

# PONTIAC



## Service Craftsman News

No. 8 S-286

August, 1956

# NEW SHIMMING PROCEDURE RELEASED FOR STRATO-FLIGHT FLEX PLATE

### SHIMS IMPROVE ALIGNMENT BETWEEN STRATO-FLIGHT FLYWHEEL AND FLEX PLATE

When attaching the torus cover and flywheel to the flex plate it is desirable to have no more than .024" draw between the flywheel and the flex plate. Draw is the amount of gap between the flywheel and the attaching pads on the flex plate when the flywheel hub (or pilot) is seated in the crankshaft. Most of the transmissions built to date have considerably more than .024" draw and, in some cases, the draw varies between mounting pads. When this draw is taken up by tightening the flex plate attaching nuts, distortion of the connecting parts occurs affecting smoothness and durability.

Any time a transmission is being installed in the field, shims should be installed at each flex plate mounting pad to reduce the draw to .013" to .024". This applies to new transmissions and those that are being replaced after repairs. Install transmission and shims as follows:

1. Proceed according to steps 1-8 under "INSTALLATION OF TRANSMISSION" on page 104 of Part I in the 1956 Hydra-Matic Manual. Be especially careful to check as outlined in step 4 to see that the flywheel pilot has properly entered the end of the crankshaft.
2. Rotate flywheel to position one flex plate mounting pad down. Push forward lightly on flywheel to seat it against crankshaft. Measure clearance between pad on flex plate and flywheel, using feeler gauges (Fig. 1) insert shims part no. 523087 (approximately .011") and part no. 523088 (ap-

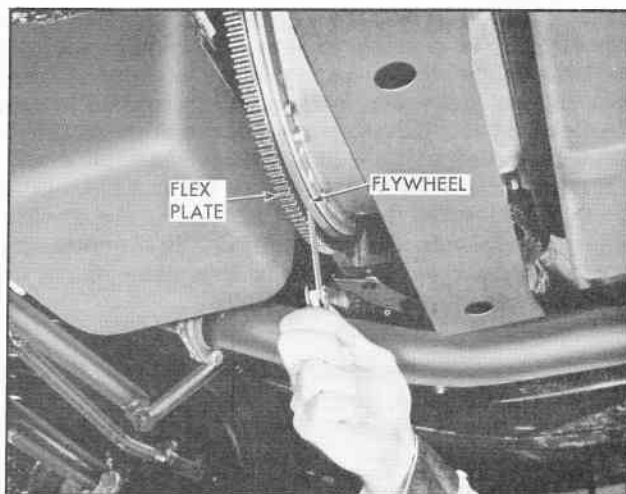


Fig. 1 Measuring Clearance Between Flywheel and Flex Plate

proximately .030") to reduce this to .013" - .024" clearance (Fig. 2). Coat shims with petrolatum so they will remain in position. Do not install nut until shims have been installed at each attaching pad since it will cock the assembly giving a false measurement of clearance at the other pads.

(Continued on page 46)

**EDITOR'S NOTE:** The fifth 1956 Service Craftsman Examination is included in this issue. Remove the examination, complete and return to the Zone Office by November 1, 1956.

3. Repeat this procedure at each attaching bolt.

Example:

Mounting Pads	1	2	3	4	5	6
Clearance without shims	.063	.069	.081	.078	.073	.065
Shims . . .	.030	.030	.030	.030	.030	.011
	<u>.011</u>	<u>.011</u>	<u>.030</u>	<u>.030</u>	<u>.011</u>	<u>.011</u>
	.041	.011	.060	.060	.011	.011
		<u>.052</u>			<u>.052</u>	<u>.011</u>
						<u>.044</u>
Clearance with shims	.022"	.017"	.021"	.018"	.021"	.021"

4. When shims have been installed at all six mounting pads, complete the installation as outlined in steps 9-22 on page 104 of Part I in the 1956 Hydra-Matic Manual.

The flex plate has been changed in production to reduce the draw required. With this new flex plate, however, it is possible in some cases that there will be insufficient draw. As a result the draw is being checked on every assembly as it is installed in production and if necessary a spacer washer 522975 is being installed between the flywheel and the crankshaft to increase the draw to at least .015". (This washer is located on the pilot surface of the flywheel where it fits into the crankshaft.) In service this spacer should be installed in any case where the draw is found to be less than .015".

The parts concerned in this story (523087, 523088, and 522975) are factory items and all orders should be sent to Pontiac Factory Warehouse, Plant 11, Pontiac, Michigan.

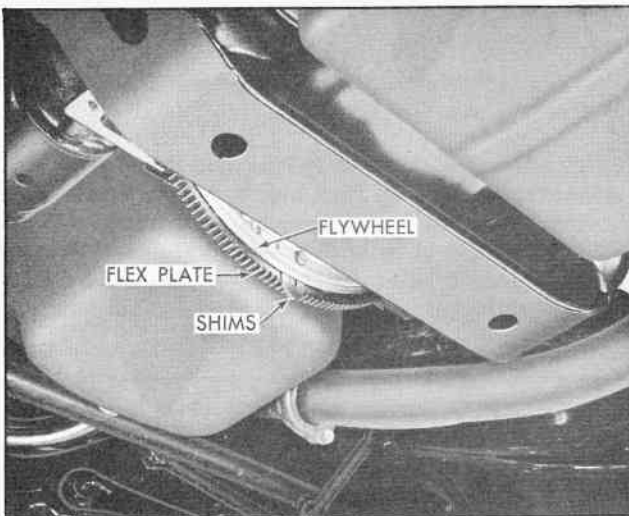


Fig. 2 Shims Installed Between Flywheel and Flex Plate

## TESTING AND ADJUSTING TV PRESSURE ON STRATO-FLIGHT HYDRA-MATICS

A TV pressure take-off tap is now being included in all Strato-Flight Hydra-Matic cases. This TV pressure tap is a 1/8" pipe threaded hole located just above and to the rear of the adapter plate to which the oil cooler lines are attached.

The TV pressure tap has been added to make it possible to test and adjust TV pressure when it is a suspected cause of improper 2-3 shift action or improper shift pattern. (Insufficient TV pressure may result in slippage during the 2-3 shift - excessive TV pressure may result in harsh 2-3 shift accompanied by a metallic clunk). A new tool (TV Lever Travel Gauge J-6573) is required and is available from Kent-Moore Organization at a nominal cost. A pressure gauge for this operation is also being developed and will be released as soon as available.

When diagnosing a condition which may be caused by improper TV pressure, test and adjust pressure, if necessary, as follows:

1. Raise car and remove pipe plug from TV tap. (Bend lower cooler pipe up slightly to gain access to plug.)
2. Connect pressure gauge to TV tap as follows:
  - (a) Assemble 90° elbow from hose J-5820 to 3" adapter pipe.
  - (b) Thread elbow and adapter assembly into TV tap in case.
  - (c) Connect gauge to hose J-5820 and connect hose to elbow. Hang gauge where it can be observed while moving TV lever.
3. Start engine and operate for several minutes to warm up transmission.
4. With engine operating and car raised, disconnect transmission throttle rod from outer throttle lever on transmission.
5. Insert gauge pin J-2544-A in TV lever and move TV lever to rearmost position.
6. While holding lever in this position, place TV lever travel gauge J-6573 against side of transmission pan so that gauge pin in lever is touching rear of slot (Fig. 3).
7. Holding gauge J-6573 securely against side of pan, move TV lever forward until gauge pin in lever touches front of slot and read TV pressure on pressure gauge. Pressure should be 20-22 lbs.

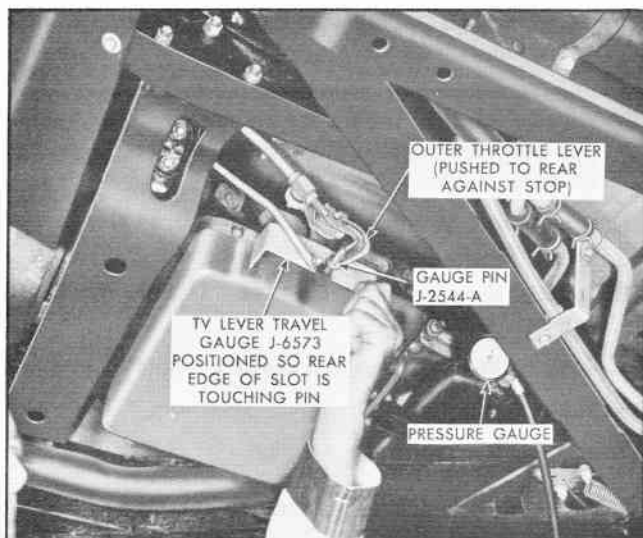


Fig. 3 Testing TV Pressure

8. If pressure is not correct, stop engine, drain fluid from transmission and remove pan. Move TV stop pin on control valve rearward to reduce TV pressure or forward to increase TV pressure. Moving the pin .030" will change TV pressure about 5 lbs.
9. Tighten set screw to lock TV lever stop pin securely in place and replace pan and oil.
10. Re-test TV pressure as outlined in steps 3 through 5. If pressure is still not within the range of 20-22 lbs., drain fluid, remove pan and adjust TV stop pin further.
11. When pressure has been adjusted to 20-22 lbs., remove pressure gauge, replace pipe plug, reconnect TV rod to transmission outer throttle lever, and replace fluid.
12. Adjust throttle control linkage, setting the transmission throttle rod at "two turns short", as outlined on Page 39 in Part I of the 1956 Hydra-Matic Manual.
13. Road test car and tailor linkage if necessary to provide proper 2-3 shift action.

### NEW REAR AXLE RATIO: 285 HORSEPOWER ENGINES WITH HYDRA-MATIC TRANSMISSION

Beginning with car serial number P756H 78919 and P856H 39536, 285 horsepower engine cars equipped with Hydra-Matic transmissions were also equipped with 3.42 rear axle ratio. The ends of the axle shafts on the ratio are painted aluminum.

### CORRECTING LEAKS AT FRONT OF STRATO-FLIGHT

When correcting leaks at the front of the Strato-Flight Hydra-Matic transmission the following possible causes of leakage should be checked very closely.

1. Torus drain plug - Check plug to see that it is correctly installed in the flywheel and that it is tightened to 6-7 lb. ft. torque.
2. Torus cover to flywheel "O" ring seal - Before disassembly check to see that torus cover bolts have been torqued to 15-20 lb. ft. torque. When disassembled check seal to see that it has not been twisted or damaged.
3. Flywheel - Check to see that seal flange is properly welded to flywheel. This flange is very important, since it compresses the flywheel to torus cover seal when the bolts are torqued. Test with solvent to see that weld around pilot at center of flywheel does not leak.
4. Torus cover - Inspect torus cover hub for scratches or nicks which would damage seal or allow fluid to leak. Test with solvent to see that weld at hub is leak proof. Check for loose dampener spring rivets.
5. Flywheel rear housing to case seal - Inspect "O" ring seal which seals between flywheel rear housing and transmission case. Also check housing and transmission sealing surfaces for damage which could cause leak.
6. Flywheel rear housing and seal - Inspect rear housing for possible porous spots or cracks which allow leakage. Make sure drain hole below seal is not blocked. See that staking of bushing does not carry completely into oil groove which would cause leakage. Inspect bushing which locates torus cover hub to see that it is not worn. A worn bushing will allow the torus cover hub to wobble in the seal, causing a fluid leak. When installing a new seal, use the new red seal part No. 8616197. Make sure the inner "garter" spring is in place. Remove former staking deformation to insure round bore in flywheel housing. Coat the outer diameter of the seal with Flywheel to Crankshaft Sealer (Part #512333) or G.M. High Compression Engine Sealer (Part #557622). Support the center of the housing, and drive the seal into place with seal installer J-6118. Be sure to drive the seal in until the installer bottoms on the housing so that the seal is properly positioned.
7. When reinstalling transmission, install shims between the flywheel and flex plate to obtain a



draw of .013" - .024" at each flex plate mounting pad. Instructions on installing shims are covered in this issue under "SHIMS IMPROVE ALIGNMENT BETWEEN STRATO-FLIGHT FLY-WHEEL AND FLEX PLATE".

### DIAGNOSIS AND CORRECTION OF STICKING SECONDARY THROTTLE SHAFT 1956 ROCHESTER 4GC CARBURETORS

Several reports of sticking secondary throttle valves on the Rochester 4GC carburetor have been received. Investigation reveals that this condition is caused by the secondary throttle shaft "hanging up" inside the flange casting. This shaft is made of brass and has a chrome plate which acts as a bearing surface in the throttle body. In some instances this chrome plate has been too thin and has worn away to the point where the brass shaft would become exposed and worn causing the shaft to stick in the body casting.

This condition can usually be diagnosed when driving by depressing the accelerator pedal to the floor to fully open the primary and secondary throttle valves and then slowly releasing the pedal. If the secondary throttle valves do not fully close a surge under steady throttle will usually result. Also an extremely rough idle will be noted. In cases of this nature, first check to see that the secondary throttle shaft return spring is hooked over the tang on the secondary throttle shaft lever.

If it is determined that the condition is caused by a sticking shaft it will be necessary to install a new secondary throttle shaft and lever assembly. Under no circumstances should lubrication of the shaft be attempted. The secondary throttle shaft and lever assembly, 4 throttle valve screws and a secondary shaft return spring are released for service under package number 7009960. Following are the installation instructions:

1. Remove carburetor from car.
2. Remove pump rod.
3. Remove fast idle cam and choke counterweight rod.
4. Invert carburetor and remove four throttle body attaching screws and remove throttle body.
5. Remove connecting link between primary and secondary throttle levers.
6. File ends of secondary throttle valve attaching screws and remove valves.
7. Slide secondary throttle lever out of throttle body casting.
8. Install new secondary throttle return spring over new secondary throttle shaft and insert shaft in body casting.

9. Wind return spring one turn and hook over tang on secondary throttle lever.
10. Install secondary throttle valves, using new screws, so that letters RP are visible when viewing body from the bottom with the throttle valves closed. Tighten screws securely.
11. Install link between primary and secondary throttle levers.
12. Install throttle body to bowl. Tighten attaching screws securely.
13. Install fast idle cam and choke counterweight rod.
14. Install pump rod.
15. Reinstall carburetor on car.

The suggested time allowance for this operation is 1.5 hours.

### AIR CONDITIONING RANCOSTAT ADJUSTMENT

Reports are being received of intermittent operation of the air conditioning unit. The unit operates satisfactorily for a time but then nozzle air temperature increases. Investigation of these reports indicates that this condition is caused by the freezing of accumulated moisture on the surface of the evaporator core.

Before attempting to correct this condition it must be determined whether the "freeze-up" occurred in city or country driving.

The procedure for correcting these complaints is as follows:

1. Check for heat leak at heater.
2. Perform operational check, making sure suction pressures, discharge pressures, and nozzle temperatures are all in accordance with the specifications on Page 49 of the 1956 Air Conditioning Manual.
3. If all pressures and temperatures are within specifications, turn engine off and remove the thermostat and air distributor as an assembly for the following checks:
  - a. Lift the pressed paper door on the thermostat.
  - b. Move the cam lever at the bottom of the rancostat (thermostat) towards you as you face the end of the rancostat just exposed by removing the door.
  - c. Pressing down on the plastic bar, which is in the center of the opening, Fig. 4, observe the distance that the rancostat points open. This

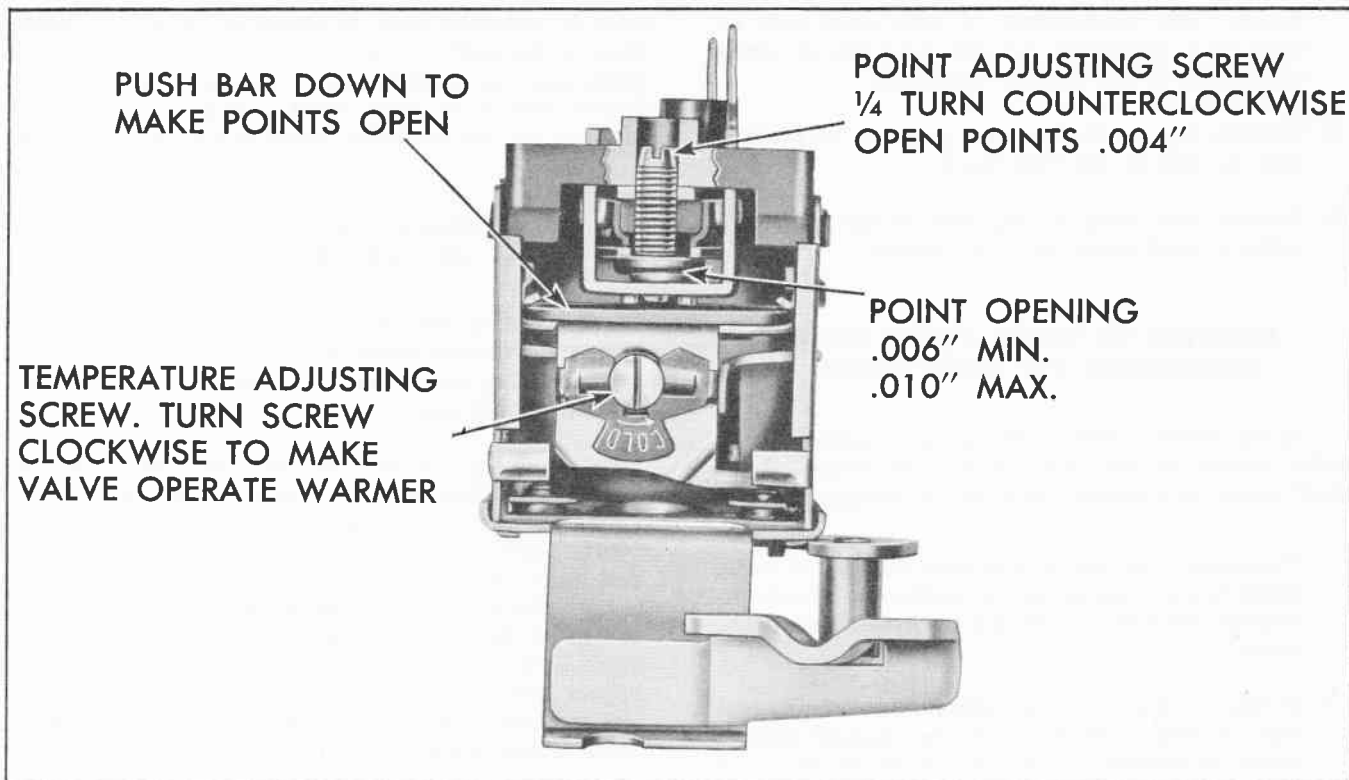


Fig. 4 Air Conditioning Rancostat

distance should be a minimum of .006" and should not exceed .010". If points appear to be burned or oxidized, very light filing is suggested. (Use a thin or very fine riffler file.) If it is necessary to adjust these points, use a screw driver and turn the screw on the upper portion of the rancostat the necessary distance to give you the proper gap (1/4 turn of this screw counterclockwise will increase the point opening .004"). As the top of the screw is cemented, it will require a screw driver of the right size and properly sharpened to effectively turn it, otherwise the head of the screw will be damaged.

- d. The lower portion of the opening exposes a temperature adjusting screw. Just below the screw is an arrow pointing in a counterclockwise direction with the letters "COLD" stamped just below the arrow.

If the owner advises that air coming from the nozzles turned warm in a relatively short period of time (1/2 hour country driving or from 15 to 20 minutes city driving), then turn the temperature adjusting screw 1/2 turn clockwise **OPPOSITE TO THE DIRECTION INDICATED BY THE ARROW**.

If the owner advises that an hour's driving was required to cause freeze-up, then move the temperature adjusting screw 1/4 turn clockwise.

- e. Reposition the pressed paper door on the thermostat. Replace the thermostat and air distributor assembly.
- f. Adjust rancostat control cable.

If owners that do mostly highway driving still complain of evaporator freeze-up then repeat parts "d", "e", "f" under step 3.

All rancostats in your Parts Department should be checked for proper point opening (.006" minimum and .010" maximum) and adjusted as necessary. The suggested straight time for performing this operation is .7 hours.

### CORRECTION OF CONVERTIBLE TOP NOISE

Under certain driving conditions some noise caused by the convertible top material slapping against the roof bows may develop. The noise is usually more noticeable in cold weather. This is a standard condition. If, however, an owner should desire to have the noise reduced, this may be accomplished by cementing a strip of felt or body cloth on the top side of the front and center roof bows as explained below:

1. Obtain a strip of good grade felt, 42 inches long, 1/2 inch wide and 1/16 inch thick for each bow.

NOTE: Two thicknesses of body cloth may be used as a substitute for specified felt in cases where felt is not readily available.

2. Operate top to half-raised position to provide easy access to the roof bows.
3. Cement felt strip to top side of the roof bows using a good grade of trim cement.

### REMOVAL OF WATER STAINS FROM CONVERTIBLE TOP INNER LINING

In the event a convertible top is encountered with water stains on the inner lining, the stains can, in most cases, be removed using the following procedure:

1. Thoroughly wet the stained area with clear warm water using a sponge as the applicator (avoid rubbing the stained area during the application of the water).
2. Slowly run a metal-ended attachment from a tank-type vacuum cleaner over the stained area in order to remove the stains without the necessity of rubbing.
3. Allow wetted area to air-dry.
4. Repeat operation, if necessary, on any area where the stains persist.
5. In the event the stains were caused by wicking due to a waterleak, reseal areas of top where the wicking originated.

### REAR SPRING LEAF LINER PACKAGE (BUTYL RUBBER)

New service packages of butyl rear spring leaf liners for 1956 models are prepared according to the following:

Old Pkg. No.	New Pkg. No.
522682	2764 Safari, Taxi and Police -Replace with 523065
522683	2711-19-37-39 -Replace with 523066
522684	2762-63 Station Wagon -Replace with 523067
522685	28 All -Replace with 523068

Butyl liners should be used for servicing Station Wagon springs in the future. When the spring is taken apart, thoroughly clean all wax from the spring leaf faces. This can be done with the use of a solvent, then wire brushed. Any wax left on the leaves will cause squeaks, especially in cold weather. Care should be

used in ordering these packages as there is a difference in the width of the liner as well as the length. If passenger car liners require servicing the new butyl liners should be used when available. The use of greases or oils on butyl liners is not recommended.

### BLACK LIGHT AIDS IN OIL LEAK DETECTION

Since it is difficult to distinguish between some engine and transmission oil leaks, an accurate method of diagnosing leaks has been developed and released for mechanics use.

Engine oil and transmission oil contain natural fluorescent elements which produce a "glow" when viewed under ultra-violet light, commonly called "Black Light". Under this light, engine oil appears as dull light blue while transmission oil is white. By using "Black Light" in diagnosing exterior oil leaks, it can be determined exactly where the leak originated. This prevents unnecessary work on both the engine and transmission, a valuable saving in time and expense. This method of leak detection eliminates guess work!

"Black Light" units are available from many sources and vary in design, cost and convenience of use. Compact, handy units are available from the following approved sources: Black Light Eastern Corp., 33-00 Northern Blvd., Long Island City 1, New York or Kent-Moore Organization, Inc., 28635 Mound Road, Warren, Michigan.

The "Black Light" lamps supplied by these two sources are slightly less than a foot in length and weigh about one pound. These units operate on 110 AC current.

Further information may be secured by contacting the above sources.

### CORRECTION TO JULY SERVICE NEWS

On page number 34 of the July Service Craftsman News the part numbers for the first and second type overrun clutch valve body assembly and the second type shift valve body assembly were incorrect. The correct part numbers are as follows:

	1st	2nd
Shift Valve Body Assembly - Service Part No.	8616920	8616963
Overrun Clutch Valve Body Assembly - Service Part No.	8616901	8616957

Please correct your Service News accordingly.

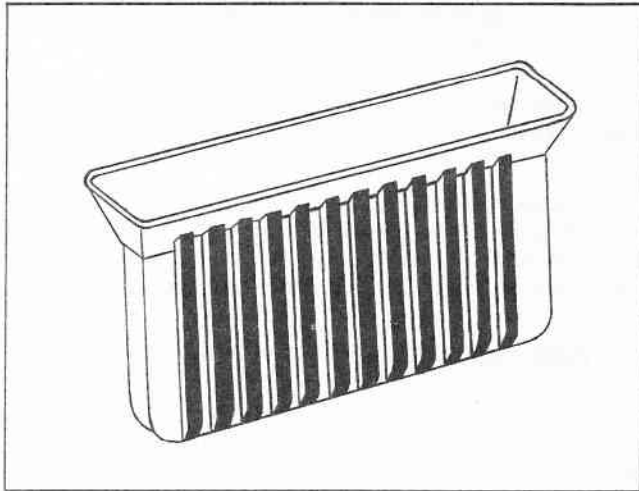


Fig. 5 New Type Striker Sleeve

**SQUEAKS BETWEEN SIDE ROOF RAIL  
MECHANICAL SEALING STRIP  
STRIKER SLEEVE AND  
DOOR VENTILATOR ASSEMBLY**

To eliminate squeaks between the side roof rail mechanical sealing strip striker sleeve and the door ventilator assembly on Catalina Coupes, a new striker sleeve has been released to production. This new striker sleeve incorporates serrations on the contacting surface (Fig. 5). The new striker sleeve is available for field use under Part Number 4690492.

If the new striker sleeve is not readily available, the old striker sleeve may be reworked as shown in Fig. 6. The reworked striker sleeve must be lubricated on the inside with Lubriplate lubricant before installation. This will allow lubricant to fill holes in striker sleeve when the striker is installed.

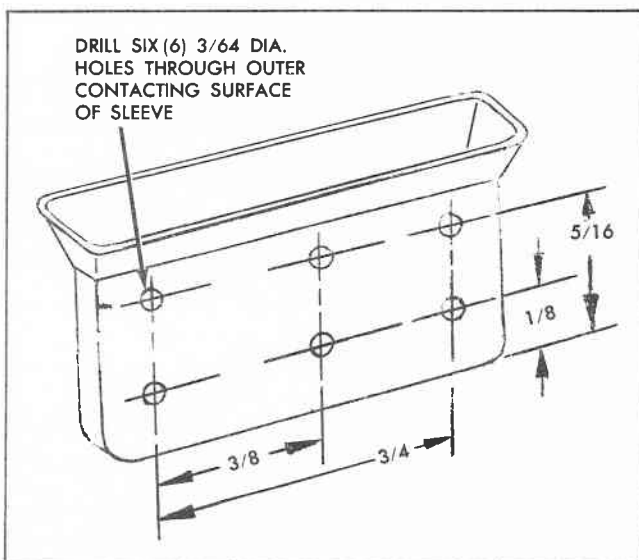


Fig. 6 Reworked Striker Sleeve

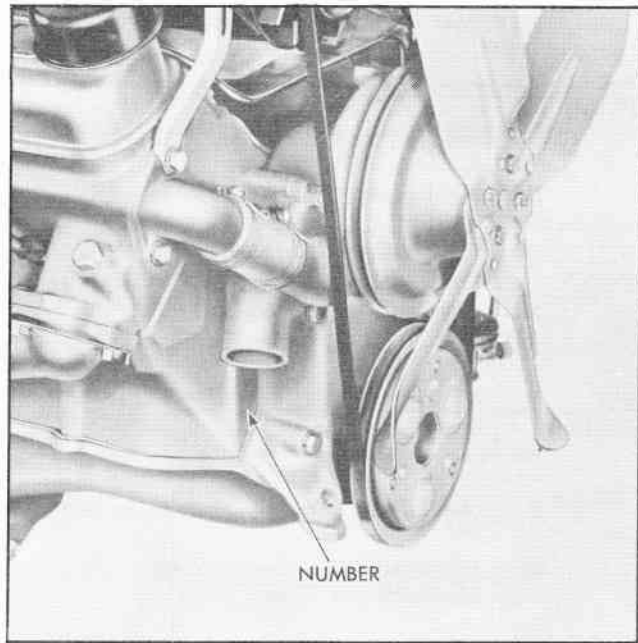


Fig. 7 Location of Production Engine Number

**PRODUCTION ENGINE NUMBER  
NEEDED ON ENGINE P.I. REPORTS**

A number of Product Information Reports on Engine difficulties have been received that did not state the production engine number. In order to make these reports more valuable to the production department this number should be included on all Product Information Reports involving the engine.

Fig. 7 shows the location of this number. To read with the engine in the car, it is necessary to use a mirror and light.

**CRUNCHING AND CRACKING NOISE:  
FRONT SUSPENSION**

In most cases crunching and cracking in front suspension originates at the lower control arm shaft (inner). A satisfactory correction can be made by applying a mixture of 25% flake graphite and chassis lubricant (by weight) into the fittings on the bushings. Local suppliers of lubricants should have products that meet this requirement.

**STRATO-FLIGHT REVERSE  
PISTON CHANGED**

The accumulator inserts and plates have been eliminated from the reverse piston in the Strato-Flight Hydra-Matic. It has been found that the removal of these parts will reduce reverse clutch apply time thereby improving durability.



**REVISED FLAT RATE OPERATIONS**

**8-1 Fuel Gage, Tank Unit - Replace**  
**(3.107)**

Includes: Testing Fuel Gauge

Does Not Include: Drain Tank to Below Half Level

- All Except Station Wagon Models - 55 (.4) . . . . .
- 56 (.5) . . . . .
- Station Wagon Models - 55 (1.0) . . . . .
- 56 (1.1) . . . . .

**8-6 Fuel Tank Outlet Filter - Replace**  
**(3.110)**

Includes: Testing Fuel Gauge

Does Not Include: Drain Tank to Below Half Level

- 56 - All Models Except Stations Wagons (.5). . . . .
- Station Wagon Models (1.1). . . . .

**PARKING BRAKE LEVER ASSEMBLY**

A hair spring retainer clip is being used to retain the parking brake bracket on the shaft in Strato-Flights. The retainer engages a groove in the shaft to assure that the bracket cannot slide toward the front.

**SEALER RECOMMENDED FOR STRATO-FLIGHT FRONT SEALS**

When installing front seals, it has been found that Flywheel to Crankshaft Sealer (Part No. 512333, is more effective than Permatex.

Another effective sealer is G.M. High Compression Engine Sealer, Part No. 557622. This sealer is not presently listed in the Master Parts List. It is available through G.M.P.D. warehouses.

**FUEL FILTER GASKETS MAY CAUSE LEAK**

It is possible that some AC Fuel Filter Gaskets made of improper material were installed on production engine numbers 365000 to 368540. These gaskets may react with gasoline and contribute to a leak in the fuel filter area. If failure of the above gasket is observed, a new gasket, Part No. 854361, should be installed. This gasket is available from Pontac Factory Warehouse only. If a filter element is required, package No. 854347 may be ordered through G.M.P.D. warehouse channels.

**CHECK WATER PUMP TO CYLINDER HEAD INLET HOSE FOR DAMAGE**

If an oil leak is experienced at the front seal of the power steering pump, the water pump to cylinder head inlet hose should be checked for oil damage.

**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.
