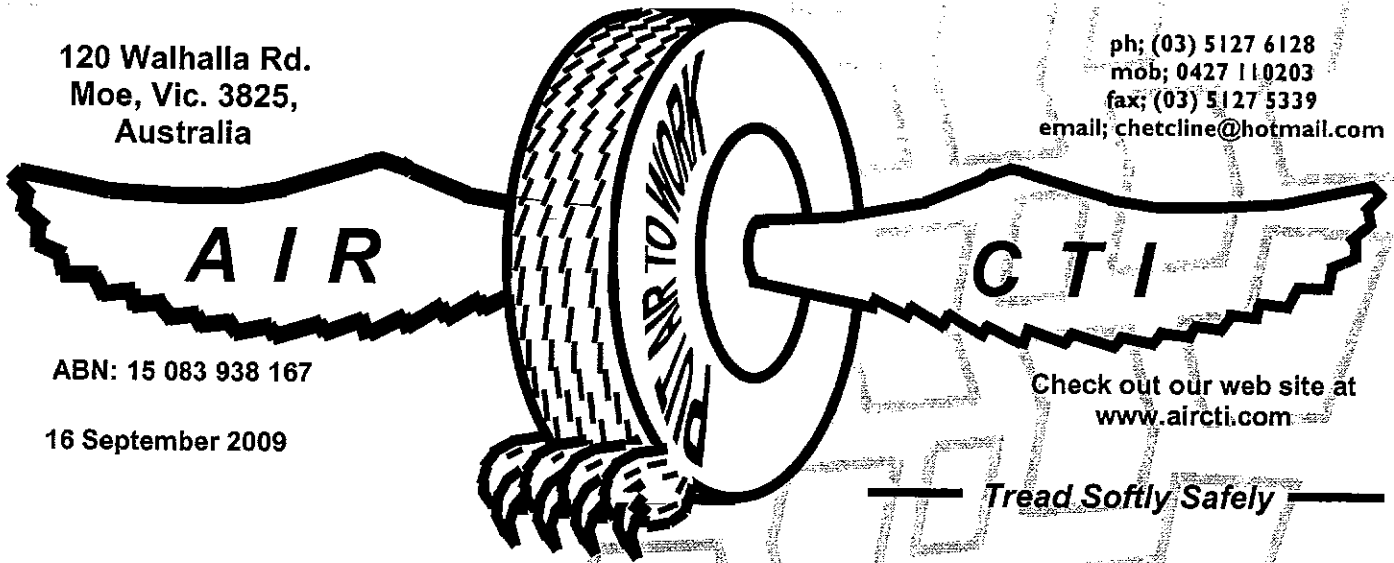


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16 September 2009

Check out our web site at
www.aircti.com

Tread Softly Safely

More Technical Information re Tyre Pressures;

"The US Forestry Service study at Suislaw, using CTI trucks, found that loaded log trucks were capable of climbing grades of 18 to 21%. The use of low inflation pressures on rough roads reduces the amount of damage sustained by a tire because they are better able to absorb and roll over objects that might otherwise cut or penetrate a high inflation tire. Lowered tire pressure have also been shown to reduce the number of rocks that get caught between duals.

FERIC, a Canadian government forestry division, reported: "that tread wear was reduced by 47%." "The tread faces were in exceptionally good condition, having few cuts and almost no chunking of the tread. No sidewall damage was noted, and the tires has significantly fewer rock penetrations. Toyo Tire's analysis of the low pressure tires found no adverse effects of low pressure operation."

Toyo did extensive tests in the early 90's on low pressure tyres in logging: From a log truck with CTI using low pressures, they wore out the first set of tyres. They took one back to Japan, and X rayed it, and recapped the rest and put them back on the truck. Once these were worn out, one was taken back to Japan and X rayed. The others were recapped and worn out again. All of these were taken back to Japan and X rayed. No faults were found in any of them.

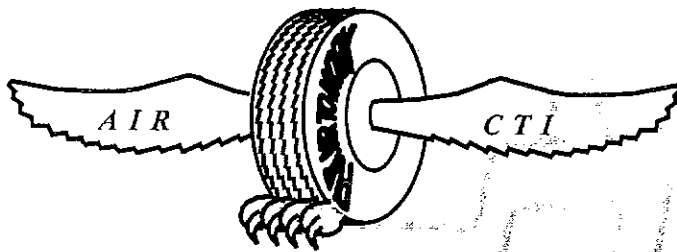
Weyerhaeuser (a very large timber milling company) found; "a reduction in tread chipping and rock retention occurred. Goodyear did a laboratory test on each tire as it was taken out of service for recapping or failure and these examinations showed that low pressure tires had fewer belt separations than the high pressure tires."

"Additional benefits can be realized if CTI systems are used on vehicles because tire pressure can be constantly monitored and leaking tires can be identified. Slow leaking tires can be continuously inflated, eliminating costly road side assistance."

Goodyear reported: "that a reduction of 10 psi reduction in tire pressure will cause a one percent loss in fuel economy on paved roads. On softer roads, this relationship is less well defined. Low pressure tires penetrate into the soil less than high pressure tires, therefore have less rolling resistance. Slip can also affect fuel economy."

The Nevada Automotive Test Center found that: "low pressure tires transmits 85% less shock and vibration to the suspension and that damage to truck components was reduce by as much as 87% and repair costs by 83%."

In 1992, the USA Forestry tested CTI on Chev C60 fire trucks, pitting a two wheel drive against a 4 wheel drive. On course number 4, a 52% slope, "with highway tire pressures, the all wheel drive was able to climb only 30 feet." The identical two wheel drive truck with low pressure



tires "climbed the grade with no problem."

The USA department of agriculture, forestry division states in a small brochure stated: "A reduced pressure tire results in a longer tire footprint, the area of tire contact with the road surface; this prevents the bouncing that results from short contact lengths. Bounce cause the tire to hop on paved roads and to 'washboard' unpaved ones. The US Army has utilized CTI since WWII to improve vehicle mobility. Benefits of operating reduced pressures on low speed forest roads include:

- Decreased road surface damage
- Decreased road maintenance needs.
- Decreased use of road surfacing material.
- Decreased truck maintenance needs.
- Decreased tire damage.
- Subdued vibrations to the driver, passengers and cargo.
- Increased truck mobility.
- Extended haul season.

In addition, reduced pressure tires:

- Heal rutted and washboarded roads.
- Increases the life of road pavement.

Another US Forest Service report: "Rainfall and runoff were measured for three years... Sediment production compared to high pressure tires, low pressure had an average saving of 80%.." "When roads become rutted, sediment production can increase from two to four times."

Quite literally, I could go on with quotes for a long time, with similar reports. In fact, I've only touched on half of one of my books of tests. Other tests go into agricultural tests with four wheel drive tractors, proving greater tow bar pull, lower fuel use, and less compaction. Many companies are now quoting things like; "All our log trucks had this system (CTI) installed to help prevent soil erosion, damage to roads, agricultural properties and forestry land." AIR CTI believes that our environment is extremely important, and that we as an industry must also demonstrate our care and concern. AIR CTI is constantly demonstrating this very point.

AIR CTI believes that the scientific evidence, the customer feedback from ten years of service, plus over 40 years of personal experience makes the use of AIR CTI a given, an absolutely necessary tool for every vehicle that operates off highways, or travels empty one direction. Without AIR CTI, these vehicles are wasting money, wasting time, with decreased safety for both the driver and those around him, while significantly increasing the environmental impact. The cost of AIR CTI is an investment in the business's future. The use of AIR CTI makes the driver's life easier, healthier, and safer, and provides financial and environmental benefits. One cannot put a value on these human benefits. But at the end of a year, and every year after that, AIR CTI will improve your financial bottom line.

Why would anyone want to pound themselves silly, while significantly increasing maintenance costs, destroying vehicle value, damaging the tracks and the environment, and risking his and other's safety? ...

Chet Cline

INFLATION PRESSURE

Tyres for commercial vehicles must be inflated to a pressure relevant to the load, speed and condition of use.

Recommended pressures are shown in the load/pressure tables of our technical data book.

Using the correct pressure is essential to the safe running of the tyre.

Under inflation could result in the tyre running at abnormally high temperatures leading to thermal degradation of the tyre's tion is irreversible and can result in a rapid deflation of the tyre.

The consequences of running underinflated are not immediately evident and may appear later after the underinflation has been corrected.

Tyre pressures must be checked on cold tyres every two weeks or when the vehicle is serviced, using a calibrated pressure gauge. The spare tyre should also be checked.

Never 'bleed' a tyre when hot.

Always fit a valve cap which has a sealing washer. This is the primary seal against air loss.

GENERAL ADVICE

If a tyre or wheel is damaged, always deflate completely before removal from the vehicle.

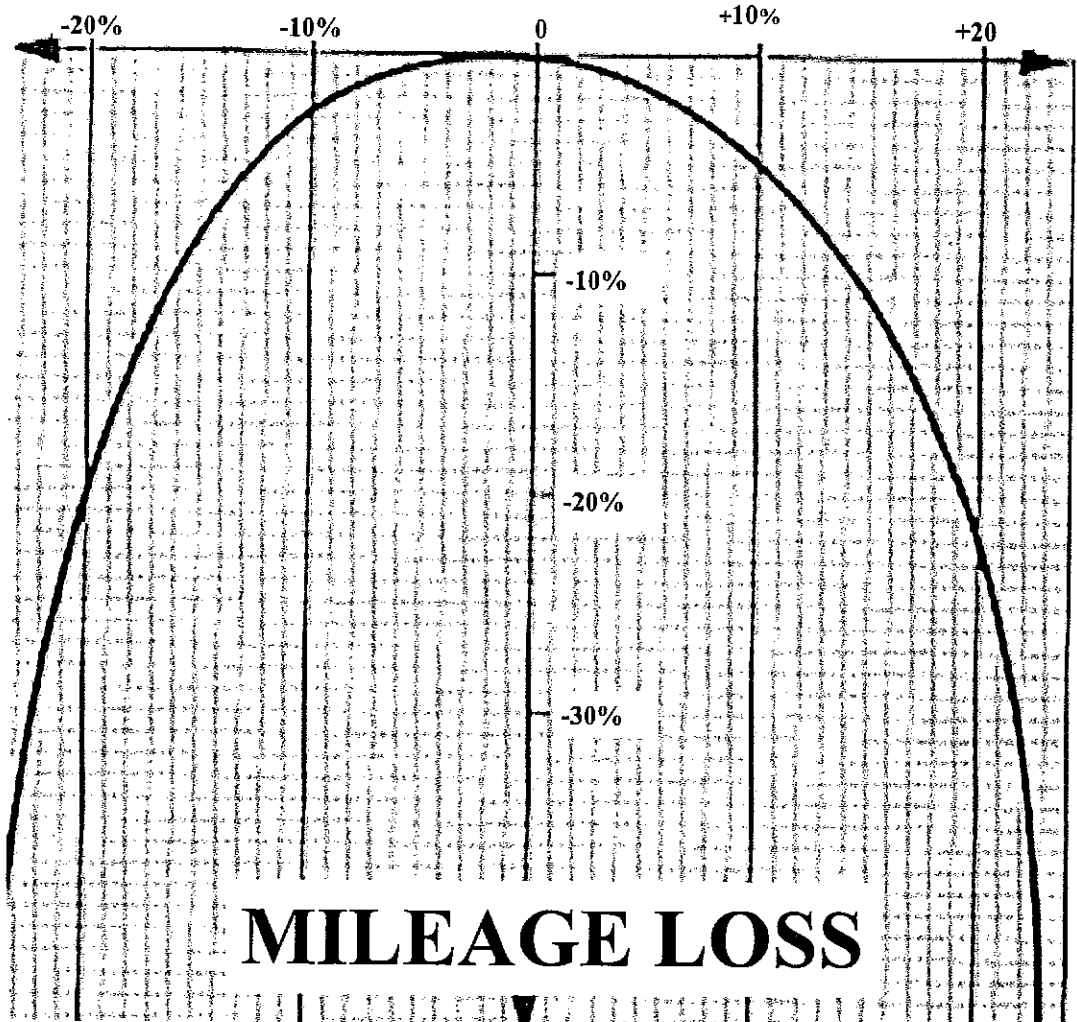
Never attempt to repair a damaged wheel by brazing, soldering or welding with the tyre still fitted to the wheel. **IGNORING THIS RECOMMENDATION COULD CAUSE THE RISK OF A LETHAL EXPLOSION.**

Wash off contaminants with a weak detergent solution and copious amounts of water. Do not allow tyres to stand in oil, petrol, diesel, etc. Always ensure wheel braces and spanners are the correct size for the

UNDERINFLATION

CORRECT PRESSURE
FOR LOAD

OVERINFLATION



nuts being removed or replaced and that they are properly located. The valve core is only to allow the tyre to be inflated/deflated.

When jacking up a vehicle, always ensure that the jack is in working order and correctly placed. Never crawl under a vehicle supported on a jack.

Always fit tyres with the correct load indices for the carrying capacity of the axle and the correct speed symbol for the maximum legal speed of the vehicle.

Observe the rules regarding compatible remaining pattern depths when twinning tyres. Tread depth variation should not exceed 5mm. Always deflate tyres before attempting to remove objects trapped between twins.

Check tread wear regularly and remove stones nails, etc. from the tread and check for damage.

9 KEY POINTS FOR OPTIMUM TYRE MANAGEMENT

1. Choose the right tyre for the right job: select the correct tyre and fitment according to vehicle type and operating requirements, whether for replacement or specification on new vehicles.
2. **Inflate your tyres in relation with load per axle and tyre sizes.**
3. Monitor regularly the wear and general condition of your tyres (tread pattern, sidewall, wheels etc.) and inflation pressure.
4. Utilise the Michelin multi-life casing New/Regrooving/Retreading.
5. Regroove to increase tread depth and mileage by as much as 25% with increased safe.
6. Retread Michelin casings with Michelin technology.
7. Manage potential life of casing for further retreading.
8. Choose Michelin Retreading tread patterns depending on your needs.
9. The benefit of Michelin Retreading is the quality and performance which is similar to a new Tyre.





MICHELIN

Ref. AS 110375B
 Indice: 1
 Date : 26 Mai 1998

11 R 22.5 XTE1 TL 142/142 J

Charges et pressions d'utilisation en jumelé
Loads and inflation pressures chart in dual fitment

Pressions d'utilisation route - *Tire inflation pressures for road service* (bar)

Charge par enveloppe <i>Load per tire</i> (Kg)		Vitesse - <i>Speed</i> (Km/h)							
		130	120	110	100	90	80	65	50
Exceptionnel route <i>Special road conditions</i>	2970								8.7
	2880							8.6	8.4
	2760						8.2	8.2	8.1
	2700					8.1	8.1	8.0	7.9
Nominal route <i>Nominal road conditions</i>	2650				8.0	7.9	7.9	7.8	7.8
	2500				7.5	7.4	7.4	7.3	7.2
	2250				6.7	6.6	6.6	6.5	6.4
	2000				5.9	5.8	5.8	5.7	5.6
	1750				5.0	5.0	4.9	4.9	4.8
	1500				4.2	4.2	4.1	4.1	4.0
1250				3.4	3.3	3.3	3.3	3.2	
Flèche <i>Deflection</i> (mm)					33	33	33	33.5	33.5
Surface totale empreinte <i>Total contact area</i> (cm ²)					427	430	431	433	436
Section écrasée <i>Laden section width</i> (mm)					295	295	295	295	296
Rayon écrasé <i>Laden radius</i> (mm)					491	491	491	491	491
Circonférence de roulement <i>Rolling circumference</i> (mm)					3210	3210	3210	3210	3210

Pour les vitesses inférieures ou égales à 40 Km/h, prendre les valeurs dans le tableau

"MONTE EN SIMPLE"

For speeds inferior or equal to 40 Km/h, consult the chart "SINGLE FITMENT"

ONE BAR = 14.7 psi

Pressions arrondies au 1/10 de bar le plus proche - *Pressures are rounded to nearest 0.1 bar*

Conditions nominales voir fiche BR110375B - *For nominal conditions see sheet BR110375B*

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MICHELIN

Ref. BR 110375B

Indice : 1

Date : 26 Mai 1998

CARACTERISTIQUES TECHNIQUES - TECHNICAL CHARACTERISTICS

11 R 22.5 XTE1 TL 142/142 J

CAI	110375
Type	TUBELESS
Load range	H
Plyrating	
Indice de charge en simple - <i>Load index in single</i>	142
Indice de charge en jumelé - <i>Load index in dual</i>	142
Code de vitesse - <i>Speed symbol</i>	J
Point singulier - <i>Unique point</i>	
N° homologation - <i>Homologation N°</i>	E2 0087889
Jante(s) préconisée(s) Michelin - <i>Recommended rim(s) by Michelin</i>	7.50
Jante de mesure ETRTO - <i>Measuring rim ETRTO</i>	8.25
Jante(s) recommandée(s) ETRTO - <i>Recommended rim(s) ETRTO</i>	7.50, 8.25
Jante(s) permise(s) ETRTO - <i>Permitted rim(s) ETRTO</i>	-
Chambre - <i>Tube</i>	Aucun - Not applicable
Joint - <i>Seal</i>	Aucun - Not applicable
Flap - <i>Flap</i>	Aucun - Not applicable

CONDITIONS NOMINALES - NOMINAL CONDITIONS :

	Charge Kg	Vitesse Km/h	Pression bar
Utilisation route - <i>Road use</i>	2650	100	8.0
Utilisation piste - <i>Track use</i>	1700	65	3.1
Utilisation sable/boue - <u><i>Sand/mud use</i></u>	1700	20	1.7
Utilisation en jumelé - <i>Dual fitment use</i>	2650	100	8.0
Point singulier (en simple) - <i>Unique point (single)</i>			
Point singulier (en jumelé) - <i>Unique point (dual)</i>			

CARACTERISTIQUES PRINCIPALES DETERMINEES SUR JANTE : 7.50

PRINCIPAL DIMENSIONS OBTAINED ON THE RIM

Diamètre - <i>Diameter</i>	1049 mm
Rayon libre - <i>Free radius</i>	524.5 mm
Rayon écrasé - <i>Static laden radius*</i>	491 mm
Section libre - <i>Free section width</i>	270 mm
Section écrasée - <i>Laden section width*</i>	295 mm
Révolutions/mile - <i>Revolutions/mile*</i>	501
Circonférence de roulement - <i>Rolling circumference*</i>	3210 mm
Largeur sommet - <i>Tread width</i>	184 mm
Flèche sommet - <i>Tread droop</i>	9.0 mm
Profondeur sculpture - <i>Tread depth</i>	14.5 mm
Profondeur de recreusage - <i>Regroovable depth</i>	3.0 mm
Entr'axe mini sur jante de mesure - <i>Min. dual spacing on measuring rim</i>	305 mm
Poids à titre indicatif - <i>Weight for information only</i>	53.0 kg
Volume intérieur - <i>Internal volume</i>	110 l
Moment d'inertie - <i>Mass moment of inertia</i>	10.5 kg.m ²
Epaisseur bourrelet - <i>Bead thickness</i>	34.0 mm

EMPREINTE AU SOL - GROUND CONTACT AREA*

Longueur - <i>Length</i>	240 mm	Surface totale - <i>Total area</i>	427 cm ²
Largeur - <i>Width</i>	184 mm	Surface réelle - <i>Net area</i>	365 cm ²

*AUX CONDITIONS NOMINALES ROUTE - FOR NOMINAL ROAD CONDITIONS

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MICHELIN

Date : December 15 1995

Ref. AB110337

11 R 22.5 XDY TL 148/145 K

Charges et pressions d'utilisation en monte simple
Loads and inflation pressures chart in single fitment

Pressions d'utilisation route - *Tire inflation pressures for road service (bar)*

Charge par enveloppe Load per tire (Kg)		Vitesse - Speed (Km/h)												
		130	120	110	100	90	80	65	50	40	30	20	10	0
Exceptionnel route	7880													11,2
	5670												10,4	7,8
	4730											9,7	8,6	6,4
	3940										9,0	7,9	7,0	5,2
	3620								8,8	8,2	7,2	6,4	4,7	
	3530							8,7	8,6	8,0	7,0	6,2	4,6	
	3420						8,6	8,4	8,3	7,7	6,8	6,0	4,4	
	3280					8,2	8,2	8,1	7,9	7,4	6,5	5,7	4,2	
3210				8,1	8,0	8,0	7,9	7,7	7,2	6,3	5,6	4,1		
Nominal route	3150			8,0	8,0	7,9	7,9	7,9	7,7	7,6	7,0	6,2	5,4	4,0
	3000			7,6	7,6	7,5	7,5	7,5	7,3	7,2	6,7	5,8	5,2	3,8
	2750			6,9	6,9	6,8	6,8	6,8	6,7	6,5	6,0	5,3	4,7	3,4
	2500			6,2	6,2	6,1	6,1	6,1	6,0	5,9	5,4	4,7	4,2	3,1
	2250			5,5	5,5	5,4	5,4	5,4	5,3	5,2	4,8	4,2	3,7	2,7
	2050			4,9	4,9	4,9	4,9	4,8	4,8	4,7	4,3	3,8	3,3	2,4
	2000			4,8	4,8	4,8	4,7	4,7	4,6	4,5	4,2	3,7	3,2	2,3
	1750			4,1	4,1	4,1	4,0	4,0	4,0	3,9	3,6	3,1	2,7	1,8
	1500			3,4	3,4	3,4	3,4	3,3	3,3	3,2	3,0	2,6	2,2	1,5
	1250			2,7	2,7	2,7	2,7	2,6	2,6	2,5	2,4	2,0	1,6	1,2
1000			2,0	2,0	2,0	1,8	1,8	1,7	1,7	1,6	1,4	1,2	0,8	
Flèche Deflection (mm)				37	37	37,5	37,5	37,5	38	38,5	41	45,5	50	62,5
Surface totale empreinte Total contact area (cm ²)				473	473	476	478	480	484	491	512	558	606	731
Section écrasée Laden section width (mm)				295	295	295	295	295	295	296	297	301	304	313
Rayon écrasé Laden radius (mm)				495	495	494	494	494	493	493	491	486	481	469
Circonférence de roulement Rolling circumference (mm)				3250	3250	3250	3250	3240	3240	3240	3240	3230	3210	3180

Pressions arrondies au 1/10 de bar le plus proche - Pressures are rounded to nearest 0.1 bar

Conditions nominales voir fiche BR110337 - For nominal conditions see sheet BR110337

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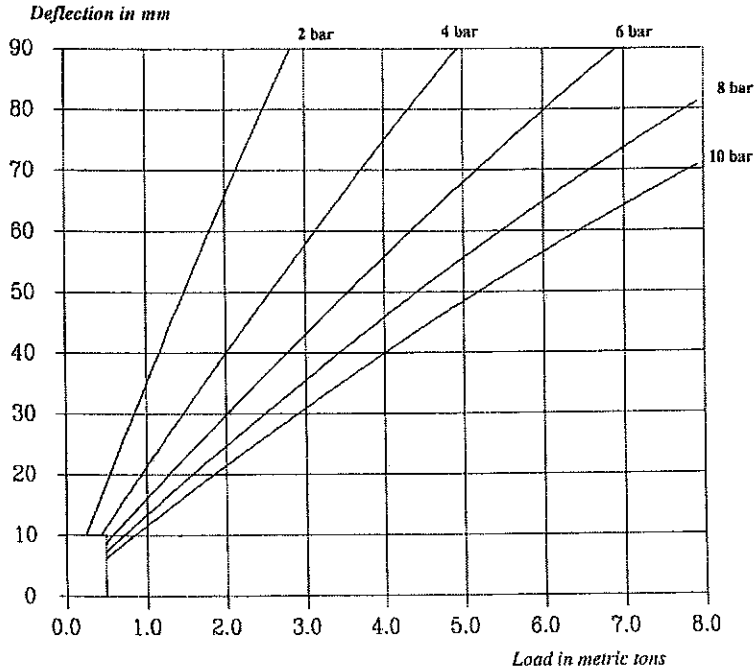
MICHELIN

Date :December 15 1995

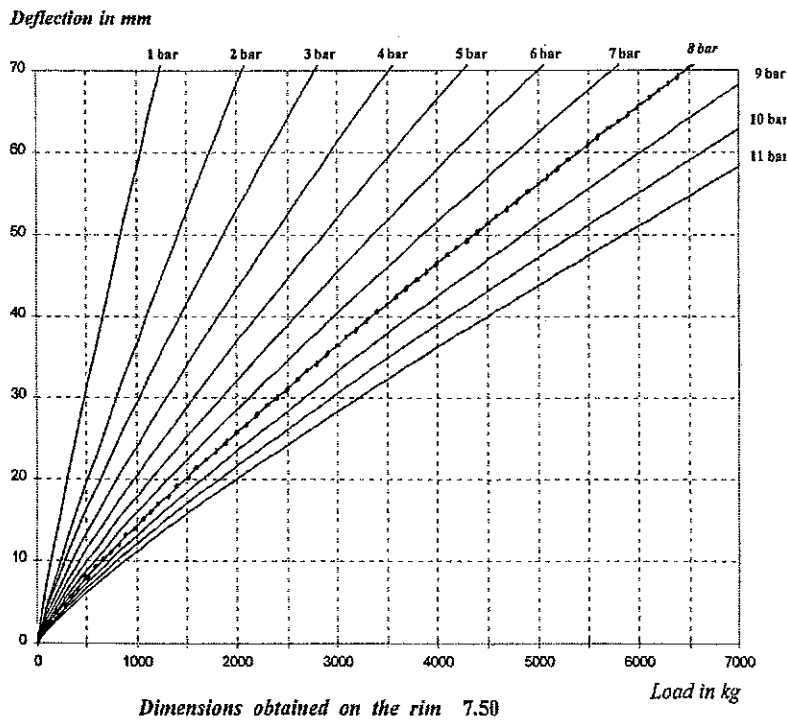
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RIGIDITE RADIALE - RADIAL DEFLECTION VERSUS RADIAL FORCE *

11 R 22.5 XDY TL 148/145 K



11 R 22.5 XTE1 TL 142/142J



*AUX CONDITIONS D'ESSAI MICHELIN - UNDER MICHELIN TEST CONDITIONS

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