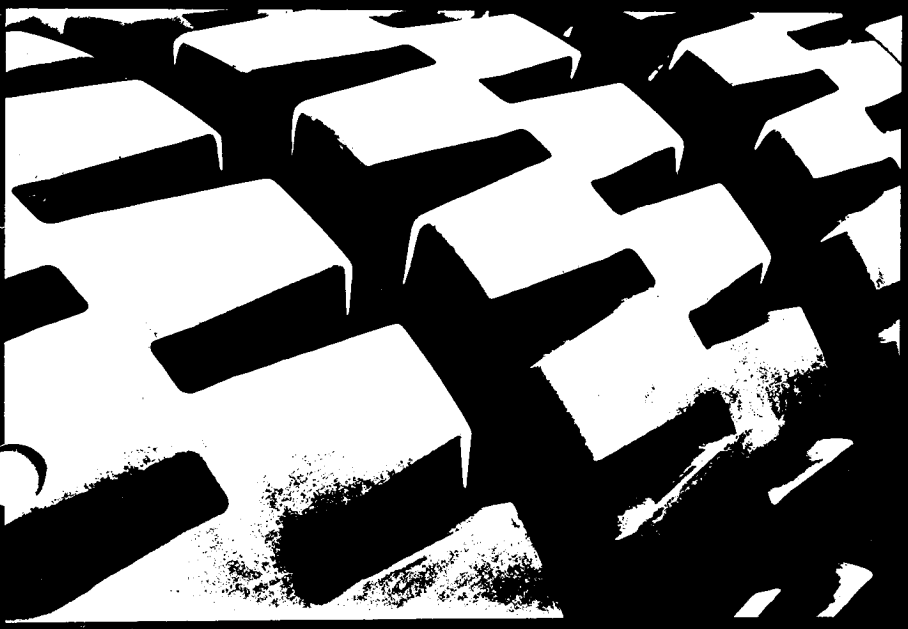
CLARK

TIRE MAINTENANCE MANUAL



TO THE OPERATOR

Your off-the-road tires are expensive, valuable pieces of equipment, the end result of many years of experience and experimentation by the rubber industry, and the product of careful manufacturing practices.

No one will question the rugged strength and the ability of these specialized tires to absorb punishment and abuse, but there is a limit of endurance as many an off-the-road operator's scrap pile will eloquently testify.

This book is dedicated to the worthy cause of lower ton-mile tire costs, better and more continuous machine performance, and more profitable operation. It is offered in a sincere effort to be of service to off-the-road operators and with an assurance of positive results if its suggestions are seriously considered and its fundamentals of tire maintenance observed.

GOODYEAR

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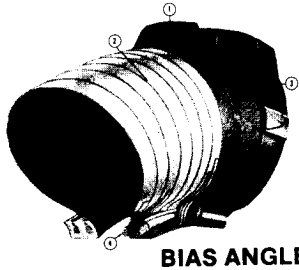
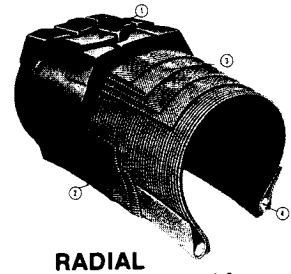


BIAS ANGLE

Fig. 1



RADIAL

Fig. 1A

Earthmover tires are produced in two basic constructions as shown above. To reduce the chance of misunderstanding in later discussions, the following brief outline is offered.

1. Tread
As the name implies, the tread is that part of the tire which contacts the ground. It must provide traction, long wear, and cut resistance. Various tread thicknesses and designs are produced to match the speed and wear requirements of various tire applications.

2. Carcass
The carcass of a tire forms the air container. The greater the carcass strength, the higher the air pressure that can be used. As the air volume and pressure determine the carrying capacity of the tire, the stronger the carcass, the more load the tire can carry. Carcass strength is expressed in terms of "ply rating" or "symbol marks". Neither term refers to the actual number of plies in the tire. In the bias angle tire the carcass is made up of numerous bias angle plies of fabric. In the Unisteel tire the carcass is one radial ply of steel wire.

3. Breakers
The breakers are located between the tread and carcass. They insure a union between these parts and break up and distribute road shocks as a protection for the carcass. In the Unisteel tire the breakers also control the diameter of the tire and are the major strength component in the circumferential direction.

4. Bead
The tire beads anchor the tire to the rim and are the foundation of the tire. Bias angle tires have several bead bundles of high tensile steel wire around which the plies are wrapped. The Unisteel bead consists of a single bead bundle around which the single radial ply is wrapped.

5. Sidewalls
The sidewalls are a protective covering of flexible rubber compound on the sides of the tire. They are designed to flex and bend without cracking when subjected to continuous flexing. The sidewalls also form a weatherproof, cut resistant, protective barrier for the carcass to prevent loss of carcass strength due to weathering and damage.

6. Inner Liner
Since almost all earthmoving equipment now uses tubeless tires, the tires are lined with a non-porous rubber compound. This inner liner, when combined with the rim and sealing "O" ring, contains the air in the tire.

BASIC FACTORS IN TIRE MAINTENANCE

Loads

The Tire and Rim Association, in its published tables recommends maximum loads to be carried by each tire in different types of service. Use 30 MPH table for Scrapers and Trucks; the 5 MPH (8 KPH) table for Dozers and Loaders and the Drive-Away table for roading equipment.

Operators sometimes knowingly overload their tires, assuming that the extra capacity thus gained, time saved, and reduction in number of hauls, will more than compensate for the expense of increased tire wear and shorter tire life.

It is true that a certain margin of safety is built into the tires, and no immediate failure is likely to occur from a slight overload. However when consideration is given to overall performance, and the eventual tire cost per ton-mile is computed, it will be found that *overloading does not pay.*

This fact applies to the machine as well as to tires. When one particularly heavy load is hauled, the tires and machine may show no apparent ill effects, but there is no justification for the thought that no permanent damage was done.

The accumulated effect of such treatment will be felt when the tires begin to break down before their time, with ply and tread separation, circumferential flex breaks in the cord body, and radial cracks in the sidewall.

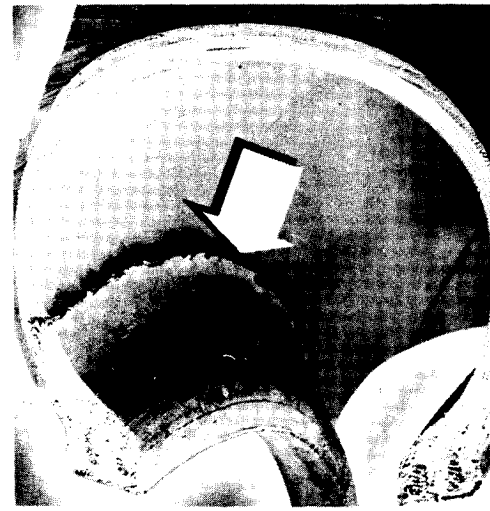
Choose Tire to Fit Loads

Equipment manufacturers recognize the limits of tires and the hazards created by overloading. The tires provided as original equipment are designed to handle all loads in normal operation of the machine. When replacing tires, follow the size and ply rating of original equipment, or refer to load and inflation tables on Pages 67-107 of this book. Overloading is poor economy any way you look at it — your equipment and your tires will last longer, give better service at less cost, if you do not exceed recommended maximum loads and inflations.

When heavier loads must be hauled, adequate equipment and tires should be provided to do the job.

Circumferential flex break due to overloading.

Fig. 2



Tire and Rim Association

This organization is made up of technical representatives from all manufacturers of tire and rim equipment. It has functioned from the very beginning of the automotive age for the purpose of industry standardization.

Its work has been of inestimable value in preventing a chaos of sizes and types, and in making possible the wide interchangeability of rims, tubes, valves, etc., of all makes. Every operator will appreciate the tremendous advantage which this has meant to him from the standpoint of replacement and service.

Another of its functions, particularly pertinent to this discussion of tire maintenance and performance, is the establishment of load and inflation recommendations, which are the basis for tire recommendations to equipment manufacturers.

References will be made throughout this book to load and inflation tables. These recommendations are the result of the best engineering principles, plus years of refinement by trial, on an industry-wide basis.

How to Calculate Loads and Load Distribution

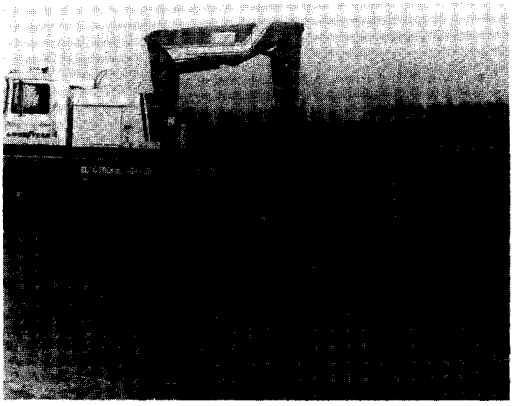


Fig. 3 Scales set and ready for use.

The best method of determining weights is to actually weigh the loaded machine, one axle at a time. Fig. 3.

When it is impractical to weigh the machine, it is still possible to closely approximate individual tire loads. For this purpose, however, it is necessary to take into consideration the fact that in many types of carriers the load is not equally distributed on two or more axles. In order to make this calculation it is necessary to know the following factors:

1. Empty weight per axle.
2. Weight of payload (estimated, if necessary).
3. Measurements shown in sketch.

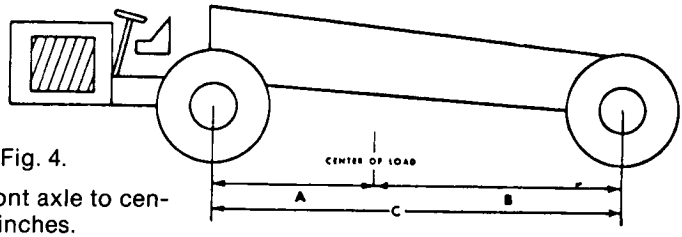


Fig. 4

In This Illustration — Fig. 4.

A = Distance from front axle to center of payload in inches.
B = Distance from rear axle to center of payload in inches.
C = Wheelbase in inches.

Applying these factors, the payload on each axle may be determined by this formula:

$\frac{A}{C}$ X payload = Payload on rear axle.

$\frac{B}{C}$ X payload = Payload on front axle.

Example:
Scale measured empty weight on front axle — 10,000 Lbs.
Scale measured empty weight on rear axle — 8,000 Lbs.
Weight of payload — 36,000 Lbs.

A — Distance from front axle to center of payload = 108"
B — Distance from rear axle to center of payload = 132"
C — Wheelbase = 240"

Applying the formula to determine the loaded weight on each axle we have —

$\frac{A}{C}$ X payload = $\frac{108}{240}$ X 36,000 Lbs.
= .45 X 36,000 = 16,200 Lbs. payload on rear axle.

Plus empty weight on rear axle — 8,000 Equals total weight on rear axle — 24,200 lbs.

In a similar manner we can compute the loaded weight on the front axle —

$\frac{B}{C}$ X payload = $\frac{132}{240}$ X 36,000 Lbs.
= .55 X 36,000 = 19,800 Lbs. payload on front axle.

Plus empty weight on front axle — 10,000 lbs.

Equals total load on front axle — 29,800 lbs.

From this example it is apparent that the proportion of the payload carried by an axle can be expressed in terms of percentage of the wheelbase. Thus, in the example, the distance from the center of payload to the front axle is 45% of the wheelbase, and 45% of the payload is on the *rear axle.* Conversely the distance from the center of payload to the rear axle is 55% of the wheelbase and 55% of the payload is carried on the *front axle.*

It may also be seen that once payload distribution has been determined for any piece of equipment, *it is not necessary to again make the calculation for normally distributed loads.* Thus in our example where a 45/55 ratio has been determined, it can be assumed that any normal load will be distributed between the front and rear axles in this same proportion.

Load Distribution on
other types of Carriers:

With slight modifications, the same formula may be applied to determine load distribution on all types of wheeled machines. In a semi-trailer tractor combination the wheelbase of the trailer is the distance from the pivot point to the rear axle. To determine the weight distribution on the tractor, the pivot point becomes the center of payload and the payload on the pivot point is the total payload on the tractor.

Inflation

Fundamentally, inflation pressures are established to fit the load and speed. Each tire is designed and built to permit a definite percentage of deflection (flattening) in a particular type of service. When off-the-road operation is limited to low speed, loads may safely be increased. But if high speeds are involved, the loads must be decreased to stay within the range of safety and economy. Some temporary deviations from recommended loads or inflations may be accepted as part of the service that a good tire can withstand, provided the recommended loads and inflations are accepted and maintained as normal.

Overinflation
With or without overload, overinflation results in high cord stress which reduces resistance to blowouts from impacts, Figs. 5 & 6, and increases the danger of rock cutting.

Underinflation
Tires run when underinflated, with respect to load and speed, are subject to an increased percentage of deflection and excessive flexing. Operation under these conditions results in uneven or spotty tread wear, sidewall radial cracks, ply separation, and loose or broken cords inside the tire. Fig. 7.

When tires are operated in soft soil or sand, such as typical cut and fill road construction, or levee building, the inflations are appreciably lower than those recommended for pavement or hard gravel surfaces. See tables on Pages 65-105.

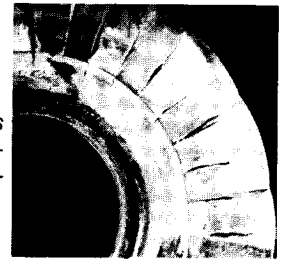
The reason for this is that the tire makes an impression in the soft surface which cradles the tire, preventing extreme deflection. Better flotation and traction, lower rolling resistance, less cutting and impact breaks are indirect, but important benefits derived from this lower inflation.

This break resulted from a severe blow when overinflated. Fig. 5

Blowouts such as this occur frequently when tires are overinflated. Fig. 6.

Loose or broken cords result from severe underinflation or running flat.

Fig. 7



Radial cracks indicate continued underinflation.

Fig. 8

Don't Bleed Tire to Correct Build-up of Air Pressure

Continuous operation of equipment builds up heat in a tire. The hot air in the tire or tube expands as a result of its increase in temperature. Because the tire's carcass restricts this expansion, pressure increases. In normal off-the-road operation this does not cause deterioration in the tire because pressure becomes stabilized as a temperature balance is reached between *internal heating and external cooling.*

Reducing the air pressure or "bleeding" a tire will result in dangerous underinflation when the equipment stops operating at the end of the day and the tire cools off. Even if operated through the night, the cooler outside air temperatures will permit the tire to cool, pressures will be reduced, and all of the damaging effects of underinflation will result.

In addition, "bleeding" aggravates rather than cures the source of trouble. Reduced pressure causes increased flexing or bulging, creates more heat, more pressure, and the vicious circle is begun again. Such a cycle finally results in the tire breakdown — in separation and blowout, radial cracks Fig. 8 — or in ruined tire fabric. Proper attention to inflation, loads, and *speeds,* especially in extremely hot weather is the preventative for excessive temperatures and pressures.

Check and correct air pressures only when tires are at normal temperatures.

When 24 hour operation does not permit inflation checks on *completely cooled tires,* a correction factor can easily be determined by experiment.

Check as many tires as possible when "cold" and again after at least two hours operation. The average difference should be added to the recommended pressure when checking tires during constant operation. Bear in mind that this difference will decrease as the tires stand and cool off.

Inflation Procedures for Proper Mounting

TUBE-TYPE TIRES

All Truck and Off-The-Road tube-type tires must first be inflated as follows: Grader tires inflate to 50 PSI (3.50 Bar) . . . less than 29 inch rim diameter inflate to 75 PSI (5.25 Bar) . . . larger than 29 inch diameter inflate to 90 PSI (6.25 Bar). All of the above tires must then be deflated completely and finally reinflated to recommended operating inflation. This procedure is necessary to insure two things: first, that the beads are seated properly against the rim flanges and are in compression on the tapered bead seats; and second, that all buckles and uneven stresses are removed from the flap and tube.

TUBELESS TIRES

Inflation Pressures for Mounting Tubeless Off-The-Road Tires

The beads of an off-the-road tire must be fully seated on the rim when the tire is mounted. Failure to seat the beads properly may cause bead durability

problems, and in the case of tubeless tires, it can allow air leakage under the beads.

The only positive method to fully seat an off-the-road tire bead is with air pressure. The operation of the tire in service will not fully seat an improperly mounted tire.

Here are the recommended steps to help insure proper seating of beads on off-the-road tires:

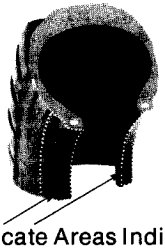
Bias, Bias Belted & Radial Tires

1. Wire brush rim components to remove all foreign material.

2. Apply anti-corrosion solution across face of rim base, from gutter to back flange retainer.

3. Bead Lubrication — Use only vegetable base lubricants approved for this purpose. Lubrication should be moderately but thoroughly applied as follows:

- Lubricate the tire beads from the bead toe to the "GG" groove.
- Lubricate the tapered bead seats on base & bead seat band.
- Lubricate O-Ring.



Lubricate Areas Indicated

4. Bead Seating Pressures — Inflate tires as outlined —

a. Bias & Bias Belted Tires

1. Grader & Sand Tires — 50 PSI
2. Less than 29" rim diameter — 75 PSI
3. 29" Rim diameter & larger — 90 PSI

*Do not exceed 75 PSI in 16PR or less tires.

b. Radial Tires

25" rim diameter & larger — 90 PSI

Note: All service personnel must be familiar with the applicable government safety standard regarding servicing of multipiece rim assemblies and comply with the safe practice procedures contained therein.

5. Pressure Adjustments — On Tubeless Tires — Deflate to proper operating pressure as recommended after 30 minutes.

On Tubetype Tires — Deflate completely and then re-inflate at proper operating pressure as recommended.

Note: Reference Service Load & Inflation Tables for Recommended Inflation Pressure.

CAUTION: Never start to inflate a tire unless the bead seat band has been pried out over the lock ring. **Be sure the lock ring is always securely in place.**

Nitrogen Inflation

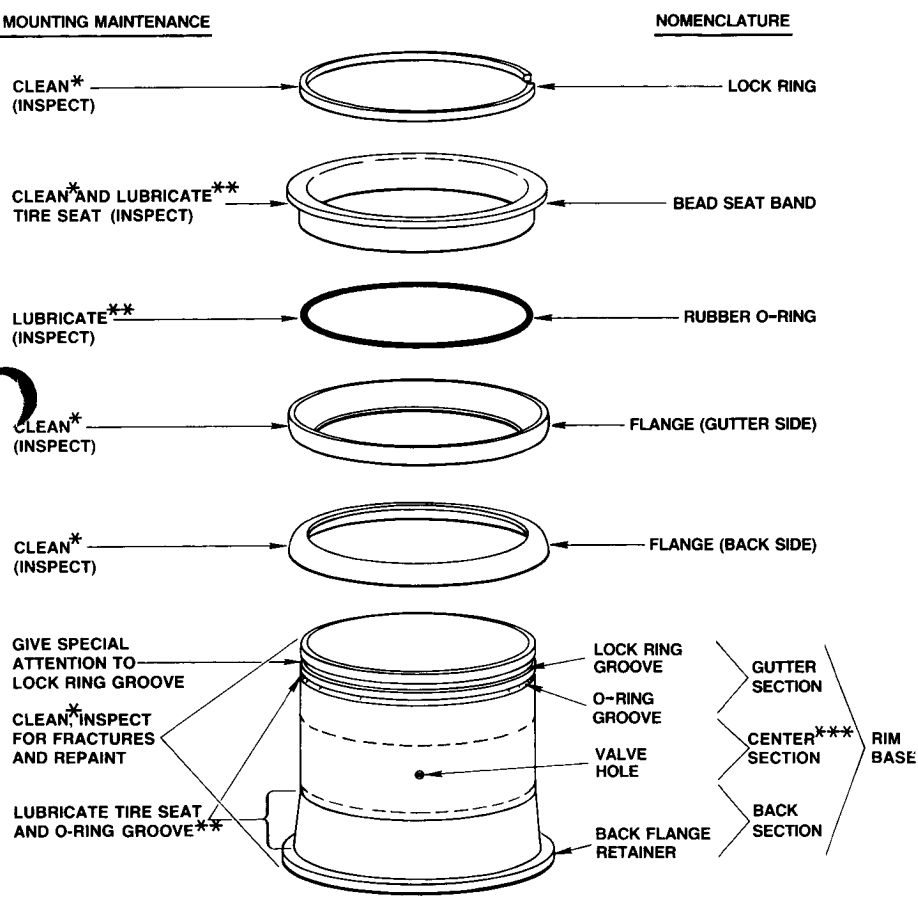
Nitrogen inflation has been gaining in popularity as a method of preventing tire auto-ignition caused by the overheating of the tire from an external source. Some external causes of overheating would be a vehicle fire, excessive use of brakes, dragging brakes, or welding on the rim. The resultant explosion caused by tire auto-ignition is much more violent than that caused by a tire blowout.

In addition to the fact that nitrogen is an inert gas and will not support combustion, it also offers the advantages of improved pressure retention, reduced tire aging due to oxidation of the tire carcass, and minimizes rim rust.

Goodyear is in a position to provide nitrogen inflation service.

FIVE PIECE RIM ASSEMBLY

(5 DEGREE)



*WIRE BRUSH OR SAND BLAST TO "CORROSION AND RUST FREE" BARE METAL.
**USE WATER SOLUBLE LUBRICANT ONLY.
***NOT IN ALL EARTHMOVER RIMS.

Burned Beads

Burned Beads can create a very dangerous condition in that it can cause a sudden blowout of the tire . . . even up to an hour or more after the equipment has been parked.

Burned Beads are a direct result of severe heat created by excessive application of brakes, or from dragging brakes which have failed to completely release.

Excessive braking action can result in temperatures as high as 500°F (260°C) which are transmitted through the brake drum — through the rim — directly to the inside tire bead, and again, the result is "Burned Beads".

It is generally felt that temperatures in excess of 250°F (120°C) are detrimental to proper bead durability.

The mechanism of failure which occurs when tires with Burned Beads eventually fail can take several forms. In the majority of the cases, there is a reduction in the compressive fit between the tire bead and the rim. This will cause a leak which results in a reduction in air pressure. If this does not produce a flat, it will increase the tire temperature. This, in turn, can produce a heat separation and eventual blowout. Since the bead may be hotter than the tire shoulder, the resultant blowout will likely be in the bead tie-in.

Another possible form of failure is separation due to air wicking through the carcass. In other words, air is able to enter the carcass in the bead area due to the heat damage in the base of the bead. This causes an internal air pressure buildup within the carcass leading to a separation failure.

One other failure possibility is a blowout at the bead that occurs an hour or so after a machine is shut down. When the machine is parked, the cooling effect of the circulating air due to tire rotation is stopped. This means a hot brake can transmit heat very rapidly to the rim base. This in turn will cause a quick buildup in air pressure and an increase in tire bead temperature. This may eventually produce a blowout at the bead.

The potential energy of the contained air in an earthmover tire has the explosive capability of dynamite when released suddenly. Since burned beads can lead to a sudden air loss, extreme caution must be exercised. When a Burned Bead is suspected, the machine should immediately be parked in a safe outside area remote from all personnel. DO NOT STAND NEAR A TIRE AND RIM ASSEMBLY WITH A HOT BRAKE. After the break has cooled, the tire can be deflated and demounted.

Fig. 9 burned bead showing heel area

Fortunately, this Burned Bead condition can be corrected and overcome.

Most of all of the modern earthmoving equipment today is equipped with "engine retarders" which will slow down the machine without excessive braking.

This is a responsibility of the contractor, along with the machinery distributor who is in a position to, and is quite willing to, provide proper operator training and instructions in the use of the equipment to prevent excessive braking and Burned Beads.

Wheel coolant is used on some machines to transfer heat from the bead seat area. Many customers are unaware of this design feature and do not check for correct wheel coolant level. If bead seat burning is encountered on machines with this design feature, it is a good indication that the wheel coolant has been lost and must be replenished.

Most of the time the Burned Beads occur when new equipment is received or when new drivers go on the job. After one or two tires have failed the contractor should become conscious of the cause and see to it that it is corrected.

This is particularly important from a SAFETY standpoint . . . all concerned must be made aware of the potential hazard involved.

Fig. 10 Burned bead showing burned and chafed toe

Fig. 11 Ultimate failure resulting from burned bead

Fig. 12

Fig. 13

Haul Roads

The term "haul roads" is meant to cover the hauling or operating surface. In strictly off-the-road operations, the road may only be the tracks left by the preceding machine or a bulldozer.

In any event, the surface over which the machine operates is a very important factor in the total life of the tires — as well as the vehicle.

Unnecessarily steep grades, or sharp turns, will increase tire slippage and result in fast abrasive wear.

Imbedded or loose rocks (Figs. 12 & 13) will increase the cutting and impact break hazards and will decrease the speed of operation while machine breakdowns and maintenance costs go up.

Improper drainage will cause mud and chuck holes that result in tire spinning, fast wear, cuts and fuel losses.

These are but a few of the causes and effects of poor maintenance of haulage surfaces. Its importance cannot be over-emphasized here, as many operators have proven to themselves.

While the cost of equipment and labor is high for maintaining the best possible hauling surface, the cost of delays, tires, and equipment repairs is many times greater.

Matching of Duals

Mismatched tires on dual assemblies cause unequal distribution of load, which makes the larger tire carry the greater load, subjecting it to undue wear and punishment. Usually the smaller tire scuffs and wears out faster. To avoid this, tires of approximately the same diameters of overall height should be matched together on dual wheels.

On dual wheels, there should not be a differential of more than ¼" in diameter on 8.25 or smaller tires . . . and not more than ½" (13 mm) in diameter on sizes 9.00 to 16.00 . . . ¾" (19 mm) in diameter for sizes 18.00 and larger. Circumferential measurement with a steel tape on tires mounted and inflated provides the most accurate check. All 18.00 and larger tires, mounted as duals, should be within 2.5" (60 mm) in inflated circumference.

Apply the smaller tire to the inside position.
Tandem drive graders should have matched tires on all drive wheels. Failure to keep tires uniform in size will result in excessive slippage and fast wear of the odd sized equipment — also may cause axle breakage, difficult steering, etc.

Should it be necessary to check the matching of tires already mounted on machines, the following method can be used.

As illustrated, Fig. 14 a right angled square made of two 1"x2" (25 mm x 50 mm) wood strips, serves to measure the diameter differentials of duals. In construction, this measuring or checking unit should be squared up with a carpenter's steel square and rigidly fastened to maintain a true 90° angle. If one tire is too small, it becomes apparent at once as the wood strip is laid across the dual assembly. The matching cord method, Fig. 15 is another quick and convenient way of checking duals. This device can be easily improvised using two rubber bands made of old tubes, two hooks made from welding rod, and a length of ⅛" (3 mm) cord. By hooking onto a wheel stud or valve, the cord quickly indicates if inside wheel is smaller. If cord touches both wheels, the difference in diameter can be determined by slowly lifting the cord from the outside tire until it is just touching the inside tire.

Fig. 14

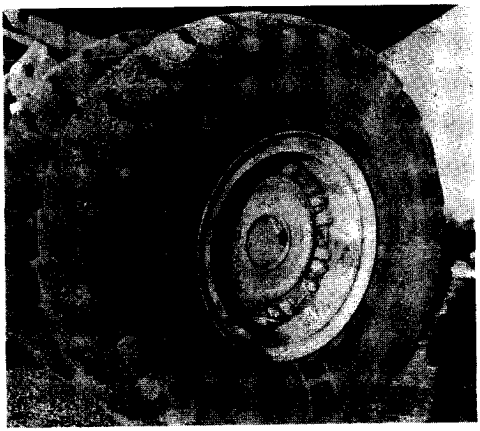


Fig. 15

Fig. 16 This tire shows the result of spinning. Tires have been worn smooth in 500 hours by spinning on abrasive material.

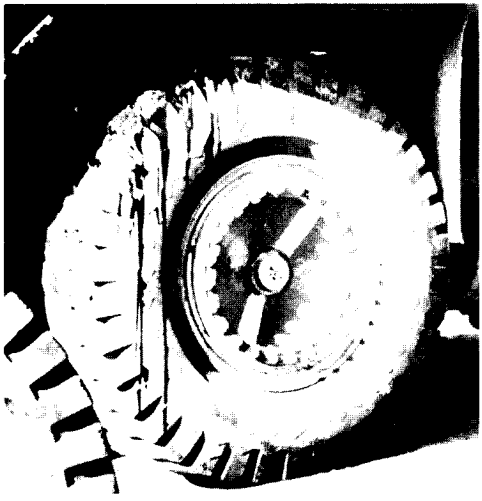


Fig. 17 Grease and oil are highly damaging to tires.

Fig. 18 A machine obstruction takes a bite out of this tire tread at each revolution.

Conscientious Operation By Drivers

Careful selection and training of drivers will reduce tire failures resulting from rock cuts, impact breaks from avoidable road obstructions, and excessive tread wear from spinning drive wheels. Fig. 16. Good drivers will also see that mechanical irregularities are corrected. Machine defects such as misalignment, loose, or broken springs, grabbing brakes, all come under the heading of tire hazards.

When additional power is needed for loading scrapers or to help trucks and tractor-trailers through very soft spots, drivers should use care to be sure bulldozer blades do not gouge the tires.

Oil, grease or gasoline left on tires causes rapid deterioration. Fig. 17. Conscientious drivers will check for leaky grease fittings and see that they are corrected to prevent tire damage.

Rims and rim flanges for both tube-type and tubeless tires should be checked regularly to be sure they are in good condition and fit correctly. Since the rim flange comes in direct contact with the bead, which in turn supports the whole tire, flanges that are bent, Fig. 20, chipped, broken, or the wrong size, put a terrific strain on the bead and lead to tire failure. Rust, oil, or grease on rim assemblies cause deterioration of the rubber and premature tire failure.

Operators should check carefully for damage due to machine obstructions. Fig. 18. Spring clips, fender bolts, etc., may be set at a satisfactory location when the machine is not in motion but under unusual operating conditions the body movement may cause these units to contact the tire and cause severe abrasion. Dry caked mud, wedged rocks, Fig. 19, should also be kept clear of tires to prevent tire damage.

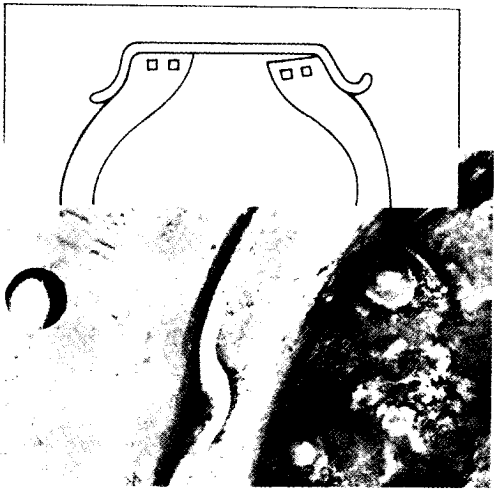


Fig. 19. A bent out rim gives inadequate support and puts an excessive load on the bead at that point.

Fig. 20. Failure to check duals and remove wedged rocks will damage tires.

Repairing

Tubeless tires can be repaired in the same way as tube-type tires. Injuries which may lead to blowouts in tube-type tires are detected early in tubeless tires and can be repaired before extensive and costly damage results. Figs. 21 & 22.

Even with the best of maintenance practices, cuts will still be a source of tire trouble. The correct procedure for handling and repairing tires should be given careful attention. Close inspection of all tires should be made at the time of inflation checks, and all tires having cuts that penetrate into the cord body should be taken off for proper repair.

Failure to make regular inspections and repairs when needed will result in further deterioration of the cord body and eventually a blowout.

Small rocks and dirt will get into shallow cuts in the tread and if neglected will gradually be pounded through the cord body.

One simple method of forestalling this action is to clean out the cut with an awl or similar tool to remove any stones or other matter which may be lodged in the cut. Use a sharp, narrow-bladed knife and cut away the rubber around the cut to form a cone-shaped cavity extending to the bottom of the injury. Figs. 23 & 24.

The sides of the cavity should be slanted enough to prevent stones from wedging into it. Tires with cuts treated in this manner may be continued in service without danger of further growth of these injuries.

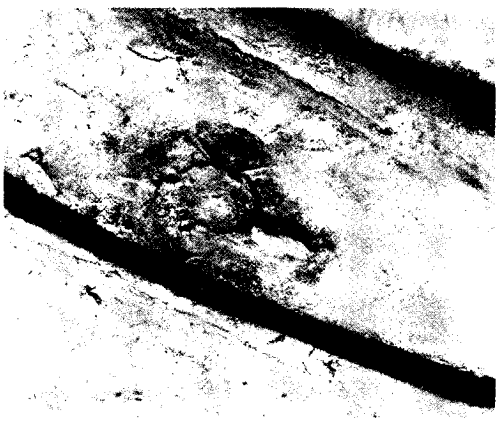
If a tire has at least one deep cut that requires a repair, then all smaller cuts may be quickly and economically repaired and vulcanized by the steam kettle method.

Large carcass breaks over 1/3 of the width of the tire cannot be economically repaired except for use in light service.

When the injury may be classed as repairable, the anticipated remaining service life of the tire must be calculated in comparison with the cost of the repair work required. Tire repair records have shown that the older the tire, the less service is received from repairs.

It is apparent from the above that many factors must be considered in setting up your repairing policy.

Figs. 21 & 22. A repair of this cut at the right time would have prevented this damage.



Figs. 23 & 24. Skiving out this small cut reveals an imbedded stone which could result in serious tire damage.

Recapping

Tubeless tires can be recapped in the same manner as tube-type tires.

Recapped tubeless Earthmover tires *do not* require a tube when put back into service if the tire beads and inner liner are in good condition.

In some off-the-road operations recapping pays real dividends.

A good tire maintenance program will contribute to savings in tire costs and greatly improve retreadability for further savings.

High speed and overloaded operations and abnormally long service at low inflations take too much life out of the cord body to expect it to stand up under the strain of more than one tread.

An exception, of course, is the case of fast tread wear from steep grades and abrasive surfaces. Where, of necessity, these conditions exist, recapping is highly profitable.

Without shredded wire, severe cutting operations almost eliminate recapping. With shredded wire, a recapping program should be carried out. Modern recappers can recap shredded wire tires and will replace the shredded wire if necessary.

Handling and Storage of Tubeless Tires and Rims

To obtain all the advantages of tubeless tires, it is necessary to observe proper handling and storage procedures.

Unmounted tires should be stored and shipped in a vertical position. Horizontal storing may compress the beads making initial inflation difficult.

Do not lift tires by beads with hooks or forks. Sharp hooks or forks may tear, cut, or snag the tubeless tire beads and result in leaks at these points.

Foreign material or moisture should be removed from inside the tire.

Tubeless rims perform an important function as part of the assembly air seal. Proper care therefore must be taken not to distort or mutilate the rim parts.

Never lift rim by the valve hole. Never drop, tumble, or roll rim parts.

Babbit or lead hammers, not sledge hammers, should be used in assembling rims.

"O" ring seals should be carefully stored in a cool, dry place where they will not be injured or damaged.

Valves should be stored in a cool, dry and clean place.

Tire and Tube Storage

Tires and tubes are subject to rather rapid deterioration under certain conditions, it is essential that they be stored with a view to preventing and limiting such conditions. Storage time should be limited by using tires in the same order they are received.

Among the factors which cause and accelerate deterioration in storage are — light, heat, air in motion, ozone, oils, dust and dirt, and water inside of tires. The following procedure is recommended for tire storage whether for prolonged periods or for a relatively short time.

New Tires

1. Store indoors in a cool, dark, dry area, free from drafts. If indoor storage is impractical, tires may be stored outdoors, providing they are covered with tarpaulins or other opaque waterproof covering. It is absolutely essential that water and moisture be kept from inside of tires. A good way to achieve this is to mount on wheels, inflate to 50% of operating pressure, then cover with tarpaulins.

2. Store away from electrical devices such as motors, or switches, since they are an active source of ozone.

3. Do not store tires in the same or adjoining rooms with gasoline and lubricants. The solids, fluids, or vapors from them are readily absorbed by rubber and cause deterioration.

4. Tubeless tires should not be stacked but should be stored in a vertical position, on the tread. Stacking will tend to deform the tire and force its beads together and produce strains in the rubber which will accelerate weather damage. This may make initial inflation difficult. New tubeless tires are banded to prevent bead deformity. Do not remove bands prior to mounting.

5. Carbon dioxide fire extinguishers should be provided in tire storage areas.

Used Tires

1. Clean and carefully inspect before storing. Make all necessary repairs before storing, especially if cord fabric is exposed, as moisture will be absorbed very readily.

2. Observe same storage conditions and cautions as for new tires.

Mounted Tires

1. If necessary to store tires while mounted on machine, block up so that the weight does not rest on the tires, and release the air from the tire. Where machine cannot be blocked, check air pressure frequently and maintain proper inflation.

2. Each tire should be protected by a cover or wrapping of canvas or similar material.

3. Machines on tires should be moved every month or two so that the same section of the tire is not always under strain from deflection.

4. Paint should **not** be used to preserve tires. If it appears that exposure will be severe consult your tire supplier for additional recommendations.

Tubes

1. New tubes should be left in original package. Store in dry, cool, draft-free storage area.

2. Used tubes should be removed from the tire, completely deflated, cleaned, folded and stored in the same manner as new tubes.

SECTION II

Procedure for Changing Tires and Tubes

Changing Off-the-Road Tires

Removal and replacement of off-the-road tires is a difficult job. The nature of the terrain over which they operate, and the geographical location of many off-the-road operations, often cause conditions to be far from ideal, and proper equipment may be lacking.

This section of the book deals with the procedure of changing the larger size tires — both under ideal and difficult conditions.

These procedures are based on experience, both in the field and in the shop, and are designed to help you make tire changes as easily as possible, with a minimum of effort time.

The original equipment manufacturers of certain off-the-road vehicles now recommend that the tires on those vehicles be inflated with nitrogen to minimize the possibility of explosion of air-inflated tire/rim assemblies due to excessive heat build-up from sources external to the tire.

Since serious personal injury and/or death can result from such explosions, it is the firm policy of The Goodyear Tire & Rubber Company to furnish nitrogen inflation as a part of our off-the-road tire service, wherever it is recommended by the OE manufacturer of the equipment involved. The additional cost is minimal, particularly in light of the serious risk involved with ordinary air inflation in these applications. There are several other benefits of using nitrogen which our service personnel can discuss with you. In the event you refuse nitrogen inflation where so recommended by the equipment manufacturer involved, you hereby agree to indemnify and hold harmless The Goodyear Tire & Rubber Company, its agents and employees, from any and all liability for injury to persons, death, or damage to property, arising out of the failure to inflate such tires with nitrogen instead of ordinary air pressure in those recommended applications.

Tire Changing Equipment and Tools

Procedures of tire changing will vary with individual operators. Certain tools are essential to change off-the-road tires:

1. Heavy equipment jack.

2. Tire tools and irons, including several irons with dished or spoon shaped ends, stud wrench, crowbar. Also heavy duty rubber or wood mallet, or lead or babbitt hammer (See Goodyear Rim Catalog).

3. Wheel blocks — wood 4x4's (10 cm x 10 cm) or larger — for supporting jack and chocking wheels.

4. Air compressor, either mounted on truck, or in shop if facilities are available for moving tires to shop. Nitrogen inflation tank for those off-road tires requiring nitrogen instead of air in accordance with recommendations of the OE equipment manufacturers.

5. Service Truck — On larger jobs a truck equipped with the above items will prove to be economical in keeping equipment in service. If possible this truck should be equipped with a mounted hoist big enough to handle the largest tires. Air compressors are available which operate off truck engines or are self-powered. Large bore inflating equipment should be used to reduce inflating time. For nitrogen inflation where required by the OE equipment manufacturer, nitrogen tanks are highly pressurized up to 2200 psi, and the following extra equipment is essential to avoid possible serious personal injury or death to service personnel: an appropriate relief valve; an inline pressure regulator set for not more than 20 psi, and clip-on chucks with remote control to permit inflation from a safe distance.

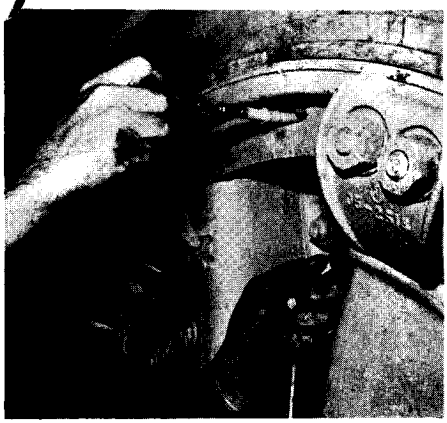
IMPORTANT

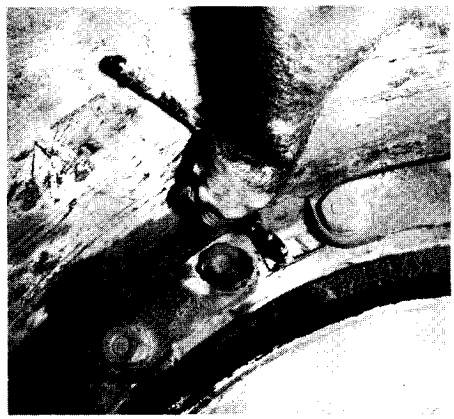
THIS IS THE FIRST STEP IN ALL DEMOUNTING OPERATIONS.

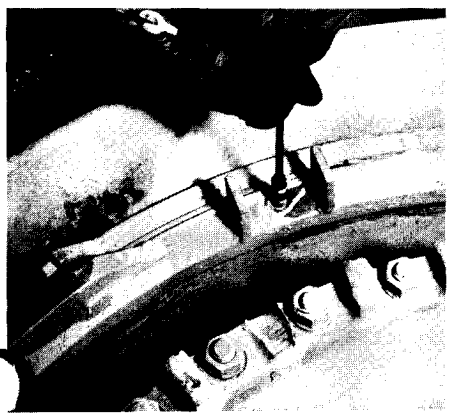
For safety's sake, always remove the valve core and exhaust all air from a single tire and from both tires of a dual assembly prior to removing any rim components, or any wheel components, such as nuts and rim clamps.

Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

Failure to follow above procedure will lead to serious injury or death.







SAFETY INSTRUCTIONS

General

Do not mount or demount tires without proper training. Follow all procedures and safety instructions. Wall charts containing mounting and demounting instructions for all Goodyear on & off-highway rims are available through your Goodyear rim supplier. Ask for "ON-HIGHWAY RIM MOUNTING AND DEMOUNTING CHART SET NO. TR71-2042". This set contains five charts covering all Goodyear on-highway rims. Or, ask for "OFF-HIGHWAY RIM MOUNTING AND DEMOUNTING CHART SET NO. EM73-2154". This set contains four charts covering all Goodyear off-highway rims.

"MULTIPIECE RIM/WHEEL MATCHING CHARTS" are available through Motor Wheel Corporation and the United States Department of Transportation, Washington, D.C. (On-Highway Rims).

Demounting

PRECAUTION: Always exhaust all air from a single tire and from both tires of a dual assembly prior to removing any rim components or any wheel components such as nuts and rim clamps.

REASON FOR PRECAUTION: A broken rim part under pressure can blow apart and kill you. When you remove the lugs, if the tire is still under pressure, the assembly may fly apart.

PRECAUTION: Make sure to remove valve core to exhaust all air from the tire. Remove both cores from a dual assembly. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

REASON FOR PRECAUTION: Foreign material may clog the valve stem during deflation or ice may form as the air leaves the tire clogging the valve stem.

PRECAUTION: Always stand clear during deflation.

REASON FOR PRECAUTION: If the assembly bursts for any reason, the operator should be well away from the explosive force.

PRECAUTION: Use caution when removing heavy earthmover rim components. Use mechanical aids. This will help protect you from injury.

REASON FOR PRECAUTION: Dropping a flange can crush a hand or foot. Attempting to stop a slipping flange or bead seat band can cause serious back injury.

PRECAUTION: Demounting tools apply pressure to rim flanges to unseat tire beads. Keep your fingers clear. Always stand to one side when you apply hydraulic pressure.

REASON FOR PRECAUTION: If the tool slips off, it can fly with enough force to cause severe bodily injury or death.

Inspection

PRECAUTION: Clean rims and repaint to stop detrimental effects of corrosion and facilitate checking and tire mounting. Be very careful to clean all dirt and rust from the lock ring and gutter. This is important to secure the lock ring in its proper position. A filter on the air inflation equipment to remove the moisture from the air line helps prevent corrosion. The filter should be checked periodically to see that it is working properly.

REASON FOR PRECAUTION: Parts must be clean for a proper fit — particularly the gutter section which holds the lock ring in proper position.

PRECAUTION: Check rim components periodically for cracks. Replace all cracked, badly worn, damaged and severely rusted components with new parts of same size and type.

REASON FOR PRECAUTION: Parts that are cracked, damaged or excessively corroded are weakened. Bent or repaired parts may not engage properly.

PRECAUTION: Do not, under any circumstances, attempt to rework, weld, heat, or braze any rim components that are cracked, broken, or damaged. Replace with new parts or parts that are not cracked, broken, or damaged and which are of the same size and type.

REASON FOR PRECAUTION: Heating may weaken a part to the extent it is unable to withstand forces of inflation or operation.

PRECAUTION: Make sure correct parts are being assembled. Check your distributor or the manufacturer if you have any doubts.

REASON FOR PRECAUTION: Mismatched parts may appear to fit — but when the tire is inflated may fly apart with explosive force.

PRECAUTION: Don't be careless or take chances. If you are not sure about the proper mating of rim and wheel parts, consult a rim and wheel expert. This may be the tire man who is servicing your fleet, the rim and wheel distributor in your area, or the Motor Wheel sales engineer.

REASON FOR PRECAUTION: Mismatched parts may appear to fit — but when the tire is inflated may fly apart with explosive force.

PRECAUTION: Don't reinflate a tire that has been run flat without first inspecting the tire, tube, flap, rim and wheel assembly. Double check the side ring, flange, bead seat, lock ring and "O" ring for damage and make sure that they are secure in the gutter before inflation.,

REASON FOR PRECAUTION: Components may have been damaged or dislocated during the time the tire was run flat or seriously underinflated.

Mounting and Inflation
PRECAUTION: Don't try to seat rings or other components by hammering while tire is inflated or partially inflated.

REASON FOR PRECAUTION: Properly matched and assembled components will seat without tapping. If a part is tapped, it or the tapping tool may fly out with explosive force.

PRECAUTION: Double check to make sure all components are properly seated prior to inflation.

REASON FOR PRECAUTION: If parts are improperly installed they may fly apart with explosive force.

PRECAUTION: Inflate in a safety cage, use safety chains or an equivalent restraining device during inflation.

REASON FOR PRECAUTION: Misassembled parts may fly apart during inflation.

PRECAUTION: Don't inflate tire before all components are properly in place. Place in safety cage or use chain sling and inflate to approx. 5 psi (.5 bar), recheck components for proper assembly. If assembly is not proper, deflate and correct. Never hammer on an inflated or partially inflated tire/rim assembly. If assembly is proper at approx. 5 psi (.5 bar), continue to inflate to fully seat the tire bead. Then on tube-type tires, completely deflate the tire to prevent localized over-stretching of tube. Reinflate to recommended operating pressure.

REASON FOR PRECAUTION: Properly matched and assembled components will seat without tapping. If a part is tapped, it or the tapping tool may fly out with explosive force.

PRECAUTION: Never sit on or stand in front of a tire and rim assembly that is being assembled. Use a clip-on chuck and make sure inflation hose is long enough to permit the person inflating the tire to stand to the side of the tire, not in front or in back of the tire assembly.

REASON FOR PRECAUTION: Misassembled parts may fly apart during inflation.

PRECAUTION: Follow tire and rim manufacturers' recommended mounting, demounting, inflating and deflating procedures for tires and rims.

REASON FOR PRECAUTION: Failure to do so can result in serious injury or death.

PRECAUTION: Don't hammer on rims or components with steel hammers. Use rubber, lead, plastic or brass faced mallets if it is necessary to tap uninflated components together.

REASON FOR PRECAUTION: May damage components and cause improper fit.

PRECAUTION: When using a cable or chain sling, stand clear.

REASON FOR PRECAUTION: The cable or chain may break, lash out & cause serious injury.

PRECAUTION: Never attempt to weld on an inflated tire/rim assembly or on a rim assembly with a deflated tire.

REASON FOR PRECAUTION: Heat from welding will cause a sudden, drastic rise in pressure resulting in an explosion with the force of a bomb. Deflated tires can catch fire inside the chamber, pressure can build up as described with the same result.

PRECAUTION: Mixing parts of one type rim with those of another is potentially dangerous. Always check DOT chart or manufacturer for approval.

REASON FOR PRECAUTION: Mismatched parts may appear to fit — but when the tire is inflated may fly apart with explosive force.

PRECAUTION: Inflate off-the-road tire/rim assemblies with nitrogen instead of ordinary air pressure where recommended by the original equipment vehicle manufacturer. Inflate to the same level of pressure as you would with air for the tire involved.

REASON FOR PRECAUTION: A violent explosion may result from an off-road tire being subjected to extraordinarily high temperatures from an external source, in certain applications. Death, serious injury, and/or property damage may result.

PRECAUTION: Inflating with nitrogen should only be accomplished by trained personnel using proper equipment, including an appropriate relief valve: a pressure regulator set for not more than 20 psi (1.5 bar) in excess of the desired tire inflation level; and remote control clip-on chucks which allow personnel to stand clear of the tire/-rim assembly during inflation.

REASON FOR PRECAUTION: Nitrogen tanks are highly pressurized, containing as much as 2200 psi (152 bar), but proper tire inflation for nitrogen is the same as that for air. Unless the correct equipment is used and the proper safety precautions taken, a dangerous explosion/blowout of the tire/rim assembly could result, causing possible death, serious personal injury, and/or property damage.

Operation

PRECAUTION: Don't use undersized rims. Use recommended rim for tire. Check Goodyear catalogs for proper tire/rim matching.

REASON FOR PRECAUTION: This excessive overload can cause damage to the tire and rim assembly.

PRECAUTION: Don't overload or over-inflate tire/rim assemblies. Check your rim manufacturer if special operating conditions are required.

REASON FOR PRECAUTION: This excessive overload can cause damage to the tire and rim assembly.

PRECAUTION: Never run a vehicle on one tire of a dual assembly.

REASON FOR PRECAUTION: The carrying capacity of the single tire and rim is dangerously exceeded and operating a vehicle in this manner can result in damage to the rim and tire.

PRECAUTION: Never use a tube in a tubeless tire/rim assembly where the rim is suspected of leaking.

REASON FOR PRECAUTION: Loss of air pressure through fatigue cracks or other fractures in a tubeless rim warns you of a potential rim failure. This safety feature is lost when tubes are used with leaking rims. Continued use may cause the rim to burst with explosive force.

PRECAUTION: Always inspect rims and wheels for damages during tire checks.

REASON FOR PRECAUTION: Early detection of potential rim failures may prevent serious injury.

PRECAUTION: Never add or remove an attachment or otherwise modify a rim (especially by heating, welding or brazing) unless the tire has been removed and you have received approval from the rim manufacturer.

REASON FOR PRECAUTION: Modification or heating of a rim or one of its parts may weaken it so that it cannot withstand forces created by inflation or operation.

PRECAUTION: If the vehicle wheels have been designed or altered to contain a wheel coolant, never operate the vehicle without the coolant. Always use the mix and amount of the coolant recommended by the vehicle manufacturer.

REASON FOR PRECAUTION: A violent explosion which could cause death, serious personal injury, and/or property damage may result from a tire being subjected to extraordinarily high temperatures from an external source. Wheel coolant helps keep the operating temperatures down, and must be used where recommended.

PRECAUTION: Do not let the brakes become overheated. "Dragging" of brakes, speeding, poor brake adjustment, overloading and other operating abuses which might overheat brakes should be avoided, and all vehicle manufacturer's recommendations concerning operating practices, including but not limited to the use of retarders, brakes, and brake maintenance, should be followed carefully.

REASON FOR PRECAUTION: A violent explosion which could cause death, serious personal injury and/or property damage may result from a tire being subjected to extraordinarily high temperatures from an external source. The risk of explosion is greatest soon after the vehicle is stopped. Clear the area if excessive brake heat is suspected, such as the smell of burning rubber or hot brakes. Wait at least one hour before again approaching the machine.

Servicing Tire and Rim on the Machine
PRECAUTION: Block the tire and wheel on the opposite side of the machine before you place the jack in position.

REASON FOR PRECAUTION: The machine may shift, slip off the jack causing injury or death.

PRECAUTION: Regardless of how hard or firm the ground appears, put hardwood blocks under the jack. Always crib up vehicle with blocks just in case the jack should slip.

REASON FOR PRECAUTION: The machine may shift, slip off the jack causing injury or death.

PRECAUTION: Always secure the deflated tire/rim assembly by means of a sling, tire handler or other support before loosening nuts/clamps. Consult vehicle manufacturer for detailed instructions on removal of tire/rim assembly from vehicle.

REASON FOR PRECAUTION: Unsecured assembly may fall on you when fasteners are removed.

PRECAUTION: Don't try to drive an assembled or partially assembled tire and rim over a cast spoke wheel by hammering. Stop — deflate and examine to determine the reason for the improper fit. Look for distortion or for components that are not properly locked or seated.

REASON FOR PRECAUTION: Failure to fit may be an indication of distorted components or incorrect assembly which could fly apart and cause serious injury.

PRECAUTION: Do not, under any circumstances, weld, braze or use any type of heat source on an inflated tire/rim assembly. Do not, under any circumstances, attempt to rework, weld, heat, or braze any rim components that are cracked, broken or damaged. Replace with new parts, or parts that are not cracked, broken or damaged, and which are of the same size, type and make. Consult the rim manufacturer concerning proper replacement of components.

REASON FOR PRECAUTION: Welding or applying any heat source of that kind to an inflated tire/rim assembly can cause immediate explosion of the assembly, resulting in death, serious personal injury, and/or property damage. Welding or brazing a rim even with a deflated tire can cause damage to the tire which, upon later inflation and/or service conditions, can lead to a sudden explosion/blowout which could cause death or personal injury. Even welding or brazing a rim with no tire on it is contrary to the recommendations of rim manufacturers, since it can cause a structural weakness that may fail upon inflation or under service conditions, which could cause death or personal injury.

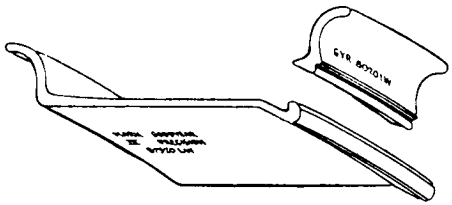
GOODYEAR SAFETY AIDS

Rim Part Number Locations

Check part numbers of all rim components; the base, side ring, or flange and lock ring. All Goodyear rims and components are stamped with their proper part number.

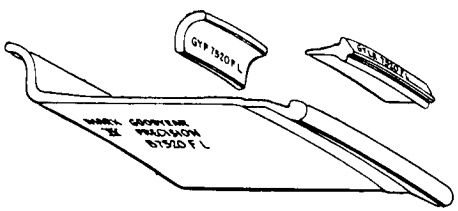
Be certain you have mated parts by checking the part number of all the rim components.

The location of these part numbers on the various Goodyear rims can be a shown in these typical examples:



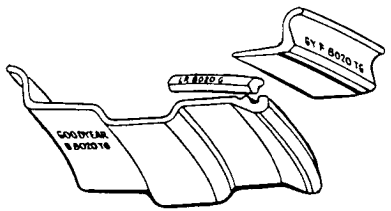
Two-Piece Truck Rims

Goodyear two-piece truck rims have rim base part number located as shown on inside diameter or wheel side of rim base adjacent to butt weld area of rim base. Side ring part number is stamped on outside face as shown 2" to 4" (5 cm to 10 cm) left of the split in side ring.



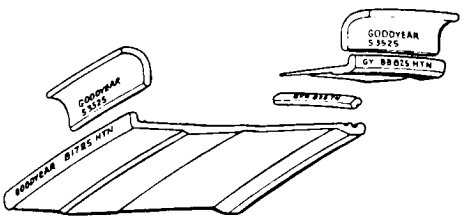
Three-Piece Truck Rims

Goodyear three-piece truck rims have rim base part number located as shown on inside diameter or wheel side of rim base adjacent to butt weld area of rim base. The flange part number is stamped on the outside face as shown 2" to 4" (5 cm to 10 cm) to the right of the butt weld area of flange. Split lock ring part number is stamped on outside face of bead or lock ring 2" to 4 (5 cm to 10 cm) to the right of split in ring.



Semi-Drop Center Rims — Grader and Front End Loader Types

Goodyear semi-drop center grader type or front end loader type rims have rim base part number stamped on inside diameter or wheel side of rim base as shown adjacent to the butt weld area of rim base. Side flange part number is stamped on outside face of side flange 2" to 4" (5 cm to 10 cm) to the left of the butt weld area of side flange. The split lock ring has the part number stamped inside of ring and cannot be seen when mounted. The part number is located on flat face as shown adjacent to the safety hump away from split in lock ring.



Multiple Piece Earthmover Rims

Goodyear earthmover multiple piece rims are stamped as follows: Rim base part number is stamped on upset back lip of rim base on outside face of rim base as shown. Both inside and outside flanges must have the same part number, and this number is stamped on the outside face of each flange adjacent to the butt weld area of the flanges. The bead seat band (the long tapered five degree band) has the part number stamped on the outside of upset or lip portion of bead seat band midway between the pry bar pockets and 180° from driver or driver notch. The split lock ring part number is located on inside face of lock ring and cannot be seen when rim is mounted. The number is stamped on flat face of lock ring as shown 6" to 8" (15 cm to 20 cm) left of split in lock ring.

Photo No. 1

Photo No. 2

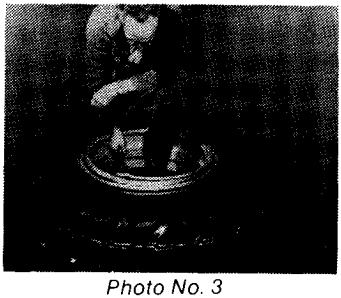


Photo No. 3

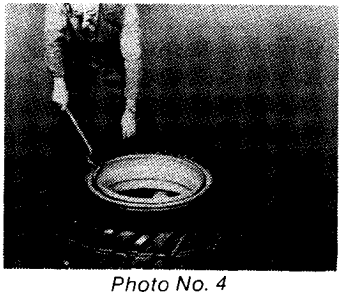


Photo No. 4

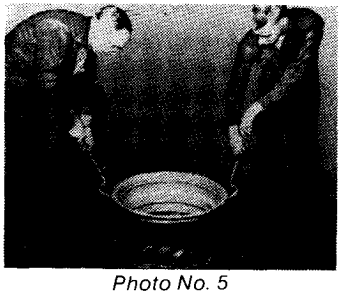


Photo No. 5

Demounting Instruction for Goodyear Type T - TD - TL - TLD - TG - TGD -TGF Rims (Graders)

CAUTION: Read safety instruction (pgs 24-27) before proceeding.

PROCEDURE REQUIRES: One (1) TO-399 tool. Two (2) TO-799 tools. Rubber lubricant. Rubber, lead, plastic or brass faced mallet.

CAUTION: Always completely deflate tire (both tires of a dual assembly) by removing valve core(s) from valve(s) before attempting **any** demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged. After complete deflation, place the assembly on the floor (on blocks with loose flange side up) and proceed in order with the steps below.

1. Drive the goose-necked end of two Goodyear TO-799 tools between the tire and flange about 5 inches (13 cm) apart. (Photo No. 1)

2. Pry both tools outward and sideways through an arc of about 70 degrees. Leave one tool in position and place the second about 5 inches (13 cm) beyond. Repeat the above operation in successive steps until the tire bead is completely unseated. (Photo No. 2)

3. After the tire bead is unseated, stand on flange and tire sidewall to depress the flange down along the rim base; then, pry loose the lock ring. Keep fingers out of the way. (Photo No. 3)

4. Hold the side flange down with hooked end of TO-799 to remove the "O" ring from "O" ring groove. (Photo No. 4)

5. Remove the side flange. Turn tire and rim over and unseat second bead by inserting both TO-799 tools between tire bead and rim flange as in Step 2. Repeat Steps 1 and 2 until the tire is completely broken loose from the rim on the fixed flange side. Lift rim base from tire. (Photo No. 5)

HORIZONTAL DEMOUNTING 25"-49" DIAMETER RIMS

CAUTION: Read safety instructions (Pgs 24-27) before proceeding.

Tools Required: TO-1600 and/or TO-2000, two TO-399. **(See Note at bottom).

NOTE: Be sure tire is completely deflated. Remove valve core and deflate tire completely. Check valve stem for blockage.

1. Lay the assembly gutter side up on blocks.

2. Remove the lock ring, using two TO-399 tools. (NOTE: If this is not possible, the tire bead may be unseated with the lock ring and "O" ring in place.) (Photo No. 1)

3. Remove the "O" ring by prying the bead seat band back and inserting a pry bar or screwdriver under the "O" ring and pulling it from the groove. It is good practice to cut the "O" ring with a knife to be sure that a new "O" ring will be used. (Photo No. 2)

4. Place the hook of the TO-1600 hydraulic demounting tool into one of the pry bar pockets. A continuous lip is provided on some bases. Adjust the ram adjusting screw to enable the tool to remain vertical when under pressure. In some cases, the pressure foot may have to be removed to ensure a good hold. Activate the hydraulic pump and apply pressure. If necessary, release pressure and readjust the ram adjusting screw. Depress flange about ½"-¾" (13-19 mm) and place a nut or similar object between the flange and the lip of the bead seat band by laying it on the rim flange and sliding it into position with a screwdriver. Keep your fingers clear at all times. Always stand to the side and hold the tool with one hand. This allows control should the tool not seat properly and fly off with enough force to kill. (Photo No. 3)

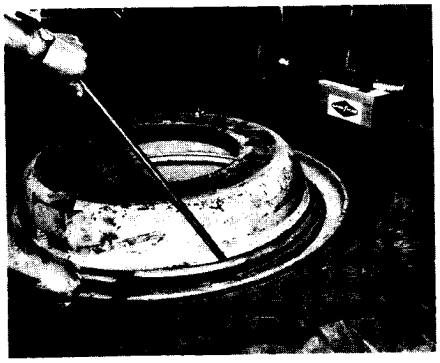


Photo No. 1

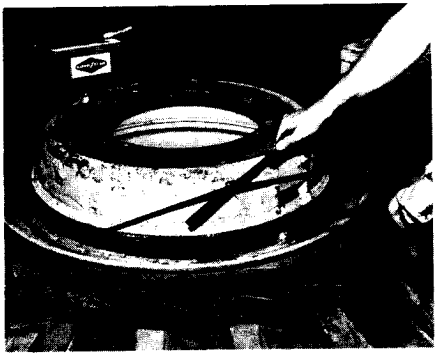


Photo No. 2

Photo No. 3

Photo No. 4

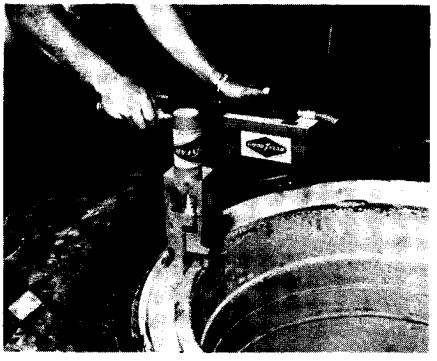


Photo No. 5

Photo No. 6

5. Release the pressure and move about 2 feet (60 cm) around the rim for the second bite. Continue the procedure until about ¾ of the way around the rim, then apply pressure until the tire bead is unseated.

CAUTION: Do not use tool in the vicinity of the flange butt weld. (Photo No. 4)

6. Remove bead seat band using hoist or pry bars.

7. Remove flange.

8. Turn assembly over and repeat tire bead unseating procedure on the back side. (Photo No. 5)

9. Lift rim base from tire using hoist.

10. Remove back flange.

**NOTES: In some cases, when the tire bead is difficult to loosen, it may be advantageous to use the TO-2000 in conjunction with the TO-1600 on 35"-49" rims. However, caution must be used to avoid bending the flange or breaking the butt weld.* Procedure is as follows: Make initial pushes on the flange with the TO-1600, placing nuts between the flange and bead seat band as outlined in the preceding section. If it is not possible to completely unseat the tire bead with the TO-1600, insert the hooks of the TO-2000 between the flange and the bead seat band, keeping well away from the butt weld. Adjust the ram adjusting screw so that the tool will be vertical when pressure is applied. Standing off to one side, activate the hydraulic pump and apply pressure. Work around the rim depressing the flange a slightly greater distance each time and blocking with larger objects until the bead has been completely unseated. (Photo No. 6)

*Due to the added power and longer stroke of the TO-2000.

HORIZONTAL DEMOUNTING 51" AND LARGER HDT RIMS

CAUTION: Read safety instructions (Pgs. 24-27) before proceeding.

Tools Required: TO-2000, two TO-399.

NOTE: Be sure tire is completely deflated. Remove valve core and deflate tire completely. Check valve stem for blockage.

1. Lay assembly gutter side up on blocks. (Photo No. 1)

2. Stand inside rim and, working carefully, remove lock ring using two TO-376 or TO-399 tools. Start at the split and work the tools around the ring. (Photo No. 2)

3. Remove "O" ring by inserting pry bar or screwdriver (DO NOT USE YOUR FINGERS!) under the ring and pulling it from the groove. It is good practice to cut the "O" ring with a knife to be sure that a new "O" ring is used. (Photo No. 3)

4. Position the TO-2000 hydraulic demounting tool so that the hooks are under the lip on the bead seat band. The initial push should be made about 30 degrees to one side of the flange butt weld; then work away from the butt weld. Adjust the ram adjusting screw to enable the tool to be vertical when pressure is applied. Keep your fingers clear. (Photo No. 4)

5. Activate the hydraulic pump and apply enough pressure to depress the flange about ¾" to 1" (19-25 mm). While applying pressure, the operator should always stand to the side of the tool and hold it with one hand. If the tool slips off, it can fly and cause injury, so proceed with caution. (Photo No. 5)

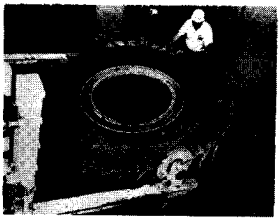


Photo No. 1

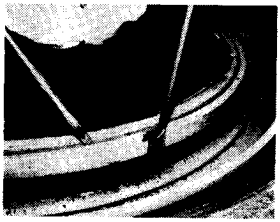


Photo No. 2

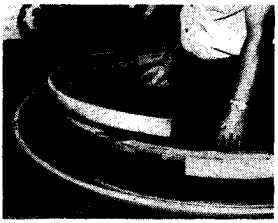
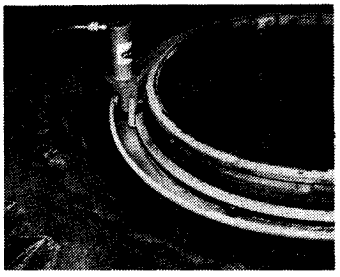


Photo No. 3

Photo No. 4

Photo No. 5



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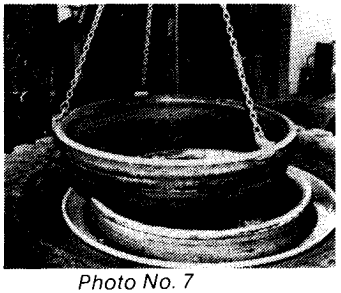


Photo No. 7

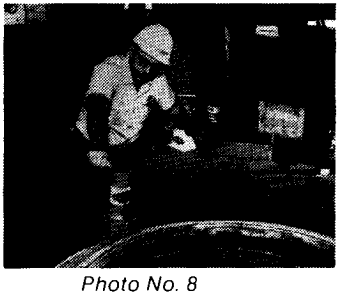


Photo No. 8

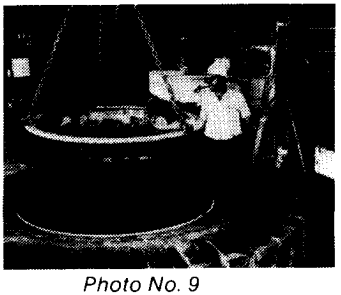


Photo No. 9

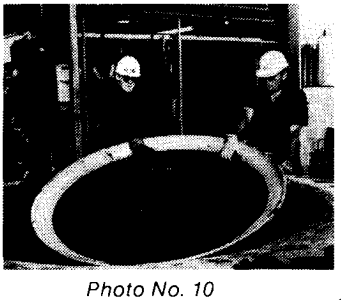


Photo No. 10

6. If necessary, release the pressure and readjust the ram adjusting screw. While the flange is depressed, place a nut or similar object between the flange and the lip of the bead seat band.

WARNING: Do not put fingers under bead seat band. Lay object on the rim flange and slide it into position with a screwdriver. (Photo No. 6)

7. Release the pressure and move the TO-2000 approximately 2-3 feet (60-90 cm) around the rim for the second bite. Continue the procedure until about ¾ of the way around the rim; then apply pressure until the tire bead is completely unseated. Avoid usin the tool within 12" (25 mm) of th flange butt weld. (Photo No. 6)

8. Lift out the bead seat band using a hoist or pry bars; then remove the front flange. (NOTE: When using a cable or chain sling, stand clear; it might snap and lash out.) (Photo No. 7)

9. Turn assembly over using a hoist or Goodyear tire handler; then repeat tire bead unseating procedure on the back side. (Photo No. 8)

10. Lift rim base from tire using a hoist and remove back flange. (Photo Nos. 9 & 10)

DEMOUNTING TUBE-TYPE OFF-THE-HIGHWAY TIRES

CAUTION: Read Safety Instructions before proceeding.

Same procedure as for tubeless except for the following:

1. Always completely deflate tire (both tires of a dual assembly) by removing valve core(s) from valve(s) before attempting **any** demounting operation. Check the valve stem by running a piece of wire through the stem to make sure it is not plugged.

2. Before working the tire off the rim, make certain that valve will clear the flutter section.

3. Remove flap from tire, using a tool with a rounded end to pry out and away from the beads. On some types of tires it may be necessary to use a tire spreader or a small auto jack to spread the beads and assist in removing the flap.

4. Remove the tube in a similar manner, being careful not to pull on the valve stem or to enlarge any injuries.

DEMOUNTING 15° DROP CENTER TIRES

Several different types of machines are currently available for demounting 15° drop center tires. It is suggested that appropriate manufacturers be contacted for detailed instructions.

VERTICAL DEMOUNTING TIRES ON A MACHINE

Photo No. 1

Photo No. 2

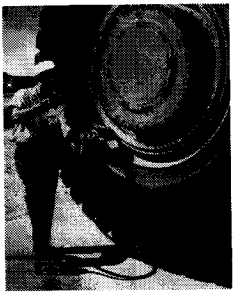


Photo No. 3

Photo No. 4

CAUTION: Read safety instructions (Pgs. 24-27) before proceeding.

Tools Required: TO-1600 and TO-376.

NOTE: First, block tire and wheel on the other side of the vehicle before you place the jack in position; always crib up the vehicle with blocks just in case the jack may slip. Regardless of how hard or firm the ground appears, put hardwood blocks under the jack.

1. Before making any attempt at demounting, be sure that the tire and rim assembly has been completely deflated (deflate both tires if a du mounting). Always remove valve co and check to insure clear passage through stem. Remove driving key if present. (Photo No. 1)

2. Place the hook of the TO-1600 hydraulic demounting tool into one of the pry bar pockets. A continuous lip is provided on some bases. Adjust the ram adjusting screw to enable the tool to be perpendicular to the wheel when under pressure. (Photo No. 2)

3. **Always** stand to one side of the tool and hold it with one hand as shown. If tool slips off, it can fly and cause injury. Apply pressure and depress the flange about ¾" (19 mm). If necessary, release the pressure to readjust the tool. Place the end of a TO-376 tool between the flange and the lip of the bead seat band and release the pressure. Now place the hook of the TO-1600 under the lip of the bead seat band and continue the procedure around the rim; then slowly apply pressure until the tire bead is COMPLETELY unseated. (NOTE: This operation is simplified by using the TO-9 foot operated Hydraulic Pump.) (Photo No. 3)

4. Remove the lock ring with a p bar, starting near the split and work ing around the ring. (Photo No. 4)

5. Insert the tip of a TO-376 tool under the "O" ring and pull it from the groove. It is good practice to cut "O" ring with a knife to insure that a new "O" ring will be used. (Photo No. 5)

6. Use a TO-376 tool under the flange to pry the bead seat band loose. Support the band on your thigh, then, with assistance, carefully lower it to the ground and roll it out of the way. This procedure will protect your back and toes. (Photo No. 6)

7. With assistance, remove the flange by supporting it on your thigh, then carefully lower it to the ground and roll it out of the way. (Photo No. 7)

To UNSEAT the back tire bead, use either the TO-1600 as used on the front bead or a shorty ram between the frame of the vehicle and the back flange, as shown. (Photo No. 8)

9. Remove the tire using a boom truck and sling* or a tire handler. Remove the back flange to complete the disassembly. (Photo No. 9)

*When using a cable or chain sling, stand clear; it might snap and lash out.

Photo No. 5

Photo No. 6

Photo No. 7

Photo No. 8

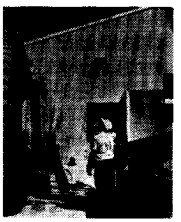


Photo No. 9

Photo No. 1

Photo No. 2

Photo No. 3

Photo No. 4

VERTICAL DEMOUNTING TIRES FROM SMALL SIZE EM RIMS

CAUTION: Read safety instructions (Pgs. 24-27) before proceeding.

TOOL REQUIRED: TO-100.

NOTE: First, block tire and wheel on the other side of the vehicle before you place the jack in position; always crib up the vehicle with blocks just in case the jack may slip. Regardless of how hard or firm the ground appears, put hardwood blocks under the jack.

Before making any attempt at demounting, be sure that the tire and rim assembly has been completely deflated (deflate both tires if a dual mounting). Always remove valve core and check to insure clear passage through stem. Remove driving key if present.

1. Attach the TO-100 frame assembly to the outer rim flange by slipping the clamping jaws over the outer edge of the flange. (Photo No. 1)

2. Securely tighten adjusting screws at bottom of jaws. Set hand screw against lock ring and adjust until jaw assembly is in a right angle position to the plane of the flange. (Photo No. 2)

3. With spade tip down and ram in retracted position, insert spade and ram assembly between open sides of frame. Place spade tip between tire bead and rim flange. (Photo No. 3)

4. Lift ram until trunion engages frame shoulder and move stop screw into support ram. **Standing off to one side,** apply pressure to ram and spade by means of pump until spade has moved tire bead toward center of rim assembly far enough to permit the placing of a bead wedge between tire bead and flange on each side of the tool. (Photo No. 4)

5. Release pump pressure. Remove spade and ram assembly from frame. Loosen clamping jaw bolts and remove from flange.

6. Move to spot approximately 90 degrees from first application (either direction) and repeat entire procedure. Repeat procedure until tire bead is free. Four to five applications usually accomplishes this.

Mounting Instructions for Goodyear Type T - TD - TL - TLD - TG - TGD -TGF Rims (Graders)

CAUTION: Read safety instruction (Pgs. 24-27) before proceeding.
NOTE: Install valve spud on rim and tighten to proper torque. Make sure parts are clean, repainted if necessary, and have been inspected for damage and cracks before proceeding with mounting.

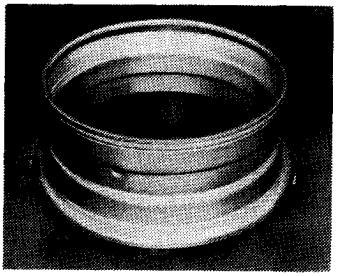


Photo No. 1

1. Place rim base on block with flange side down. Place tire over rim base. Tire beads and bead seat areas of rim should be lubricated with an approved rubber lubricant or vegetable oil soap. (Photo No. 1)

2. Place side flange over rim base and push straight down with hands as far as possible. Make sure flange does not bind on rim base. (Photo No. 2)

Photo No. 2

3. Stand on side flange to position it below both grooves in the rim base and snap lock ring into lock ring (upper) groove. Be certain the embossed "safety bulge" on the lock ring is up toward the operator. (Photo No. 3)

Photo No. 3

4. Lubricate a new rubber "O" ring. Place "O" ring in groove on one side and stretch "O" ring snapping it into place rather than rolling it into place. Then lubricate the entire "O" ring groove area with an approved vegetable-based lubricant. (NOTE: It may be necessary to hold the side flange down with the end of the TO-799 tool in order to expose the "O" ring groove.) (Photo No. 4)

Photo No. 4

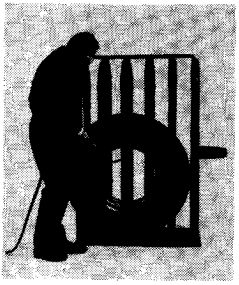


Photo No. 5

5. Check components (lock rings, bead seat & flanges) to make sure that parts are correctly assembled. (NOTE: Lock rings should be fully seated in gutter around the circumference.) Insert drive lug as required. Place rim and tire in a safety cage or use safety chains during tire inflation. Inflate to approx. 3 PSI (.25 bar) and again check for proper engagement of all components. If assembly is okay, continue to inflate to recommended pressure. If assembly is incorrect — STOP — DEFLATE — CORRECT THE ASSEMBLY — AND REPEAT PROCEDURE.

(Photo No. 5)

6. Inflate grader tires to 50 PSI (3.5 bar). Then adjust to recommended operating pressure. NOTE: For ballasted tires (liquid or dry filled) tires must first be seated with air as described. Then air should be exhausted from the tire and ballasting procedure followed as directed on pages 45-47.

Photo No. 1

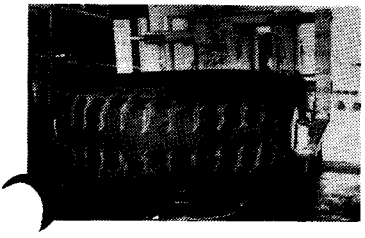


Photo No. 2

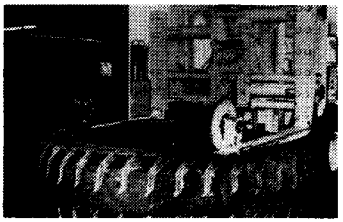


Photo No. 3

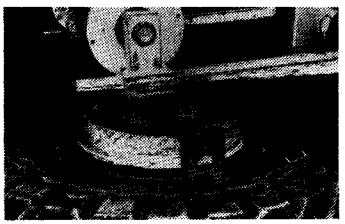


Photo No. 4

Photo No. 5

MOUNTING BIAS OFF-THE-ROAD TIRES ON EM RIMS

CAUTION: Read safety instructions (Pgs. 24-27) before proceeding.

1. Before mounting, always clean all rim components, removing rust and dirt, especially from the lock ring groove and O-ring groove to insure proper seating and seal. Inspect parts for damage. **Replace** all cracked, badly worn, damaged and severely rusted components; paint or coat all parts with a rust inhibitor. Double check to be sure correct parts are being assembled. Also inspect the tire for foreign matter. (Photo No. 1)

2. Place base on blocks (4" to 6" (10-13 cm) high) on floor, gutter side up. Place back flange on rim base, lubricate tire beads with vegetable lubricant. Place tire on rim using Goodyear tire handler or hoist with sling. (NOTE: When using a cable or chain sling, stand clear; it might snap and lash out.) (Photo No. 2)

3. For ease of assembly, depress the tire in the bead area. (Photo No. 3)

4. Place the front flange over the rim base on the tire. (Photo No. 4)

5. Place the bead seat band on the rim base. Be sure driver pockets in bead seat band and base are in line if present. Due to limited clearance between bead seat and rim base, bead seat band will bind if cocked slightly. Band should slide freely over base. If it becomes wedged due to cocking — DO NOT HAMMER BEAD SEAT BAND INTO PLACE! If necessary, lift, or use a rubber, lead, plastic or brass-faced mallet to tap, lightly upward on the bead seat band in order to get it to seat properly. (Photo Nos. 5 & 6)

6. Place a new, lubricated "O" ring into the "O" ring groove, then lubricate the entire "O" ring groove area with an approved vegetable-based lubricant. Snap "O" ring into place by placing in groove on one side, stretching like a rubber band and seating on opposite side. (Photo Nos. 7 & 8)

7. Start the lock ring in the lock ring groove and push or walk it into place. (Photo No. 9)

8. Insert drive key as required in pockets. Place rim and tire in safety cage or use some other approved restraining device during inflation. Always stand to the side of the rim during inflation. When the tire has been inflated to 3 psi (.25 bar), check and make sure all components are properly seated all around rim. If assembly okay continue to inflate per tire manufacturers recommendations for seating tire beads.* Then adjust to recommended operating pressure. CAUTION: Do not exceed 75 psi (5.25 bar) for 16 ply rating or less (Photo No. 10)

*For Goodyear tires less than 29" diameter, inflate to 75 psi (5.25 bar) for 29" diameter and larger, inflate to 90 psi (6.25 bar).

NOTE: A filter on the air inflation equipment to remove moisture from the air line prevents a lot of corrosion. Check the filter periodically to be sure it's functioning properly.

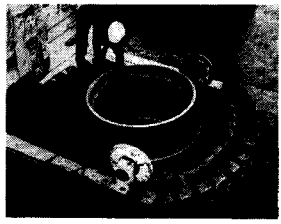


Photo No. 6

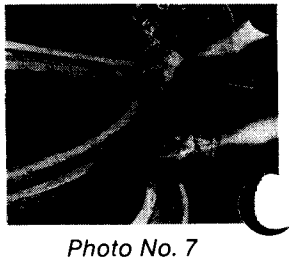


Photo No. 7

Photo No. 8

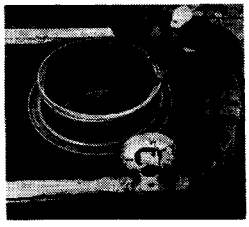


Photo No. 9

Photo No. 10

MOUNTING RADIAL OFF-THE-ROAD TIRES ON EM RIMS

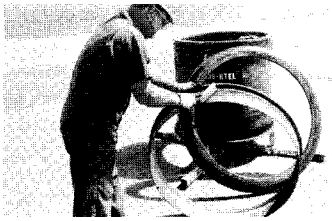


Photo No. 1

Photo No. 2

Photo No. 3

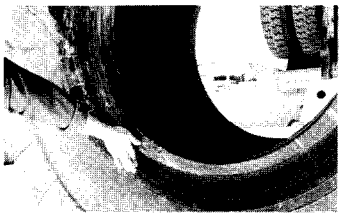


Photo No. 4

Photo No. 5

1. Rim Preparation. Wire brush bead seat bases, flanges, O-ring groove, including mating surfaces of bead seat band. This is to assure that no foreign material (dirt and rust) or metal burrs are present which would prevent proper tire bead seating or air seal. (Photo's No. 1 and No. 2). Repaint any bare metal to prevent rim corrosion. (Photo No. 3).

2. Lubrication (Note: Without lubricant, tire beads will not seat). Lubricate tire bead area from bead toe to lower sidewall circumferential mold line (approximately 5" above bead base) located just above top of rim flange after mounting. (Refer to pages 10 and 11).) Lubricate rim on bead seat areas of base and bead seat band, O-ring, and seat band. Use approved vegetable base, water soluble lubricant (i.e. Murphy's Tire Mounting Compound) full strength - do not dilute. This lubricant should be moderately, but thoroughly, applied to all areas indicated above. (Photo's No. 4 and No. 5).

3. Mount tire (90 psi required to seat beads). (Refer to pages 9 and 10). Install on rim base, the inside flange, the tire, outside flange, bead seat band, O-ring, and lock ring. (Photo's No. 6 and No. 7). After assembled, check to insure that all components are correctly installed. (Photo No. 8). Place the assembly in a safety cage or use another restraining device. Stand away from the tire during inflation. Always use an inflation hose equipped with a clip-on chuck, an in-line gauge and a control valve. (Photo No. 9).

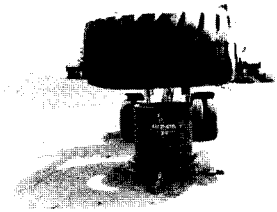


Photo No. 6

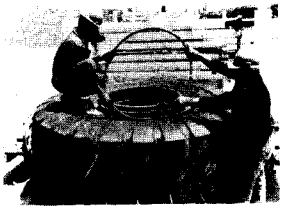


Photo No. 7

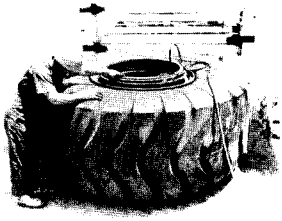


Photo No. 8

Photo No. 9

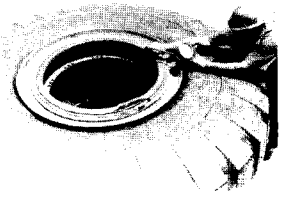


Photo No. 10

4. Inflate tire to 3 psi and recheck proper engagement of all rim components. If assembly appears to be wrong — stop — deflate — correct — repeat above procedure. (Photo No. 8).

To seat beads, inflate radial earthmover tires as follows:

25" rim diameter and larger — 90 psi

Leave at this pressure for 30 minute — then adjust to operating pressure.

NOTE: If operating pressure is above 90 psi tire can be inflated to this pressure to seat beads.

Do not run tire until pressure has been adjusted to recommended operating pressure. (Photo No. 10).

5. If the tire is to be inflated vertically, the tire tread and rim should be supported while inflating to avoid excessive bead to rim eccentricity. When the tire is to be inflated horizontally the rim must be supported above ground level to allow the bottom bead to pilot (self-center) onto bead seat taper.

In either case, if the tire to rim is off center, bead seating will **not** be obtained.

6. All service personnel must be familiar with the applicable government safety standards regarding servicing of multipiece rim assemblies and comply with the safe practices contained there within.

MOUNTING TUBE-TYPE OFF-THE-HIGHWAY TIRES

CAUTION: Read Safety Instructions before proceeding.

Same procedure as for tubeless except for the following:

1. Before replacing tube in tire, inspect the tire casing carefully, inside and out, for breaks, bruises, nails, etc. Remove all dirt and foreign matter from inside the tire casing.

2. Replace tube in casing, starting at the bottom and working around the tire. Adding air as the tube is being worked in will help hold it in place and eliminate the possibility of wrinkles.

3. Insert flap in casing — make sure it is properly centered and free from wrinkles. Rotate the tire as the flap is worked in so the portion being inserted is at the bottom of the tire. A dry lubricant, such as soapstone, may be used to lubricate flap and tube. In some cases, it may be necessary to spread the beads, using a spreader or car jack. Lubricate beads with approved rubber lubricant.

4. Place tire & rim in a safety cage and inflate tire to approximately 75 psi (5.25 bar) pressure (Grader, 50 psi (3.5 bar)). Then completely deflate to remove buckles and uneven stresses from the tube and flap before reinflating to correct operating pressure. This double inflation is necessary to prevent premature tube failures.

MOUNTING 15° DROP CENTER TIRES

Several different type of machines are currently available for mounting 15° drop center tires. It is suggested that appropriate manufacturers be contacted for detailed instructions.

MOUNTING TIRES ON A MACHINE

CAUTION: Read safety instructions (Pgs. 24-27) before proceeding.

1. Clean and inspect all rim components for fatigue cracks, especially the lock ring groove and "O" ring groove areas in the rim base. Replace all cracked, badly worn, damaged and severely rusted components. Coat the rim and components with paint or a rust inhibitor. Also check the tire for water or foreign matter.
2. Place the back flange on the rim base, lubricate the tire beads with a vegetable base lubricant, and position the tire on the rim base using a boom truck or tire handler. (Photo No. 1)
3. Position the front flange on the rim base with the help of the boom. (Photo No. 2)
4. Place the bead seat band on the rim base with the help of the boom. Be sure driver pocket on bead seat band lines up with pocket on rim base. (Photo No. 3)
5. Using the boom to hold the rim components back out of the way, insert a new, lubricated "O" ring into the "O" ring groove; then lubricate the entire "O" ring groove area with an approved vegetable-base lubricant. Snap "O" ring into place by placing in groove on one side stretching like a rubber band and seating on opposite side. (Photo No. 4)
6. Work the lock ring into the lock ring groove. (Photo No. 5)
7. Check components (lock rings, bead seat and flanges) to make sure that parts are correctly assembled. (NOTE: Lock rings should be fully seated in gutter around the circumference.) Insert drive key as required. Use an approved restraining device during tire inflation. Stand to the side of the tire during inflation. Inflate to approximately 3 psi (.25 bar) and again check for proper engagement of all components. If assembly is okay, continue to inflate to recommended pressure. If assembly is incorrect — STOP — DEFLATE — CORRECT THE ASSEMBLY — AND REPEAT PROCEDURE.

NOTE: A filter on the air inflation equipment to remove moisture from the air line prevents a lot of corrosion. Check the filter periodically to be sure it's functioning properly.

Photo No. 1

Photo No. 2

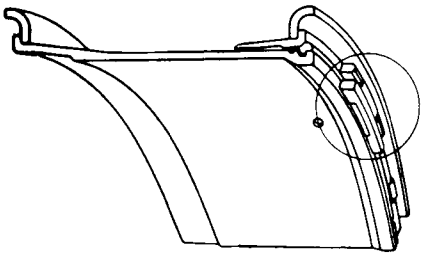
Photo No. 3

Photo No. 4

Photo No. 5

HEAVY DUTY DRIVER APPLICATION

GOODYEAR TYPES
STM, SCM, HTM, HCM,
HTHM, HCHM, HTHL, HCHL,
HTEM, HTEL, HTSM, HTSL



M rims with "M" in the part number are equipped with heavy duty drivers as shown above and as shown in Figs. 25-28 which detail the assembly procedure.

Rim types with "L" in the part number are equipped with a similar driving arrangement (with tapered pocket on rim base) and are assembled in the same manner as shown.

Rim styles STM, SCM, HTM, HCM, HTHM, HCHM, HTHL, HCHL with GY-31C driver (rim style HTH depicted in Fig. 29)

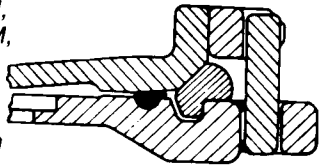


Fig. 29

Rim styles HTEM, HTEL, HTSM, HTSL with extra heavy duty gutter and GY-31E driver Fig. 30

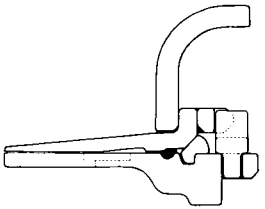


Fig. 30

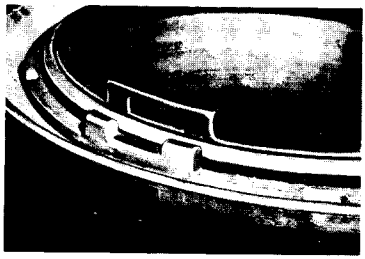


Fig. 25.

Fig. 25. Align driver pockets in bead seat band and base as shown.

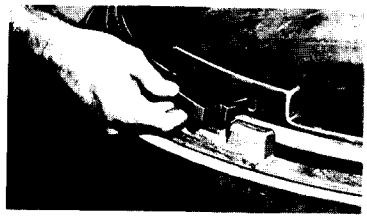


Fig. 26.

Fig. 26. Insert driving slug (GY31C) into driver pocket on base.

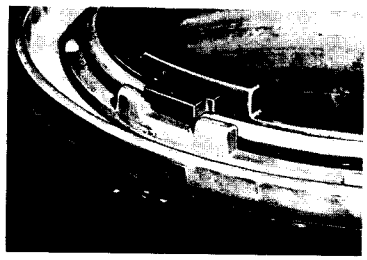


Fig. 27.

Fig. 27. Make certain that all parts are properly aligned before inflation.

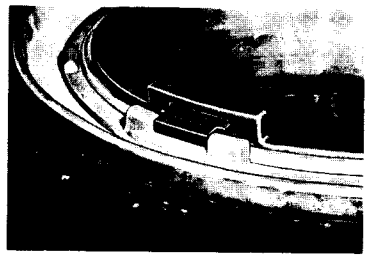


Fig. 28.

Fig. 28. View of final assembly.

SECTION III

REPLACEMENT TIRES AND TECHNICAL INFORMATION

Selection of new tires
Off-the-road tires have four prime requirements:

Strength to carry great loads.
Toughness to resist cuts and bruises
Traction to deliver power
Flotation to stay on top in soft going

All off-the-road tires have these characteristics, but each different type of tire embodies one or more to an outstanding degree.

Selection of the right tire for a piece of equipment requires careful analysis of the type of service to be encountered.

Most Goodyear earthmover tires offered as "standard" are designed for a wide variety of operating conditions. However, some applications require something extra in the way of performance — extra treadwear, extra impact resistance, extra heat resistance, or some other special property.

All Goodyear bias ply constructed earthmover tires — 16.00 and larger have shredded wire undertread as "Standard."

With the new Goodyear Custom Compound/Construction program your Goodyear representative can order for you any combination of compounds and constructions to exactly pinpoint your earthmover tire requirements — in the best tread design and non-skid level from its world-wide factories.

Your Goodyear representative or earthmover tire specialist will be an invaluable aid in helping you to select just the right compound and construction for your operating conditions. He will thoroughly analyze conditions on the work site. He will review the performance of your present tires. He will work with you to determine what properties you will require for better tire performance. Then he will recommend the tread design, compound, and construction for maximum tire efficiency.

Goodyear representatives are listed on the back cover of this booklet.

Tires removed for replacement can often by shifted to machines requiring a different type of service, and will perform satisfactorily for many more hours. For example, high traction tires worn too smooth for efficient service on drive wheels can well be moved to trailing wheels where flotation and easy rolling are the principal requisites. When buying new tires, consider the savings that may thus be achieved.

The following pages cover the off-the-road tires developed to meet the various requirements of off-the-road service. Sizes available in each may be determined from price lists.

THE TMPH FORMULA:

Multiply the average tire load* times the average speed per hour** to determine the Ton-Mile-Per-Hour rating.

*(Average tire load = empty tire load + loaded tire load divided by 2).
**(Average speed = round trip distance in miles x number of trips divided by total hours from start of first shift to end of last shift).

TMPH Job Rate =
Average Tire Load x Average Speed for the Day

Average Tire Load =
"Empty" tire load + "loaded" tire load
2

Average Speed =
Round trip distance in miles x number of trips
Total Hours (from start of 1st shift to end of last shift)

EXAMPLE:
"Empty" vehicle tire load = 20,000 lbs., or 10.0 Tons
"Loaded" vehicle tire load = 34,000 lbs., or 17.0 Tons

The earthmover is worked two 8-hour shifts per day — 8 a.m. to 4:30 p.m., and 6 p.m. to 2:30 a.m. (Include 1½ hours of down time between shifts)

Each shift hauls 15 loads, 4½ miles, each way.

SOLUTION:
10.0 Tons + 17.0 Tons = 13.5 Tons
2
average tire load.

9 miles round trip x 15 trips x 2 shifts
18.5 hours (total hours from start of first shift to end of last shift)
= 14.6 MPH average speed.

JOB RATE (TMPH): 13.5 Tons x 14.6 MPH = 197 Ton miles Per Hour.

CONCLUSION: If the tires now used for this job have a TMPH rating of 197 or higher, there will be no heat problem. If the tires being used have a TMPH rating of less than 197, either the speed or the load, or both, must be reduced — or a tire selected that has a higher TMPH rating.

NOTE: Each tire position on the machine must be considered.

The Ton-Miles-Per-Hour formula (average tire load multiplied by average tire speed), is designed to help you achieve optimum performance from Goodyear earthmover tires. It helps you calculate the load — speed-time factor that's within safe tire temperature limits. Use the TMPH formula to avoid premature tire failure due to excessive heat.

All Goodyear earthmover tires have been assigned a TMPH limit. Earthmover haul jobs operate at various TMPH rates, depending on the load, distance and time involved in round trips. Thus, **each job's** haul rate must be determined to compare it with **each tire's** TMPH rate limit.

Obviously there must be a limit both in load and in haul distance, whereby the TMPH formula would no longer apply. Our tests have shown that vehicles — with tires loaded at 20% above their rated capacity or, used on hauls of more than 20 miles — cannot qualify for TMPH calculations.

For haul lengths in excess of 20 miles one way, consult your Goodyear Representative.

THE TKPH FORMULA:

Multiply the average tire load* times the average speed per hour** to determine the Ton-Kilometer-Per-Hour rating.

*(Average tire load = empty tire load + loaded tire load divided by 2)
**(Average speed = round trip distance in kilometers x number of trips divided by total hours from start of first shift to end of last shift).

TKPH Job Rate =
Average Tire Load x Average Speed for the Day

Average Tire Load =

$$\frac{\text{"Empty" tire load + "loaded" tire load}}{2}$$

$$\frac{\text{Round trip distance in kilometers x number of trips}}{\text{Total Hours (from start of 1st shift to end of last shift)}}$$

EXAMPLE:
"Empty" vehicle tire load = 9000 Kilos = or 9.0 metric tons
"Loaded" vehicle tire load = 15000 Kilos = or 15.0 metric tons
The earthmover is worked two 8-hour shifts per day — 8 a.m. to 4:30 p.m., and 6 p.m. to 2:30 a.m. (Include 1½ hours of down time between shifts) Each shift hauls 15 loads, 7 kilometers, each day.

SOLUTION:

$$\frac{\text{9.0 M Tons + 15.0 M Tons = 12.0 metric tons}}{2}$$

average tire load.

$$\frac{\textit{14 kilometers round trip x 15 trips x 2 shifts}}{\text{18.5 hours (total hours from start of first shift to end of last shift)}}$$

= 22.7 KPH average speed.

JOB RATE (TKPH): 12.0 Metric Tons x 22.7 KPH = **272 Metric Ton Kilometer Per Hour.**

CONCLUSION:
If the tires now used for this job have a TKPH rating of 272 or higher, there will be no heat problem. If the tires being used have a TKPH rating of less than 272, either the speed or the load, or both, must be reduced — or a tire selected that has a higher TKPH rating.

NOTE:
Each tire position on the vehicle must be considered.

The Metric Ton-Kilometer-Per-Hour formula (average tire load multiplied by average tire speed), is designed to help you achieve optimum performance from Goodyear earthmover tires. It helps you calculate the load — speed-time factor that's within safe tire temperature limits. Use the TKP formula to avoid premature tire failu due to excessive heat.

All Goodyear earthmover tires have been assigned a TKPH limit. Earthmover haul jobs operate at various TKPH rates, depending on the load, distance and time involved in round trips. Thus, **each job's** haul rate must be determined to compare it with **each tire's** TKPH rate limit.

Obviously there must be a limit both in load and in haul distance, whereby the TKPH formula would no longer apply. Our tests have shown that vehicles — with tires loaded at 20% above their rated capacity or, used on hauls of more than 32 kilometers — cannot qualify for TKPH calculations.

For haul lengths in excess of 32 kilometers one way, consult your Goodyear Representative.

THE WCF FORMULA:

Multiply the average tire load* times the Max. Average Speed Per Hour** to determine the Work Capability Factor Rating.

*(Average Tire Load = empty tire load + loaded tire load divided by 2)
**(Maximum Average Speed = round trip distance in miles x maximum number of cycles per hour of continuous "Load & Carry" operation.)

Goodyear Dozer and Loader tires are designed for use in "Dig and Load" service and selected on a Tire & Rim Association 5 MPH (8 KPH) maximum speed basis. Tire heat build-up in this type of operation is not a factor.

With the advent of new earthmover operational techniques, loaders are increasingly being used as transport machines. When a loader is used to haul material distances greater than 50 feet (15 meters), the operation is classified as "Load and Carry". Since this type of service will involve speeds above 5 MPH (8 KPH) for considerable distances, tire heat build-up must be taken into consideration to insure optimum tire performance.

As with all earthmover tires used in transport service, tire heat buildup is a function of the amount of work the tire is doing.

HEAT IS A TIRE'S WORST ENEMY — the increased thickness and higher load carrying requirements of Dozer and Loader tires necessitates the use of a tire limitation system — the WORK CAPABILITY FACTOR SYSTEM.

The Work Capability Factor rating system provides the guidelines to select the correct Goodyear tire for the job requirement. Years of controlled testing and field studies have culminated in a valid and practical means of establishing capabilities of Dozer and Loader tires when used in "Load and Carry" Service.

The factors of Load and Speed have long been used for evaluating the limitations of transport tires. For tires used in transport service on loaders, additional factors such as more stops, starts and turning must be considered. These additional operational factors produce higher stresses on the tire components, resulting in increased tire heat build-up.

On one way haul lengths of less than 500 feet (150 meters), there is significantly higher tire heat build-up than on haul lengths in excess of 500 feet (150 meters) (run at the same average speed and load). For this reason, separate WCF tables are used for haul lengths 0-500 feet (0-150 meters) and 500-2,000 feet (150-600 meters).

The formula is figured by multiplying the AVERAGE ton load PER TIRE and the MAXIMUM AVERAGE speed of the machine PER HOUR.

Here's an example:
First, determine the AVERAGE TIRE LOAD for each tire by adding the empty tire load to the load, and dividing by 2.

NOTE: Average front tire loads are always greater for front end loaders than average rear tire loads. Use the highest front tire average load for the WCF calculation. Equipment specifications, or better yet, actual weights may be used.

15.0 tons Empty + 30.0 tons loaded =	14.0 metric tons empty + 28.0 tons loaded =
2	2
22.5 TONS AVG. LOAD	**21 METRIC TONS AVG. LOAD**

Then, determine the MAXIMUM AVERAGE machine speed: To find this figure, compute the round trip distance in miles, and multiply that number by the maximum number of cycles per hour of CONTINUOUS "Load and Carry" operations. Short periods of vehicle downtime should not be included in the average speed calculation due to the relatively slow static cooling rate of D & L tires.

400 feet one way = 800 feet round trip = .152 Mile per cycle

$$.15 \frac{\text{Miles}}{\text{Cycle}} X\ 35 \frac{\text{Cycles}}{\text{Hour}}$$

= 5.32 MPH (Max. Avg.)

125 meters one way = 250 meters round trip = 25 KM/Cycle

$$\frac{.25\ \text{Kilometers}}{\text{Cycle}} X\ 35 \frac{\text{Cycles}}{\text{Hour}}$$

= 8.75 KPH (Max. Avg.)

Now you have both the Average Tire Load for this job and the Maximum Average machine speed.

To find the Work Capability Factor rating required for this job, multiply these two numbers:

22.5 tons x 5.32 mph = 119.7 WCF (21 metric tons x 8.75 kph = 183.75 WCF)

To find the right tire for the job consult the published Work Capability Factors for haul lengths of less than 500 feet (150 meters) one way that have been established for each size and type of Goodyear Dozer and Loader tire, and select the tire whose WCF rate meets or exceeds the Job WCF requirement. If you have a multiple choice of tires whose WCF rate is more than the job requires, always select the tire with the lowest rate which will meet the requirement. In this way you will have the optimum tire — that is, the best tire for wear and durability, as well as being adequate for heat resistance.

The Work Capability Factor requirement figure may be predetermined for any "Load and Carry" job involving Dozer and Loader tires by using this formula. If the job requires a higher WCF rating than that of the tires you are now using, you should either (a) replace the tires with higher rated types, or (b) reduce either speed or load factors to bring the WCF rating within acceptable limits for the tires.

Obviously there must be a limit b[illegible] in load and in haul distance, whereby the WCF formula would no longer apply. Vehicles with tires loaded at 15% above their rated capacity or used on hauls of more than 2000 feet (610 meters) one way cannot qualify for WCF calculations.

For haul lengths in excess of 2000 feet (610 meters) one way, consult Goodyear Development Department, Akron, Ohio.

The WCF Formula helps you select the right Dozer and Loader tires for the job — before you buy. It's another customer service of Goodyear, producers of the industry's Work Capability Factor rated Dozer and Loader tires.

Example of WCF Application — for established jobsite planning a "Load & Carry" operation.

1. Conditions: Front Tire Loads —
   Empty = 30,000#
   Loaded = 60,000#
   Avg. = 22.5 tons
   One Way Haul Lengths = 400 feet
2. Tire on Loader: 33.25-35 (L-5)
   WCF = 115
3. Determination of Maximum Allowable Average Speed:
   $$\frac{115 \text{ WCF}}{22.5 \text{ tons}} = 5.11 \text{ MPH}$$
4. Determination of Maximum Number of Cycles per Hour:
   $$5.11 \text{ MPH} = \frac{\text{Cycles}}{\text{Hour}} \times 800 \frac{\text{Feet}}{\text{Cycle}} \times 1 \text{ MILE} \frac{\text{Mile}}{5280 \text{ feet}}$$
   $$\frac{\text{Cycles}}{\text{Hour}} = \frac{5.11 \text{ MPH} \times 5280 \text{ Feet/Mi}}{800 \text{ feet/cycle}}$$
   = 33.7 Cycles/Hour Maximum

Example of WCF Application (metric).

1. Conditions: Front Tire Loads —
   Empty = 14,000 Kilograms
   Loaded = 28,000 Kilograms
   Avg. = 21.0 metric tons
   One Way Haul Length = 125 meters
2. Tire on Loader: 33.25-35 (L-5)
   WCF = 168
3. Determination of Maximum Allowable Average Speed:
   $$\frac{168 \text{ metric WCF}}{21.0 \text{ metric tons}} = 8.00 \text{ KPH}$$
4. Determination of Maximum Number of Cycles per Hour:
   $$8.0 \text{ MKH} = \frac{\text{Cycles}}{\text{Hour}} \times 250 \frac{\text{Meters}}{\text{Cycle}} \times 1 \frac{\text{Kilometer}}{1000 \text{ Meters}}$$
   $$\frac{\text{Cycles}}{\text{Hour}} = \frac{8.0 \text{ Km/Hour} \times 1000 \text{ M/Km}}{250 \text{ M/Cycle}}$$
   = 32.0 Cycles/Hour Maxmum

BALLASTED TIRES

It has been shown that by increasing the axle load of a machine of sufficient power, the tractive ability is also increased.

NOTE: Before adding ballast, tubeless tires must be air inflated as follows: grader tires inflate to 50 PSI (3.50 Bar). . . 35 inch rim diameter and smaller to 75 PSI (5.25 Bar) . . . larger than 35 inch diameter inflate to 90 PSI (6.25 Bar). (This must be done to seat beads properly and prevent possible tire slip on the rim). Tires must then be deflated and ballasted as described.

Liquid Filled Tires

For load carrying vehicles such as tractors, motor graders, bulldozers, a simple method of adding weight to the drive wheels consists of partial liquid filling instead of air inflating the tires. This method of replacing contained air 75% with a solution of calcium chloride and water is recommended for the tires. Calcium chloride is chosen for several reasons: The additional weight (up to 50%) that can be gained over the weight of plain water is advantageous from the traction standpoint; it is not harmful to rubber, and it is plentiful low-cost compound for anti-freeze use.

The present opinion in regard to liquid filling tires used on load carrying machines is that 100% filling should not be recommended for general use, as variations in pressure which would occur with large variations in load may cause internal pressure rise and stresses too great for safety and satisfactory tire service.

Tubes to be used in calcium chloride solution filled tires are equipped with special sealed-in base valves which prevent separation of the rubber valve base and the valve metal.

When solution filled tire pressures are checked a special corrosion proof gauge should be used. The valve should always be in the highest position, otherwise variations in pressure will be noted due to differences in the height of the static head.

Liquid filling is also recommended for use with tubeless earthmover tires. Corrosion of tubeless rims is not a problem.

The advantages of calcium chloride solution filling are: improved traction, increased drawbar pull, less slippage and tread wear, less bounce, and less fuel consumption, in addition to smaller need for reinflation due to pressure loss, as the solution will not seep thru the tube, as will air.

The table on the following page and the data below, will be helpful in determining the amount of solution needed and the gain in weight it will afford. The table is based on actual measured volumes of tires mounted on recommended rims and at recommended pressures. The formula for finding the quantity of water and calcium chloride needed for any tire, if the volume is known is:

$$\frac{\text{¾ Vol. in Cu. In.}}{269.6} = \text{Gal. of water needed. (Multiply by 8.3 Lbs. for weight)}$$

Gal. of water x 3.5 lbs. = Weight in pounds of calcium chloride needed.

This 3.5 pounds per gallon (.42 kg per liter) of water will provide protection against freezing to a temperature of -30° F (-34° C) — the table below will show other amounts of calcium chloride and to what temperature protection against freezing will be provided. Also shown is the specific gravity which may be read on a standard battery hydrometer.

Sp. Gravity at 62° F.	Lbs. $CaCl_2$ per Gal. H_2O	Freezes Below °F
1.000	0.0	+32
1.050	0.7	+21
1.100	1.5	+7
1.150	2.3	-10
1.218	3.5	-30
1.250	4.2	-42

Sp. Gravity at 18° C.	Kg. $CaCl_2$ per Liter H_2O	Freezes Below °C
1.000	0.00	0
1.050	.08	-6
1.100	.18	-14
1.150	.28	-23
1.218	.42	-34
1.250	.50	-41

LIQUID BALLAST TABLES

Tire Size	PR	Type Tire	Required $CaCl_2$@ 75% Fill		Dissolve in H_2O		Total/Wt. Increase	
			3.5 Lbs./Gal.	.42 Kg Per Liter	Gals.	Liters	Pounds	Kg
1200-24	6	GRDR SG	105	47.5	30.0	113.5	356	161.0
1300-24	12	GRDR SG	116	52.5	33.2	125.5	393	178.0
1400-20	12	EM SG	139	63.0	39.8	150.5	472	213.5
1400-24	10	GRDR SG	134	61.0	38.3	145.0	455	206.0
1600-20-21	16	EM AWT	203	92.0	57.9	219.0	686	311.0
1600-24	12	GRDR SG	207	94.0	59.2	224.0	701	318.0
1800-25	20	EM SG	296	134.5	84.6	320.0	1002	456.5
2100-25	24	EM SG	400	182.0	114.4	433.0	1355	615.0
2400-25	28	EM SG	516	234.5	147.4	558.0	1746	792.5
3000-51	50	HRL8	1319	590.5	371.6	1406.5	4462	1997.0
4000-57	60	HRL8	2823	1282.0	806.5	3053.0	9553	4335.0
15.5-25	12	SHRL	133	60.5	37.9	143.5	449	204.0
	12	SGL	125	56.5	35.7	135.0	423	191.5
17.5-25	12	SGL	175	79.5	49.9	189.0	591	268.
	12	SHRL	183	83.0	52.3	198.0	620	281.
20.5-25	20	SGL	280	127.5	80.0	303.0	948	430.5
	12	SHRL	268	122.0	76.6	290.0	908	412.0
	12	SXT	261	118.5	74.6	282.5	883	401.0
23.5-25	24	SGL	382	173.5	109.0	412.5	1291	586.0
	24	SHRL	380	172.5	108.6	411.0	1286	583.5
	20	SHRL XT	384	174.5	109.8	415.5	1300	590.0
	20	SXT	315	143.0	90.0	340.5	1066	483.5
26.5-25	26	SGL	494	224.5	141.1	534.0	1671	758.0
	24	SHRL	494	224.5	141.1	534.0	1671	758.0
	24	SHRL XT	469	213.0	134.1	507.5	1589	720.5
	20	SXT	487	221.0	139.0	526.0	1647	747.0
26.5-29	26	SGL	528	240.0	150.9	571.0	1787	811.0
	22	SHRL	490	222.5	139.9	529.5	1658	752.0
	22	SHRL XT	508	231.0	145.2	549.5	1720	780.0
29.5-25	22	SGL	645	293.0	184.2	697.5	2182	990.5
	28	SHRL	632	287.0	180.6	683.5	2139	970.5
	28	SHRL XT	630	286.5	180.1	682.0	2133	968.5
29.5-29	28	SGL	702	319.0	200.7	759.5	2377	1078.5
	34	SHRL	589	267.5	168.2	636.5	1992	904.0
	22	SHRL XT	718	326.5	205.2	777.0	2430	1103.5
	28	SXT	550	249.5	157.0	594.5	1860	844.0
29.5-35	28	SGL	738	335.5	211.0	798.5	2499	1134.0
	34	SHRL	731	332.0	208.9	791.0	2474	1123.0
33.25-29	26	SHRL8	756	343.5	216.1	818.0	2904	1161.5
	32	SHRL8	710	322.5	202.9	768.0	2559	1090.5
33.25-35	38	SGL	931	423.0	266.1	1007.5	3152	1430.5
	38	SHRL8	983	446.5	280.9	1063.5	3327	1510.0
	26	SHRL XT	913	414.5	260.8	987.0	3069	1401.5
	32	SXT	857	389.5	245.0	927.5	2901	1317.0
37.25-35	30	SHRL8	1194	542.0	341.1	1291.0	3791	1833.0
37.25-35	30	SHRL XT	1206	548.5	344.9	1305.5	4086	1854.0
	30	SXT	1115	506.5	318.5	1205.5	3773	1712.0
33.5-33	32	SGL	994	451.5	284.0	1075.0	3364	1526.5
	38	SHRL8	982	446.0	280.5	1062.0	3323	1508.0
	38	SHRL XT	938	426.0	267.9	1014.0	3173	1440.0
33.5-39	32	SHRL8	1071	486.5	306.1	1158.5	3626	1645.0
37.5-33	36	SGL	1341	609.0	383.2	1450.5	4539	2059
	42	SHRL	1187	539.0	339.0	1283.0	4016	1822
37.5-39	44	SHRL	1428	648.5	408.0	1544.5	4833	2193.0
	36	SXT	1283	583.0	366.7	1388.0	4343	1971.0
	52	SHRL8	1437	652.5	410.5	1554.0	4862	2206.5

LIQUID BALLAST TABLES

Tire Size	PR	Type Tire	Required $CaCl_2$@ 75% Fill		Dissolve in H_2O		Total/Wt. Increase	
			3.5 Lbs./Gal.	.42 Kg Per Liter	Gals.	Liters	Pounds	Kg
37.5-51	44	SXT	1332	605.0	380.5	1440.5	4508	2045.5
	44	SHRL8	1737	789.0	496.3	1878.5	5879	2667.5
43.5-43	40	SHRL8	2168	985.0	619.5	2345.0	7338	4330.0
30/65-29	16	SXT	546	248.0	156.0	590.5	1841	838.5
	24	SXT	499	203.5	128.0	484.5	1515	688.0
35/65-33	24	NYST XT	873	396.5	249.3	943.5	2951	1340.0
	24	NYST SXT	753	342.0	215.1	814.0	2548	1156.0
38-39	30	NYST XT	1218	633.0	398.1	1507.0	4123	2140.0
	30	NYST SXT	1116	507.0	318.8	1207.0	3776	1714.0
40/65-39	30	NYST XT	1353	615.0	386.7	1464.0	4580	2079.0
	30	NYST SXT	1200	545.0	342.9	1298.0	4061	1843.0
45/65-45	34	NYST SXT	1754	798.0	501.9	1900.0	5944	2698.0
50/65-51	38	NYST SXT	2222	1009.0	634.7	2402.5	7518	3411.0
67-51	54	NYST SXT	4046	1838.0	1156.0	4376.0	13693	6214.0
41.25/70-39	36	NYST SXT	1142	655.0	412.0	1559.5	4854	2214.5

SHREDDED WIRE UNDERTREAD TIRES

STANDARD CONSTRUCTION IN:
Hard Rock Lug — Sizes 14.00 and larger
Hard Rock Rib — Sizes 14.00 and larger
Sure Grip Lug — Sizes 26.5-25 and larger
Super Hard Rock Lug — Sizes 20.5 and larger (Wide Base)
Sure Grip — Sizes 18.00 and larger
Other Sizes available on Special Orders

SHREDDED WIRE UNDERTREAD
The combination of steel filaments dispersed in extra-tough rubber (as shown in cutaway above) combines the cut-resistance of steel and the flexibility of rubber. Forms a rugged barrier against cutting and puncturing objects while guarding against tire separation and cut growth.

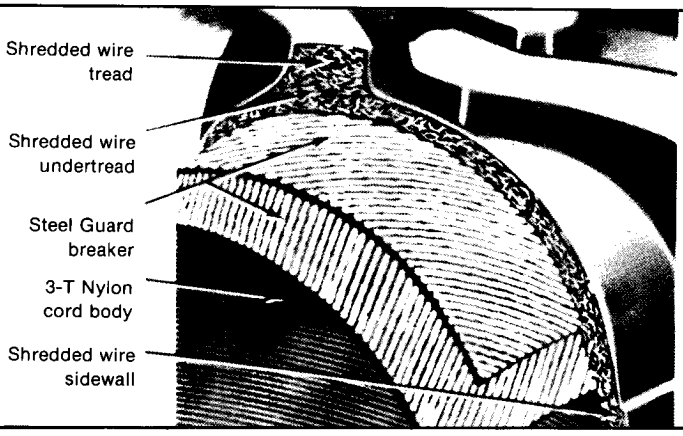
3-T NYLON CORD BODIES
Triple-Tempered by Goodyear's exclusive Triple-Tempering process, 3-T nylon cord bodies provide outstanding resistance to severe shocks and bruises ... have ability to stand up longer under heavier loads on long hauls.

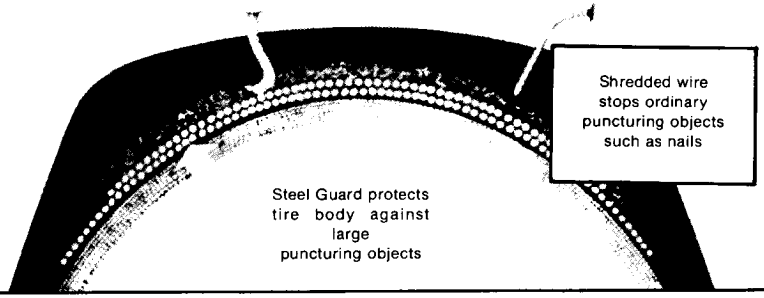
SUPER STEEL-GUARD TIRES

STEEL GUARD BREAKER
Super-tough Steel Guard breaker acts as a buffer between the tread and body to protect against penetrations and bruises.

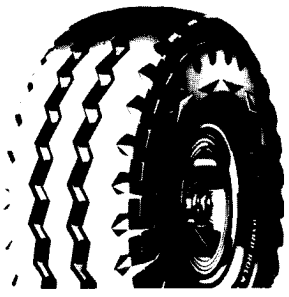
SHREDDED WIRE BENEFITS
One of the greatest Land Fill tire improvements in years! The combination of steel filaments dispersed in extra-tough rubber (as shown in the cutaway view at right) combined the cut-resistance of steel and the flexibility of rubber to form a rugged barrier against cutting and puncturing objects ... while guarding against tire separation and cut growth by literally "zippering" the tread and body together. Also, Shredded Wire treads, undertreads and sidewalls add up to longer tire life, a minimum of tire-caused downtime for equipment and reduced tire costs in the long run!
Recommended in Hard Rock Lug, Super Hard Rock Lug, Super Hard Rock Lug Xtra Tred and Rock Grader Designs. Can also be produced in Sure Grip Lug, Sure Grip Grader and Sure Grip Loader.

- **Retards Cuts and Cut Growth...**
- **Guards Against Bruise Breaks...**
- **Resists Separations...**
- **Improves Recappability...**
- **Saves Money for You!**





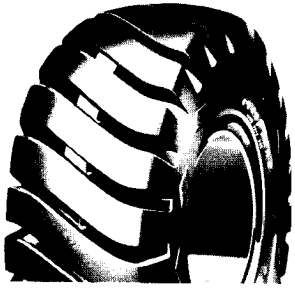
EARTHMOVER TIRES
BIAS CONSTRUCTION — TRUCK



HARD ROCK RIB
E-1 (HRR-1A)
Off-the-highway, in front wheel and trailer service, the three continuous ribs give smooth riding, straight tracking and reduce side slippage.

EARTHMOVER SURE-GRIP
E-2 (SGL-2A)
Good traction for big loads in soft, muddy and slippery going.

EARTHMOVER ALL WEATHER E-7 (EAW-7A)
This all-purpose tire for the heaviest off-the-highway duty. Designed primarily for free-rolling wheels and general purpose traction.

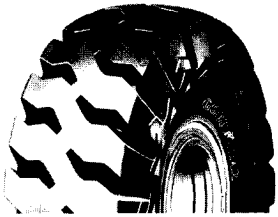


HARD ROCK LUG
E-3 (HRL-3A)
The lug tread meets all requirements for heavy duty, off-the-highway service. Used primarily for rock excavating, mining and quarrying where fast tread wear and tread-cutting have been a problem, but not where heat is a factor.

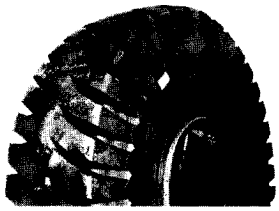
HARD ROCK LUG 8
E-3 (HRL-3B)
Designed for Off-the-Road mining and quarrying service. The cut resistant and long wearing tread is suitable for use in all wheel positions — drive, steer, and trail. The HRL 8 has a higher TKPH-TMPH rating than the HRL tire.

SEMI-HIGHWAY 5 RIB (SEMI-HWY 5R) E-7 (SHY-7A)
A specialized 100 level tire designed for steering and free rolling wheels over improved haul roads. This cool running tire operates at relatively high TKPH-TMPH rates.

EARTHMOVER TIRES
BIAS CONSTRUCTION — TRUCK

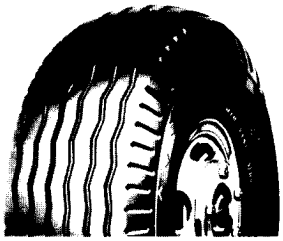


HARD ROCK LUG XT-8
E-4 (HRL-4B)
Basically Off-The-Road — Massive cut resistant, deep tread for long wear, under the most trying conditions. Heavy under-tread, good recappability. For front, drive or trail position service.

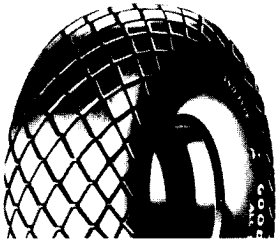


HRL-4E
E-4
A front, drive, or trail position tire suitable for use in mining, quarrying and construction. Flat, deep tread provides long wear and excellent recappability. Good ton-mile-per-hour rating.

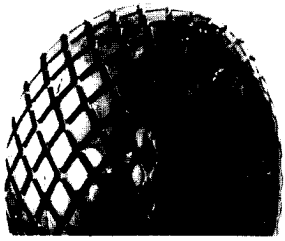
EARTHMOVER TIRES
BIAS CONSTRUCTION SAND SERVICE



RIB SAND SERVICE
E-7 (SRB-7A)
Providing minimum sinkage with adequate traction, even wear and no "heel and toe" effect, the Rib Sand tire is effective in soft, very fine grain sand with minimum surface and sub-surface disturbance — the maximum flotation-mobility tire.

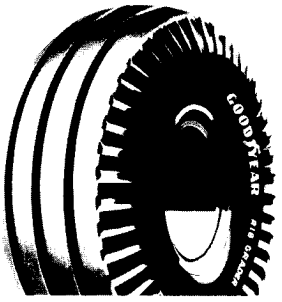


ALL WEATHER SAND
E-7 (SAW-7A)
With good flotation and traction qualities in coarse and fine sand, the AW Sand tire can also be satisfactorily used on unimproved and medium hard load surfaces. The "cross-hatched groove effect" aids both lateral and circumferential traction. The diamond tread pattern extends down over the shoulder aiding maneuverability. This design is a good compromise between flotation-mobility and alternate road service.



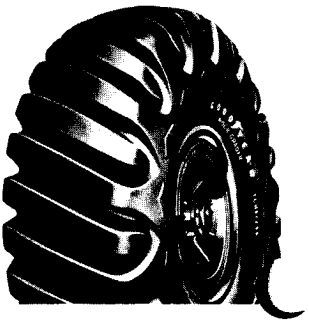
SPECIAL SAND AND ROAD SERVICE E-7 (SRS-7A)
This design features a flatter, wider tread than "sand service only" tires as well as increased non-skid and undertread which provides improved penetration resistance and reduced rock-cut hazards. In addition, the Special Sand and Road Service tire has exceptionally heavy upper sidewall and shoulder construction to resist snagging and tearing. This tire is not recommended for soft sand where flotation and mobility are critical.

EARTHMOVER TIRES
BIAS CONSTRUCTION — GRADER

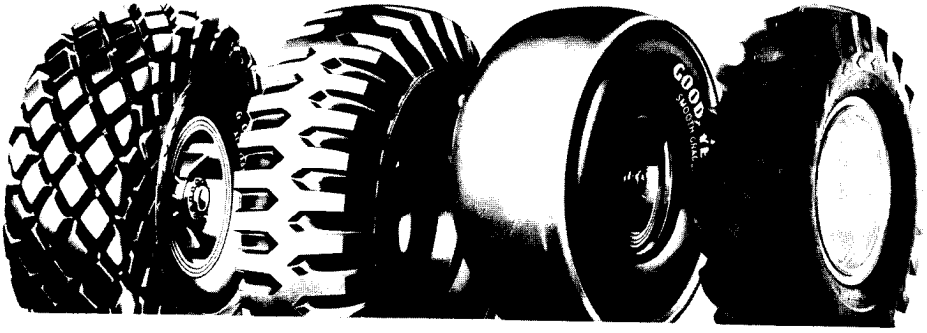


RIB GRADER
G-1 (RBG-1A)
For power grader front wheels and all wheels on drawn graders.

SURE-GRIP GRADER
G-2 (SGG-2A)
Designed for maximum two-way, non-skid — hard pulling and long wearing.



ROCK GRADER
G-3 (RKG-3A)
The tread to meet all requirements for heavy-duty service. Designed for maximum forward-and-back traction over rough or soft-surface.



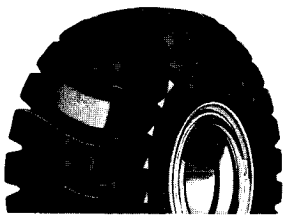
AWT GRADER (AWG-1A)
Finest for rolling big loads faster on all free-rolling wheels. Provides excellent flotation in loose soil and insures smooth, even wear on firm surfaces.

ALL SERVICE GRADER (ASG-2A)
Non-directional tread provides equal traction forward and backward. Square shoulder lugs provide excellent traction in soft soil. Connected bars provide smooth ride on hard surfaces.

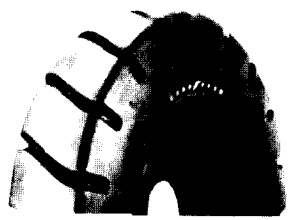
SMOOTH GRADER (SMG-1A)
Smooth tread tire for use where minimum damage to soil surface is desired.

G4 GRADER (SGG-4B)
The SGG-4B is a heavy-duty grader — deep tread for longer service hours. It is designed for maximum forward and back traction over rough or soft ground.

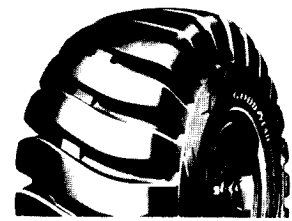
EARTHMOVER TIRES
BIAS CONSTRUCTION MINE SERVICE



HARD ROCK LUG XT (HRL XT-UMS) (HRL-4A6S)
Features extra heavy tread of the most abrasion resistant compounds together with non-directional tread design for the best in a high traction, long wearing, underground mine tire.



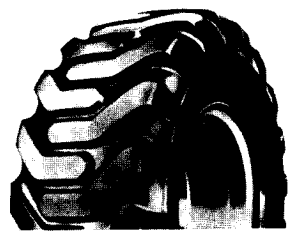
HARD ROCK LUG XT2 (HRL XT2-UMS) (AMS-4/5A)
More of everything needed in severe mine service. Contains as much as 25% more rubber by weight than regular mining and quarry tires. Bigger, huskier, longer wearing tread with fewer openings for rock and stone damage.



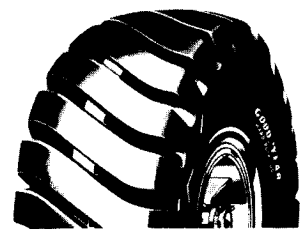
HARD ROCK LUG (HRL-UMS) (HRL-3A6S)
Combines the proven Hard Rock Lug design with the most abrasion resistant compounds for a long wearing, damage resistant tire.

EARTHMOVER TIRES
BIAS CONSTRUCTION (WIDE-BASE) LOADER

SURE-GRIP LOADER 15.5-25, 17.5-25, 20.5-25 SIZES ONLY L-2 (SGL-D/L-2A)
Wide Sure Grip Lug tread for loader tire with high flotation. Tire with "Bite" in soft soil.



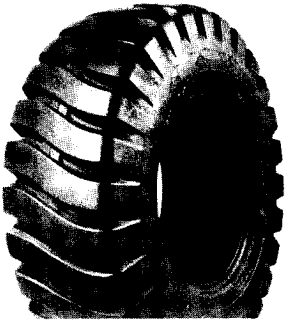
SURE-GRIP LOADER (LOW PROFILE) 20-24, 22-25 SIZES ONLY L-2 (SGL D/L-2A)
Manufactured in the proven Traction Sure-Grip design, this loader type is distinguished by its low profile, only 65 percent as high (section height) as it is wide (section width) made possible by using low cord angles. The benefit of these two low profile designed tires is better loader stability than with wide-based sized tires.



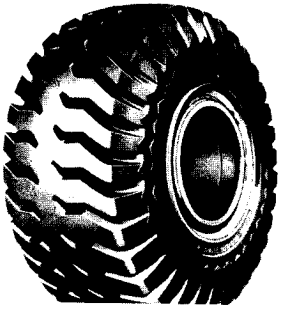
SUPER HARD ROCK LOADER 15.5-25, 17.5-25, 20.5-25 SIZES ONLY L-3 (HRL D/L-3A)
Wide base hard rock lug design for loader tires. Wider tread and lower pressures provides increased weight distribution and increased tire to ground pressure.

EARTHMOVER TIRES
BIAS CONSTRUCTION (WIDE-BASE)

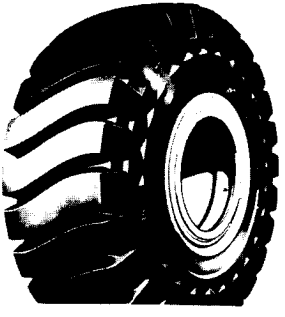
SURE-GRIP LUG E-2 (SGL-2A)
SURE-GRIP LUG D&L L-2 (SGL D/L-2A)
This wide base, low-pressure tire has improved flotation to allow faster, constant operation of big equipment.



SUPER HARD ROCK LUG, E-3 (HRL-3A)
SUPER HARD ROCK LUG D&L L-3 (HRL D/L-3A)
The low-pressure, wide base Super Hard Rock Lug is constructed for superior flotation under all conditions. Greater tread width and lower pressure combine to reduce bruising and cutting by increasing weight distribution and increasing tire-to-ground contact.



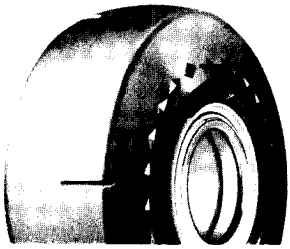
SUPER HARD ROCK LUG 8 E-3 (HRL-3B)
SUPER HARD ROCK LUG 8 D&L L-3 (HRL D/L-3B)
The successor to the SHRL, the SHRL 8 is designed to provide traction on all types of surfaces as well as to produce high tread mileage. With a strong bruise resistant carcass, the SHRL 8 has a higher TKPH-TMPH rating than the SHRL for scraper, Code E, applications.



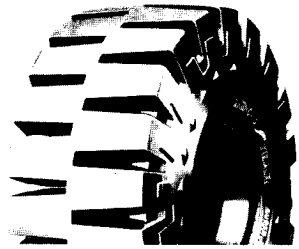
SUPER HARD ROCK LUG XT D&L L-4 (HRL D/L-4A)
Designed for Dozer and Loader service. Tough tread compound, heavy under-tread and truncated shoulder buttress provides long tread life. Tread designed to simulate "Track Type Tread."

EARTHMOVER TIRES

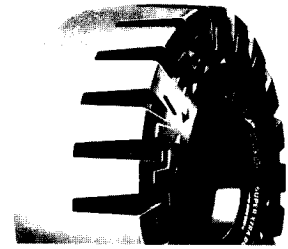
BIAS CONSTRUCTION (WIDE BASE)



SMOOTH EXTRA TRED D&L L-4S (SMO D/L-4A)
SMOOTH SUPER XTRA TRED D&L L-5S (SMO D/L-5A)
A specialized tire usually found in underground loader applications, the Smooth D&L design is best known for even wear where lug snagging has been a problem. Tread and sidewall penetration resistance characterize the tire.



SUPER XTRA TRED D&L L-5 (HRL D/L-5A)
Flat wide tread tire for maximum performance in most rugged service. Reinforced, cut resistant tread with shredded wire undertread for superior traction. Thick sturdy sidewalls give high degree of stability.



SUPER XTRA DUAL TRED D&L L-5 (DRL D/L-5A)
A combination of two aggressive tread designs for a unique application in extreme rock service jobs. The Super Xtra Dual Tred gives you the benefit of smooth xtra tred on the outboard shoulder to protect against cuts and snags by providing a constant tread carcass thickness balanced by deep xtra tred bars and grooves on the inboard shoulder to provide the extra traction.

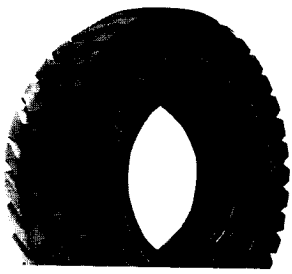
NYLOSTEEL EARTHMOVER TIRES

STEEL-BELTED CONSTRUCTION

NYLOSTEEL XTRA-TRED D&L L-4 (NRL D/L-4A)
The 65 Aspect Ratio (section height divided by section width) Nylosteel design offers a wider, flatter tread to provide improved treadwear and traction. The lower aspect, combined with steel belted construction, makes possible a Dozer/Loader tire with greater stability. Xtra-Tred (deep tread) tire gives longer tread life than standard tread depth tires.

NYLOSTEEL SUPER XTRA-TRED D&L L-5 (NRL D/L-5A)
The same construction advantages detailed above except that the Nylosteel Super Xtra-Tred (extra deep tread) tire will give longer wear especially in severe rock service applications.

UNISTEEL EARTHMOVER TIRES
RADIAL CONSTRUCTION



RL-2F **E-2, L-2**
Successor to the RL-2, the RL-2F is a new addition in the standard tread depth Unisteel radial tire line. The RL-2F gives improved traction in wet and soft underfoot conditions while retaining the shoulder reinforcement for sidewall protection of the "RL" series design.

RL-2 **E-2, L-2**
Good traction in rough conditions describes the application to which the "RL-2" is most suited. The "RL-2" is a semi-extra tread tire with added shoulder reinforcement. With its three segment open block tread, the "RL-2" is especially suited for loader service, where additional sidewall protection and traction is required.

UNISTEEL EARTHMOVER TIRES
RADIAL CONSTRUCTION

RL-3 **E-3, L-3**
A semi-extra tread tire for longer wear, the "RL-3" should be used for medium to severe rock service applications. Increased cut protection and long tread life result from the compact tread design. The "RL-3" is suitable for Loader/Dozer, Scraper and Truck service where maximum sidewall protection is required.

RL-4 **E-4**
An extra-tread Loader/Dozer, and Truck tire that is available in two tread configurations, (RL-4D available in limited size range) the "RL-4" is designed for medium severe rock service applications. Increased cut protection and extra long life result from the "RL" tread design and added shoulder reinforcement when applied within its TKPH rating. Available in "4S" compound for abrasion resistance and "3S", "2S" for higher speed applications.

SECTION IV

Load and Inflations For Goodyear Off-The-Road Tires

LOAD AND INFLATION TABLES: ENGLISH

WIDE BASE EARTHMOVER TIRES
FOR EARTHMOVING SERVICE FOR SHORT HAULS
MAXIMUM SPEED — 30 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80	85
15.5-25	5720	6370	6970	7540	8070	8990	9080	9550	10010	10450			
	8		12										
17.5-25	6900	7680	8410	9090	9740	10360	10950	11520	12080	12610			
			12	14	16								
20.5-25	8660	9630	10540	11400	12210	12990	13740	14450	15150	15820			
		12		16		20							
23.5-25	11170	12430	13600	14710	15750	16760	17720	18640	19540	20400			
	12		16	20		24							
26.5-25	14240	15840	17340	18750	20080	21360	22590	23760	24900	26000			
		16	20		24	26	28						
26.5-29	15220	16930	18530	20040	21470	22830	24140	25400	26620	27800			
		18		22		26			34				
29.5-25	17880	19890	21770	23530	25210	26820	28350	29840	31270	32650			
	16		22		28								
29.5-29	19040	21180	23180	25060	26850	28560	30200	31770	33300	34770			
	16		22		28		34						
29.5-35	20720	23050	25230	27280	29230	31080	32870	34580	36240	37850			
			22		28		34						
33.25-29	22750	25310	27700	29950	32080	34130	36080	37970	39790	41550			
			26		32								
33.25-35	24660	27430	30020	32460	34780	36990	39110	41100	43070	44990			
	20		26		32		38						
33.5-33	25270	28120	30770	33270	35650	37910	40090	42140	44160	46120			
			26		32		38						
33.5-39	27220	30290	33150	35840	38390	40840	43180	45390	47570	49680			
			26		32		38						
37.5-33	30830	34300	37530	40580	43480	46240	48890	51450	53910	56300			
		24		30	36		42						
37.5-39	33080	36810	40280	43550	46660	49630	52470	55210	57860	60420			
			28		36		44		52				
37.5-51	37400	41610	45540	49240	52750	56110	59320	62420	65410	68310			
					36		44			52			

DIAGONAL TYPE
30 MPH

Underscored Figure Denotes Maximum Load & Inflation Load for Tire With Ply Rating Beneath.
Contact your Rim Supplier Regarding Information on Rim Strength.

LOAD AND INFLATION TABLES: METRIC WIDE BASE EARTHMOVER TI[illegible]

FOR EARTHMOVING SERVICE FOR SHORT HAULS MAXIMUM SPEED —[illegible]PH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8
15.5-25	2595	2889	3162	3420	3661	4078	4119	4332	4541	4740
	8		12							
17.5-25	3130	3484	3815	4123	4418	4699	4967	5225	5479	5720
			12	14	16					
20.5-25	3928	4368	4781	5171	5538	5892	6232	6555	6872	7176
		12		16		20				
23.5-25	5067	5638	6169	6672	7144	7602	8038	8455	8863	9253
	12		16	20		24				
26.5-25	6459	7185	7865	8505	9108	9688	10247	10778	11295	11794
		16	20		24	26	28			
26.5-29	6904	7679	8405	9090	9739	10355	10950	11521	12075	12610
		18		22		26			34	
29.5-25	8110	9022	9875	10673	11435	12166	12860	13535	14184	14810
	16		22		28					
29.5-29	8637	9607	10514	11367	12179	12955	13699	14411	15105	15772
	16		22		28		34			
29.5-35	9399	10455	11444	12374	13259	14098	14910	15685	16438	17169
			22		28		34			
33.25-29	10319	11481	12565	13585	14551	15481	16365	17223	18049	18847
			26		32					
33.25-35	11186	12442	13617	14724	15776	16779	17740	18643	19537	20407
	20		26		32		38			
33.5-33	11462	12796	13957	15091	16170	17196	18185	19115	20031	20920
			26		32		38			
33.5-39	12347	13740	15037	16257	17414	18525	19586	20589	21578	22535
			26		32		38			
37.5-33	13984	15558	17024	18407	19723	20974	22177	23338	24454	25538
		24		30	36		42			
37.5-39	15005	16697	18271	19754	21165	22512	23800	25043	26245	27407
			28		36		44		52	
37.5-51	16965	18874	20657	22335	23927	25451	26908	28314	29670	30985
					36		44			52

DIAGONAL TYPE 50 KPH

Underscored Figure Denotes Maximum Load & Inflation Load for Tire With Ply Rating Beneath.
Contact your Rim Supplier Regarding Information on Rim Strength.

LOAD AND INFLATION TABLES: ENGLISH

WIDE BASE EARTHMOVER TIRES
FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS AND DOZERS AND FORK LIFT TRUCKS
MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80	85
15.5-25	7500	8340	9130	9870	10580	11250	11890	12480	13070	13650	14210	14760	15290
				8			12						
17.5-25	9050	10060	11010	11910	12760	13570	14350	15110	15820	16470	17140	17800	18450
				10		12		14		16			20
20.5-25	11340	12620	13810	14930	16000	17020	17990	18930	19840	20720	21570	22400	23210
				12		16			20			24	
23.5-25	14640	16290	17820	19270	20650	21960	23220	24430	25600	26740	27830	28900	29940
			12		16		20			24			
26.5-25	18660	20760	22720	24560	26320	27990	29590	31140	32630	34080	35460	36830	38160
		12	14	16		20		24	26	28			
26.5-29	19950	22190	24280	26260	28130	29920	31630	33290	34880	36430	37930	39370	40790
					18		22		26		30		
29.5-25	23430	26060	28520	30840	33040	35140	37150	39090	40970	42780	44550	46260	47920
			16			22			28			34	
29.5-29	24950	27750	30370	32840	35180	37420	39570	41630	43630	45560	47440	49260	51030
			16			22			28			34	
29.5-35	27150	30210	33060	35750	38300	40730	43070	45320	47490	49590	51630	53620	55540
			16			22			28			34	
33.25-35	32470	36130	39540	42750	45800	48710	51500	54190	56790	59310	61750	64130	66440
				20			26		32			38	
33.5-33	33120	36850	40320	43600	46710	49680	52530	55270	57920	60490	62980	65330	67680
				20			26		32		38		
33.5-39	35670	39690	43430	46960	50310	53510	56580	59530	62390	65150	67830	70360	72900
				20			26		32		38		
37.25-35	39580	44030	48190	52110	55820	59370	62780	66050	69220	72290	75260	79670	82550
							30		36		42		

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL T
5 MPH

LOAD AND INFLATION TABLES: METRIC WIDE BASE EARTHMOVER TI R MOBILE CRANES, SHOVELS MINING CARS, FRONT END LOADERS AND DOZERS AND FORK LIFT TRUCK MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9
15.5-25	3402	3783	4141	4477	4799	5103	5393	5661	5929	6192	6446	6695	6936
				8			12						
17.5-25	4105	4563	4994	5402	5788	6155	6509	6854	7176	7471	7775	8074	8369
				10		12		14		16			20
20.5-25	5144	5724	6264	6772	7258	7720	8160	8587	8999	9399	9784	10161	10528
				12		16			20			24	
23.5-25	6640	7389	8083	8741	9367	9961	10533	11081	11612	12129	12624	13109	13581
			12		16		20			24			
26.5-25	8464	9417	10306	11140	11939	12696	13422	14125	14801	15459	16085	16706	17309
		12	14	16		20		24	26	28			
26.5-29	9049	10065	11031	11912	12760	13572	14347	15100	15822	16525	17205	17858	18502
					18		22		26		30		
29.5-25	10628	11821	12937	13989	14987	15940	16851	17331	18584	19405	20208	20984	21737
			16			22			28			34	
29.5-29	11317	12587	13776	14896	15958	16974	17949	18883	19791	20666	21519	22344	23147
			16			22			28			34	
29.5-35	12315	13703	14996	16216	17373	18475	19537	20557	21541	22494	23419	24322	25193
			16			22			28			34	
33.25-35	14728	16389	17935	19391	20775	22095	23360	24581	25760	26903	28010	29089	30137
				20			26		32			38	
33.5-33	15023	16715	18289	19777	21188	22535	23828	25070	26273	27438	34609	29634	30700
				20			26		32		38		
33.5-39	16180	18003	19700	21301	22821	24272	25665	27003	28300	29761	30768	31915	33067
				20			26		32		38		
37.25-35	17953	19972	21859	23637	25320	26930	28477	29960	31398	32791	34138	36179	37445
							30		36		42		

DIAGONAL TYPE 8 KPH

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath. Contact your Goodyear Representative regarding information on availability. Contact your Rim Supplier regarding information on Rim Strength.

LOAD AND INFLATION TABLES: ENGLISH

WIDE BASE EARTHMOVER TIRES
FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS AND DOZERS AND FORK LIFT TRUCKS
MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80	85
37.5-33 **	40390	44940	49180	53180	56970	60590	64070	67410	70650	73780	76810	79770	82550
				24			30		36		42		
37.5-39	43350	48230	52780	57070	61140	65030	68750	72350	75810	79170	82430	85600	88700
									36			44	
37.5-51*	49010	54530	59670	64520	69120	73520	77730	81790	85710	89510	93200	96780	
						28			36			44	
36-39 †	37180	41370	45270	48950	52440	55780	58970	62050	65030				
							30						
30/65-29 †	19460	21650	23700	25620	27450	29190	30870						
			16		20		24						
35/65-33 †	27350	30430	33310	36010	38580	41030	43390	45650					
			18			24		30					
40/65-39 †	37650	41890	45850	49570	53100	56480	59720	62840	65850				
					24		30		36				
45/65-45 †	49820	55430	60660	65590	70260	74730	79020	83140	87130				
				26			34	38	42				
50/65-51 †	63920	71120	77830	84150	90160	95890	101380	106680	111790	116740	121550	126230	
				30					46		52		
67-51†	109280	121580	133060	143870	154130	163930	173330	182380	191120	199590	207810	215800	
			34			44		54					

* 37.5-51 — 52PR = 106990 @ 95 PSI
**37.5-33 — 54PR = 88210 @ 95 PSI
†Bias-Belted
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL AND BIAS-BELTED TYPES
5 MPH

LOAD AND INFLATION TABLES: METRIC

WIDE BASE EARTHMOVER TIRES
FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS AND DOZERS AND FORK LIFT TRUCKS
MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9
37.5-33**	18321	20385	22308	24122	25842	27484	29062	30577	32047	33467	34841	36184	37445
				24			30		36		42		
37.5-39	19754	21877	23941	25887	27733	29498	31185	32818	34387	35912	37390	38828	40234
									36			44	
37.5-51*	22231	24735	27066	29266	31352	33340	35258	37099	38878	40601	42275	43899	
						28			36			44	
38-39 †	16867	18765	20537	22204	23789	25301	26751	28150	29498				
							30						
30/65-29 †	8827	9820	10750	11626	12451	13241	14003						
			16		20		24						
35/65-33 †	12406	13803	15109	16334	17500	18611	19682	20707					
			18			24		30					
40/65-39 †	17078	19001	20798	22567	24086	25783	27089	28504	29870				
					24		30		36				
45/65-45 †	22598	25143	27515	29752	31870	33898	35843	37712	39522				
				26			34	38	42				
50/65-51 †	28994	32260	35304	38170	40897	43496	45985	48390	50708	52953	55135	57258	
				30					46		52		
67-51 †	49569	55149	60356	65259	69913	74359	78622	82728	86692	90534	94263	97887	
			34			44		54					

* 37.5-51 — 52PR = 48526 @ 6.6 BAR
**37.5-33 — 54PR = 40012 @ 6.6 BAR
† Bias-Belted
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL AND BIAS-BELTED TYPES
8 KPH

LOAD AND INFLATION TABLES: ENGLISH

TIRES FOR EARTHMOVING, MINING AND LOGGING SERVICE
FOR SHORT HAULS
MAXIMUM SPEED — 30 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12.00-20, 21NHS	3680	4090	4470	4840	5180	5510	5830	6130	6430	6710	6990	7260	7520			
				E10				G14		H16						
12.00-24, 25NHS	4140	4600	5030	5440	5830	6200	6560	6900	7230	7550	7860	8170	8460			
								G14		H16						
13.00-24, 25NHS	4790	5330	5840	6310	6760	7190	7600	8000	8380	8760	9120	9470	9810			
										J18						
14.00-20, 21NHS	5050	5620	6150	6650	7120	7570	8010	8430	8830	9220	9600	9970	10330			
					F12			H16			L20					
14.00-24, 25NHS	5640	6270	6860	7420	7950	8460	8940	9410	9860	10300	10720	11130	11540	11930		
								H16			L20			N24		
16.00-20, 21	6720	7480	8180	8850	9480	10080	10660	11220	11760	12280	12780	13280	13760	14220	14670	15120
					16			20								34
16.00-25	7370	8190	8970	9700	10390	11050	11680	12290	12880	13450	14010	14540	15070	15580	16080	
			12		16			20		24		28			32	
18.00-25	9530	10600	11600	12540	13430	14290	15110	15900	16660	17400	18110	18810	19480	20140		
		12		16		20		24		28		32		36		
18.00-33	11050	12290	13450	14540	15580	16570	17520	18440	19320	20180	21010	21820	22590	23370		
								24		28		32		36		
18.00-49	13970	15540	17000	18390	19700	20950	22150	23310	24430	25510	26560	27580	28560	29530		
						20		24		28		32		36		

Underscore Figure Notes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
30 MPH

TIRES FOR EARTHMOVING, MINING AND LOGGING SERVICE FOR SHORT HAULS MAXIMUM SPEED — 50 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9
12.00-20, 21NHS	1669	1855	2028	2195	2350	2499	2644	2781	2917	3044	3171	3293	3411			
				E10				G14		H16						
12.00-24, 25NHS	1878	2087	2282	2468	2644	2812	2976	3130	3280	3425	3565	3706	3837			
								G14		H16						
13.00-24, 25NHS	2172	2418	2649	2862	3066	3261	3447	3629	3801	3974	4137	4296	4450			
										J18						
14.00-20, 21NHS	2291	2549	2953	3016	3230	3434	3633	3824	4005	4182	4355	4522	4686			
					F12			H16			L20					
14.00-24, 25NHS	2558	2844	3112	3366	3606	3837	4055	4268	4472	4672	4863	5049	5235	5411		
								H16			L20			N24		
16.00-20, 21	3048	3393	3710	4014	4300	4572	4835	5089	5334	5570	5797	6024	6242	6450	6654	6858
					16			20								34
16.00-25	3343	3715	4069	4400	4713	5012	5298	5595	5842	6101	6355	6595	6836	7067	7294	
			12		16			20		24		28			32	
18.00-25	4323	4808	5262	5688	6092	6482	6854	7212	7557	7893	8215	8532	8836	9136		
		12		16		20		24		28		32		36		
18.00-33	5012	5575	6101	6595	7067	7516	7947	8364	8764	9154	9530	9898	10246	10601		
								24		28		32		36		
18.00-49	6337	7049	7711	8342	8936	9503	10047	10573	11081	11571	12048	12510	12955	13395		
						20		24		28		32		36		

Underscore Figure Notes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
50 KPH

TIRES FOR EARTHMOVING, MINING AND LOGGING SERVICE FOR SHORT HAULS MAXIMUM SPEED — 30 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
21.00-25	12260	13640 16	14920	16140 20	17290	18380 24	19440	20450 28	21440	22390	23310	24210	25080		
21.00-33	14100	15680	17160	18560	19880	21150	22360	23530 28	24650	25750	26810	27840	28840		
21.00-35	14550	16180 16	17710	19150 20	20520	21820 24	23070	24280 28	25440	26570 32	27660	28730 36	29770	30770 40	
21.00-49	17620	19610	21460	23200 20	24850	26430 24	27950	29410 28	30820	32180 32	33510	34800 36	36060	37280 40	
23-21	9340	10390 10	11390 12	12290	13170	14010 16	14810	15580	16330 20	17060	17760 24	18440	19110		
24.00-25	15840	17620	19280 18	20850	22330 24	23750 28	25120 30	26430	27700	28920	30120	31270	32400		
24.00-29	16960	18860	20640	22320	23910 24	25430	26890 30	28300	29650 36	30970	32250	33490	34700		
24.00-35	18600	20700	22650	24490	26240	27900	29500 30	31040	32530 36	33970	35370 42	36740	38100 48		
24.00-43	20740	23080	25260	27310	29260	31120	32900	34620	36280	37880	39440 42	40960	42440		
24.00-49	22320	24830	27170	29380	31470	33480	35400 30	37240	39030 36	40760	42440 42	44070	45660 48		
24.00-51	22840	25410	27800	30060	32210	34250	36220	38110	39940 36	41710	43420 42	45090	46720 48		
27.00-33	22240	24740	27070	29270 24	31360	33360 30	35270	37110 36	38890	40610	42290	43510	45500		
27.00-49	27330	30410	33280	35980	38550	41000	43350	45610 36	47800	49920 42	51980	53980 48	55930		
27.00-51	27940	31090	34020	36780	39410	41910	44320	46630 36	48870	51030 42	53130	55180 48	57170		

DIAGONAL TYPE
30 MPH

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

TIRES FOR EARTHMOVING, MINING AND LOGGING SERVICE FOR SHORT HAULS MAXIMUM SPEED — 50 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6
21.00-25	5561	6187	6768	7321	7843	8337	8818	9276	9725	10156	10573	10982	11376		
		16		20		24		28							
21.00-33	6396	7112	7784	8419	9018	9594	10142	10673	11181	11680	12161	12628	13082		
								28							
21.00-35	6600	7339	8053	8686	9308	9898	10465	11013	11540	12052	125467	13032	13504	13457	
		16		20		24		28		32		36		40	
21.00-49	7992	88095	9734	10524	11272	11989	12678	13340	13980	14597	15200	15785	16357	16910	
				20		24		28		32		36		40	
23-21	4237	4713	5767	5574	5974	6355	6718	7067	7407	7738	8056	8364	8668		
		10	12			16			20		24				
24.00-25	7185	7992	8745	9458	10129	10773	11394	11989	12565	13118	13662	14184	14696		
			18		24	28	30								
24.00-29	7693	8555	9362	10124	10846	11535	12197	12837	13449	14078	14629	15791	15739		
					24		30		36						
24.00-35	8437	9390	10274	11109	11902	12655	13381	14080	14756	15409	16044	16665	17282		
							30		36		42		48		
24.00-43	9407	10469	11458	12388	13436	14116	14923	15704	16457	17182	17890	18579	19251		
											42				
24.00-49	10124	11263	12324	13327	14275	15187	10657	16892	17704	18989	19251	19990	20711		
							30		36		42		48		
24.00-51	10360	11526	12610	13635	14617	15536	16429	17287	18117	18920	19695	20453	21192		
									36		42		48		
27.00-33	10088	11222	12279	13277	14225	15132	15998	16833	17641	18421	19183	19736	20639		
				24		30		36							
27.00-49	12397	13794	15096	16321	17486	18598	19664	20689	21682	22644	23578	24485	25370		
								36		42		48			
27.00-51	12674	14102	15431	16683	17876	19010	20104	21151	22167	23147	24100	25030	25932		
								36		42		48			

DIAGONAL TYPE
50 KPH

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

LOAD AND INFLATION TABLES: ENGLISH

TIRES FOR EARTHMOVING, MINING AND LOGGING SERVICE
FOR SHORT HAULS
MAXIMUM SPEED — 30 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
30.00-33	27330	30400	33270	35970	38540	40990	43340	45600	47790	49910	51970	53970	55910		
				28		34		40							
30.00-39	29540	32860	35960	38880	41660	44300	46840	49290	51650	53940	56160	58320	60430		
									42						
30.00-51	33830	37640	41190	44540	47710	50750	53660	56460	59170	61790	64330	66810	69220		
						36		40		46		52			
33.00-51	39190	43600	47710	51590	55270	58780	62150	65400	68530	71570	74520	77380	80180		
								42	46	50		58			
36.00-51	47710	53080	58090	62810	67300	71570	75680	79630	83450	87140	90730	94230	97630		
							42		50		58				
40.00-57	60950	67810	74210	80240	85960	91420	96670	101710	106590	111310	115900	120360	124700		
										60					

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
30 MPH

LOAD AND INFLATION TABLES: METRIC

TIRES FOR EARTHMOVING, MINING AND LOGGING SERVICE
FOR SHORT HAULS
MAXIMUM SPEED — 50 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6
30.00-33	12397	13789	15091	16316	17482	18593	19659	20684	21678	22659	23574	24481	25361		
				28		34		40							
30.00-39	13399	14905	16311	17636	18897	20094	21083	22358	23428	24467	25474	26453	27411		
									42						
30.00-51	15345	17074	18684	20203	21641	23020	24340	25610	26840	28028	29180	30305	31318		
						36		40		46		52			
33.00-51	17777	19777	21641	23401	25070	26663	28191	29605	31085	32464	33802	35099	36370		
								42	46	50		58			
36.00-51	21641	24077	26350	28491	30527	32464	34328	36120	37853	39527	41155	42743	44285		
							42		50		58				
40.00-57	27647	30759	33662	36397	38991	27860	43850	46136	48349	50490	52576	54595	56564		
										60					

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
50 KPH

LOAD AND INFLATION TABLES: ENGLISH

TIRES FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS, DOZERS, AND FORK LIFT TRUCKS MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12.00-24NHS	7360	7950	8520	9060	9580	10080	10570	11040	11490	11930	12360	12780	13190	13600
													16	20
12.00-24 TG	7500	8110	8690	9240										
	6			8										
13.00-24 TG	8680	9380	10050	10690	11310	11900	12470	13020	13550	14080	14580	15080		
	6		8					12				16		
14.00-20NHS	8980	9710	10410	11070	11700	12320	12910	13480	14030	14570	15100	15610	16110	16600
													18	20
14.00-24NHS	10030	10850	11620	12360	13070	13750	14410	15050	15670	16270	16860	17430	17990	18540
		8					12							20, 28
14.00-24 TG	10500	11350	12160	12940	13680	14390	15080	15750	16400	17030	17640			
		8					12				16			

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
5 MPH

LOAD AND INFLATION TABLES: METRIC

TIRES FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS, DOZERS, AND FORK LIFT TRUCKS MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9
12.00-24NHS	1514	1636	1753	1864	1971	2074	2175	2272	2364	2455	2543	2630	2714	2798
													16	20
12.00-24 TG	1543	1669	1788	1901										
	6			8										
13.00-24 TG	1786	1930	2068	2194	2327	2448	2566	2679	2788	2897	3000	3103		
	6		8					12				16		
14.00-20NHS	1848	1998	2142	2278	2407	2535	2656	2774	2887	2998	3107	3212	3315	3415
													18	20
14.00-24NHS	2064	2232	2391	2543	2689	2829	2965	3097	3224	3348	3469	3586	3701	3815
		8					12							20, 28
14.00-24 TG	2160	2335	2502	2662	2815	2961	3103	3241	3374	3504	3629			
		8					12				16			

*Was Formerly 8.15-15
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
8 KPH

TIRES FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS, DOZERS, AND FORK LIFT TRUCKS
MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	35	40	45	50	55	60	65	70	75	80	85	90	95	100
14.50L-15NHS	5100	5620	6020	6400	6770	7120	7460	7790	8120	8430	8730	9030	9320	9600* / 16, 24
15L-10NHS	3370	3650	3910	4150	4390	4620	4840	5060	5270	5470	5670	5860	6050	6230 / 20
16.00-24 TG	13660	14770	15820	16830 / 12										
16.00-25	13110	14170	15180	16150	17070	17960	18830	19660	20470	21260	22020	22770	23510 / 24	
18L-20NHS	8240	8910	9550	10150	10730	11290	11840	12360	12870	13370	13850	14320	14780	15230** / 20
18.00-25	16950	18330 / 12	19640	20880	22080 / 16	23230	24350	25430 / 20	26470	27490 / 24	28480	29440	30390 / 28	
21.00-25	21810	23580	25260	26870 / 16	28410	29890 / 20	31330	32720 / 24	34060	35370	36650 / 28			
23-21NHS	14900	16110 / 10	17260	18350 / 12	19410	20420	21400	22350	23270	24160 / 20	25040	25890	26720	27530 / 24
24.00-25	28180	30470	32640 / 18	34720	36710	38620	40480 / 24	42270	44010	45700 / 30				
24.00-29	30170	32620	34950 / 18	37170	39310	41360	43340 / 24	45260	47120	48940 / 30				
26.5-25	22720	24560	26320	27990	29590	31140	32630 / 26							
30.00-51	60200	65090	69740	74170	78420	82520	86470	90300	94020	97640 / 40	101170	104610	107970 / 46	111260 / 52
33.00-51	69730	75400	80780	85910	90840	95580	100160	104600	108910	113100 / 42	117180	121170	125060 / 50	128870 / 58
36.00-51	84910	91810	98350	104610	110610	116380	121960	127360	132610 / 42	137710	142680 / 50	147540	152280	156910 / 58
40.00-57	108460	117270	125630	133620	141280	148660	155790	162690	169390	175910 / 52	182260	188450 / 60	194510	200430 / 68
61x18.00-25	16950	18330 / 12	19640	20880	22080 / 16	23230	24350	25430 / 20	26470	27490 / 24	28480	29440	30390# / 28	

*24 PR = 12,400 Pounds @ 155 PSI **24 PR = 17,000 Pounds @ 120 PSI
#32 PR = 33,110 Pounds @ 110 PSI & 44 PR = 39,700 Pounds @ 150 PSI
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
5 MPH

LOAD AND INFLATION TABLES: METRIC

TIRES FOR MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS, DOZERS, AND FORK LIFT TRUCKS
MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9
14 SOL-15NHS	2313	2549	2731	2903	3071	3230	3384	3534	3683	3824	3765	4096	4228	4355
														16, 24
15L-16NHS	1529	1656	1774	1882	1991	2096	2195	2296	2390	2481	2572	2658	2744	2826
														20
16.00-24 TG	6196	6700	7178	7634										
				12										
16.00-25	5947	6428	6886	7326	7743	8147	8541	8918	9285	9644	9988	10328	10664	
													24	
18L-20NHS	3738	4042	4332	4604	4867	5121	5371	5606	5838	6065	6282	6496	6704	6908
														20
18.00-25	7689	8314	8909	9471	10015	10637	11045	11535	12007	12469	12919	133354	13785	
		12			16			20		24			28	
21.00-25	9893	10696	11458	12188	12887	13558	14211	14842	15450	16044	16624			
				16		20		24			28			
23-21NHS	6759	7303	7992	8324	8804	9263	9707	10138	10556	10959	11358	11744	12120	12488
		10		12						20				24
24.00-25	12782	13822	14806	15749	16652	17518	18362	19174	19963	20730				
			18				24			30				
24.00-29	13685	14796	15853	16860	17831	18761	19659	20530	21374	22199				
			18				24			30				
26.5-25	10306	11140	11939	12696	13422	14261	14801							
							26							
30.00-51	27387	29525	31634	33644	35571	37431	39223	40860	42547	44290	45891	47451	48975	50468
										40			46	52
33.00-51	31830	34201	36642	38969	41250	43355	45433	47447	49402	51302	53153	54963	56727	58455
										42			50	58
36.00-51	38515	35917	44812	47451	50173	52790	55321	57770	60152	62485	64720	66924	69074	71174
									42		50			58
40.00-57	49197	53194	56986	60610	64085	67432	70668	73796	76835	79793	82673	85481	88230	90915
										52		60		68
61x18.00-25	7689	8314	8909	9471	10015	10537	11045	11535		12469	12919	13354	13785	
		12			16			20		24			28	

DIAGONAL TYPE
8 KPH

*24 PR = 5625 KG @ 10.8 BAR **24 PR = 7711 KG @ 8.2 BAR
#32 PR = 15019 KG @ 7.8 BAR & 44 PR = 18008 KG @ 10.3 BAR
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

LOAD AND INFLATION TABLES: ENGLISH

FOR ROAD GRADER TIRES
MAXIMUM SPEED — 25 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
12.00-24TG	3420	3890	4330	4740	5130	5490											
	6		8			12											
13.00-20TG	3460	3950	4390														
		8	10														
13.00-24TG	3950	4500	5010	5480	5930	6350	6750										
	6	8	10	12			16										
14.00-20TG	4290	4880	5430	5950	6430												
				12	14												
14.00-24TG	4780	5450	6060	6630	7170	7680	8170	8640	9090	9520	9950						
		8	10	12			16		20		24						
16.00-20TG	5680	6470	7200	7880	8450												
			12	14	16												
16.00-24TG	6220	7090	7880	8660	9360												
			12		16												
18.00-26TG	8270	9420	10480														
	10		14														

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
25 MPH

LOAD AND INFLATION TABLES: METRIC

FOR ROAD GRADER TIRES
MAXIMUM SPEED — 40 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.4	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.8	6.2	6.5	6.9
12.00-24TG	1551	1764	1964	2150	2327	2490											
	6		8			12											
13.00-20TG	1569	1792	1991														
		8	10														
13.00-24TG	1792	2041	2273	2486	2690	2880	3062										
	6	8	10	12			16										
14.00-20TG	1946	2214	2463	2699	2917												
				12	14												
14.00-24TG	2168	2472	2749	3007	3252	3484	3706	3919	4123	4318	4513						
		8	10	12			16		20		24						
16.00-20TG	2576	2935	3266	3574	3833												
			12	14	16												
16.00-24TG	2821	3216	3574	3928	4246												
			12		16												
18.00-26TG	3751	4273	4754														
	10		14														

Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
40 KPH

LOAD AND INFLATION TABLES: ENGLISH

TIRES FOR COMPACTOR SERVICE
MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	35	40	45	50	55	60	65	70	75	80	85	90	95	100
13.00-24NHS	9430	10190	10920	11620	12280	12920	13540	14140	14730	15290	15840	16380	16910	17430
														18
16.00-21	13220	14290	15310	16290	17220	18120	18990	19830	20650	21440	22220	22970	23710	24430
18.00-25	18730	20260	21700	23080	24410	25680	26910	28100	29260	30390	31480	32550	33600	34640
													24	
21.00-25	24110	26060	27920	29700	31400	33040	34630	36160	37650	39100	40510	41890	43230	44550
30.00-33	48630	52580	56330	59910	63340	66650	69850	72940	75950	78870	81720	84490	87210	89870

Note: For pressures above 100 psi — See next page.
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
5 MPH

LOAD AND INFLATION TABLES: METRIC

TIRES FOR COMPACTOR SERVICE
MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.8	6.2	6.5	6.9
13.00-24NHS	4277	4622	4953	5271	5570	5861	6142	6414	6682	6936	7082	7430	7670	7906 18
16.00-21	5997	6482	6945	7389	7811	8219	8614	8931	9367	10078	10419	10755	11081	
18.00-25	8333	9190	9843	10469	11072	11648	12306	12746	13272	13785	14279	14765	15241 24	15713
21.00-25	10936	11821	12665	13472	142343	14987	15708	16402	17078	17736	18375	19001	19609	20208
30.00-33	22059	23850	25551	27175	28731	30232	31684	33086	34451	35775	37068	38325	39558	40765

Note: For pressures above 6.9 bar — See next page.
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
8 KPH

LOAD AND INFLATION TABLES: ENGLISH

TIRES FOR COMPACTOR SERVICE
MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	105	110	115	120	125	130	135	140	145	150	155	160	165	170
13.00-24NHS	17930	18420	18910	19390	19850 22	20320	20770	21220	21660	22090 26				
16.00-21	25140	25830	26510	27180	27840 28	28490	29120	29750	30360	30970	31570	32160 36		
18.00-25	35630	36610	37570	38520	39450 32	40370	41270	42160	43030	43890	44740 40			
21.00-25	45840	47100	48340	49560	50760	51940	53100	54240	55370	56470 44				
30.00-33	92470	95020	97520	99980	102400	104770	107110	109420	111690	113920 64				

Note: For Pressures below 100 psi — See previous page.
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
5 MPH

LOAD AND INFLATION TABLES: METRIC

TIRES FOR COMPACTOR SERVICE
MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	7.2	7.6	7.9	8.2	8.6	9.0	9.3	9.6	10.0	10.34	10.68	11.02	11.37	11.71
13.00-24NHS	8133	8355	8577	8795	9004	9217	9421	9451	9825	10020				
					22					26				
16.00-21	11404	11716	12025	12329	12628	12923	13209	13495	13771	14048	14320	14588		
					28							36		
18.00-25	16162	16606	17042	17473	17895	18312	18720	19124	19518	19909	20294			
					32						40			
21.00-25	20793	21365	21927	22480	23025	23560	24086	24156	25116	25615				
										44				
30.00-33	41944	43101	44235	45351	46449	47524	48585	49633	50663	50735				
										64				

Note: For Pressures below 6.9 bar — See previous page.
Underscore Figure Denotes Maximum Load and Inflation for Tire with Ply Rating Beneath.
Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
8 KPH

LOAD AND INFLATION TABLES: ENGLISH

FOR TIRES USED IN SAND OPERATION
MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	10	15	20	25	30	35
14.00-20NHS	4320	5470	6480	7380	8210	8980
16.00-16	4270	5410	6400	7290	8120	8880
16.00-20	5740	7280	8610	9820	10920	11950
18.00-24, 25	8100	10270	12160	13850	15410	16870
21.00-25	10480	13290	15720	17910	19930	21810
24-21	7510	9520	11270	12840	14280	15630
27.25-21	9770	12380	14650	16770	18580	20300
29.5-25	12960	16430	19440	22150	24640	26970
36.00-51	40800	51720	61200	69740	77590	84910

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
5 MPH

LOAD AND INFLATION TABLES: METRIC

FOR TIRES USED IN SAND OPERATION
MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	.7	1.0	1.4	1.7	2.1	2.4
14.00-20NHS	1960	2481	2939	3348	3724	4073
16.00-16	1937	2454	2903	3307	3683	4028
16.00-20	2604	3302	3905	4454	4953	5421
18.00-24, 25	3674	4658	5516	6282	6990	7652
21.00-25	4754	6028	7131	8124	9040	9893
24-21	3407	4318	5112	5661	6477	7090
27.25-21	4432	5616	6645	7607	8428	9208
29.5-25	5879	7453	8818	10047	11177	12234
36.00-51	18507	23460	27760	31634	35195	38515

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
8 KPH

LOAD AND INFLATION TABLES: ENGLISH

FOR TIRES USED IN SAND OPERATION
MAXIMUM SPEED — 30 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	10	15	20	25	30	35
14.00-20NHS	2950	3740	4430	5050	5620	6150
16.00-16	2920	3700	4380	4990	5550	6080
16.00-20	3930	4980	5890	6720	7470	8180
18.00-24, 25	5550	7030	8320	9480	10540	11540
21.00-25	7170	9090	10760	12260	13640	14920
24-21	5730	7270	8600	9800	10900	11930
27.25-21	7460	9450	11180	12740	14180	15520
29.5-25	9890	12540	14840	16910	18810	20580
36.00-51	27920	35390	41880	47710	53080	58090

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
30 MPH

LOAD AND INFLATION TABLES: METRIC

FOR TIRES USED IN SAND OPERATION
MAXIMUM SPEED — 50 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	.7	1.0	1.4	1.7	2.1	2.4
14.00-20NHS	1338	1696	2009	2291	2549	2790
16.00-16	1325	1678	1987	2263	2517	2758
16.00-20	1783	2259	2672	3048	3388	3710
18.00-24, 25	2975	3189	3774	4300	4781	5235
21.00-25	3252	4123	4881	5561	6187	6768
24-21	2599	3298	3901	4445	4944	5411
27.25-21	3384	4287	5071	5779	6432	7040
29.5-25	4486	5688	6731	7670	8532	9335
36.00-51	12665	16053	18997	21641	24077	26350

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
50 KPH

LOAD AND INFLATION TABLES: ENGLISH

FOR TIRES USED IN SAND OPERATION
MAXIMUM SPEED — 40 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	10	15	20	25	30	35
14.00-20NHS	2500	3170	3750	4270	4750	5200
16.00-16	2470	3130	3710	4220	4700	5140
16.00-20	3320	4210	4990	5680	6320	6920
18.00-24, 25	4690	5950	7040	8020	8920	9760
21.00-25	6070	7690	9100	10370	11540	12630
24-21	4740	6010	7120	8110	9020	9870
27.25-21	6170	7820	9260	10550	11730	12840
29.25-21	8190	10380	12280	13990	15570	17030
36.00-51	23620	29940	35430	40370	44920	49160

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
40 MPH

LOAD AND INFLATION TABLES: METRIC

FOR TIRES USED IN SAND OPERATION
MAXIMUM SPEED — 64 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	.69	1.0	1.4	1.7	2.1	2.4
14.00-20NHS	1134	1438	1701	1937	2155	2359
16.00-16	1120	1420	1683	1914	2132	2332
16.00-20	1506	1910	2263	2576	2867	3139
18.00-24, 25	2127	2699	3193	3638	4046	4427
21.00-25	2753	3488	4128	4704	5235	5729
24-21	2150	2726	3230	3679	4091	4477
27.25-21	2799	3547	4200	4785	5321	5824
29.25-21	3715	4708	5570	6346	7063	7725
36.00-51	10714	13581	16071	18312	20376	21845

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
64 KPH

LOAD AND INFLATION TABLES: ENGLISH

TIRES USED IN CRANE SERVICE
FOR OFF-THE-ROAD AND MINING & LOGGING TIRES
(INTERMITTENT HIGHWAY SERVICE)
(SINGLES & DUALS)

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

HIGHWAY — INTERMITTENT **TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)**

Size	LR	Speed PR	50 Inf.	50 Load	40 Inf.	40 Load	30 Inf.	30 Load	20 Inf.	20 Load	10 Inf.	10 Load	5 Inf.	5 Load	*Creep Speed Inf.	*Creep Speed Load	Static Inf.	Static Load
13.00-20ML	H	16	85	7400	85	8070	85	8730	85	9770	95	11840	95	13690	105	19240	105	22940
	J	18	100	8140	100	8870	100	9610	100	10740	110	13020	110	15060	120	21160	120	25230
13.00-24/25ML	H	16	85	8290	85	9040	85	9780	85	10940	95	13260	95	15340	105	21550	105	25700
	J	18	100	9120	100	9940	100	10760	100	12040	110	14590	110	16870	120	23710	120	28270
14.00-20ML	J	18	85	8740	85	9530	85	10310	85	11540	95	13980	95	16170	105	22720	105	27090
	L	20	100	9610	100	10470	100	11340	100	12680	110	15380	110	17780	120	24990	120	29790
14.00-24/25ML	L	20	100	10730	100	11700	100	12660	100	14160	110	17170	110	19850	120	27900	120	33260
	N	24	100	10730	100	11700	100	12660	100	14160	110	17170	110	19850	120	27900	120	33260
16.00-25 OTR		24					70	13450	80	15660	95	20410	95	23510	100	31740	100	38240
18.00-25 OTR		24					60	15900	70	18740			80	27490	100	41050	100	49460
15.5-25 OTR		18													95	21460	95	25850
17.5-25 OTR		20													95	25890	95	31190
20.5-25 OTR		24											80	22410	95	32460	95	39110
21.00-25 OTR		24					50	18380	60	22030	70	28380	70	32700				
		28					60	20450	70	24110	85	31790	85	36630	100	52820	100	63640
23.5-25 OTR		24					50	16760	60	19290	70	23200	70	26730				
		28													100	43170	100	52010
26.5-25 OTR		32													100	55020	100	66290

NOTES:
1. Above loads and inflation are maximum for ply ratings shown at speeds indicated.
2. Intermittent highway service means that ½hr. cooling stop is required for each of the following speed ranges at max. travel time indicated. 40-50 MPH 1 hr., 30-40 MPH 1½hr., 20-30 MPH 2 hrs., & 10-20 MPH 3 hrs.
3. Mining and Logging tires are not intended for sustained highway service.
4. For special operating conditions, cold inflation pressures may be increased up to 10 PSI (Not to exceed the maximum rim capacity), with no increase in loads. (20 MPH rating & higher & only up thru 14.00 sizes.)
5. Consult rim and wheel manufacturers to determine if rims and wheels are of sufficient strength for Loads & Inflations indicated.

*6. Creep speed is motion at job site travel — not over 200 feet in any 30 minute period.

7. With speeds of 10 MPH or less on unimproved surfaces, lower inflation is recommended for tire sizes up thru 14.00. Consult your tire supplier.

DIAGONAL TYPE
Highway-Intermittent Service

LOAD AND INFLATION TABLES: METRIC

TIRES USED IN CRANE SERVICE
FOR OFF-THE-ROAD AND MINING & LOGGING TIRES
(INTERMITTENT HIGHWAY SERVICE)
(SINGLES & DUALS)

ER — Operation of vehicles over the road, ...ring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

HIGHWAY — INTERMITTENT — **TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR**

Size	LR	Speed PR	80 KPH bar	80 KPH kg	65 KPH bar	65 KPH kg	50 KPH bar	50 KPH kg	32 KPH bar	32 KPH kg	16 KPH bar	16 KPH kg	8 KPH bar	8 KPH kg	*Creep bar	*Creep kg	Static bar	Static kg
13.00-20ML	H	16	5.9	3357	5.9	3660	5.9	3960	5.9	4432	6.6	5371	6.6	6210	7.2	8727	7.2	10406
	J	18	6.9	3692	6.9	4023	6.9	4359	6.9	4872	7.6	5906	7.6	6831	8.2	9598	8.2	11444
13.00-24/25ML	H	16	5.9	3760	5.9	4101	5.9	4436	5.9	4962	6.6	6015	6.6	6958	7.2	9775	7.2	11658
	J	18	6.9	4137	6.9	4509	6.9	4881	6.9	5461	7.6	6618	7.6	7652	8.2	10755	8.2	12823
14.00-20ML	J	18	5.9	3964	5.9	4323	5.9	4677	5.9	5235	6.6	6341	6.6	7580	7.2	10306	7.2	12288
	L	20	6.9	4359	6.9	4749	6.9	5144	6.9	5752	7.6	6976	7.6	8065	8.2	11335	8.2	13513
14.00-24/25ML	L	20	6.9	4867	6.9	5307	6.9	5743	6.9	6423	7.6	7788	7.6	9004	8.2	12665	8.2	15087
	N	24	6.9	4867	6.9	5307	6.9	4743	6.9	6423	7.6	7788	7.6	9004	8.2	12665	8.2	15087
16.00-25 OTR		24					4.8	6101	5.5	7103	6.6	9258	6.6	10664	6.9	14397	6.9	17346
18.00-25 OTR		24					4.1	7212	4.8	8500			5.5	12469	6.9	18620	6.9	22435
15.5-25 OTR		18													6.6	9734	6.6	11726
17.5-25 OTR		20													6.6	11744	6.6	14511
20.5-25 OTR		24											5.5	10165	6.6	14724	6.6	17740
21.00-25 OTR		24					3.5	8337	4.1	9993	4.8	12873	4.8	14832				
		28					4.1	9276	4.8	10936	5.5	14420	5.5	16615	6.9	23959	6.9	28867
23.5-25 OTR		24					3.5	7602	4.1	8750	4.8	10524	4.8	12125				
		28													6.9	19582	6.9	23592
26.5-25 OTR		32													6.9	24957	6.9	30069

NOTES:
1. Above loads and inflation are maximum for ply ratings shown at speeds indicated.
2. Intermittent highway service means that ½hr. cooling stop is required for each of the following speed ranges at max. travel time indicated. 64-80 KPH 1 hr., 48-64 KPH 1½hr., 32-50 KPH 2 hrs., & 16-32 KPH 3 hrs.
3. Mining and Logging tires are not intended for sustained highway service.
4. For special operating conditions, cold inflation pressures may be increased up to 7 BAR (Not to exceed the maximum rim capacity), with no increase in loads. (32 KPH rating & higher & only up thru 14.00 sizes.)
5. Consult rim and wheel manufacturers to determine if rims and wheels are of sufficient strength for Loads & Inflations indicated.
*6. Creep speed is motion at job site travel — not over 5.6m in any 30 minute period.
7. With speeds of 16 KPH or less on unimproved surfaces, lower inflation is recommended for tire sizes up thru 14.00. Consult your tire supplier.

DIAGONAL TYPE
Highway-Intermittent Service

LOAD AND INFLATION TABLES: ENGLISH

CONVENTIONAL EARTHMOVER TIRES FOR *DRIVE-AWAY VEHICLES* *MAXIMUM SPEED — 30 MPH*

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80
16.00-21	5690	6330	6920	7490	8020	8530	9020	9490	9950	10390	10820	11230
16.00-24, 25	6230	6930	7590	8200	8790	9350	9880	10400	10900	11380	11850	12310
18.00-24, 25	8060	8970	9810	10610	11370	12090	12780	13450	14100	14720	15330	15920
18.00-33	9350	10400	11380	12310	13180	14020	14830	15600	16350	17070	17780	18460
18.00-49	11820	13150	14390	15560	16670	17730	18740	19720	20670	21580	22470	23340
21.00-24, 25	10370	11540	12630	13650	14630	15560	16450	17310	18140	18940	19720	20480
21.00-35	12310	13690	14990	16200	17360	18460	19520	20540	21530	22480	23410	24310
21.00-49	14910	16590	18150	19630	21030	22370	23650	24880	26080	27230	28350	29450
24.00-25	13400	14910	16310	17640	18900	20100	21250	22360	23430	24470	25480	26460
24.00-29	14350	15960	17470	18890	20240	21520	22760	23940	25090	26200	27280	28330
24.00-35	15740	17510	19160	20720	22200	23610	24960	26270	27530	28750	29930	31080
24.00-43	17550	19530	21370	23110	24750	26330	27840	29290	30700	32060	33380	34660
24.00-49	18880	21010	22990	24860	26630	28330	29950	31510	33020	34490	35910	37290
24.00-51	19320	21500	23530	25440	27250	28980	30650	32250	33790	35290	36740	38160

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
30 MPH

*Service Notes —

Regular Tread Tires

1. Maximum Highway Speeds: Conventional Tires — 30 mph, Wide Base Tires — 20 mph.
2. Stop for 30 minute cooling period after 50 miles of driving or 2 hours of sustained operation, whichever comes first.
3. Stop for one hour minimum period after second stop or 4 hours of operation.
4. Repeat cycles every 2 stops or every 4 hours of operation.
5. Where conventional and wide base tires are mixed on vehicle, use guidelines specified for wide base tires.

Extra Skid Depth and Special Compound Tires

1. Vehicles equipped with extra skid depth tires are not to be driven in transit over the highway unless the proposed trip is reviewed and approved by the tire manufacturer.

LOAD AND INFLATION TABLES: METRIC

CONVENTIONAL EARTHMOVER TIRES FOR *DRIVE-AWAY* VEHICLES

MAXIMUM SPEED — 50 KPH

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5
16.00-21	2581	2871	3139	3397	3638	3869	4091	4305	4513	4713	4908	5094
16.00-24, 25	2826	3143	3443	3720	3987	4241	4482	4717	4944	5162	5375	5584
18.00-24, 25	3656	4069	4450	4813	5157	5484	5797	6101	6396	6677	6954	7221
18.00-33	4241	4717	5162	5584	5978	6359	6727	7076	7416	7743	8065	8373
18.00-49	5362	5965	6527	7058	7566	8042	8500	8945	9376	9789	10192	10587
21.00-24, 25	4704	5235	5739	6192	6636	7058	7462	7852	8228	8591	8945	9291
21.00-35	5584	6210	6799	7348	1736	8373	8854	9317	9766	10197	10619	11027
21.00-49	6763	7526	8232	8782	9539	10147	10728	11286	11830	12352	12860	11359
24.00-25	6509	6763	7398	8002	8573	9117	9639	10142	10628	11100	11558	12002
24.00-29	6078	7329	7924	8569	9181	9761	10324	10859	11381	11884	12374	12850
24.00-35	7140	7942	8691	9399	10070	10709	11322	10555	12488	13041	13576	14098
24.00-43	7961	8858	9693	10483	11227	11943	12628	13286	13926	11542	15141	15722
24.00-49	8564	9530	10428	11276	12079	12850	13585	14293	33250	15645	16289	16915
24.00-51	8764	9752	10673	11540	12361	13145	13903	14629	15327	16008	16665	17309

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

*Service Notes —

Regular Tread Tires

1. Maximum Highway Speeds: Conventional Tires — 48 kph, Wide Base Tires — 32 kph.
2. Stop for 30 minute cooling period after 80 Kilometers of driving or 2 hours of sustained operation, whichever comes first.
3. Stop for one hour minimum period after second stop or 4 hours of operation.
4. Repeat cycles every 2 stops or every 4 hours of operation.
5. Where conventional and wide base tires are mixed on vehicle, use guidelines specified for wide base tires.

DIAGONAL TYPE
50 KPH

Extra Skid Depth and Special Compound Tires

1. Vehicles equipped with extra skid depth tires are not to be driven in transit over the highway unless the proposed trip is reviewed and approved by the tire manufacturer.

LOAD AND INFLATION TABLES: ENGLISH

CONVENTIONAL EARTHMOVER TIRES FOR *DRIVE-AWAY VEHICLES* *MAXIMUM SPEED — 30 MPH*

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80
27.00-33	18220	20930	22910	24770	26540	28220	29840	31400	32910	34360	35780	37160
27.00-49	23130	25730	28160	30450	32620	34690	36680	38600	40450	42240	43980	45670
27.00-51	23640	26300	28790	31130	33350	35470	37500	39460	41350	43180	44960	46690
30.00-33	23120	25720	28150	30440	32610	34680	36680	38590	40440	42230	43970	45660
30.00-39	24990	27800	30430	32900	35250	37490	39640	41710	44700	45640	47520	49350
30.00-51	28630	31850	34850	37690	40370	42940	45400	47770	50060	52280	54430	56530
33.00-51	33160	36890	40370	43650	46760	49740	52590	53340	57990	60560	63050	65480
36.00-51	40370	44920	49160	53150	56940	60560	64030	67380	70610	73740	76770	7973o
40.00-57	51570	57380	62790	67890	72730	77360	81790	86070	90190	94190	98070	101840

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

*Service Notes —

Regular Tread Tires

1. Maximum Highway Speeds: Conventional Tires — 30 mph, Wide Base Tires — 20 mph.
2. Stop for 30 minute cooling period after 50 miles of driving or 2 hours of sustained operation, whichever comes first.
3. Stop for one hour minimum period after second stop or 4 hours of operation.
4. Repeat cycles every 2 stops or every 4 hours of operation.
5. Where conventional and wide base tires are mixed on vehicle, use guidelines specified for wide base tires.

DIAGONAL TYPE
30 MPH

Extra Skid Depth and Special Compound Tires

1. Vehicles equipped with extra skid depth tires are not to be driven in transit over the highway unless the proposed trip is reviewed and approved by the tire manufacturer.

LOAD AND INFLATION TABLES: METRIC

CONVENTIONAL EARTHMOVER TIRES FOR *DRIVE-AWAY* VEHICLES MAXIMUM SPEED — 50 KPH

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5
27.00-33	8265	9494	10392	11236	12039	12801	13535	14243	14928	15586	16230	16856
27.00-49	10492	11671	12773	13812	14796	15735	16638	17509	18348	19160	19949	20716
27.00-51	10723	11930	13059	14121	15128	16089	17010	18756	19586	20394	21179	
30.00-33	10487	11667	12769	13808	14792	15731	16638	17504	18344	19156	19945	20713
30.00-39	11335	12610	13803	14923	15989	17005	17981	18920	20276	20702	21555	22385
30.00-51	12987	14447	15808	17096	18311	19478	20593	21668	22707	23714	24698	25642
33.00-51	15041	16733	18312	19800	21210	22562	23855	24195	26304	27470	28599	29702
36.00-51	18312	20376	22289	24109	25828	27470	29044	30564	32029	33448	34823	36166
40.00-57	23392	26028	28482	30795	32990	35090	37100	39041	40910	42725	44485	46195

Contact your Goodyear Representative regarding information on availability.
Contact your Rim Supplier regarding information on Rim Strength.

DIAGONAL TYPE
50 KPH

*Service Notes —

Regular Tread Tires

1. Maximum Highway Speeds: Conventional Tires — 48 kph, Wide Base Tires — 32 kph.
2. Stop for 30 minute cooling period after 80 Kilometers of driving or 2 hours of sustained operation, whichever comes first.
3. Stop for one hour minimum period after second stop or 4 hours of operation.
4. Repeat cycles every 2 stops or every 4 hours of operation.
5. Where conventional and wide base tires are mixed on vehicle, use guidelines specified for wide base tires.

Extra Skid Depth and Special Compound Tires

1. Vehicles equipped with extra skid depth tires are not to be driven in transit over the highway unless the proposed trip is reviewed and approved by the tire manufacturer.

LOAD AND INFLATION TABLES: ENGLISH

WIDE BASE EARTHMOVER TIRES FOR
DRIVE-AWAY VEHICLES
MAXIMUM SPEED — 20 MPH

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	25	30	35	40	45	50	55	60	65	70	75	80
15.5-25	4340	4830	5290	5720	6120	6510	6890	7250	7590	7930	8260	8570
17.5-25	5240	5830	6380	6890	7390	7860	8310	8740	9160	9570	9960	10340
20.5-25	6570	7310	8000	8650	9260	9850	10420	10960	11490	11990	12490	12970
23.5-25	8480	9430	10320	11160	11950	12710	13440	14150	14820	15480	16120	16740
26.5-25	10800	12020	13150	14220	15240	16200	17130	18030	18890	19730	20540	21330
26.5-29	11550	12850	14060	16200	16290	17320	18310	19270	20200	21090	21960	22800
29.5-25	13560	15090	16510	17850	19130	20340	21510	22630	23720	24770	25790	26780
29.5-29	14440	16070	17580	19010	20370	21660	22910	24100	25260	26380	27460	28520
29.5-35	15720	17490	19140	20700	22170	23580	24930	26240	27490	28710	29890	31040
33.25-29	17620	19610	21460	23200	24850	26430	27950	29410	30820	32180	33510	34800
33.25-35	19100	21250	23260	25150	26940	28650	30300	31880	33410	34890	36320	37220
33.5-33	19170	21330	23350	25240	27040	28760	30410	32000	33530	35020	36460	37860
33.5-39	20650	22980	25140	27190	29130	30980	32760	34470	36120	37720	39270	40780
37.25-35	23280	25900	28350	30650	32840	34920	36930	38850	40720	42520	44270	45980
37.5-33	23390	26020	28470	30790	32980	35080	37090	39030	40900	42710	44470	46180
37.5-39	25100	29720	30560	33040	35400	37650	39810	41880	43890	45840	47720	49560
37.5-51	28370	31570	34550	37350	40020	42560	45000	47350	49620	51820	53960	56030

Service Notes —
Regular Tread Tires

1. Maximum Highway Speeds: Conventional Tires — 30 MPH, Wide Base Tires — 20 MPH.
2. Stop for 30 minutes cooling period after 50 miles of driving or 2 hours of sustained operation, whichever comes first.
3. Stop for one hour minimum period after second stop or 4 hours of operation.
4. Repeat cycles every 2 stops or every 4 hours of operation.
5. Where conventional and wide base tires are mixed on vehicle, use guidelines specified for wide base tires.

Extra Skid Depth and Special Compound Tires

1. Vehicles equipped with extra skid depth tires (Industry Codes E-4, L-4, L-5) are not to be driven in transit over the highway unless the proposed trip is reviewed and approved by the tire manufacturer.

DIAGONAL
20 MPH

WIDE BASE EARTHMOVER TIRES FOR *DRIVE-AWAY VEHICLES*
MAXIMUM SPEED — 32 KPH

DANGER — Operation of vehicles over the road, ignoring speed limitations and cooling requirements as noted below, can void tire warranty and induce premature tire failure!

(Minimum Inflation Pressure — 25 PSI/1.7 BAR)

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	1.7	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5
15.5-25	1909	2191	2400	2595	2776	2953	3125	3289	3443	3597	3792	3887
17.5-25	2377	2644	2894	3125	3348	3565	3769	3964	4155	4470	4518	4690
20.5-25	2980	3316	3629	3924	4200	4468	4727	4971	5212	5439	5665	5883
23.5-25	3847	4277	4681	5062	5421	5765	6096	6418	6722	7022	7312	7593
26.5-25	4899	5452	5965	6450	6913	7348	7770	8178	8569	8949	9316	9675
26.5-29	5239	5706	6378	7856	7389	7856	8305	8741	9162	3109	9961	10342
29.5-25	6151	6844	7489	8097	8677	9226	9757	10265	10759	11235	11698	12147
29.5-29	6550	7289	7974	8623	9240	9825	10392	10932	11458	11966	12456	12937
29.5-35	7131	7933	8682	9390	10056	10696	11308	11902	12469	13023	13558	14080
33.25-29	7992	8895	9734	10523	11272	11989	12678	13340	13980	14597	15200	15785
33.25-35	8664	9639	10551	11408	12220	12996	13744	14461	15155	15826	16475	16883
33.5-33	8696	9673	10682	11449	12265	13046	13794	14515	15209	15885	16538	17173
33.5-39	9367	10424	11404	12333	13213	14053	14860	15636	16384	17110	17183	18498
37.25-35	32808	11748	12860	13903	14896	15840	16751	17622	18471	19287	20081	20857
37.5-33	10610	11803	12914	13966	14960	15913	16824	17704	18522	19373	20172	20947
37.5-39	11385	13481	13862	14987	16057	17078	18058	18997	19910	20793	21646	22480
37.5-51	12869	14320	15672	16942	18153	19305	20412	21478	22508	23506	24476	25415

Service Notes —
Regular Tread Tires

1. **Maximum Highway Speeds: Conventional Tires — 50 KPH, Wide Base Tires — 32 KPH.**
2. **Stop for 30 minutes cooling period after 80 Kilometers of driving or 2 hours of sustained operation, whichever comes first.**
3. **Stop for one hour minimum period after second stop or 4 hours of operation.**
4. **Repeat cycles every 2 stops or every 4 hours of operation.**
5. **Where conventional and wide base tires are mixed on vehicle, use guidelines specified for wide base tires.**

Extra Skid Depth and Special Compound Tires

1. **Vehicles equipped with extra skid depth tires (Industry Codes E-4, L-4, L-5) are not to be driven in transit over the highway unless the proposed trip is reviewed and approved by the tire manufacturer.**

DIAGONAL TYPE
32 KPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	35	40	45	50	55	60	65	70	75	80	85	90	95	100
16.00R25	7370	8190	8970	9700	10390	11050	11680	12290 *	12880	13450	10070	14540	15070	15580 **
18.00R25	9530	10600	11600	12540	13430	14290	15110	15900 *	16660	17400	18300	18810	19490	20150 **
18.00R33	11050	12290	13450	14540	15580	16570	17520	18440 *	19320	20180	21010	21820	22600	23370 **
21.00R35	14550	16180	17710	19150	20520	21820	23070	24280 *	25440	25670	27660	28730	29760	30770 **
21.00R49	17620	19610	21460	23200	24850	26430	27950	29410 *	30820	32180	33510	34800	36060	37280 **
24.00R35	18600	20700	22650	24490	26240	27900	29500	31040 *	32530	33970	35370	36730	38060	39350 **
24.00R49	22320	24830	27170	29380	31470	33480	35400	37240 *	39030	40760	42440	44070	45660	47210 **
27.00R49	27330	30410	33280	35980	38550	41000	43350	45610 *	47800	49920	51980	53080	55920	57830 **
30.00R51	33830	37640	41190	44540	47710	50750	53660	56460 *	59170	61790	64330	66810	69220	71570 **
33.00R51	39190	43600	47710	51590	55270	58780	62150	65400 *	68530	71570	74520	77380	80180	82900 **
36.00R51	47710	53080	58090	62810	67300	71570	75680	79630 *	83450	87140	90730	94220	97630	100950 **
23.5R25	11170	12430	13600	14710	15760 *	16760	17720	18650	19540 **					
26.5R25	14240	15840	17340	18750	20080 *	21360	22590	23760	24910 **					
29.5R29	19040	21180	23180	25060	26850 *	28560	30200	31770	33300 **					
33.25R35	24660	27430	30020	32460	34780 *	36990	39110	41150	43120 **					
37.25R35	30050	3340	36590	39570	42390 *	45080	47670	50160	52560 **					
37.5R39	33080	36810	40280	43550	46660 *	49630	52470	55210	57860 **					

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9
16.00R25	3343	3715	4069	4400	4713	5012	5298	5575 *	5842	6101	4568	6595	6836	7067 **
18.00R25	4323	4808	5262	5688	6092	6768	6854	7212 *	7557	7893	8301	8532	8841	9140 **
18.00R33	5012	5575	6101	6595	7067	7516	7947	8364 *	8764	9154	9530	9898	10251	10601 **
21.00R35	6600	7339	8033	8686	9308	9653	10465	11013 *	11540	11644	12547	13032	13499	13957 **
21.00R49	7992	8895	9734	10523	11272	11989	12678	13340 *	13980	14597	15200	15785	16357	16910 **
24.00R35	8437	9390	10274	11109	11902	12655	13381	14080 *	14756	15409	16044	16661	17264	17849 **
24.00R49	10124	11263	12324	13327	14275	15187	16057	16892 *	17704	18489	19251	19990	20711	21414 **
27.00R49	12397	13794	15096	16321	17486	18598	19664	20689 *	21682	22644	23578	24077	25365	26232 **
30.00R51	15345	17074	18684	20203	21641	23020	24340	25610 *	26840	28028	29180	30305	31398	32464 **
33.00R51	17777	19777	21641	23401	25070	26663	28191	29665 *	31085	32464	33802	35304	36370	37603 **
36.00R51	21841	24077	26350	28491	30527	32464	34328	36120 *	37853	39527	41155	42738	44285	45791 **
23.5R25	5067	5638	6169	6672	7149 *	7602	8038	8460	8863 **					
26.5R25	6459	7185	7865	8505	9108 *	9689	10247	10778	11299 **					
29.5R29	8637	9607	10514	11367	12179 *	12955	13699	14411	15105 **					
33.25R35	11186	12442	13617	14724	15776 *	16779	17740	18666	19559 **					
37.25R35	13630	15168	16597	17949	19228 *	20448	21623	22752	23841 **					
37.5R39	15005	16697	18271	19754	21165 *	22512	23800	25043	26245 **					

RADIAL TYPE
50 KPH

LOAD AND INFLATION TABLES: ENGLISH

RADIAL WIDE BASE EARTHMOVER TIRES FOR FORK-LIFT TRUCKS, MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS AND DOZERS MAXIMUM SPEED — 5 MPH

TIRE LOAD LIMITS (POUNDS) AT VARIOUS COLD INFLATION PRESSURES — POUNDS PER SQUARE INCH (PSI)

Tire Size	35	40	45	50	55	60	65	70	75	80	85	90	95
17.5R25	9050	10060	11010	11910	12760	13570	14350	15100	15820	16520	17200	17860	18510
									*				**
20.5R25	11340	12620	13810	14930	16000	17020	17990	18930	19840	20720	21570	22400	23210
									*				**
23.5R25	14640	16290	17820	19270	20650	21960	23220	24430	25600	26740	27840	28910	29950
									*				**
26.5R25	18660	20760	22720	24560	26320	27990	29590	31140	32630	33080	35480	36850	38180
									*				**
26.5R29	19950	22190	24280	26260	28130	29920	31630	33290	34880	36430	37930	39390	40810
									*				**
29.5R25	23430	26060	28520	30840	33040	35140	37150	39090	40970	42780	44550	46260	47930
									*				**
29.5R29	24950	27750	30370	32840	35180	37420	39570	41630	43630	45560	47440	49260	51040
									*				**
33.25R35	32470	36130	39540	42750	45800	48710	51500	54190	56790	59310	61750	64130	66440
									*				**
37.25R35	39580	44030	48190	52110	55820	59370	62780	66050	69220	72290	75260	78160	80980
									*				**
37.5R39	43350	48230	52780	57070	61140	65030	68750	72350	75810	79170	82430	85600	88700
									*				**
40/65R39	37650	41890	45850	49570	53110	56480	59720	62840	65850				
									*				
35/65R33	27360	30430	33310	36010	38580	41030	43390	45640	47840				
									*				

RADIAL TYPE
5 MPH

LOAD AND INFLATION TABLES: METRIC

RADIAL WIDE BASE EARTHMOVER TIRES FOR FORK-LIFT TRUCKS, MOBILE CRANES, SHOVELS, MINING CARS, FRONT END LOADERS AND DOZERS MAXIMUM SPEED — 8 KPH

TIRE LOAD LIMITS (KILOGRAMS) AT VARIOUS COLD INFLATION PRESSURES — BAR

Tire Size	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6
17.5R25	4105	4563	4994	5402	5788	6155	6409	6849	7176 *	7493	7802	8101	8396 **
20.5R25	5144	5724	6264	6772	7258	7720	8160	8587	8999 *	9399	9784	10161	10528 **
23.5R25	6641	7389	8083	8741	9367	9961	10533	11081	11612 *	12129	12621	13114	13585 **
26.5R25	8464	9417	10306	11140	11939	12696	13422	14261	14801 *	15005	16094	16715	17318 **
26.5R29	9049	10065	11013	11912	12760	13572	14347	15100	15822 *	16525	16960	17867	18511 **
29.5R25	10628	11821	12937	13989	14987	15940	16851	17731	18584 *	19405	20208	20984	21741 **
29.5R29	11317	12587	13776	14896	15958	16973	17949	18883	19791 *	20666	21518	22344	23152 **
33.25R35	14728	16389	17935	19391	20775	22095	23360	24581	25760 *	26903	28010	29089	30137 **
37.25R35	17953	19972	21859	23637	25320	26930	28477	29960	31398 *	32790	34137	35453	36732 **
37.5R39	19664	21877	23941	25887	27869	29498	31184	32817	34387 *	35912	37390	38828	40234 **
40/65R39	17078	19001	20798	22485	24091	25619	26885	28504	29870 *				
35/65R33	12410	13803	15110	16334	17500	18611	19682	20702	21700 *				

RADIAL TYPE
8 KPH

Goodyear U.S.A. District Sales Office

Atlantic Division

Albany
Port of Albany
Albany, NY 12202
518 463-4184

Baltimore
4625 Hollins Ferry Rd
Baltimore, MD 21227
301 247-0900

Boston
215 First Ave.
Needham Hts, MA 02194
617 444-3900

New Brunswick
1665 Jersey Ave.
No. Brunswick, NJ 08902
201 745-6500

New York
1665 Jersey Ave.
No. Brunswick, NJ 08902
201/745-6500

Philadelphia
Scott Plaza 2
Philadelphia, PA 19113
215/365/0700

Pittsburgh
875 Greentree Rd.
1 Parkway Ctr.
Pittsburgh, PA 15220
412 922-2810

Syracuse
290 Elwood-Davis
Suite 309
Liverpool, NY 13088
315 451-6100

Great Lakes Division

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1501 Nicholas Blvd.
Elk Grove Vil, IL 60680
312 640-5000

Cincinnati
3680 E. Kemper Rd.
Cincinnati, OH 45241
513/769-4300

Cleveland
18901 Snow Rd.
Cleveland, OH 44181
216/267-3000

Detroit
6500 Mt. Elliott
Detroit, MI 48211
313/925-7200

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Atlanta, GA 30305
404 237-4611

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Arrowood S Ind. Pk.
Charlotte, NC 28217
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829 Haines St.
Jacksonville, FL 32201
904 354-1471

Miami
8181 NW 36th.
Miami, FL 33166
305/592-4960

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Roslyn Ind. Park
Colonial Hts., VA 23834
804/526-4950

Mid-South Division

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506 Tenth St.-S
Birmingham, AL 35201
205 322-0521

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2070 S. 3rd St.
Memphis, TN 38109
901 948-3493

New Orleans
1000 Dakin St.
Jefferson, LA 70181
504 838-4765

St. Louis
8544 Page Blvd.
St. Louis, MO 63114
314/429-8700

Goodyear U.S.A. District Sales Offices

Heartland Division

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1600 E. Euclid Avenue
Des Moines, IA 50313
515/265-5341

Kansas City
10100 W. Santa Fe Drive
Overland Park, KS 66212
913/381-8200

Minneapolis
5100 W. 35th St.
Minneapolis, MN 55440
612/927-7381

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1600 E. Euclid
PO Box 1576
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6666 E. Washington Blvd.
Los Angeles, CA 90040
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5060 N. 19th Ave.
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147 Commerce Cir.
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7301 Ambassador Row
Dallas, TX 75247
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Oklahoma City, OK 73108
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N. Salt Lake, UT 84054
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Goodyear International Corporation Earthmover Tyre Sales & Service Department

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International Accounts Mgr.
EM Tire Sales & Service

Manager — Europe (Non-EEC Countries)
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EM Tire Sales & Service
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Manager — East Africa
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Prepared by

GOODYEAR

The Goodyear Tire and Rubber Company

For

CLARK Construction Machinery Division