

UNDERSTANDING ROLLING CIRCUMFERENCE

Rolling circumference can be defined as the distance a tire travels in one revolution. Due to the increase in mechanical front wheel drive (MFWD) tractors in the marketplace, it is very important to understand rolling circumference when trying to determine the proper tire setup for your tractor. Since both the front and the rear tire on MFWD tractors are engaged, the front tire requires more revolutions to cover the same distance as the rear tire. It is necessary to know the gear ratio of the tractor (available from the tractor manufacturer) in order to select the tires that will adequately match the tractor's front-to-rear gear ratio.

The gear ratio on the typical MFWD ranges from 1.2 to 1.5; therefore, the proper setup should allow for front tire over-speed up to 5% (consult with the tractor manufacturer for the preferred lead percentage). When selecting a new size or type of tire for your MFWD tractor, you must choose a front and rear tire combination that matches the ratio provided by the original tires. To make this easier, the tire and tractor industries have created a chart to better assist customers with tire selections for their tractors. (See chart on next page.)

The first column of the table refers to the RCI (rolling circumference index) group. All tires in a group will have a similar rolling circumference and OD. The larger the RCI group number, the larger the tire diameter and rolling circumference. The second column lists the rolling circumference in inches. The third column lists the Tire Diameter (OD) for that RCI group of tires. The chart then displays columns of wider tire widths in both inches and millimeters as you progress from left to right. The top part of the chart shows the width of field rows, and in the columns below each row width, the chart shows the recommended tires for that row width.

To better understand the chart, take a look at the following example:

A MFWD tractor is set up for 30-inch rows with 480/80R46 (group 47) tires on the rear and 420/90R30 (group 42) tires on the front. Most tractors are five-step tractors, meaning that there is a difference of 5 between the RCI group number of the rear tire and that of the front tire.* To convert from 30-inch to 22-inch rows, go to the 22" row column and select the 380/90R50 rear, and matching front, 320/85R38.

*Although most tractors are five-step tractors, consult with your tractor manufacturer for the correct ratio for your tractor.

ROLLING CIRCUMFERENCE INDEX

- **RCI = Rolling Circumference Index.** Indicates family of tires with similar rolling circumferences.
- All sizes in a row are approximately the same outside diameter.
- All sizes in the same column are approximately the same width.
- For specific applications, consult OEM Data Books for actual dimensions.

ROW WIDTH, inches			20		30		38	WIDE					
			SECTION WIDTH, mm		320	380	420	480	520	600	700	800	900
					(12.4)	(14.9)	(16.9)	(18.4)	(20.8)	(24.5)	(28.0)	(31.0)	(35.5)
RCI	RC (in)	OD (in)											
50	269	91								850/75R42			
49	256	86				480/95R50					900/75R32		
48	243	81		380/105R50 380/90R54		480/80R50	520/85R46	650/85R38	710/70R42	800/70R38	900/65R32		
47	230	77	320/90R54 12.4R54	380/90R50		480/80R46	520/85R42	620/70R42	710/70R38		900/50R42 900/60R32		
46	219	73	320/90R50	380/90R46 14.9R46	420/80R46	480/80R42 18.4R42	520/85R38 20.8R38	650/65R38		800/65R32			
45	207	70	320/90R46			480/80R38 18.4R38	520/85R34 20.8R34	650/75R32 24.5R32 600/65R38		800/60R32 30.5LR32			
44	197	66	320/90R42		420/85R38 16.9R38	480/85R34 18.4R34	540/65R38						
43	187	63		380/80R38	420/85R34	480/70R34 480/80R30		600/70R30 620/75R26	750/65R26				
42	177	59	320/85R38	380/85R34 14.9R34	420/90R30 16.9R30	480/70R30	540/65R30	600/65R28					
41	168	56	320/85R34	380/85R30 14.9R30	420/85R28 16.9R28	480/70R28 18.4R26							
40	163	53		380/85R28 14.9R28	420/85R26		540/65R24						

 AD² AND STANDARD TIRES

 AD² ONLY TIRES