

## 5.14 LAND ROVER AXLE UPDATE

Pre-1993 Land Rover factory 10 spline differentials are prone to two weaknesses that have been addressed by Land Rover in the release of their later model differentials.

The first is that of the 10 spline axle shafts of the pre-1993 models which are far more prone to breakage due to torque wind-up than the 25% larger 24 spline axle shafts of the post-1993 (and some pre-1993 V8 Defenders) differentials.

The second is a design flaw inherent in the sizing of the bearing journal. Failure has been observed at the bearing journal seat in all versions of the early differential centre, whether it be the factory original or a high performance aftermarket replacement. Land Rover addressed this issue in its post-1993 differential by increasing the inside diameter of the carrier bearing, therefore thickening the cross section of the bearing journal at the failure point by a huge 50%.

**NOTE :** These breakages generally only occur in significantly modified vehicles (i.e., larger tires and/or greater horsepower).

Those customers wishing to upgrade to 24 spline axle shafts to avoid both of these failure modes have two options.

The first option is to upgrade to an Air Locker 24 spline Rover Differential (RD56). Post-1993 Land Rover 24 spline axle shafts and tapered roller carrier bearings (Timken #LM102949 / LM102910) will need to be sourced.

The second option is to convert their existing 10 spline Air Locker (RD03) to a 24 spline model (RD56) using the set of components in the table below. Post-1993 Land Rover 24 spline axle shafts or suitable aftermarket axle shafts will need to be sourced.

**NOTE :** Pre-1980 10 spline Rover differentials using 16 TPI Whitworth adjuster nuts may NOT be substituted with, or converted to, an RD56 because of the outside diameter of their carrier bearings (76.20mm dia).

**NOTE :** It is not possible to convert early-production RD03's with a four bolt cylinder cap.

**NOTE :** Newer 10 spline RD127 can be easily converted to 24 spline by substituting the gear set with # 728H141 from RD128.

### Components to Convert an RD03 to an RD56

QTY	DESCRIPTION	PART #	NOTES
1	FLANGE CAP	020406	
1	CYLINDER CAP ASSEMBLY	030131	
1	SIDE GEAR	SEE NOTE	1
1	SPLINED SIDE GEAR	SEE NOTE	1
4	PINION GEAR	SEE NOTE	1
6	CYLINDER CAP RETAINING BOLT	200205	2
6	LOCKING TAB (8mm)	150401	2
2	TAPERED ROLLER BEARING	160109	3
2	SIDE GEAR THRUST WASHER	151001	4
4	PINION THRUST WASHER	151101	4
1	SEAL HOUSING	082002	
2	SEAL HOUSING O-RING	160235	5
1	SEAL HOUSING RETAINING CLIP	150602	

### Notes:

- 1 Available only as complete 6 gear set # 728B061
- 2 Bolts and locking tabs must never be re-used.
- 3 Timken #LM102949 / LM102910.
- 4 Replace the thrust washers if worn.
- 5 Use only BS133 Viton 75.

