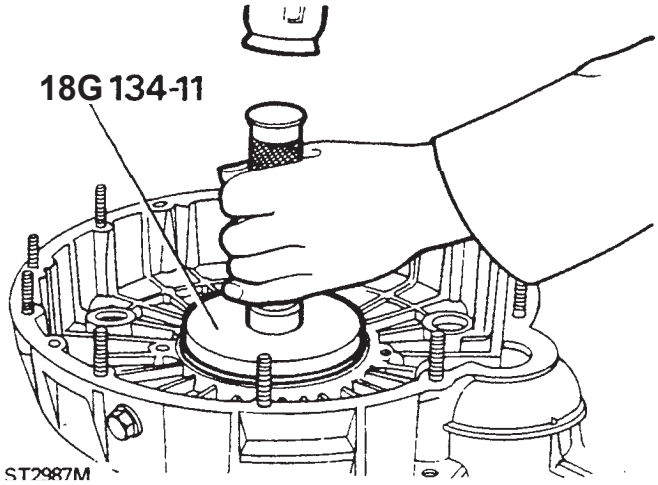
Fitting rear main oil seal to flywheel housing

The oil seal is manufactured from P.T.F.E. and is supplied with a former to maintain the correct shape which must not be removed until the seal is to be fitted.

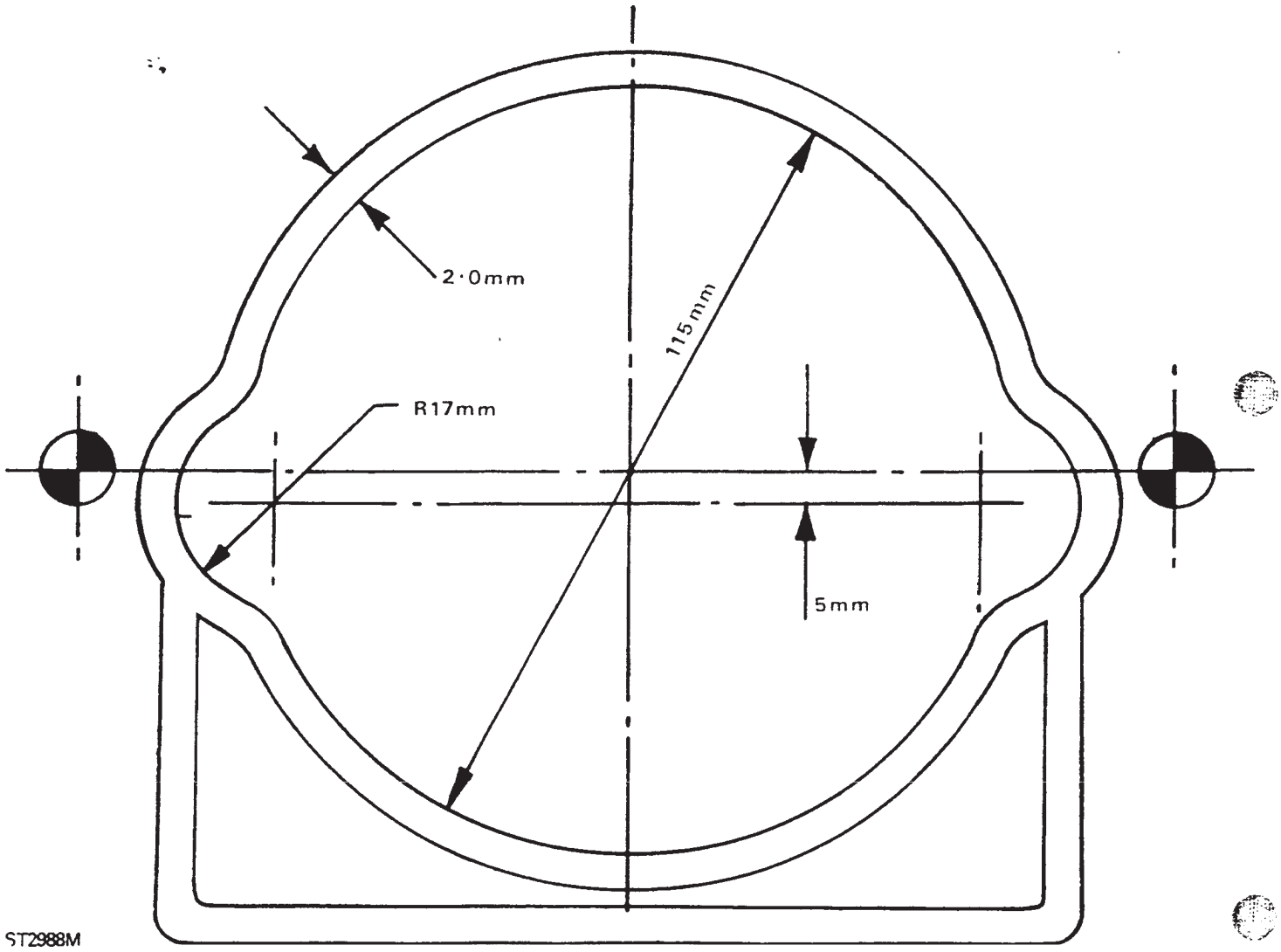


1. Make sure the seal housing is clean and dry and free from burrs. Do not touch the seal lip and ensure that the outside diameter is clean and dry.
2. Using special seal replacer 18G134-11 and with the lip side leading drive-in the seal as far as the tool allows. If the tool is not available fit the seal to the bottom of the housing to ensure squareness.

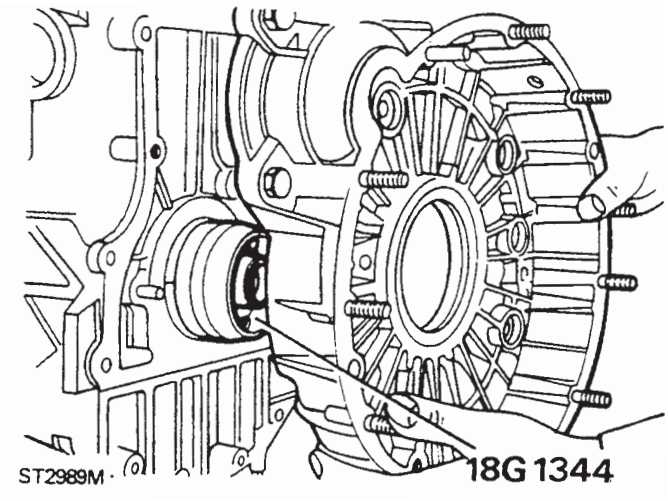
Fitting flywheel housing

3. Clean the rear face of the cylinder block and flywheel housing, then apply a bead of Hylosil 102 sealant to the dimensions and configuration, illustrated.

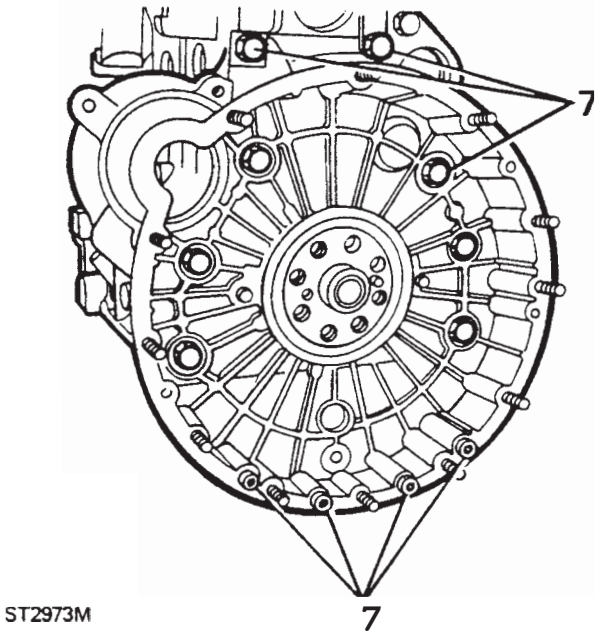
The illustration has been produced full size so that a template may be made to facilitate the application of the sealant. The bead should be 2,0 mm diameter and must extend around the periphery of the bearing cap so that the joint between cap and block is sealed.



4. Examine the seal guide, number 18G1344 ensuring that it is perfectly smooth and not damage or scratched. **Also** check that the crankshaft oil seal journal is smooth and clea.
5. Locate the seal guide on to the crankshaft and lubricate the seal, guide and journal with concentrated 'Oildag' in a 25% solution with clean engine oil.



6. Carefully locate the flywheel housing over the seal and on to the dowels.
7. Remove the seal guide and secure the flywheel housing, evenly tightening the retaining bolts to the correct torque.



OVERHAUL AND FITTING FLYWHEEL

Inspection

Normal wear and scores on the flywheel clutch face can be repaired by machining provided that the overall width of the flywheel is not reduced below 36,96 mm **(1.453** in) therefore check that the flywheel has not been previously machined before proceding further. The ring gear may be renewed if the teeth are chipped or damage.

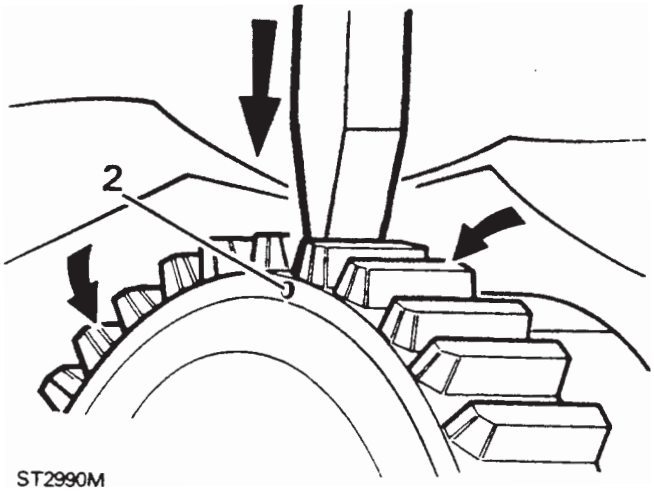
Reface the flywheel

1. Remove the clutch cover locating dowels. Machine the flywheel over the entire clutch face removing only the minimum of material necessary to achieve a smooth surface parallel with the crankshaft mating face within the dimensions given above.

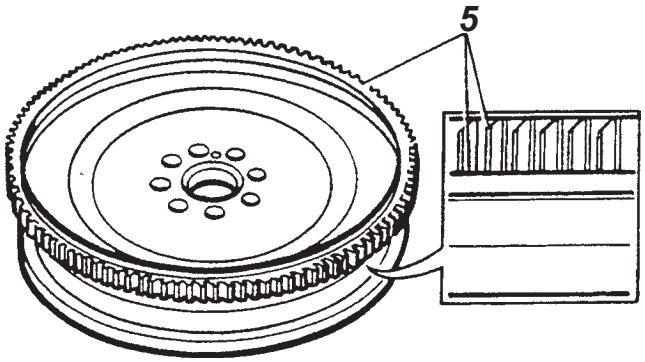
Renew Ring gear

WARNING: Wear industrial goggles to protect the eyes from flying fragments.

2. To renew the ring gear, drill a 8 mm hole between the root of any two teeth and the inner diameter of the ring gear deep enough to weaken the gear. Take care not to allow the drill to enter the flywheel.



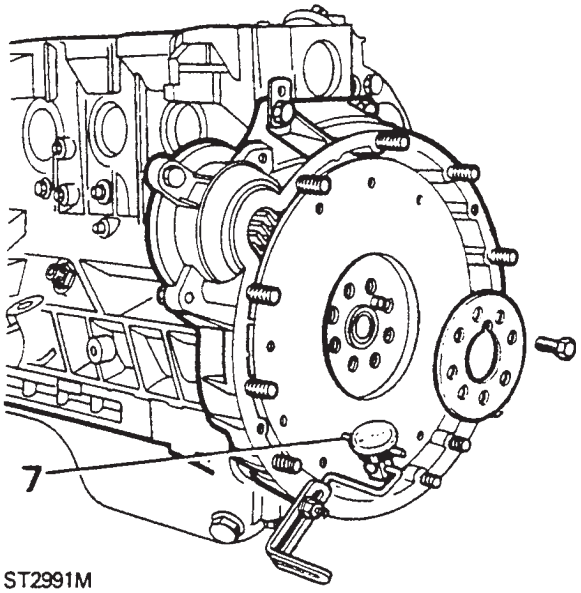
3. Secure the flywheel in a soft jawed vice and cover it with a cloth to avoid personal injury. Place a cold chisel above the drilled hole and strike it sharply to split the ring gear.
4. Heat the new ring uniformally to between 225°C and 250°C but do not exceed the higher figure.
5. Place the flywheel, clutch face down, on a flat surface and press the starter ring firmly against the flange until the ring contracts sufficiently to grip the flywheel. Allow the ring to cool naturally. Do not hasten cooling in anyway otherwise distortion may occur.



ST2640M

Fitting flywheel

6. Locate the flywheel on the crankshaft and secure with the reinforcing plate and retaining bolts. Temporarily fit the damper to front of crankshaft and use special service tool FR101 or LST127 to restrain the crankshaft whilst the eight retaining bolts are being tightened to the correct torque.
7. To check the flywheel for possible run-out, mount a dial test indicator so that the stylus rests, in a loaded condition, on the clutch pressure face at a radius of 114 mm (4.5 in) from the centre of the flywheel.
8. Tum the flywheel, and check that run-out does not exceed 0,05 to 0,07 mm (0.002 to 0.003 in). Should any run-out be excessive, remove the flywheel, and check again for irregularities on flywheel and crankshaft mating faces and dowel.

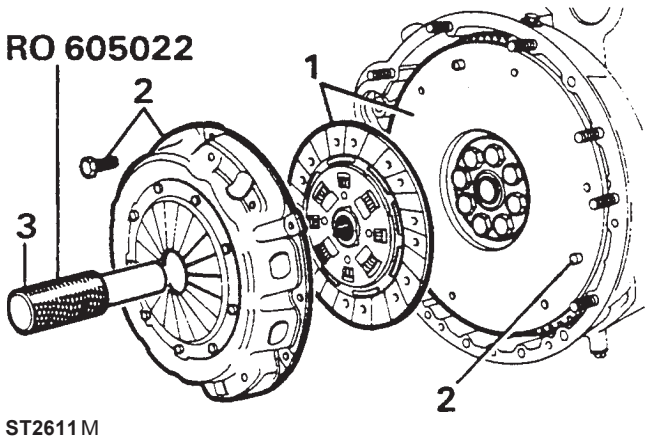


ST2991M

Fitting clutch

If the original clutch cover is being refitted, ensure any marks made during dismantling are aligned to maintain original balance.

1. Clean the flywheel and place the friction plate with the raised centre section outwards away from the flywheel.
2. Fit the clutch assembly locating it over the three dowels and loosely secure with the six bolts. .
3. Centralise the centre plate using special tool RO605022 or a spare primary shaft and tighten the six bolts evenly to the correct torque.
4. Remove the tool and smear the splines of the centre plate with Molybdenum disulphide grease, such as Rocol MTS1000.



ST2611M

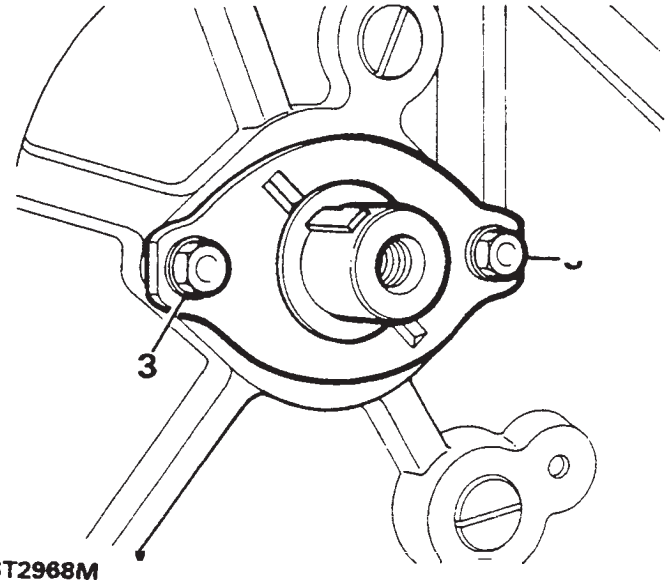
Fitting camshaft

Inspection

1. Mount the camshaft on "v" blocks on a surface plate for convenience and examine the cams for wear, scores, pitting and chipped edges.
2. Examine the journals for obvious wear and scores and signs of overheating, in particular, check the thrust plate. If the journals are visibly serviceable, check with a dial gauge or micrometer for overall wear, ovality, taper and runout.

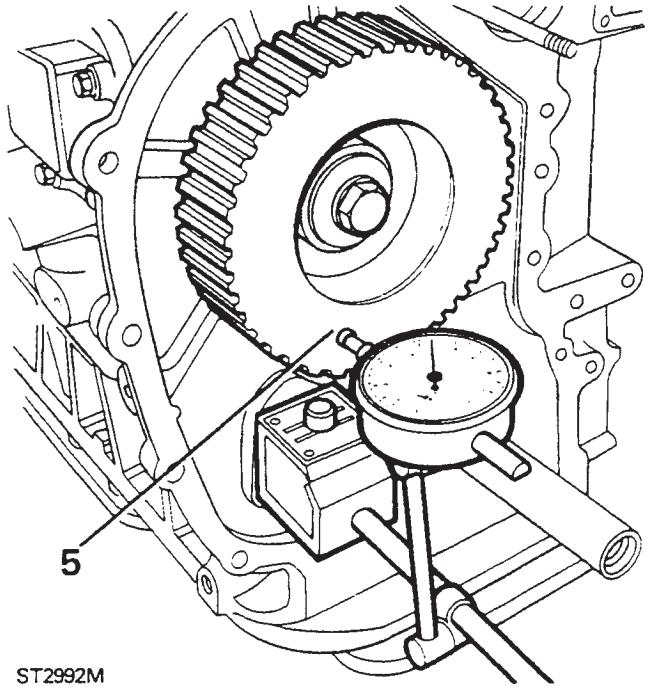
   CAUTION: **If** the skew gear is worn and requires renewal, the camshaft must also be renewed even though the camshaft gear may appear satisfactory. Once the **two** gears have run together they become a matched pair.

3. Lubricate the camshaft bearings and journals with clean engine oil and carefully insert the camshaft into the cylinder block. Fit the thrust plate and secure with the **two** bolts and tighten to the correct torque.



ST2968M

4. To check the camshaft end-float, temporarily fit the camshaft gear and mount a dial test indicator so that the stylus rests in a loaded condition upon the machined face of the gear.
5. Zero the dial and move the camshaft back and forward and note the reading. The end-float should be within 0,06 to 0,13 mm (0.0025) to 0.0055 in) If necessary fit another thrust plate to achieve the correct end float.

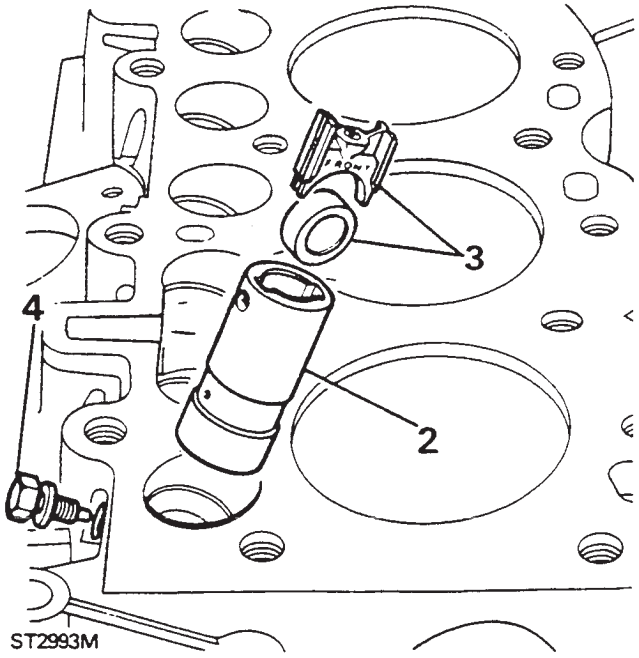


ST2992M

Fitting camfollowers

1. Examine all the components for wear and damage particularly the rollers and pushrod seating in the slides and ensure that the tappet slides move freely in the guides. If the same parts are being refitted, ensure that they are returned to their original positions.

Note: The tappet retaining screws have a micro encapsulated locking compound applied to the threads to ensure that they **do** not become loose. Once the screw has been used the locking ability is lost.



ST2993M