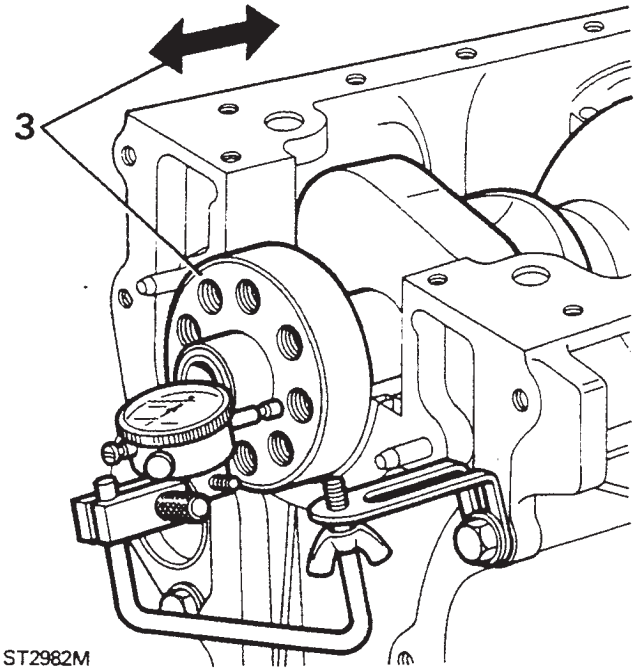
Crankshaft end float

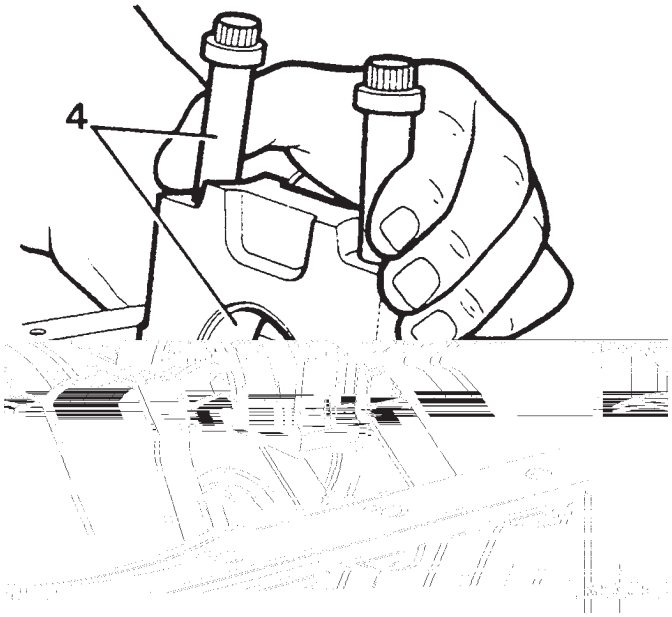
3. To determine the crankshaft end-float mount a dial test indicator to read-off the end of the crankshaft. Move the crankshaft away from the indicator and zero the dial, then Move the crankshaft in the opposite direction and note the indicator reading. The end-float should be 0,05 to 0,15 mm (0.002 to 0.006 in).



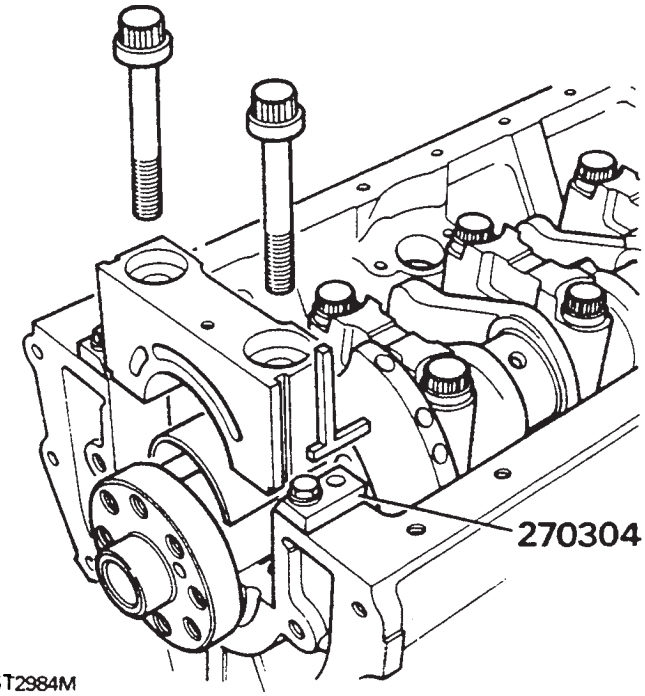
Alternatively measure the clearance with a feeler gauge. If adjustment is required substitute with oversize thrust washers. Variation of thrust washer thicknesses at each side of the crankshaft joumal must not exceed 0,08 mm (0.003 in) to ensure that the crankshaft remains centralised.

Main bearing caps

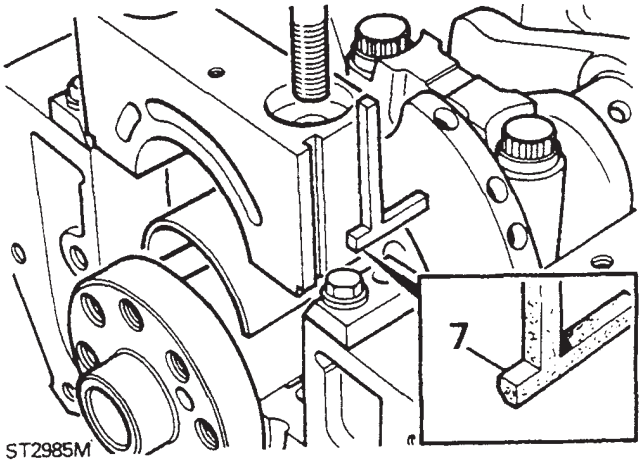
4. Lubricate and fit the centre main bearing cap, tighten both bolts to the correct torque and ensure that the shaft is free to rotate before fitting the next bearing cap.
5. Lubricate and fit 1-2 and 4 main bearing caps checking that the shaft is free to rotate after tightening the bolts for each.



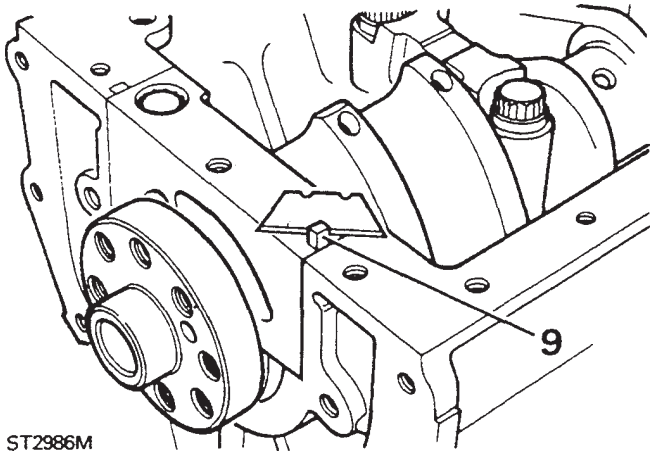
6. Ensure that number five main bearing cap is clean and free from old seal material. Attach the seal guides number 270304 to the crankcase, as illustrated, and ensure that they are parallel to the crankcase edge.



7. To prevent any seal material becoming trapped between the bearing cap and crankcase, chamfer the inner edge of the seal 0,40 to 0,80 mm wide as illustrated. Smear the seals with engine oil and fit them to the bearing cap.
8. Fit the bearing cap complete with shell bearing to the crankcase and secure with new bolts and tighten to the appropriate torque. Remove seal guides and check that the shaft is free to rorate.

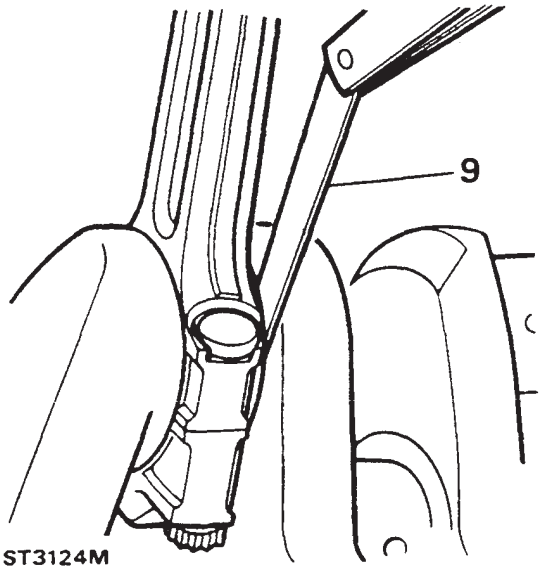


9. To allow for shrinkage after fitting leave the seals standing proud of the crankcase face then using a sharp blade, trim the seals off to approximately 0,80 mm above the crankcase face.



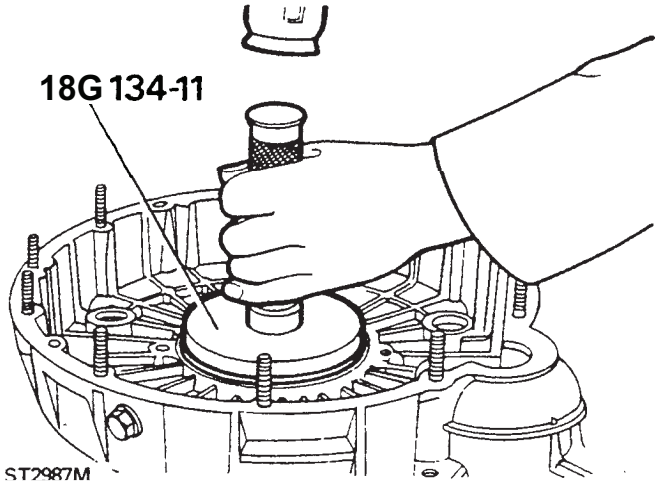
Fitting connecting rods and pistons

1. Ensure that the essentric headed big end bolts and shell bearings are correctly located in the connecting rods and as a precaution against possible damage to the crankshaft journals during installation of the pistons, cover the bolt threads with a layer of adheasive tape. Check that the number on the connecting rod is the same as the piston and cylinder and that they are correctly orientated.
2. With the cylinder block vertical, and 2 and 3 crankshaft journals at BDC lubricate and install 2 and 3 piston connecting rod assemblies so that the piston rings are resting on the block face.
3. Stagger the piston rings on both pistons as illustrated, then using a suitable tool compress the piston rings and gently push each piston into the cylinder bore.
4. Pull both connecting rod big ends on to the journals and fit the caps ensuring the the numbers match and orientation is correct. Retain the caps with new nuts but do not tighten at this stage.
5. Tum the crankshaft so that 1 and 4 journals are at BDC and install the pistons and connecting rods as previously discribed.
7. Tighten both nuts on one connecting rod to the correct torque and check that the crankshaft is free to rotate before securing the next connecting rod cap nuts.
8. Investigate and rectify any big end bearing which when tightened restricts the freedom of the crank shaft.
9. Check that each big end is free to move sideways on its journal and if necessary check the actual side clearance using a feeler gauge. The correct clearance is given in the data section.



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.

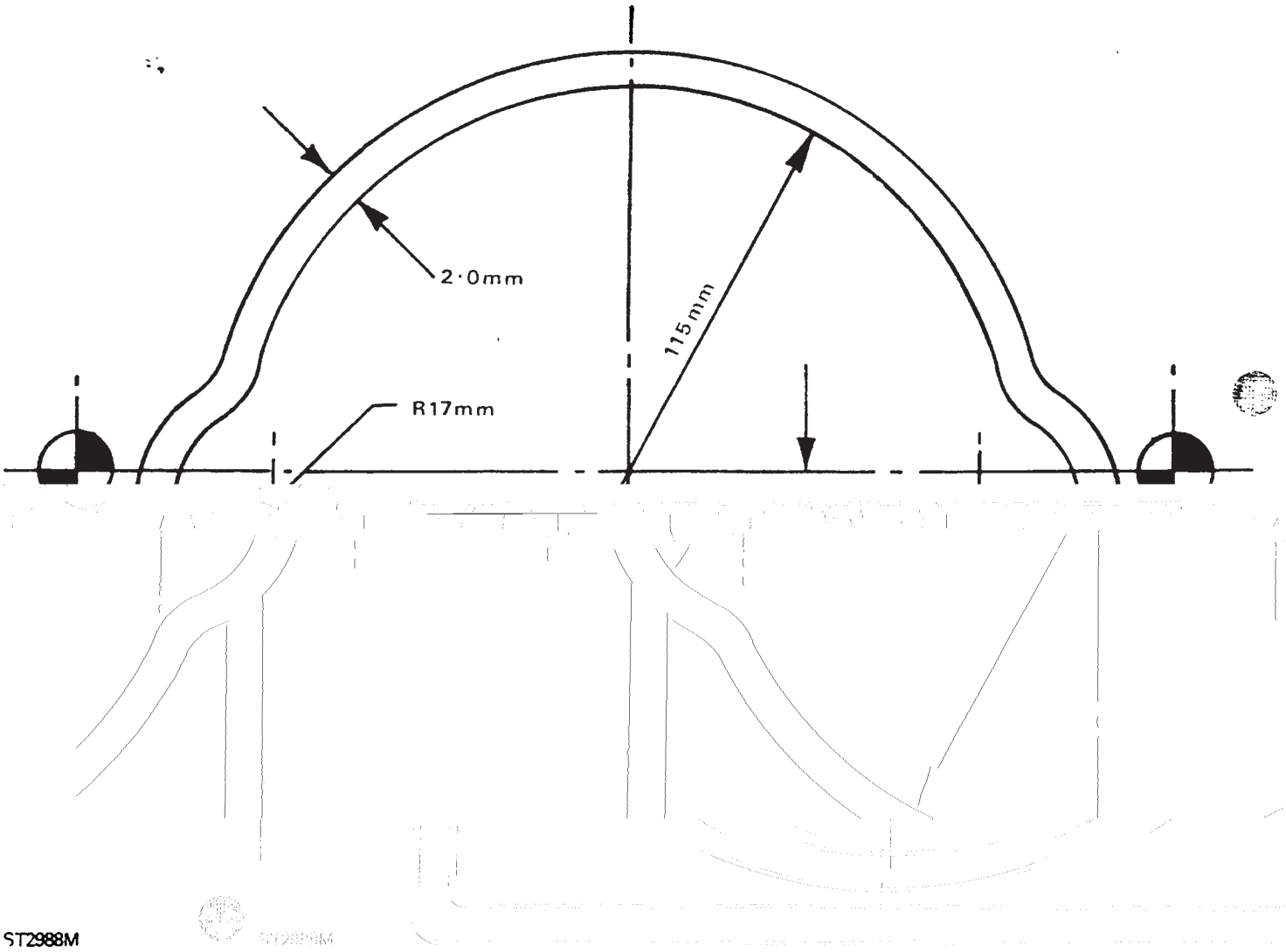


1. Make sure the seal housing is clean and dry and free from burrs. Do not touch the seal lip and ensure that the outside diameter is clean and dry.
2. Using special seal replacer 18G134-11 and with the lip side leading drive-in the seal as far as the tool allows. If the tool is not available fit the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

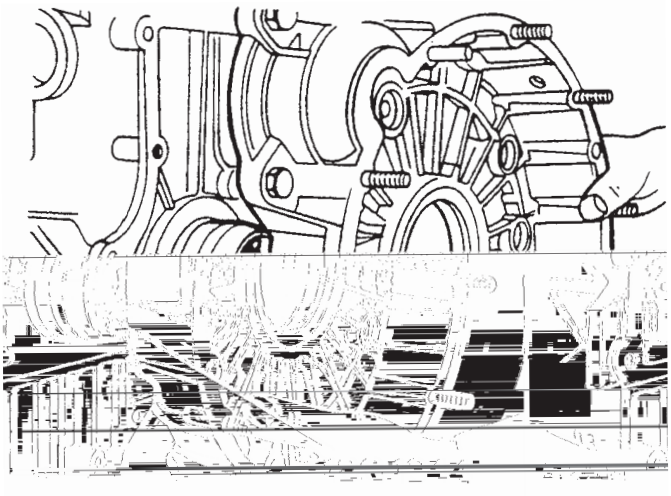
Fitting flywheel housing

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.

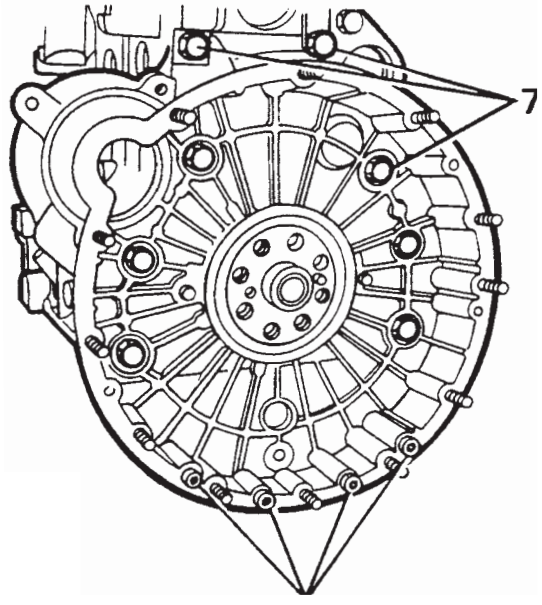
The illustration has been produced full size so that a template may be made to facilitate the application of the sealant. The bead should be 2,0 mm diameter and must extend around the periphery of the bearing cap so that the joint between cap and block is sealed.



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.



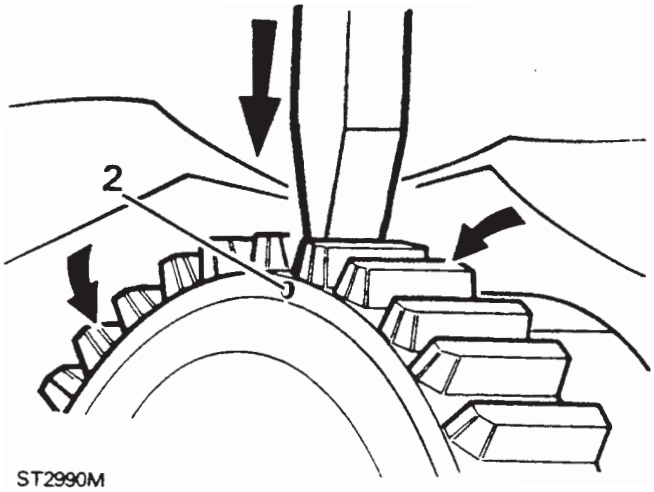
6. Carefully locate the flywheel housing over the seal and on to the dowels.
7. Remove the seal guide and secure the flywheel housing, evenly tightening the retaining bolts to the correct torque.



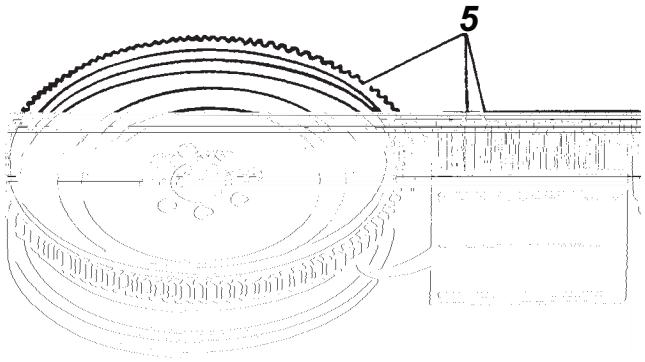
OVERHAUL AND FITTING FLYWHEEL

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 renirrrrr



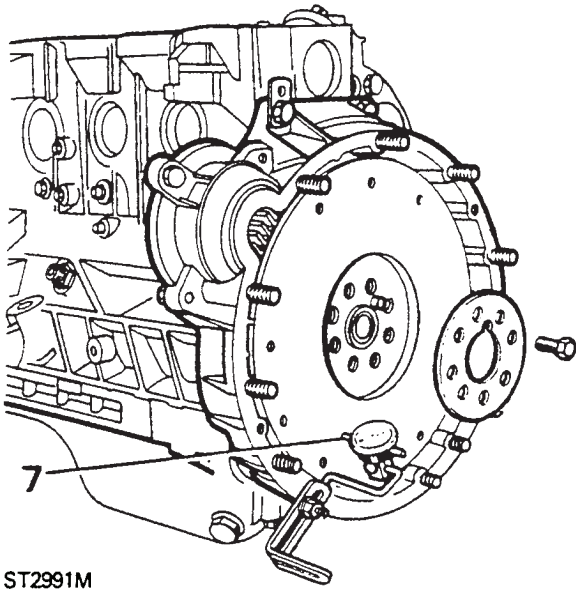
3. Secure the flywheel in a soft jawed vice and cover it with a cloth to avoid personal injury. Place a cold chisel above the drilled hole and strike it sharply to split the ring gear.
4. Heat the new ring uniformally to between 225°C and 250°C but do not exceed the higher figure.
5. Place the flywheel, 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.

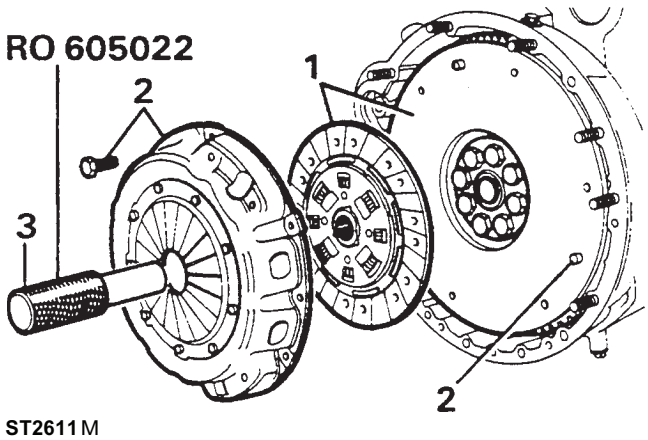


ST2991M

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