PONTIAC
Service Craftsman News

No. 5 S-294 May, 1957

SOME GASOLINES SOLD IN FOREIGN COUNTRIES MAY DAMAGE HIGH COMPRESSION ENGINES

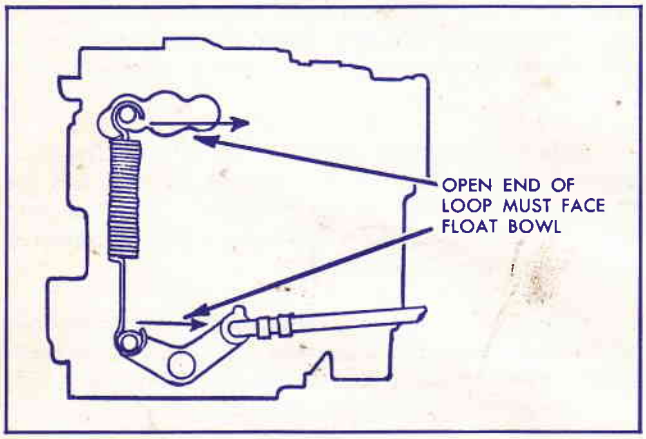

Fig. 1 Installation of Throttle Return Spring

INSTALL SPRING CORRECTLY

The front and rear carburetors of the triple two barrel option have throttle return springs to insure complete closing of the throttle valves. It is very important for these springs to be installed as shown in Fig. 1. The open end of the spring loop should face toward the float bowl. A bind or breakage of the springs may occur if they are not installed correctly.

TIGHTEN CONTROL ARM BOLTS

One of the recommendations on the "Essential Work to be Performed on Every Car" at the 2000 Mile Inspection is to tighten the upper and lower control arm to frame attaching bolts. Product Information Reports have been received of these bolts being loose, indicating that they should be checked.

If these bolts are properly tightened at the 2000 Mile Inspection, they should remain tight for the life of the car. It is important that this service be performed on all 1957 cars.

ADVISE ALL OWNERS OF FUEL REQUIREMENTS FOR '57 CARS

In the 1957 Pontiac Owner's Guide it is stated that Hydra-Matic equipped cars have a standard compression ratio of 10.0 to 1 which requires the use of premium fuel, 97 octane rating Research Method. The use of fuels with a lower octane rating will result in severe engine knock with possible damage to major engine parts.

Since the manufacturer regards engine damage, which is caused by the use of low octane fuels, as misuse of the engine, owners, when buying gasoline, should choose a gasoline that will meet the engine's requirements. Engine detonation - known as spark knock or "pinging" - will generally indicate that the octane rating of the fuel is below engine requirements.

If an owner plans to drive a car outside the continental United States or Canada, where high octane fuels are not available, modifications must be made to lower the compression ratio of the engine. This is particularly true in Mexico and South American countries. Our recent investigation of the octane ratings of the gasoline sold in the government owned gasoline outlets shows the octane levels to be very low and completely inadequate for the operation of the 1957 Pontiac with a 10.0 to 1 compression ratio engine.

The compression ratio of the 1957 Hydra-Matic Pontiac can be lowered to 7.8 to 1 by installing recessed piston and pin assemblies.

(See FUEL REQUIREMENTS Page 41)

EDITOR'S NOTE: The third 1957 Service Craftsman Examination is included in this issue. Remove the examination, complete and return to the Zone Office by June 15, 1957.

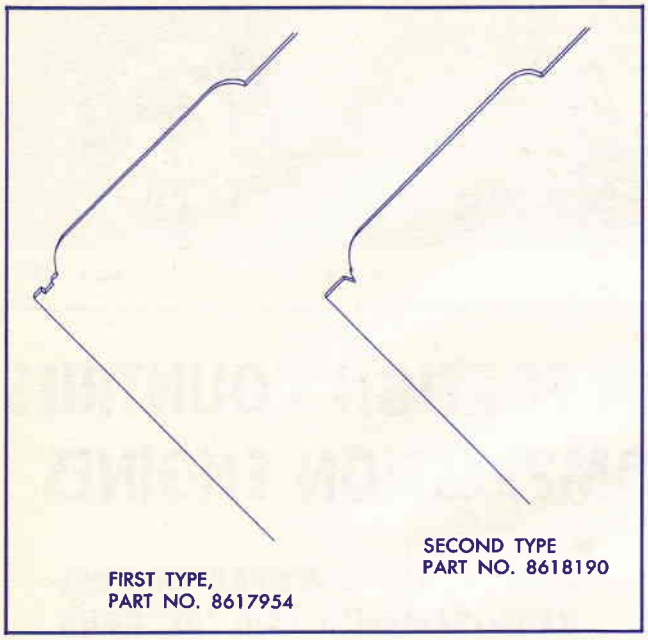

Fig. 2 First and Second Type Channel Plate Spacers

New Channel Plate Spacer Used

A new shift valve body is now being used on Strato-Flight transmissions. In conjunction with the new shift valve body a new channel plate to valve body spacer (see Fig. 2) is also required. In the new assembly 3-4 oil is routed to the governor boost valve to reduce the possibility of sticking or sluggish operation.

When a second type shift valve body assembly is installed on a first type control valve assembly, it is necessary:

1. That the second type channel plate to valve body spacer be used.
2. That the channel plate without the 1/4" line drop ball check and spring be used (See December 1956 Service Craftsman News). NOTE: The new channel plate which does not have provision for the line drop check ball can be used to replace the first type channel plate without other change.

IDENTIFICATION OF SHIFT VALVE BODY

First Type - Casting No. 8617908, Service No. 8618902
Second Type - Casting No. 8618187, Service No. 8618928

IDENTIFICATION OF CHANNEL PLATE

First Type - Casting and Service No. 8617868
Second Type - Casting and Service No. 8618224

IDENTIFICATION OF CHANNEL PLATE SPACER
(See Fig. 2)

First Type - Part No. 8617954; Square Notch in Front Corner Adjacent to Front Pump Intake Pipe
Second Type - Part No. 8618190; Saw Tooth Notch in Front Corner Adjacent to Front Pump Intake Pipe

Shift valve body and spacer must both be either first type or second type. Second type channel plate can be used in place of first type by discarding 1/4" ball and spring, but do not use a first type channel plate with a second type shift valve body and spacer.

IMPROVED FUEL FILTER RELEASED

Field service investigations show that a thorough cleaning of the carburetor and installation of the new improved quality AC fuel filter element, part number 854347, eliminate most cases of carburetor flooding.

This new element package can be identified by a heavy blue line between the letters GF-124 and the part number 854347 on the package. The blue star now printed behind these numbers will be eliminated to give positive identification.

In all cases when a carburetor is cleaned because of flooding, also make certain that the fuel passage between the primary and secondary float needles in the Rochester 4GC carburetor is cleaned.

This new element listed under the above part number will be available in all GMPD warehouses.

USE ADDITIONAL PROCEDURES FOR RECLINING SEAT BACK SERVICE

Pages 34 and 35 of the April Service Craftsman News carry a story on instructions for servicing the front seat reclining back assembly. Step 8 in the "Reclining Back Assembly - Removal" portion of the article states the removal procedures should be reversed for installing the seat. Some difficulty could be experienced if the seat were installed in this manner because of interference of the torsion bar. The following additional instructions should prevent this problem in installation.

When installing the seat back it will be necessary to hold the torsion bar forward. This can be done by inserting a pipe over the end of the torsion bar, then springing torsion bar away from hinge arm. DO NOT OVER-SPRING TORSION BAR. NOTE: Do not pull or force torsion bar outward with respect to seat cushion assembly. This may cause torsion bar to become disengaged at center of seat cushion assembly necessitating detachment of cushion trim to reengage the bar.

Removal of Steering Column From Cars With Power Steering & Brakes

The following procedure should be used when removing the steering column from cars equipped with power steering and power brakes. NOTE: If steering jacket, adapter shift tube bearing, or steering shaft lower bearing is to be replaced on cars equipped with Hydra-Matic transmission, the suggested time for performing the operation is 2.8 hours, while on cars equipped with Synchro-Mesh transmission the suggested time is 2.5 hours.

1. Disconnect battery.
2. Make scribe mark on steering shaft and worm shaft flanges.
3. Disconnect power steering gear (flexible coupling) from steering shaft flange.
4. Disconnect neutralizer switch and shift linkage at lower end of steering column.
5. Remove horn ring and steering wheel.
6. Remove direction signal lever and sector lever.
7. Disconnect wires under instrument panel that relate to direction signal and horn.
8. Remove power brake pedal and bracket from steering column.
9. Turn back front floor mat on left side.
10. Remove steering column toe plate at dash.
11. Disconnect steering column to instrument panel bracket.
12. Rotate steering column assembly to gain access to gear shift selector lever at bottom housing and remove cover and lever.
13. Remove steering column housing as an assembly.
14. Reverse above steps, except step 2 for replacing steering column and shaft assembly. Align scribe marks on steering and worm shaft flanges.

    CAUTION: Be sure to align steering column and shaft assembly so the head of lower (flexible coupling) bolt has approximately 1/4 in. clearance from steering shaft flange. Also see that the clearance between the steering wheel hub and upper edge of turn signal housing is between 3/32 in. and 1/8 in.

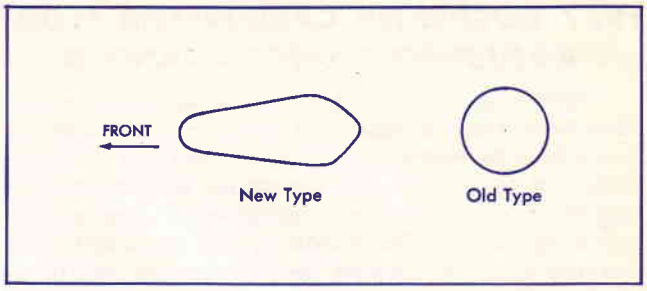

Fig. 3 Cross Section of New and Old Rails

CHANGE IN LUGGAGE CARRIER RAILS RELIEVES WHISTLING

Reports have been received that whistling and/or thumping noises are apparent in the roof area of Safaris equipped with luggage carriers, part number 988767.

To correct the thumping condition, first see that all gaskets are in place under the cross bars of the rack assembly, and the rail and support assembly. Tighten the screws which hold these assemblies in place. Next, check the rigidity of the front and rear rail supports to eliminate any looseness.

The whistling can be corrected by replacing the front and rear rails. New rails have been designed to reduce air noise. These rails are tapered at the front edge instead of round. The part numbers for the new rails are: front rail - 528386, rear rail - 528385.

A cross section of the new and old rails appears in Fig. 3. No other parts are necessary to make this modification. The suggested time allowance to replace these rails is .8 hr. straight time.

Procedure for removing and replacing the front rail is as follows:

1. Remove 1/8 in. set screws from right and left corner rail supports.
2. Remove the four screws securing these rail supports to the roof panel.
3. Slide supports back away from junction of front and side rails.
4. Place a rag under each support to prevent scratching of roof.
5. Remove two pins connecting front rails and two side rails
6. Force front rails out of side rails with plastic hammer.
7. Exchange original rail with new front rail.
8. Insert pins between each side of front rail and two side rails.
9. Position supports and install screws.
10. Install and tighten set screws in supports.

The rear rail is removed and replaced in the same manner.

1957 ROCHESTER CARBURETOR FLOAT ADJUSTMENT SPECS CHANGED

Since the start of production, several changes have been made in float adjustment specifications and procedure to correct out of line conditions. Investigation of carburetor complaints shows that in many instances improper float adjustments are a contributing factor. The following is a summary of the current float adjustment procedures and specifications. This supersedes the information listed in the 1957 Shop Manual.

FLOAT LEVEL

1. With air horn gasket in place and air horn inverted, position float level gauge J-6628 over floats so that gauge is located against the curvature in base of carburetor air horn.

2. Bent float arms vertically at center so floats just contact gauge. The vertical height is 1 3/8" ± 1/32".

3. If necessary bend float arms horizontally until each float pontoon is centered between gauge legs.

4. Repeat same adjustment on opposite float assembly.

5. With air horn inverted lower tip of float should clear air horn casting by 1/8" ± 1/16". (With gauge in position the scribe marks on face of gauge show required height of float toe necessary to ensure this clearance; see Fig. 4).

FLOAT DROP

1. Check distance between air horn with gasket in place and the bottom of float at the toe with air horn held in upright position. Float drop is correct when this distance is 1 13/16" ± 1/32".

2. If adjustment is necessary, bent float tang toward float needle seat to lessen drop and away from seat to increase drop.

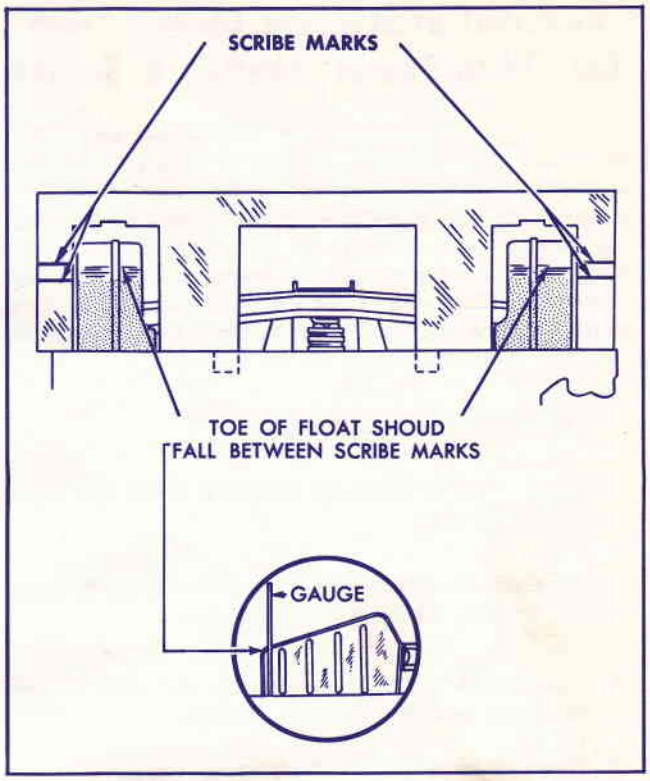

Fig. 4 Rochester Float Adjustment

TIME A/C CARS AT 6°

Factory installed Air Conditioned cars built in the early part of the 1957 production year have a harmonic balancer which is also used on the extra horsepower engine. The balancer has three marks for setting ignition timing. When using a timing light the first to be seen when the engine is running is 10° before TDC (Top Dead Center). The second is 6° before TDC and the third is TDC.

On all cars having Air Conditioning and the Standard engine, timing must be set at the 6° mark to eliminate the possibility of detonation and/or engine damage as a result of detonation.

CLEAN SERVICE PANELS PROPERLY

Reports have been received that paint peels or flakes off service body panels after repairs. To avoid the possibility of paint failures on replacement service panels which are coated with "Metal Wrap", the procedure given below should be followed very carefully:

1. Completely remove the "Metal Wrap" protective coating from the entire panel with mineral spirits, kerosene, or enamel reducer (do not use lacquer reducer) and clean rags. Be especially certain that all hemming flanges, corners, etc, are cleaned thoroughly.

2. Wipe the entire panel with a solvent cleaner, such as a "Prep-Sol", "Pre-Kleano and Wax Remover" or their equivalent.

3. Lightly sand the bare metal with 320 sandpaper.

4. Wash the panel with a metal conditioner, such as "Metalprep", "Metal Conditioner", "Dioxidine" or the equivalent. Follow the manufacturer's directions for applying the specific material used.

NOTE: After completing Step No. 4, the metal surface to be painted should not be touched with the hands before the primer coat is applied. If the panel is not primed shortly after cleaning, Step No. 4 should be repeated before priming.

At A Glance...

An appendix (section 15) is included in the 1957 Pontiac Shop Manual which contains complete instructions for "Tune-N-Test" service. This information is identical to that on the Tune-N-Test chart which has been used for several years.

The chart on page 15-5 of the appendix lists all specifications needed for Tune-N-Test service for the years 1949 thru 1957.

By acquainting yourself with this section, you will be able to perform Tune-N-Test service more efficiently, thus insuring owner satisfaction.

VALVE SPRING SHIELDS

Engine valve spring shields are no longer being installed on extra horsepower engines (Accessory HY) in production. It is not advisable to use shields in an engine which is subjected to continuous high RPM operation.

CYLINDER WALL GLAZE

Many dealers have been honing to break the glaze on cylinder walls when installing new piston rings. This practice is obsolete and should be discontinued. There is no advantage in performing this service if chrome faced rings are used and all Pontiac V-8 engines are equipped with this type ring.

When preparing AFAs in the future the charges for deglazing the cylinder walls should not be included.

LICENSE PLATE BRACKET

A new type front license plate bracket package, part number 528750, is being placed in the trunk of all 1957 Pontiacs being shipped to states that require a second plate. The new bracket bolts to the front bumper lower impact bar. All cars now have holes drilled in the impact bar for this installation.

SIMULATED EXHAUSTS

Statements on recent Product Information Reports indicate that there is a misunderstanding about the use of "simulated" exhaust outlet and pipe assemblies on Safaris equipped with dual exhausts. These simulated outlets are installed to provide the appearance of a dual exhaust system.

The Safaris, equipped with dual exhaust systems, exhaust their gases directly into the "air stream" at the rear of the fenders underneath the bumper. This is important in keeping the exhaust gases from entering the passenger compartment.

SHIELD RELEASED FOR A/C CARS

A shield assembly (part number 528592) for the 1957 Air Conditioning Blower Motor and Housing has been released and is available through regular channels for installation on cars built prior to March 22, 1957.

As of March 22, 1957, the shield assembly will be on all Air Conditioned cars manufactured at Pontiac, and at BOP Assembly Plants shortly after this date. This shield will also be in all 988701 Air Conditioner packages.

This shield is used for appearance purposes and to protect the passenger from coming in contact directly with the air from the blower motor.

FUEL REQUIREMENTS

(Continued from Page 1)

If these pistons are installed it will be necessary to measure the diameter of the cylinder in order to determine the correct piston to order. For the 1957 Pontiac engine we have available three standard recessed piston and pin assemblies with different diameters. Use the piston which will give .0007" to .0017" clearance between the piston skirt and the cylinder bore. The numbers of the pistons and their diameters are:

524154 - 3.936 in. dia.
524155 - 3.937 in. dia.
524156 - 3.938 in. dia.

Owners should be informed of the expense involved in this service prior to performing the work. This engine modification will result in some loss of power; however, the same original "pep" will be restored when the standard production parts used originally are put back into the engine after the owners return to the United States. The used parts will remain the property of the owner.

Synchro-Mesh equipped cars have a standard compression ratio of 8.5 to 1 and in areas outside the continental United States and Canada, the minimum octane number (Research Method) fuel requirement for this compression ratio is 90. In Mexico and South American countries, in select stations, gasoline is available having an octane rating adequate for these cars. It is suggested that when entering Mexico or South American countries, owners should request of customs officials how to identify these outlets. If the car is operated in any areas away from the main arterial highways, very close observation should be made for engine detonation or "pinging" as generally the quality of gasoline purchased in these areas is so low that even with the recessed pistons or 8.5 to 1 compression ratio, engine damage could result.

In any case where operation with low quality fuel is necessary owners should be advised to avoid "lugging" and to shift to a lower gear especially when sharp detonation is audible.

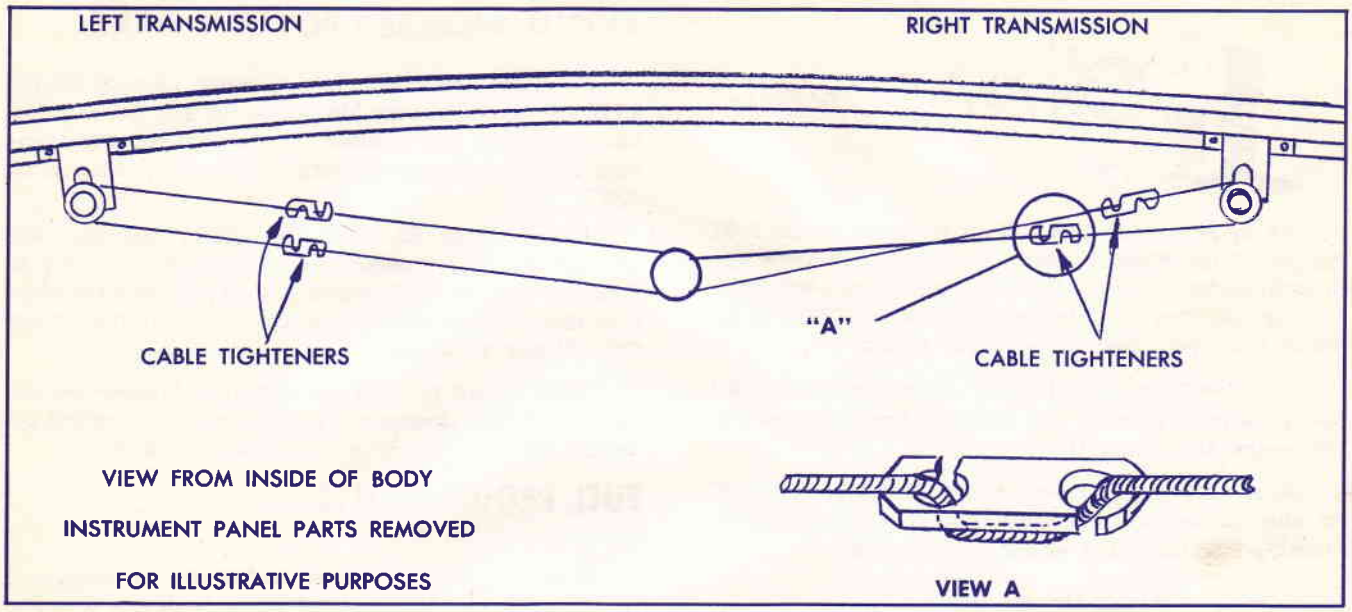

Fig. 5 Windshield Wiper Cable Tightener Installation

CABLE TIGHTENERS CORRECT WIPER "SLAP"

Windshield wiper blades that do not travel through the required pattern when operating at normal speed, or that slap the moulding when operating full speed may be caused by loose wiper transmission cables.

If the cables cannot be tightened sufficiently by pressing on the seratted end of the transmission shaft it may be necessary to install one or more cable tighteners, part number 4726957, (see Fig. 5). These tighteners are available through GMPD parts channels and are in stock at Master Warehouses. The suggested time allowance for installation of two tighteners (one on each side) is a straight .2 hr.

There may be some cars on which the wiper transmissions are not properly mounted in the body causing the cables to be extremely loose. In such cases:

1. Remove windshield wiper arm and blade assembly from the affected transmission.

2. Check attachment of wiper transmissions to the body for proper installation by looking up under the instrument panel. Be sure that transmission base is installed flush with shroud inner panel. If the base is not flush with the panel, remove the transmission.

3. Install gasket to the transmission and apply a medium bodied sealer to gasket surface which contacts body metal.

4. Position transmission in body opening. IMPORTANT: Make sure that key on wiper transmission is located in notch in body metal.

5. On outside of body, install transmission spacer and attaching spanner nut. Then install escutcheon and attaching spanner nut.

6. On inside of body, install support attaching screws and attach cables to auxiliary drive.

7. Install wiper blade and arm assembly; then check operation of wipers and the installation of the tighteners.

CHECK DIRECTION CLOCK HANDS MOVE BEFORE RESETTING

Some questions have been asked in Product Information Reports about the instructions on setting the automatic regulator on the 1957 electric clock to correct errors in time. Both the Shop Manual and Owner's Guide state that the "HANDS" must be turned counterclockwise if the clock is running fast and that the "HANDS" must be turned clockwise if the clock is running slow.

THIS IS CORRECT. The confusion stems from the operation of the reset knob. Pontiac uses clocks from two manufacturers, one a Borg and the other a Jaeger. On the Jaeger clock, the hands turn OPPOSITE from the reset knob and on the Borg clock the hands turn in the SAME DIRECTION as the reset knob.

There are no identification markings which the owner may use to determine which clock he has in his car. Therefore, it is necessary to check the movement of the hands and see that they are turning in the direction needed to regulate the clock properly. These instructions should be reviewed with all owners purchasing cars equipped with electric clocks.

NEW COUNTER GEAR THRUST WASHER FOR SYNCHRO-MESH TRANSMISSION

On all 1957 Synchro-Mesh transmissions, three thrust washers are installed at the rear of the countershaft to take thrust loading and limit end play of the counter-gear shaft. Three plain washers were installed on early production transmissions. The inner and outer rear thrust washers were steel and the center, bronze. However, it was found that as the washers turned with the counter gear shaft, it was possible for the outer washer to score and wear the counter gear shaft thrust boss at the rear of the transmission case.

A new steel outer counter gear rear thrust washer and pin assembly (Fig. 6) has been released for service to prevent such a condition. The pin on this washer (Fig. 6) indexes with the vertical oil groove in the case thrust boss and keeps the washer from turning. No change has been necessary for the steel inner thrust washer and the center bronze washer.

If a transmission is removed for repairs, replace the counter gear steel outer thrust washer with the new type washer. It is advisable to check the inner steel and center bronze washers for wear and replace if they are worn sufficiently to cause excessive counter gear end play.

Before installing the stationary washer assembly, check the locating pin groove depth in the transmission case. The depth should be between 5/64" and 3/32". If groove depth is less than minimum dimension given, cut to proper depth with a chisel.

Heretofore, the inner and outer washers carried the same part number. Now they will carry different numbers. Check the 1957 revised Parts Catalogue for proper part names and numbers.

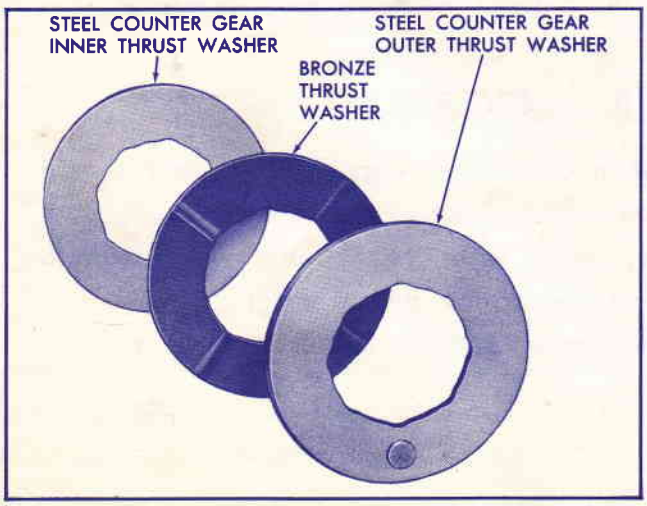

Fig. 6 Counter Shaft Thrust Washers

Stuck Governor Boost Valve May Cause H.M. To Start In Reverse

When a transmission starts in second gear the condition can usually be traced to the governor boost valve being stuck wide open. This allows full line pressure through transition valve to be applied on end of coupling valve and overrun clutch valve. The front unit coupling fills and at same time the overrun clutch passage is opened to reverse, permitting reversing condition.

Thus the overrun clutch plate can be applied at the same time the coupling is being filled causing the overrun clutch plate to slip. Under normal operation the G-1 pressure in reverse is not sufficient to produce the above conditions.

After a stuck governor boost valve has been serviced, check transmission for closed throttle overrun braking in drive right (third speed) position and, if free wheeling is noted, inspect overrun clutch.

THERMOSTAT REPLACEMENT

All 1957 Pontiacs are equipped with a 170° poppet pellet thermostat. The unit utilizes a plastic control element developed to minimize the affect of pressure on the temperature control. This assures more accurate control of the flow of coolant, providing rapid engine warm-up and more efficient cooling under all operating conditions.

Dealers have been replacing these thermostats to correct owner complaints of insufficient heater output. A test of a number of thermostats sent back to the factory by dealers as "inoperative" revealed that in the majority of cases the units were in good working condition and should not have been replaced.

Before replacing a thermostat you should:

1. Have the owner thoroughly explain or demonstrate his complaint.
2. See that the owner knows how to operate his heater properly. Read page 29 of the March, 1957 Service Craftsman News for complete information on heater operation.
3. Check to see that the Ranco temperature control valve is adjusted correctly. The January, 1957 and March, 1957 issues of the Service Craftsman News have instructions on adjusting the Ranco valve.
4. Check to see that the ventilators are adjusted so they are completely closed in "Off" position.

If further inspection shows the thermostat will not open or the valves stay in the open position continuously, it should be replaced. Return the faulty thermostat properly tagged, with Tag Number 728, to Warranty Inspector, Salvage Bldg., Pontiac, Michigan.

News About Your TRAINING CENTER

DETROIT--A school for automotive body repairmen--the first of its kind in the industry--has been announced by Mr. Myrle St. Aubin, director of the General Motors Service Section. The training will be conducted in the 30 GM Training Centers around the country, and will be under the direction of the Fisher Body Division. Eligible are employes of General Motors' 18,500 car and truck dealers.

"There has been a growing shortage of competent body repairmen for many years," Mr. St. Aubin said, "with only a few formal schools where men could learn the trade. Modern car styling with its complicated paneling has aggravated this shortage even more," he continued. "Repair of damaged bodies requires considerably more skill than even a few years ago."

Mr. St. Aubin said the new school program "represents another step forward by GM and its car and truck divisions to help GM dealers provide the finest repair service available in the industry."

The new school program has been designed initially to accommodate 900 students a year from Chevrolet, Buick, Pontiac, Oldsmobile, Cadillac car dealers and GMC truck dealers. Mr. St. Aubin emphasized the school is not intended as a "refresher course" for body repair journeymen, but rather for dealer employes of limited experience desiring to learn the trade. The full course consists of three weeks formal schooling at the Training Centers. Students will be taught fundamentals and do actual body repair during the first two weeks. Then they are scheduled to return to their dealers' body repair shops for a month to assist experienced body men and try out their new skills. After this 30-day "on-the-job" training, the students return to the Training Centers for a final week of more advanced instruction.

Each graduate will receive a certificate from Fisher Body Division certifying that he has successfully completed the sheet metal repair course.

NEW THROTTLE ROD BALL JOINT STUD RETAINER AVAILABLE FOR SERVICE

On some early 1957 models, failure of the accelerator pedal rod assembly was experienced. This was caused by a faulty Hydra-Matic throttle rod ball joint stud retainer which would not hold up under normal usage. At that time it was necessary to replace the entire rod assembly because the retainer was not available for service.

The ball retainer has now been released as a service part under number 529475 (see Fig. 7) and should be installed if this condition occurs. It can be ordered in the usual manner.

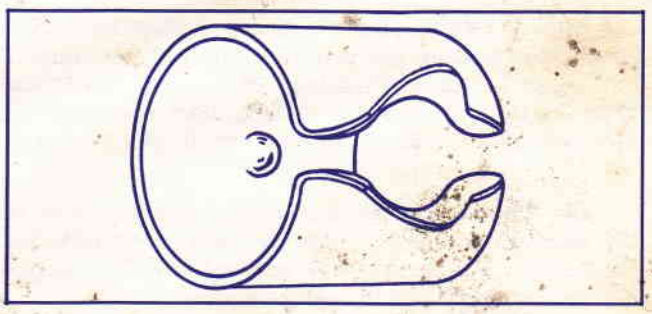

Fig. 7 Throttle Rod Ball Joint Retainer

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.
