# 47 - PROPELLER SHAFTS

## CONTENTS



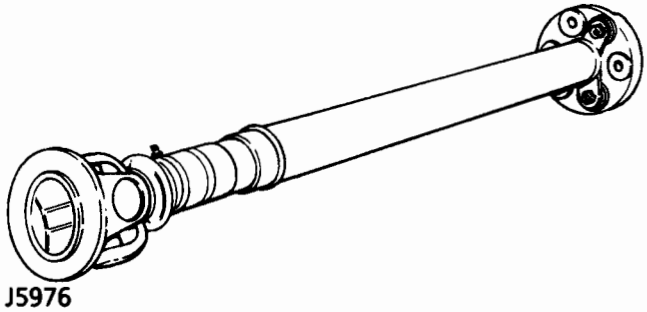
## PROPELLER SHAFT ALIGNMENT

### Description

The front and rear propeller shafts have non-constant velocity 'Hooks' type universal joints, with needle roller bearings. The bearing cups are pre-packed with lubricant on assembly and a grease nipple is fitted for servicing as specified, in maintenance section.

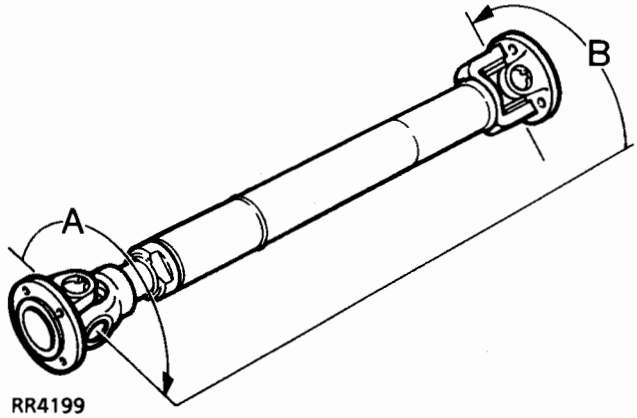
Both shafts have Rilsan coated sliding splines to accommodate the variation in distance between the axles and transmission. The splines are pre-packed with lubricant and sealed.

The rear shaft is fitted with a conventional joint at gearbox end and the sliding joint sealed with a rubber gaiter. An SGF rubber coupling is fitted at the differential end of the shaft.



J5976

The front shaft which is shorter than the rear is 'Phased', with the joints at each end, A and B mis-aligned as shown in RR4199.

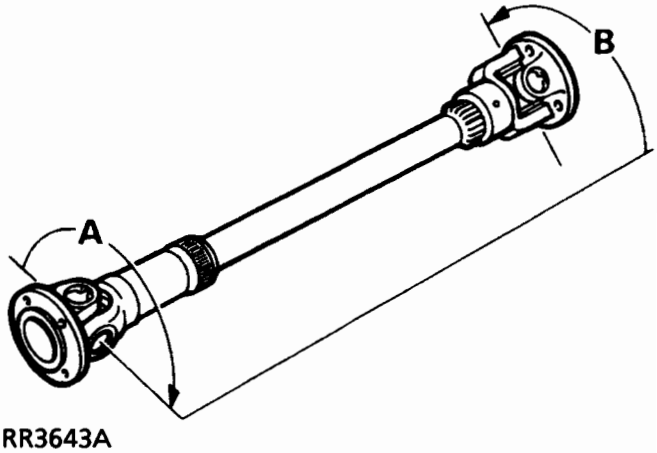



RR4199

The phasing is necessary on the front shaft only to allow for greater variation in angular changes.

### Catalyst vehicles

The front shaft is 'phased' as above but is of solid bar construction.




RR3643A

## VIBRATION HARSHNESS

1. Check that the propeller shaft universal joints and sliding splines are not siezed or worn and that the shafts are correctly aligned.

△ **NOTE: In the event that both shafts are satisfactory, but the vibration/harshness is still present, the transfer box and balance of the road wheels should be checked.**

For transfer box faults. ***See TRANSFER BOX, Fault diagnosis, Borg Warner Symptoms***

For balance of road wheels. ***See WHEELS AND TYRES, Repair, Wheel Balancing***

## FRONT PROPELLER SHAFT

**Service repair no - 47.15.02 - Front**

**Remove**

1. Place vehicle over pit or on a ramp [hoist].
2. Remove nuts from each end of propeller shaft. Remove shaft.
3. Scribe alignment marks on flanges at both ends of propeller shaft to ensure correct refitting.

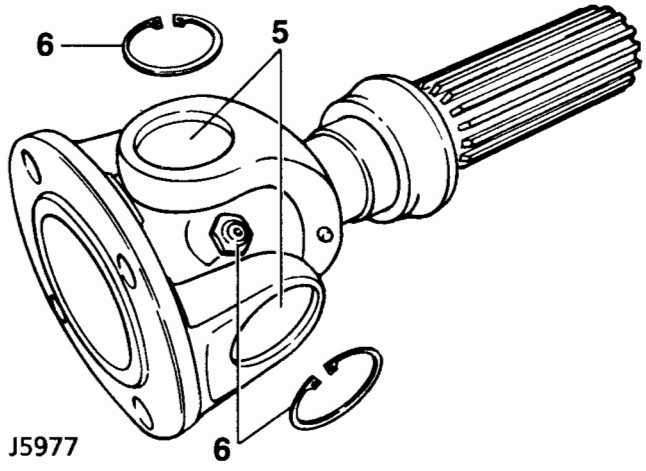
**Service repair no - 47.15.11**

**Overhaul**

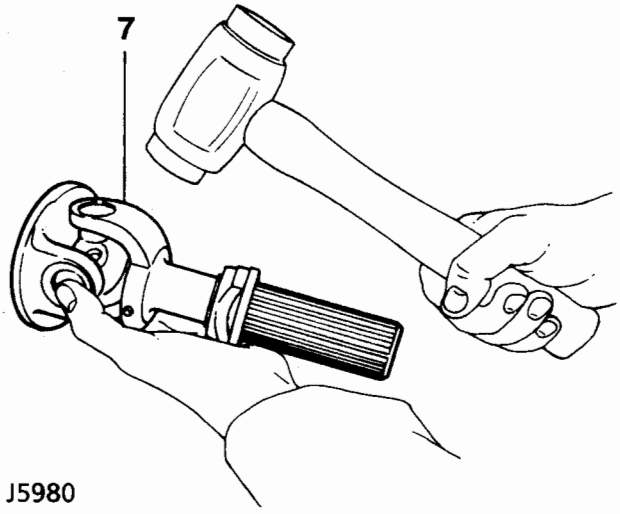
4. Thoroughly examine universal joint for signs of damage or wear. Replace if necessary.
5. Clean universal joint bearing cups and circlips.

⚠ **CAUTION: To ensure correct assembly and reduce possibility of imbalance. Before removing propeller shaft joint. Mark position of spider pin lubricator relative to journal yoke ears.**

6. Remove circlips, and grease nipple.



J5977

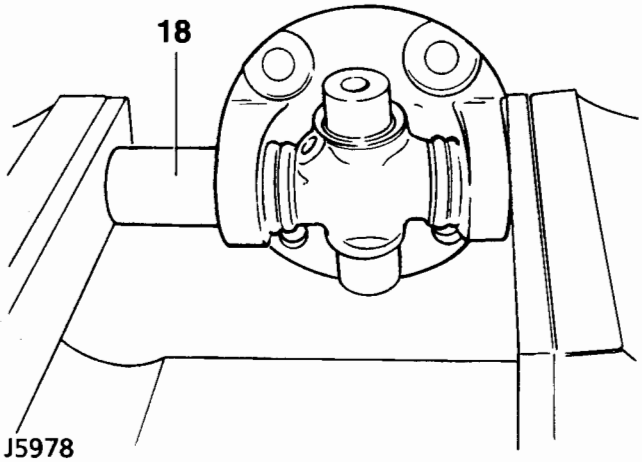


J5980

7. Tap yokes to eject bearing cups.
8. Remove bearing cups and spider.
9. Repeat instructions 4 to 7 for opposite end of propeller shaft if necessary.
10. Clean yokes and bearing cup locations.

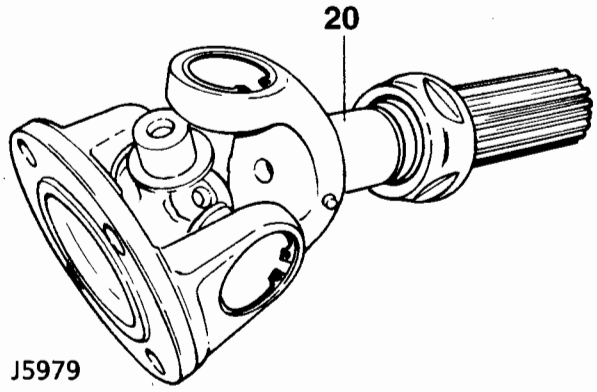
**Assemble**

11. Remove bearing cups from new spider.
12. Check all needle rollers are present and positioned in bearing cups.
13. Ensure bearing cups are one-third full of lubricant. ***See LUBRICANTS, FLUIDS AND CAPACITIES, Information, Recommended Lubricants and Fluids***
14. Enter new spider with seals into yokes of sliding member flange.
15. Partially insert one bearing cup into flange yoke and enter spider trunnion into bearing cup.
16. Insert opposite bearing cup into flange yoke.
17. Press both cups into place.



J5978

18. Press each cup into its respective yoke up to lower land of circlip grooves. Damage may be caused to cups and seals if cups pass this point.
19. Fit circlips and check no end float exists.
20. Engage spider in yokes of sliding member. Fit bearing cups and circlips as described in instructions 14 to 19.



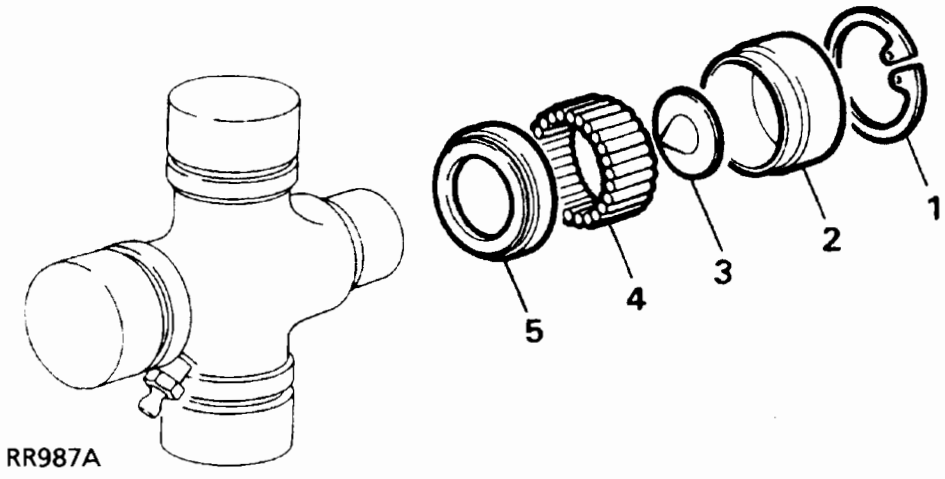

21. Fit grease nipples to spider and sliding member.
22. Apply instructions 14 to 19 to opposite end of propeller shaft.
23. Fit grease nipple and lubricate.

**Refit**

24. Fit propeller shafts to vehicle and tighten nuts to ***47Nm***
    Refit FRONT propeller shaft so sliding joint end of shaft is fitted to transfer gearbox.

## SPIDER ASSEMBLY COMPONENTS

1. Circlip
2. Bearing cup
3. Nylatron washer
4. Needle rollers (27 per cup)
5. Seal retainer and seal




RR987A

## REAR PROPELLER SHAFT

**Service repair no - 47.15.03**

△ **NOTE: SGF rubber coupling should be left attached to propeller shaft. Only remove coupling from propeller shaft if replacement is required.**

**Remove**

1. Scribe alignment marks on flanges at both ends of propeller shaft to ensure correct refitting.
2. Remove three nuts and bolts securing flexible coupling to axle flange.
3. Remove nuts securing propeller shaft flange to transfer gearbox.
4. Raise propeller shaft at gearbox end detach coupling from spigot at differential and withdraw shaft.

△ **NOTE: For replacement of spigot (pinion flange centralising peg). *See REAR AXLE AND FINAL DRIVE, Overhaul, Axle Differential Assembly***

**Overhaul**

**Service repair no - 47.15.12**

△ **NOTE: Refer to front propeller shaft overhaul procedure for gearbox end of shaft. The SGF rubber coupling is a non-serviceable item.**

**Refit**

5. Locate flexible coupling over spigot, align scribed marks and secure at transfer gearbox. Tighten to ***47 Nm.***
6. Secure flexible coupling to axle flange with three nuts and bolts and Tighten to ***78 Nm.***

## FLEXIBLE COUPLING

△ **NOTE: Flexible coupling should only be removed if a new coupling is to be fitted.**

**Remove**

1. Remove rear propeller shaft. ***See Rear Propeller Shaft.***
2. Remove nuts and bolts securing flexible coupling to propeller shaft.

**Refit**

3. Reverse removal procedure. Fit nuts and bolts. Tighten to ***78 Nm.***