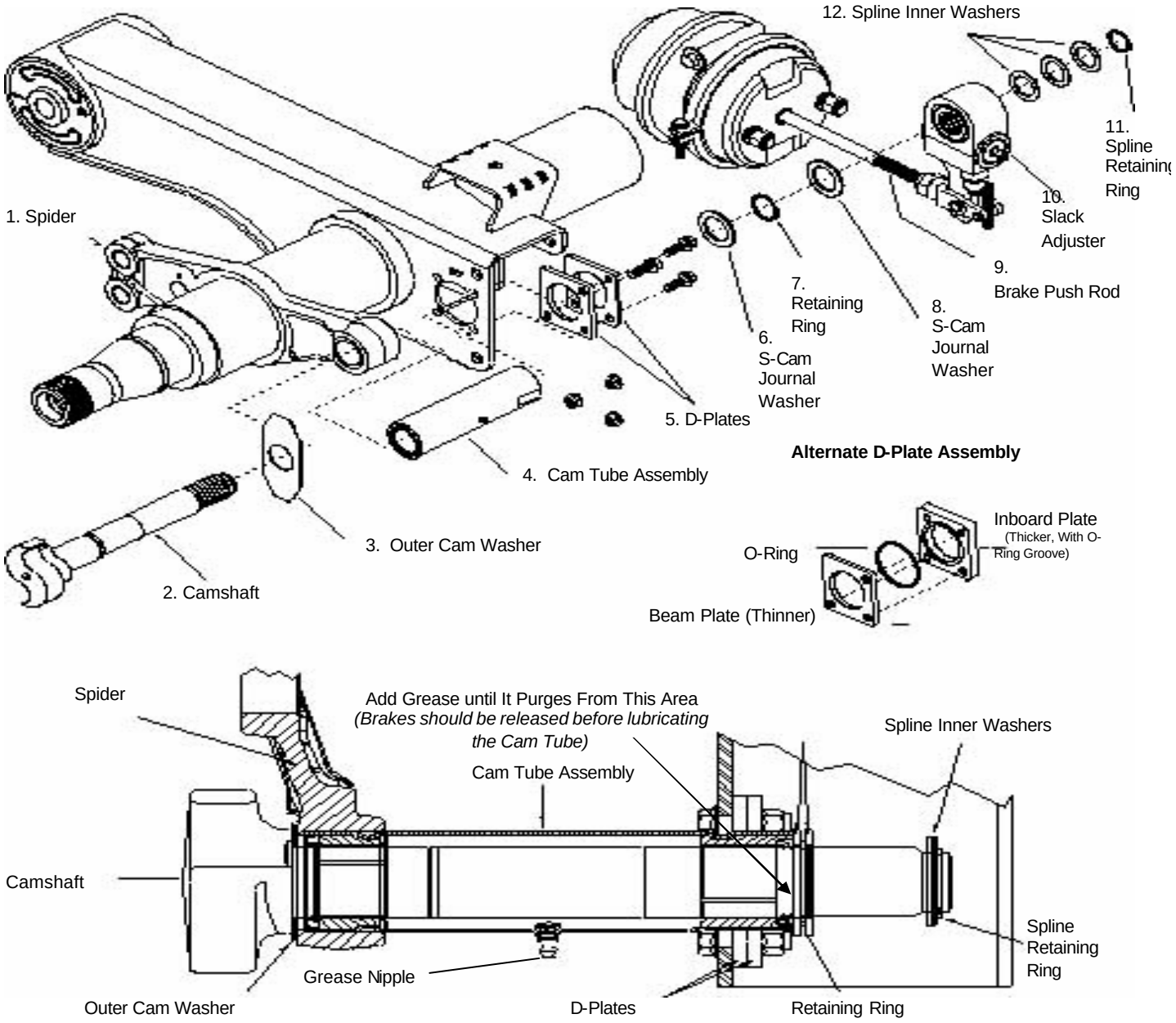
TECHNICAL BULLETIN

TRAILER AIR SUSPENSIONS
CAM TUBE SYSTEM

No: 97117-119
Subject: *Cam Tube Servicing*
Date: February 2005 **Revision:** B



Brakes should be released before lubricating the Cam Tube

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Figure 1

REMOVING THE CAMSHAFT AND CAM TUBE ASSEMBLY

Refer to figure 1 for parts identification.

NOTE: On Cam Tube System models, it is not necessary to remove the hub assembly to remove the camshaft. Once the cam tube assembly is removed, the camshaft can be slid past the hub.

If only the cam tube assembly (item 4, figure 21) is being removed (not the camshaft), it can be done on the inboard side of the wheel without removing the tyre/wheel assembly or the brake drum.

1. Remove the tyre/wheel assembly and the brake drum.

2. Using retaining ring pliers, carefully remove the spline retaining ring (item 11, figure 1).

IMPORTANT: If the spline retaining ring is carefully removed, it can be reused when the new camshaft is installed. However if it was bent or distorted during removal, it must not be reused.

3. Remove the spline inner washers (item 12, figure 1).

4. Disconnect the brake chamber push rod (item 9, figure 1) from the slack adjuster (item 10, figure 1) by removing the cotter pin(s) and clevis pin(s) from the slack adjuster clevis.

DO NOT Adjust or remove the push rod jam nut at this time.

5. Retract the slack adjuster control arm(s) from the clevis. With the slack adjuster control arm(s) retracted from the clevis, remove the slack adjuster from the camshaft.

6. Remove the S-cam journal washer (item 8, figure 1).

7. Using retaining ring pliers, carefully spread open the retaining ring (item 7, figure 21) and remove it from the groove in the camshaft (item 2, figure 1).

IMPORTANT: If the spider retaining ring is carefully removed, it can be reused when the new camshaft is installed. However if it was bent or distorted during removal, it must not be reused.

8. Remove the second S-cam journal washer (item 6, figure 1).

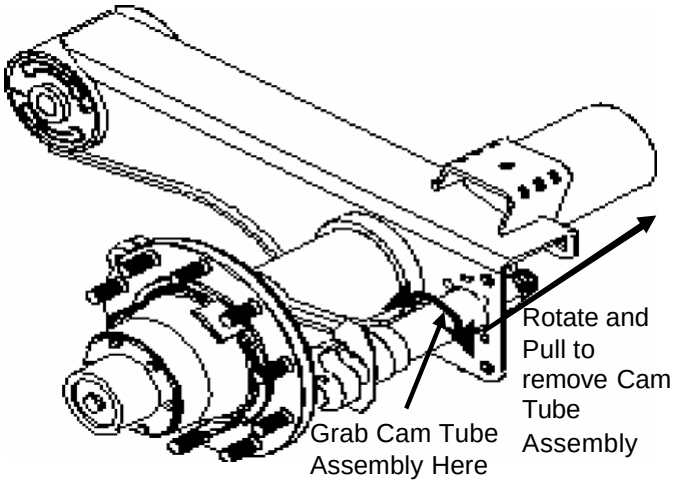
9. Loosen and remove the bolts that secure the D-plates (item 5, figure 21) to the suspension beam.

10. Remove the D-plates (item 5, figure 1).

NOTE: Some Cam Tube System models use an O-ring between the two D-plates. If your suspension has an O-ring, remove it at this time.

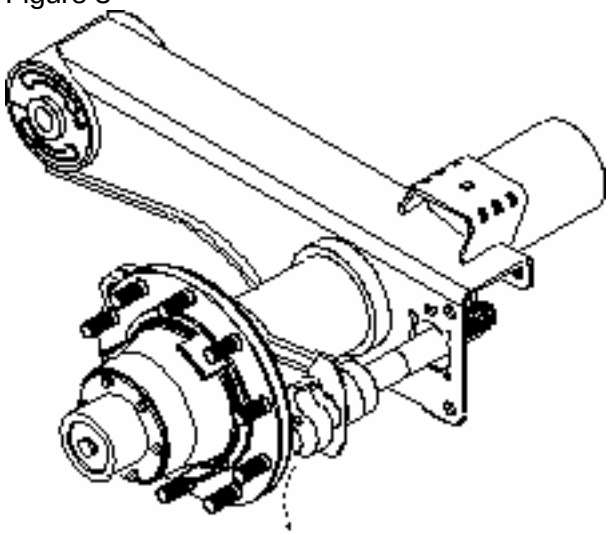
11. Pull the cam tube assembly free from the spider (use a back-and-forth rotating motion) and slide it out through the mounting hole in the suspension beam (figure 2). Since the cam tube assembly is a modular (one-piece) component, all bushings and seals remain inside it.

Figure 2



12. Remove the camshaft and the outer cam washer from the outboard side of the spider (figure 3).

Figure 3



13. Discard the worn camshaft (item 2, figure 1) and cam tube assembly (item 4, figure 1).

Save the rest of the Cam Tube System Hardware, if it was not damaged during removal, it can be reused when the new camshaft and cam tube assembly are installed.

INSTALLING THE CAMSHAFT AND CAM TUBE ASSEMBLY

NOTE: When instructed to apply grease to a component in the following procedure, use #2EP NLGI chassis lube.

NOTE: On Cam Tube System models, it is not necessary to remove the hub assembly in order to install the camshaft. If only the cam tube assembly (item 4, figure 21) is being installed (not the camshaft), it can be done on the inboard side of the wheel without removing the tire/wheel assembly or the brake drum.

1. Using an approved solvent, clean the spider assembly. To remove heavy amounts of dirt or grease, steam clean the spider assembly.

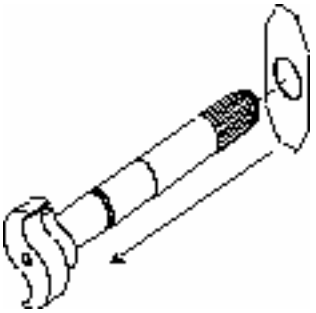
WARNING: DO NOT USE FLAMMABLE CLEANING SOLVENTS TO CLEAN THE SPIDER ASSEMBLY.
THESE SOLVENTS CAN CAUSE A FIRE OR DISPERSE HARMFUL VAPORS.

2. Dry the spider immediately after steam cleaning to prevent rusting or pitting of the machined areas. Use rags, paper towels or low-pressure air to dry the parts.

WARNING: PROTECT EYES AND SKIN FROM PARTICLE PENETRATION WHEN USING LOW PRESSURE AIR.

3. Slide the outer cam washer onto the camshaft until it contacts the S-cam head (refer to figure 4)

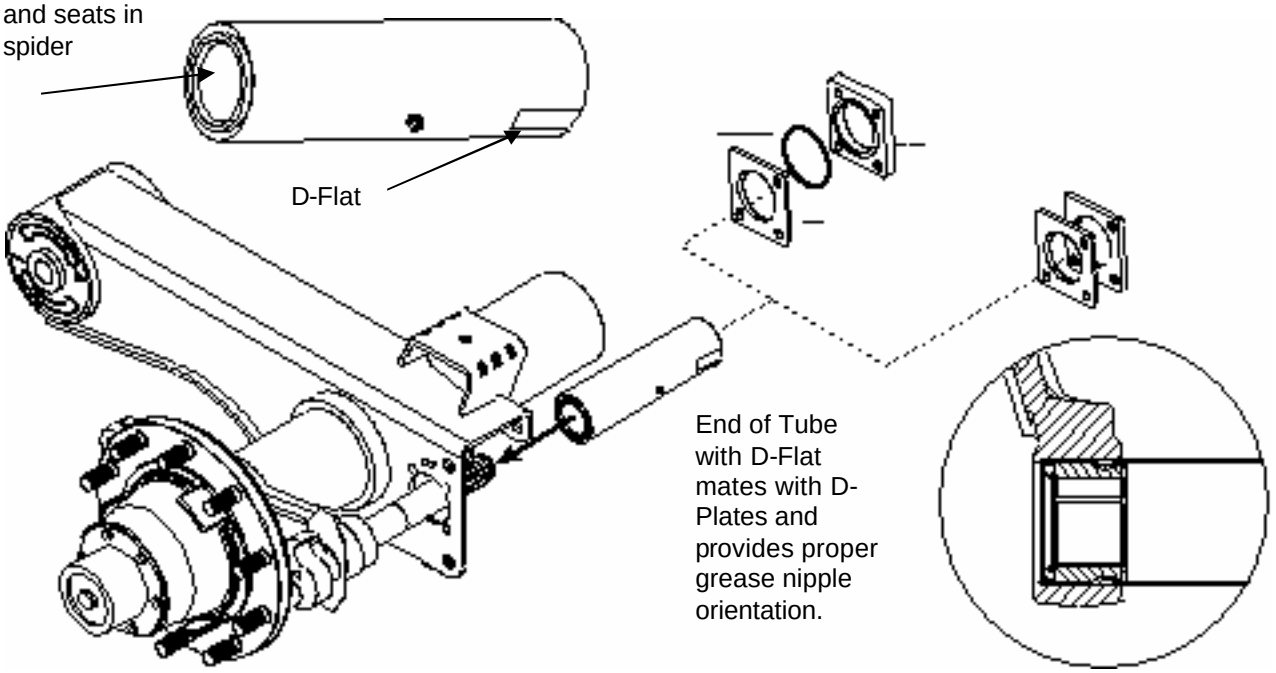
Figure 4



IMPORTANT: **Camshafts have left-hand and right-hand orientations. Make sure you install the proper camshaft for this wheel position so that the brake shoe rollers can properly engage the S-cam lobes.**
To differentiate, hold the camshaft horizontally with the splines facing away from you and look at the S-cam head. With the camshaft in this position (refer to figure 5), the S-cam lobe that points upward indicates orientation.

Figure 5

End of tube with blue coloured seals slides on first and seats in spider



Cam Tube Assembly “Slip Fits” into the Spider. Use loc-tite of similar to secure

Figure 7

4. Angle and slide this camshaft assembly through the spider and beam (figure 6)

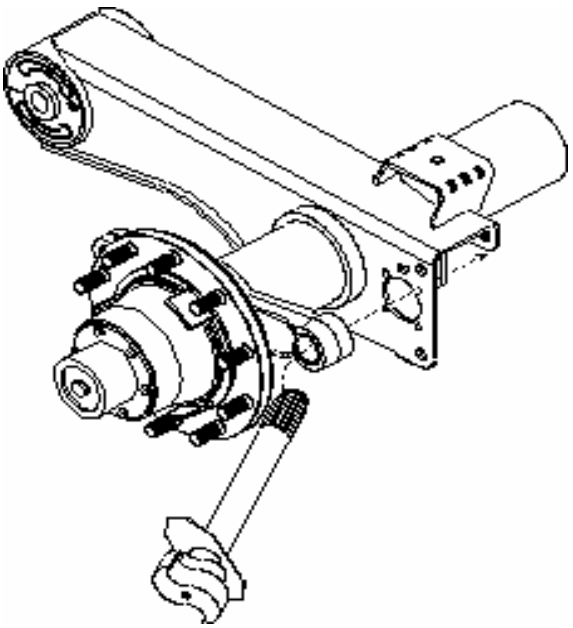


Figure 6

5. To aid assembly, lightly lubricate the seals inside the new cam tube assembly with #2EP NLGI chassis lube.

6. From the inboard side of the suspension beam, slide the new cam tube assembly onto the new camshaft, through the mounting hole in the suspension beam and into the spider (figure 7). Make sure the end of the cam tube with the blue coloured seals goes onto the camshaft first.

IMPORTANT: Use loc-tite or a similar product to secure the Cam Tube into the spider.

7. Slide the D-plates (item 5, figure 1) onto the end of the cam tube assembly until they contact the suspension beam.

NOTE: Some Cam Tube System models use an O-ring between the two D-plates. If you removed an O-ring with the two D-plates during disassembly, install it between the D-plates at this time.

8. Rotate the cam tube assembly so the D-flat points rearward and aligns with the holes in the suspension beam. The blind fourth hole should be aligned as shown in figure 7

9. Install the three D-plate attaching nuts and bolts. Tighten the nuts and bolts to 35-45 ft. lbs. (48- 61 N•m) of torque.

10. Slide the S-cam journal washer (item 6, figure 1) onto the camshaft, and seat it against the cam tube assembly.

11. Using retaining ring pliers, hold open the retaining ring (item 7, figure 1), and slide it on the end of the camshaft. Lock the retaining ring Into the groove on the camshaft.

12. Slide the second S-cam journal washer (item 8, figure 21) onto the camshaft and seat it against the retaining ring (item 7, figure 1).

13. Lubricate the single, centrally located grease fitting with #2EP NLGI chassis lube.

• Wipe off the grease fitting before lubricating. This will help prevent contaminants from being injected into the grease fitting along with the grease.

• Fill the cam tube assembly with approximately four ounces of #2EP NLGI chassis lube. Add grease until it can be seen purging from the cam tube inboard seal (figure 1).

• Wipe away excess grease purged from joints. This will help prevent contaminants from being attracted to the lube points and grease from getting on the brake linings.

NOTE:

Brakes should be released before lubricating the Cam Tube.

14. Lubricate the splines of the new camshaft with an anti-seize lubricating compound.

15. Following the appropriate, install the slack adjuster (item 10, figure 1) onto the camshaft.

16. Install the spline inner washers (item 12, figure 1).

17. Using retaining ring pliers, install the spline retaining ring (item 11, figure 1).

Further information may be obtained from Hendrickson Asia Pacific Pty Ltd
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