

MAXI REBUILD

Cost-effective commuting or first-bike frivolity? Either way the Puch Maxi is an easy engine to overhaul . . .

AS a first bike or the cheapest kind of run-around, there's a lot to be said for the basic, primitive moped. Now that 16-year-olds are restricted to 30mph machines, there is only the styling of the new generation of 50s to commend them. Even that is a double-edged weapon when advancing car drivers are fooled into thinking that you've got a much bigger bike and totally over-estimate your machine's performance.

Consequently, hard-up youngsters must be finding it more and more difficult to justify the cost of a new sixteener special. An ordinary step-through moped has none of the pretensions and it will still do 30mph. It also has the advantage of total simplicity and anyone looking for the lowest possible transport costs can pick up a cheap, slightly clapped-out moped and rebuild it without suffering a total relapse in the region of the hip pocket.

That is more or less the story behind the Puch Maxi featured here which we took to the Steyr-Puch importers in Nottingham where service expert Dennis Upton showed us how to overhaul the small automatic. The single speed two-stroke is the best choice for this kind of job as the 2-speed Maxi needs much more workshop equipment and special tools.

The picture strip shows the points which need to be watched, concentrating mainly on a rebuild on the grounds that almost anyone can take one to pieces but it takes a little more effort to get it back together properly. The step-by-step sequence is:

STRIP

1. Remove magneto (need flywheel puller).
2. Remove head and cylinder.
3. Remove clutch cover, loosen clutch.
4. Split crankcases — giving access to crank bearings, piston, clutch and primary drive.
5. Remove piston.
6. Strip clutch (need puller).

The clutch cover used on later types allows access to the clutch without splitting the crankcases.

REBUILD

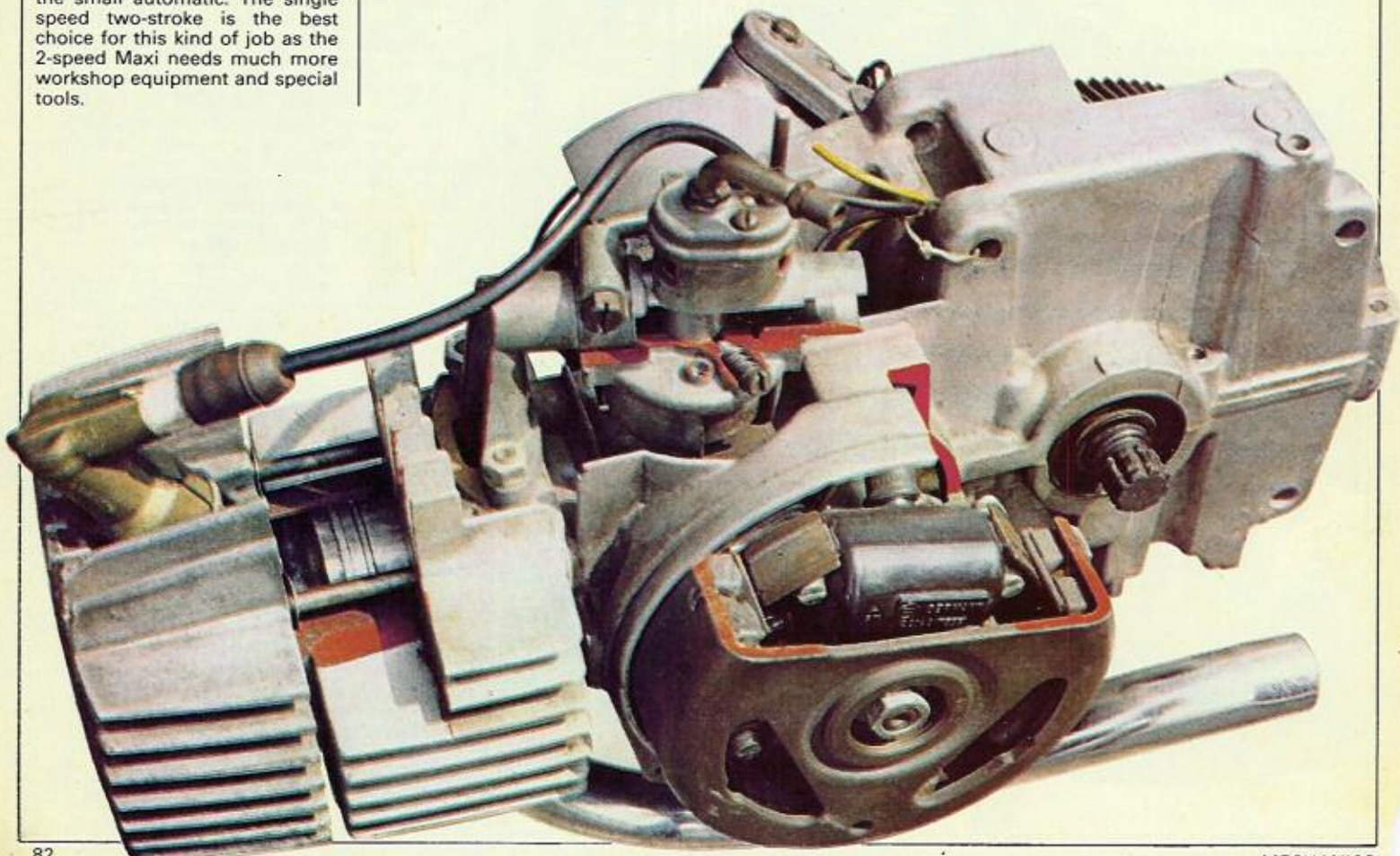
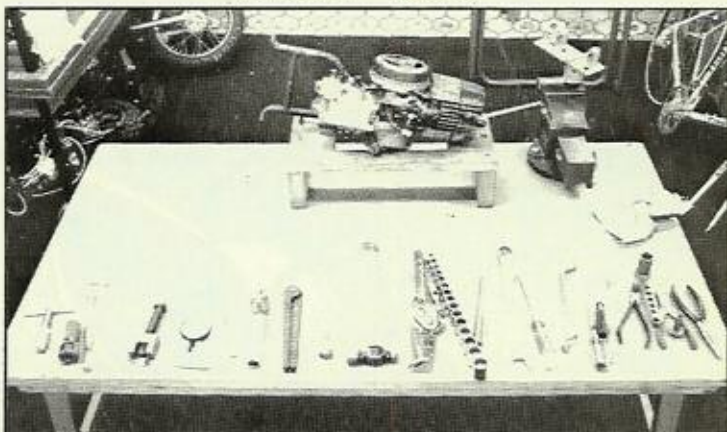
1. Fit clutch.
2. Assemble crankshaft into crankcase.
3. Fit piston and rings.
4. Fit crankcase halves.
5. Fit barrel and head.
6. Fit flywheel, set ignition timing.

SET-UP DATA

Piston ring gap	0.006-0.012 inch
	0.15-0.30mm
Clutch lining, minimum thickness	0.04 inch
	1.0mm
Ignition timing	0.031-0.047 inch BTDC
	0.8-1.2mm BTDC
(16-18mm measured around flywheel)	
Points gap	0.015-0.019 inch
	0.4-0.5mm
Flux gap (at firing point, measured from trailing edge of magnet to edge of coil shoe)	0.28-0.43 inch
	7.0-11.0mm

Oil	use 170cc of ATF
Torque wrench settings	lb-ft Nm
Cylinder head	7.2 10
Clutch nut	19.5 27
Flywheel nut	25.3 35
Engine housing	5.8 8
Engine mounts	23.1 32

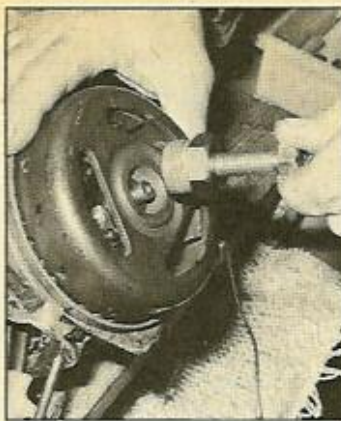
Tools needed to strip a Maxi engine include special pullers and holders.



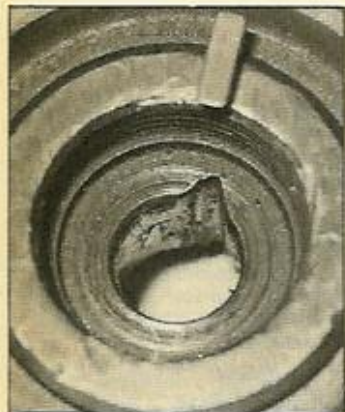
1 A flywheel holder is listed among the special tools but once the cylinder has been removed, blocks of wood can be put under the piston to prevent the engine turning so that the flywheel nut can be undone. Take care not to damage the piston skirt.



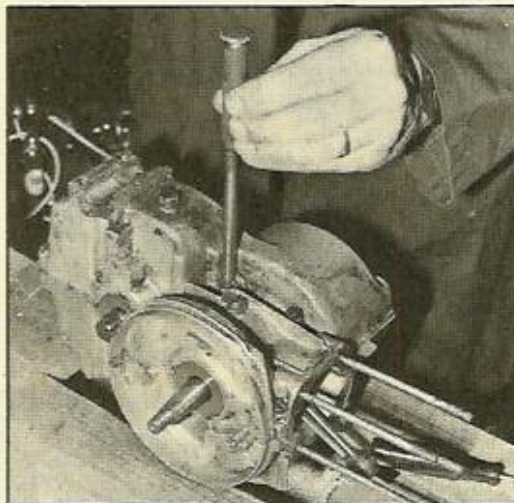
2 One essential special tool is this flywheel puller. A Puch dealer should be able to sell/hire or maybe even lend one. Early magnetos were only 17W and were upgraded by fitting an extra coil which bolts to the lighting coil to meet the UK minimum lighting requirements.



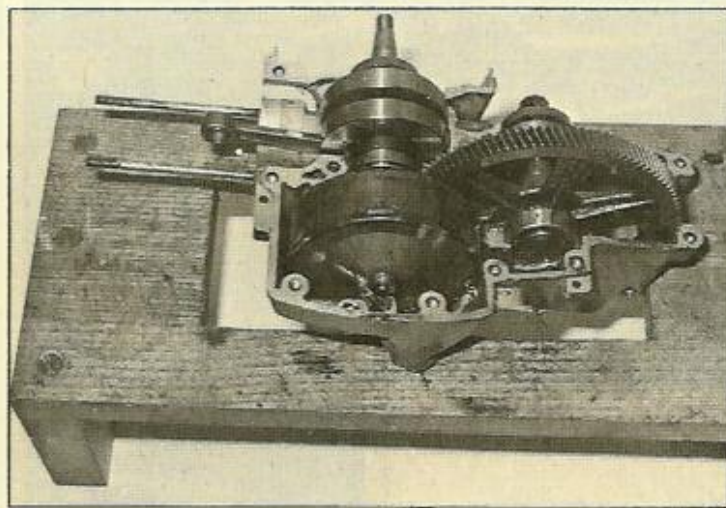
3 Source of knocking noises and a hefty repair bill, this chewed-up keyway was probably caused by the wrong type of key being used. Note that later flywheels have the keyway in a different position and cannot be used on earlier engines.



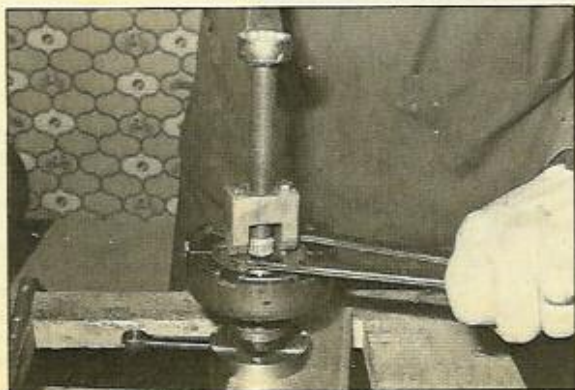
4 Use snipe-nose pliers to remove one gudgeon pin circlip and push the pin out to remove the piston from the rod. If the engine is not to be completely stripped, stuff some rag into the crankcase mouths to keep foreign bodies out. If the crankcase is to be split, the screws may be stubborn — a sharp tap as shown will loosen them.



5 A simple wooden trestle like this one makes a good engine stand as the lower crankcase half lifts away to leave all the workings exposed, as shown. The four longer crankcase screws go around the flywheel. Rebuild: use a compound like Hylomar on the joint faces, which must be thoroughly clean.

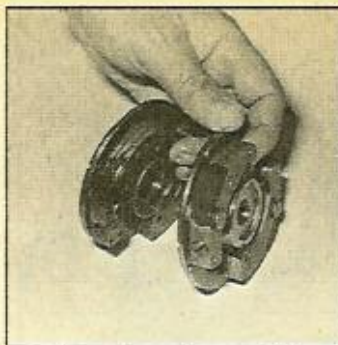


6 The flywheel holder is also used to hold the clutch centre. If you are making do without this tool, loosen the clutch before removing the piston, using the wooden blocks to lock the engine. Note the steel plate used here to support the flywheels.

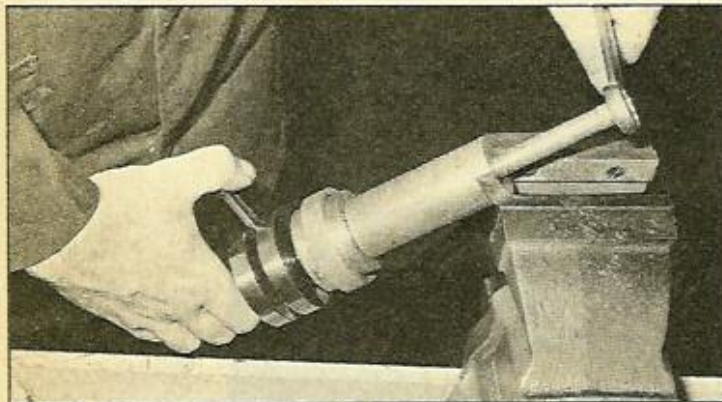


7 This puller is needed to get the clutch centre off its shaft. Later engines do not have a keyway on the clutch centre. The primary drive gears used to be sold as a matched pair but are now available separately, which may cause some gear whine in use.

8 Wear on these clutch shoes had reached the point of metal-to-metal contact. Later types have a stop to prevent this damaging the clutch housing. ▶



10 To remove the main bearings, take off the circlip and use a bearing puller. The clutch side oil seal is fitted the "wrong" way round to relieve excess pressure. The magneto side bearing is more likely to fail ▼

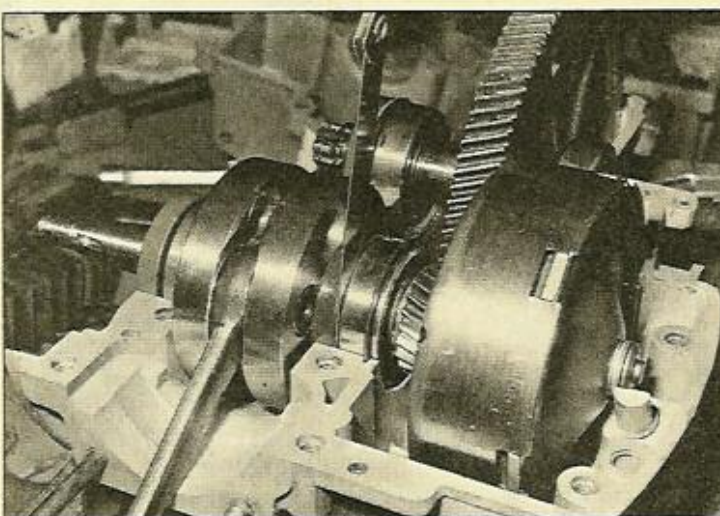


as it depends on the petrol/oil mix for lubrication. The new bearing may look different as it contains its own seal but a separate seal should still be used. Crankshaft/big end work should be left to a specialist. ▶

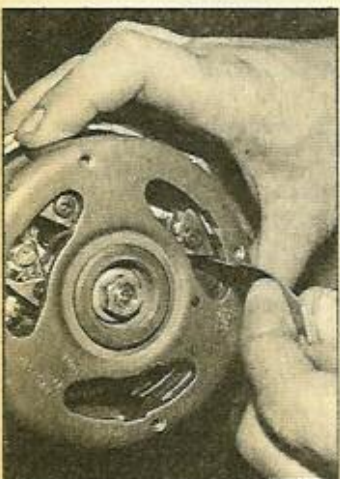
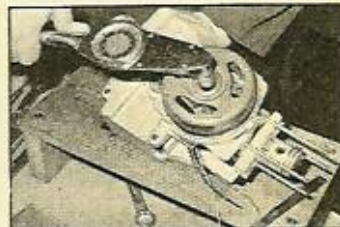
9 Remove the circlip which locates the clutch housing. Expanding-type circlip pliers make this a lot easier. There is a shim on each side of the housing; the larger diameter shim goes behind the clutch. The clutch centre bush may be hard to remove if the shaft is burred (smooth it with emery) and the earlier type of bush has to be fitted so that the oil holes line up. Later bushes have the hole in the centre. ▶



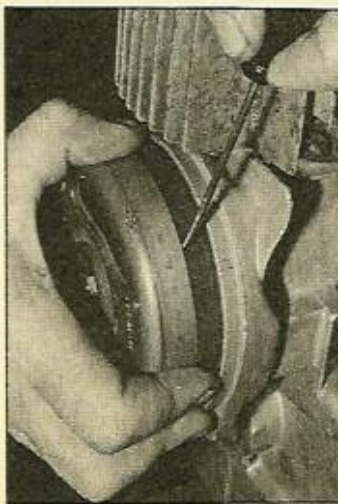
12 There are two circlips on the drive side; fit the larger diameter first. The factory say that the clutch should be shimmed to specific measurements but it isn't essential. Fit the larger shim first, over the collar on the shaft, then the bush (aligning the oil holes), then the clutch housing, then the smaller shim and the circlip. After assembling the clutch, fit the shaft to crankcase — note retaining ring in groove on drive side which should be fitted with the open end into the groove. Centralise the shaft using a feeler gauge as shown here. Build the engine up in the top half of the crankcase. ▶



11 The best tool to clean up gummed ring grooves is an old ring, snapped to make a sharp edge. The bores are chromed so there is no oversizing; new pistons and cylinders are numbered 1 to 6 and should be matched. The arrow on the piston crown or the pegs in the ring grooves should point towards the exhaust. ▶



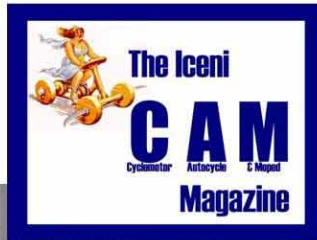
14 The points gap should be adjusted to 0.4 to 0.5 mm; the later one-piece type can be used instead of the earlier two-piece. Set the flux gap — between the trailing edge of the magnet and the edge of the coil shoe — using a go/no-go tool in aluminium or wood to set the 7 to 11 mm gap. Adjust in the ignition firing position. ▶



13 Fit the piston with new circlips. The gasket set contains base gaskets of varying thickness — use the same size as before or, if this is not known, the 1mm size. Note the chamfered rings which are used on chrome-bore engines. The ignition stator plate should be fitted in the centre of the three grooves and the correct key used to locate the flywheel on the shaft. Torque the flywheel nut to 25lb ft. ▶

15 Timing is set with a dial gauge on central plug engines. Alternatively, find TDC using a plunger through the plug hole and turn back 16 to 18 mm measured around the flywheel as shown. Before refitting the head check that the decompressor valve is sealing by using petrol or paraffin. Lap in the valve to make a good seat if there is any sign of a leak. ▶

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