

Model 5200 2-V Carburetor

PART
24-10

2.3L I-4 Engine

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DESCRIPTION

GENERAL

The Motorcraft Model 52000 2-V carburetor is a two stage, two venturi carburetor. The primary venturi is smaller than the secondary venturi. The secondary system is operated by mechanical linkage.

The primary stage includes a curb idle system, accelerator pump system, idle transfer system, main metering system and power enrichment system.

The secondary side includes a secondary idle system, transfer system, main metering system and power system. Both the primary and secondary systems draw fuel from a common fuel bowl.

The Model 5200 2-V is equipped with an automatic choke featuring an electric heater assist. This provides for choke pull-off in a short time after engine start. Testing and adjustment information for the choke is contained in Part 29-01 of this volume.

The choke housing and electric choke components are shown in Fig. 1. An overcenter spring is provided to assist in closing the choke plate for initial starting of a cold engine in high ambient temperatures. After initial choke pull-down occurs, the overcenter spring has little or no effect on choke operation.

Four throttle positioners (TSP) are used, (Fig. 2); a dashpot, a solenoid, a combination solenoid/dashpot, and a solenoid kicker. The solenoids operate when ignition switch is on.

The vacuum kickers are actuated when air conditioning units are turned on, by vacuum switched through a vacuum solenoid valve. This provides higher idle speed when the air conditioner compressor is operating.

The carburetor is provided with a drilled passage to connect the EGR valve.

FUEL BOWL VENT

All Model 5200 carburetors are equipped with a vacuum-operated, solenoid-assisted fuel bowl vent (Fig. 4), called a "switching bowl vent".

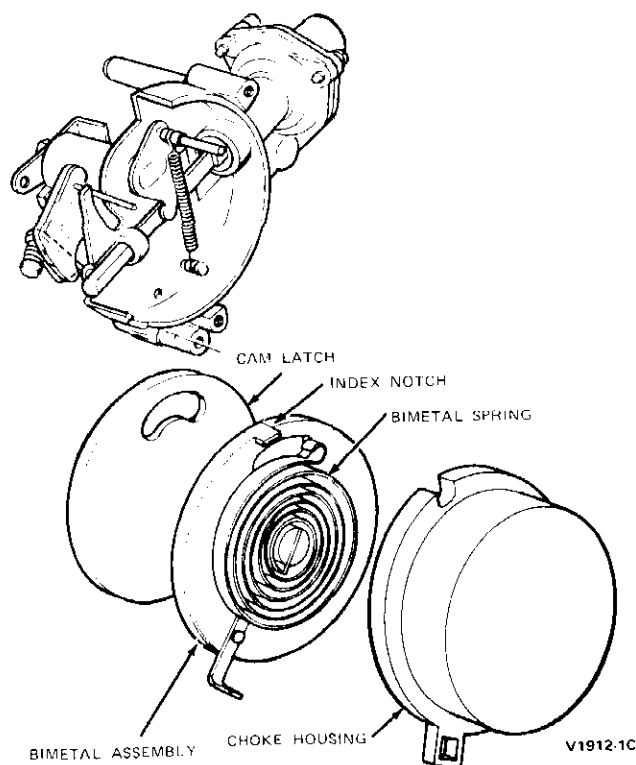


FIG. 1 Fast Idle Cam Latch

With engine off, a spring holds the external vent open, closing the internal vent passage (Fig. 5). In this position, vapors from the fuel bowl are allowed to pass to the evaporative emission canister. When the engine is started, manifold vacuum acting on the diaphragm overcomes the spring pressure and pulls the external vent to its seated position, thus uncovering the internal vent passage. A holding solenoid, wired to the ignition circuit, makes sure the vent doesn't inadvertently open under low vacuum conditions. Thus, the vent will only close again when the ignition is switched OFF.

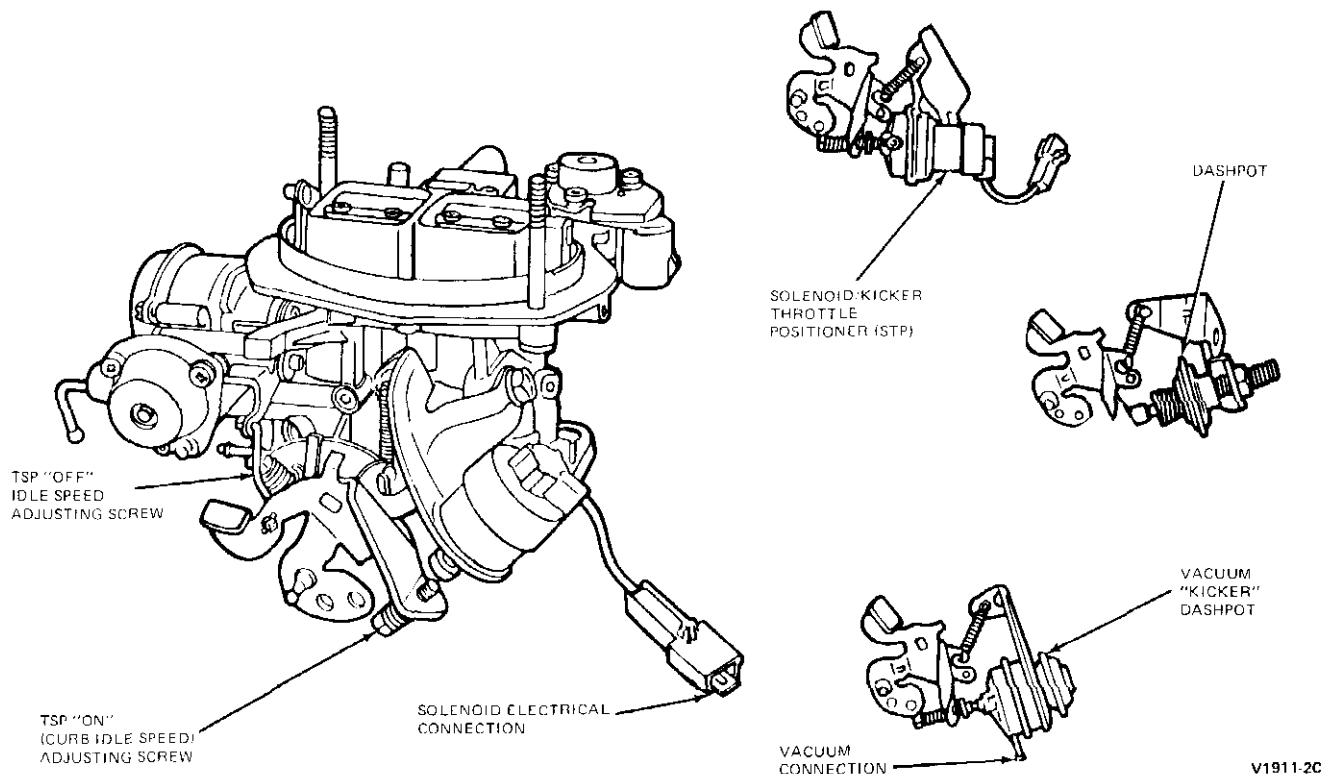


FIG. 2 Model 5200 2-V Carburetor With Solenoid Throttle Positioner—Alternate Throttle Positioners Shown

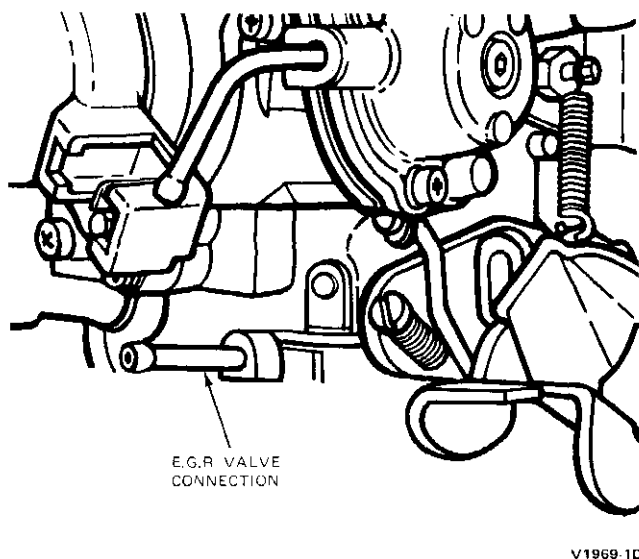


FIG. 3 EGR Valve Connection

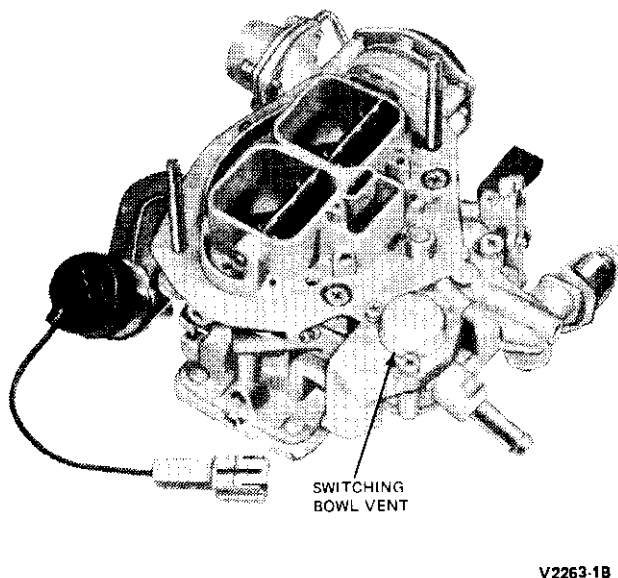
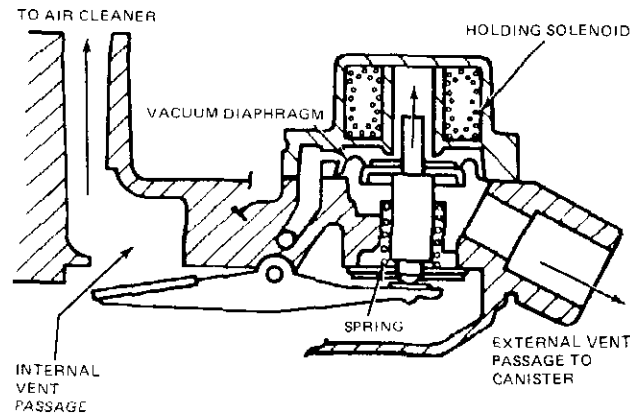


FIG. 4 Model 5200 Carburetor with Switching Bowl Vent



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FIG. 5 Switching Bowl Vent

ADJUSTMENTS

Most carburetor adjustments are factory set, and based on guidelines determined for reduced engine emission. In order to adjust:

- Automatic Choke and Electric Assist
- Idle Speeds
- Fuel Mixture
- Idle CO

you must refer to Engine Emission Control Systems Part 29-02 of this Volume or Part 50-29 of Volume 5.

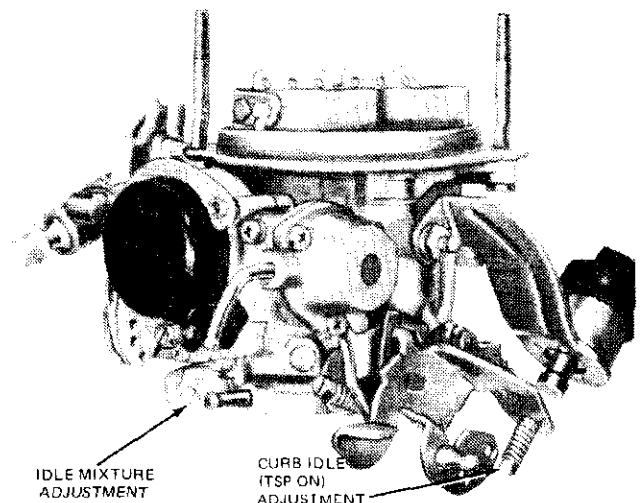
Adjustment points for the Motorcraft 5200 2-V carburetor are shown in Figs. 2, 6 and 7.

FAST IDLE CAM CLEARANCE

1. Insert a specified inch drill between the lower edge of the choke plate and the air horn wall.
2. With the fast idle screw held on the bottom step of the fast idle cam, against the top step, measure the clearance between the tang of the choke lever and the arm on the fast idle cam (Fig. 8). The tang and arm should be in light contact. Bend choke lever tang up or down as required.

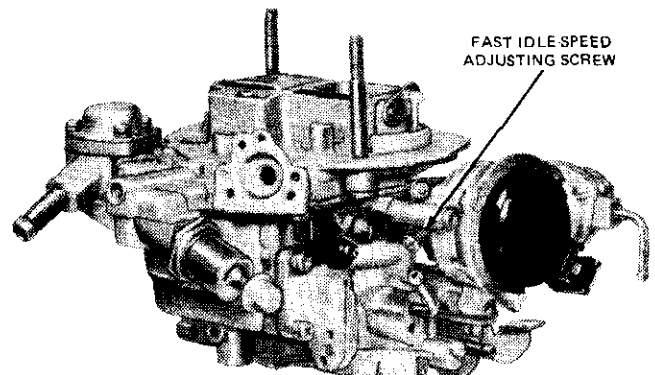
CHOKE PLATE VACUUM PULLDOWN

1. Remove the three hex head screws and the ring retaining the choke thermostatic spring cover.
2. Remove choke electric assist assembly. Remove latch plate assembly. **CAUTION: Choke plate must be closed in air horn when reinstalling the electric assist with latch.**
3. Set the fast idle cam on the second step.
4. Using a screwdriver, push the diaphragm stem back against its stop (Fig. 9). Place a specified gage rod or drill between the lower edge of the choke plate and the air horn wall.



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FIG. 6 Curb Idle Speed and Mixture Adjustment



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FIG. 7 Fast Idle Speed Adjustment

5. Remove the slack from the choke linkage by attaching a rubber band to the choke operating lever as shown in Fig. 10.
6. To adjust the choke plate-to-air horn clearance, turn the vacuum diaphragm adjusting screw in or out as required (Fig. 10).

DRY FLOAT SETTING

With the bowl cover held in an inverted position and the float tang resting lightly on the spring loaded fuel inlet needle, measure the clearance between the edge

of the float and the bowl cover (Fig. 11). To adjust the clearance, bend the float tang up or down as required (Fig. 12). **Do not scratch or damage the tang.**

Adjust both floats equally.

SECONDARY THROTTLE STOP SCREW

1. Back off the secondary throttle stop screw until the secondary throttle plate seats in its bore.
2. Turn the screw in until it touches the tab on the secondary throttle lever.
3. Turn the screw in an additional 1/4 turn for a 2.3L I-4 engine (Fig. 13).

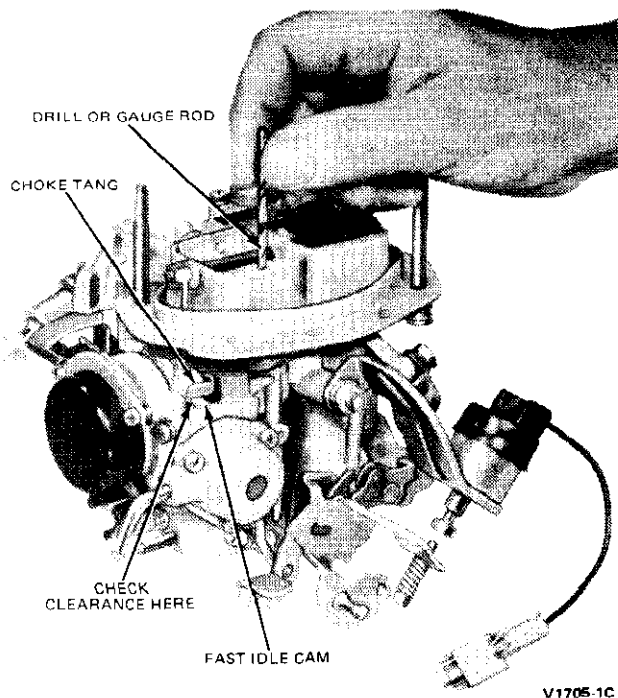


FIG. 8 Fast Idle Cam Clearance

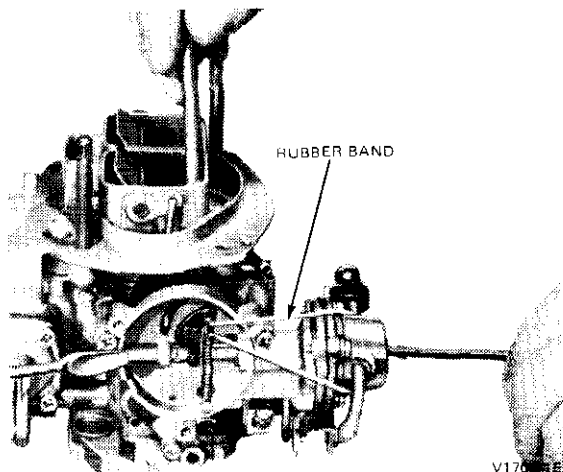


FIG. 9 Measuring Choke Plate Pulldown

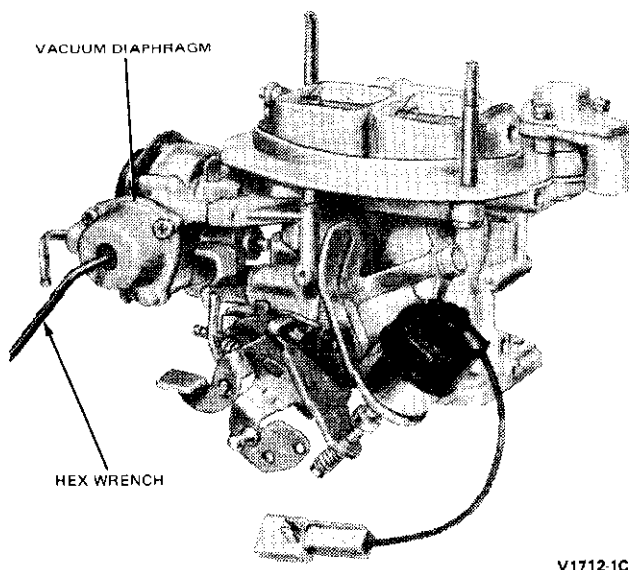


FIG. 10 Adjusting Choke Plate Pulldown

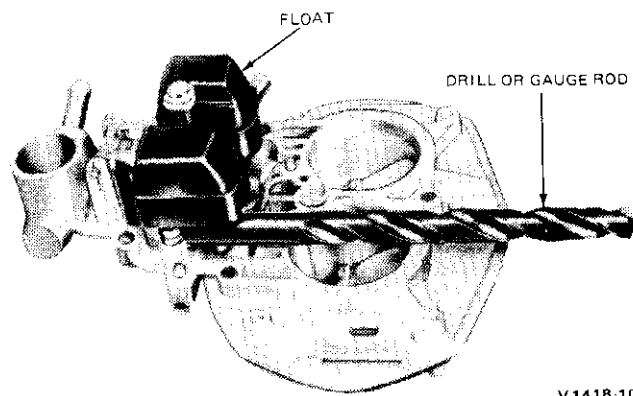


FIG. 11 Dry Float Setting

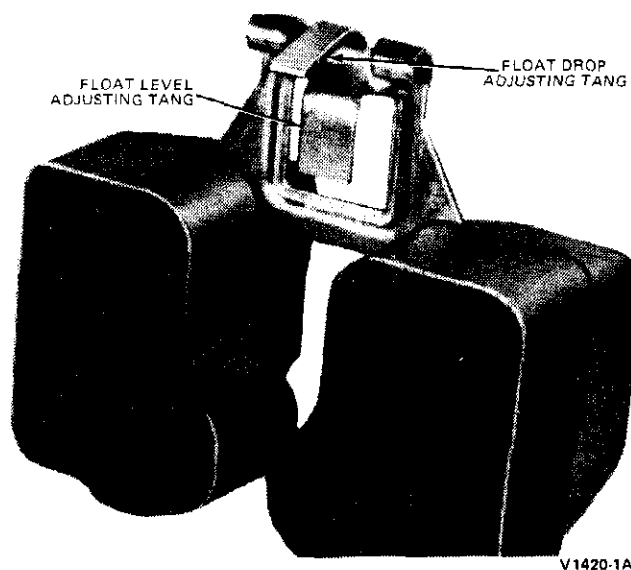


FIG. 12 Float Adjustment

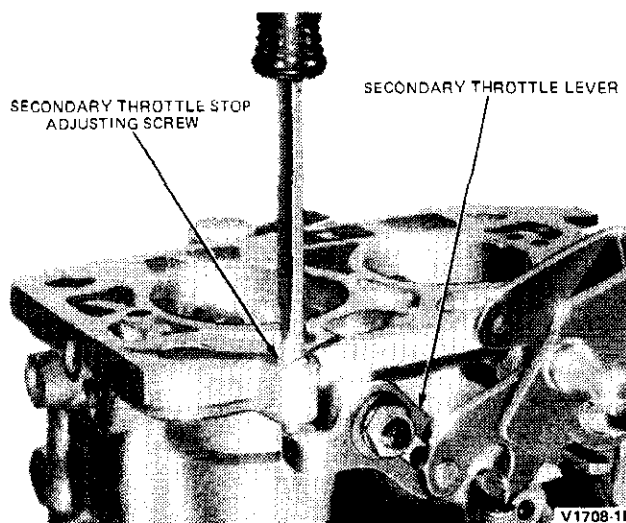


FIG. 13 Secondary Throttle Stop Adjustment

DISASSEMBLY AND ASSEMBLY

DISASSEMBLY

Refer to Fig. 14 for the disassembled view of the carburetor.

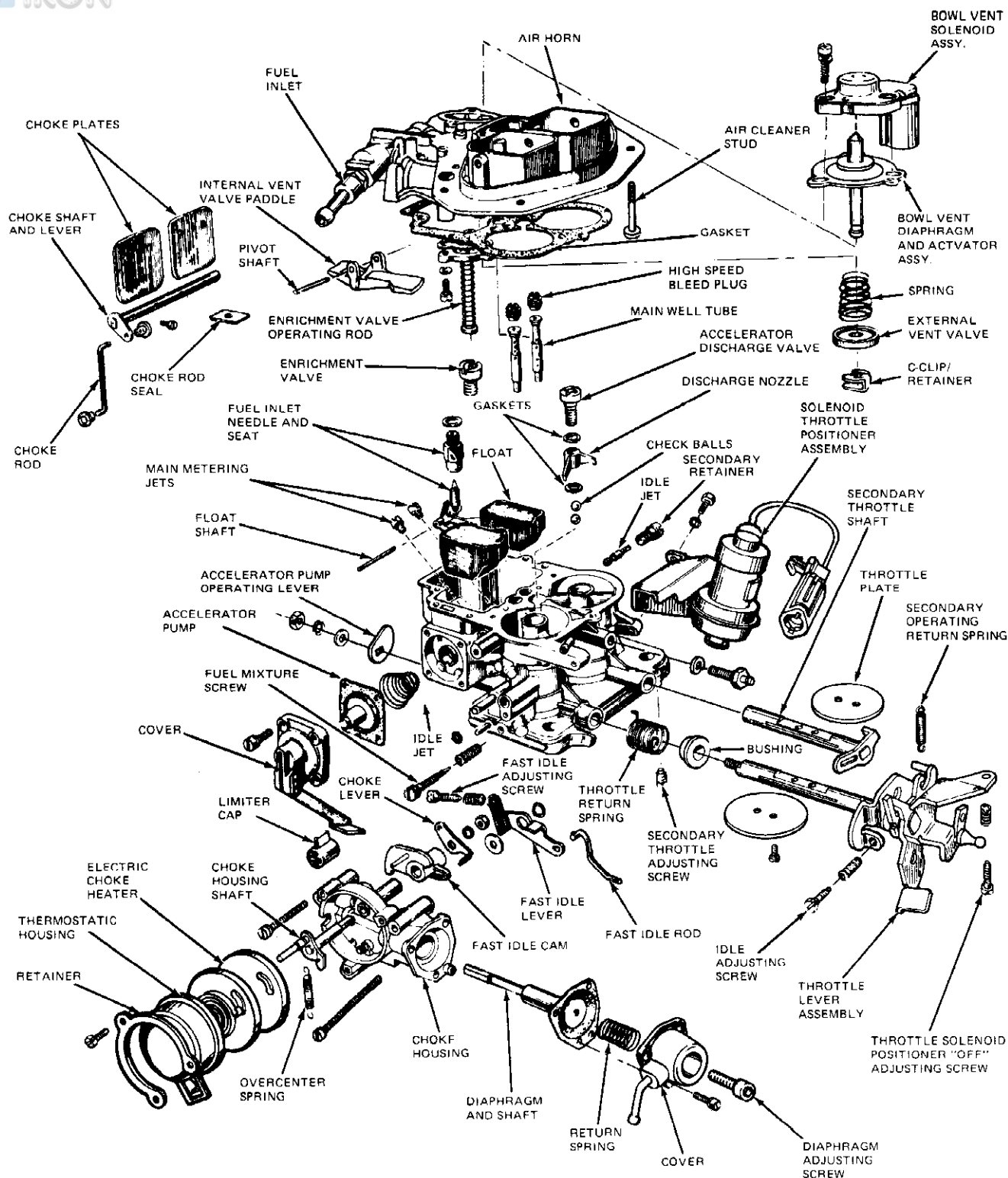
BOWL COVER

1. Remove the bowl cover screws and lockwashers.
2. Remove the retainer clips from the choke rod and carefully remove the bowl cover (Fig. 15). Remove the choke rod seal.
3. Remove the float hinge pin, float and inlet needle.
4. Remove the inlet needle seat and gasket.
5. Remove the three enrichment valve vacuum diaphragm screws, washers and diaphragm.
6. Remove (3) vent cover/solenoid attaching screws and remove cover.
7. Carefully pry vent arm pivot pin toward fuel inlet seat and remove pin and vent arm.

8. Remove E-clip from vent diaphragm stem and remove diaphragm assembly, vent spring, vent valve retainer and vent valve.

AUTOMATIC CHOKE

1. Remove the choke thermostatic spring housing retaining ring attaching screws. Remove the ring, housing and electric heater assembly.
2. Remove the choke housing assembly screws. Note that the long screw goes in the long leg of the assembly. Slip the housing away from the main body and disengage the fast idle rod. Remove the O-ring from the vacuum passage (Fig. 16).
3. Remove the choke shaft nut and lockwasher, choke lever and fast idle cam.
4. Remove the fast idle lever attaching screw, fast idle lever and spacer. Remove the screw and spring from the lever.



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FIG. 14 Model 5200 Carburetor Disassembled

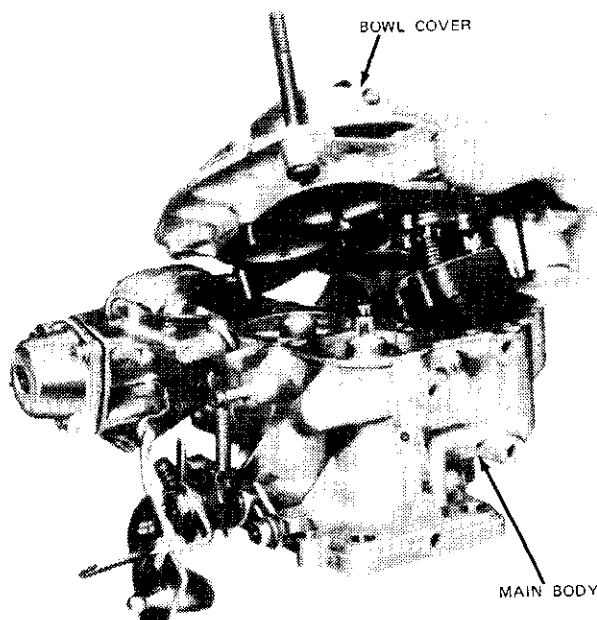
5. Remove the choke diaphragm cover screws and cover, return spring, diaphragm and rod assembly.

ACCELERATOR PUMP

1. Remove the four pump cover screws and pump cover assembly. Remove the pump diaphragm assembly and pump return spring.
2. Remove the pump discharge screw assembly and pump discharge nozzle and two gaskets. Remove the two pump discharge check balls (Fig. 14).

MAIN BODY

1. Remove the primary high speed bleed and main well tube (Fig. 17).
2. Remove the secondary high speed bleed and main well tube. **Note the size of the air bleed plugs and main well tubes so they may be installed in the correct position.**
3. Remove the primary and secondary main metering jets. **Note the different size jets so they may be installed in the correct position (Fig. 18).**
4. Remove the power valve and gasket. Remove the primary and secondary idle jet retainers and idle jets located on the sides of the carburetor body (Fig. 18).
5. Turn the idle limiter cap in to the stop. Remove the idle limiter cap. Count the turns required to lightly seat the idle adjustment needle. Count to the nearest 1/16 turn. Remove the idle needle and spring.
6. Remove the secondary operating lever return spring.
7. Remove the primary throttle lever nut and lock tab. Remove the primary lever and flat washer. Remove the secondary operating lever assembly and lever bushing.



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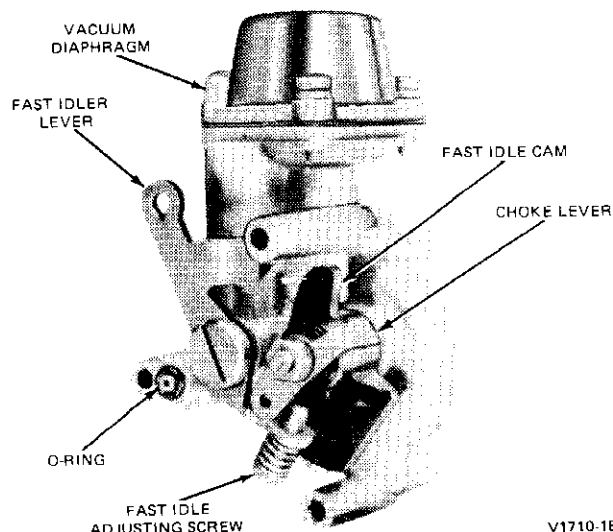
FIG. 15 Removing Bowl Cover

8. Remove the idle adjusting lever spring and shaft washer. **Note how the primary throttle return spring is hooked over the idle adjusting lever and the carburetor body.**
9. Remove the idle speed screw and spring from the idle adjusting lever.
10. Remove the secondary throttle lever nut, lockwasher, flat washer and secondary throttle lever. Remove the secondary idle adjusting screw.

ASSEMBLY

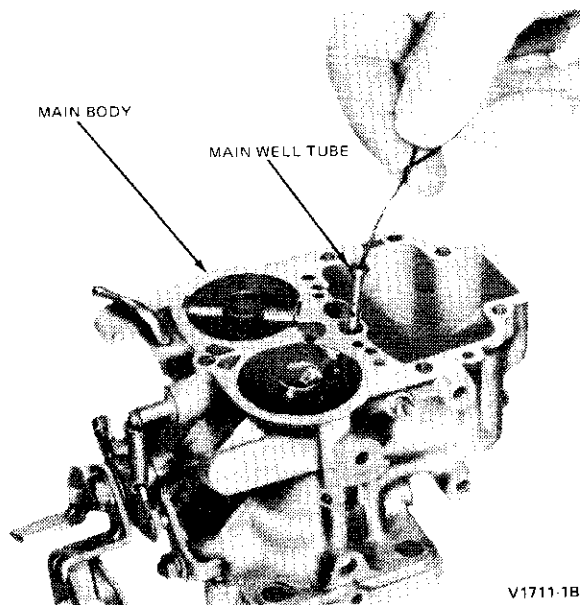
MAIN BODY

1. Install the secondary idle adjusting screw, secondary throttle lever, flat washer, lockwasher and nut.
2. Install the idle speed screw and spring in the idle adjusting lever.



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FIG. 16 Removing Automatic Choke



V1711-1B

FIG. 17 Removing Main Well Tubes

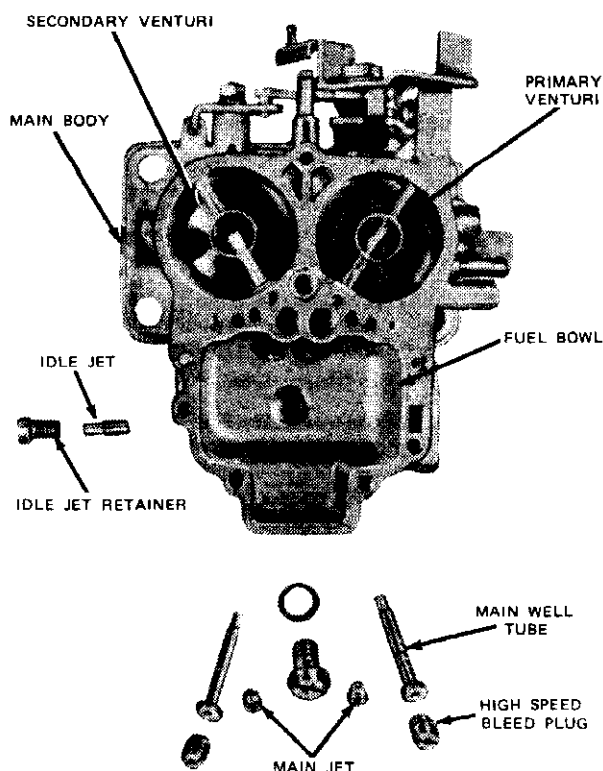
3. Install the washer, primary throttle return spring and idle adjusting lever and lever bushing. Install the secondary operating lever assembly (Fig. 14).
4. Install the flat washer and primary throttle lever. Install the lockwasher and nut. Attach the secondary operating lever return spring.
5. Install the idle mixture adjusting needle and spring. Turn it in until it lightly bottoms. Back out the screw the exact number of turns recorded at disassembly. Install a new limiter cap on the idle mixture needle with the stop tab on the cap against the lean side of the stop on the carburetor body.
6. Install the idle jet and retainer assembly on the secondary side of the carburetor body. Check carefully for the correct secondary size (Fig. 18).
7. Install the power valve gasket and power valve.
8. Install the primary and secondary main jets. Be sure the correct sizes are installed.
9. Install the primary and secondary main well tubes and high speed bleeds. Be sure the correct sizes are installed.

ACCELERATOR PUMP ASSEMBLY

1. Install the pump discharge check balls (2) screw. Install the pump discharge nozzle with a gasket on top and bottom. Install the pump discharge screw.
2. Install the pump return spring and pump diaphragm assembly. Start the four pump cover screws. Hold the pump operating lever partially open to align the diaphragm gasket. Tighten the four cover screws evenly.

AUTOMATIC CHOKE

1. Install the diaphragm adjusting screw. Initially adjust the screw so that the threads are flush with the inside of the cover.
2. Install the choke diaphragm and rod assembly. Install the diaphragm return spring and cover. Install the cover screws and lock-washers.
3. Install the fast idle adjusting screw and spring to the fast idle arm. Install the flat spacer, fast idle arm and attaching screw.
4. Install the choke shaft into the housing and position the fast idle cam on the housing post.
5. Install the choke lever, lockwasher and nut.
6. Install the O-ring on the vacuum passage. Install the fast idle rod with the end with one tab in the fast idle adjusting lever and the end with two tabs in the primary throttle lever.
7. Position the choke housing against the main carburetor body and install the long attaching screw in the long leg of the housing. Install the other screws.
8. Adjust choke plate pulldown, referring to ADJUSTMENT Section.
9. Install the latch plate and electric choke heater, thermostatic housing, retaining ring and attaching screws. Be sure choke plate is in full closed position before installing the choke electric



V1427-1D

FIG. 18 Main Metering Jets and Idle Jets

assist heater element. Index the housing and tighten the screws.

BOWL COVER

1. Install bowl vent diaphragm, vent valve, spring, retainer and E-clip.
2. Position vent arm and install vent arm pivot pin.
3. Install vent valve cover/solenoid with (3) screws and tighten securely.
4. Install the inlet needle seat and gasket.
5. Install the power valve vacuum diaphragm. Depress the spring and install the screws and washers finger tight. Hold the stem so that the diaphragm is horizontal and tighten the screws evenly.
6. Install the float needle clip on the float tab and position the float and needle. Install the float shaft.
7. Hold the bowl cover in an inverted position and adjust the dry float setting (Fig. 11).
8. Hold the cover in its normal position and adjust the float drop (Fig. 12).
9. Install the choke rod seal and seal plug. Install the choke rod through the seal and hook it into the choke lever. Install the retaining clip.
10. Install the bowl cover gasket.
11. Install the choke link into the choke lever. Install the retaining clip.
12. Install the five bowl screws and torque them evenly.
13. Install the throttle positioner.

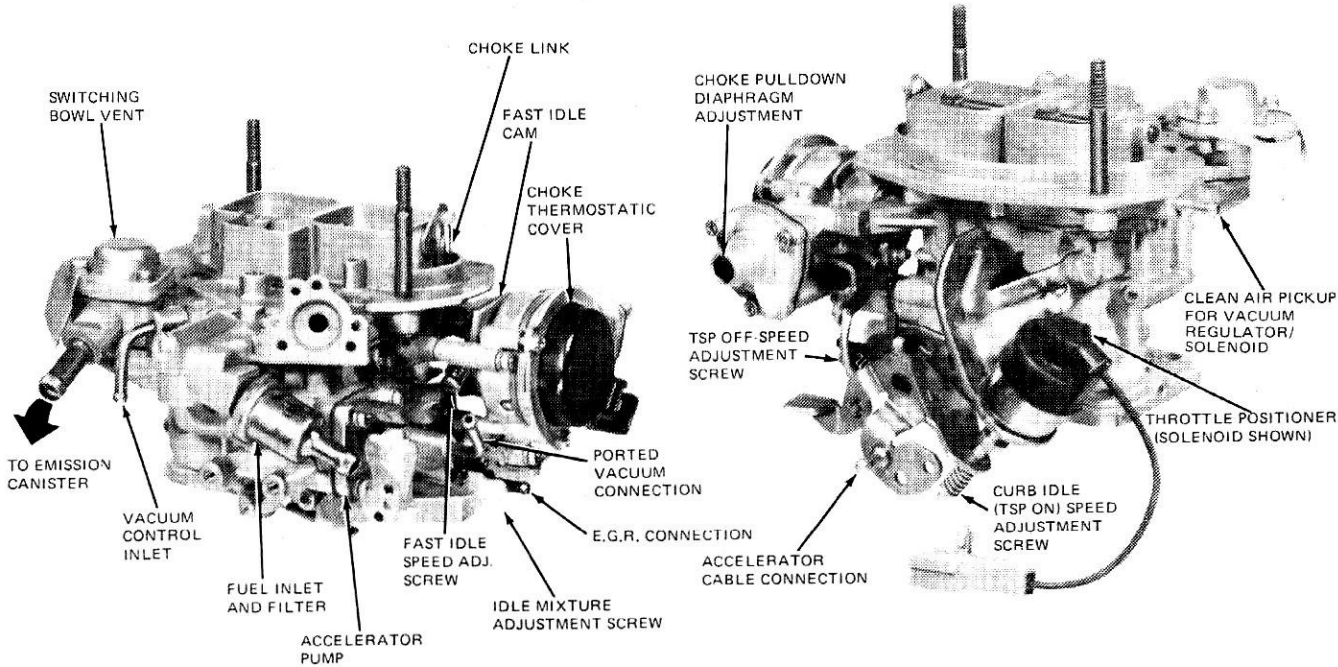
Holley/Weber Model 6500 Feedback Carburetor		PART 24-12	
Pinto and Bobcat with 2.3L I-4 (California Only)			
SUBJECT		SUBJECT	
PAGE		PAGE	
DESCRIPTION 12-1		ADJUSTMENTS 12-3	

CA4501-2A

DESCRIPTION

GENERAL

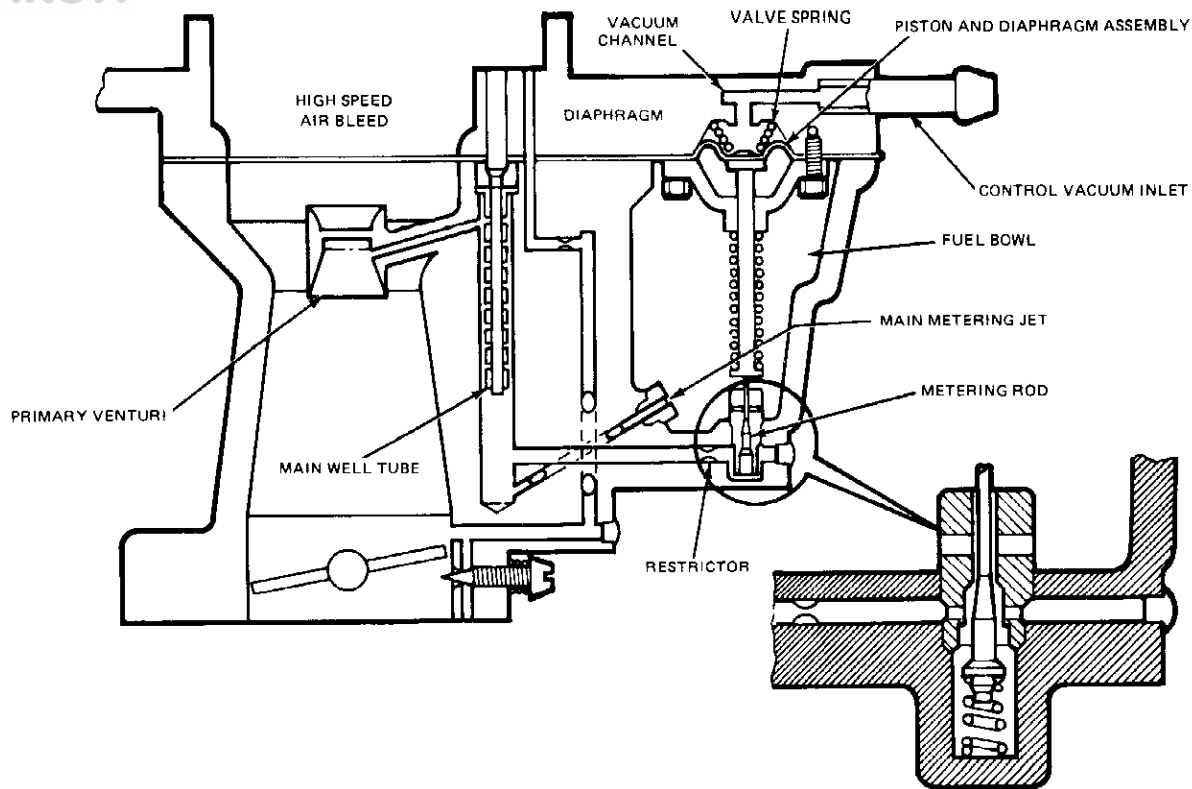
Pinto and Bobcat vehicles manufactured for sale in California and equipped with the 2.3L I-4 engine are also equipped with a Feedback Electronic Engine Control system. This system requires more precise fuel metering than is possible with a conventional carburetor, and is therefore equipped with the new Holley/Weber Model 6500 Feedback carburetor (Fig. 1).



V2407-2A

FIG. 1 Holley/Weber Model 6500 Feedback Carburetor

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FIG. 2 Fuel Metering

The Holley/Weber Model 6500 Feedback carburetor is basically a Model 5200 carburetor (see Part 24-10) with an externally-variable auxiliary fuel metering system in place of the enrichment valve used on the Model 5200. The auxiliary system consists of a metering valve assembly, a metering valve operating piston and a diaphragm (Fig. 2).

The feedback metering valve supplements fuel entering the main well through the conventional main metering jet and channel. The amount of fuel entering the main well through the metering valve depends on the position of the tapered metering rod in its orifice. The position of the metering rod depends on the metering rod operating piston assembly.

Control vacuum from the vacuum regulator solenoid is channeled to the cavity above the metering rod diaphragm (Fig. 2). With no vacuum present, the valve spring causes the valve to move to its lowest (richest) position, where maximum fuel can pass through the

orifice. As vacuum is applied to the diaphragm, spring pressure is overcome and the metering rod rises, reducing the orifice area and permitting less fuel to pass. The metering valve is calibrated so that the maximum vacuum signal supplied by the vacuum regulator/solenoid (5 inches Hg) raises the rod to its highest (leanest) position.

For feedback system description and function, refer to Part 29-08.

The Holley/Weber Model 6500 Feedback carburetor differs from the Model 5200 in another major component; the Model 6500 features an internal choke pulldown vacuum passage similar to the 1977 Model 5200, rather than the external vacuum connection introduced on the 1978 Model 5200 (See Part 24-10). Adjustment on this feature is included under ADJUSTMENTS. For all other service procedures, refer to the information in Part 24-10, 29-02, 29-08 and 50-29.

ADJUSTMENTS

All adjustments for the Model 6500 Feedback carburetor are the same as those included in Part 24-10 for the Model 5200 carburetor, except Choke Plate Vacuum Pulldown. The Model 5200 is equipped with a new external connection for vacuum, while the Model 6500 carburetor is equipped with internal passages and requires different adjustment procedures.

CHOKE PLATE VACUUM PULLDOWN

1. Remove the three hex head screws and the ring retaining the choke thermostatic spring cover.
2. Remove the choke cap, bi-metal heater assembly and the plastic shield.
3. Set the fast idle speed adjusting screw on the top step of the fast idle cam.
4. Using a screwdriver, push the diaphragm stem back against its stop (Fig. 3). Place a specified gage rod or drill between the lower edge of the choke plate and the air horn wall.

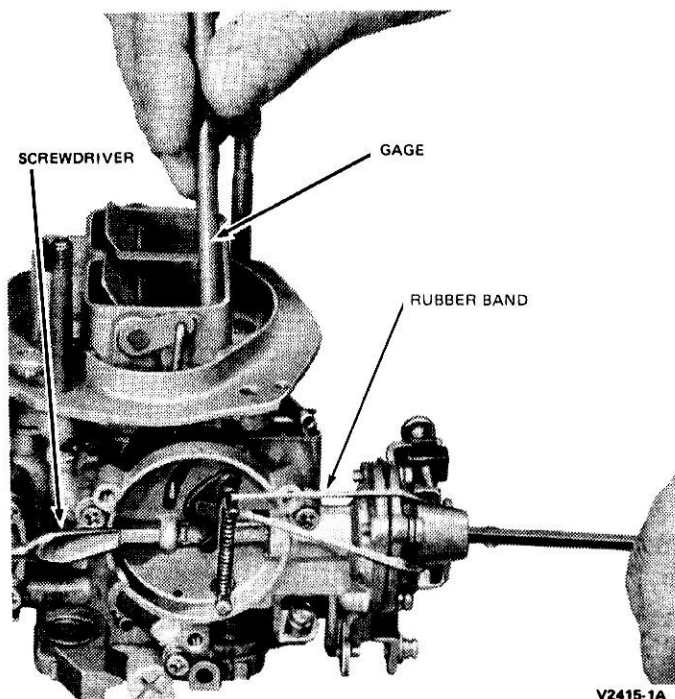


FIG. 3 Measuring Choke Plate Pulldown

5. Remove the slack from the choke linkage by attaching a rubber band to the choke operating lever as shown in Figure 3.
6. To adjust the choke plate-to-air horn clearance, turn the vacuum diaphragm adjusting screw in or out as required (Fig. 4).

For all other adjustments, see Part 24-10, 29-02, 29-08, 50-29.

For specifications for the Model 6500 Carburetor, refer to the Ford Car Performance Specifications Book.

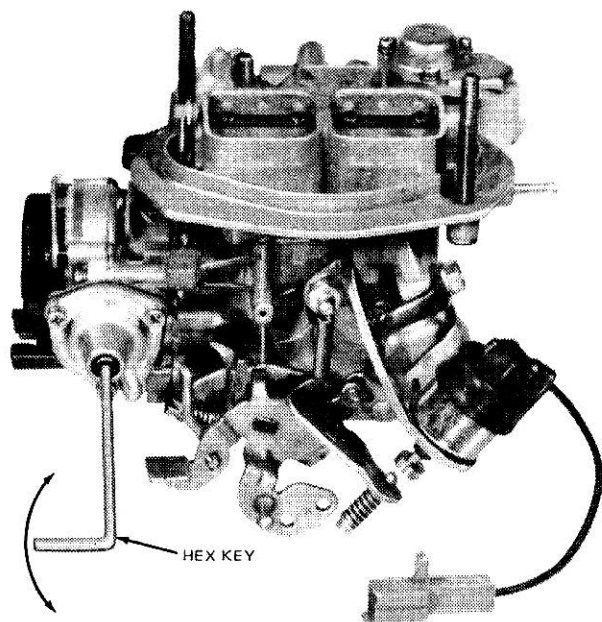


FIG. 4 Adjusting Choke Plate Pulldown