

Agricultural Tractor Tire Loadings, Torque Factors, and Inflation Pressures

1. **Scope**—This SAE Standard establishes loadings, tangential pull values, and inflation pressure relationships for tire sizes and ply ratings currently used on agricultural tractors. Primary purpose of this recommendation is for use with SAE J708 MAY59.

The performance of the tractor is materially affected by tire loadings, tire tangential pull values, and inflation pressure; therefore, it becomes desirable to publish this information.

- 1.1 **Rationale**—This standard is obsolete and/or out of date. We have not been able to populate a committee responsible for updating it, so we are cancelling it.

2. **References**—There are no referenced publications specified herein.

3. **Definitions**

- 3.1 **Maximum Load**—Maximum loads on individual tires are determined by considering the maximum axle load on each half of the axle and dividing by the number of tires on that half. The maximum load is to include:

- a. **Net Weight**—Defined as the actual weight of the vehicle with standard equipment, including the maximum capacity of engine fuel, oil coolant, and operator 77.4 kg (175 lb).
- b. **Accessory weight, optional equipment weight, and special order modifications.**

Accessory Weight—Means the combined weight of those installed production items not previously considered in net weight (such as air-conditioner, etc.).

Optional Equipment Weight—Means the difference in net weight between the optional item and standard item replaced (such as engine, brakes, tires, etc.). This is to include the net weight of additional items offered by the manufacturer which are not replacements for standard items (such as cabs, sideboards, etc.).

- c. **Tire Ballast**—If used, must be included in determination of maximum load.
- d. **Field Modifications**—Means the net weight change due to vehicle alterations made by those other than the original manufacturer (such as modifications for additional capacity, reinforcements, etc.).

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3.2 Tangential Pull—The tangential pull value of a tire is the maximum horizontal pull considered to be acting at the tires loaded rolling radius contact point with the ground (or contact surface), and which the tire can continuously withstand excluding momentary and occasional peak loads.

4. General Principles

4.1 All agricultural tractor tire loads shown in Tables 1–6 are expressed in pounds. SI units will be added when total agreement on all conversion factors have been finalized.

4.2 All agricultural tractor tire inflation pressures shown in Tables 1–6 are expressed in pounds per square inch gage, at approximately the prevailing atmospheric temperature at time of test and do not include any inflation pressure buildup due to vehicle operation.

4.3 Tire inflation pressures shall be recorded with the valve at the bottom position.

4.4 The maximum individual tire loading shall not exceed the tire load versus inflation pressure for its respective ply rating shown in Tables 1–6 for the respective tire size.

4.5 Ply rating is used to identify a given tire with its maximum recommended load. It is an index of tire strength and does not necessarily represent the number of actual plies in the tire.

4.6 If the tire used is not recorded in Tables 1–6, its load and inflation should be in accordance with the latest standards or design guides of The Tire and Rim Association, Inc.

5. Operating Conditions—Refer to footnotes in appropriate tables.

6. Tire Selection

6.1 Selection of size and ply rating on each axle shall be based on the highest individual wheel load (as determined above), when vehicle is weighed statically.

Maximum load per tire shall not be greater than specified in applicable tables.

6.2 For Sustained High Torque Service—Drive wheel tires on agricultural tractors operating in the field must be selected to withstand the maximum pull of the tractor under normal operating service.

The maximum tangential pull capability of the tire is shown in the appropriate tables. These values are to be used for vehicle design including field modifications.

**TABLE 1—AGRICULTURAL DRIVE WHEEL TRACTOR TIRES USED IN FIELD SERVICE—
TIRES USED AS SINGLES**

Basic Tire Load and Tangential Pull (Italic) Values for Tire Selection									
Tire Load Limits at Various Cold Inflation Pressures									
Tire Size Designation	12	14	16	18	20	22	24	26	
8.3-24	970	1060	1150	1230	1310	1380(4)			
	910	1000	1080	1160	1230	1300			
9.5-16	910	1000	1080	1160	1230(4)				
	780	860	930	1000	1060				
9.5-24	1210	1330	1430	1540	1630(4)				
	1110	1220	1320	1420	1500				
11.2-24	1470	1610	1740	1860(4)					
	1320	1450	1570	1670					
12.4-16	1350	1480	1590	1710	1820	1920	2020(6)	2120	2390@32(8)
	1120	1230	1320	1420	1510	1590	1680	1760	1980@32
12.4-24	1760	1920	2080(4)	2230	2370	2510	2640(6)		
	1570	1710	1850	1980	2110	2230	2350		
12.4-28	1880	2050	2220(4)						
	1710	1870	2020						
13.6-24		2270(4)							
		1970							
13.6-28	(1)2210	2420(4)							
	(1)1970	2150							
13.6-38		2810(4)	3030	3250	3460	3660(6)			
		2640	2850	3060	3250	3440			
14.9-24	(1)2470	2700	2920	3130	3330(6)	3520	3710	3880(8)	
	(1)2120	2320	2510	2690	2860	3030	3190	3340	
14.9-26		2790	3020	3240	3440(6)				
		2430	2630	2820	2990				
14.9-28		2890	3120	3340	3560(6)	3760	3960	4140(8)	
		2540	2750	2940	3130	3310	3480	3640	
14.9-30		2980	3220	3450	3670(6)				
		2650	2870	3070	3270				
15.5-38		3160	3410	3660	3890(6)	4110	4330	4540(8)	
		2970	3210	3440	3660	3860	4070	4270	
16.9-24	3000	(1)3280	3550	3800(6)	4040	4270	4500(8)	4710	4920@28(10)
	(1)2520	(1)2760	2980	3190	3390	3590	3780	3960	4130@28
16.9-26	(1)3100	(1)3390	3660	3920(6)					
	(1)2670	(1)2920	3150	3370					
16.9-28			3780	4050(6)	4310	4560	4800(8)		
			3290	3520	3750	3970	4180		
16.9-30			3900	4180(6)					
			3430	3680					
16.9-34			4150	4440(6)					
			3740	4000					
16.9-38			4390	4700(6)	5000	5290	5560(8)		
			3990	4280	4550	4810	5060		