

SECTION 9

FUEL AND EXHAUST SYSTEMS

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MODEL "H" CARBURETOR CORVAIR—500, 700 AND 900 SERIES

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GENERAL DESCRIPTION

The Corvair engine uses two identical Rochester Model "H" manual choke, single-barrel downdraft carburetors (figs. 9-1 and 9-2), one located on each intake manifold. Each carburetor is separated from the engine manifold by an insulator block. Each carburetor is equipped with a manual choke controlled

by a choke cable pull knob, located at the left of the steering column.

The two carburetor throttle shaft levers are connected by a cross-shaft which is actuated by the accelerator linkage (fig. 9-8). Careful adjustment must be made to insure that the carburetors are properly

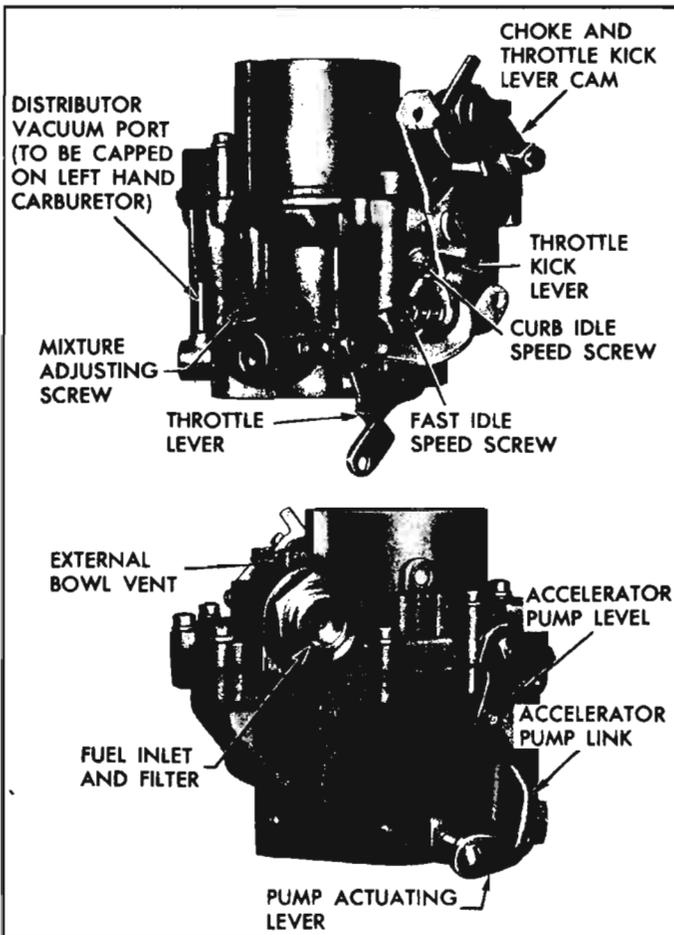


Fig. 9-1—Rochester Model "H" Manual Choke Carburetor

synchronized.

An oval air duct runs laterally across the forward engine compartment connecting two air cleaners, one at each carburetor.

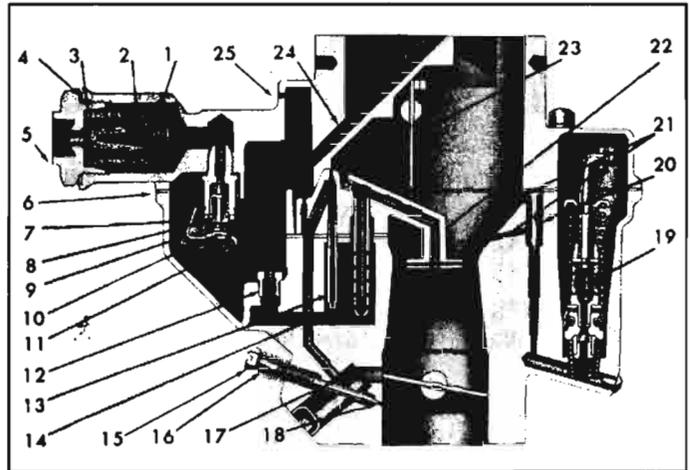


Fig. 9-2—Carburetor Schematic Cross-Section

- | | |
|--------------------------------|-----------------------------------|
| 1. Filter Spring | 14. Main Well Tube |
| 2. Filter | 15. Idle Mixture Adjusting Screw |
| 3. Filter Gasket | 16. Idle Mixture Adjusting Spring |
| 4. Inlet Nut Gasket | 17. Secondary Idle Port |
| 5. Inlet Nut | 18. Primary Idle Port |
| 6. Float Seal Gasket | 19. Accelerator Pump |
| 7. Float Drop Adjusting Tang | 20. Pump Discharge Valve |
| 8. Float Needle | 21. Pump Discharge Parts |
| 9. Float Hinge Pin | 22. Venturi Cluster |
| 10. Float Level Adjusting Tang | 23. Choke Valve |
| 11. Float Hanger Arm | 24. Bowl Internal Vent |
| 12. Main Metering Jet | 25. Bowl External Vent |
| 13. Idle Tube | |

MAINTENANCE AND ADJUSTMENTS

Inlet Fuel Filter

The inlet fuel filters, one located at the fuel inlet of each carburetor, should be cleaned regularly and replaced after each 15,000 miles of operation, or sooner if carburetor flooding occurs.

Remove the filter element, shows in Figure 9-21, and clean by washing in solvent and blowing dry with compressed air. When replacing the element, be sure that all gaskets are in place and that the "point" of the cone faces the inlet line.

The filter should be cleaned regularly, since the pressure relief spring, located under the filter element, will allow fuel to by-pass the filter should the filter become clogged, thus allowing impurities into the carburetor bowl.

Accelerator Pedal

Disassembly of the accelerator pedal is self explanatory. Refer to Figure 9-5. Assembly procedure is equally simple except that extra precautions are

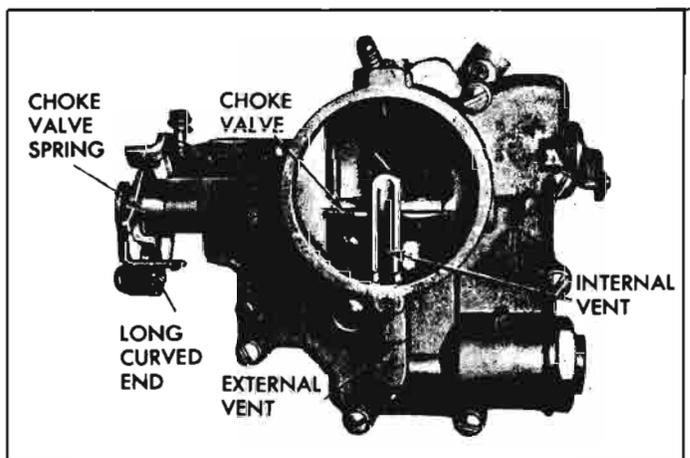


Fig. 9-3—Carburetor—Top View

necessary during the assembly operation.

When assembling the pedal assembly, it is necessary to insert a spacer between the sides of the pedal brack-

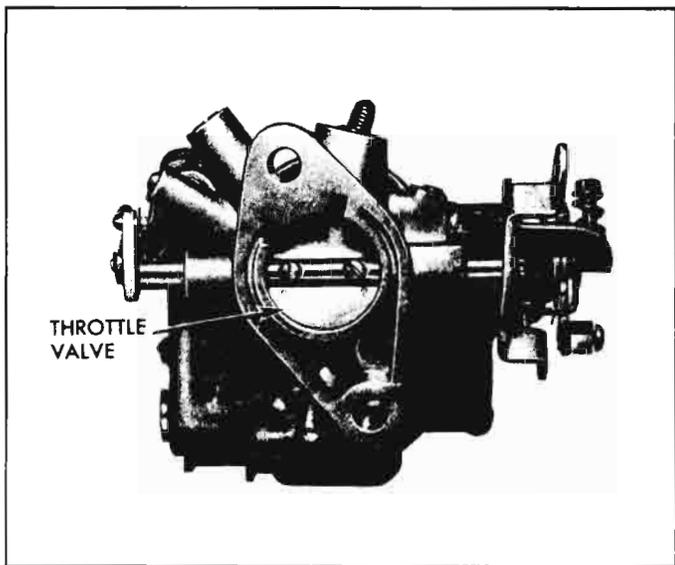


Fig. 9-4—Carburetor—Bottom View

et to keep the sides from collapsing. Apply Lubriplate to the rod before assembly.

The correct relationship between the accelerator pedal and pedal rod is very important. If the pedal is too close to the floor, full throttle position cannot be obtained or in the other extreme the pedal will be in almost a vertical position at idle.

The following procedure explains how the proper position of the pedal can be obtained on a bench prior to installation.

1. Position pedal and rod as shown with serrations on rod held firmly against the pedal bracket. Rotate the rod until a dimension of $1\frac{1}{16}$ " is obtained between the bench and the underside of the pin (fig. 9-5).

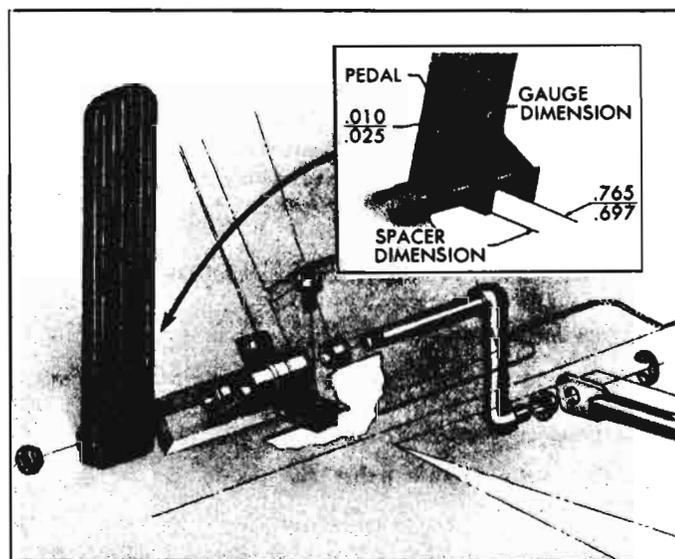


Fig. 9-5—Accelerator Pedal

2. Mark rod and bracket so the same position can be maintained when the parts are assembled in a press.
3. Before pressing rod into pedal install rod support assembly and two bushings.
4. The inner leg of the pedal should seat against the nylon sleeve after the parts are pressed together.
5. Install self locking nut. Torque the nut until a gap of from .010 to .025 is attained between the pedal assembly and the bushing.

Figure 9-5 indicates the size of the spacer needed between the sides of the pedal bracket and shows where to gauge the spacing between the bracket and the bushing. After assembly the pedal and rod assembly must operate freely in the support.

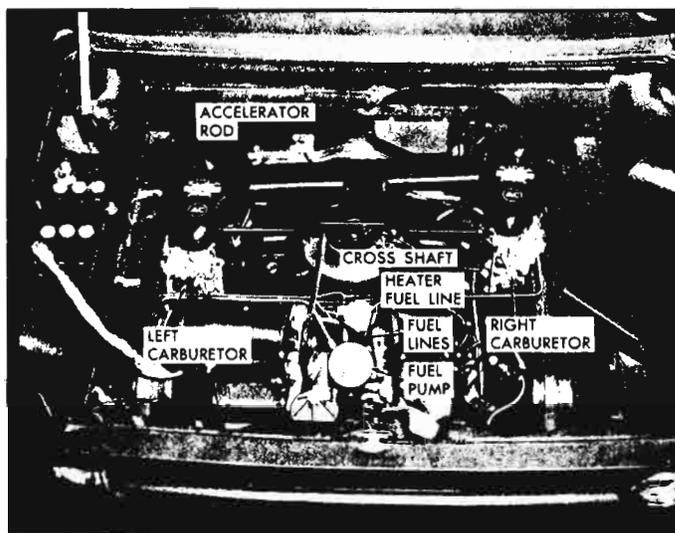


Fig. 9-6—Carburetion System

Accelerator Control Linkage Adjustments

(See figs. 9-7 and 9-8).

1. Disconnect swivel "D" from lever "A."
2. Disconnect swivel "B" from the left carburetor cross shaft lever "E."
3. Pull accelerator rod "C" to wide open throttle (through detent) and turn lever "E" to wide open throttle position (carburetor throttle lever against the stop). Adjust swivel "B" to align with hole in lever "E," then lengthen accelerator rod "C" by backing off swivel five full turns.

NOTE: With this adjustment the transmission is in detent position when the carburetor is in wide open throttle position.

4. Position accelerator pedal 1" from floor mat (3-speed) or $1\frac{1}{4}$ " from floor mat (automatic) by placing a block of wood between pedal and floor mat.
5. Hold lever "A" in wide open throttle position (through detent) turn swivel "O" to align with hole in lever "A."

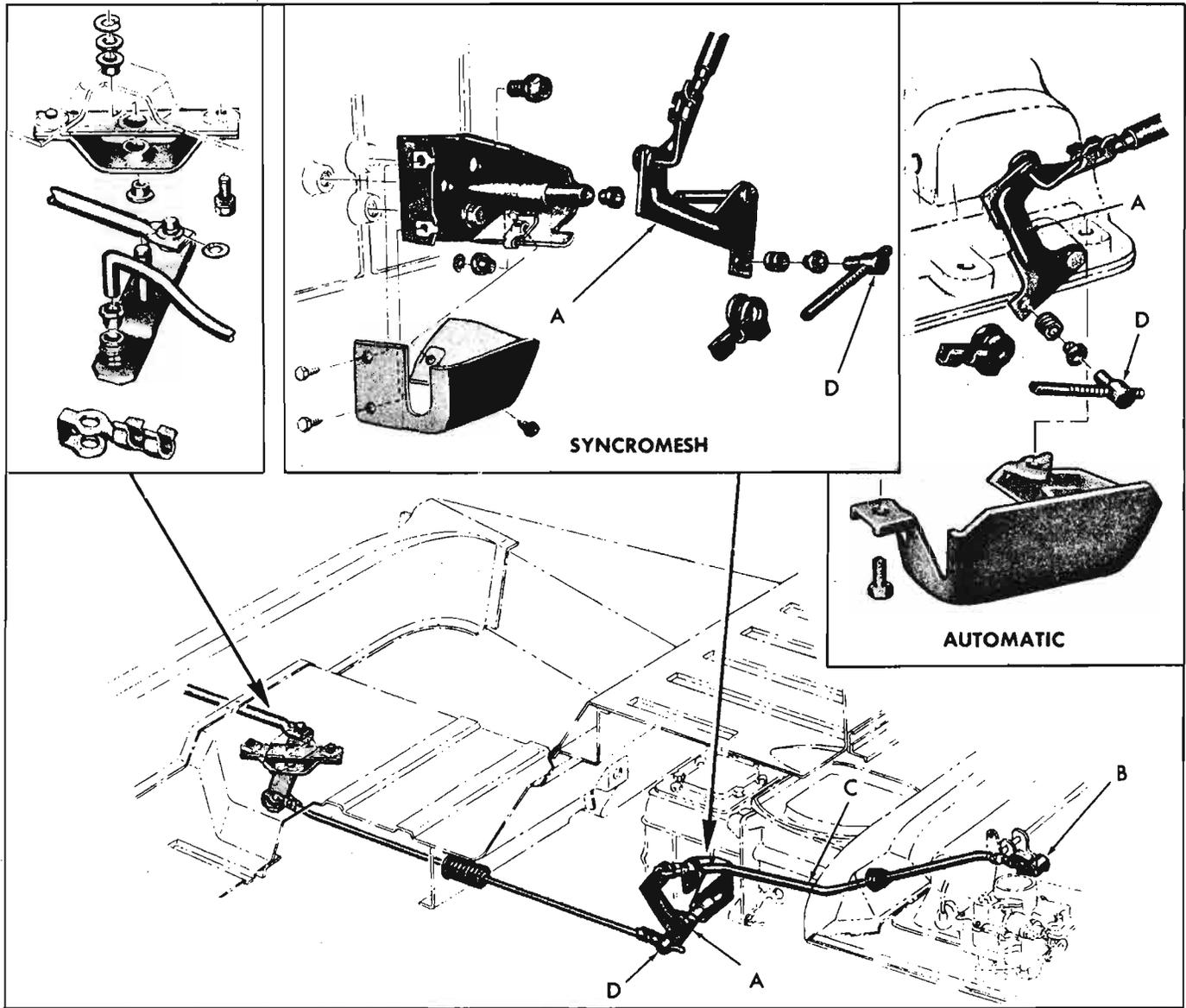


Fig. 9-7—Accelerator Linkage

NOTE: This adjustment provides the proper clearance between the accelerator pedal and floor mat at wide open throttle.

CARBURETOR SYNCHRONIZATION

1. Initial Adjustments:

With engine off, perform the following adjustments, in sequence, with both throttle rods disconnected at the carburetor cross-shaft levers.

NOTE: Adjustments must be made on each carburetor.

- a. Back the curb idle speed and fast idle speed adjustment screws (fig. 9-1) away from carburetor throttle shaft lever.

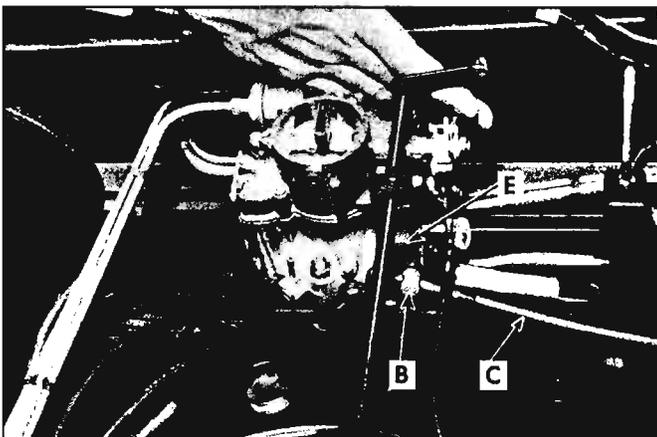


Fig. 9-8—Carburetor Linkage

- b. **Curb Idle Speed**—Place a .003" feeler gauge between the curb idle speed screw and the carburetor throttle shaft lever (fig. 9-9). Turn the screw until it just contacts the gauge, then remove the gauge and turn the screw 1½ more turns to set the throttle valve.
- c. **Fast Idle**—(choke fully open)—Place a feeler gauge (.010" on automatic and .030" on synchromesh transmission) between fast idle speed screw and pad (tang) on throttle lever (fig. 9-10) and adjust the screw until it contacts (or holds) the gauge.

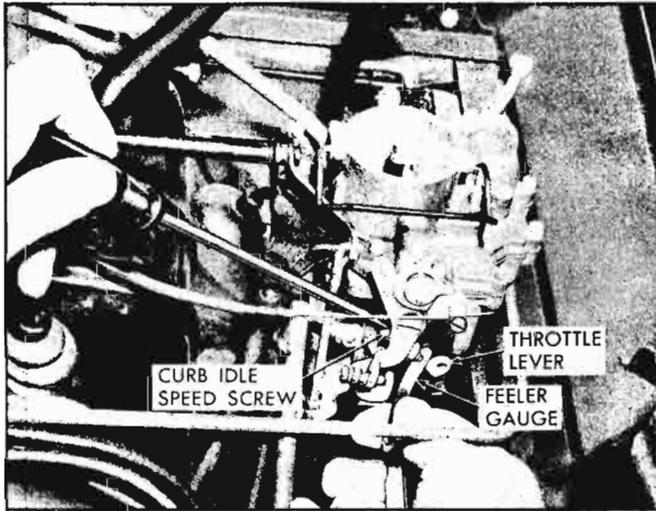


Fig. 9-9—Curb Idle Speed Screw Adjustment

- d. Turn the idle mixture screw lightly to its seat and back out 1½ turns.

CAUTION: Do not turn idle mixture screws

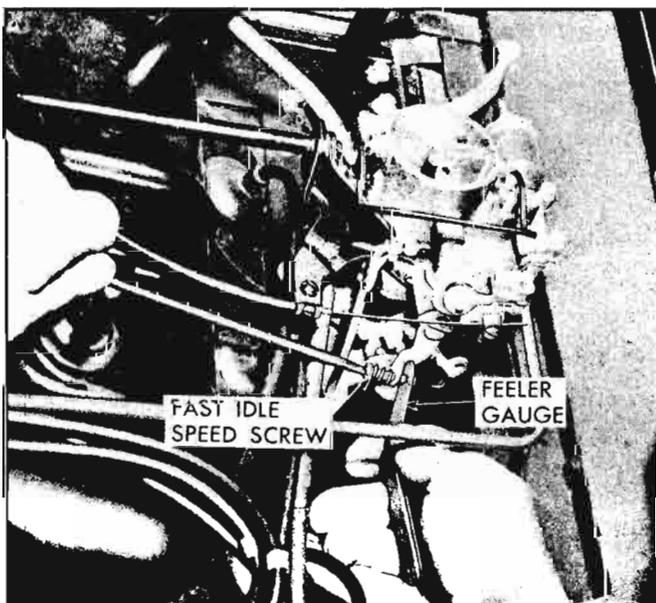


Fig. 9-10—Fast Idle Speed Screw Adjustment

tightly against seats or damage to needle seat will result.

2. Throttle Rod Connections:

- Right Carburetor—Connect throttle rod to carburetor cross-shaft lever using retainer clip.
- Left Carburetor—Rotate carburetor cross shaft (with accelerator rod—fig. 9-11) to ensure positive closing of the right carburetor throttle valve. Adjust throttle rod length in swivel until rod freely enters hole on carburetor cross-shaft lever and secure rod with retainer clip.

NOTE: The carburetors are now mechanically matched. Any further curb idle speed screw adjustment or idle mixture must be duplicated on both carburetors.

3. Preliminary Curb Idle Speed and Mixture Adjustment

- Start engine and normalize.
- Check timing.
- Connect vacuum gauge to adapter (fig. 9-11) on vacuum balance tube. (Remove transmission vacuum line on automatic transmission and cap on synchromesh from balance tube adapter.)
- Connect tachometer to engine.
- Adjust curb idle speed (duplicate adjustment on both carburetors) to attain approximately 500 rpm (automatic transmission in drive and synchromesh in neutral, hand brake applied). Adjust idle mixture screws (fig. 9-12) on both carburetors to obtain peak steady vacuum at given idle speed.
- Remove vacuum gauge and close adapter as required for given transmission model.

4. Carburetor Balance Vacuum Check— at 1200 RPM

- Remove distributor vacuum advance hose from right hand carburetor and plastic cap from left hand carburetor spark port adapter tubes (fig. 9-13).
- Connect vacuum gauge to adapter tube of each carburetor (best results will be obtained using 2 equally calibrated gauges).
- Move accelerator rod (fig. 9-11) to obtain 1200 rpm (all transmissions in neutral).
- Vacuum Check**—Check vacuum readings at each carburetor and note difference. If vacuum difference is one inch or less, the carburetors are satisfactorily synchronized. If difference is more than one inch, return engine to idle and adjust left carburetor throttle rod one turn (**up to increase left carburetor vacuum and down to decrease**) and recheck carburetor vacuum difference at 1200

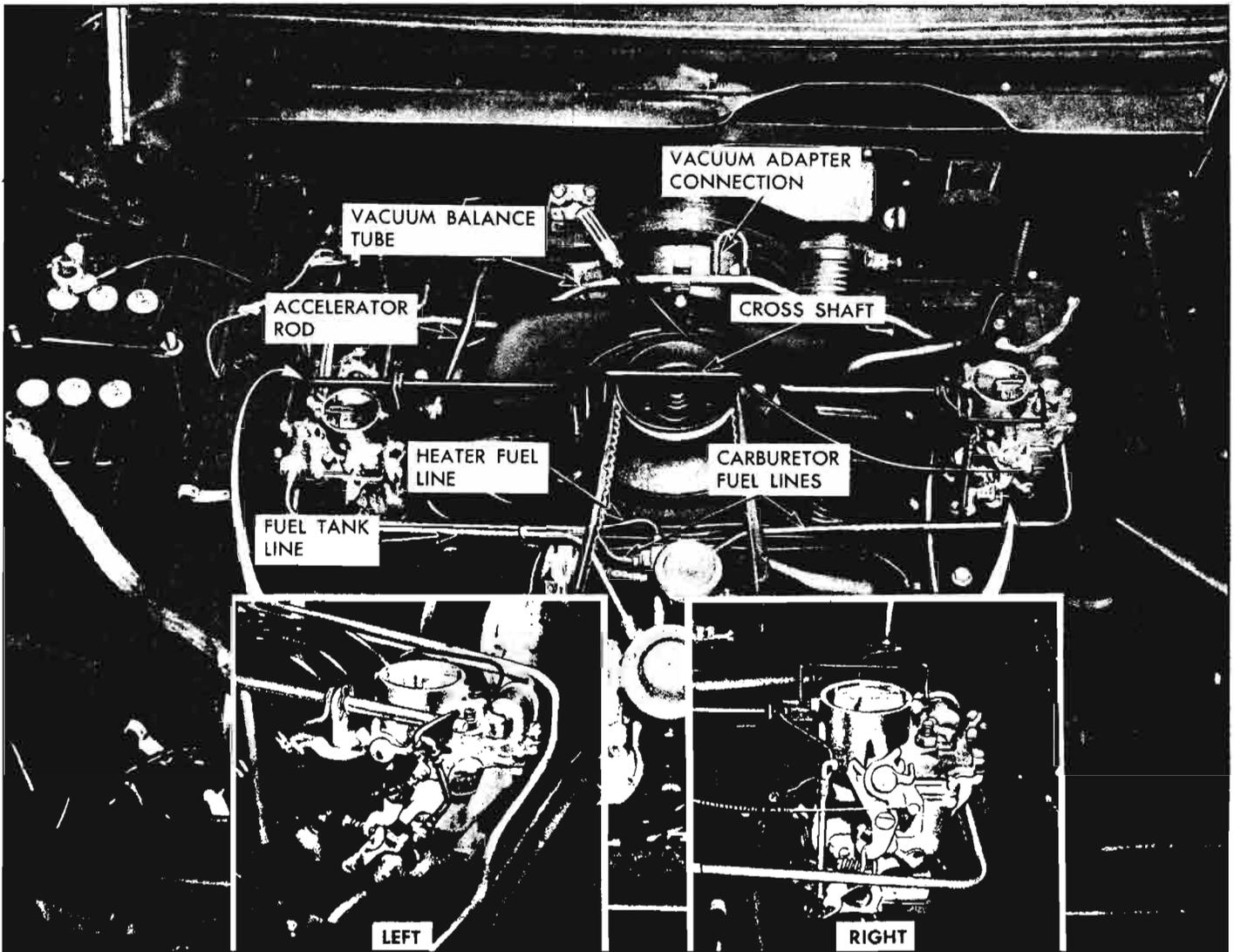


Fig. 9-11—Cross-Shaft and Linkage to Carburetors

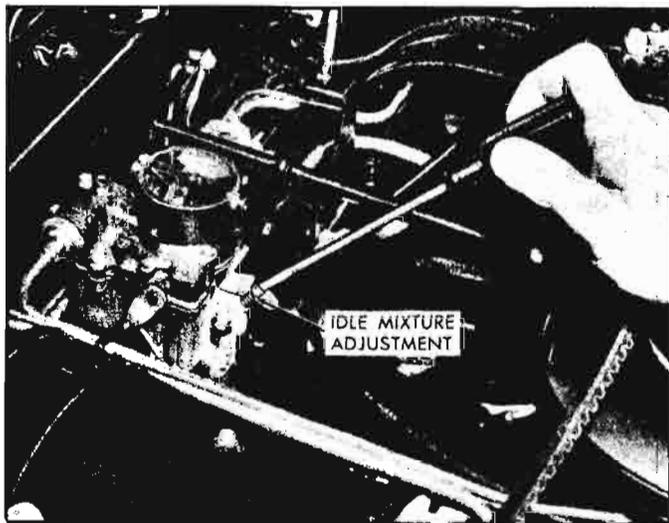


Fig. 9-12—Idle Mixture Adjustment



Fig. 9-13—Spark Port Vacuum Connection

rpm. Make adjustment by disconnecting rod at cross shaft end and rotating in swivel. Repeat adjustment until difference is within one inch of vacuum.

NOTE: It is preferable to have higher vacuum reading on right carburetor (distributor advance side).

CAUTION: When making linkage adjustments, accelerate engine by moving accelerator rod only (fig. 9-11). Do not open throttle by grasping other portions of linkage or this may upset geometry and synchronization.

e. Remove vacuum gauge/or gauges, replace distributor advance hose on spark port adapter tube of right carburetor and plastic cap on left carburetor spark port adapter tube.

5. Final Curb Idle Speed and Mixture Adjustment Check

NOTE: Always make final idle speed mixture adjustment with air cleaners installed.

- a. Replace air cleaners.
- b. Reconnect vacuum gauge to vacuum balance tube adapter.
- c. Read vacuum at idle speed of 500 rpm with synchromesh transmissions (in Neutral) or with Automatic transmissions (in Drive, with hand brake set).

If necessary, adjust curb idle speed and mixture screws to highest steady vacuum reading between 14-18 inches.

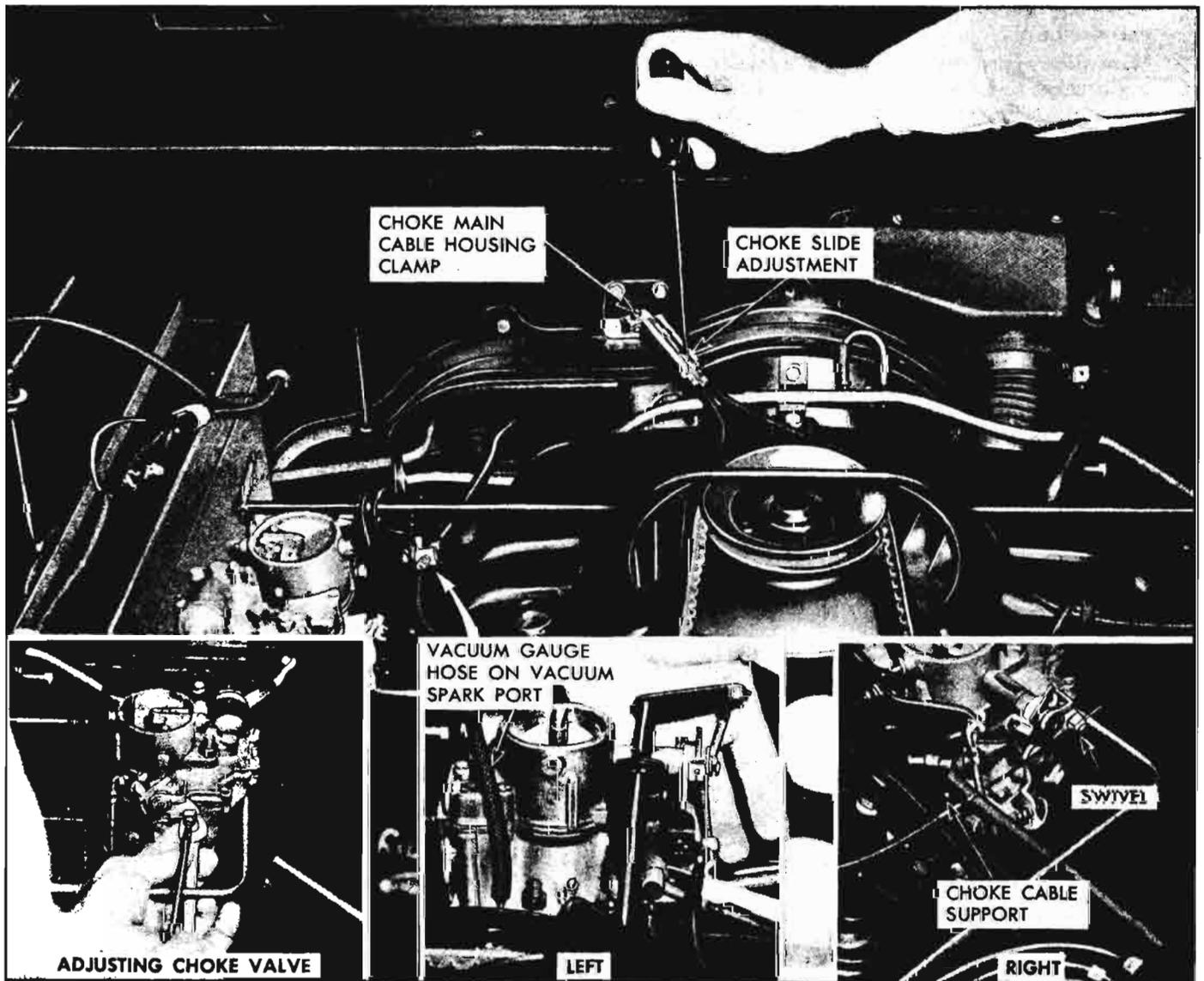


Fig. 9-14—Choke Linkage

CAUTION: Any necessary adjustment must be duplicated at each carburetor. Do not turn idle mixture screws tightly against stop or damage to needle seat will result.

6. Recheck Fast Idle Setting as Outlined in Step 1C

(This setting depends upon final curb idle 500 rpm setting.)

CHOKE ADJUSTMENT

1. With the slide $\frac{1}{4}$ " from the rear of the mounting bracket (fig. 9-14) and choke knob on dashboard out approximately $\frac{1}{8}$ ", tighten the slide screw onto main choke cable wire.
2. Assemble cable and housing assemblies loose at both carburetor mounting brackets (fig. 9-14). Extend cable housing approximately $\frac{1}{4}$ " beyond mounting bracket clamp and tighten clamp at each carburetor.
3. With slide approximately $\frac{1}{4}$ " from rear of mounting bracket slot, tighten swivel at each choke lever and throttle kick cam when choke valve is fully open. Cut the cable wire so about $\frac{1}{4}$ " extends past the swivel. Do not bend cable wire.

CAUTION: Hold swivel with a wrench, when tightening screw, to avoid kinking the choke cable wire.

4. Pull choke knob to check for proper operation.
 - a. Choke valve should just begin to move when pull knob is approximately $\frac{3}{8}$ " to $\frac{1}{2}$ " out.

NOTE: During the first $\frac{3}{8}$ " to $\frac{1}{2}$ " choke knob travel, the fast idle cam raises idle speed without moving the choke valve.
 - b. Pull knob full out and choke valve should be closed.

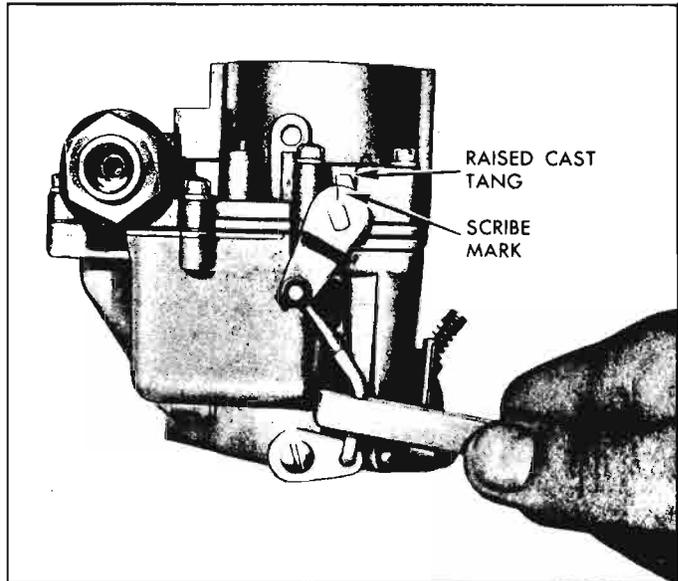


Fig. 9-15—Adjusting Pump Rod

- c. Check ease of operation. (Kinks cause sticking.)

PUMP ROD ADJUSTMENT

1. Back off curb and fast idle screws until throttle valve is completely closed.
2. Holding throttle valves closed, check to see that the scribe mark on the accelerator pump lever is aligned with the raised cast tang (front edge) on the bowl cover shown in Figure 9-15.
3. The accelerator pump rod may be carefully bent, using a carburetor rod bending tool, such as Tool J-4552, to obtain the correct adjustment if necessary.
4. Refer to Carburetor Synchronization and re-adjust carburetors.

SERVICE OPERATIONS

The following procedures may be used for both carburetors.

CARBURETOR ASSEMBLY

Removal from Engine

1. Remove wing nut attaching each air cleaner to each air cleaner support. Release air cleaner holding clamp (fig. 9-6) and remove air cleaner assemblies.
2. Disconnect choke wire at each carburetor swivel and cable housing from support bracket.
3. Disconnect accelerator return spring and accelerator rod. Remove carburetor rods at cross-shaft.

4. Remove all cross-shaft retainer screws and remove cross-shaft assembly.
5. Remove gas inlet line from carburetors.
6. Remove two nuts and washers attaching carburetor to intake manifold studs (fig. 9-16).
7. Remove vacuum advance hose from right carburetor.
8. Remove carburetor from the mounting studs.

Disassembly

(Refer to Figures 9-18 and 9-19)

1. Detach clip attaching pump rod to pump lever, remove clip and detach rod from pump lever.

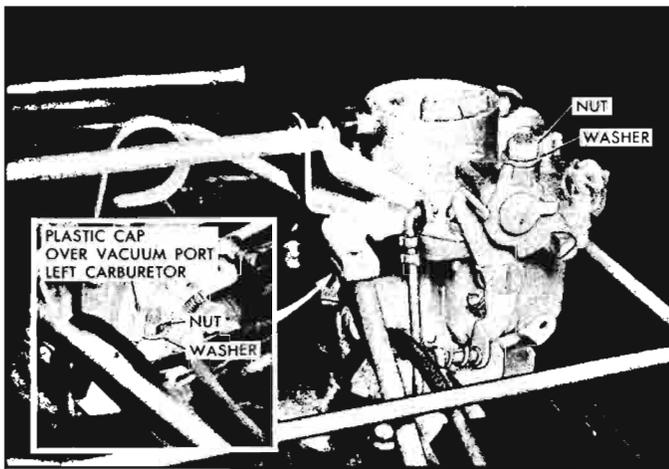


Fig. 9-16—Removing Carburetor

2. Remove fuel inlet nut and gasket and remove filter element and spring.
3. Remove six remaining bowl cover attaching screws and lockwashers (fig. 9-3), then remove bowl cover assembly and gasket (fig. 9-17).

NOTE: Take note of the location of screws as removed. Two screws located on either side of pump are longer than the other 4 screws.

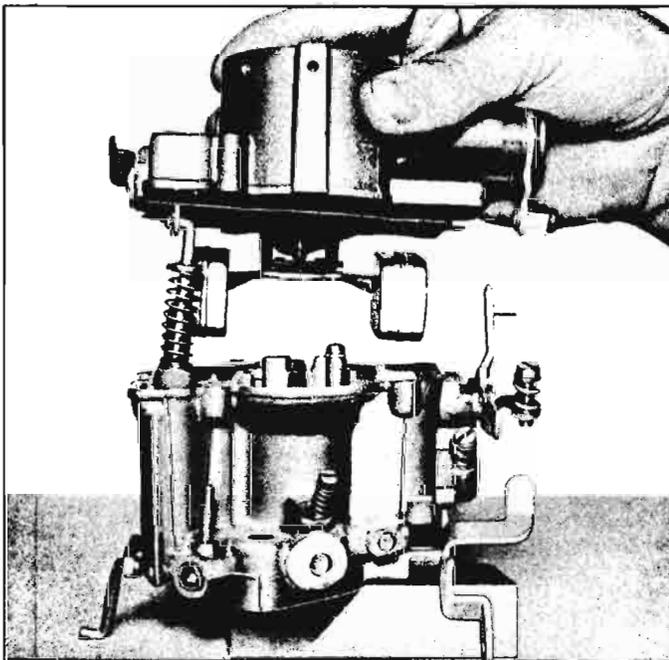


Fig. 9-17—Removing Bowl Cover

4. Remove pin attaching floats to bowl cover assembly.
5. Lift out float needle (fig. 9-20). Check seat for dirt or corrosion.
6. If necessary, needle seat and gasket may be removed by using a large size screwdriver (fig.

9-21). It may then be cleaned or replaced as needed.

7. Accelerator pump may be removed if necessary. Remove "C" clip and pump. Remove shaft and lever, if desired, by removing clip, shaft and lever.
8. Remove the two screws and lockwashers attaching venturi cluster to the bowl assembly and lift out the cluster, gasket and main well insert, (fig. 9-22).
9. Remove the pump discharge valve.
10. Remove the idle mixture adjusting needle and spring. Remove main metering jet.
11. If necessary, remove two choke valve retaining screws and slide choke valve out of choke shaft.
12. Remove choke shaft, spring, choke lever and throttle kick cam from carburetor air horn.
13. Remove fast idle cam attaching screw, spring and throttle kick lever.
14. If necessary, invert carburetor bowl and remove throttle valve retaining screws (fig. 9-4) and remove throttle valve and shaft assembly.

Cleaning and Inspection

Dirt, gum, water or carbon contamination in the carburetor or on the exterior moving parts are often responsible for unsatisfactory performance. For this reason, efficient carburetion depends upon careful cleaning and inspection while servicing.

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

CAUTION: Pump plunger and gaskets should never be immersed in carburetor cleaner.

2. Blow out all passages in castings, dry with compressed air and blow out all parts until they are dry. Make sure all jets and passages are clean. Do not use wires or drills for cleaning fuel passages or air bleeds.
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 hinge pin for wear and float for dents or distortion. Check floats for fuel leaks by shaking.
- C. Check throttle shaft for wear and out-of-round in the throttle body section of the bowl casting.
- D. Inspect idle adjusting needles for burrs or

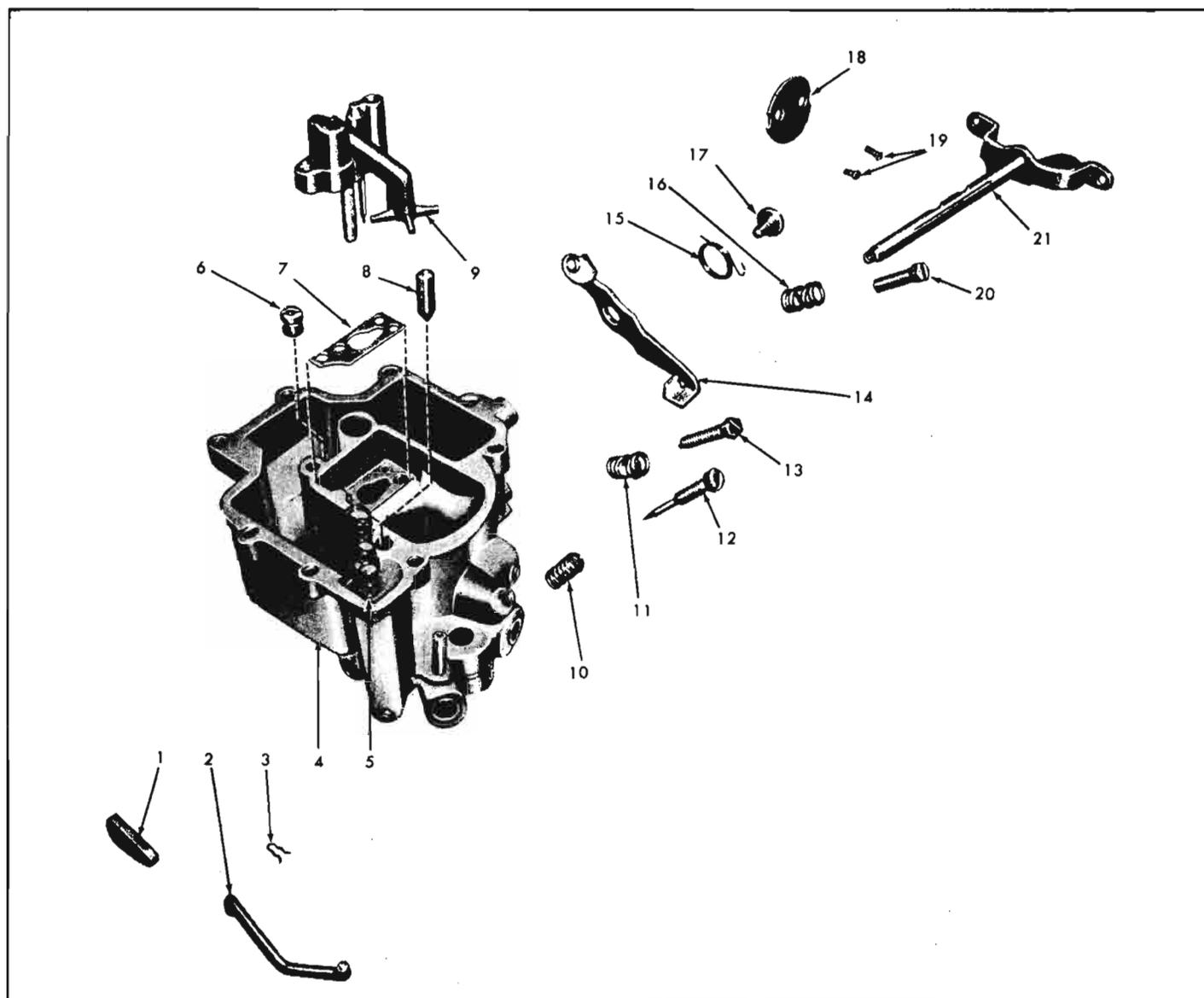


Fig. 9-18—Carburetor Bowl—Exploded

- 1. Accelerator Actuating Pump Lever
- 2. Pump Rod
- 3. Clip
- 4. Float Bowl
- 5. Accelerator Pump Return Spring
- 6. Main Metering Jet
- 7. Venturi Cluster Gasket

- 8. Pump Discharge Valve
- 9. Venturi Cluster
- 10. Idle Mixture Adjusting Screw Spring
- 11. Curb Idle Adjusting Screw Spring
- 12. Idle Mixture Adjusting Screw
- 13. Curb Idle Adjusting Screw
- 14. Throttle Valve Kick Lever

- 15. Throttle Valve Kick Lever Spring
- 16. Fast Idle Screw Spring
- 17. Throttle Valve Kick Lever Screw
- 18. Throttle Valve
- 19. Throttle Valve Retaining Screws
- 20. Fast Idle Adjusting Screw
- 21. Throttle Valve Lever and Shaft

grooves and misalignment. Such a condition requires replacement.

- E. Inspect pump plunger leather; replace pump if damaged or worn.
- F. Inspect pump well in fuel bowl for wear or being scored.
- G. Check that main well nozzle and idle tube is not bent. Should be exactly 90° from body.

H. Check choke shaft for wear and choke valve for nicks.

- 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 filter element for dirt or lint. Clean and if it is distorted or remains plugged, replace.
- 6. If for any reason parts have become loose or

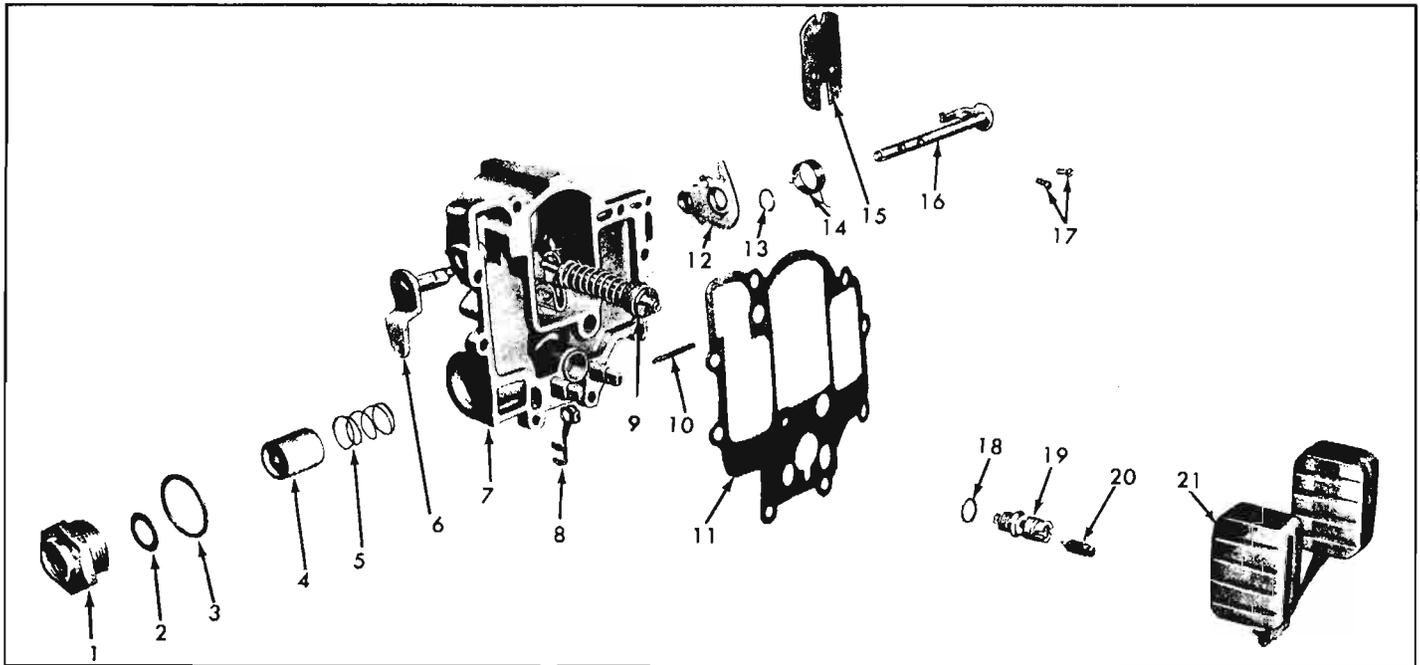


Fig. 9-19—Bowl Cover—Exploded

- 1. Inlet Nut
- 2. Fuel Filter Gasket
- 3. Inlet Nut Gasket
- 4. Fuel Filter Element
- 5. Fuel Filter Spring
- 6. Accelerator Pump Lever and Shaft
- 7. Bowl Cover

- 8. Clip
- 9. Accelerator Pump
- 10. Float Pin
- 11. Bowl Cover Gasket
- 12. Choke Lever and Swivel Assembly
- 13. Retainer Ring
- 14. Choke Valve Spring

- 15. Choke Valve
- 16. Choke Shaft and Lever Assembly
- 17. Retainer Screws
- 18. Needle Seat Gasket
- 19. Needle Seat
- 20. Needle
- 21. Float Assembly

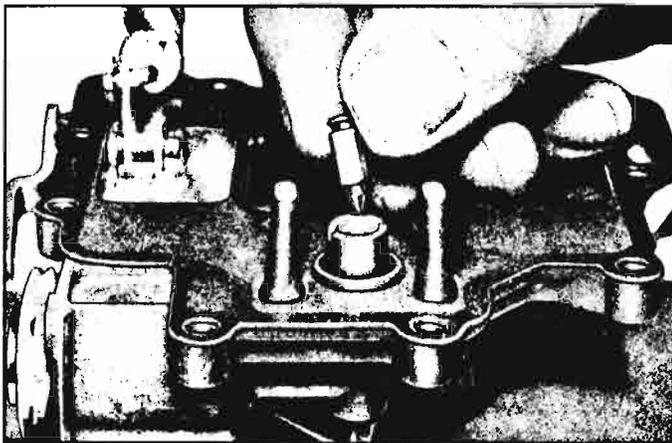


Fig. 9-20—Removing Float Needle

damaged in the cluster casting, it must be replaced.

Float Level and Drop Adjustments

1. Remove bowl cover with gasket from carburetor as described under "Service Operations."
2. Invert the cover on a flat surface. Place float level tool in chain gauge set J-8370 over float as shown in Figure 9-24.

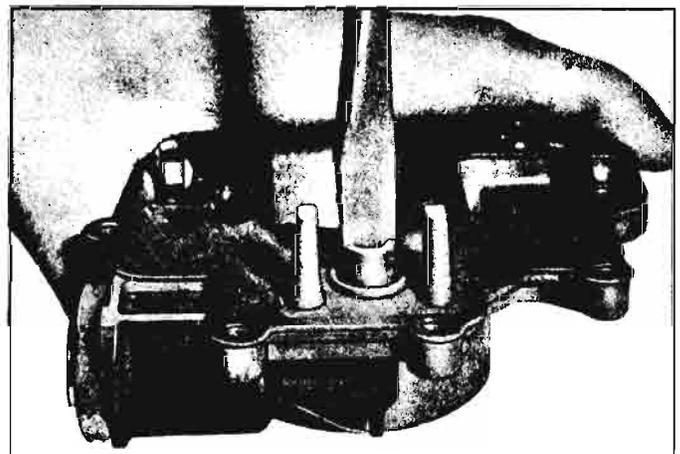


Fig. 9-21—Removing Needle Seat

3. Bend tang located just above the float needle until each float just touches the top of the gauge. Move gauge fore and aft to check that the floats are parallel within $\frac{1}{32}$ to the bowl cover. Carefully bend float arms horizontally until floats are centered between the gauge legs. Tilt the assembly each way to check that the floats do not touch or rub gauge legs. Recheck float level if alignment is necessary. The float level dimension (top of float to gasket) should be $1\frac{3}{64}$ " if measured without the gauge.

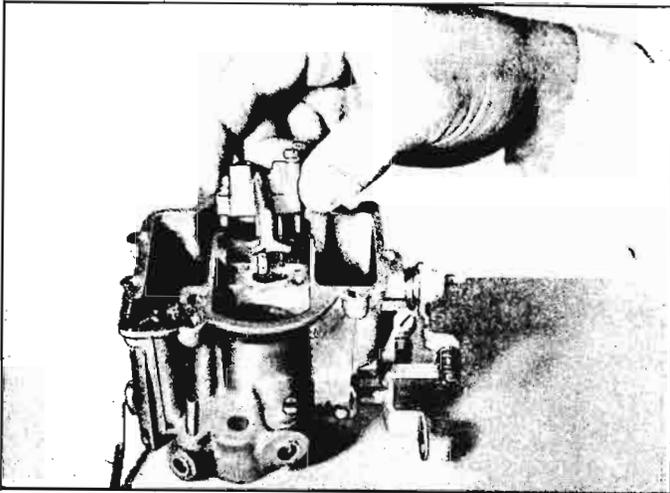


Fig. 9-22—Removing Venturi Cluster

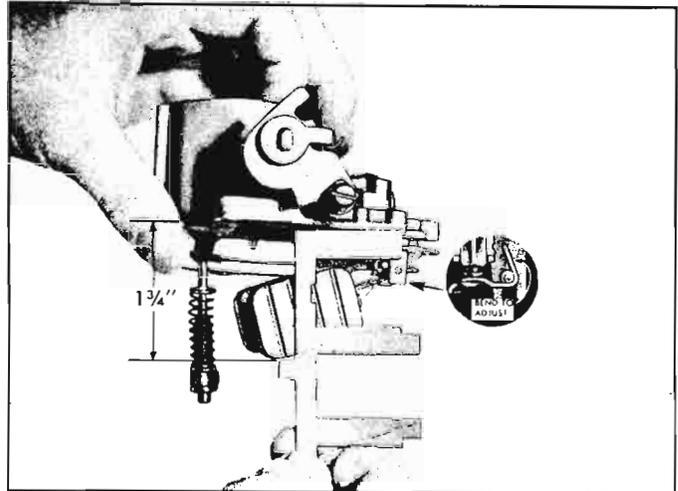


Fig. 9-25—Checking Float Drop

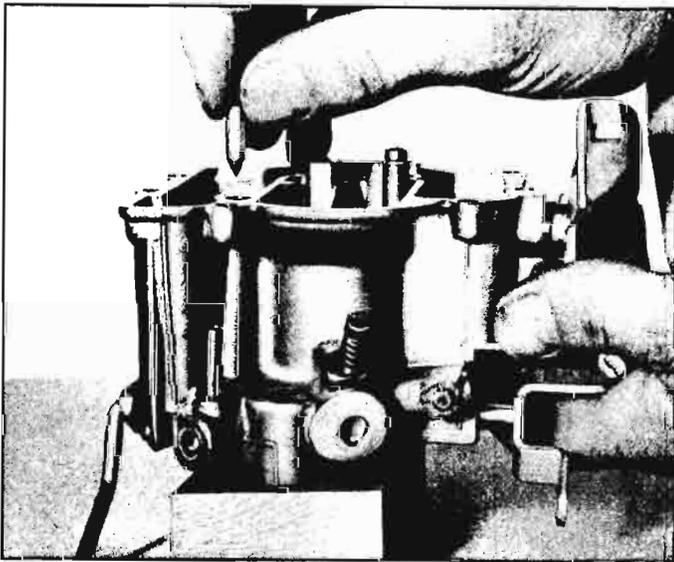


Fig. 9-23—Installing Pump Discharge Needle

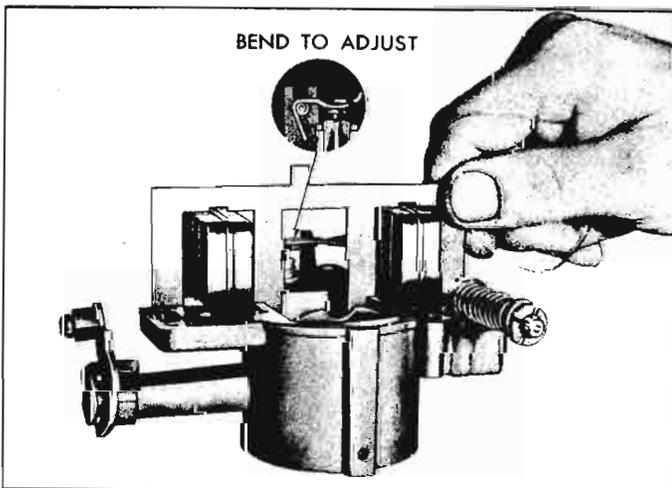


Fig. 9-24—Checking Float Level

4. Hold bowl cover in an upright position and measure the distance from the gasket to the bottom of the float, as shown in Figure 9-25. Tool J-8370 includes a tab with which to make this check. This dimension should be $1\frac{3}{4}$ ". Bend the tang at the end of the float hinge arm to obtain the correct drop, recheck setting after this adjustment.
5. Install the bowl cover as outlined under "Service Operations."
6. Synchronize and readjust carburetors.

Assembly

1. Install throttle shaft and throttle valve, if removed, with two screws, carefully center and seat valve in shaft end bore. See Figure 9-4.
2. Install venturi cluster and gasket in bowl assembly, and install the two screws and lockwashers.
3. If accelerator pump has been removed, replace pump assembly and install "C" clip.

NOTE: Be sure that the pump return spring is in place in bowl assembly.

4. Install pump discharge needle.
5. Install choke valve spring with long curved end under lever as shown in Figure 9-3. Then install shaft, valve, choke lever and throttle kick cam. Retain choke valve with two screws. (Choke shaft assembly should rotate freely without binds).
6. Install float needle seat if previously removed from bowl cover.
7. Carefully replace float needle.
8. Install a new gasket and replace float and pin (fig. 9-26). Check float level and float drop with Tool J-8370 (figures 9-24 and 9-25).
9. Carefully place bowl cover assembly and new gasket on bowl assembly and install the six screws and lockwashers in original positions.

10. Replace filter return spring, filter gasket, gasket and inlet nut.
11. Install pump rod in pump lever and retain with clip.

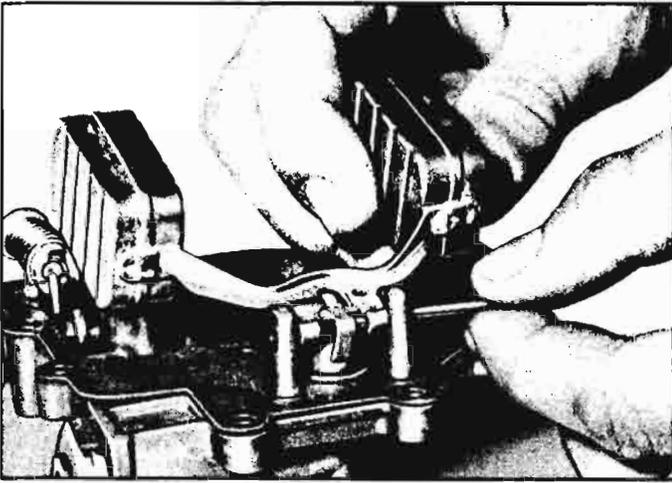


Fig. 9-26—Replacing Floats

Installation on Engine

1. Install insulator block in place, install carburetor on intake manifold studs. Install two attaching nuts and washers and tighten evenly (fig. 9-16). On right carburetor, replace vacuum advance line (fig. 9-27) with other end to distributor advance. On the left carburetor, the vacuum port tube is capped with a plastic cap (fig. 9-1).
2. Replace cross-shaft lever support and install three hex head attaching screws at each carburetor.
3. Replace gas inlet lines.
4. Replace accelerator rod and return spring. Connect throttle rods to cross-shaft.
5. Install choke cable and wire to each carburetor bracket and choke swivel. Adjust as outlined under "Choke Adjustment."
6. Check carburetors for "Carburetor Synchronization."
7. Clean air cleaner elements if necessary. See "Air Cleaner" in this section.

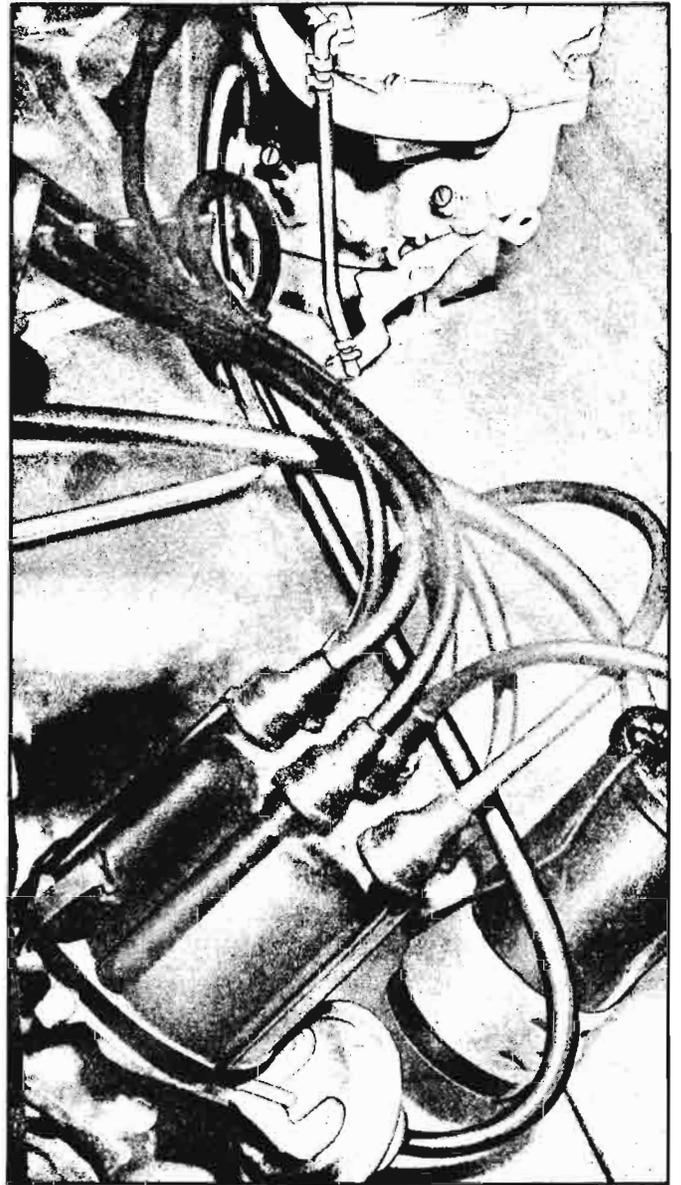


Fig. 9-27—Vacuum Advance Line

8. Install air cleaners, gaskets and connector (oval air intake tube) between each air cleaner. Install wing nut retainers.

TROUBLE SHOOTING CHART

(MODEL "H" CARBURETOR)

ALWAYS CHECK FIRST:
Heat Insulator, Carburetor Mounting Nuts,
Compression, Ignition System.

COMPLAINT										CHECK POINTS*	WHAT TO LOOK FOR
FLOODING	ROUGH IDLE	ECONOMY	HESITATION	ACCELERATION FLATNESS	SURGE	LOW TOP SPEED OR POWER	COLD OPERATION	STALLING	HARD HOT STARTING		
	1	★		★			★	1	★	IDLE ADJUSTMENT	Correct speed and mixture
	1a	★		★		1	1	1a		CARBURETOR SYNCHRONIZATION	Improper linkage adjustments Air leakage at vacuum hoses
	2		3	★	3	2		3	1	FLOAT ADJUSTMENT	Use correct gauge
			1	★			★			PUMP ROD ADJUSTMENT	Use correct dimension, throttle valves closed
	★	★							★	EXTERNAL VENT	Dirty or plugged (must be open)
		★				4	1a	★	★	CHOKE ADJ.	Cable adjustment not opening or not closing fully
							1b	★		FAST IDLE ADJUSTMENT	Improper clearance
★	★	★								CHOKE VALVE	Sticking choke valve—loose cable
		4		2	1	3	★			METERING JET	Loose, plugged, incorrect part
1	★	★							2	NEEDLE & SEAT	Worn, damaged, dirty, incorrect part
	★	★	5	3	2	★		2		VENTURI CLUSTER	Dirty, loose screws, incorrect part
	3		★					★	★	FLOAT	Bent, leaky
	3							★		IDLE NEEDLE	Worn, damaged
	4		★	★		★	★	★		THROTTLE VALVES	Sticking open or closed, damaged
4	★	★	★	★	★	★	★	★	★	GASKETS	Improper seal, hard or brittle material, loose screws
	2							★	★	IDLE PASSAGES	Dirty
	★	★								PUMP BODY	Crack or loose fit on plunger shaft
			3				★			PUMP PLUNGER	Hard or worn leather, distorted spring, stuck vent ball check
			4				★			PUMP INLET CHECK	Out-of-round, damaged seat, stuck
	★		★				★	★	★	PUMP DISCHARGE NEEDLE	Out-of-round, damaged seat, stuck needle
		1					2		3	DRIVER	Driving habits, correct procedures
			2	1						PUMP DISCHARGE JETS (4)	Dirt, must be open

Numbers under each complaint heading indicate probable order of trouble.
★Star indicates other possible troubles.

MODEL "H" CARBURETOR CORVAIR 95 AND GREENBRIER-1200 SERIES

GENERAL DESCRIPTION

Model "H" manual choke carburetor Maintenance and Adjustments, Service Operations, previously de-

scribed, apply in general except for Service Operations listed below.

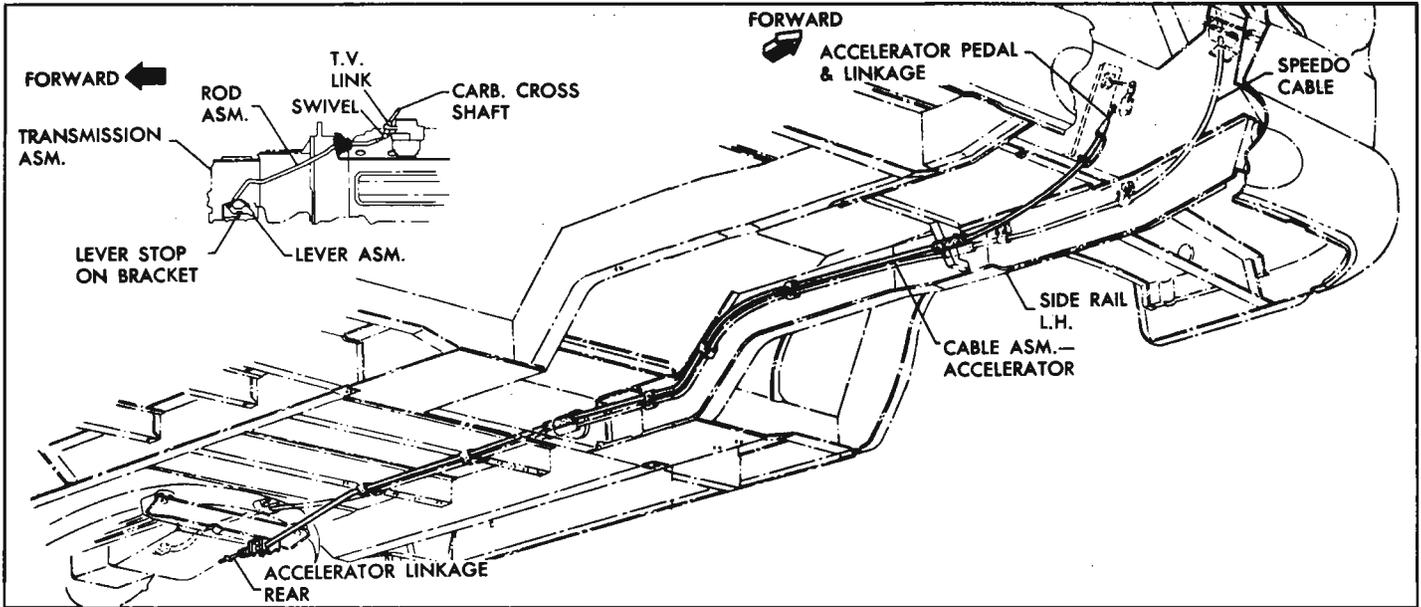


Fig. 9-28—Accelerator Control-Cable Routing

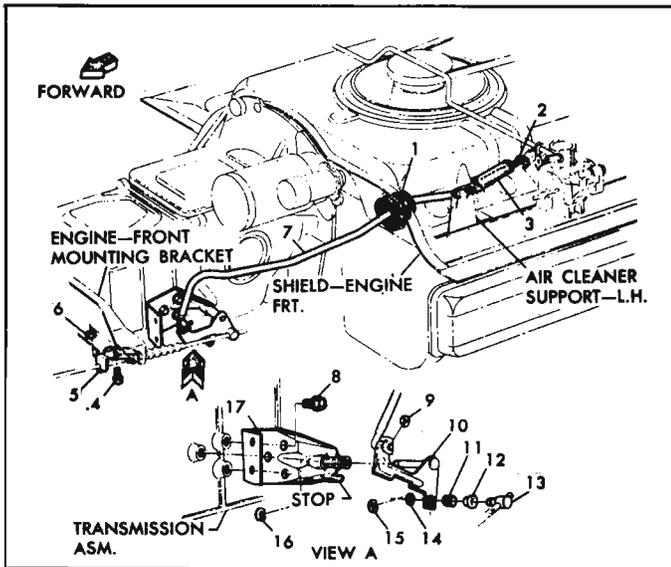


Fig. 9-29—Accelerator Linkage

- | | | |
|------------|--------------------|----------------------|
| 1. Boot | 7. Accelerator Rod | 13. Swivel |
| 2. Swivel | 8. Screw | 14. Plain Washer |
| 3. Spring | 9. Retainer | 15. Retainer |
| 4. Screw | 10. Lever Assembly | 16. Retainer |
| 5. Bracket | 11. Bushing | 17. Bracket Assembly |
| 6. Nut | 12. Sleeve | |

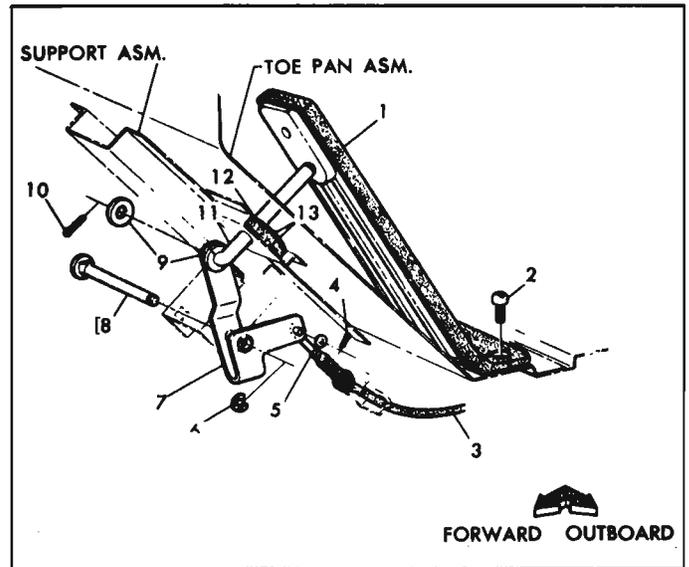


Fig. 9-30—Accelerator Pedal

- | | | |
|-------------------|-----------------|----------------------|
| 1. Pedal | 5. Plain Washer | 10. Cotter Pin |
| 2. Screw | 6. Retainer | 11. Rod |
| 3. Cable Assembly | 7. Lever | 12. Seal |
| 4. Cotter Pin | 9. Plain Washer | 13. Dust Seal Washer |
| 8. Pin | | |

ACCELERATOR CONTROL LINKAGE ADJUSTMENT

1. Position accelerator pedal 1" from floor mat (Synchromesh or 1¼" from floor mat (automatic) by placing a block of wood between pedal and floor mat.
Accelerator cable and pedal are shown in Figure 9-30.
2. Adjust cross-shaft assembly as described under "Carburetor Synchronization" in this section.
3. Disconnect swivel (13, fig. 9-29) from lever (10).
4. Disconnect swivel (2, fig. 9-29) from the left carburetor cross-shaft lever (E, fig. 9-8).

5. Pull accelerator rod (7, fig. 9-29) to wide open throttle position (carburetor throttle lever against the stop) on automatic transmissions rotate lever assembly until internal stop is at full detent, and hold in that position. Grasp cross-shaft assembly throttle valve link (rod) (lower end and pull rearward toward rear of vehicle) until carburetors are in wide open throttle position. Adjust swivel (2, fig. 9-29) to align hole in lever on cross-shaft (fig. 9-8). Lengthen accelerator rod swivel (2, fig. 9-29) five full turns.

FUEL PUMP

(All Series)

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GENERAL DESCRIPTION

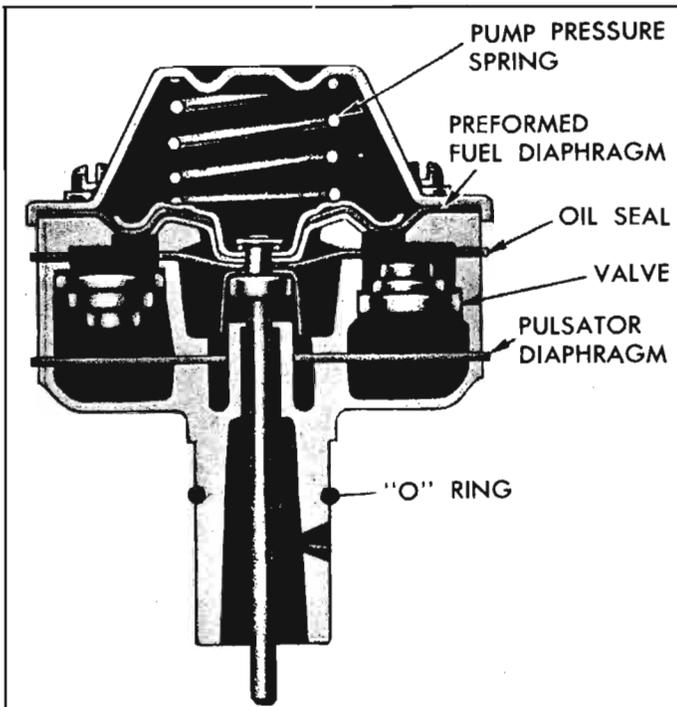


Fig. 9-31—Fuel Pump—Section View

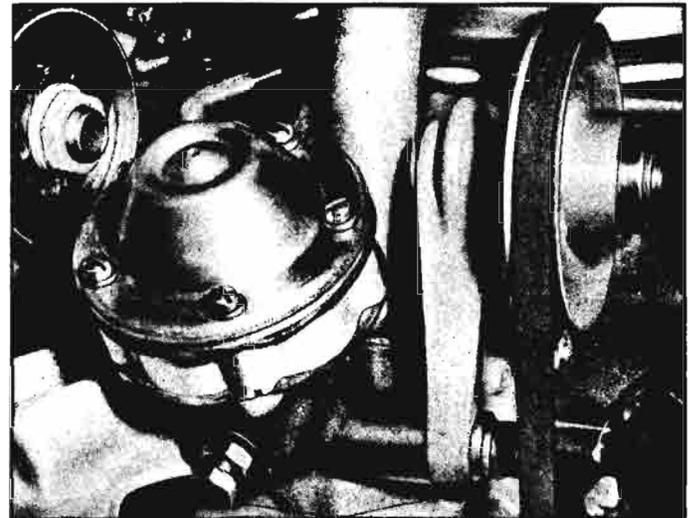


Fig. 9-32—Fuel Pump Installed

The fuel pump used on the Corvaire engine is of the diaphragm type (figs. 9-31 and 9-32). It is operated by a push rod which rides on an eccentric located near the rear end of the engine crankshaft. The return spring is incorporated into the push rod.

MAINTENANCE AND ADJUSTMENTS

The fuel pump should be checked regularly to make sure that the mounting bolt, cover to body bolts and

inlet and outlet connections are tight.

TROUBLE DIAGNOSIS AND TESTING

INSPECTION AND TEST

Always check pump while it is mounted on the engine and be sure there is gasoline in the tank.

The line from the tank to the pump is the suction

side of the system and the line from the pump to the carburetors is the pressure side of the system. A leak on the pressure side, therefore, would be made apparent by dripping fuel, but a leak on the suction would

not be apparent for its effect of reducing volume of fuel on the pressure side.

1. Tighten any loose line connections and look for bends or kinks in lines which would reduce fuel flow.

2. Tighten diaphragm flange screws.

3. Disconnect fuel pipes at carburetors. Disconnect distributor to coil primary wire so that engine can be cranked without firing. Place suitable containers at ends of pipes and crank engine a few revolutions. If little or no gasoline flows from open end of pipes then fuel pipe is clogged or pump is inoperative. Before removing pump disconnect fuel pipe at gas tank and inlet pipe and blow through them with an air hose to make sure they are clear. Reconnect pipes to pump and retest while cranking engine.

4. If fuel flows from pump in good volume (1 pint in 40 seconds or less at cranking speed) from pipes at carburetors, check fuel delivery pressure to be certain that pump is operating within specified limits as follows (fig. 9-33):

- Attach a fuel pump pressure test gauge to disconnected end of pump to carburetor pipe.
- Run engine at approximately 500 to 1,000 rpm on gasoline in carburetor bowls and note reading on pressure gauge.



Fig. 9-33—Pressure Test

- If pump is operating properly the pressure should be 4 to 5 lbs. and will remain constant at speeds between idle and 1,000 rpm. If pressure is too low or too high, or varies materially at different speeds, the pump should be removed for repair.

SERVICE OPERATIONS

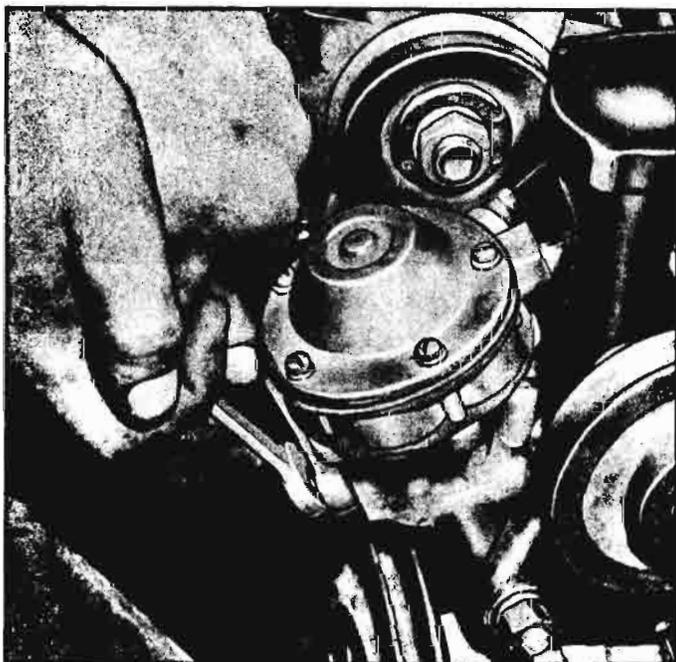


Fig. 9-34—Loosening Lock Nut

FUEL PUMP ASSEMBLY

Removal from Engine

1. Disconnect fuel inlet line at fuel pump and both outlet lines at the "T" connector. Leave the "T" connector and pipe in pump.
2. Loosen the jamb nut locking set screw in place and remove set screw (fig. 9-34).
3. Carefully remove fuel pump, and push rod assembly (fig. 9-35) from engine.

After removal of pump from engine and before disassembly, plug all openings, and carefully wash exterior of pump with cleaning solvent to remove all dirt and grease.

Disassembly

(Refer to Figure 9-36.)

1. Remove five bolts attaching diaphragm cover to body. Remove cover, spring and diaphragm and body assembly.

NOTE: Diaphragm and body assembly includes the fuel diaphragm, oil seal, and control rod.

2. Remove lower body and pulsator diaphragm from pulsator cover.
3. Remove valves from lower body by removing metal displaced by staking and pulling out valves with hook shaped tool.

Cleaning and Inspection

1. Clean and rinse all metal parts in solvent. Blow out all passages with air hose.
2. Inspect all parts for cracks, breakage and distortion. Examine all screw holes for stripped or crossed threads. Replace damaged parts.

Assembly

(Refer to Figure 9-36.)

1. Assemble pulsator cover, pulsator diaphragm, lower body (with valves replaced and staked), body and diaphragm assembly, spring and cover. Install bolts and draw up equally until tight.

NOTE: One bolt hole is offset to assure proper positioning of component parts.

Installation on Engine

1. Install "T" connector and pipe in pump "outlet" connection.
2. Install the pump into the accessory housing,

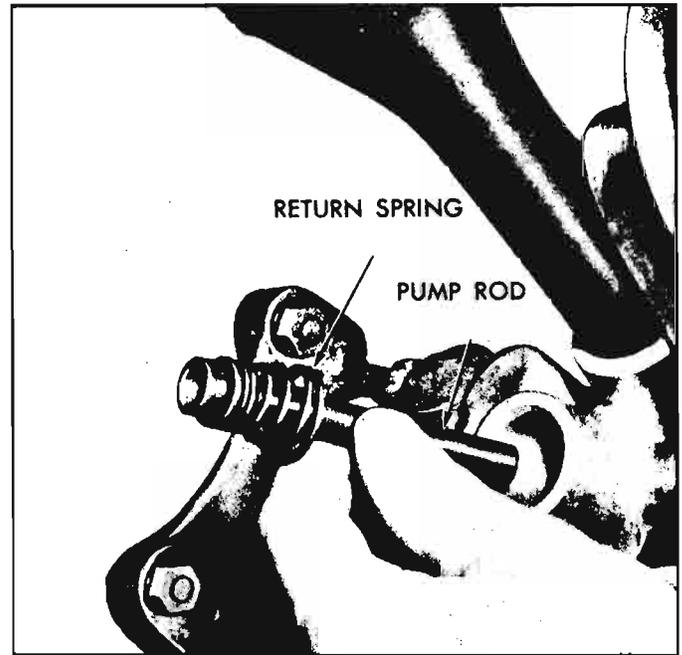


Fig. 9-35—Removing Push Rod

outlet connection to front. Carefully feel pump position with set screw, being sure set screw pilots in locking hole.

3. Tighten set screw 9 to 15 ft. lbs. Then tighten lock nut 9 to 15 lbs.
4. Install inlet fuel line to inlet connection on fuel pump and outlet lines to the "T" connector.

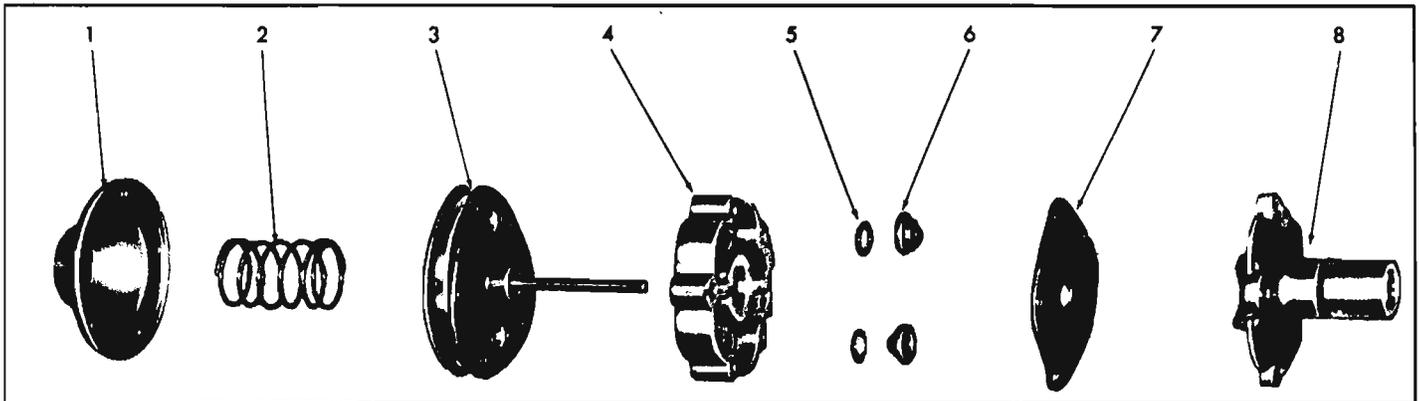


Fig. 9-36—Fuel Pump—Exploded View

- | | | | |
|-----------|--------------------------------|-----------------|-----------------------|
| 1. Cover | 3. Diaphragm and Body Assembly | 5. Valve Gasket | 7. Pulsator Diaphragm |
| 2. Spring | 4. Lower Body | 6. Valve | 8. Pulsator Cover |

TROUBLES AND REMEDIES

Symptom and Probable Cause	Probable Remedy
Fuel Pump Leaks—Fuel	
a. Loose housing screws.	a. Tighten housing screws.
b. Ruptured or torn diaphragm.	b. Install new diaphragm.
c. Loose fittings.	c. Tighten fittings.
d. Stripped thread on inlet and outlet fittings.	d. Replace fittings.
Symptom and Probable Cause	Probable Remedy
Fuel Pump Leaks Oil	
a. Hole in diaphragm.	a. Install new diaphragm
b. Damaged oil seal.	b. Replace oil seal.
Insufficient Fuel Delivery	
a. Loose fuel line fittings.	a. Tighten fittings.
b. Damaged diaphragm.	b. Install new diaphragm.
c. Cracked or broken fuel line.	c. Replace line.
Fuel Pump Noise	
a. Pump loose at mounting.	a. Torque fuel pump mounting bolt and tighten lock nut.

AIR CLEANER CORVAIR—500, 700 AND 900 SERIES (EXCEPT 535 AND 735 MODELS)

GENERAL DESCRIPTION

The air cleaner operates primarily to remove dust and dirt from the air that is taken into the carburetors and engine. All Corvaire models make use of a reusable oil-wetted polyurethane air cleaner filter element. The element is to be removed after each 2000 miles of driving, cleaned, re-oiled and replaced in the vehicle. During dusty or other adverse driving conditions the filter must be cleaned more often. Figure 9-37 shows air cleaner components.

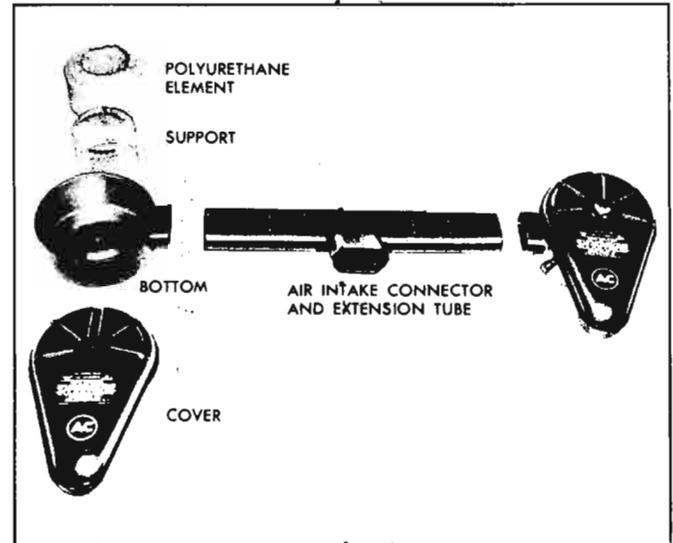


Fig. 9-37—Air Cleaner Components

INSPECTION AND CLEANING

1. Remove wheel and tire assembly.
2. Remove wing nut clamps and air cleaner covers (fig. 9-38). Lift out filter element.

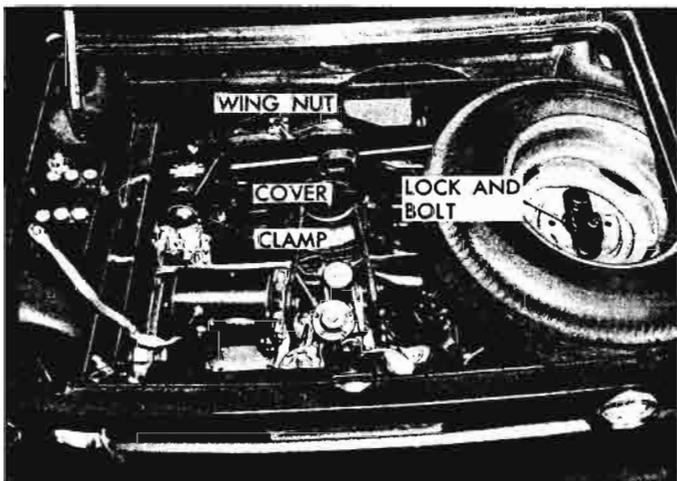


Fig. 9-38—Air Cleaner Mounting

3. Visibly check the element for tears or rips. If any are found, replace the element.

Clean all accumulated dirt and grime from the air cleaner and cover. Discard air horn/air cleaner gasket.

4. Install a new gasket on air cleaner assembly and set in place.
5. Clean the filter element in the following manner:
 - a. Remove cleaner element and support from cleaner body (fig. 9-39).
 - b. Remove the filter element from the screen support.
 - c. Clean the filter element in kerosene or mineral spirits (never use a hot degreaser or any solvent containing acetone or similar elements), then squeeze out the excess solvent (fig. 9-40).
 - d. Dip element into engine oil and squeeze out excess oil.
 - e. Replace the element onto the screen support.

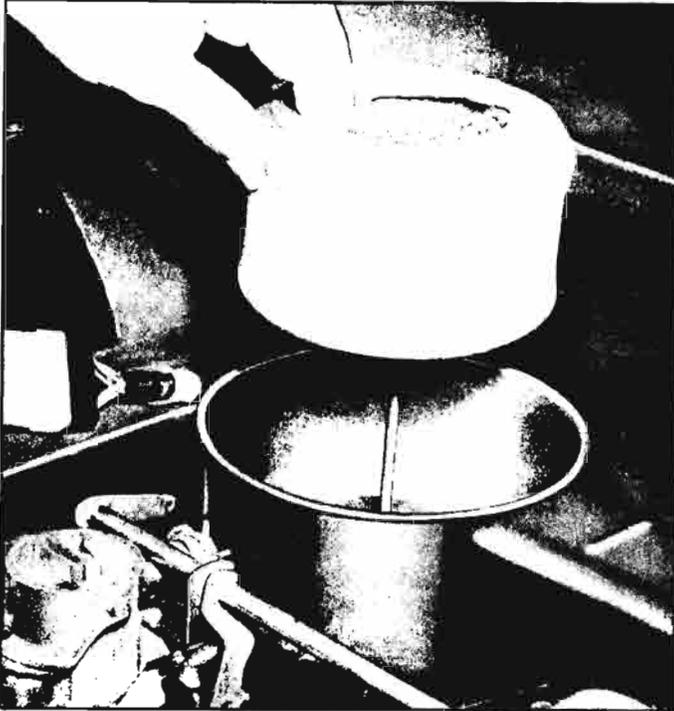


Fig. 9-39—Removing Element from Support

CAUTION: Never shake, swing, or wring the element to remove excess oil or solvent. This may rip or tear the polyurethane material of the element. Instead, always **SQUEEZE** the excess solvent or oil from the element.

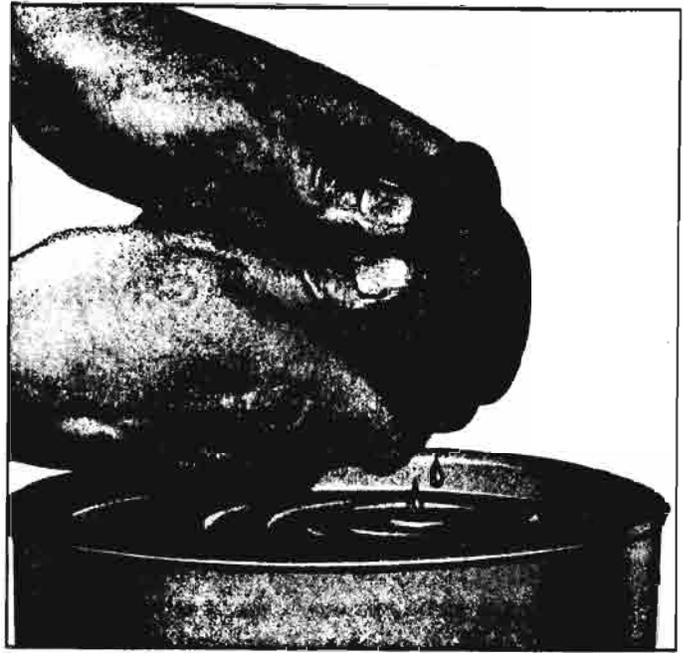


Fig. 9-40—Cleaning Element

6. Replace the element in the air cleaners. Care must be taken that the lower lip of the element is properly placed in the assembly and that the filter material is not folded or creased in any manner that would cause an imperfect seal. Take the same precautions when replacing the cover that the upper lip of the element is in proper position.
7. Replace cover and wing nut.

AIR CLEANER

CORVAIR 95 AND GREENBRIER—1200 SERIES AND CORVAIR STATION WAGON—MODELS 535 AND 735

GENERAL DESCRIPTION

Air Cleaner—Service Operations and Maintenance, previously described, apply in general except the air intake assembly eliminates the extension on the air intake assembly tube as shown in Figure 9-41.



Fig. 9-41—Air Cleaner Mounting

FUEL TANK

CORVAIR-500, 700 AND 900 SERIES

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GENERAL DESCRIPTION

The fuel tank (fig. 9-42) on all Corvaire 500, 700 and 900 Series, with a 14 gallon capacity, is mounted just to the rear of the front cross-member and just in front of the toe pan. It is held in place by a single metal strap attached to the under-body at each end by an adjustable hook.

The filler neck is accessible through a spring loaded door in the left front fender.

The fuel pick-up is integral with the tank gauge

sending unit located at the lower right rear of the tank. A large area, fine mesh screen is located at the end of the fuel pick-up pipe to prevent the entrance of dirt or water into the system. The tank has no drain plug, but the tank gauge sending unit may be removed for draining of the tank.

CAUTION: When installing toe pan cover screws, caution should be exercised to avoid puncturing the fuel tank.

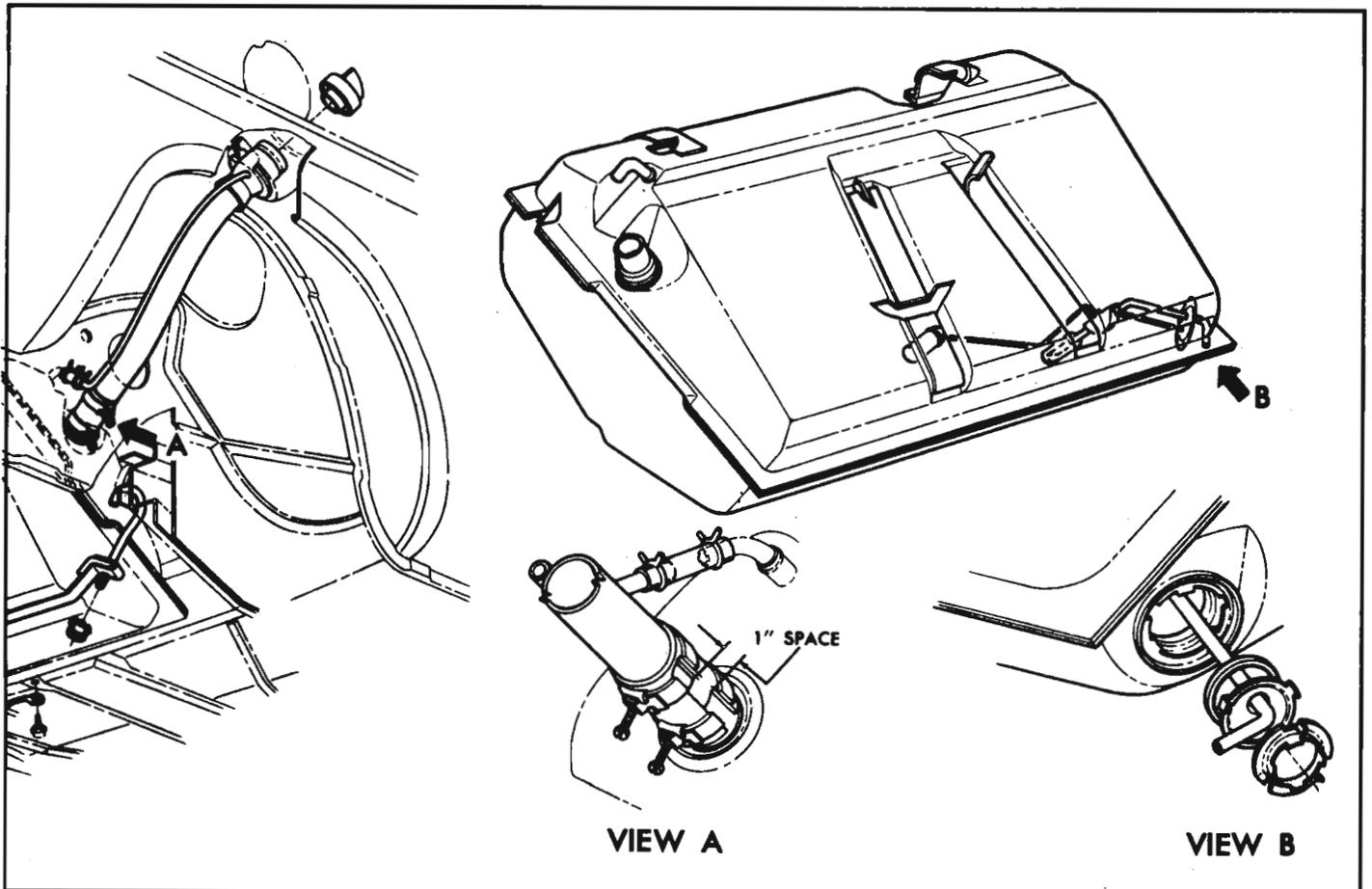


Fig. 9-42—Fuel Tank

SERVICE OPERATIONS

FUEL LINES

The fuel line (fig. 9-43) extends from a hose clamp connection at the tank gauge sending unit, through the covered tunnel to a point just ahead of the rear cross-member, where it swings to the right side of the vehicle, then upward and to the left, then rearward where, through another hose clamp connection, it meets the fuel line to the fuel pump at a point just ahead of the front engine shield assembly.

CAUTION: Always drain gasoline from entire fuel system including carburetor, fuel pump, fuel lines and fuel tank if car is to be stored for any appreciable length of time. This precaution will prevent gum formation and resultant improper engine performance.

The fuel lines should be inspected occasionally for leaks, kinks or dents. If evidence of dirt is found in the carburetor or fuel pump on disassembly, the lines should be disconnected and blown out.

Removal

1. Remove the tunnel cover.
2. Disconnect the hose clamp connections at the front and rear ends of the fuel line.

NOTE: Plug fuel pick-up to eliminate draining gas tank.

3. Remove the line from the four clamps attaching the lines to the underbody in the rear pick-up area and use a screwdriver to remove the three clamps in the tunnel area.

NOTE: To release the clamps, place the blade of the screwdriver between the two hanging tabs and twist the screwdriver to release the locking fingers.

4. Remove fuel lines.

Installation

1. Replace grommets on lines if removed.
2. Hold fuel lines in place and replace clamps.

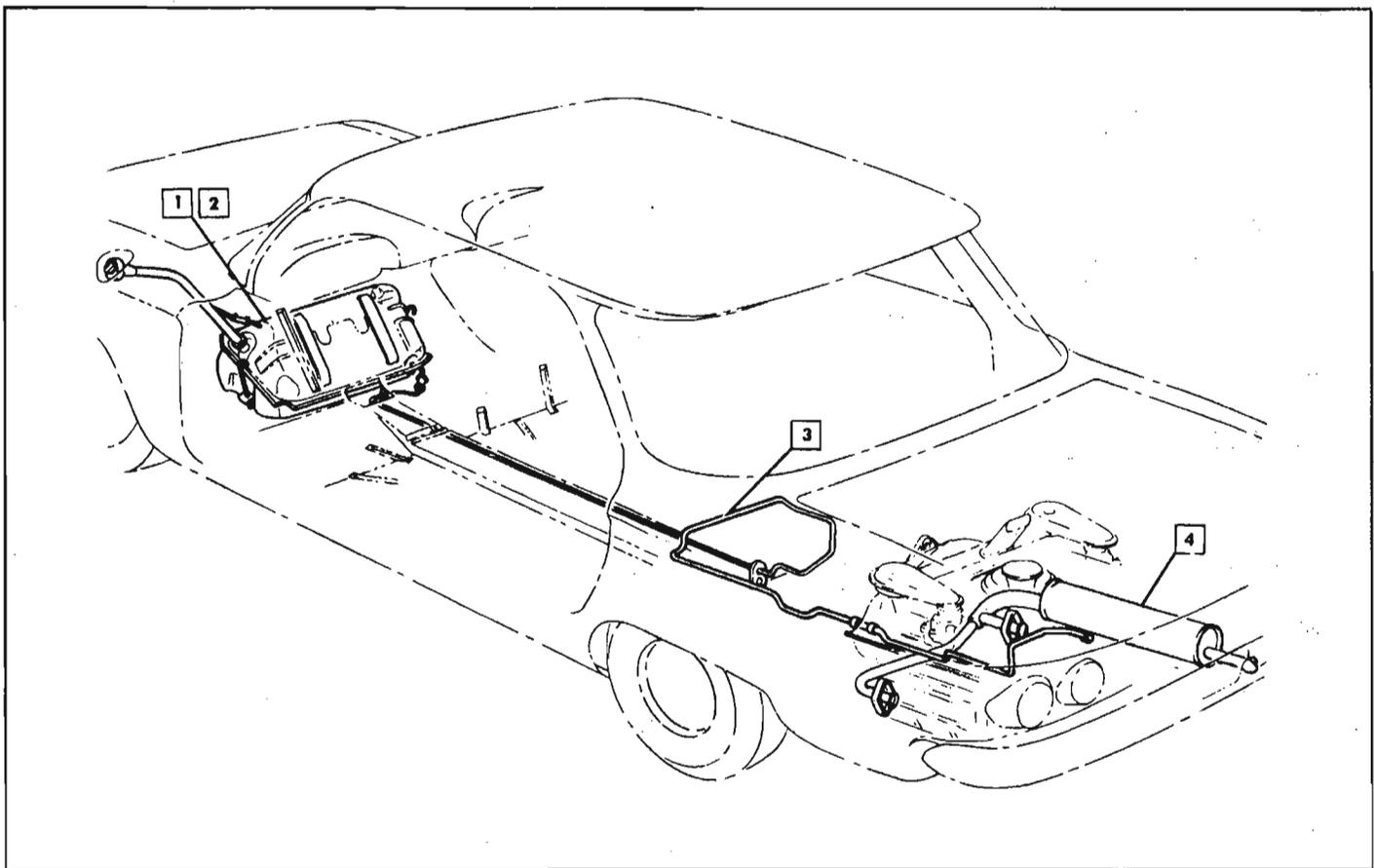


Fig. 9-43—Fuel Lines

1. Gas Tank 2. Filler Pipe 3. Fuel Line 4. Muffler

NOTE: Use new clamps when replacing the three from within the tunnel area. Attach by inserting the point of the clamp into the hole in the underbody and then squeezing the locking fingers with a suitable pliers.

3. Make all front and rear fuel line connections.
4. Replace tunnel cover.

NOTE: Before replacing tank, check the hose clamp connections between the tank and the filler neck and breather tube. These connections must be properly made before the tank is installed.

Gauge Unit and Fuel Strainer

Replacement

1. Disconnect gauge wire plug and ground wire.
2. Drain gasoline from tank by using Tool J-8950 to turn tank gauge unit cam counter-clockwise.
3. Remove tank gauge unit.
4. Clean strainer by blowing off with compressed air or replace the strainer if damaged.
5. Reverse the above procedure to install a gauge unit. Before plugging in the gauge wire, the spanner nut in the plug receptacle should be checked for tightness. A tool shown in Figure 9-44 may be easily constructed for this purpose. This nut must be tight or leakage will occur at this point.

Fuel Tank

Removal and Installation

1. Drain fuel tank by removing tank gauge unit.
2. Remove rubber seal from filler neck just within the access door on the left front fender.
3. Remove the nut on one end of the tank support strap which attaches the support to the two tank support rods.
4. Lift up on the left side of the tank and carefully work the tank down and out of its place, freeing the right side first.
5. Replace the tank in the same manner outlined in the above steps.

NOTE: A 1" space is required between filler pipe and tank neck inside the connecting hose.

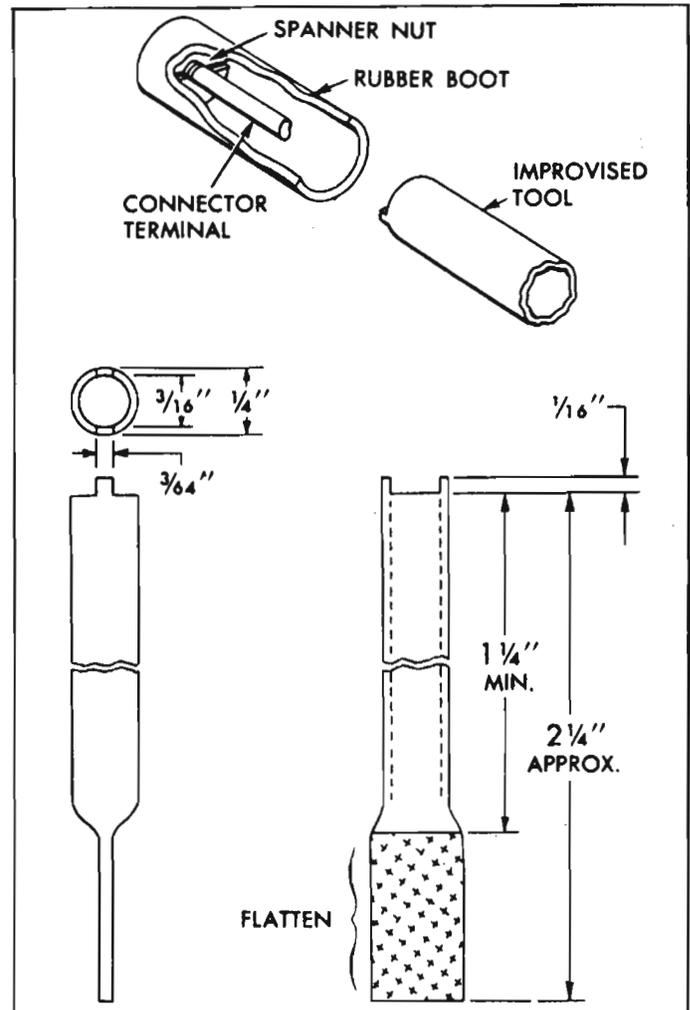


Fig. 9-44—Gauge Unit Seal Tight Tool

FUEL TANK

CORVAIR 95 AND GREENBRIER—1200 SERIES

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GENERAL DESCRIPTION

The fuel tank (fig. 9-45) on all Corvair 95 and Greenbrier Series, with a 18.6 usable gallon capacity, is mounted over the front cross-member and just ahead of the cross sill. It is held in place by two metal straps, attached at one end to a support bracket and at the other adjustable end, through the cross sill.

The filler neck is accessible at the rear of the left door rocker panel and has a special cap in accordance to ICC regulations which will prevent gas leakage.

The fuel pick-up is integral with the tank gauge sending unit and is located on the top right front of the tank. A large area, fine mesh screen is located at the end of the fuel pick-up pipe to prevent the entrance of dirt into the system.

Because the tank has no drain plug siphoning must be used to empty the tank.

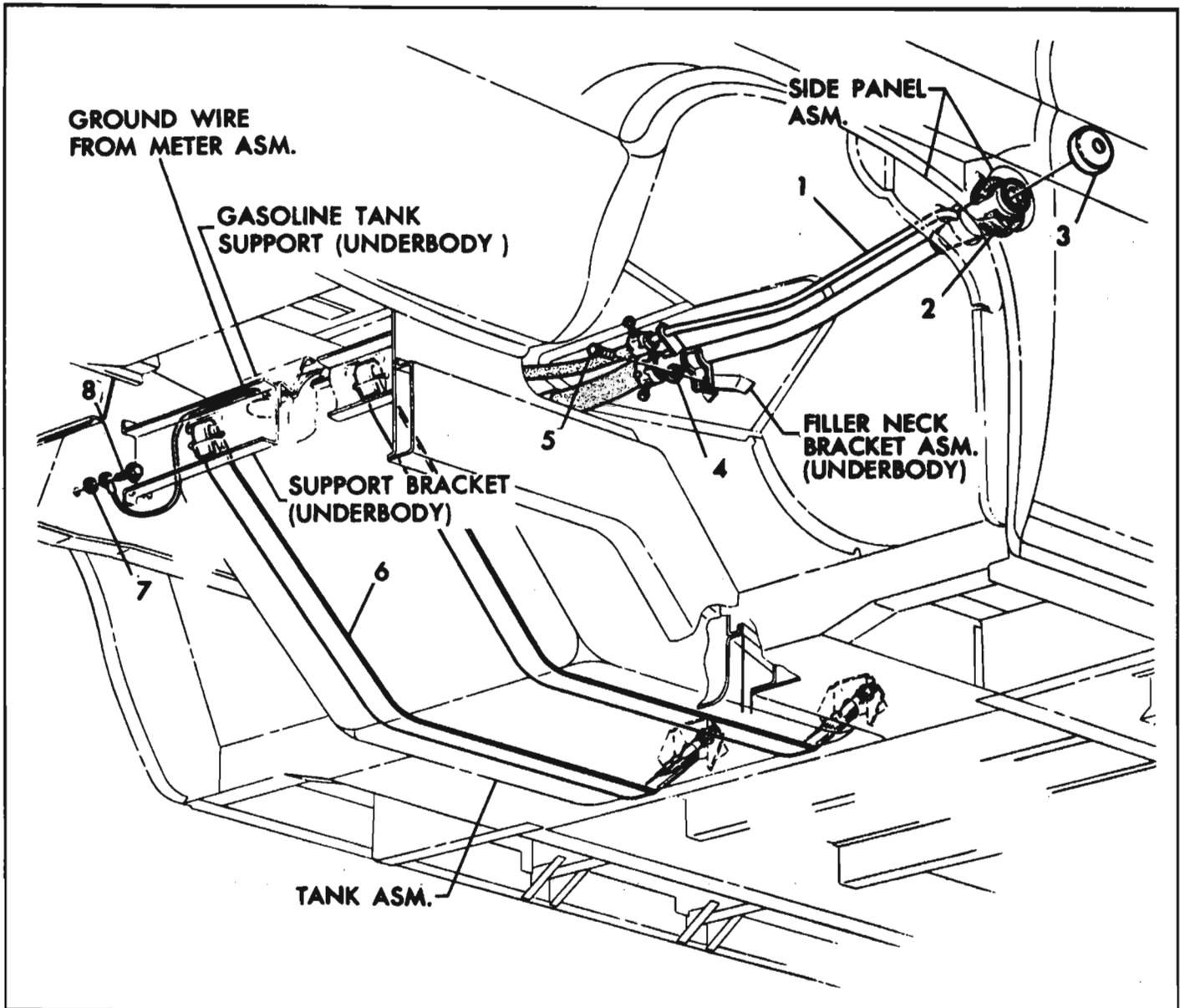


Fig. 9-45—Fuel Tank

- | | |
|-----------------------------|--------------------------|
| 1. Filler Neck | 5. Filler Hold-Down Bolt |
| 2. Body to Filler Neck Seal | 6. Tank Strap |
| 3. Gas Cap | 7. Washer |
| 4. Washer | 8. Ground Wire Bolt |

SERVICE OPERATIONS

FUEL LINES

The fuel line extends from the hose clamp connection at the cross sill, to the left frame rail and back, till it meets the fuel line from the fuel pump just ahead of the front engine shield.

Removal and Installation

1. Disconnect the hose clamps at front and rear ends of line.
2. Release fuel lines from clips and remove.
3. Install in reverse procedure.

Gauge Unit and Fuel Strainer

Replacement

1. Remove fuel tank.
2. Disconnect fuel hose clamp.
3. Turn tank gauge unit cam counter-clockwise to loosen.
4. Remove gauge assembly.
5. Reverse the above procedure to install gauge unit.

NOTE: Before replacing gas tank, the spanner nut in the plug receptacle should be checked for tightness. A tool such as is shown in Figure 9-44 may be easily constructed for this purpose.

FUEL TANK

Removal and Installation

1. Drain gas tank by siphoning.
2. Disconnect fuel feed line at hose clamp connection and gauge and ground wire.
3. Disconnect filler and vent pipe hose connections.

NOTE: On standard transmission models, remove shifter rod.

4. Remove the tank support strap nuts.
5. Lower fuel tank by carefully working tank toward back of vehicle.
6. Replace tank in the same manner removed, except tie filler hose to vent pipe for clearance and ease of filler pipe to hose installation after tank is in place.

FILLER NECK

Replacement

1. Disconnect filler neck and vent pipe hose clamps (fig. 9-45).
2. Remove bolt from filler neck bracket.
3. Remove gas cap and filler neck assembly.
4. Reverse procedure for installation.

EXHAUST SYSTEM CORVAIR-500, 700 and 900 SERIES

GENERAL DESCRIPTION

The exhaust system on all Corvairs is a single unit which includes the exhaust pipes, muffler and tail pipe (fig. 9-46). The exhaust pipes are packing flange connected to the exhaust manifolds. Both pipes turn towards the right side of the vehicle, combine into a single pipe and thence into the muffler. The muffler is located to the right of the engine and is attached by means of a bracket to the engine. The close proximity to the engine helps reduce condensation problems and contributes to longer muffler life. The flanges at the exhaust manifolds and the bracket at the engine comprise the entire exhaust system mounting.

The muffler is cylindrical and of the reverse flow type. An asbestos wrap, over the steel single wrap inner shell, is covered by a single outside plated steel shell, providing extra long life.

Removal and Installation

1. Remove the four mounting nuts "A", Figure 9-46.
2. Remove bolt "B", Figure 9-46.

3. Carefully pull muffler and exhaust pipe assembly from under car.

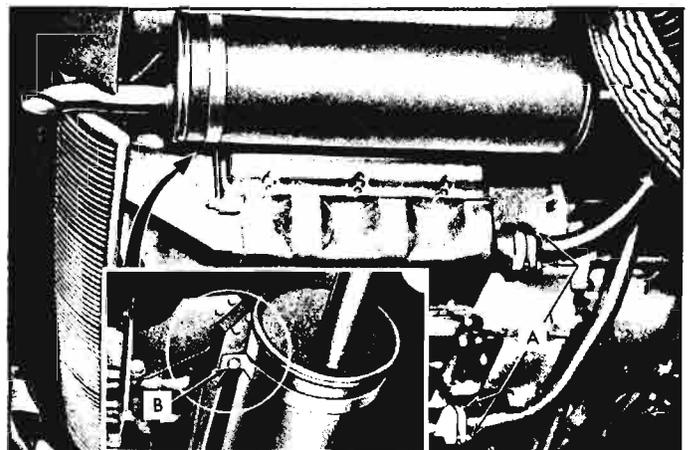


Fig. 9-46—Exhaust System and Mounting