

# PONTIAC

## Service Craftsman News



No. 3 S-270

March, 1955

# ELECTRIC WINDOW REGULATOR SERVICE INFORMATION

## SERVICING OF ELECTRIC WINDOW REGULATORS

The following supersedes all previously released information on servicing Electric Window Regulators.

If an electrically-operated window does not function properly, the condition may be due to an electrical failure in the window control electrical circuit or a mechanical failure in the window regulator assembly. To insure an effective repair of the condition, the following procedure is recommended:

### CHECKING THE ELECTRICAL CIRCUIT

See the 1954 Fisher Body Service News.

### REMOVING THE REGULATOR ASSEMBLY FROM THE BODY

If no defects are found in the electrical circuit, check the regulator assembly installation to determine whether or not the motor pinion gear is jammed at the end of the regulator sector gear. This information is required for a subsequent operation, "Checking the Regulator". After the motor pinion gear to regulator sector gear relationship has been established, carefully remove the regulator assembly from the body as described in the 1954 Fisher Body Service News.

NOTE: The steps below may be used to get a "jammed" window to operate so that it can be

positioned for removal of the regulator but in no case should they be considered as repairs.

1. Tap the motor housing.
2. Tap the inner panel.
3. Loosen the regulator backplate mounting screws. It may be necessary to completely remove at least two of these mounting screws before unit will operate.

**TO REMOVE THE MOTOR FROM REGULATOR**  
See the 1954 Fisher Body Service News.

### TO CHECK THE REGULATOR

Carefully check the regulator assembly for the following items and make repairs as shown, if necessary. See Fig. 1.

1. Evidence of Pinion Gear Overtravel on Sector Gear - If the check of the regulator assembly installation revealed that the motor pinion gear

**EDITOR'S NOTE:** The second 1955 Service Craftsman Examination is included in this issue. Remove the examination, complete and return to the zone office by May 15, 1955.

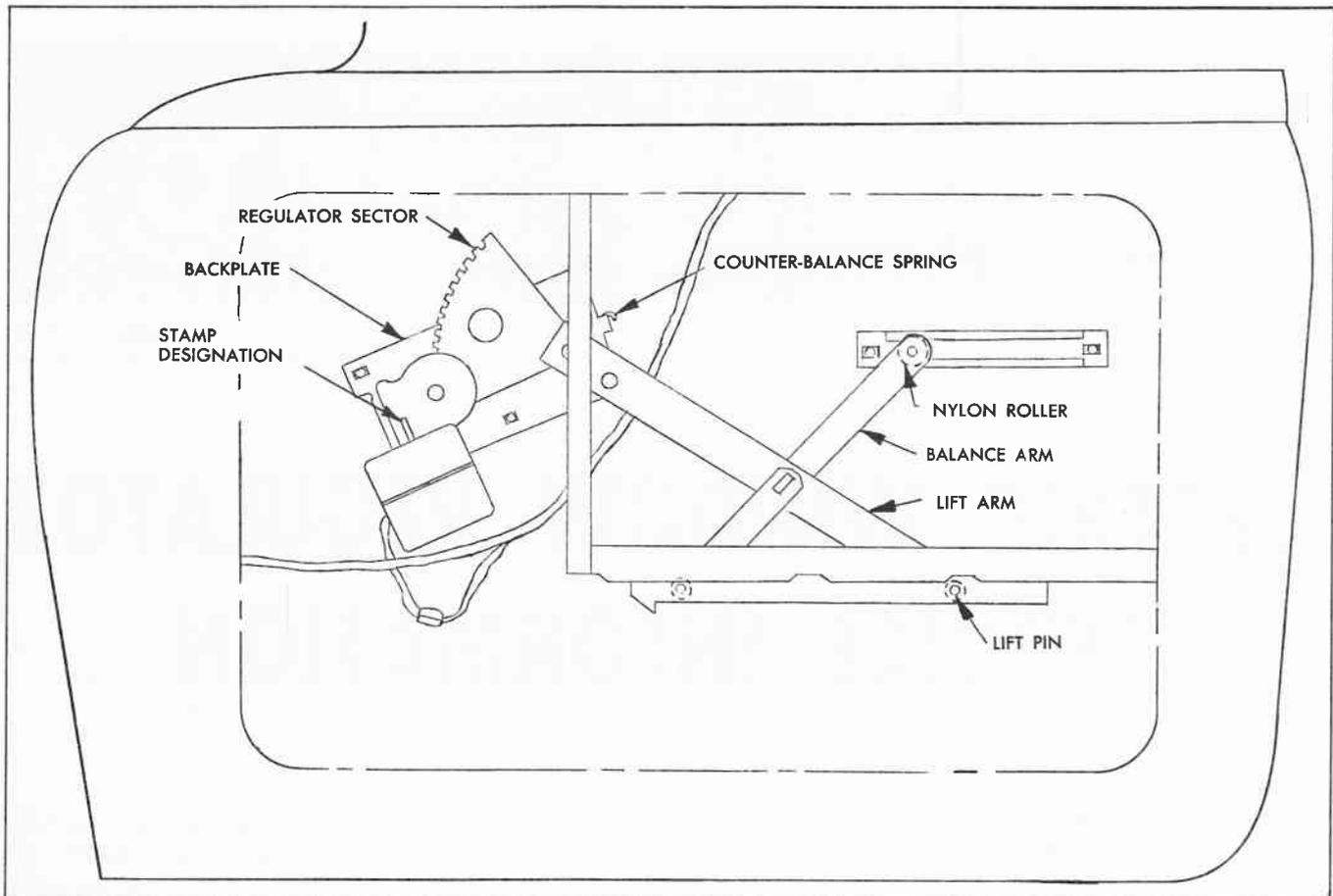


Fig. 1 Electric Window Regulator Assembly

had jammed at the end of the regulator sector gear, extra teeth may be filed at the end of the sector gear. It is extremely important to make the extra teeth conform to the rest of the teeth, otherwise the condition can recur. Carefully check the added teeth for proper fit with the pinion gear teeth.

**NOTE:** On the front door windows of 1954 four-door sedan styles, the above operation is to be performed only if this one operation will make the regulator standard. If the regulator is found to have additional defects, it should be replaced with Front Door Window Electric Regulator Assembly - Less Motor, Part No. 4157312 - Rt., 4157313 - Lt.

2. **Extreme Side-play of the Sector Gear** - If backplate or side of sector gear next to the backplate show that surfaces are contacting on any portion of the travel of the sector gear, the assembly should be replaced. (Paint will be scraped off at areas of contact.) This condition is due to a loose stud at the counter-balance spring and sector gear to backplate.
3. **Lift Arm Pins Too Loose** - If any of the lift pins

(the studs which retain the nylon roller to the regulator assembly) are loose, they should be tightened to prevent the pins from falling off and disengaging window from regulator during operation. The pins are of a rivet type construction and can be tightened by a normal riveting procedure. If they cannot be tightened satisfactorily, replace the regulator.

4. **Nylon Rollers Binding in Channels** - If the rollers do not slide easily in their channels, greater clearance may be obtained by filing edge of channel or aligning channel to roller with pliers.
5. **Bent or Distorted Regulator Backplate** - Replace regulator assembly.
6. **Lubrication:**
  - a. If operation is noisy due to lack of lubrication between the coils of the counter-balance spring, lubricate between the coils with a graphite grease.
  - b. Lubricate all studs with a medium grade oil.

**SERVICING THE MOTOR**

1. Motor Identification - The window electric regulator motor has been modified by replacing the nylon gear and pinion assembly with a gear and rubber coupling assembly. The rubber coupling was incorporated to prevent binding of the nylon gear on the worm gear.

During the 1954 Model Year, stamped numerical designations were added on the motor gear housing web to identify the construction of the unit. Motor types used to date, which may be found in the field, include the following stamped designations:

- a. No Stamp - Fast motor with narrow nylon gear.
  - b. Stamp #4 - Slower motor with reinforced narrow nylon gear.
  - c. Stamp #5 - Slower motor with wide nylon gear, third bearing and molybdenum type lubricant.
  - d. Stamp #7 - Slower motor with reinforced narrow nylon gear and third bearing.
  - e. Stamp #8 - Slower motor with wide nylon gear, third bearing and paste type grease lubricant.
  - f. Stamp #6 - Slower motor with rubber coupling, wide nylon gear and third bearing. (This is the newest type motor, as of date of this release).
2. Use of Service Package in Field - New service packages have also been released to modify certain motor types in the field by replacing the nylon gear and pinion assembly with a gear and rubber coupling assembly. The service packages include a gear and rubber coupling assembly, lubricant, cover and instructions.

The service packages should be used to modify the following motors:

- a. Number 5, 7 and 8 motors which have jammed due to the nylon gear binding on the worm gear.
- b. Number 5, 7 and 8 motors in service stock. Modification must be made at time service replacement motor is put into use.
- c. Number 5 motors which operate very slowly in cold weather.
- d. Number 6 motors - to replace a defective gear and rubber coupling assembly.

The new service packages have been released as follows:

- a. Door and Rear Quarter Window Electric Motor Service Package, Part No. 5097959. (For use on 1954 and 1955 door windows and on 1955 rear quarter windows of Special Coupes and two-door Sedans.)
- b. Rear Quarter Window Electric Motor Service Package, Part No. 5097960. (For use on 1955 rear quarter windows of Convertibles only.)

The procedure for installing a new gear and rubber coupling assembly is as follows:

- a. Pierce the gear and pinion assembly cover with a sharp tool and pry cover loose from the housing.
  - b. Lift out the gear and pinion assembly.
  - c. With the motor assembly in an upright position and the gear housing positioned below the motor, wash out gear housing and worm gear with a suitable solvent such as mineral spirits. Use a small brush to clean around the worm gear.
  - d. Re-lubricate gear housing, worm gear and nylon teeth of new gear and rubber coupling assembly with grease type lubricant furnished in service package. Also lubricate the gear assembly shaft that fits into the die cast housing.
  - e. Place the new gear and rubber coupling assembly in the gear housing.
  - f. Carefully press the new cover into place.
  - g. Check operation of motor in both directions before installing to regulator.
3. Use of New Type Motor Assembly Having Gear and Rubber Coupling Assembly - Newtype motors having gear and rubber coupling assembly should be used to replace the following:
    - a. Improperly operating motors which do not have a number 5, 6, 7 or 8 stamp on the gear housing web.
    - b. Defective number 5, 6, 7 or 8 motors which are not defective due to binding of nylon gear on worm gear. (If motor does not operate when bench tested, failure is within the motor and motor should be repaired or replaced.

**NOTE:** At time of replacement, modify and use all number 5, 7 and 8 motors in stock

before using new motors with factory-installed gear and rubber coupling assembly. (See "Use of Service Package in Field".)

The new type motors having gear and rubber coupling assembly were released as follows:

a. 1954 Styles (6 volt)

- (1) Door Window Electric Regulator Motor Assembly, Part No. 5047837 - Rt., 5047838 - Lt.

b. 1955 Styles (12 volt)

- (1) Door and Rear Quarter Window Electric Regulator Motor Assembly, Part No. 5047832 - Rt., 5047833 - Lt. (For use on door windows and on Special Coupe rear quarter windows.)
- (2) Rear Quarter Window Electric Regulator Motor Assembly, Part No. 5047832 - Lt., 5047833 - Rt. (For use on two-door Sedan rear quarter windows.)

NOTE: The above motors are the same as the motors listed in item 1, however, they are used on opposite sides of the body on the rear quarter windows of two-door Sedans.

- (3) Rear Quarter Window Electric Regulator Motor Assembly, Part No. 5047834 - Rt., 5047835 - Lt. (For use on rear quarter windows of Convertibles only.)

Before installing a service motor, check operation of motor in both directions. Also check for damaged leads and lead terminals.

#### **MOUNTING THE MOTOR TO THE REGULATOR BACKPLATE**

See the 1954 Fisher Body Service News.

- NOTE: 1. Be sure the three motor mounting studs properly "bottom" in the regulator backplate holes.
2. Oil the pinion shaft which fits into the backplate bearing with a medium grade of oil.

#### **CHECKING THE WINDOW GLASS INSTALLATION**

1. Check for misalignment of glass with glass run channels. See Fisher Body Service News for adjustments.

2. Lubricate bearing surfaces of cam flanges for nylon rollers with lubriplate.
3. On 1954 sedan styles, check the front door window lower stop bumper. If the bumper is approximately 1-3/16 inches square and 1/4 inch thick, it should be replaced with a new, larger Door Window Stop Bumper, Part No. 4609684. This bumper is approximately 1-5/16 inches square and 1/2 inch thick. The door window stop bumper is accessible through the nearest access hole in the door inner panel.

#### **INSTALLING REGULATOR IN BODY**

See the 1954 Fisher Body Service News.

NOTE: Carefully check the following points as regulator is being installed in body.

1. Check for proper engagement of motor terminals to body wiring harness terminals.
2. Check to see that all mounting screws are tight.
3. Thoroughly check operation of window before trim is replaced.
4. During reassembly of trim, be sure component parts of switch are completely engaged.

#### **CONVERTIBLE FOLDING TOP DUST BOOT**

For service purposes replacement folding top dust boots are furnished without fasteners attached; the fasteners are packaged with the new boot and are also available under part numbers 4565454 Button Chrome, and 105195 socket.

Tools for installing these parts are available through United-Carr Fastener Co., Cambridge, Massachusetts or their branches located in the following cities: Atlanta, Georgia; Buffalo, New York; Boston, Massachusetts; Chicago, Illinois; Cleveland, Ohio; Detroit, Michigan; Los Angeles, California; New York, New York; Philadelphia, Pennsylvania; Syracuse, New York.

#### **INSTALLATION PROCEDURE 1954-1955 STYLES**

1. Lower the top and fold as described in the owner instruction booklet "How to Operate the Folding Top."
2. Slide front edge of folding top dust boot into seat back retainer indicated at "A" in Figure 2. Make sure that boot is centered in retainer.

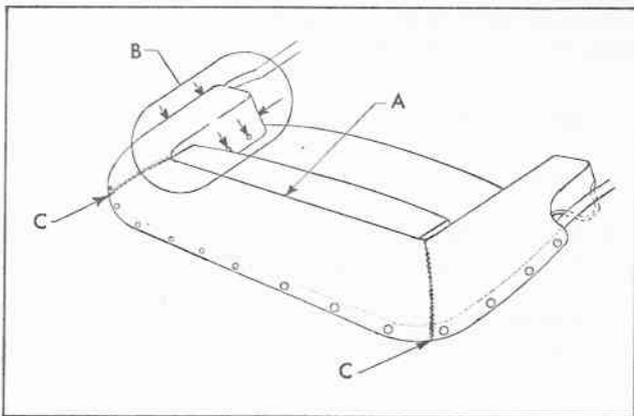


Fig. 2 Folding Top Dust Boot

3. Carefully position top boot over linkage, making certain the entire boot is properly positioned, as shown in Figure 2. Illustration shows boot fasteners installed.
4. Lift portion of boot indicated in area "B" out of position, then apply white chalk to surface of stud fasteners located on folding top compartment side panel and rear quarter pinchweld finishing molding. Stud fasteners are indicated by arrows in area "B".
5. Reposition boot in area "B" and carefully press boot material at stud fasteners, so that chalk applied to fasteners will adhere to inner surface of boot material. Install fasteners at marked locations as outlined in steps 6 and 7.
6. Place button on die, as shown in Figure 3.
7. Place boot material over button at marked location, then position fastener socket over chalk mark and squeeze handles of press together, as shown in Figure 4, until socket and button are securely attached to boot material.
8. Repeat steps 4 through 7 on opposite side of boot.

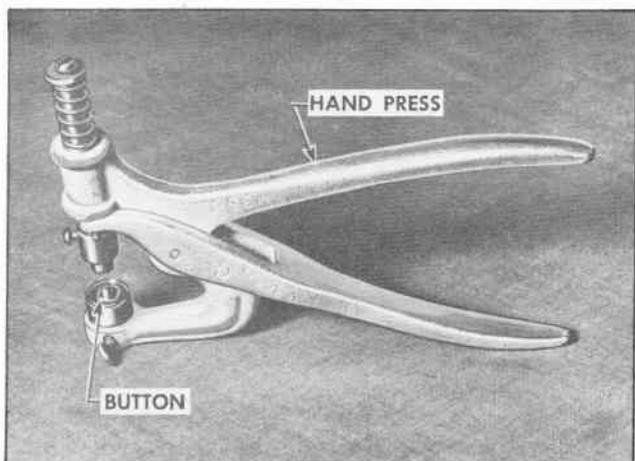


Fig. 3 Button Positioned on Die

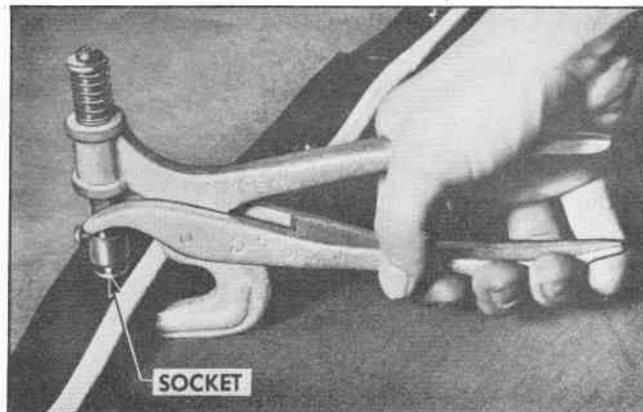


Fig. 4 Installing Socket and Button

9. Snap installed fasteners in place, and carefully pull rear edge of dust boot at seam locations, indicated at "C" in Figure 2, to obtain a good fit. Mark location of the first stud fastener inboard of seam "C" in same manner as performed previously, then install fasteners and snap boot in place.
10. Carefully pull rear edge of dust boot at center line of body to obtain a good fit; mark location of fastener and install fastener to boot.
11. Carefully pull and position top boot material as required to remove wrinkles; mark locations of remaining fasteners and install fasteners to boot.

### MECHANICALLY RETAINED DOOR WEATHERSTRIP RETAINING CLIP

If a weatherstrip is encountered with an undesirable gap between the weatherstrip and the door facing a weatherstrip retaining clip, part No. 4665930 may be installed to secure the weatherstrip in these areas. Although the retaining clip is specifically designed for the "cove" area of the front doors it may be used at any location along the weatherstrip.

This double pronged clip is designed so that the prongs pierce the weatherstrip and lie on top of the wire insert. After the clip is positioned it should be secured with a No. 8-32 x 3/8" self tapping metal screw.

### CORRECTION OF NOISY HARMONIC BALANCERS

On page 82 of the December 1954 Service Craftsman News, brazing was recommended as a satisfactory fix for noisy or clicking harmonic balancers caused by loose rivets. Further engineering tests have shown that the brazing procedure is not satisfactory and should no longer be used. In cases of failure the harmonic balancer should be replaced.

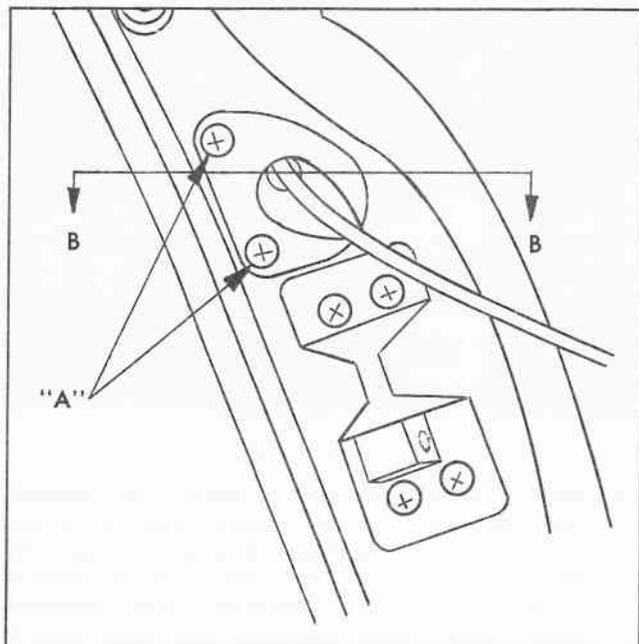


Fig. 5 Tail Gate Cable Support Guide

### CORRECTION OF BINDING TAIL GATE SUPPORT CABLE

If the tail gate support cable binds at the rubber grommet installed on the back body opening facing reinforcement, the following procedure may be used to replace the rubber grommet with a new wax-impregnated felt grommet. The new grommet is re-

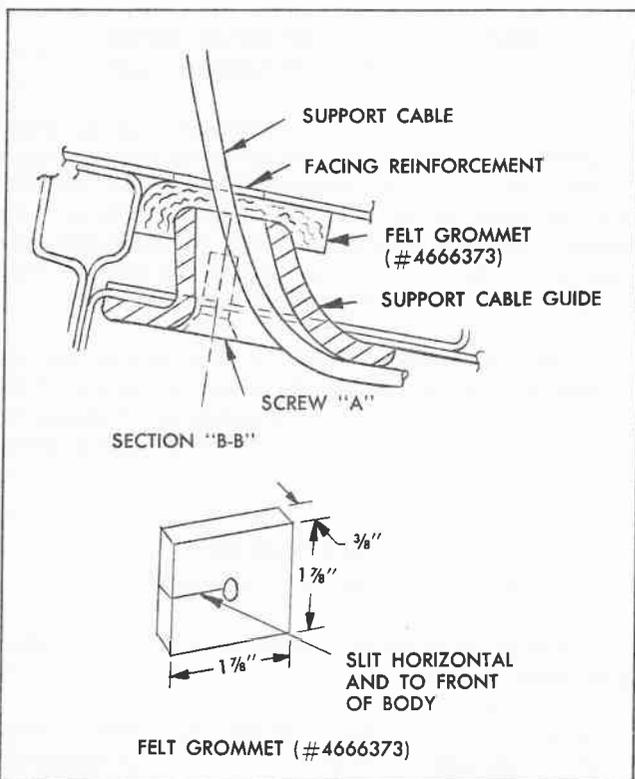


Fig. 6 Installation of Felt Grommet

leased as Back Body Opening Tail Gate Support Grommet, Part No. 4666373.

1. Remove the two screws "A", which secure the tail gate support cable guide, and slide the guide out of the back body opening. See Fig. 5.
2. Remove the rubber grommet which is cemented to the back body opening facing reinforcement.
3. Slip the new grommet, Part No. 4666373, over the cable and into position against the back body opening facing reinforcement. See Fig. 6.

NOTE: Felt grommet is slit to provide easy installation. Grommet should be installed with slit in horizontal position and to front of body.

4. Slide guide into position against grommet, and install the two screws "A". The grommet is held in position by the guide.

### TAIL GATE CABLE STOP

The 1955 station wagons are equipped with a right and left tail gate cable stop, located between the rear quarter inner and outer panels, as shown in Fig. 7. It is important to make certain that both the left and right cable stops are installed properly on the correct side of the body to provide proper cable operation and full travel of the tail gate.

If either of the following conditions are encountered, the tail gate cable stops may have been installed on the wrong side of the body and should be checked for proper installation.

1. If cable on one side is supporting most of the weight when tail gate is open.
2. If tail gate, when open, is considered too high.

The following procedure may be used for checking cable stops and reinstalling stops, if improperly installed:

### CHECKING PROCEDURE

1. On the right side of the body, reach up between the rear quarter inner and outer panels and check the cable stop to make certain it is installed with the open end of front "U" facing upward, as shown in Fig. 7.
2. On the left side of the body reach in through the gas tank filler neck door and check the cable stop to make certain it is installed with the open end of the front "U" facing upward.

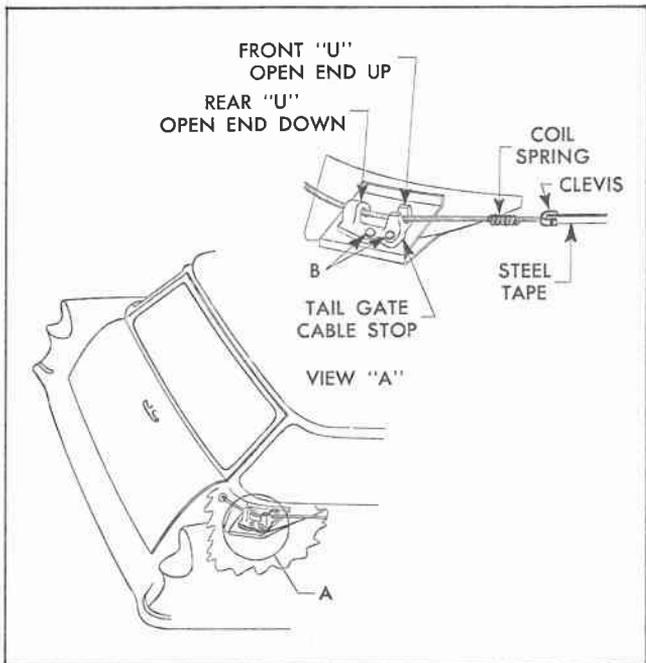


Fig. 7 Installation of Tail Gate Cable Stop

3. If either or both cable stops are improperly installed, remove the stop or stops and reinstall as described below.

#### REMOVAL AND INSTALLATION

1. Remove tail lamp assembly.
2. CLOSE TAIL GATE, then through tail light opening disengage cable from the cable stop "U" retainers.
3. Remove bolts and washers "B" and remove cable stop from body.
4. To install tail gate cable stops, reverse removal procedure making sure that both the left stop (No. 3810563) and the right stop (No. 3810564) are installed on the correct side of the body.

**NOTE:** When stops are installed properly the open end of the front "U" should face upward, as shown in the illustration, on both the left and right stops and the coil spring located on cable should be between the cable stop and the clevis.

#### 1954 AIR CONDITIONING MAINTENANCE PROCEDURE

The "air conditioning season" is rapidly approaching in many sections of the country. To assure owner satisfaction with their 1954 Air Conditioning equipped Pontiacs, the unit must operate at maximum efficiency.

All mechanical equipment requires periodic service, and air conditioning is no exception. We have therefore developed the following suggested testing

procedure which should be sold to owners as maintenance. Owners should be contacted prior to the time they will use the system, and have this service performed. This will preclude the possibility of damage due to loss of freon or oil.

The suggested straight time allowance for this operation is 2 hours. If it is necessary to correct leaks, add freon to the system, make extensive repairs, etc., additional time should be added to the above suggested straight time allowance.

This ten-step procedure should be completed in the order outlined, and is to be used in conjunction with the Air Conditioning Manual.

1. Clean front of condenser to remove all obstructions such as leaves, bugs, dirt, etc.
2. Remove air filter. Clean filter in water using detergent soap; blow dry with air and coat both sides of filter with Filterkote "S", Part #984920. If the filter has not been relocated to the front, this should be suggested to the car owner. The procedure for relocating the filter is described in the Craftsman News of June, 1954.
3. Check to insure that the drain is open and flush evaporator clean with water.
4. Check and adjust air valves.
5. Check compressor for oil level by observing compressor sight glass (approx. 1/3 up from bottom of sight glass).
6. Inspect compressor drive belt. Adjust belt tension to 53-55 lb. ft.
7. Check to see that air distributor hoses are connected.
8. Test the electrical circuit for proper master switch contact, operation of the clutch, blower motor, and fast idle mechanism.
9. Adjust engine idle RPM in Neutral and Drive range with air conditioning on.
10. Perform operational test. Adjust or repair as outlined in the Air Conditioning Shop Manual.

#### CARTER CARBURETOR CORRECTIONS

On page 22 of the February 1955 Service Craftsman News change the "Clearance Between Positive Closing Shoes" to .017" to .022".

The one notch lean specification for choke setting given on page 8 of the January Service Craftsman News applies to the Carter Synchro-Mesh two-barrel carburetor only.

## REPAIR OF 1954 AIR CONDITIONING COMPRESSOR SHAFT SEAL LEAKS

In that the Air Conditioning compressor is now serviced rather than replaced when a seal leak is detected the following procedure should be followed in performing this service operation. This information supersedes the seal replacement procedure given on pages 78-80 of the October-November 1954 Service Craftsman News.

If there is an indication of a compressor shaft seal leak, evidenced by an excessive amount of oil around the shaft seal, check around shaft area with a leak detector. When the seal was originally assembled all parts were dipped in oil and visible oil may be surplus forced out in operation.

If the leak detector indicates a refrigerant leak, all seal parts must be replaced. Following is the seal replacement procedure.

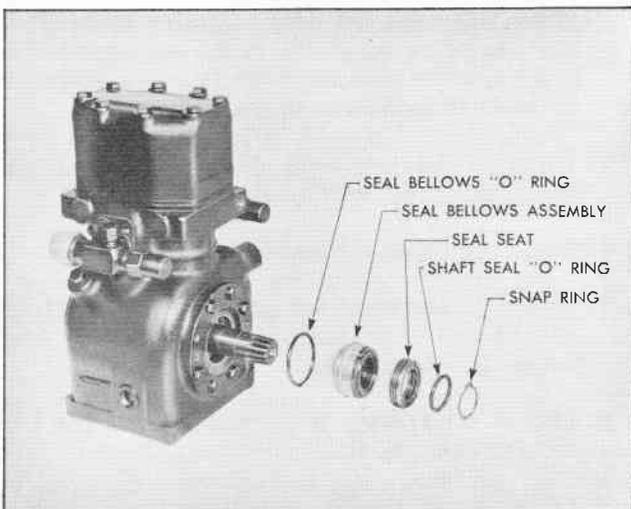


Fig. 8 Exploded View of Compressor Shaft Seal Assembly

1. Procure shaft seal kit #3134106 which contains one each of the following: Shaft Seal "O" Ring, Seal Seat, Seal Bellows "O" Ring, Snap Ring, Seal Bellows Assembly. These parts are illustrated in Fig. 8.
2. Attach manifold gauge set to compressor and pump down compressor (see page 30 1954 Air Conditioning Shop Manual).
3. Remove magnetic clutch assembly, spacer and brush and bracket assembly.
4. Clean front of compressor with a stiff bristle brush using carbon tetrachloride as a solvent and blow clean and dry with compressed air.
5. Remove seal plate snap ring with #2 Truarcl pliers or with screwdriver and needle nose pliers.

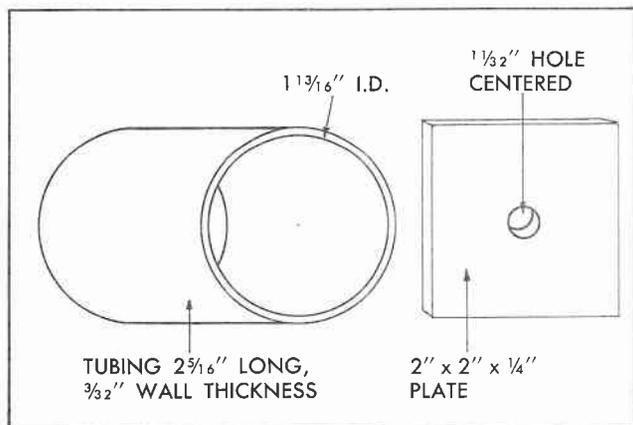


Fig. 9 Seal Bellows Installation Tool

6. Remove seal seat and seal bellows assembly. (Pry off with a screwdriver.)
  7. Remove seal bellows "O" ring (in seal face plate and bearing retainer) by using a sharp awl or a small screwdriver.
- CAUTION: DO NOT SCORE ANY METAL SURFACES.** Before installing any new parts, coat surfaces with compressor oil.
8. Install new seal bellows "O" ring in seal face plate and front bearing retainer.
  9. Press the seal bellows assembly into place with your finger. It must go in perfectly square and the flange must bottom against the seal plate all the way around.

On some early model compressors it may not be possible to install the seal bellows assembly using the fingers only. In this case make the installation tool shown in Fig. 9 and install as shown in Fig. 10. Hold the head of the bolt and tighten the nut so that the spacer forces the seal bellows assembly into position.

10. Install the shaft seal "O" ring in the seal seat. Place the seal seat on the compressor shaft with the lapped surface of the seal seat toward the carbon nose of the seal bellows assembly. Be sure seal contacting surfaces are clean and oiled. Slide the seal seat onto the shaft using fingers only until the seal seat clears the spline. After the seat is past the spline install the snap ring and slide the seal seat and snap ring together on the shaft until the snap ring snaps into its groove on the shaft. **NOTE:** The ends of the snap ring should be in the recessed groove of the seal seat.
11. Wash brush assembly to assure free operation of ground brush. Replace the brush and bracket assembly, the clutch assembly spacer and clutch assembly.

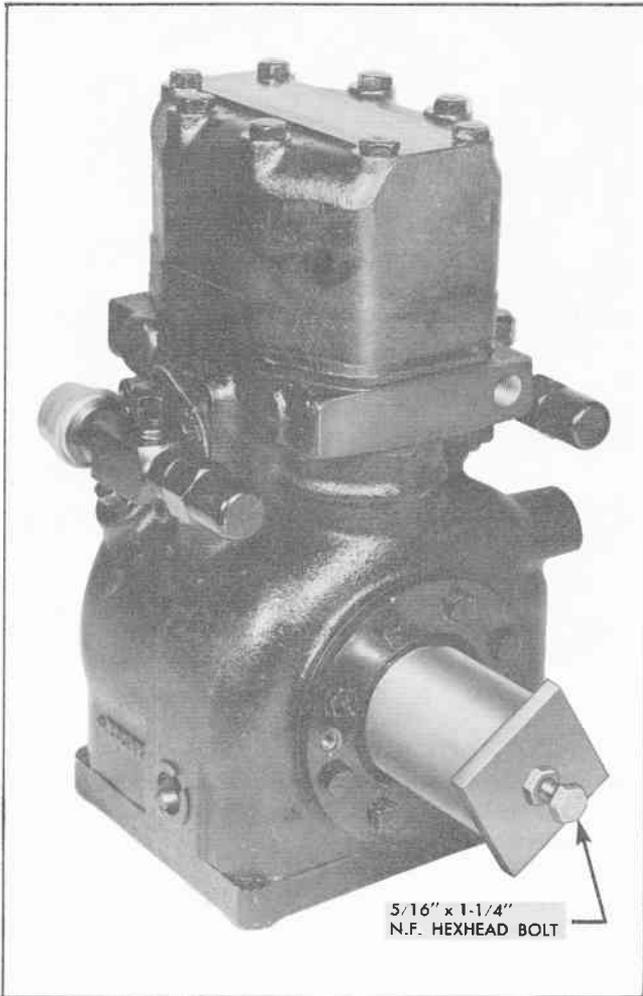


Fig. 10 Installation of Seal Bellows Assembly

12. Replace the compressor belt and torque to 60 lb. ft.
13. Open suction valve and purge air from compressor by opening the valve at the high pressure gauge at the gauge manifold permitting the air to escape through center fitting.
14. After air has been purged, close the high pressure valve at the gauge manifold, close compressor valves to gauge fittings (completely counterclockwise), remove manifold gauge set and replace valve covers.
15. Recheck system for leaks.
16. The time allowance for this operation is 1.1 hours.

#### STARTER MOTOR ASSEMBLY

When reinstalling the starter motor be sure that the dowel on the starter field frame is indexed with the hole in the drive housing before tightening the thru bolts. Failure to do so will cause misalignment of the armature resulting in starter failure.

#### CORRECTION OF 1955 AIR CONDITIONING COMPRESSOR BELT MISALIGNMENT

In cases of misalignment between air conditioning compressor pulley and the power steering pump pulley the following procedures can be used to correct the condition:

1. 521086 Front Inner Insulator Bracket-Elongate the two insulator bolt holes by 1/4" back toward the compressor mounting flange.
2. At same bracket-Place a 1/16" thick flat washer at each of the two insulator bolts to space the bracket out from the rubber insulator.
3. 521087 Front Outer Insulator Bracket-Bend the outer end of the bracket back and in towards the compressor 1/8"

This condition has been corrected in production.

#### PRELIMINARY CARTER 4-BARREL CARBURETOR WCFB 2283-S (SM) SPECIFICATIONS

The following specifications are for the Carter 4-Barrel Synchro-Mesh Carburetor. All other specifications given in the February Service News are applicable to both Synchro-Mesh and Hydra-Matic.

Hot Idle Speed . . . . .	450-470
Main Venturi, Secondary. . . . .	15/16"
Low Speed Jet Tube (Primary Side Only)	
Jet (Do Not Remove). . . . .	No. 67 Drill (.032")
Metering Rod (Primary)	
Economy Step . . . . .	.072"
Middle Step Tapers To. . . . .	.069"
Power Step . . . . .	.059"
Metering Rod Jet (Secondary) . . . . .	.0512

A slightly different choke piston is used on the Synchro-Mesh carburetor. The Synchro-Mesh piston has two narrow grooves of equal width while the Hydra-Matic choke piston has one wide and one narrow groove. (See Figure 11). These pistons should not be interchanged.

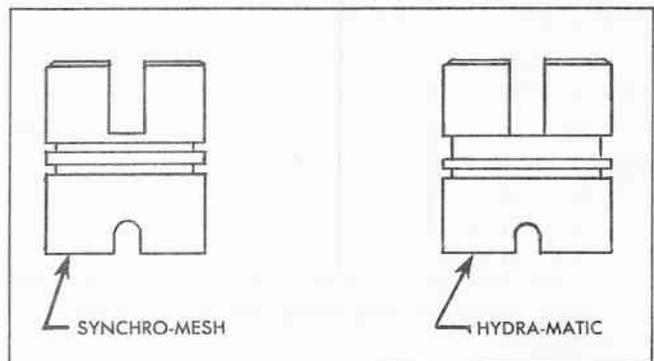


Fig. 11 Hydra-Matic and Synchro-Mesh Choke Pistons

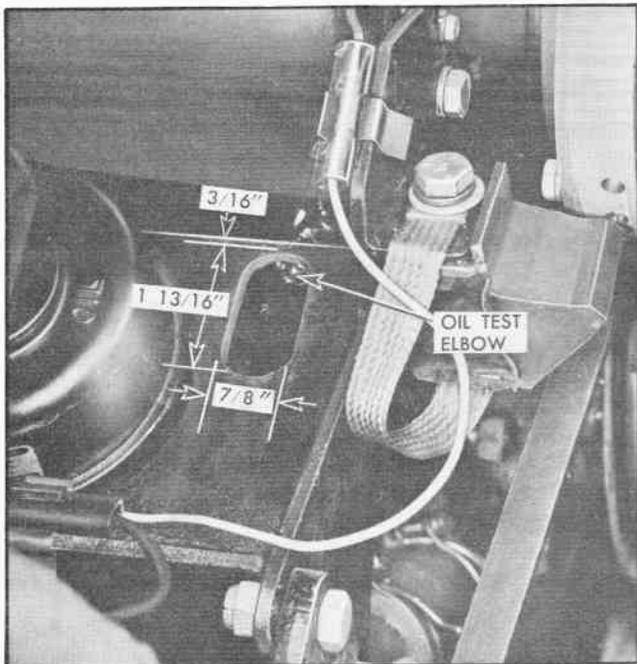


Fig. 12 Slot Cut in Compressor Mounting Bracket

### ADDING OIL TO FRIGIDAIRE AIR CONDITIONING COMPRESSOR

Following is a new procedure for adding oil to the 1955 Frigidaire compressor. This procedure supersedes the one outlined on pages 8 and 9 of the 1955 Preliminary Air Conditioning Manual and does not require removal of the compressor.

In order to add oil without removing the compressor, it is first necessary to cut a hole in the compressor bracket as follows:

Cut a slot in the compressor mounting bracket to allow a gauge line and Schraeder adapter J-5420 to be attached to the oil test elbow. The slot should start  $3/16$ " from the compressor edge of the bracket and be  $7/8$ " wide and  $1\ 13/16$ " long. (See Figure 12). One method of making the slot is to drill two  $7/8$ " holes  $1/16$ " apart and then cut the web from between them with a cold chisel. The suggested time allowance for cutting this slot is .6 hrs.

A similar hole will be incorporated in the bracket in production as soon as possible.

When the hole has been cut in the bracket, add oil as outlined in the following procedure:

1. Prepare an oil charging line from a piece of clean, dry  $1/4$ " tubing by flaring one end and installing a flare nut. The flared end of a piece of brake line can be used together with a flare nut. Pipe should be long enough to reach bottom of oil bottle.
2. Connect the high pressure line from the gauge set to the high side fitting on the compressor.

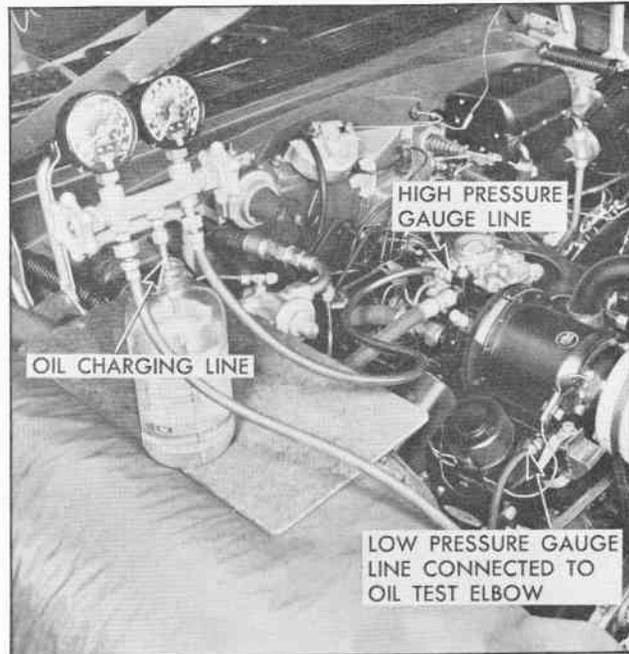


Fig. 13 Gauge Set in Position For Adding Oil

3. Cap the center connection on the gauge manifold with gauge fitting cap from compressor discharge valve.
4. Attach adapter J-5420 to low pressure line and start adapter on oil test elbow. Do not screw on far enough to depress valve stem.
5. "Crack open" high side valve on the gauge manifold and discharge valve on compressor.
6. Slowly open the low side valve on the gauge manifold. This will then purge air from the low side line. While Freon is escaping from the low side line, tighten the gauge adapter J-5420 on the compressor oil test elbow.
7. Close the high and low pressure valves on the gauge manifold.
8. Close the low pressure valve on the compressor (turn in until seated).
9. Attach  $1/4$ " oil charging tube to the center connection on the gauge manifold.
10. Secure a graduated bottle of Frigidaire 525 viscosity oil, uncap at time needed to use.
11. Crack open the high side valve at the gauge manifold to purge air from the oil charging line.
12. While vapor is still slowly escaping from the oil charging line, insert the tube to the bottom of the oil bottle (Figure 13) and allow vapor to slowly bubble through the oil.

13. Close the high side valve at gauge manifold. Leak test all connections that have been made.
14. Position the gauge manifold and oil charging line, while still inserted to the bottom of the oil bottle, so that it will not be disturbed during the following procedure.
15. Operate the engine at slow idle, observe the low side gauge until approximately 10" vacuum is obtained.
16. Stop engine and observe the gauge to see if the vacuum will hold. There should not be any fast rise of pressure.
17. Open the low side valve on the gauge set about 1 1/2 turns. The vacuum in the compressor should now draw oil from the bottle. Allow the level of the oil in the bottle to reduce so that 2 ounces are drawn into the compressor.
18. Close the low side valve on the gauge manifold, remove the oil charging line from the center connection on the gauge manifold and replace cap. (Loosen oil charging line while still in oil bottle so that oil from line will drain back into bottle.)
19. Open the high pressure shut-off valve on the gauge manifold.
20. Open the low pressure shut-off valve slowly to allow the high side pressure to force the oil remaining in the gauge manifold and low side gauge line into the compressor. Also allow the pressure to break the vacuum and pressurize the compressor to approximately 5 pounds.
21. Close both high and low side valves on the gauge manifold and remove the gauge adapter connection from the oil test elbow.
22. Recheck oil level.
23. Continue to add oil in 2 ounce quantities until a satisfactory level is obtained.
24. Open high and low side valves (fully counterclockwise) and replace gauge fitting caps, valve stem caps, and oil test elbow cap.

### REAR SEAT SPEAKER CONE DAMAGE

Due to P.I. Reports received covering damaged rear seat speaker cones caused by air pressure when the rear compartment lid is closed, a new speaker is now in production. The new speaker incorporates a cloth spider in place of the material previously used and should alleviate complaints of this nature.

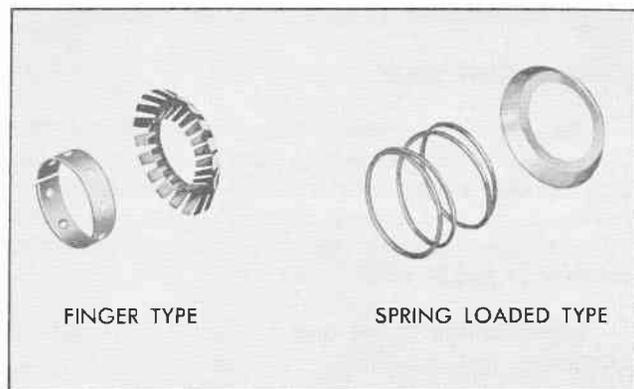


Fig. 14 Power Brake Secondary Seal Expanders

### NEW EXPANDER ASSEMBLY USED ON MORaine POWER BRAKE UNIT

A special finger type expander and spacer assembly Part Number 5454862 has been released for the secondary seal in the Moraine Power Brake unit. (Refer to Fig. 5-35, Book I Preliminary Shop Manual.) This expander provides more positive sealing between the outer diameter of the cup and the I.D. of the plug. No problem has been encountered on Pontiac prior to the use of the expander, but anytime a unit which has an expander is disassembled, the expander should be re-installed when unit is reassembled. It is not necessary to add the expander to early production units which did not originally have it.

Temporarily a spring loaded expander (Fig. 14) was used in production. This expander is used without a spacer.

A finger type expander (Fig. 14) is the latest type and the only one which will be serviced. When the spring loaded type is encountered it may be re-used or the finger type can be used.

The finger type expander requires a new spacer. The new spacer has a 1/32" larger diameter and has a black oxide finish for identification.

### CORRECTION OF SPRING SHACKLE TO FRAME INTERFERENCE

In any case of spring shackle to frame interference check the position of the rear spring upper frame bushing. This bushing should be inserted so that the bushing sleeve is flush with the frame bracket surface toward the car centerline. Cases have been noted where the bushing has been inserted approximately 1/16" too far toward the car centerline causing the interference. To correct, pull bushing away from centerline of car using special tools and procedures covered on pages 4-21 and 4-22 of the 1949-1954 Shop Manual. Also check for interference caused by a loose spring clamp contacting the frame. This can be corrected by bending the clamp closer to the spring.

## HYDRA-MATIC TRANSMISSION CHANGES

### 4-3 DOWNSHIFT VALVE SPRING

Starting with transmission number P55-75786 a lighter spring is used behind the 4-3 downshift valve. The lighter spring allows the 4-3 downshift valve orifice to be used down to 15 MPH instead of 23 MPH. This means, smoother part throttle 4-3 downshifts between 15 and 23 MPH.

Identification of the new spring can be made as follows:

New Spring - 8617212                      Old Spring - 8615670

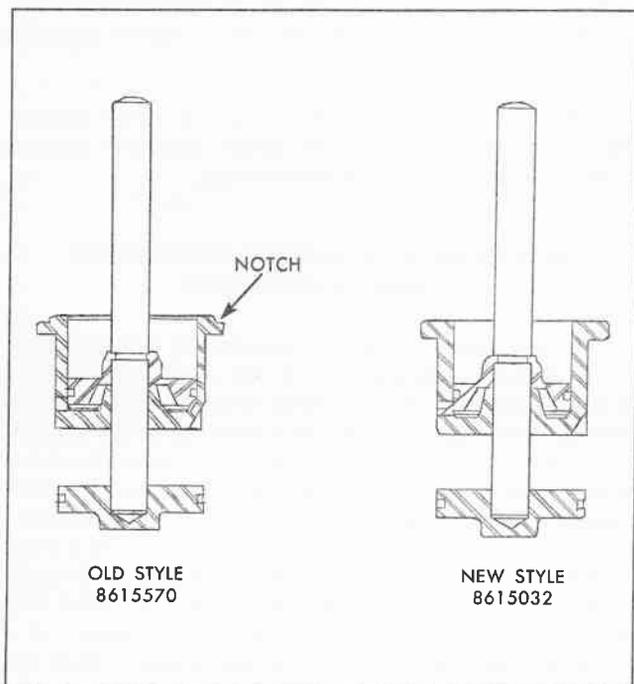
16	Total Number of Coils	13
.035" Dia.	Dia. of Wire	.043" Dia.
1.12"	Free Length	.99"

The new spring, Part No. 8617212, is released for servicing both the early and late type 1955 Hydra-Matic transmissions.

### FRONT SERVO BAND APPLY PISTON ASSEMBLY

A new front servo band apply piston assembly is now in production beginning with transmission number P55-109663. The new assembly has a smaller diameter compensator piston which improves the forced 4-3 downshift. It will also improve other shifts slightly.

The part number of the new assembly is 8615032 and it can be identified by the compensator sleeve, as shown in Fig. 15. Only the new assembly should be used in servicing the 1955 front servo.



## CONTROL VALVE DETENT PLUNGER RETAINER

A new detent plunger retainer is now being used in production. The new assembly contains an adjusting screw to provide exact setting of T V pressure in production. Once adjusted during manufacturing it is locked permanently in place. No attempt should ever be made to change the position of this screw in service. When service is necessary, the complete assembly should be changed.

This detent plunger retainer is interchangeable with the early type except that when the new type is used, inner throttle lever and shaft assembly 8617071 must be used. The part number is stamped on this throttle lever.

## CORRECTION OF HIGH FUEL PUMP PRESSURE

In the January issue of the Service Craftsman News it was stated that the fuel pump should be replaced if it was delivering in excess of 5 pounds pressure. A study of this condition shows that high pressure may be encountered due to the fuel pump diaphragm being installed with insufficient slack. The corrective procedure to be followed when high fuel pump pressure is encountered on a new car is listed below. If this does not reduce the pressure below 5 pounds, the pump should be replaced.

1. Remove pump from engine and place mounting flange in a vise with fuel side up.
2. Loosen cover screws two turns to relieve diaphragm.
3. With a short section of pipe fitted over rocker arm, move arm up and down several times.
4. Press rocker arm up and hold in that position while tightening all cover screws.
5. Reinstall pump.

Engineering tests have shown that many cases of Carter carburetor flooding can be corrected by removing the strainer nut (two on four-barrel) and using air pressure to blow out any dirt particles that may have accumulated under the float needle. **CAUTION: DIRECTING FULL AIR PRESSURE INTO BOWL MAY COLLAPSE FLOATS.**

## BATTERY TO STARTING MOTOR CABLE

The battery cable used with power brakes is 1-1/2" longer (46-1/2") than the cable used with standard brakes. Only the long cable is serviced. This cable is also included in the power brake package 984972.

Fig. 15 Old and New Style Compensator Pistons

## 1955 STATION WAGON FUEL TANK REPLACEMENT

To remove and replace the fuel tank on 1955 Station Wagons the following procedure should be followed:

1. Raise rear of car by placing jack or chain fall under rear bumper.
2. Disconnect fuel line extension from fuel line. Coupling is near front end of fuel tank.
3. Bend body flange inboard  $45^{\circ}$  for a distance of eight inches starting at a point directly above rear edge of tank filler neck.
4. Remove nut holding rear tank strap to bracket.
5. Remove rear tank strap bracket.
6. Remove front strap to body nut (inner).
7. Lower tank slightly and disconnect fuel gauge wire from gauge.
8. Remove fuel tank.

To install tank reverse the above operation. Before tightening the support straps position the tank as far to the rear as possible. Insulation boot must be in place over gauge terminal.

## CORRECTION OF TAIL AND BACK UP LAMP BREAKAGE

Due to the number of reports of breakage of the tail lamp and back up lamp plastic terminal plugs, these parts have been made available for separate service. They are released under the numbers 5291632 Plug, Tail Lamp and 5291638 Plug, Back Up Lamp.

In order to cut down the amount of breakage of the tail lamp plug on station wagon models, due to an accumulation of ice and mud on the tail lamp wire, a clip to retain the surplus wire is now being installed in production. This clip will be released for service as a factory warehouse item in the near future.

## INCORRECTLY INSTALLED CRANKCASE VENTILATOR OUTLET PIPES

Several reports have been received in which incorrectly installed crankcase ventilator outlet pipes have contributed to high speed oil consumption. Investigation reveals that the pipes have been installed too far into the push rod cover allowing high velocity air to carry oil directly out through the pipe. The pipe should not be forced into the push rod cover past the two locating points on the outlet pipe.

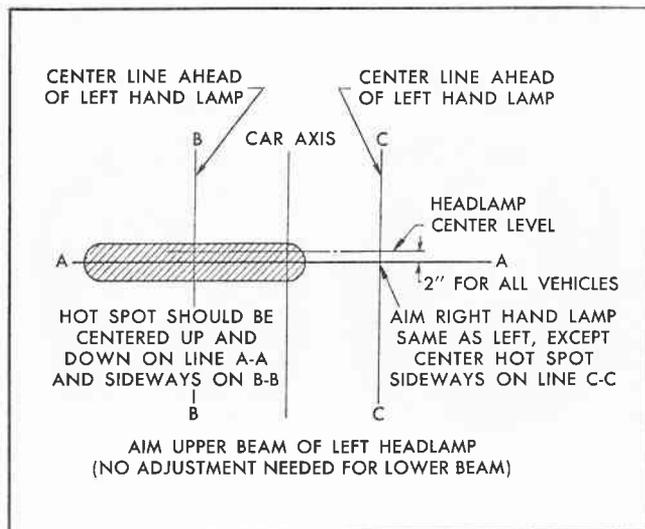


Fig. 16 Headlamp Adjusting Chart

## NEW SEALED BEAM UNIT RELEASED FOR SERVICE

A new sealed beam unit has been released for service. The new unit represents a significant advance in night driving safety. Following are some of the features of the new sealed beam unit:

1. Better distribution of light on the roadway. The lower beam gives as much as 80 feet more visibility along the right side and shoulder of the road.
2. A sharp reduction in stray light radiating upward from the lower beam filament. The change boosts night visibility in fog or rain and lessens the threat of glare.
3. More light throughout both beam patterns.

Aiming procedure on the new unit is the same as given in the 1949-1954 Pontiac Shop Manual with the exception that line A-A on the headlamp adjusting chart is now 2 inches below the headlamp center level instead of 3 inches. (See Fig. 16).

The new units are available for service in states where they may legally be used under the following part numbers:

456795-Type 5040-6 Volt  
456796-Type 5400-12 Volt

This new unit will not be used in production until it has been approved in all states. A check with your local state traffic enforcement bureau will determine approval if there is any question.

## POWER BRAKE HOSE CLAMPS NO LONGER USED

The six power brake hose clamps are no longer being used. Engineering tests have shown that clamps are not required.

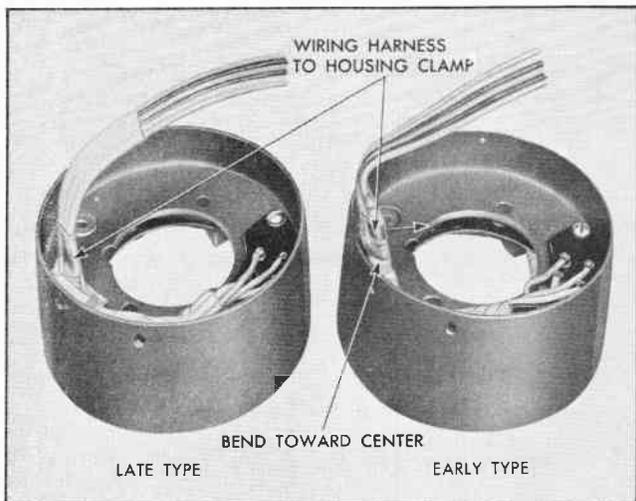


Fig. 17 Early and Late Type Direction Signal Wiring Harness to Housing Clamp

### CORRECTION OF DIRECTION SIGNAL WIRING HARNESS SHORT CIRCUITS

On some early production cars, the direction signal wiring harness contacts the gearshift lever support at the upper end of the steering column. On these cars the continual movement of the support, during shifting, chafes the wires and eventually cuts through the insulation causing a short circuit. This causes the direction signal fuse to blow making the direction signal and the hand brake warning lamp inoperative.

When this condition is encountered, remove the direction signal control assembly and replace the wiring harness and switch base assembly. Route the new wiring harness in the guide clamp and push it down through the clamp until it lies flush against the underside of the housing. Then bend the clamp around the harness to hold it securely in place. Before re-installing the control assembly, bend the clamp and harness toward the center of the housing to make sure it will not contact the gearshift lever support.

This condition has been corrected in production by the release of a new type clamp which more positively positions the wiring harness (See Fig. 17).

### NEW HEAVY DUTY GENERATOR RELEASED

A new 35 ampere generator model 1102031 has been released for heavy duty use. This generator is the same as the model 1102027 generator used with air conditioning except for a different endframe. The previously used 30 ampere heavy duty generator will no longer be serviced.

Along with the generator change a heavy duty voltage and current regulator number 1118967 (35 ampere) has been released. This is the same regulator that is used on air conditioning.

### CRANKSHAFT MAIN BEARING SHELLS

Occasionally main bearing shells are replaced unnecessarily because of what seems to be a lack of contact between the bearing and the shaft. Reports have been received that "bearing shell shows no evidence of contact with the shaft-necessary to install .002" smaller bearing shell".

Under ideal conditions there should never be any evidence of contact, since the lubricating oil provides a constant film or cushion between the bearing babbitt and the shaft. Normally, however, there are minute particles of dirt in the oil after the engine has been operated for some time. This dirt will cut through the oil film and provide some evidence of contact.

Pontiac's full flow oil filter, together with new casting and cleaning methods and better machining, reduces this dirt to a minimum. Therefore it is not uncommon with the new Pontiac V8 engine to find ideal lubricating conditions where no evidence of contact can be seen between the shaft and the bearing.

Another factor which affects appearance of contact areas on bearing shells is the clearance between the shaft and the bearing. Most of the force which the crankshaft exerts against the bearing is downward. Since there is a maximum allowable clearance of .0034" and a minimum of .0008 between the crankshaft and the bearing it can be seen that any apparent contact is more apt to show on the lower shell. Such an appearance has been interpreted by some as a result of excessive clearance and bearings have been replaced solely on this basis. This practice should be discontinued.

If there is any reason to suspect excessive clearance between the crankshaft and the bearing, always check the clearance using Plastigauge or shim stock as outlined on page 6-41 of the Preliminary 1955 Shop Manual, Book II.

### FUEL AND OIL PRESSURE GAUGE READINGS

Several reports have been received from owners regarding fuel gauge and oil pressure gauge readings which indicate that there is some misinterpretation of the gauge graduations. The letters "E" and "F" on the fuel gauge are used to point out direction of indicator travel only. Gauge readings are made from the three dots on the gauge face. The left hand dot indicates empty, the center dot half-full and the right hand dot full.

The oil pressure gauge operates in the same manner with dots indicating "0", "40" and "80" respectively.



Enthusiasm is the key to success . . . and everyone's enthusiastic about the new G.M. Training Center. Attending the recent opening were, left to right, C. M. Wilcox, Resident Instructor, P. E. McDonald, Manager of all Training Centers, O. H. Odell, Memphis Service Manager, H. J. Hales, Pontiac General Service Manager, J. P. Carper, Zone Manager, W. A. Smith, Memphis Center Manager, H. G. Hersh, Pontiac Southern Regional Manager and M. E. St. Aubin, Director, G.M. Service Section.

### TRAINING CENTERS MARK NEW ERA FOR CRAFTSMEN

Twenty-two new General Motors Training Centers are now in full operation, with eight more scheduled to open in the near future. These centers were designed and developed for your use at a cost of many millions of dollars. They feature the most modern facilities and equipment ever made available to any

group for training in automotive service techniques and procedures. If you are to keep abreast of changes, to maintain and expand your knowledge as mechanics, training is a must. We urge that you take advantage of every opportunity you have to improve yourself at the center in your zone.



Present at the Preview Opening of the Portland Training Center at Tigard, Oregon were, left to right, G. A. Pace, Asst. Zone Manager, T. L. King, Zone Manager, L. H. Holmes, Pacific Regional Manager, P. E. McDonald, A. H. Warner, Service Manager and H. J. Hales.

### DIAGNOSIS OF ROUGH ENGINE IDLE AND/OR HIGH VACUUM WHISTLE

Several reports have been received on rough engine idle and/or a whistling sound under high vacuum conditions, such as closed throttle coasting. Investigation shows that these were due to loose intake manifold bolts and nuts. In all cases of the above condition, tighten intake manifold bolts and nuts to 40-45 lb. ft. torque before further investigation.

### ROCKER ARM STUDS

Rocker arm studs are available in both standard and .003" oversize. Several questions have been raised as to when the .003" oversize stud should be used. The oversize stud should only be used when the original stud has become loose. For other replacements such as damaged threads etc. the standard stud should be used.

### 1955 ACCELERATOR PEDAL HINGE PIN LOCK

The accelerator pedal hinge pin on the 1955 Pontiac is held in place by a hair-pin type clip that extends through a slot in the mounting bracket and over the pin. In that it is necessary to remove the accelerator pedal at the time of installation of the floor mats, it is very important that when the accelerator pedal hinge is repositioned the hair-pin clip be replaced in the slot in the pedal hinge pin to hold it in position.

### RADIATOR GRILLE CENTER BAR UPPER MOLDING

On cars equipped with the front bumper master guard the radiator grille center bar upper molding (group 1.268, part 520743) is no longer used. This molding is located at the upper rear edge of the painted grille center bar.

### CORRECTION OF INTERFERENCE BETWEEN TAIL PIPE AND REAR BUMPER IMPACT BARS

Several Product Information Reports have been received stating that the tail pipe strikes the rear bumper impact bar. A correction for this condition is to add enough 5/16" washers between the frame cross member and the rubber support to insure adequate clearance.

The condition has been corrected in production.

### CORRECTION OF COIL AND VENTILATOR OUTLET PIPE INTERFERENCE

On some cars equipped with the four barrel carburetor an interference has been reported between the terminal end of the coil and the crankcase ventilator outlet pipe. This can cause a short circuit between the coil secondary wire and the pipe.

To correct this condition bend the coil support bracket so there will be at least 5/8" clearance between the terminal and the pipe. This condition is being corrected in production by releasing a new coil and bracket assembly with the bracket closer to the terminal end of the coil.

### INSTALLATION OF AIR CLEANER ON FOUR-BARREL CARBURETOR

When installing the air cleaner on cars equipped with the four-barrel carburetor, always tighten the top wing nut with the cleaner top cover centered over cleaner oil reservoir before attaching the silencer brace. This prevents improper seating of the cleaner top cover and the resultant air leak which causes noisy operation.

When the cleaner top cover is removed for service, care should be taken to prevent damage to the lip which contacts the cleaner oil reservoir. Damage in this area will also result in an air leak.

## SERVICE MANAGER—IMPORTANT

This News contains important service information on Pontiac cars. Each subject should be cross-referenced in the space provided at the end of each section in the Shop Manual or its Supplement. **Be sure and cover every point with your entire organization.**

Each service man should sign in the space below after he has read and understands the information in this issue.
