

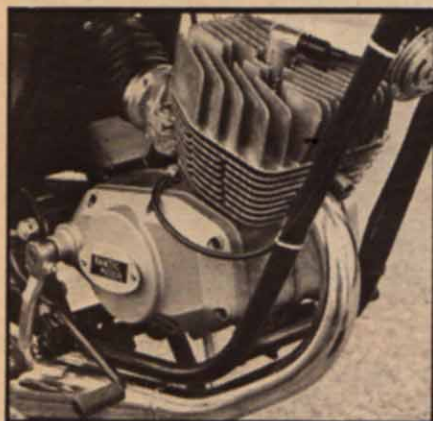
# SIMPLE SERVICE

# MINARELLI 50

It's surprising but a lot of people seem to think that mopeds don't need servicing. On the contrary, if the bike is to last for a reasonable length of time it should be serviced just as meticulously as any big bike. If you have a moped fitted with a Minarelli engine, you'll know that these engines produce a lot of power for such a small capacity. All the Fantic range of mopeds are Minarelli powered, so it was to Fantic Moto (UK) we went when we wanted to find out just what servicing is needed to keep one of these engines up to peak performance.

Considering how high the engine output is it is surprising to find out just how imprecise ignition timing can be. When the engine is assembled in the factory the flywheel is marked electronically, and ignition timing consists of just checking that the points open at this point.

Contact breaker points gap, which is normally within very close limits can vary between 12 and 15 thou. However, for the best results the gap



should be between 13/14 thou.

The contact breaker points have a hard life, and for maximum performance they should be changed every time the engine is decoked. Intervals between decokes, for the normal rider, are between 2500 to 3000 miles.

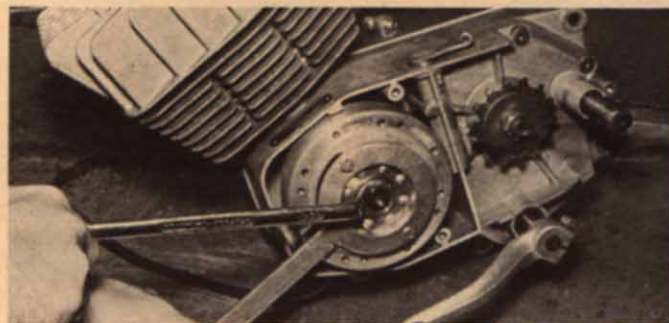
The first stage in renewing the points is to remove the offside engine cover. Removing the flywheel requires two

WORDS: MIKE CAZALET  
KNOW-HOW: FRANK HARRIS  
PICTURES: ROD SLOANE

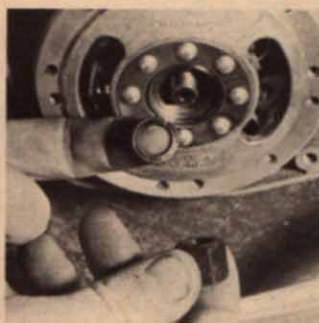
tools. A flywheel holding tool isn't always essential, with some motors the outer retaining nut may be loose enough to be undone with a good hard jar to the end of the spanner but a flywheel puller is essential.

The flywheel is held to the shaft by a taper, with a woodruff key to align it accurately. Normally the flywheel isn't too tight on the shaft and just gently pulling the centre bolt of the extractor down should pull the flywheel clear. If, for any reason, it is very tight then pull the centre bolt of the extractor down reasonably tight and jar the end of the bolt with a heavy mallet.

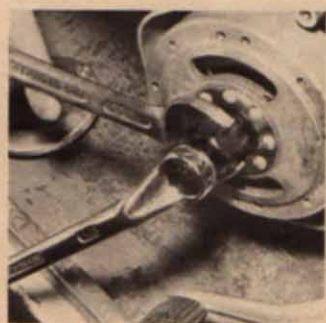
The contact breaker points are held on the back plate with a single screw. It is easier to take the back plate off the crankcases to change the points, rather than try to do the same job with the back plate in position. Before removing the back plate scribe



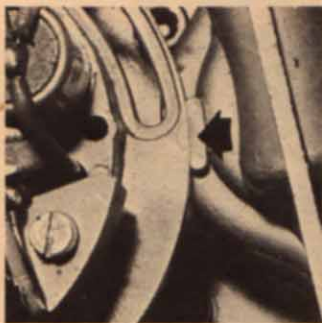
1. Although the flywheel holding tool is used here, it should be possible to hold the flywheel with one hand and jar the spanner.



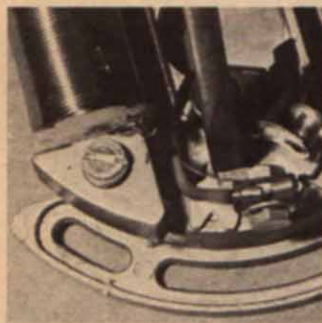
2. The flywheel is retained by a long nut and a spring washer. Check the washer isn't flat.



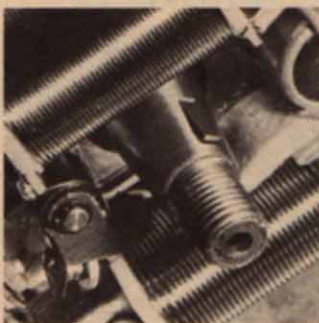
3. The flywheel puller is essential. Make sure the tool is fully screwed into the flywheel.



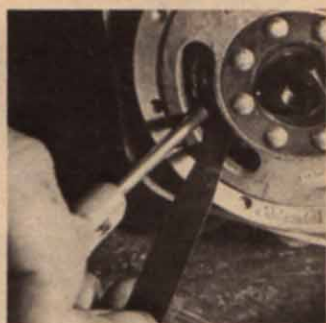
4. With flywheel off the shaft, mark the stator plate and the crankcases to make sure that the timing isn't disturbed.



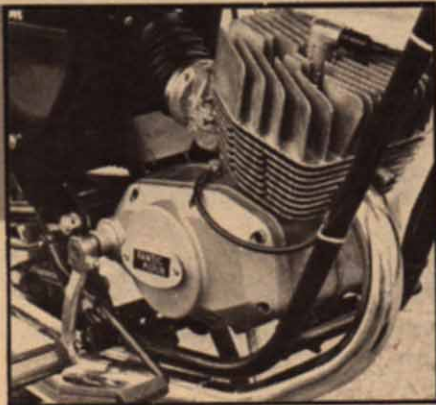
5. This single screw not only retains the points but also locks them when the points gap has been set at 13-14 thou.



6. Examine the shaft and the woodruff key for signs of damage before refitting the flywheel. Both must be grease free.



7. Setting the points gap is a fiddle, both the screwdriver and the feeler gauge have to be used through this small window.



*continued from page 33*

a line on both the plate and the crankcases so that the plate can be refitted in the same position.

The contact breaker points gap has to be checked with the flywheel in position since the cam is part of the flywheel. Refit the flywheel making sure the woodruff key is in position, but only lightly tighten the retaining nut. Full lift position for the points is scribed on the flywheel. Turn the flywheel round carefully by hand until the mark is at the top where it should line up with a scribed mark in the crankcase.

Points gap is checked with feeler gauges through the small window in the face of the flywheel. If the small screw which holds the points in position is

slackened off about half a turn the points can be moved by wedging a screwdriver into the diamond shaped slot just below the securing screw.

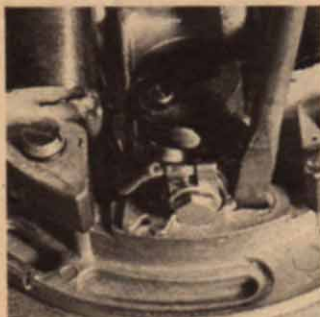
If there is any reason to suppose that the timing has altered, checking the opening position of the points is simple, either using an ohm-meter or a battery and light bulb to check when the points are just breaking. Normally there is a small hand scribed line almost alongside the normal timing mark. At this position the points should just be opening. If the timing is out the flywheel has to be taken off, the three screws which hold the back plate in position slackened and the points plate repositioned. It may take two or three attempts before the timing is exactly right, but the results justify the work.

When the ignition timing, and the points gap are exactly right all that needs to be done is to tighten up the centre flywheel nut and refit the outer cover.

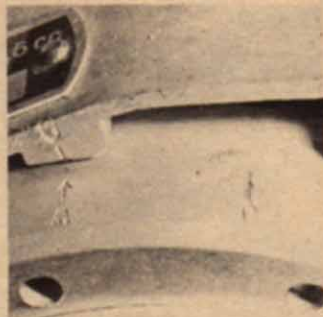
Two-strokes don't like carbon. The more carbon is allowed to build up the slower the engine runs, and the slower the engine runs the quicker the carbon builds up. Decoking the top half is an easy job providing certain precautions are taken. Four nuts and plain washers hold the head in position. Undo the exhaust first of all and then undo the four nuts holding the head. The nuts and washers can be left loose in the head, they can't fall into the engine when the head is removed.

Place the head on one side and turn the engine over till the piston is at top dead centre. Lift the barrel slightly till the bottom of the piston is just visible below the bottom skirt of the barrel. Hold the barrel at this point and seal off the mouth of the crankcase with clean rag. If there should be a broken ring it can't drop into the crankcase if the mouth is sealed off.

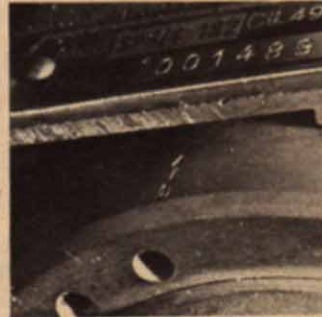
Although the rings are very reliable it pays to change them at the same time



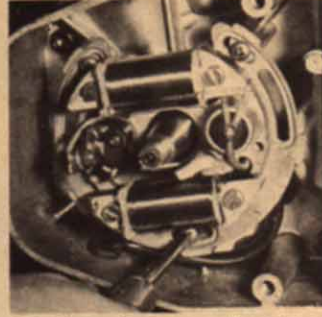
8. The screwdriver is inserted in this notch to adjust the points gap. Slight movement of the driver alters the gap.



9. Letter "O" on the flywheel is the point of maximum lift on the cam, and it is at this point that the points gap is checked.



10. Moving anti clockwise the next mark is the point at which the points should just be opening. This is checked with a bulb.



11. If the timing needs altering these three screws round the outside of the stator plate need to be slackened off.



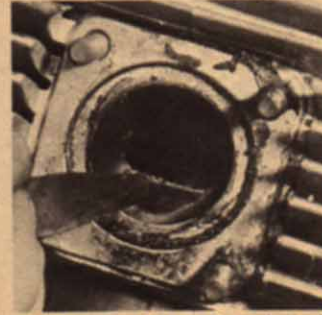
16. Mark the front of the piston before taking it off the con-rod. As a double check notice the position of the ring pegs.



17. Ring grooves are best cleaned out with an old broken piston ring, but protect your fingers with rag when cleaning.



18. Flat topped pistons are best cleaned with a feeler gauge, but make sure to hold the gauge flat and don't scratch the top.



19. Exhaust port is relatively smooth, so most of the carbon should come out by scraping with the side of a feeler gauge.

# SIMPLE SERVICE

# MINARELLI 50

as the top half is decoked. Always use genuine rings, both the material they are made from and the dimensions are critical. The rings are Dykes pattern, that is "L" shaped so it is critical that the ring grooves are perfectly clean. Blowby past the rings loses power and can cause piston damage. The best way to clean out the ring grooves is with a short length of the old ring used as a scraper. Break a two inch section out of the old ring and wrap one end in rag. Use the other end to scrape all the carbon out. Take special care to clean round the piston ring grooves.

Because the Minarelli range of engines are high revvers there shouldn't be too much carbon in the exhaust port, but nevertheless the port should be cleaned out. The ideal tool for cleaning the port out is the side of an old feeler gauge.

It isn't really necessary to polish the exhaust port, but since carbon doesn't build up so quickly on a polished surface it is worth the effort.

PLUG CHART	
FANTIC CHOPPER 50 ....	CHAMPION N2
GT, SUPER T and	
CABALLERO .....	CHAMPION L81
ROMA and	
DEPUTY .....	CHAMPION L86
ITALJET .....	CHAMPION L61
CIMATTI CHIC and	
BOBCAT .....	NGK B7HS or B6HS
KAIMAN SPECIAL and	
SAGITTARIO.....	NGK B7ES or B6ES

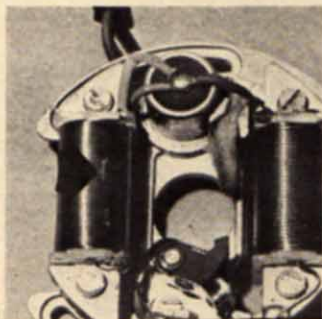
The top of the piston on most motors is flat, so once again the flat edge of a feeler gauge makes a handy decoking device. Again a polished surface isn't necessary, but if you've got the time it's worth doing. The same thing applies to the cylinder head.

Changing the gearbox oil makes sense when you think how hard it is expected to work on such a small engine. The smaller 13mm bolt right in the centre of the underside of the engine is the gearbox and transmission

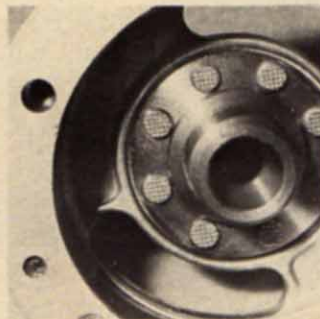
drain bolt. When all the old oil has drained out replace the bolt and put about one and a half pints of SAE 40 or SAE 30 in the gearbox. With the bike standing on a level surface undo the larger 16mm level bolt and allow the oil level to settle. It is essential to use a straight grade 30 or 40 oil.

The only servicing job remaining is to decoke the silencer. Apart from the Super T all Fantic models have detachable silencer baffles. The baffles are held by different methods on different models. With the GT there is a securing screw, and after this is removed the baffle is twisted anti-clockwise slightly and pulled out. Besides cleaning the outside of the baffle clean out the small holes through which the exhaust gas passes.

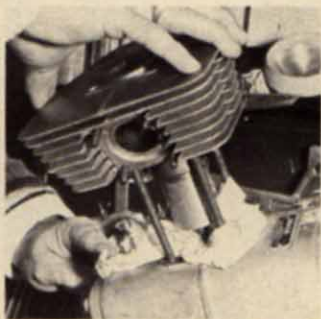
For the sake of simplicity Fantic have decided that 2500 miles should be considered the servicing point for all their mopeds. The only exception they make is the chain which should be examined every week and checked at its tightest point.



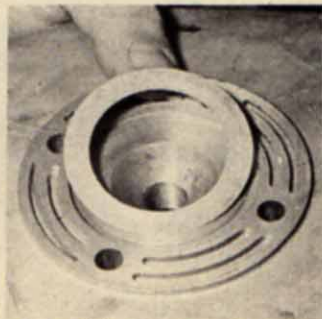
12. The result of dropping the stator plate into the flywheel is damage to the stator coils. Always pad with rag.



13. Damage to the stator coils is done by these rivets which hold the cam on to the flywheel. Notice the cam lobe position.



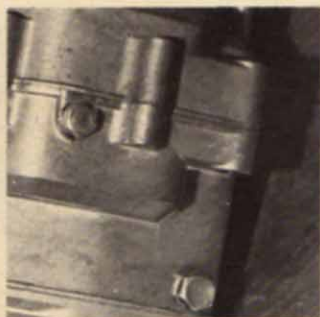
14. Stuff the crankcase mouth with rag before lifting the barrel clear of the piston. Rag prevents dirt falling into the crankcase.



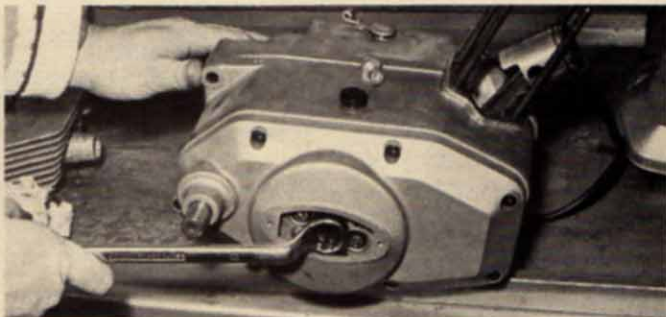
15. Cylinder head gasket is a thin circle of aluminum which must be replaced every time the head is lifted off the barrel.



20. If the rings aren't changed regularly they can break. The score mark in this barrel was caused by leaving old rings in.



21. Front of engine is to the right. Top, smaller, bolt is the transmission drain and the bottom, larger, one is the level plug.



22. Ideally clutch adjustment should be done from the gearbox. Set the adjuster so that there is about  $\frac{1}{16}$  inch play in the gearbox lever.

# IceniCAM Information Service



[www.icenicam.org.uk](http://www.icenicam.org.uk)