

SECTION 04-04 Wheels and Tires

SUBJECT	PAGE	SUBJECT	PAGE
DESCRIPTION		MAINTENANCE (Cont'd.)	
Spare Tire.....	04-04-1	Tire Maintenance.....	04-04-3
Tires.....	04-04-1	SERVICE	
Wheel Lug Nuts.....	04-04-2	Tire and Wheel Balance.....	04-04-6
Wheels.....	04-04-2	Tire Replacement.....	04-04-6
DIAGNOSIS.....	04-04-2	Tire Rotation.....	04-04-8
MAINTENANCE		Wheel Bearing Adjustment—Rear.....	04-04-8
Aluminum Wheels.....	04-04-2	SPECIAL SERVICE TOOLS.....	04-04-9
Steel Wheels.....	04-04-2	SPECIFICATIONS.....	04-04-8
Tire Inflation.....	04-04-3	VEHICLE APPLICATION.....	04-04-1

VEHICLE APPLICATION

Capri.

DESCRIPTION

Factory installed tires and wheels are designed to operate satisfactorily with loads up to the full-rated load capacity when inflated to recommended pressures.

Correct tire pressures and driving techniques have an important influence on tire life. Heavy cornering, excessively rapid acceleration and unnecessary sharp braking increase tire wear.

Tires

When replacing tires, only the size, load range and construction type (radial) originally installed on the vehicle are recommended. Use of any other tire size or type may seriously affect ride, handling, speedometer / odometer calibration, vehicle ground clearance, and tire clearance to the body and chassis.

WARNING: DO NOT MIX DIFFERENT TYPES OF TIRES ON THE SAME VEHICLE SUCH AS RADIAL, BIAS OR BIAS-BELTED TIRES EXCEPT IN EMERGENCIES (TEMPORAL SPARE USAGE), BECAUSE VEHICLE HANDLING MAY BE SERIOUSLY AFFECTED AND MAY RESULT IN LOSS OF CONTROL.

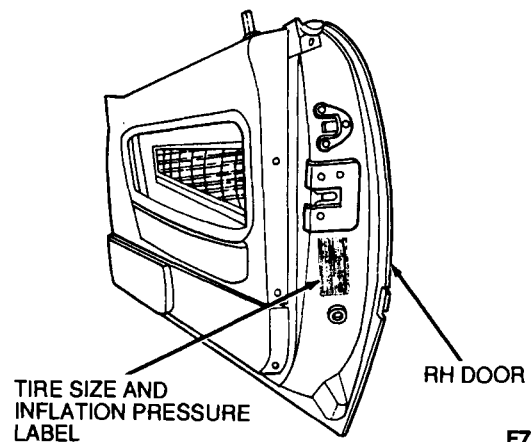
A tire size and inflation pressure decal, located at the rear of the RH door, lists the recommended tire sizes, inflation pressure and load ratings.

Consider the following when replacing tires:

- It is recommended that new tires be installed in pairs.

- When replacing only one tire, it should be paired with the tire having the most tread, to equalize braking traction.

Tire Size and Inflation Pressure Label—Typical



F7659-A

Spare Tire

Refer to Section 00-02 for information on the spare tire.

DESCRIPTION (Continued)**Wheels**

Wheels must be replaced when they are bent, dented or heavily rusted, have air leaks (aluminum wheels can, in most cases, be serviced using the procedure outlined in Maintenance), or elongated bolt holes, and have excessive lateral or radial runout. Wheels with lateral or radial runout greater than the recommended specification may cause an objectionable, high-speed vehicle vibration.

Replacement wheels must be equal to the original equipment wheels in load capacity, diameter, width, offset and mounting configuration. An improper wheel may affect bearing life, ground and tire clearance, or speedometer and odometer calibrations.

Corrosion build-up can result in wheels sticking to the axle or rotor flange after extensive service. To prevent this from recurring once the wheels are removed, use the following procedure:

1. Clean axle / rotor flange and wheel bore of corrosion with wire brush, steel wool or suitable material.
2. Coat wheel bore with Disc Brake Caliper Slide Grease D7AZ-19590-A (ESA-M1C172-A) or equivalent. Do not apply grease to wheel lug nut seats or wheel studs.
3. Install wheel on vehicle.

Wheel Lug Nuts

Replacement of wheel lug nuts must be of the same type and thread size.

NOTE: Aluminum wheels and several steel wheels must use a special type metric wheel lug nut with enlarged chamfers, or distortion of the aluminum wheel lug nut seat will result.

DIAGNOSIS

Refer to Section 04-00.

MAINTENANCE**Steel Wheels**

Wheel services that use welding, heating or peening are not approved. An inner tube is not acceptable service for leaky wheels or tires.

Aluminum Wheels**Appearance**

To clean wheels, use a mild soap and water solution and rinse thoroughly with clean water.

CAUTION: Do not use steel wool, abrasive type cleaner or strong detergents containing high alkaline or caustic agents. Damage may occur to the protective coating and cause discoloration.

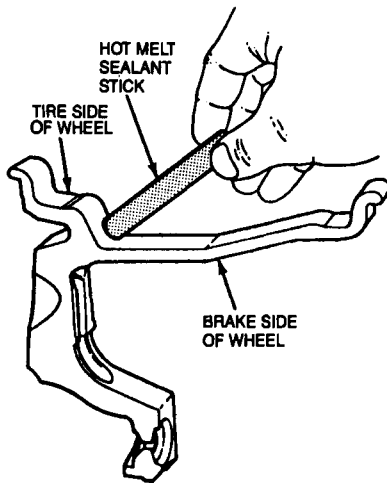
Air Leaks

If air pressure in a tire mounted on an aluminum wheel is found to be low, the following procedure should be performed prior to wheel replacement.

1. Raise vehicle on a hoist. Refer to Section 00-02. Remove tire and wheel assembly, and inspect wheel for structural damage. If none exists, go to Step 2. If the wheel is damaged, replace wheel.
2. With tire mounted on wheel, locate air leak using a water bath or equivalent method, and mark location. Check complete wheel for possible additional leaks.
3. On tire side of leak, use sandpaper of about 80-grit to thoroughly remove all contamination and score surface of wheel to improve sealer adhesion. An adequately sized area around the leak should be prepared to ensure covering the leak. Remove the valve stem if it is close to the area being serviced.
4. Use a clean cloth to remove all sanding dust.
5. Heat and seal the leak using Rotunda 750°-1000°F Master Heat Gun 107-00301 and Aluminum Wheel Repair Compound E7AZ-19554-A (ESA-M4G280-A) or equivalent as follows:
 - a. Heat repair area being serviced so that sealing compound flows when applied.
 - b. Apply a liberal amount of sealer using a wiping action to ensure complete coverage.
 - c. Apply only enough heat to melt sealer and then remove heat source.

MAINTENANCE (Continued)

- d. Allow wheel to cool. Re-assemble wheel and tire and test for leaks.



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NOTE: Caution must be exercised when mounting the tire so as not to damage the sealer.

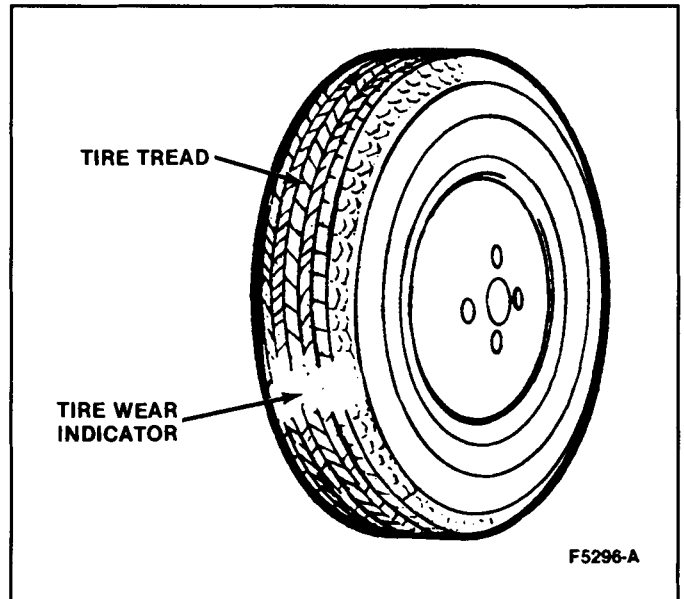
6. Inflate tire to recommended pressure and install on vehicle.
7. Lower vehicle.

Tire Maintenance

To maximize tire performance, inspect tires for signs of improper inflation and uneven wear which may indicate a need for balancing, rotation or suspension alignment. If the tires have uneven or abnormal wear patterns, refer Section 04-00.

Check tires frequently for cuts, stone bruises, abrasions, blisters and for objects that may have become imbedded in the tread. More frequent inspections are recommended when rapid or extreme temperature changes occur, or where road surfaces are rough or littered with debris.

As a further visible check of tire condition, tread wear indicators are moulded into the bottom of the tread grooves. These indicators will appear as 12.7mm (1/2 inch) wide bands when the tire tread depth becomes 1.6mm (1/16 inch). When the indicators appear in two or more adjacent grooves, at three locations around the tire or when cord or fabric is exposed, tire replacement due to tread wear is recommended.

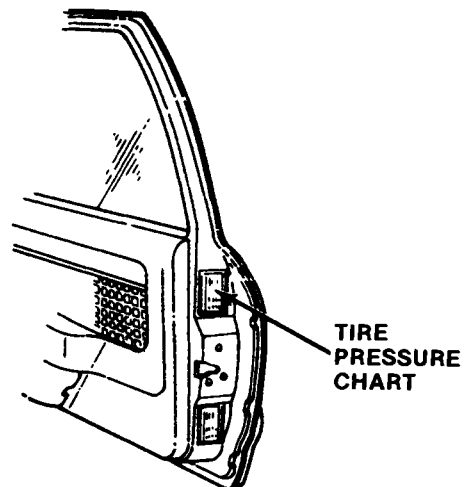


F5296-A

Tire Inflation

Always check tire inflation pressure using an accurate gauge and inflate the tires to recommended levels only.

The tire inflation pressure is carefully calculated to give the vehicle satisfactory ride and steering characteristics while not compromising long tire tread life. The recommended vehicle load capacities and tire inflation pressures for full or reduced load operation are listed in the Tire Inflation Pressure Chart. This information is also provided in the Owner Guide and on a label attached to the inside edge of the passenger door.



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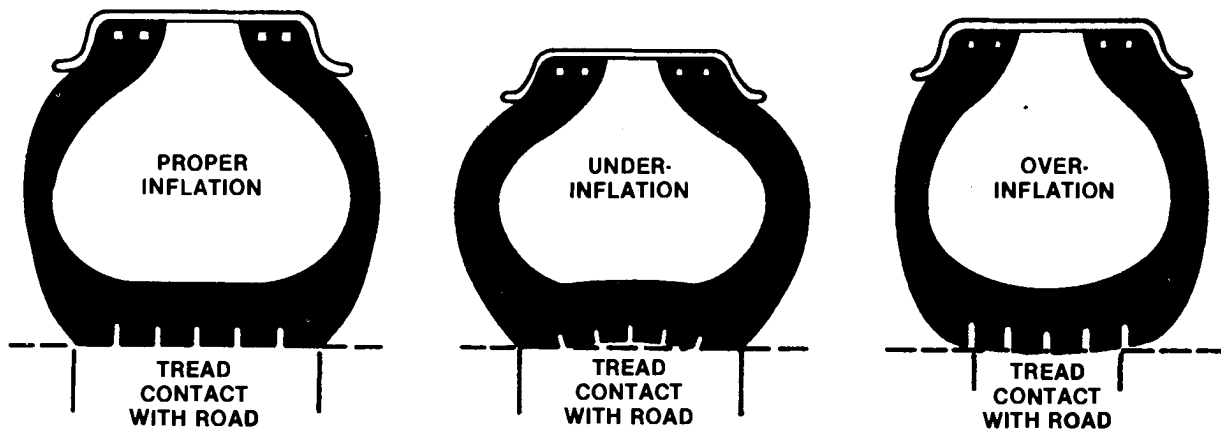
MAINTENANCE (Continued)

Tire Inflation Pressure Chart

kPa	psi	kPa	psi
140	20	215	31
145	21	220	32
155	22	230	33
160	23	235	34
165	24	240	35
170	25	250	36
180	26	275	40
185	27	310	45
190	28	345	50
200	29	380	55
205	30	415	60

CONVERSION: 6.9 kPa = 1 psi

F5298-A



F5299-A

CAUTION: Radial-ply tires have a highly flexible sidewall, which produces a characteristic sidewall bulge, making the tire appear underinflated. This is a normal condition for radial-ply tires. Do not attempt to reduce this bulge by over-inflating the tire.

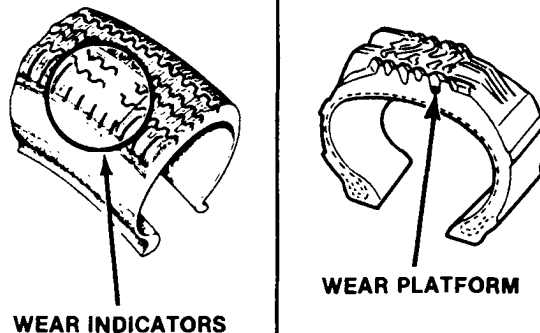
Check the condition of the wheels. Replace any wheel that is bent, cracked, severely dented, or has excessive runout. Also, check the condition of the valve stem. Replace the valve stem if worn, cracked, loose or leaking air.

It is mandatory that only the tire size recommended on the tire chart attached to the vehicle be used. Larger or smaller tires can damage the vehicle and affect durability, and may cause the speedometer to read incorrectly. Be sure wheel sizes and offsets match those recommended for the tire in use.

SERVICE

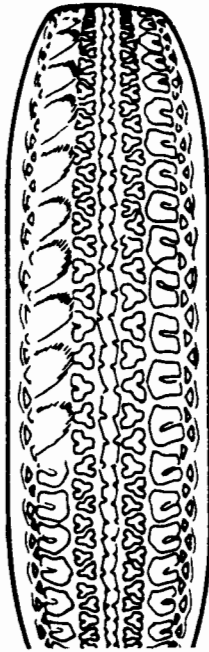
The tires should be replaced if the wear indicators are exposed, or if there is severe shoulder wear. Shoulder wear is usually caused by excessive camber or excessive toe on radial tires.

Incorrect rear toe settings or bad shock absorbers will cause severe "cupping" or "scalloped" tire wear on non-drive wheels.



F5376-A

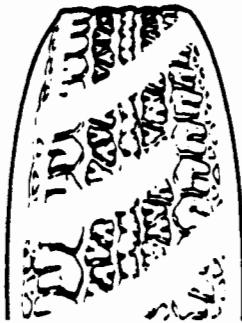
SERVICE (Continued)



**CUPPING OR
SCALLOPED TIRE
WEAR**

F5377-A

Severely misadjusted rear toe will also cause other unusual wear patterns.



- EXCESSIVE TOE ON THE NON-DRIVE WHEELS
- LACK OF ROTATION



**EDGE OF
TREAD BLOCKS
WORN**

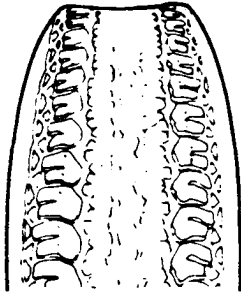
- EXCESSIVE TOE ON THE NON-DRIVE WHEELS
- LACK OF ROTATION

F5378-A

If the cupping or other wear patterns are severe enough to cause noise or vibration, the tire must be replaced. Tire rotation every 6,000 km (3,750 miles) may prevent these tire patterns from developing.

SERVICE (Continued)

Under-inflation will cause shoulder wear in a radial tire, but because of the strength of the radial belts, overinflation seldom causes center tread wear. Radial tire center tread wear can be caused by heavy acceleration or excessive toe on drive wheels.



- HEAVY ACCELERATION ON DRIVE WHEELS
- EXCESSIVE TOE ON DRIVE WHEELS

F5379-A

A nail puncture may allow water to seep in and cause rust damage to one of the steel belts in a radial tire. Internal stresses in the tire caused by the loss of one of the steel belts will cause the tread to distort. Tread distortion is often incorrectly referred to as belt shift.

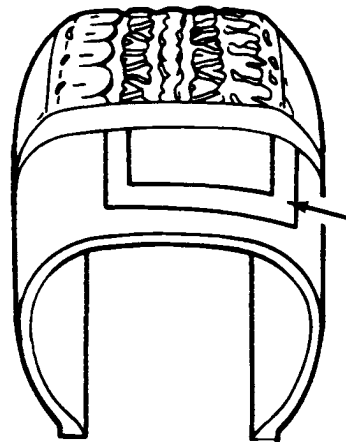


TREAD DISTORTION

F5380-A

This condition will cause low speed "waddle" and vibration similar to a statically imbalanced tire at high speed. A tire with severe tread distortion should be replaced.

A damaged or worn tire built with the radial belts closer to one side of the tire than the other may cause the tire to be slightly cone shaped. This will cause the tire and therefore the vehicle to pull in one direction or the other.

RADIAL BELTS
CLOSE TO
SIDE WALL

TIRE CONICITY

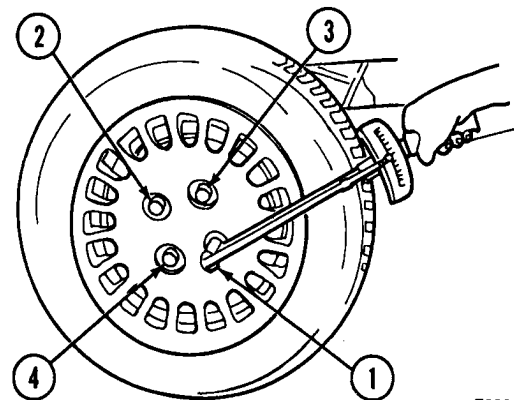
F5385-A

If a vehicle pulls and there is not apparent tread wear, switch the two front tires. If the vehicle now pulls in the opposite direction, rotate all four tires.

Tire Replacement

If a new tire comes with a sticker or dye mark to indicate the high spot, this should always be installed at the valve stem. When replacing tires on wheels with over 48,279 km (30,000 miles), the valve stem should always be replaced.

When installing wheel lug nuts to mount the road wheels, a torque wrench should always be used for final tightening. Tighten wheel lug nuts to 90-120 N·m (67-88 lb-ft) progressively in a diagonal sequence. This will prevent concerns with warped disc brake rotors, and stretched wheel studs.



F6308-A

Tire and Wheel Balance

Before balancing a tire, clean deposits of dirt, mud and ice from the wheel, both inside and outside the rims, and remove any existing balance weights.

SERVICE (Continued)

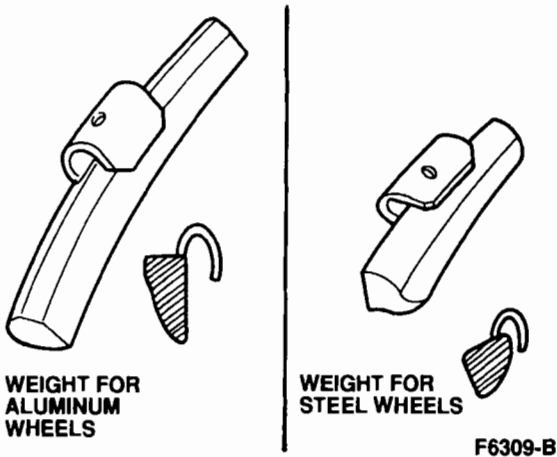
Remove stones from the tire tread in order to avoid operator injury when spin balancing and to obtain a proper balance. Inspect all tires for damage. Check and, if necessary, correct tire pressures, then balance according to equipment manufacturer's instructions.

Never add more than 160 grams (5- 1/2 oz) of weight to any one wheel. If using a bubble balancer or an on the vehicle spin balancer, always split the weight so that half of the weight is on the inside wheel rim edge and half of the weight is on the outside wheel rim edge.

NOTE: The shape of the rim on the aluminum alloy wheels requires a unique wheel weight with a matching contour. Do not attempt to use a steel wheel weight on an aluminum wheel.

Balance Weights

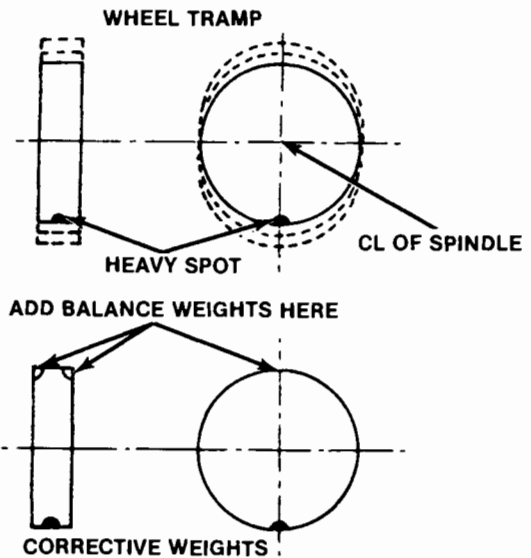
When balancing aluminum wheels, note that the weights have a different profile from those used on steel wheels. **It is important that only the correct balance weights are used.** The following illustration shows the correct type of wheel weights for use with "A" steel wheels and "B" wheels.



Static Tire Balance

There are two types of wheel and tire balance: single plane **STATIC** balance and two plane **DYNAMIC** balance.

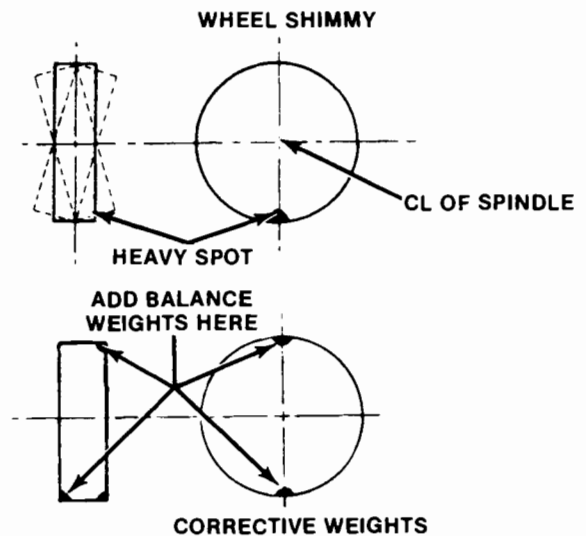
A **static** balance is the equal distribution of weight around the wheel. Wheels that are statically unbalanced cause a bouncing action called wheel tramp. This condition will eventually cause uneven tire wear.



F5306-A

Dynamic Tire Balance

A **dynamic** balance is the equal distribution of weight on each side of the wheel centerline, so that when the wheel spins there is no tendency for side-to-side movement. Wheels that are dynamically unbalanced may cause wheel shimmy.



F5307-A

There are two types of wheel balancing procedures: off-vehicle and on-vehicle. A brief description of each is provided as follows.

SERVICE (Continued)

Off-Vehicle Balancing

With off-vehicle balancing, the wheel is removed from the vehicle and put on a special machine which balances it. In most cases (except with bubble balancers), the wheel is spun on a machine and both static and dynamic balance are corrected for. Always place the centering cone on the back side of the wheel. This is especially important with stamped steel wheels. Most steel wheels are stamped from the back side—locating the cone on the front side of the wheel could cause an incorrect balance. When using special adapters, it is imperative that the wheels be located by the center hole and NOT the stud holes.

On-Vehicle Balancing

When balancing the front wheels, use the engine to spin the tires, not the balancing spinner. Place a wooden block under the wheel that is not being balanced. If a vehicle has a limited slip differential, remove the wheel from the side that is not being balanced, and support the lower control arm with a jackstand. Be sure to mark the wheel and one of the studs so the tire can be installed in the same position as it was taken off. Be sure the axle shafts are not hitting any suspension components when performing a front on-vehicle balance.

Always refer to the manufacturer's instructions provided with the dynamic-type wheel balancer when balancing wheels on the vehicle.

Support the front suspension so that the axle shaft angles are at near curb height angles. The wheel being balanced would be 50mm (2 inch) or slightly more off the ground. **BE SURE THE PARKING BRAKE IS APPLIED WHEN BALANCING THE FRONT WHEELS.** Before spinning the wheels, check for looseness in the suspension joints, worn wheel bearings and brake grab.

Start the engine, select top gear and accelerate slowly. Be sure the speed as indicated on the speedometer does not go over the equivalent road speed of 56 km/h (35 mph). Remember that the wheel speed (when driven by the engine) will be twice speedometer speed.

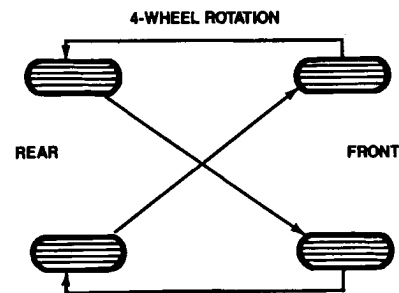
WARNING: WHEN BALANCING FRONT WHEELS ON FRONT WHEEL DRIVE VEHICLES WITH CONVENTIONAL TRANSAXLES, LIMIT THE WHEEL SPEED TO 56 KM/H (35 MPH) AS INDICATED ON THE SPEEDOMETER. IF CARE IS NOT TAKEN DURING THIS PROCEDURE, POSSIBLE TIRE DISINTEGRATION, TRANSAXLE AND/OR HALFSHAFT FAILURE CAN RESULT, WHICH COULD CAUSE PERSONAL INJURY OR EXTENSIVE COMPONENT DAMAGE.

Tire Rotation

Front and rear tires perform different jobs and can wear differently depending on the type of vehicle and driving habits. To equalize wear and optimize tire life, rotate tires every 6,000 km (3,750 miles).

If abnormal wear is detected, find and correct the cause, and rotate the tires, to allow more even wear.

CAUTION: Do not use "Temporary" tire for tire rotation.



F7021-A

Wheel Bearing Adjustment—Rear

Refer to Section 04-02.

SPECIFICATIONS

WHEEL RIM RUNOUT AND BALANCE SPECIFICATIONS

Type Wheel	Max. Radial Runout	Max. Lateral Runout	Max. Balance Weight
Aluminum	2.0mm (0.079 inch)	1.5mm (0.059 inch)	150g (3.5 oz) per wheel
Steel	2.5mm (0.098 inch)		150g (3.5 oz) per wheel

SPECIFICATIONS (Continued)

WHEELS				
Size	Offset	Diameter of Pitch Circle	Material	Tire Size
5 1/2—JJ X 14	45mm (1.77 inch)	114.3mm (4.5 inch)	Steel and Aluminum	185/60R14 82H
6-JJ X 15	42mm (1.65 inch)	114.3 (4.5 inch)	Aluminum	195/50R15 82V
4-T X 14	50mm (1.97 inch)	114.3mm (4.5 inch)	Steel	T 105/70D14

TORQUE SPECIFICATIONS

Description	N-m	Lb-Ft
Wheel Lug Nuts	90-120	67-88

SPECIAL SERVICE TOOLS

ROTUNDA EQUIPMENT

Model	Description
107-00301	750°-1000°F Master Heat Gun