

# PONTIAC



## Service Craftsman News

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# NEW HEATER OPERATING INSTRUCTIONS

### REVISED HEATER OPERATING INSTRUCTIONS AND TROUBLE DIAGNOSIS

There are important differences in the operation of the 1955 heater as compared with past models which if not understood by the owner could lead to dissatisfaction with heater performance. In the 1949-1954 heaters there was a control valve which reduced the amount of cool or unheated air going through the defroster nozzle when the "Air" control lever was in any position between "OFF" and "DE-ICE". When in the "DE-ICE" position, this valve being of the flipper type completely closed off the cool air and admitted only heated air through the defroster nozzles.

The "Air" control on the 1955 model heater when moved from the "OFF" position towards "NORMAL" allows an increasing amount of unheated air to be discharged through the defroster nozzles until the "NORMAL" position is reached. As the control lever is moved from "NORMAL" toward "DE-ICE" heated air is mixed with the cool air in increasing amounts until at the "DE-ICE" position all air discharged by the defroster nozzles is heated. As the "Air" control is moved from the "OFF" position, the valve controlling the air flow through the heater is opened fully and remains this way even when the control is in the "DE-ICE" Position.

In the "NORMAL" position only the heater is discharging heated air into the car and the full-flow of cool air is coming from the defroster nozzles. Because of the greater volume of air required to properly defrost and de-ice the larger glass area of '55 windshields, the flow of cool air through the defroster nozzles in the "NORMAL" position may be large enough in extreme cold weather to make owners feel they are not getting the amount of heat desired. As a result of this design the position of the control lever for maximum heat input into the car is in the "DE-ICE" position at which time both the heater and the defroster are discharging heated air into the car.

This is the position owners should be instructed to use for maximum heat in cold weather.

Following are suggested control settings:

#### 1. Maximum Heat Input and Defrosting

"Air" . . . . . Set lever at "DE-ICE"  
 "Temp" . . . . . Set lever at "HIGH"  
 "Blower" . . . . . Switch "ON"

#### 2. Too Much Heated Air At Breathing Level.

Move "Air" lever toward "NORMAL" for desired temperature of air at breathing level.

#### 3. Adjustment of Temperature Control

To maintain the desired temperature inside the car the "TEMP" control automatically regulates the flow of hot water to the heater. This makes it unnecessary to change the setting of the "TEMP" lever once it is adjusted to produce a comfortable temperature in the car. Even though the car has been standing in the cold it is not necessary to move the "TEMP" lever, because this setting will produce as much heat as "HIGH" while bringing the air temperature up to the setting.

#### 4. Use of Blower

When starting cold car shut off "Blower" until water temperature gauge indicates engine has started to warm up, then turn on "Blower" until desired temperature is reached in the car. In mild weather, the "Blower" may be turned off or "TEMP" control lever adjusted to maintain desired temperature in the car. In cold weather it will usually be necessary to have the "Blower" "ON" to get desired amount of heat.

Following is a list of heater irregularities which may be encountered when diagnosing reports of poor heater performance:

### 1. Kinked Hoses

Observe all heater hoses for presence of kinks which would restrict the flow of water. Check especially the intake manifold to temperature control valve hose.

This hose makes a sharp bend at the vertical pipe threaded into the front of the intake manifold. Early production cars were equipped with a straight hose which in some cases flattens at this bend and restricts the flow of water.

A new hose which has a formed bend at this point is being used in production. When a heater complaint is diagnosed as being caused by a flattened bend in the intake manifold to temperature control valve hose, replace the hose with the new hose having the formed bend. The part number of the new hose is 520379.

### 2. Control Adjustments

- a. Defroster control lever rod - Set "Air" knob at "DE-ICE". Adjust trunnion at right hand side of defroster so that lever is pushed fully forward and down.
- b. Blower valve lever rod - Set "Air" knob at "OFF". Adjust trunnion on rod at blower air inlet valve so that valve lever is pushed outward toward fender.
- c. Thermostatic control valve rod - Set "Temp" knob at "OFF". Adjust trunnion on rod at thermostatic valve with valve lever pulled fully back toward instrument panel.

### 3. Floor Mats

Check front floor mat to see that it is flat and not cutting off part of air flow. Rear floor mat should be retained by the heater air distributor duct.

### 4. Engine Thermostat

It should be kept in mind that the normal warm up time is slightly higher in 1955.

### 5. Defroster Nozzles

Check defroster nozzles to be sure that they are not pinched together, blocked by windshield rubber or installed partially under the garnish molding.

## CLEAR VINYL PLASTIC SEAT COVERS MAY DAMAGE TRIM

Information has been received that seat covers made of clear vinyl plastic are being sold and installed in the field. These are sold on the basis that the transparent cover allows the styling and color of the trim to be seen.

Tests on the vinyl plastic material have been run and indicate that this material is not satisfactory for use as a seat cover and may damage the seat trim. It is particularly damaging to the surface of genuine leather and coated fabrics.

## INSTALLING VALVE STEM OIL SPLASH SHIELD- PART #520996

In order to reduce to an absolute minimum the possibility of excessive oil consumption, a manufacturing change has been made releasing a new intake valve stem oil splash shield, part #520996. Starting with car engine number 54487 these shields were installed on all engines.

To simplify the installation of this shield and also to replace valve stem oil seals and valve springs, a new tool #J-5961 valve spring compressor set (Fig. 1) has been released. With this tool it is possible to install the oil shields, seals, and springs without removing the cylinder head.

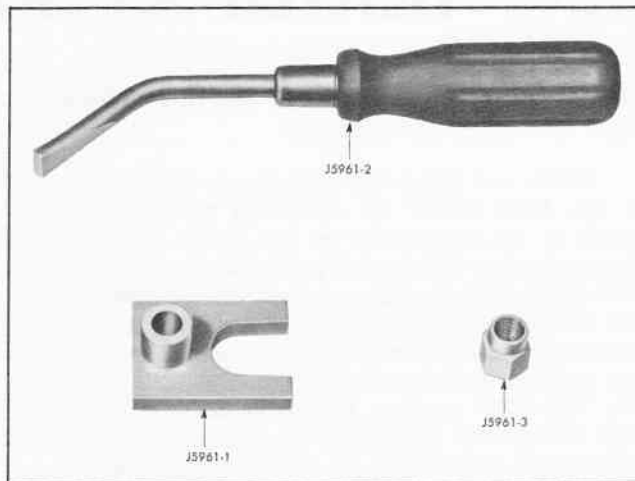


Fig. 1 Valve Stem Oil Splash Shield Installation  
Tools - J-5961

When an oil consumption complaint is received, a complete and thorough investigation should be made to determine if the motor is actually using an excessive amount of oil. Many reports received to date do not indicate that a complete investigation is being made to determine the exact cause of the owner complaint. Every complaint of excessive oil consumption should be checked to determine the exact amount of oil being consumed and no major changes should be attempted until the car has been driven at least 2,000 miles or more, as this amount of driving is required for a thorough break-in.

The oil splash shield has been developed for use only on the intake valve, and the time allowance for installing eight (8) oil shields on motors not equipped will be a straight time of 1.8 hours plus .2 hours if it is necessary to clean spark plugs.

The list price of the tool is \$5.05, available from Kent-Moore Organization. A special order blank covering this tool will be forwarded to all dealers. This tool should be considered in the essential classification to handle any future repairs that might be required in replacing the above mentioned parts.

Following is the complete installation procedure:

1. Remove air cleaner, spark plug wires, distributor cap and spark plugs.
  2. Crank engine until number one piston is on top dead center. (Distributor rotor pointing toward left rear of engine with top dead center, or lowest mark on harmonic balancer beneath timing indicator pointer.) NOTE: Engine may be cranked by means of a remote controlled starter switch, connected between positive terminal of battery and upper terminal of junction block on left fender skirt; a 15/16" socket with long extension may be used on harmonic balancer attaching screw for manual cranking.
  3. Install Firing Order Indicator J4991-16 on distributor so the #1 position on gauge aligns with rotor (See Fig. 6-74, Preliminary Shop Manual).
  4. Remove both rocker arm covers. (On right bank remove oil level indicator and upper portion of indicator tube.)
  5. Install oil shield (part #520996) on each intake valve spring as follows:
    - a. With #1 piston on top dead center remove intake valve rocker arm retaining nut, rocker arm, and ball.
    - b. Oil rocker arm stud and place Valve Spring Compressor J5961-1 and J5961-3 nut (Fig. 1) in place over stud and against valve spring retainer cup (Fig. 2).
    - c. Place Valve Holder J5961-2 (Fig. 1) in spark plug port and position end of holder against head of valve (Fig. 2).
    - d. Turn down nut of compressor to compress valve springs while holding valve up with valve holder. Remove valve spring retainer cup locks (keepers), back off on J5961-3 nut and remove J5961-1 compressor, valve springs, and retainer cup; remove and discard oil seal from valve stem.
  - e. Place inner spring over valve stem and place valve stem oil shield on inner spring. Replace outer spring, and retainer cup; oil stud and install valve spring compressor (J5961-1) and J5961-3 nut.
  - f. Turn down nut and compress valve springs. Hold valve up with valve holder and install new oil seal in second groove of valve stem, using Valve Seal Installer J-5751.
  - g. Install valve spring retainer cup locks (keepers) remove valve holder and push down on end of valve stem to seat valve stem and keepers in valve spring cup.
  - h. Remove valve spring compressor and test for positive seal between valve stem and valve spring retainer cup, using suction cup on end of J-5715 valve stem oil seal installer. The suction cup will tend to be held to the valve spring retainer cup if seal is satisfactory. If leak is evident, check for proper installation of valve stem oil seal and replace with new neoprene seal if necessary.
  - i. Adjust rocker arm nut by turning nut down until all axial movement of push rod (clearance between ends of rod and rocker arm and lifter) has just been eliminated and then tighten nut one complete turn.
  - j. Complete installation of Intake Valve Stem Oil Shields by turning engine from cylinder to cylinder in sequence of firing order.
6. Replace rocker arm covers. NOTE: On right bank, replace oil level indicator and upper portion of indicator tube.
  7. Replace spark plugs, using new gaskets.
  8. Remove firing order indicator from distributor and replace distributor cap and wires; connect wires to spark plugs.
  9. Replace air cleaner.

### USE CAUTION WHEN REMOVING 1955 TIMING CHAIN

Care must be used when removing and replacing the timing chain on 1955 engines. If the crankshaft is rotated while the chain is off, there is danger of damage to the valves and/or pistons. When a valve is in the full open position, the piston in that cylinder will strike that valve if the crankshaft is rotated. This would result in bending the valve or nicking the piston or both.

Crankshaft must be positioned to have #1 piston at 45° before or after top center to avoid damage to valves in #1 and #6 cylinder when camshaft is rotated. The same is true of pistons 3 and 2, 5 and 8, 7 and 4.

### CORRECTION TO 1955 PRELIMINARY SHOP MANUAL

On page 9-9 of Book III 1955 Pontiac Preliminary Shop Manual change the steering gear lubricant capacity of the standard steering gear to 13 fluid ounces.

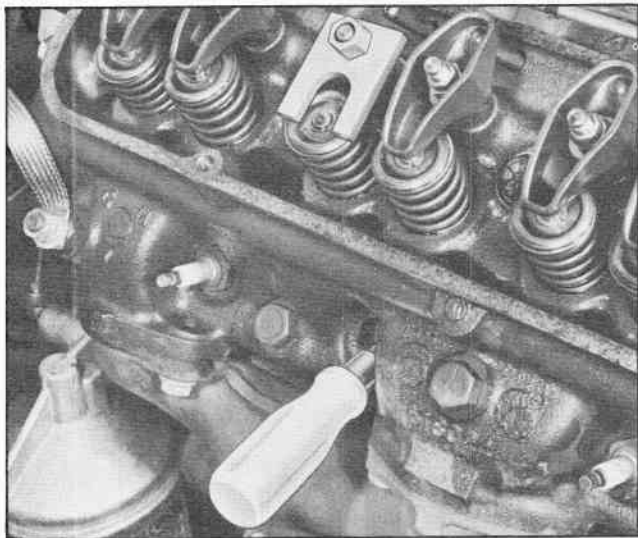


Fig. 2 Valve Spring Compressor and Valve Holder Installed



## CORRECTION OF UNDESIRABLE MOVEMENT OF FRONT OF HOOD

In all cases of excess movement of the front of hood first check to be sure that second type hood latch striker and fender support brace assembly (521090) has been installed. All second type braces have a screw installed in the  $\frac{3}{8}$ " hole shown in Fig. 3. If the second type brace is not installed, install as outlined in steps 1 through 5 below before proceeding. If this brace is installed, proceed from step 5 and complete balance of procedure.

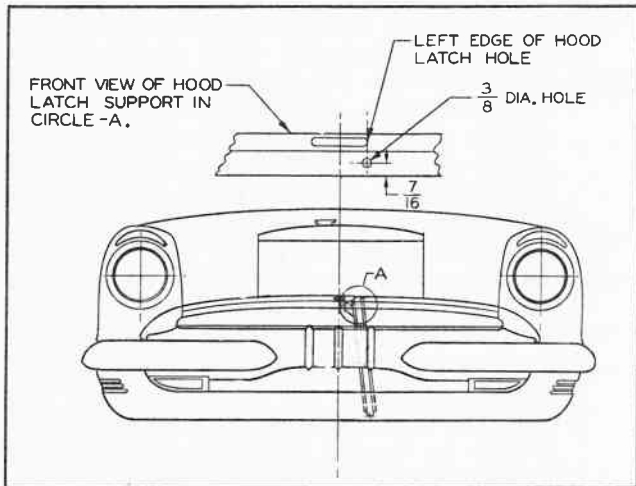


Fig. 3 Installation of #521090 Brace Assembly

1. Raise hood.
2. Remove old brace assembly (vertical brace, left of center).
3. Drill a  $\frac{3}{8}$ " hole in the Hood Latch Striker and Fender Support from the front of the car as shown in Fig. 3. Punch hole for drill  $\frac{7}{16}$ " up from lower edge of Hood Latch Striker and Fender Support and in line with left edge of hood latch hole and on top of the support.
4. Place new brace assembly in position and install all 5 screws finger tight, then tighten. NOTE: Use 445610 screws and plain washers (a number 20-9 x  $\frac{3}{4}$  hex head type A Tap zinc-plated) to secure the brace assembly to the support at top. If this screw is not available a  $\frac{5}{16}$  bolt, lock-washer and nut may be used.
5. Close hood and check for looseness at the outer edges of the hood at the front and adjust hood front and rear adjustable bumpers as necessary. The adjustment of the relationship of the latch to the striker hole is very important. If the latch is too far to the left of the car, the hood must be slammed to make the latch lock. If it is too far to the right, the latch will not lock properly. NOTE: Be sure hood rear corner braces are tight.

After the second type brace, Part #521090, has been installed, additional rigidity of the hood latch striker and fender support can be obtained by installing reinforcement assembly, Part #521158, from the



Fig. 4 Reinforcement Assembly #521158 Installed (Radiator Removed to Facilitate Photography)

rear of the hood latch striker and fender support brace assembly, Part #521090, to the radiator support as shown in Fig. 4. (This part cannot be installed on an air conditioning equipped car.) Also, fender to striker support braces, Part #521097 (R.H.) and #521098 (L.H.) can be installed as shown in Fig. 5. These parts are now being used in production.

Part of the tendency toward undesirable movement results from flexing of the support under the

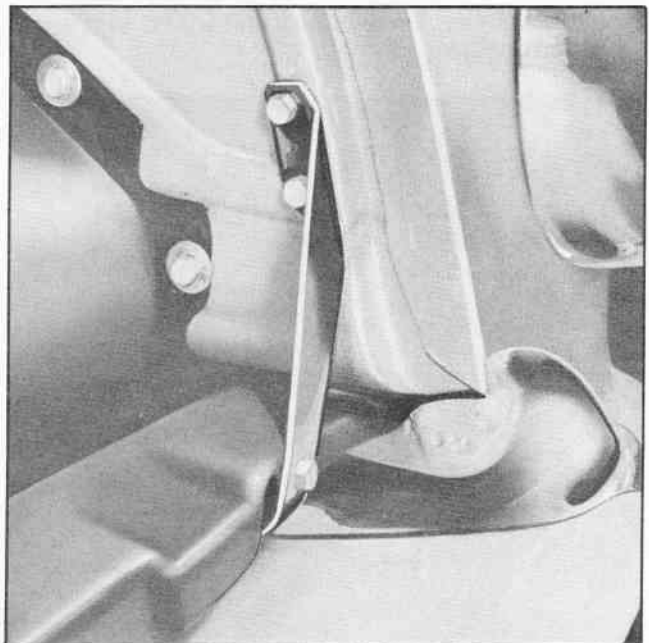


Fig. 5 Fender to Striker Support Brace Installed

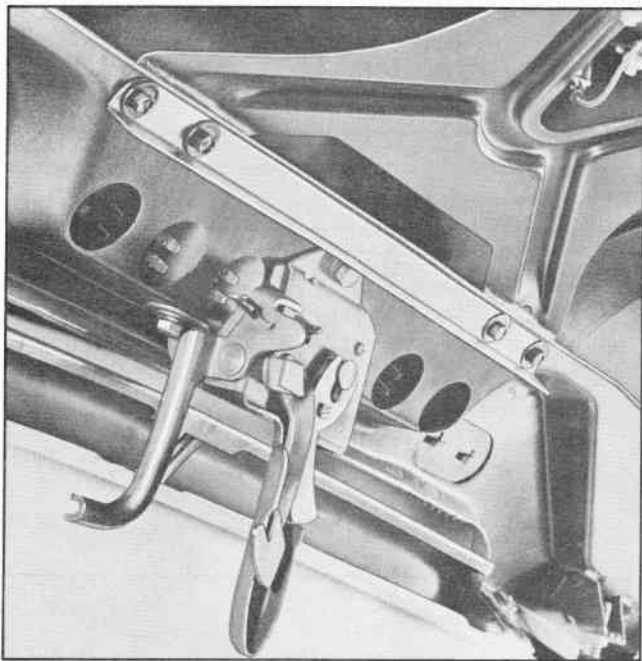


Fig. 6 Reinforcing Strip #521388 Installed

front end of the hood to which the latch assembly is fastened. This deflection can be observed at the upper of the three latch attaching screws by moving the latch guide fore and aft while the hood is open. Deflection can be minimized by installing a reinforcing strip, Part #521388, between the four screws, two of which will be seen about 6" to the right and left of the latch (See Fig. 6).

The reinforcement used in production under the front of the hood has been stiffened by forming a deeper flange on its upper edge.

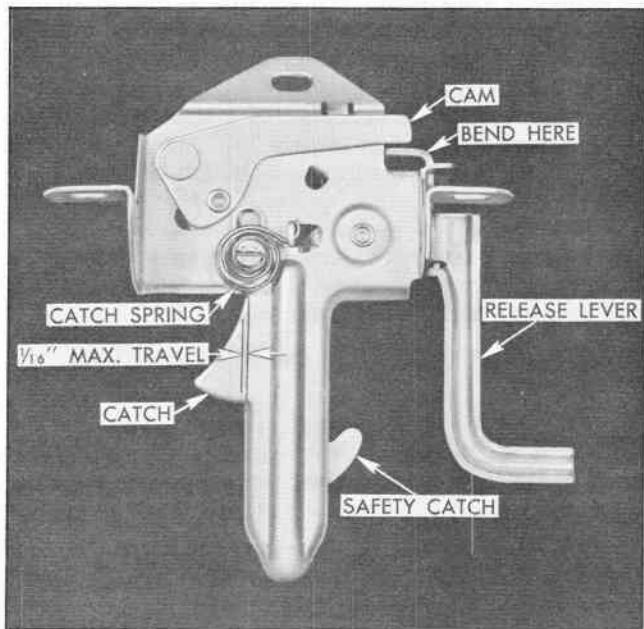


Fig. 7 Hood Latch and Safety Catch Assembly

In all cases of undesirable hood deflection hood adjustment should be checked and corrected if necessary in accordance with instructions given on page 11-0 of the Preliminary Shop Manual. As a final check with the hood closed, look through the grille to observe the position of the hood latch in relation to the left edge of the hood latch hole. The left edge of the latch should be just touching the left edge of the hole as stated in the last part of Step 5 of the Installation Instructions. "If the latch is too far to the left of the car, the hood must be slammed to make the latch lock. If it is too far to the right, the latch will not lock properly." The latch will not be effective if there is excessive movement of the catch. This can be checked by depressing the catch by hand and observing the amount of travel between the catch and the vertical edge of the latch. If this travel is greater than 1/16" (See Fig. ), it should be reduced by bending the upper end of the release lever toward the end of the cam.

Following are the suggested straight time allowances for the preceding installations.

Hood Latch Striker Brace to Radiator Support Reinforcement (521158) . . . . .	.3
Fender Support to Fender Brace R.H. (521097) L.H. (521098) . . . . .	.3
Hood Brace (521388) . . . . .	.1

### HYDRAULIC VALVE LIFTER CHANGES

The ball check valve spring (Fig. 6-50 Preliminary 1955 Shop Manual) in the hydraulic valve lifter is no longer being used. Investigation revealed that this spring was unnecessary.

Beginning with late December or early January production the width of the groove in the lifter body will be increased from .219 inch to .400 inch. This change reduces the possibility of lifter noise on idle.

These lifters are interchangeable in all respects.

### CORRECTION OF WHISTLING OUTSIDE SUN VISOR ASSEMBLIES

Several reports have been received regarding a whistling sound occurring during operation of cars equipped with an outside sun visor. The following procedure can be used to correct this condition.

File slots in holes of panel reinforcement so that the distance between the front edge of the visor and the lower windshield chrome molding is 13 to 13-1/4 inches on sedans and 12-1/2 to 12-3/4 inches on Catalinas. Lower the rear edge of the visor so distance between visor and roof panel is 1-1/8 inches at center.

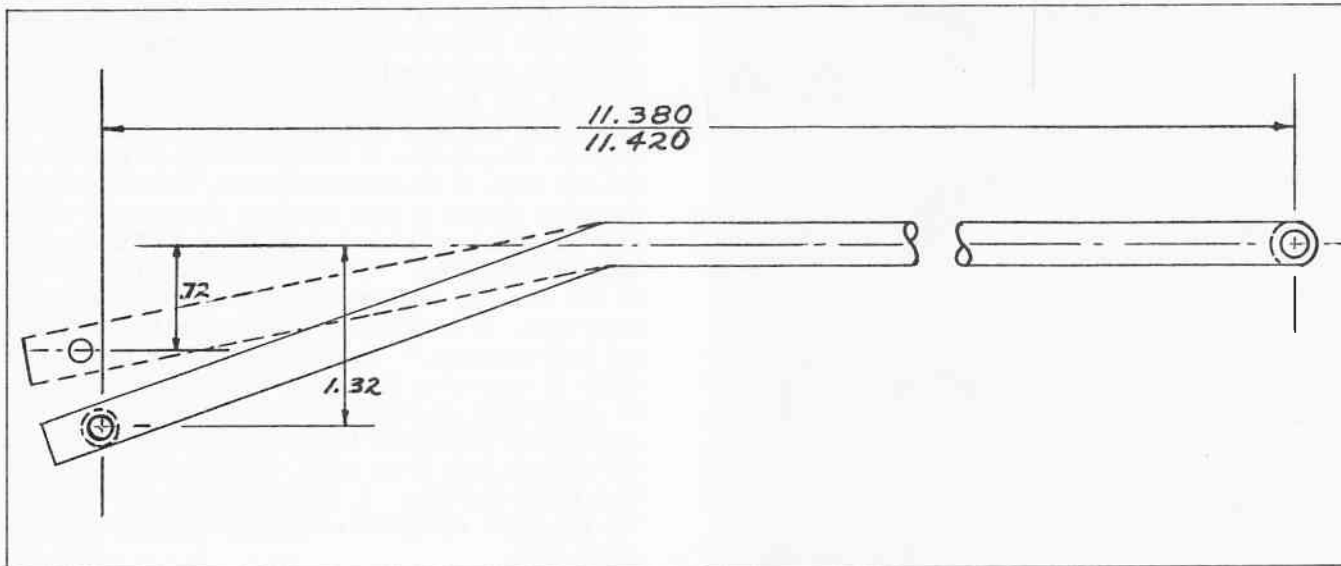


Fig. 8 Bending of Carburetor Throttle Rod

### SYNCHRO-MESH THROTTLE LINKAGE

Several reports have been received concerning "lost motion" or "looseness" in the throttle linkage on early production Synchro-Mesh equipped cars. In cases of this nature check the length of the carburetor throttle rod assembly part number 519061 shown on the attached illustration. If the length of the rod is greater than 11.420" it is of the early type and could be causing excessive play in the throttle linkage.

The correction for the condition is to increase the angle of bend in the rod so that it conforms to the dimensions shown in Fig. 8. This has the effect of shortening the rod and taking up looseness in the linkage. This condition has been corrected in production.

### DAMAGED ROCKER ARMS, ROCKER ARM BALLS OR PUSH RODS

In a few instances reports have been received of damaged rocker arms, rocker arm balls, or push rods. These reports have been investigated and in all cases it was found that the parts were improperly heat treated.

The Production and Inspection Departments have both made changes to eliminate the possibility of this happening in the future.

It is possible that a few more engines will be discovered in the field to have improperly heat treated rocker arms, rocker arm balls, or push rods. It does not seem likely that more than one of these parts would be defective in the same engine, but it is not impossible.

Soft push rods can readily be recognized by mushrooming of the ends. Soft rocker arms may be evident in any of three ways: tilting off the side of the valve, noisy operation, or being pierced by the push rod. Soft rocker arm balls may result in tilting of the rocker arm or noisy operation.

Usually, wear due to soft parts is immediately evident upon removal of push rod covers, by the appearance of the parts. Some jobs having soft rocker arms or balls where the wear or galling has not become severe, may be recognized, after some experience, by the sound. Worn spherical contact surfaces between the ball and the rocker arm causes a peculiar noise sometimes resembling a squeak (similar to fan belt squeak), other times a deep toned ringing noise at camshaft frequency. The location of the noise can be determined by using a long screwdriver or wood dowel as a stethoscope. The cylinder bank can usually be located by listening against the rocker arm cover. After the rocker arm cover is removed the noisy rocker arm and ball assembly can readily be found by listening against the top of each stud in turn.

Although a few of these failures have occurred, there is no cause for alarm. Experience has proven that, when properly built and heat treated, these parts will give superlative performance.

### PRECAUTION ON HOIST RAISING STATION WAGONS

In using any commercial vehicle hoist, with the exception of the frame type, extreme care should be used in the placement of the hoist support to the rear axle housing on 1955 Station Wagons.

The relative positioning of the fuel tank to the axle housing is such that a minimum clearance exists between these two units. If the hoist support is too large or placed too far to the rear of the axle housing, damage to the fuel tank will occur.



## LOWER RADIATOR HOSE

The relative height of the radiator outlet to front cross member is such that the lower hose can ride on the upper surface of the cross member. Every car should be observed for this condition at some time such as at the 2000 mile inspection.

This interference can be eliminated by slotting the radiator mounting holes in a vertical manner and raising the radiator core in its support to provide at least 1/4" clearance. This raised the fan shroud with the radiator which is not objectionable. The time allowance to perform this operation will be straight time of 1.2 hours.

## DIAGNOSIS OF FLOODING-EXCESSIVE FUEL CONSUMPTION

When the condition of carburetor overloading or flooding is encountered which cannot be corrected according to the suggestions in "News Flash" No. 2 published on November 23, fuel pump pressure should be tested. Any pressure greater than five (5) pounds will force gasoline past the float needle and seat and result in a change of reservoir level upward.

The procedure for making this test is outlined in the 1955 Preliminary Shop Manual Book II on page 6B-40.

In the event that fuel pump pressure is found to be excessive, the pump must be replaced. Under no circumstance should the pump or relative location of pump to block be altered from standard.

## 1955 HYDRA-MATIC THROTTLE LINKAGE ADJUSTMENT

Some reports have been received of rough 1-2 and 2-3 upshift with minimum throttle and also with medium throttle opening.

In most cases both of these conditions can be corrected by accurately setting the throttle linkage adjustment as follows:

1. With engine warm, set idle speed at 390-410 R.P.M. Transmission control lever in neutral.
2. Shut off engine and install linkage adjustment pin J-2544 through holes in lever and bracket at rear of left engine block. Pin should fit free in holes without movement of lever. If pin does not fit free in hole, adjust trunnion nuts on carburetor throttle rod until pin is free then lock nuts securely. Leave gauge pin in holes.
3. Loosen trunnion nuts on transmission throttle control rod. Push rod downward until control outer lever is felt to touch end of travel (top nut must not be touching trunnion). Hold rod in this position and tighten trunnion nuts against trunnion.

4. Shorten throttle control rod two turns by loosening lower nut two turns and tightening upper nut two turns. Remove gauge pin.
5. With carburetor throttle at full open position accelerator pedal should be at least 1/4 inch from floor mat. If pedal has less than 1/4 inch clearance, adjustment should be made at intermediate control rod trunnion.

In other cases it may be necessary to "Tailor" the linkage by shortening the throttle rear rod from 1/2 turn to 2 turns shorter than specified setting (specified setting 2 turns short).

After the above adjustments have been made if there is still a rough 1-2 and 2-3 upshift, and/or rough 4-3 throttle downshift at low car speed, front servo band adjustment should be checked.

When checking front servo band, use a screwdriver or similar tool to flex the anchored end of the band. If the bands are found either too tight or too loose they should be reset to standard with gauges J-5071 Rear, J-1693A Front. Front band should be adjusted to five turns on gauge while flexing band with a screwdriver to accurately align band. If servo band adjustments are changed, it may be necessary to again "Tailor" throttle linkage for smooth shifting.

## CORRECTION OF ANTENNA WATER LEAKS

In case of radio failure to be sure to check for defective manual antenna before removing radio. Several cases investigated indicated water has leaked into the antenna support body past the upper seal and shorted out the antenna. Antenna insulation can be checked by testing resistance between mast or lead-in and ground, or by connecting a substitute antenna to the radio. Resistance between lead-in or mast and ground should be at least 100,000 ohms. A new type water proof support body is now in production and has been released for service.

When a defective antenna is found (one which has a water leak) remove support body (part no. 520122) from antenna. A leaking support body will be wet or corroded inside around the contact. Install the new type support body assembly and re-install antenna. NOTE: Before installing antenna test to see that lead-in has not also become shorted, by trying radio after lead-in is connected.

The new support body looks exactly like the old and is serviced under the same part number. However, it can be identified by a red or black paint mark on the side of the body. This marking is temporary until field stock of the first type is eliminated.

The straight time allowance for this repair is .2 hour.

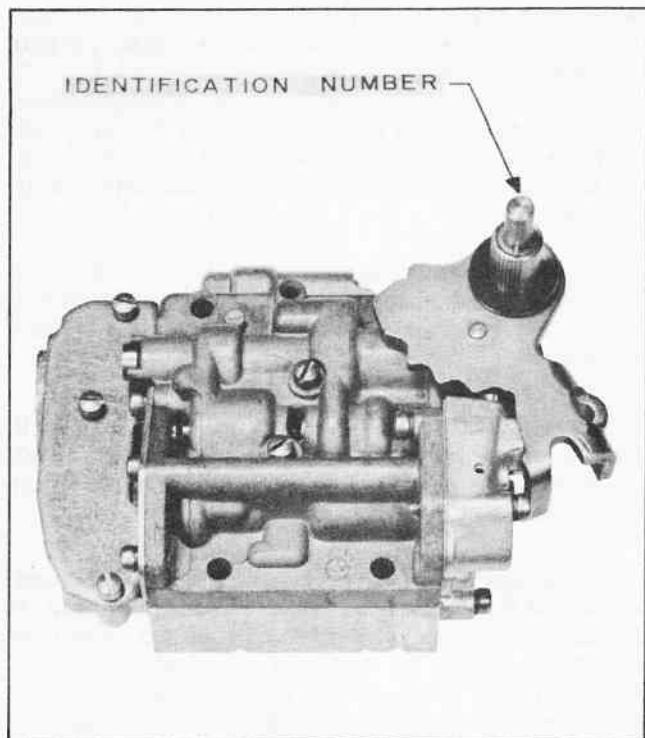


Fig. 9 Valve Body Code Number Location

**CONTROL VALVE ASSEMBLY IDENTIFICATION**

A positive method of identification for control valve assemblies has been used since 1952 and will continue to be used for the 1955 Hydra-Matic transmissions.

A number is stamped on the outer shaft end of the inner T. V. lever (see Fig. 9). This number is coded to match with the part number which is listed below for your 1955 and past model Hydra-Matic control valve assemblies. These numbers will not be found on service control valve assemblies.

- P-53 - Trans. - 8615354 - Control Valve Ass'y. Code 1
- P-54 - Trans. - 8615354 - Control Valve Ass'y. Code 1
- P-55 - Trans. - 8615661 - Control Valve Ass'y. Code 16

The control valve assemblies for 1953 and 1954 are interchangeable, however, the 1955 control valve assembly will not be interchangeable, and it cannot be used on past model Hydra-Matic transmissions.

**REVERSE STATIONARY CONE HARDENED**

The reverse stationary cone (8611937) is now anodized for production and service use. Anodizing will improve the stationary cone by surface hardening for the initial break-in period. This assists in eliminating possible "reverse lock-up" occurring during the first few miles of operation.

After the initial break-in period, the dark anodized surface may wear slightly, exposing bright metal underneath. This would not affect the serviceability of the part.

**CARTER CARBURETOR CHOKE SETTING CHANGED**

The standard choke setting on the Carter Carburetor has been changed from one notch rich to one notch lean.

Please correct your shop manuals accordingly.

**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.
