

41 Starting and running the rebuilt engine

1 Make a final check around the engine to ensure that everything has been refitted correctly and tightened down securely. Before starting the engine, unscrew the plug at the top of the cylinder head cover, and watch this carefully during the first few seconds of running to ensure that the oil is circulating properly. If all is well, oil will be expelled with considerable force, so have a rag to hand to wipe off the inevitable deluge.

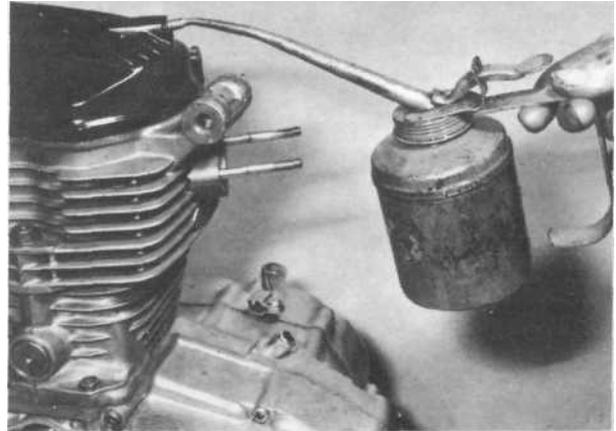
Bear in mind that the engine parts should be liberally coated with oil during assembly, so the engine will tend to smoke heavily for a few minutes until the excess oil is burnt

away. Do not despair if the engine will not fire up at first, as it is quite likely that the excess oil will foul the spark plug, necessitating its removal and cleaning. When the engine does start, listen carefully for any unusual noises, and if present, establish, and if necessary rectify, the cause. Check around the engine for any signs of leaking gaskets.

Before using the machine on the road, check the operation of the clutch and brakes. 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.



40.6 Refill crankcase to correct level with engine oil



41.1 Prime oil system before starting the engine

42 Fault diagnosis: engine

Symptom	Cause	Remedy
Engine does not start	Lack of compression:	
	Valve stuck open	Adjust tappet clearance.
	Worn valve guides	Renew.
	Valve timing incorrect	Check and adjust.
	Worn piston rings	Renew.
	Worn cylinder	Rebore.
	No spark at plug:	
	Fouled or wet spark plug	Clean.
	Fouled contact breaker points	Clean.
	Incorrect ignition timing	Check and adjust.
Open or short circuit in ignition	Check wiring.	
No fuel flowing to carburettor:	Blocked fuel tank cap vent hole	Clean.
	Blocked fuel tap	Clean.
	Faulty carburettor float valve	Renew.
	Blocked fuel pipe	Clean.
Engine stalls whilst running	Fouled sparking plug or contact breaker points	Clean.
	Ignition timing incorrect	Check.
	Blocked fuel line or carburettor jets	Clean.

Symptom	Cause	Remedy
Noisy engine	Tappet noise: Excessive tappet clearance Weakened or broken valve spring Knocking noise from cylinder: Worn piston and cylinder bore Carbon in combustion chamber Worn gudgeon pin or connecting rod small end	Check and reset. Renew springs. Rebore cylinder and fit oversize piston. Decoke engine. Renew.
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. Check

43 Fault diagnosis: clutch

Symptom	Cause	Remedy
Clutch slip	Worn clutch plates	Renew.
Clutch drag	Engine idle speed too high Broken springs Clutch drum or centre damage	Re-adjust. Renew. Rectify or renew as required.

44 Fault diagnosis: gearbox

Symptom	Cause	Remedy
Excessive mechanical noise	Lack of oil Broken pinions or chain	Refill. Renew.
Difficulty in engaging gears	Selector forks or rods bent Broken springs in gear selector mechanism Clutch drag	Renew. Check and renew. See Preceding Section.
Machine jumps out of gear	Worn dogs on ends of gear pinions Worn selector forks	Strip gearbox and renew worn parts.
Kickstarter does not return	Broken return spring	Renew spring
Kickstarter slips or jams	Worn ratchet assembly	Dismantle kickstarter assembly and renew worn parts.
Gear change lever does not return	Broken return spring	Remove right-hand crankcase cover and renew spring.

Chapter 2 Fuel system and lubrication

Refer to Chapter 7 for information relating to the 1985 on Brazilian models

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Specifications

Fuel tank capacity

Overall10 litres (2.2 Imp gal)
Including reserve of	2 litres (0.4 Imp gal)
Fuel grade and type . . . . .	.Either leaded three- or four-star (minimum octane rating of 91) or unleaded premium

Carburettor

ID number - by machine serial (engine) number:	
CG125 up to 1020010	077A-A
CG125 1020011 to 1104204	PD88E-A/B
CG125 1104205 on, CG125 K1, CG125-B up to 1422468	PD88E-C
CG125-B 1422469 on	PD88E-E
CG125-C up to 1608462	PD45C-A*
CG125-C 1608463 on, CG125-E	PD45C-C*

*Indicates (T)PFC type carburettor - see Chapter 7 for details

	077A-A	PD88E-A/B/C/E	PD45C-A/C
Main jet . . . . .	.92	100	95(-A), 85(-C)
Pilot (slow) jet . . . . .	.38	40(-E only)*	38(-A), 40(-C)
Needle clip position — grooves from top	3rd	3rd	N/Av
Pilot screw - turns out from fully closed . . . . .	.1 $\frac{3}{8}$	1 $\frac{3}{4}$	N/Av
Float height	24.0 mm (0.95 in)	18.5 mm (0.73 in)	N/Av
Idle speed . . . . .	.1100 - 1300 rpm	1200 rpm	1200 rpm

* Pilot jet not removable on PD88E-A/B/C carburettors

Engine/gearbox lubrication

Capacity - approx. . . . .	.1.0 litre (1.76 Imp pint)
Recommended oil . . . . .	.Good quality SAE 10W/40 engine oil, API class SE or SF

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. The tap has three positions: 'Off', 'On', 'Reserve', the latter providing a reserve supply of petrol when the main supply has run out. For cold starting the carburettor has a manually operated choke. The machine should run on 'Choke' for the least amount of time.

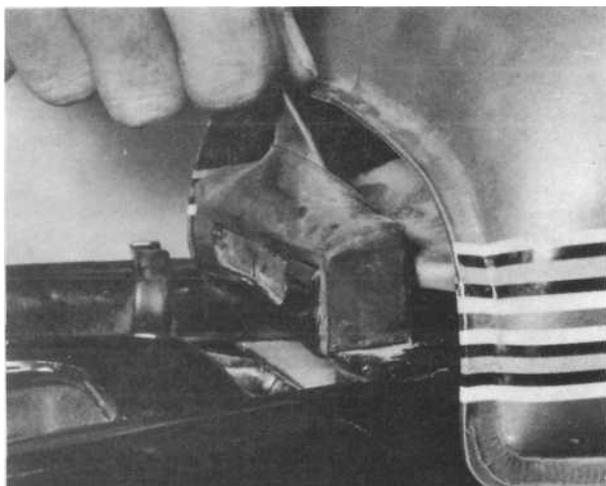
The lubrication system is of the pressure fed type, supplying oil to almost every part of the engine. There is a centrifugal filter mounted directly on the end of the crankshaft. Centrifugal force caused by the rotation of the engine throws the heavier impurities outwards where they stick to the walls, allowing only the clean, lighter oil through. Oil is picked up by the oil pump and pressure fed through the right-hand crankcase where it is diverted into two routes. In one direction it goes through a passage in the right-hand crankcase cover and then through the oil filter to the crankshaft. The other direction takes the oil through a passage via a cylinder head stud to the rocker arms. The transmission also receives oil under pressure, relying upon this simple yet very efficient system.

2 Petrol tank: removal and replacement

- 1 The fuel tank is not bolted to the machine in any way. It is held in place by three rubbers; two at the inner front and one at the rear under the seat, which it is necessary to remove.
- 2 Unfasten the bolt on each side of the rear of the seat. Lift up the back a little and pull back until the seat disengages with its location bracket and lifts clear.
- 3 Turn the fuel to 'Off' position and ease off the rubber fuel feed pipe clip and pipe. Lift the rear of the tank, pull to the rear, then lift away.
- 4 If difficulty is found in replacing the tank, apply a small amount of lubricant to the tank front rubbers before reassembly.

3 Petrol feed pipe: examination

The petrol feed pipe is made from thin walled synthetic rubber and is of the push-on type. It is only necessary to replace the pipe if it becomes hard or splits. It is unlikely that the retaining clips should need replacing due to fatigue as the main seal between the pipe and union is effected by an 'interference' fit.



2.2 Rubber strap retains rear of petrol tank

4 Petrol tap: removal, repair and replacement

1 Before the petrol tap can be removed, it is first necessary to drain the tank. This is easily accomplished by removing the feed pipe from the carburettor and allowing the contents of the tank to drain into a clean receptacle, with the tap turned to the 'reserve' position. Alternatively, the tank can be removed and placed on one side, so that the fuel level is below the tap outlet. (Take care not to damage the paintwork.)

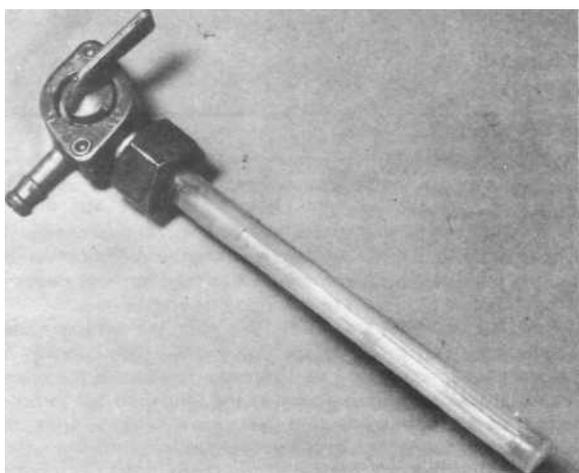
2 The tap unit is retained by a gland nut to the threaded stub on the underside of the tank. It can be removed after the fuel pipe has been pulled off the tap.

3 If the tap lever leaks, it will be necessary to renew it as a complete unit. It is not possible to dismantle the tap for repair.

5 Carburettor: removal - pre (T)PFC type

1 Before the carburettor is removed from the inlet stub, it is necessary to detach the petrol pipe, air cleaner hose, and carburettor top and throttle valve assembly. It is easier to remove the petrol tank to lessen the risk of damage to the paintwork, and to improve access. (Make sure the fuel tap is turned off first!). Prise off the air hose from the carburettor intake.

2 Unscrew the carburettor top, and withdraw the valve assembly. If the valve or needle require attention, they can be detached by compressing the return spring against the



4.3 Tap is riveted together, and must be renewed if worn

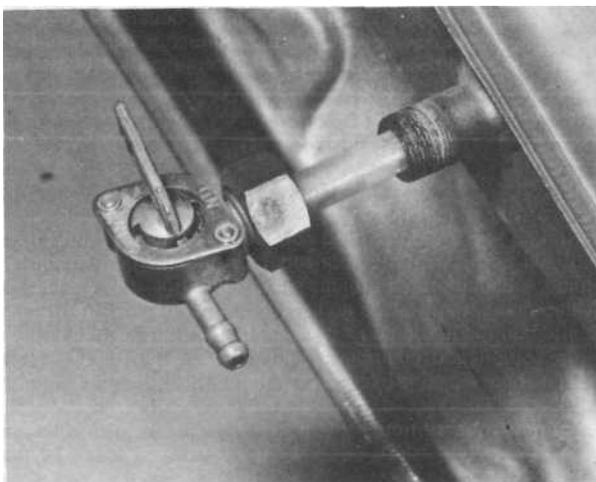
underside of the top, and disengaging the cable end from its recess in the valve. The needle is held by a spring clip, which is itself positioned by a second clip inside the valve. It is normally advisable to leave this assembly undisturbed unless obviously worn.

3 Slacken and remove the two flange mounting nuts, and pull the carburettor body clear of the mounting studs. Do not remove the heat shield or spacing block unless necessary. The carburettor components can now be dismantled for examination.

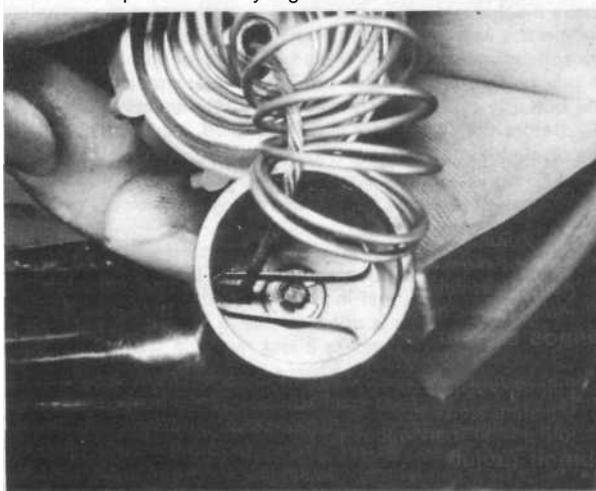
6 Carburettor: overhaul - pre (T)PFC type

1 On early models, prise back the spring clip retaining the float bowl, tap the bowl gently to break the seal and withdraw it. On later models remove the three retaining screws and withdraw the float bowl. Note the seal set in the gasket surface, which must be renewed if damaged or worn, and check that the drain plug passage is clean, that the plug seal is in good condition and that the plug is securely fastened.

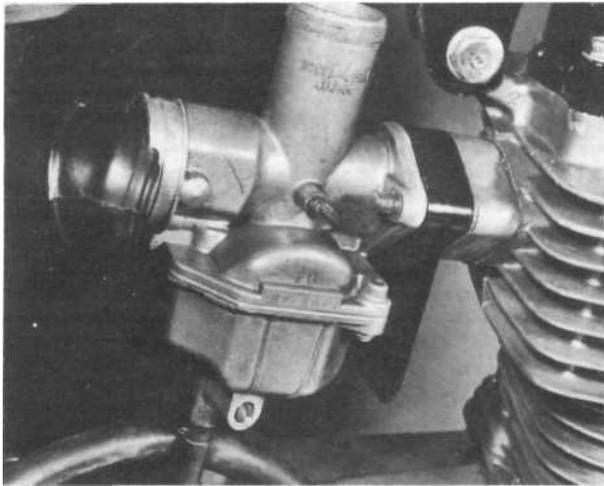
2 Displace the float pivot pin to release the float assembly, then withdraw the float needle. Check the float for leakage and renew the assembly if damaged or worn; repairs are not possible. Check the float needle tip for wear. After lengthy service a ridge or groove will appear; even if this is so small that it can be seen only with the aid of a magnifying glass, the needle must be renewed to restore the valve's seal and the



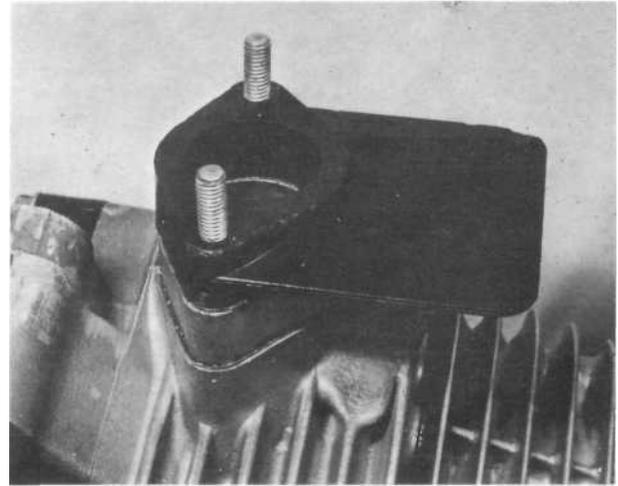
4.2 Petrol tap is secured by a gland nut



5.2 Throttle valve may be detached for access to needle



5.3a Remove carburettor body from inlet port



5.3b It is not normally necessary to remove heat shield

carburettor fuel level. If the needle seat is worn or damaged it must be renewed also; on later models note that this means renewing the complete carburettor assembly.

3 The main jet is screwed into the jet holder which is itself screwed into the central column projecting from the carburettor underside. On certain models (see Specifications) the pilot jet can be unscrewed from its location next to the central column; on all others it is fixed and can only be cleaned in place, using compressed air. When removing jets use only a close-fitting screwdriver or spanner to minimise the risk of damage, and do not exert excessive force. Before removing the needle jet, note carefully exactly how it is positioned above the jet holder, before pressing it out using a slim wooden rod.

4 The throttle stop screw is located in the right-hand side of the carburettor body, at the base of the throttle valve bore; the pilot screw is located either adjacent to the throttle stop screw (early models) or projecting downwards from the carburettor body, at the front of the float bowl. To remove these, first screw each in until it seats lightly and note the **exact** number of turns required to do this, then unscrew it and note the presence of the small spring under each. On refitting, screw it in until it seats lightly then unscrew it by the previously noted number of turns to restore it to its original position.

5 Check the throttle valve components for wear or damage and renew any defective item. If the valve is slack in the carburettor body, then either the valve or the complete carburettor assembly must be renewed. Similarly, check the choke mechanism for wear or damage, noting that the complete carburettor assembly must be renewed to rectify any problems. On early models check particularly that the spring-loaded flap is in one piece and free from cracks; on later models check that the butterfly retaining screws are securely fastened.

6 Before the carburettor is reassembled, using the reverse of the dismantling procedure, it should be cleaned out thoroughly using compressed air. Avoid using a piece of rag since there is always risk of particles of lint obstructing the internal passages or the jet orifices.

7 Never use a piece of wire or any pointed metal object to clear a blocked jet. It is only too easy to enlarge the jet under these circumstances, and increase the rate of petrol consumption. If compressed air is not available, a blast of air from a tyre pump will usually suffice. As a last resort, a fine **nylon** bristle may be used.

8 Do not use excessive force when reassembling a carburettor because it is easy to shear a jet or some of the smaller screws. Furthermore, the carburettor is cast in a zinc-based alloy which itself does not have a high tensile strength. If any of the castings are damaged during reassembly, they will almost certainly have to be renewed.

7 Carburettor adjustment - pre (T)PFC type

1 Commence operations by checking the float height, which will involve detaching the carburettor, if not already removed, inverting it and removing the float bowl. If the float height is correct, the bottom of each float should be the specified distance away from the carburettor body mating surface when the valve has just closed. To adjust the setting bend the float arm.

2 Replace the carburettor, check that free play is present in the throttle cable, and with the engine at normal operating temperature turn the pilot screw inwards until the engine misfires or decreases in speed. Note the position of the screw, then turn it outwards until similar symptoms are observed. The screw should then be set exactly between these two positions, which should approximate the specified setting.

3 When the mixture setting is correct, use the throttle stop screw to set the idle speed. If a suitable tachometer is not available the correct speed can be approximated by finding the lowest speed at which the engine will tick over smoothly and reliably. Adjust the throttle cable, using the adjuster at either end of the cable, to give 2 - 6 mm (0.08 - 0.24 in) free play measured at the twistgrip flange, ie 10 — 15° of twistgrip rotation. Ensure the idle speed remains steady at all handlebar positions.

4 Note that these adjustments should always be made with the engine at normal operating temperature and with the air cleaner connected, otherwise a false setting will be obtained.

8 Carburettor settings

1 Some of the carburettor settings, such as the sizes of the needle jet, main jet, and needle position etc are pre-determined by the manufacturer. Under normal circumstances, it is unlikely that these settings will require modification, even though there is provision made. If a change appears necessary, it can often be attributed to a developing engine fault.

2 As an approximate guide the pilot jet setting controls engine speed up to $\frac{1}{2}$ throttle. The throttle slide cutaway controls engine speed from $\frac{1}{2}$ to $\frac{3}{4}$ throttle. The size of the main jet is responsible for engine speed at the final $\frac{3}{4}$ to full throttle. It should be added however that these are only guide lines. There is no clearly defined demarcation line due to a certain amount of overlap that occurs between the carburettor components involved.