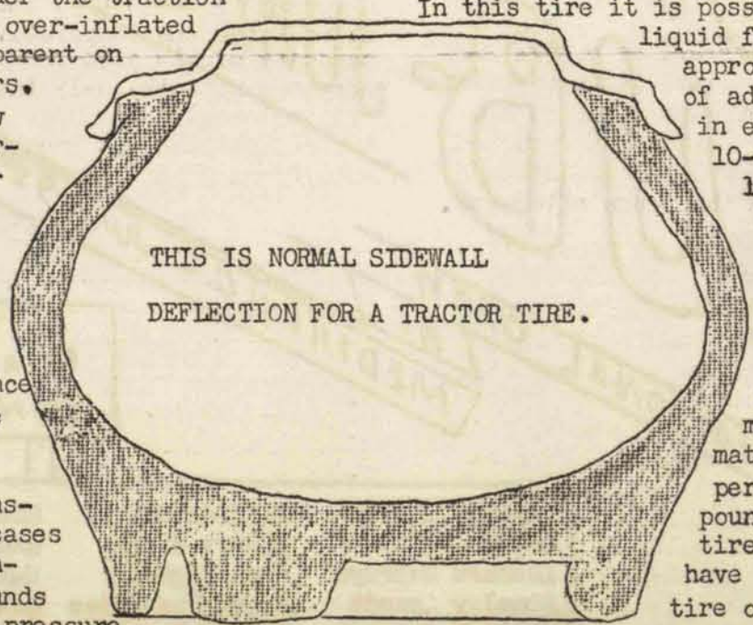
FACTS about TRACTION

Correct Air Pressure

Since the development of the first pneumatic tractor tire, correct air pressure has been a contributing factor to the successful performance of the tire. Rear tractor tires are designed to operate at low pressure. They give best performance when operating at only 12 pounds pressure. Improper inflation has caused many complaints. In many cases the tires have been over-inflated to the point where they do not give satisfactory performance.

When a tractor tire is over-inflated it does not have sufficient area of contact with the ground. This condition causes slippage with eventual loss of traction. The slippage is also a contributing factor to fast wear on the tread surface.

An over-inflated condition is easily recognized as the tire is hard and in a full rounded condition. When the tractor is sitting on a hard surface, the outer edges of the traction bars do not contact the ground and in some cases, it is possible to slip the toe of your shoe under the traction bar edge. This over-inflated condition is apparent on most new tractors. The tires on new tractors are purposely over- inflated at the factory for better handling during transportation. Over-inflation reduces the bounce and assures safe mooring of the tractor to the flat car or transport. In most cases the tires are inflated to 35 pounds pressure. This pressure should be reduced before the tractor is unloaded from the flat car or transport.



THIS IS NORMAL SIDEWALL DEFLECTION FOR A TRACTOR TIRE.

Rear tractor tires should never be inflated beyond 12 pounds pressure for normal operation. This 12 pounds of pressure, when the tire is properly weighted will permit a full tread contact. This large tread area contact enables the tire to take a bigger traction bite assuring increased drawbar pull. The properly inflated tractor tire has a certain amount of deflection or bulge of the sidewall where the tire contacts the ground. This bulge is normal and should not be considered as injurious to the tire body. This deflection of a tire properly inflated has been of much concern to its users. Many of them feel that this is an indication of under-inflation and proceed to increase the air pressure which results in unsatisfactory performance as explained in the second paragraph concerning the over-inflated tire.

Added Weight.

The use of added weight to increase the traction is not new in the agriculture tire business. It has been successfully used ever since the pneumatic tractor tire was developed. During the early stages of the tractor tire business, concrete weights were used extensively. Later, cast iron was found to be more convenient. In 1935, adding liquid weight by inserting the liquid through the valve into the inner tube of the tire was found to be more economical and very practical. The use of liquid weight is now universally accepted in the agricultural field.

Many of our light-weight tractors use as standard equipment the 10-28 size tire. In this tire it is possible, using a 90% liquid fill, to add approximately 310 pounds of additional weight in each rear tire. The 10-28 tire has a rated load capacity of 1575 pounds when inflated to 12 pounds pressure. The delivery weight of a Ford tractor without mounted equipment, is approximately 750 pounds per tire. When 310 pounds of liquid per tire is added, you have a total weight per tire of 1060 lbs. This 1060 pounds weight per tire is 515 lbs. below the rated load capacity of the tire.

When increased drawbar pull is required additional weight may be provided by the use of cast-ironed weights. Cast-ironed weights are designed to fit into the wheel assembly. Maximum traction is obtained when a rear tractor tire is properly inflated and weighted to its load capacity. The importance of added weight to secure maximum drawbar pull is best illustrated in a summary of recent tractor tests conducted by the University of Nebraska. The following is a summary of 10 recent tests at the university:

(continued on page 3)

Tractor	Rear Tire Size	Added Liquid	Added Cast Iron	Total Added Weight	Type of Wheel
A	8-24	116	200	316	Pressed Steel Disc.
B	9-36	222	560	782	Cast Spoke
C	10-28	226	528	754	Pressed Steel Disc.
D	9-24	148	450	598	Cast Disc
E	10-28	- -	670	670	Pressed Steel Disc.
F	11-38	242	435	677	Cast Disc
G	11-38	417	560	977	Pressed Steel Disc.
H	12-38	544	701	1245	Pressed Steel Disc.
I	14-26	696	775	1471	Cast Disc
J	13-38	710	891	1601	Cast Disc

The method of adding liquid weight in tires to obtain 90% fill is accomplished by using a special valve adapter having a vent tube which is inserted into the tire through the valve opening. When adding liquid weight, it is recommended that 5 pounds of calcium chloride be added to the gallon of water. Calcium chloride is an effective anti-freeze and also increases the weight of the solution. Water weighs 8.3 pounds per gallon, but when 5 pounds of calcium chloride per gallon are added, the resulting solution weighs 10.75 pounds per gallon. Thus, when adding this amount of calcium chloride to a gallon of water, you increase the weight of the solution approximately 30%.

When testing the pressure of a tire containing calcium chloride, it is necessary to use a Schrader Air-Water Gauge, no. 9350. This gauge is especially designed so that the calcium chloride solution may be cleaned from the gauge after use.

When a regular air gauge is used, it is possible that it will be ruined by the calcium chloride upon testing only one tire. It is also important when checking the pressure of tires containing liquid weight that the valve be placed at the bottom of the wheel, as the added liquid increases the pressure at that point. A variance of as much as two pounds can be obtained by checking the pressure when the valve is at the bottom of the tire, as compared to the pressure when the valve is at the top of the tire. Also, the full weight of the tractor should be on the tire at the time of testing. Tire manufacturers recommend that users add sufficient weight so that they may obtain the maximum performance that is built into the tractor.

SELECTION OF ALTERNATE TIRES.

On many occasions, tractors are purchased to operate in industrial plants, on highways, or golf courses. Standard rear tire equipment is the 10-28 agricultural type tire. When the tractor is to be used for other than agricultural purposes, the All Non-Skid Tire is more desirable. The All Non-Skid Tire or button type tire is available from your tire supply point. As this type tire is not used as original equipment, it is necessary for the dealers to make the changeover in their service department.

There is another tire changeover which is becoming very popular when front end loading equipment is used. The 4-19 front tire and disc wheel are removed and a 16" disc wheel placed on the tractor. On the 16" wheel you may mount a 5.50 or 6.00-16 size. These sizes are available in 4, 6, and 8-ply construction. When the 8-ply rating tire is needed, because of its higher load carrying capacity, it is necessary to use a 16" wheel equipped with a 4.25 heavy-duty rim. Due to the head construction of the 8-ply tire, a heavy-duty rim is necessary. The following chart illustrates the comparative carrying capacity of the 5.50 and 6.00-16 tires as compared with the 4-19 tire which is original equipment. This chart also shows the recommended air pressure for the various front tires.

Size	Ply	Inflation Pressure Lbs.	Max. Load
4-19	4	28	575
5.50-16	4	28	780
5.50-16	6	36	900
5.50-16	8	64	1265
6.00-16	4	28	915
6.00-16	6	36	1065
6.00-16	8	60	1430

The Firestone Tire & Rubber Company

* * * * * * *

CONTROL OF ANTS IN TURF AND SOIL

A new insecticide, Chlordane, has shown considerable promise in experiments conducted for the control of ants in turf and soil. It is a chlorinated hydrocarbon, having the empirical formula $C_{10}H_6Cl_8$, that is highly toxic to a wide range of insects, including several common agricultural pests. It kills in three ways, by fumigation, by direct contact and by ingestion. Toxicity to man and other warm-blooded animals is similar to that of DDT 3, 4, rather mild, when compared on an equal weight basis. The insecticide was sprayed on pasture forage at the rate of four pounds actual Chlordane per acre and mature sheep were immediately allowed to graze until all available forage was eaten. No ill effect on the animals was noted.

* * * * * *