

# MATCHLESS STRIPDOWN

*The 250c.c. engine is simple to maintain and overhaul*

**T**HE model G2 Matchless is probably one of the best-designed engines ever to be available to the motorcyclist. It is highly efficient, powerful, relatively trouble-free, and easy to maintain. Used in competition form by a number of top-rate British scramblers, and on the road in thousands, it is already established as a fast and reliable mount.

Unlike the majority of sporting machines, there are no tricks or snags likely to baffle the average owner while stripping this engine. It strips easily. Only two special tools are required. One is for removing the contact breaker cam—this tool is supplied in the machine's toolkit. The second is for removing the timing pinion. You'll have to get this particular tool from your Matchless dealer. It costs only a few shillings, but some dealers are prepared to lend them against a deposit. Apart from these two tools, all the rest of the work can be done with a normal toolkit.

When should you strip down your motor? Don't strip it down for curio-

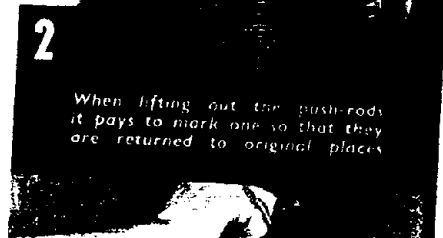
sity. Only strip the motor when you are pretty sure that there is something wrong inside. Strip it when you want a new big-end fitting or when the main bearings are beginning to rumble. Replacement of the mains in this engine is only a week-end job—including the time to take the engine out of the frame.

Start your work in a clean place. Don't expect a machine that has been assembled, while covered with grit and dust, to give you good service. Cleanliness is essential during bottom-end overhauls. Place all the various parts on clean paper or in boxes. Clean each piece as it is taken off the machine. This way, you will immediately spot any worn parts.

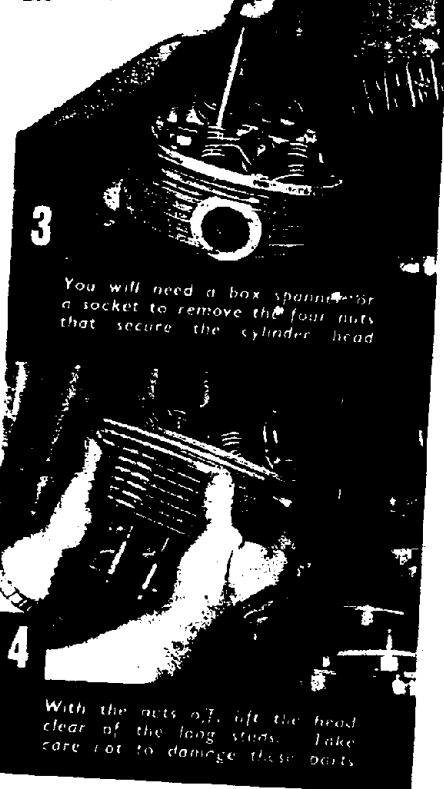
**WATCH HOW  
IT'S DONE**



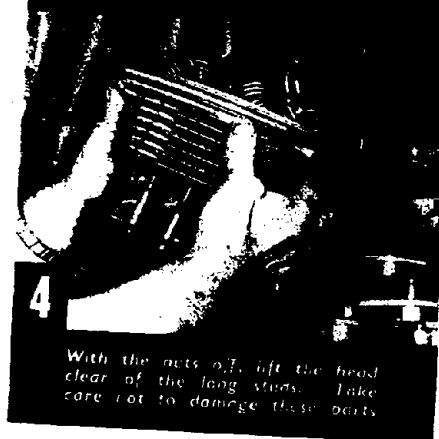
**1**  
Remove engine from frame before stripping. Then start by taking off the rocker box with rockers



**2**  
When lifting out the push-rod it pays to mark one so that they are returned to original places



**3**  
You will need a box spanner or a socket to remove the four nuts that secure the cylinder head



**4**  
With the nuts off, lift the head clear of the long studs. Take care not to damage these parts

**CONTINUED OVER**

66A

# MATCHLESS STRIPDOWN

**F**OR the benefit of overseas readers here are specifications of the Matchless G2. Engine capacity, 246.5 c.c. (15.2 cubic inches). Bore, 69.85 mm. Stroke, 64.84 mm. Carburetter, Amal Monobloc type 376 99 (12 degree inclination). Fuel tank, 2½ gallons (12.5 litres). Engine compression ratio, 7.8 to 1. Seat Height, 30 inches. Wheelbase, 53 inches (134.5 cms). Ground clearance, 5½ inches. Weight, 325 lbs (148 kilos). Actual gear ratios, first gear 20.12 to 1; second gear 12.75 to 1; third gear 8.96 to 1; Top gear 6.89 to 1.



**5** The barrel can now be lifted off the top of the studs. If it is tight try tapping it lightly with a mallet or piece of wood



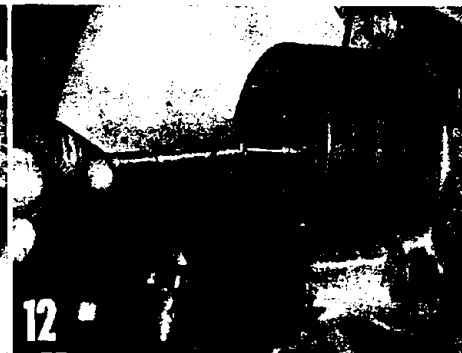
**6** To remove the gudgeon pin and piston use a pair of circlip pliers and take out the gudgeon pin circlip. Slide or tap out pin



**0** The contact breaker plate is held by two screws. Remove these and the plate can then be lifted away from the cam assembly



**11** Now remove the bolt holding the contact breaker cam and bob-weights. This is a normal thread and can be loosened simply



**12** There is a special tool supplied in the bike's tool-kit for withdrawing the cam assembly. Avoid damage by using this tool



**16** To loosen mainshaft pinion nut (a right hand thread), lock engine by putting a long bar down between the two flywheels



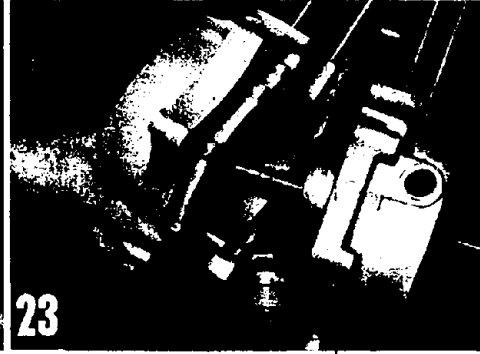
**17** A special extractor can be bought from dealers to remove timing pinion. Don't damage the case by levering this part



**18** Remove the oil pump guide pin. This is directly below the timing pinion and it is released by unscrewing with screwdriver



**22** The crankcase can now be split—begin by removing all the crankcase bolts with a socket or box spanner. Note flat washers



**23** If you find that the crankcase appears to be stuck tight, tap one side lightly with a hide mallet or a piece of hard wood



**24** Draw out the flywheel assembly. This may appear to be held fast in one side of the crankcase—to free tap end of the shaft

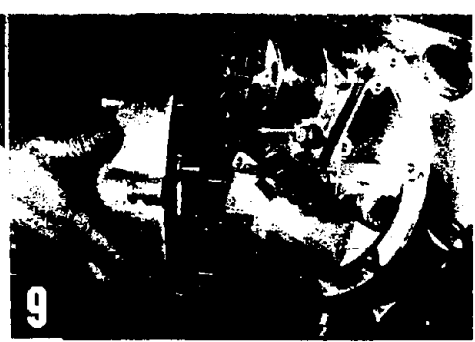
66B



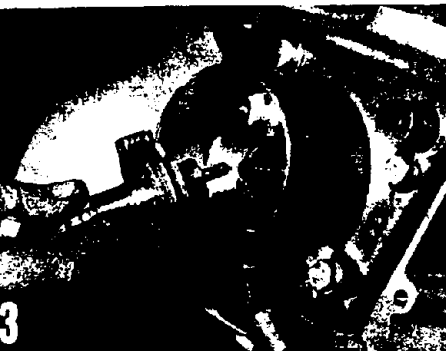
**This shows one method of pushing out the gudgeon pin using a drift. The drift is just pushed through the warmed-up piston**



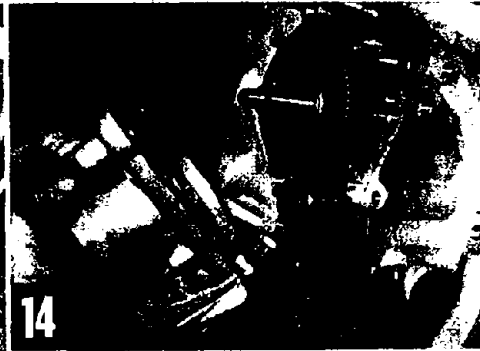
**The oil tank is inside the outer cover on the right side of crankcase. Loosen the bolts and then remove the casing**



**This shows the oil tank cover taken off the engine. If you find that it is stuck then it can be jarred loose with tapping**



**The complete contact breaker cam assembly including bob-weights, can now be pulled off its shaft. Do not lose small springs**



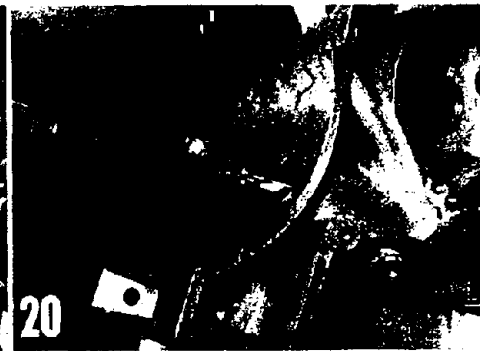
**The timing cover can now be taken off but remember that there may be a little oil inside. All the pinions are pop marked**



**When pulling off cam followers note that the longer spacer is on the outside of the shaft and the shorter one between followers**



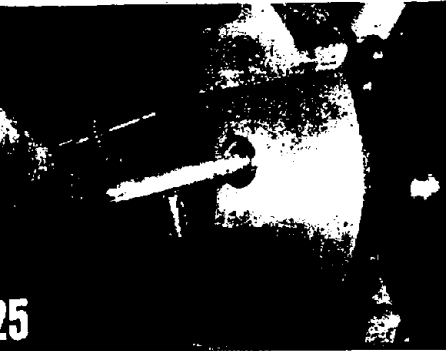
**Now take out the oil pump end plug which is situated at the rear of the crankcase shell. If tight tap the screwdriver end**



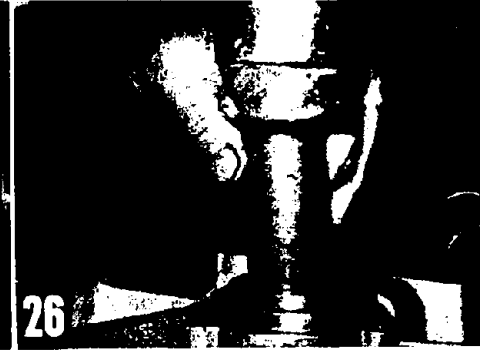
**It may be necessary to turn engine slightly to get the pump plunger out of mesh. When free slide it back with aid of small bar**



**The oil filter element is pulled out by hooking it with a piece of wire or a small screwdriver take care not to damage it**



**Next remove the crankcase breather pipe from the rear of the casing. This is on the drive side and is screwed in place**



**To remove the bearings on the drive side of crankcase, tap out with drift. The timing side is just a normal bronze bush**



**This shows the complete drive side bearing assembly in order on the crankshaft. Also showing is the crankcase breather block**