

# WHEELS—TIRES

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## TIRE SERVICE PROCEDURES

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## GENERAL INFORMATION

Throughout this group, references may be made to a particular vehicle by letter or number designation. A chart showing the breakdown of these designations is included in the Introduction Section.

Tires are designed for the vehicle and 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. They have load carrying capacity, when properly inflated, to operate at loads up to the specified Maximum Vehicle Capacity.

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

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

Radial ply tires can be more susceptible to irregular tread wear. **It is very important to follow the tire rotation interval shown in the section on Tire Rotation to achieve a greater tread life potential.**

## RADIAL-PLY TIRES

Radial-ply tires improve handling, tread life, and 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. However, they may be mixed with temporary spare tires when necessary, but reduced speeds are recommended.

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.

## SPARE TIRE—COMPACT

The compact spare tire is designed for emergency use only. The original tire should be repaired and reinstalled at the first opportunity. Refer to Owner's Manual for complete details.

## TIRE CHAINS

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

## CLEANING OF TIRES

Remove protective coating on tires before delivery of vehicle, otherwise it could cause deterioration of tires.

Remove protective coating by applying warm water, letting it soak one minute, and then scrubbing the coating away with a soft bristle brush.

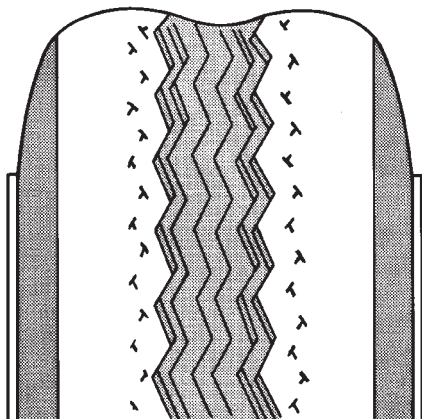
- Steam cleaning may also be used for cleaning.
- DO NOT use gasoline or wire brush for cleaning.
- DO NOT use mineral oil or an oil-based solvent.

## PRESSURE GAUGES

High quality dial type air pressure gauges are recommended. After checking pressure with the gauge, replace valve caps and tighten finger tight.

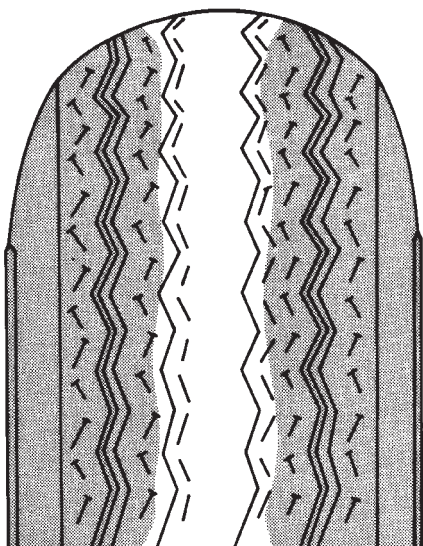
## TIRE INFLATION PRESSURES

Under inflation (Fig. 1) causes rapid shoulder wear and tire flexing and can result in tire failure.



**Fig. 1 Under inflation Wear**

Over inflation (Fig. 2) cause rapid center wear and loss of the tire's ability to cushion shocks.



**Fig. 2 Over inflation Wear**

Improper inflation can cause:

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

Proper tire pressure can be found on the placard attached to the vehicle, See Owner's Manual.

This pressure has been selected to provide safe vehicle operation, proper vehicle stability, and a smooth ride. Tire pressure should be checked cold once per month and more frequently when the

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 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.

Cold inflation pressures must not exceed 240 kPa (35 psi) for P-Series standard load tires.

## TIRE PRESSURES FOR HIGH-SPEED OPERATION

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

**WARNING: OVERINFLATED OR UNDER INFLATED TIRES CAN AFFECT VEHICLE HANDLING. SUDDEN TIRE FAILURE CAN RESULT, CAUSING LOSS OF VEHICLE CONTROL.**

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

## REPLACEMENT TIRES

The original equipment tires on the vehicle have been engineered to provide a proper balance of many characteristics such as:

- ride
- noise
- handling
- durability
- tread life
- traction
- rolling resistance
- speed capability

Failure to use equipment 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 com-

ponents. Under extremes of suspension and steering travel tire damage may occur.

**WARNING: FAILURE TO EQUIP THE VEHICLE WITH TIRES HAVING ADEQUATE SPEED RATING CAN CAUSE SUDDEN TIRE FAILURE.**

## ROTATION

### DIRECTIONAL TREAD PATTERN TIRES

Some vehicles are fitted with special high-performance tires having a directional tread pattern designed to improve traction on wet pavement.

To obtain the full benefits of this design, the tires must be installed so that they rotate in the correct direction. This is indicated by arrows on the tire sidewalls.

When wheels and tires are being installed, extra care is needed to ensure that this direction of rotation is maintained.

Refer to Owner's Manual for rotation schedule.

### NONDIRECTIONAL TIRES

Tires on the front and rear axles of vehicles operate at different loads and perform different steering, driving, and braking 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. 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. This method takes advantage of current tire industry practice which now allows cross rotation of radial-ply tires. Refer to the owner's manual (usually found in the glove box) for additional information. Other rotation methods may be used, but may not have all the benefits of the recommended method.

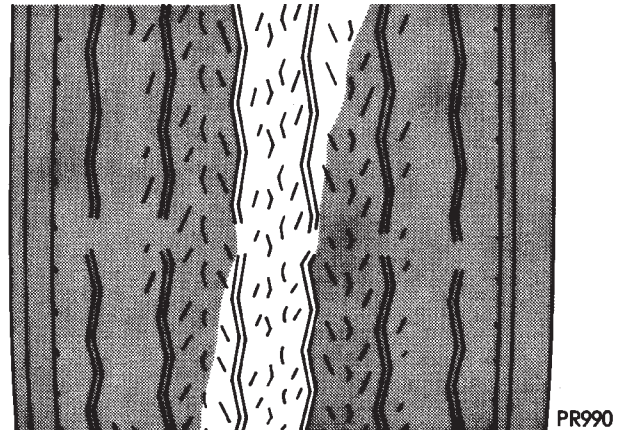
Always check air pressure and wheel nut tightness after rotation. **Do NOT use oil or grease on studs or nuts.**

Refer to Owner's Manual for rotation schedule.

## TREAD WEAR INDICATORS

Tread wear indicators (Fig. 3) are molded into the bottom of the tread grooves. When tread 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. 3 Tread Wear Indicators**

## 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 otherwise the tire should be replaced.

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 scale is removed from the rim and repaint if necessary.

Install wheels on vehicle, progressively tightening wheel nuts to 129 N•m (95 ft. lbs.) torque (See Wheels).

## TIRE NOISE OR VIBRATION

Radial-ply tires are sensitive to force impulses caused by improper mounting, wheel irregularities, or imbalance.

To determine if the tires are causing the noise or vibration, drive the vehicle over a smooth portion of highway at different speeds and note the effect of acceleration and deceleration on noise level. Differential and exhaust noise will change in intensity as speed varies, while tire noise will usually remain constant.


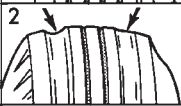





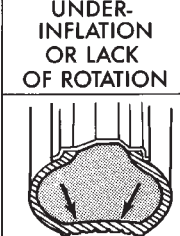
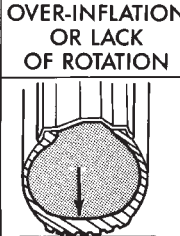
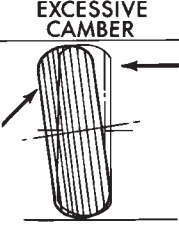
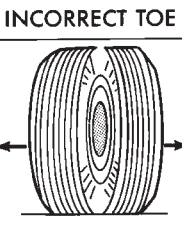
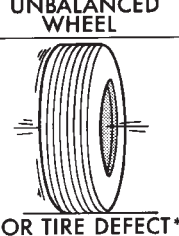
## TIRE WEAR PATTERNS

Under inflation results in faster wear on shoulders of tire.

Over inflation causes faster wear at center of tread.

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

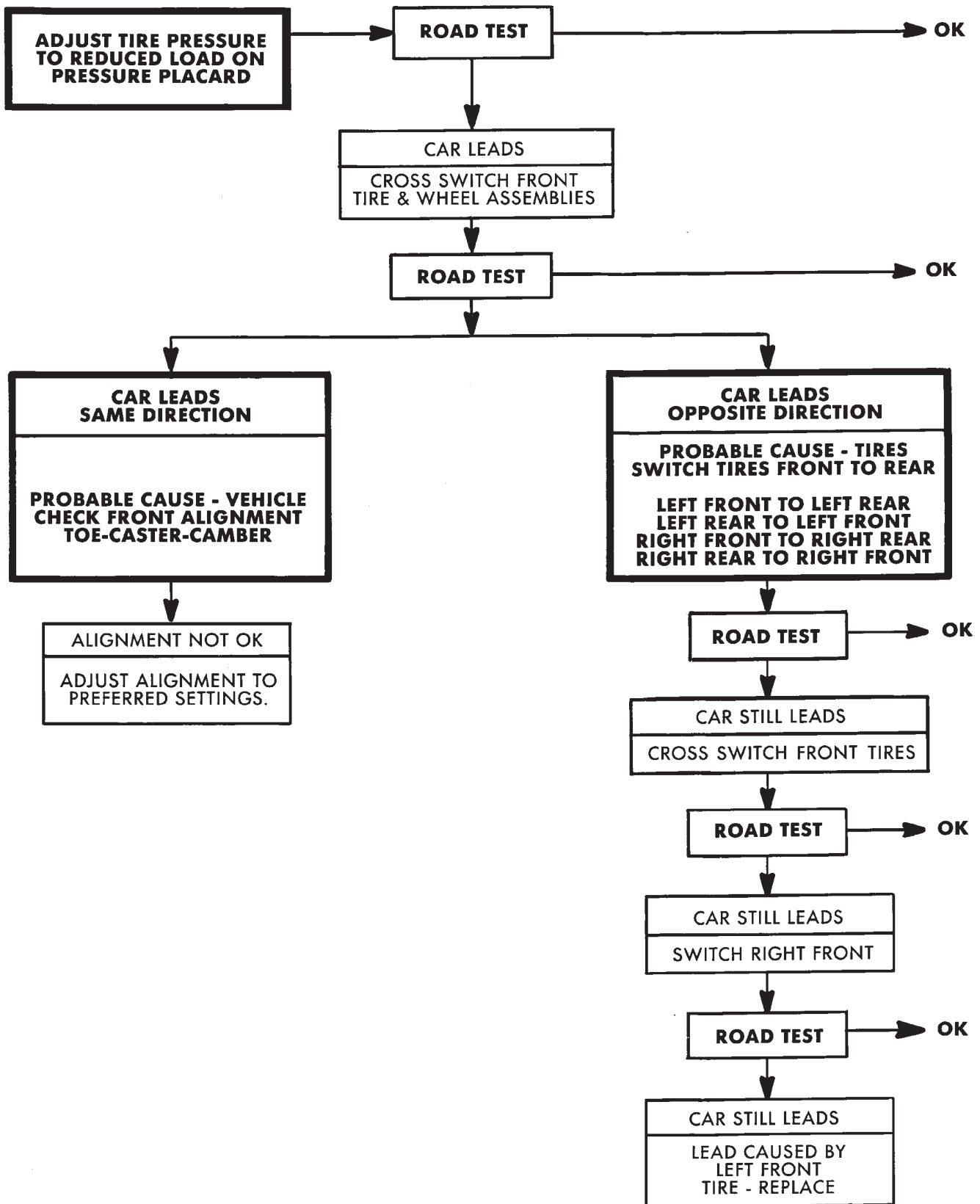
Excessive toe-in or toe-out causes wear on the tread edges of the tire, from dragging of tire. There is a feathered effect across the tread (Fig. 4).

CONDITION	RAPID WEAR AT SHOULDERS	RAPID WEAR AT CENTER	WEAR ON ONE SIDE	FEATHERED EDGE	BALD SPOTS	SCALLOPED WEAR
EFFECT						
						
CAUSE	UNDER-INFLATION OR LACK OF ROTATION	OVER-INFLATION OR LACK OF ROTATION	EXCESSIVE CAMBER	INCORRECT TOE	UNBALANCED WHEEL	LACK OF ROTATION OF TIRES OR WORN OR OUT-OF-ALIGNMENT SUSPENSION
					 OR TIRE DEFECT*	
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

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Fig. 4 Tire Wear Patterns

## LEAD CORRECTION CHART





## WHEEL SERVICE PROCEDURES

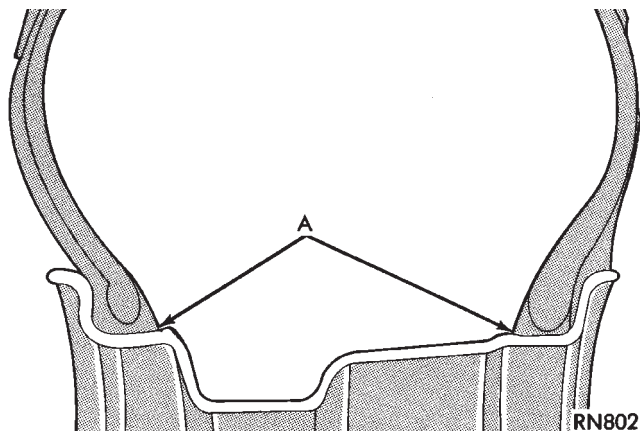
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## GENERAL INFORMATION

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

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



**Fig. 1 Safety Rim**

Initial inflation of the tires forces the bead over these raised sections. In case of tire failure the raised sections help 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 and alignment equipment.

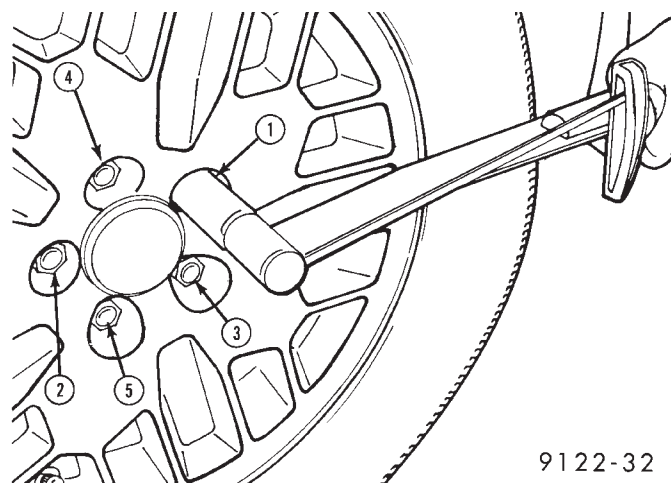
## WHEEL INSTALLATION

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 which feature an enlarged nose. This enlarged nose is necessary to ensure proper retention of the aluminum wheels.

Before installing the wheel, be sure to remove any build up of corrosion on the wheel mounting surfaces with scraping and wire brushing. Installing wheels without good metal-to-metal contact could cause later loosening of wheel nuts. This could adversely affect the safety and handling of your vehicle.

To install the wheel, position it properly on the mounting surface using the hub pilot as a guide. All wheel nuts should be lightly tightened before progres-

sively tightening them in sequence (Fig. 2). Tighten wheel nuts to 129 N•m (95 ft. lbs.). **Never use oil or grease on studs or nuts.**



**Fig. 2 Tightening Wheel Nuts (5-Stud)**

## WHEEL REPLACEMENT

Wheels must be replaced if they:

- have excessive run out
- are bent or dented
- leak air through welds
- have damaged bolt holes

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

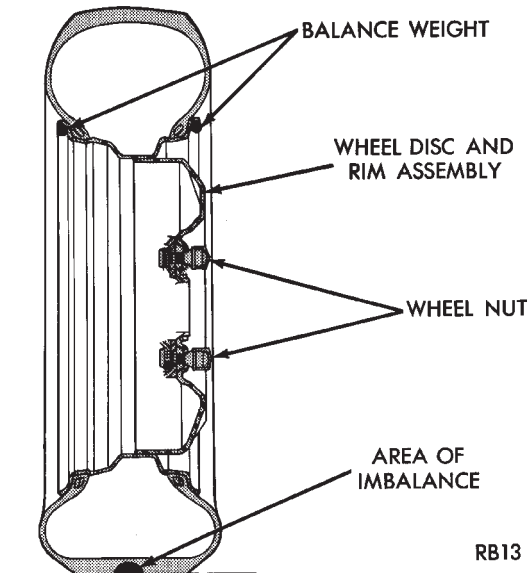
Original equipment replacement wheels are available through your dealer. When obtaining wheels from any other source, the replacement wheels should be equivalent in load carrying capacity. The wheel dimensions (diameter, width, offset, and mounting configuration) must match original equipment wheels. Failure to use equivalent replacement wheels may adversely affect the safety and handling of your vehicle. **Replacement with used wheels is not recommended as their service history may have included severe treatment or very high mileage and they could fail without warning.**

## TIRE AND WHEEL BALANCE

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

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

For static imbalance, find location of heavy spot causing imbalance and counterbalance 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. Then place the other half on the outer rim flange (Fig. 3). Off-vehicle balancing is preferred.



**Fig. 3 Counterbalancing**

### TIRE AND WHEEL RUN OUT

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

Lateral run out is the wobble of the tire or wheel.

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

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

Sometimes radial run out can be reduced by relocating the wheel and tire assembly on the mounting 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).

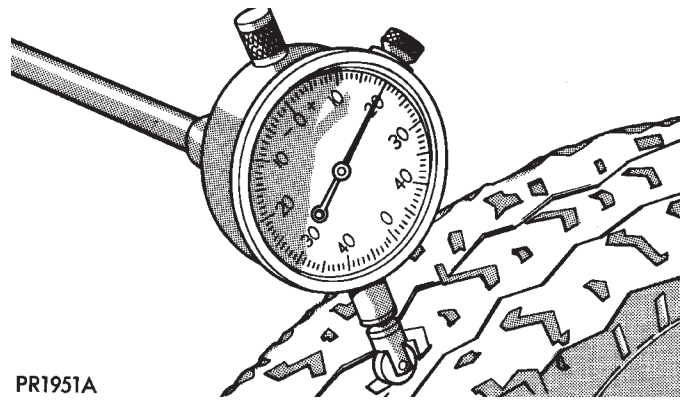
#### METHOD 1 (RELOCATE WHEEL ON HUB)

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

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

Make sure all wheel nuts are properly torqued (Fig. 2).

Use run out gauge D-128-TR to determine run out (Fig. 4).

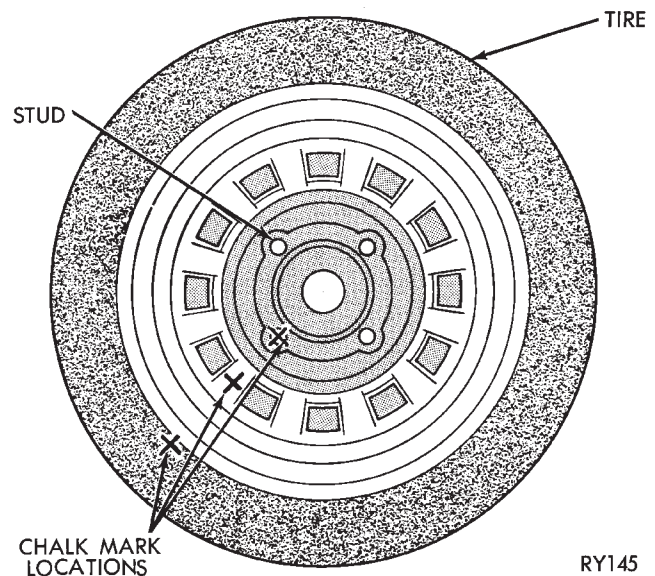


**Fig. 4 Run out Gauge D-128-TR**

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

Retighten wheel nuts (Fig. 2) until all are properly torqued, to eliminate brake distortion.

Check radial run out. If still excessive, mark tire sidewall, wheel, and stud at point of maximum run out (Fig. 5), and proceed to Method #2.



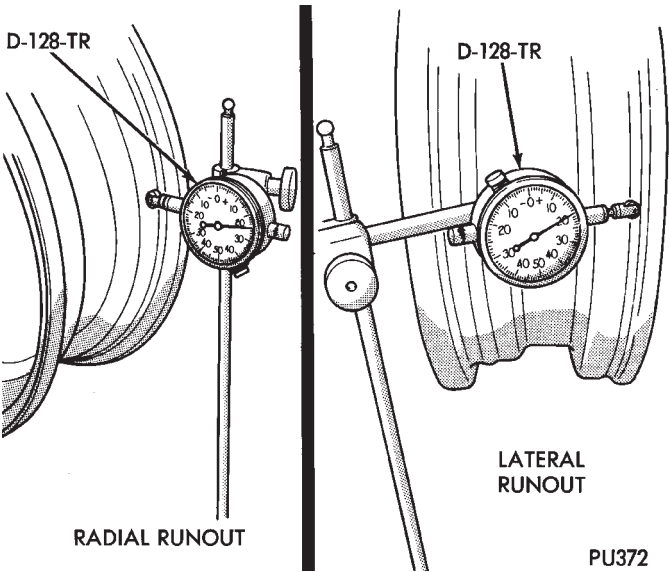
**Fig. 5 Chalk Marking on Wheel, Tire, and Stud**

#### 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 wheel radial run out (Fig. 6). It should be no more than 0.9 mm (.035 inch).



Lateral run out (Fig. 6) should be no more than 1.1 mm (.045 inch).

If point of greatest wheel radial run out is near original chalk mark, remount tire 180 degrees from its original position. Recheck run out.

Fig. 6 Checking Wheel Run out

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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TIGHTENING REFERENCE

Stud Size	.....	M12 × 1.5mm
Nut Size	.....	19mm
Wheel Nuts	.....	109-150 N·m (80-110 ft. lbs.) 9122-76X