BSA SERVICE SHEET No. 406

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C10 and C11 Models

REMOVING ENGINE FROM FRAME AND COMPLETE DISMANTLING

The procedure for the removal of the engine and dismantling will be described from the point reached in the section on decarbonising, when the cylinder head and barrel had been removed.

The next step is to drain the oil tank or remove the oil pipes and plug the holes in the tank. Remove the oil pipes by disconnecting at the crankcase end.

Detach the leads to the dynamo (both of which are held by a small plate and single screw), and the lead to the distributor.

Removing Chain Case

The oil bath chain case follows next. Take off the footrest and undo all the screws round the rim of the case. The nuts of the screws are welded to the rear half of the case and so cannot be lost.

When the outer case is being taken off, careful note should be made of the position of the cork washers and distance pieces to facilitate re-assembly. Before removing the chain, loosen the clutch (as described in the next Section), and then dismantle the engine shaft cush drive.

Tap the lock washer clear of the slot in the cush drive retaining nut and unscrew the nut. Then withdraw the spring and cam sleeve, leaving the sprocket and chain in position.

Removing Clutch

Remove the clutch actuating cap by unscrewing the spring retaining nuts and lock nuts.

Tap the lock washer back, unscrew the clutch retaining nut, and withdraw the long push rod.

The clutch can then be removed with the aid of Extractor 61-3362 which screws into the threads provided in the clutch hub. Now uncouple the chain, take off the clutch as a unit, and then the cush drive hub. (See also Section dealing with Clutch Assembly.)

The inner half of the primary chain case is attached to the crankcase by three bolts, and it can be detached when these are removed.

Undo the engine bolts, taking great care to avoid damaging the threads, and remove the front engine mounting plates. If the rear engine and gearbox plates have been slackened sufficiently, the engine can now be withdrawn if it is tilted slightly to release it.

It is advisable to replace the various bolts and studs loosely in their respective locations to ensure correct re-assembly.

Dismantling the Engine

Before commencing to dismantle the engine, a simple fixture as illustrated in Fig. C.15 will facilitate matters considerably.

Alternatively, clamp the engine in a vice by means of one of the mounting lugs supporting the crankcase on the bench.

Remove the crankcase drain plug and drain the oil. Take out the timing cover screws and pull off the cover. Clean it and place on one side.

Flatten the turned over end of the camshaft nut locking washer and remove the nut. Slacken the dynamo strap nut and turn the dynamo to slacken the chain.

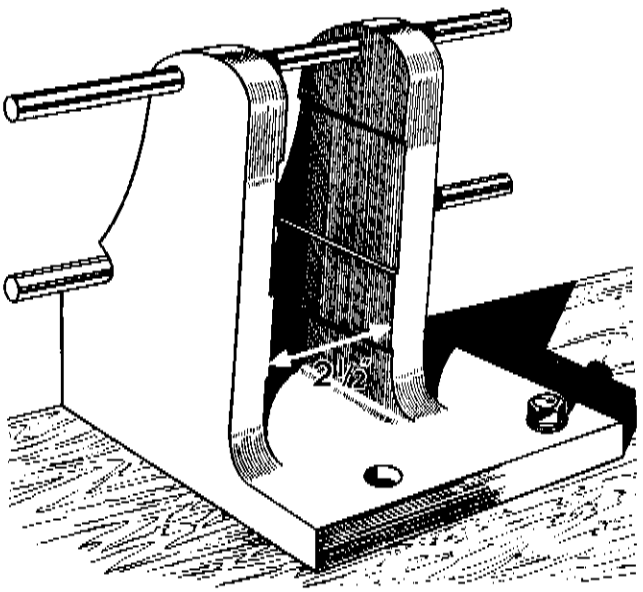

Fig. C.15. Angle bracket for mounting engine.

Take off the dynamo drive sprocket (Service Tool 61-3256) and chain. Remove the dynamo, clean the chain and sprocket in paraffin, and set aside.

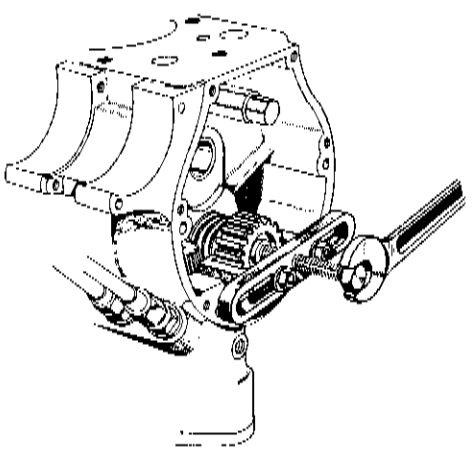

Fig. C.16—Engine shaft pinion extractor. (Service Tool 61-3256.)

Slacken off the clamp nut immediately below the distributor head and withdraw the distributor complete. Take out the screws retaining the inner timing cover, noting the locations of the longer screws. Remove the cover, clean it, and set aside.

Withdraw the camshaft complete, flatten out the tab washer and remove the mainshaft nut. The mainshaft pinion can now be drawn off, using Service Tool 61-3256 (see Fig. C.16).

The oil pump drive spindle which meshes with the mainshaft pinion is retained in position by a dowel covered by a plain washer, situated just below the mainshaft to the left, in the edge of the timing chest.

Prick out the plain washer and pull out the dowel by screwing in one of the timing cover screws. The pump spindle can now be drawn upwards into the timing chest.

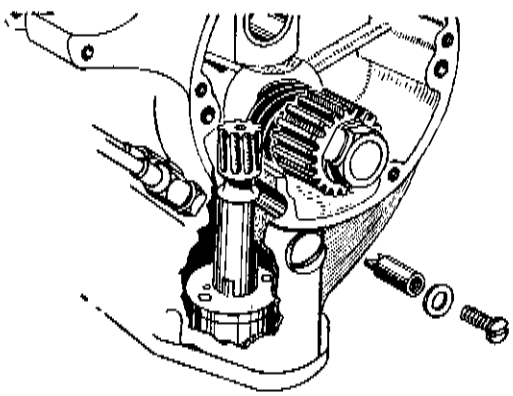

Fig. C.17— Oil pump spindle locking plunger.

Remove the nuts from the crankcase studs and take out the loose studs, noting the locations. Place the engine on its side, with the thumbs on the ends of the engine shaft and, gripping the gear-side crankcase half with the fingers, pull off the gear-side half.

The halves may not separate without some persuasion, but great care is necessary if damage to the casting is to be avoided.

Lift the flywheel assembly clear of the drive-side half, and remove the distance collar and oil flinger.

Take off the four nuts and lock washers at the base of the gear-side crankcase, and remove the filter. DO NOT REMOVE THE OIL PUMP UNLESS IT REQUIRES ATTENTION.

If new bushes and bearings are being fitted, the bushes must be reamed in position in line with the opposite bearing.

Old bushes can be driven or drawn out, but it will be necessary to heat the case in hot water to remove ball or roller bearings (see Fig. C.18). The new one should then be immediately fitted while the case is warm. (See Service Sheet No. 702 for dimensions of bushes.)

It is advisable to check and if necessary correct the flywheel alignment. For procedure see the Section dealing with engine re-assembly.

SPECIAL NOTE

The crankcase bearing drive side is held in position by a spring ring, and this must be removed before attempting to remove the bearing. Careful note should also be made of the way the oil flinger is fitted to ensure correct re-assembly.

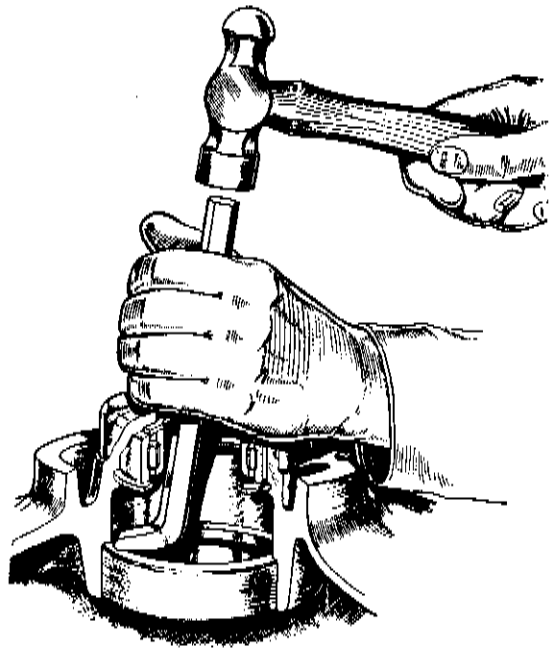

Fig. C.18.– Ballrace extraction (drive-side).

Finally, if the flywheels are to be separated they must be held securely on the bench, as extreme pressure will be required to release the crankpin nuts.

Special spanners are used, and it is usually necessary to add a piece of tubing to obtain additional leverage.

The crankpin is a taper fit in the flywheels, and can be released by a sharp blow with a mallet.

It is now only necessary to decide which parts require renewal, and the following may assist you in your decision:

We do not advise the fitting of over-size rollers to the big end assembly. The whole assembly, comprising crankpin, connecting rod and rollers, should be changed. All these components are carefully matched, working to one ten-thousandth part of an inch, and supplied in complete sets, ready for fitting.

If the bore of the cylinder, when measured at right angles to the gudgeon pin, shows wear to the extent of .010 in. or more, the cylinder should be rebored, and an oversize piston fitted. (Oversize pistons are available in 0.5 mm. (.020 in.) and 1 mm. (.040 in.)

Wear in mainshaft bearings or bushes will be readily apparent, and bearings showing signs of damaged balls, rollers or tracks should be replaced.

Special clearances are specified for mainshaft bearings used on B.S.A. motor cycles, and it is NOT advisable to fit other than genuine B.S.A. replacements.

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