GROUP 22

WHEELS, BEARINGS AND TIRES

CONTENTS

SPECIFICATIONS

Models	VC-1	VC-2	VC-3	VC-3 Salon	VY-1
WHEELS					
Type			Steel Disc		
Rim			Drop Center—Safety Wheel		
Size	14x5½K	14x6K**	14x6K	14x6½K	15x6L
Size—Special	14x6K	N.A.	N.A.	N.A.	N.A.
Size—Town & Country	14x6K	—	14x6½K	—	—
No. of Wheel Nuts	5	5	5	5	5
Wheel Nut Torque	65 ft.-lbs.	65 ft.-lbs.	65 ft.-lbs.	65 ft.-lbs.	65 ft.-lbs.
Stud Hold Circle	4½"	4½"	4½"	4¼"	5½"
Stud Size	½"-20	½"-20	½"-20	½"-20	9/16"-18
TIRES					
Type			Super Cushion—Tubeless		
Size	8.00x14	8.00x14	8.50x14	9.00x14	8.20x15
Size—Special	8.50x14	8.50x14	9.00x14	N.A.	—
Ply	4 Std.	4 Std.	4 Std.	4 Spec.	4 Std.
TIRE PRESSURE—COLD					
Pounds—Rear	22	22***	22	20	24
Town and Country	26*	—	26*	—	—
Pounds—Front	24	24	24	22	24
Town and Country	24	—	24	—	—

*With Town and Country fully loaded, increase rear tire COLD pressure to 30 pounds.
**VC-2—300K High Performance 15 x 6K wheel.
***VC-2—300K High Performance 24 psi front and rear.

TOOL LIST

C-3339 . . . . . Dial Indicator
C-3455A . . . . . Tire Bead Breaker

WHEELS, BEARINGS AND TIRES

The safety rim wheel has raised sections between the rim flanges and the rim well (Fig. 1). Initial inflation of the tire forces the beads over these raised sections. In case of a blowout, the raised sections tend to hold the tire in position on the wheel, thus permitting control of the vehicle until it can be brought to a safe stop.

Tubeless tires have a uniformly smooth bead contact area in order to form an air seal with the wheel rim. Any foreign matter, accidentally forced between the tire bead and rim, may cause an immediate air leak or the formation of rust which would eventually cause an air leak.

SERVICE PROCEDURES

1. CARE OF TIRES

A protective, water-soluble coating is applied to the white sidewalls of tires at the factory. Wash the sidewalls with water only, to remove this coating. **DO NOT USE GASOLINE OR OTHER SOLVENTS. DO NOT USE A WIRE BRUSH.**

After the vehicle is in service, the whitewalls should be cleaned with a soap or non-abrasive cleaners and (if necessary) a soft bristle brush.

Test the tire pressures regularly, including the spare when the tires are cool or cold. Inflate to the specified pressures and inspect for damage and embedded foreign matter at the same time.

2. TIRE ROTATION

With increased road speeds and faster cornering, abnormal tire wear may exist on certain wheels. By rotating tires regularly, the tire life will be lengthened. Spare tires age and deteriorate almost as much as tires in use, therefore, the rotation plan (Fig. 2) should be used consistently to obtain maximum life of all tires.

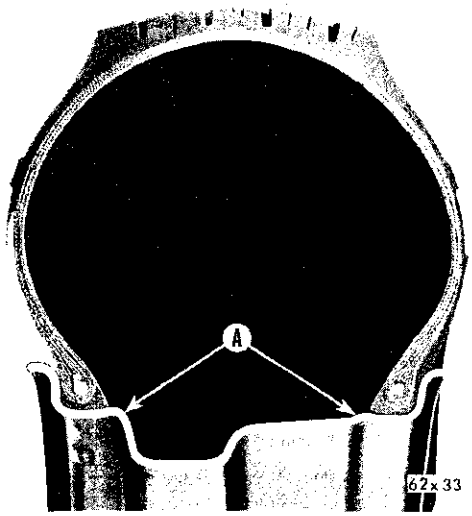

Fig. 1—Safety Type Rim

3. MEASURING WHEEL AND TIRE RUNOUT

Wheels and tires may be measured for both radial and lateral runout. Radial runout is the difference between the high and low points on the treads of the tire; while, lateral runout is the "wobble of the wheel and/or tire.

Prior to measuring the wheel and tires for runout, the face of the hub at the mounting bolts should be inspected for runout. The hub should be free to rotate but tight enough to prevent wobble. The vehicle should be driven a short distance before the measurement is made so that "flat-spotting" of the tire (from being parked) does not affect the runout measurement.

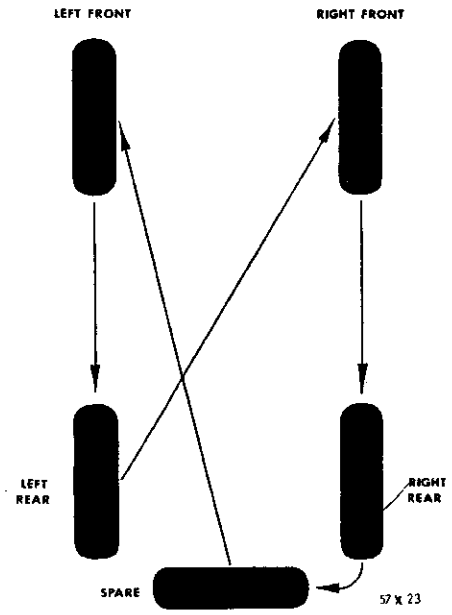

Fig. 2—Tire Rotation

(1) Attach the dial indicator Tool C-3339 to a firm base so it will be held steady while taking the runout readings.

(2) Place the plunger of the dial indicator against one of the center ribs of the tire tread and rotate the wheel slowly to measure the radial runout. This measurement should not exceed .060 inch.

(3) To measure the lateral runout (wobble), position the dial indicator against the side of the tire. This measurement should not exceed .080 inch.

Rotating the tire on the wheel may reduce the runout or it may be necessary to take dial indicator measurements of the wheel itself in order to determine which unit has the excessive runout. Since the exterior surfaces of the wheel rim may have paint runs or bubbles, scratches or other imperfections, it is better to dial indicate the protected areas "A" and "B", Figure 3. The radial runout, "A", should not exceed .050 inch. The lateral runout (wobble), "B", should not exceed .050 inch.

NOTE: Under no circumstances should point "C" (Fig. 3) be used for measuring the runout as this metal has been sheared in the manufacturing process and is not an even surface.

4. WHEEL BALANCE

The necessity for balancing wheels is indicated by heavy vibration of the steering wheel of the vehicle, when driving at speeds above 40 miles an hour over a smooth straight highway.

Static (still) balance is equal distribution of the weight of the wheel and tire around the spindle, in such a manner that the wheel assembly has no tendency to rotate by itself, regardless of its position. A wheel that has a heavy spot is statically out of balance, resulting in a "hopping" or bouncing action.

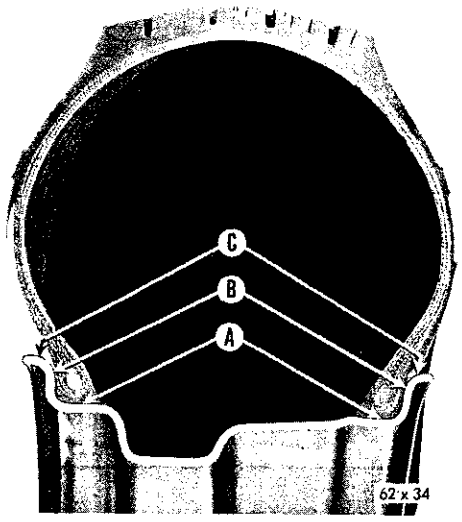

Fig. 3—Runout Checking Areas

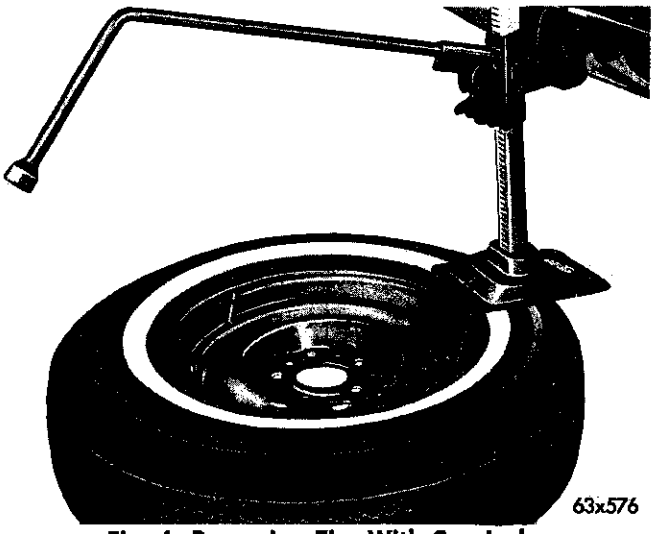

Fig. 4—Removing Tire With Car Jack

A wheel and tire, to be in dynamic balance, must first be in static balance and also be in balance from side to side when the wheel is at right angles to the axis of rotation. A wheel not in dynamic balance tends to wobble or shimmy.

Correction for static unbalance is made by first finding the location of the heavy spot, then adding sufficient weight to counterbalance it at a location opposite the heavy section. Follow the equipment manufacturers recommendations. The total weight to be added should be divided in half and the weights placed on the inside and outside rim edges.

5. REPAIRING LEAKS

In case of slow air leakage, the puncturing object may be seen or the escaping air can be heard. At times, it may be necessary to apply a soapy water solution to the tire or to submerge the tire and rim in water in order to locate the leak.

Leaks, between the tire and wheel, require the removal of the tire. Leaks in the tire can often be repaired without removing the tire. Always follow the equipment manufacturers recommendations.

6. DISMOUNTING AND MOUNTING TIRES

Tools used for dismounting and mounting tires must be smooth, free from sharp edges or projections which could damage the tire, or tire rim.

Removal

(1) Remove the valve core and completely deflate the tire.

(2) Carefully force both tire beads over the safety raised rim section, into the drop-center section.

Tire bead breaker, Tool C-3455A may be used to force the tire beads over the raised rim section, how-

ever, the car jack may be used as an alternate method (See Fig. 4).

(3) While holding one bead in the center section, pry the other bead off the wheel. Then remove the remaining bead to complete the removal.

Cleaning and Inspection

(1) Remove all rust inside the wheel rim and any roughness on the butt weld in the tire contact area.

(2) The sealing areas of both tire beads must be smooth and uniform.

Installation

(1) Apply a mild soap and water solution to both tire beads.

(2) Place one bead over the rim of the wheel, working the entire bead into the low section of the rim.

(3) Place the other bead over the wheel rim and work the entire bead into the low section of the rim.

(4) While applying air through the valve stem, strike the tread sharply with a rubber hammer to force both beads outward over the raised rim section. It may be necessary to use bead expander Tool C-3440 (Fig. 5) or a rope tourniquet (Fig. 6).

(5) When both tire beads are fully seated, install the valve core and inflate the tire to the recommended pressure.

7. FRONT WHEEL BEARINGS

The front wheel bearings should be cleaned and repacked with Wheel Bearing or Automotive Multipurpose Lubricating Grease whenever brake linings are replaced or the brake drums resurfaced. All the old lubricant should be cleaned thoroughly from the

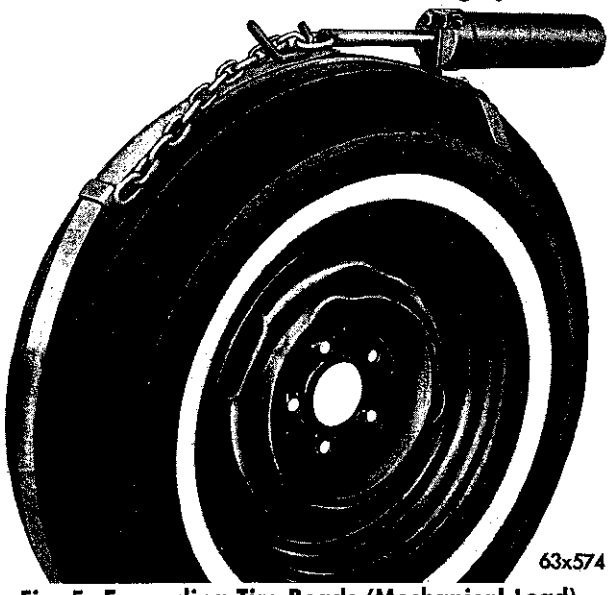

Fig. 5—Expanding Tire Beads (Mechanical Load)

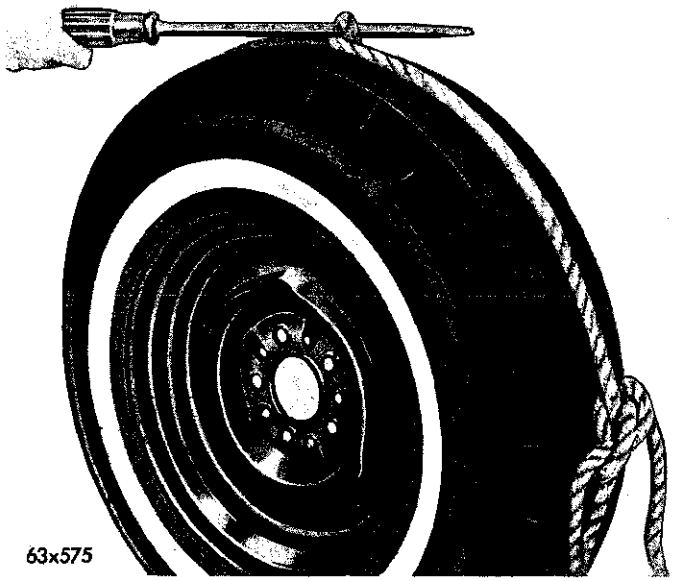

Fig. 6—Expanding Tire Beads (Rope Tourniquet)

bearings and the wheel hubs and the bearings repacked with the new grease; the annular groove of the wheel inner hubs should be filled with the lubricant.

At other times, the lubricant in the bearings should be inspected whenever the wheels are removed to inspect or service the brake system. Do not repack the bearings if the grease is adequate in quantity and quality. If the grease either is low in quantity, contains dirt, or has been contaminated with water to produce a milky appearance, the bearings and hubs should be cleaned and repacked as described in the preceding paragraph. DO NOT ADD GREASE TO THE WHEEL BEARINGS - RELUBRICATE COMPLETELY.

(1) Raise the vehicle so the front wheels are free of the floor.

(2) Remove the wheel cover, grease cup, cotter pin and bearing adjusting nut.

(3) Remove the thrust washer and outer bearing from the hub.

(4) Slide the wheel, hub and drum assembly off the spindle.

(5) Drive out the inner oil seal and remove the bearing cone.

Cleaning and Inspection

(1) Clean the hub and drum assembly and the bearings in kerosene, mineral spirits or other similar cleaning fluids. **Do not spin dry the bearings.**

(2) Examine the bearing cups for pits, brinell marks or other imperfections. If cups are damaged, remove them from the hub using a soft steel drift positioned in the slots in the hub.

(3) The bearing cup areas in the hub should be smooth, without scored or raised metal which could keep the cups from seating against the shoulders in the hub.

(4) The cones and rollers should have smooth, unbroken surfaces without brinell marks. The ends of the rollers and both cone flanges should also be smooth and free from chipping or other damage.

Installation

(1) If the bearing cups were removed, start the new cups into the hub evenly, driving them flush with the hub, using a soft steel block and hammer. Seat the cups against the shoulders in the hub, using a soft steel drift and hammer.

(2) Fill the hub cavity with the recommended wheel bearing lubricant, as shown in Figure 7. The lubricant should be even with the inner diameter of the bearing cups.

(3) Force the lubricant between the bearing cone rollers or repack with a bearing packer tool.

(4) Install the inner cone and a new oil seal with the lip of the seal facing inward. Use Tool C-3893 to install the seal. The seal flange may be damaged if the tool is not used.

(5) Clean the spindle and install the wheel bearing and drum assembly.

(6) Install the outer bearing cone, thrust washer and adjusting nut.

Adjustment

(1) Tighten the wheel bearing adjusting nut to 90 inch-pounds torque.

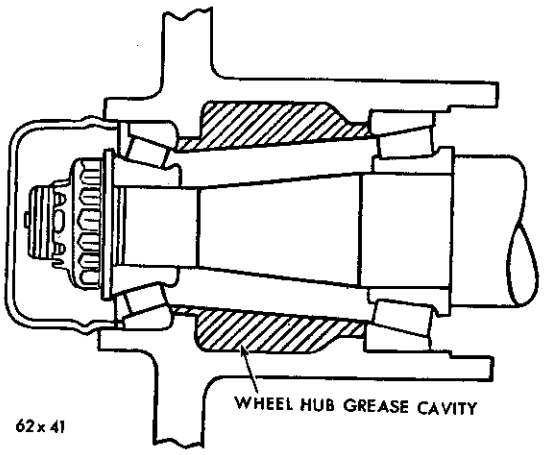

Fig. 7—Wheel Hub Grease Cavity

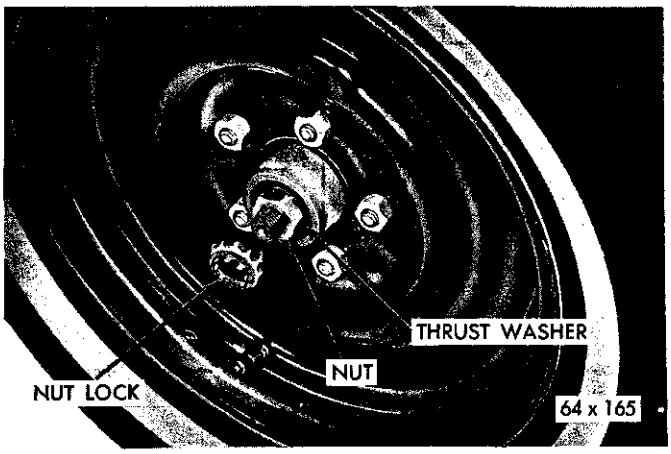

Fig. 8—Adjusting Front Wheel Bearings

(2) Position the nut lock on the adjusting nut so one pair of cotter pin slots aligns with the pin hole in the spindle (Fig. 8).

(3) Back off the adjusting and nut lock assembly one slot and install the cotter pin. **The resulting adjustment should be zero (no preload) to .003" end play.**

(4) Clean the grease cap, coat the inside with wheel bearing lubricant (do not fill) and install the cap.

(5) Install the wheel covers and lower the vehicle to the floor.

8. TIRE WEAR PATTERNS

For the various tire wear patterns, refer to Figures 9 through 13.

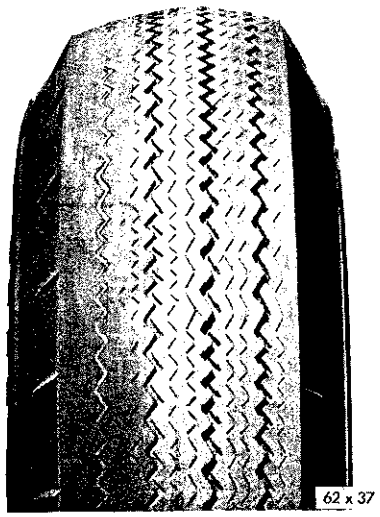

Fig. 9—Camber Wear

SERVICE DIAGNOSIS

Condition	Possible Cause	Correction
Side Wear (Figs. 9 and 10)	(a) Outside (all wheels) excessive cornering speed.	(a) Driver instructions.
	(b) Outside (front) excessive positive camber.	(b) Adjust camber to specifications.
	(c) Inside (front) excessive negative camber.	(c) Adjust camber to specifications.
	(d) Outside and inside—under inflation or vehicle overload.	(d) Inflate tires (when cool) to specified pressure and test vehicle for overload.
Center Ribs Wear (Fig. 11)	(a) Over-inflation	(a) Adjust tire pressure to specifications (when tires are cool).

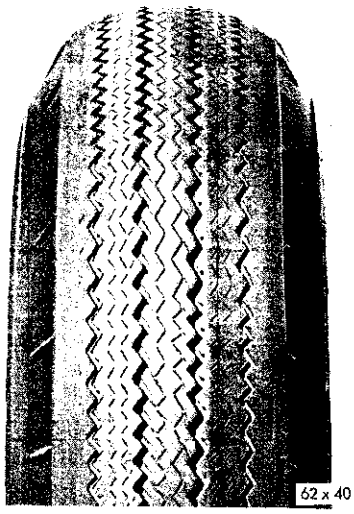

Fig. 10—Under Inflation Wear

Fig. 12—Toe Wear

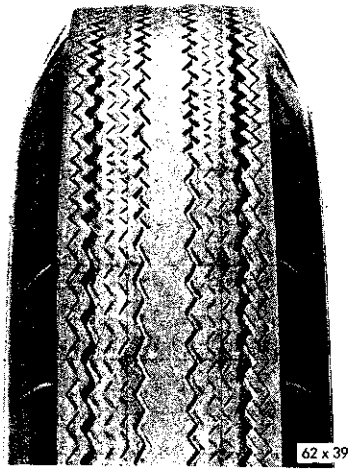

Fig. 11—Over Inflation Wear

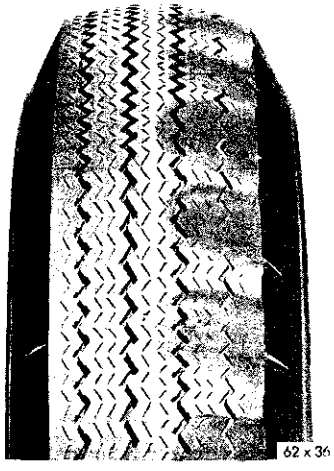

Fig. 13—Spotty Wear

SERVICE DIAGNOSIS—(Continued)

Condition	Possible Cause	Correction
Sharp Rib Edges (Fig. 12)	(a) Inside Edges-excessive toe-in.	(a) Adjust toe-in to specifications.
	(b) Outside edges-excessive toe-out.	(b) Adjust toe-in to specifications.
	(c) One tire sharp inside, opposite tire sharp outside-bent arm or knuckle.	(c) Inspect for bent arm or knuckle, replace parts as required.
Abrasive Roughness Across Tread	(a) Excessive cornering speed.	(a) Driver instructions.
Heel and Toe Wear	(a) High accelerations (Hot-Rodding).	(a) Driver instructions.
	(b) Severe use of brakes.	(b) Driver instructions.
Uniform Spotty Wear (Fig. 13)	(a) Lack of tire rotation.	(a) Rotate tires.
	(b) Tires and wheels out of balance.	(b) Balance and rotate assemblies.
Irregular Spotty Wear	(a) Tires and wheels out of balance.	(a) Balance and rotate assemblies.
	(b) Under-inflation.	(b) Inflate tires to specified pressure (when cool).
	(c) Loose or worn parts.	(c) Inspect front suspension for worn parts replace as required.