Group 22
WHEELS, BEARINGS AND TIRES
CONTENTS

DATA AND SPECIFICATIONS

MODELS	DE SOTO (PS-1, PS-3)	WINDSOR (PC-1)
WHEELS		
Type	Steel Disc	
Rim	Drop Center–Safety Wheel	
Size	14 x 5½K	14 x 5½K 14 x 6K (Town and Country)
Number of Wheel Nuts	5	
Stud Hole Circle	4½"	
Stud Size	½"-20	
TIRES		
Type	Super Cushion Tubeless	
Size	8 x 14 8.50 x 14 Optional	8.00 x 14 8.50 x 14 (Town and Country)
Ply	4 Standard	
Tread	Twin Grip	
TIRE PRESSURES–COLD		
Pounds–Rear		24–Town and Country*
Rear	22	24
Front	22	

*With Town & Country fully loaded, increase rear tire **cold** pressure to 28 pounds.
Captive-Air tires are optional equipment on Town & Country Wagons 3-seat Models only.

(8.50 x 14 on Model PC-1 and 9.00 x 14 on Model PC-3.)

DATA AND SPECIFICATIONS (Continued)

MODELS	SARATOGA (PC-2)	NEW YORKER (PC-3)	IMPERIAL (PY-1)
WHEELS			
Type		Steel Disc	
Rim		Drop Center—Safety Wheel	
Size	14 x 6K	14 x 6½K 14 x 6 (Town & Country)	15 x 6L
Number of Wheel Nuts		5	
Stud Hole Circle	4½"	4½"	5½"
Stud Size	½" x 20	½" x 20	9/16"-18
TIRES			
Type		Super Cushion Tubeless	
Size	8.50 x 14	9.00 x 14 850 x 14 (Town & Country)	8.20 x 15
Ply		4 Std.	
Tread		Twin Grip	
TIRE PRESSURES—COLD			
Pounds—Rear	22	22	24
Rear		24—(Town & Country)	
Front	22	22	24

*With Town & Country fully loaded, increase rear tire **cold** pressure to 28 pounds.
Captive-Air tires are optional equipment on Town & Country Wagons 3-seat Models only.

(8.50 x 14 on Model PC-1 and 9.00 x 14 on Model PC-3.)

SERVICE DIAGNOSIS

1. SIDE WEAR (Figs. 1 and 2

a. Outside (All wheels) excessive cornering speed.

b. Outside (Front) excessive positive camber.

c. Inside—excessive negative camber.

d. Outside and inside—underinflation or vehicle overload.

2. CENTER RIBS WEAR (Fig. 3)

a. Over-inflation.

3. SHARP RIB EDGES (Fig. 4)

a. Inside edges—toe-in excessive.

b. Outside edges—toe-out excessive

c. One tire sharp inside, opposite tire sharp outside—bent arm or knuckle.

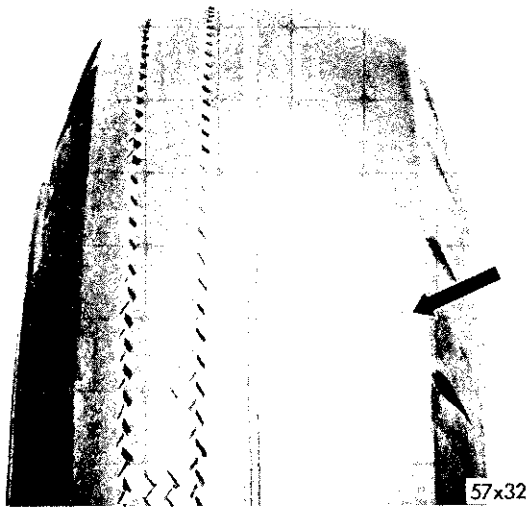


Fig. 1—Camber Wear

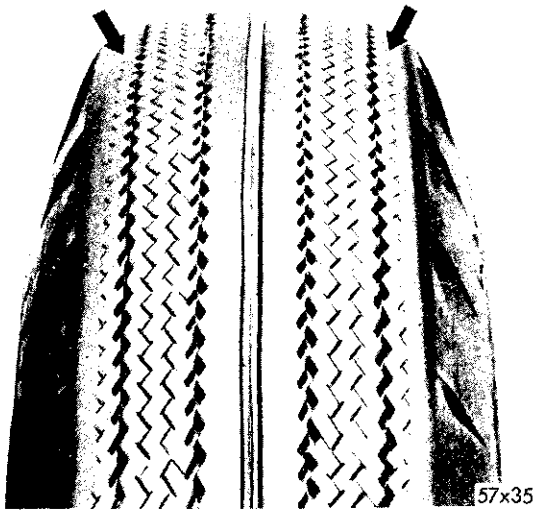


Fig. 2—Under-Inflation

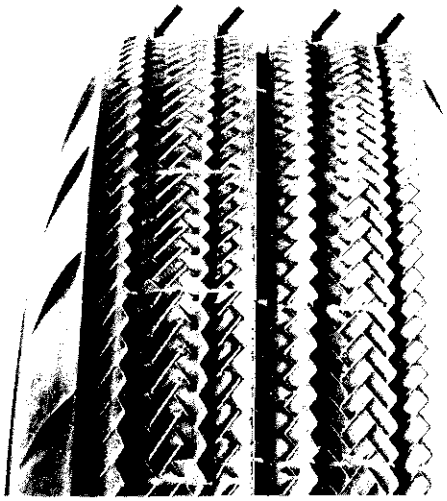


Fig. 4—Toe-In Wear

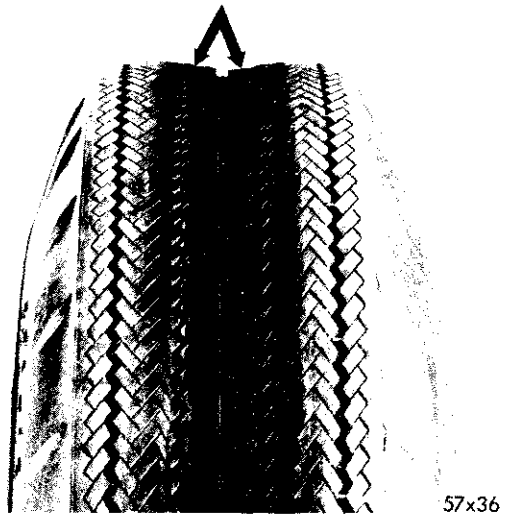


Fig. 3—Over-Inflation Wear

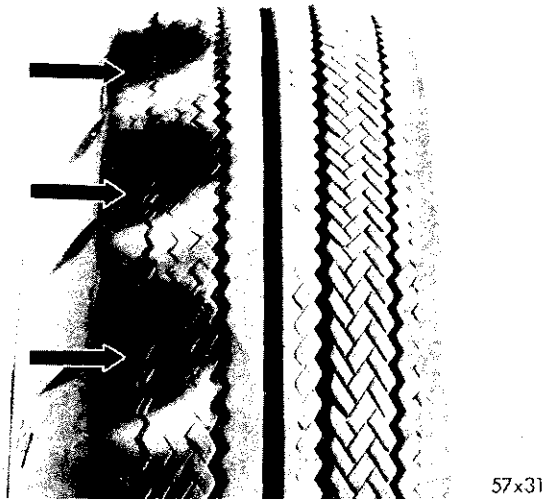


Fig. 5—Spotty Wear

4. ABRASIVE ROUGHNESS ACROSS TREAD

a. Excessive cornering speed.

5. HEEL AND TOE WEAR

a. High-speed driving.

b. Severe use of brakes.

c. Continuous rapid acceleration.

6. UNIFORM SPOTTY WEAR (Fig. 5)

a. Lack of tire rotation.

b. Wheel unbalance.

7. IRREGULAR SPOTTY WEAR

a. Wheel unbalance.

b. Under-inflation.

c. Loose or worn parts.

Group 22
WHEELS, BEARINGS AND TIRES

SAFETY RIM WHEELS

The safety rim wheel has raised sections between the rim flanges and the rim well (Fig. 6). 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 the driver to maintain better 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.

8. 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. NO NOT USE GASOLINE OR OTHER SOLVENTS. DO NOT USE A WIRE BRUSH.

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

Each time the car is lubricated, the air pressure of all tires should be checked to the following specifications. They should also be inspected for damage and embedded foreign matter at the same time.

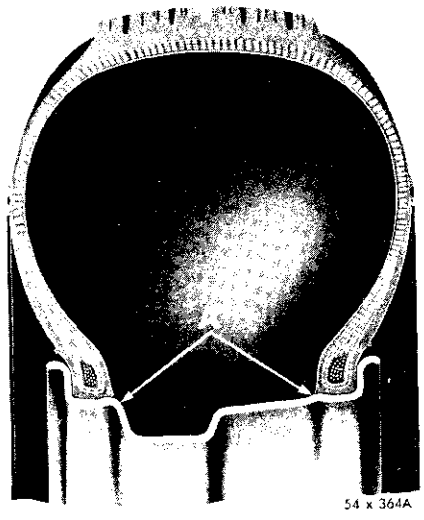


Fig. 6—Safety Type Rim

TIRE PRESSURES

MODELS	COLD PRESSURE FRONT	COLD PRESSURE REAR
DE SOTO		
All	22	22
CHRYSLER		
Windsor (Except Town & Country)	24	22
Windsor (Town & Country)	24	24*
Saratoga	22	22
New Yorker (Except Town & Country)	22	22
New Yorker (Town & Country)	22	24*
IMPERIAL		
All	24	24

*Town & Country fully loaded, increase rear tire air pressure to 28 lbs.

9. WHEEL BALANCE

Static 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 in it is statically out of balance, resulting in a "hopping" or bouncing action.

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. A dynamic balancer is

then used to add equal and opposite weights on the inside and outside rims to produce a smooth running wheel at all speeds.

10. TIRE ROTATION

With increased road speeds and faster cornering, abnormal tire wear may exist on certain wheels. By rotating tires regularly, the tires that show the abnormal wear may be placed in another location where the rotation of the wheel is reversed. This will tend to correct the wear pattern and lengthen tire life. Tire rotation should be done at 3,000 miles when new and rotated every 6,000 miles thereafter. Spare tires age and deteriorate almost as much as tires in use, therefore, the rotation (Fig. 7) including the spare tire should be done periodically according to recommendations in order to obtain maximum life of all tires.

11. CHECKING WHEEL AND TIRE RUNOUT

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

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

Place a dial indicator against the tire tread face and rotate the wheel slowly to check radial runout.

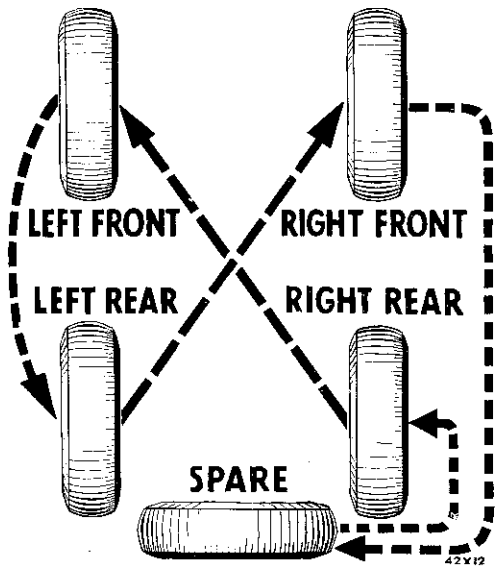


Fig. 7—Tire Rotation

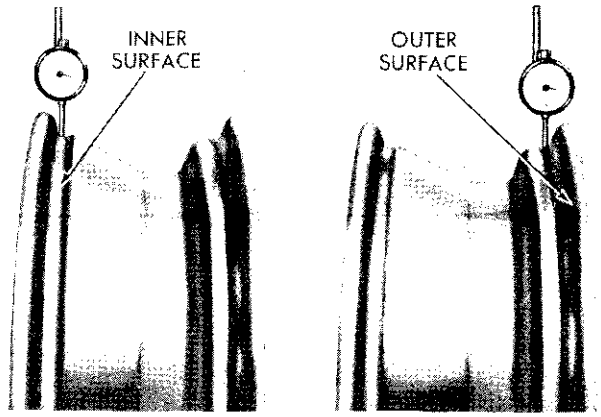


Fig. 8—Run Out Checking Areas "A" and "B"

This should not exceed .060 inch. Position dial indicator against side of tire to check lateral runout. The dial indicator should be attached to a firm base so that it will be held steady while taking the runout readings. If radial runout exceeds .060 inch, mark the relative location of the tire on the wheel. Remove tire and check wheel radial runout at point "A" (Fig. 8). Radial runout at this point on the wheel should not exceed .045 inch. If wheel has less than .045 inch runout, reinstall tire at 180° to its original location on the wheel and recheck runout. If radial runout still exceeds .060 inch, the tire must be replaced. Place a dial indicator against the side of tire in position to check lateral runout (wobble) of tire and wheel assembly. Position dial indicator against side of tire to check lateral runout. The dial indicator should be attached to a firm base so that it will be held steady while taking the runout readings. If lateral runout is indicated to be in excess of .125 inch, mark the tire and wheel to show original location. Remove tire and check lateral runout of wheel at point "B" (Fig. 8). If wheel runout does not exceed .070 inches, reinstall tire and wheel at 180° to its original location and recheck lateral runout of the assembly. If runout still exceeds .125 inch, or if tire is lumpy, replace tire. If wheel runout exceeds .070 inches, it should be trued-up or replaced.

CAUTION

Under no circumstances should point indicated by "C" be used for checking runout as this metal has been sheared in the manufacturing process and as a result is not an even surface.

12. 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, using the rubber plug method as follows:

(1) Remove the puncturing object from the hole.

(2) Carefully probe the hole to determine its size and direction as well as to clear out any foreign matter.

(3) Using the repair needle, thoroughly coat the hole with cement.

(4) Select a repair plug (or plugs) at least twice the diameter of the hole.

(5) Roll the small end of the plug into the eye of the needle, 3/8 inch from the end of the plug.

(6) Dip the plug and the needle in the cement and immediately insert it in the hole in the tire. When the small end of the plug snaps through the tire (Fig. 9) it will pull out of the needle as the tool is pushed to full depth.

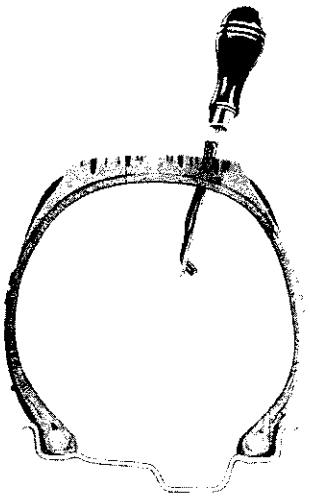
(7) Insert additional plugs as found necessary in step (4).

(8) Cut the plug 1/8 inch above the surface of the tire.

13. DISMOUNTING AND MOUNTING TIRES

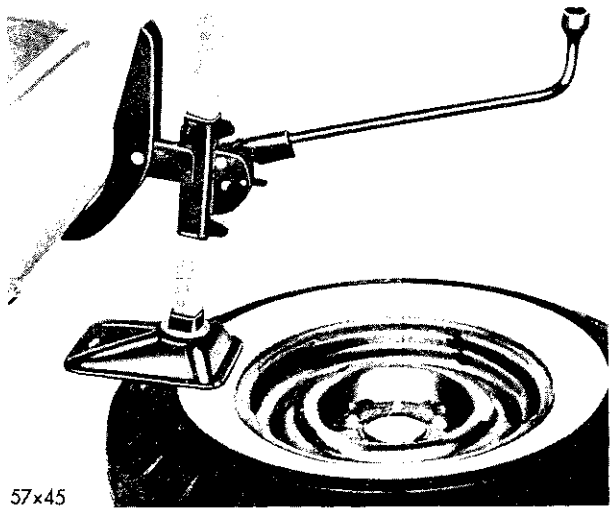
a. Removing Tire with Car Jack

The bumper jack provided in the car may be used to remove a tire from the rim.



54 x 386A

Fig. 9—Plug and Needle Inserted in Tire



57x45

Fig. 10—Removing Tire with Car Jack

(1) With the wheel removed from the car, remove the valve core and deflate completely.

(2) Place the wheel under the front or rear bumper.

(3) Place the base of the jack on the tire next to the rim, and jack the contacting bumper.

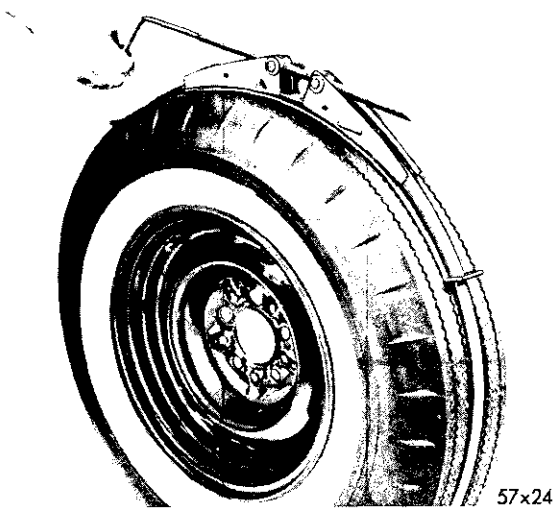
(4) Operate the jack to force the tire bead down off of the rim (Fig. 10).

(5) Turn the wheel over and repeat process.

(6) Squeeze both beads together (at one point) and work down into rim well. Opposite this point insert the tire tool and pry the casing off of the rim (one bead at a time). CARE SHOULD BE TAKEN NOT TO DAMAGE THE BEADS IN DISMOUNTING.

b. Cleaning and Inspection

(1) Eliminate any rust inside the wheel rim and



57x24

Fig. 11—Expanding Tire Beads (Mechanical Tool)

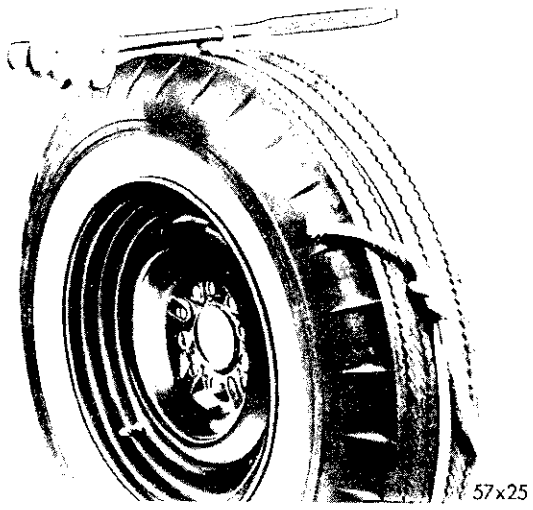


Fig. 12—Expanding Tire Beads (Rope Tourniquet)

any roughness in the buttweld in the tire bead contact area. This tire seating area must be smooth and uniform. Coat any bare metal and any places where leaks could develop with tire cement.

(2) Clean and inspect the inside of the tire. Any fabric breaks should be repaired. Remove any foreign material embedded in the tread.

c. Installation

Any tools used must be smooth and free of sharp edges or projections which could damage the tire.

(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. 11) or a rope tourniquet (Fig. 12).

(5) When both tire beads are fully seated, adjust the air pressure to specifications.

14. FRONT WHEEL BEARINGS

Front wheel bearing lubricant should be changed at 10,000-mile intervals or once a year. Depending upon the manufacturer, short fiber wheel bearing lubricants containing either sodium or lithium soaps, either of which is satisfactory. Since the two types do not mix satisfactorily, lubricant should never be added to that already in the bearings.

a. Removal (Hub Assembly Off)

(1) Using a brass drift in the slots in the hub, drive out the inner oil seal, bearing cone and cup.

(2) Invert the hub and drive out the outer bearing cup.

b. Cleaning and Inspection

(1) Clean the hub and drum assembly and the bearings in kerosene, mineral spirits or other similar cleaning fluids.

(2) 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.

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

(4) Bearing cups should have smooth surfaces, free from pitting, brinnel marks or other imperfections.

c. Installation

(1) Start bearing cups into the hub evenly, driving them flush with the hub using a soft-head hammer. Seat the cups against shoulders, using a brass drift.

(2) Apply a thin coating of wheel bearing lubricant over the inside of the hub for prevention of rust.

(3) Force lubricant between the bearing rollers.

(4) Install inner cone and a new seal. Drive the seal flush with end of hub.

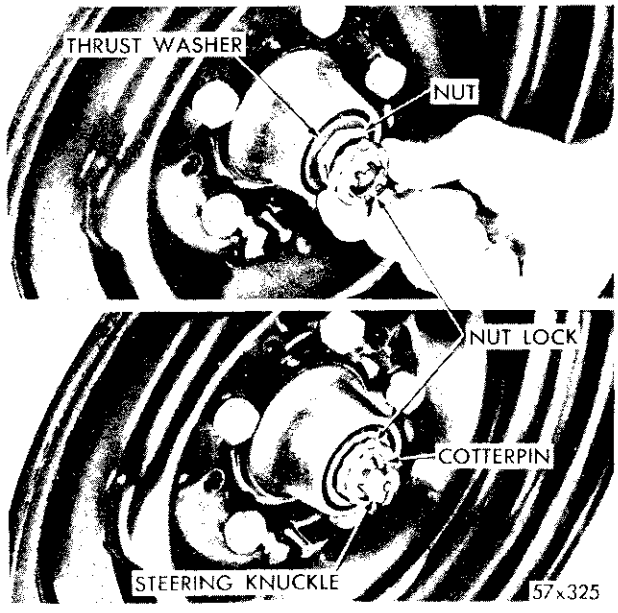


Fig. 13—Adjusting Front Wheel Bearings

(5) Clean the spindle and install hub and drum.

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

d. Adjustment

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

(2) Position nut lock on nut with one pair of slots in line with cotter pin hole (Fig. 13).

(3) Back off the lock and adjusting nut lock slot.

(4) Remove nut lock and re-position it on adjusting nut so the cotter pin can be inserted. **Do not move adjusting nut.** Install cotter pin.

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

(6) Install wheel, tightening nuts to 65 foot-pounds torque and install wheel cover (all models).

15. CAPTIVE AIR TIRES (PC-1, PC-3 TOWN AND COUNTRY 3-SEAT MODELS ONLY)

Captive air tires (Fig. 14) provide a "spare" at each of the four wheels, thus eliminating the need of a spare wheel and tire. A steel and nylon shield divides the tire into two separate compartments and provides protection against loss of control as a result of cuts, punctures or blowouts of the outer compartment. In addition, the air in the inner compartment permits driving 100 miles or more at speeds up to 50 mph with no stopping, no inconvenience and no danger from changing wheels on the road.

a. Inflation Procedure

(1) Through the rim valve, inflate inner chamber first to 30 pounds pressure.

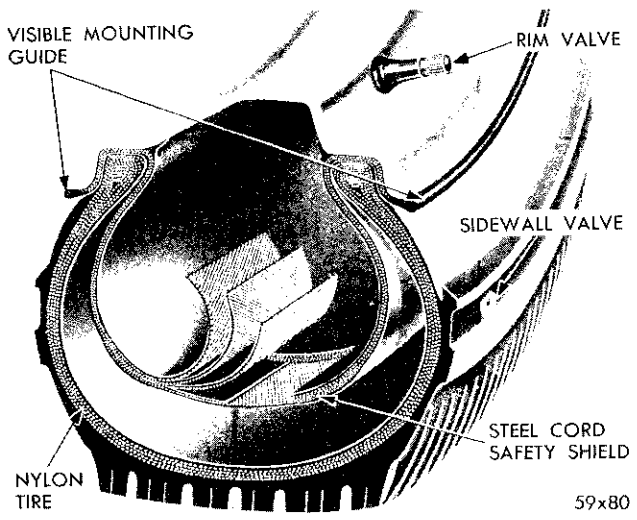


Fig. 14—Captive Air Tire

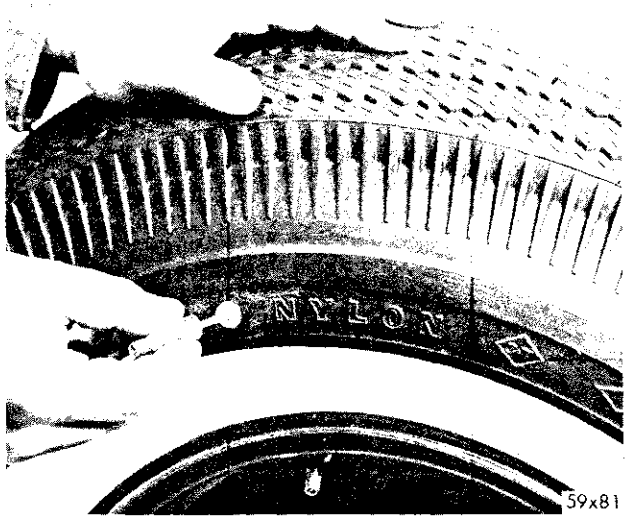


Fig. 15—Inserting Inflating Needle in Side Wall Valve

(2) Lubricate inflation needle and insert into sidewall valve (Fig. 15).

(3) Inflate outer chamber through sidewall valve to 28 pounds pressure.

(4) When correctly inflated, inner chamber will be 2 to 4 lbs. more than outer chamber. (If pressure difference cannot be obtained, indications are of a leak between inner and outer chamber at shield.)

(5) Remove needle and put it in its case. Tires should be inspected periodically and any foreign material removed. The safety shield will cause most nails to either bend over, break off or be thrown out. If a puncturing object is removed, the safety shield should be tested for leakage. If leaking, it should be inspected for damage. The shield may be tested by inflating the inner compartment to a higher pressure (never over 40 pounds) than the outer compartment. If the pressure in the inner compartment remains constant, the shield is undamaged.

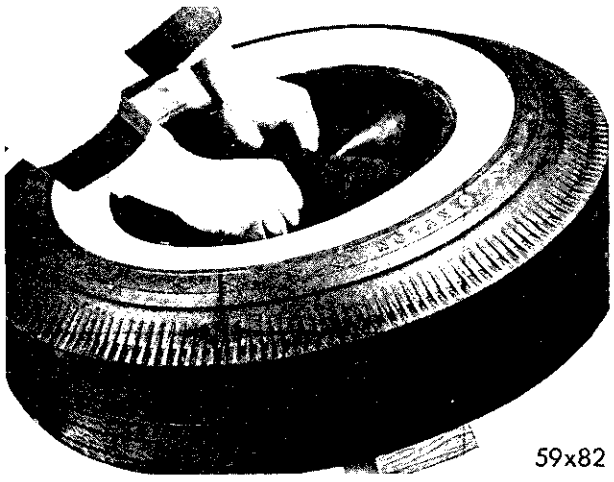


Fig. 16—Removing Safety Shield

b. Removal

(1) Remove the valve core from rim valve to deflate inner compartment. It is not necessary to deflate outer compartment after inner compartment has been deflated.

(2) Use tire changing machine (DO NOT USE HAMMER OR TIRE IRONS) to loosen tire beads from both wheel rims. Push safety shield inside tire by hand.

(3) Apply soap solution to one rim flange and tire bead and remove bead from wheel.

(4) Remove safety shield from tire (Fig. 16).

(5) Remove tire from wheel.

If tire changing machine is not available to loosen tire beads from rim flanges, use a jack or other source of pressure. DO NOT PRY OR HAMMER LOOSE.

c. Insection and Repair

Injuries to the tire should be handled the same as for any tubeless tire except that when making inside repairs, the anti-friction lubricant should be removed first with a scraper and then with a rubber solvent before the buffing operation. If sidewall valve is damaged, replace with the standard sidewall valve replacement kit.

Safety shield should be free from wear, fabric chafing or damage to bead channels and flange surfaces. Injury to the crown area, if less than one-half way through, need not be repaired. Damaged areas from ¼ inch to ⅝ inch require a fabric-reinforced, sectional repair, the same as a tire with hot plate curling.

d. Installation

(1) Prepare wheel rim by scraping off all rust flakes and cleaning rim flanges and bead seats with wire brush or steel wool.

(2) Apply a heavy coating of vulcanizing cement to fill pitted areas.

(3) Install tubeless tire valve in hole in rim.

(4) Spread contents of a capsule of anti-friction fluid lubricant uniformly over inside crown of tire.

(5) Insert safety shield in tire and position "H" mark on shield in alignment with "L" mark on tire

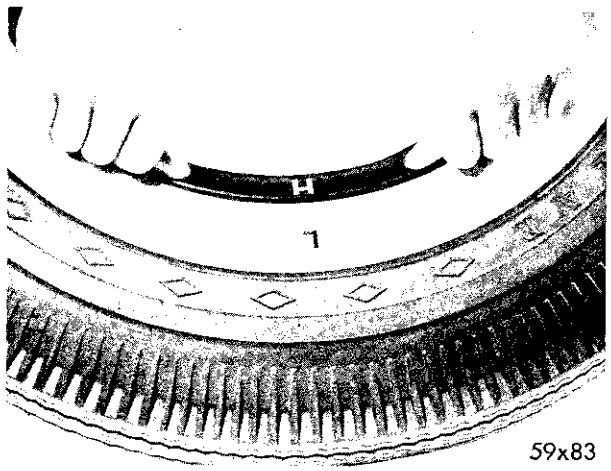


Fig. 17—Positioning Shield Over Tire Bead

(Fig. 17). Apply shield bead channels over tire beads and smooth out wrinkles by hand.

(6) Coat outer bead surfaces (flange and base) of safety shield with tire mounting lubricant. DO NOT ALLOW LUBRICANT TO GET BETWEEN SHIELD AND TIRE.

(7) Mount tire on wheel, with sidewall valve in alignment with rim valve. Avoid wrinkling or damaging shield bead channels. When seating the first bead in rim, should the safety shield slip off tire bead, pull shield out (with pliers if necessary). Edge of safety shield must be uniformly visible around wheel.

(8) Insert inflating needle in sidewall valve.

(9) Install core in rim valve and inflate inner compartment. If beads do not contact rims sufficiently to allow pressure build-up, use a bead expanding device. Remove expander as soon as pressure starts to build up. Inflate inner compartment to two pounds above the desired pressure.

(10) To seat tire beads in bead wells, inflate outer compartment through sidewall valve. NEVER USE OVER 40 POUNDS INFLATION PRESSURE. If beads are not seated with this pressure, deflate, relubricate safety shield and rim.

(11) Adjust outer compartment pressure to specifications.

(12) Examine edges of safety shield on both sides of wheel. The edges should be uniformly visible. If a section is not visible and uniform:

(13) Deflate both compartments to approximately five pounds pressure

(14) Re-lubricate the non-uniform section.

(15) Using a heavy broad-faced mallet, jar the sidewall at that location. Safety shield will usually be forced into position by the escaping air pressure. In stubborn cases, it may be necessary to clean the tire bead and shield flange with rubber solvent, then cement shield to tire bead using cold cure cement.

(16) When tire is properly mounted and both compartments inflated (see Paragraph 15a), remove inflating needle and store in case.

16. THREE-SEAT TOWN AND COUNTRY SPARE TIRE REMOVAL

The spare tire for the three-seat Town and Country will be carried beneath the third seat. It is necessary to remove the third seat to allow the tire to be removed. Slots in the third seat pivot brackets line up with the flats on the hinge pins when the seat is lifted to a vertical position. Then, the seat can be lifted up and free from the pins. The spare tire will now be accessible for removal.