

# TECHNICAL INFORMATION



No: 54/02/03/NAS  
Ref:  
Issue: 1  
Date: 03/07/03

## Driveline Vibration Troubleshooting

### AFFECTED VEHICLE RANGE:

Discovery Series II (LT)

Introduced between Jan and Apr 2001 production.  
See specific component VIN change break.

### SITUATION:

DRIVELINE NOISE / VIBRATION

The customer may complain of low frequency resonance coming through the foot wells, front seats and center console. These sounds may result from vibrations originating in the driveline components.

### RESOLUTION:

#### INSPECT COMPONENTS AND REPLACE IF INDICATED

Where a complaint of the above is confirmed, follow each step of the rectification procedures below to identify the root cause of the noise and vibration.

Driveline noise / vibration is a result of:

- Tire or wheel damage.
- Propeller shaft wear or damage.
- Run out of the handbrake brake drum.
- Run out of the transfer gearbox front output flange.
- Run out of the differential input drive flanges.

### PARTS INFORMATION:

NEW P/N.....	DESCRIPTION	Used After VIN
TVB000110.....	Propeller shaft - front	1A717864
TVB000140.....	Propeller shaft - rear petrol	1A717864
STC4858.....	Front differential coupling flange	1A728154
TBE000010.....	Rear differential coupling flange	1A727959
TID000010.....	Rear propeller shaft centering peg	1A726554

### WARRANTY CLAIMS:

- 41.20.89/37 ..... Time: 1.00 Hrs  
Inspect / rectify tires, wheels and propeller shafts for wear or damage.  
Check / rectify the run out of the handbrake drum - includes road test
- 41.20.89/35 ..... Time: 1.20 Hrs  
Check / rectify the run out of the transfer gearbox front output and the differential input drive flanges - includes road test
- 41.20.51 ..... Time: 0.70 Hrs  
Replace the transfer gearbox front output drive flange
- 54.10.20 ..... Time allowance: 0.40 Hrs  
Rotate / replace the front differential drive flange
- 51.20.01 ..... Time: 0.70 Hrs  
Rotate / replace the rear differential drive flange

#### FAULT CODE: W

Normal warranty policy and procedures apply.

Material allowance is included in labor operation.

TIB	CIRCULATE:	Service Mgr	Warranty	Workshop	Body Shop	Parts
54/02/03/NAS	TO	X	X	X	X	X

## REPAIR PROCEDURE

### RECTIFICATION PROCEDURE 1

1. Position the vehicle on lift.
2. Raise the vehicle to working height, with the road wheels free to rotate.
3. Inspect road wheels and tyres for damage and replace if necessary.
4. Verify that wheel-retaining nuts are tightened to **140 Nm (103 lbf.ft.)**.
5. Slacken propeller shaft drive flange nuts and bolts and then tighten to the correct torque.
6. Inspect the universal and sliding joints for wear or seizure.
7. If a propeller shaft defect is found, install a **new** propeller shaft before continuing rectification procedure.

 **NOTE: Refer RAVE repair sections 47.15.02 and 47.15.03 for procedures to repair front and rear propeller shafts.**

8. Clean the exterior of the handbrake brake drum.
9. Loosen four nuts securing the rear propeller shaft universal joint to the handbrake drum.

 **NOTE: All Dial Test Indicator (DTI) readings must be taken with the test equipment mounted to the driveline components.**

10. Position a Dial Test Indicator to the handbrake drum and zero the DTI (Figure 1).
11. Rotate the drum through one full revolution stopping at 90° intervals and note the radial run out at these points. (Arrowed in Figure 2)
12. If the run out exceeds 0.10 mm (0.004 in) at any point around the handbrake drum, perform the following:
  - Locate the noted high point on the circumference of the brake drum.
  - Tap carefully with a Nylon mallet to minimize the run out.
13. Measure the handbrake drum run out again to ensure it is now within tolerance.
14. Tighten the nuts securing the propeller shaft universal joint to the handbrake drum to **48 Nm (35 lbf.ft.)**.
15. Measure the handbrake drum run-out to ensure run out is still within the tolerance.
16. If the run out is outside of tolerance repeat the above procedure from steps 11 through 15 until the run out is within tolerance.
17. Lower the vehicle on lift.
18. If defects were found during "Procedure 1" check, road test the vehicle to establish if the driveline noise or vibration has been eliminated.

Figure 1

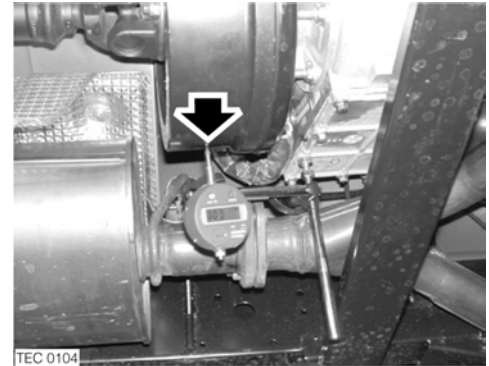
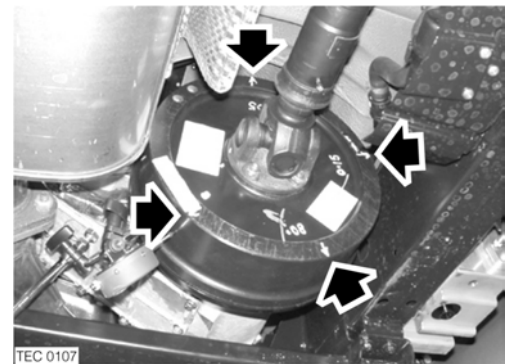


Figure 2



## RECTIFICATION PROCEDURE 2

1. If the driveline noise / vibration is still evident during test drive, again position the vehicle on a lift.
2. Raise the vehicle to working height, with the road wheels free to rotate.
3. Clean the circumference of the transfer gearbox front output drive flange.
4. Position a DTI to the transfer gearbox front output drive flange and reset the DTI to zero (Figure 3).
5. Rotate the propeller shaft one full revolution and note the run out of the flange.
6. If the run out exceeds 0.10 mm (0.004 in), refer to RAVE section 41.20.51 and replace the transfer gearbox front output drive flange with a new component.
7. Remove 4 nuts securing the front propeller shaft to the front differential drive flange, release propeller shaft and tie aside.
8. Clean the internal locating register in the differential drive flange.
9. Position the DTI to the locating register in the differential drive flange and reset the DTI to zero.
10. Rotate a front road wheel and note the run out of the locating register in the differential drive flange.
11. If the run out exceeds 0.10 mm (0.004 in), refer to RAVE section 54.10.20 to remove and rotate the flange 180° from its original location.
12. Check the run out after 180-degree rotation.
13. If the run out exceeds 0.10 mm (0.004") refer to RAVE section 54.10.20 and replace the front differential drive flange with a new component.
14. Install propeller shaft and tighten nuts to **48 Nm (35 lbf.ft.)**.
15. Refer to RAVE section 47.20.08 and remove the rear propeller shaft flexible coupling.
16. Tie the rear propeller shaft aside.
17. Using a nylon mallet, tap the rear propeller shaft-centering peg gently rearward to seat it fully against the pinion flange.
18. Position a DTI to the rear propeller shaft-centering peg and zero the DTI. (Figure 4).
19. Rotate a rear road wheel and note the run out of the rear propeller shaft-centering peg.
20. If the run out exceeds 0.10 mm (0.004"), refer to RAVE section 51.20.01 to remove and rotate the flange 180° from its original location.
21. Check the run out after 180-degree rotation.
22. If the run out exceeds 0.10 mm (0.004") refer to RAVE section 51.20.01 and replace the centralizing peg and the rear differential input drive flange with new components.
23. Install the rear propeller shaft flexible coupling.
24. Lower the vehicle on lift.
25. Carry out a road test to establish that the vibration has been eliminated.

Figure 3

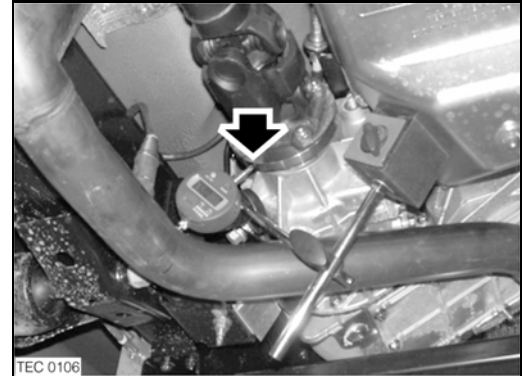


Figure 4

