SECTION G

THE PROPELLER SHAFT

GENERAL DESCRIPTION

The propeller shaft and universal joints are of unit construction, the latter being of the non-constant-velocity type.

The fore-and-aft movement of the rear axle and other components is allowed for by a sliding spline between the propeller shaft and gearbox unit. Each universal joint consists of a centre spider, four needle-roller bearings, and two yokes.

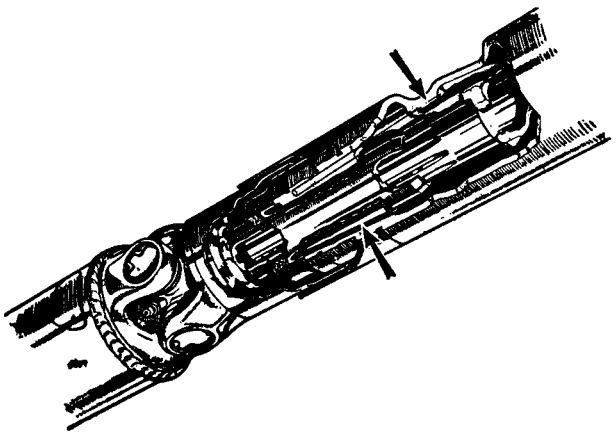

Fig. G.1

The propeller shaft sliding joint, showing the oilways which conduct oil from the gearbox

Section G.1

LUBRICATION

Lubrication nipples are provided on the front and rear universal joints on the propeller shafts fitted to early cars. Lift the floor covering and remove the rubber plug in the left-hand side of the propeller shaft tunnel to gain access to the front nipple.

The universal joints on later cars are pre-packed with lubricant and sealed.

The sliding joint is automatically lubricated from the gearbox.

Section G.2

PROPELLER SHAFT
(Early cars)

Removing

Mark the flange and disconnect the propeller shaft from the rear axle. Remove it from the vehicle over the axle assembly and to the left-hand side of the differential casing.

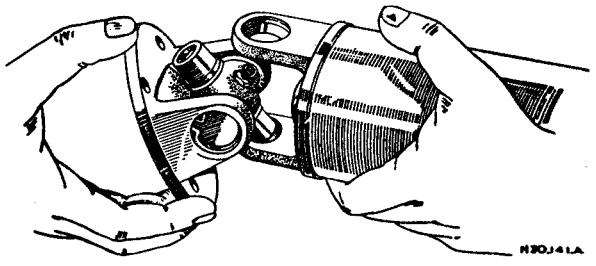

Fig. G.2

Separating the joint

Dismantling

Remove the enamel and any road dirt from the snap rings and bearing faces. Remove the snap rings. If the ring does not come out, tap the bearing face lightly to relieve the pressure against the ring. Hold the splined end of the shaft in one hand and tap the radius of the yoke with a lead or copper hammer; the bearing will then begin to emerge. If difficulty is experienced, use a small bar to tap the bearing from the inside, taking care not to damage the race itself. Turn the yoke over and extract the bearing with the fingers, being careful not to lose any of the needles. Repeat this operation for the other bearings.

Examination

When the propeller shaft has been in use for a long time the parts most likely to show signs of wear are the bearing races and the spider journals.

The complete assembly should be renewed if looseness or stress marks are observed, as no oversize journals or bearings are provided.

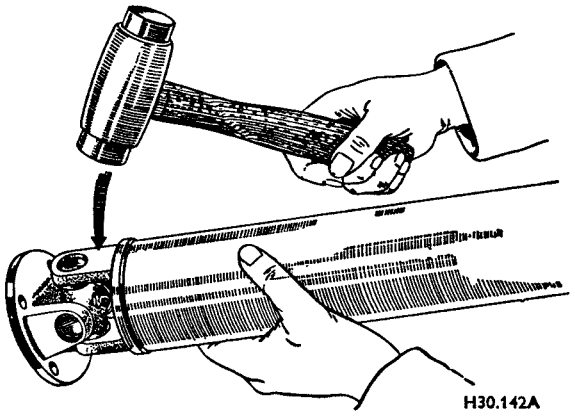

Fig. G.3

Tapping the joint to extract the bearing

It is essential that bearing races should be a light drive fit in the yoke trunnions. Any ovality in the trunnion bearing holes indicates the necessity of fitting new yokes.

Reassembling

Ensure that the holes in the journals of the universal joints are cleaned out. Assemble the needle rollers in the bearing races. Should difficulty be experienced in assembly, smear the walls of the races with light grease to retain the needle rollers in place. It is advisable to renew, if necessary, the cork washer and the washer retainers on the spider journals. Continue assembling in the reverse of the dismantling procedure.

Refitting

When refitting the propeller shaft a second operator is required. With the aid of a screwdriver approximately 8 in. (20 cm.) long inserted through the front universal joint lubricating hole in the propeller shaft tunnel, lift the shaft and guide it onto the splines of the third motion shaft and into the gearbox rear extension.

Section G.3

PROPELLER SHAFT
(Later cars)

Removing and dismantling

(1) Carry out the operations detailed in Section G.2.

Inspection

(2) Wash all the parts thoroughly in petrol (fuel) to remove old grease, and carry out the examination detailed in Section G.2.

Reassembling

It is of extreme importance that the assembly of the journals be carried out under absolutely clean, dust-free conditions.

(3) Fill the reservoir holes in the journal spider with the recommended grease taking care to exclude all air pockets. Fill each bearing assembly with grease to a depth of $\frac{1}{8}$ in. (3 mm.).

(4) Fit new seals to the spider journals and insert the spider into the flange yoke, tilting it to engage in the yoke bores.

(5) Fit a bearing assembly into the yoke bore in the bottom position, and using a soft-nosed drift slightly smaller in diameter than the hole in the yoke, tap it into the yoke bore until it is possible to fit the circlip. Repeat this operation for the other three bearings starting opposite the bearing first fitted.

(6) After assembly, carefully remove all surplus grease with a soft cloth. If the bearing appears to bind, tap lightly with a wooden mallet; this will relieve any pressure of the bearing on the ends of the journals.

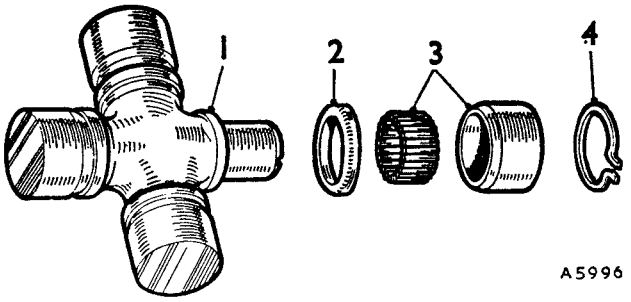

Fig. G.4

A universal joint bearing—sealed type

1. Journal spider.
2. Rubber seal.
3. Needle rollers and bearings.
4. Circlip.