1951 SUPPLEMENT

To 1949-1950

PONTIAC

Shop Manual

1951 MODEL SUPPLEMENT TO 1949-1950 PONTIAC

SHOP MANUAL

Construction features and service procedures for 1951 models are the same as on 1950 models, except as set forth in this supplement.

Subjects are discussed in the same order as used in the 1949-50 Shop Manual. Each section consists of a brief description of the parts which are new for 1951, with complete information on repair operations and service specifications for the new parts.

For convenient reference the supplement should be kept with the 1949-50 Shop Manual.

To make this manual a complete source of current information, it should be cross-indexed with articles in the Service Craftsman News in the space provided.

PONTIAC MOTOR DIVISION

GENERAL MOTORS CORPORATION

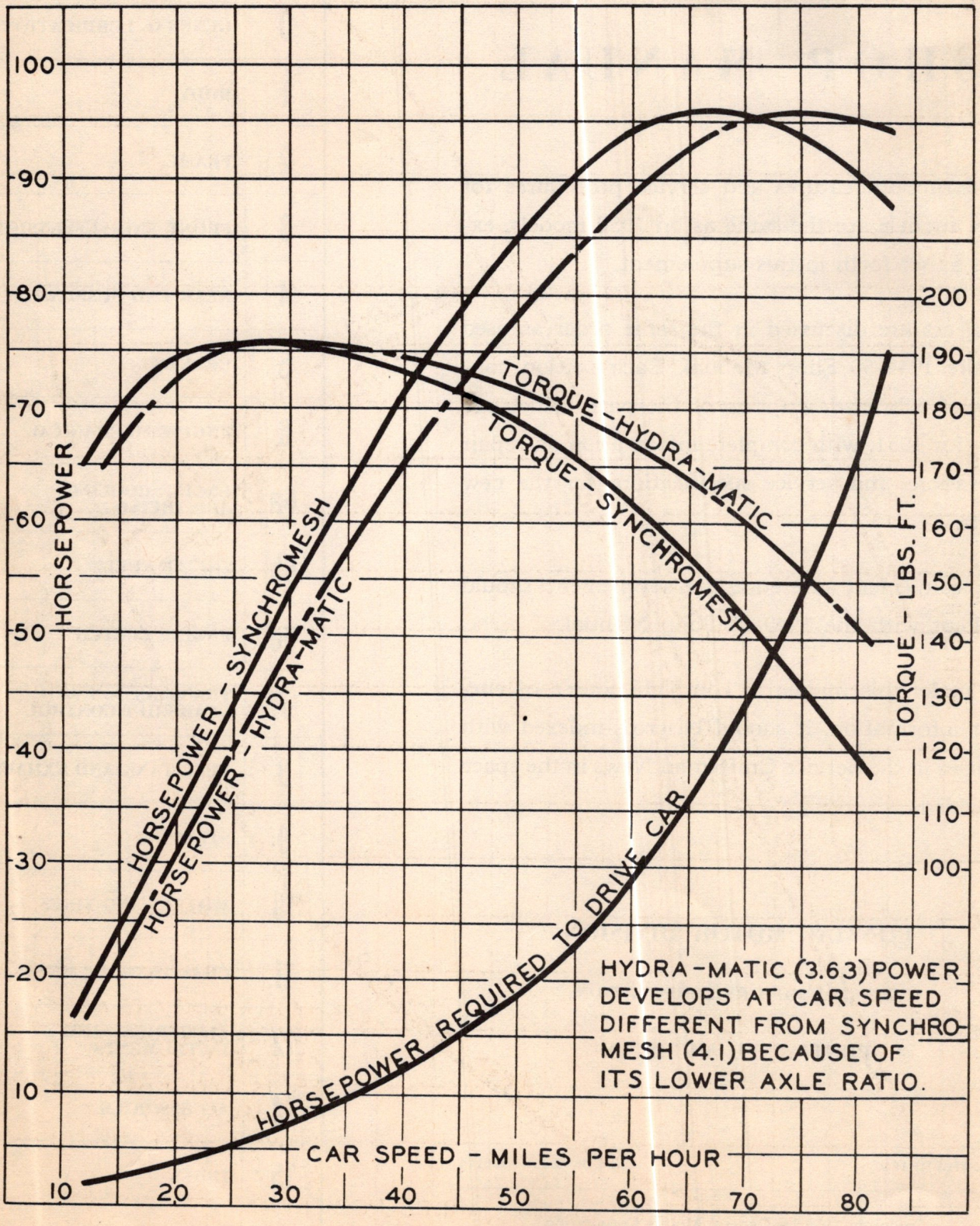
PONTIAC 11, MICHIGAN

DECEMBER, 1950 Litho. in U.S.A. S-5104

Table of Contents

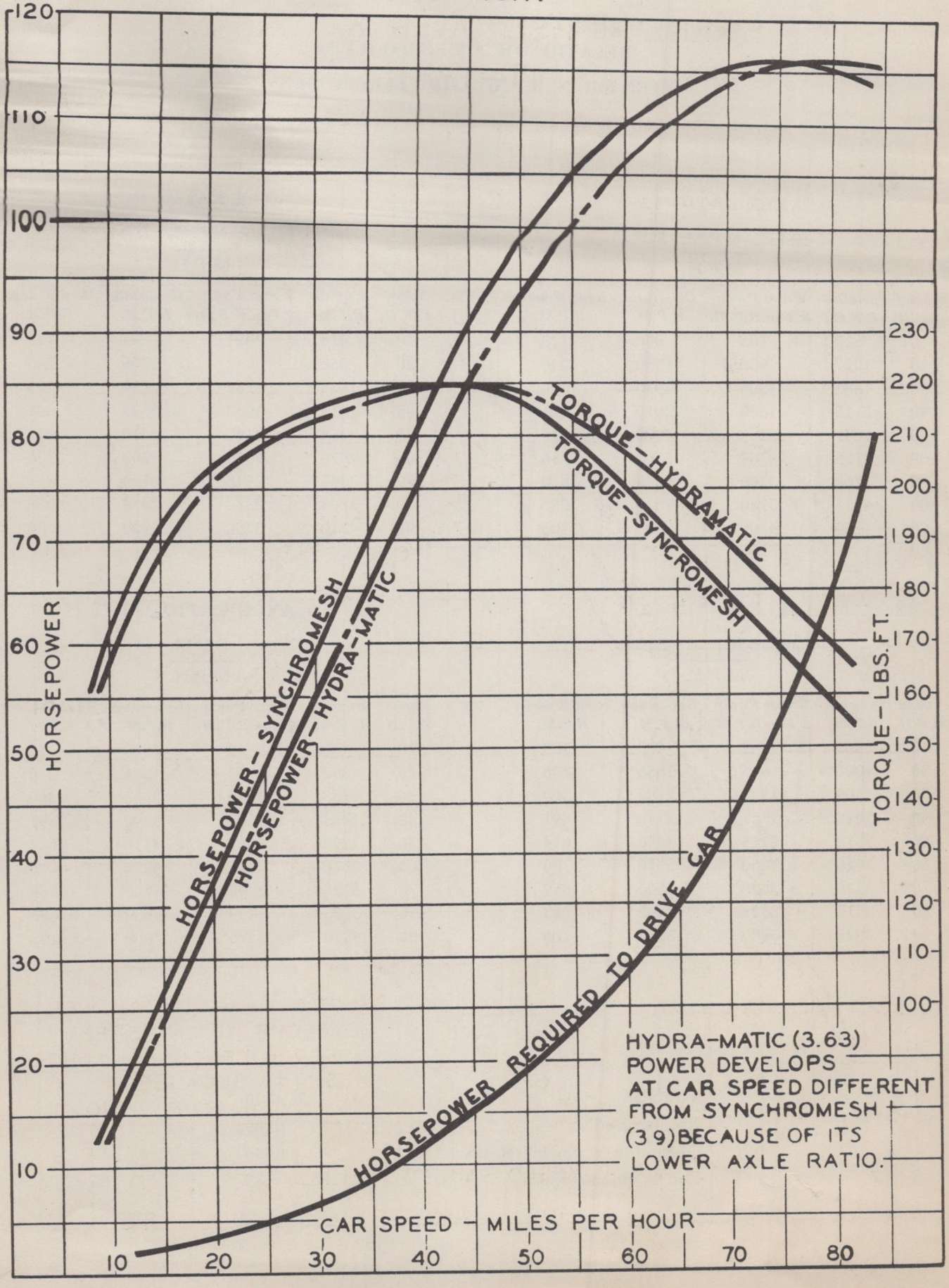
BRAKE HORSEPOWER & TORQUE

1951 SIX



BRAKE HORSEPOWER & TORQUE

1951 EIGHT



RELATION OF SPEED TO R.P.M.

STREAMLINER AND CHIEFTAIN MODELS

AXLE RATIO 4.3

Engine R.P.M.—52.8 / M.P.H.

Speed M.P.H.	*Engine R.P.M.*	*Water Pump & Fan R.P.M.*	*Generator R.P.M.*	*Rear Wheels R.P.M.*
10	529	465	976	123
20	1057	930	1950	246
30	1585	1395	2930	369
40	2115	1860	3910	491
50	2642	2325	4880	614
60	3165	2785	5860	736
70	3700	3260	6840	859
80	4225	3720	7810	983
90	4760	4190	8790	1105

AXLE RATIO 3.9

Engine R.P.M.—47.8 / M.P.H.

Speed M.P.H.	*Engine R.P.M.*	*Water Pump & Fan R.P.M.*	*Generator R.P.M.*	*Rear Wheels R.P.M.*
10	478	421	884	123
20	956	842	1765	246
30	1435	1262	2650	369
40	1913	1683	3535	491
50	2384	2100	4410	614
60	2870	2523	5300	736
70	3347	2948	6180	859
80	3828	3370	7070	983
90	4310	3790	7960	1105

AXLE RATIO 4.1

Engine R.P.M.—50.3 / M.P.H.

Speed M.P.H.	*Engine R.P.M.*	*Water Pump & Fan R.P.M.*	*Generator R.P.M.*	*Rear Wheels R.P.M.*
10	502	442	928	123
20	1006	885	1855	246
30	1509	1327	2782	369
40	2010	1767	3710	491
50	2518	2213	4640	614
60	3018	2650	5570	736
70	3520	3090	6500	859
80	4010	3525	7400	983
90	4525	3980	8350	1105

AXLE RATIO 3.63

Engine R.P.M.—44.6 / M.P.H.

Speed M.P.H.	*Engine R.P.M.*	*Water Pump & Fan R.P.M.*	*Generator R.P.M.*	*Rear Wheels R.P.M.*
10	446	392	823	123
20	892	784	1645	246
30	1338	1176	2465	369
40	1783	1570	3290	491
50	2228	1960	4110	614
60	2676	2355	4930	736
70	3120	2745	5760	859
80	3565	3139	6580	983
90	4010	3525	7400	1105

Tire Size	7:10-15
Rolling Radius	13.69
Generator to Engine Ratio	1.846
Fan to Engine Ratio	.88

1951 ENGINE SPECIFICATIONS

	6 Cylinder	*8 Cylinder*
Type	"L" Head	"L" Head
No. cylinders	6	8
Bore and stroke	3 9/16" x 4"	3 3/8" x 3 3/4"
Piston displacement (cubic inches)	239.2	268.4
S.A.E. Rated Horsepower	30.4	36.4
Compression Ratio (standard)	6.5 to 1	6.5 to 1
Maximum Brake Horsepower	96 at 3400 RPM	116 at 3600 RPM
Maximum Torque (lbs. ft.)	191 at 1200 RPM	220 at 2000 RPM
Compression pressure at cranking speed	118-135 at 200 RPM	118-135 at 200 RPM
Compression Ratio (optional)	7.5 to 1	7.5 to 1
Maximum Brake Horsepower	100	120
Maximum Torque (lbs. ft.)	195 at 1200 RPM	225 at 2000 RPM
Compression pressure at cranking speed	135-153 at 200 RPM	135-153 at 200 RPM
Firing order	1-5-3-6-2-4	1-6-2-5-8-3-7-4
Number location	Top L. H. front corner of cylinder block	

1951 ELECTRICAL SPECIFICATIONS

Starting Motor—6 Cyl.

Delco-Remy Model 1107079; 4 brush; 6 volt.
No. field coils—2.
Rotation—clockwise (viewed from drive end).
Brush spring tension—24-28 oz.
No Load Test—5000 (minimum rpm.) 65 amps. (does not include draw of pull-in and hold-in windings of solenoid), 5.67 volts.
Lock Torque Test—12 lb. ft., 525 amps., 3.37 volts. Over-running clutch should withstand 50 to 60 lb. ft. torque without slipping.

Starting Motor—8 Cyl.

Delco-Remy Model 1107957; 4 brush; 6 volt.
No. field coils—4.
Rotation—clockwise (viewed from drive end).
Brush spring tension—24-28 oz.
No Load Test—6000 (minimum rpm.) 60 amps. (does not include draw of solenoid pull-in and hold-in windings), 5 volts.
Lock Torque Test—15 lb. ft., 600 amps., 3.0 volts. Over-running clutch should withstand 50 to 60 lb. ft. torque without slipping.

Generator (Standard)

Delco-Remy Model 1102750; 6 volt; two brush shunt type; external current and voltage regulation; fan ventilated.
Rotation—Clockwise viewed from drive end.
Output cold—40 amps. at 8.0 volts at approximately 1950 gen. RPM.*
Field Current—1.90-2.05 amps. at 6 volts.
Brush Spring Tension—24-32 oz.
Bearings—Bronze in commutator end. Ball bearing in drive end.

Regulator

Delco-Remy Model 1118300; 6 volt; current and voltage regulator for negative grounded battery system.
Cutout Relay.
Air Gap—.020 in.
Point Opening—.020 in.
Closing Voltage*—5.9-6.8 (if outside this range, adjust to 6.4 volts).
Current Regulator.
Air Gap—.075 in.
Current Setting*—40-46 amps. (if outside this range, adjust to 42 amps.).
Voltage Regulator.
Air Gap—.075 in.
Voltage Setting*—7.0-7.7 (if outside this range, adjust to 7.4 volts).

*Settings given apply only at operating temperature (15 minutes continuous operation with charge rate of 8-10 amps.).

FUSE SPECIFICATIONS

Standard Equipment	*SFE Fuse*
Tail Lamp Circuit (Includes tail lamps, license lamp, instrument cluster lamps, ignition switch lamp, Hydra-Matic indicator lamp, and clock lamp)	14 amp.
Stop Lamp Circuit (Includes stop lamps, dome lamp, and courtesy lamps (Catalina and Convertible only))	14 amp.
Cigar Lighter	Special Fuse
Accessory Equipment	
Compass light, ash tray light	20 amp.
Fog lamps	20 amp.
Radio "A" lead	14 amp.
Safety lamp, clock power, glove box light, underhood lamp	20 amp.
Heater	20 amp.
Back up lamps, direction signal	20 amp.

LAMP SPECIFICATIONS

These specifications cover only the lamps which are new for 1951. All other lamp specifications are the same as 1950.

	Lamp No.	*C.P.*
Ash tray lamp	81	6
License plate lamp	63	3

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

GENERAL LUBRICATION

Lubrication instructions for the 1951 model are the same as on 1950, except for a few changes which are covered below.

Engine Oil

The "W" (winter) engine oil specifications introduced some years ago by the automotive manufacturers have been approved as SAE standards. SAE specifications now include the following oils:

SAE 5W	SAE 30
SAE 10W	SAE 40
SAE 20W	SAE 50
SAE 20	

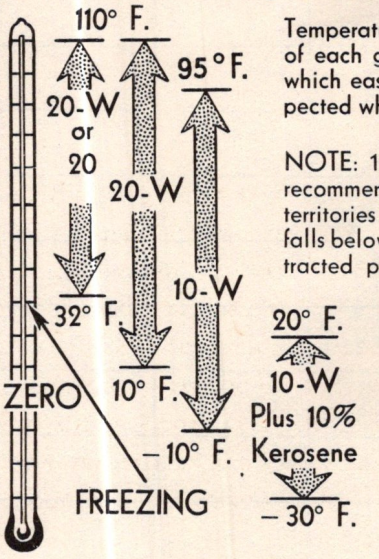
Notice that the SAE 10 specification has been dropped; however, refiners and marketers are allowed 18 months to dispose of present inventories.

The "W" oil numbers are based on viscosities at 0°F. to provide for desirable cold starting properties, while the unlettered oil numbers are based on viscosities at 210°F. to minimize oil consumption under high temperature operating conditions.

Engine oils should be used in accordance with the instructions on the chart in Fig. 0-1.

ENGINE OIL CHART
(OIL NUMBERS ARE S.A.E. SPECIFICATIONS)

This chart indicates the atmospheric temperature ranges over which the various grades of oil are recommended.



Temperature shown at bottom of each grade is the lowest at which easy starting can be expected when that grade is used.

NOTE: 10-W plus kerosene is recommended only for those territories where the temperature falls below minus 10° F for protracted periods. Where available 5-W oil may be used instead of 10-W plus 10% kerosene under those climatic conditions where the latter lubricant is recommended (Kerosene or other diluents should not be added to 5-W.)

IMPORTANT—When using 5-W it is advisable to check the oil level at more frequent intervals than usual with heavier bodied oils.

Fig. 0-1—Engine Oil Chart

Distributor

The distributor bearing cap should be filled with No. 2 cup grease and turned one complete turn only at each chassis lubrication. Every spring and fall or 10,000 miles, the following items should be lubricated: Apply slight amount of petrolatum on cam lobes; rotor wick should be lubricated with 3 or 4 drops light engine oil; breaker point pivot requires a small drop of light engine oil; apply 4 or 5 drops of light engine oil to movable breaker plate felt (add at edge of plate so as to run down on felt between movable and fixed plates).

Carburetor

The 1951 six cylinder carburetor requires no lubrication. On the eight cylinder carburetor, lubricate the pump arm countershaft at the spring and fall tune-up or every 10,000 miles. (Remove two dust cover screws and apply 2 drops light engine oil in each hole.)

Hand Brake Intermediate Lever

Lubricate hand brake intermediate lever with Lubriplate 105, Delco Brake Lubricant or Bendix Lubricant at each chassis lubrication.

Front Wheel Bearings

Front wheel bearings require no periodic lubrication. They should be lubricated only when it is necessary to remove the front wheels for other work, such as brake relining.

The bearings should then be thoroughly cleaned and lubricated with high melting point, water resistant wheel bearing lubricant. Pack ball and separator assemblies full, but do not put grease in hub. An excessive amount of grease increases chances of leakage into brakes.

If wheel bearings are found to be discolored (blue or straw colored) it does not indicate excessive overheating due to a lack of lubricant. The discoloration is merely a chemical reaction of the substances in the lubricant and does not effect the serviceability of the bearing in any manner. Improper adjustment of wheel bearings is the most common cause of failure. To insure accurate adjustment of wheel bearings use the torque method outlined on page 11.

BODY

Body information given in the 1949-50 Shop Manual applies to the 1951 model.

FRAME

The frame has been modified slightly in order to incorporate the longer rear springs used on the 1951 Pontiac. The front frame bracket has been moved forward and the rear frame bracket has been moved rearward to accommodate the new spring.

The rear shock absorber support cross member is made of heavier steel on the 1951 model and is constructed so that shock absorber brackets are no longer required, Fig. 2-1. Shock absorbers now mount directly to the cross member.

When checking for bent frame on a 1951 model, use the dimensions shown in Fig. 2-2. Dimensions to and between spring brackets have changed due to the new spring length, but otherwise all measurements are identical with 1949 and 1950.

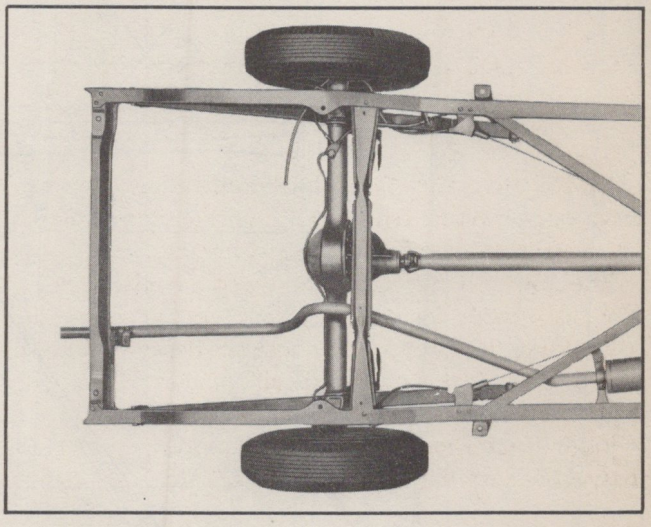


Fig. 2-1—1951 Shock Absorber Cross Member

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

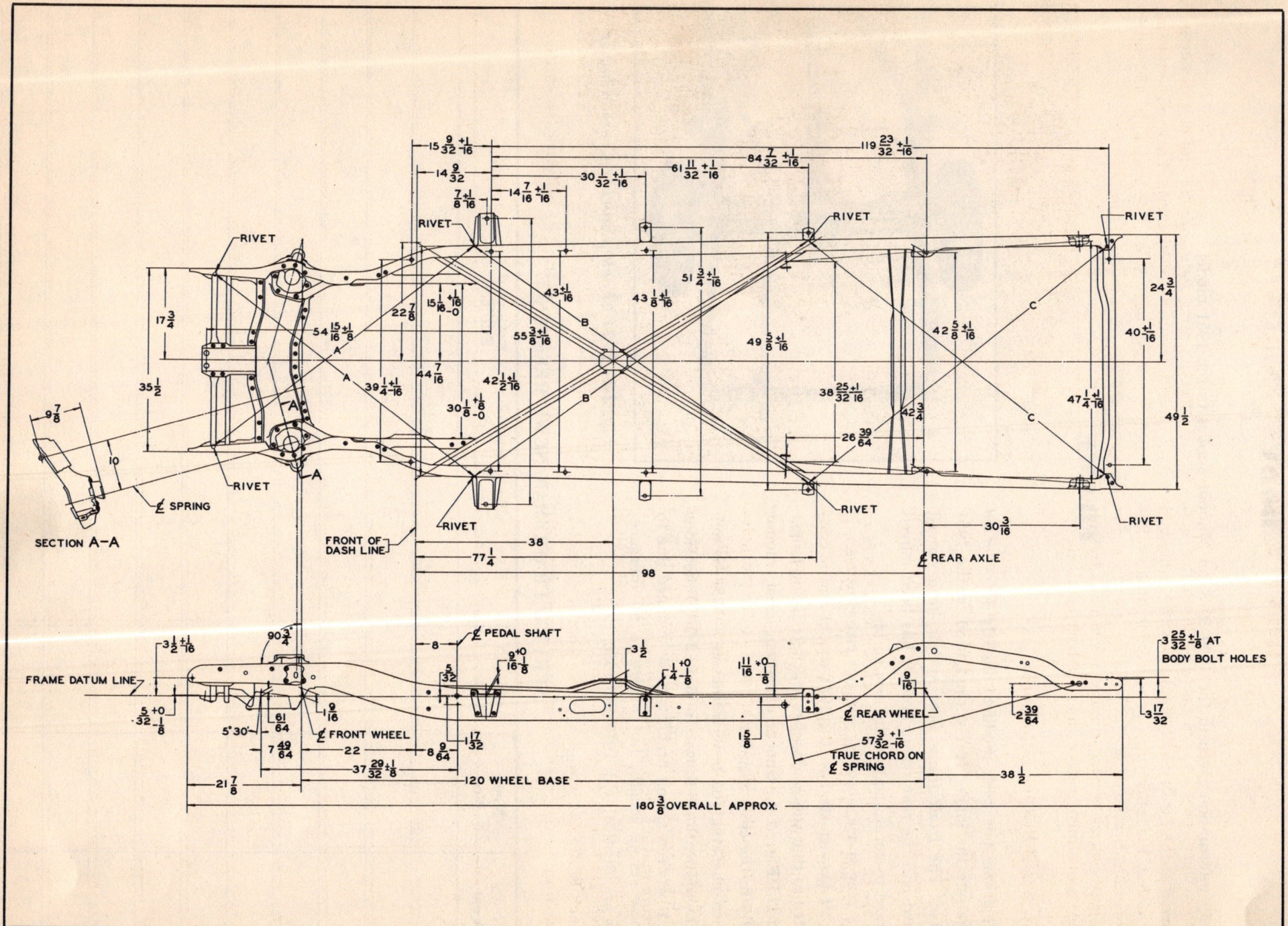


Fig. 2-2—1951 Frame Checking Dimensions

FRONT END SUSPENSION

Front wheel bearings are properly lubricated and adjusted at the factory and should never be tampered with unless the wheels are removed for brake relining or other necessary work. Evidence clearly shows that most wheel bearing failures are caused by improper adjustment rather than by lack of lubricant.

Front Wheel Bearing Adjustment

To provide for more accurate adjustment of front wheel bearings, the following procedure has been developed:

1. Check to see that bearing cups are a press fit in hub and seated tight against shoulders.

2. Check to see that bearing cones have a slip fit on spindles, and bores of cones have a light coating of wheel bearing lubricant to allow creep.

3. Check fit of spindle nut on spindle threads. Nut MUST BE free running on threads; if not, remove all burrs from threads, keyslot, and cotter pin holes.

4. With wheel off ground adjust bearing as follows:

a. Tighten bearing adjusting nut with a torque wrench to approximately 200 inch pounds (17 ft. lbs.) to insure that all parts are properly seated.

b. Back off nut and retighten to 45 to 50 INCH pounds (this should be measured by using Tension Wrench KMO-652 with KMO-653 adapter (Fig. 3-1) as when measuring rear axle pinion bearing preload).

c. If cotter pin hole in spindle and slot in nut line up, insert cotter pin. Otherwise, back off adjusting nut to nearest line-up of slot and hole and insert cotter pin.

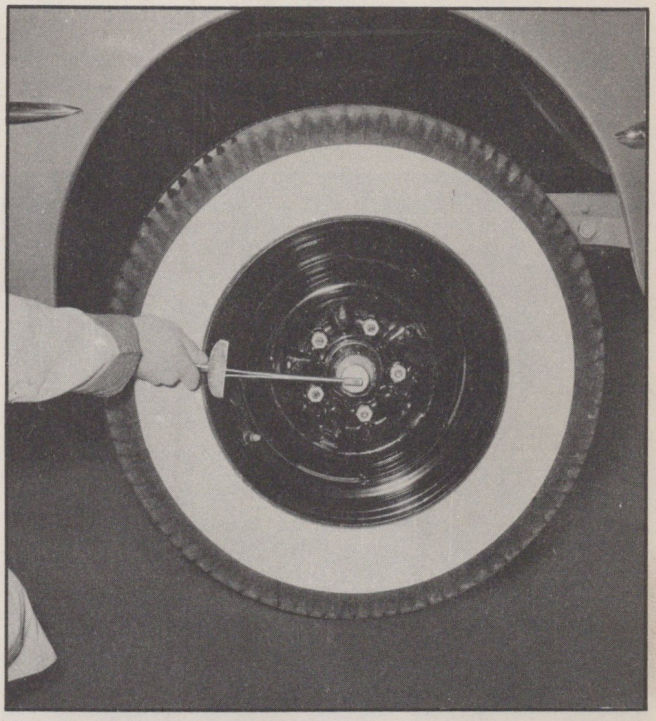


Fig. 3-1—Adjusting Front Wheel Bearings

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

REAR END SUSPENSION

Riding quality of the 1951 Pontiac has been improved by increasing the length of the rear spring six inches. To accommodate the new, longer spring, the locations of spring brackets have been changed on the frame. The springs are used with rubber bushed shackle pins and bolts as in 1950.

Beginning in late 1950 production, the rear axle ratio is indicated by a number stamped on a pad on the differential carrier as shown in Fig. 4-1. The rear axle code formerly stamped on the rib at the bottom of the carrier housing (page 4-31 of 1949-50 Shop Manual) is no longer being used.

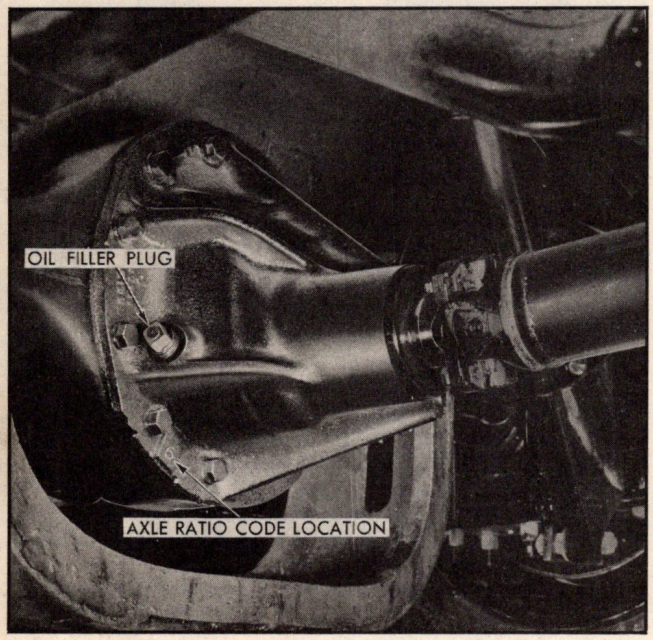


Fig. 4-1—Rear Axle Ratio Code Location

The following chart shows the 1950 and 1951 axle ratios and corresponding code numbers:

Synchro-Mesh Models

Designation	*Ratio*	*Code No.*
Standard		
6 cylinder	41-10 (4.1)	3
8 cylinder	39-10 (3.9)	4
Hills		
6 cylinder	43-10 (4.3)	2
8 cylinder	41-10 (4.1)	3
Plains		
6 cylinder	39-10 (3.9)	4
8 cylinder	40-11 (3.63)	6

Hydra-Matic Models

Designation	*Ratio*	*Code No.*
Standard	40-11 (3.63)	6

Service instructions on the 1951 rear suspension and springs are the same as those given for the 1950 model in the 1949-50 Shop Manual.

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

BRAKES

The 1951 brakes are fundamentally the same as 1950 but a few minor changes have been made. The hold-down spring assembly which formerly consisted of a pin, 2 spring cups, and a coil spring, has been replaced with a new assembly which includes only a pin and a spring steel hold-down spring (Fig. 5-1).

The pivot pin for the hand brake lever on rear brake assemblies was formerly attached to the brake shoe with a spring washer, nut and lock nut. On the 1951 models, the pivot pin is held simply by a spring clip (Fig. 5-2).

The new hold-down spring assembly can be used on previous models. However, the new pivot pin and spring clip can only be used with the new hand brake operating lever since the new lever has a smaller diameter hole for the pivot pin. The new pivot pin can be installed on past models if a new hand brake lever is used.

An improved adjusting screw spring is also being used on the 1951 models.

All service operations and adjustments remain the same as on the 1949 and 1950 models.

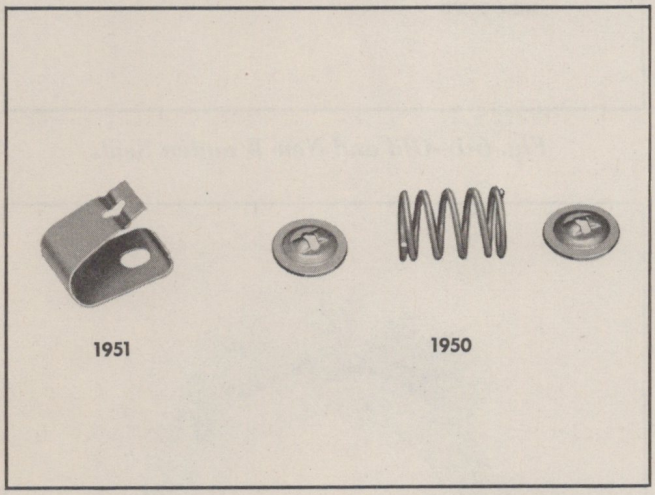


Fig. 5-1—Old and New Brake Shoe Hold Down Assemblies

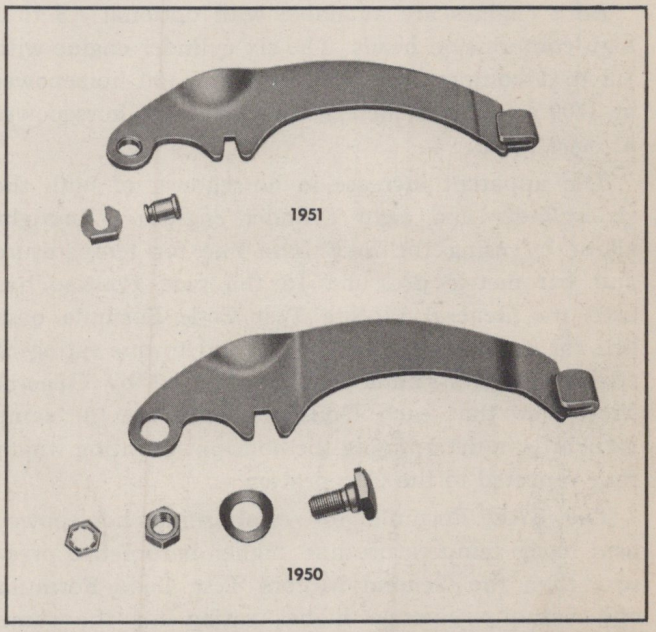


Fig. 5-2—Old and New Hand Brake Lever and Pivot Pin Assemblies

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

ENGINE MECHANICAL

GENERAL DESCRIPTION

The 1951 six cylinder engine with a 6.5 to 1 compression ratio and displacement of 239.2 cu. in. develops 96 horsepower at 3400 revolutions per minute. The eight cylinder engine with a 6.5 to 1 compression ratio and a displacement of 268.4 cu. in. develops 116 horsepower at 3600 revolutions per minute.

Both engines are available with optional 7.5 to 1 high compression heads. The six cylinder engine with 7.5 to 1 compression ratio develops 100 horsepower at 3400 r.p.m. and the eight develops 120 horsepower at 3600 r.p.m.

The apparent increase in horsepower of both the six cylinder and eight cylinder engines is brought about by using the SAE base line for temperature and barometric pressure. In the past Pontiac has used the General Motors Test Code Formula base line for establishing horsepower and torque rating of engines. This formula was established by General Motors so that each Division would use the same standards in determining the horsepower rating which they reported to the Corporation.

The SAE Formula for establishing horsepower uses lower temperature and higher barometric pressure than the General Motors Test Code Formula and actually gives a higher rating for the same engine. All other automobile manufacturers and Divisions of General Motors use the SAE base line for establishing *published* horsepower, while Pontiac has been using the more conservative General Motors Test Code base line. Therefore, in order to be on a comparable basis with competitors, Pontiac is using the SAE base line beginning in 1951.

Rear Main Bearing Oil Seal

Beginning in late 1950 both the six and eight cylinder engines have a new improved wooden wedge rear main bearing oil seal (Fig. 6-1) requiring new machining on the cylinder block and bearing cap. The new seal is tapered lengthwise and has parallel sides in contrast to the tapered sides of the old seal. This design provides a better seal and eliminates shearing or splitting when the seal is driven in. The new seal is not interchangeable with the old type seal.

When installing the new wedge shaped oil seal insert the small end into the groove and push the seal in by hand as far as it will go; the taper fits between the cap and the block. It should then extend

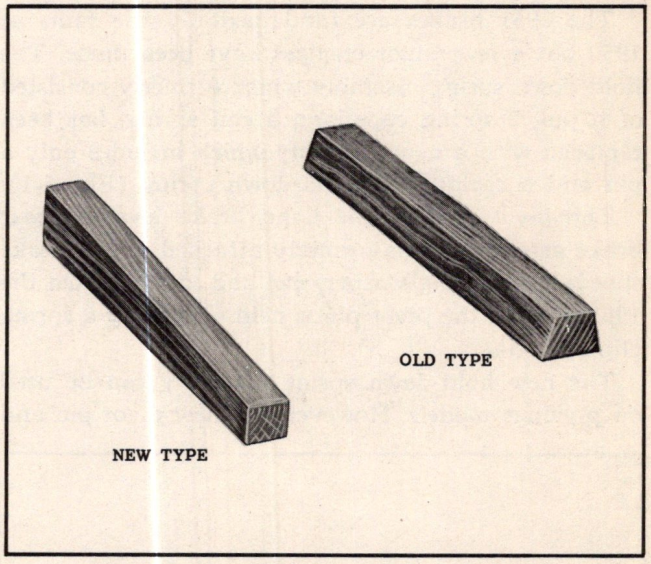


Fig. 6-1—Old and New Wooden Seals

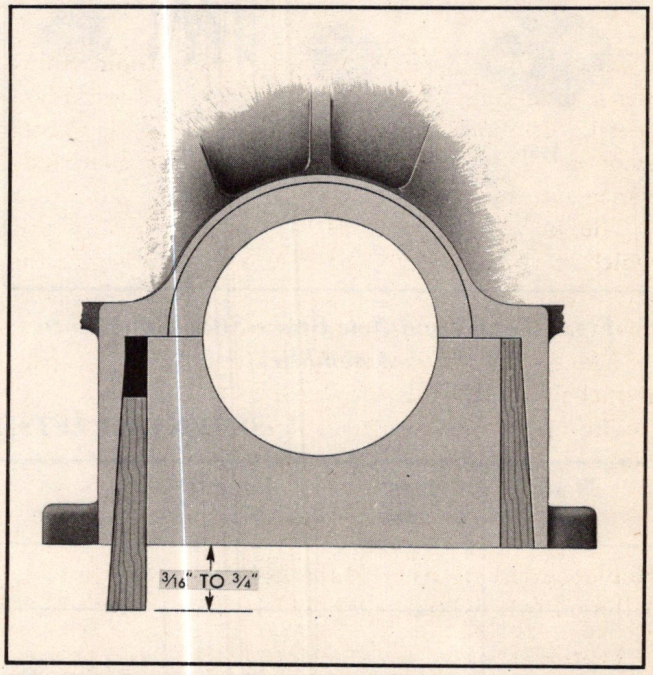


Fig. 6-2—Cross Section Through Rear Main Bearing Cap Showing Installation of Wooden Seals

3/16" to 3/4" from the engine oil pan rail (see Fig. 6-2). After the seal has been pushed in by hand as far as possible it should be driven in until it bottoms.

Timing Chain Bumper

A timing chain bumper has been incorporated in the timing chain cover on the six cylinder engine

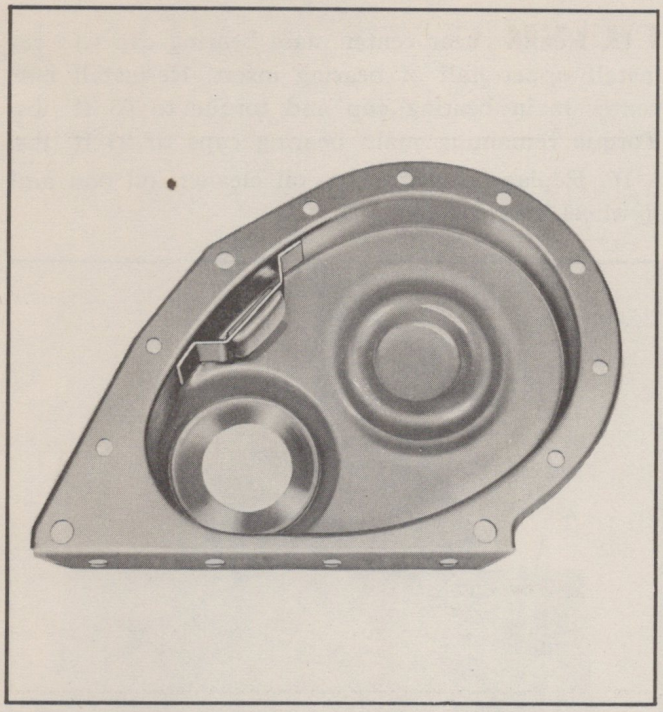


Fig. 6-3—1951 Six Cylinder Timing Chain Cover

(Fig. 6-3). This bumper dampens timing chain vibration eliminating timing chain "whip noise" at critical speed. Elimination of timing chain whip gives smoother engine operation by eliminating spark advance variation due to whip.

The bumper consists of a synthetic rubber pad which is vulcanized to a steel bracket welded on the left edge of the timing chain cover near the path of chain travel on the driving side of the chain.

The new cover assembly is serviceable on past model six cylinder engines back to 1937.

The eight cylinder chain does not whip; thus no bumper is required on eight cylinder engines.

MINOR REPAIRS

Replacement of Rear Main Bearing Oil Seal (six cyl. and eight cyl.)

The asbestos oil seal packing which is compressed in the groove in the block and rear main bearing cap can be replaced without removal of crankshaft. The new procedure for replacing the oil seal applies to six or eight cylinder engines with either Hydra-Matic or Synchro-Mesh transmissions.

Install a new seal as follows:

1. Remove oil pan and oil cleaner, flywheel lower cover and transmission.

2. Remove rear center main bearing cap and upper half of rear center main bearing insert. This will eliminate danger of damaging thrust surfaces of bearing and will also allow crankshaft to be lowered more easily.

3. Remove all connecting rod bearing caps.

4. Remove rear main bearing cap and loosen remaining main bearing caps sufficiently to allow crankshaft to be lowered approximately 3/8" at the rear.

5. With crankshaft lowered to provide clearance, remove upper half of rear main bearing oil seal.

6. With rear main bearing cap on bench, remove oil seal and bearing insert.

7. Install new seal, using tool J-1045, and trim flush (Fig. 6-4). *Do not pack seal into locking recess.*

8. Carefully remove seal from cap and slide it into groove in block over crankshaft, taking particular care to install seal so that end which was at locking recess will meet locking recess when cap is installed.

9. Install *rear center* main bearing cap and torque to 95 ft. lbs. to properly seat crankshaft against new oil seal. Make a visual inspection to be sure that seal is just flush with edge of block.

CAUTION: If inspection shows seal to be an improper length, remove and discard it, and form a new seal as follows: Install a new seal in bearing cap using tool J-1045 and trim one end flush; carefully remove seal from cap and reinstall in cap, rotating it so that the

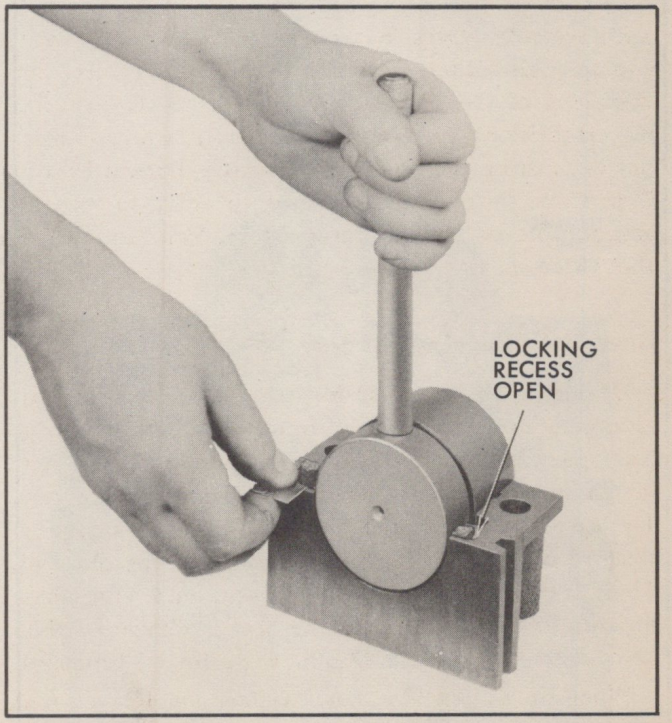


Fig. 6-4—Cutting Seal Which Is to Be Placed In Block

trimmed end is below or above edge of cap the proper distance to correct for the improper length of the first seal (Figs. 6-5 and 6-6). Re-seat the seal with tool J-1045 and trim the uncut end flush with edge of cap. Now proceed again with steps 7, 8, and 9. (The cause for the packing trimmed in the cap not exactly fitting in the block in some cases is that the machining of the packing groove cannot always be held exactly concentric with the crankshaft bearing center or exactly on the block and cap split line.)

10. Install a new seal in rear main bearing cap and trim as shown in Fig. 6-7.

11. Replace bearing insert; install cap and torque to 120 ft. lbs.

12. Remove rear main bearing cap again and inspect break line between cap and block to be certain that none of the seal material has been compressed between the two. If inspection shows material between cap and block surface, scrape it off to insure proper seating of metal surfaces.

13. Re-install rear main bearing cap and tighten to 120 ft. lbs. Drive new wooden oil seals into grooves between block and cap. See page 14 for 1951 engines.

14. Install rod bearing caps and torque to 45 ft. lbs.

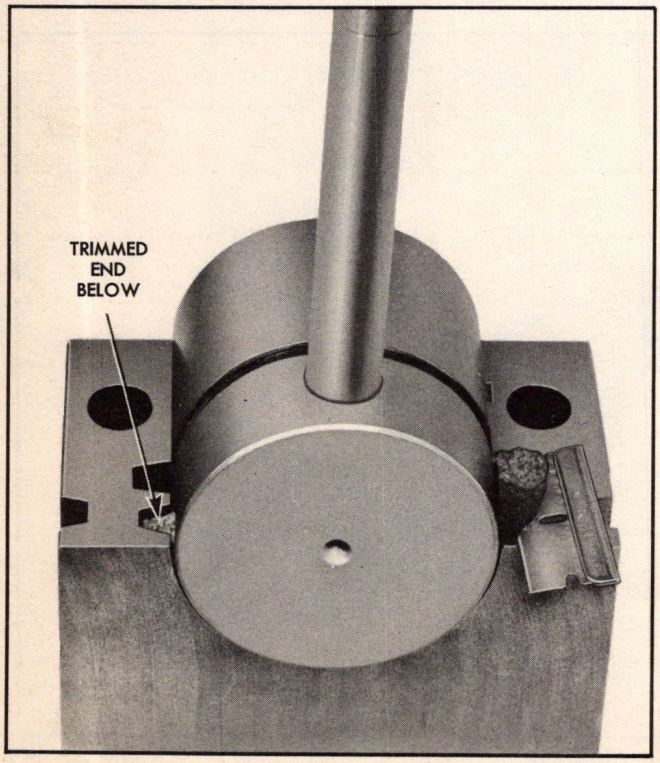


Fig. 6-5—Trimming Second Seal to Correct for First Attempt Being Too Long

15. Remove rear center main bearing cap and re-install upper half of bearing insert. Re-install rear center main bearing cap and torque to 95 ft. lbs. Torque remaining main bearing caps to 95 ft. lbs.

16. Replace transmission, oil cleaner, oil pan and flywheel lower cover.

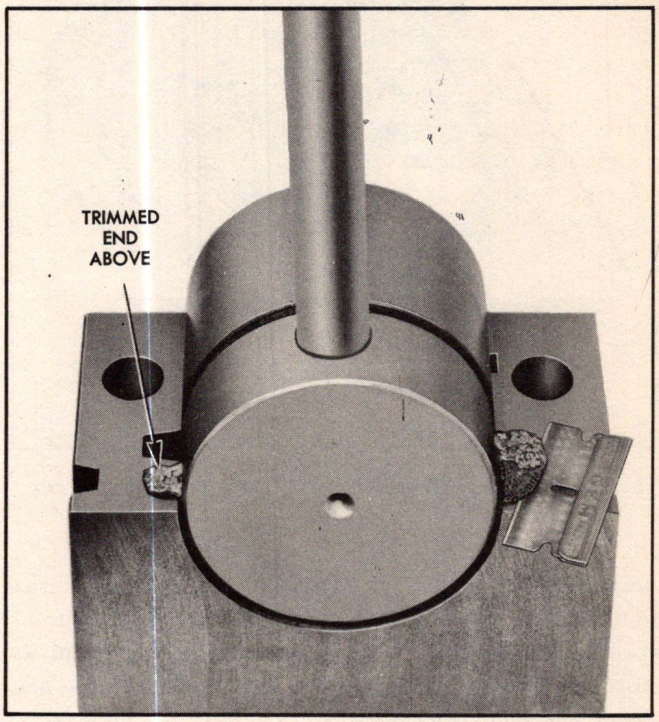


Fig. 6-6—Trimming Second Seal to Correct for First Attempt Being Too Short

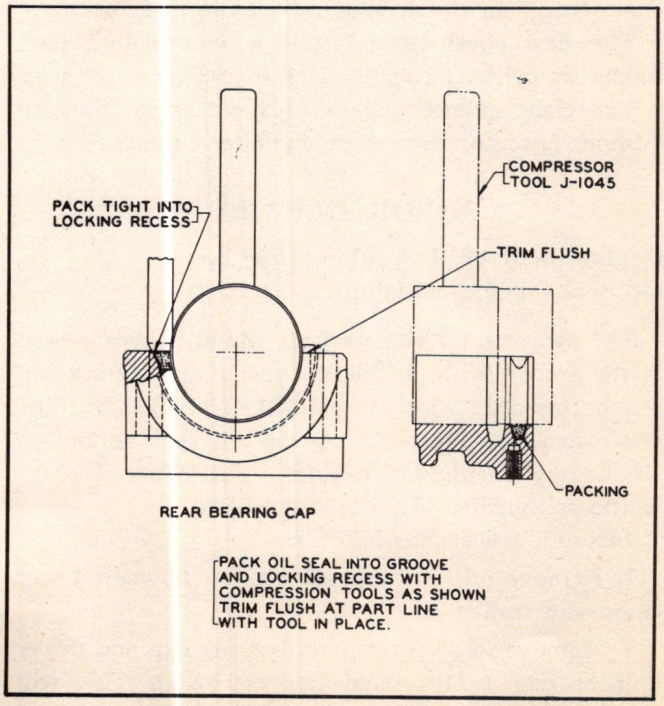


Fig. 6-7—Installing Seal in Bearing Cap

ENGINE COOLING AND OILING

A vibration dampener has been included in the water outlet thermostat. The dampener is assembled to the thermostat housing cross bar in such a way that it bears on the valve shaft. This construction practically eliminates valve flutter and resultant strain on the bellows.

Radiators on both six and eight cylinder cars are equipped with pressure caps designed to operate at 7 lbs. per sq. in. With this amount of pressure in the cooling system the coolant will not boil until it reaches a temperature of 230° to 233° F., thus giving the cooling system an extra margin of safety.

CAUTION: Extreme care must be taken when removing radiator pressure cap while engine is hot because relieving the pressure will cause the cooling system to boil, if alcohol is used for anti-freeze, with resultant loss of water or anti-freeze solution. When removing filler cap, rotate cap toward left very slowly; if hissing of vapor is encountered, tighten cap immediately and wait for system to cool sufficiently to allow removal of cap. After pressure in the system has been relieved, turn cap more forcibly to left and remove. Turn cap all the way to the right when installing. It should not be necessary to check coolant level unless temperature gauge shows over-heating, and then not until engine is stopped and allowed to cool to normal.

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

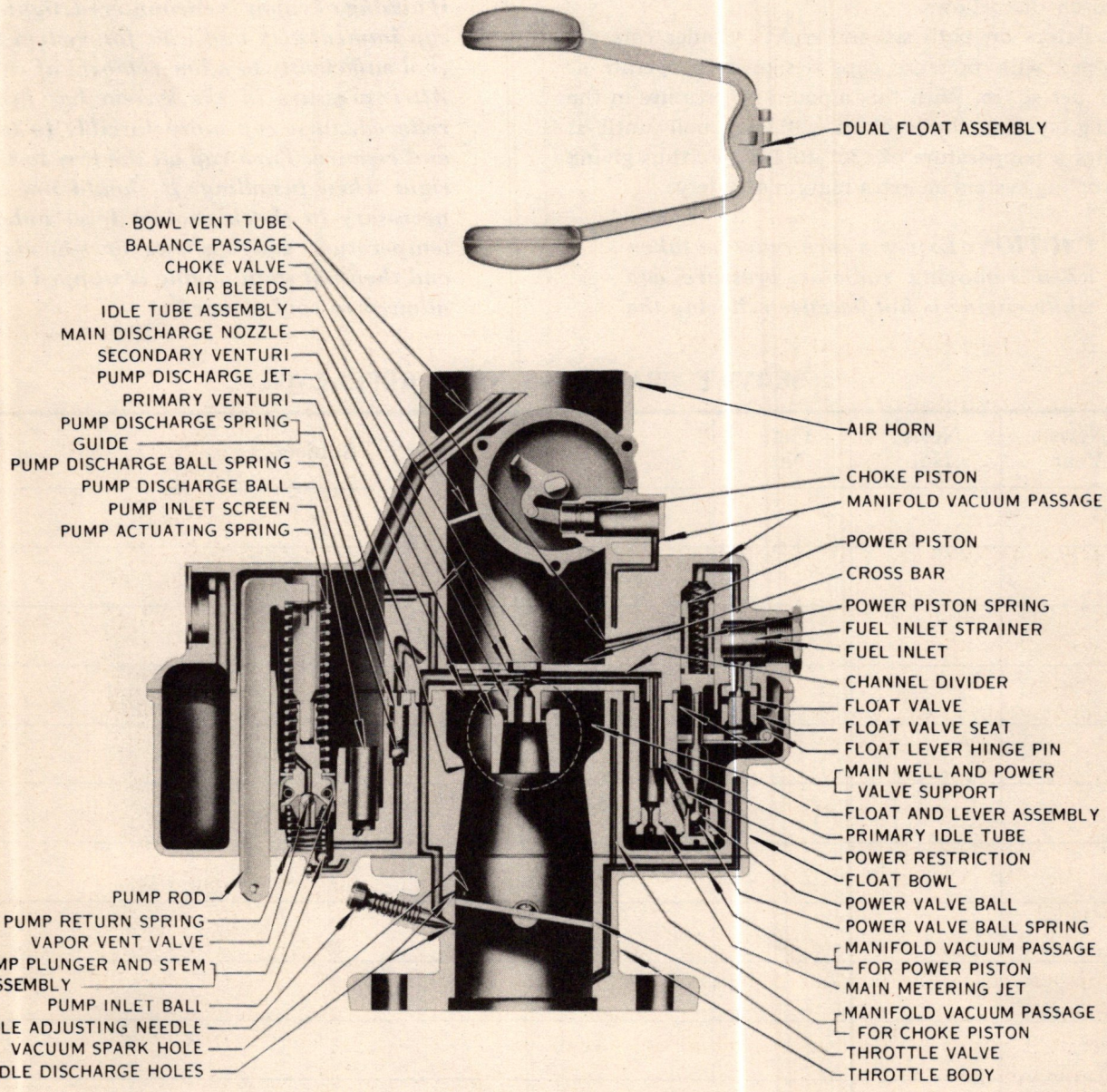


Fig. 6B-1—1951 Six Cylinder Carburetor

ENGINE FUEL

CONTENTS OF THIS SECTION

GENERAL DESCRIPTION

Service procedures on fuel pumps and eight cylinder carburetor are the same as for 1950.

1951 PONTIAC "6" CARBURETOR

The 1951 Pontiac "6" Model BC Rochester Carburetor (Fig. 6B-1) incorporates several distinct new features. Foremost of these features is the concentric float bowl, which completely encompasses the main bore of the carburetor. This float bowl concentricity in conjunction with the centrally located main discharge nozzle prevents any fuel loss on road inclines. Regardless of any angle the car may assume, the fuel level is at all times below the nozzle spill point.

A second feature of the Model BC carburetor is the unique design of the Main Well Assembly. This assembly contains the main metering jet and power valve. It is attached to the carburetor air horn and suspended in the float bowl.

In the 1951 Pontiac "6" carburetor, due to the suspension of the main well in the bowl, engine heat cannot be directly transmitted to the main passageway through the main metering jet, while the car is not operating. This serves to eliminate the need for a mechanical vent or anti-percolator.

The Model BC carburetor incorporates the conventional six systems of carburetion: Idle, Part Throttle, Power, Pump, Float and Choke. Each of the systems is basically simple and can be readily traced and understood.

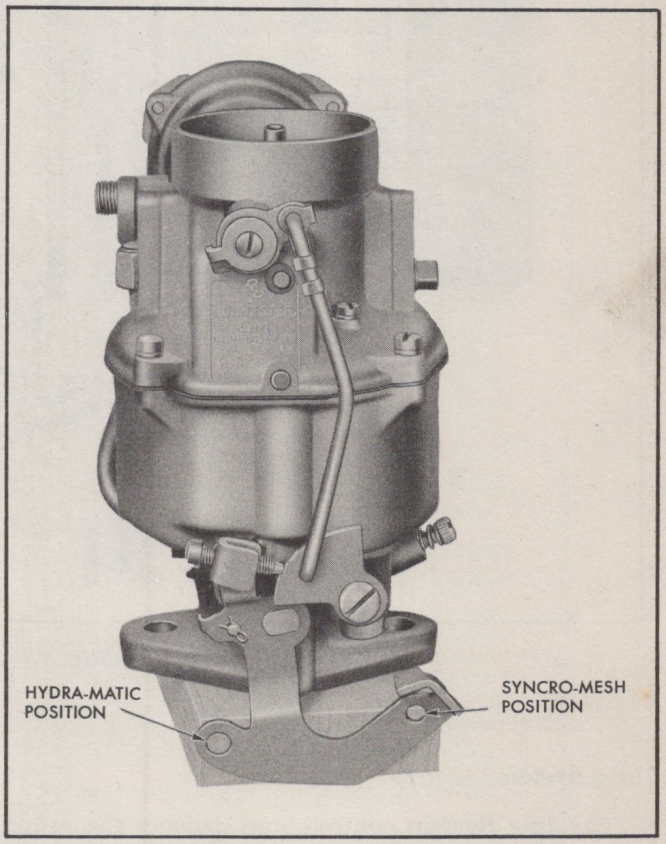


Fig. 6B-2—Throttle Lever Connections

By positioning the throttle connector rod to the correct throttle lever hole, the carburetor serves both the Hydra-Matic and Synchro-Mesh drive (Fig. 6B-2).

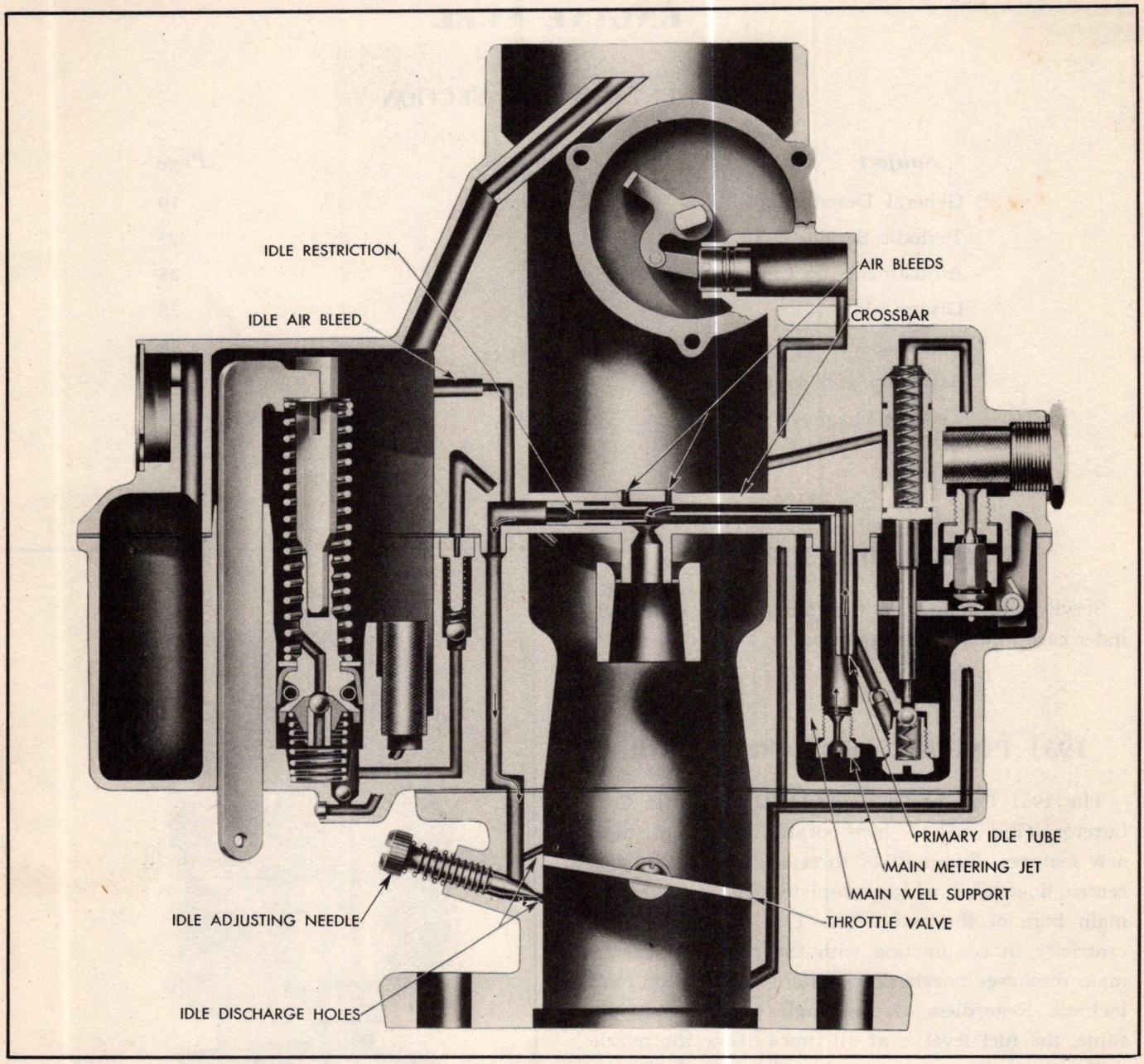


Fig. 6B-3—Idle System

Idle System

The Idle System controls and delivers the proper fuel/air mixture for idling and up to 25-35 MPH.

As shown on Fig. 6B-3, the idle fuel first passes from the bowl through the calibrated Main Metering Jet attached to the bottom of the Main Well Assembly. This fuel is then drawn up the Main Well by manifold vacuum (suction) to the crossbar in the Air Horn. Air joins the fuel through the calibrated air bleeds in the center of the crossbar. This fuel/air mixture is then calibrated as it passes through the Idle Restriction and is drawn down the passage in the Float Bowl to the Throttle Body.

The idle fuel is then metered to the engine by the idle adjusting needle hole which is below the throttle valve. As the throttle valve is opened to a greater degree, the idle hole which was above the closed throttle valve is exposed to manifold vacuum and delivers additional fuel to meet the increased engine demand.

A small brass idle tube is pressed into the main passageway of the cover assembly. This idle tube serves to break up any vapor bubbles which might cause poor engine idle during hot weather operation.

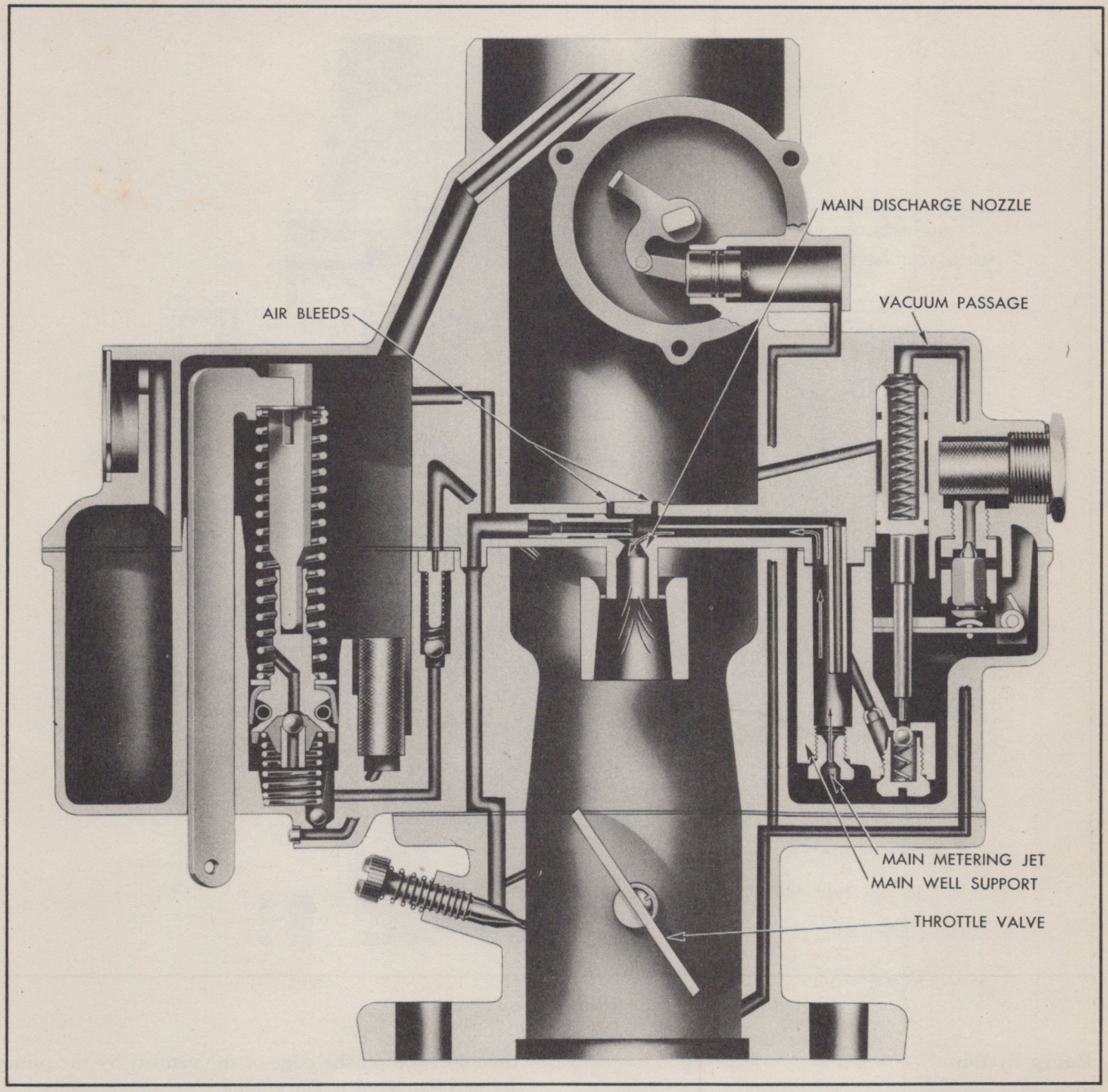


Fig. 6B-4—Part Throttle System

Part Throttle System

As the throttle valve is opened further, air at a higher velocity is drawn down the carburetor throat. This creates a pressure drop or suction in the venturi at the main discharge nozzle (Fig. 6B-4) in the crossbar. As a consequence, fuel and air begin to pass from the main nozzle to meet the increased engine demand. Further throttle opening will result in greater air velocity passing through the carburetor with resultant higher fuel flow from the nozzle and decreased flow from the idle system until it eventually cuts out altogether.

The calibration of the Main Metering Jet and the Air Bleeds in the crossbar maintain economical fuel/air ratios throughout the part-throttle or cruising range.

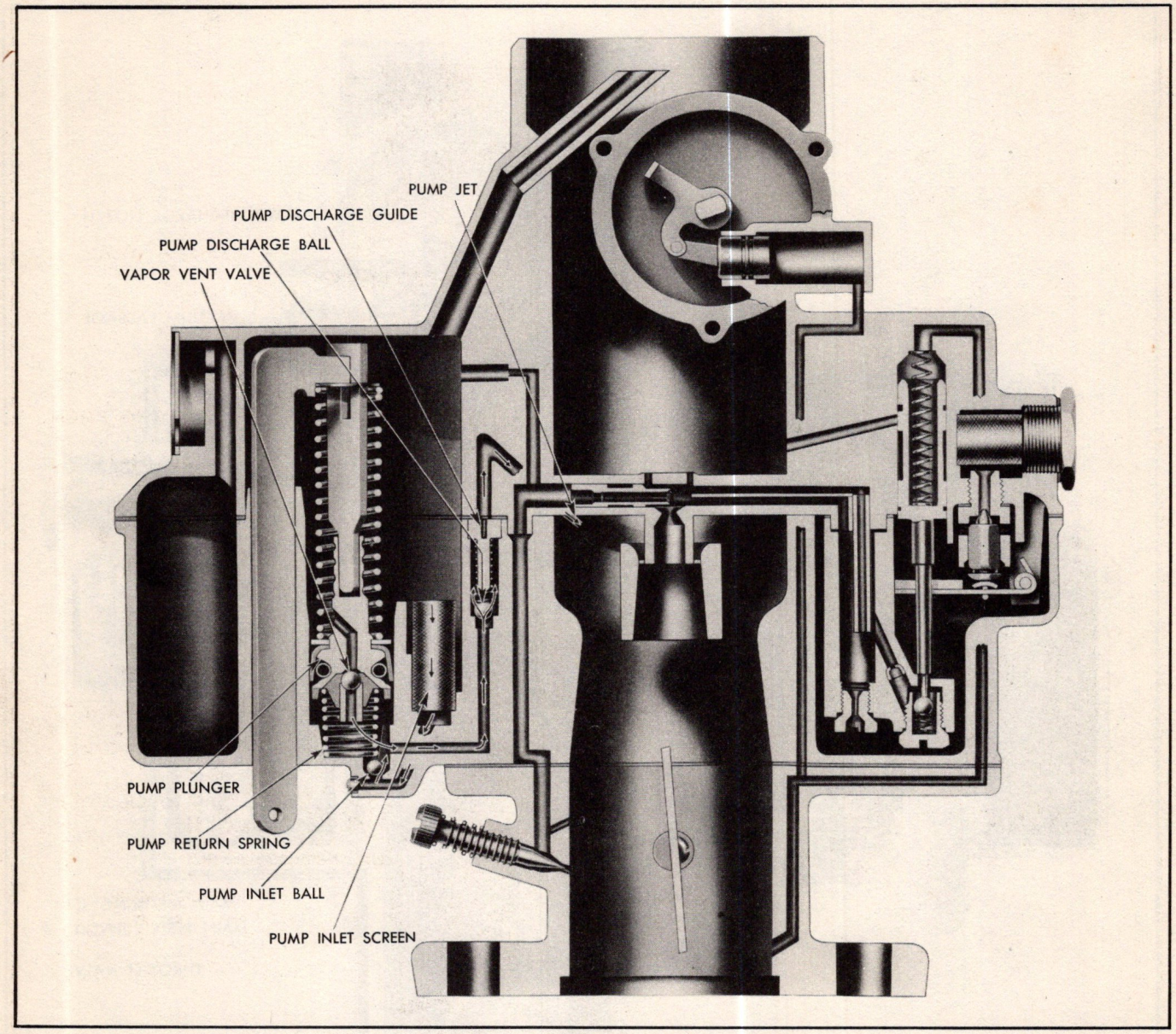


Fig. 6B-5—Pump System

Pump System

To provide fuel for smooth, quick acceleration a double spring pump plunger is used in the Model BC carburetor (Fig. 6B-5). The rate of compression of the top spring versus the bottom spring is calibrated to insure a smooth, sustained charge of fuel for acceleration.

To exclude dirt, all fuel for the pump system first passes through the pump screen in the bottom of the float bowl. It is then drawn past the ball check into the pump well on the intake stroke of the plunger. Upon acceleration the force of the pump plunger seats the ball check and forces fuel up the discharge passage. The pressure of the fuel lifts the pump outlet ball check from its seat. The fuel is then sprayed on the edge of the venturi by the pump jet and delivered to the engine.

The pump plunger head has been designed to eliminate fuel percolation in the pump system. This has been accomplished by the unique design of a ball check and seat in the plunger head. When the engine is not operating, any build-up of fuel vapors in the pump well rise and by-pass the ball. This allows the hot fuel and vapors to circulate up the passage in the plunger head and return to the float bowl. Without this feature, any vapor pressure built up would evacuate the fuel in the pump system into the engine manifold, causing poor initial acceleration due to lack of fuel in the pump system as well as difficult hot weather starting.

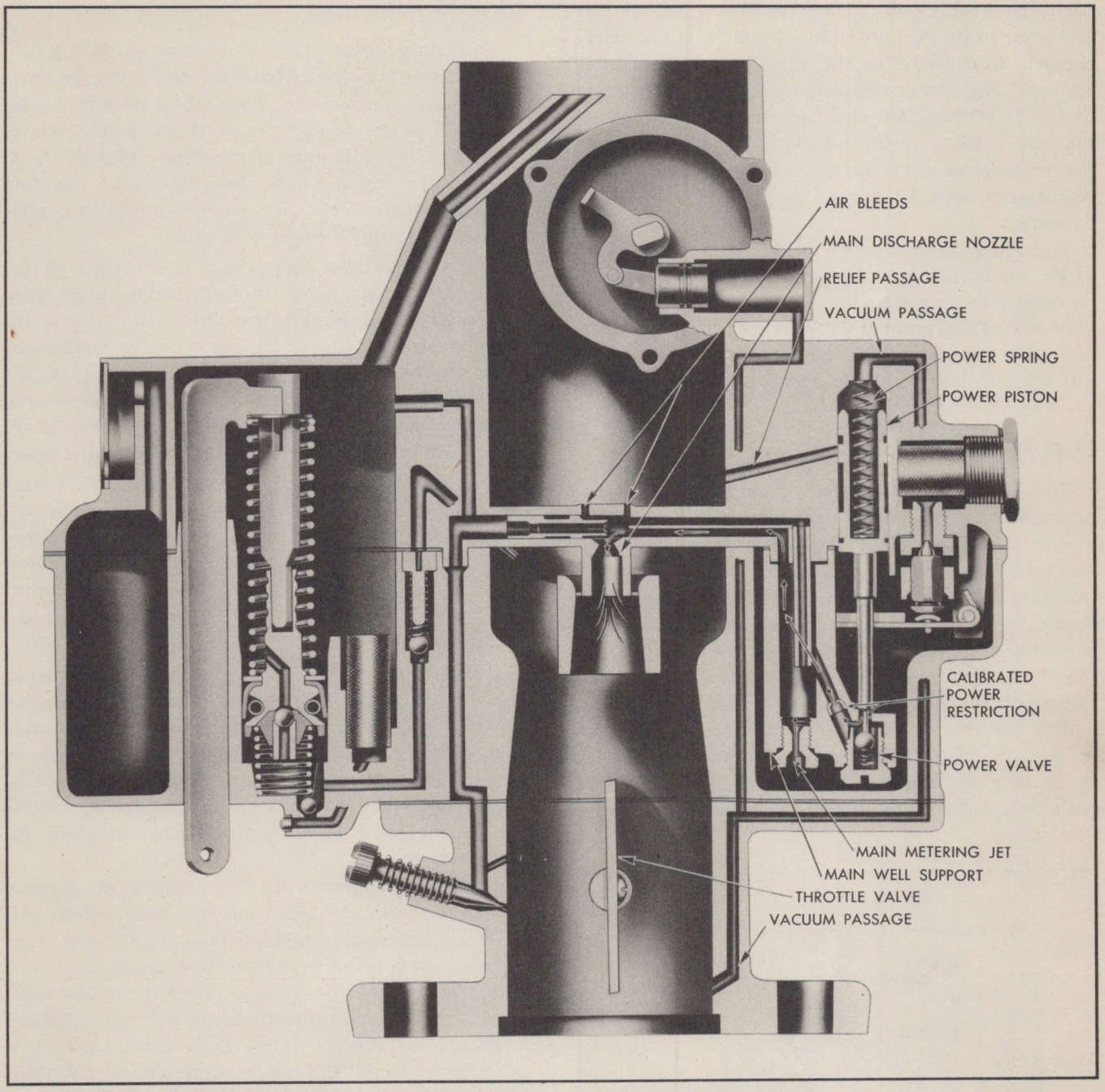


Fig. 6B-6—Power System

Power System

A vacuum operated Power System (Fig. 6B-6) is included in the carburetor to provide additional fuel for sustained high speed operation or increased road load power.

A direct manifold vacuum passage within the carburetor to the engine intake manifold operates this system. At any manifold vacuum above 5″ Hg., the power actuating piston is held in the "UP" position against the compression of the power spring by manifold vacuum. As a consequence, no fuel passes through the ball type power valve.

In accordance with the principle that any sudden acceleration causes a drop in intake manifold vacuum, the power spring has been calibrated so that at any vacuum below 5″ Hg., it forces the power actuating piston "DOWN."

The end of this piston then unseats the spring-loaded ball in the power valve. Fuel passes readily around the ball into the base of the Main Well Sup-

port. The calibrated power restriction meters the fuel prior to its joining the fuel from the main metering jet. Conversely as the manifold vacuum rises above 5" Hg., the power piston is drawn immediately to the "UP" position, and the spring-loaded ball of the power valve closes, returning the carburetor to the economical part throttle mixtures. There is no adjustment required for the part throttle or Power Systems.

The relief passage which is drilled from the bore of the air horn into the power piston passage serves to relieve any vacuum built up around the piston diameter. This vacuum, if unrelieved, would draw fuel past the piston and down the vacuum passage into the manifold, resulting in an overly rich condition.

Float System

The Model BC carburetor employs the conventional float needle and seat to control the fuel level in the float bowl (Fig. 6B-7). In accordance with concentric float bowl design, dual floats are used to maintain fuel level. A small clip connects the float needle to the float. In this manner, the float needle is drawn from its seat by the float as the fuel level lowers, thereby permitting an ample entry of fuel into the bowl to meet increased engine demand.

This feature also serves to retract the needle from its seat, if for any reason a gum residue might tend to cause a sticking condition. Float bowl is vented both internally and externally as shown in the illustration.

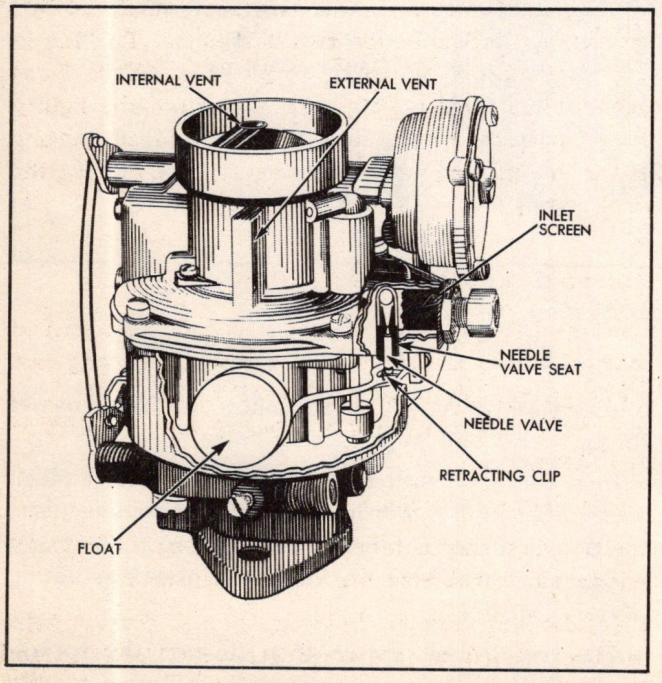


Fig. 6B-7—Float System

Choke System

To insure proper starting and driving during cold weather operation, the Model BC carburetor employs a fully automatic choke. This choke system is composed of a thermostatic coil, choke piston, choke valve and fast idle cam and linkage (Fig. 6B-8). It is controlled by a combination of intake manifold vacuum, the offset choke valve, atmospheric temperature, and exhaust manifold heat.

The thermostatic coil, which is attached to the choke valve shaft, holds the choke valve closed when the engine is cold. As the engine is started, air velocity against the offset choke valve causes the valve to open slightly against the torque of the thermostatic coil. In addition, as the engine starts, intake manifold vacuum is applied to the choke piston, which also tends to pull the choke valve open.

As a consequence, the choke valve assumes a position where the torque of the thermostatic coil is balanced against the vacuum pull upon the choke piston and air velocity against the offset choke valve, thereby causing a regulated air flow into the carburetor which provides a proper mixture during the warm-up period.

During warm-up, the choke piston serves to modify the choking action to compensate for varying engine loads or acceleration. Any acceleration or increased road load decreases the vacuum exerted on the choke piston. This allows the thermostatic coil torque to momentarily increase choke valve closure to provide the engine with a sufficiently richer mixture for acceleration.

As the engine warms up, hot air from the exhaust manifold "stove" is drawn into the thermostatic coil cover by the vacuum behind the choke piston. This hot air causes a rise in temperature which causes the coil to slowly relax its tension. Thus the choke valve is allowed to move gradually to the full open position.

To prevent stalling during the warm-up period, it is necessary to run the engine at an idle speed slightly higher than that for a warm engine. This is accomplished by the fast idle cam which is linked to the choke valve shaft and holds the throttle valve open sufficiently during the warm-up period to give the increased idle RPM, until such time as the choke valve moves to the full open position.

While the automatic choke is in operation, the driver may wish to advance the throttle to the full wide open position. Since this would decrease vacuum pull on the choke piston, thereby closing the choke valve, it is necessary to provide increased carburetor air flow by opening the choke valve mechanically.

To accomplish this, a tang on the throttle lever is made to contact the fast idle cam linkage at wide

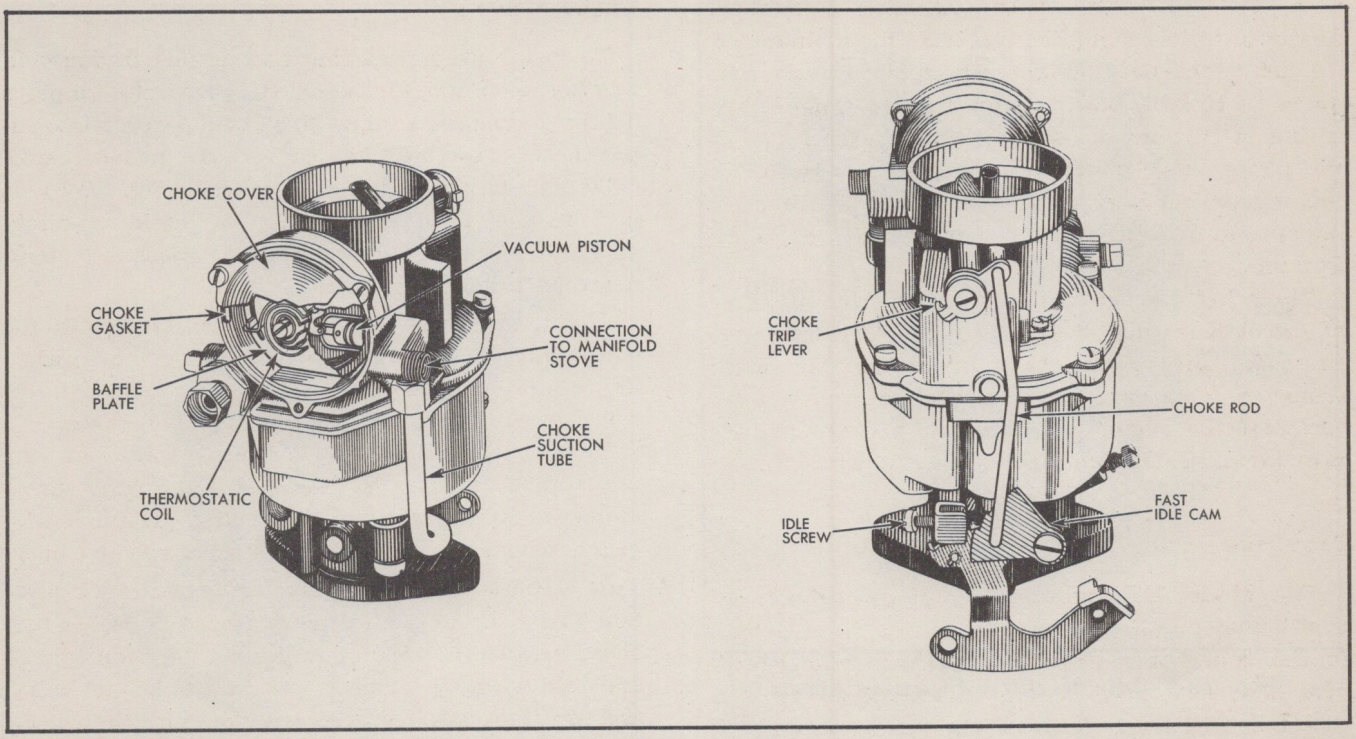


Fig. 6B-8—Choke System

open throttle position so as to partially open the choke valve.

This will also relieve excess choking on starting by allowing more air to enter the carburetor when the engine is cranked with the accelerator held fully depressed.

PERIODIC SERVICE

The Model BC carburetor requires no periodic service. Depending on use and miles of service, there will be certain items such as the carburetor inlet fuel screen and similar items which may require servicing. This can best be done when the carburetor is completely disassembled for some required cleaning and inspection, or replacement of parts.

ADJUSTMENTS ON CAR

Because of the simple construction of the BC carburetor, it is possible to make all carburetor adjustments on the car if desired.

Idle Speed Adjustment

With the engine at operating temperature, (choke entirely off), turn in on the idle speed adjusting screw (Fig. 6B-8), to increase idle speed or out to decrease it. Correct idle speed is 365-385 RPM for Hydra-Matic equipped cars, and 450-475 RPM (7-8 MPH high gear speed on level road) for Synchro-Mesh equipped cars.

Idle Mixture Adjustment

The idle mixture adjustment should be adjusted to give a smooth idle at the specified idle speed. Missing is a sign of too lean an idle mixture, while "rolling" or "loping" indicates too rich a mixture. Turning in the idle mixture adjusting screw (Fig. 6B-9) leans out the idle mixture. 1½ turns out from the lightly seated position may be used as a preliminary setting of the idle mixture adjusting screw before making the final setting.

Automatic Choke Adjustment

Normal setting of the choke is such that the scribed index mark on the cover is in line with the long cast mark on the air horn casting (Fig. 6B-9). If it is believed that the indexing is wrong; it may be checked as follows:

(a) Remove air cleaner.

(b) Allow car to remain in a room at 75°F. until engine and carburetor are at air temperature.

(c) Loosen screws holding choke cover; with throttle opened so idle speed screw will not contact fast idle cam, turn cover counterclockwise until choke valve opens.

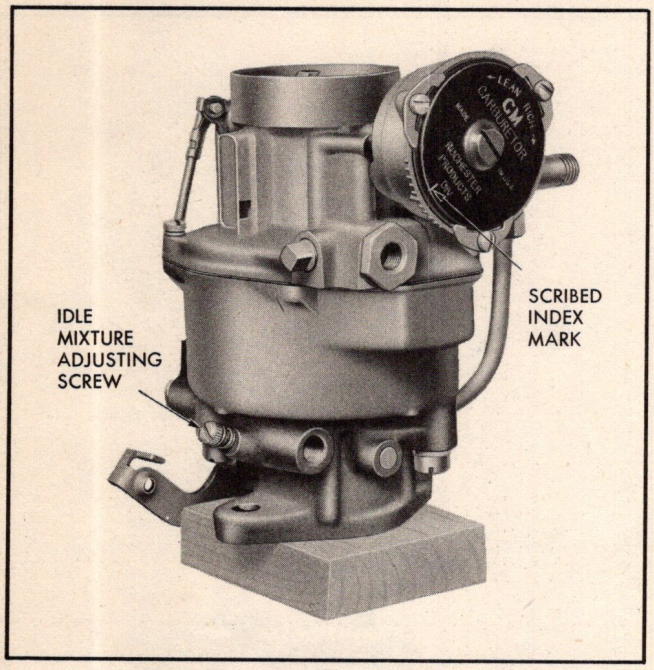


Fig. 6B-9—Idle Mixture Adjusting Screw

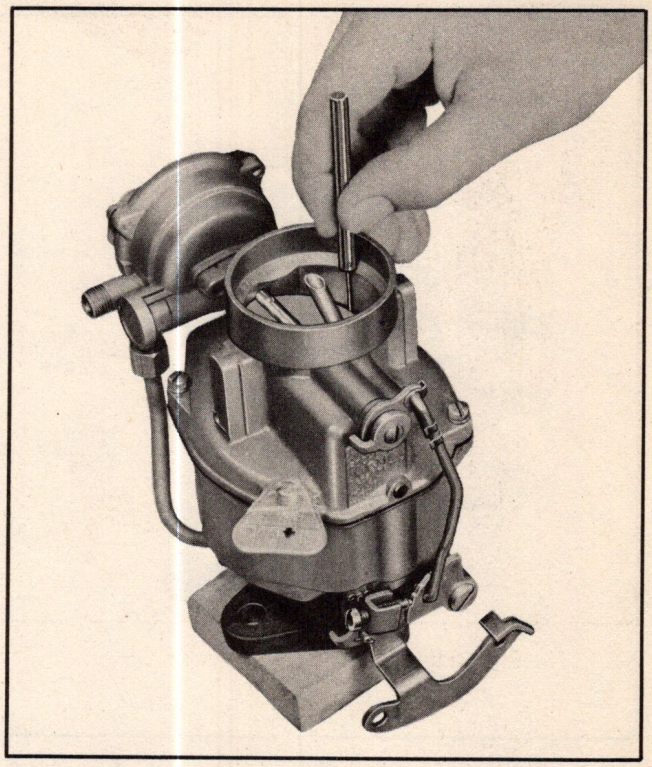


Fig. 6B-10—Checking Fast Idle Adjustment

(d) With throttle opened so idle speed screw will not contact fast idle cam, turn choke cover clockwise until choke valve just closes.

(e) Tighten screws holding choke cover to air horn.

(f) Index mark on choke cover and long mark on air horn casting should now be in line.

Fast Idle Adjustment

No adjustment of fast idle speed is provided since the stops of the fast idle cam are correctly proportioned to give the correct speed stops above normal idle speed. It is necessary, however, to have the correct relationship between fast idle cam position and choke valve position. To check and adjust this setting, proceed as follows:

(a) Place end of idle screw on the next to highest step of the fast idle cam (see Fig. 6B-10). Using gauge J-4553, see if small end of gauge just slides easily between lower edge of choke valve and bore of carburetor, as shown in Fig. 6B-10.

(b) If necessary, bend choke rod, using tool J-4552, until prescribed clearance as measured in step (a) is obtained.

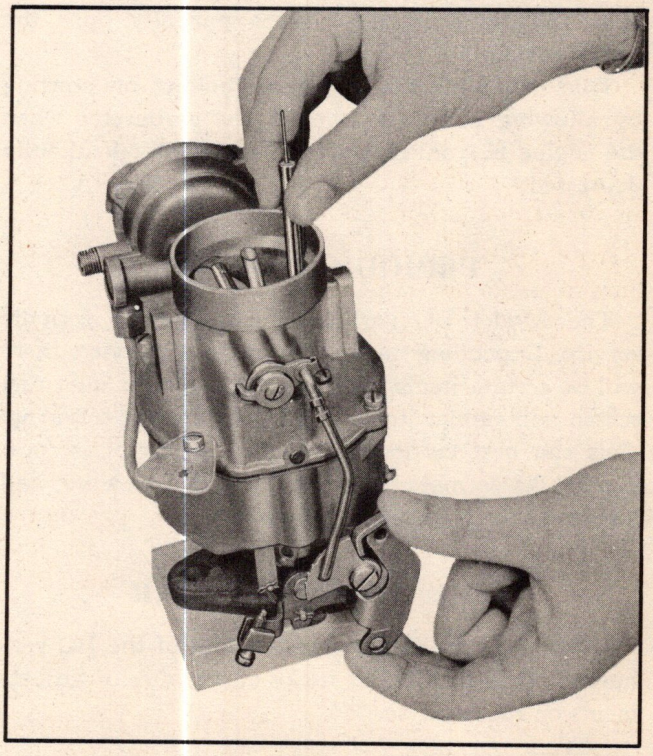


Fig. 6B-11—Check Unloader Adjustment

Unloader Adjustment

Check and make any necessary correction of unloader adjustment as follows:

(a) Place throttle in wide open position.

(b) Using gauge, J-4553, see if large end of gauge just slides freely between lower edge of choke valve and bore of carburetor as shown in Fig. 6B-11.

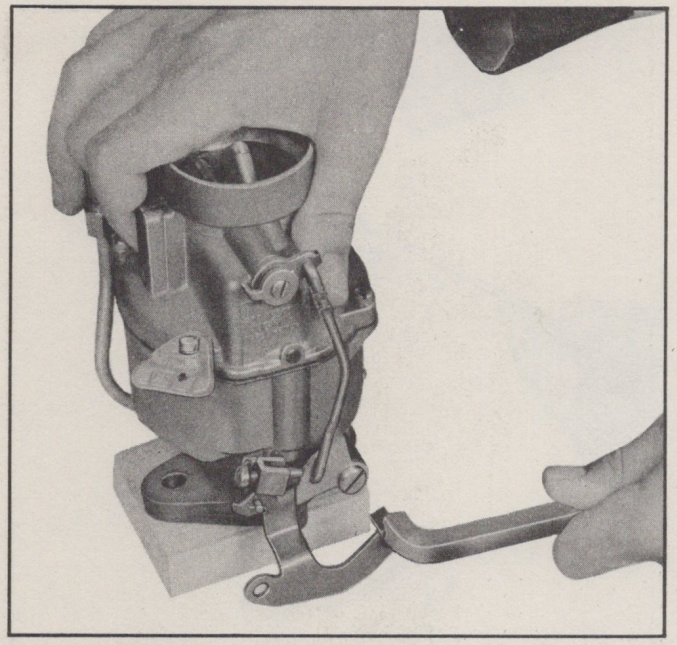


Fig. 6B-12—Adjusting Unloader

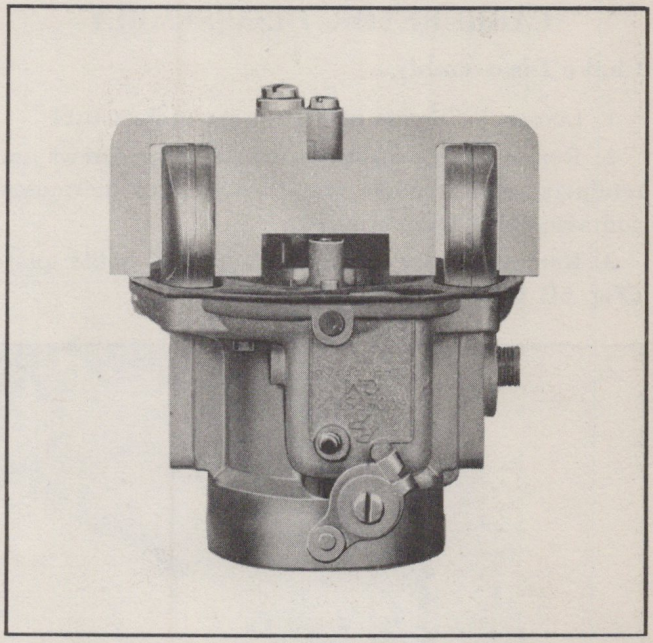


Fig. 6B-13—Checking Float Level

(c) If necessary, bend tang of throttle lever with tool J-4552, as shown in Fig. 6B-12 to obtain necessary clearance.

Float Adjustment

To check float adjustment, proceed as follows:

(a) Disconnect fuel line and manifold stove hot air tube from carburetor.

(b) Loosen hex nut fastening carburetor hot air tube to choke housing.

(c) Remove upper end of choke rod from choke counterweight.

(d) Remove six screws from bowl cover and remove bowl cover and air horn assembly from carburetor bowl.

(e) Position float gauge, tool J-4554, over cover gasket (Fig. 6B-13) and see if tops of floats just touch gauge. If necessary, carefully bend float arms to get correct adjustment.

(f) Using float gauge as shown in Fig. 6B-14, gauge float drop and sidewise positioning of floats. If necessary, bend float tang at rear of float to get correct float drop. Proper centering of floats between gauge legs can be attained by carefully bending float arms.

(g) Re-check float level adjustment to insure that it has not been changed.

NOTE: **No other carburetor adjustments are required. Correct positioning of the accelerator pump plunger is assured by proper bending of the pump link at the factory. No change in this setting should be made. No aiming of the accelerating pump jet is required.**

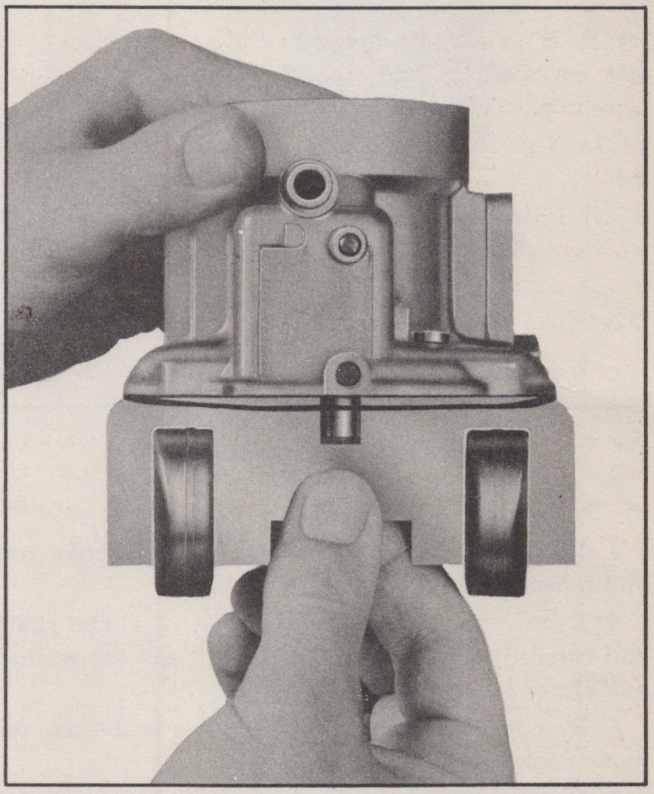


Fig. 6B-14—Checking Float Drop

CARBURETOR DISASSEMBLY

Choke Disassembly

1. Loosen ½" brass fitting on choke heat tube.

2. Remove three attaching choke cover screws and retainers; then remove choke cover and thermostat coil assembly from carburetor.

3. Remove choke cover gasket and baffle plate (Fig. 6B-15).

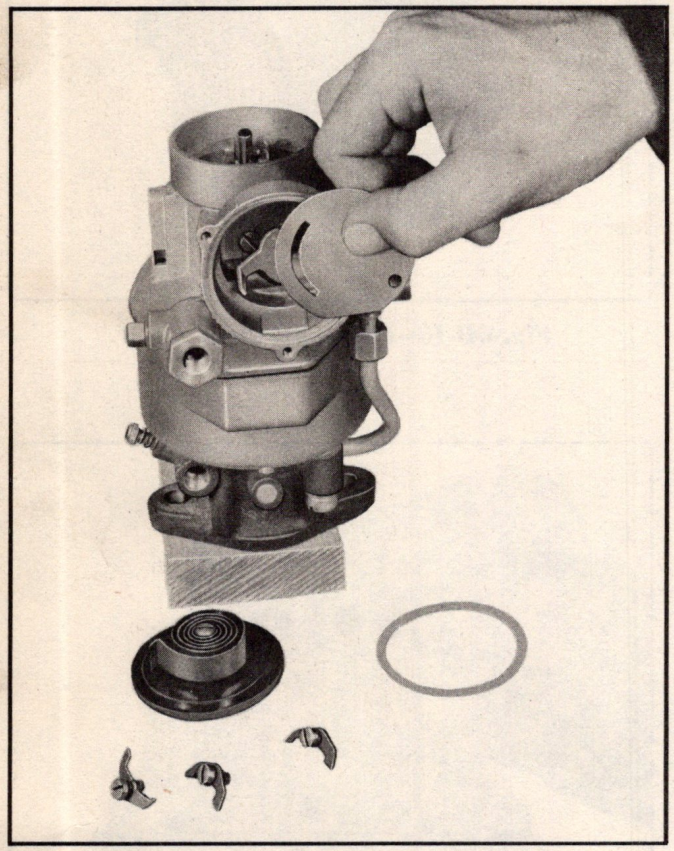


Fig. 6B-15—Removing Baffle Plate

4. Remove retainers from each end of choke rod and remove rod.

5. Remove retaining screw at end of choke shaft and carefully pry off choke trip lever, spacing washer and choke counterweight (Fig. 6B-16).

6. Remove two choke valve screws and then remove choke valve.

7. Rotate choke shaft clockwise to free choke piston from housing and then remove piston and choke shaft from carburetor (Fig. 6B-17).

8. Remove choke piston pin and piston from choke shaft.

9. Remove two choke housing attaching screws (Fig. 6B-18). Choke housing and gasket may now be removed from cover.

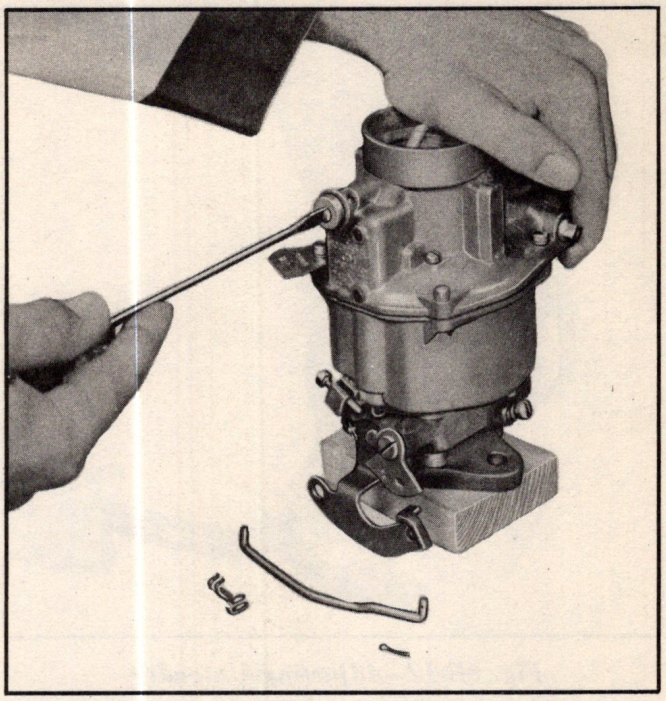


Fig. 6B-16—Removing Trip Lever Retaining Screw

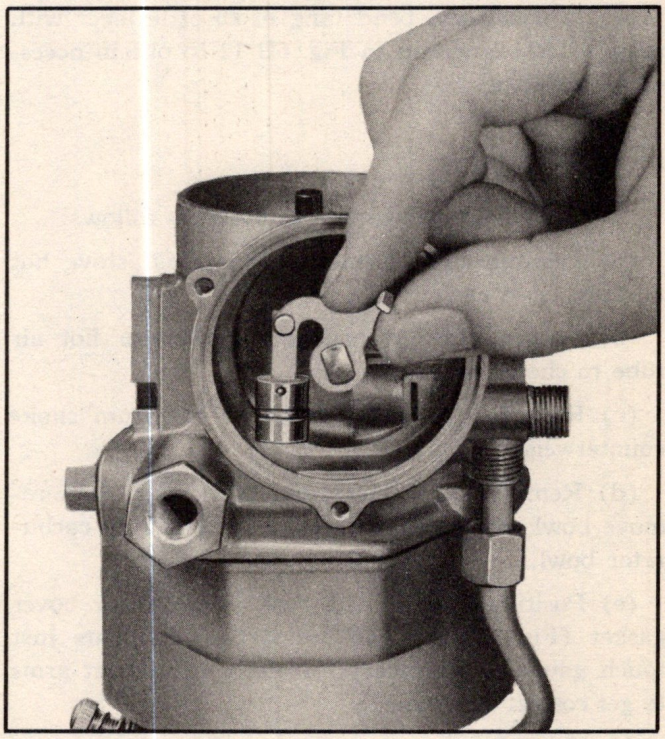


Fig. 6B-17—Removing Choke Shaft

Cover Disassembly

1. Remove filter screen retainer nut and gasket with ¾" wrench and remove filter screen. The pipe plug located at right angles to the filter screen and retainer nut is for use in checking fuel pump pressure and need not be removed.

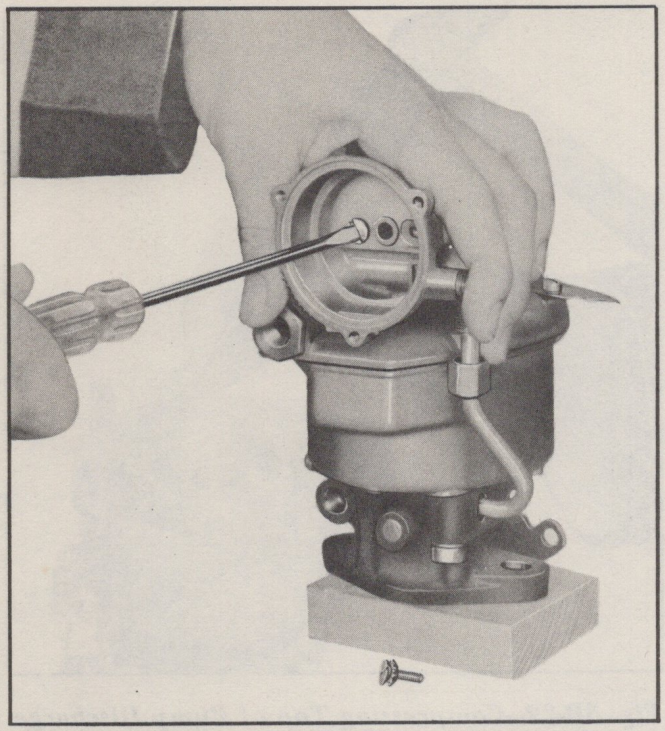


Fig. 6B-18—Removing Choke Housing

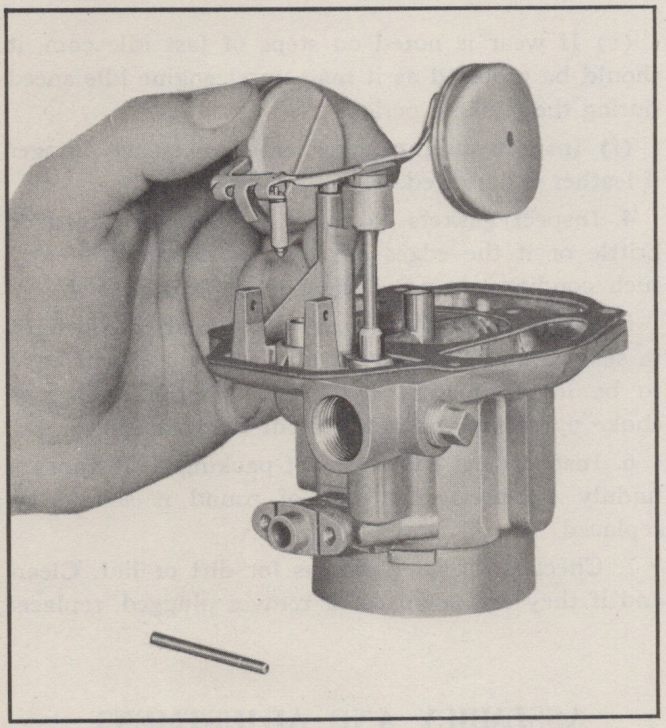


Fig. 6B-19—Removing Floats

2. Remove six cover screws and lift cover from bowl.

3. Place cover upended on flat surface. Remove float hinge pin and lift float assembly from cover (Fig. 6B-19). Float needle may now be removed from float.

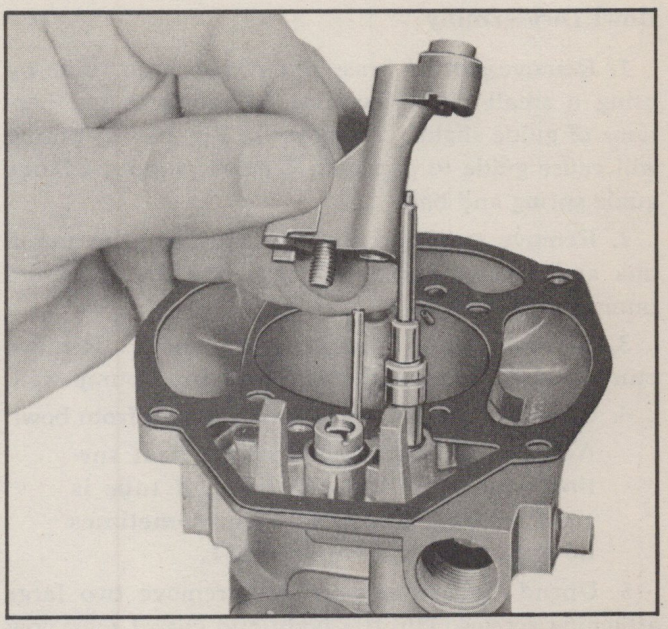


Fig. 6B-20—Removing Main Well Support

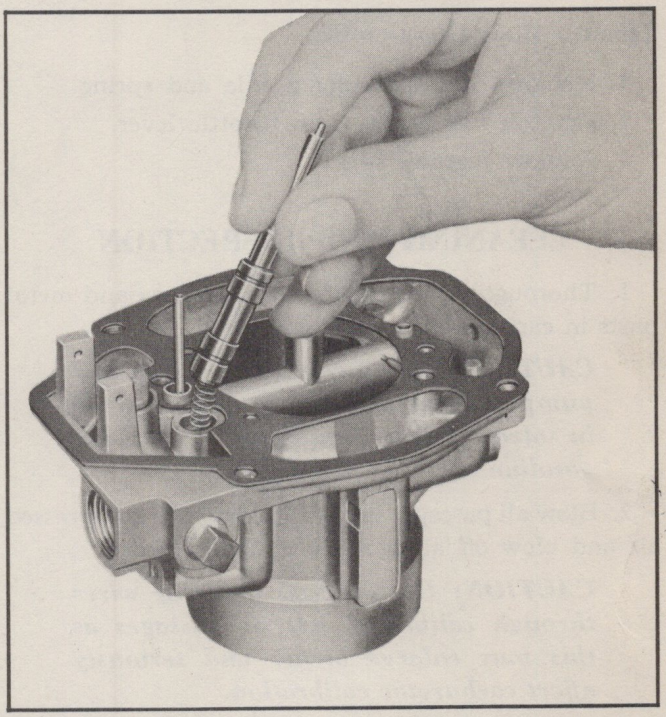


Fig. 6B-21—Removing Power Piston and Spring

4. Remove float needle seat and gasket with wide blade screwdriver.

5. Remove main metering jet from main well support.

6. Remove main well support (Fig. 6B-20). Cover gasket may now be removed.

7. Remove power piston and spring (Fig. 6B-21).

NOTE: **Do not remove idle tube from cover.**

Bowl Disassembly

1. Remove slotted brass pump discharge guide by using a small bit screwdriver to compress top portions of guide slightly as shown in Fig. 6B-22. Spring will cause guide to pop out. Remove pump discharge guide spring and ball.

2. Remove two hair pin type springs from pump link and remove pump link from throttle lever and pump plunger arm.

3. Remove pump plunger from bowl. Remove pump return spring and intake ball from pump well.

4. Carefully remove pump intake screen from bowl.

***NOTE:* Do not remove choke heat suction tube from throttle body, if tube is tight in seal. Loose seal can sometimes be tightened using tool J-4551.**

5. Upend carburetor bowl and remove two large attaching screws. Throttle body and gasket may now be removed.

Throttle Body Disassembly

1. Remove idle adjusting needle and spring.
2. Remove idle screw from throttle lever.
3. Remove fast idle cam.

CLEANING AND INSPECTION

1. Thoroughly clean carburetor castings and metal parts in carburetor cleaning solvent.

CAUTION: Choke coil and housing and pump plunger should not be immersed in solvent. Clean pump plunger in clean gasoline only.

2. Blow all passages in castings dry with compressed air and blow off all parts until they are dry.

CAUTION: Do not pass drills or wires through calibrated jets or passages as this may enlarge orifice and seriously affect carburetor calibration.

3. Check all parts for wear. If wear is noted, defective parts must be replaced. Note especially the following:

(a) Check float needle and seat for wear. If wear is noted the assembly must be replaced.

(b) Check float lip for wear and float for dents. Check floats for leaks by shaking.

(c) Check throttle and choke shaft bores in throttle body and cover castings for wear or out of round.

(d) Inspect idle adjusting needle for burrs or ridges. Such a condition requires replacement.

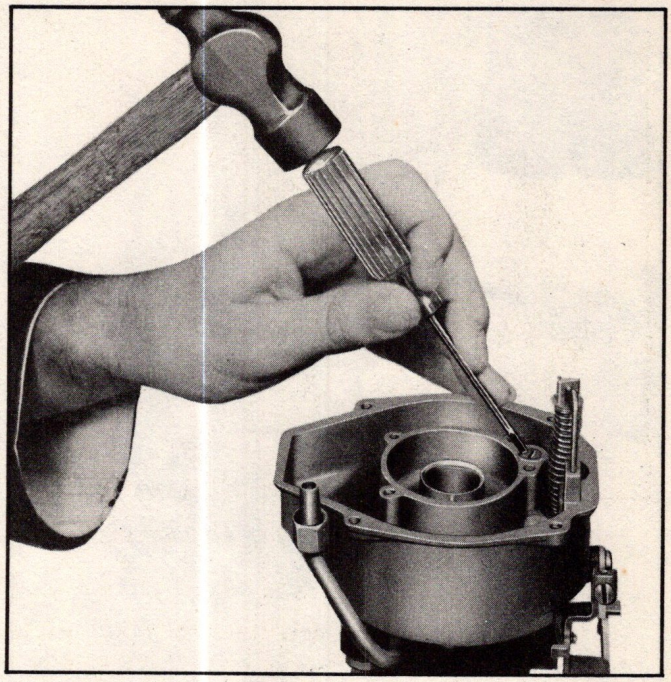


Fig. 6B-22—Compressing Top of Pump Discharge Guide

(e) If wear is noted on steps of fast idle cam, it should be replaced as it may upset engine idle speed during the choking period.

(f) Inspect pump plunger leather. Replace plunger if leather is damaged.

4. Inspect gaskets to see if they appear hard or brittle or if the edges are torn or distorted. If any such condition is noted they must be replaced.

5. Check to see that lower end of heat tube is tight in seal in throttle body. If not, a new seal will have to be installed after carburetor assembly or poor choke operation will result from vacuum leak.

6. Inspect heat tube hex nut packing. If it appears unduly compressed or out of round it should be replaced.

7. Check both filter screens for dirt or lint. Clean and if they are distorted or remain plugged, replace.

ASSEMBLY AND ADJUSTMENT

Throttle Body Assembly

1. Install idle screw in throttle lever.

2. Screw idle adjusting needle and spring into throttle body until it is finger tight. Back out screw 1½ turns as a temporary idle adjustment. Make final adjustment on engine.

3. Install fast idle cam.

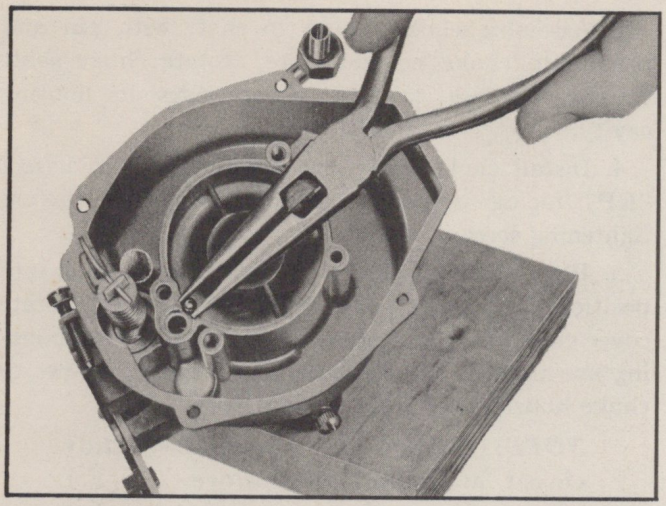


Fig. 6B-23—Installing Pump Discharge Ball

4. Upend bowl, place new throttle body gasket into position and attach throttle body. Tighten screws evenly and securely.

> ***NOTE:*** **New choke heat tube seal, if needed, will be installed after carburetor is completely assembled (see page 33).**

Bowl Assembly

1. Drop small aluminum ball into pump well hole, and replace pump return spring. Press spring with finger to center it in pump well.

2. Install pump plunger assembly and attach pump link to pump plunger arm and throttle lever. Attach two pin springs to end of pump link.

> ***NOTE:*** **The bend in the pump link must face away from throttle shaft.**

3. Press pump filter screen carefully into position.

4. Install large steel ball in pump discharge cavity (Fig. 6B-23). Place spring and pump discharge guide atop ball. Spread pump discharge guide slot slightly with screwdriver blade as shown in Fig. 6B-24, to keep in place.

Cover Assembly

1. If idle tube is loose, the cover must be replaced since the cover and idle tube are serviced as an assembly.

2. Install float needle seat and gasket, using screwdriver with ½" bit.

3. Place power piston spring and power piston into vacuum cavity. Piston should ride free in cavity.

4. Place new cover gasket on cover, check to be sure that all cover and gasket holes are aligned.

5. Attach main well support to cover securely.

6. Install main metering jet in main well support.

7. Assemble float needle to float and place float carefully into position. Tang at rear of float must face cover. Install float hinge pin.

Float Adjustment

(a) With the air horn gasket installed, place float gauge in position as shown. Adjust floats by bending the float arm so that the top of the floats just touch the float gauge (Fig. 6B-25).

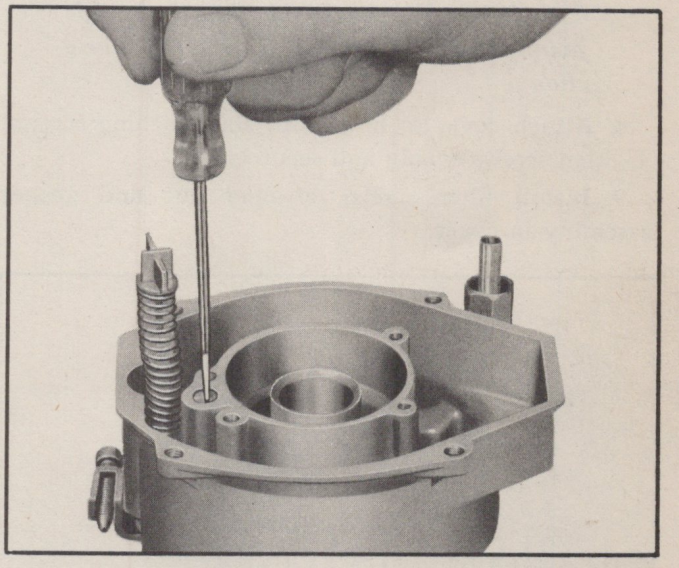


Fig. 6B-24—Spreading Top of Pump Discharge Guide

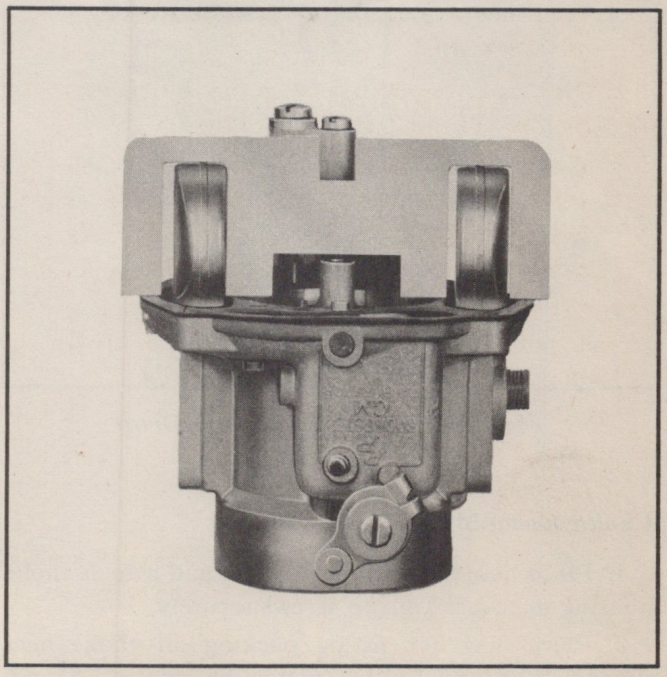


Fig. 6B-25—Checking Float Level

(b) To insure ample entry of fuel into the float bowl under high speed operation, it is necessary to properly adjust the float drop. At the same time each float should be centered between the gauge legs to make certain the floats will not rub the side of the float bowl.

Place the float gauge in position shown in Fig. 6B-26 with the air horn gasket in place and the air horn right side up. If necessary, bend float tang at rear of float to permit gauge to slide between air horn gasket and floats.

With gauge in the same position, bend float arms to center floats between legs of gauge.

CAUTION: Re-check the float level adjustment to be certain it has not been changed.

8. Attach cover to bowl with six attaching screws. Tighten screws evenly and securely.

9. Install filter screen, strainer nut and gasket assembly in cover.

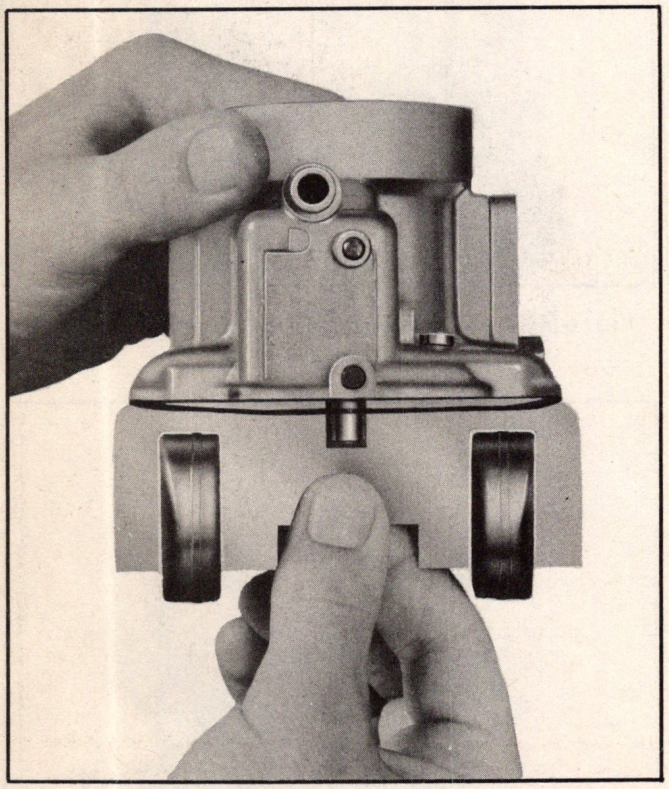


Fig. 6B-26—Checking Float Drop

Choke Assembly

1. Place new gasket into position and attach choke housing to cover. Tighten screws securely.

2. Place new hex fitting packing on choke heat suction tube and tighten fitting on choke housing. Fitting must be tight to prevent loss of vacuum.

3. Assemble choke piston to shaft with pin and place into choke housing bore. Rotate choke shaft counterclockwise so that piston rides in housing cavity.

4. Install choke valve on choke shaft with letters "RP" facing upward. Center choke valve before tightening screws.

5. Place baffle plate and choke housing gasket into position, and install choke coil and cover. Rotate cover clockwise until index marks on cover and housing are aligned. Attach three retainers and screws to choke housing and tighten securely.

***NOTE:* Choke valve should be lightly closed at room temperature (75°F.) when index mark on cover and housing are aligned.**

6. Place choke counterweight on end of choke shaft with tang facing choke housing. Install spacing washer and trip lever so that tang of trip lever is atop counterweight tang, when choke valve is full open (Fig. 6B-27).

7. Install choke rod and retainer to counterweight and fast idle cam. The cotter pin end of the rod must connect to the fast idle cam.

Assemble cotter pin to lower end of rod. Turn ends over to prevent binding or interference.

***NOTE:* Check choke valve for free movement.**

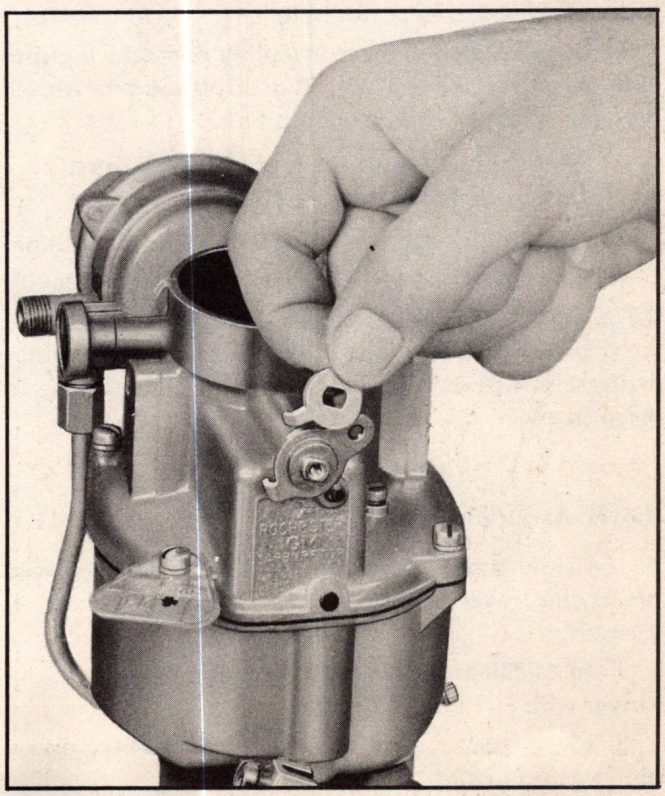


Fig. 6B-27—Installing Choke Trip Lever

Installation of Choke Suction Tube Seal

If the choke suction tube seal in the Throttle Body requires replacement, proceed as follows: This operation must be performed after carburetor is completely assembled.

1. Loosen throttle body to bowl attaching screws.

2. Place flared end of tube with seal into throttle body. Using tool J-4551, tap lightly to hold seal into throttle body. Rotate tube while tapping seal so that it is started uniformly into throttle body.

3. Install hex fitting and new packing on upper end of tube and fasten tube to choke housing by turning hex nut up finger tight.

4. Using tool J-4551 and hammer, spread seal into throttle body securely (Fig. 6B-28).

5. Completely loosen hex nut and check that tube is tight in throttle body (will not turn). Then tighten hex nut to choke housing securely.

6. Tighten throttle body to bowl attaching screws evenly and securely.

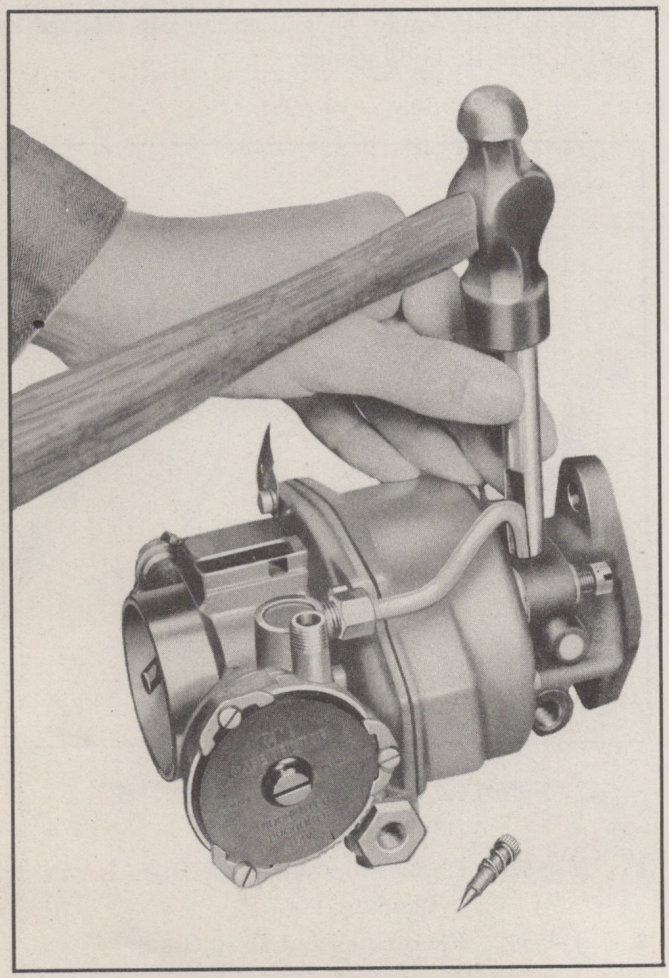


Fig. 6B-28—Spreading Suction Tube Seal in Throttle Body

7. After installing carburetor on car, run idling to warm up engine, check seal with gasoline. If there is a leak, engine will stall or roll.

Carburetor Adjustments

Aside from the float adjustment there are only two other adjustments required; the fast idle and unloader adjustments.

NOTE: **No aiming of the pump jet is required.**

These adjustments must be made in the following sequence. Use combination gauge J-4553.

1. With choke cover and housing index marks aligned, turn idle screw in until it contacts the second step of the fast idle cam as shown. Holding screw tightly against the cam, bend choke rod until the small end of gauge (.059) just slides easily between the lower edge of choke valve and bore of carburetor cover as shown in Fig. 6B-29.

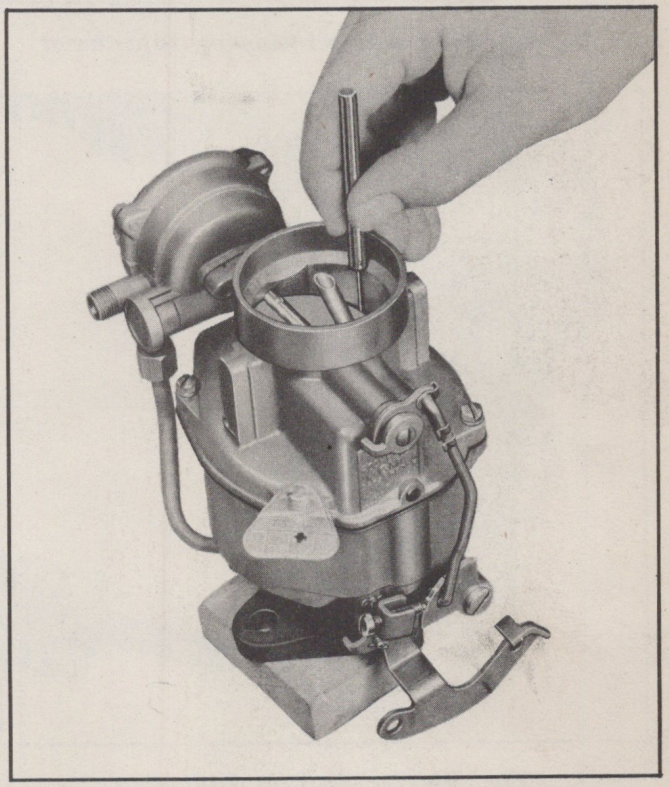


Fig. 6B-29—Checking Fast Idle Adjustment

2. The unloader adjustment is made in the following manner: With throttle lever in full wide open position, there should be a clearance between lower edge of choke valve and bore of carburetor cover so that the large end (.221) of gauge J-4553 will just slide freely (Fig. 6B-30). Bend tang of throttle lever as shown in Fig. 6B-31, to obtain necessary clearance.

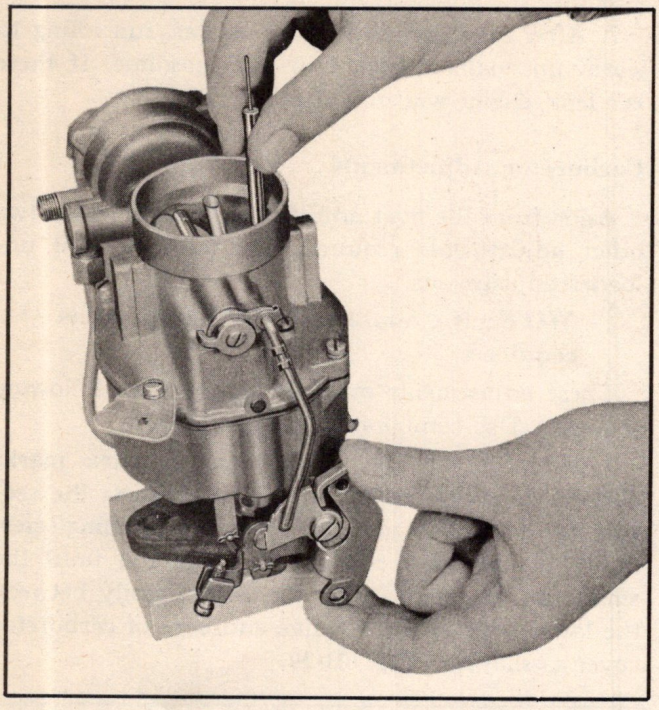


Fig. 6B-30—Checking Unloader Adjustment

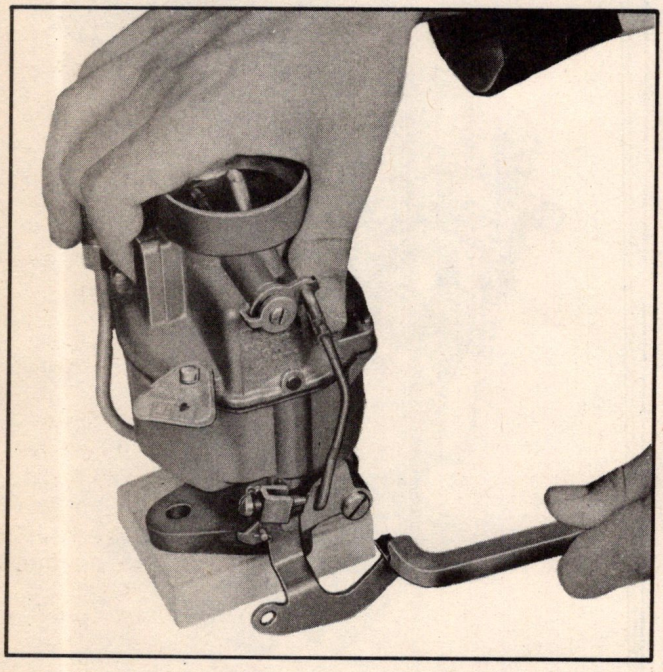


Fig. 6B-31—Adjusting Unloader

TROUBLE DIAGNOSIS 1951 6 CYLINDER RPD.

Possible factors to check:

Poor fuel economy—

1. Choke setting and freedom of action.

2. Choke heat suction tube packing (tight) and hex fitting packing in good condition.

3. Tight joint (good gasket) between throttle valve body and bowl (bad gasket could allow vacuum leak preventing power valve seating).

4. Upper (chamfered) end of power piston head burred or seat in air horn casting burred so piston head does not seat fully in casting and, therefore, fuel leakage into power piston vacuum line at high vacuum.

5. Improper float level.

6. Main jet improper size or leaking around threads.

7. Leaking ball seat in power valve.

8. Air bleeds plugged.

Other Conditions—

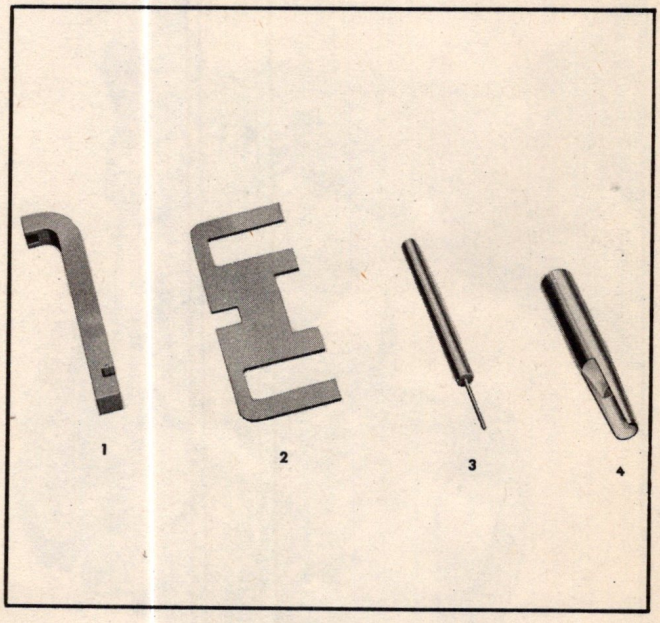
1. Bucking on part throttle following long stop in hot weather operation—plugged bowl vent (inside vent to air horn).

2. Bucking following cold start—overly rich choke.

3. Bucking on part throttle steady load driving—carburetor too rich or too lean.

4. Flat spot on acceleration—leaking accelerating pump check valve or plunger, leather bad. Power piston stuck in upper position.

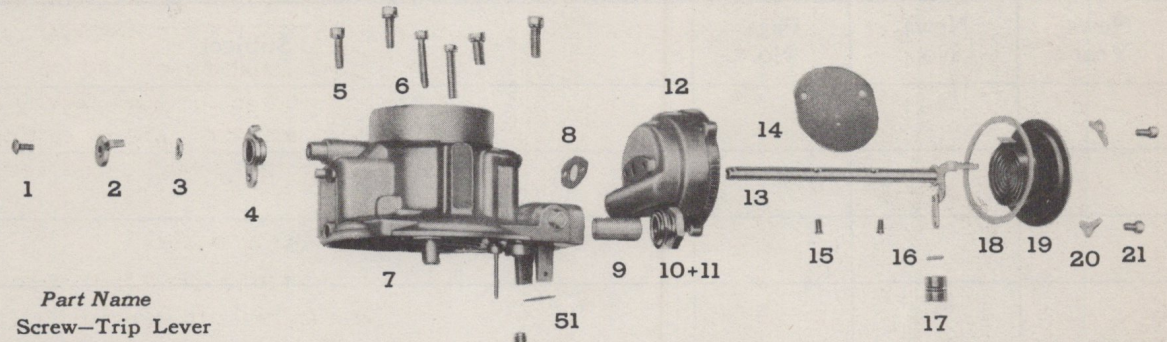
5. Rough idle—may be caused by air leakage at bowl to throttle body gasket.



SPECIAL TOOLS—1951 "6" CARBURETOR

1.	J-4552	Choke Rod and Wide Open Kick Bending Tool
2.	J-4554	Float Level and Drop Gauge
3.	J-4553	Choke Unloader and Fast Idle Gauge
4.	J-4551	Heat Suction Tube Seal Punch

1951 6 CYLINDER ROCHESTER CARBURETOR PARTS



No.	Part No.	Part Name
1	1875051	Screw—Trip Lever
2	7002863	Trip Lever
3	1875354	Washer—Spacing
4	7002860	Choke Lever and Collar Assy.
5	7002879	Screw—Air Horn (4)
6	451910	Screw—Air Horn (2)
7	7003454	Air Horn and Main Well Support Assy.
*** 8		Gasket—Choke Housing
* 9	342139	Strainer—Fuel Inlet
10	7002862	Strainer Nut
** *11	7001597	Gasket—Strainer Nut
12	7002836	Choke Housing
13	7002850	Lever and Link Assy.
14	7002086	Choke Valve
15	7002305	Screw—Choke Valve (2)
16	7002854	Pin—Choke Piston
17	7002853	Choke Piston
** *18	7002760	Gasket—Choke Cover
19	7003453	Thermostat Cover and Coil (Includes Gasket)
20	7000614	Retainer—Choke Cover (3)
21	131954	Screw—Choke Cover (3)
**22		Gasket—Float Needle Seat
*23	7002885	Float Needle and Seat Assembly (Includes Gasket)
24	7002672	Float
*25	7002867	Pump Plunger
*26	7002896	Power Spring
27	7002929	Power Piston

No.	Part No.	Part Name
*28	7002843	Main Well Support
29	7002879	Screw—Main Well Support
30	7002958	Main Metering Jet—Standard
	7002956	Main Metering Jet—Two Size Lean
*31	7002101	Spring—Pump Return
*32	7002120	Ball—Pump Check
** *33		Gasket—Air Horn
*34	7002119	Guide—Pump Discharge
*35	7002866	Pump Screen
*36	7002118	Spring—Pump Discharge
*37	7002117	Ball—Pump Discharge
38		Float Bowl
*39	7003137	Clip—Choke Rod
40	7002880	Choke Rod
41	1875343	Screw—Fast Idle Cam
42	7002876	Fast Idle Cam
43	7002878	Pump Link
** *44	7002156	Gasket—Throttle Body
45		Nut—Heat Tube
46	7002881	Heat Tube
47	7003192	Throttle Body Assy.
48	7002877	Screw Throttle Body (2)
49	7003190	Spring—Idle Screw
50	7002875	Idle Adjusting Screw
51	7002081	Pin—Float Hinge

Parts Not Shown

	Screw—Choke Housing
* 836159	Pump Link Pin Spring Retainer (2)
	Choke Rod Cotter Pin
	Seal—Heat Tube
7001392	Repair Kit
7001391	Gasket Kit
** *7002883	Packing—Heat Tube
504279	Flange Gasket
	Choke Baffle Plate
7002849	Float Valve Clip

*Parts so marked are included in repair kit.
**Parts so marked are included in gasket kit.

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

ENGINE CLUTCH

Service operations for the 1951 clutch are the same as in 1949 and 1950. However, a new clutch facing is used on the six cylinder models. This clutch facing is grooved similar to the 1950 and 1951 eight cylinder clutch facings. The grooving serves to break the vacuum between the facing and the drive plate or flywheel when the clutch is disengaged.

When inspecting clutch parts prior to reassembling a clutch, examine the release bearing support carefully to be certain there are no burrs on the outer surface which pilots the clutch release bearing. Also, be certain there are no burrs on the surface which contacts the clutch housing counterbore at the paper gasket surfaces (Fig. 6C-1). Irregularities on these surfaces may cause abnormal clutch action and transmission oil leakage into clutch.

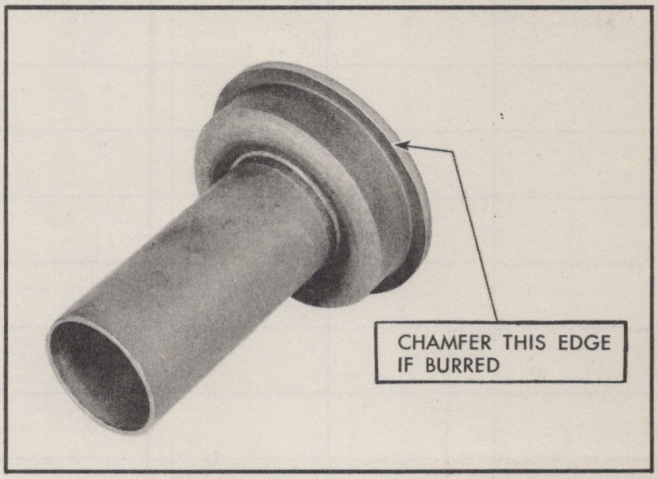


Fig. 6C-1—Clutch Release Bearing Support

TRANSMISSION AND GEARSHIFT CONTROL

Information in the 1949-50 Shop Manual concerning the Synchro-Mesh transmission and gearshift control applies also to the 1951 model.

FUEL TANK AND EXHAUST

Fuel tank construction is the same as in 1950 except for the addition of a fuel outlet pipe anchor which is soldered to the bottom of the tank (Fig. 8-1). With the fuel outlet pipe anchored at the lower end, the gauge unit is held in a positive position giving more accurate gauge readings. For further information on the Fuel Gauge Tank Unit, see page 44 of the Electrical and Instruments Section.

Service procedures on the fuel tank and exhaust systems are the same as in 1950.

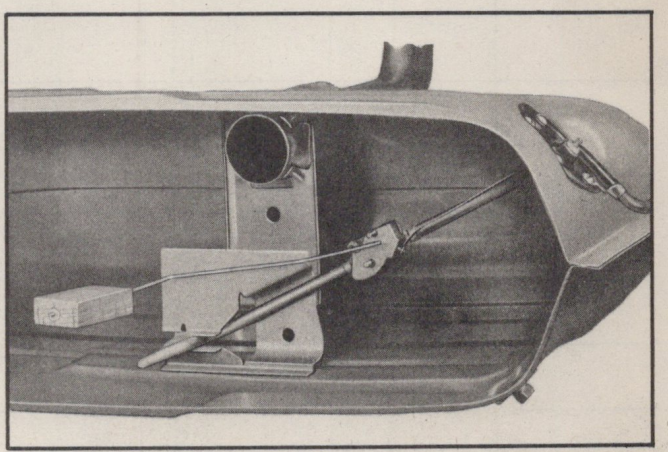


Fig. 8-1—Interior of Fuel Tank Showing Outlet Pipe Anchor

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

STEERING GEAR

Information on the 1950 steering in the 1949-50 Shop Manual will apply to the 1951 model.

WHEELS AND TIRES

Information on wheels and tires in the 1949-50 Shop Manual applies to the 1951 model.

CHASSIS SHEET METAL

Chassis sheet metal is essentially the same in 1951 as in 1950. Several changes have been made appearancewise, but these changes do not affect service procedure. Construction of the 1951 grille is shown in Fig. 11-1.

Sheet metal clearances are the same as those given in Fig. 11-5 of the 1949-50 Shop Manual, except the Station Wagon door clearances shown in Fig. 11-2.

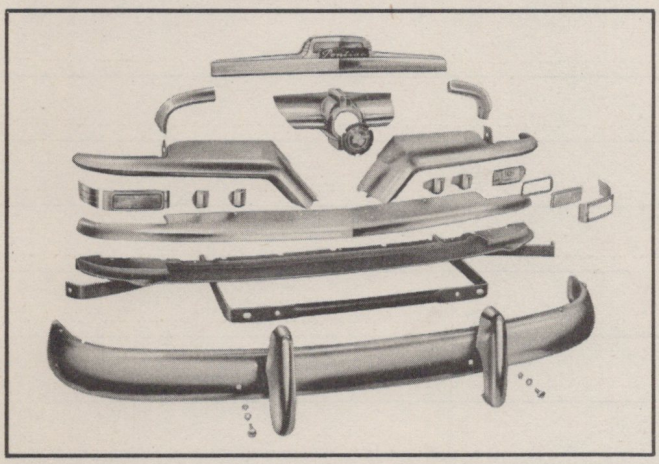


Fig. 11-1—1951 Grille Assembly—Exploded

Hood Removal

If the hood is to be removed for engine replacement or other work, it should be done without removing hinges or springs. This can easily be done by making two hooks as shown in Fig. 11-3, and hooking them around the hood hinge and hinge reinforcement as shown in Fig. 11-4. This will hold the hood hinge reinforcement from snapping back against the windshield when the hood is removed. Remove the screws holding the hinge reinforcement to the hood and remove the hood.

To replace the hood, place it into position on the hood hinge support, install the screws, and remove the hooks.

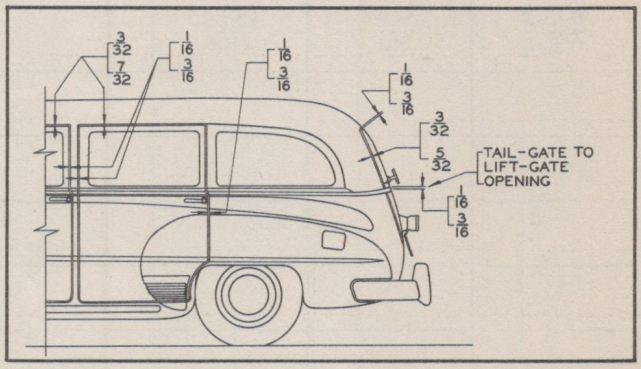


Fig. 11-2—Station Wagon Door Clearances

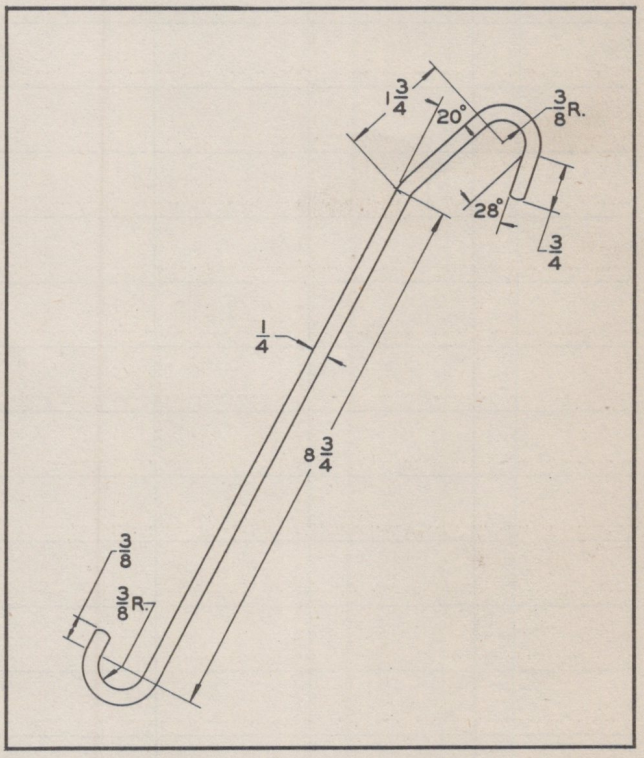


Fig. 11-3—Hood Hinge Hook

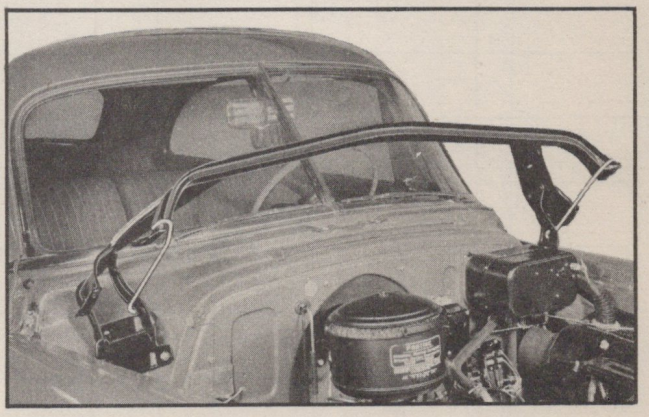


Fig. 11-4—Hood Hinge Hooks Installed on Hinge and Hinge Support

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

ELECTRICAL AND INSTRUMENTS

CONTENTS OF THIS SECTION

GENERAL DESCRIPTION

The complete 1951 wiring diagram (less accessories) for both six and eight cylinder models is shown schematically in Fig. 12-1.

Battery

A new battery is being used on 1951 models. This new battery is commonly referred to as the "Low Gravity Type." The important changes are confined to the chemical functioning of the battery with result that a full charge is obtained at a lower gravity reading than has been conventional in the past. The standard installation uses a Delco Model 15E6, 6 volt, Group 2E, 15 plate battery. The special heavy duty battery is a Delco Model 19E6, 6 volt, Group 2E, 19 plate unit. The 1951 "E6" battery is the same as the 1950 "E4" battery, except for the following:

1. Specific gravity range of electrolyte at full charge is 1.260-1.280 ("E4" models 1.275-1.290).

2. For positive identification of this new Low Gravity Type battery the following markings have been provided on the unit:

(a) Legend "1.270 AT 80°F. FULL CHARGE" is molded on center cover in raised letters (Fig. 12-2).

(b) Upper edge of case bears mold mark "15E6."

Improved Performance

Tests on the new "E6" models indicate that the reduction in specific gravity adjustment will increase battery life, improve resistance to damage from overcharging and improve self-discharge characteristics.

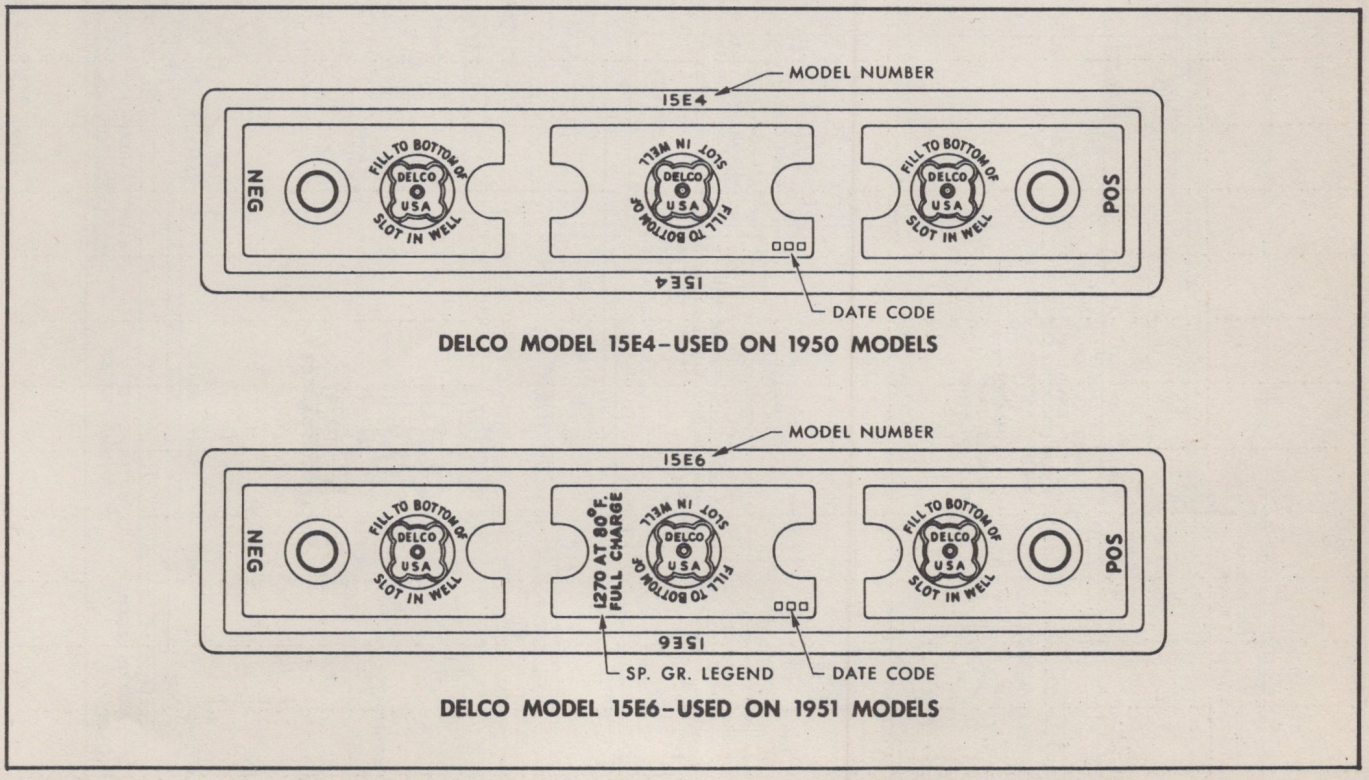


Fig. 12-2–Top View of Old and New Type Batteries

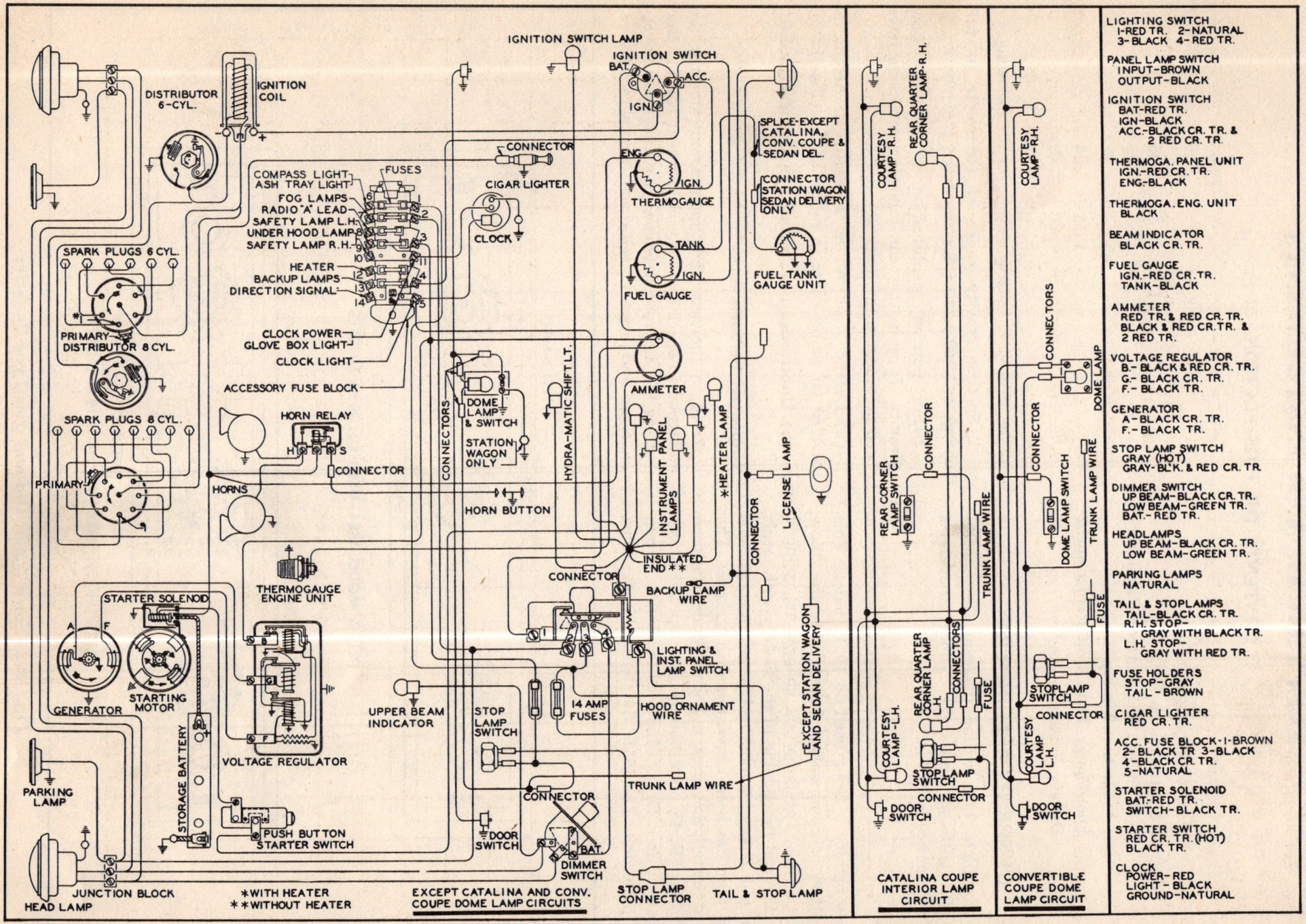


Fig. 12-2—1951 Schematic Wiring Diagram

Generator and Regulator

Generator capacity has been increased for 1951 as shown on the generator performance chart (Fig. 12-3). The oiler on the commutator end frame has been relocated as shown in Fig. 12-4.

Service instructions on the generator are the same as those in the 1949-50 Shop Manual.

Lighting

A single rear license lamp is located on the bumper apron replacing the two lamps used on 1949 and 1950 models.

Tail lamps have been enlarged and are of new construction as shown in Fig. 12-5.

Accessory Fuse Block

The accessory fuse block has been enlarged and improved. It includes two additional fuses, has a better cover locking arrangement, and eliminates the danger of shorting between cover and fuse clips.

Body Wiring

The body wiring for 1951 is enclosed in a tough cloth braid which will prevent sharp edges from damaging the insulation and thereby reduce the possibility of shorting.

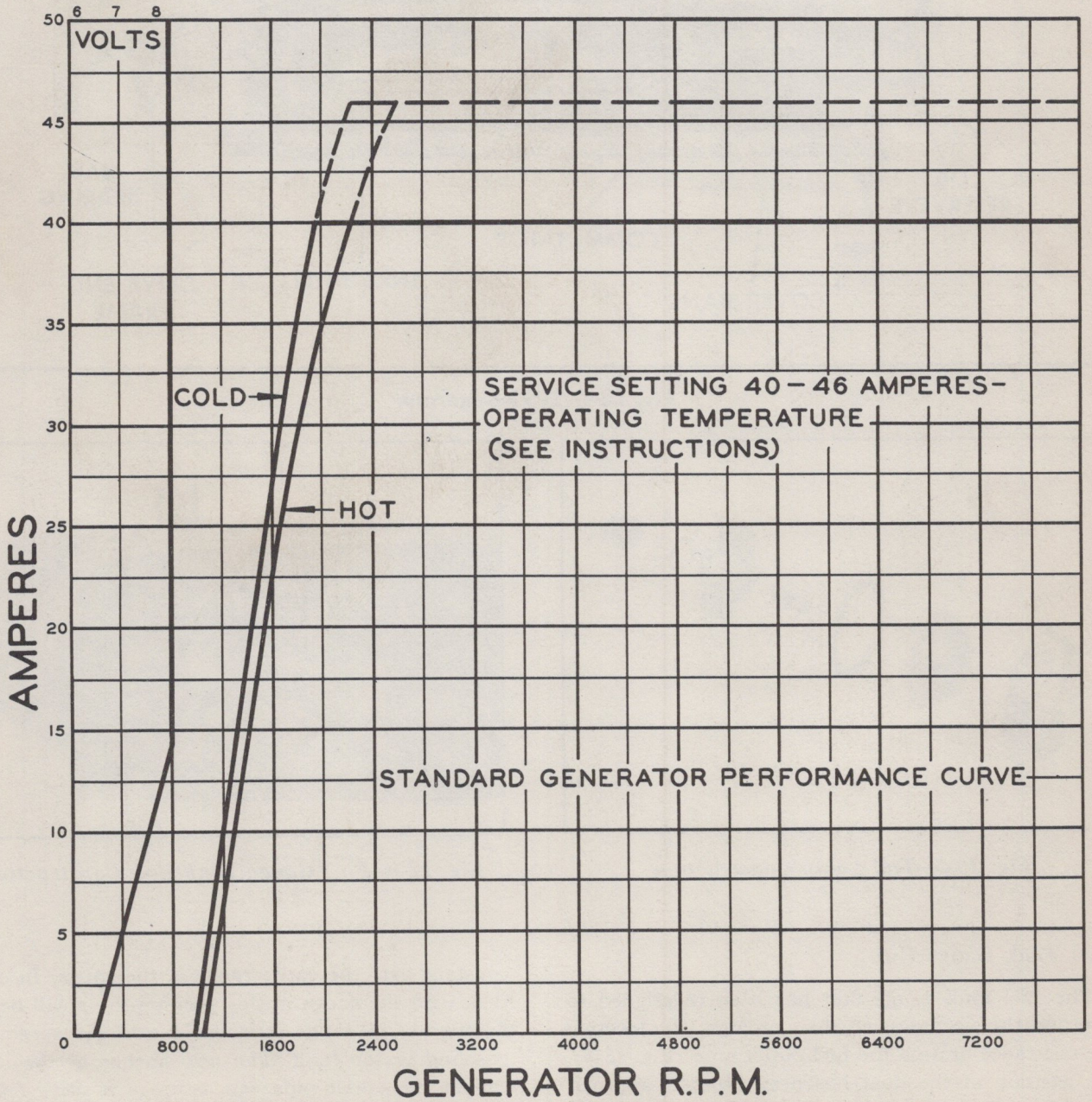


Fig. 12-3—Generator Performance Chart

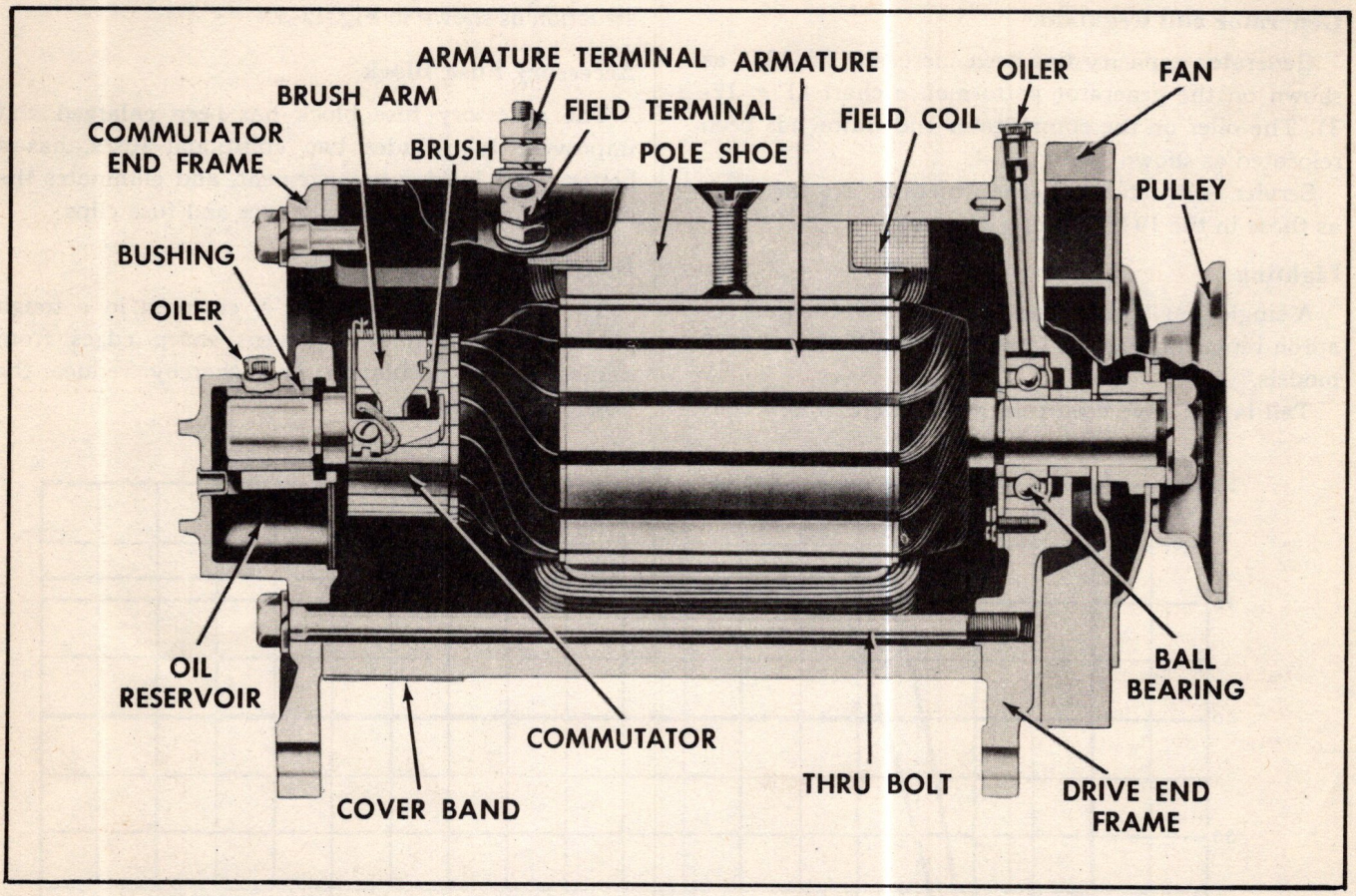


Fig. 12-4—1951 Generator

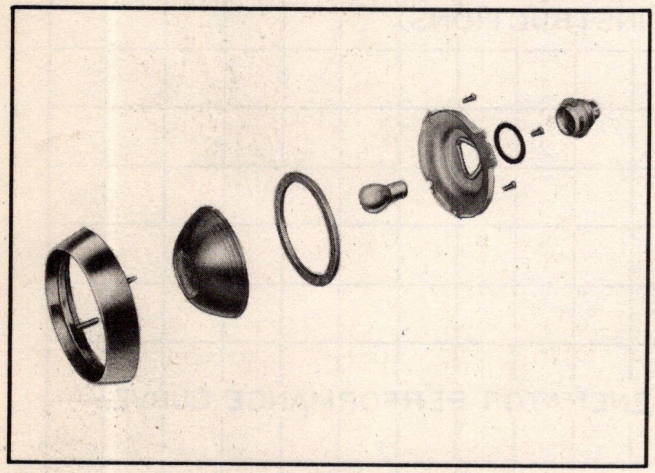


Fig. 12-5—Tail Lamp Construction

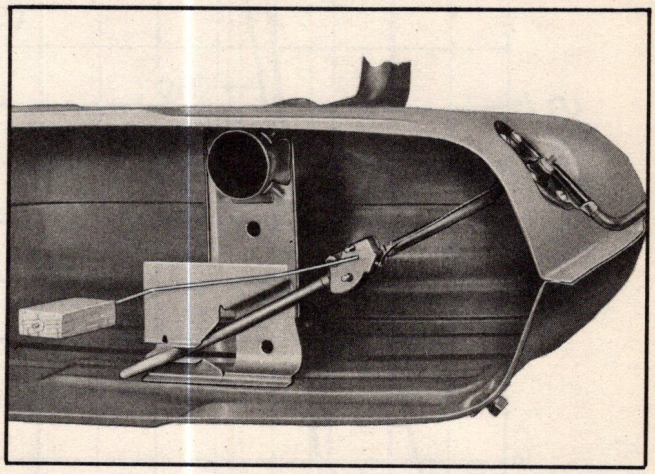


Fig. 12-6—Fuel Gauge Tank Unit Construction

Fuel Tank Gauge Unit

The fuel tank gauge unit has been redesigned to improve the accuracy of the readings. By locating the resistance unit on the fuel outlet pipe (Fig. 12-6), the position of the float has been brought approximately to the center of the tank. In this location the float travel per gallon of gasoline used will be more constant over the entire range of the gauge. In addition, with the gauge in this position there will be less fluctuation in gauge readings due to the surging of gasoline in the tank. The new anchor at the lower end of the outlet pipe will assure a positive reserve of fuel after the gauge reads empty, and will locate the gauge in a definite position improving readings.

ADJUSTMENTS ON CAR

Voltage and Current Regulator

Regulator checks and adjustments on the 1951 model follow the same general procedure as in 1949 and 1950. Due to the new higher output generator, however, the voltage and current regulator adjustments must be made at slightly higher speeds and the setting of the current regulator is changed. For convenience, the adjustments on car are repeated below in full, including the changes for 1951. Mechanical checks and adjustments (air gaps, point opening) must be made with the regulator removed from the car.

The regulator must be mounted in operating position when electrical settings are checked and adjusted and must be at operating temperature.

> ***CAUTION: The cutout relay contact points must never be closed by hand with the battery connected to the regulator as this would cause a high current to flow through the units thereby seriously damaging them.***

To check and adjust the regulator electrical settings, proceed as follows:

> ***CAUTION: All regulator units must be at operating temperature before taking a voltage or current reading. Operating temperature may be assumed to exist after not less than 15 minutes of continuous operation with a charging rate of 8-10 amperes.***

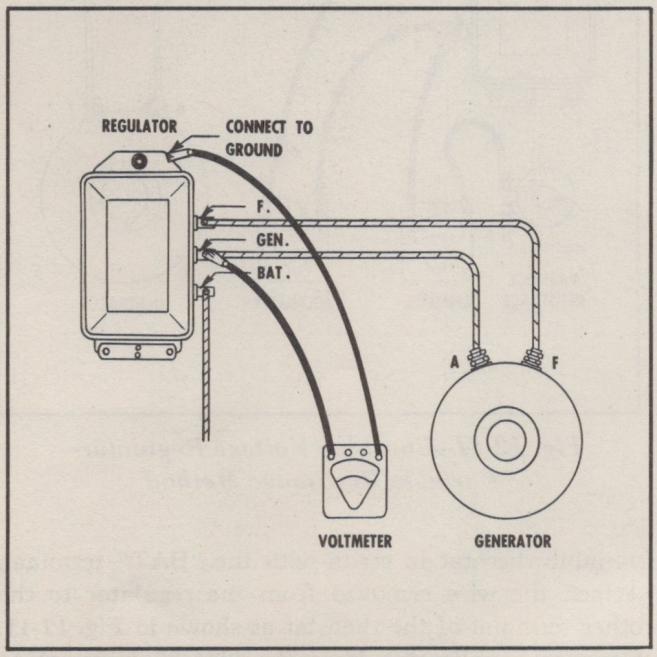


Fig. 12-7—Checking Cutout Relay Closing Voltage

1. Check and adjust closing voltage of cutout relay as follows:

a. Connect a voltmeter between regulator "GEN" terminal and regulator base as shown in Fig. 12-7.

b. Start engine and slowly increase speed, noting relay closing voltage.

c. If reading falls outside of range 5.9 to 6.8 volts, adjust closing voltage to 6.4 volts by turning adjusting screw (see Fig. 12-8). Turning screw clockwise increases spring tension and closing voltage and turning counterclockwise decreases closing voltage.

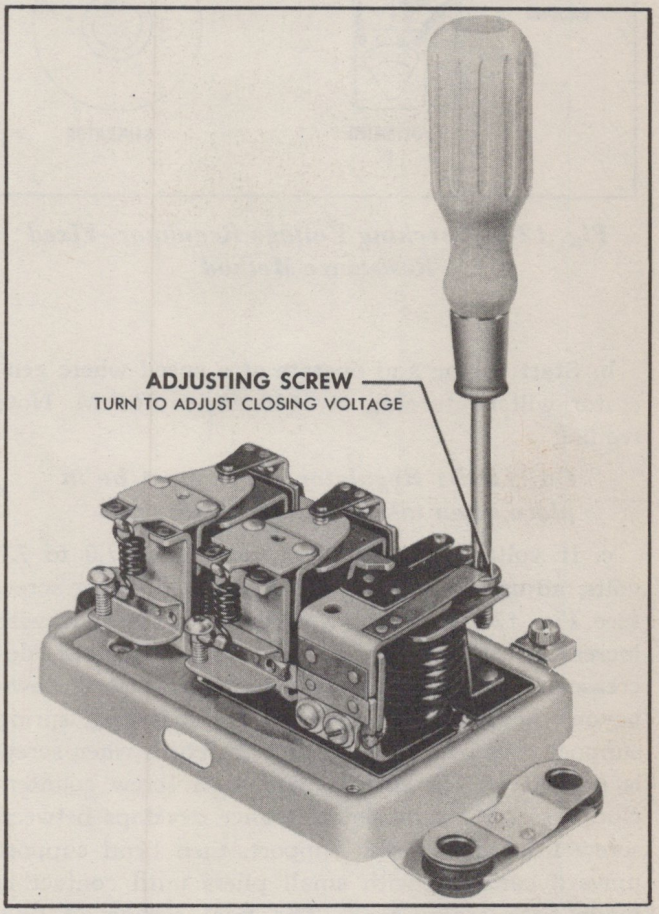


Fig. 12-8—Adjusting Cutout Relay Closing Voltage

2. Check and adjust setting of voltage regulator by either the Fixed Resistance Method or the Variable Resistance Method as follows:

Fixed Resistance Method

a. Substitute a fixed resistance (¾ ohm capable of carrying 10 amperes and having constant resistance with temperature change) for the external charging circuit by disconnecting the wire from the "BAT" terminal on the regulator and connecting the fixed resistance between this "BAT" terminal and ground in parallel with a voltmeter as shown in Fig. 12-9.

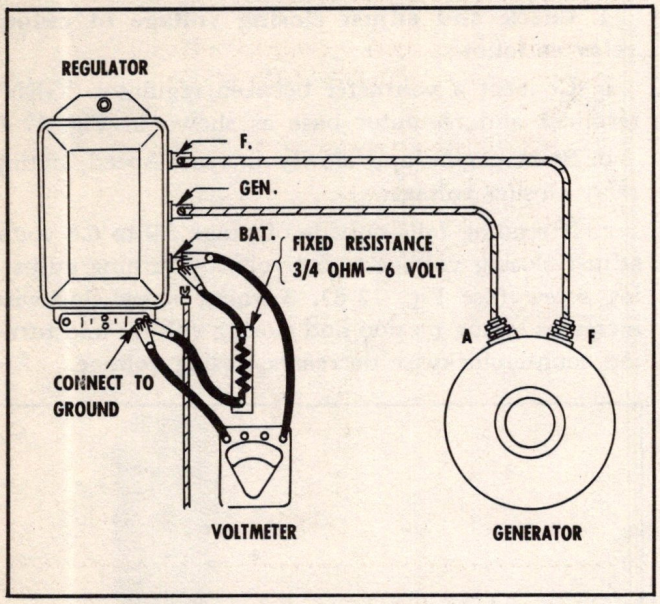


Fig. 12-9—Checking Voltage Regulator—Fixed Resistance Method

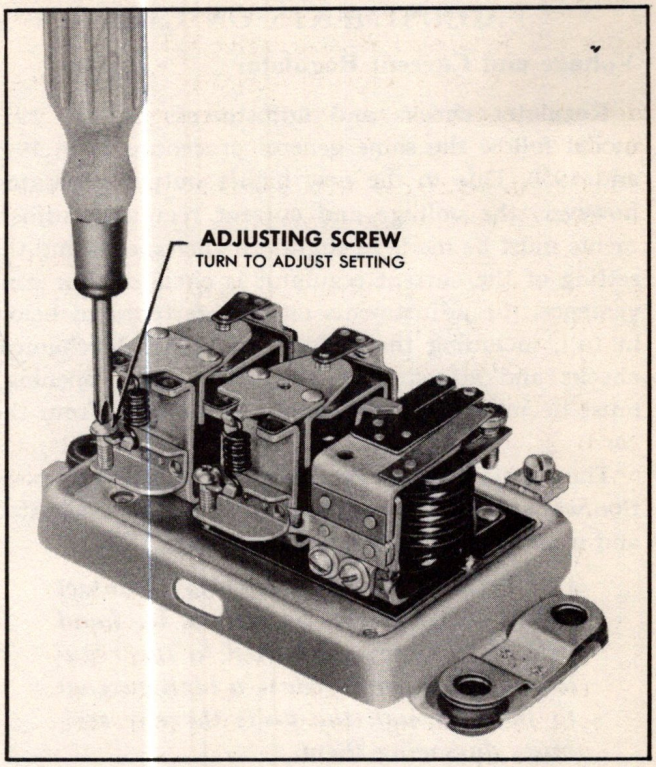


Fig. 12-10—Adjusting Voltage Regulator

b. Start engine and operate at a speed where generator will be turning at 1650 engine R.P.M. Note reading.

CAUTION: Regulator cover must be in place when taking voltage reading.

c. If voltage reading is outside range 7.0 to 7.7 volts, adjust to 7.4 volts by turning adjusting screw (see Fig. 12-10). Turning adjusting screw clockwise increases voltage setting and counterclockwise decreases setting. If adjusting screw is turned down beyond normal range required for adjusting, spring support may be bent so it fails to return when screw is backed off. In such a case, turn screw counterclockwise until sufficient clearance develops between screw head and spring support, then bend support upward carefully with small pliers until contact is made with screw head. The final setting of unit should always be made by increasing spring tension, never by reducing it. In other words, if the setting is found to be too high, back the adjustment off below the required value and then raise it to exact setting by increasing spring tension.

***NOTE:* After each adjustment and before taking another voltage reading, replace regulator cover, reduce generator speed until relay points open, and then bring generator back to speed again.**

Variable Resistance Method

a. Remove the wire from the "BAT" regulator terminal and connect an ammeter and a ¼ ohm variable rheostat in series with the "BAT" terminal. Attach the wire removed from the regulator to the other terminal of the rheostat as shown in Fig. 12-11. Connect a voltmeter from the "BAT" terminal to ground.

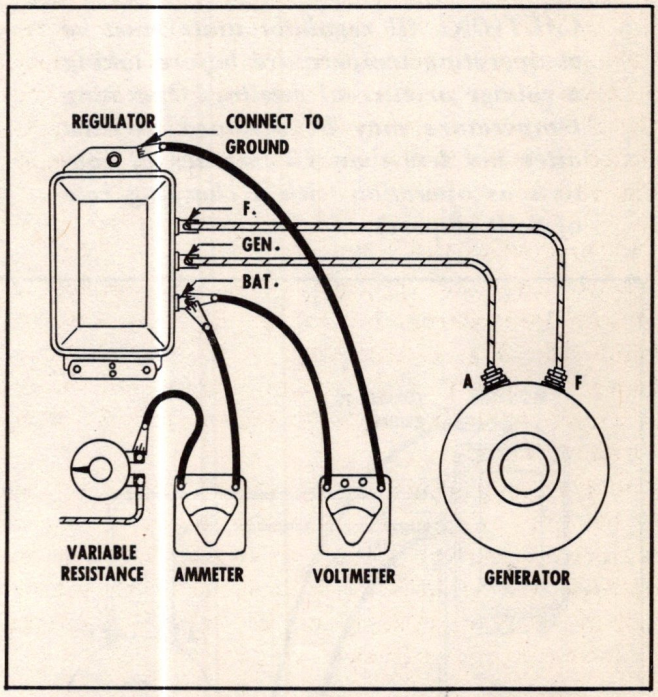


Fig. 12-11—Checking Voltage Regulator—Variable Resistance Method

b. Start engine and increase speed to where generator will be turning at 1650 engine R.P.M.

c. If less than 8 amps. is indicated by ammeter, turn on headlights to permit increased generator output.

d. Cut in resistance with variable rheostat until output is reduced to 8 to 10 amps.

e. Retard engine speed until cut out relay points open and then bring generator back to speed and note voltage setting.

CAUTION: Regulator cover must be in place when taking voltage reading.

f. If voltage reading is outside range 7.0 to 7.7 volts, adjust to 7.4 volts by turning adjusting screw (see Fig. 12-10) as previously outlined in step 2c.

***NOTE:* In using the variable resistance method, it is necessary to readjust the variable resistance after each voltage adjustment, and then reduce and increase generator speed before taking a voltage reading. Current flow must be 8-10 amps. when reading is taken.**

3. **Check and adjust setting of current regulator.** To check the setting it is necessary that the voltage regulator be prevented from operating by one of the three methods given below. With either of three methods, the wire should be disconnected from the "BAT" regulator terminal and an ammeter connected in series in the charging circuit as shown in Fig. 12-12.

Jumper Lead Method

a. Remove the regulator cover and connect a jumper lead across the voltage regulator contact points (see Fig. 12-12). Turn on lights and accessories to prevent high voltage during test. With generator operating at 2000 engine R.P.M., note current reading.

b. If reading is outside range of 40-46 amps., adjust to 42 amps. by turning adjusting screw clockwise to increase current setting or counterclockwise to decrease setting in same manner as when setting voltage regulator making sure to make final setting by increasing spring tension (see page 46).

Battery Discharge Method

a. Partly discharge battery by cranking engine 30 seconds with ignition turned off.

CAUTION: Never use cranking motor more than 30 seconds at a time without pausing to allow it to cool for two minutes. Long cranking will overheat and damage it.

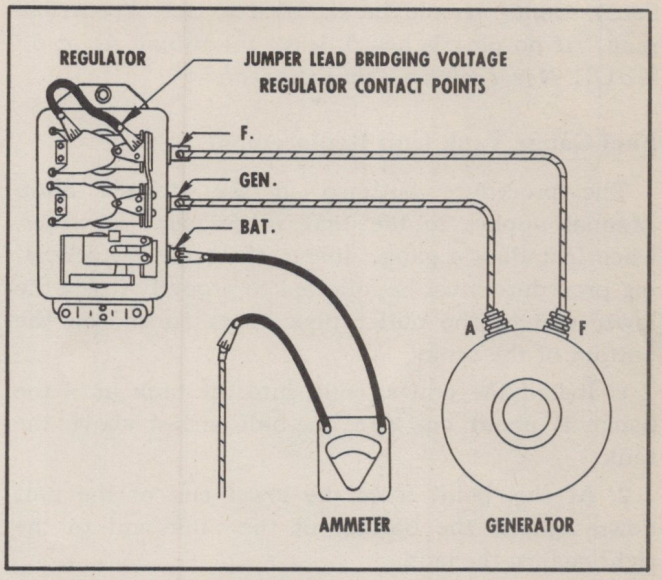


Fig. 12-12—Checking Current Regulator—Jumper Lead Method

b. Immediately after cranking, start engine, turn on lights and accessories and note current reading with generator operating at 2000 engine R.P.M.

c. If reading is outside range of 40-46 amps., adjust to 42 amps. by turning adjusting screw as outlined in step 3b above.

Load Method

a. Place a load, such as carbon pile or bank of lights, approximating the current regulator setting across the battery during the time the current regulator setting is being checked; this will prevent the voltage increasing sufficiently to cause the voltage regulator to operate.

b. With the engine operating so generator is turning at 2000 engine R.P.M., note current reading.

c. If reading is outside range of 40-46 amps., adjust to 42 amps., by turning adjusting screw as outlined in step 3b above.

4. After adjusting regulator, make sure rubber gasket is in place on regulator base before installing cover.

Ignition Timing

Timing should be set at 6° BUDC on all engines in accordance with the instructions on page 12-32 of the 1949-50 Shop Manual. After setting timing in the shop, the car should always be road tested to check the accuracy of the adjustment. If there is more than a "borderline ping" (very slight knock between 20 and 30 miles per hour with the accelerator on the

floor), timing should be retarded to get "borderline ping." If no ping is heard, leave the timing set at 6° BUDC. *Never advance timing beyond 6°.*

Fuel Gauge Tank Unit Replacement

The procedure outlined in the 1949-50 Shop Manual applies to the 1951 model also. However, when installing a gauge unit in the tank, the following procedure must be followed to properly insert the lower end of the outlet pipe in its anchor on the bottom of the tank.

1. Install the unit straight into the tank until the flange is about one and one-half inches above the tank.

2. At this point force the lower end of the unit down against the bottom of the tank and to the right against the baffle.

3. Push the unit straight in against the tank, engaging the horizontal portion of the outlet pipe in the anchor as shown in Fig. 12-13. (If unit is not engaged in anchor the mounting flange will be held away from the tank on the left side.)

> ***NOTE:*** **Always check the fuel indication of panel unit after replacing tank unit. If four to five gallons of gasoline are required before the pointer begins to move, the outlet pipe is not properly positioned in the anchor.**

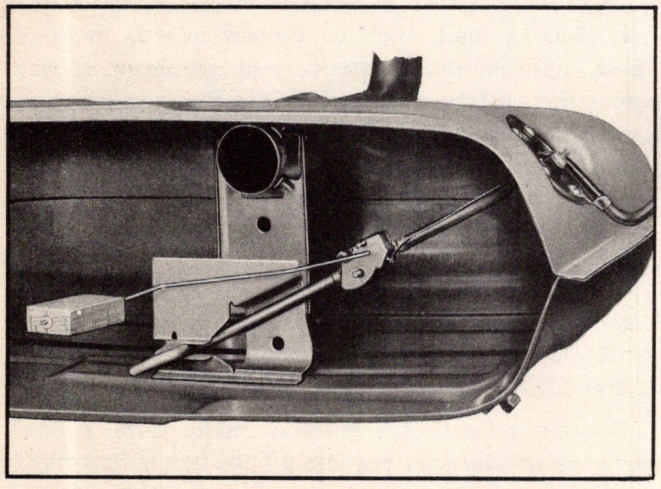


Fig. 12-13—Fuel Gauge Tank Unit Installed in Tank

Battery Testing

The lower specific gravity range at full charge makes certain changes necessary in servicing and checking the new "E6" batteries. The following points must be considered:

1. Specific gravity/state of charge table—Use the table shown below when estimating the state of charge. The table also shows the specific gravity/state of charge of the "E4" battery for comparison. The new values for the "E6" battery are very important as batteries may be unfairly condemned for "failure to take charge" if higher final gravities are expected.

Be Sure Battery Gravity Is 1.250 or More Before Delivery to Owner

	1.265-1.290 fully charged
	1.235-1.260 ¾ charged
"E4" 1950	1.195-1.220 ½ charged
Models	1.160-1.180 ¼ charged
	1.140-1.165 barely operative
	1.110-1.135 completely discharged
	1.260-1.280 fully charged
	1.225-1.250 ¾ charged
"E6" 1951	1.205-1.230 ½ charged
Models	1.170-1.200 ¼ charged
	1.130-1.155 barely operative
	1.100-1.125 completely discharged

2. Open circuit voltmeter readings—Readings obtained on the new expanded scale voltmeters used for battery testing will be slightly in error when used on "E6" model batteries, since the meters are usually based on a fully charged specific gravity reading of 1.280. The error will be approximately .01 volt for 10 points in specific gravity. In a typical O.C.V. meter the relationship will be as follows:

1.280 sp. gr.—2.14 volts —100% charged
1.260 sp. gr.—2.12 volts—90-95% charged

This variation should be remembered to avoid misinterpretation of battery conditions.

3. Improper adjustment of specific gravity. The new "E6" batteries are designed to operate with electrolyte below 1.290 sp. gr. at all times.

> ***NOTE:*** **Maximum specific gravity will exist when electrolyte level is down to tops of separators with battery at full charge, the gravity should be readjusted by a qualified battery specialist to bring it to approximately 1.270.**

General Service Recommendations

Instructions in the 1949-50 Shop Manual on watering, testing and maintenance apply to the "E6" batteries also.

> ***NOTE:*** **A high rate discharge test must not be made on either "E6" or "E4" model batteries if the specific gravity is less than 1.250.**

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

ACCESSORIES

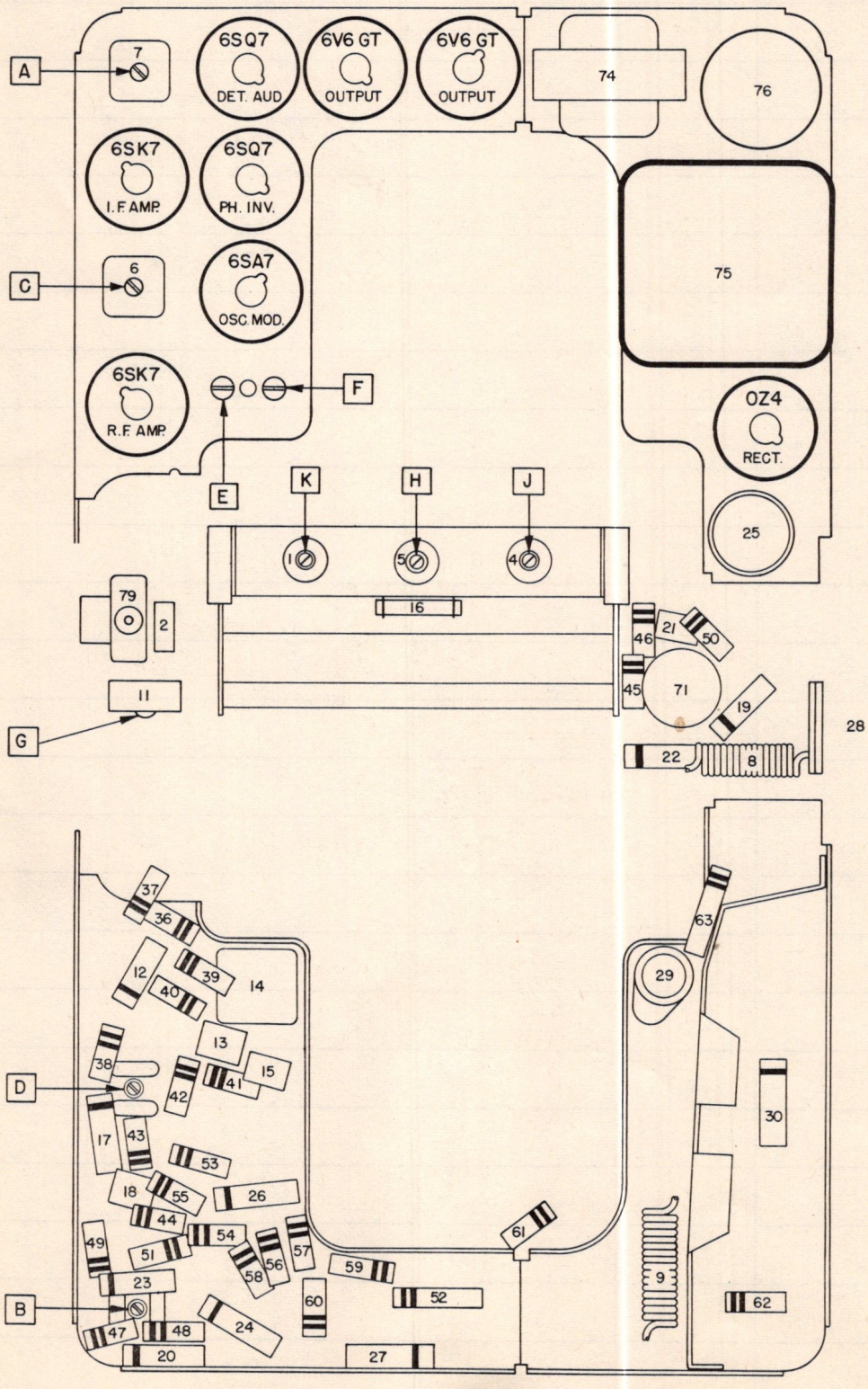


Fig. 14-1—1951 Chieftain Radio Parts Layout

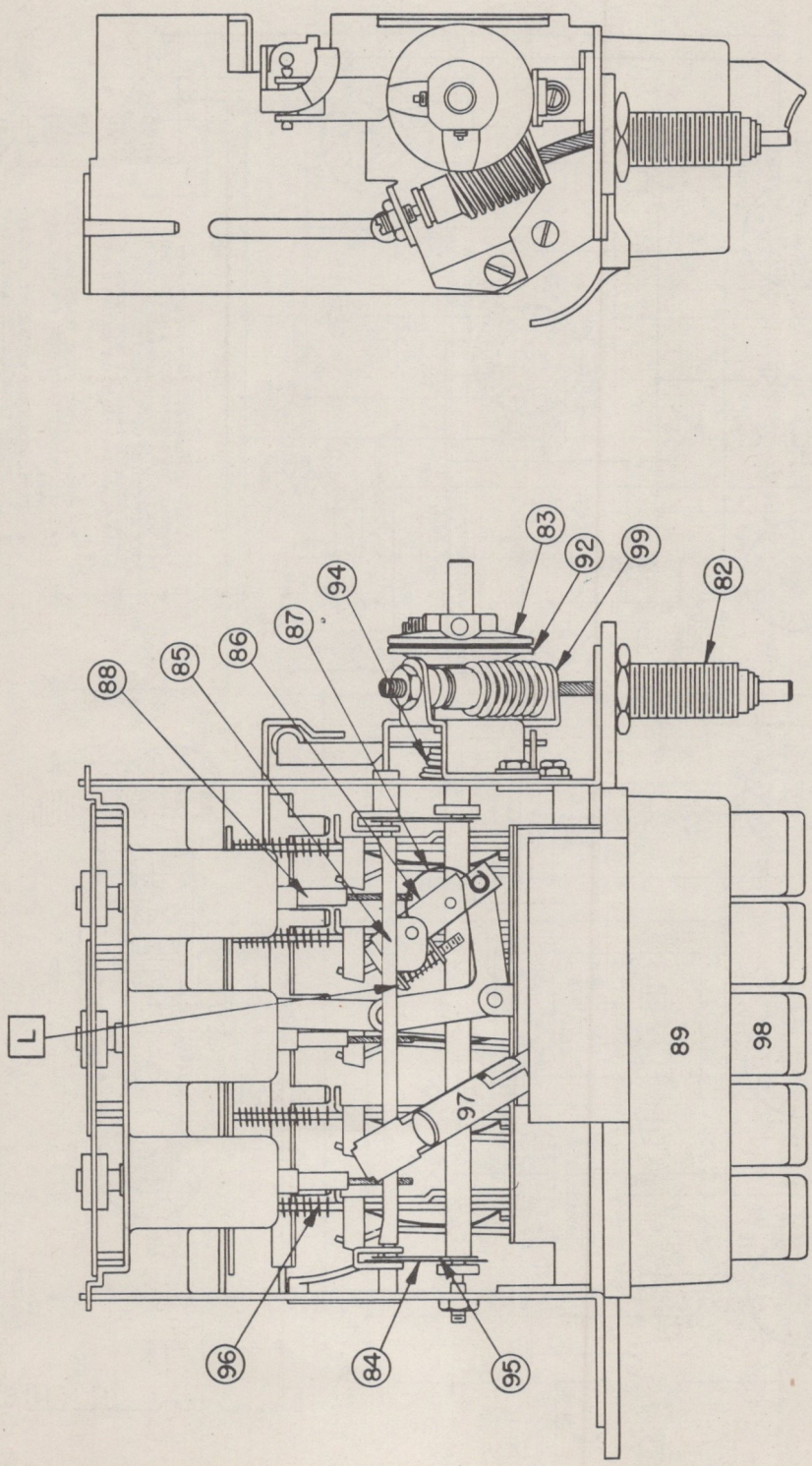


Fig. 14-2—Tuner Unit Layout

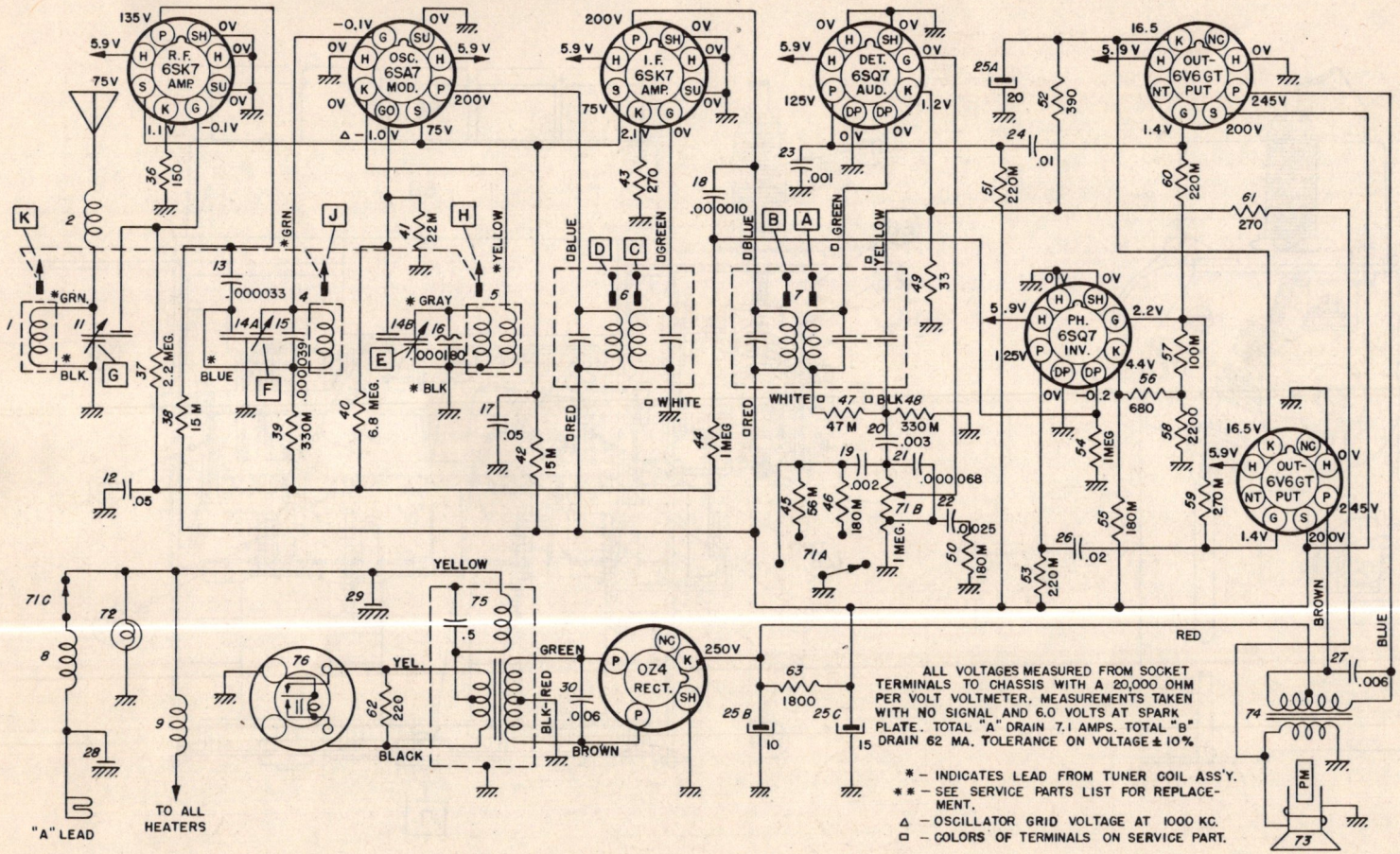


Fig. 14-3—Schematic Diagram

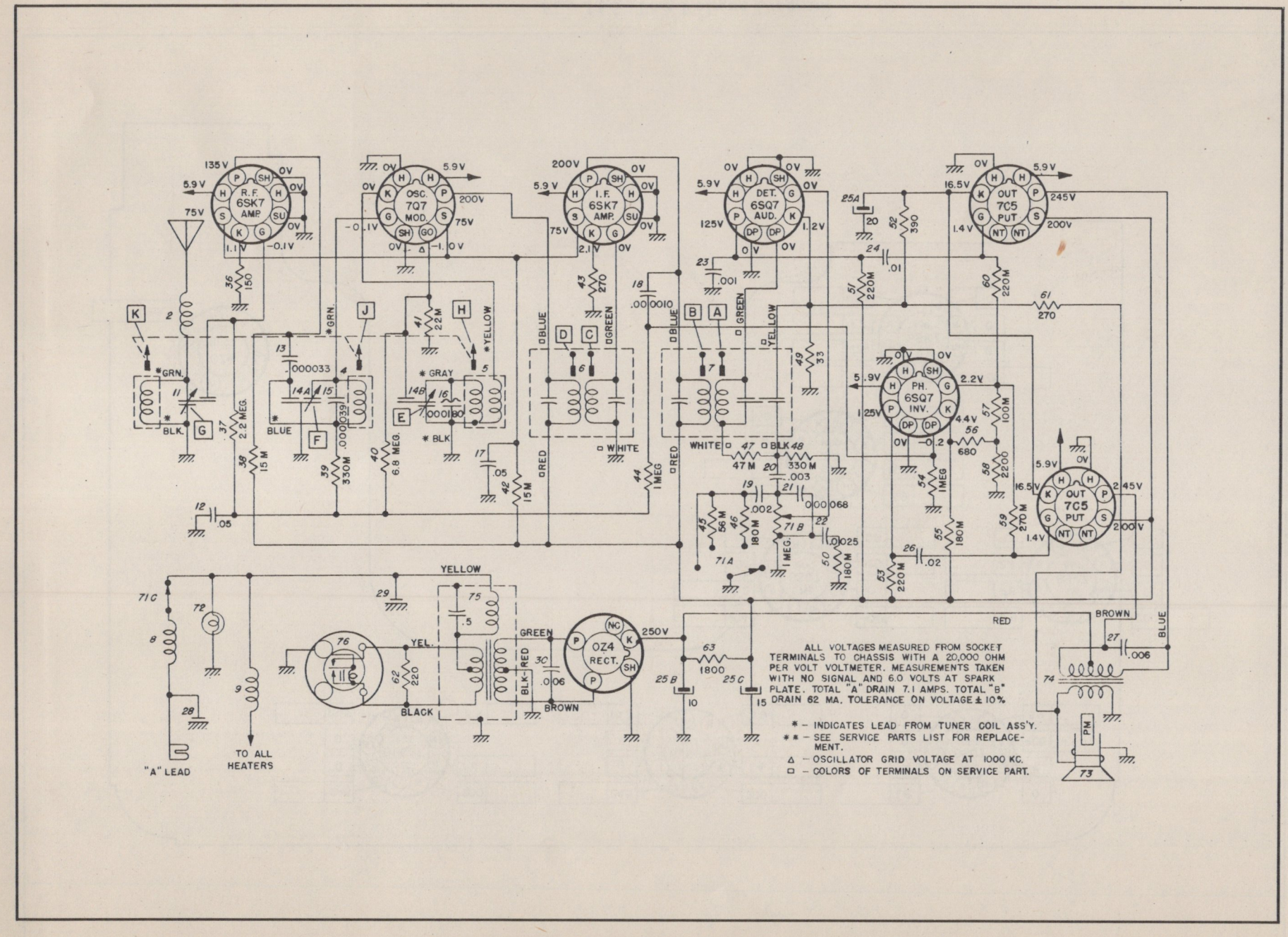


Fig. 14-4—Schematic Diagram for Alternate 7Q7 and 7C5 Tubes

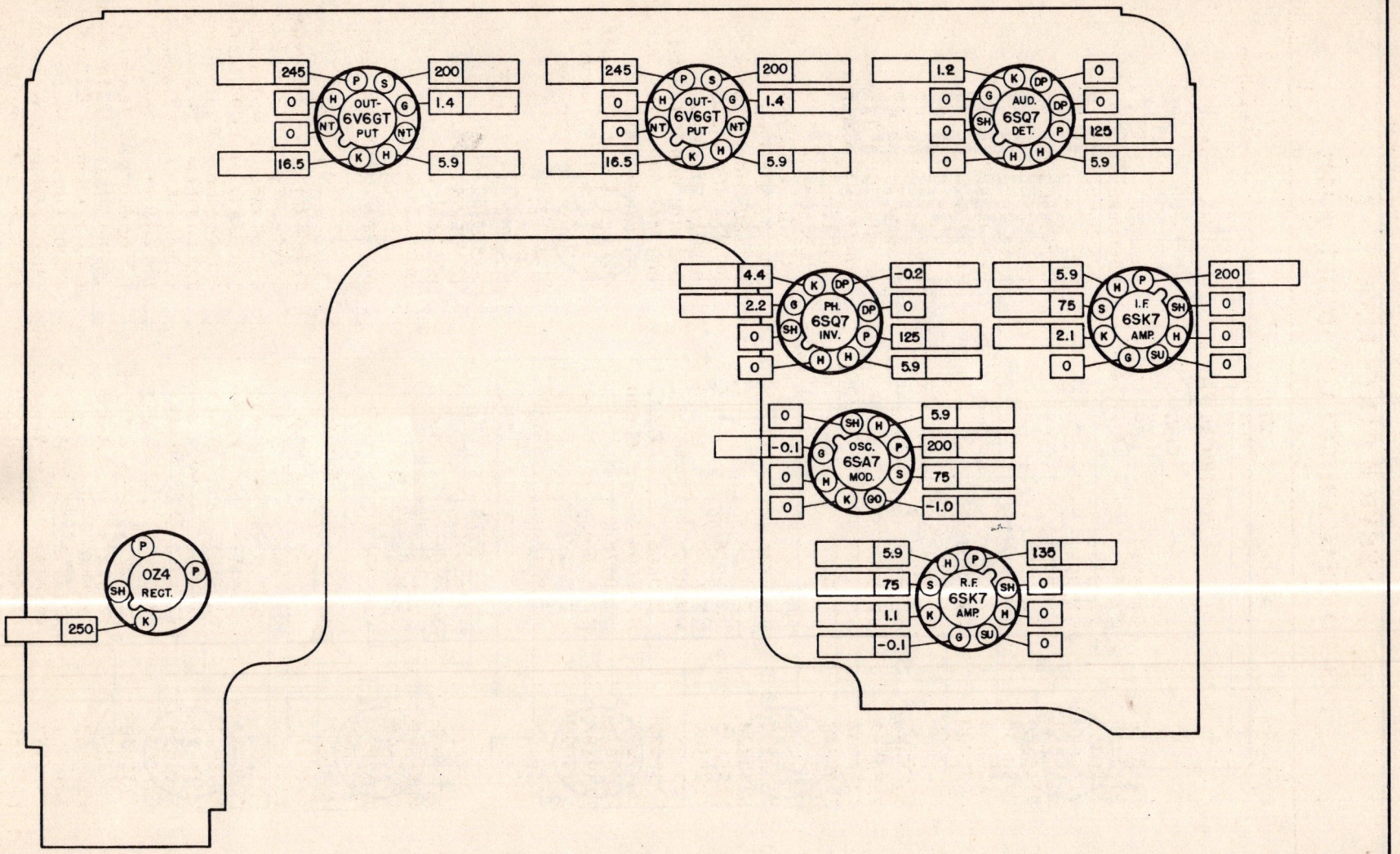


Fig. 14-5—Test Voltage Diagram

SERVICE PARTS LIST
1951 PONTIAC CHIEFTAIN MODEL 984592

Illus. No.	Production Part No.	Service Part No.	UMS Part No.	Description
				ELECTRICAL PARTS
				Coils
1	7258914	7258914	—	Antenna
2	7255738	7255738	—	Antenna Series Choke
3	7240251	7240251	—	Antenna Spark Choke
4	7258914	7258914	—	R.F.
5	7258911	7258911	—	Oscillator
6	7258849	1219508	—	1st I.F.
7	7258850	1219509	—	2nd I.F.
8	1217846	1217846	—	"A" Spark Choke
9	7241708	7241708	—	Hash Choke
				Condensers
11	7257959	7257959	—	Antenna Trimmer
12	7236842	1219476	E-503	.05 Mfd. 200 V Tubular
13	1218348	1217735	G-330	.000033 Mfd. Ceramic
14	7242454	7242454	—	Dual Trimmer
14A				R.F. Section
14B				Oscillator Section
15	7258221	1217736	G-390	.000039 Mfd. Ceramic
16	7257424	7257424	—	.000180 Mfd. Compensating
17	7258125	1219476	E-503	.05 Mfd. 400 V Tubular
18	1215189	1215189	G-100	.000010 Mfd. Mica
19	7237954	1219467	E-202	.002 Mfd. 600 V Tubular
20	7257699	1219468	E-302	.003 Mfd. 600 V Tubular
21	1219691	7236104	G-680	.000068 Mfd. Mica
22	7240578	7240578	—	.0025 Mfd. 400 V Tubular
23	7239188	1219466	E-102	.001 Mfd. 600 V Tubular
24	1208600	1219472	E-103	.01 Mfd. 600 V Tubular
25	7238830	1218474	M-908	Electrolytic
25A				20 Mfd. 25 V
25B				10 Mfd. 400 V
25C				15 Mfd. 400 V
26	7258124	1219467	E-203	.02 Mfd. 400 V Tubular
27	1219692	7240906	H-602	.006 Mfd. 1000 V Tubular
28	1219768	1219768	—	Spark Plate
29	1217848	1217848	—	Chassis Plate
30	7240906	7240906	H-602	.006 Mfd. 1600 V Tubular
				Resistors
36	1213220	1213220	A-151	150 Ohms ½ W. Insulated
37	1211147	1214563	A-225	2.2 Megohm ½ W. Insulated
38	7237595	7237595	B-153	15,000 Ohms 1 W. Insulated
39	7240732	1214557	A-334	330,000 Ohms ½ W. Insulated
40	7241937	1215563	A-685	6.8 Megohn ½ W. Insulated
41	1211192	1214550	A-223	22,000 Ohms ½ W. Insulated
42	7233653	1213257	C-153	15,000 Ohms 2 W. Insulated
43	1214542	1214542	A-271	270 Ohms ½ W. Insulated
44	7238873	1213282	A-105	1 Megohm ½ W. Insulated
45	1213267	1213267	A-563	56,000 Ohms ½ W. Insulated
46	1215560	1215560	—	180,000 Ohms ½ W. Insulated
47	7240731	1214553	A-473	47,000 Ohms ½ W. Insulated
48	1214557	1214557	A-334	330,000 Ohms ½ W. Insulated
49	1214538	1214538	A-330	33 Ohms ½ W. Insulated
50	1215560	1215560	—	180,000 Ohms ½ W. Insulated
51	1214555	1214555	A-224	220,000 Ohms ½ W. Insulated
52	1216149	1216149	B-391	390 Ohms 1 W. Insulated
53	1214555	1214555	A-224	220,000 Ohms ½ W. Insulated

SERVICE PARTS LIST
1951 PONTIAC CHIEFTAIN MODEL 984592

Illus. No.	Production Part No.	Service Part No.	UMS Part No.	Description
		Resistors—(Cont'd)		
54	7238873	1213282	A-105	1 Megohm ½ W. Insulated
55	1215560	1215560	—	180,000 Ohms ½ W. Insulated
56	1214543	1214543	A-681	680 Ohms ½ W. Insulated
57	1213270	1213270	A-104	100,000 Ohms ½ W. Insulated
58	1214545	1214545	A-222	2200 Ohms ½ W. Insulated
59	1214556	1214556	A-274	270,000 Ohms ½ W. Insulated
60	1214555	1214555	A-224	220,000 Ohms ½ W. Insulated
61	1214542	1214542	A-271	270 Ohms ½ W. Insulated
62	1219738	7237994	B-221	220 Ohms 1 W. Insulated
63	1214573	7242844 7240918	C-272 B-562	1800 Ohms 2 W. Wire Wound (Use 2700 Ohm 2 W. Insulated and 5600 Ohm 1 W. Insulated)
		TUBES		
	7237751	7237751	5229	6SK7
	7237753	7237753	5231	6SQ7
	7237752	7237752	5222	6SA7
	1213793	1213793	5241	6V6GT
	1211924	1211924	5003	0Z4
		MISCELLANEOUS ELECTRICAL		
71	7260043	7260043	—	Control—Volume, Tone and Switch
71A				Tone Control
71B				Volume Control
71C				Switch
72	187189	187189	44	Lamp—Dial Light
73	7260410	7260410	—	Speaker 6X9 Elliptical PM
74	7259249	7240453	—	Transformer—Output
75	7259375	7255881	—	Transformer—Power
76	7239124	7239124	8542	Vibrator Non-Synchronous
		MECHANICAL PARTS		
		Chassis		
79	7257746	7257746	—	Socket—Antenna
	7236279	7236279	—	Socket—Octal Tube
	7239125	7239125	—	Socket—Vibrator
		Tuner		
81	7257722	7257722	—	Back Plate—Pointer
82	7260039	7260039	—	Bushing and Manual Drive Shaft
83	7258072	7258072	—	Clutch Disc-Driven
84	7258203	7258203	—	Connecting Link—Core Bar
85	7258210	7258210	—	Core Guide Bar—Parallel
86	7256271	7256271	—	Pointer Connecting Link
87	7255992	7255992	—	Spring—Pointer Conn. Link
88	7258468	7258468	—	Core—Tuning
89	7257717	7257717	—	Escutcheon Assy.
90	7257721	7257721	—	Dial
91	7257719	7257719	—	Dial Backplate
	7257718	7257718	—	Spring—Dial Retainer
92	7256495	7256495	—	Gear and Bushing—Clutch
93	7260209	7260209	—	Pointer Assy.
	1219120	1219120	—	Pointer Tip Pkg.
94	7258756	7258756	—	Spring—Clutch

SERVICE PARTS LIST
1951 PONTIAC CHIEFTAIN MODEL 984592

Illus. No.	Production Part No.	Service Part No.	UMS Part No.	Description
		Tuner—(Cont'd)		
95	7257415	7257415	—	Spring—Core Bar Conn. Link
96	7255984	7255984	—	Spring—Slide Return
	1219740	1219740	—	Socket—Dial Light
	1219739	1219739	—	Push Button and Slide Assy.
	7260037	7260037	—	Worm Gear and Bracket Assy.
		INSTALLATION PARTS		
	1911095	1911095	6015	Condenser—Generator
	1913140	1913140	—	Condenser—Voltage Regulator
	147685	147685	—	Fuse—14 Amps.
	514608	514608	—	Knob—Control
	514782	514782	—	Knob—Dummy
	514784	514784	—	Knob—Tone Control
	511836	511836	—	Trim Plate
	513486	513486	—	Washer—Anti Rattle

RADIO AND ANTENNA

The radio used in the 1951 Pontiac is the Chieftain Model 984592. This radio is noticeably different externally because of the chrome inserts on the push buttons and the chrome plated control knobs. Reception sharpness and tonal qualities have been improved through changes in the tone control circuit and speaker.

The 1951 radio in general uses the same tubes as the 1950. In some of the 1951 radios, however, 7Q7 loctal tubes will be used in place of the 6SA7 shown on the radio parts list (page 56). Some radios will also have 7C5 loctal tubes in place of the specified 6V6GT. These tube substitutions will have no affect on the performance of the set, nor will there be any change in model number. The 7Q7 and 7C5 loctal tubes are equivalent to the 6SA7 and 6V6GT octal tubes respectively, except that they have a lock-in base instead of an octal base. Because of this difference in construction of the base, replacement tubes must always be the same as the type removed.

Installation

Installation instructions are the same as 1949 and 1950 except that the hood to fender ground is no longer used. These parts under Nos. 512244, 512245 and 443882 are included in the antenna packages, but are for use only on 1949 and 1950 cars and should not be used on 1951 cars.

Major Servicing

All major servicing is the same as for 1950 except for the following:

1. When checking the circuit alignment on a radio with the optional 7Q7 loctal tube, connect the lead of the signal generator to pin No. 6 of the 7Q7 tube (pin No. 8 of 6SA7) through a 0.1 Mfd. condenser and the ground lead to the radio chassis.

2. Fig. 14-1 shows the parts layout for the 1951 Pontiac Chieftain Radio and Fig. 14-2 shows the tuner unit layout. Fig. 14-3 shows the schematic diagram with the specified 6SA7 and 6V6GT tubes while Fig. 14-4 shows the schematic diagram for the alternate 7Q7 and 7C5 tubes.

3. Because of tone control circuit changes, the plate voltage on the 6SQ7 (phase inverter) has changed from 100 volts to 125 volts (Fig. 14-5).

REAR SEAT SPEAKER

A new addition to Pontiac accessories is the Pontiac Rear Seat Speaker Model 984647. A variable control is used with this speaker to control the proportion of feed to the front and rear speakers. By this means, either speaker can be used individually or the control can be adjusted to have both speakers working with their outputs adjusted to the driver's liking. Overall volume of the speakers is controlled by the radio volume control.

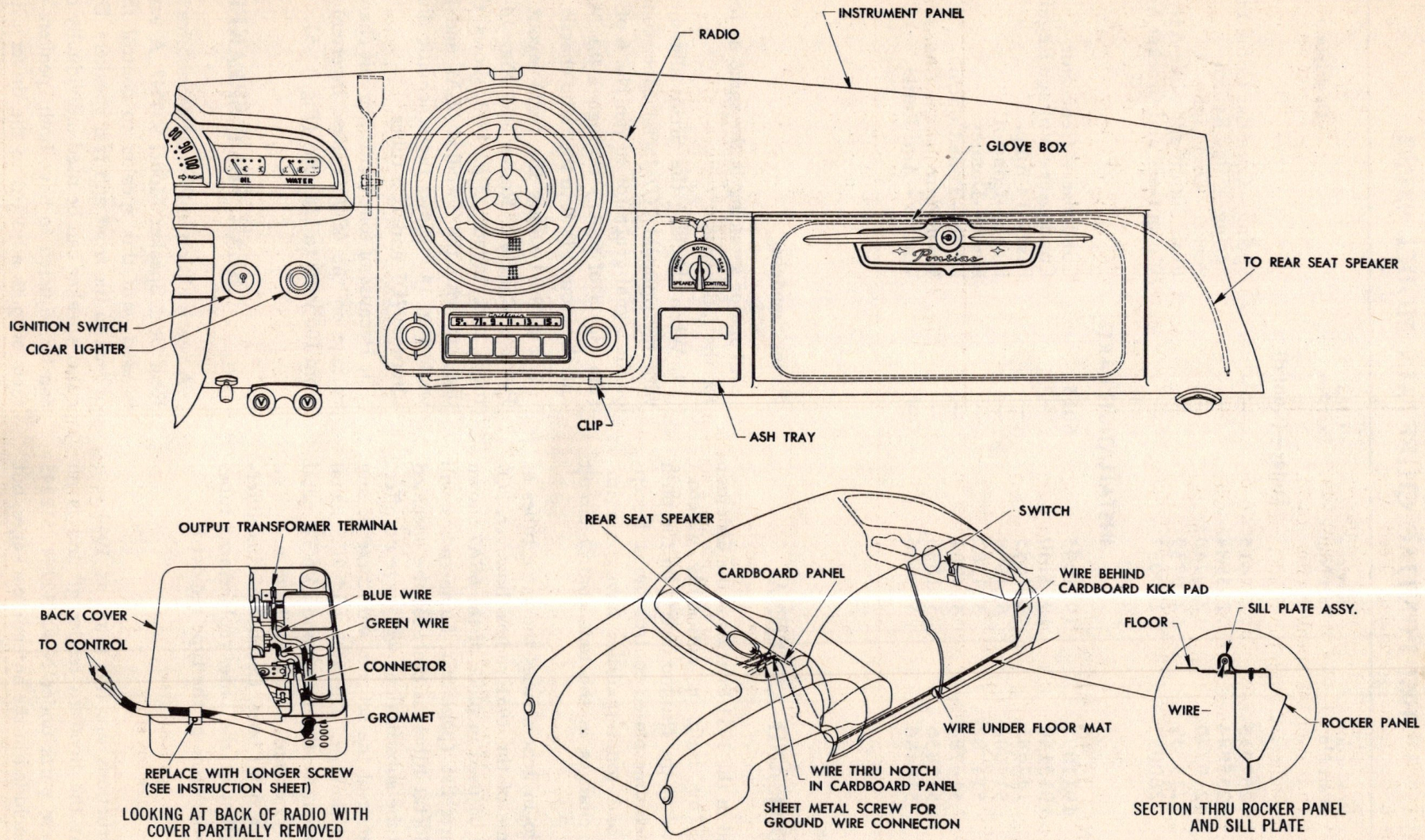


Fig. 14-6—Rear Speaker Wiring

Trouble Diagnosis

An inoperative rear seat speaker could be caused by defective switch or defective wiring. Feed wire from control to rear speaker is located along the right side of the car as shown in Fig. 14-6 and connects to the rear terminal of the speaker (Fig. 14-7). The ground wire is connected from the front terminal of the speaker to the hinge box. The green wire of the control wire harness connects to the green wire on the radio speaker and the blue wire from the harness connects to the output transformer terminal in the radio.

DIRECTION SIGNAL

The 1951 direction signal is the same as that used in 1950 except for the fact that it now includes left and right turn indicators on the speedometer face. This new feature is shown in the wiring diagram in Fig. 14-8.

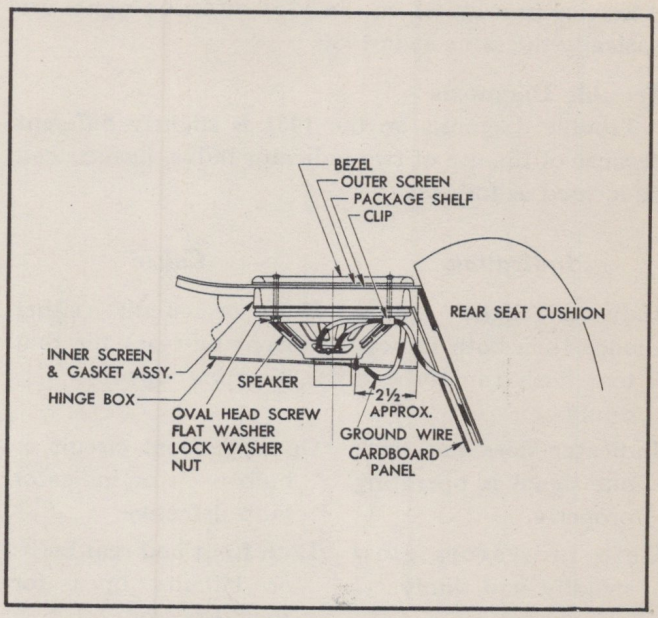


Fig. 14-7—Rear Speaker Connections

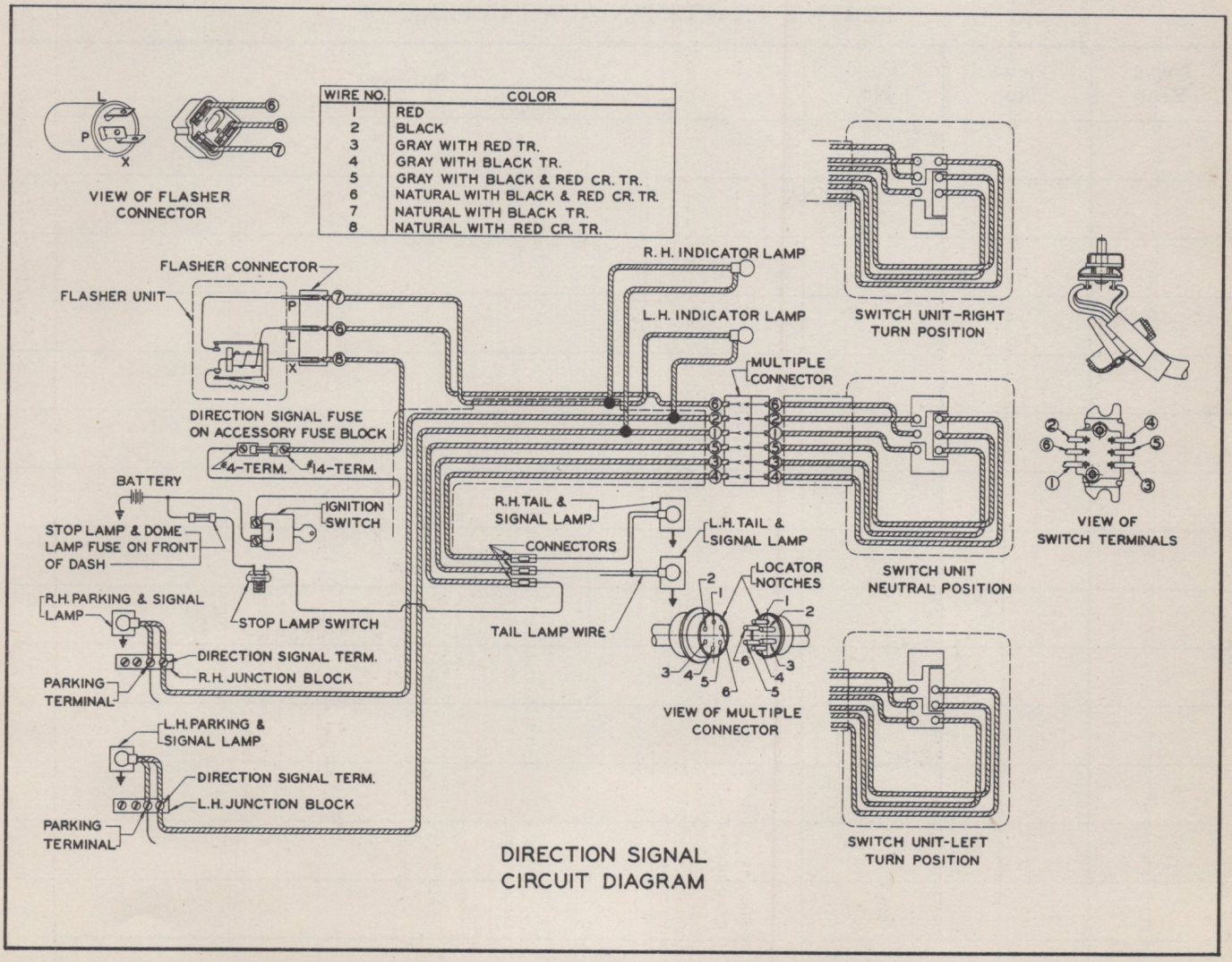


Fig. 14-8—Direction Signal Wiring Diagram

Service procedures on the 1951 direction signal are basically the same as in 1950.

Trouble Diagnosis

Trouble diagnosis on the 1951 is slightly different because of the use of two indicator bulbs. Defects can be located as follows:

Indication	*Cause*
Indicator light flashes once then both indicators flash rapidly and dimly.	Bulb or circuit (either front or rear) for that direction open.
Indicator does not flash but signal is operating properly.	Opposite front circuit or bulb open or indicator bulb defective.
Both indicators glow steadily and dimly.	Both front and rear bulbs or circuits open for that direction.

If the direction signal operates improperly or is inoperative entirely and all bulbs and circuits are good, check fuse, flasher unit, and circuit from accessory fuse block up through steering column switch. The flasher can easily be checked by substituting flasher known to be good.

FLOOR AND ASH TRAY LAMP

The floor and ash tray lamp operates only when the tail lamps are on. A switch on the ash tray is turned on when the ash tray is pulled out. Maximum floor lighting should be obtained when the tray is pulled out about one inch. With the ash tray completely out, only a dim light glows inside the ash tray. Ash trays should slide in and out easily, but yet be tight enough to hold any set position. Adjustment for proper operation should be made by bending the ash tray side rails in or out as necessary to secure the proper tension against the tracks.

SERVICE CRAFTSMAN NEWS REFERENCE

News Year	News No.	Page No.	Subject

INDEX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