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

This vehicle was designed to allow the use of a specified type of snow chain on the tires. Only compact snow chains or other traction aidsmeeting SAE type “Class S” specifications may be used. **Any style**

DESCRIPTION AND OPERATION (Continued)

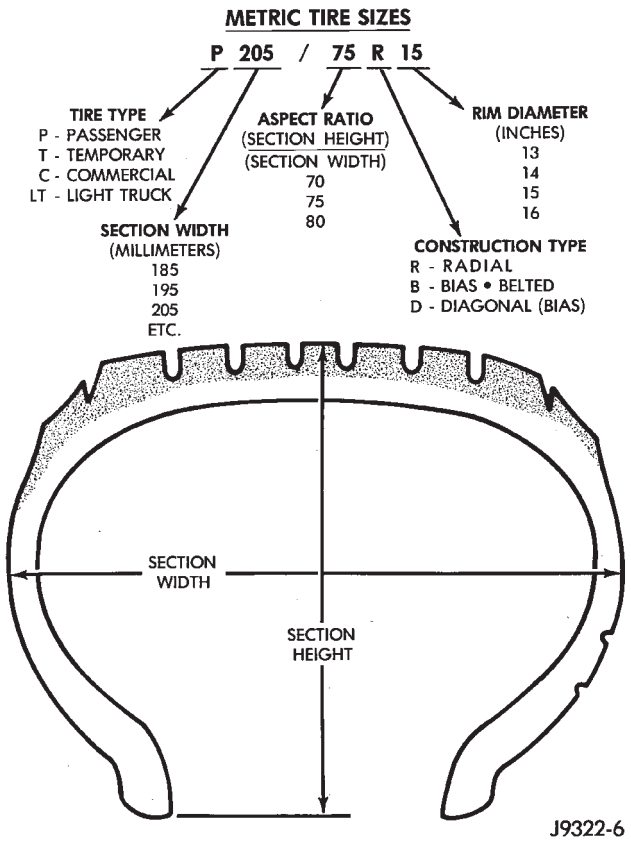


Fig. 1 Tire Size Identification

snow chain or other type of traction aid is not to be used on the compact spare tire.

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 a temporary spare tire 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 manufactures NOT be mixed. The proper tire pressure should be maintained on all four tires. For proper tire pressure refer to the Tire Inflation Pressure Placard located in the glove box.

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 replaced with a new. Do not exceed speeds of 50 MPH when the temporary spare tire is in use on the vehicle. Refer to the Owner's Manual for complete details.

TIRE INFLATION PRESSURES

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

Under inflation causes rapid shoulder wear of the tire tread and tire flexing. This can result in failure of the tire. (Fig. 2).

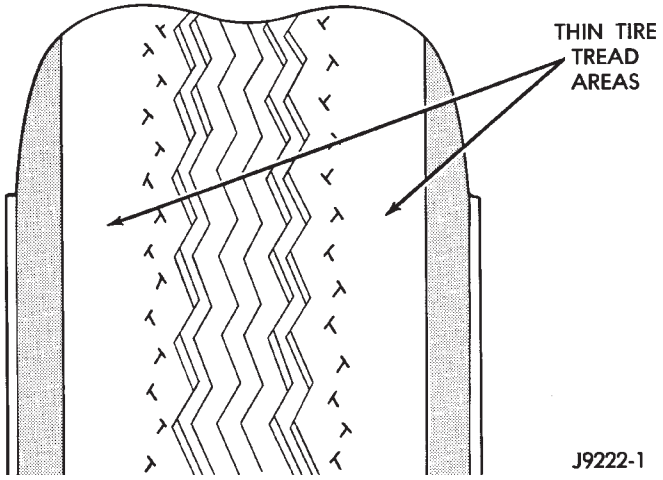


Fig. 2 Under Inflation Wear

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

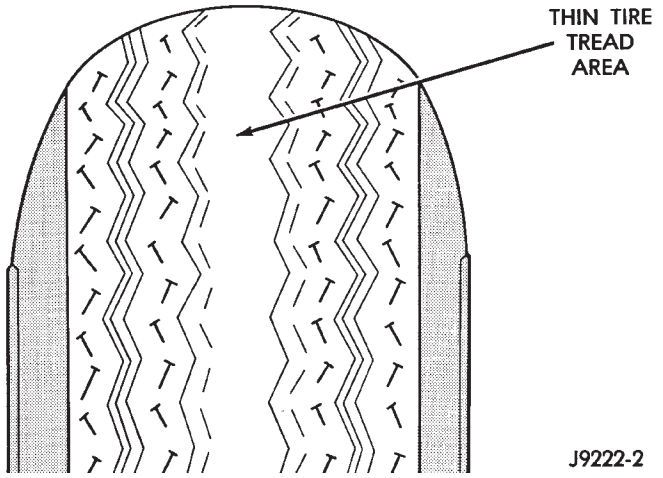


Fig. 3 Over Inflation Wear

DESCRIPTION AND OPERATION (Continued)

Improper inflation can cause:
- Uneven wear patterns
- Reduced tread life
- Reduced fuel economy
- Unsatisfactory ride
- The vehicle to drift.

Proper tire air inflation pressure specifications can be found on the Vehicle Tire Placard provided with the vehicle. See owner's manual.

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

Tire inflation pressures specified on the placard 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.

TIRE PRESSURE FOR HIGH-SPEED DRIVING

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.

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

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 recommend 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 quality air pressure gauge is recommended to check tire pressure. After checking the air pressure, replace valve cap finger tight.

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 (Fig. 4).

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

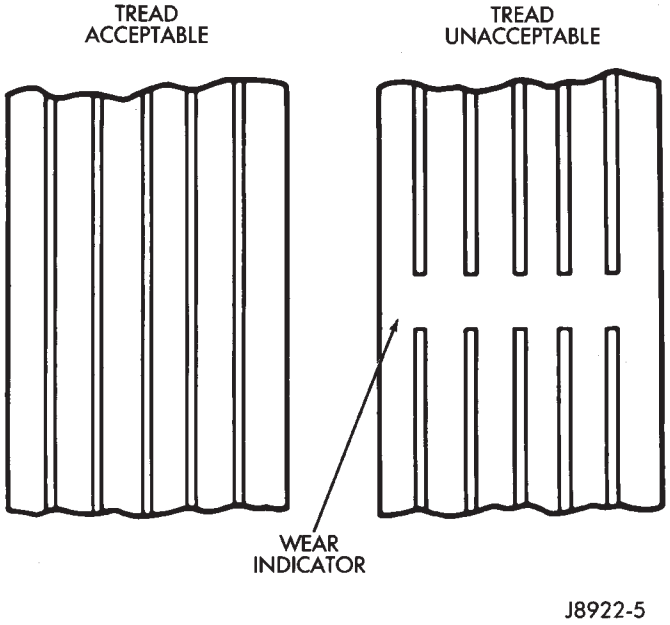


Fig. 4 Tread Wear Indicators

DIAGNOSIS AND TESTING (Continued)

TIRE WEAR PATTERNS

Under inflation will cause wear on the shoulders of tire. Over inflation will cause wear at the center of tire.

Excessive camber causes the tire to run at an angle to the road. One side of tread is then worn more than the other (Fig. 5).

Excessive toe-in or toe-out causes wear on the tread edges and 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 noise level during acceleration and deceleration. The engine, differential and exhaust noises will change as speed varies, while the tire noise will usually remain constant.

LEAD CORRECTION CHART

Use the following chart to correct a vehicle leading or drifting problem.

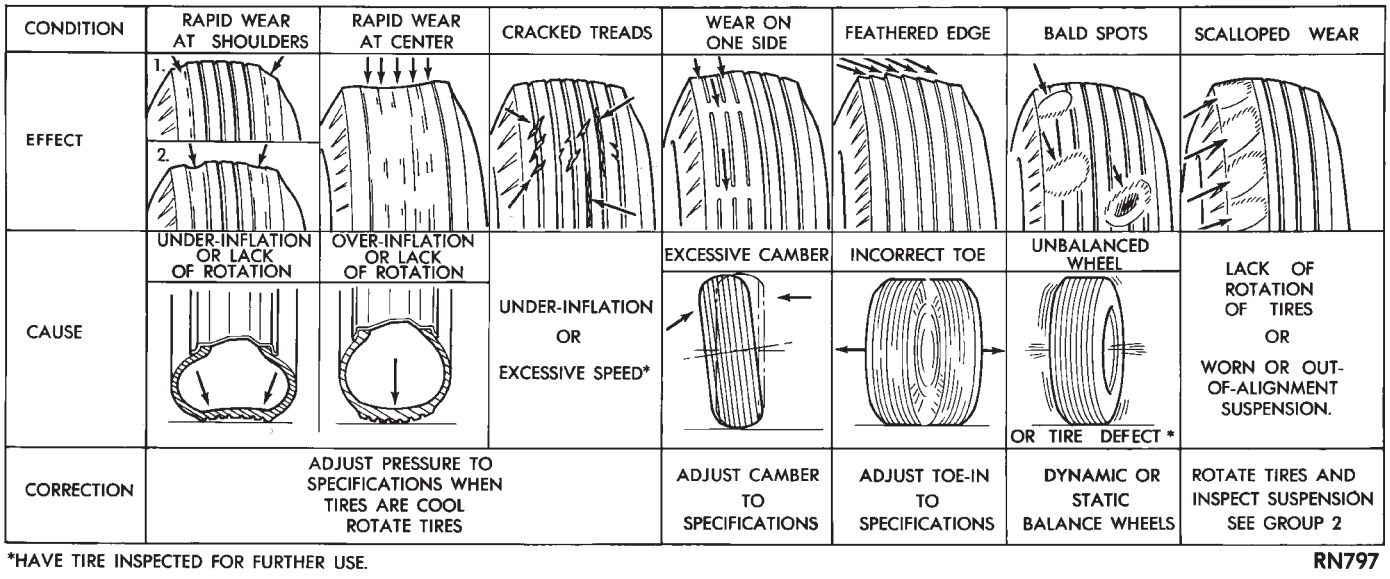
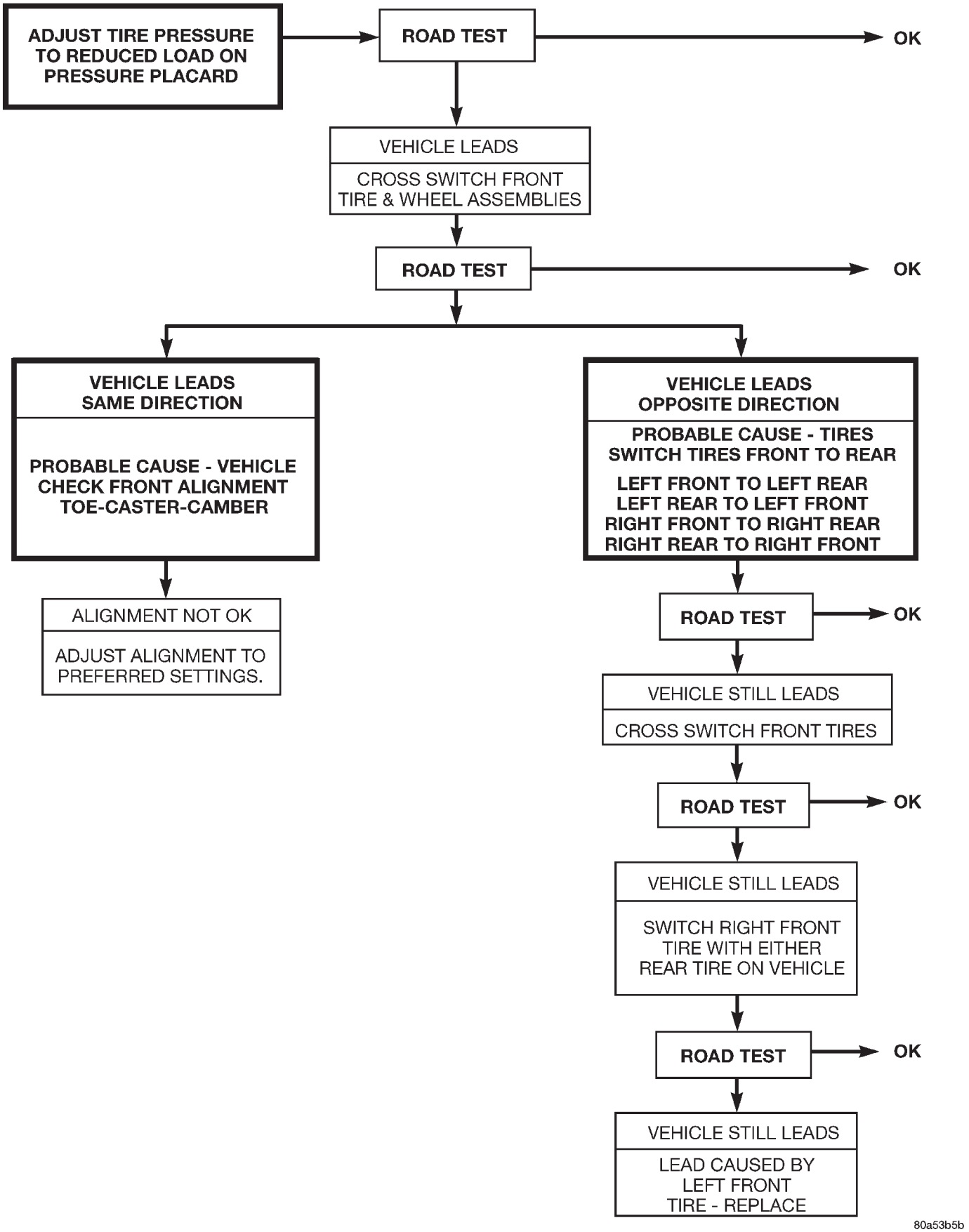


Fig. 5 Tire Wear Patterns

DIAGNOSIS AND TESTING (Continued)

LEAD CORRECTION CHART



SERVICE PROCEDURES

TIRE AND WHEEL ROTATION (NON-DIRECTIONAL THREAD PATTERN)

Tires on the front and rear axles operate at different loads and perform different functions. For these reasons, they wear at unequal rates, and 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, and contribute to a smooth, quiet ride.

The suggested rotation method is the forward-cross tire rotation method (Fig. 6). This method takes advantage of current tire industry practice which allows rotation of radial-ply tires. Other rotation methods may be used, but may not have all the benefits of the recommended method.

NOTE: Only the 4 tire rotation method may be used if the vehicle is equipped with a low mileage or temporary spare tire.

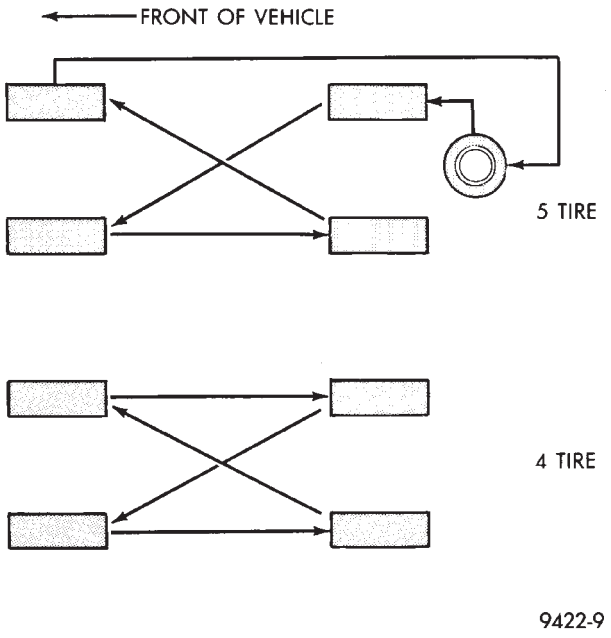


Fig. 6 Forward-Cross Tire Rotation Method

REPAIRING TIRE LEAKS

For proper repairing, a radial tire must be removed from the wheel. Before dismounting the tire from the wheel, a reference mark should be placed on the tire at the valve stem location. This reference mark will ensure that the tire is remounted back on the wheel in its original position. Repairs should only be made if the defect, or puncture, is in the tread area (Fig. 7). 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 progressively tighten all 5 wheel nuts to a torque of 135 N·m (100 ft. lbs.).

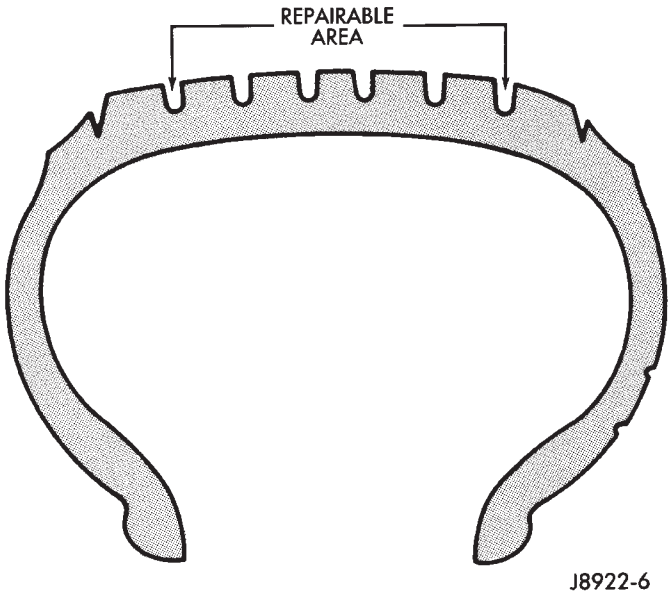


Fig. 7 Tire Repair Area

TIRE AND WHEEL MATCH MOUNTING

Wheels and tires are match mounted at the factory. This means that the high spot of the tire is matched to the low spot on the wheel rim. This technique is used to reduce run-out in the wheel/tire assembly. 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 or line on the inside of the rim. If the outside label has been removed the tire will have to be removed to locate the dot or line 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. 8).

(2) Break down the tire and remount it 180 degrees on the rim (Fig. 9).

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

SERVICE PROCEDURES (Continued)

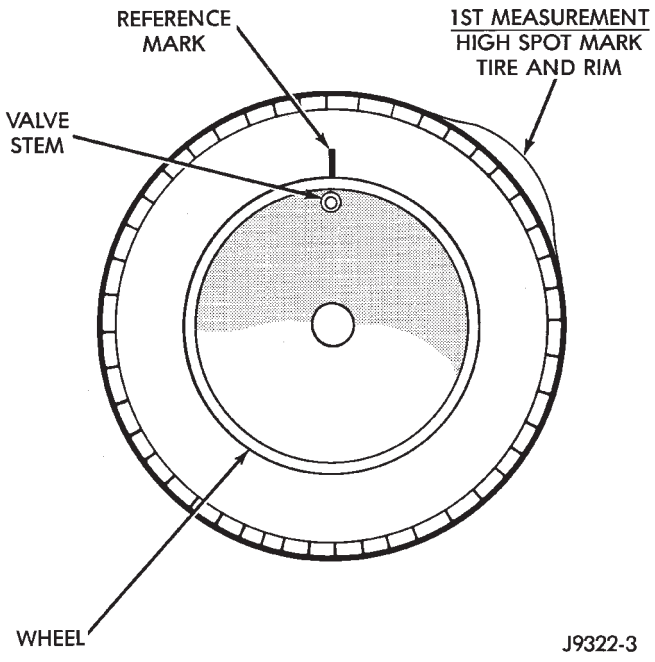


Fig. 8 First Measurement On Tire

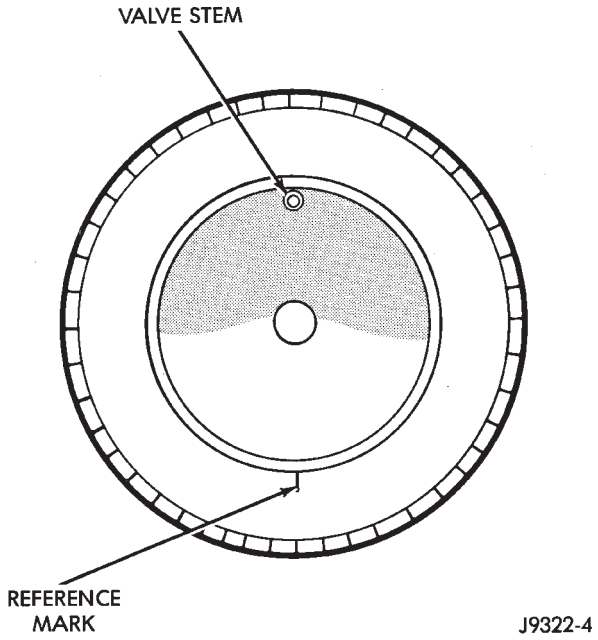


Fig. 9 Remount Tire 180 Degrees

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

- If the high spot is within 102 mm (4.0 in.) of the first spot and is still excessive, replace the tire.
- If the high spot is within 102 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 102 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. 10). This procedure will normally reduce the runout to an acceptable amount.

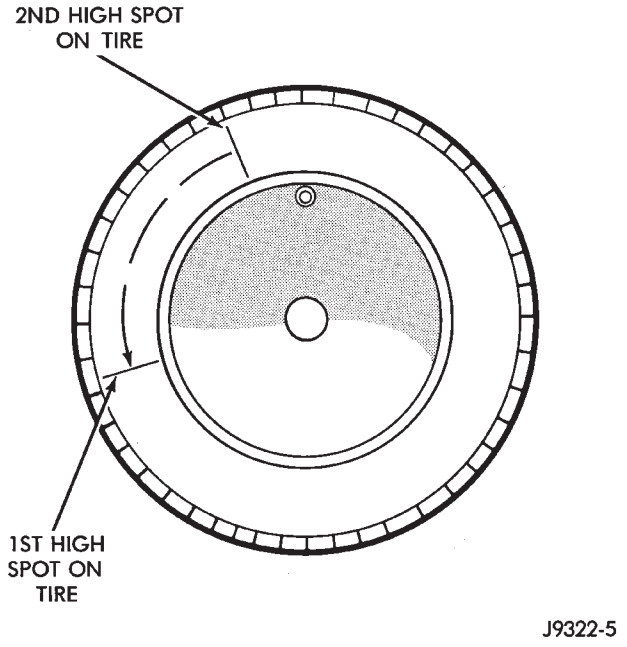


Fig. 10 Remount Tire 90 Degrees In Direction of Arrow

CLEANING AND INSPECTION

CLEANING TIRES

Remove protective coating on tires before delivery of vehicle. This coating may cause deterioration of tires.

To remove the protective coating applying warm water and let it soak for a few minutes. Then scrub the coating away with a soft bristle brush. Steam cleaning may also be used to remove the coating.

NOTE: DO NOT use gasoline, mineral oil, oil-based solvent or wire brush for cleaning.

SPECIFICATIONS

TIRE SPECIFICATIONS

The following guide should help you understand the tire designations:

P	Passenger car tire (or ''T'' for temporary-use tire).
185	Nominal width of tire in millimeters.
70	Tire height-to-width ratio.
R	Radial-ply tire (or ''D'' for bias-ply tire).
14	Nominal rim diameter in inches.

Do not install smaller than minimum size tires shown on the tire inflation placard on the vehicle.

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WHEELS

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DESCRIPTION AND OPERATION

WHEEL INFORMATION

Original equipment wheels are designed for proper operation at all loads up to the specified maximum vehicle capacity.

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

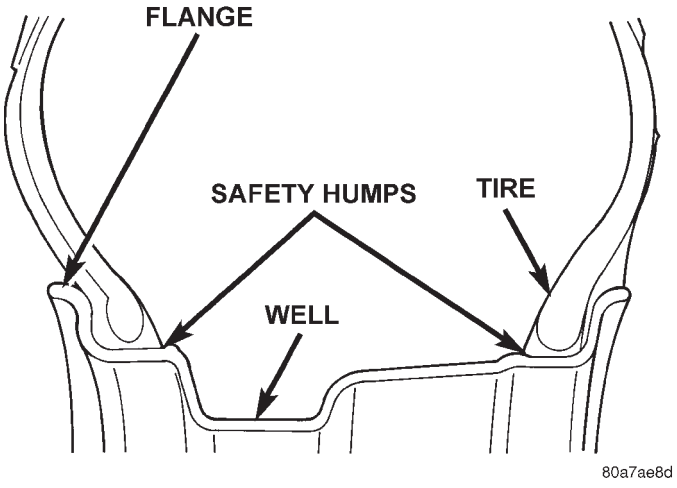

Fig. 1 Safety Rim

Initial inflation of the tires forces the bead over these raised sections. In case of air loss the raised sections hold the tire in position on the wheel until the vehicle can be brought to a safe stop.

Cast aluminum wheels require special balance weights to fit on the thicker flange of the rim and special wheel clamps for the alignment equipment.

The wheel studs and nuts are designed for the specific wheel applications used on a vehicle and must be replaced with equivalent parts.

Do not use replacement parts of lesser quality or of a substitute design from the original equipment part.

All aluminum wheels have wheel stud nuts with an enlarged nose. This enlarged nose is necessary to ensure proper retention of the wheels.

Vehicles that are equipped with bolt-on wheel covers use large nose wheel nuts. The wheel nuts used on a vehicle equipped with bolt-on wheel covers are externally threaded so that the wheel covers can be attached to the wheel nuts.

Before installing a wheel, remove any buildup of corrosion on the wheel mounting surface.

WARNING: INSTALLING WHEELS WITHOUT GOOD METAL-TO-METAL CONTACT COULD CAUSE LOOSENING OF WHEEL LUG 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 wheel lug holes

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

Original equipment replacement wheels are available through the dealer. When obtaining replacement wheels from any other source, they must be equivalent in load carrying capacity. The wheel features (diameter, width, offset, brake clearance, and mounting configuration) must match the original equipment wheels.

WARNING: FAILURE TO USE ORIGINAL EQUIPMENT REPLACEMENT WHEELS MAY ADVERSELY AFFECT THE SAFETY AND HANDLING OF YOUR VEHICLE.

DIAGNOSIS AND TESTING (Continued)

WARNING: 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.

TIRE AND WHEEL RUNOUT

NOTE: Runout should always be measured off the vehicle and on a suitable balance machine.

Radial run out is the difference between the high and low points on the outer edge of the tire or wheel.

Lateral run out is the total side–to–side wobble of the tire or wheel.

Radial run out of more than 0.762 mm (.030 inch) measured at the center line of the tread may cause the vehicle to shake.

Lateral run out of more than 0.762 mm (.030 inch) measured at the side of the tire as close to the tread as possible may cause the vehicle to shake.

Sometimes radial run out can be reduced by relocating the wheel and tire on the wheel studs (See Method 1). If this does not reduce run out 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.

Verify all wheel nuts are properly torqued (Fig. 2).

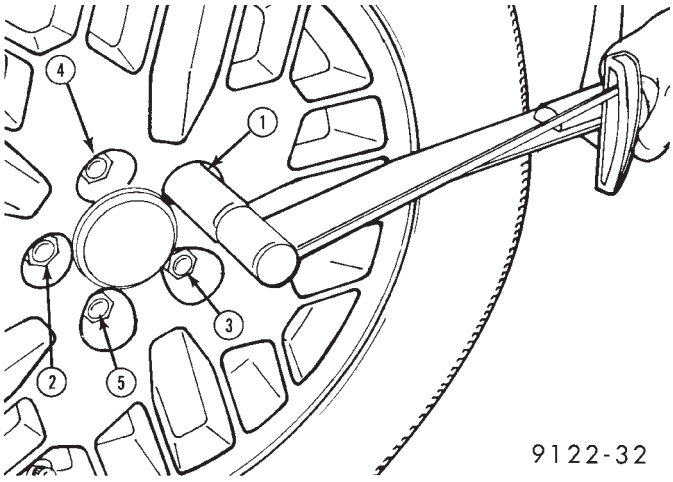

Fig. 2 Tightening Wheel Nuts

Use run out gauge D-128-TR to determine run out (Fig. 3).

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

Retighten wheel nuts until all are properly torqued. This will prevent brake distortion.

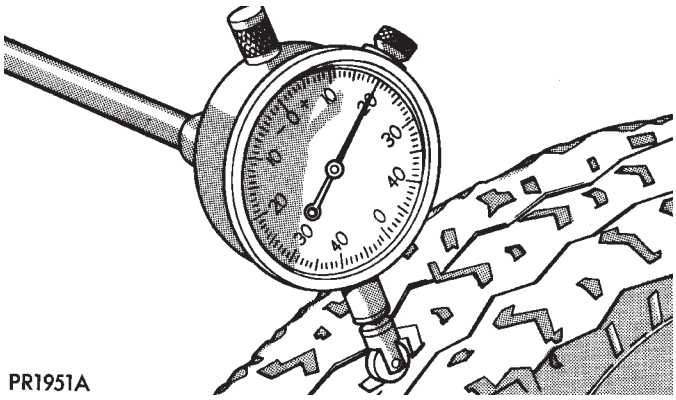

Fig. 3 Run Out Gauge

Check radial run out. If still excessive, mark tire sidewall, wheel, and stud at point of maximum run out (Fig. 4) and proceed to Method 2.

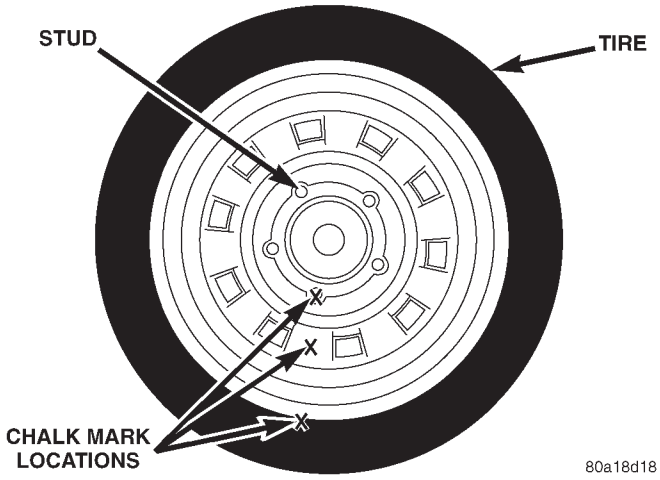

Fig. 4 Chalk Marking On Wheel, Tire And Stud

METHOD 2 (RELOCATE TIRE ON WHEEL)

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

Remove tire from wheel and remount wheel on hub in former position.

Check the radial run out of the wheel (Fig. 5). The radial run out should be no more than 0.5 mm (0.020 inch) for steel wheels and 0.38 mm (0.015 inch) for cast aluminum wheels.

Check the lateral run out of the wheel (Fig. 6). The lateral runout should be no more than 0.8 mm (0.032 inch).

If the point of greatest wheel radial run out is near the original chalk mark, remount the tire on the rim 180 degrees from its original position. Recheck the run out. If this does not reduce the run out to an acceptable level, replace the wheel and/or the tire.

DIAGNOSIS AND TESTING (Continued)

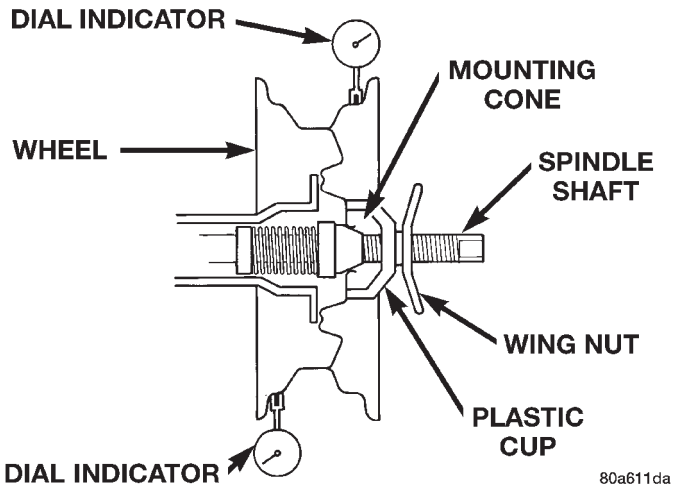

Fig. 5 Checking Wheel Radial Run Out

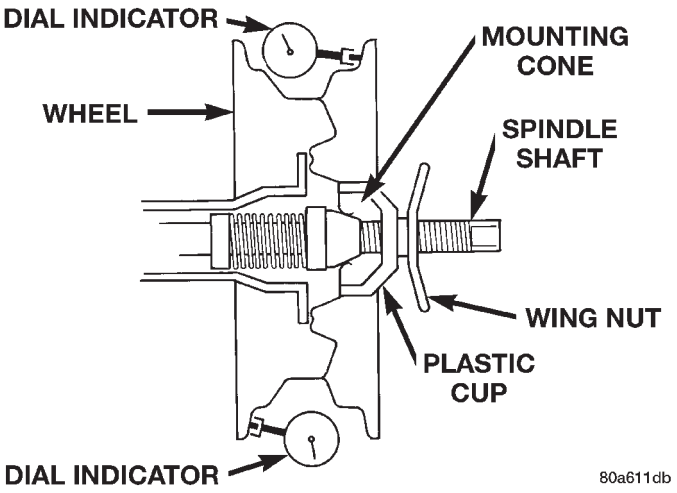

Fig. 6 Checking Wheel Lateral Run Out

SERVICE PROCEDURES

WHEEL INSTALLATION

To install the wheel, first position it properly on the mounting surface of the hub using the hub pilot as a guide. All wheel nuts should be lightly tightened before progressively tightening them in the proper sequence (Fig. 7). Then fully tighten the wheel nuts in the proper sequence (Fig. 7) to a torque of 135 N·m (100 ft. lbs.). Never use oil or grease on studs or nuts.

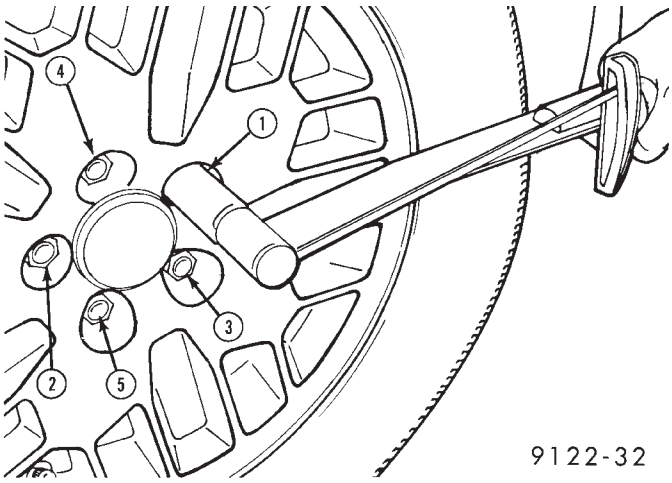

Fig. 7 Tightening Wheel Nuts

TIRE AND WHEEL BALANCE

Balancing need is indicated by vibration of seats, floor pan, or steering wheel. The vibration will be noticed mostly when driving over 90 km/h (55 mph) on a smooth road.

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

Off-vehicle tire and wheel balancing is recommended to be used on this vehicle.

NOTE: If on vehicle equipment is being used to balance the tire /wheel assemblies, remove the opposite tire/wheel from the vehicle.

For static balancing, find the location of heavy spot on tire/wheel causing the 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. 8).

For dynamic balancing, the balancing equipment is designed to indicate the location and amount of weight to be applied to both the inner and outer rim flanges (Fig. 9).

SERVICE PROCEDURES (Continued)

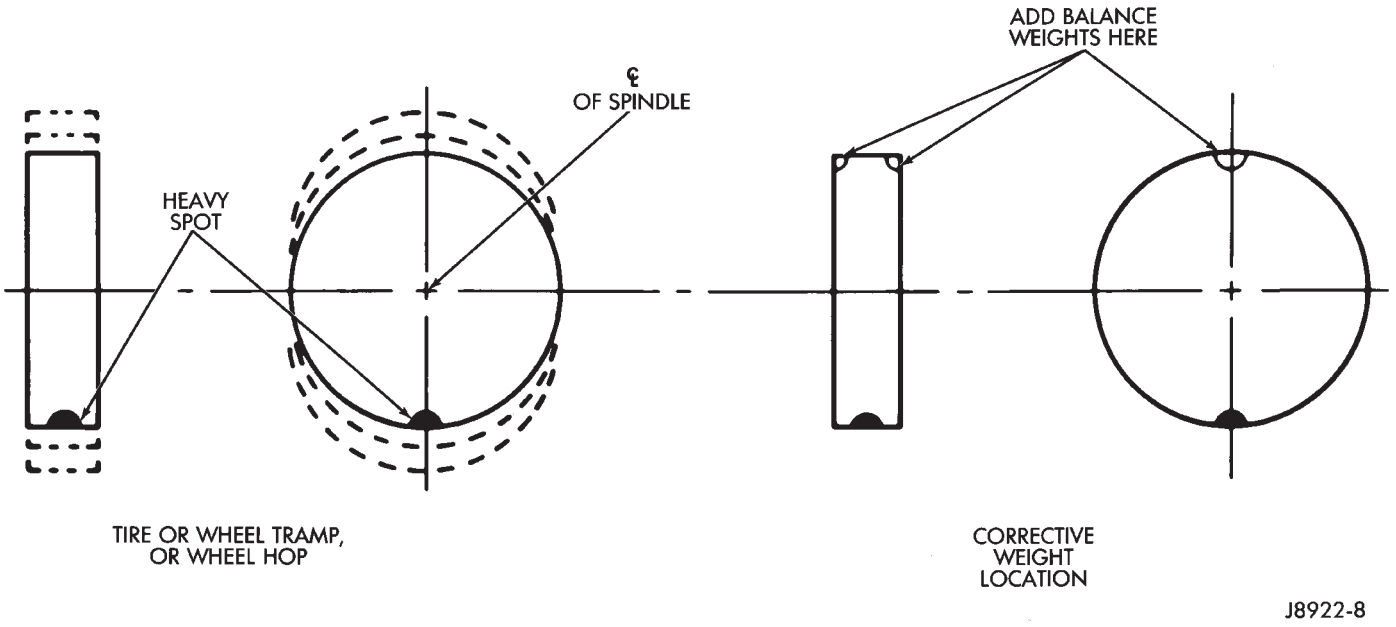

Fig. 8 Static Unbalance & Balance

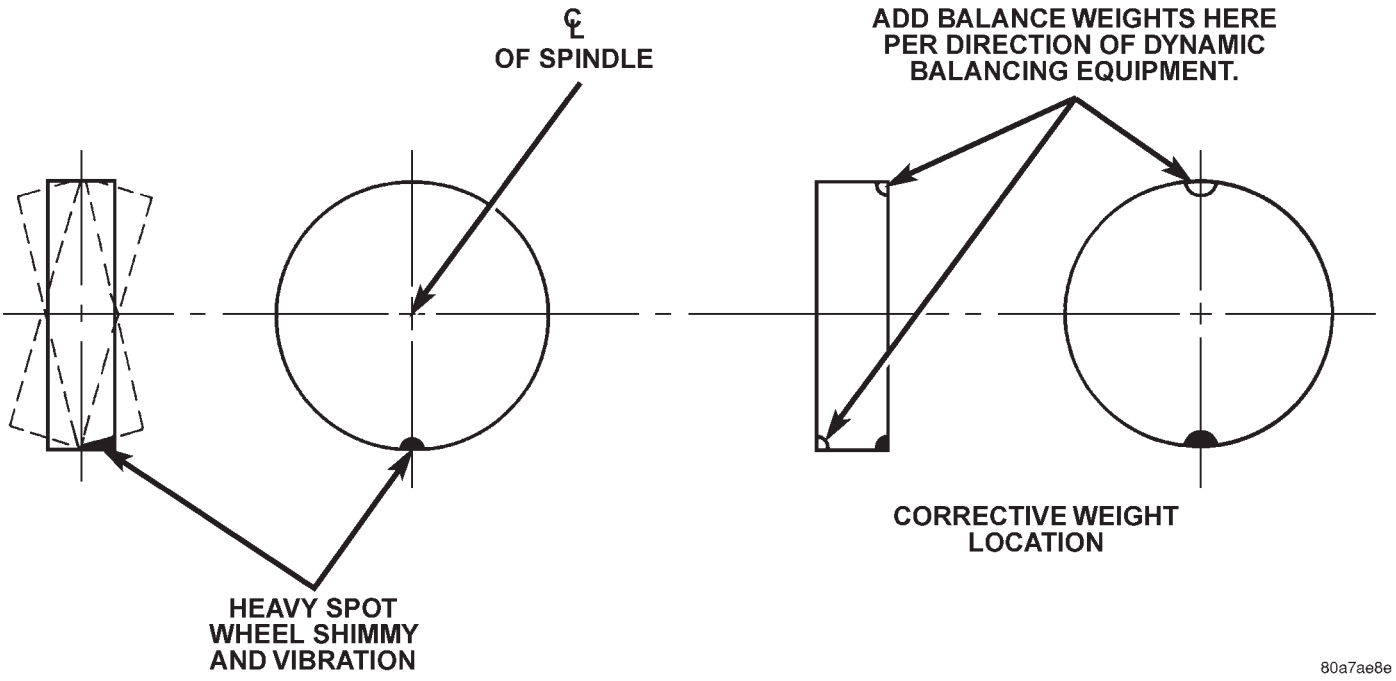

Fig. 9 Dynamic Unbalance & Balance

SPECIFICATIONS

WHEEL SPECIFICATIONS

Wheel:

Mounting Stud Size. . . . . .M12 x 1.5mm
Mounting Stud Lug Nut Hex Size. 19mm
Mounting Lug Nut Tightening
Torque . . . . . .135 N·m (100 ft. lbs.)