ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

No. OP3/462(6)/2003-MED

Office of the VC&MD,
Mushirabad, Hyderabad - 20.

Date: 05.06.2003.

CIRCULAR NO.16 / 2003 - MED, Dated 05 .06.2003

Sub : BREAKDOWNS-Analysis and control of Breakdowns-Reg.

Ref : 1. Circular no. 54/92-MED Dt.05.11.1992.
2. Circular no. 04/94-MED Dt. 19.01.1994.
3. Circular no. 05/95-MED Dt.15.03.1995.
4. Circular no. 15/96-MED Dt.07.06.1996.
5. Circular no. 19/96-MED Dt.22.06.1996.

Breakdowns for the year 2002-03 are reviewed and the system wise details ar furnished here under.

	LEYLAND		LEYLAND Exc.city		TATA		CORPORATION	
	NO.	Total BDs	No.	%of Total BDs	No.	% of Total BDs	No	% of Total B D s
1. ENGINE SYSTEM	1187	5.57	837	6.34	1210	7.81	2397	6.51
2. FUEL SYSTEM	3691	17.32	2432	18.43	1989	12 84	5680	15.43
3 COOLING	875	4.11	638	4.83	797	5.15	1672	4 54
4 BRAKE SYSTEM	1787	8.39	1127	8.54	2212	14.23	3999	10.87
5. TRANSMISSION	6730	31.58	3919	29.7	6251	40.36	12981	35 27
6. ELECTRICAL	1194	5.6	504	3.82	608	3.93	1802	4 9
7. STEERING &	1134	5.32	1032	7.82	1252	8.08	2386	6.48
8. TYRES	4406	20.68	2421	18.35	675	4.36	5081	13.81
9. BODY & OTHERS	306	1.44	286	2.17	496	3.2	802	2 18
TOTAL	21310		13196		15490		36800	

It is seen from the above that failures in transmission, fuel, tyres and brake; systems account for 75.38% of the total Breakdowns in the corporation The contribution of breakdowns in these systems is identical in both Leyland and Tata areas though the percentages differ.

Breakdowns cause severe inconvenience to the traveling public and affect: the image of the corporation. In these days of intense competition it should be our endeavor, to provide a breakdown free service to the passengers.

Apart from causing considerable inconvenience to the customers, Breakdowns cause dislocation of vehicle schedules, affecting punctuality and reliability. The Breakdowns also cost the corporation considerably in the form of loss of revenue ,non-revenue KMs and wastage of Man Power. High incidence of Breakdowns causes dislocation of preventive maintenance resulting in further increase in Breakdowns. Detailed and regular analysis and effective control action should result in reduction of Breakdowns.

Regular physical inspection of the buses by DMs & Supervisors after maintenance, correct and honest recording of breakdowns, proper analysis of breakdowns and corrective action will help to bring down the incidents of breakdowns

Any attempt towards improper accountal of BDs with a view to projecting improve performance will severely affect the health of fleet and result in recurrence of breakdowns

During the year 2002-03, 36800 Breakdowns were recorded in the corporation The following systems account for majority of breakdowns.

1 Transmission system - 35.27% 2. Fuel system - 15.43%

3. Tyre failures - 13.81% 4. Brakes system - 1 0 87%

With a view to taking corrective action to reduce BDs in those systems accounting for majority of failures, the following guidelines are issued.

CAUSES FOR BREAKDOWNS -

Every Breakdown can be traced to one or more of the following causes

1. Human Failure - Breakdowns may occur due to the negligence of maintenance personnel to inspect and maintain parts / assemblies as laid down in the maintenance schedule. These failures are to be classified as "Human Failures'

2. Material Failure - Breakdowns resulting from a part / assembly not having Leon designed or produced or overhauled for the operating condition or a sub-standard pa" assembly having been used can be traced to material failures.

3 Maintenance system failure or system failure - In Preventive Maintenance, action is taken to attended to, or remove the part from service before the chance for failure becomes excessive. This action, as well as, preventing or at least delaying the Breakdowns c, preventive action is attempted in Preventive Maintenance schedule. Breakdowns resulting from infrequent inspection / maintenance of components can be termed as "Maintenance System Failure" or "System Failure" as commonly referred to. Frequent Breakdowns due :o system failure should be referred to corporate office to make changes in the maintenance schedules.

The instructions given vide circulars at reference cited, are reiterated hereunder for detailed analysis and control of Breakdowns.

TRANSMISSION SYSTEM -

Failure of clutch, Gear box, Propeller Shaft, Center Joint Bearings are the ma causes for Breakdowns in Transmission, which can be avoided by implementing the followm: maintenance practices.

During Sch IV, the removed clutch disc and pressure plate assembly has to L inspected for wear and tear, cracks on clutch liner, loose torsion springs, loosening of clutch lining rivets and to be replaced if found defective

Ensure proper functioning and lubrication of clutch release bearing

Ensure proper finger height adjustment of pressure plate assembly in case of Leyland vehicles with Z - Gauge.

Check up excess play in linkages of remote gear shifting mechanism in Tata vehicles

Check up functioning of selector mechanism for smooth changing of gears

Ensure proper alignment of PP shafts to prevent failure of CJ beds and bearings

Excess greasing should be avoided in case of CJ bearings to prevent rubber bee damages.

Ensure fitment of correct type of Center Joint bearings in case of Tata vehicles where different models like split, honey comb, modified honey comb and spicer type CJ bearings are available. Stocking of all types of CJ bearing and Rubber beds, has to be ensured to prevent fitment of one type to the other.

FUEL SYSTEM -

There were 5680 failures due to failure in fuel system during the year 2002-03, which constitute 15.43% of total failures. The majority of Breakdowns in fuel system are due to air locks, Air lock is caused whenever air is trapped in the fuel system. The main causes for air lock are

1. **Leakage or cracks in fuel suction line in between Fuel tank to feed pump.**
2. **Choked fuel tank strainer.**
3. **Choked fuel filters.**

To prevent failures in fuel system the following maintenance practices have to be implemented.

— **Ensure proper clamping of fuel suction pipe lines between fuel tank to feed pump to avoid air lock problems.**

— **Regular and proper cleaning of diesel tank and strainers during Sch IV maintenance has to be ensured to prevent entry of dust into the fuel system.**

— **The diesel filters should be changed at prescribed intervals**

— **Ensure cleaning of feed pump strainer to remove any accumulated dust**

TYRES SYSTEM-

Ensure provision of spare tyre fit for fitment in front portion with tyre changing tools (viz Mechanical Jack, Wheel Box spanner and Tommy rod) with lock & key provision to avoid en-route detention in case of tyre failure.

Inflation of tyres twice a week has to be ensured to maintain recommended tyre pressures.

Ensure correct tube repairing, practices duly following-guidelines issued vide circular no. 3/1988-MED Dt.29.02.1988.

Timely removal of tyres with 2 MM tread depth has to be ensured to prevent tyre failures and damages.

— **Ensure fitment of tyres with good life on bad roads to avoid failure of weak tyres fitted in front.**

— **The principle of FIFO (First in First out) should be followed while using the tyres and tubes.**

Implementation of correct tyre preparation and assembling practices at Depot have to ensured to prevent breakdowns on account of tyre failures.

BRAKE SYSTEM

During the year 2002-03, 10.87% of total Breakdowns were in brake system Frc safety point of view this system has to be given more importance.

Ensure prompt replacement of brake units like unloader valve, E1 / E2 valve, Syster protection valve etc., rubber hoses and components during F.C.

— Care should be taken for proper matching of brake linings and brake drums as p<
circular no. 15/1996-MED Dt.07.06 1996

—- Ensure prompt attention to leakages in air system for proper braking

— Correct size of brake lining rivets and proper riveting has to be ensured to prevent failure of brake linings while in operation. _

Analysis of Breakdowns periodically (Daily by,the Mechnical Supervisor, Weekly. by Depot Manager and Monthly by Divl. Manager /Regional Manager) according to the classification will enable the Managers to control the Breakdowns by seeing how far the Mechanics are responsible and how much sub-standard parts or overhauled units are contributing to Breakdowns. Action shall be taken to improve the skills in workmen by training, duly obtaining the services of original equipment manufacturers and vehicle manufacturers.

All the Depot Managers are instructed to follow the above guidelines scrupulously and take necessary corrective action to reduce the Breakdowns-.

All the Regional Managers, Divisional Managers and Dy. CMEs are advised to review and ensure implementation of above instructions during their inspection of Depots

Please submit compliance report on implementation of above circular instructions

VICE CHAIRMAN & MANAGING DIRECTOR

To

All Depot Managers (By name)

Copy to : ED(E), Director(V & S), ED(MIS), ED(A), ED(O), FA, CAO and All ED(Zones) for information and necessary action.
Copy to . CME(O), CE(1E & COM), CPM, CM (HRD), CM(Trg), CCOS & Secry to Corporation for information
Copy to : All Regional Managers for necessary action.
Copy to : All Divisional Managers for necessary action.
Copy to : Dy.CME (C&B), Dy.CME(IEU), Dy.CME(P), COS(C) I, COS(C) II & CSTO for information.
Copy to : All Dy. CMEs (Zones) for necessary action.
Copy to : All WMs, COSs & Dy. CAOs of all Zones for information & necessary action
Copy to : AIL Principals of ZSTCs & TA / HPT foT information
Copy to : All Maintenance incharges for necessary action.
Copy to : Manual Section / Head Office for filing.