TOYO TIRE TALK

No.01-005 (TTT-114)

Technical tips and information that may
allow you to better serve your customers.

We would appreciate your input, please contact us.
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Mar. 27, 2001

Subject : INFLATION PRESSURE (PART-1)
Tire Trouble due to Underinflation

1. INTRODUCTION.

JATMA (The JAPAN AUTOMOBILE TIRE MANUFACTURES ASSOCIATION , INC.) conducted on the road tire examinations (highways and local roads) 151 times between January 2000 and December 2000.

● The result of these tire examinations were :

	2000			1999		
	Highway	Local	Total	Highway	Local	Total
Number of Vehicles Checked	5,786	8,123	13,909	2,612	10,179	12,791
Vehicles with Poor Tire Maintenance *	1,204	1,211	2,415	409	1,328	1,737
Defect Percent	20.8%	14.9%	17.4%	15.7%	13.0%	13.6%

● Poor tire maintenance items :

	Highway		Local road		Total	
	No. of tires	%	No. of tires	%	No. of tires	%
Underinflation	648	48.1	226	16.4	874	32.1
Insufficient Tread	317	23.5	507	36.8	824	30.3
Irregular Wear	199	14.8	416	30.2	615	22.6
Damaged Tire	59	4.4	54	3.9	113	4.1
Nail Through	42	3.1	31	2.3	73	2.7
Other	82	6.1	142	10.3	224	8.2
Total **	1,347	100.0	1,376	100.0	2,723	100.0

The discrepancy between * and ** is due to several vehicles having two or more poor maintenance items.

As shown in the above table, underinflation was the main item of poor tire maintenance. This was especially so in highway examinations, where underinflation occurred in approximately 50% of the cases. Underinflation is a dangerous condition and may cause tire failure. For this reason JATMA is advertising the importance of air pressure management.

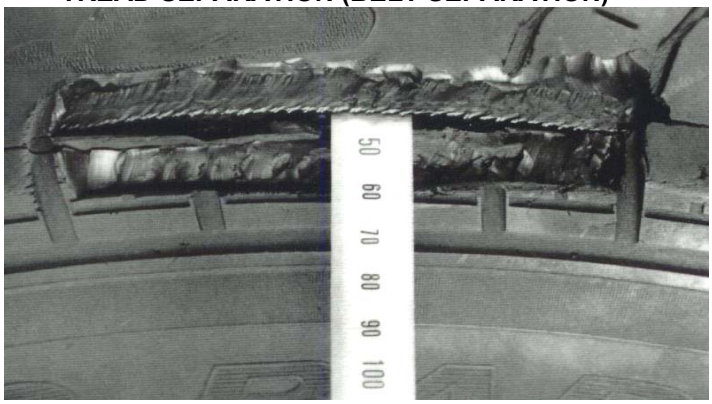
The demand of the low aspect ratio tires is increasing all over the world. The flexible area (shoulder - sidewall) of these tires is narrow compared with standard tires. For this reason it is very difficult to determine whether the tires are correctly inflated just by looking at them. The JATMA checks show many tires which do not not have the correct inflation pressure.

We would like to reinforce that the most important factor is inflation pressure, and that various problems are caused by insufficient or careless pressure maintenance.

We will show some dangerous problems caused by underinflation.

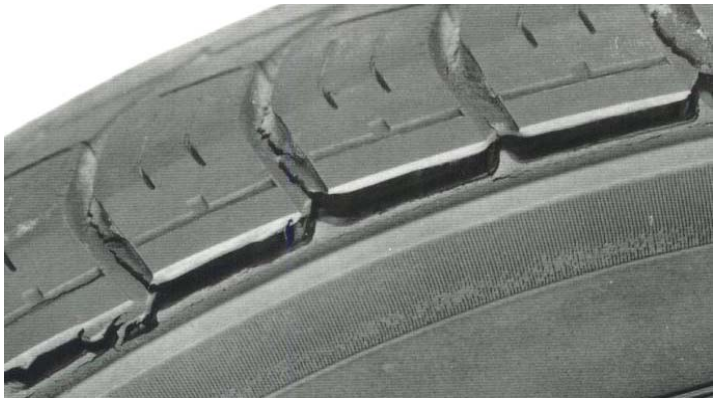
2. PHOTOGRAPHS.

- **TREAD SEPARATION (BELT SEPARATION)**



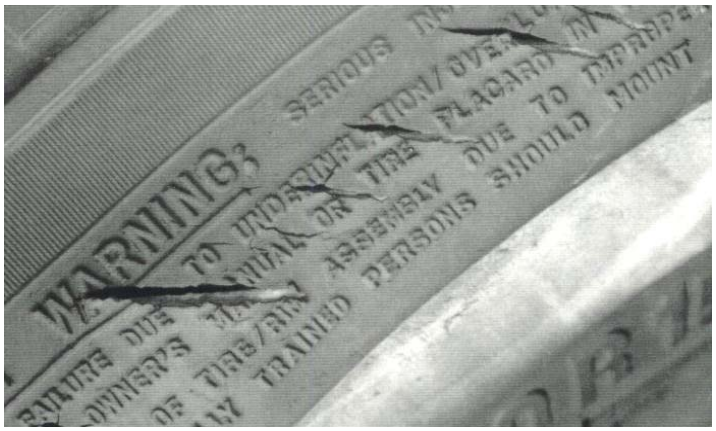
CAUSE:
1. UNDERINFLATION OR OVERLOAD.
2. SEPARATION DUE TO INJURY.

- **BUTTRESS CRACK/SPLIT**



CAUSE:
1. UNDERINFLATION OR OVERLOAD.
2. EXCESSIVE TORQUE APPLIED TO SHOULDER DURING CORNERING.
3. RUBBER COMPOUND.

- **DIAGONAL/TORQUE CRACKING**



CAUSE:
1. UNDERINFLATION.
2. RUBBER COMPOUND.

- **CHAFER SEPARATION**

CAUSE:
1. UNDERINFLATION OR OVERLOAD.
2. SEPARATION DUE TO INJURY.

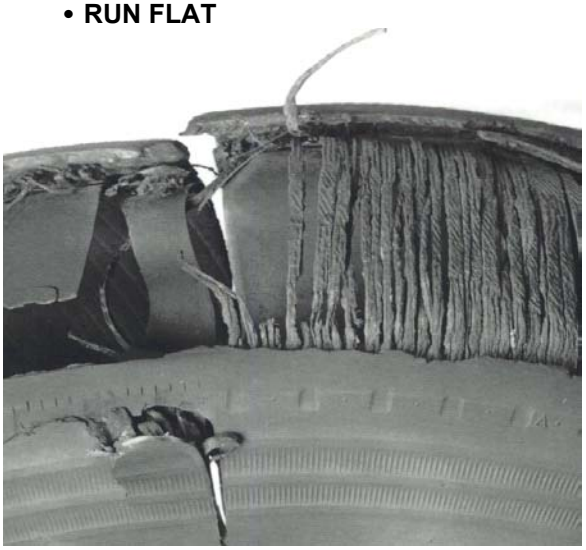
- **STEEL PLY RUPTURE (ZIPPER TEAR)**

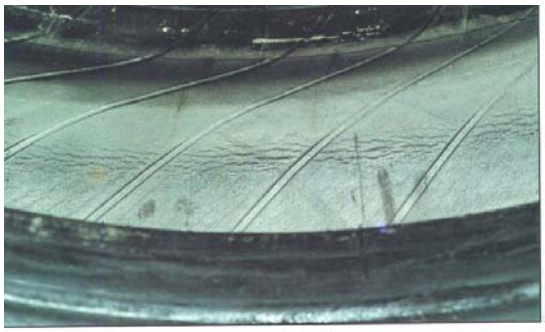
CAUSE:

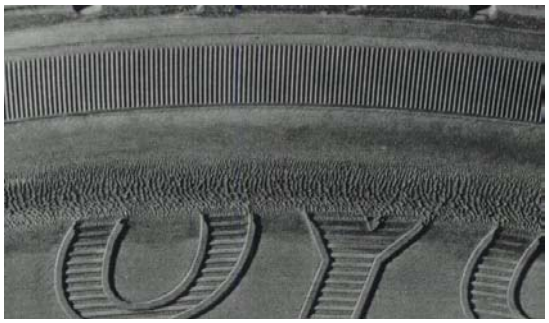
1. TIRE RUN UNDERINFLATED.
2. CONTINUED RUNNING AFTER LOSS OF AIR.
3. OVERLOADING.
4. MOISTURE PENETRATING STEEL CORD CAUSING RUSTING.

When you push the side area of a tire, you can hear "click sounds". The tire is dangerous to inflate!

- **RUN FLAT**







CAUSE 1. DEFORMATION OF THE CASING CAUSED BY RUNNING AT EXTREMELY LOW INFLATION PRESSURES FOR LONG DISTANCES.

3. CONCLUSION

It is very dangerous to operate a tire at less than the correct air pressure. This makes it very important to maintain the recommended air pressure. Toyo recommends that tire pressures be checked at least every week.

It is also very important to check inflation pressures BEFORE the start of a long journey. Of course inflation pressures must be checked while tires are cold.

INFLATION PRESSURE PART-2 (Proper Air Pressure) will be issued in the near future.