

## WHEELS AND TIRES

<b>OUTLINE</b> .....	12- 2
SPECIFICATIONS .....	12- 2
<b>TROUBLESHOOTING GUIDE</b> .....	12- 2
<b>WHEELS AND TIRES</b> .....	12- 3
INFLATION OF TIRES .....	12- 3
TIRE ROTATION .....	12- 3
WHEEL AND TIRE RUN OUT .....	12- 3
WHEEL BALANCING .....	12- 3



# 12 OUTLINE, TROUBLESHOOTING GUIDE

## OUTLINE

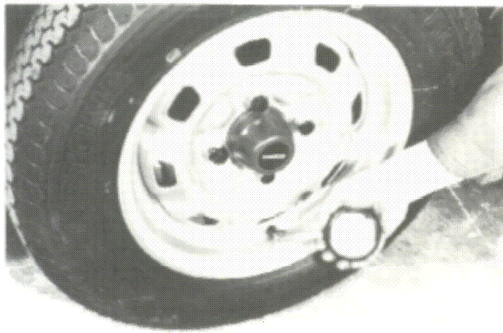
### SPECIFICATIONS

Size	Offset	Wheels		Tires	
		Diameter of pitch circle	Material	Size	
5½JJ	45 mm (1.772 in)	114.3 mm (4.5 in)	Steel or aluminum	P205/60 HR14 205/60 R14 87H	

## TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
<b>Excessive or irregular tire wear</b>	Incorrect tire pressure Unbalanced wheel(s) Tires not rotated correctly Severe driving Improper toe-in adjustment Poor braking function	Adjust Adjust Rotate properly Advise driver Adjust Adjust	
<b>Premature tire wear</b>	Excessive tire pressure High-speed driving with low tire pressure	Adjust Adjust	
<b>Tire squeal</b>	Incorrect tire pressure Tire deterioration	Adjust Replace	
<b>Road noise or body vibration</b>	Insufficient tire pressure Unbalanced wheel(s) Deformed wheel(s) or tire(s) Irregular tire wear	Adjust Adjust Repair or replace Replace	12-3
<b>Steering wheel vibration</b>	Irregular tire wear Left and right tread depths are different Deformed or unbalanced wheel(s) Deformed tire(s) Unequal tire pressures Loose lug nuts	Replace Replace Replace or adjust Replace Adjust Tighten	
<b>Uneven (one-sided) braking</b>	Unequal tire pressures	Adjust Replace or adjust	12-3
<b>Steering wheel doesn't return properly, or pulls to one side (pulls to either left or right while vehicle is moving on a level road surface)</b>	Incorrect tire pressure Irregular tire wear (left and right are different) Unequal tire pressures Different types or brands of tires mixed (left/right) Improperly tightened lug nuts	Adjust Replace Adjust Replace Tighten	
<b>General driving instability</b>	Unequal tire pressures Deformed or unbalanced wheel(s) Loose lug nuts	Adjust Tighten Replace	12-3
<b>Excessive steering wheel play</b>	Loose lug nuts Adjusted front wheel bearing preload	Adjust Tighten	

47U12X-015



47U12X-001

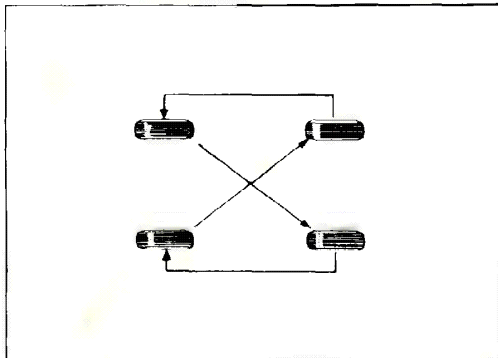
## WHEELS AND TIRES

### INFLATION OF TIRES

Check the inflation pressure with a reliable gauge when tires are cold. The recommended cold tire inflation pressure are as follows.

Tire size	Front	Rear
185/70HR 13	190 Kpa (27 psi)	190 Kpa (27 psi)
165 HR 13	190 Kpa (27 psi)	190 Kpa (27 psi)
T135/70D 13	420 Kpa (60 psi)	420 Kpa (60 psi)
205/60 VR 14	200 Kpa (28 psi)	200 Kpa (28 psi)

Snow tires should always be inflated 4 psi above the recommended inflation pressures shown on the table. **Do not use** snow chains with temporary spare tire.



47U12X-002

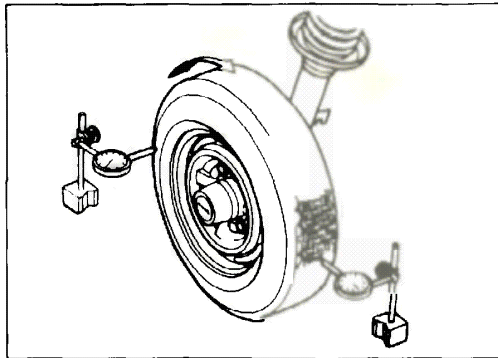
### TIRE ROTATION

To equalize wear and make a set of tires last longer, it is recommended that the tires be rotated periodically, as shown in figure.

When rotating the tires, check for signs of abnormal wear or bulging any stone, nail, glass, etc. should be removed.

#### Tightening torque of wheel bolt:

**90 ~ 120 N-m (65 ~ 87 ft-lb)**



47U12X-003

### WHEEL AND TIRE RUN-OUT

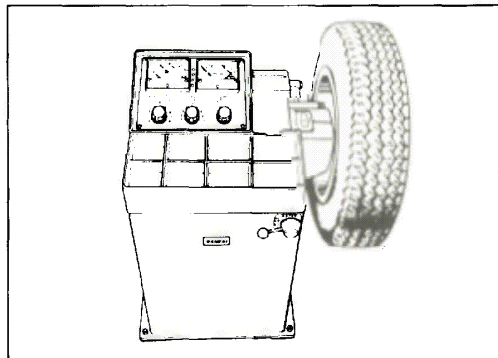
Wheel and tires should be measured for both radial and lateral run-out.

To measure the radial run-out, apply a dial indicator against the center rib of the tire tread and rotate the wheel slowly.

**Run-out limit: 2.0 mm (0.08 in)**

To measure the lateral run-out, position a dial indicator against the side of the tire.

**Run-out limit: 2.5 mm (0.10 in)**



47U12X-004

### WHEEL BALANCING

The allowable unbalance is less than 20 g (0.71 oz) at the rim.

Excessive wheel unbalance causes shimmy at high speed.

If unbalance exceeds the specification or when a tire is disassembled for repair, the tire and wheel assembly should be statically and dynamically balanced with a wheel balancer in accordance with the manufacturers instructions.

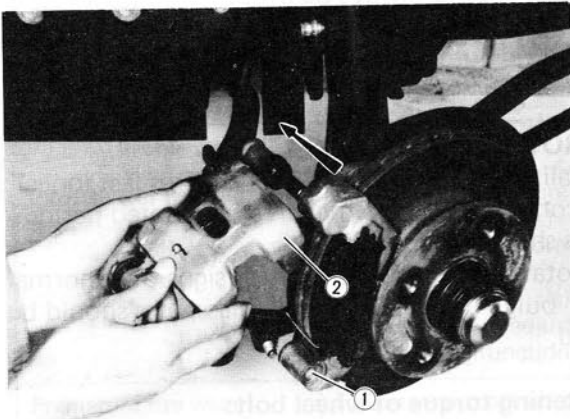


47U12X-005

## FRONT WHEEL HUB AND BEARINGS

### CHECKING FRONT WHEEL BEARINGS ON CAR

Raise the front end of the vehicle until the wheels clear the ground and support it with stand. Grip the tire and shake it sideways. If considerable play is noticed, this indicates that the bearings are rough.



47U12X-006

### REMOVING FRONT WHEEL HUB AND BEARINGS

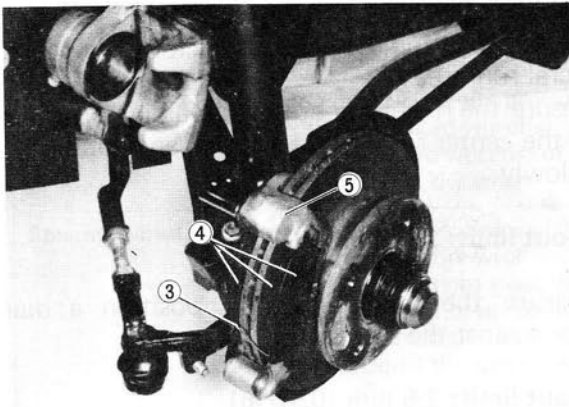
Raise the front end of the vehicle and support it with stands, and remove the front wheel.

Remove the following parts.

1. Caliper attaching bolt (lower side)
2. Caliper

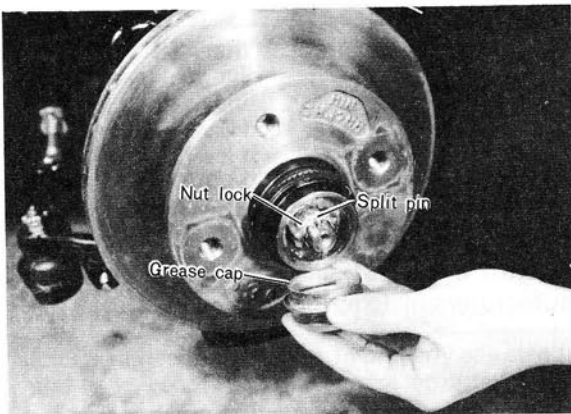
Hang the caliper assembly to the coil spring with a piece of wire.

**Never allow the caliper assembly to hang from the brake hose, as damage may occur.**



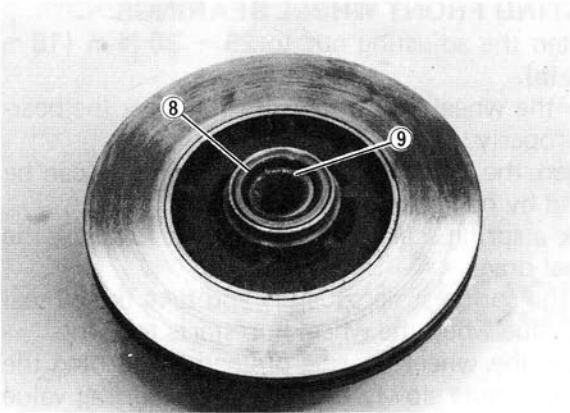
47U12X-007

3. Anti-rattle spring
4. Disc brake pads and shims
5. Caliper bracket

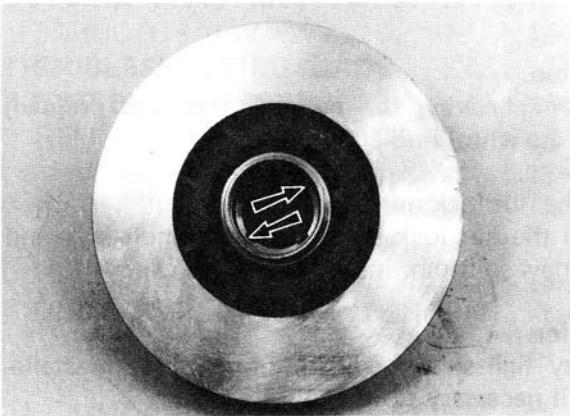


47U12X-008

6. Grease cap, split pin, nut lock and adjusting nut
7. Washer and outer bearing



- 8. Grease seal
- 9. Inner bearing

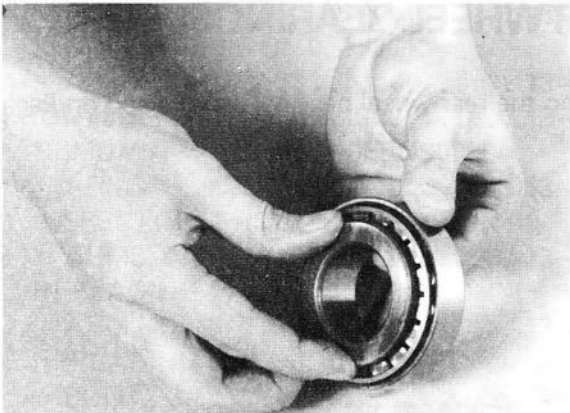


47U12X-009

To remove the bearing outer race, drive out the race using a suitable drift in the slots provided for this purpose.

**Caution**

**Do not remove the bearing outer race unless it needs replaced.**



47U12X-010

**INSPECTING FRONT WHEEL HUB AND BEARINGS**

1. Clean the lubricant off the inner and outer bearing outer races with solvent and inspect the outer races for scratches, pits, excessive wear and other damage.
2. Thoroughly clean the bearing with solvent and dry it thoroughly.

**Caution**

**Do not spin the bearings with compressed air.**

3. Inspect the bearing rollers for damage, wear and other defects. Replace the bearing if necessary.
4. Clean the spindle and inside of the hub with solvent to remove all old grease.



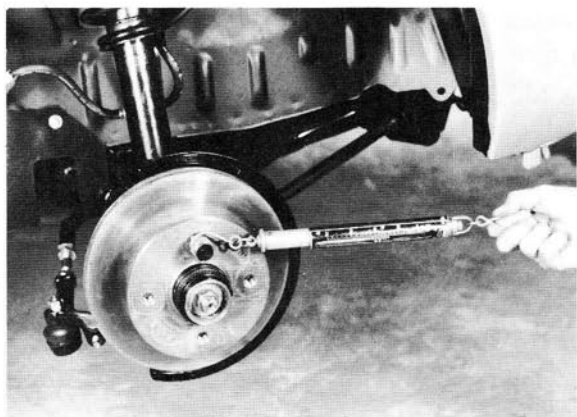
47U12X-011

**INSTALLING FRONT WHEEL HUB AND BEARINGS**

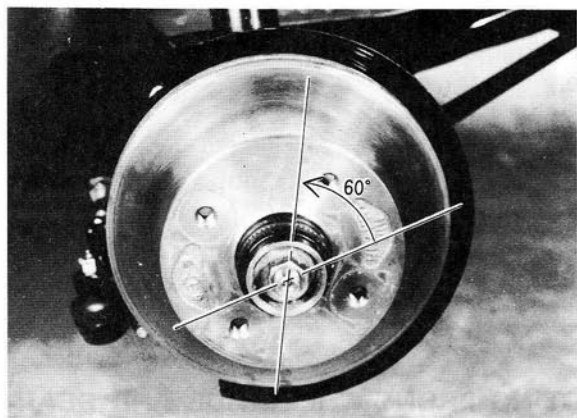
Install the front wheel hub and bearings in the reverse order of removal, with care taken on the following points.

1. Clean the bearings thoroughly and repack them with lithium grease (lithium base NLGI No. 2) **Do not** overpack.
2. Fill the hub cavity with lithium grease (lithium base NLGI No. 2).
3. Adjust the bearing preload, as instructed in the next paragraph.

## 12 FRONT WHEEL HUB AND BEARINGS, REAR WHEEL BEARINGS



47U12X-012



47U12X-013

### ADJUSTING FRONT WHEEL BEARINGS

1. Tighten the adjusting nut to **25 ~ 30 N-m (18 ~ 22 ft-lb)**.
2. Turn the wheel hub a few times to seat the bearing properly.
3. Loosen the adjusting nut slightly until it can be turned by hand.
4. Hook a spring scale on the hub bolt to check the oil seal drag.
5. Pull the spring scale squarely and take the oil seal drag value when the wheel hub starts to turn.
6. Adjust the wheel bearing preload by turning the adjusting nuts slowly until the oil seal drag value determined in step 5 plus **0.45 ~ 0.65 kg (0.99 ~ 1.43 lb)** is obtained.

#### Caution

**Before checking the oil seal drag and preload, turn the wheel hub a few times.**

7. Fit the nut lock onto the adjusting nut. Align the nut lock slots with the spindle hole and fit a new split pin. Install the grease cap.

#### Caution

**Always tighten the adjusting nut to next castellation if necessary to fit the split pin.**

### REAR WHEEL BEARINGS

Servicing the rear wheel bearing is explained on Page 9-4.