

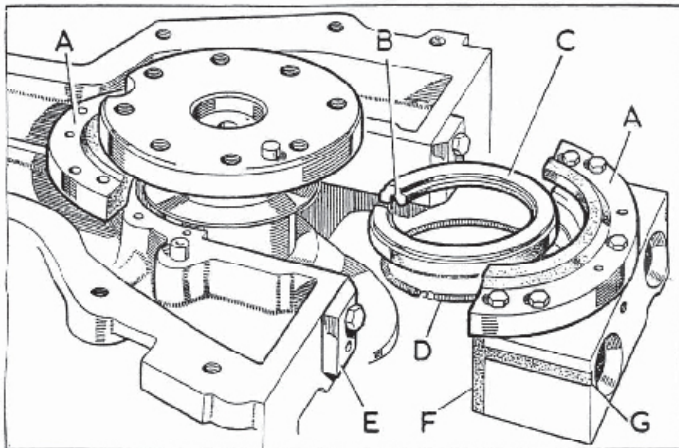
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## Fitting instructions

**Subject:** 4 piece crankshaft rear main oil seal kit assembly  
**Models:** 100(All), 95 & 110 (Suffix A), 3 litre MK1&1a (All), 3 litre MK2 (Suffix A&B). Landrover Forward Control 6 cylinder (Suffix A). This kit can be fitted to certain pre-1960 models – see text for details.

**Note:** These instructions should be carefully read prior to starting the fitment Whilst every effort is made to ensure the accuracy of the particulars neither the manufacturer nor anyone in the supply chain of these instructions shall in any circumstances be held liable for any inaccuracy or the consequences thereof.



### Oil seal details

- A – Retainer halves
- B – Split line of seal to be towards top of engine
- C – Split oil seal
- D – Garter spring, hook and eye to be midway between split and hinge of oil seal when fitted
- E – Guides for rear main bearing cap „T“ seals
- F – Trim these edges before fitting to avoid foul on seating radius
- G – Trim these ends to allow in. (0.8mm) protrusion when



### Procedure:

1. With the crankshaft in the engine, assemble the garter spring on the oil seal journal of the crankshaft, by laying the spring around the journal, this will bring the two ends, the hook and the eye, adjacent to one another, then insert the hook into the eye. Care must be taken to ensure that during this operation the spring is not stretched at all. The spring should be moved along the journal until it is against the thrower flange.
2. Apply Silicone Grease MS4 to the crankshaft oil seal journal and to both end faces of the split oil seal.
3. Open the split seal sufficiently to allow it to be fitted over the crankshaft oil seal journal. The recess in the oil seal must be towards the thrower flange and garter spring. The oil seal must not be repeatedly fitted and removed from the crankshaft, as this can damage the sealing lip.
4. Ensure that the hook and eye of the garter spring are located mid-way between the split and hinge of the oil seal. Then using a small screwdriver or similar tool, gently ease the spring into the recess in the oil seal.
5. Rotate the oil seal until the split is on the vertical axis pointing towards the cylinder head and in its approximate running position on the journal; this position is important. Apply Hylomar SQ32M to the seal diameter of both retainer halves.
6. Fit one half of the oil seal retainer onto the crankcase dowels. The oil seal should be compressed to assist assembly. Bolt the retainer to the crankcase, leaving the two bolts adjacent to the split line finger-tight; fully tighten the remaining 3 bolts. In order to fit the bolts it will be necessary to rotate the crankshaft, it is essential to hold the seal so that it does not rotate with the crankshaft.
7. Bolt the other half of the oil seal retainer onto the main bearing cap, in the same way. Apply Silicone Grease MS4 to the “T” seals and fit them to the main bearing cap. The cap must be off the crankcase for this operation. Trim the edges of the “T” seals as illustrated to prevent them from fouling the cylinder block.
8. Fit the main bearing cap with the seal retainer, bearing shell and “T” corks to the crankcase until there is a 0.032 inch (0.8mm) gap between the cap and crankcase. Use

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the guides as illustrated to aid sliding the “T” corks past the crankcase edges.

9. Using a thin screwdriver, move the oil seal along the shaft until it is located in the housing recess.
10. Pull down the cap slowly, ensuring there is no buckling of the split seal or misalignment of the butt joint.
11. Tighten the cap bolts to 65lb/ft (9kg/m) torque and re-check that the seal is located correctly in the housing.
12. Finally tighten the 4 bolts securing the housings adjacent to the split line.

N.B. The split seal and garter spring must be renewed whenever a crankshaft is removed or replaced for any reason. However, it is not necessary to replace the retainers when fitting a new seal, unless they are damaged. Some seals are not pre-split and will need cutting through with a sharp knife on one side. Bonded into the seal are two semi-circular steel strips giving the necessary rigidity to the seal. Between these two strips there are two small areas of plain rubber, each 180 degrees apart. Cutting through the middle of one will allow the other to be the “hinge”. The cut must be clean as the 2 edges will have to seal again later. Some garter springs do not have an eye and hook to join them together. One end is tapered and is “screwed” into the hole on the other end.

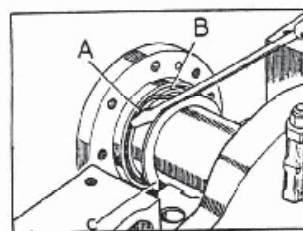
**History: There are 3 types of rear main oil seal fitted:**

1. A 2 piece seal. This has the seal lips bonded onto the alloy seal housings. This was fitted from 1954 on the 60 and 90, from 1955 on the 75 and 2 litre petrol Landrover, and all 105 models. It was also fitted to the 3 litre and 100 until mid-1960.
2. A 3 piece seal. This has 2 alloy oil seal retainers and a split oil seal. This seal has no garter spring but has supporting ribs below the seal lip. This was fitted to the 3 litre and 100 until mid-1962. It replaced the 2 piece seal on the 3 litre and 100 but was not recommended for fitment on earlier (pre- 1960) models. See below for reasons.
3. A 4 piece seal. This has 2 steel oil seal retainers, a split oil seal and a garter spring. This was fitted from mid-1962 on late 3 litre Mark 1a and 100, 3 litre Mark 2 (engine suffix A and B), 95 and 110 (engine suffix A) and very early 6 cylinder forward control Landrovers (engine suffix A). It was used until mid-1964 when a larger crankshaft was fitted. Note that the 4 piece split seal will not fit the 3 piece split

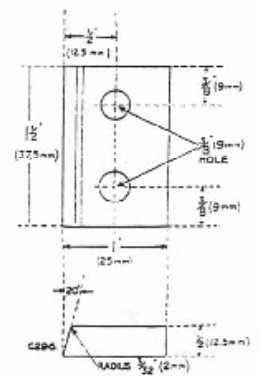
seal housings. The 4 piece seal assembly replaced the 3 piece seal assembly which became obsolete shortly afterwards.

**PRE-1960 MODELS:** The 2 piece oil seal is obsolete. The 3 piece oil seal assembly (obsolete since the 1960s) was not recommended on the grounds that this kit required more accurate retaining dowel location and there was a risk of the flywheel retaining bolts fouling the seal. As the 4 piece seal kit was only available from 1962 and the 2 piece seal was still available there was no recommendation for or against its fitment on pre-1960 engines. The 4 piece seal kit has been successfully fitted to several pre-1960 engines, but every installation should be checked for location accuracy and potential fouling. Also note the following:

1. 1954 to early 1956 models have cruciform seals in the rear main bearing caps. These are about 0.15 inches wide and are not one piece. The “T” seals may be cut down or the correct ones ordered from the supplier.
2. On 1954 to 1959 models the rear main bearing cap bolts are tightened to 80lbs/ft.



Fitting garter spring to recess  
 A—Garter spring  
 B—Oil seal recess for garter spring  
 C—Thrower flange



Dimensions of guide.

