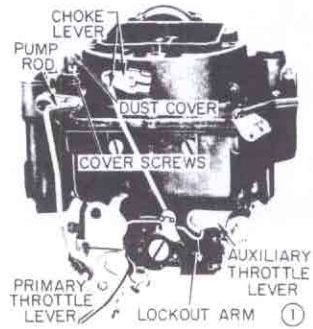


## OVERHAULING A CARTER WCFB CARBURETOR

**APPLICATION:** Optional equipment on many high-performance engines.

### DISASSEMBLING

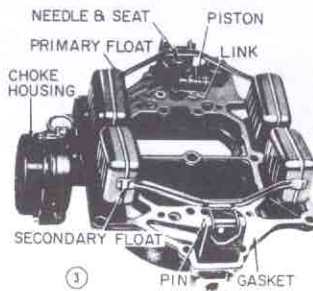
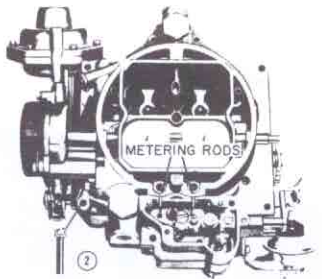
① Place the carburetor on a repair stand to



protect the throttle valves from damage. Remove the pump connector rod and the choke lever connector rod. Remove the two screws that hold the metering rod cover to the air horn and lift off the cover.

② Unhook and remove the metering rods. Remove the 16 screws holding the bowl cover to the main body. Six of them can be found around the inside of the air horn, 9 around the flange and 1 within the pump countershaft enclosure. Note the position of the single 1" screw in the thick boss at the corner of the air horn casting for re-assembly purposes. Lift the air horn assembly straight up from the main body to avoid bending the parts hanging under it.

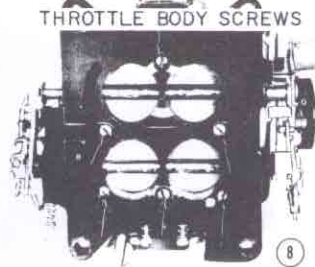
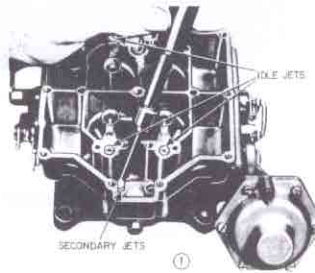
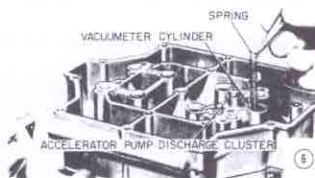
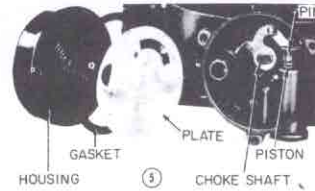
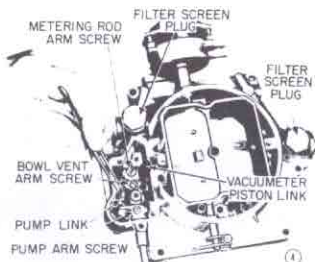
③ Lay the air horn in an inverted position and remove the primary float fulcrum pin and the float. Do the same for the secondary side. Be



careful to keep the primary and secondary parts separated as they are not interchangeable. Remove the two inlet needle valves and their seats. Rotate the vacuumer piston 90° and lift it off its link.

④ Invert the air horn and remove the hairpin clip from the pump connector link, and then remove the link. Slide the accelerator pump plunger assembly out from under the air horn. Loosen the metering rod arm screw, and then disengage the vacuumer piston link from the metering rod arm. Withdraw the link. Remove the screws that attach the bowl vent and the accelerator pump arms. Withdraw the shaft and lift out the metering rod, the bowl vent cap, and the accelerator pump arms. Loosen and remove the primary and secondary filter screen plugs and screws.

⑤ To disassemble the automatic choke, remove the three screws and retainers holding the thermostat coil housing, and lift off the housing. Remove the plate. Unscrew the two choke valve retaining screws and lift out the choke valve. Rotate the choke shaft enough to withdraw the choke piston from its cylinder and pull the shaft and



piston assembly from the air horn. Remove the three screws holding the choke piston housing to the air horn and lift off the housing.

⑥ Lift out the vacuumer piston spring, remove the accelerator pump discharge cluster, and invert the casting to allow the accelerator pump discharge check needle to fall out from the hole under the accelerator pump discharge cluster.

⑦ Remove the main metering jets from both the primary and secondary sides of the carburetor. **CAUTION:** These jets are not interchangeable. Remove the four idle jets which are interchangeable.

⑧ Invert the carburetor and remove the throttle-body-to-main-body attaching screws and separate the castings. Generally, it is not advisable to disassemble the throttle body because of the difficulty of reestablishing the close relationship between the idle parts and the throttle valve.

### CLEANING AND INSPECTING

Clean all parts in carburetor cleaner. Follow with a solvent bath and blow dry. Diaphragms and parts containing leather should be cleaned only in solvent—never in carburetor cleaner. Blow compressed air through all passageways and jets to make sure that they are open.

Move the throttle shafts back and forth to check for wear. If the shafts appear to be excessively loose, it is best to replace the entire assembly. However, new parts are available for service. Be sure to mark each throttle plate so that it can be returned to its proper position if you decide to replace the shafts.

Inspect the main body, air horn, and accelerator pump discharge cluster gasket surfaces for cracks and burrs which might cause leaking.

If the carburetor secondary control valves are operated by a diaphragm unit, it can be checked by opening the secondary valves and holding your finger over the vacuum passage hole. If the diaphragm is airtight, the throttle valves will remain open.

Shake the floats to check for leaks. Replace any float with liquid in it. Check the float arm needle contacting surface and replace the float if this surface is grooved.

Check the idle adjusting needles; replace any that has a groove in its tapered section.

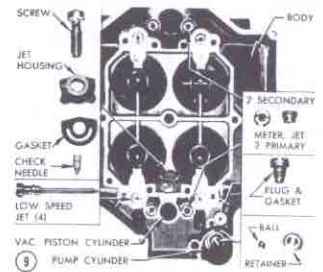
A carburetor kit is generally purchased for each carburetor overhaul. It contains new parts to replace those which wear the most, plus a complete set of gaskets. Each kit also contains two matched sets of fuel inlet valves and seats which should be replaced each time the carburetor is taken apart; otherwise, leaking may result. Keep each fuel inlet valve with its seat because they are matched. The primary and secondary sets are not interchangeable.

### ASSEMBLING

⑨ Place the main body upside down on the bench and install a new gasket. Lower the throttle body onto the main body with the fuel level sight screws on the same side as the velocity valve

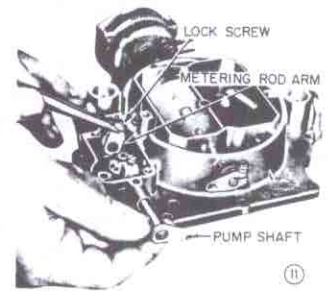
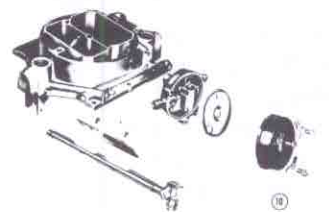


The throttle shaft wears on one side at each bearing surface (black arrows). This causes misalignment of the throttle plates and air leaks which upset carburetion during idle, a critical period of engine operation.



counterweight. Turn the carburetor right side up and install the accelerator check needle, gasket, and jet housing. Secure them to the body with the screw. Install the four low-speed jets (interchangeable), two secondary metering jets, two primary metering jets (not interchangeable—the primary jets have the larger holes), plug and gasket, accelerator pump ball and retainer, and the vacuumer piston spring. Before proceeding further, it is good practice to test the accelerator pump circuit. Pour clean gasoline into the bowl to a depth of 1/2". Install the accelerator pump plunger and push it up and down several times. A clear, straight stream of fuel should squirt from each jet if the system is operating properly. Empty the carburetor body and remove the accelerator pump plunger after the test.

⑩ To assemble the automatic choke, place a new gasket on the rear of the choke housing, and then install the housing in position on the air horn. Secure it with three screws. Slide the choke piston pin through the choke piston link, and then slide the assembly into the air horn. Twist the lever to assist the piston in entering the cylinder. Insert the choke valve with the numbered side up and install new screws to hold it in place. Check

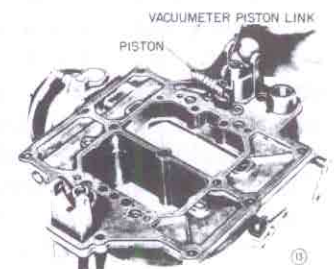
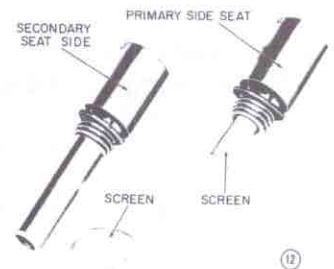


the choke valve to see that it operates without binding. Install the plate and cover. Adjust the cover so that the index marks line up.

⑪ Slide the accelerator pump shaft and lever into the air horn just enough to allow for the installation of the accelerator pump arm, which should be positioned with the lever portion facing away from the pump shaft. Then push the shaft in until it protrudes from the support boss and install the metering rod arm, with the lifter portion

facing the vacuumer piston link slot. Install the vent cap arm and screw. Slide the vacuumer piston link down into the slot in the air horn, with the lifter lip facing away from the pump shaft. Engage the lifter portion with the slot in the link. Be sure that the metering rod tension spring coil is centered in the hole at the top of the link. Tighten the clamp screw.

⑫ Invert the air horn and install the primary and secondary float needle and seat assemblies. **CAUTION:** They are not interchangeable.

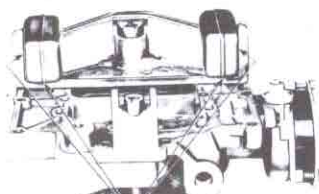


14 Install the vacuumer piston, the float needles, floats, and fulcrum pins. Be sure to use the correct needle in each seat. The two float adjustments that must be made are *float level* and *float drop*. (See Appendix for specifications.)

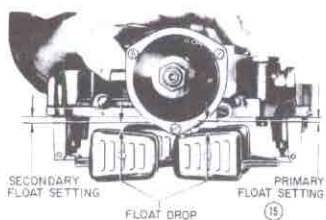
15 To make the float level adjustment, place a new gasket on the air horn and use a gauge to set the floats to the correct height. Both floats should just clear the horizontal part of the gauge; bend the float arm as required. With the notched end of the gauge held against the air horn, the floats should just touch the vertical uprights of the gauge. The new resilient float valve seat requires a different float setting than that given in the Carter Specification table. Reduce the float setting  $\frac{1}{32}$ " for models with the new seats. When setting the float level, the weight of the needle should be the only pressure against the seat. **CAUTION:** Be careful to keep the float lip from pressing against the needle when making the adjustment.

16 To make the float drop adjustment, hold the air horn assembly upright and measure the distance from the casting to the center of the float. The float drop should be as specified.

17 Assemble the accelerator plunger and insert it into the air horn opening. Install the accelerator pump connector link in the outer hole (long stroke)



SECONDARY FLOATS FLOATS SHOULD JUST TOUCH GAUGE AT THESE POINTS 14



SECONDARY FLOAT SETTING FLOAT DROP PRIMARY FLOAT SETTING 15

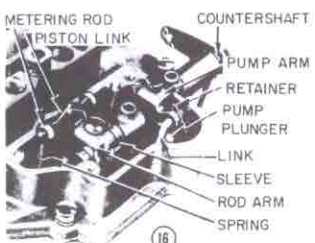
of the pump lever. Carefully lower the assembled air horn onto the main body, guiding the accelerator pump plunger into its well. Install the air horn attaching screws and tighten them securely. Install the metering rods being careful to engage them in the loops on the metering rod spring. Install the pump connector rod and the choke lever connector rod.

**Bench Adjustments** (These adjustments must be made in the order given below. See Appendix for specifications.)

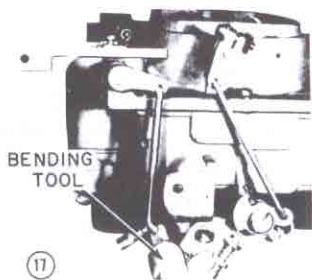
18 To make the accelerator pump adjustment, back off the idle speed adjusting screw until the primary throttle valves are fully seated in their bores. **CAUTION:** Make sure that the fast idle adjusting screw is off the fast idle cam. Hold a straightedge across the top of the dust cover boss. The flat surface on top of the pump arm must be parallel with the straightedge. To adjust, bend the pump connector rod as shown.

19 To make the metering rod adjustment, loosen the set-screw in the metering rod arm enough to obtain a slight bind on the pump shaft. Lift the lever slightly. Holding the primary throttle valves tightly closed, depress the metering rod link until the metering rods bottom. Then tighten the set-screw securely.

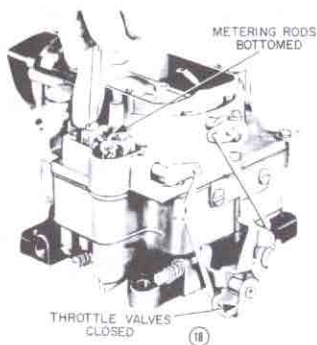
20 To make the choke rod adjustment, loosen the choke lever clamp screw. Insert the specified



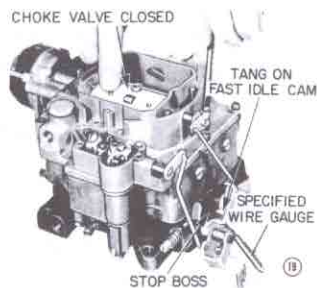
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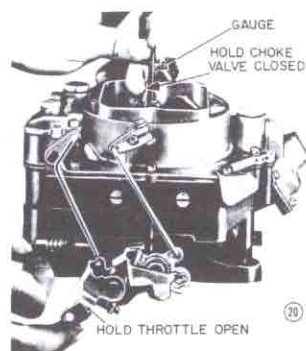
BENDING TOOL 17



METERING RODS BOTTOMED THROTTLE VALVES CLOSED 18



STOP BOSS 19

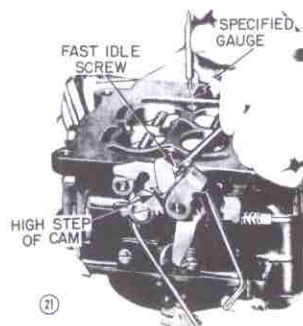


HOLD THROTTLE OPEN 20

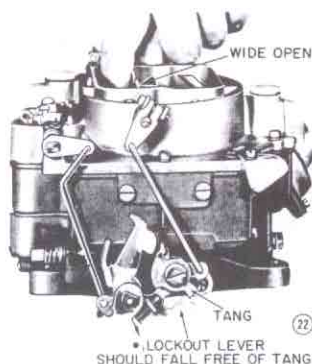
gauge between the tang on the fast idle cam and the boss on the throttle body casting. Holding the choke tightly closed, tighten the clamp screw.

21 To make the choke unloader adjustment, open the throttle wide. Insert the specified gauge between the upper edge of the choke valve and the inner dividing wall of the air horn. Bend the unloader tang until a slight drag is felt when the gauge is withdrawn.

22 To make the fast idle adjustment, insert the specified gauge between the primary throttle valve and the bore. Move the choke valve to the fully closed position and adjust the fast idle screw to give a slight drag on the gauge when the screw is resting on the high step of the fast idle cam.



21



22

23 To make the velocity valve lock-out adjustment, hold the choke valve in the closed position; the edge of the hook on the lock-out arm should contact the velocity valve shaft lever to make maximum contact. Bend the lock-out arm until the proper contact is obtained. Now, slowly open the choke valve. The velocity valves should unlock a few degrees before the choke valve reaches the wide-open position. Bend the tang on the fast idle cam (the one that raises and lowers the lock-out arm) until the correct release is obtained.

24 To make the bowl vent cap adjustment, install the metering rod dust cover. Close the throttle valve tightly and the bowl vent cap should lift  $\frac{1}{16}$ ". Bend the actuating arm to obtain the correct lift.



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## Overhauling

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## WCFB

## Carburetor