Section XIII

WHEELS AND TIRES

CONTENTS

DATA AND SPECIFICATIONS

MODELS	LC-1	LC-2	LC-3	LY-1
WHEELS				
Type	Steel Disc			
Rim	Drop Center—Safety Wheel			
Size	14 x 5½	14 x 6	14 x 6½	14 x 7
Flange Type	K	K	K	L
No. of Nuts to Attach Wheel	5	5	5	5
Stud Hole Circle (diameter)	4½	4½	4½	5½
Stud Size	½-20	½-20	½-20	9/16-18

DATA AND SPECIFICATIONS (Cont'd)

MODELS	LC-1	LC-2	LC-3	LY-1
TIRES				
Type	Super Soft Cushion Tubeless			
Cord Material	Rayon	Rayon	Rayon	Rayon
Size	8.00 x 14	8.50 x 14	9.00 x 14	9.50 x 14
TIRE PRESSURE				
Pounds—Cold—Front	24	22	22	22
Rear	22	22	22	22

TOWN AND COUNTRY WAGON

	Two Seater	Three Seater	Two Seater	Three Seater
	LC-1	LC-1	LC-3	LC-3
WHEELS				
Type	Steel Disc			
Rim	Drop Center—Safety Wheel			
Size	14 x 6	14 x 6½	14 x 6½	14 x 6½
Flange Type	K	K	K	K
No. of Nuts to Attach Wheel	5	5	5	5
Stud Hole Circle (diameter)	4½	4½	4½	4½
Stud Size	½-20	½-20	½-20	½-20
TIRES				
Type	Super Soft Cushion Tubeless	Captive Air	Super Soft Cushion Tubeless	Captive Air
Cord Material	Rayon	Nylon	Rayon	Nylon
Size	8.50 x 14	8.50 x 14	9.00 x 14	9.00 x 14
TIRE PRESSURE				
Pounds—Cold—Front	24	24	22	22
Rear	24*	24*	22*	22*

*28 lbs. when carrying heavy load on rear only.

Section XIII
WHEELS AND TIRES
WHEELS

1. SAFETY RIM WHEELS

The wheel rim incorporates a special safety feature to give added protection in case of a blowout or rapid deflation of the tire while the car is in motion. It is a raised section between the rim flange and the rim well, as shown in "A" of Figure 1. Inflation of the tire snaps the tire bead over this raised section and out against the flange. The force required to pull the bead back over this raised portion tends to keep the tire out against the flange even though rapid deflation occurs.

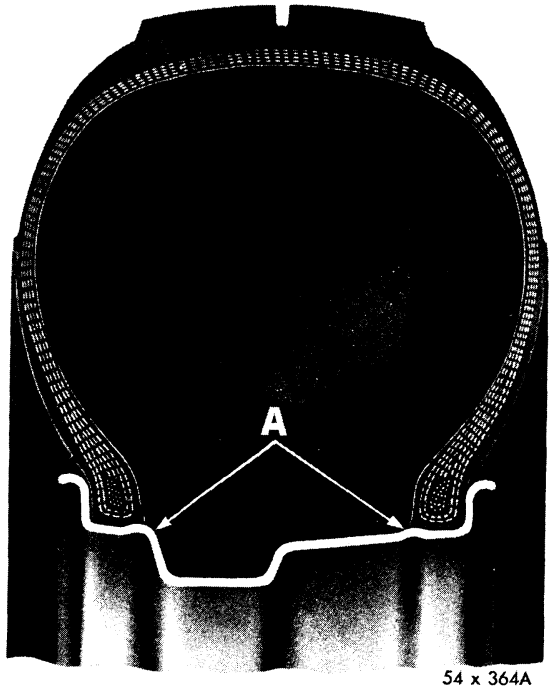
2. TIGHTENING WHEEL HUB NUTS

Tighten wheel hub nuts evenly while tire is off ground. Lower tire to ground to tighten nuts securely. **Make sure these nuts are tight.**

3. CHECKING WHEELS FOR ECCENTRICITY

Dismount tire and test with wheel mounted on brake drum. Position dial indicator on firm surface to prevent deflection. With the anvil of indicator bearing on the inner tire bead surface of wheel, as shown in Figure 2 slowly rotate wheel and note the total runout. Mark high and low spots and the amount on wheel. If radial runout of wheel exceeds .045 inch, replace the wheel.

NOTE: Do not check runout on outside of wheel rim since this method can easily give a false reading.



54 x 364A

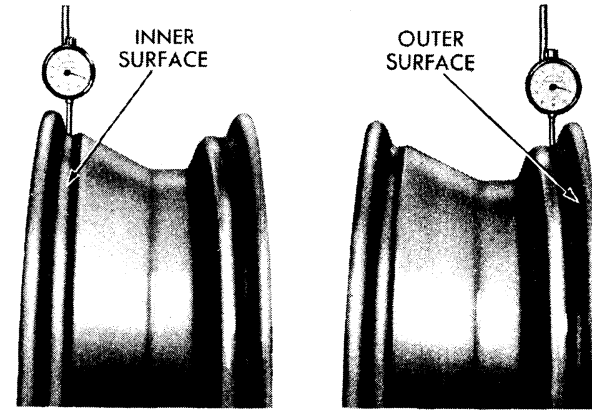
Fig. 1—Safety Type Rim

4. CHECKING WHEEL FOR WOBBLE (LATERAL RUNOUT)

Before checking a wheel or wobble (lateral runout), make sure tire is properly mounted. Mount a dial indicator on firm base, with anvil of indicator resting against the flange of wheel. Rotate the wheel. If lateral runout is more than ⅛ inch. (.125), straighten or replace wheel.

5. BALANCING WHEEL AND TIRE ASSEMBLIES

Proper balance of wheel and tire assemblies promotes smooth steering action and is a safeguard against vibration and front end shake. To check front wheels for balance, place jack under center of front of car and raise both



55x115

Fig. 2—If Radial Runout Exceeds .045 inch, replace Wheel

front wheels off floor. **Do not place jack under lower control arms as this will tend to minimize vibration.**

NOTE: Remove caked mud or tar from wheel so that balance condition will not be affected.

Using a spinner, rotate the wheel at a higher rate of speed than that encountered in actual highway driving. Place crumpled cloth or towel on front fender above center of wheel. Rotate the wheel up to high speeds. The wheel will vibrate profusely, if it is out of balance. If wheel is in balance, there will be no vibration at any speed.

If wheel is out of balance, mount it on master drum of wheel balancer to determine the proper location and amount of weight needed, or use wheel balancing equipment which checks balance with wheel on car. With this type of equipment, the balancing mechanism is clamped to the wheel assembly. When location and size of weights needed to balance wheel are determined, divide the amount and attach half of weight to inner rim and the other half to the outer rim of wheel.

To check balance of rear wheels, place jack under frame side rail about 12 inches forward of rear spring front hanger. Raise one wheel off the floor at a time. Block the other wheel. Place a crumpled cloth or towel on fender above wheel. With the engine running and transmission in direct drive, spin the wheels through speed ranges of 20, 30 and 40 miles per hour. **Do not exceed 40 miles per hour on the speedometer.**

The balance is correct if the cloth or towel does not vibrate. If wheel and tire assembly is out of balance, check with wheel balancing equipment and attach weights as needed.

TIRES

6. TUBELESS TIRES

The Tubeless Tires provide longer life and added protection against blowouts and punctures. A puncture can be repaired by using the repair plugs and other materials in the Tubeless Tire Repair Kit. Refer to Paragraph 10, for puncture repair procedures.

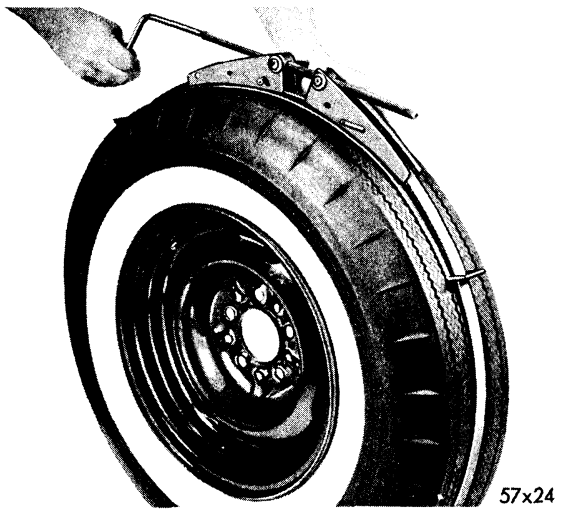


Fig. 3—Constricting Centerline of Tire with Mechanical Tool

7. DISMOUNTING TIRES

Remove tire and wheel. Deflate tire. **When dismounting, do not use hammer or tire irons to loosen sealing bead from flange.**

8. MOUNTING TIRES

Clean rim flanges and bead seats with wire

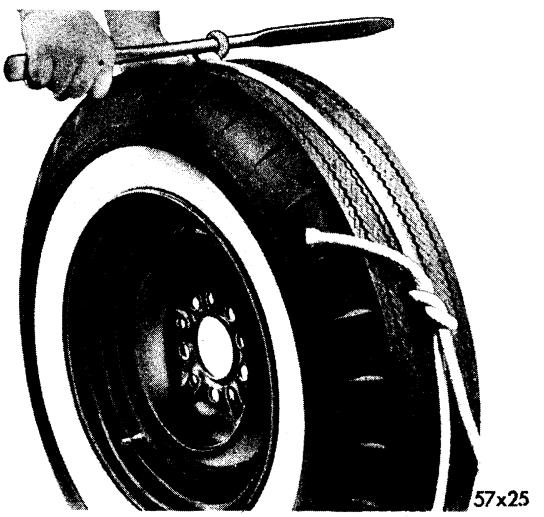


Fig. 4—Constricting Centerline of Tire with Rope Tourniquet

brush or steel wool. Install valve stem from inside the rim. The rubber stems snap into valve stem hole.

Apply MOPAR Ruglyde (or mixture of 12 parts water and one part liquid soap) to the tire beads to facilitate mounting. Mount the inside and outside in the usual manner. **Make sure the tire irons do not have sharp or burred edges and work with care to avoid damaging the tire beads.**

Apply a blast of air, after tire is mounted on rim. If beads do not seat sufficiently to hold the pressure, spread by constricting the centerline of tread with a tire mounting band, as shown in Figures 3 and 4 or a rope tourniquet. To make a tourniquet around the tires use one or more turns of rope. Tighten by twisting rope with tire tool, and pound on tread at various places to evenly distribute the tension.

When the tire beads seat, remove the mounting band or rope tourniquet.

CAUTION

Release tension on mounting band or rope tourniquet when inflation takes effect and before pressure begins to build up.

Install valve core and inflate tire to recommended pressure. Test tire and wheel assembly for leakage, in Paragraph 9.

9. TESTING THE TIRE AND WHEEL ASSEMBLY FOR LEAKAGE

When testing for leakage, do not remove tire from rim. Examine tire carefully for puncturing object. If tire is flat, inflate and listen for first air leak. If air leakage is slow and cannot be heard, remove tire from car and submerge in water test tank.

Apply a soap solution, if test tank is not available, covering surface of tire, the valve stem, and the juncture of tire and rim flange. A slow leak will be indicated by an accumulation of soap bubbles.

10. REPAIRING PUNCTURES

a. Tire on Wheel (Outside Method)

Simple punctures can usually be repaired with tire mounted on wheel, using items in repair kit, (Fig. 5). The operation can best be performed when tire is flat. It can also be accomplished while tire is inflated.

Fig. 5—Tire Repair Kit

Remove the puncturing object. Dip needle inserting tool in the cement provided in repair kit, and carefully probe in hole to determine its direction. After direction of hole is determined, continue to probe until the rubber around the hole is well covered with cement, as shown in Figure 6.

CAUTION

If the needle appears to be blocked, do not force it into hole as otherwise, an additional hole may be made, and two holes will be difficult to seal. Twist and turn needle to find the hole, if needle does not insert freely.

Select a repair plug according to size of hole. The repair plug should have a diameter about twice the size of hole, because soft rubber will stretch when inserted with needle. Roll small end of repair plug into "eye" of needle, 3/32 inch

Fig. 6—Lubricating Puncture with Cement

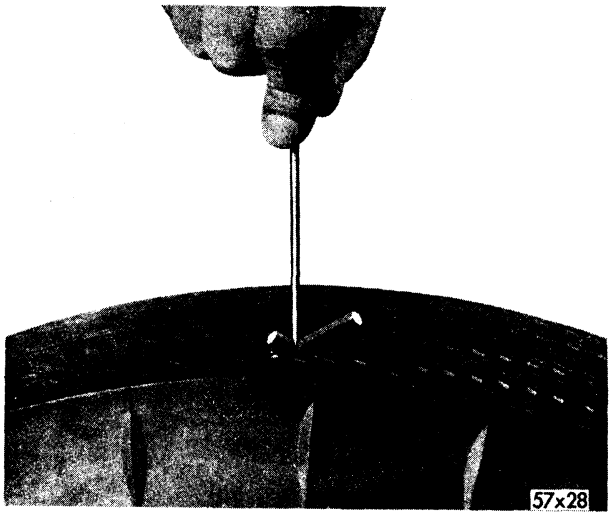


Fig. 7—Inserting Needle and Plug in Puncture

from end of the plug, as shown in Figure 7.

Dip repair plug and needle into cement, and immediately insert in hole with a firm, steady motion, until short end of repair plug snaps through tire, as shown in Figure 8. Pull needle straight out of hole. The plug will automatically unhook from the needle as this is done. Trim plug about ⅛ inch above tread of tire. Inflate tire, check for leakage, and tire is ready for use.

The portion of plug, which protrudes slightly above the tire tread, will wear down to the tread surface. The portion of the plug inside the tire will not affect normal operation.

b. Tire Off Wheel (Inside Method)

When the tire has been punctured by an irregularly-shaped object, a slow leak may occur at the repair after an attempt has been made to seal the opening with a repair plug. If such is the case, repair as follows: Place tire in a spreader. Trim the inside end of repair plug flush with the liner, and buff the liner approximately one inch around the puncture. Leave the repair plug in hole to keep moisture out of the tire fabric. If a repair plug is not in tire, work a little extra repair gum into the hole before applying the patch. It is not necessary to use cement to obtain a good adhesion.

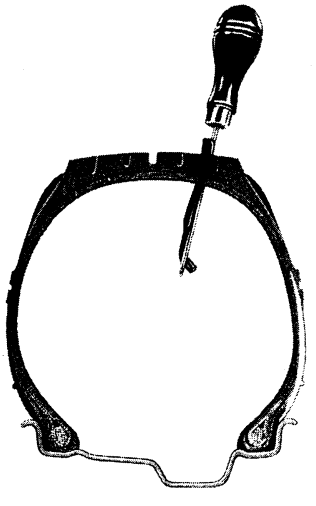


Fig. 8—Plug and Needle in Puncture (Sectional View)

Two types of equipment are available for curing inside patches—the Electric and the Match Patch. The Electric type has a "fuse" plug that automatically cuts off the power when the curing is completed. The Match Patch, or powder burning type, depends upon the heat resulting from a slow fire. "C" clamps are used with both types of equipment to apply pressure during the curing process. **All inside patches used must be Hot Patches.** Peel the strip from the rubber patch on the metal curing plate and center it over puncture. Follow instructions provided with the equipment, apply pressure, and cure the patch.

11. CLEANING WHITE SIDEWALL TIRES

CAUTION

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 a wire brush.

To clean white sidewall tires, use a good kitchen cleanser and a stiff brush. **Do not use gasoline or any wire, metal, brush, etc. as they will scratch the sidewalls.**

12. RECOMMENDED TIRE PRESSURES

The tires must receive proper care to insure maximum tire life. Under-inflation contributes to wear and causes excessive heat. Over-inflation causes excessive strain and, as a result, the tire is subject to break or bruise. Tire pressure should be checked at least once a week. Consult data and Specifications for correct tire pressures. Tire pressures will increase approximately 3 psi in city driving and 5 psi for country driving. **NEVER BLEED BUILT UP PRESSURE IN A TIRE.**

CAUTION

Alawys use an accurate gauge when checking tire pressure. An inaccurate gauge can be in error as much as 2 or 3 pounds, which is approximately 10 per cent of the recommended tire pressure.

Make sure the valve caps are tight, after checking tire pressure.

13. TIRE ROTATION

Rotating tires at intervals of 3,000 miles is the only known method of controlling certain types of tire wear. Tire life (Fig. 9) can be increased as much as 25 per cent by regularly rotating the tires, including the spare.

14. CAPTIVE—AIR SAFETY TIRE (Fig. 10)

NOTE: The captive-air safety tire is used on the three seat Town and Country wagon only.

The captive-air safety tire is actually a tire within a tire, forming two air chambers. The inner chamber is known as the shield and the outer chamber the tire. Basically, the shield and tire form two independent air chambers, one enclosing the other. If the outer chamber is collapsed, the inner chamber remains inflated and intact.

IMPORTANT: When outer chamber of tire is deflated, it is recommended that continued driving speed should not exceed 40 M.P.H. until tire has been repaired.

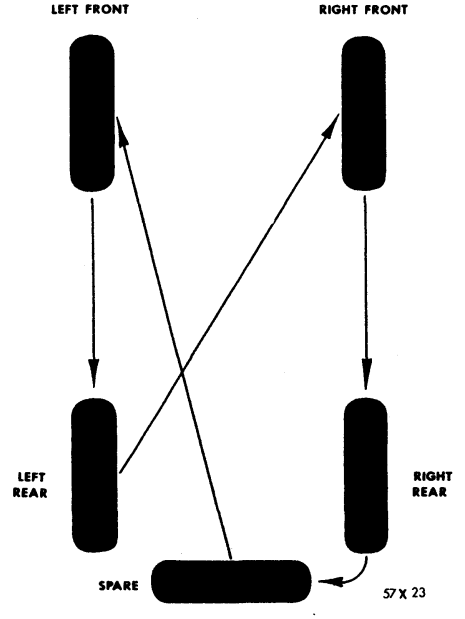


Fig. 9—Tire Rotation

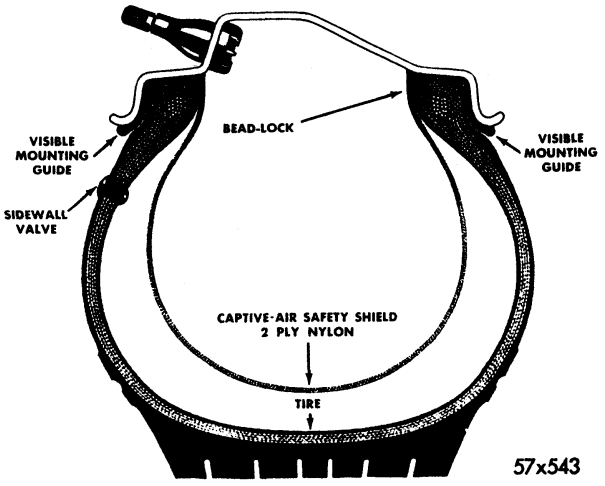


Fig. 10—Captive-Air Safety Tire (Sectional View)

15. RIM PREPARATION

Scrape off all rust flakes and clean rim flanges and bead seats with a wire brush or steel wool.

To prevent leakage, badly rusted pitted rims should be heavily coated with vulcanizing cement to fill the rust cavities. Install tubeless tire valve.

16. INSTALLING THE SAFETY SHIELD

With tire flat on the floor, insert the safety shield into tire and set the molded channel shaped edge over the top tire bead. Smooth out wrinkles and distribute uniformly by working and rubbing the bead channels by hand until the shield wing is set firmly and smoothly against the tire bead. Turn the tire over and repeat the same procedure on the second bead.

17. LUBRICATION

Apply a liberal coating of soapy water (made of high grade soap flakes or vegetable oil soap and water to consistency of paste) to the outer bead surfaces (flange and base) of the safety shield and also to the corresponding surface of rim.

CAUTION

Do not use detergents or any substance that might be harmful or injurious to rubber or rim surface. Use care not to let soap get between the tire bead and safety shield.

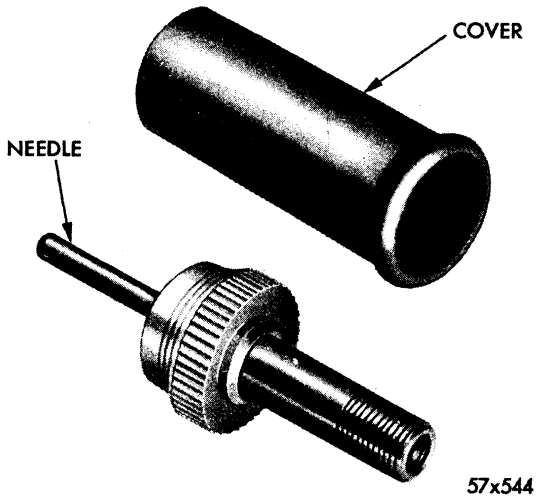


Fig. 11—Captive-Air Safety Tire Inflating Needle

18. MOUNTING THE TIRE

When mounting tire with a tire changing machine, use care to avoid wrinkling, tearing or cutting the flange of the safety shield. Motor driven attachment should not be used.

When mounting with tire irons, work the beads over the rim flange carefully in short sections. Make sure the shield is properly seated on the first bead before starting the second bead over the rim flange. Should the captive-air safety shield slip off either tire bead while mounting, it can be repositioned after the tire bead is in the rim well.

19. INFLATION

IMPORTANT

Insert the inflating needle into tire sidewall valve full length (Figs. 11 and 12).

With valve core in the rim valve, apply air pressure. If the beads do not contact the rim bead ledge sufficiently to catch the pressure, use a bead expanding device as used on tubeless tires.

Inflate the safety shield through rim valve to desired pressure. Inflate outer compartment through sidewall inflating valve to desired pressure. Inflating valve may tilt down toward rim when the safety shield is inflated, in which case air should be introduced with sidewall valve in this tilted position.

Should additional pressure be required to seat tire beads firmly against rim flanges, apply it to the outer compartment and then release to the desired operating pressure through the needle valve in the tire sidewall.

Under this procedure, pressure in the inner compartment will be 2 or 3 pounds above original inflation, which provides a reserve that will filter slowly through the walls of the safety shield to replenish a slight pressure drop in the outer compartment resulting from tire growth during the first few days a new tire is in service.

If tire beads do not seat against the rim flange at 40 lbs. inflation pressure, deflate tire and relubricate safety shield and readjust tire for better centering to remove any binding action that may have taken place.

CAUTION

BECAUSE OF THE DANGER OF BREAKING TIRE BEADS, DO NOT USE MORE THAN 40 LBS. INFLATION PRESSURE FOR SEATING THE TIRE BEADS AGAINST THE RIM FLANGES.

When safety shields are properly mounted and locked on the rim, the mounting guides or small rubber beads on the edges of the shields will be visible and uniform around both sides of the tire at the top edge of the rim flange.

If mounting guides are not visible around both sides of the tire, deflate the tire and loosen the beads from the rim to permit readjustment of the safety shield.

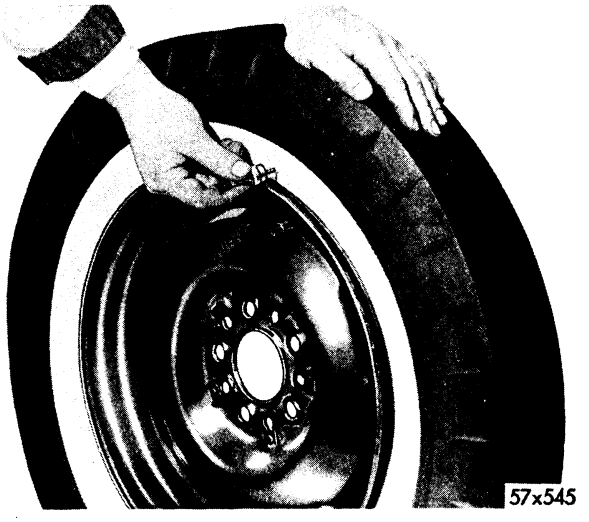


Fig. 12—Inserting Inflating Needle into Sidewall

This condition may be caused by the following:

Insufficient lubrication. Safety shield not distributed uniformly on tire beads. Tire beads started to seat on rim unevenly. Wide tire beads which the safety shield does not fit properly. Excessive amount of rubber on the toe of the tire bead.

NOTE: Excessive rubber on the toe of tire beads may be trimmed off with sharp knife or special bead trimming knife using care to avoid cutting into the fabric in the tire bead.

20. TESTING FOR LEAKS

Test for leaks in same manner as tubeless tires.

NOTE: When tire is submerged in water or treated with soap and water solution, occasionally a small amount of air trapped between the safety shield flanges and the tire beads will escape for a short period while the beads are seating against the rim flanges.

21. PRESSURE CHECK

2 or 3 days after original assembly of the tire on the wheel, pressure checks taken through the rim valve represent the pressure contained in both compartments.

This condition results from slow filtration of air through the walls of the safety shield until the pressure is equalized in both compartments.

22. AIR REPLENISHMENT

Under normal conditions where the air pressure is not more than 4 pounds under the desired operating pressure, replenishment air is added through the rim valve into the safety shield **only.**

In such cases the inner compartment should be inflated to double the amount required to restore the desired operating pressure.

EXAMPLE:

Should the pressure check taken through the rim valve be 18 lbs., and the desired operating pressure is 22 lbs., the inner compartment should be inflated to 26 pounds.

Slow filtration of air through the safety shield in 4 or 5 hours, will result in relieving the inner compartment of the over-inflation strains with return to normal size as the inflation of the two compartments approaches equalization.

In cases where more than 4 lbs. pressure is required to restore desired operating pressures, air replenishment should be made through both rim valve and tire sidewall valve to the desired operating pressure.

Needle valve should always be lubricated with glycerin before insertion. Use the glycerin contained in the padding inside the case in which the valve is supplied. If inflation valve does not insert easily into tire sidewall because of contact with inflated inner chamber, tilt inflating valve slightly toward rim.

23. DISMOUNTING

Remove valve core from rim valve to permit escape of all air from safety shield.

Deflation of the outer compartment will not be required for dismounting after the safety shield has been deflated, for only a few pounds of air pressure will be retained in the outer compartment. Remove tire in same manner as tubeless tires.

NOTE: Use standard head unseating tools (do not use hammer or tire irons) to loosen the tire beads from the bead seats, then apply a liberal coating of soapy water lubricant to the head surfaces of the shield and the outside rim flange.

24. REPAIRING

If tires containing safety shields are punctured by objects (nails, etc.) of considerable length, continued operation with the puncturing object remaining in the tire may result in puncture or damage to the safety shield.

When puncturing objects 1¼ inch or more in length are found in tire, the tire should be dismounted and the safety shield examined for possible damage which would require repair for restoring complete blowout protection.

Punctured safety shields may be repaired by the following procedure:

Trim the ragged edges of the injury so that all corners have a rounded shape. Buff lightly

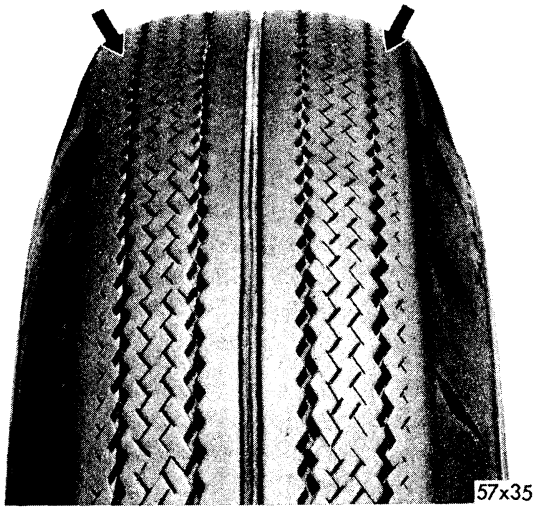


Fig. 13—Under-Inflation Wear

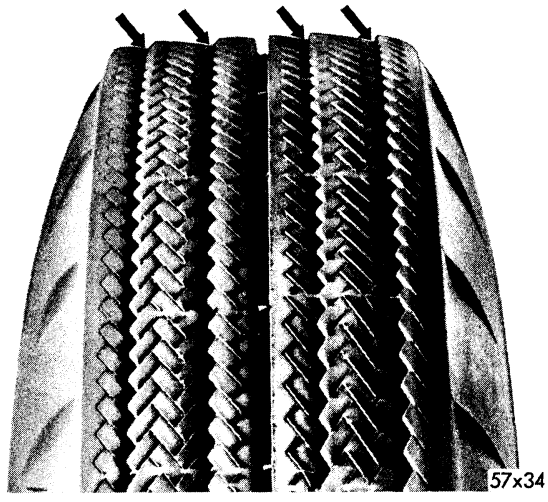


Fig. 16—Toe-Out Wear

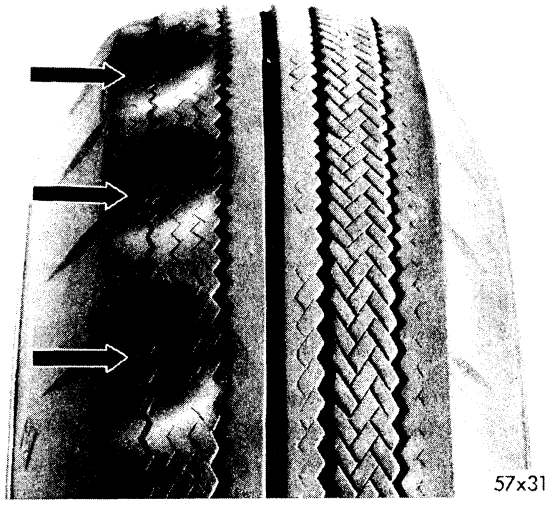


Fig. 14—Spotty Wear

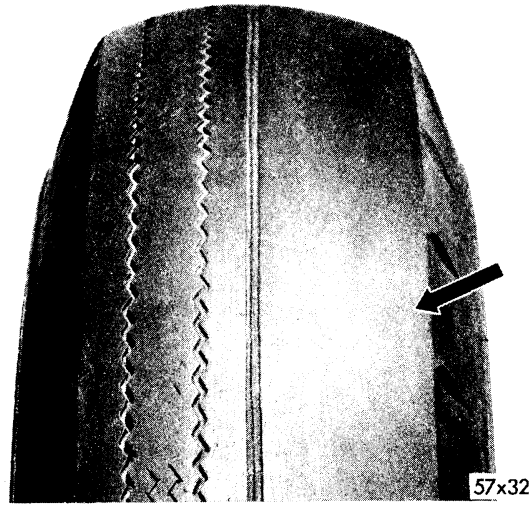


Fig. 17—Camber Wear

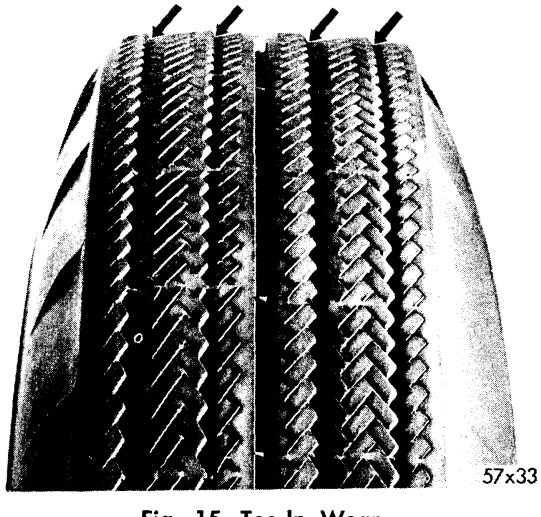


Fig. 15—Toe-In Wear

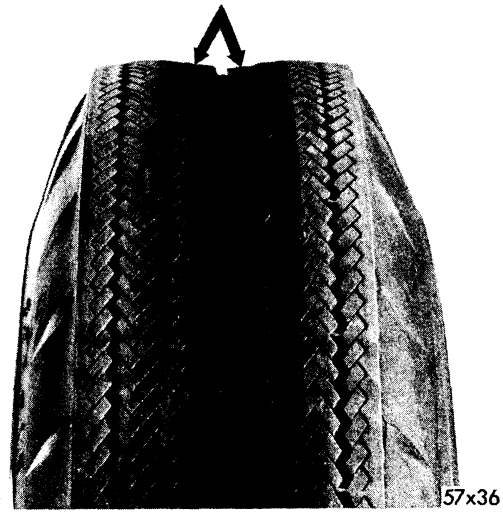


Fig. 18—Over-Inflation

with hand wire brush or medium grit emery cloth and wash with rubber solvent, 2 inches in all directions from the edges of the injury, on both inside and outside surfaces of the safety shield.

Apply one coat of quick cure vulcanizing cement 1 inch in all directions from the edge of the injury on the inside surface of the safety shield and ½ inch from the edges of the injury on the outside surface. Permit cement to dry 15 to 20 minutes. Then apply a patch of 1/16 gauge quick cure tube repair gum to the inside surface. Cut gum to extend 1 inch in all directions from the edges of the injury and stitch tightly to the shield.

Apply a patch of 1/32" gauge quick cure tube repair gum to the outside surface of the safety shield. Cut gum to extend ½ inch in all directions from the edges of the injury and stitch tightly to the safety shield.

Vulcanizing procedures are similar to those for curing inner tubes. Clamp repaired safety shield onto Holland covered hot plate and cure 8 minutes at 307 degrees F. (60 lbs. steam), with inside of the shield against the hot plate.

Electrically heated or powder burning patches and equipment may also be used for repairing safety shields. Cure patches of the proper size on the inside and outside surface of the safety shield as outlined above, with the heat generation unit against the inside surface of the shield.

25. REPLACEMENT

Used in severe service, captive-air safety shields may, on occasion, be chafed through one or both plies in the areas which cover the base of the tire bead. In such cases, the shield should be removed from service and replaced with a new one.

When captive-air safety shields are removed to replace tire or for tire inspection, etc., inspect the outside surface of the bead channels and safety shield surface for chafing or excessive wear. If no fabric chafing is apparent, safety shields may be reapplied for further use.

SERVICE DIAGNOSIS

26. LEAKAGE CAUSES AND CORRECTIVE METHODS

Valve Leak—This type of leak is usually indicated by bubbles at the valve stem after soap solution is applied at this point. Make sure that the rim is clean around the valve hole. If a "snap-in" type rubber valve leaks, it must be replaced.

Rim Leaks—If the leak is at the top of rim flange (between flange and tire bead, mark location of leak on tire and rim, and dismount tire).

Rusty Rim—Remove rust with scraper and finish the operation with wire brush or steel wool. Apply MOPAR Rubber Cement thickly to tire and rim flange. Mount tire to rim while cement is still wet.

Foreign Material Embedded In Sealing Grooves of Rim—Remove with wire brush or screwdriver blade. Apply MOPAR Rubber Cement thickly to the cleared area, and mount tire while cement is wet.

Bent Flange—Inspect flanges of wheel to determine if they are bent. A bent flange can be straightened if damage is not too severe.

Cracked Welds—Cover weld area with soap solution and check for pin hole leak. If leak is evident, repair or replace wheel as necessary. **(DO NOT WELD RIM.)**

Heavy Rim Weld—A slow leak may result if rim weld has not been dressed down. Use a flat file to smooth off the weld in the flange area. Apply MOPAR Rubber Cement in the area to help "make" the seal.

Cracked Rim—A rim seldom cracks unless it has been welded or badly overloaded. **Do not try to repair a welded rim, install a new wheel.**

27. TIRE THUMP

Tire thump is a pounding action that occurs each time a tire rotates. In most instances, tire thump is evident at speeds under 45 miles per hour on a smooth road, **and is usually restricted to a small speed range.** If the thump is slight and difficult to detect, the condition may be considered acceptable, and tire life will not be affected.

When checking for cause of tire thump, inspect all tires for uneven wear, and make sure the beads of all tires are properly seated in the wheel rims. Inflate all tires to 50 pounds pressure. This will eliminate or reduce thump, if it is due to tire irregularities.

Drive the car on a smooth road. If the thump still occurs while the tires are inflated to 50 pounds, the condition is caused by factors, such as brake drum circle eccentric in relation to center line of axle, wheel retaining bolt circle eccentric in relation to the wheel rim, large patch in tire, or excessive universal joint angularity can cause a condition similar to tire thump or roughness. However, if thump disappears when tires are inflated to 50 pounds pressure, make the following test:

Deflate one tire to 25 pounds and drive car on smooth road. If thump appears, the deflated tire is at fault. Repeat test until all tires, including spare, have been checked. Only one tire at a time should be deflated to 25 pounds pressure for testing. Reinflate the tire already tested before proceeding to the next tire.

NOTE

Sometimes, a thumping tire will operate satisfactorily when changed from one side of the car to the other. This changes the direction of the tire's rotation. In severe cases of tire thump, it may be necessary to replace the tires in question.

28. TIRE WEAR

Inflate tires to proper pressure recommended in Data and Specifications. (Refer to Fig. 13). When tires are under-inflated, excessive wear occurs at the two tread ribs next to the inner and outer shoulder ribs. Wear occurs at center of tread when tire is driven over-inflated.

a. Spotty Wear (Fig. 14) usually becomes evident on front tires when tires are not rotated every 3,000 miles.

b. Excessive toe-in or toe-out (Figs. 15 and 16) of front wheels affects the rate of tire wear more than any other factor.

c. (Refer to Fig. 17). Excessive positive camber will develop noticeable wear on the outer ribs of tires. Excessive negative camber will result in noticeable wear on the inside ribs.

d. Check for wheel wobble. Straighten or replace wheel, if necessary.

e. Check for worn ball joints. Replace as necessary.

f. Check for wear caused by sustained high speed driving, and driving around corners too fast.

g. Check for over-inflation (Fig. 18).