ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

OFFICE OF THE MANAGING DIRECTOR
MUSHIRABAD:HYDERABAD - 20

No.TL6/437(2)/2004-MED

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Sub : MAINTENANCE - Introduction of Air Suspension on ASHOK LEYLAND fleet in APSRTC - Instructions issued on Air Suspension Maintenance - Reg.

INTRODUCTION :

Corporation is introducing Air Suspension on all the Inter-State and Long Distance Hi-tech buses with more than 400 KMs route length to improve the ride comfort for the passengers.

The Air Suspension System replaces the conventional Leaf Spring. This improved suspension reduces the pitch and roll with suitable design of the Air Diaphragms and Air Springs. In addition, the design ensures superior comfort levels for passengers than with conventional springs.

The Levelling Valves take care of any variation from Axles to Chassis height, ensure even floor height- even with extreme uneven distribution of passenger loads. The comfortable ride is made possible for passengers at any seating location inside the bus. Air Suspension eliminates many of the problems of the conventional Leaf Spring including the down time due to the breakage of Leaf Spring. Even in the unlikely event of failure of Air Spring, the vehicle can be driven on the Bump Stop to the nearest depot.

The air required for initial filling of the vehicle and for the suspension is minimal.

A pressure protection valve is provided to give priority of air supply to braking circuit in the event of failure of a component or pipe line in the Air Suspension System

No lubrication is required for air suspension as all joints are having spherilastic bushes.

In case air spring gets punctured, for example if LH Front Air Spring gets punctured, vehicle will be tilted to LH side since the air in {he LH Rear air spring will be slowly exhausted. The vehicle can be made straight by exhausting the air from RH air springs by disconnecting levelling valve from axle. Now the vehicle will rest on piston through bump stop. The vehicle can be taken iu nearest workshop at slower speed.

To jack up the vehicle, the jack has to be placed below the parallel link axle and bracket and the axle is jacked up.

The Air Suspension System on Ashok Leyland vehicles will have a front axle assembly with two air bellows and rear axle assembly with four air bellows.

The major components of front axle assembly are:

1. **Panhard Rod**
2. **Levelling Valve**
3. **Shock Absorbers**
4. **Air Springs**

The major components of rear axle assembly are:

1. **Compound Link Assembly**
2. **Parallel Link Pivot & Air Spring Bracket Assembly**
3. **Shock Absorbers**
4. **Air Springs**
5. **Parallel Link Assembly**
6. **Anti Roll Bar Assembly**
7. **Leveling Valve**

The following instructions are issued regarding periodicity of maintenance of Air Suspension and the items to be attended at the prescribed mileage/period.

I. DAILY:

1 Check for Bolts Torque Torque Details:

a) **M22 (Axle Mounting Bolt) - 250 Nm.**

b) **Chassis mounting Brackets and other bolts:**

SIZE OF BOLT	-	TORQUE
M 24	-	300 Nm
M 16	-	214 Nm
M 14	-	140 Nm
M 12	-	85 Nm
M 10	-	50 Nm

2. **Check Air Spring Static Height for 295 mm in the front air spring assembly and 265 mm in the rear air spring assembly. If the static height is not according to these dimensions, adjust the levelling valve to achieve the same.**

3. **Check the Shock absorbers for oil leakage, rubber mounting failures and damping loss.**

4. **Drain the Air Reservoir to maintain the air supply free from Moisture.**

II. MAINTENANCE TO BE DONE IN EVERY SCHEDULE - II.

Remove any deposit of foreign particles in between Piston & Diaphragm of all the air springs. Use soft

cloth to clean the sand particles or dust in between the piston and diaphragm.

III. MAINTENANCE TO BE DONE IN EVERY SCHEDULE-III.

Check Pneumatic line for air leakage and correct if any leakage is found.

IV. MAINTENANCE TO BE DONE IN EVERY SCHEDULE-IV.

1. **Check Shock Absorbers. If the vehicle is having undamped motion, replace the defective shock absorbers.**
2. **Check the bushes. Change all the worn out bushes.**

V. MAINTENANCE TO BE DONE IN EVERY FC.

1. **Check levelling valve. Correct the levelling valve lever position.**
2. **Check the bushes. Change all the worn out bushes.**

VI. The following things shall not be done on Air Suspension System:

1. **Do not disturb the levelling valve lever position as it will give bumpy ride.**
2. **Do not change the air spring static height, as it will give poor ride comfort.**
3. **Do not allow the vehicle to be driven without shock absorbers.**
4. **Do not allow the vehicle to be run without air in the air spring assembly.**

VII. The following are the contact persons for service support.

1. **S.SRIDHAR**
   WHEELS INDIA LTD PADI
   CHENNAI - 600 050.
   PH.No.044-26258511 EXT:2404, 2405
   044-26523037
   .CELL No 98410 - 04851

2. **V.VIJAY KUMAR**
   WHEELS INDIA LTD PADI
   CHENNAI - 600 050.
   PH.No.044-26258511
   EXT: 2404, 2405
   044-26523037

All DMs with with Leyland fleet are instructed to ensure the implementation of circular instructions besides educating the Supervisors and Mechanics on the salient features of the air suspension system and its maintenance.

All the Regional Managers, Divisional Managers and Dy. CMEs are advised to review the implementation of the circular instructions at the depots to which *I* ^se vehicles are allotted during the inspection of depots.

EXECUTIVE DIRECTOR (E)