PONTIAC
Service Craftsman News

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NEW STRATO-STREAK ENGINE RELEASED

285 HORSEPOWER STRATO-STREAK V-8 ENGINE

During the last few months requests from both dealers and individuals have indicated that an engine of "extra" horsepower should be made available for those who wish to race professionally or those who vie with each other in having a "hot" performing car. Such an engine is now available as a factory installed option on all 1956 Pontiac models except those with Air Conditioning.

This engine is sure to thrill power enthusiasts for, as a result of its special provisions, horsepower is raised to 285 h.p. at 5100 rpm, and maximum torque reaches a new high of 330 lb. ft. at 3600 rpm. This power is the result of improved thermal and volumetric efficiency attributable to use of two four-barrel carburetors, increased compression ratio of 10.0:1, and new valve timing (Fig. 1) which permits both intake and exhaust valves to remain open longer to facilitate engine breathing. Other engine components have been modified to meet these special operating requirements.

Following are some details of major differences between the 285 horsepower Strato-Streak and the regular Strato-Streak engine.

CAMSHAFT

As mentioned above and as indicated in the illustration, Fig. 1, a new camshaft is used which gives greater valve "overlap" and facilitates engine breathing. This camshaft can be identified by the absence of lettering on the front end of the shaft.

AIR CLEANER

In order to provide silencing and air cleaning, a special air cleaner is provided with a Delta-wing shaped sheet metal air manifold which fits over the two 4-Jet carburetors and includes air cleaning elements, one on each side of the engine.

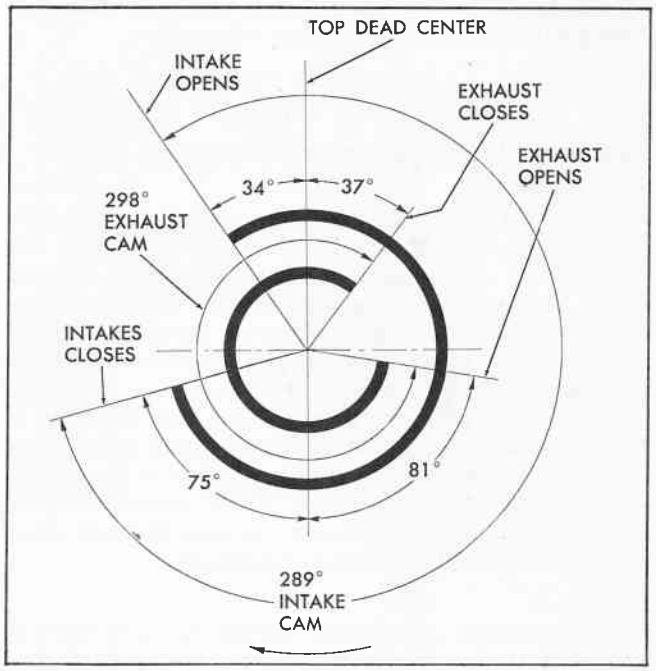

Fig. 1 Valve Timing Diagram

CARBURETORS

Two 4-Jet Rochester carburetors are used on a special intake manifold to provide fuel-air distribution to the cylinders. These carburetors appear to be the same as the regular 4-Jet Rochester but they are specially calibrated to match the requirements of the 285 horsepower Strato-Streak engine. The carburetors are connected by a rod which is adjustable to synchronize the angularity of the throttle valves. The idle speed and idle mixture adjustment procedures are given later in this issue.

FUEL PUMP

A new fuel pump with larger valves in the fuel chamber is used to ensure an adequate fuel flow at high speeds.

CYLINDER HEAD AND VALVE TRAIN

Cylinder heads are machined to give a compression ratio of 10.0:1. With the reduction of the volume of the combustion chamber the valve head is moved closer to the top of the cylinder block. In order to make it possible to use the same push rods, rocker arms and special tools for valve train adjustments, the valve stems are 3/32" longer than those on the regular engine. Valve springs have been redesigned and have higher tension (see specifications). Inner and outer valve springs are designed so that interference between the springs may be experienced during assembly. In such a case, they must be forced together. No intake valve spring shields are used. New hydraulic valve lifters are used which minimize the tendency to "pump-up" at high rpm. The new lifters incorporate a spring loaded check ball and a new check ball retainer. A separate story in this issue gives valve lifter identification information.

ELECTRICAL EQUIPMENT (SEE SPECIFICATIONS)

Specifications on the electrical equipment are given at the end of this article. The distributor has a dual set of contacts and has centrifugal advance only. Vacuum advance is not provided. The dual breaker points provide longer dwell for increased voltage at the spark plugs. The special ignition coil gives greater secondary output because of the increased secondary to primary turns ratio. The resistor in the primary side of the ignition system has a lower resistance value. A 3.5" pulley is used on the generator rather than the standard 2.875" pulley to reduce generator rpm at high speeds. AC type 44 spark plugs will be furnished as original equipment.

Distributor adjustment should be performed as covered in the electrical section of the 1955 Shop Manual using the specifications given in this article. When checking dwell angle check and adjust one breaker at a time. The second set should be blocked open with a small piece of fibre. Adjust each set to 29 $\pm$ 1 degree. Dwell angle with both breakers operating must be 34 $\pm$ 1 degree. If total dwell is not correct after adjustment, readjust individual breakers to meet the required specifications.

MISCELLANEOUS

Many other parts have been changed to accommodate the new engine. Among these are fuel pipes, rocker arm balls, crankcase ventilating system, push rod cover, right hand rocker arm cover, generator mounting fittings and many other related parts. For specific parts information refer to master parts catalogue change notices.

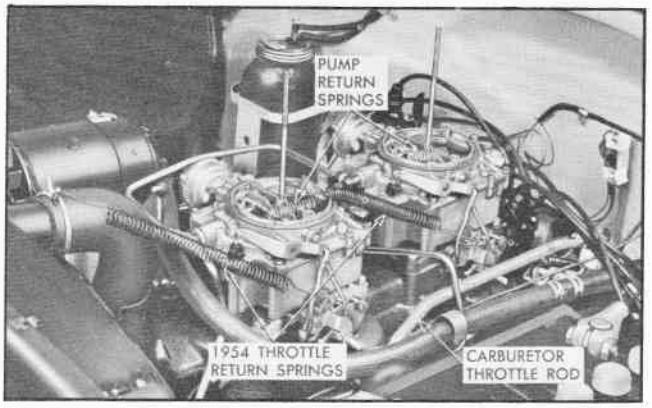

Fig. 2 Springs Installed on Chokes and Throttles

ROCHESTER DUAL 4-JET IDLE SPEED AND MIXTURE ADJUSTMENT

1. Turn idle mixture screws in finger tight and then open 2 turns on each carburetor.
2. Hold choke valves fully open. (This can be done by meshing a pump return spring over top edge of choke valve and dividing wall of air horn as shown in Fig. 2.)
3. Remove cotter pin and anti-rattle spring and disconnect carburetor throttle rod from throttle lever on front carburetor.
4. Remove cotter pin and anti-rattle spring and disconnect throttle interconnecting rod from throttle lever on rear carburetor.
5. Remove throttle interconnecting rod. Spacer washers between rod and throttle levers may be left in position.
6. Check pins in throttle levers for tightness. If loose, tighten securely.
7. Back off idle speed adjusting screws until throttle valves are fully closed. Throttles can be held closed with springs to facilitate operation. (1954 throttle return springs are satisfactory, see Fig. 2.)
8. Turn idle speed adjusting screws in on both carburetors until they just touch fast idle cams. CAUTION: It is important that idle screws are contacting cam equally and from this point on in adjustment, screws are turned equally to maintain balance between the two carburetors.
9. Adjust trunnion on end of throttle interconnecting rod so that rod can be installed over pins on carburetor throttle levers freely without changing throttle lever position. Install interconnecting rod over pins on throttle levers as shown in Fig. 3.

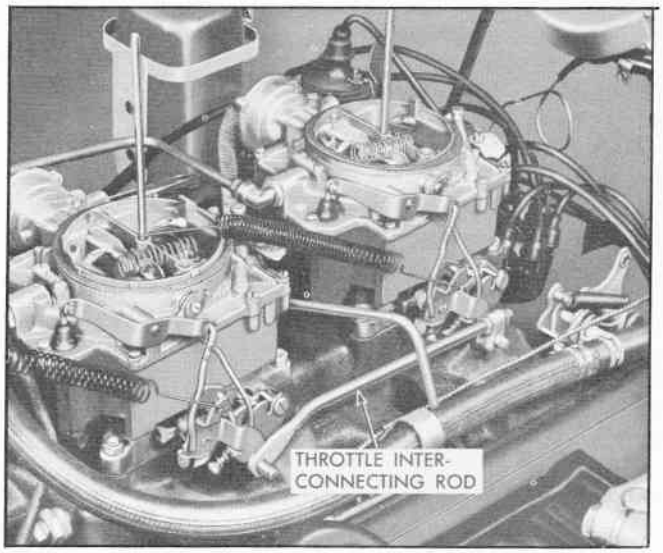

Fig. 3 Throttle Interconnecting Rod Installed

(Be sure spacer washers are still in position between rod and throttle levers.)

10. Turn each idle speed adjusting screw in one and one quarter (1 1/4) turns to give approximate idle adjustment. Throttle interconnecting rod should still be free. If it is not, start with step 4 and repeat operation.

11. Remove springs holding throttle valves closed.

12. Install anti-rattle spring and cotter pin at rear end of throttle interconnecting rod.

13. Install carburetor throttle rod, anti-rattle spring and cotter pin on throttle lever of front carburetor. Check rods to see that trunnions on rear of both rods are positioned so that flats on front ends of rods are parallel with throttle lever. Failure to do so may result in a linkage bind.

14. Remove springs holding choke valves open. Start engine and allow to warm up thoroughly. Install tachometer.

15. With engine thoroughly warmed up and fast idle cam fully released idle speed should be 650 rpm.

16. If further adjustment is necessary to obtain 650 rpm, turn both idle speed screws equally to get final adjustment.

17. Set idle mixture screws for best quality and highest engine idle. It should not be necessary to have screws more than 1/4 turn apart on final adjustment.

18. Recheck idle speed and readjust to 650 rpm if necessary.

GENERAL SPECIFICATIONS — 285 HORSEPOWER STRATO-STREAK V-8 ENGINE

Maximum BHP @ Engine RPM	285 @ 5100
Maximum Torque - Lb. Ft. @ RPM	330 @ 3600
Engine Type & Number of Cylinders	90° V-8
Valve Arrangement	In Head
Bore and Stroke	3.94 x 3.25
Displacement - Cubic Inches	316.6
Compression Ratio	10.0:1
Fuel Required	97 Research
Valve Lifters - Type	Hydraulic
Valve Timing: (Fig. 1)	
Intake Opens - °BTC	34°
Intake Closes - °ABC	75°
Exhaust Opens - °BBC	81°
Exhaust Closes - °ATC	37°
Intake Valve:	
Over-all Length	5.34"
Lift	.409 Max.
Outer Spring Press. & Length - Valve Closed	59 @ 1.53
Valve Open	128 @ 1.13
Inner Spring Press. & Length - Valve Closed	33 @ 1.48
Valve Open	95 @ 1.08

Exhaust Valve:
- Over-all Length . . . . . 5.33"
- Lift . . . . . .413 Max.
- Outer Spring Press. & Length - Valve Closed . . . . . 59 @ 1.53
  Valve Open . . . . . 128 @ 1.13
- Inner Spring Press. & Length - Valve Closed . . . . . 33 @ 1.48
  Valve Open . . . . . 95 @ 1.08

Carburetor:
- Make . . . . . Rochester
- Model Number 7009820
- Number Used . . . . . Two
- Type . . . . . Downdraft 4-Barrel
- Choke Setting . . . . . Center Index
- Air Cleaner Type . . . . . Wing Type - Oil Bath

Upper Radiator Hose Inside Diameter & Length 1.75, 8.7

Engine Fan Drive Belt Outside Diameter 57.5

Generator Drive Ratio (to Crankshaft) . . . . . 1.97 to 1

Engine Timing-C/S Degrees @ RPM. . . . . 10^{o} BTC @ 650 RPM

Recommended Idle Speed (Neutral) . . . . . 650 RPM

Spark Plug Make and Model . . . . . AC 44

Spark Plug Gap 035

Generator:
- Model . . . . . 1100333 (Service No. 1100313)
- Brush Spring Tension . . . . . 24 - 32 oz.
- Cold Output . . . . . 25 amperes at 14.0 volts, 2570 RPM
- Field Current Draw . . . . . 1.5 - 1.62 amperes at 12 V, 80^{o}F

Regulator . . . . . 1119000 (same as Standard)

Distributor:
- Model 1110875
- Rotation . . . . . cc (viewed from top)
- Dwell Angle . . . . . *
- Point Opening . . . . . .014 - .018
- Breaker Lever Tension . . . . . 19 - 23 oz.
- Condenser Capacity . . . . . .19 - .23 mfd.
- Centrifugal Advance . . . . .

Dist. RPM	Dist. Deg.	Eng. RPM	Eng. Deg.
350	0-.5	700	0-1
600	1-3	1200	2-6
1000	5-7	2000	10-14
1500	6.5-8.5	3000	13-17
2000	8-10	4000	16-20

Ignition Coil:
- Model 1115099
- Primary Resistance 75^{o}F . . . . . 1.00 - 1.16 ohms
- Secondary Resistance 75^{o}F . . . . . 7500 - 10500 ohms
- Amps. Engine Stopped 4.0
- Amps. Engine Idling 1.8

Ignition Resistor 1931395
- Resistance . . . . . .27 - .39 ohms, 75^{o}F.

* Dwell Angle Individual Breaker Operating 29 $\pm$ 1 degree. Both Breakers Operating 34 $\pm$ 1 degree.

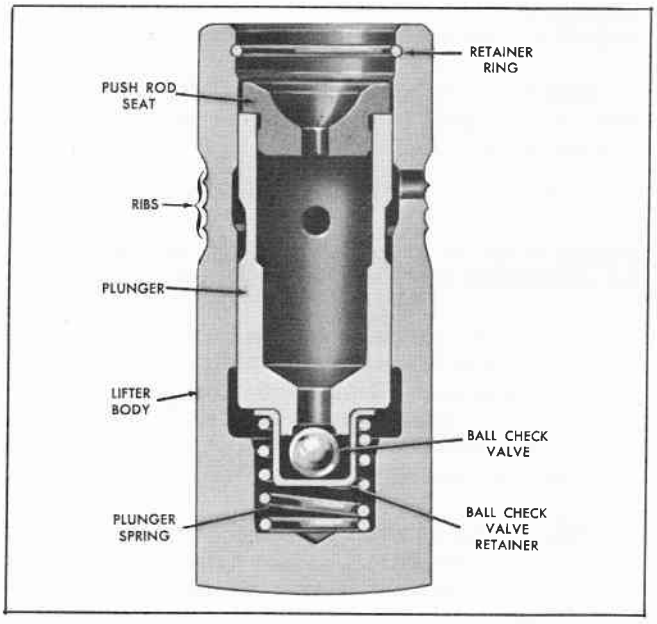

Fig. 4 Regular Production Valve Lifter

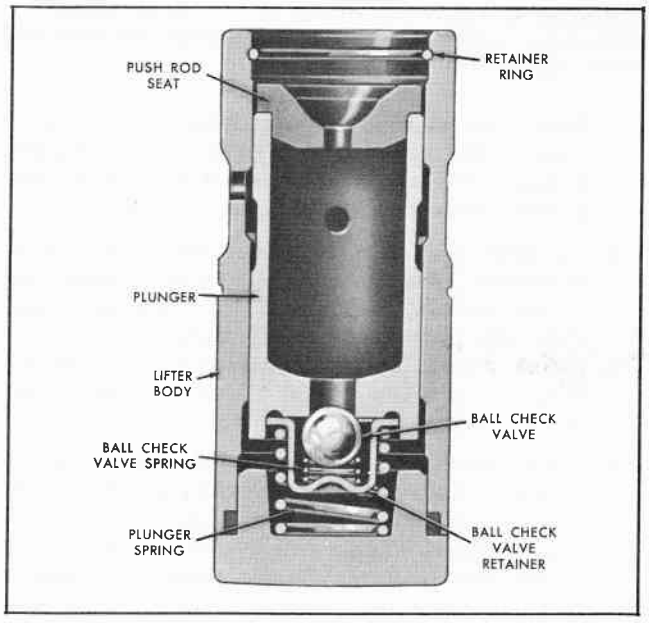

Fig. 6 285 Horsepower Engine Valve Lifter

ENGINE HYDRAULIC VALVE LIFTER IDENTIFICATION

The introduction of the 285 horsepower Strato-Flight V-8 engine brings to three the number of different valve lifters now being used in production. These three types are illustrated in Figs. 4,5 and 6. Figs. 4 and 5 illustrate the valve lifters used interchangeably in regular production. Externally they differ in appearance (note ribs on lifter body shown in Fig. 4 and radial groove on lifter body in Fig. 5), however, internally they are similar. The lifter used in the 285 horsepower engine is similar externally to the standard production lifter shown in Fig. 5. It can be identified from the standard lifter by the letter "A" stamped on the lifter body and by the fact that the area that contacts the cam has a lubrited (blackened) finish. Internally, as shown in the illustration, the new lifter has a spring under the ball check valve and a redesigned ball check valve retainer.

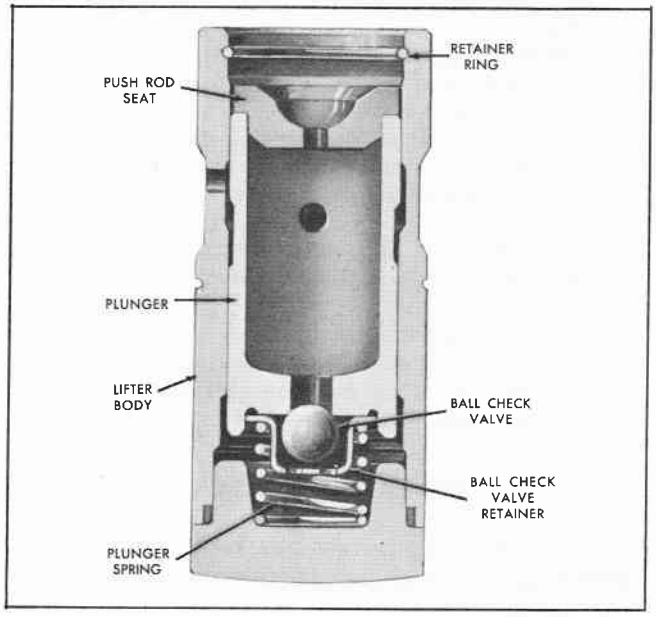

Fig. 5 Regular Production Valve Lifter

It is extremely important that the regular production valve lifters are not used in the 285 horsepower engine.

ADDITIONAL INFORMATION ON LUCITE LACQUER

The following supersedes the information given in News Flashes 55-29, 55-31 and the December Service Craftsman News on the new type gloss finish now identified as Lucite Lacquer.

The purpose of this article is to cover identification and to give the refinishing instructions which must be followed when using Lucite Lacquers. Information governing the use of standard line lacquers on cars originally finished in Lucite Lacquers is also covered.

LUCITE LACQUER IDENTIFICATION

Pontiac Color Symbol	Stock No.	Code No.	Name
S	2284 L	882-59891	Sandalwood Tan Metallic
T	2883 L	886-59892	Sun Beige

REFINISHING INSTRUCTIONS TO BE FOLLOWED WHEN REPAIRING LUCITE LACQUER FINISHES USING DUPONT 882 AND 886 LINE MATERIALS

1. Before any sanding is done, wipe surface with a clean cloth soaked with T-3812 DULUX Enamel Reducer to remove all traces of wax, polish, and grease. Wipe dry with a clean, dry cloth.
2. Cut down the edges of broken spots with coarse sandpaper. If large areas are to be stripped, use "Klean Strip," "Stripeeze," etc. Feather edges with 400 paper. Sand any rusty metal or new panels with a metal conditioner such as "Metal-prep," "Deoxidine," etc. Wash with water and dry thoroughly.
3. Spray bare and feathered areas with 233-82381 Primer - Surfacer #90 reduced 2 parts 233-82381 Primer - Surfacer #90 with 1 part 3745 Undercoat Thinner. Apply two or more medium coats rather than heavy wet coats. Permit each coat to flash (become dull) before applying succeeding coats. Allow final coat to dry at least thirty minutes before sanding. Best results will be obtained by sanding with 360 paper and water. If dry sanding is preferred, use 400 paper. If any imperfections still show, knife out with PX Putty and allow to dry one to two hours. Sand same as Primer - Surfacer. Seal sanded PX Putty with one medium coat 233-82381 Primer - Surfacer #90, reduced as above and dry 30 minutes before sanding to smoothness.
4. In spot repair area rub around patches with DUCO Rubbing Compound to remove over-spray and scratches in old finish. Wipe clean with cloth dampened with T-3812 DULUX Enamel Reducer.
5. Dust off surface to be finished and tack wipe.
6. Spray three or four wet double coats of 882 Line or 886 Line Lacquers reduced 1 part of 882 Line or 886 Line Lacquers with 1-1/2 parts 3619 Topcoat Thinner. Allow each coat to flash before applying succeeding coats. In spot repair extend each color coat a little beyond previous coat so as to blend into surrounding finish. Spray 3635 Mist Coat Thinner to improve leveling and gloss.
7. Allow to air dry at least four hours, preferably overnight; or force dry with infrared or oven to heat the finished area at least 10 minutes at 180 deg. F. Then process the area by hand rubbing with DUCO Rubbing Compound No. 2 or by machine rubbing with DUCO Lacquer Machine Polishing Compound No. 14. In spot repair be careful not to compound too far out -- stay within the area of the fresh color coat. Polish the entire area with DuPont No. 7 Polish or dry buff with "Amcor" Disc No. 5 or lamb's wool bonnet.

822 Line or 886 Line Lacquer may lose original brilliance due to shrinkage caused by loss of solvent after buffing. This shrinkage is reduced by increasing the dry or forced dry time before buffing. Re-buffing after shrinkage is complete (2 weeks or longer) will permanently restore brilliance.

NOTE: Allow at least TWO MONTHS for 882 and 886 Line Lacquer to harden before applying wax or silicone polish.

Remove tar with T-3812 DULUX Reducer only.

SPECIAL RULES TO BE OBSERVED WHEN REPAIRING OR REFINISHING CARS FINISHED WITH LUCITE LACQUER

1. The Lucite Lacquers and the thinners and undercoats used with them are entirely new and are not compatible with the standard lacquers, thinners and undercoats we have been using. Therefore, the two lines of materials should not be mixed when refinishing.

   When using new line lacquers, use the entire new line of materials. When using standard line lacquers, use the entire standard line of materials.

2. No repairs or panel refinishing should be attempted with Lucite Lacquer over surfaces previously finished in standard line lacquer, and/or standard line undercoats. Such repairs will invariably crack within a period of several months.

3. No spot or panel repairs may be made with standard line lacquers over surfaces previously finished in Lucite lacquer. The standard line lacquer will chalk or dull much more rapidly than the surrounding area of Lucite lacquer and will present an objectionable appearance in a short time.

4. If it is desired to completely refinish or two-tone a car previously finished in Lucite lacquer, standard line lacquer may be used provided the original Lucite lacquer color coat is sanded to almost complete removal or to a point where the undercoat is showing over approximately 90% of the surface to be refinished. The reason for this is that objectionable softening may occur if the Lucite lacquer color coat is not removed before applying standard line lacquer.

   Note that it is not necessary to remove paint to bare metal, only to the primer or undercoat.

5. At the present time we have no information on the use of enamel over Lucite lacquer or vice versa, and we therefore must recommend against any such procedure.

POWER SEAT PACKAGE

A number of the six-way power seat package 988556 were unitized without the inclusion of a circuit breaker. These have been distributed through G.M.P.D. warehouses for transmission to dealers. If these packages are installed on cars having the

power window lifts, the circuit breaker is already on the car and the yellow and red wires in the seat package power harness are connected to the same circuit breaker. Therefore, it will be only necessary to check power seat package installations on cars without window lifters.

If an installation is found which requires a circuit breaker, order part number 4634948. This is a master warehouse item and was used on both 1955 and 1956 models.

CORRECTION OF INTERFERENCE BETWEEN SIDE ROOF RAIL WEATHERSTRIP AND REAR DOOR WEATHERSTRIP—4 DOOR CATALINA MODELS

If interference between the side roof rail weatherstrip and the rear door weatherstrip has a tendency to damage either or both of the weatherstrips and the condition cannot be corrected by alignment of the door, the condition may be eliminated by trimming stock off the rear end of the side roof rail weatherstrip. Use caution to trim off only the stock necessary to prevent damage and yet maintain a proper weatherseal.

NEW SPARK PLUGS NOW USED IN PRODUCTION

Starting with production engine number 168065 built on January 6, 1956, engines will be equipped with AC Type 46 spark plugs. While the 44 type plug has been found to be generally satisfactory, it was decided to use the type 46 because it is a hotter plug and gives better overall performance under all operating conditions.

This is not to be considered a modification as no credit will be granted by Pontiac or the AC Spark Plug Division for the exchange of type 44 spark plugs for the type 46 in any engines built prior to the production use of the type 46 plugs. "The manufacturer has reserved the right to make changes in design or add any improvements on motor vehicles at anytime without incurring any obligations to warrant same on motor vehicles and chassis previously purchased." (See page 2 of the Owner's Guide.)

Use of the new plugs will give the following advantages:

1. Prolong the mileage between cleanings due to lead fouling. This is of particular significance on cars that are rarely driven above 50 MPH.

2. Tends to eliminate the possibility of carbon fouling during break-in or ring-seating period.

The new spark plug will be catalogued under the number 1559494. These are now available in GMPD warehouses.

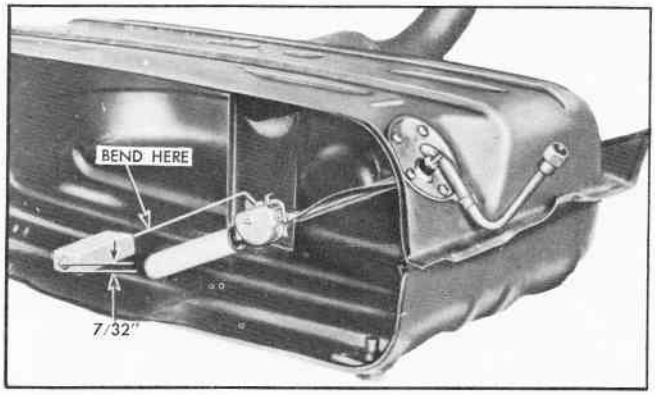

Fig. 7 Tank Unit Installed

CORRECTION OF IMPROPER FUEL GAUGE READINGS

Product Information Reports received from the field have indicated complaints on inaccuracy of the instrument panel fuel gauge. Our investigation shows that this is caused by the tank unit rheostat float arm being positioned improperly. In these cases the instrument panel gauge would read empty although there was a reserve in the tank of 6 or more gallons. To correct the condition, remove the unit, place unit in a vise, and bend the float arm so that the float will be 7/32" lower as shown in Fig. 7. This dimension should be scaled accurately.

The modification should be performed in all cases of complaints of this nature and also on gauge units in dealer stock with the exception of station wagon units which are not affected. The time time allowance for removing the tank unit, bending float arm, and replacing is .5 hr.

This condition has been corrected in production and all warehouse stock has been purged. The corrected units will be marked with a daub of red paint on the gasoline tank fuel gauge unit outlet tube for a period of 90 days. Therefore, cars marked in this manner will not require this correction.

HANDICAP—LEFT FOOT ACCELERATOR PEDAL INSTALLATION

When installing the left foot accelerator pedal package on 1956 Hydra-Matic equipped cars which have a windshield washer, inadequate clearance between the accelerator pedal and the washer foot pedal may result. In cases of installation of these two assemblies the windshield washer foot pump should be rotated slightly on its axis to provide necessary clearance.

WINDSHIELD WASHER NOZZLE BREAKAGE

Several reports have been received stating that the windshield washer nozzle breaks when being tightened in place during installation.

Servicemen should use care, when installing this nozzle, not to apply too much torque. The nozzle manufacturer recommends that only slight turning pressure be exerted on this light die-casting.

Nozzles can be ordered under part number 522543 as a master warehouse item.

ELIMINATION OF REAR DOOR WINDOW ELECTRIC MOTOR TO INNER PANEL RATTLE

If a condition is encountered where the rear door window regulator electric motor contacts the door inner panel, causing a rattle, a sponge rubber pad may be cemented to the motor with weatherstrip cement to eliminate this condition.

STRATO-FLIGHT REVERSE CLUTCH PISTON IDENTIFICATION

News Flash 56-1 and the January Service Craftsman News covered the new type piston seals being used in the Strato-Flight Transmission. It was stated in these articles that the only method of identification of the reverse clutch piston was to check the fit of the metal oil ring in the groove. A new and more positive means of identification has been devised. The piston using the rubber seal has a much narrower chamfer on the I.D. than the piston using the metal ring. The specifications are .04 chamfer on the piston with the rubber seal and .18 chamfer on the piston with the metal ring.

Group 4.166 of the parts catalog identifies the two reverse clutch pistons as "with and without step in oil groove." This is incorrect as both pistons have what appears to be a step. Only the above methods of identification should therefore be used.

Charlie Craftsman Says-

If the automatic choke is inoperative, fix it before starting engine. A backfire while hand choking can cause painful burns.

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.
