

TIRES AND WHEELS

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TIRES

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DESCRIPTION AND OPERATION

TIRE INFORMATION

Tires are designed and engineered for each specific vehicle. They provide the best overall performance for normal operation. The ride and handling characteristics match the vehicle's requirements. With proper care they will give excellent reliability, traction, skid resistance, and tread life.

Driving habits have more effect on tire life than any other factor. Careful drivers will obtain, in most cases, much greater mileage than severe use or careless drivers. A few of the driving habits which will shorten the life of any tire are:

- Rapid acceleration
- Severe application of brakes
- High-speed driving
- Taking turns at excessive speeds
- Striking curbs and other obstacles

Radial ply tires are more prone to irregular tread wear. It is important to follow the tire rotation interval shown in the section on Tire Rotation. This will help to achieve a greater tread-life potential.

TIRE IDENTIFICATION

Tire type, size, aspect ratio and speed rating are encoded in the letters and numbers imprinted on the side wall of the tire. Refer to the chart to decipher the tire identification code (Fig. 1).

Performance tires will have a speed rating letter after the aspect ratio number. The speed rating is not always printed on the tire sidewall. The letter **S** indicates that the tire is speed rated up to 112 mph.

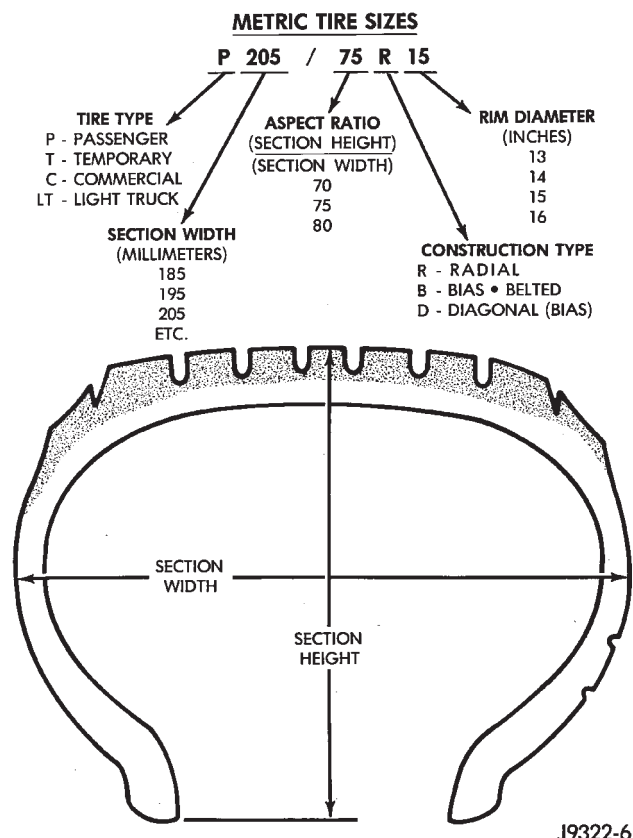
- **Q** up to 100 mph
- **T** up to 118 mph
- **U** up to 124 mph
- **H** up to 130 mph
- **V** up to 149 mph
- **Z** more than 149 mph (consult the tire manufacturer for the specific speed rating)

An All Season type tire will have either **M + S**, **M & S** or **M—S** (indicating mud and snow traction) imprinted on the side wall.

TIRE CHAINS

Tire snow chains may be used on **certain** models. Refer to Owner's Manual for more information.

DESCRIPTION AND OPERATION (Continued)

**Fig. 1 Tire Identification****RADIAL-PLY TIRES**

Radial-ply tires improve handling, tread life, ride quality and decrease rolling resistance.

Radial-ply tires must always be used in sets of four and under no circumstances should they be used on the front only. They may be mixed with temporary spare tires when necessary. A maximum speed of 50 MPH is recommended while a temporary spare is in use.

Radial-ply tires have the same load-carrying capacity as other types of tires of the same size. They also use the same recommended inflation pressures.

The use of oversized tires, either in the front or rear of the vehicle, can cause vehicle drive train failure. This could also cause inaccurate wheel speed signals when the vehicle is equipped with Anti-Lock Brakes.

It is recommended that tires from different manufacturers NOT be mixed. The proper tire pressure should be maintained on all four tires. For proper tire pressure refer to the Tire Inflation Pressure Chart provided with the vehicle.

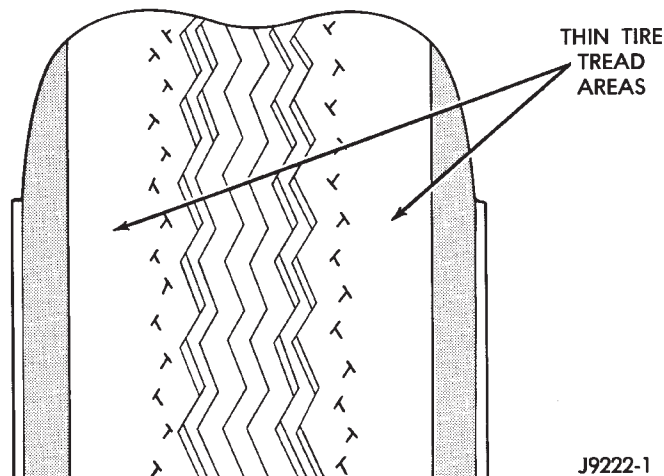
SPARE TIRE (TEMPORARY)

The temporary spare tire is designed for emergency use only. The original tire should be repaired and reinstalled at the first opportunity, or a new tire

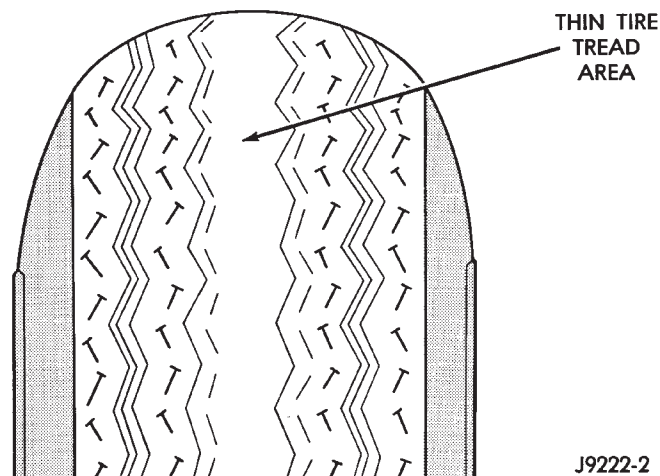
purchased. Do not exceed speeds of 50 MPH. Refer to Owner's Manual for complete details.

TIRE INFLATION PRESSURES

Under inflation causes rapid shoulder wear, tire flexing, and can result in tire failure (Fig. 2).

**Fig. 2 Under Inflation Wear**

Over inflation causes rapid center wear and loss of the tire's ability to cushion shocks (Fig. 3).

**Fig. 3 Over Inflation Wear**

Improper inflation can cause:

- Uneven wear patterns
- Reduced tread life
- Reduced fuel economy
- Unsatisfactory ride
- The vehicle to drift.

For proper tire pressure specification refer to the Tire Inflation Pressure Chart provided with the vehicle.

Tire pressures have been chosen to provide safe operation, vehicle stability, and a smooth ride. Tire pressure should be checked cold once per month. Check tire pressure more frequently when the

DESCRIPTION AND OPERATION (Continued)

weather temperature varies widely. Tire pressure will decrease when the outdoor temperature drops.

Inflation pressures specified on the placards are always cold inflation pressure. Cold inflation pressure is obtained after the vehicle has not been operated for at least 3 hours. Or the vehicle is driven less than one mile after being inoperative for 3 hours. Tire inflation pressures may increase from 2 to 6 pounds per square inch (psi) during operation. Do not reduce this normal pressure build-up.

WARNING: OVER OR UNDER INFLATED TIRES CAN AFFECT VEHICLE HANDLING. THE TIRE CAN FAIL SUDDENLY, RESULTING IN LOSS OF VEHICLE CONTROL.

TIRE PRESSURE FOR HIGH—SPEED OPERATION

Chrysler Corporation advocates driving at safe speeds within posted speed limits. Where speed limits allow the vehicle to be driven at high speeds, correct tire inflation pressure is very important. For speeds up to and including 75 mph (120 km/h), tires must be inflated to the pressures shown on the tire placard. For speeds in excess of 75 mph (120 km/h), tires must be inflated to the maximum pressure specified on the tire sidewall.

Vehicles loaded to the maximum capacity should not be driven at continuous speeds above 75 mph (120 km/h).

WARNING: OVER OR UNDER INFLATED TIRES CAN AFFECT VEHICLE HANDLING. THE TIRE CAN FAIL SUDDENLY, RESULTING IN LOSS OF VEHICLE CONTROL.

For emergency vehicles that are driven at speeds over 90 mph (144 km/h), special high-speed tires must be used. Consult tire manufacturer for correct inflation pressure recommendations.

REPLACEMENT TIRES

The original equipment tires provide a proper balance of many characteristics such as:

- Ride
- Noise
- Handling
- Durability
- Tread life
- Traction
- Rolling resistance
- Speed capability

It is recommended that tires equivalent to the original equipment tires be used when replacement is needed.

Failure to use equivalent replacement tires may adversely affect the safety and handling of the vehicle.

The use of oversize tires not listed in the specification charts may cause interference with vehicle components. Under extremes of suspension and steering travel, interference with vehicle components may cause tire damage.

WARNING: FAILURE TO EQUIP THE VEHICLE WITH TIRES HAVING ADEQUATE SPEED CAPABILITY CAN RESULT IN SUDDEN TIRE FAILURE.

DIAGNOSIS AND TESTING

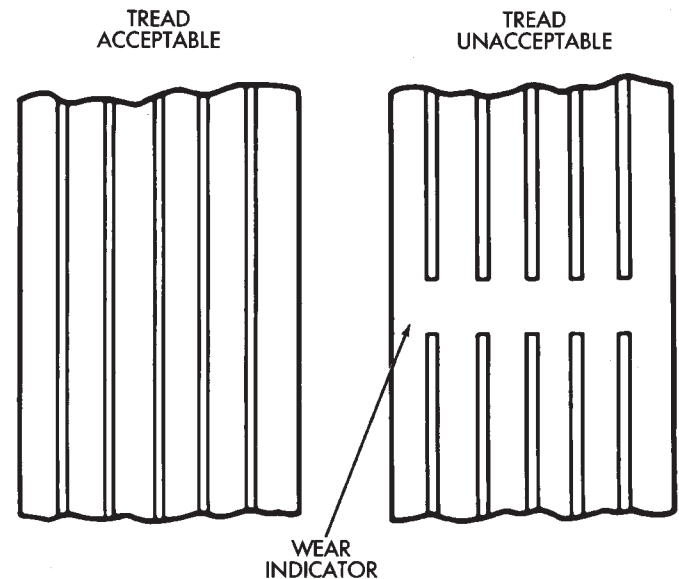
PRESSURE GAUGES

A high-quality air-pressure gauge is recommended to check tire pressure. After checking with the gauge, replace valve caps and finger tighten.

TREAD WEAR INDICATORS

Tread wear indicators are molded into the bottom of the tread grooves. When tread depth is 1.6 mm (1/16 in.), the tread wear indicators will appear as a 13 mm (1/2 in.) band.

Tire replacement is necessary when indicators appear in two or more grooves or if localized balding occurs (Fig. 4).



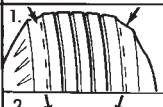
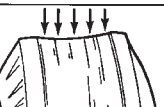
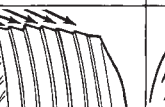
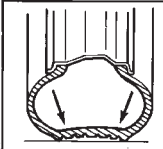
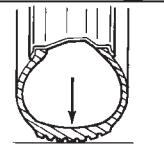
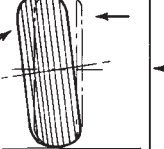
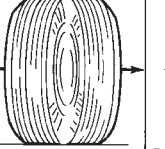
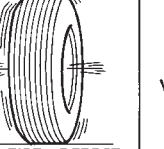
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Fig. 4 Tread Wear Indicators

TIRE WEAR PATTERNS

Under inflation results in faster wear on shoulders of tire. Over inflation causes faster wear at center of tread.

DIAGNOSIS AND TESTING (Continued)

CONDITION	RAPID WEAR AT SHOULDERS	RAPID WEAR AT CENTER	CRACKED TREADS	WEAR ON ONE SIDE	FEATHERED EDGE	BALD SPOTS	SCALLOPED WEAR
EFFECT	1.  2. 						
CAUSE	UNDER-INFLATION OR LACK OF ROTATION 	OVER-INFLATION OR LACK OF ROTATION 	UNDER-INFLATION OR EXCESSIVE SPEED*	EXCESSIVE CAMBER 	INCORRECT TOE 	UNBALANCED WHEEL OR TIRE DEFECT* 	LACK OF ROTATION OF TIRES OR WORN OR OUT-OF-ALIGNMENT SUSPENSION.
CORRECTION	ADJUST PRESSURE TO SPECIFICATIONS WHEN TIRES ARE COOL ROTATE TIRES			ADJUST CAMBER TO SPECIFICATIONS	ADJUST TOE-IN TO SPECIFICATIONS	DYNAMIC OR STATIC BALANCE WHEELS	ROTATE TIRES AND INSPECT SUSPENSION SEE GROUP 2

*HAVE TIRE INSPECTED FOR FURTHER USE.

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Fig. 5 Tire Wear Patterns

Excessive camber causes the tire to run at an angle to the road. One side of tread is worn more than the other.

Excessive toe-in or toe-out causes wear on the tread edges of the tire, from dragging of tire. There is a feathered effect across the tread (Fig. 5).

TIRE NOISE OR VIBRATION

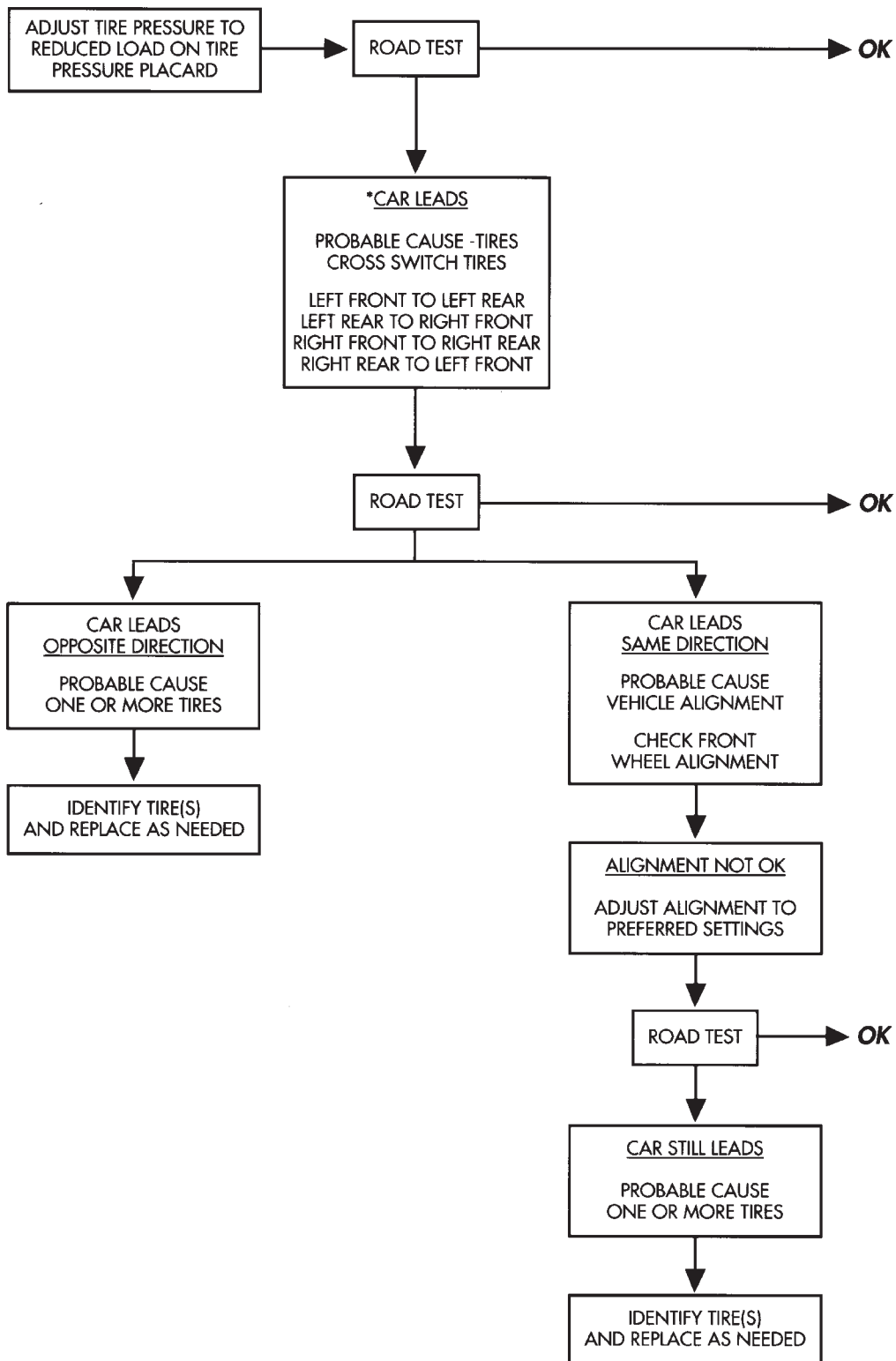
Radial-ply tires are sensitive to force impulses caused by improper mounting, vibration, wheel defects, or possibly tire imbalance.

To find out if tires are causing the noise or vibration, drive the vehicle over a smooth road at varying speeds. Note the effect of acceleration and deceleration on noise level. Differential and exhaust noises will change in intensity as speed varies, while tire noise will usually remain constant.

LEAD CORRECTION CHART

Use the following chart to correct vehicle leading or drifting problems.

DIAGNOSIS AND TESTING (Continued)



*NOTE: VERIFY THAT LEAD IS NOT RELATED TO STEERING WHEEL NOT CENTERED

SERVICE PROCEDURES

ROTATION

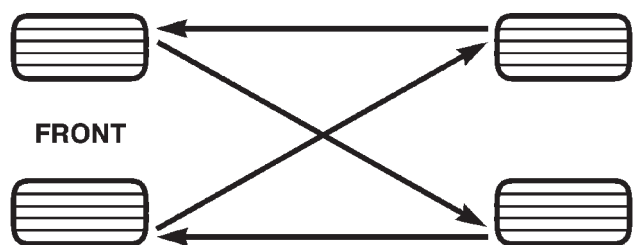
Tires on the front and rear axles operate at different loads and perform different steering, driving, and braking functions. For these reasons;

- They wear at unequal rates
- Tend to develop irregular wear patterns

These effects can be reduced by timely rotation of tires. The benefits of rotation are especially worthwhile. Rotation will:

- Increase tread life
- Help to maintain mud, snow, and wet traction levels
- Contribute to a smooth, quiet ride

The suggested method of tire rotation is (Fig. 6). Other rotation methods can be used, but they will not provide all the tire longevity benefits.



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Fig. 6 Tire Rotation Pattern

MATCH MOUNTING

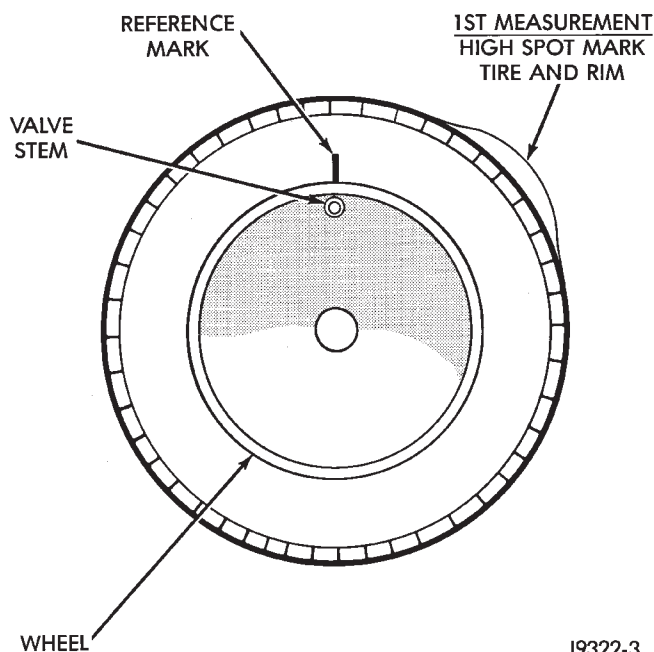
NOTE: Tires and wheels are not currently match mounted at the factory.

Match mounting is a technique used to reduce runout in the wheel/tire assembly. This means that the high spot of the tire is aligned with the low spot on the wheel rim. The high spot on the tire is marked with a paint mark or a bright colored adhesive label on the outboard sidewall. The low spot on the rim is identified with a label on the outside of the rim and a dot on the inside of the rim. If the outside label has been removed the tire will have to be removed to locate the dot on the inside of the rim.

Before dismounting a tire from its wheel, a reference mark should be placed on the tire at the valve stem location. This reference will ensure that it is remounted in the original position on the wheel.

(1) Measure the total indicator runout on the center of the tire tread rib. Record the indicator reading.

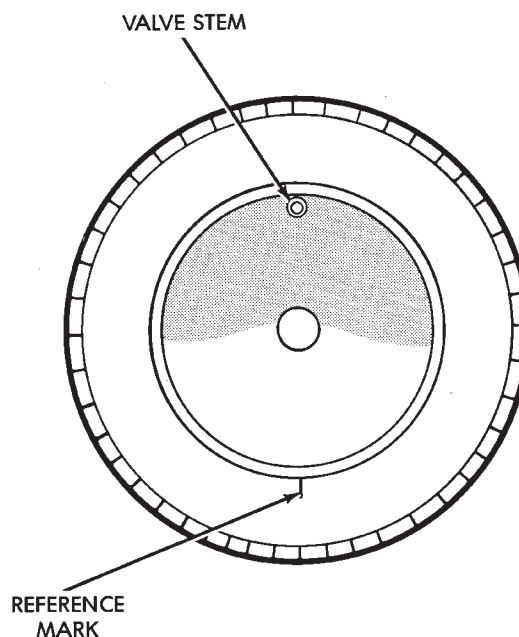
Mark the tire to indicate the high spot. Place a mark on the tire at the valve stem location (Fig. 7).



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Fig. 7 First Measurement On Tire

(2) Break down the tire and remount it 180 degrees on the rim (Fig. 8).



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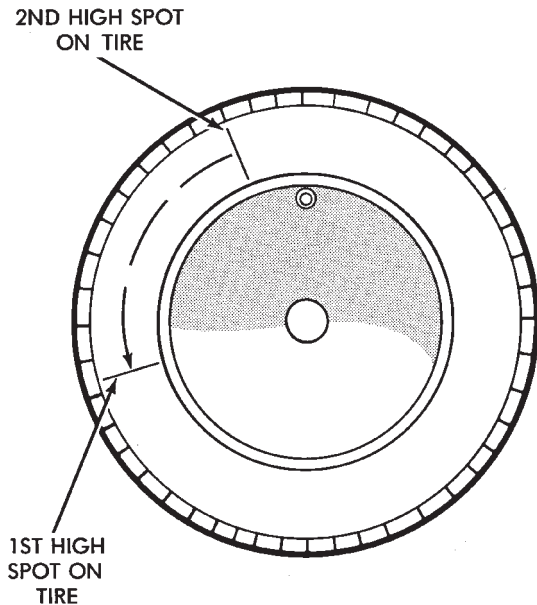
Fig. 8 Remount Tire 180 Degrees

(3) Measure the total indicator runout again. Mark the tire to indicate the high spot.

(4) If runout is still excessive, the following procedures must be done.

SERVICE PROCEDURES (Continued)

- If the high spot is within 101.6 mm (4.0 in.) of the first spot and is still excessive, replace the tire.
- If the high spot is within 101.6 mm (4.0 in.) of the first spot on the wheel, the wheel may be out of specifications. Refer to Wheel and Tire Runout.
- If the high spot is NOT within 101.6 mm (4.0 in.) of either high spot, draw an arrow on the tread from second high spot to first. Break down the tire and remount it 90 degrees on rim in that direction (Fig. 9). This procedure will normally reduce the runout to an acceptable amount.



J9322-5

Fig. 9 Remount Tire 90 Degrees In Direction of Arrow

REPAIRING LEAKS

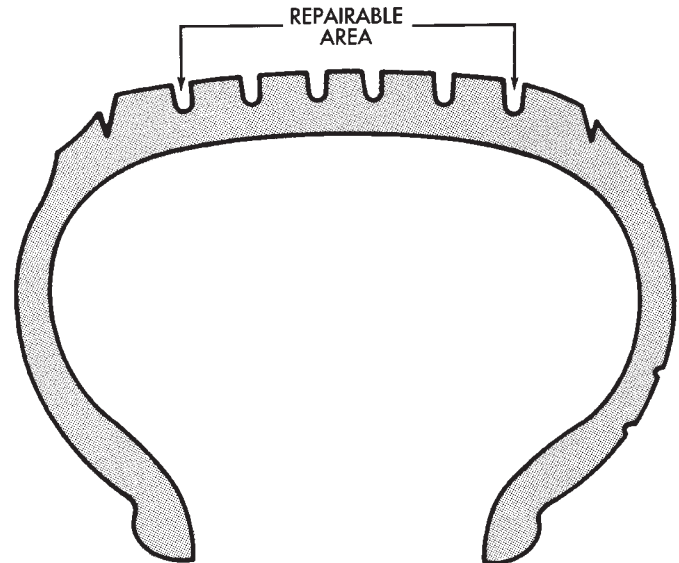
For proper repairing, a radial tire must be removed from the wheel. Repairs should only be made if the defect, or puncture, is in the tread area (Fig. 10). The tire should be replaced if the puncture is located in the sidewall.

Deflate tire completely before dismounting tire from the wheel. Use lubrication such as a mild soap

solution when dismounting or mounting tire. Use tools free of burrs or sharp edges which could damage the tire or wheel rim.

Before mounting tire on wheel, make sure all rust is removed from the rim bead and repaint if necessary.

Install wheel on vehicle, and tighten to proper torque specification.



J8922-6

Fig. 10 Tire Repair Area

CLEANING AND INSPECTION**CLEANING OF TIRES**

Remove protective coating on tires before delivery of vehicle. The coating could cause deterioration of tires.

Remove protective coating by:

- Applying warm water
- Letting it soak one minute
- Scrubbing the coating away with a soft bristle brush.
- Steam cleaning may also be used for cleaning.
- DO NOT use gasoline or wire brush for cleaning.
- DO NOT use mineral oil or an oil-based solvent.

WHEELS

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DESCRIPTION AND OPERATION

WHEEL

Available rim sizes are on the safety certification label located on the drivers door shut face.

Rim size is determined by the drivetrain package.

Original equipment wheels are designed for operation up to the specified maximum vehicle capacity.

All models use steel or cast aluminum wheels. Every wheel has raised sections between the rim flanges and rim drop well called safety humps (Fig. 1).

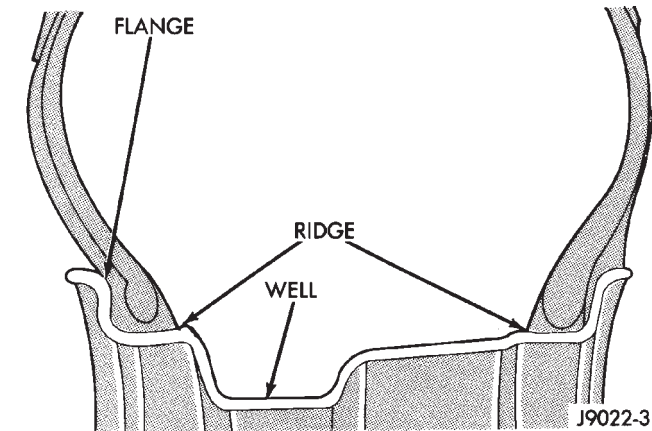


Fig. 1 Safety Rim

Initial inflation of the tire forces the bead over these raised sections. In case of tire failure, the raised sections help hold the tire in position on the wheel.

Cast aluminum wheels require coated balance weights and special alignment equipment.

The wheel studs and nuts are designed for specific applications and must be replaced with equivalent

parts. Do not use replacement parts of lesser quality or a substitute design. All aluminum and some steel wheels have wheel stud nuts with an enlarged nose. This enlarged nose is necessary to ensure proper retention of the wheels.

Before installing the wheel, remove any build up of corrosion on the wheel mounting surfaces.

WARNING: INSTALLING WHEELS WITHOUT GOOD METAL-TO-METAL CONTACT COULD CAUSE LOOSENING OF WHEEL NUTS. THIS COULD ADVERSELY AFFECT THE SAFETY AND HANDLING OF YOUR VEHICLE.

DIAGNOSIS AND TESTING

WHEEL INSPECTION

Wheels must be replaced if they:

- Have excessive run out
- Are bent or dented
- Leak air
- Have damaged bolt holes

Wheel repairs employing hammering, heating, welding or repairing leaks are not allowed.

Original equipment replacement wheels should be used. When obtaining replacement wheels, they should be equivalent in load carrying capacity. The physical dimensions (diameter, width, offset, and bolt circle) of the wheel should be the same as the original wheel.

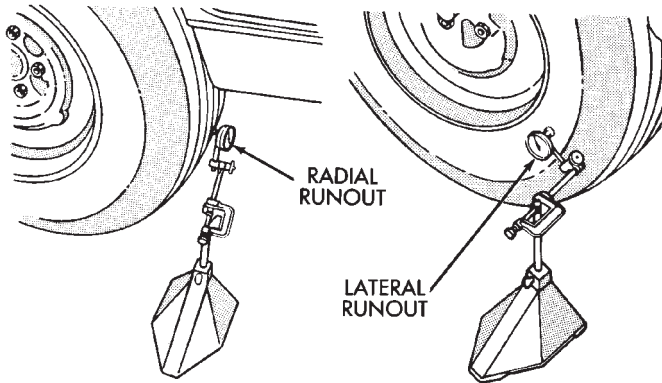
WARNING: FAILURE TO USE EQUIVALENT REPLACEMENT WHEELS MAY ADVERSELY AFFECT THE SAFETY AND HANDLING OF THE VEHICLE. REPLACEMENT WITH USED WHEELS IS NOT RECOMMENDED. THE SERVICE HISTORY OF THE RIM MAY HAVE INCLUDED SEVERE TREATMENT OR VERY HIGH MILEAGE. THE RIM COULD FAIL WITHOUT WARNING.

DIAGNOSIS AND TESTING (Continued)

TIRE AND WHEEL RUNOUT

Radial runout is the difference between the high and low points on the tire or wheel (Fig. 2).

Lateral runout is the **wobble** of the tire or wheel.



J9022-4

Fig. 2 Checking Tire Runout

Radial runout of more than 1.5 mm (.060 inch) measured at the center line of the tread may cause the vehicle to shake.

Lateral runout of more than 2.0 mm (.080 inch) measured near the shoulder of the tire may cause the vehicle to shake.

Sometimes radial runout can be reduced. Relocate the wheel and tire assembly on the mounting studs (See Method 1). If this does not reduce runout to an acceptable level, the tire can be rotated on the wheel. (See Method 2).

METHOD 1 (RELOCATE WHEEL ON HUB)

Check accuracy of the wheel mounting surface; adjust wheel bearings.

Drive vehicle a short distance to eliminate tire flat spotting from a parked position.

Make sure all wheel nuts are properly torqued.

Relocate wheel on the mounting, two studs over from the original position.

Re-tighten wheel nuts until all are properly torqued, to eliminate brake distortion.

Check radial runout. If still excessive, mark tire sidewall, wheel, and stud at point of maximum runout and proceed to Method 2.

METHOD 2 (RELOCATE TIRE ON WHEEL)

Rotating tire on wheel is particularly effective when there is runout in both tire and wheel.

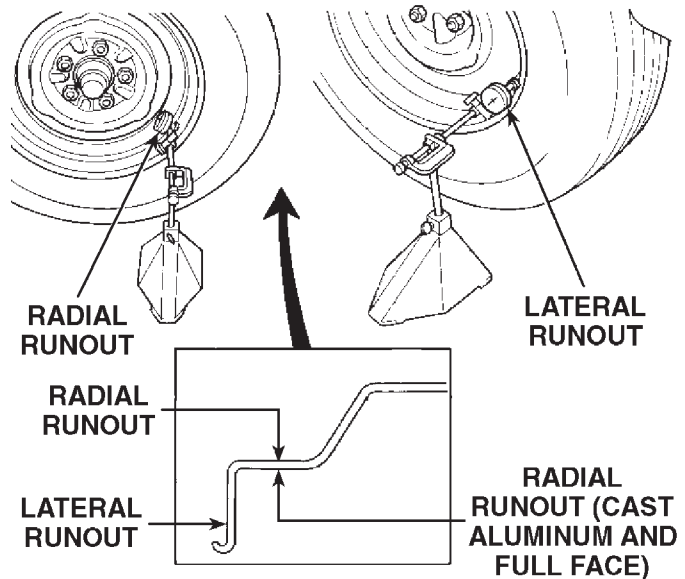
Remove tire from wheel and re-mount wheel on hub in former position.

Check wheel radial runout (Fig. 3).

NOTE: If the vehicle is equipped with aluminum or full faced wheels the tire must be removed to check radial runout.

- **STEEL WHEELS:** Radial runout 0.040 in., Lateral runout 0.045 in.

- **ALUMINUM WHEELS:** Radial runout 0.030 in., Lateral runout 0.035 in.



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Fig. 3 Checking Wheel Runout

If point of greatest runout is near original chalk mark, remount tire 180 degrees. Recheck runout.

SERVICE PROCEDURES

WHEEL INSTALLATION

The wheel studs and nuts are designed for specific applications. They must be replaced with equivalent parts. Do not use replacement parts of lesser quality or a substitute design. All aluminum and some steel wheels have wheel stud nuts which feature an enlarged nose. This enlarged nose is necessary to ensure proper retention of the aluminum wheels.

NOTE: Do not use chrome plated lug nuts with chrome plated wheels.

Before installing the wheel, be sure to remove any build up of corrosion on the wheel mounting surfaces. Ensure wheels are installed with good metal-to-metal contact. Improper installation could cause loosening of wheel nuts. This could affect the safety and handling of your vehicle.

To install the wheel, first position it properly on the mounting surface. All wheel nuts should then be tightened just snug. Gradually tighten them in sequence to the

SERVICE PROCEDURES (Continued)

proper torque specification (Fig. 4). **Never use oil or grease on studs or nuts.**

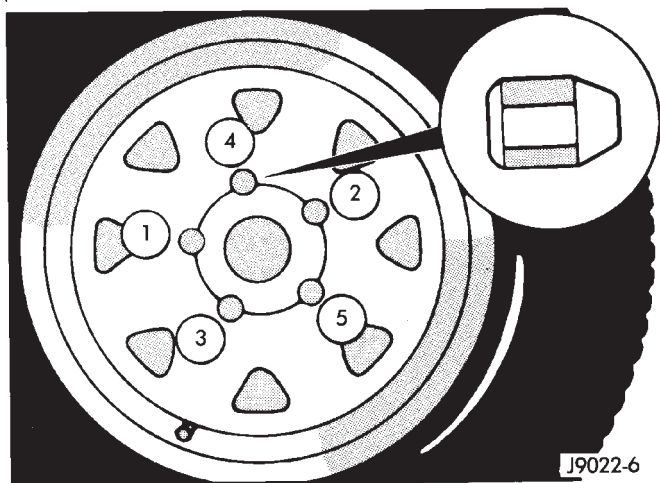


Fig. 4 Lug Nut Tightening Pattern

WHEEL REPLACEMENT

Wheels must be replaced if they have:

- Excessive runout
- Bent or dented
- Leak air through welds
- Have damaged bolt holes

Wheel repairs employing hammering, heating, or welding are not allowed.

Original equipment wheels are available through your dealer. Replacement wheels from any other source should be equivalent in:

- Load carrying capacity
- Diameter
- Width
- Offset
- Mounting configuration

Failure to use equivalent replacement wheels may affect the safety and handling of your vehicle. Replacement with **used** wheels is not recommended. Their service history may have included severe treatment.

TIRE AND WHEEL BALANCE

It is recommended that a two plane dynamic balancer be used when a wheel and tire assembly require balancing. Static should be used only when a two plane balancer is not available.

For static imbalance, find location of heavy spot causing imbalance. Counter balance wheel directly opposite the heavy spot. Determine weight required to counterbalance the area of imbalance. Place half of this weight on the **inner** rim flange and the other half on the **outer** rim flange (Fig. 5) and (Fig. 6). Off-vehicle balancing is necessary.

Wheel balancing can be accomplished with either on or off vehicle equipment. When using on-vehicle balancing equipment, remove the opposite wheel/tire.

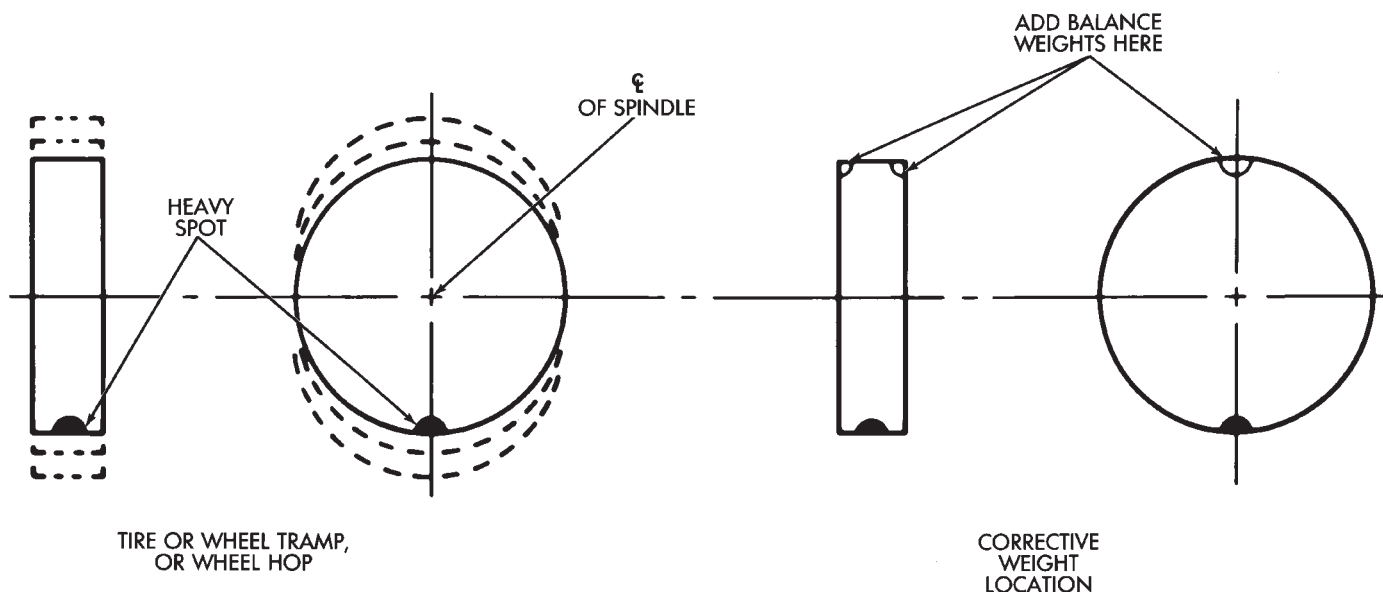


Fig. 5 Static Unbalance & Balance

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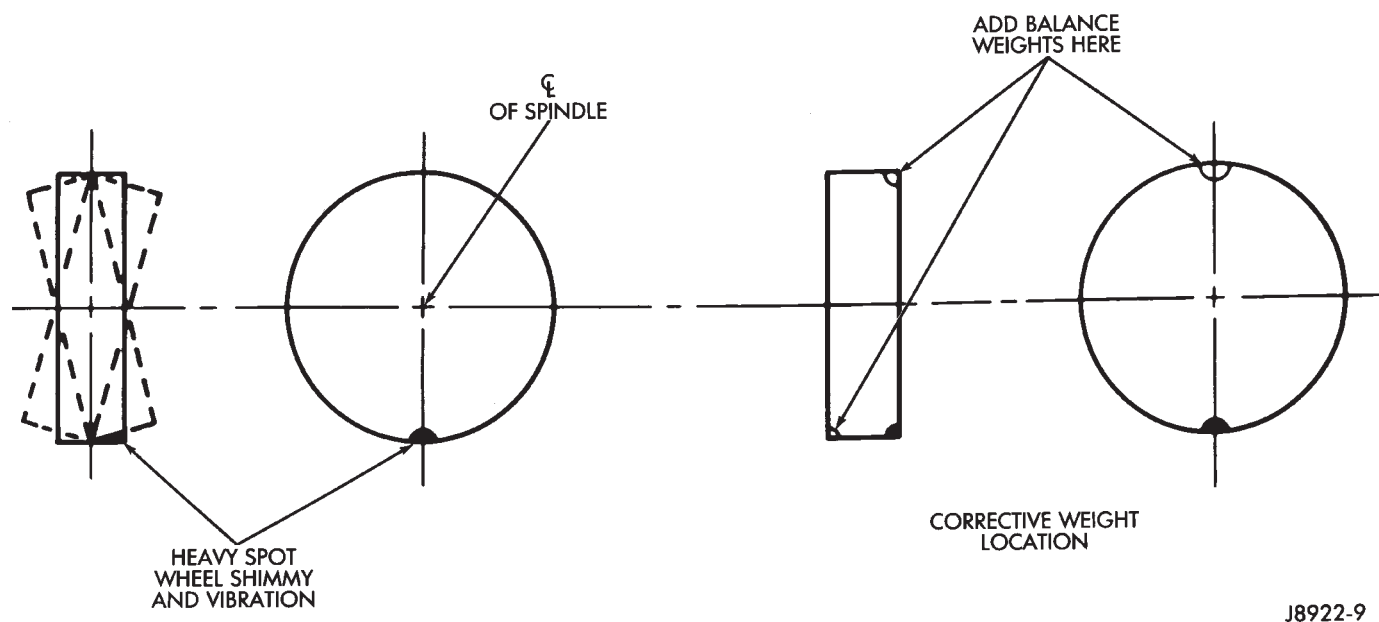


Fig. 6 Dynamic Unbalance & Balance

SPECIFICATIONS

TORQUE CHART

DESCRIPTION

TORQUE

Lug Nut

1/2 X 20 with 60° Cone109 to 150 N·m
(80 to 110 ft. lbs.)