

ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

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Office of the VC & MD,
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CIRCULAR NO.02/2004 - MED DT.08.01.04

SUBJECT:- MAINTENANCE - Maintenance of Propeller shafts
- Reg.

A review of the breakdowns in Leyland vehicles revealed that most of the Breakdowns are in transmission system and are due to failure of propeller shafts (UJ/slip joints). Propeller shaft is the critical component in the drive train. Its failure can sometimes lead to serious accidents. It is essential to adhere to the manufacturer's recommendations on service practices. Lack of lubrication is one of the most important causes of UJ and slip joint failures. Hence the following instructions on lubrication procedure are issued for reducing breakdowns in the transmission system related to PP shafts.

MAINTENANCE PRACTICES AT DEPOTS -

FOR UNIVERSAL JOINT -

1. While greasing ensure grease is coming out (purging) from all four seals of each UJ lugs. This flushes abrasive contaminants from each bearing assembly and ensures proper filling of all four bearings.
2. If any of the seals fail to purge, try to move the drive shaft from side to side and simultaneously apply grease gun pressure. This allows greater clearance on the thrust end of the bearing assembly that is not purging.
3. Still if any bearing cup assemblies fail to purge, then by using brass hammer sharply strike yoke on inboard and out board lug ears once, to firmly seat bearing and relieve tension across span. Rotate shaft 180 degree and repeat procedure on opposite inboard and out board lug ears.
4. Now apply grease gun pressure and purge all four bearings until fresh grease is seen at all four seals.

5. If striking lug does not cause purging, remove snap ring in lug ears of the bearings that are not purging and repeat step-3. If all four bearings purge fresh grease refit snap rings.
6. If the bearing still do not purge, remove the UJ from the yoke and determine the cause of blockage.

FOR SLIP JOINT -

1. Apply grease gun pressure to the lube fitting until grease appears at the pressure relief valve (or hole in the plug at the slip yoke end of the splines).
2. Now cover the pressure relief hole with your finger and continue to apply pressure until grease appears at the slip yoke seal.

FOR CENTRE BEARING -

1. Apply grease gun pressure to lube fitting until grease appears at the pressure relief valve.

REPAIR PRACTICES AT ZONAL WORKSHOPS -

Repair on propeller shaft like replacement of Yokes, Tube, Stub shaft etc requires special equipments and processes. Also dynamic balancing of the unit to very tight limits is essential for satisfactory performance. Hence it is to be done only at Zonal Workshops.

While replacing the component, ensure that the tube length and type is maintained to original specifications.

Ensure uniform welding to be carried out all along and the welding should be free from blow holes/cracks.

Recommended welding process : MIG WELDING

Electrode Specifications : 1.2 mm dia Citofil wire

For achieving proper weld penetration tube edge preparation is essential.

Edge preparation is recommended for all tubes above 2.5 mm thickness. Remove burr if any. Clean the edge with a de-greasing solution.

FIGURE

After repair dynamic balancing of shaft and straight check is to be carried. The general permissible values for run out is 0.5 mm T.I.R during checking in inspection machine.

REPLACEMENT OF SEALED CENTRE BEARING -

"When servicing a propeller shaft with a new centre bearing, it is necessary to fill the entire cavity around the bearing with waterproof grease to shield the bearing from water and contaminants. The quantity should be sufficient to fill the cavity to the extreme edge of the slinger surrounding the bearing".

All DMs are advised to ensure implementation of the above instructions scrupulously at the Depots for getting optimum life of the P.P shafts and to avoid breakdowns due to failure of P.P shafts.

All Dy.CMEs are advised to check up for implementation of the above circular instructions during the inspection of Depots and report.

All WMs of Zonal workshops are advised to ensure above mentioned servicing practices, while servicing and testing the PP shafts at Zonal workshops.

VICE CHAIRMAN & MANAGING DIRECTOR