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This file was not scanned to deprive Mazda of any money – it was scanned due to the rareness of the original manuals and the overwhelming need of the RX-7 owner to have this information so that they can accurately troubleshoot problems. Perhaps if Mazda's dealerships could support the Rotary Engine it wouldn't be so necessary for the owners to do so.



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1989 Mazda RX-7 Factory Service Manual

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WHEELS AND TIRES

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97U0QX-001



OUTLINE

SPECIFICATIONS

Wheels					Tires	
Size	Offset	Diameter of pitch circle	Number of fixing holes	Material	Size	Tire pressure
Standard tire						
7JJ x 16	40mm (1.57 in)	114.3mm (4.5 in)	5	Aluminum	205/55R16 88V (Directional)	216 kPa (2.2 kg/cm ² , 32 psi)
6 1/2JJ x 15					205/60VR15 (Directional)	
6JJ x 15					205/60VR15 (Directional)	
	Steel	205/60R15 89H (Undirectional)				
Temporary spare tire						
4T x 16	30mm (1.18 in)	114.3mm (4.5 in)	5	Aluminum	T135/70 D16	415 kPa (4.2 kg/cm ² , 60 psi)
4T x 15	40mm (1.57 in)			Steel	T135/70 D15	

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TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
Excessive or irregular tire wear	Refer to page Q- 5 for details.		
Premature tire wear	Incorrect tire pressure	Adjust	Q- 2
Tire squeal	Incorrect tire pressure Tire deterioration	Adjust Replace	Q- 2 —
Road noise or body vibration	Insufficient tire pressure Unbalanced wheel(s) Deformed wheel(s) or tire(s) Irregular tire wear	Adjust Adjust Repair or replace Replace	Q- 2 Q- 6 — —
“Shake” occurs (Steering wheel vibrates up/down)	Excessive tire and wheel runout Loose lug nuts Unbalanced wheel(s) Cracked or worn engine mount rubber Cracked or worn transmission mount rubber	Replace Tighten Adjust or replace Replace Replace	— Q- 5 Q- 6 Section C Sections J1,J2,K
“Shimmy” occurs (Steering wheel vibrates left/right)	Cracked or worn steering gear mount rubber Loose steering gear mounting bolts Stuck or damaged steering ball joint Excessive tire and wheel runout Loose lug nuts Unbalanced wheel(s) Insufficient tire pressure Unevenly worn tires Malfunction of shock absorber Loose shock absorber mounting bolts Struck or damaged lower arm ball joint Cracked or worn suspension bushings Damaged or worn front wheel bearing Improperly adjusted front wheel alignment	Replace Tighten Replace Replace Tighten Adjust or replace Adjust Replace Replace Tighten Replace Replace Replace Adjust	Section N Section N Section N — Q- 5 Q- 6 Q- 2 — Section R Section R Section R Section R Section R Section M Section R
Uneven (one-sided) braking	Unequal tire pressures	Adjust	Q- 2
Steering wheel doesn’t return properly or pulls to either left or right	Incorrect tire pressure Irregular tire wear (left/right) Unequal tire pressures Different types or brands of tires mixed (left/right) Loose lug nuts	Adjust Replace Adjust Replace Tighten	Q- 2 — Q- 2 — Q- 5
General driving instability	Unequal tire pressures Damaged or unbalanced wheel(s) Loose lug nuts	Adjust Replace or adjust Tighten	Q- 2 Q- 6 Q- 5
Excessive steering wheel play	Loose lug nuts	Tighten	Q- 5

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WHEELS AND TIRES

SPECIAL NOTES ABOUT WHEELS AND TIRES

1. Do not use wheels or tires other than the specified types.
2. Aluminum wheels are easily scratched. When washing them, use a soft cloth, never a wire brush. If the vehicle is steam cleaned, do not allow boiling water to contact the wheels.
3. If alkaline compounds (such as saltwater or road salts) get on aluminum wheels, wash them as soon as possible to prevent damage. Use only a neutral detergent.

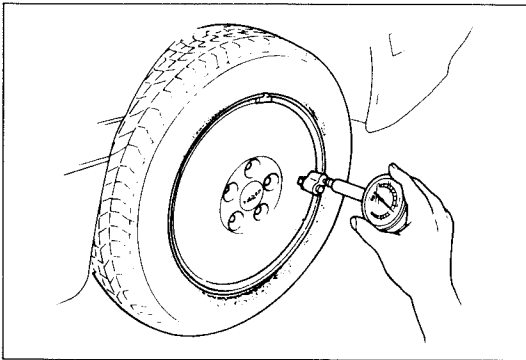
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NOTES REGARDING TIRE REPLACEMENT

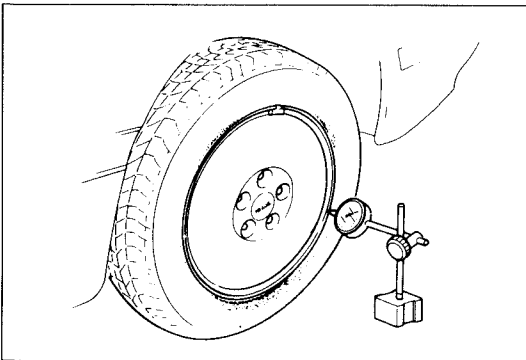
Note the following points when tires are to be removed from or mounted onto the wheels.

1. Be careful not to damage the tire bead, the rim bead, or the edge of the rim.
2. Apply a soapy solution to the tire bead and the edge of the rim.
3. Use a wire brush, sandpaper, or cloth to clean and remove all rust and dirt from the rim edge and the rim bead. For aluminum wheels, use only a cloth for this purpose; never use a wire brush or sandpaper.
4. Remove any pebbles, glass, nails, and other foreign items embedded in the tire tread.
5. Be sure the air valve is installed correctly.
6. After mounting a tire onto a wheel, inflate the tire to 250—300 kPa (2.55—3.06 kg/cm², 35.55—42.66 psi). Check to be sure that the bead is seated correctly onto the rim and that there are no air leaks. Then reduce the pressure to the specified level.
7. If a tire iron is used to change a tire on an aluminum wheel, be sure to use a piece of rubber between the iron lever and the wheel to avoid damage to the wheel. Work should be done on a rubber mat, not on a hard or rough surface.

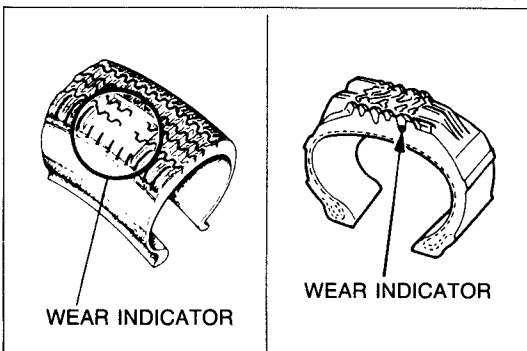
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INSPECTION AND ADJUSTMENT

Check for the following and adjust or replace as necessary.

1. Air pressure

Check the air pressure of all tires, including the spare tire, with an air pressure gauge. (Refer to page Q-2.)

Caution

The air pressure must be measured when the tire is cold.

2. Wheel runout

Set the probe of a dial indicator against the wheel, and turn the wheel one full revolution.

Wheel runout limit: 2.0mm (0.08 in)

3. Tire wear

Specifications

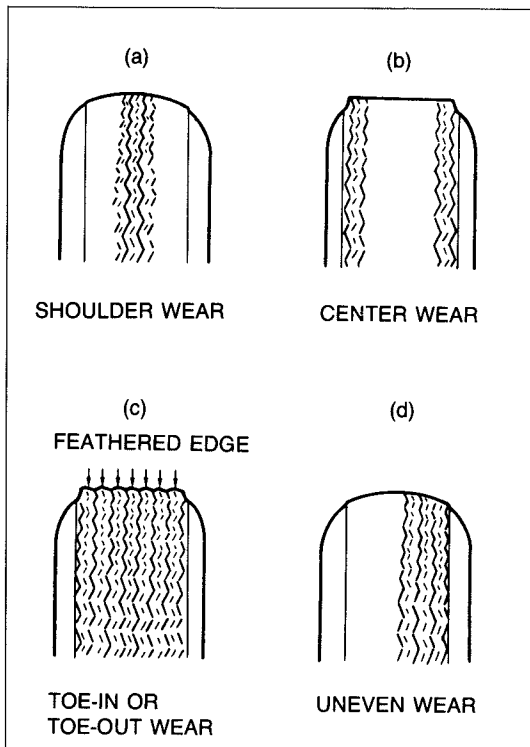
Remaining tread

Ordinary tires: 1.6mm (0.063 in) min.

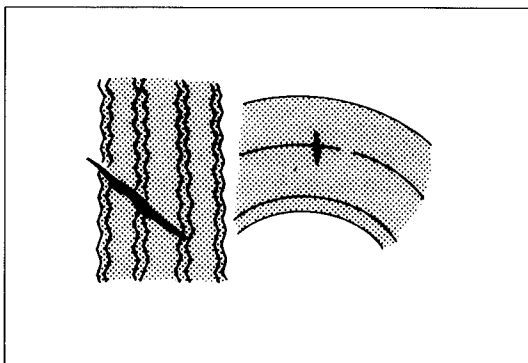
(Tire should be replaced if wear indicators are exposed.)

Snow tires: 50% of tread

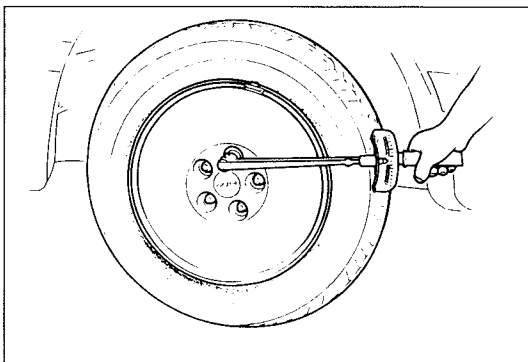
(Tire should be replaced if wear indicators are exposed.)



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Troubleshooting guide

Abnormal tire wear patterns shown in the illustration can occur. Refer to the chart for the possible causes and remedies.

	Possible cause	Remedy
(a)	<ul style="list-style-type: none"> • Underinflation (both sides worn) • Incorrect camber (one side worn) • Hard cornering • Lack of rotation 	<ul style="list-style-type: none"> • Measure and adjust pressure • Repair or replace axle and suspension parts • Reduce speed • Rotate tires
(b)	<ul style="list-style-type: none"> • Overinflation • Lack of rotation 	<ul style="list-style-type: none"> • Measure and adjust pressure • Rotate tires
(c)	<ul style="list-style-type: none"> • Incorrect toe-in 	<ul style="list-style-type: none"> • Adjust toe-in
(d)	<ul style="list-style-type: none"> • Incorrect camber or caster • Malfunctioning suspension • Unbalanced wheel • Out-of-round brake drum or disc • Other mechanical conditions • Lack of rotation 	<ul style="list-style-type: none"> • Repair or replace axle and suspension parts • Repair or replace • Balance or replace • Correct or replace • Correct or replace • Rotate tires

4. Cracks, damage, or foreign matter (such as metal pieces, nails, and stones) in the tire and cracks, deformation, and damage to the wheel
5. Loose wheel lug nut(s)
6. Air leaking from valve stem

REMOVAL AND INSTALLATION

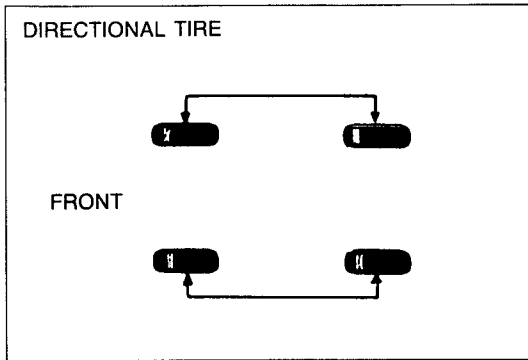
Tighten the lug nuts to the specified torque in a crisscross fashion.

Tightening torque:

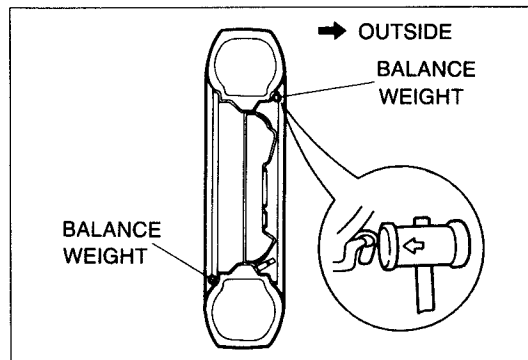
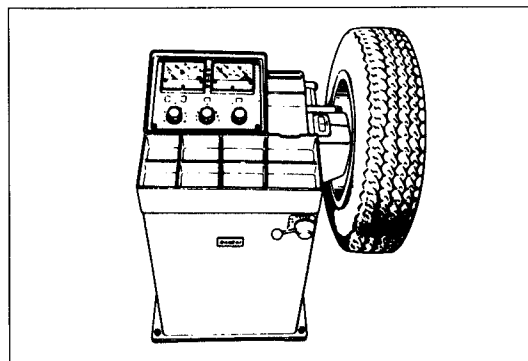
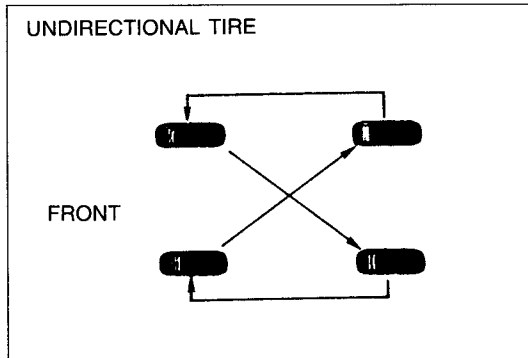
88—118 N·m (9—12 m·kg, 65—87 ft·lb)

Caution

- a) The wheel-to-hub contact surfaces must be clean.
- b) Never apply oil to the nuts, bolts, or wheels; doing so might cause looseness or seizure of the lug nuts.



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9MU0QX-013

TIRE ROTATION

To prolong tire life and assure uniform tire wear, rotate the tires every 6,000 km (3,750 miles), sooner if irregular wear develops.

Caution

- Do not include "TEMPORARY USE ONLY" spare tire in rotation.
- After rotating the tires, adjust each tire to the specified air pressure. (Refer to page Q-2.)

WHEEL BALANCE ADJUSTMENT

If a wheel becomes unbalanced or if a tire is replaced or repaired, the wheel must be rebalanced to within specification.

Maximum unbalance (at rim edge):

15 inch wheel: 9 g (0.31 oz)

16 inch wheel: 8 g (0.28 oz)

Caution

- Do not use more than two balance weights on the inner or outer side of the wheel. If the total weight exceeds 100 g (3.5 oz), rebalance after moving the tire around on the rim.
- Attach the balance weights tightly so that they do not protrude more than 3mm (0.12 in) beyond the wheel edge.
- Select suitable balance weights for steel or aluminum alloy wheels.
- Do not use an on-car balancer on automatic transmission models; it may cause transmission damage.