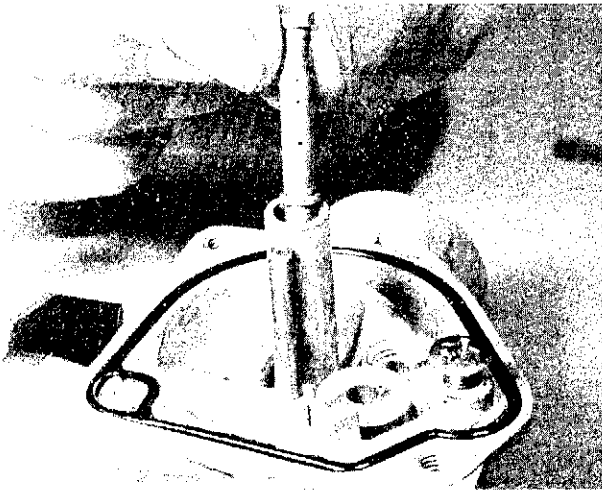
6.4a Slacken the screw to release ...



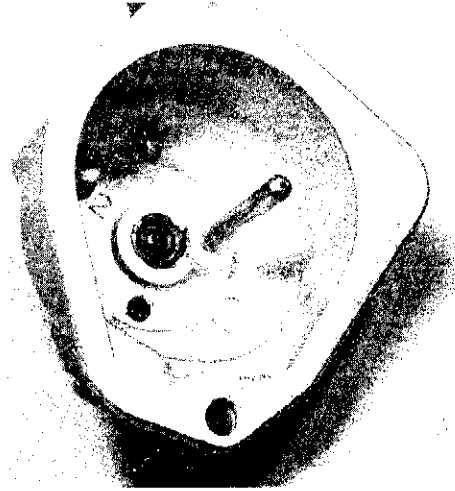
6.4b ... the float and needle assembly



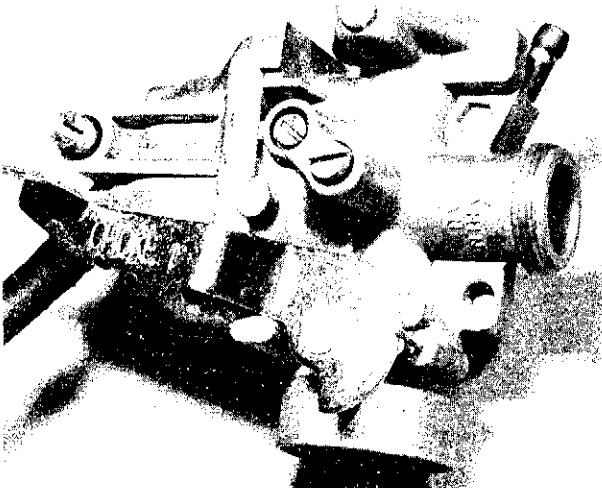
6.5a The main jet ...



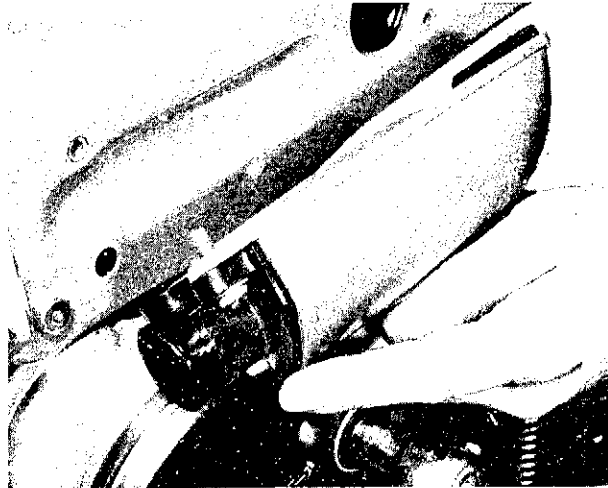
6.5b ... and needle jet ...



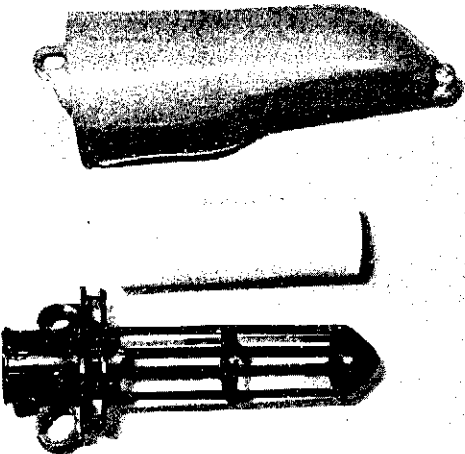
6.5c ...are retained by a rubber pad in the float chamber



6.6 Throttle stop and slow running screws are on side of carburettor



7.3a Remove two screws to release the air filter ...



7.3b ... and pull the filter support clear

8 Exhaust system: cleaning

- 1 The exhaust system should not be altered in any way, such as removing the baffles to make more noise, as it does not necessarily follow that the more noise made the faster the machine. Tampering with the standard system, designed to give optimum performance with as little noise as possible, will upset the balance and cause reduced performance, even though the changed exhaust note creates the illusion of speed.
- 2 The complete exhaust system can be detached from the machine by removing the two nuts holding the exhaust pipe to the cylinder head and the two nuts holding the silencer to the frame. The exhaust gasket will need to be prised out of the cylinder head and in consequence will need renewing. If this joint is not airtight, the engine will tend to backfire on the over-run.
- 3 The exhaust pipe and silencer are one unit and if a large amount of carbon has built up inside it is necessary to fill the silencer with a solution of caustic soda after blocking up one end. If possible, leave the caustic soda solution within the silencer overnight, before draining off and washing out thoroughly with water.

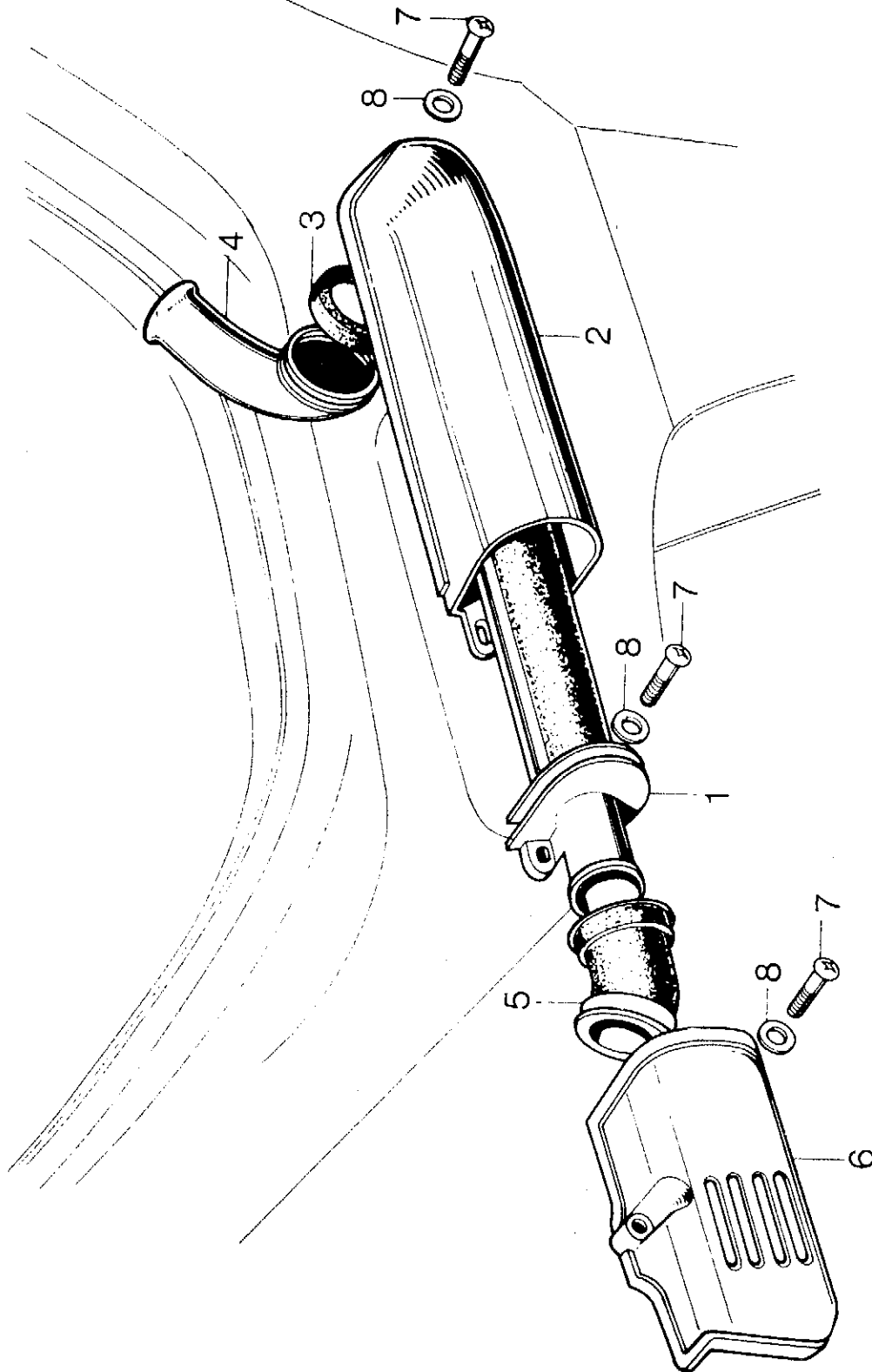


Fig. 2.3. Air cleaner - PL50K1 model

4 Caustic soda is highly corrosive and every care should be taken when mixing and handling the solution. Keep the solution away from the skin and more particularly, the eyes. The wearing of goggles and rubber gloves is advised whilst the solution is being mixed and used.

5 The solution is prepared by adding 3 lbs of caustic soda to 1 gallon of COLD water, whilst stirring. Add the caustic soda a little at a time and NEVER add the water to the chemical. The solution will become hot during the mixing process, which is why cold water must be used.

6 Make sure the used caustic soda solution is disposed of safely, preferably by diluting with a large amount of water. Do not allow the solution to come into contact with aluminium castings because it will react violently with this metal.

7 To reassemble the exhaust system reverse the dismantling procedure.

9 Lubrication system

1 Oil is picked up from the oil compartment in the crankcase by the oil pump, which then feeds the oil round the engine, mainly through the tappet guides and the push rod tunnel.

2 The connecting rod has a scoop at the big end to throw oil around in the engine, to lubricate the piston, the gearbox components and the big end.

3 As there are no filters in the lubrication system it is

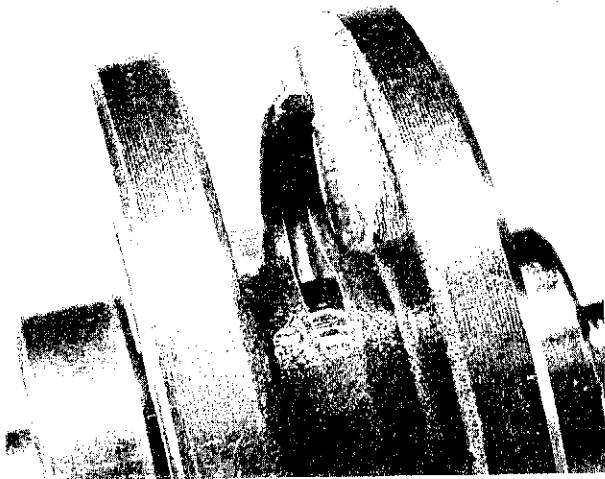
imperative that the oil is changed at the correct intervals. Serious engine damage will occur if the oil changes are neglected. It should also be noted that if the oil level drops too low, the oil pump will be unable to pick up any oil.

10 Trochoidal oil pump

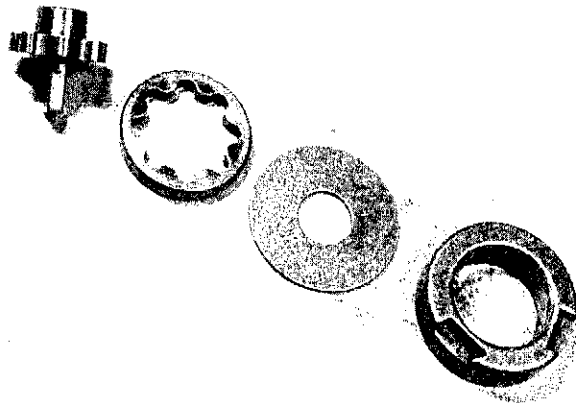
1 The trochoidal oil pump has two rotors, an outer one with internal lobes and an inner one with external lobes. The inner rotor has one less lobe than the outer. The inner rotor is driven through a drive shaft by the camshaft. The outer rotor spins in the crankcase half, slightly offset from the camshaft centreline, and is driven by the inner rotor. The two rotors, when turning, produce a pressure at one end of the oil cavity which feeds the oil to the engine.

2 Both rotors have one side smoother than the other and the smoothest side should run against the softest metal, ie the crankcase half.

3 After long service, the lobes on the oil pump rotor will show signs of wear which will affect the oil pressure that is produced and if the wear is excessive the rotors must be renewed. It is extremely difficult to check the backlash on the rotors as the camshaft has to be assembled to correctly position the inner rotor.



9.2 The scoop on the connecting rod aids lubrication



10.1 The component parts of the oil pump

11 Fault diagnosis: fuel system and lubrication

Symptom	Cause	Remedy
Excessive fuel consumption	Air cleaner choked or restricted Fuel leaking from carburettor. Float sticking	Clean or renew. Check all unions and gaskets. Float needle seat needs cleaning.
	Badly worn or distorted carburettor Jet needle setting too high Main jet too large or loose Carburettor flooding	Replace. Adjust as figure given in Specifications. Fit correct jet or tighten if necessary. Check float valve and replace if worn.
Idling speed too high	Throttle stop screw in too far. Carburettor top loose.	Adjust screw. Tighten top.
	Pilot jet incorrectly adjusted Throttle cable sticking	Refer to relevant paragraph in this Chapter. Disconnect and lubricate or replace.

Symptom	Cause	Remedy
Engine dies after running for a short while	Blocked air hole in filler cap Dirt or water in carburettor	Clean. Remove and clean out.
General lack of performance	Weak mixture; float needle stuck in seat Air leak at carburettor joint	Remove float chamber or float and clean. Check joint to eliminate leakage, and fit new 'O' ring.
Engine does not respond to throttle	Throttle cable sticking Petrol octane rating too low	See above. Use higher grade (star rating) petrol.
Engine runs hot and is noisy	Lubrication failure	Stop engine immediately and investigate cause. Do not restart until cause is found and rectified.

Chapter 3 Ignition system

Contents

General description	1	Condenser: removal and replacement	6
Flywheel generator: checking the output	2	Ignition timing: adjustment	7
Ignition coil: checking, removal and replacement	3	Spark plug: checking and resetting gap	8
Contact breaker: adjustment	4	Fault diagnosis: ignition system	9
Contact breaker points: removal, renovation and replacement	5					

Specifications

Spark plug

Type	NGK C-7HS
Plug gap	0.6 - 0.7 mm (0.024 - 0.028 in)

Contact breaker gap	0.3 - 0.4 mm (0.012 - 0.016 in)
---------------------	-----	-----	-----	-----	-----	-----	-----	-----	---------------------------------

Flywheel generator

Make	Mitsubishi
Output	6 volts AC

Ignition coil

Make	Mitsubishi
Turns ratio	300/20,000

Ignition timing	28 degrees before top dead centre
-----------------	-----	-----	-----	-----	-----	-----	-----	-----	-----------------------------------

1 General description

The spark which is necessary to ignite the petrol/air mixture in the combustion chamber is derived from an ignition coil mounted on the frame and a flywheel generator attached to the left-hand crankshaft of the engine. A contact breaker assembly within the generator determines the exact moment at which the spark will occur; as the points separate the electrical circuit is interrupted and a high tension voltage is developed across the points of the spark plug which jumps the air gap and ignites the mixture.

2 Flywheel generator: checking the output

The output from the flywheel generator can be checked only with specialised test equipment of the multi-meter type. It is unlikely that the average owner/rider will have access to this equipment or instruction in its use. In consequence, if the performance of the generator is suspect, it should be checked by a Honda agent or an auto-electrical expert.

3 Ignition coil: checking, removal and replacement

- 1 The ignition coil is a sealed unit, designed to give long service.

If a weak spark and difficult starting cause its performance to be suspect, it should be tested by an auto-electrical expert. A faulty coil must be replaced; it is not practical to effect a repair.

- 2 To detach the coil the engine/gearbox unit must first be removed as described in Chapter 1.5 The coil is mounted inside the frame and is retained with a single nut.

- 3 Reassembly is the reverse of the removal procedure.

Contact breaker: adjustment

- 1 To gain access to the contact breaker assembly, prise off the flywheel generator cover with a screwdriver. The contact breaker points can be viewed through one of the apertures in the flywheel rotor.

- 2 Rotate the engine until the contact breaker points are in the fully open position. Examine the faces of the contacts. If they are pitted or burnt it will be necessary to remove them for further attention, as described in Section 5 of this Chapter.

- 3 The correct contact breaker gap, when the points are fully open is 0.3 - 0.4mm (0.012 - 0.016in).

5 Contact breaker points: removal, renovation and replacement

- 1 If the contact breaker points are burned, pitted or badly worn, they should be removed for dressing. If it is necessary to

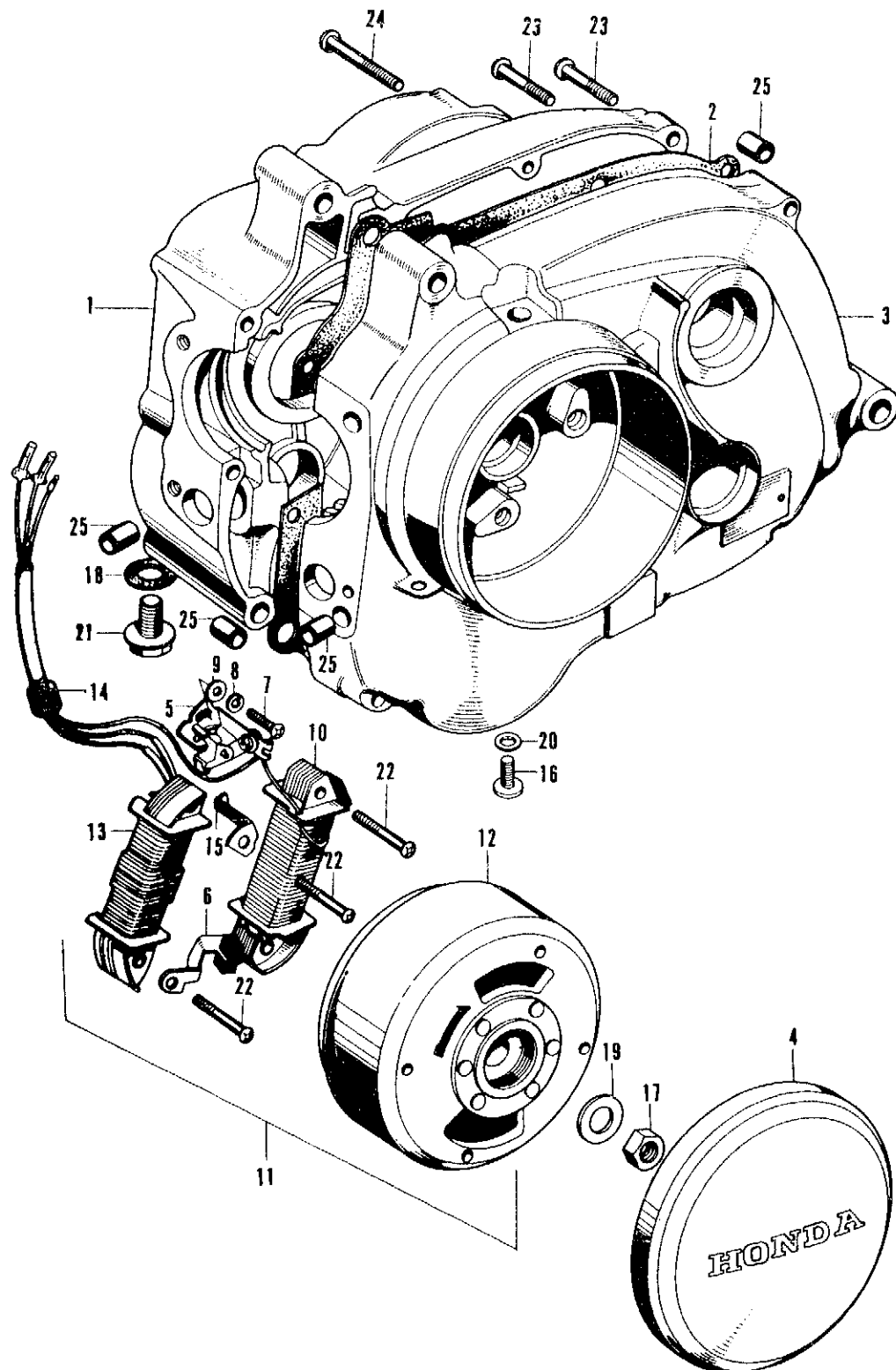
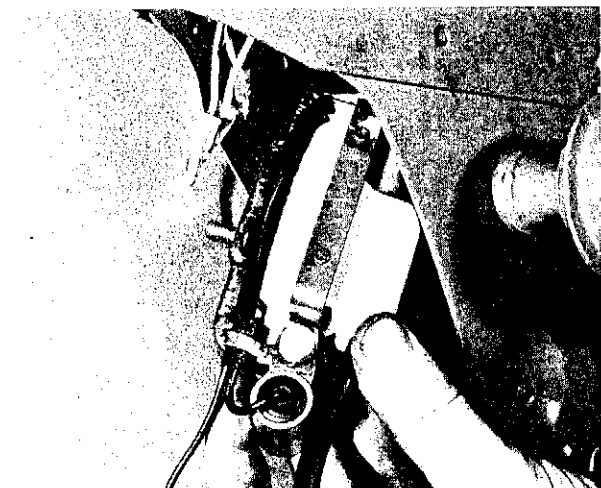
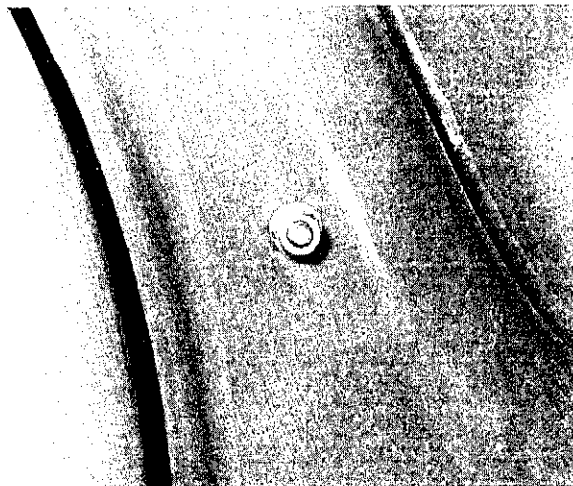


Fig. 3.1. Crankcases and generator

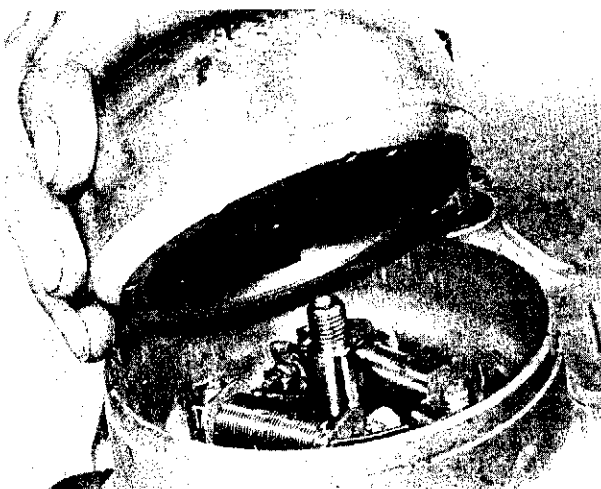
- | | | | |
|------------------------|--------------------------|-------------------|------------------|
| 1 Right-hand crankcase | 8 Spring washer | 14 Grommet | 20 Washer |
| 2 Gasket | 9 Washer | 15 Clip for wires | 21 Drain plug |
| 3 Left-hand crankcase | 10 Primary coil assembly | 16 Bolt | 22 Screw (3 off) |
| 4 Generator cover | 11 Generator assembly | 17 Nut | 23 Screw (3 off) |
| 5 Contact breaker | 12 Flywheel | 18 Sealing washer | 24 Screw |
| 6 Lubricating wick | 13 Coils | 19 Washer | 25 Dowel (3 off) |
| 7 Screw | | | |



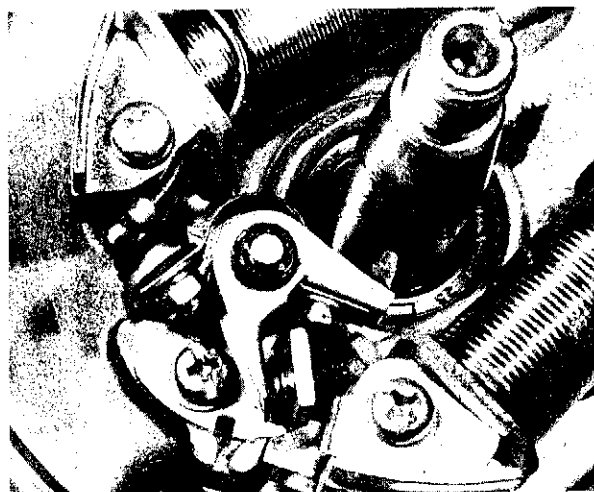
3.2a The coil is mounted inside the frame ...



3.2b ... and retained by a single nut



5.2a Remove the rotor to gain access ...



5.2b ... to the contact breaker and retaining screw

remove a substantial amount of material before the faces can be restored, new replacements should be fitted.

2 It is necessary first to withdraw the flywheel magneto rotor before access can be gained. Instructions for the removal of the rotor are given in Chapter 1, Section 10. The fixed contact is removed by withdrawing the screw which holds the assembly to the stator plate of the generator. The moving contact is detached by releasing the circlip from the end of the pivot pin and by freeing the leaf return spring from its point of attachment close to the lower coil.

3 The points should be dressed with an oilstone or fine emery cloth. Keep them absolutely square during the dressing operation, otherwise they will make angular contact when they are replaced and will burn away rapidly as a result.

4 Replace the contacts by reversing the dismantling procedure. Take particular care to replace any insulating washers in their correct sequence, otherwise the points will be isolated electrically and the ignition system will not function. Lightly grease the pivot pin before the moving contact is replaced and check that there is no oil or grease on the surfaces of the points.

5 Replace the flywheel rotor after greasing the internal contact breaker cam. It is also advisable to add a few drops of light oil to

the lubricating wick which rubs on the contact breaker cam, if the wick has a dry appearance.

6 Re-adjust the contact breaker gap after the flywheel rotor has been locked in position and the centre retaining bolt tightened fully to the recommended torque wrench setting of 300-380 kg cm (21.7-27.5 lb ft).

6 Condenser: removal and replacement

1 A condenser is included in the contact breaker circuitry to prevent arcing across the contact breaker points as they separate. It is connected in parallel with the points and if a fault develops, ignition failure will occur.

2 If the engine is difficult to start, or if misfiring occurs, it is possible that the condenser is at fault. To check whether the condenser has failed, remove the flywheel magneto cover and observe the points whilst the engine is running. If excessive sparking occurs across the points and they have a blackened or burnt appearance, it may be assumed the condenser is no longer serviceable.

3 The condenser is attached to the ignition coil, normally

rivettted in place, but some spare parts catalogues give a separate number for the condenser which suggests this latter component may be available on its own.

4 To replace the condenser, the engine/gearbox unit must be removed as described in Chapter 1.5, the coil removed as described in Section 3, the wire unsoldered and the rivet drilled out.

5 When fitting the new condenser, ensure that the wire is soldered correctly and that the nut and bolt to replace the rivet are a good fit in the rivet hole and securely locked with Araldite or Locktite.

6 Reassembly of the coil and engine is the reverse of the dismantling procedure.

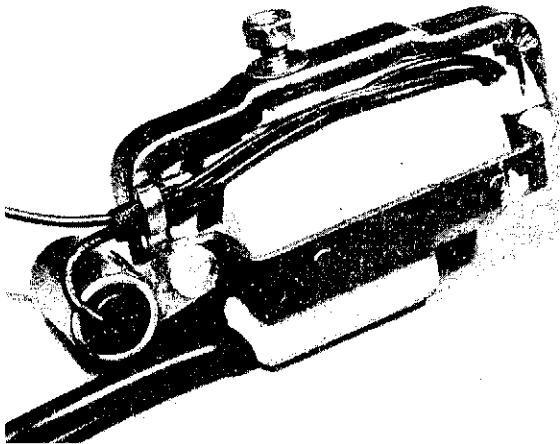
7 Ignition timing: adjustment

1 If the ignition timing is correct, the contact breaker points will be about to separate when the 'F' line scribed on the rotor coincides exactly with the cast mark on the crankcase. As a check, when the engine is running, a timing light or stroboscope will show if the cast mark is coincidental with the scribed line on the rotor.

2 If the timing is incorrect, the contact breaker gap should be either increased or decreased until the points commence to separate as the timing marks coincide.

3 Adjustment is effected by slackening the screw which clamps the fixed contact point in position and moving the contact nearer or further away as the case may be, by levering in the indentation provided.

4 After checking the timing, rotate the engine and check again before replacing the cover. The accuracy of the ignition timing is critical in terms of both engine performance and petrol consumption. Even a small error in setting can have a noticeable effect.



6.3 The condenser is rivettted to the ignition coil

5 If, after adjusting the contact breaker points to achieve the correct ignition timing, the gap is not within the recommended limits, the points should be renewed as a complete set, and the whole process repeated.

8 Spark plug: checking and resetting gap

1 A 10mm NGK spark plug is fitted as standard. Refer to the Specifications Section heading this Chapter for the recommended grade.

2 All models use a spark plug with a 12.7mm reach which should be gapped at 0.6-0.7mm (0.024-0.028in). Always use the grade of plug recommended or the exact equivalent in another manufacturer's range.

3 Check the gap at the plug points during every monthly or 1000 miles service. To reset the gap, bend the outer electrode to bring it closer to the central electrode and check that a 0.6mm (0.024in) feeler gauge can be inserted. Never bend the central electrode otherwise the insulator will crack, causing engine damage if particles fall in whilst the engine is running.

4 The condition of the spark plug electrodes and insulator can be used as a reliable guide to engine operating conditions. See accompanying illustration.

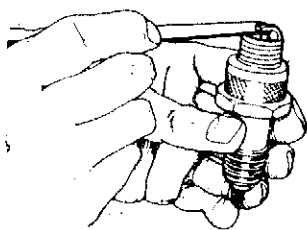
5 Always carry a spare spark plug of the correct grade. In the rare event of a plug failure it will enable the engine to be restarted.

6 Never over-tighten a spark plug, otherwise there is risk of stripping the threads from the cylinder head, particularly those cast in light alloy. The plug should be sufficiently tight to seat firmly on the copper sealing washer. Use a spanner that is a good fit, otherwise the spanner may slip and break the insulator.

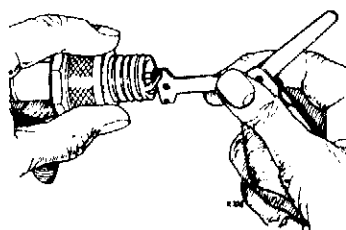
7 Make sure the plug insulating cap is a good fit and free from cracks. This cap contains the suppressor that eliminates radio and TV interference.



7.1 The points will separate when the 'F' mark aligns

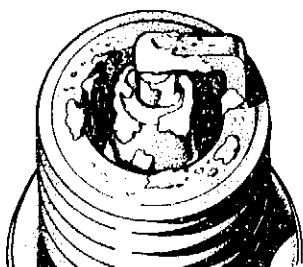


Checking plug gap with feeler gauges

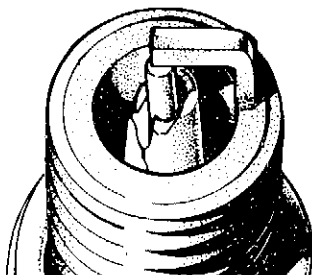


Altering the plug gap. Note use of correct tool

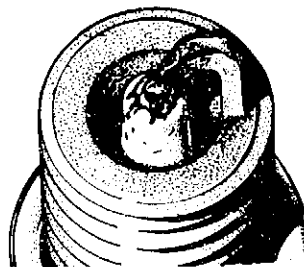
Fig. 3.2a. Spark plug maintenance



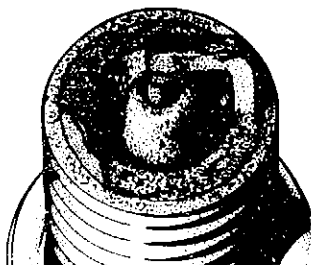
White deposits and damage porcelain insulation indicating overheating



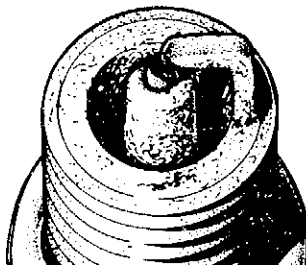
Broken porcelain insulation due to bent central electrode



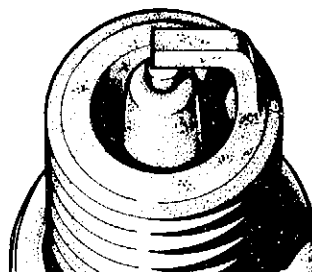
Electrodes burnt away due to wrong heat value or chronic pre-ignition (pinking)



Excessive black deposits caused by over-rich mixture or wrong heat value



Mild white deposits and electrode burnt indicating too weak a fuel mixture



Plug in sound condition with light greyish brown deposits

Fig. 3.2b. Spark plug electrode conditions

9 Fault diagnosis: ignition system

Symptom	Cause	Remedy
Engine will not start	No spark at plug	Try replacement plug if gap correct. Check whether contact breaker points are opening and closing, also whether they are clean. Check whether points arc when separated. If so, renew condenser. Check ignition switch and ignition coil.
Engine starts but runs erratically	Intermittent or weak spark	Try replacement plug. Check whether points are arcing. If so, renew condenser. Check accuracy of ignition timing. Low output from flywheel magneto generator or imminent breakdown of ignition coil.

Chapter 4 Frame and forks

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Specifications

Frame									
Type	Open, step-thru' style
Construction:									
PF50 models	Tubular
PC50 model	Pressed steel
Caster angle	65°
Maximum steering lock	65° each side of centre
Rear suspension									
PF50	None
PF50R and DXR	Tubular swinging arm
PC50	Pressed steel swinging arm
Front suspension									
PF50 models	Telescopic forks
PC50 model	Leading link forks

1 General description

When the Honda moped was first introduced as the PF50 it had a tubular open or step-thru' type frame, telescopic forks and no rear suspension. The telescopic forks are not hydraulically damped but contain a small amount of oil to prevent corrosion. The PF50R was a great improvement as it had swinging arm rear suspension although not hydraulically damped.

The moped was given a new image by moving the petrol tank to make the PF50DXR but the frame and forks remained unchanged. The PC50K1 has always had a pressed steel open or step-thru' type frame with swinging arm rear suspension and leading link front forks. The suspension is again undamped.

- removed from the frame as a unit unless the steering head bearings give trouble or the forks are damaged in an accident.
- Commence operations by removing the front wheel, following the instructions given in Chapter 5.3. Remove the steering head lock nut and washer, the two bolts and washers on the top of the fork legs, and carefully move the handlebars, with the top yoke and headlight attached, to allow access to the steering head. Make a note of each cable and wiring route so that when the machine is reassembled the controls operate smoothly and the wiring is not trapped or it will chafe.
- Remove the steering head adjusting cone, lift out the caged ballrace and slide the forks clear. Remove the second caged ballrace and bearing cone from the steering stem.
- If further dismantling is necessary, the front mudguard can be removed, when the forks have been withdrawn, by undoing the four retaining bolts.

2 Front forks: removal from frame: PF50 models

- It is extremely unlikely that the front forks will need to be

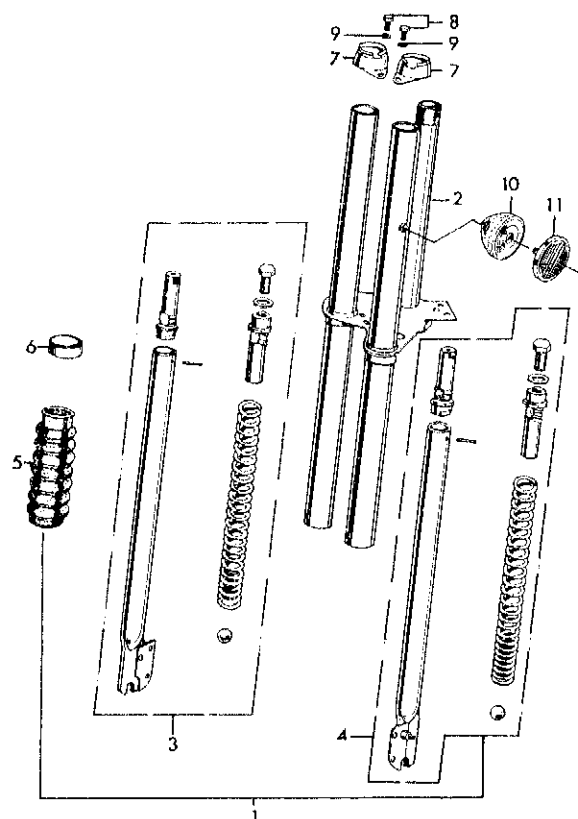


Fig. 4.1. Front fork assembly - PF50 models

- 1 Complete front fork assembly
- 2 Steering head assembly
- 3 Right-hand fork leg complete
- 4 Left-hand fork leg assembly
- 5 Fork leg gaiter - 2 off
- 6 Chrome band - 2 off
- 7 Spring register - 2 off
- 8 Bolt - 2 off
- 9 Washer - 2 off
- 10 Reflector mounting - 2 off
- 11 Reflector unit - 2 off

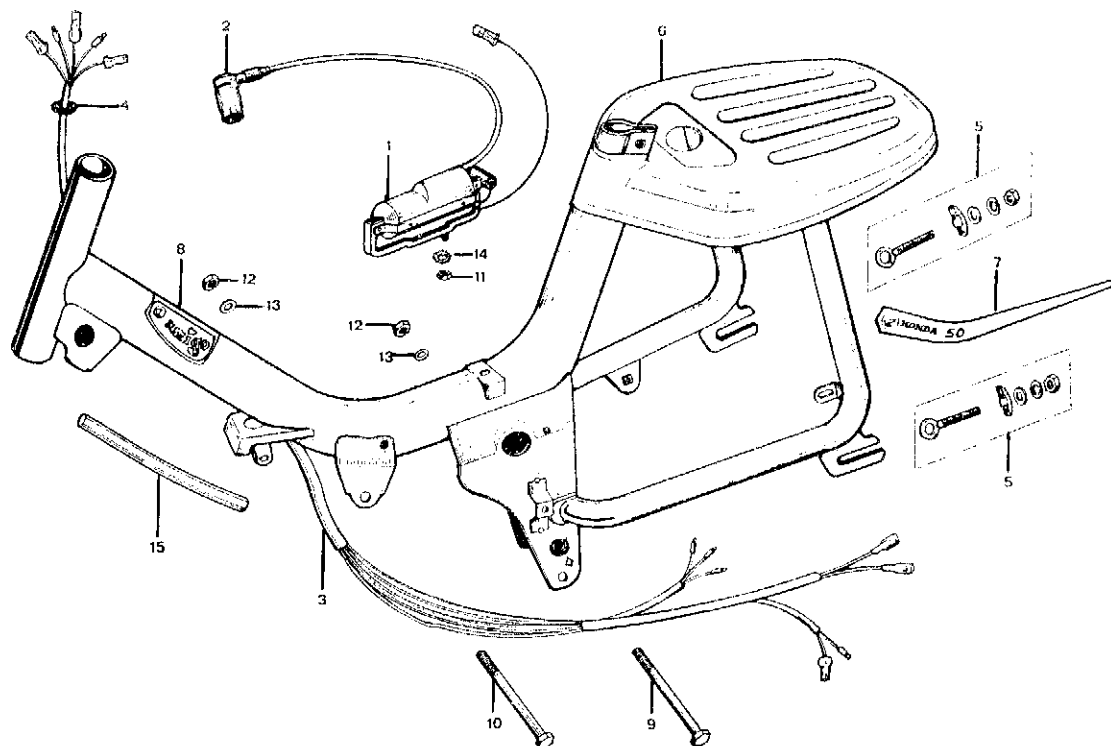


Fig. 4.2. Frame assembly - PF50 standard model

- | | | | |
|-------------------|--------------------------|----------------|-------------------|
| 1 Ignition coil | 5 Chain adjuster (2 off) | 9 Bolt | 13 Washer (2 off) |
| 2 Plug cap | 6 Frame | 10 Bolt | 14 Lockwasher |
| 3 Wiring harness | 7 Nameplate | 11 Nut | 15 Cable sleeve |
| 4 Grommet (2 off) | 8 Nameplate | 12 Nut (2 off) | |

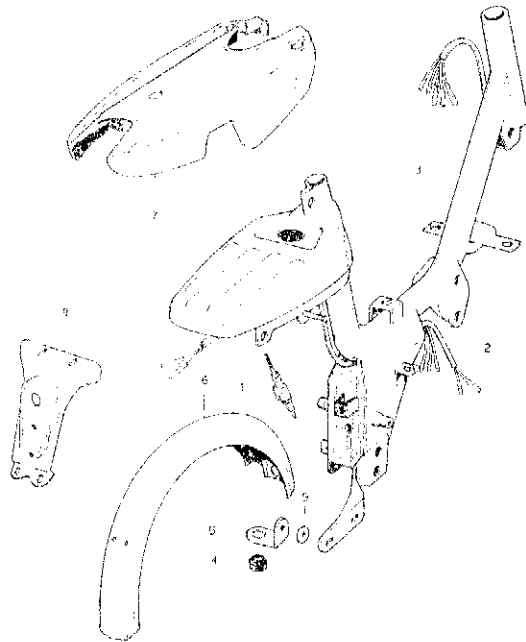


Fig. 4.3. Frame assembly - PF50 R models

- 1 Petrol tap
- 2 Wiring harness
- 3 Frame
- 4 Rubber stop
- 5 Centrestand stop bracket
- 6 Rear mudguard
- 7 Engine cover
- 8 Rear light bracket
- 9 Washer

3 Front forks: removal from frame: PC50K1 model

- 1 It is extremely unlikely that the front forks will need to be removed from the frame as a unit unless the steering head bearings give trouble or the forks are damaged in an accident.
- 2 Commence operations by removing the front wheel, following the instructions given in Chapter 5.3. Next remove the handlebars complete with controls and rest them close to the machine. They are retained in bicycle fashion by a drawbolt expander that provides an interference fit within the steering head column. Unscrew the bolt in the centre of the handlebars, two turns only, give a sharp tap on the bolt head to release the internal tapered nut and pull the handlebars out of the steering head, complete with the drawbolt assembly and headlight.
- 3 Remove the steering head locking nut to reveal the slotted adjusting cone. Provision should be made for catching the uncaged ball bearings, 21 in the top race and 26 in the bottom race, a total of 47.
- 4 Unscrew the adjusting cone whilst supporting the forks in position. The top set of ball bearings can then be removed with a magnet or a greased screwdriver.
- 5 As the forks are lowered the balls in the lower race will be displaced and once these have been collected, the fork assembly can be pulled clear of the frame.
- 6 The front mudguard can be removed by undoing the two bolts and two retaining nuts and pulling the mudguard clear.

4 Front forks: dismantling: PF50 models

- 1 If only the fork legs are to be removed without disturbing the head races, remove the front wheel as described in Chapter 5.3, then remove the front mudguard by undoing the four retaining bolts.
- 2 Prise the chrome band and the rubber boot off the upper fork leg. Remove the bolt and washer from the top of the fork leg and pull the bottom leg assembly clear. The bottom leg

assembly consists of the leg, the spring and the two spring registers, none of which are available as spare parts, so although the spring unscrews from the registers and removal of the spring pin separates the register and the leg, a complete leg assembly has to be bought if any defects are found.

- 3 The chrome band and rubber boot are available as spares, so should be removed for checking.
- 4 Repeat the procedure for the other fork leg.
- 5 The upper fork tubes are welded to the bottom yoke and the complete assembly must be renewed if it is damaged.

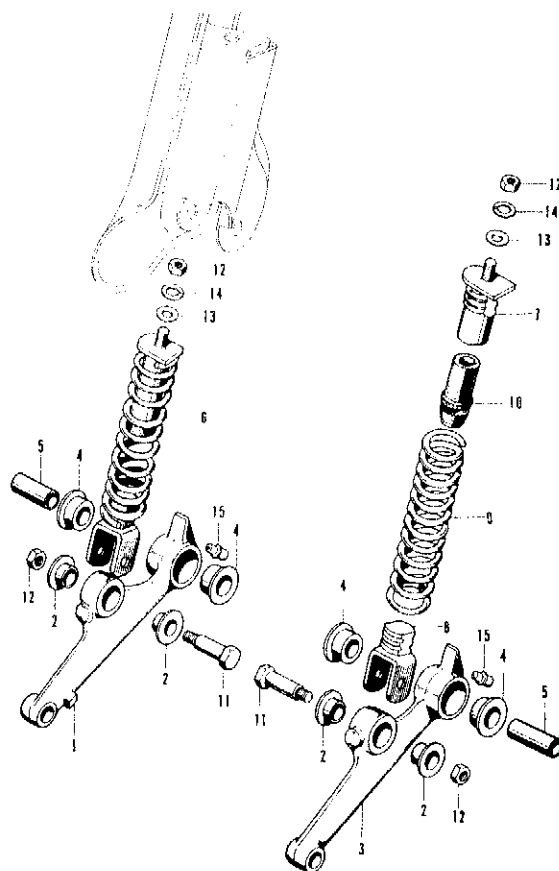
5 Front forks: dismantling: PC50K1 model

- 1 If only the fork links are to be removed without disturbing the head races, remove the front wheel as described in Chapter 5.3.
- 2 Remove the two nuts and washers to release the bottom of the mudguard and move the mudguard out of the way. Pull out the pivot bolts, remove the nut on the top spring register and pull the fork link assembly clear.
- 3 Remove the pivot bolt and nut to release the spring assembly from the link assembly. The spring unscrews from the spring registers. The spacers and bushes are a good fit in the links and can be tapped or prised out.
- 4 The fork legs are of pressed steel construction and if damaged, are extremely difficult to repair so should be renewed when necessary.

6 Front forks: general examination: PF50 models

- 1 The telescopic type front forks fitted to the PF50 models have very few spare parts available hence if any wear is found it will necessitate the buying of large assemblies and in extreme cases, a complete set of forks.
- 2 Visual examination will show whether the top yoke is

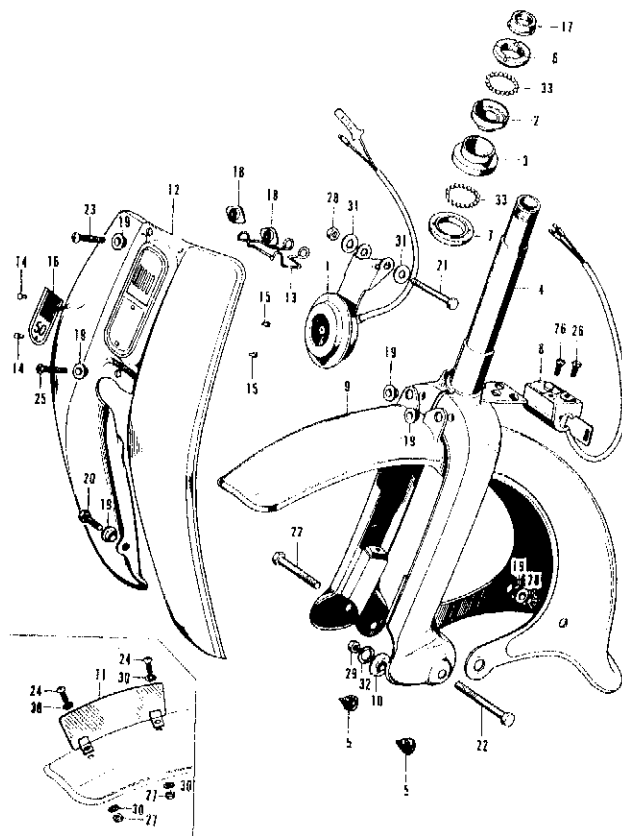
Fig. 4.4. Front suspension - PC50K1 model



- 1 Right hand suspension arm
- 2 Bush (4 off)
- 3 Left hand suspension arm
- 4 Bush (4 off)
- 5 Pivot pin (2 off)
- 6 Suspension unit (2 off)
- 7 Top spring register (2 off)
- 8 Bottom spring register (2 off)
- 9 Spring (2 off)
- 10 Shock absorbing rubber (2 off)
- 11 Shouldered bolt (2 off)
- 12 Nut (4 off)
- 13 Washer (2 off)
- 14 Spring washer (2 off)
- 15 Grease nipple (2 off)

Fig. 4.5. Front forks and legshields - PC50K1 model

- | | |
|--|--|
| 1 Horn assembly | 18 Anchor nut (2 off) |
| 2 Top bearing cup | 19 Special washer (10 off) |
| 3 Bottom bearing cup | 20 Bolt (2 off) |
| 4 Front fork assembly | 21 Bolt |
| 5 Rebound rubber (2 off) | 22 Bolt (2 off) |
| 6 Top bearing cone | 23 Screw |
| 7 Bottom bearing cone | 24 Screw (2 off) |
| 8 Steering lock | 25 Screw (2 off) |
| 9 Front mudguard | 26 Screw (2 off) |
| 10 Thrust washer | 27 Nut (2 off) |
| 11 Front number plate (not required in UK) | 28 Nut (3 off) |
| 12 Legshields | 29 Nut (2 off) |
| 13 Wire clip | 30 Washer (4 off) |
| 14 Rivet (2 off) | 31 Washer (2 off) |
| 15 Rivet (2 off) | 32 Spring washer (2 off) |
| 16 Nameplate | 33 Ballbearing (18 off top, 19 off bottom) |
| 17 Adjusting nut | |



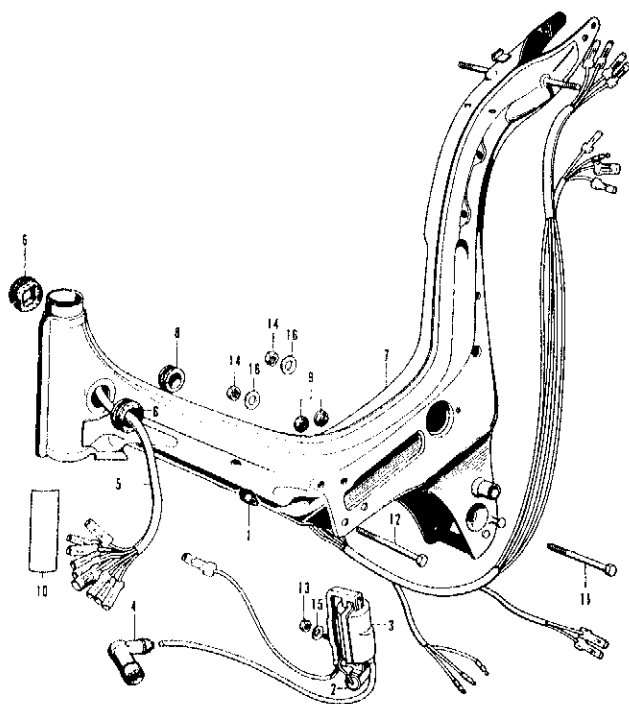


Fig. 4.6. Frame assembly - PC50K1 model

- 1 Blanking plug
- 2 Condenser
- 3 Ignition coil
- 4 Plug cap
- 5 Wiring harness
- 6 Grommet (2 off)
- 7 Frame
- 8 Grommet
- 9 Blanking plug (2 off)
- 10 Nameplate
- 11 Bolt
- 12 Bolt
- 13 Nut
- 14 Nut (2 off)
- 15 Washer
- 16 Washer (2 off)

distorted or if the upper fork leg assembly is bent. It is rarely possible to effect a satisfactory repair and renewal is strongly recommended.

- 3 Check for play between the top and bottom fork leg tubes. If it is excessive, replacement of the worn assembly is essential.
- 4 The springs should be checked to ensure that they are unbroken and if possible compared with a new one to determine if any reduction of free length has occurred warranting renewal as a matched pair.
- 5 Examine the rubber boots for signs of perishing or cuts. Renew where necessary.
- 6 It should be remembered that some indication of the extent of wear of the fork tubes can be gained before the machine is dismantled. If the front wheel is gripped between the knees and the handlebars rocked to and fro, the amount of wear will be magnified by the leverage at the handlebar ends. Cross-check by applying the front brake and pulling and pushing the machine backwards and forwards. Do not confuse the movement with that which will result from slack steering head bearings.

7 Front forks: general examination: PC50K1 model

- 1 The leading link type front forks fitted to the PC50K1 model have all parts available as spares.
- 2 Visual examination will show whether the pressed steel fork legs are damaged or bent, necessitating renewal.
- 3 Check that the bushes are a good fit and secure in the link arms. Check for play between the bushes and the pivot bolt or spacer, renewing the worn parts if play is excessive.
- 4 The springs should be checked to ensure that they are unbroken and if possible compared with a new one to determine if any reduction in free length has occurred, warranting renewal as a matched pair.
- 5 It should be remembered that some indication of the extent of wear of the fork bushes can be gained before the machine is dismantled. If the front wheel is gripped between the knees and the handlebars rocked to and fro, the amount of wear will be

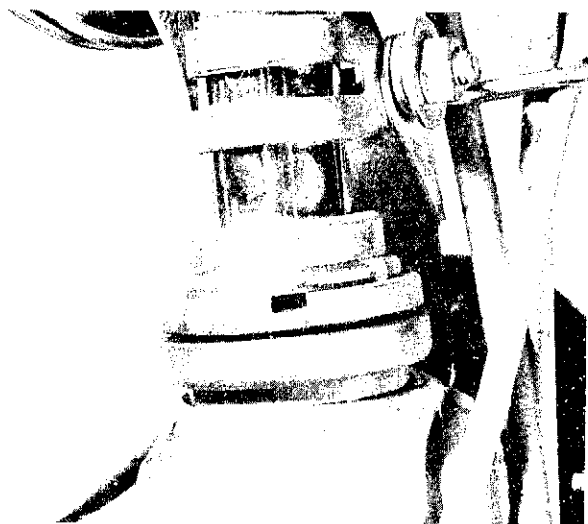
magnified by the leverage of the handlebar ends. Do not confuse the movement from that which will result from slack steering head bearings.

8 Steering head bearings: examination and renewal

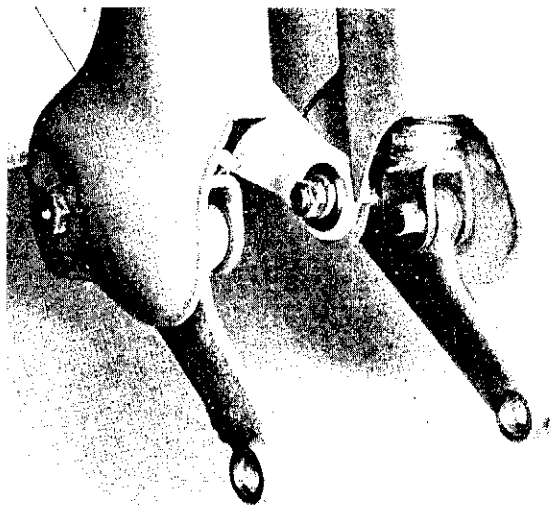
- 1 Before commencing to reassemble the forks, inspect the steering head races. The ball bearing tracks should be polished and free from indentations and cracks. If signs of wear or damage are evident, the cups and cones must be replaced. They are a tight press fit and need to be drifted out of position.
- 2 Ball bearings are cheap, and should be replaced without question if the originals are marked or discoloured. To hold the ball bearings in place whilst the forks are re-attached, pack the bearings with grease.

9 Front forks: reassembly

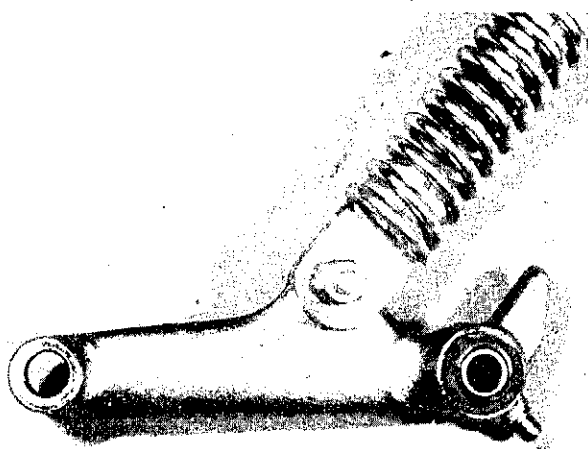
- 1 To reassemble the front forks, follow the dismantling procedure in reverse, ensuring that a small amount of oil is put into each telescopic leg to prevent corrosion and that the leading link bushes are thoroughly greased.
- 2 Tighten the steering head carefully, so that all play is eliminated without placing undue stress on the bearings. The adjustment is correct if all play is eliminated and the handlebars will swing to full lock of their own accord when given a push on one end.
- 3 It is possible to place several tons pressure on the steering head bearings if they are overtightened. The usual symptom of overtight bearings is a tendency for the machine to roll at low speeds, even though the handlebars may appear to turn quite freely.
- 4 If, after assembly, it is found that the forks are incorrectly aligned or unduly stiff in action, loosen the front wheel spindle nuts. The forks should then be pumped up and down several times to re-align them. Retighten the front wheel spindle nuts.



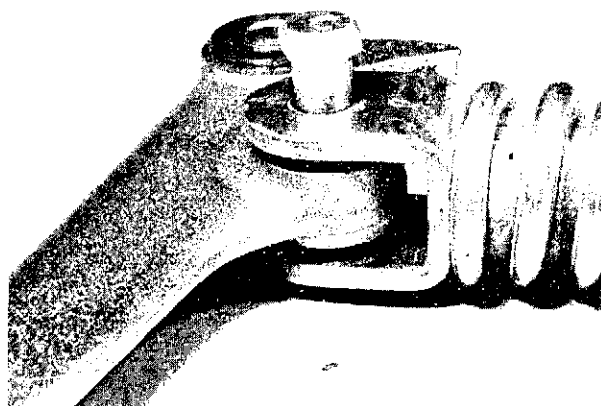
3.3 The steering head lock nut and adjusting cone



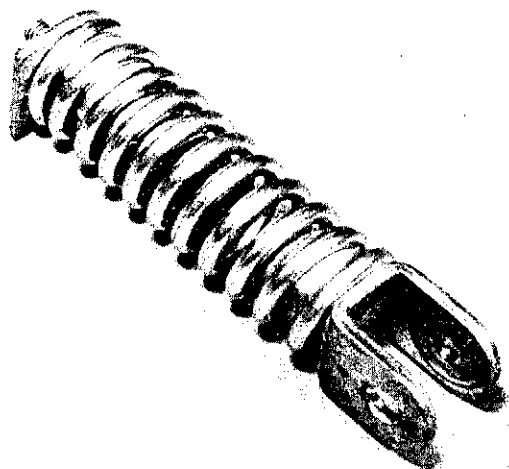
5.2a Remove the mudguard retaining nuts ...



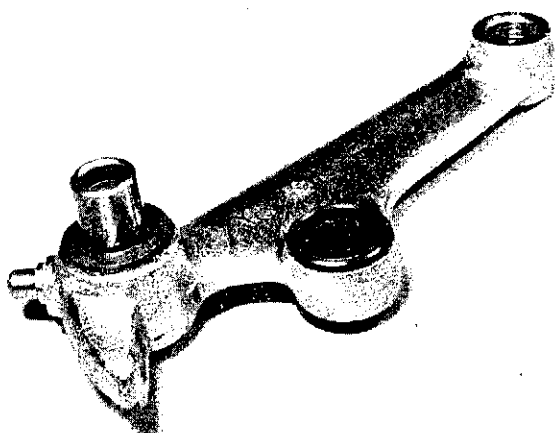
5.2b ... and pull the fork link assembly clear



5.3a Remove pivot bolts to separate the spring assembly

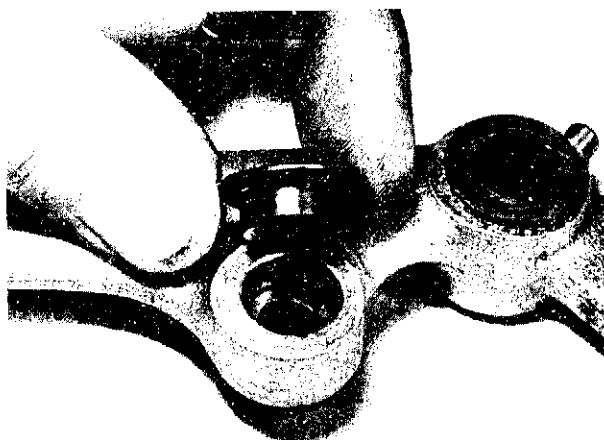


5.3b The spring unscrews from the registers



5.3c Remove the spacers ...

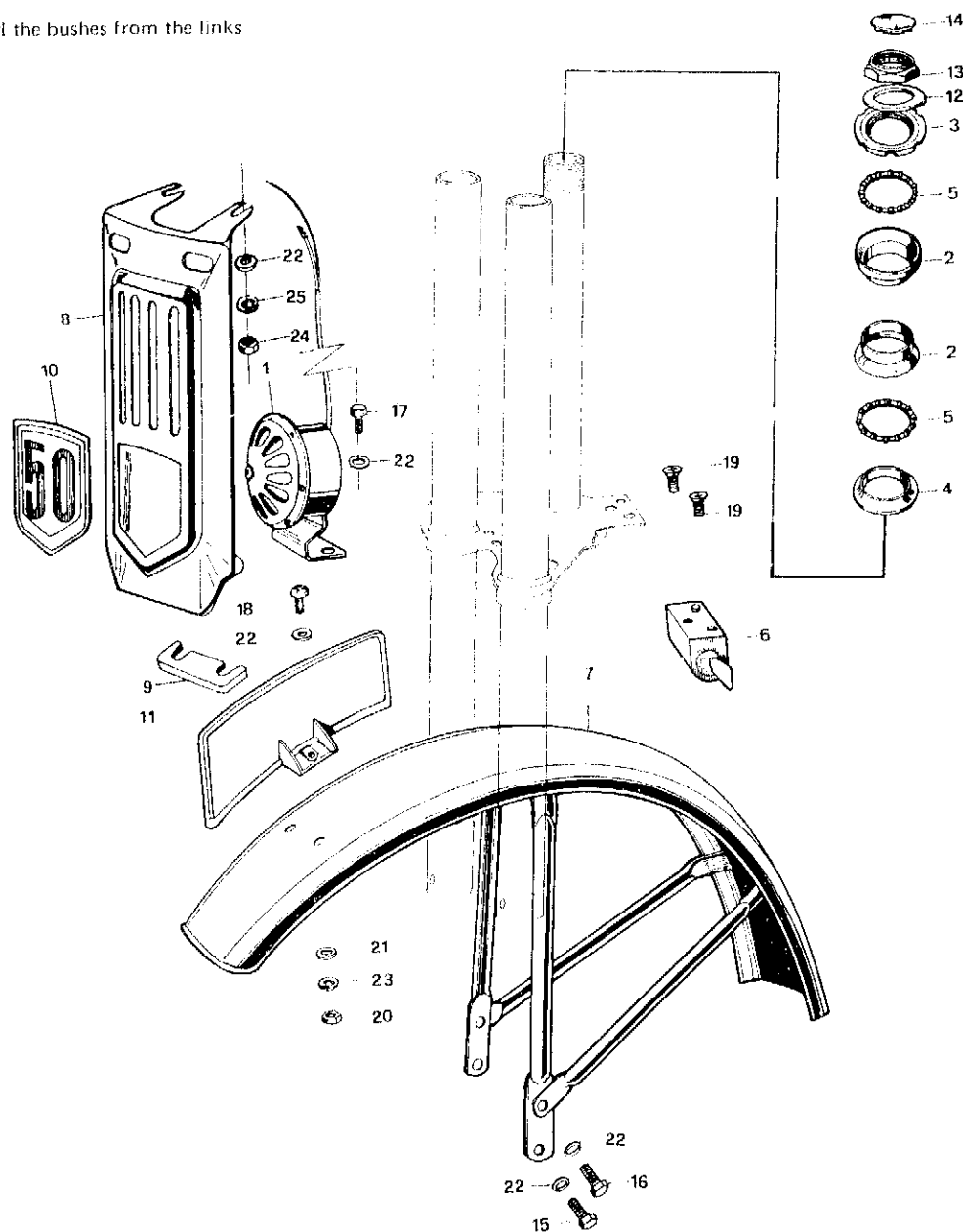
Fig. 4.7. Steering head and front mudguard - PF50 models



- | | | | |
|----|-------------------------|----|-----------------------|
| 1 | Horn | 14 | Blanking cap |
| 2 | Bearing cup (2 off) | 15 | Bolt (2 off) |
| 3 | Top bearing cone | 16 | Bolt (2 off) |
| 4 | Bottom bearing cone | 17 | Bolt (2 off) |
| 5 | Caged ball race (2 off) | 18 | Screw (2 off) |
| 6 | Steering lock | 19 | Screw (2 off) |
| 7 | Front mudguard | 20 | Nut (2 off) |
| 8 | Front cover | 21 | Washer (4 off) |
| 9 | Packing piece | 22 | Washer (6 off) |
| 10 | Emblem | 23 | Washer (2 off) |
| 11 | Front number plate* | 24 | Nut (2 off) |
| 12 | Washer | 25 | Spring washer (2 off) |
| 13 | Steering head nut | | |

* not required in UK

5.3d ... and the bushes from the links



10 Frame assembly: examination and renovation

- 1 The frame is unlikely to need any special attention unless the machine has been involved in an accident or has covered a very large mileage. Small welding and straightening jobs are possible, but care must be taken to limit the amount of heat used and the area to be heated because the load carrying properties diminish when the metal is heated excessively.
- 2 Frame alignment should be checked when the machine is complete. The accompanying diagram shows how a board placed each side of the rear wheel can be used as a guide to alignment. It is, of course, necessary to ensure that both wheels are centrally disposed within their respective forks before carrying out this check.
- 3 Serious damage is not repairable because the purchase of a new frame is invariably cheaper than the cost of attempting to straighten a damaged frame, especially when the necessary jigs for correct alignment are not available.

11 Swinging arm rear suspension: removal from frame

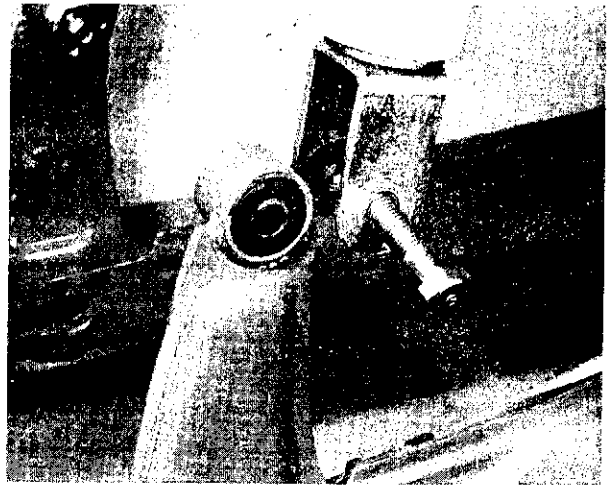
- 1 After an extended period of service the Silentbloc type swinging arm bushes will wear and need renewing.
- 2 Remove the rear wheel as described in Chapter 5.11.
- 3 Release the chainguard by removing the swinging arm pivot bolt nut and the rear fixing bolt.
- 4 Remove the nuts or bolts from the bottom of the rear suspension units to release the rear of the swinging arm.
- 5 Withdraw the swinging arm pivot bolt and pull the swinging arm clear.

12 Swinging arm rear suspension: renovation and reassembly

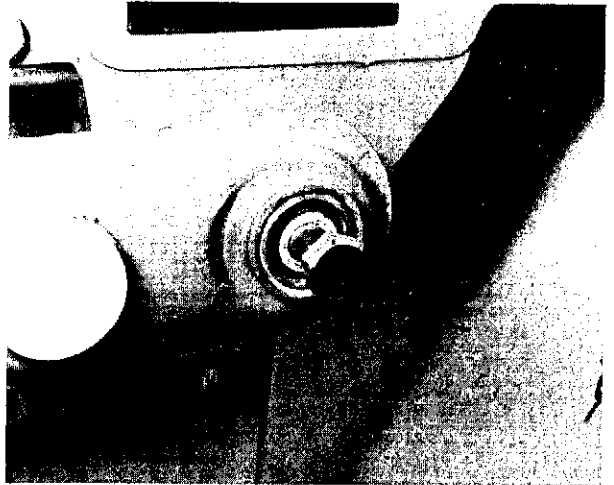
- 1 The Silentbloc type swinging arm bushes can be tapped out of the swinging arm and the new ones tapped in but care should be taken to tap only the outer metal of the bushes or damage to the rubber and its bonding will result.
- 2 To reassemble the swinging arm, reverse the removal procedure ensuring that the chain and rear brake are properly adjusted.

13 Rear suspension units: removal, renovation and reassembly

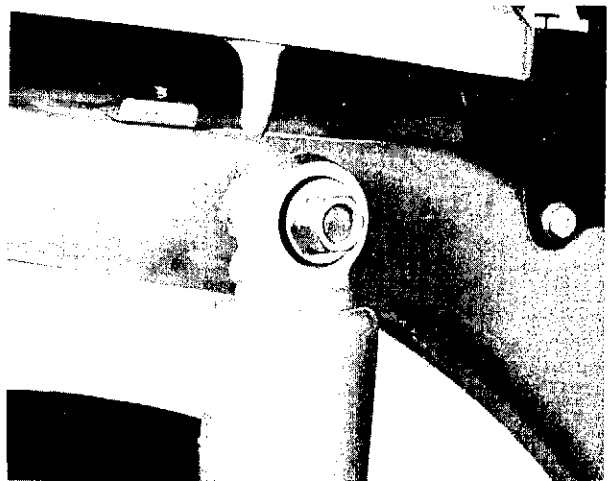
- 1 To remove the rear suspension units if for any reason they are suspect, commence operations by putting the machine on the centre stand.
- 2 Remove the nut or bolt from the bottom of the suspension unit and the nut and washer from the top. The unit will then slide off the machine.
- 3 The rubber bushes in the ends of the suspension units can be tapped out and new ones pushed in.
- 4 The PF50R and DXR models have sealed rear suspension units which, if found defective, cannot be repaired but must be replaced as a pair.
- 5 The PC50K1 model has partially strippable rear suspension units but as the spring needs to be compressed to gain access to the locknut, a job which requires special tools, it is best left to a Honda dealer. There is also a risk of personal damage if the spring is released inadvertently during the stripping or reassembling operations. The recommended course of action is to renew the rear suspension units as a pair if either unit is suspect or defective.
- 6 To refit the units follow the dismantling procedure in reverse, ensuring that a matched pair is used if renewal has been necessary.



11.4 Remove bolt from bottom of suspension units



11.5 Withdraw pivot bolt to release the swinging arm



13.2 Remove nut and washer to release suspension unit

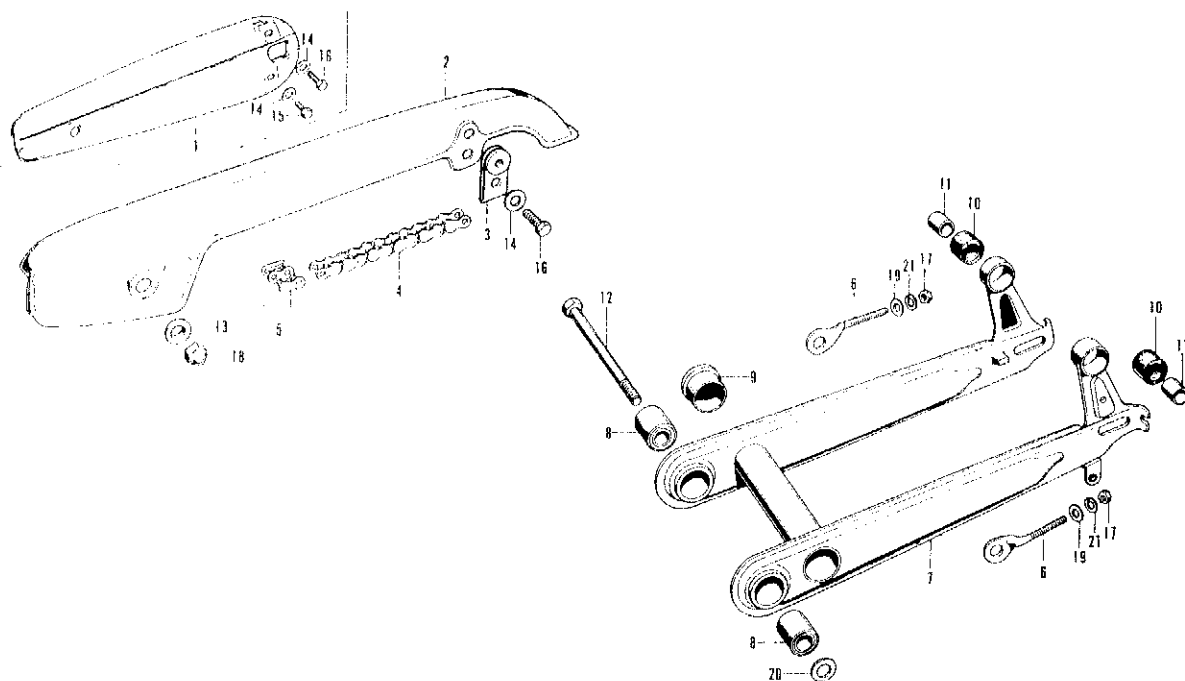


Fig. 4.8. Chainguard and swinging arm - PC50K1 model

- | | | | |
|---------------------|---------------------------|-------------------------|--------------------------|
| 1 Chainguard | 7 Swinging arm | 12 Swinging arm spindle | 16 Bolt |
| 2 Tapped chainguard | 8 Silentbloc bush (2 off) | 13 Washer | 17 Nut |
| 3 Tapped bracket | 9 Metal bush | 14 Washer | 18 Acorn nut |
| 4 Final drive chain | 10 Rubber bush (2 off) | 15 Bolt | 19 Washer (2 off) |
| 5 Spring link | 11 Spacer tube (2 off) | | 20 Washer |
| 6 Adjuster (2 off) | | | 21 Spring washer (2 off) |

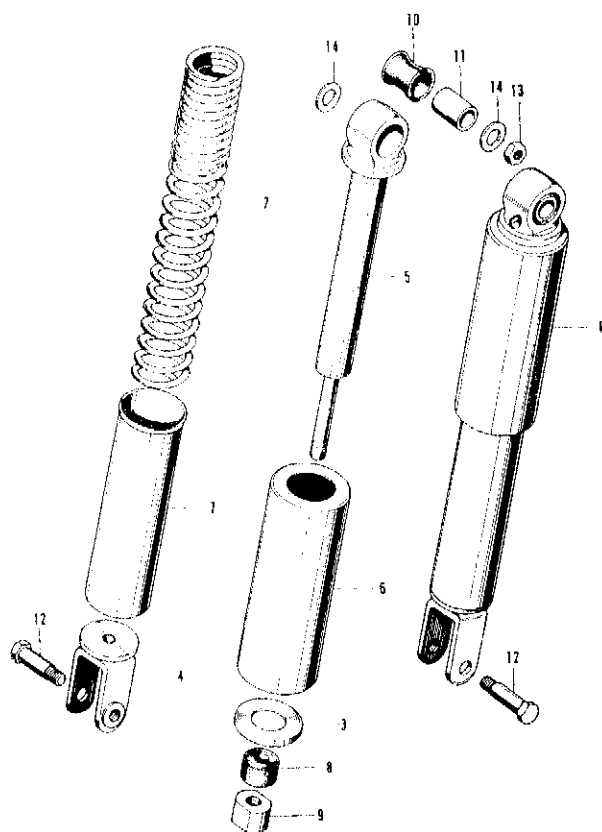


Fig. 4.9. Rear suspension units - PC50K1 model

- | | |
|--------------------------------|-----------------------------|
| 1 Rear suspension unit (2 off) | 8 Limit stop rubber (2 off) |
| 2 Spring (2 off) | 9 Locking nut (2 off) |
| 3 Spring register (2 off) | 10 Rubber bush (2 off) |
| 4 Bottom fork (2 off) | 11 Spacer tube (2 off) |
| 5 Damper | 12 Shouldered bolt (2 off) |
| 6 Top cover (2 off) | 13 Nut (2 off) |
| 7 Bottom cover (2 off) | 14 Washer (4 off) |

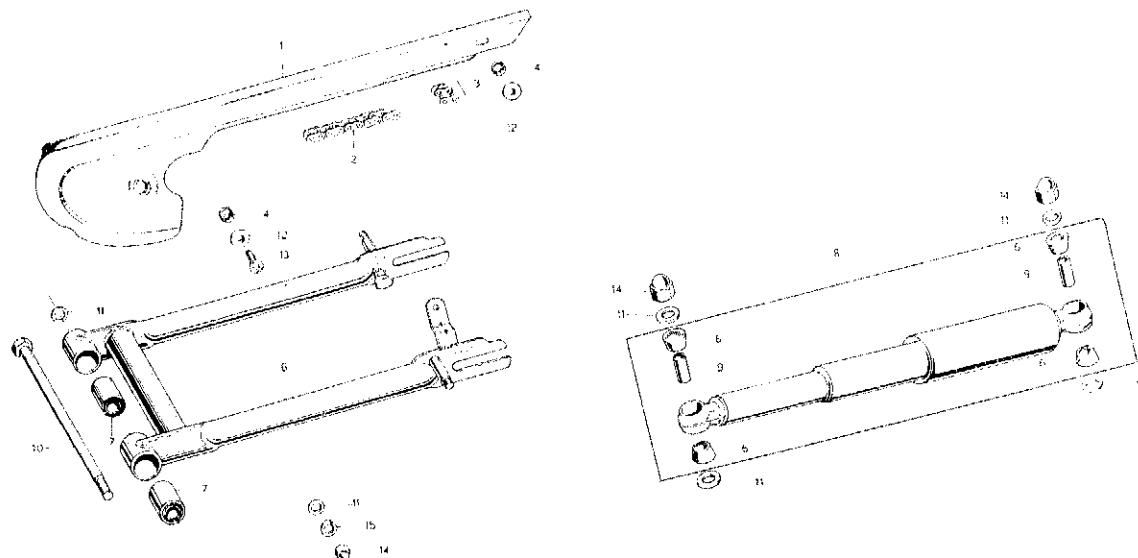


Fig. 4.10. Swinging arm rear suspension - PF50 R models

- | | | | |
|---------------------------|--------------------------------|-----------------------|----------------------|
| 1 Chainguard | 5 Swinging arm | 9 Spacer (4 off) | 13 Screw (2 off) |
| 2 Chain | 6 Rubber bushes (8 off) | 10 Pivot bolt | 14 Acorn nut (5 off) |
| 3 Spring link | 7 Silentbloc bush (2 off) | 11 Washer (10 off) | 15 Spring washer |
| 4 Rubber mounting (2 off) | 8 Rear suspension unit (2 off) | 12 Cup washer (2 off) | |

14 Centre stand: examination

1 The centre stand is attached to the lower extremities of the frame unit, to provide a convenient means of parking the machine on level ground. It pivots on a spindle which is retained in position by a split pin. A return spring retracts the stand when the machine is pushed forward, so that it can be wheeled prior to riding.

2 The condition of the return spring and the return action should be checked regularly. If the stand falls whilst the machine is in motion it could catch in some obstacle in the road and unseat the rider.

15 Speedometer: removal and replacement

1 A speedometer of the magnetic type is fitted to the Honda mopeds. It contains also the odometer for recording the total mileage covered by the machine.

2 To remove the speedometer, remove the front of the headlamp. Unscrew the cable and pull the speedometer out of the top of the headlamp. When replacing the speedometer, ensure that the sealing ring is in good condition.

3 Although a speedometer on a machine of less than 100cc capacity is not a statutory requirement in the UK, if one is fitted it must be in good working order. Reference to the mileage reading shown on the odometer is a good way of keeping in pace with the routine maintenance schedules.

4 Apart from defects in the speedometer drive or in the drive cable itself, a speedometer that malfunctions is difficult to repair. Fit a replacement or alternatively entrust the repair to an instrument repair specialist.

16 Speedometer cable: inspection and maintenance

1 It is advisable to detach the speedometer drive cable from

time to time, in order to check whether it is adequately lubricated and whether the outer covering is compressed or damaged at any point along its run. A jerky or sluggish speedometer movement can often be attributed to a cable fault.

2 To grease the cable, withdraw the inner cable. After removing the old grease, clean with a petrol soaked rag and examine the cable for broken strands or other damage.

3 Re-grease the cable with high melting point grease, taking care not to grease the last six inches at the point where the cable enters the speedometer head. If this precaution is not observed, grease will work into the speedometer head and immobilise the movement.

4 If the speedometer and the odometer stop working, it is probable that the speedometer cable has broken. Inspection will show whether the inner cable has broken; if so, the inner cable alone can be renewed and reinserted in the outer covering after greasing. Never fit a new inner cable alone if the outer covering is damaged or compressed at any point along its run.

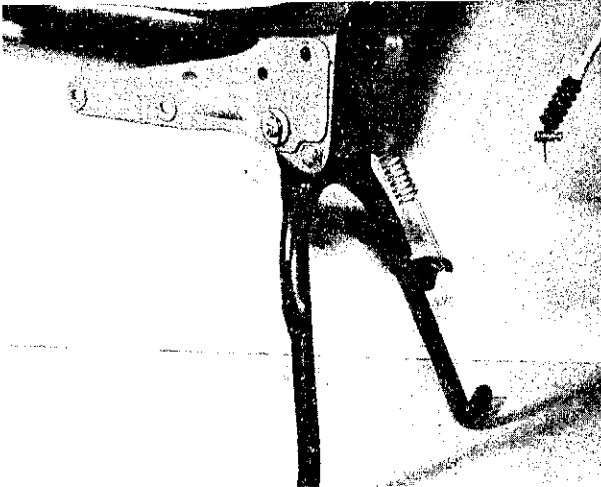
17 Steering lock

The steering lock is only fitted to the PC50 model and is mounted behind the front forks. It locks the steering in the full right lock position. Two screws hold the lock in position.

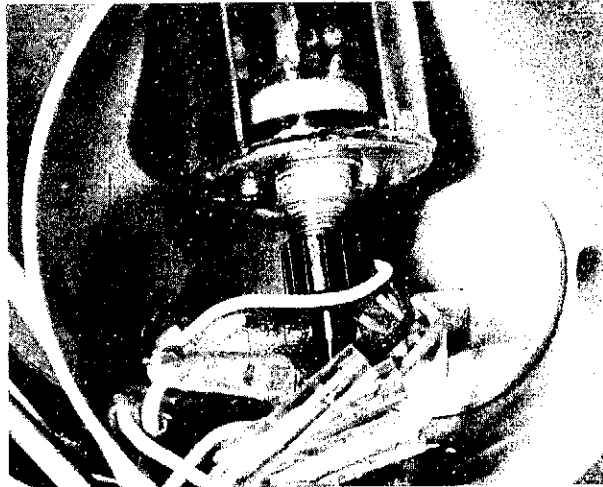
18 Seat: removal

1 The PF50 models have a pillar mounted seat. When the pinch bolt is undone, the seat will slide out of the frame.

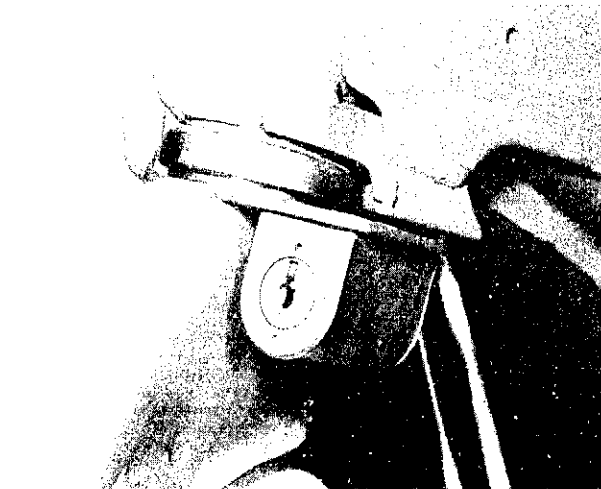
2 The PC50K1 model has a pivoting seat that sticks to two rubber suckers. Two nuts hold the seat to the pivoting bracket but if the bracket needs removing, the plastic cover and the petrol tank must be removed first. Chapter 2.2 fully describes the petrol tank removal. The seat bracket is retained with four bolts.



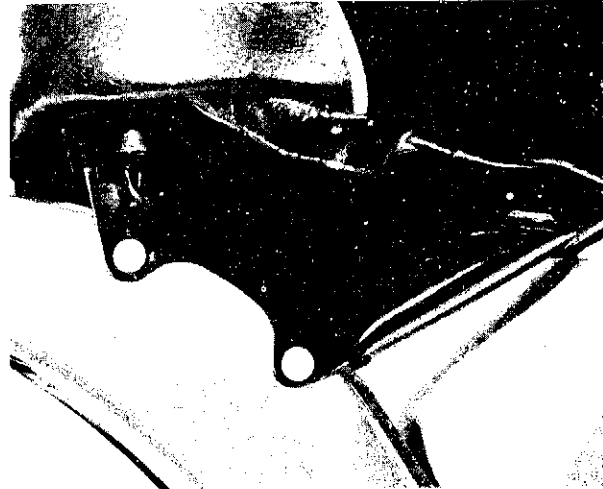
14.1 Stand pivot is retained in position by split pin



15.2 Unscrew the cable and pull the speedometer clear



17.1 Steering lock is mounted behind front forks



18.2 Seat bracket is retained by four bolts

19 Cleaning the machine: general

1 After removing all surface dirt with a rag or sponge washed frequently in clean water, the application of car polish or wax will give a good finish to the machine. The plated parts should require only a wipe over with a damp rag, followed by polishing with a dry rag. If, however, corrosion has taken place, which may occur when the roads are salted during the winter, a proprietary chrome cleaner can be used.

2 The polished alloy parts will lose their sheen and oxidise slowly if they are not polished regularly. The sparing use of metal polish or special polish such as Solvol Autosol will restore the original finish with only a few minutes labour.

3 The machine should be wiped over immediately after it has been used in the wet so that it is not garaged under damp conditions which will cause rusting and corrosion. Make sure the chain is wiped and if necessary re-oil to prevent water from entering the rollers and causing harshness with an accompanying rapid rate of wear. Remember there is little chance of water entering the control cables if they are lubricated regularly, as recommended in the Routine Maintenance Section.

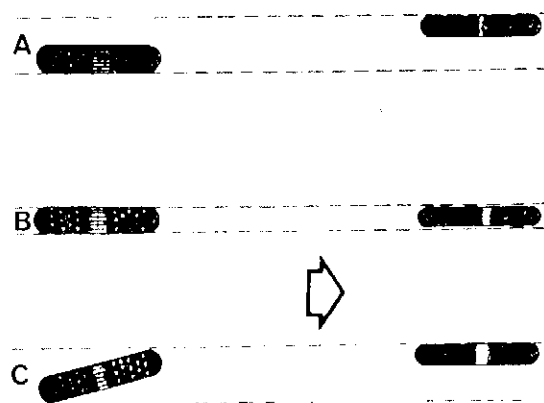


Fig. 4.11. Checking wheel alignment

A and C — Incorrect

B — Correct

20 Fault diagnosis: frame and forks

Symptom	Cause	Remedy
Machine veers to left or right with hands off handlebars	Incorrect wheel alignment Bent forks Twisted frame	Check and re-align. Check and renew. Check and renew.
Machine rolls at low speeds	Overtight steering head bearings	Slacken and re-test.
Machine judders when front brake is applied	Slack steering head bearings	Tighten until all play is taken up.
Machine pitches badly on uneven surfaces	Ineffective forks Ineffective rear suspension units	Check and renew. Check and renew.
Fork action stiff	Fork legs out of alignment	Slacken front wheel spindle nuts. Pump forks several times then tighten spindle nuts.
Machine wanders. Steering imprecise, rear wheel tends to hop	Worn swinging arm pivot	Dismantle and renew bushes and pivot shaft.

Chapter 5 Wheels, brakes and tyres

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Specifications

Wheels and tyres								PF50 models	PC50 models
Front wheel	2.00 x 17 inch	2.00 x 19 inch
Rear wheel	2.00 x 17 inch	2.25 x 19 inch
Tyre pressures									
Front	1.8 kg/sq cm (26 psi)	2.0 kg/sq cm (28 psi)
Rear	1.9 kg/sq cm (27 psi)	2.0 kg/sq cm (28 psi)
Brake	Internally expanding	
Final drive sprocket	26 teeth	29 teeth
Chain length	PF50 86 links PF50R & DXR 88 links	PC50 98 links

1 General description

- On the PF50 models both wheels are of 17 inch diameter, fitted with 2.00 inch section tyres. They are not interchangeable as the rear wheel has a bolt-on final drive sprocket.
- On the PC50 model the wheels are of 19 inch diameter, fitted with two different size tyres.
- Each hub contains an internally expanding brake. The front brake backplate also carries the speedometer drive gears on the PC50 model.
- It is necessary to detach the final drive chain before the rear wheel can be removed from the frame.

2 Front wheel: examination and renovation

- Place the machine on the centre stand so that the front wheel is raised clear of the ground. Spin the wheel and check the rim alignment. Small irregularities can be corrected by tightening the

spokes in the affected area, although a certain amount of experience is necessary if over-correction is to be avoided. Any 'flats' in the wheel rim should be evident at the same time. These are more difficult to remove with any success and in most cases the wheel will need to be rebuilt on a new rim. Apart from the effect on stability, there is greater risk of damage to the tyre bead and walls if the machine is run with a deformed wheel.

- Check for loose or broken spokes. Tapping the spokes is the best guide to tension. A loose spoke will produce a quite different note and should be tightened by turning the nipple in an anticlockwise direction. Always check for run-out by spinning the wheel again.
- If it is necessary to turn a spoke nipple an excessive amount to restore tension, it is advisable to remove the tyre and tube so that the end of the spoke that now protrudes into the wheel rim can be filed flush. If this precaution is not taken, there is danger of the spoke end chafing the inner tube and causing an eventual puncture.

Fig. 5.1. Front wheel assembly - PC50K1 model

- 1 Wheel spindle
- 2 Spacer
- 3 Wheel hub
- 4 Bearing spacer
- 5 Wheel rim
- 6 Tyre
- 7 Tube
- 8 Rim tape
- 9 Speedometer worm
- 10 Speedometer gear
- 11 Drive piece
- 12 Thrust washer (2 off)
- 13 Brake backplate
- 14 Brake shoe (2 off)
- 15 Brake cam
- 16 Brake return spring
- 17 Brake arm
- 18 Washer
- 19 Oil seal
- 20 Oil seal
- 21 Oil seal
- 22 Bolt
- 23 Nut
- 24 Self locking nut
- 25 Journal ball bearing (2 off)
- 26 Spoke (16 off)
- 27 Spoke (16 off)

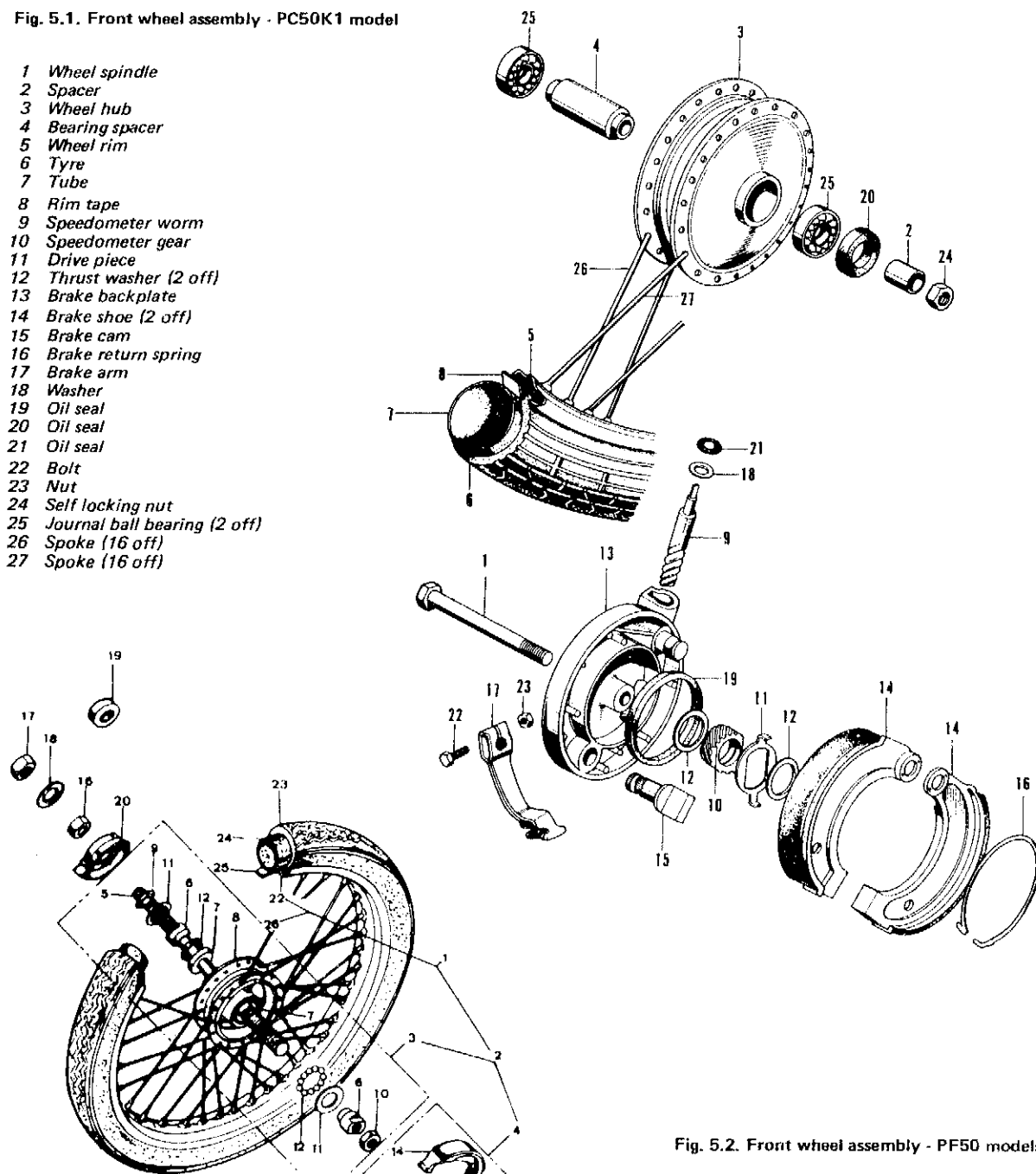


Fig. 5.2. Front wheel assembly - PF50 models

- 1 Wheel complete with brake assembly
- 2 Brake and wheel spindle assembly
- 3 Wheel spindle assembly
- 4 Brake assembly
- 5 Wheel spindle
- 6 Adjustable cone (2 off)
- 7 Spacer
- 8 Hub
- 9 Cone locknut (2 off)
- 10 Locknut (2 off)
- 11 Dust cover (2 off)
- 12 Ball bearings
- 13 Brake backplate

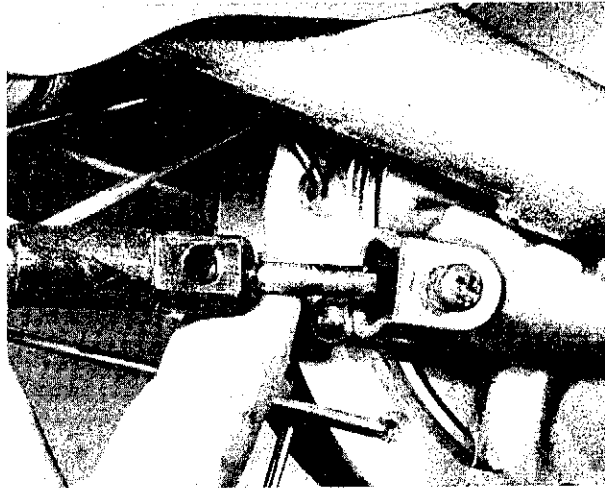
- 14 Brake shoe (2 off)
- 15 Return spring (2 off)
- 16 Nut for retaining speedometer drive reduction gear
- 17 Wheel spindle nut (2 off)
- 18 Washer (2 off)
- 19 Spacer
- 20 Speedometer drive reduction gear
- 22 Wheel camplate less bearings and brake
- 23 Tyre
- 24 Inner tube
- 25 Rim tape
- 26 Spoke (36 off)

3 Front wheel: removal

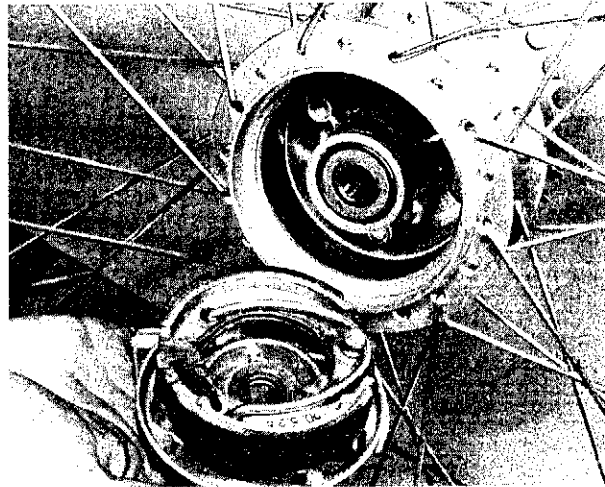
- 1 Commence operations by placing the machine on the centre stand.
- 2 Disconnect the speedometer cable either by unscrewing it on the PF50 models or removing the retaining screw and pulling the cable clear on the PC50 model.
- 3 Slacken the brake cable, unhook it from the brake arm and remove the cable from the brake backplate.
- 4 Slacken the wheel spindle nuts on the PF50 models or remove the wheel spindle and nut on the PC50 model. The wheel will now drop out of the machine. Ensure that the machine is well supported so that it does not topple forward, once the wheel is removed.
- 5 Remove any loose spacers to avoid them being lost.

4 Front brake assembly: examination, renovation and reassembly

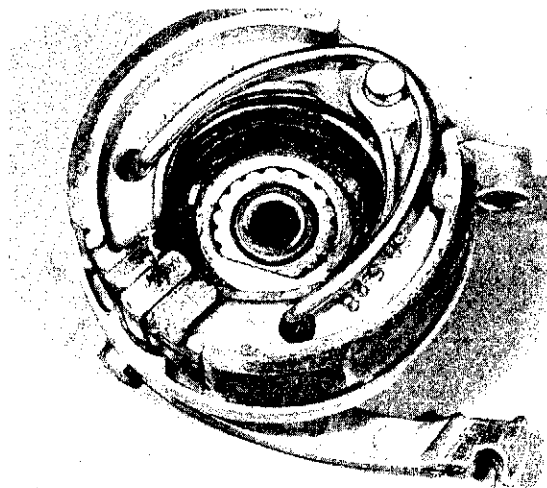
- 1 To remove the brake assembly on the PF50 models, the wheel spindle nut, washer, spacer and the locking nut must be removed from the wheel spindle, to allow the brake assembly to be lifted out. On the PC50 model the brake assembly will lift out.
- 2 Examine the brake linings. If they are wearing thin or unevenly the brake shoes should be replaced. The linings are bonded on and cannot be replaced as a separate item.
- 3 To remove the brake shoes from the brake plate assembly, on the PF50 models, arrange the operating lever so that the brakes are in the 'full on' position and then pull the shoes apart whilst lifting them upward in the form of a 'V'. When they are clear of the brake plate, the return springs can be removed and the shoes separated.
- 4 The PC50 model has a circular spring clip for the brake shoe return spring. Prise the spring clip off the shoe pivot pin and pull it until it is at a right-angle to the backplate. This should relieve the spring tension and allow the shoes to be pulled from the backplate with ease.
- 5 Before replacing the brake shoes, check that the brake operating cam is working smoothly and is not binding in its pivot. The cam can be removed by withdrawing the retaining bolt on the operating arm and pulling the arm off the shaft. Before removing the arm, it is advisable to check the relation to the shaft, so that it can be relocated correctly. The shaft should be greased prior to reassembly and also a light smear of grease placed on the faces of the operating cam.
- 6 Check the inner surface of the brake drum on which the brake shoes bear. The surface should be smooth and free from score marks or indentations, otherwise reduced braking efficiency will be inevitable. Remove all traces of brake lining dust and wipe with a clean rag soaked in petrol to remove any traces of grease or oil.
- 7 If the brake drum has become scored, specialist attention is required. It is possible to skim a brake drum in a lathe provided the score marks are not too deep. Under these circumstances, packing will have to be added to the ends of the brake shoes, to compensate for the amount of metal removed from the surface of the drum.
- 8 To reassemble the brake shoes on the brake plate, on the PF50 models, fit the return springs first and then force the shoes apart, holding them in a 'V' formation. If they are now located with the brake operating cam and pivot they can usually be snapped into position by pressing downward. Never use excessive force, otherwise there is risk of distorting the shoes permanently.
- 9 On the PC50 model, thread the spring clip into the brake shoes, fit the shoes on the backplate with the spring at right angles, then push the spring down to clip onto the pivot pin.



3.2 Disconnect speedometer cable by slackening screw



4.1 The brake assembly will lift out



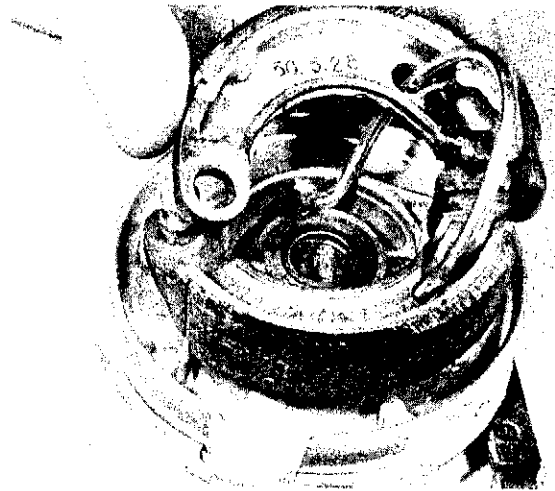
4.4 Brake shoe return clip can be clearly seen

5 Front wheel bearings: examination and replacement: PF50 model

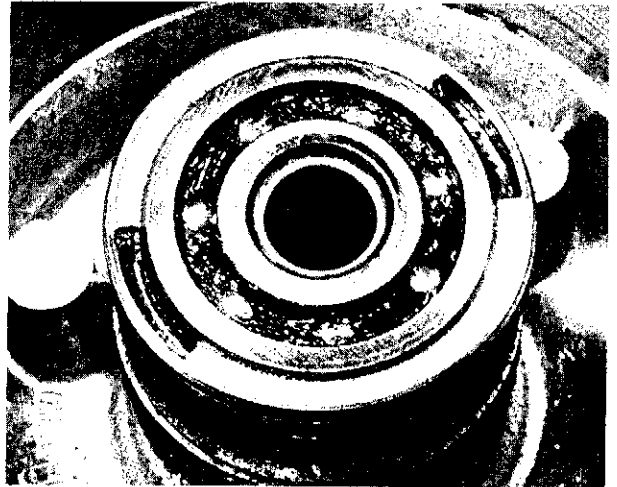
- 1 Access to the wheel bearings is gained when the brake assembly has been removed. There is a seal on both sides to prevent the grease from leaking out, especially into the brake drum.
- 2 The wheel bearings are of the cup and cone type, each wheel containing 22 loose ball bearings. Adjustment is effected from the brake drum side of the wheel by means of a locknut in front of the threaded cone. The locknut can be slackened by unscrewing (right hand thread), whilst the cone is held steady by means of a thin spanner across the two flats on its outer surface. When the locknut has been withdrawn, the cone can be unscrewed from the spindle, exposing the ball bearings and the cup in which they seat. Remove the ball bearings and place them in a safe position for further attention. To expose the other (right hand) cup and cone bearing, invert the wheel and clamp the spindle in a vice fitted with soft clamps. Remove the locknut in front of the speedometer gearbox, which will permit the gearbox to be withdrawn from the spindle. Slacken the grip on the spindle and withdraw the spindle complete with its cone. The right hand cap and its content of ball bearings is now also exposed.
- 3 Remove all the old grease from the bearings and wash the ball bearings in petrol, keeping the right and left hand assemblies apart. Check both sets of cups and cones for wear or discolouration and examine also the loose ball bearings. Ball bearings are cheap and if any show signs of defect, the entire assembly should be renewed without question. The cups and cones should have a polished appearance in the area of the bearing tracks. Replacements should be fitted if any surface defects are evident. The cups are a light drive fit into the hub and can be driven out with a suitable size of drift. When driving the new replacements into position, pressure should be applied only to the outer edge of the cups, to obviate the risk of distortion or damage.
- 4 Pack the cups with high melting point grease and reposition the ball bearings. Note that each race has a gap which gives the impression that one ball bearing is missing. This gap is deliberate, to give the bearings room to roll rather than skid against each other. Fit the spindle with the non-adjustable cone on the right hand side of the wheel, after coating the cone with grease. Invert the wheel and fit the left hand cone and locknut, after greasing the former. Adjust the cone so that the spindle will revolve freely with just the slightest amount of play at the wheel rim. Tighten the locknut and recheck the adjustment. If there is no free play, the bearings will absorb a surprising amount of power and overheat. Too much play will cause imprecise handling when the machine is back on the road.

6 Front wheel bearings: examination and replacement: PC50 model

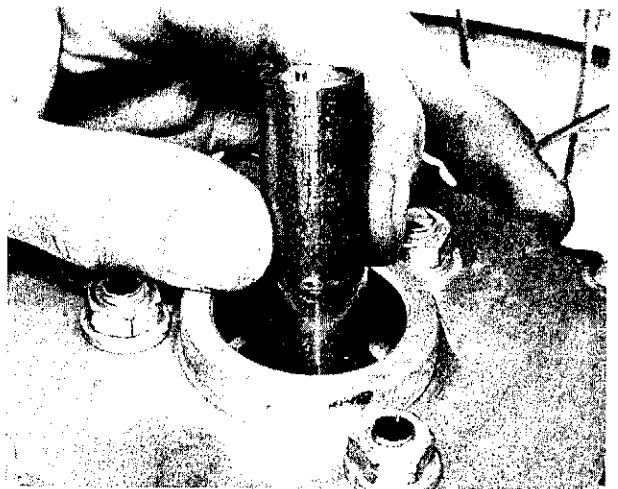
- 1 The front wheel bearings are of the ball journal type and are not adjustable. If the bearings are worn, indicated by side play at the wheel rim, the bearings must be renewed.
- 2 Access to the wheel bearings is gained when the brake assembly has been removed from the front wheel and the wheel spindle slid out.
- 3 To remove the first bearing drive out from the brake hub side using a suitable drift. This will push out the oil seal. The second bearing can then be driven out from the other side of the wheel when the spacer has been removed.
- 4 To reassemble the bearings, drive one side in first, fit the bearing spacer and drive the second bearing in. Refit the oil seal, taking care not to damage them.



4.9 Thread spring clip into brake shoes before clipping into pivot pin



6.4a Drive in the pivot bearing ...



6.4b ... assemble the spacer tube ...

7 Speedometer drive gearbox: examination: PF50 models

- 1 Before replacing the speedometer drive gearbox it should be inspected to make sure it is well greased and that no part of the drive mechanism is faulty.
- 2 The speedometer drive gearbox rarely gives trouble. In the event of damage, it is not possible to effect a satisfactory repair; renewal is the only solution.

8 Speedometer drive gearbox: location and inspection: PC50 model

- 1 The speedometer drive gearbox is attached to the brake plate of the front brake assembly and is driven internally from the hub. The gearbox rarely gives trouble unless it is not lubricated regularly, in which case the drive may become stiff or part of the drive mechanism shear.
- 2 The gearbox is retained in position by the front wheel spindle, which passes through the centre. When the spindle is withdrawn, the gearbox will pull free of the brake plate. The drive ring that engages with the revolving hub will be found inside the boss cast in the centre of the front brake plate, from which it can readily be withdrawn. Inspection will show whether the two projecting tongues that take up the drive are broken or damaged.

9 Front wheel: replacement

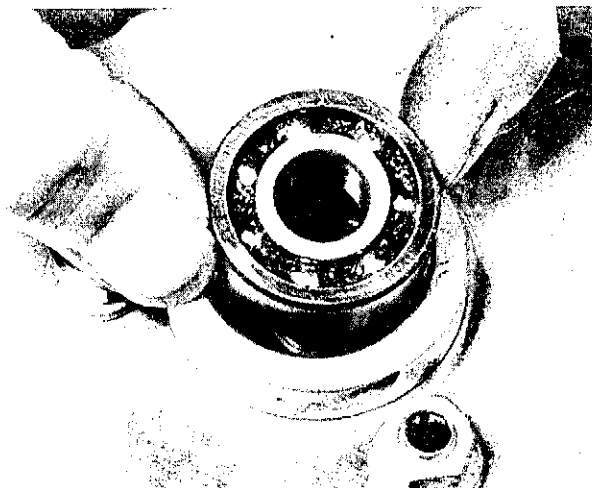
- 1 To replace the front wheel, reverse the removal procedure and ensure that the peg on the forks locates in the slot in the brake plate. The need for this cannot be overstressed. If the brake plate is not anchored in this manner, the brake will lock on immediately it is applied, which may well result in a serious accident.
- 2 Reconnect the front brake and check that the brake functions correctly, especially if the adjustment has been altered or the brake operating arm has been removed and replaced during the dismantling operation.
- 3 Reconnect the speedometer drive.

10 Rear wheel: examination and renovation

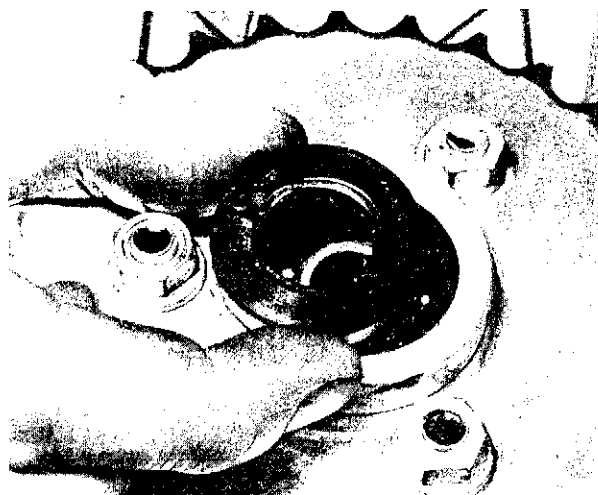
- 1 Place the machine on the centre stand, so that the rear wheel is clear of the ground. Check the wheel for rim alignment, damage to the rim or loose or broken spokes, by following the procedure adopted for the front wheel in Section 2 of this Chapter.

11 Rear wheel: removal

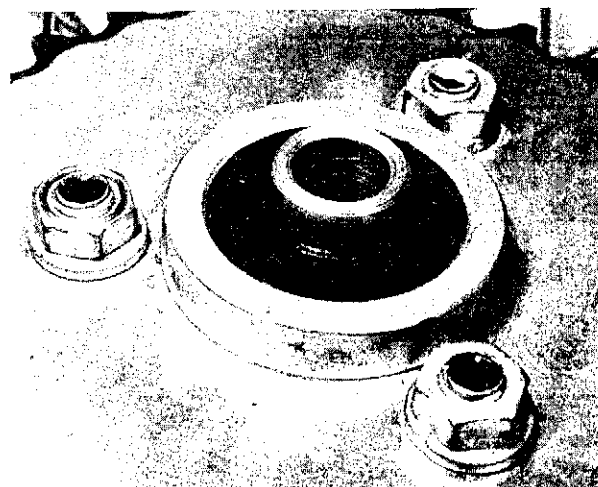
- 1 Commence operations by placing the machine on the centre stand.
- 2 Slacken the brake cable, unhook it from the brake arm and remove the cable from the brake backplate.
- 3 Disconnect the chain at the spring link and pull it clear of the rear sprocket.
- 4 On the PF50 models, slacken the wheel spindle nuts and pull the wheel out of the swinging arm. Tilt the machine to one side and pull the wheel clear.
- 5 On the PC50 models, remove the wheel spindle nut, withdraw the spindle and pull the anchor block cum spacer clear of the machine. Tilt the machine to one side and pull the wheel clear.



6.4c ... drive in the second bearing ...



6.4d ... refit the oil seal ...



6.4e ... and fit the outer spacer

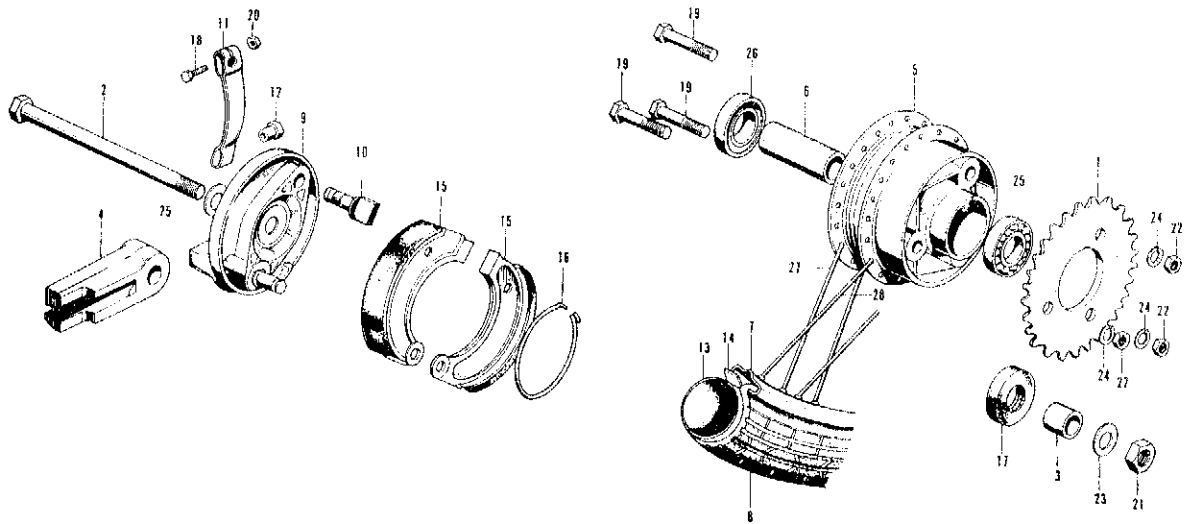


Fig. 5.3. Rear wheel assembly - PC50K1 model

- | | | | |
|----------------------|-------------------|------------------------|--------------------------|
| 1 Sprocket | 8 Brake backplate | 15 Brake shoe (2 off) | 22 Nut |
| 2 Wheel spindle | 9 Brake cam | 16 Brake return spring | 23 Washer (2 off) |
| 3 Spacer | 10 Brake arm | 17 Oil seal | 24 Spring washer (3 off) |
| 4 Brake anchor block | 11 Adjusting nut | 18 Bolt | 25 Journal ball bearing |
| 5 Wheel hub | 12 Tyre | 19 Bolt (3 off) | 26 Journal ball bearing |
| 6 Bearing spacer | 13 Tube | 20 Nut | 27 Spoke (18 off) |
| 7 Wheel rim | 14 Rim tape | 21 Nut (3 off) | 28 Spoke (18 off) |

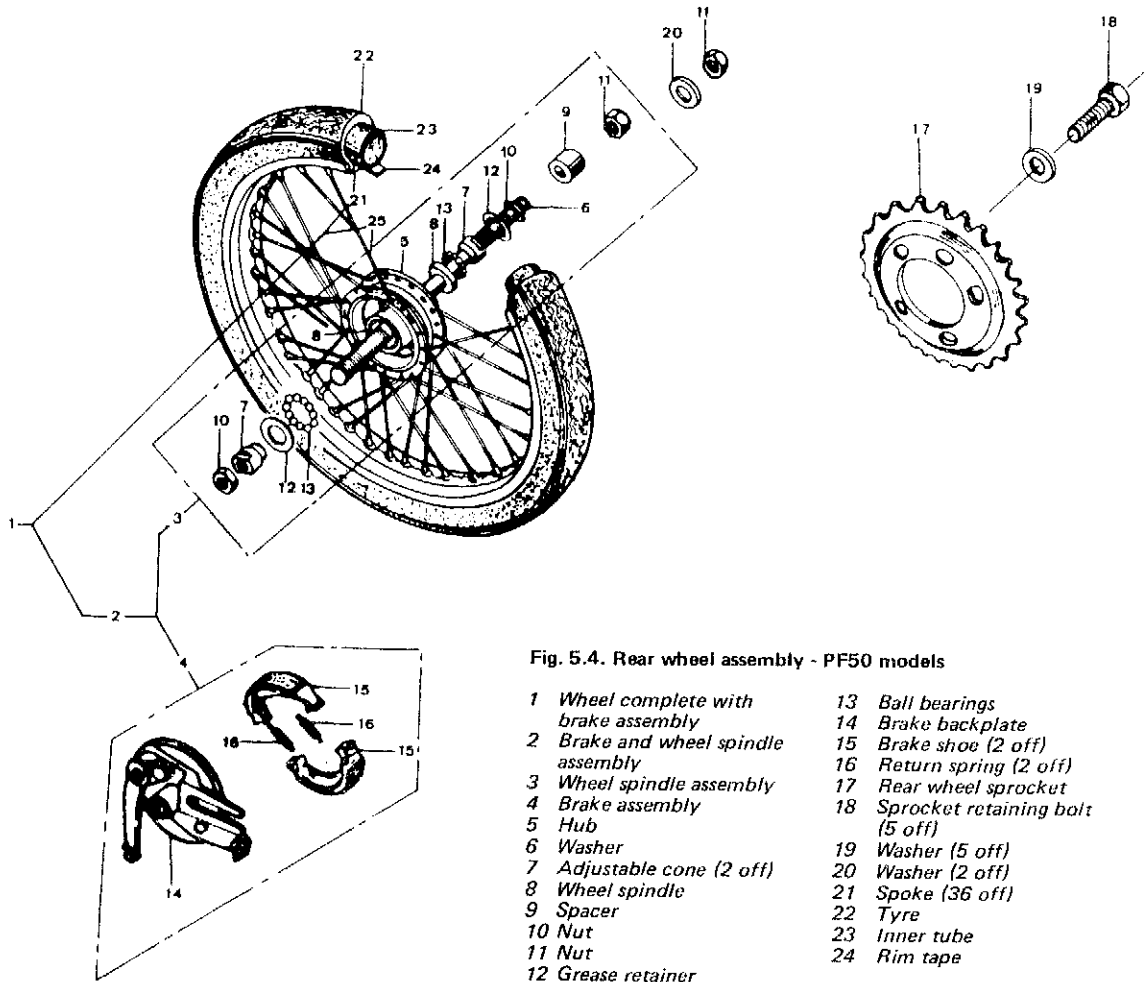
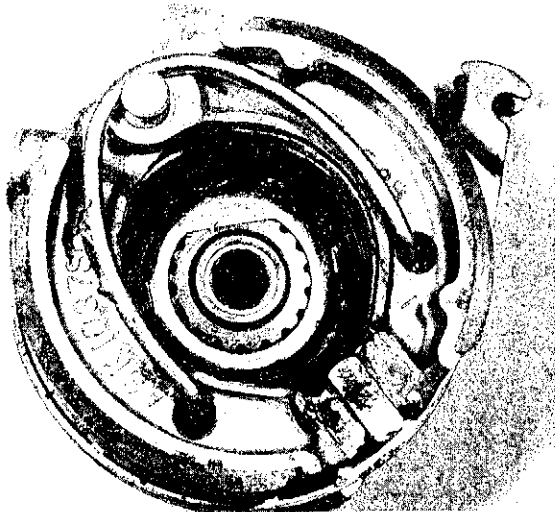
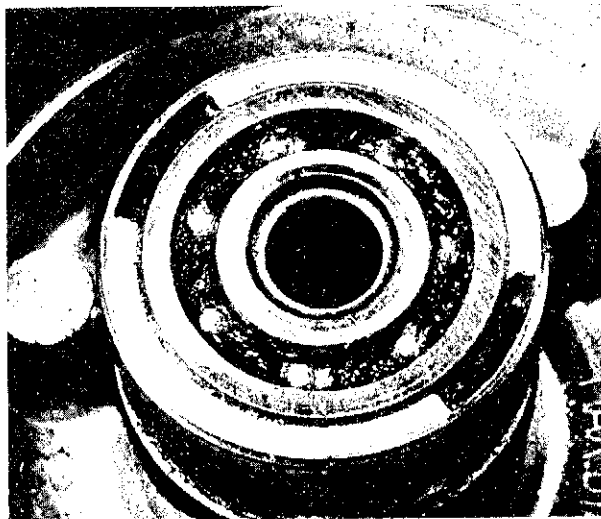


Fig. 5.4. Rear wheel assembly - PF50 models

- | | |
|---|---------------------------------------|
| 1 Wheel complete with
brake assembly | 13 Ball bearings |
| 2 Brake and wheel spindle
assembly | 14 Brake backplate |
| 3 Wheel spindle assembly | 15 Brake shoe (2 off) |
| 4 Brake assembly | 16 Return spring (2 off) |
| 5 Hub | 17 Rear wheel sprocket |
| 6 Washer | 18 Sprocket retaining bolt
(5 off) |
| 7 Adjustable cone (2 off) | 19 Washer (5 off) |
| 8 Wheel spindle | 20 Washer (2 off) |
| 9 Spacer | 21 Spoke (36 off) |
| 10 Nut | 22 Tyre |
| 11 Nut | 23 Inner tube |
| 12 Grease retainer | 24 Rim tape |



8.2a The speedometer drive gear has two tongues ...



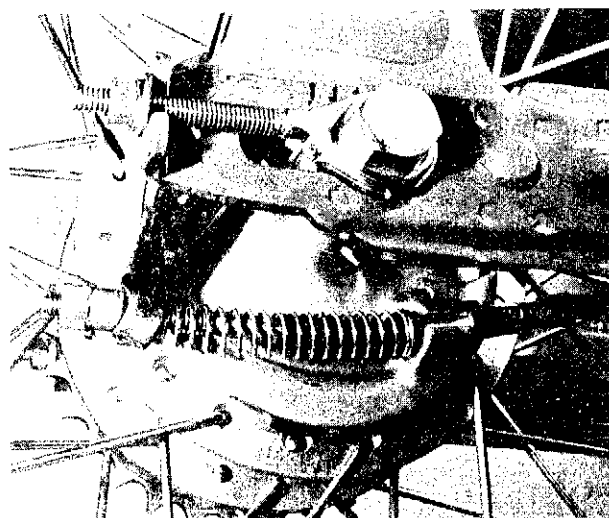
8.2b ... which locate with the slots in the wheel hub



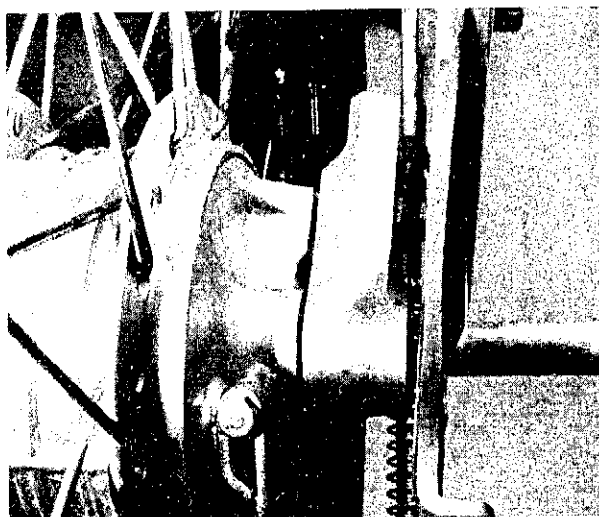
8.2c Worm gear is visible when drive gear is removed



9.1 Ensure peg on forks locates with slot in brake plate



11.2 Slacken and unhook brake cable



11.5 Pull anchor block cum spacer clear of the machine

12 Rear brake assembly: examination, renovation and reassembly

As the rear brake is identical to the front brake, the advice given in Section 4 of this Chapter will apply.

13 Rear wheel bearings: examination and replacement

As the bearing layout for the hubs is identical, the procedure described in Section 6 of this Chapter, for journal ball bearings and Section 5 for cup and cone bearings, will apply.

14 Rear wheel sprocket: removal, examination and replacement

- 1 The rear wheel sprocket is attached to the hub by either five bolts on the PF50 models or by three nuts and bolts on the PC50 model.
- 2 It is unlikely that the sprocket will require renewal until a very substantial mileage has been covered. The usual signs of wear occur when the teeth assume a hooked or very shallow formation which will cause rapid wear of the chain. A worn sprocket must be replaced, together with the gearbox final drive sprocket and the chain. Always replace the final drive assembly as a complete set, otherwise rapid wear will occur as the result of running old and new parts together.

15 Rear wheel: reassembly

- 1 To refit the rear wheel, reverse the removal procedure, ensuring that the peg on the frame or the swinging arm locates with the slot in the brakeplate. Alternatively, the anchor block cum spacer must be properly located between the brakeplate and the swinging arm. The need for this cannot be overstressed. If the brakeplate is not anchored securely, the brake will lock on immediately it is applied, which may well result in a serious accident.
- 2 Before fully tightening all the nuts ensure that the final chain tension and the brake adjustment are correct.
- 3 Check also whether the wheel alignment is correct. The swinging arm is marked with indentations so that a visual check can be made.

16 Front and rear brakes: adjustment

- 1 The front and rear brake adjusters are located on the brake cables. The brakes should be adjusted so that the wheel is free to revolve before pressure is applied to the handlebar lever and is applied fully before the handlebar lever touches the handlebar.
- 2 The Routine Maintenance Section describes in detail how the brakes are adjusted.
- 3 Efficient brakes depend on good leverage of the operating arms. The angle between the brake operating arm and the cable should never exceed 90° when the brake is applied lightly.

17 Final drive chain: examination and lubrication

- 1 Periodically, the tension of the final drive chain should be checked by measuring the amount of play in the middle of the bottom run. The chain is in correct adjustment if there is from 10-20mm (0.40-0.79in) play.
- 2 To adjust the chain, slacken the rear wheel nuts and draw the rear wheel spindle either forward or backward until the correct tension is achieved, by means of the chain adjusters. Tighten the wheel nuts and check again that the chain tension is correct.
- 3 Always adjust the draw bolts an identical amount, otherwise the rear wheel will be thrown out of alignment. If in doubt

about the correctness of wheel alignment, use the technique described in Chapter 4, Section 9, paragraph 2.

4 After a period of running, the chain will require lubrication. Lack of oil will accelerate the rate of wear of both chain and sprockets, leading to harsh transmission. The application of an engine oil from an oil can still serves as a satisfactory lubricant, but it is preferable to remove the chain at regular intervals and immerse it in a molten lubricant such as Linklyfe, after it has been cleaned in a paraffin bath. This latter type of lubricant achieves better penetration of the chain links and rollers and is less likely to be thrown off when the chain is in motion.

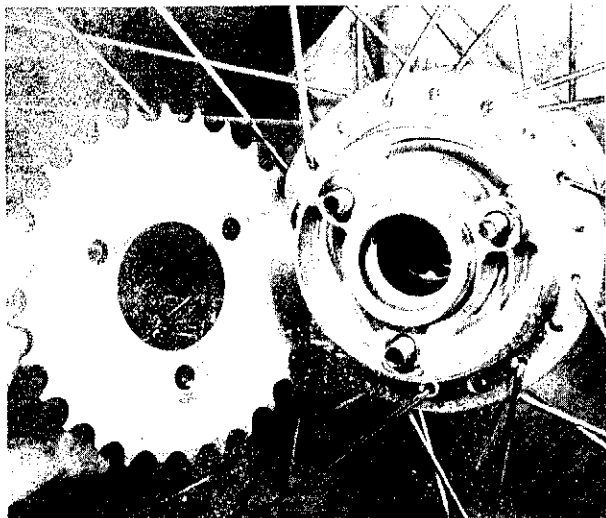
5 To check whether the chain is due for replacement, lay it lengthwise in a straight line and compress it so that all play is taken up. Anchor one end and then pull on the other end to take up the play in the opposite direction. If the chain extends by more than the distance between two adjacent rollers, it should be replaced in conjunction with the sprockets. Note that this check should be made after the chain has been washed, but before the lubricant has been applied, otherwise the lubricant may take some of the play.

6 When replacing the chain, make sure the spring link is positioned correctly, with the closed end facing the direction of travel. Reconnection is made easier if the ends of the chain are pressed into the teeth of the rear wheel sprocket.

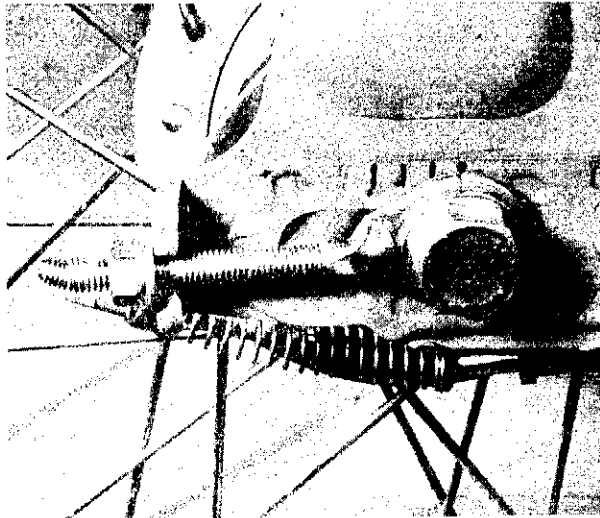
7 The chain fitted is of Japanese manufacture. When renewal is necessary, it should be noted that a Renold equivalent, of British manufacture, is available as an alternative for any of the Honda mopeds. When obtaining a replacement, take along the old chain as a pattern or quote the Renold's number 112045 and state the number of pitches (rollers). The PF50 has 86 pitches, the PF50R and PF50DXR have 88 pitches and the PC50 has 98 pitches.

18 Tyres: removal and replacement

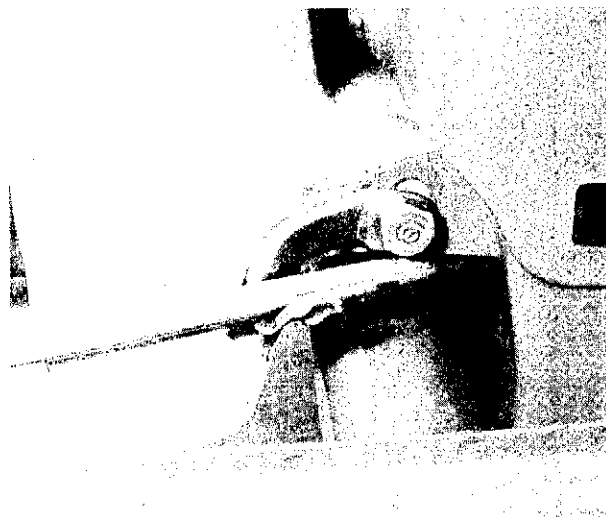
- 1 At some time or other the need will arise to remove and replace the tyres, either as the result of a puncture or because a replacement is required to offset wear. To the inexperienced, tyre changing represents a formidable task yet if a few simple rules are observed and the technique learned, the whole operation is surprisingly simple.
- 2 To remove the tyre from either wheel, first detach the wheel from the machine by following the procedure in Chapter 5.3 or 5.9, depending on whether the front or the rear wheel is involved. Deflate the tyre by removing the valve insert and when it is fully deflated, push the bead of the tyre away from the wheel rim on both sides so that the bead enters the centre well of the rim. Remove the locking cap and push the tyre valve into the tyre itself.
- 3 Insert a tyre lever close to the valve and lever the edge of the tyre over the outside of the wheel rim. Very little force should be necessary; if resistance is encountered it is probably due to the fact that the tyre beads have not entered the well of the wheel rim all the way round the tyre.
- 4 Once the tyre has been edged over the wheel rim, it is easy to work around the wheel rim so that the tyre is completely free on one side. At this stage, the inner tube can be removed.
- 5 Working from the other side of the wheel, ease the other edge of the tyre over the outside of the wheel rim that is furthest away. Continue to work around the rim until the tyre is free completely from the rim.
- 6 If a puncture has necessitated the reeve reinflate the inner tube and immerse it in a bowl of water to trace the source of the leak. Mark its position and deflate the tube. Dry the tube and clean the area around the puncture with a petrol soaked rag. When the surface has dried, apply the rubber solution and allow this to dry before removing the backing from the patch and applying the patch to the surface.
- 7 It is best to use a patch of the self vulcanising type, which will form a very permanent repair. Note that it may be necessary to remove a protective covering from the top surface of the



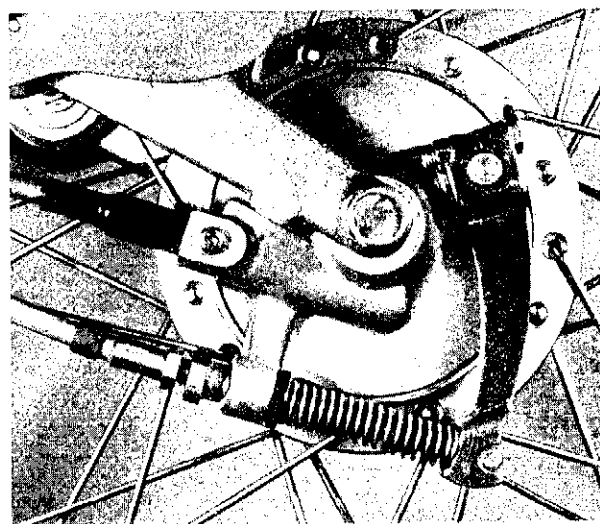
14.1 Sprocket is held on by three nuts



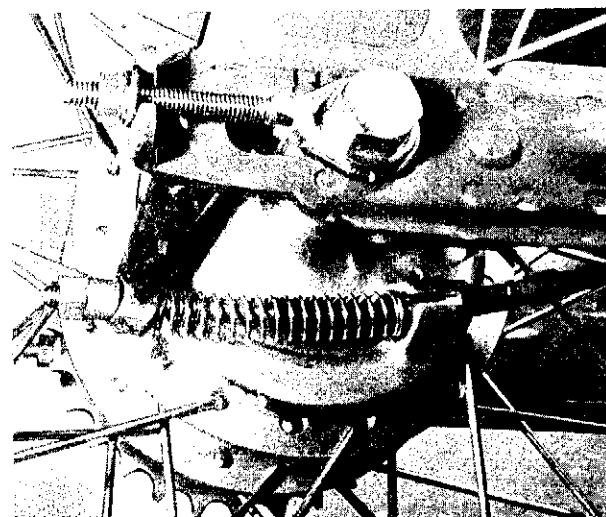
15.3a Ensure adjuster marks match frame marks on each side



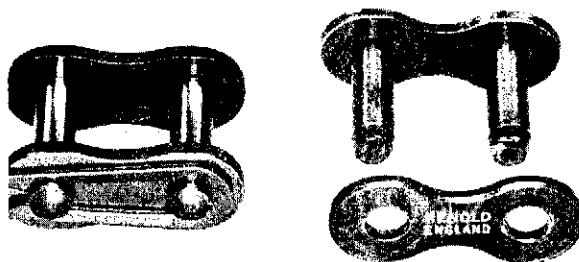
15.3b Ensure brake cable fits under clip



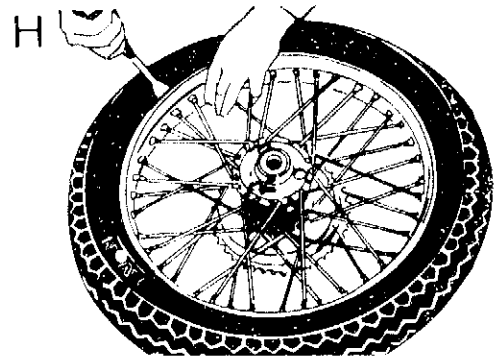
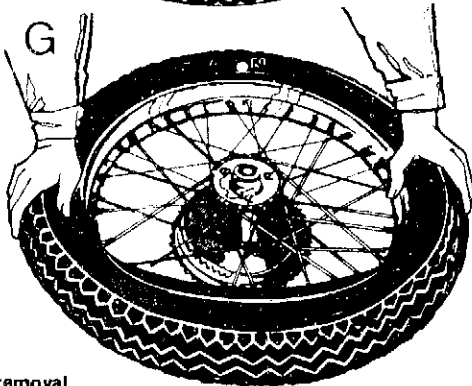
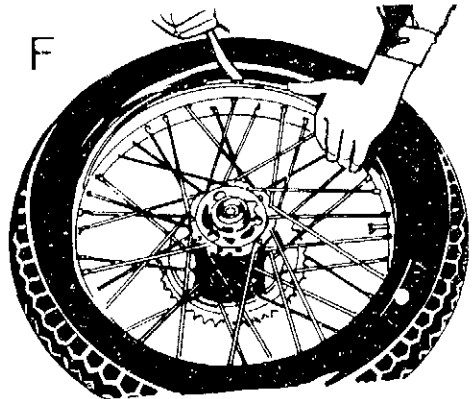
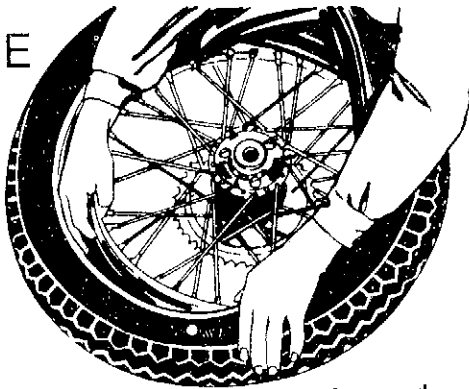
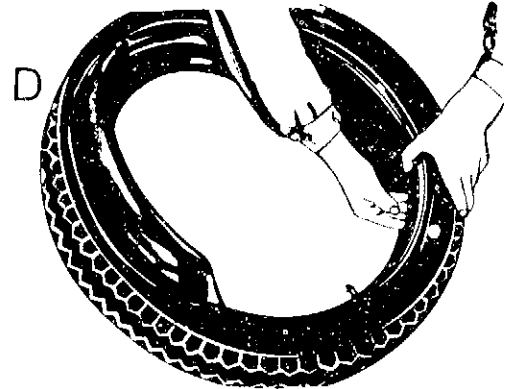
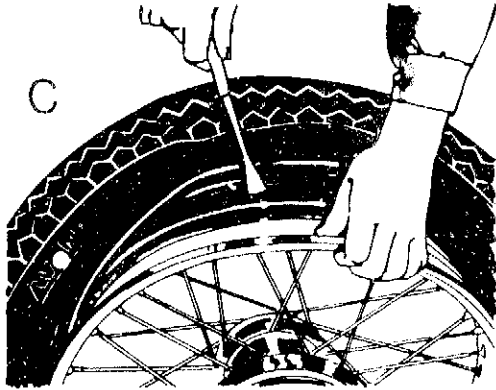
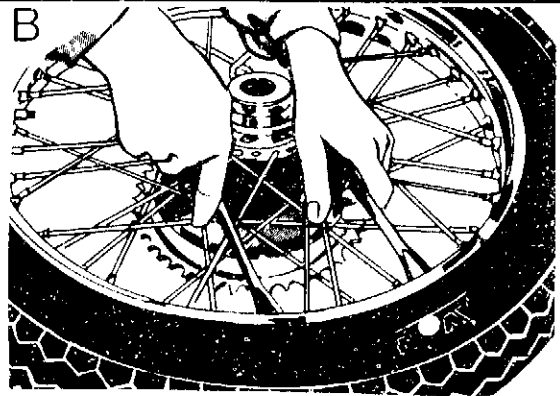
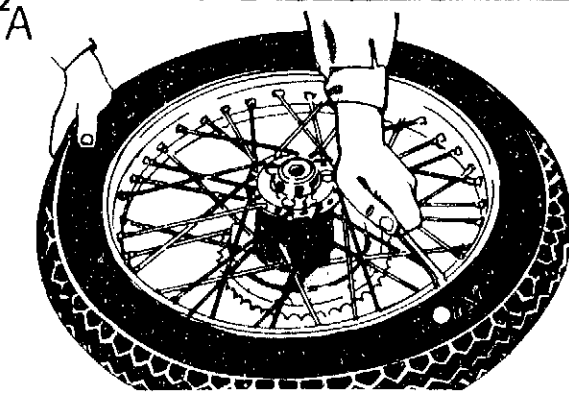
16.3a Check operating arm angle does not exceed 90° on either front ...



16.3b ... or rear brakes



17.7 A Renold equivalent chain is available



Tyre removal

A Deflate inner tube and insert lever in close proximity to tyre valve. B Use two levers to work bead over the edge of rim. C When first bead is clear, remove tyre as shown.

Tyre fitting

D Inflate inner tube and insert in tyre. E Lay tyre on rim and feed valve through hole in rim. F Work first bead over rim, using lever in final section. G Use similar technique for second bead, finish at tyre valve position. H Push valve and tube up into tyre when fitting final section, to avoid trapping.

patch, after it has sealed in position. Inner tubes made from synthetic rubber may require a special type of patch and adhesive, if a satisfactory bond is to be achieved.

8 Before replacing the tyre, check the inside to make sure the agent that caused the puncture is not trapped. Check also the outside of the tyre, particularly the tread area, to make sure nothing is trapped that may cause a further puncture.

9 If the inner tube has been patched on a number of past occasions, or if there is a tear or large hole, it is preferable to discard it and fit a replacement. Sudden deflation may cause an accident, particularly if it occurs with the front wheel.

10 To replace the tyre, inflate the inner tube sufficiently for it to assume a circular shape but only just. Then put it into the tyre so that it is enclosed completely. Lay the tyre on the wheel at an angle and insert the valve through the rim tape and the hole in the wheel rim. Attach the locking cap on the first few threads, sufficient to hold the valve captive in its correct location.

11 Starting at the point furthest from the valve, push the tyre bead over the edge of the wheel rim until it is located in the central well. Continue to work around the tyre in this fashion until the whole of one side of the tyre is on the rim. It may be necessary to use a tyre lever during the final stages.

12 Make sure there is no pull on the tyre valve and again commencing with the area furthest from the valve, ease the other bead of the tyre over the edge of the rim. Finish with the area close to the valve, pushing the valve up into the tyre until the locking cap touches the rim. This will ensure the inner tube is not trapped when the last section of the bead is

edged over the rim with a tyre lever.

13 Check that the inner tube is not trapped at any point. Reinflate the inner tube and check that the tyre is seating correctly around the wheel rim. There should be a thin rib moulded around the wall of the tyre on both sides, which should be equidistant from the wheel rim at all points. If the tyre is unevenly located on the rim, try bouncing the wheel when the tyre is at the recommended pressure. It is probable that one of the beads has not pulled clear of the centre well.

14 Always run the tyres at the recommended pressures and never under or over-inflate. The correct pressures for solo use are given in the Specifications Section of this Chapter.

15 Tyre replacement is aided by dusting the side walls, particularly in the vicinity of the beads, with a liberal coating of French chalk. Washing up liquid can also be used to good effect, but this has the disadvantage of causing the inner surfaces of the wheel rim to rust.

16 Never replace the inner tube and tyre without the rim tape in position. If this precaution is overlooked there is good chance of the ends of the spoke nipples chafing the inner tube and causing a crop of punctures.

17 Never fit a tyre that has a damaged tread or side walls. Apart from the legal aspects, there is a very great risk of a blow-out, which can have serious consequences on any two-wheel vehicles.

18 Tyre valves rarely give trouble, but it is always advisable to check whether the valve itself is leaking before removing the tyre. Do not forget to fit the dust cap, which forms an effective second seal.

19 Fault diagnosis: wheels, brakes and tyres

Symptom	Cause	Remedy
Ineffective brakes	Worn brake linings Foreign bodies on brake lining surface Incorrect engagement of brake arm serration Worn brake cam	Renew. Clean. Reset correctly. Renew.
Handlebars oscillate at low speeds	Buckle or flat in wheel rim, most likely front wheel Tyre not straight on rim	Check rim alignment by spinning wheel. Correct by retensioning spokes or building on new rim. Check tyre alignment.
Machine lacks power and poor acceleration	Brakes binding	Warm brake drum provides best evidence. Re-adjust brakes.
Brakes grab when applied gently	Ends of brake shoes not chamfered Elliptical brake drum	Chamfer with file. Lightly skim on lathe.
Brake pull-off spongy	Brake cam binding in housing Weak brake shoe springs	Free and grease. Renew if springs have not become displaced.
Harsh transmission	Worn or badly adjusted final drive chain Hooked or badly worn sprockets Loose rear sprocket	Adjust or renew. Renew as a pair. Check bolts.

Chapter 6 Electrical system

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General description	1	Horn: location and adjustment	5
Flywheel generator: checking output	2	Wiring: layout and examination	6
Headlamp: replacing bulb and adjusting beam height	3	Lighting switch	7
Tail lamp: replacing bulb	4	Fault diagnosis: lighting system	8

Specifications

Flywheel generator

Make	Mitsubishi
Output	6 volts AC

Headlamp bulb	6 volts 18/18 watts
---------------	-----	-----	-----	-----	-----	-----	-----	---------------------

Tail lamp bulb	6 volts, 6 watts or 6 volts 6/18 watts
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1 General description

The flywheel generator fitted to the Honda mopeds contains lighting coils to supply 6 volts alternating current for the lighting system. There is no provision for a battery: in consequence the lighting system and horn will operate only when the engine is running. This is known as a direct lighting system.

2 Flywheel generator: checking output

As explained in Chapter 3, the output can be checked only with specialised test equipment of the multi-meter type. If the generator is suspect, it should be checked by either a Honda agent or an auto-electrical expert.

3 Headlamp: replacing bulb and adjusting beam height

- 1 To renew the bulb remove the screw below the headlamp glass and pull the headlamp unit out. Press, turn and pull clear the contacts assembly on the back of the unit and slide the bulb out. The new bulb will fit only one way and is pre-focussed so no adjustment is necessary. Refit the contacts assembly, headlamp unit and retain with the screw.
- 2 The headlamp unit contains a double filament bulb which provides the main and dipped headlamp beams. It is controlled on the PF50 models by the switch on top of the headlight and on the PC50 model by a dipswitch mounted on the handlebars.
- 3 Beam height is adjusted by slackening the one or two

headlamp shell retaining bolts and tilting the headlamp either upward or downward. Adjustments should always be made with the rider normally seated.

- 4 UK lighting regulations stipulate that the lighting system must be arranged so that the light will not dazzle a person standing in the same horizontal plane as the vehicle at a distance greater than 25 yards from the lamp, whose eye level is not less than 3 feet 6 inches above that plane. It is easy to approximate this setting by placing the machine 25 yards away from a wall, on a level road, and setting the beam height so that it is concentrated at the same height as the distance from the centre of the headlamp to the ground. The rider must be seated normally during this operation and also the pillion passenger, if one is carried regularly.
- 5 The PC50 model has an adjusting screw for altering the beam to the left or right.

4 Tail lamp: replacing bulb

- 1 The moulded plastic cover of the tail lamp is retained by two screws. When these screws are removed, the cover can be pulled clear and the bulb exposed.
- 2 To release the bulb from its holder, press it inwards, turn to the left and pull out. Press in the new bulb, turn to the right and pull downwards so that the stops locate. Refit the cover making sure that the rubber moulding which surrounds the cover is located correctly to exclude water.
- 3 Make sure that the flexible contact makes a good connection with the bottom contact of the bulb, otherwise the bulb may work only intermittently and eventually blow.
- 4 The bulb may have a double filament but a stoplight switch is not fitted to the Honda models imported into the UK.

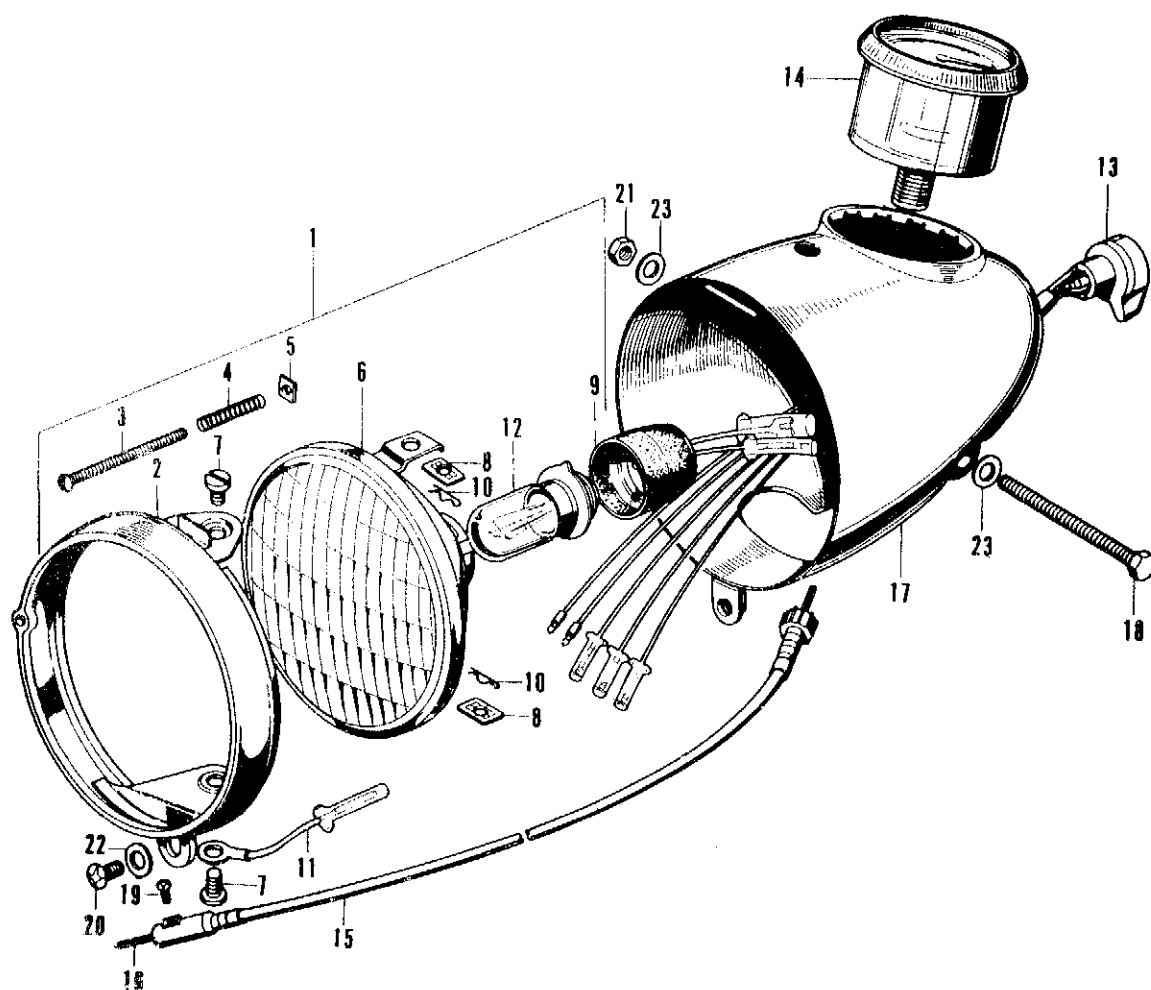
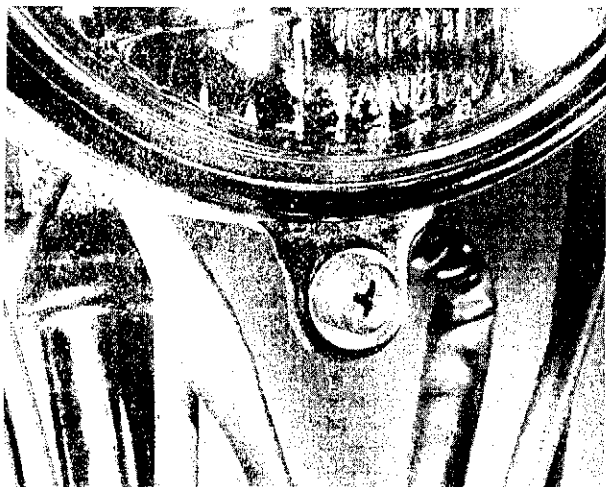
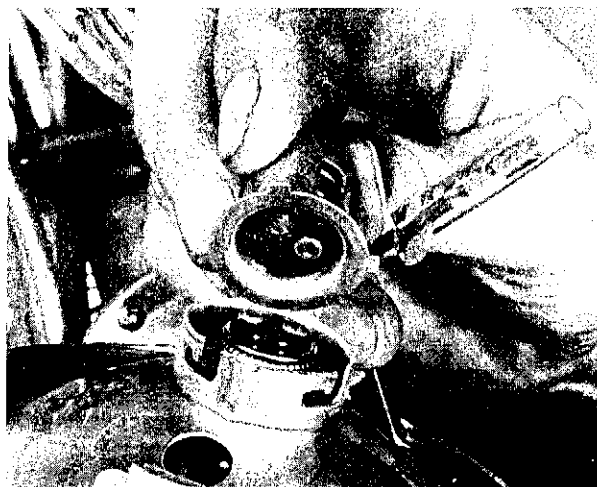


Fig. 6.1. Headlight assembly - PC50K1 model

- | | | | |
|---------------------------|------------------------|----------------------------|-------------------|
| 1 Headlight lens assembly | 7 Screw (2 off) | 13 Switch assembly | 19 Screw |
| 2 Headlight rim | 8 Square nut (2 off) | 14 Speedometer head | 20 Screw |
| 3 Adjusting screw | 9 Light socket | 15 Speedometer head | 21 Nut |
| 4 Spring | 10 Spring clip (2 off) | 16 Speedometer inner cable | 22 Washer |
| 5 Square nut | 11 Earthing lead | 17 Headlight shell | 23 Washer (2 off) |
| 6 Light unit | 12 Headlamp bulb | 18 Bolt | |



3.1a Remove screw below the headlamp glass ...



3.1b ... and pull contact assembly clear

5 Horn: location and adjustment

- 1 The horn is mounted on a bracket attached to either the bottom yoke of the forks or the handlebar stem.
- 2 The horn button is mounted on the handlebars.
- 3 The horn note can be altered by adjusting the black painted screw in the centre of the horn, once the locknut has been slackened. Retighten the locknut to secure.

6 Wiring: layout and examination

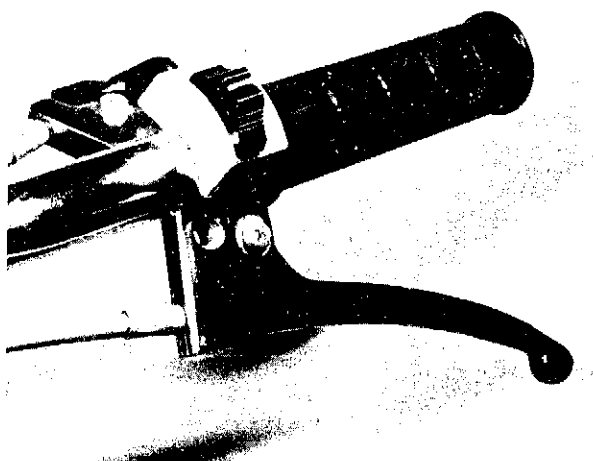
- 1 The wiring harness is colour-coded and will correspond with the accompanying wiring diagrams.
- 2 Visual inspection will show whether any breaks or frayed outer coverings are giving rise to short circuits. Another source

of trouble may be the snap connectors, particularly where the connector has not been pulled home fully in the outer casing.

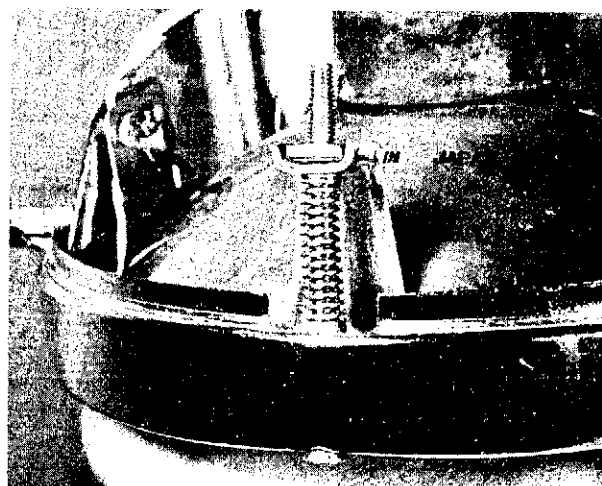
- 3 Intermittent short circuits can often be traced to a chafed wire which passes through or close to a metal component, such as a frame member. Avoid tight bends in the wire or situations where the wire can become trapped or stretched between casings.

7 Lighting switch

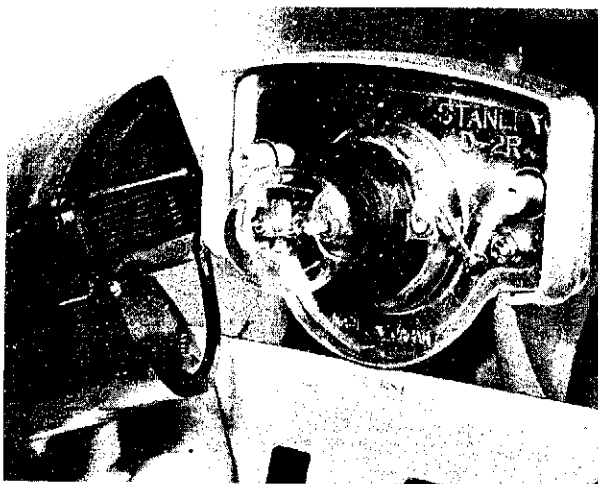
- 1 The lighting switch is mounted on the headlight and is not repairable. If it is faulty or damaged, it must be renewed as a complete unit.
- 2 On no account oil the switch or the oil will spread across the internal contacts and form an effective insulator.



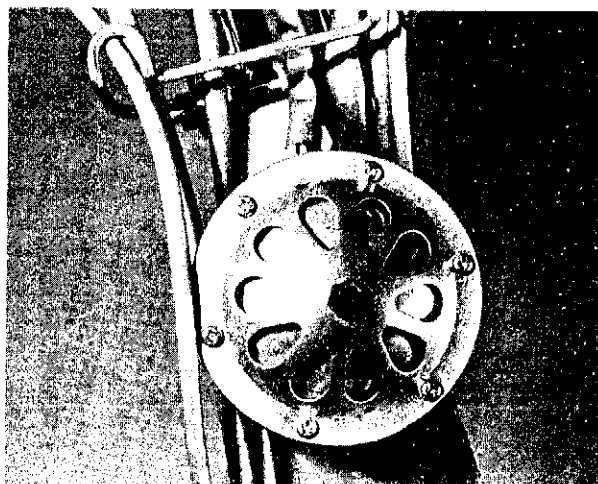
3.2 Dipswitch is mounted on left hand handlebar



3.5 Screw adjusts beam to left or right



4.4 Bulb has double filament but only one is used



5.1 Horn is located in front of steering head

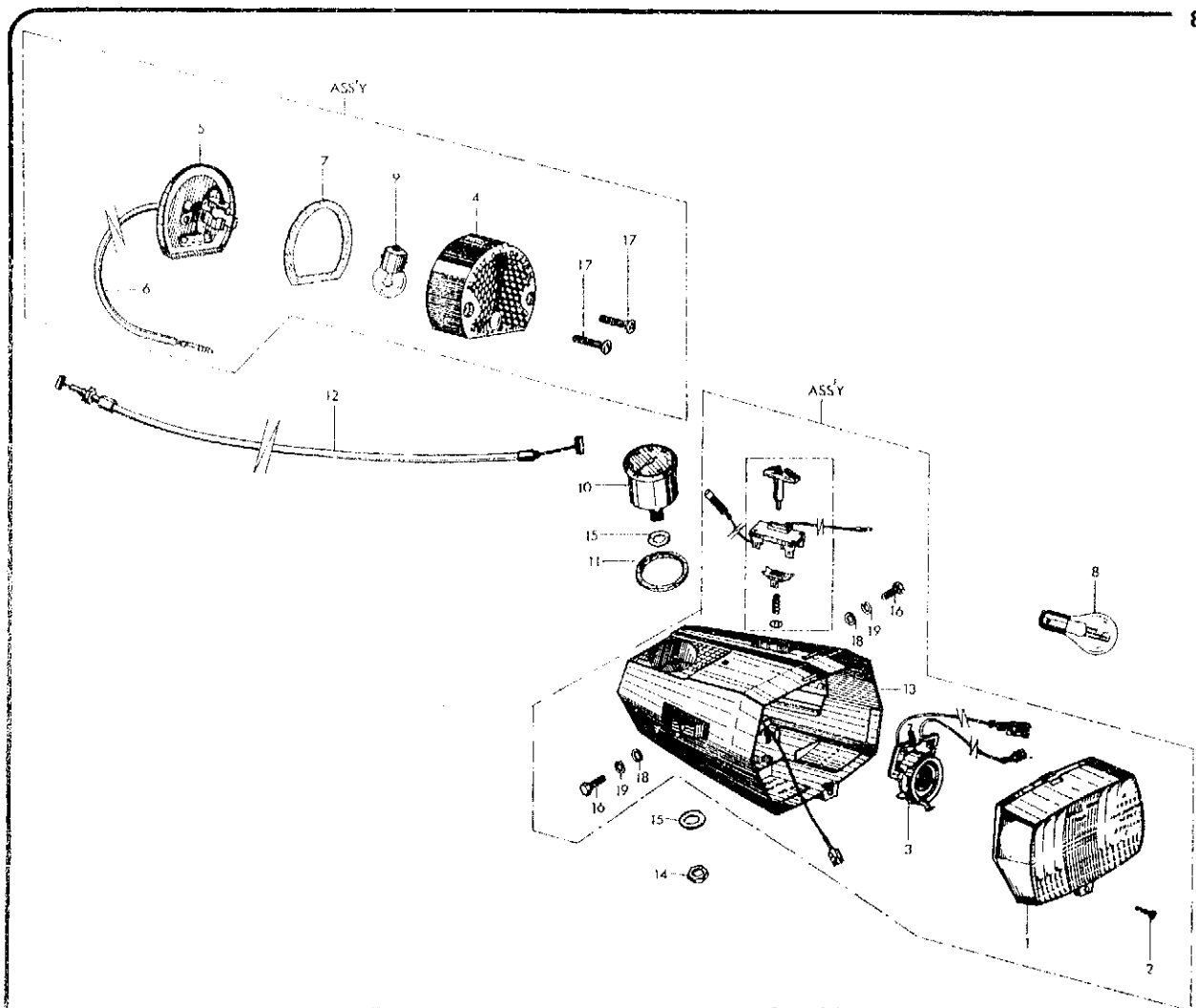
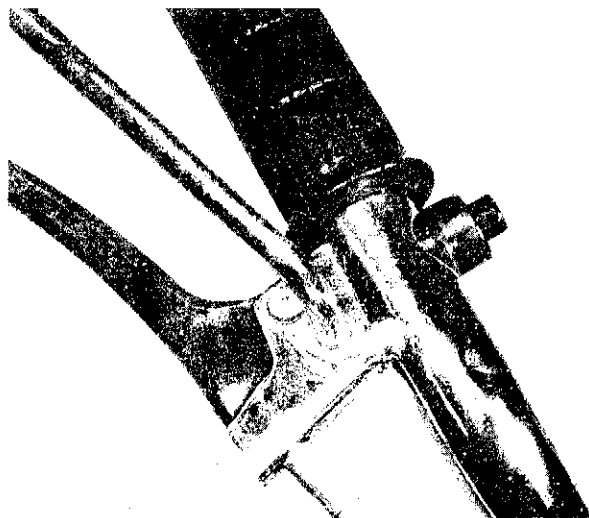
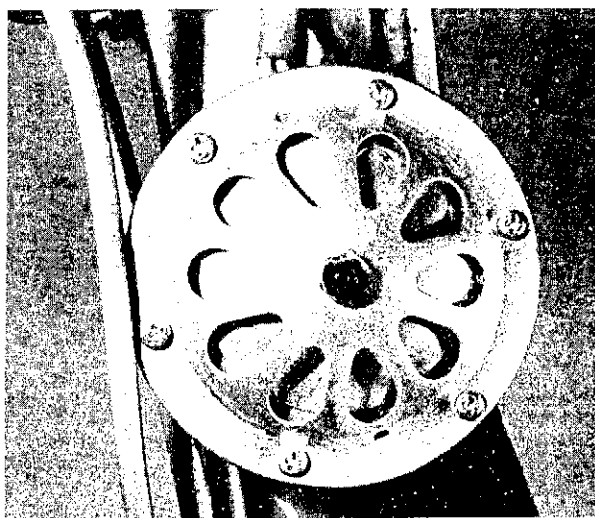


Fig. 6.2. Aprilia headlight and tail light - PF50 models

- | | | | |
|------------------------|---------------------|--------------------------------|--------------------------|
| 1 Headlight lens | 6 Wire | 11 Sealing rubber | 16 Bolt (2 off) |
| 2 Screw | 7 Sealing rubber | 12 Rear brake cable | 17 Screw (2 off) |
| 3 Light socket | 8 Headlight bulb | 13 Headlight shell with switch | 18 Washer (2 off) |
| 4 Tail light lens | 9 Tail light bulb | 14 Retaining nut | 19 Spring washer (2 off) |
| 5 Tail light backplate | 10 Speedometer head | | |



5.2 The horn button is mounted on the right hand handlebar



5.3 Horn note is adjusted by turning centre black screw

8 Fault diagnosis: lighting system

Symptom	Cause	Remedy
Complete electrical failure	Broken wire from generator Lighting switch faulty Generator not charging	Reconnect. Renew switch. Check output.
Dim lights	Bad connections	Renovate, paying particular attention to earth connections.
Constantly 'blowing' bulbs	Vibration Poor earth connections	Check bulb holders are secure. Renovate.

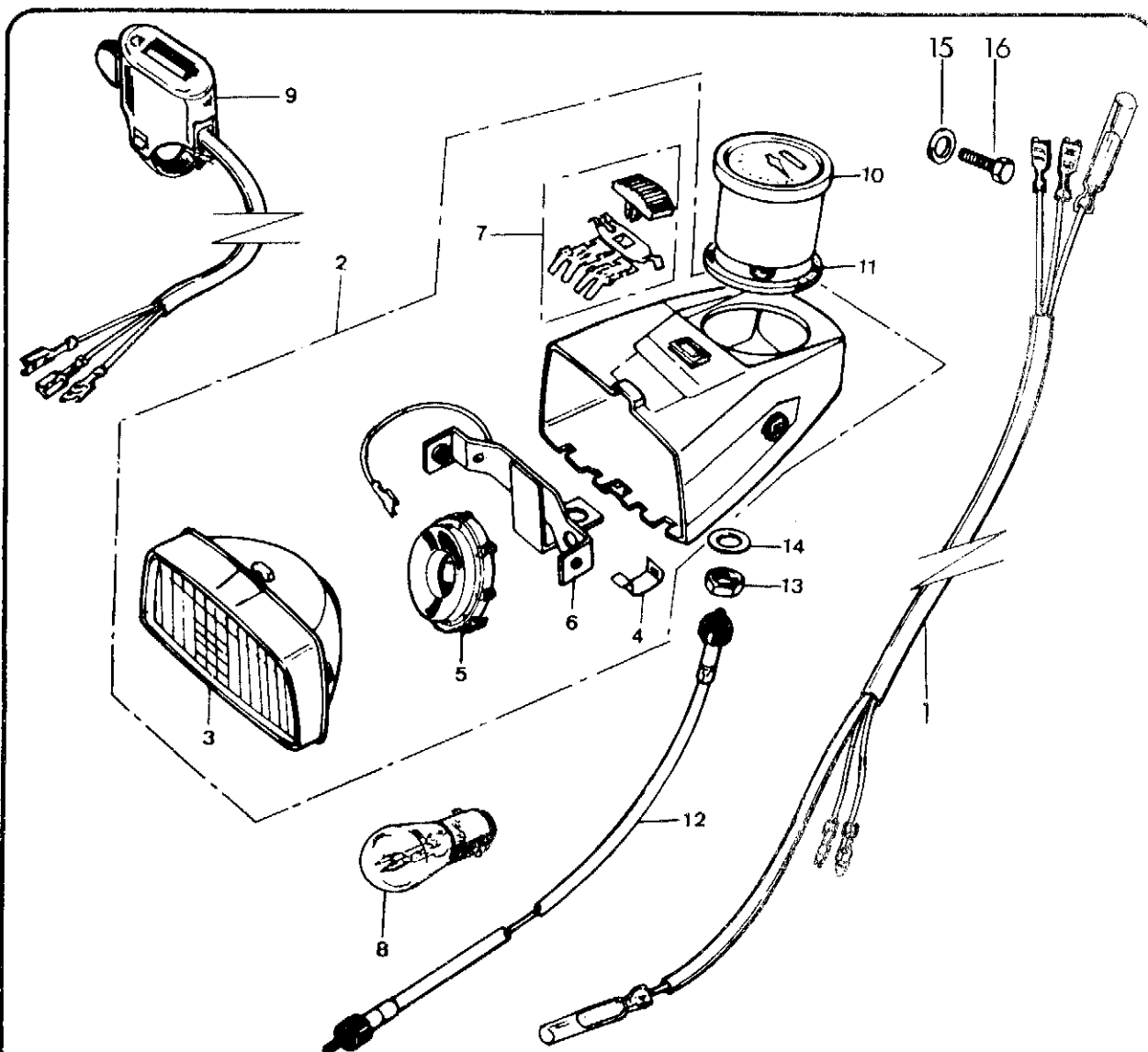


Fig. 6.3. Soubitery headlight assembly used on some - PF50 DXF models

- | | | | |
|----------------------|--------------------|----------------------|--------------------------|
| 1 Wiring harness | 5 Light socket | 9 Dipswitch | 13 Retaining nut (2 off) |
| 2 Headlight assembly | 6 Mounting bracket | 10 Speedometer head | 14 Washer |
| 3 Headlight lens | 7 Switch assembly | 11 Sealing rubber | 15 Washer (2 off) |
| 4 Lens clamp | 8 Headlight bulb | 12 Speedometer cable | 16 Bolt (2 off) |

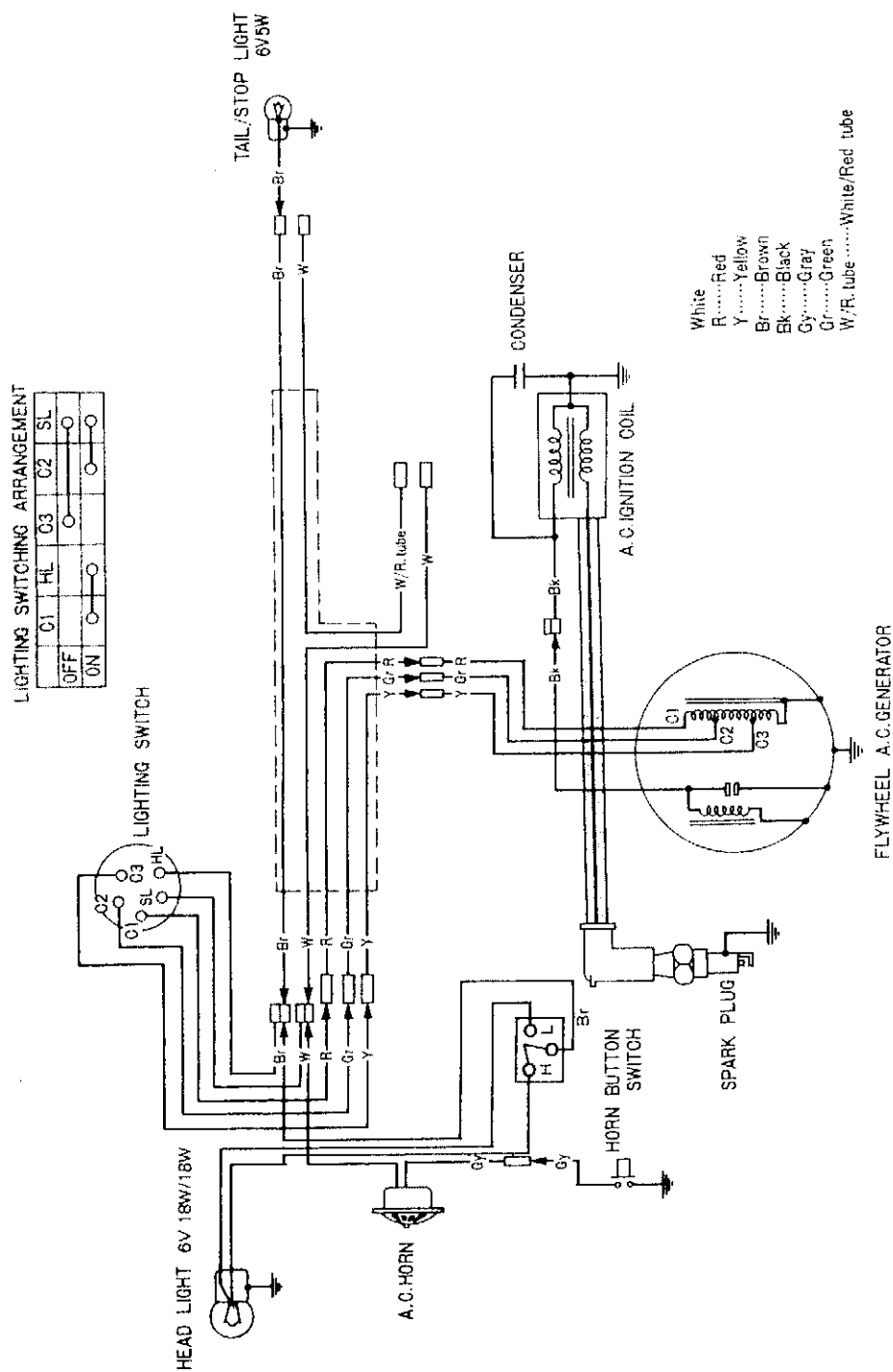


Fig. 6.4. Wiring diagram PC50 model

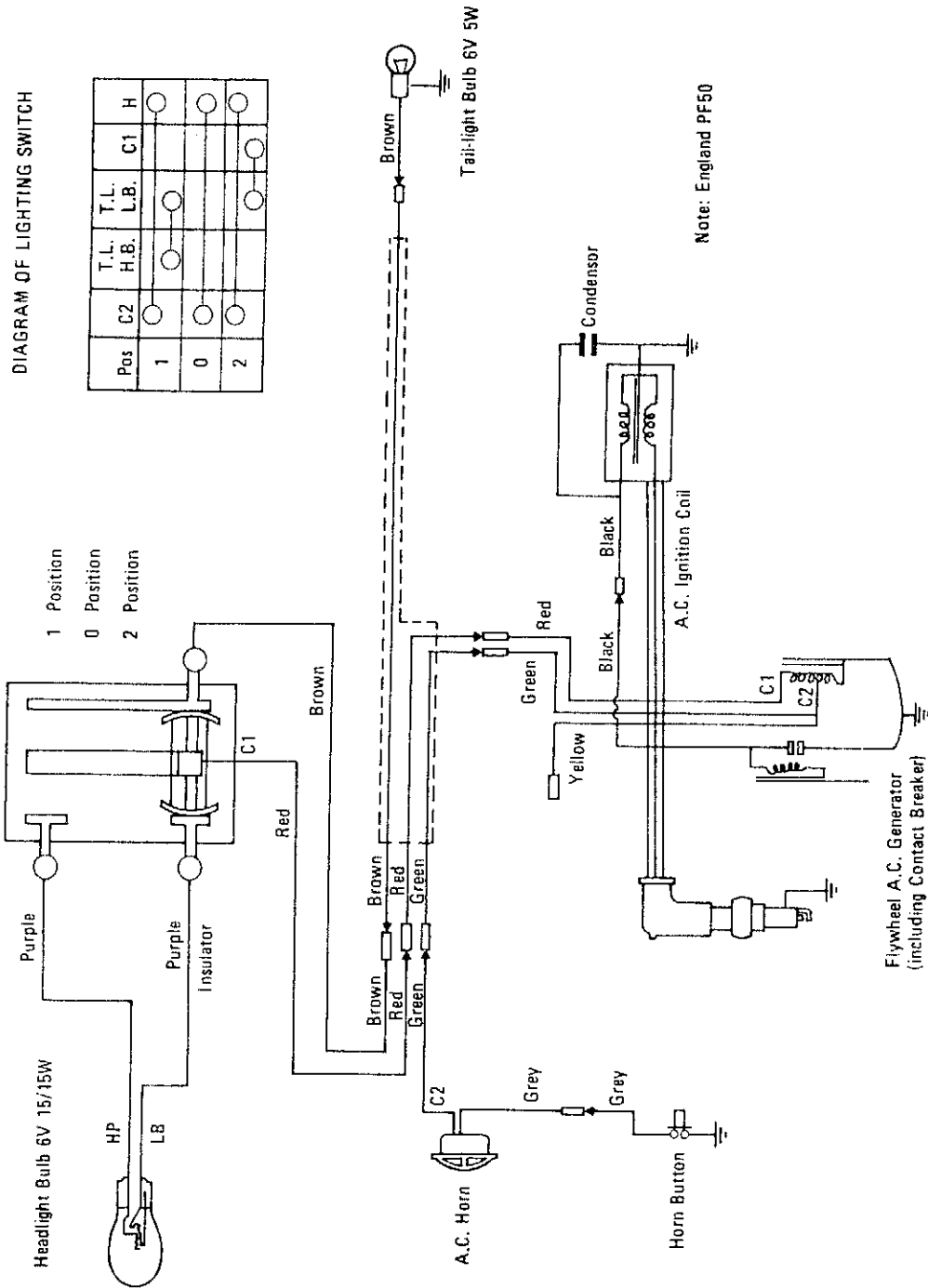


Fig. 6.5. Wiring diagram PF50 model

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