

SUNBEAM OVERHAUL

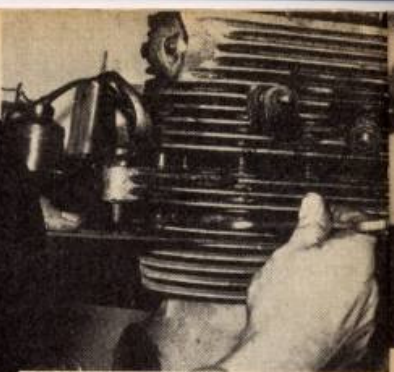
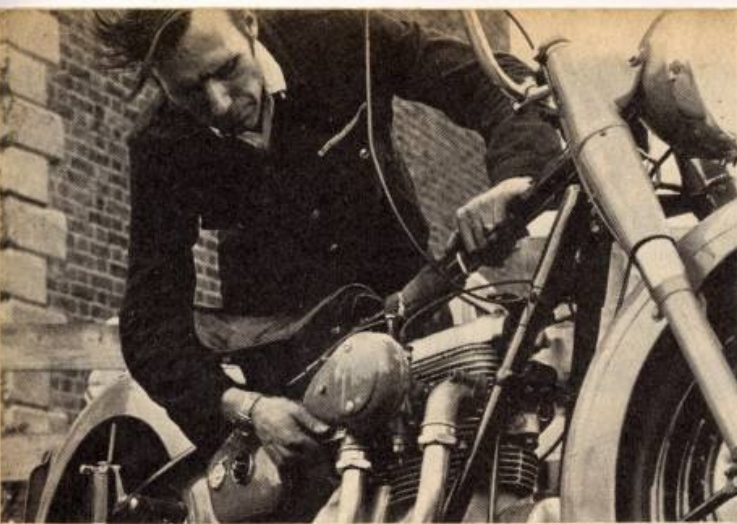


**DAVE LANGTON, SUNBEAM
EXPERT, REBUILDS THIS
OHC, SHAFT-DRIVE TWIN . . .**

► The man who designed the Sunbeam must have been a four-wheeler enthusiast, because if any motorcycle can be likened to a car on two wheels, that motorcycle is the Sunbeam.

The clutch, shaft drive, overhead camshaft, and even the rubber blocks on which the engine is mounted show that a lot of "car thinking" has influenced its construction.

MM went to the 'Beam specialist, Stewart Engineering, of Bective Road, Putney, to watch the overhaul of one of these fine, old 500 cc, twin-cylinder machines . . .



By inserting a flat file on the fins beneath cylinder head joint, the head nuts can be used to jack head from its seating

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▶ Before attempting to remove the engine unit from the frame, the exhaust system, carburettor, distributor and dynamo need to be dismantled.

The sump and gearbox should be drained by removing their respective drain plugs.

Note when removing the dynamo that the central securing bolt has a left-hand thread.

Next, remove petrol tank and disconnect speedometer drive from top of gearbox, remove battery, control box and battery carrier.

The distributor must be unclipped, but it is not necessary to disconnect the lighting harness as this is long enough to allow the boxes to be placed on top of saddle.

Release clutch cable from the gearbox end and undo the two universal joint bolts at the front end of the shaft drive.

When reassembling the universal joint, note that the joint bolts are spigoted in pairs and also that the forks at each end of the shaft must be in line.

DAMPER PLATE

All that now remains is to remove the engine damper plate. This looks very complicated, but if special note is taken while dismantling, there should be no problems.

First remove the main nut with its washer, cone-shaped cap and spring. Then the two securing bolts immediately above it to free the damper plate and its four small reinforced plates and friction disc.

On the lower frame clip is a bolt which holds a tongue between two rubber reaction snubbers. Remove this bolt and slacken off the top bolt on the frame clip, then knock the clip

along the top frame tube out of the way.

Place a block of suitable height beneath the sump, then two engine mountings, one at the rear of the gearbox and the other at a point just above the dynamo can be removed.

The engine should now be lifted out from the offside.

Eleven nuts hold the head on and two of these are often overlooked because they are concealed behind a cover plate under the distributor.

The best way to lift a stubborn head is to place a flat file on to the barrel, below the head joint and use the nuts as jacks.

As they are undone and come into contact with the file they will automatically force the head from its studs.

While doing this, don't forget to keep the other nuts loosened and the two inside nuts!

USEFUL DATA

Ignition timing. Points just opening at tdc.

Tappets. 18 thou (engine cold).

Points gap. 12 thou.

Oil capacity. Sump—3½ pints, Gearbox—2 pints.

Valve timing. Inlet opens 45 deg. btdc and closes 70 deg. after bdc. Exhaust opens 65 deg. before bdc and closes 35 deg. after tdc.

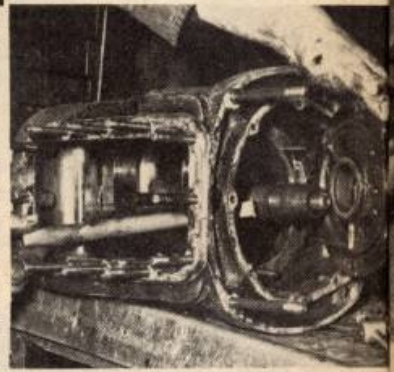
With the engine at tdc and the hole in the camshaft for the sprocket locating peg *absolutely* vertical above the bolt hole, the valve timing must be correct.

Finally, when the engine has been run for about 200 miles after a top-end overhaul, all nuts must be checked for tightness with the engine *cold*.

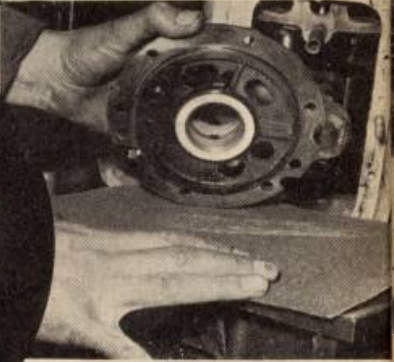
The exhaust system, distributor, etc. will have to be removed again to do it—but it must be done.



Take off oil sump and examine holding bolts for firmness in crankcase. Helicoil if necessary. Note that filter faces down



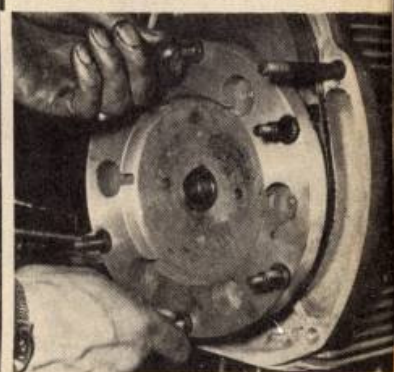
Rear main bearing housing can be tapped if it appears stiff after nuts have been removed. Be sure to use a soft drift



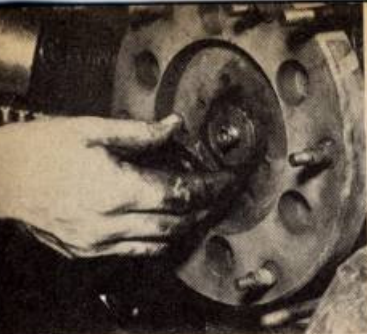
Both big-ends are 1.625 in. They can be ground up to 40 thou. Look for scoring on No. 2 as this wears more than No. 1



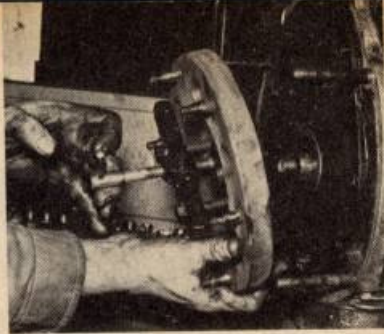
A rubber sealing ring goes on to shaft against the thrower plate. The half-time wheel is held by a circlip. Fit a new one



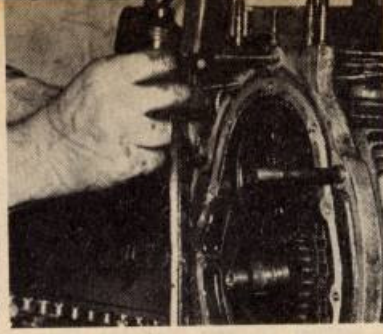
With the chain and gears in position and the Woodruff key in shaft, the flywheel can be replaced. Clean taper faces



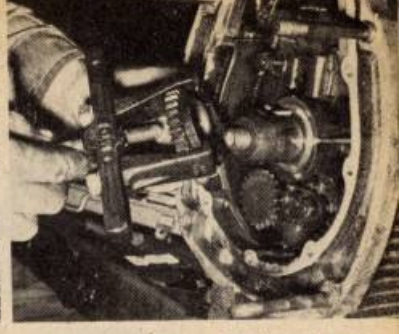
Remove six clutch retaining nuts, springs and plate. Bend back the tabs on flywheel nut washer—remove nut. Always renew washer



The flywheel is keyed to a tapered shaft and needs the extractor shown to take it off safely. Screw extractor bolts in well



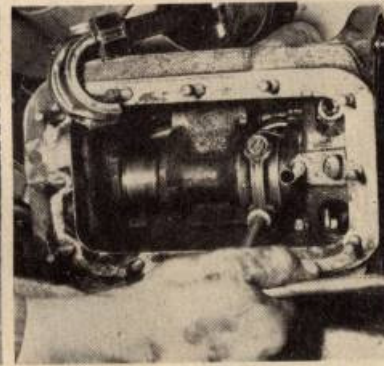
The timing chest cover has an oil seal which should be knocked out and replaced. Top retaining screw is longer than others



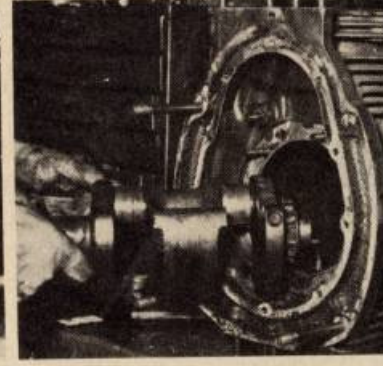
Crankshaft gear is keyed and can be very tight on the shaft. A combined flywheel/gear extractor can be bought at Stewarts



The oil pump gives no trouble. All that is necessary is to check balls for ridges, etc, and spring length against new ones



Con-rod nuts are always pinned and must have new pins fitted every time they are removed. Do not use wire—it breaks



When con-rods are off, the crankshaft can be lifted out for examination and front main bearing checked for any wear



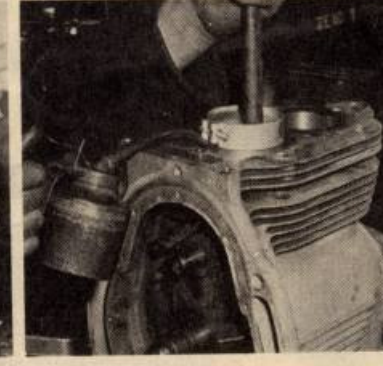
The crankshaft is hollow and after a large mileage, heavy deposits of sludge form and restrict oil feed to the ends



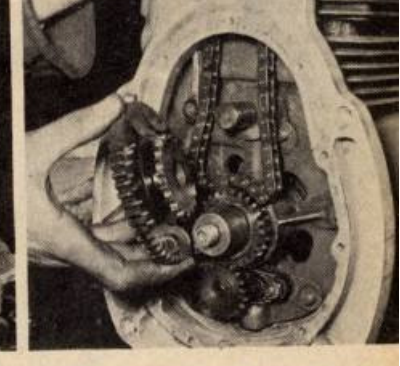
Crankshaft end-float should be 4 thou. If less, face off the white metal bearing by rubbing it on fine emery on flat plate



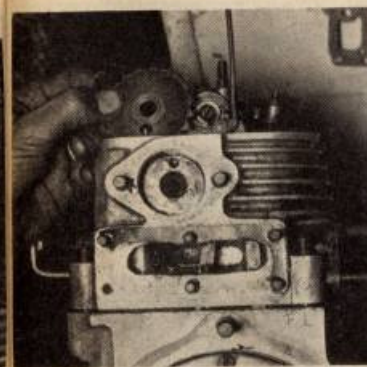
Small-ends never go as they have very little movement. The No. on con-rod must be on same side as highest edge of piston



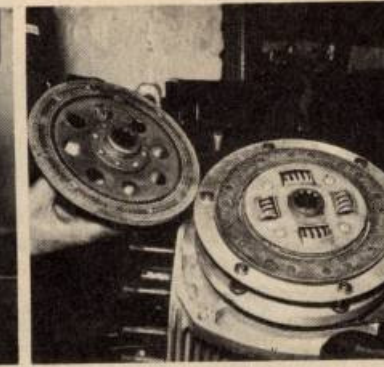
Space rings one third of way round—not over gudgeon pin holes—apply some oil to ring lands and bore before final fitting



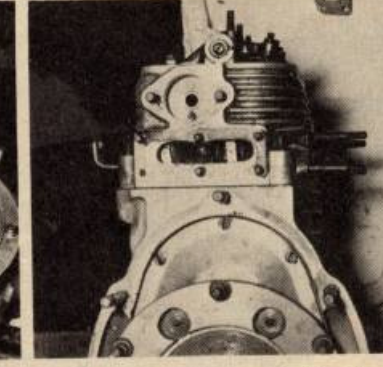
The original cam chains were endless, but the latest, split-link type can be fitted without even removing the head



Hook up chain with length of stiff wire and put cam sprocket in position using a screwdriver instead of bolt until at tdc



Here a Borg & Beck clutch is shown fitted to the motor to give smoother take up and far better service than the original



Fit cam sprocket with the distributor locating peg hole absolutely vertical when the engine is at tdc for valve timing



Valve clearances should be set when the engine is cold. On no account attempt this with a warm engine. Set to 18 thou