ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

Office of the VC&MD, Mushirabad, HYD-20. Dt: September 3, 2005

No. TR2/815(1)/2005-MED

CIRCULAR NO. 11/2005-MED

SUB: -**TYRES** – Proper Tyre maintenance practices to be followed at Depots for improved Tyre performance – Reg.

REF: - 1) Circular No. 20/87-MED, dtd: 23.9.87
2) Circular No. 38/91-MED, dtd: 8.10.91
3) Circular No. 53/92-MED, dtd: 16.10.92
4) Circular No. 10/93-MED, dtd: 6.4.93
5) Circular No. 25/93-MED, dtd: 1.6.93
6) Circular No. 1/98-MED, dtd: 8.1.98
7) Circular No. 11/99-MED, dtd: 6.5.99
8) Circular No. 29/2001-MED, dtd: 26.9.01
9) Circular No. 16/2004-MED, dtd: 7.7.04

In view of the present critical financial position of the Corporation the induction of new Vehicles may get retarded. Because of this, we have to procure additional new Tyres in place of the Tyres that come along with new chassis @ 6 Tyres in case of Leyland chassis and @ 7 Tyres in case of Tata chassis. Further, due to increase in prices of Natural & Synthetic rubber, the prices of Tyres and its consumables like Tubes, Flaps have gone up considerably when compared to previous year. All these factors will have influence on the expenditure on Tyres & Tubes for the current financial year.

This is already evident from the Profit & Loss account of the Corporation upto the month of July'05 wherein the CPK on Tyres & Tubes has increased to 38 paise as against 33 paise of last year same period. This has lead to an additional financial impact of Rs.3.76 Crores after neutralizing the extra Volume of operation.

It is estimated, at this level of performance, the CPK on Tyres & Tubes is going to be at 38 paise for the current financial year, **thus putting an additional financial burden of Rs.11.00 Crores on the Corporation.**

To nullify the above financial burden, the present Tyre performance has to be further improved by 14%. The average Tyre mileage at corporate level shall be 2,11,200 kms.

Though the overall Tyre performance is in positive trend with 1,85,157 kms of average life, the recent spurt in 1st RC scrap rate and Total scrap rate indicate alarming signals. If the same trend continues, there is every danger that the CPK on Tyres may further go up. The analysis of scrapped Tyres indicates that most of the Tyres are getting scrapped due to "Tread Separation/Ply Separation". **This is mainly due to operating the Vehicles with irregular inflation pressures**. Recently, we have organized a random inspection of Vehicles at all major Bus Stations of the Corporation for checking the inflation pressures. It is revealed that the inflation irregularities are very high in almost all the Regions ranging from a minimum of 16% to a maximum of 87%. This is highly alarming situation, which warrants the attention of one and all.

Sample study of scrap Tyres at all Tyre Retreading Shops with the help of Tyre manufacturers reveals the following deficiencies affecting the casing life.

1. <u>Non-removal of Tyres in time:</u> Most of the Tyres were found with deep cut marks on the Crown. In case of Radials, the steel wires are getting rusted due to exposure to atmosphere for longer duration through these cuts. Wherever these cuts are not properly attended at Tyre Retreading Shop before undertaking retreading, the Tyres are getting scrapped due to "Burst" even with slightest impact. In case of bias ply

Tyres, these deep cuts are resulting in Tread Separation/Ply separation in the operation. Under inflation of Tyres is further aggravating such separations.

Most of the deep cuts are found to be taking place when the left over NSD (non-skid depth) is around 2 to 3 mm only.

- Some of the Tyres found to be operated with severe mechanical defects developing localized stresses at the place of uneven wear. Such stresses are leading to Tread or Ply Separations and resulting scrapping of Tyres. Rotation of Tyres with such uneven wear is being neglected at the Depots.
- 3. Operation of Tyres with under inflation causing excessive flexing and leading to separation among the plies and also damaging the 'patches'.

Thus, unless the Tyre maintenance practices at Depots are strengthened, we may end up in negative trends in Tyre performance. Detailed instructions were already given through various circulars & manuals as referred above on Tyre care at Depots.

However, for the benefit of one and all, comprehensive instructions are once again issued enumerating the steps to be taken at various stages of Tyre management.

I. SELECTION OF TYRES:

There is a wrong notion among the Managers & Supervisors that only Tyre with weak casings shall be fitted to Vehicles on bad roads so that damage to new Tyres/1st RC Tyres can be avoided. But, this is not correct. It is suggested to fit Tyres with full tread depth (either new or RC Tyres as per guidelines) to the Vehicles operating on bad road condition and may be rotated to some other Vehicles operating on good roads after covering a maximum of 50% of its life. Most of the Tyres are susceptible for damages only at 2 to 3 mm left over NSD. Thus, it shall be ensured to rotate Tyres of Vehicles operating on bad road condition as stated above. Never use other than "F" mark Tyres & Repair Tyres in the front position as this will result in increase in scrapping of Tyres besides prone for accidents.

Further, the Tyres with heavy repairs i.e., with BP7 or BP8 patches shall be used on off-side rear position of the Vehicle so that it will not be subjected for impact while maneuvering the road margins.

II. ASSEMBLING PRACTICES:

One of the good Tyre management practices is to have sufficient stock of Tyres prepared in advance for use in the shifts. Since sufficient floats @ 0.8 per Vehicle are provided at the Depots, it shall be ensured to prepare Tyres in advance and are kept ready for use in the next shift. Wherever Tyres are not prepared in advance, mismatch of Tyres is observed on Vehicles as the Tyres are prepared at random in emergency and fitted to the Vehicles since they have no option for selection in order to match.

Further, it shall be ensured that sufficient stock of Nylon & Radial Tyres (New & RC) are kept ready after preparation for use.

Through circular No. 38/91-MED, detailed guidelines were communicated for correct assembling practices of Tyres. It was also instructed to exhibit these instructions neatly written in TELUGU at prominent place. Following are some of the important aspects to be implemented during assembling of Tyres.

- The surroundings where the assembling is carried shall be maintained neatly to avoid dust entry into the Tyres.
- The Tyre shall be checked thoroughly inside and outside for any injuries and foreign material before selecting it for assembling.
- Only new Tube & Flap shall be used in New Tyre and Fit-for-Front Tyres.
- The Tube shall not have excessive folds because the wall of the Tube will become thin at the folds and is prone for leakage.

- The Valve stem shall be checked thoroughly for external and internal threads. The effective length of
 the stem shall be ensured by removing the bends and maintain proper angle to have better reach in any
 wheel position. If the external threads are damaged Valve caps will be frequently missing causing dust
 entry and resulting in Valve pin struck up and slow air leakages. Use only new valve pins at the time of
 assembling, as the used pins may be dirty or defective.
- The condition of the Flap at the ridges and ends shall be checked before use.
- It shall be ensured that the Wheel Discs are thoroughly cleaned with twisted wire brushes using Ralli Wolf drilling machines before painting with Red oxide.
- Before placing the correct Tube & Flap inside the Tyre, ensure to dust the chalk powder with the help of
 a puff made out of perforated cloth to avoid sticking of Flap/Tube with the Tyre. Excessive dusting is
 not advisable as it may result in stone formation and pinch the Tube.
- After placing the Tube, Flap & Metallic Washer properly the Tyre shall be mounted on the rim and the flanges, lock rings are correctly seated.
- The Tyre should be gently inflated to 15 PSI (1 Kg/cm²) initially for correct seating of the lock ring & flanges.
- <u>Double inflation of the Tyres to the operating pressure is a must</u> (i.e., inflate to operating pressure, deflate, check seating and then re-inflate). Improper mounting of the Tyre on the Wheel disc causes camber wear on the Tyre. This is all the more important in case of Radial Tyres as the irregular tread wear can be predominantly seen on such improperly mounted Tyres. Checking the equidistance of rim edge to the marking on the Tyre can ensure this.

III. INFLATION OF TYRES:

Inflation of Tyres to the recommended pressures plays a vital role in achieving the optimum Tyre life as well as conserving the precious fuel. The inflation pressures are recommended by the Tyre manufacturers basing on the ply rating, Tyre construction (bias & radial), loading pattern etc. The recommended inflation pressures of different types of Vehicles and Tyres are as follows.

DESCRIPTION	BIAS PLY (NYLON)		RADIAL	
	FRONT	REAR	FRONT	REAR
	Kg/cm ² (PSI)	Kg/cm ² (PSI)	Kg/cm ² (PSI)	Kg/cm ² (PSI)
LPO 55/VIKING	5.95(85)	5.30(75)	7.35(105)	7.00(100)
LP 52	4.90(70)	4.90(70)	6.30(90)	5.60(80)
VOLVO(11.00 R 20)			7.70(110)	7.35(105)
KINGLONG(10.00R20			7.70(110)	7.35(105)
KINGLONG(Tubeless)			7.70(110)	7.35(105)
VOLVO (Tubeless)			7.70(110)	7.35(105)

ILL EFFECTS OF UNDER INFLATION & OVER INFLATION

- a) <u>Under inflation</u>: Under inflation of the Tyres cause excessive flexing of the casing and builds up heat and weakens casing & plies. Heat is the major enemy to the Tyre. The following ill-effects are there with under inflation
 - Under inflation increases rolling resistance thereby more HSD oil is consumed.
 - It increases the possibility of ply/tread separations, patch loose due to excessive heat built up.
 - Under inflated Tyres are more prone for punctures and through-cuts due to weakening of the casing.
 - Under inflated Tyre wears out on the shoulders only, thereby the life of the Tyre is reduced.

b) <u>Over inflation</u>: Over inflated Tyre is more prone for concussion bursts. Due to less road contact, the Tyre wears faster in the middle and life gets reduced. Further, the flexing characteristics of the Tyre gets reduced due to over inflation and affects the steering/ riding comfort.

With the use of Butyl Tubes, the chance of air leaking out has been reduced to a great extent. However, following measures are essential for maintaining correct inflation pressures.

- Inflation points @ one for each 20 vehicles shall be provided in the Depot. The inflation points shall be provided at the convenient places, for example, on either side of maintenance pits, Tyre preparation bay etc. Master gauge shall be provided additionally for cross checking of these gauges.
- Correctness of the gauge is very important for maintaining correct inflation pressures. Wrong gauges will result in either under inflation or over inflation of Tyres. Correctness of the gauges shall be ensured by (a) cross checking with the "Master gauge" once in a week, (b) getting it calibrated at authorised centres once in six months.
- 3. All the Supervisors & Tyre Mechanics must be provided with hand pressure gauges with flexible hoses.
- 4. The adopters of all the inflating points must be in good condition, otherwise every time while checking the inflation it may deflate the Tyres due to leakage.
- 5. All the Vehicles in a Depot must be divided into groups so as to check & correct the inflation pressures of the Tyres twice in a week by either the Tyre Mechanic or by the Schedule-I Mechanic. For example, if Tyre Mechanic checks a Vehicle on Friday during normal weekly program then the same Vehicle must be programmed for checking once again on Tuesday by the Sch-I Mechanic. Thus, there shall not be any repetition during this period since every time we try to check the pressure some amount of air tries to escapes from the Tyres, which results in under inflation.
- 6. At least 20% of the Vehicles must be cross-checked for correct inflation pressures by the shift supervisor and another 5% Vehicles must be cross-checked by AE (M)/DM every day.
- <u>Tube Repairing Practices</u>: Proper application of patches on the puncture spot avoids slow leakage of air and Tyre puncture due to patch failure. Following precautions are to be taken while applying the patches.
 - Correct size & type (round or oval) of patch shall be selected basing on the injury on the Tube.
 - Preparation of injury spot by buffing & cleaning is important for proper adhesion.
 - Correct centering of the patch on the injury will give strength to the patch. This can be ensured by 'X' marking at the injury using yellow crayon.
 - Since the patches are vulcanized by chemical action, it is essential to use same make patches and CVF as a set. Further, the patches and CVF must be used before the expiry date only. Otherwise, the patches may fail online causing Tyre punctures.
 - The patches so applied must be allowed to cure for at least 24 hours before they are put to use.
 - All the Tubes must be checked in a water tub for leakages by inflating them to such a pressure so that outer circumference of Tube shall not exceed 300 cms. Normally, the Tubes shall be inflated to 1kg/cm² (15 PSI).
 - Sufficient quantity of Tubes repaired of both bias ply and radial shall be kept in advance in the Depot for use in the shifts.
- 8. There is an apprehension that Tyre punctures are not avoidable in nature, which is not correct. Majority of the Tyre punctures take place due to improper inflation (mostly under inflation), pinching of Tube by the Flap, Tube patch failure, Tube fold, burrs on the metallic washer, damaged inner liner of the Tyre etc. Further, the Tyre is more susceptible for cuts only when the left over NSD is around 2 mm. Thus, it

is necessary to have a system of analyzing all the Tyre punctures in a Depot for correct diagnosis and corrective actions. This will help to a great extent in reducing the workload on Tyre Mechanics & Mechanics.

IV. MATCHING OF DUALS:

Normally, rear outside Tyre, wears faster than rear inside Tyre. It is suggested to use bigger diameter size Tyre on outside and smaller diameter in inside. Further, the road camber also necessitates using smaller diameter Tyre in inside position. Normally, the inner Tyre shall be $\frac{1}{2}$ " (1.3cm) lesser in diameter or $1\frac{1}{2}$ " (4 cm) lesser in circumference than the outer Tyre.

If the Tyres are not matched as above the entire load of the Vehicle will be carried by single Tyre only and wears out faster and also unevenly. Consequentially the Tyre on which the load is more flexes heavily & builds up heat which affects the plies as well as patches.

Tyres shall be checked for "matching" with the help of 'L' Square on fully inflated Tyres. Besides matching for the size, it shall be ensured to avoid using RC & New, Radial & Bias ply, 14PR with 16PR as a set.

Further, in the weekly checks, the matching of Tyres shall be checked by Tyre mechanic and if any discrepancies is noticed, it shall be brought to the notice of the shift supervisor by recording the same in the RG register and arrange for correcting the mismatch.

V. AVOIDING MECHANICAL DEFECTS ON VEHICLES:

Properly assembled and matched Tyres can perform better, only when the Tyre is used on a Vehicle, having ZERO defects. Especially in the front position, because of the Steering Geometry, the Tyres are subjected to more abuse if the alignment of the front wheels is not correct.

The following angles are included in the Steering geometry.

- a) <u>Toe-in & Toe-out</u>: Toe-in is the parallelism of the wheels when seen from the front of the Vehicles. For both Tata & Ashok Leyland Vehicles Toe-in of upto 3 mm shall be maintained. If this is not maintained, the front Tyres, wear very fast causing 'Featheredge' on the tread in one direction. This is a serious mechanical defect, which shall be checked during Schedule-II and corrected. While checking the Toe-in & Toe-out, the vehicle shall be parked on level ground, the inflation of Tyres shall be ensured for correct pressures and the alignment gauge shall be placed at correct position in a horizontal plane on both sides of the Tyre.
- b) <u>Camber</u>: Camber is the vertical tilt of the wheel. Normally, the lower edge of the Tyres is slightly tilted inside which is called positive camber. The Tyre tends to be straight under loading and will have proper rolling in operation with the normal positive camber. If there is too much of positive camber, the inside of the Tyre will be tilted excessively causing faster wear on outer edge of the Tyre. If the Vehicle is having negative camber, then the lower edge of the Tyre is tilted outside and the inner edge of the Tyre will wear very fast. Thus, normally incorrect camber can be visualized from the faster wear on one side of the Tyre only.
- c) <u>Caster Angle</u>: Caster is the backward or forward tilt of the top & bottom of the kingpin. This can be visualized by the inclination of the kingpin when viewed from side of the Vehicle. This is mostly provided for centering of the steering and keeps the wheels in straight-ahead position. If the Caster is not correct, the steering will have one side pulling and wander which effects the wearing pattern of the Tyre.

Though the above angles are the design aspects of the Vehicle, they may tend to alter with the mechanical defects like kingpin play, hub bearing play, ball joints play etc. Following mechanical defects are normally seen on Vehicles, which effects the Tyre wear.

- Excess play in hub bearing causes spotty wear on Tyre.
- Play in kingpin bushes changes the camber angle and causes one side wear.
- Weak suspension also alters the Camber angle and causes one side wear.
- Worn Tie-rod ends & bent steering linkage cause either Toe-in or Toe-out effecting the Tyre with featheredge wear.
- Oblong holes wheel disc/out of round wheel disc & improper mounting of Tyre on the wheel disc causes uneven wear.
- Brake drums with ovality or taper, mismatched brake liners causes brake grabbing. With this, Tyre will be wearing faster at particular place on the tread.
- Due to wrong adjustment of brakes free rolling will not be there which is called as brake binding. This will result in fastest wear on the tread on opposite sides of the Tyre.

The Tyre Mechanics have to be cautious in identifying such uneven wear on the Tyre during the weekly program of checking and bring it to the notice of the shift supervisor for corrective action duly recording the same in the RG register.

VI. ROTATION OF THE TYRES:

The uneven and faster wear of the Tyre due to any of the reasons like mismatching, mechanical defects, improper inflation etc., can be corrected to some extent by rotating the Tyre to some other position. Thus, Tyre rotation is essential to obtain optimum life from the Tyres. Following guidelines have to be followed in rotation of the Tyres.

- Normally new Tyres shall be initially fitted in the front position only. During every Sch-III, the Tyres shall be rotated from FOS to FNS and vice-versa. While doing so, the wheel disc also shall be rotated, so that the outer edge of the Tyre becomes inner edge and vice-versa after rotation.
- In case of Tyres fitted in Rear position, they have to be rotated from near side to off side and vice-versa. While doing so, the inner Tyre shall be rotated to outer side and vice-versa. This will facilitate in shifting the inner edge of the Tyre to the outer edge, and vice-versa even without rotating the wheel disc.
- After attaining 5 mm NSD the new Tyres shall be rotated to rear position of the Vehicles.
- It is advisable to rotate the Tyres as explained above on the same Vehicle. This will facilitate us in identifying the mechanical defects on the Vehicle for taking corrective action.
- In case of Tyres operated on bad road, the Tyres shall be rotated to some other Vehicles operating on good roads, after obtaining 50% of life.
- Regarding 'F' mark Tyres, which are meant for front fitment on Ordinary Vehicles, shall also be rotated as in the case of new Tyres.

VII. TIMELY REMOVAL OF TYRES:

One of the important Tyre management principles is timely removal of Tyre for sending it to Tyre retreading shop for repair or retreading. Any delay in identifying the Tyre for removal causes irreparable damage to the Tyres and badly affects the Tyre life. In view of the importance, it is desired to provide skid depth gauges to all the Tyre Mechanics & Supervisors of the Depot.

It is suggested to remove the Tyres on attaining 2 mm NSD and send them for retreading. It is important to note that the NSD (non-skid depth) shall be checked at a place where the Tyre wear is more.

Though general guidelines is to remove the Tyres at 2mm, the Regional Managers are at liberty to enhance this limit to 3 mm at the Depots where the repair content and scrap rate is on high side.

Timely removal of Tyres is not only removing on attaining 2 mm NSD but also removing when the Tyre is subjected to 'deep cuts' i.e., injury touching the breaker plies in case of Bias ply Tyre and steel belts in case of Radial Tyres. Since any negligence in attending the injury will cause dust & water entry into the plies and cause separation and subsequently gets scrapped. In case of Radial Tyres, the steel wires are exposed to moisture and get rusted. This weakens the casing at the injury spot and subsequently result in burst of the Tyre. Thus, timely identification of deep cuts on Tyres is equally important in extending the life of Tyres.

VIII. MANAGERIAL CONTROLS IN IMPROVING THE TYRE LIFE:

a) Ensuring the availability of Tyres, Tubes & Flaps as per norm:

Additional Tyres @ 0.8 per Vehicle are required as float at Depots. This is meant for transaction of Tyres from Depot to Tyre Retreading shop and vice-versa and for easy rotation of Tyres among the Vehicles. If sufficient quantities of Tyres are not available in the Depots, it becomes difficult to keep the Tyres in advance after preparation. Further, Tyres also will be forced to run beyond the limits causing damages.

If the Tyres are in excess to the requirement i.e., beyond the given norm, then some of the Tyres will be stranded for longer periods in Depot stock, thus affecting the casing due to ageing. Thus, it is necessary to have correct quantity of Tyres as float.

Further, it shall be ensured to have sufficient float of Radial Tyres depending upon the number of special type Vehicles available in the Depot.

The actual float in a Depot can be assessed as below:

Actual Float = Depot Stock + Stores Stock (received from TRS) + Outstanding at 'J' ward – Tyres to be fitted on spare position.

The availability of float Tyres has to be crosschecked once in a quarter and if any shortages are found, it shall be recouped by taking the sanction of competent authority. If the Tyres are found surplus, then to that extent action has to be taken to surrender to 'J' ward.

The availability of Tubes & Flaps both New & serviceable shall be ensured in proportion to New, F mark and RC/Repair Tyres.

- b) Every month, Tyre census reports (i.e., Depot stock Tyres, Stores stock Tyres, spare Tyres & Vehicleswise Tyres fitted status) are generated through computer. These reports have to be reviewed by AE (M)/DM every month with the following objectives.
 - Depot Stock Tyres statements will indicate the idling of Tyres if any on the floor for longer periods.
 - Stores Stock statement helps us in ensuring use of Tyres on "first in first out" (FIFO) basis.
 - Spare Tyres statement will indicate number of Vehicles without spare Tyres and also non-rotation in every Schedule -III/IV maintenance.
 - Tyre census report can be utilised to review the fitment of non-F mark Tyres (mostly III/IV RC tyres) in the front position of Vehicles and also mismatching.
- c) On various occasions, instructions were given to ensure correct recording of mileage rendered by the Tyres as this will have an impact on procurement decisions of New Tyres & Tread Rubber. With the computerization of Tyres management, the following procedures help us in ensuring correctness of the data entry.

- All the transactions of the Tyres recorded in the field register have to be entered into VEMAS data entry register every day and subsequently entered into computer.
- Before entering the Tyre transaction data and generation of Tyre history cards the log sheet challan preparation has to be ensured.
- All the transactions between the J ward and Depot i.e., MTD-68D & MTD-68E have to be done through computer only as per the standing instructions.
- The data relating to the Tyres of the Vehicles received on transfer from head office or other Depots shall invariably enter into the Tyre Master.
- The functioning of ADC (Tyres) for updating of data entry can be reviewed by verifying the 'Vacant Position Statement' generated after every transaction (i.e., fitment & removal particulars of Tyres). Ideally, no Vehicle shall be available in the report with vacant positions.
- d) Inspection of Tyres at the time of despatch will give the feed back on Tyre maintenance practices at the Depot. Depot Manager and Garage In-charge shall invariably inspect all the Tyres, which are ready for despatch to Tyreshop to know the reasons for low mileage's, increase in Repair etc., and take corrective actions.
- e) We should aim at Zero scrap rate in New stage of the Tyre. In most of the cases, New Tyres are scrapped due to rash and negligent driving habits of the Drivers. Thus, proper analysis and taking prompt actions as per rules in force on the concerned will help in controlling the scrapping of Tyres in New stages.
- f) Maintenance of registers/records upto date with full entries and periodical review will help the managers/supervisors for understanding and ensuring the correct Tyre maintenance practices at the Depot. Some of the important records to be maintained along with the prescribed proforma are enclosed to the circular for proper maintenance with upto date entries.

IX. SPECIAL ATTENTION ON RADIAL TYRES:

As of now, instructions are in vogue to fit Radial Tyres on all special type Vehicles. Besides, the advantages in saving of the fuel, the Tyre performance of Radials is far superior to bias ply Tyres. The performance of Radial Vs Bias ply Tyres at corporate level for the 1st quarter of 2005-06 is as follows.

PARAMETER	BIAS PLY TYRES	RADIAL TYRES
Average Total Tyre Life	181024	198634
New Tyre Life	53683	79784
RC Tyre Life	34156	65325
RT factor	3.84	1.82

Thus, except RT factor, all the other parameters are better than Nylon Tyres. As the Radial Tyres are sensitive to the mechanical condition of the Vehicle, the following measures have to be taken in addition to the regular Tyre maintenance practices.

- It shall be ensured to fit Radial Tyres in all positions of the vehicle (including spare) to get optimum results. Combination of Bias ply Tyres with Radial shall be completely avoided.
- As Radials are more sensitive to mechanical defects, it shall be ensured to correct all the defects like, misalignment, king pin play, Brake binding, Hub bearing play, weak springs etc., on the Vehicles before fitment of the Radial Tyres.
- Uneven wear is predominantly seen on Radial Tyres when slightest mechanical defects are there on the Vehicles. Thus, ensuring rotation of Tyres with uneven wear even before Schedule III/IV maintenance is very important.

Unlike Bias ply Tyres, most of the cuts will be upto steel belts only and may not result in Tyre punctures. Hence, these deep cuts will be unnoticed on the Radial Tyres by Tyre Mechanics during routine check up. Thus, special attention is required for Radial Tyres in identifying the 'deep cuts' which affects the steel wires due to rusting and the Tyres have to be removed immediately and sent to Tyre shop for attention at this stage.

All the Depot Managers are advised to ensure implementation of above instructions scrupulously for enhancing the Tyre performance.

All the RMs/DVMs/DyCMEs are advised to educate the staff & supervisors on better Tyre care practices and ensure implementation of instructions duly providing the required infrastructure at the Depots.

Encl. as above

Vice Chairman & Managing Director

То

All Depot Managers

- Copy to: Director (V&S), ED (A), ED (O), ED (IT&MS), FA & CAO for information.
- Copy to: All EDs (Z)/H&K, V&V, K&N for information.
- Copy to: All HODs for information.
- Copy to: All RMs for information & necessary action.
- Copy to: All DVMs for information & necessary action.
- Copy to: All DyCMEs, WMs, CsOS for information & necessary action.
- Copy to: DyCME (Sr.Manager-IT), COS (Comp), DyCME (IEU) for information.
- Copy to: All Principals of ZSTCs & TA/HPT for information.
- Copy to: All AMEs (T), SOs (D&T) for information & necessary action.
- Copy to: All Maint.In-charges with an advice to implement the instructions meticulously to achieve optimum Tyre performance.

Copy to: Manual Section for record.

No.1 - TYRE STOCK REGISTERS (Separate for New, RC & RT)

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	Tyre Size	Radial	No.	No.	Condn	68 E No.	Date
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No.3 - TYRE ROTATION REGISTER

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	НF	(17)	
VILS	REP	(16)	
T DETA	RT	(15)	
E RECEIP	RC	(14)	
TYRE	NEW	(13)	
	DATE	(12)	
	68 E No.	(11)	

										-
		Damage details	(10)		DM Sign.	(16)		MF/ DM	Sign	(12)
		L/ AD	(6		arge			Shift	Sign	(11)
	TAILS	Ϋ́	5)		. I/ch Sign	(15)		ich.	gn.	(0
	R DE	SIZE	(8)		Main			We	Zi	, C
iISTER	ТҮ	MFG. No.	(2)		larks	4)	-I MECH		SPARE	(6)
ING REG		RTC No.	(9)		Rem	(1	BY SCH	ES	ROSI	(8)
TSTAND		ion	(inary taken	()	PECTION	PRESSUR	ROSO	(2)
RES OU		Posit	(5		Discipl action	(13		FLATION	RNSI	(9)
0.5 - TYI		lage/ time	(4)		Mech.	(6 - VEHIC	TYRE IN	RNSO	(5)
Ž		dam			iver/ / Sigr	(12)	No.		FNS	(4)
		ROUTE	(3)		Ū.				FOS	(3)
	VEL	NON NON	(2)		etails of er/ Mech	(11)		VEH	ON	(2)
		Date	(1)		D¢ Driv				DAIE	(1)
								L		

	MF/ DM	Sign	(11)	
SORS)	Shift	ו אין Sign	(10)	
(SUPERVI	CROSS CHECKING OF VEHICLES FOR INFLATION (SUPERVI TYRE INFLATION PRESSURES	SPARE	(6)	
LATION_		ROSI	(8)	
FOR INF		ROSO	(7)	
EHICLES		RNSI	(9)	
ING OF V		RNSO	(2)	
CHECK		FNS	(4)	
CROSS		FOS	(3)	
No.7 -	VEH	NO.	(2)	
	D ATE		(1)	

NO.8 - VEHICLE INSPECTION REGISTER - TYREMECH

MATCHING DETAILS	RNS	(11)	
	ROS	(10)	
TYRE INFLATION PRESSURES/NSD	SPARE	(6)	
	ROSI	(8)	
	ROSO	(7)	
	RNSI	(9)	
	RNSO	(5)	
	FNS	(4)	
	FOS	(3)	
VEH NO.		(2)	
DATE		(1)	

MF/	DM Sign	(20)	
	SHIFT I/c Sign		
ACTION BY SHIFT /	GARAGE INCHARGE	(18)	
TVDE MECH	TYRE MECH. SIGN		
MECHANICAL DEFECTS	ОТН	(16)	
	WA	(15)	
	BB/BG	(14)	
	НВР	(13)	
	КРР	(12)	

	MF/ DM Sign		(10)	
	Reasons for Low mileage		(6)	
	Reasons for removal		(8)	
	MILEAGE COVERED	Cumu- lative	(7)	
		CURRENT	(9)	
	MFG. NO.		(2)	
	RTC NO.		(4)	
	NYL/ RDL		(3)	
	68D NO.		(2)	
	S	ON	(1)	

NO.9 - INSPECTION OF TYRES BY DM/MF AT THE TIME OF DISPATCH