

TAIL / DRIVE SHAFT

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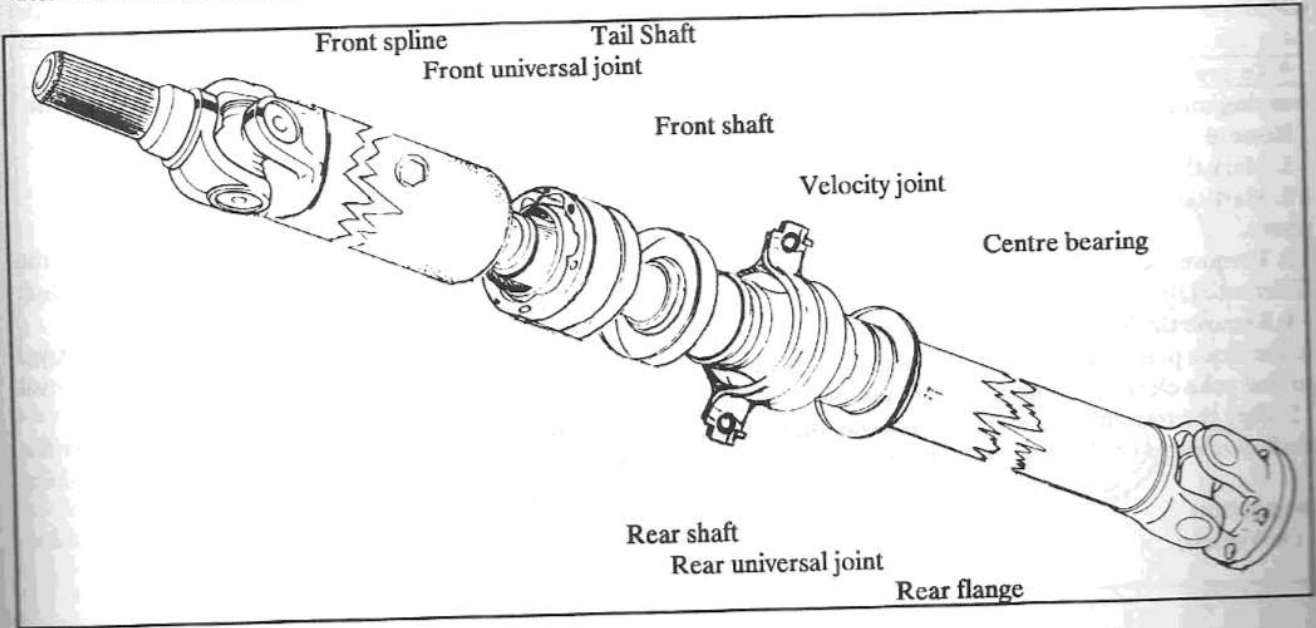
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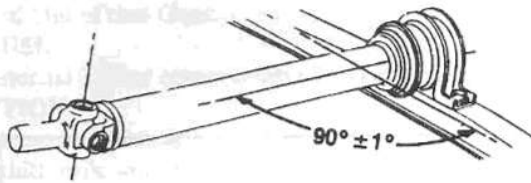
Drive shafts are all balanced, however if the shaft has been damaged in any way the shaft will have to be rebalanced.

*** Note: If painting under the vehicle.**

Cover the tail / drive shaft to prevent application of the paint as a thick coat of paint will unbalance the shaft.

Universal joints fitted to either end of the shaft, the bearing cups have retaining clips on the inside which hold the drive shaft yoke and the pinion flange.



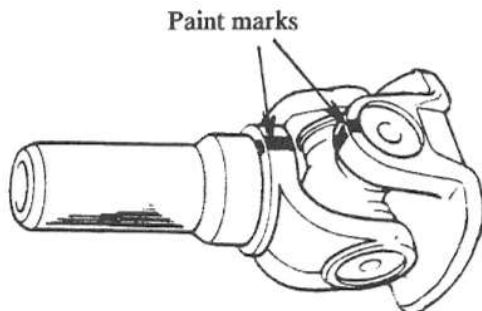
Shaft Centre Bearing

A velocity joint and bearing is situated in the middle of the shaft. The bearing is attached to the floor pan by centre bearing carrier which is bolted into place.

Tail Shaft Assembly

* Paint the tail shaft front yoke and the rear pinion flange of the axle with a white paint line, to help during assembly of the tail shaft.

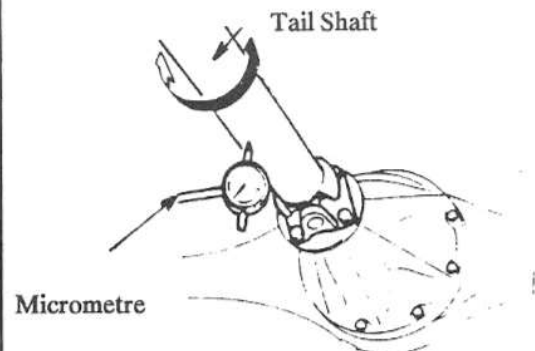
If the alignment marks are not visible, scribe or paint marks on the two flanges for future assemble.



* To prevent oil loss plug the transmission extension housing with a main shaft dust cover or slip-yoke.

Remove

1. Mark the yoke and tail shaft as described above.
2. Mark the differential flange and tail shaft as indicated above.
3. Remove the four bolts attaching the tail shaft to the differential flange, support the shaft.
4. Remove the bolts attaching the centre bearing carrier to the floor pan, and slide the shaft assembly backwards so that yoke clears the transmission extension.
5. Plug the transmission extension housing with a main shaft dust cover or slip-yoke, to stop oil leakage.

Inspection**On Vehicle:****Measure runout with micrometer gauge**

1. Raise rear of vehicle and support rear axle assembly on safety stands.

2. Measure propellar shaft runout at several points by rotating final drive flange by hand.

Runout maximum: 0.6mm

Off Vehicle:

1. Remove propellar shaft as described above.
2. Place propellar shaft on "V" blocks, measure runout with micrometer gauge.

Install

1. Check the seal installed in the end of the transmission extension housing, if it is damaged in any way install a new seal.
2. Lubricate the yoke spline with transmission lubricant, install the yoke on the transmission output shaft.
3. Remove the plug placed in the transmission extension housing.
4. Slide the shaft assembly in to the transmission extension so that yoke is located on the transmission output shaft.
5. Replace the bolts attaching the centre bearing carrier to the floor pan, tighten to specification.

Tail Shaft Centre Carrier bolts spec. torque: 20-25Nm

6. Install the four bolts attaching the tail shaft to the differential flange, support the shaft. Tighten to specification.

Tail Shaft to Diff Flange bolt spec. torque: 55-65Nm

Universal Joint Replacement**Drive shaft Removed****Remove**

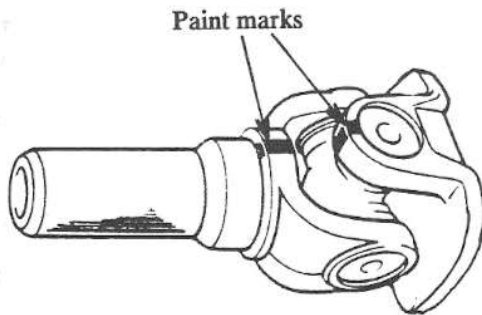
* To maintain drive line balance, mark the relation of the slip yoke and the pinion flange on the axle, with the shaft so that they may be installed in their original places.

1. Remove clips that retain the bearings in the yoke. Apply penetrating oil to the bearing cups to assist removal if required.
2. Using a 'G' clamp and suitable adaptors, or similar equipment, press on one of the bearing cups so as to drive the opposite bearing from the yoke.

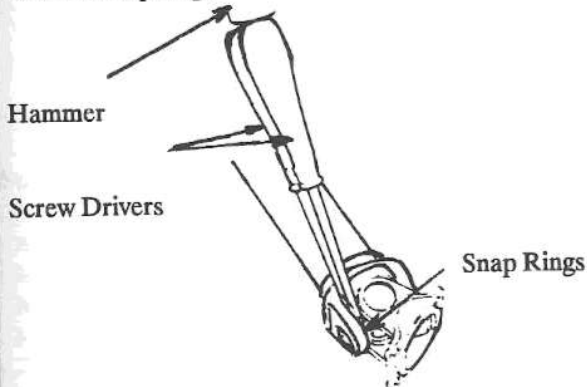
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If the alignment marks are not visible, scribe or paint marks on the two flanges for future assemble.

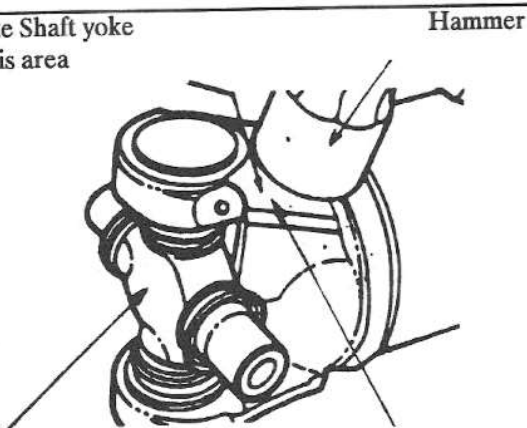


Remove snap rings



3. Remove the bearing from the spider, rotate the shaft 180 degrees and remove the second bearing. Disconnect the yoke from the shaft.

Strike Shaft yoke in this area



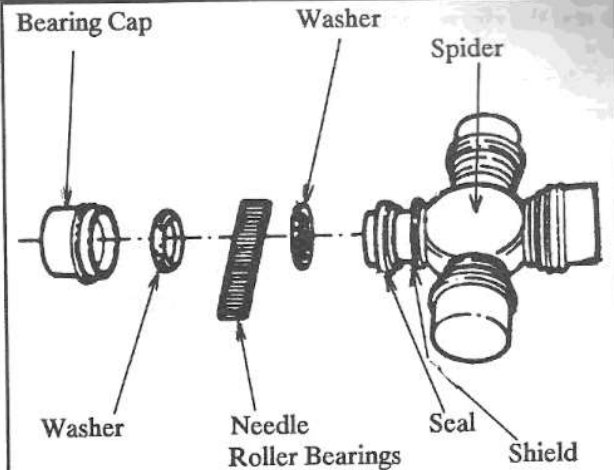
Universal Joint Spider

Tail Shaft Flange

4. Repeat this procedure to remove the bearings from the yoke and rear of the shaft.

Install

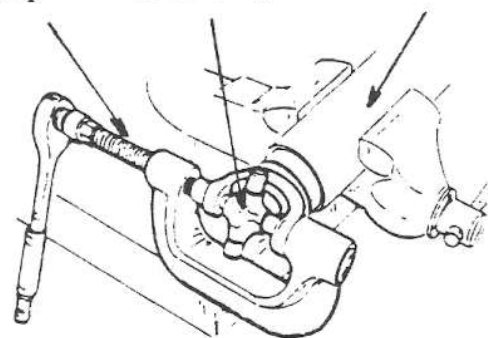
1. Place spider in the yoke. Lift the spider to one side of the yoke and locate bearing cup on the spider. While holding the spider in the bearing press the bearing into the



yoke until the clip can be installed on the bearing. Install the clip.

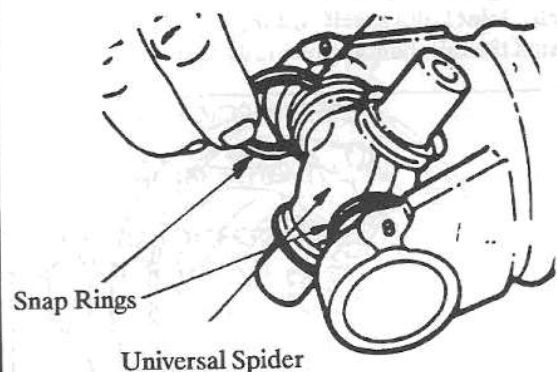
2. Rotate the yoke 180 degrees and install the other bearing while holding the spider into the bearing to prevent the needle from rollers from being dislodged.

G-Clamp Universal Spider Tail Shaft



The bearing cups are fitted with plastic pads that impart a preload on the ends of the spider. These pads must be compressed by use of a 'G' clamp or vice. Tap the yoke

Fit Snap Rings



to seat the clip previously fitted and install the remaining clip.

3. Repeat this procedure to install the remaining bearings in the shaft.

VELOCITY JOINT

*** Paint the tail shaft and velocity joint with a white paint line, to help during assembly of the tail shaft.**

Remove

1. Remove the tail shaft as previously described.
2. Paint the tail shaft and velocity joint with a white paint line, to help during assembly of the tail shaft, as described above.
3. Remove the "Allen Head" bolts from the velocity joint, separate the tail shaft from the velocity joint (it may be necessary to use a soft head hammer to separate).
4. Remove the dust shield and Cir-clip from the velocity joint.
5. Press velocity joint off the tail shaft, take care not to damage the joint.
6. Remove thrust washer and remaining Cir-clip.

Inspect and Clean

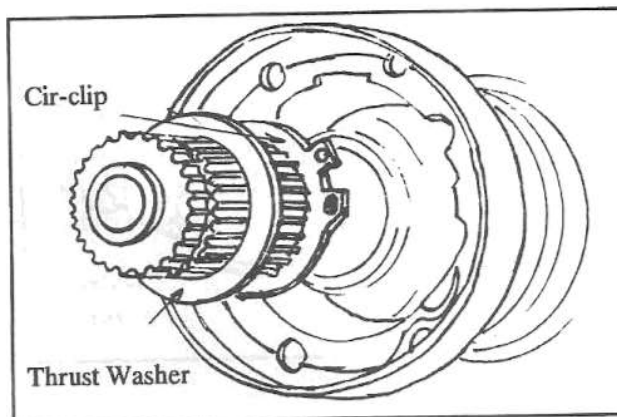
1. Wash the velocity joint with a suitable cleaning fluid and air dry.
2. Mark inner and outer sections of joint, to help during assembly.
3. Turn the inner race at right angles to the outer race and separate.
4. Inspect all contact surfaces of the inner and outer races and surface of the balls, if damaged in any way replace with new repair kit.
5. Assemble races in the same manner as they were separated. Assemble so that the alignment marks are in the correct position.
6. Force 90 grams of molybdenum grease into the velocity joint with the palm of your hand.

Install

1. Replace the thrust washer and inner Cir-clip.
2. Fit press if necessary the velocity joint onto the tail shaft, take care not to damage the joint.
3. Replace Cir-clip and dust shield to the velocity joint.
4. Install the "Allen Head" bolts to the velocity joint, and tail shaft, tighten to specification.

Velocity Joint bolts specified torque: 35-40Nm

5. Install the tail shaft as previously described.



TAIL SHAFT CENTRE BEARING

Remove

1. Remove the tail shaft as previously described.
2. Remove the velocity joint as previously described.
3. Remove the bearing strap, and bearing slinger from the tail shaft.
4. Remove the bearing cir-clip and press bearing from tail shaft.
5. Remove the front bearing slinger.

Install

1. Press on a new front bearing slinger.
2. Press a new bearing on to the shaft and fit a new bearing cir-clip.
3. Press on a new bearing slinger, and refit the bearing strap to the tail shaft.
4. Replace the velocity joint as previously described.
5. Replace the tail shaft as previously described.

PROBLEM SOLVING

DRIVELINE VIBRATION

Broken rear spring
Rear springs not matched
Universal joint flange bolts loose.
Universal joints worn, or lack of lubricant.
Drive shaft damage bent or out of balance.
Universal joint locating clip missing.
Bearing cups improperly seated in pinion flange.
Faces of pinion flange damaged.
Pinion flange run out.

Drive Shaft Inspection

The drive shaft runout is measured in centre of the shaft and at 130mm from the weld at each end.

Maximum Runout Specification

Drive shaft in vehicle	.74mm
Drive shaft mounted on centres	.50mm

SPECIFICATIONS

	Nm
Centre Bearing Strap to Carrier	20-25
Centre Bearing Carrier to Floor Pan	20-35
Rear Universal Joint Flange to Pinion Flange	55-65
Constant Velocity Joint to Rear Tail shaft	35-40

