WEBER DFD, DFM, & DFV TYPE 2-BARREL

Ford Cortina (1968-70)

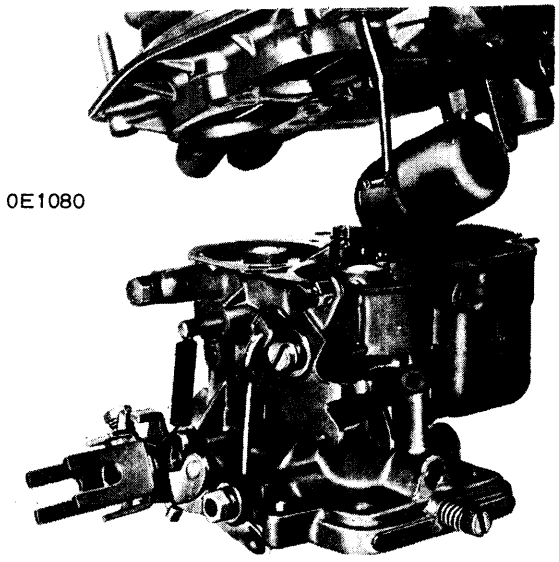
DESCRIPTION

The Weber dual barrel downdraft carburetor has an idling, a main, a full load enrichment system. The accelerator pump is of the diaphragm type. The barrels and throttle plates are the same size, but the primary venturi is smaller than the secondary. The throttle plates open at different rates, but both reach full throttle simultaneously. Incorporated into each barrel is a main and an auxiliary venturi. The primary barrel also has an atomizer bar located below the auxiliary venturi. The idling and progression systems operate in both barrels, but slow idle adjustment is provided only in the secondary barrel. The accelerator pump and the full load enrichment discharge into the primary barrel on emission controlled models, however the non-emission models receive full load enrichment in the secondary barrel. Cold starting is achieved by a "flap valve" type choke.

OVERHAUL

Disassembly

1) Remove fuel filter retainer from carburetor cover and withdraw the gauze filter. Disconnect choke plate rod at lower end by removing cotter pin and nylon washer. Unscrew upper body retaining screws and remove upper body.



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REMOVING UPPER BODY

2) Push out float pivot pin, remove float and needle valve, remove gasket, and unscrew the needle valve housing.

3) Remove accelerator pump cover, diaphragm and spring. If necessary, drive out pivot pin from plain end and remove accelerator pump lever. Remove cotter pin holding upper end of choke plate rod to spindle lever. Remove rod.

4) Unscrew choke plate screws and remove plates. Remove spindle. Unscrew primary and secondary main jets from base of float chamber and unscrew accelerator pump discharge valve from top of carburetor body and remove along with discharge jet. Remove air correction jets from top of carburetor body, invert body and slide out emulsion tubes.

5) Unscrew idling jet holders and remove idling jets. Remove mixture screw and spring. Remove secondary throttle return spring. Bend back locking tab on primary throttle shaft, unscrew nut, remove throttle control lever, spacer, secondary throttle control lever and spring from primary throttle shaft.

6) Disconnect fast idle connecting rod and remove bushing, washers and fast idle lever from spindle. Unscrew nut and remove washer and lever from secondary throttle spindle. Unscrew throttle plate screws, remove both plates, and withdraw primary and secondary throttle spindles. Remove retaining screw and choke operating lever, spring and washer.

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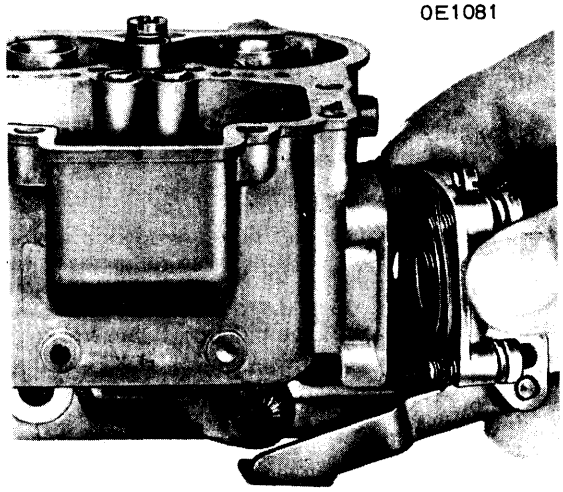

REMOVING ACCELERATOR PUMP

Reassembly

1) Insert gauze filter into top cover and screw in brass plug. Insert choke spindle from right hand side. Fit choke plates with offset part to the rear. Make sure that the plate chamfers are parallel to the air intake when plates are closed.

2) Center plates in the intake and tighten retaining screws. Peen over the threaded ends of the screws.

3) Fit dust seal to air cleaner flange, pass choke rod through the seal and flange, and connect to spindle lever. Locate choke relay lever and washer on spindle and retain with cotter pin.

4) Attach fast idle rod and toggle spring to choke operating lever and place return spring around pivot boss on carburetor body (straight end inserted into the location hole). Place choke operating lever on boss and connect toggle spring to relay lever. Make sure that fast idle rod is between the two throttle spindle bosses and that the relay lever toggle spring butts against the cam portion of the choke operating lever.

5) Tighten choke lever retaining screws, make sure to fit with one plain and one spring washer. Hook end of return spring under fast idle rod bracket and insert secondary throttle spindle into its bore from the front.

6) Turn throttle spindle until slot is parallel with carburetor barrel and the threaded holes are inward. Insert throttle plate into slot so that the face marked "78°" is outward with mark below throttle spindle. This ensures that the throttle plate chamfers are in the right direction.

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7) Center throttle plate in barrel and center throttle spindle. Tighten retaining screws and peen over the threaded ends. Fit throttle lever with the abutment lever against the stop. Retain the lever with the washers and nut.

8) Check clearance between secondary throttle plate and carburetor barrel at its widest point with throttle closed. Adjust the stop to give a clearance of .0015 in. (.038 mm).

9) Insert primary throttle spindle into bore and turn until the slot is parallel with carburetor barrel and the threaded holes are inward. Insert throttle plate into the slot so that the face marked "78°" is outward with this mark below throttle spindle.

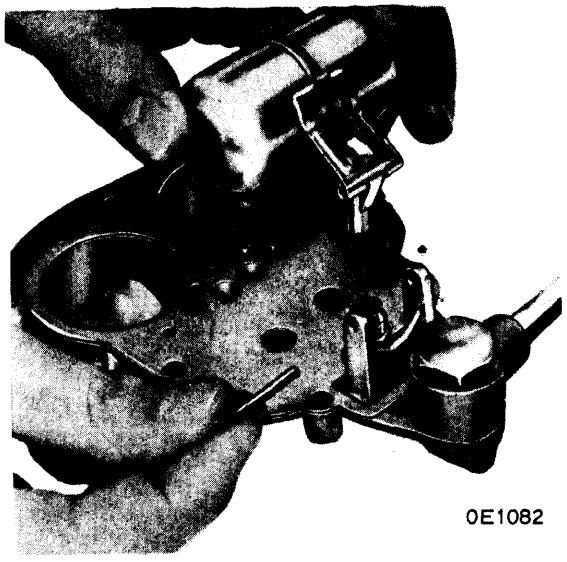
10) Center throttle plate in barrel and center throttle spindle. Tighten retaining screws and peen over the threaded ends.

11) Place slotted washer, return spring and idle stop lever on throttle spindle. Engage hooked end of spring around lower arm on lever and straight end on top of carburetor flange between throttle barrels. Make sure that the spring coils are not trapped between the lever, the washer, or the spindle boss.

12) Place a plain washer on the spindle followed by the fast idle lever and wave washer already assembled to the bushing. Engage the fast idle connecting rod to the fast idle lever and place throttle relay lever on the bushing. Engage the peg with the slotted hole in the secondary throttle lever.

13) Fit remaining plain washer and throttle lever. Fit new locking plate, screw on the nut and bend the tab over nut. Connect throttle relay lever return spring and fit cotter pin to fast idle connecting rod.

14) Place idling jets in jet holders and fit to each side of float chamber. Screw main jets into their locations in the float chamber. Insert emulsion tubes into emulsion tube wells and retain with the air correction jets. *See "Carburetor Specifications" for jet and tube sizes.*



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REFITTING FLOAT

15) Place accelerator pump jet in place with a new gasket and retain with discharge valve. Refit accelerator pump lever if removed. Place plain end of pivot pin in lower (No. 2) hole and drive pin into the cover until serrated end is flush with casting.

16) Place accelerator pump spring in recess and place diaphragm on cover with plunger in the lever recess. Place the four screws with spring washers in the cover and through the holes in the diaphragm. Place assembly on the body of the carburetor with the lever engaging the cam. Pull the lever away from cam to the limit of the diaphragm travel while tightening screws.

17) Use new gasket and screw needle valve housing into the float chamber cover. Install new carburetor upper body gasket, place needle valve in housing and fit the float and pivot pin to the pivot bracket. Check float and fuel level setting and adjust if necessary. *See "Float Level Adjustment".*

18) Fit carburetor upper body to lower body and connect choke plate operating rod to relay lever. Screw mixture screw all the way in (do not tighten as this may damage screw) and back off 1½ turns. Screw in throttle stop screw until it just contacts stop lever and then screw in ½ turn.

19) Check and adjust, if necessary, the fast idle setting, choke plate pull-down and the choke plate opening. *See "Adjustment".*

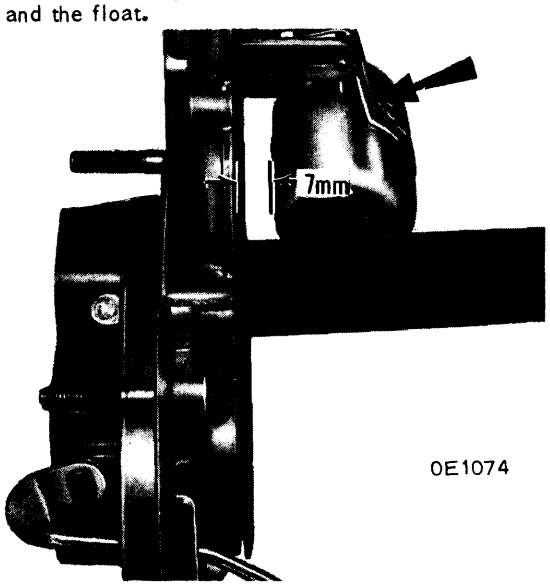
ADJUSTMENT

Float Level Adjustment

1) Disconnect fuel line and disconnect choke plate rod at lower end. Remove upper to lower body screws and lift upper body off. Make sure that gasket stays with upper body.

2) Hold carburetor cover in vertical position with float hanging down and with the tab (hooked to needle valve) in light contact with the ball. Float should be perpendicular to cover.

3) Measure distance between the float and the cover gasket. Adjust distance to specifications by bending arm between pivot and the float.



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FLOAT & FUEL LEVEL SETTING

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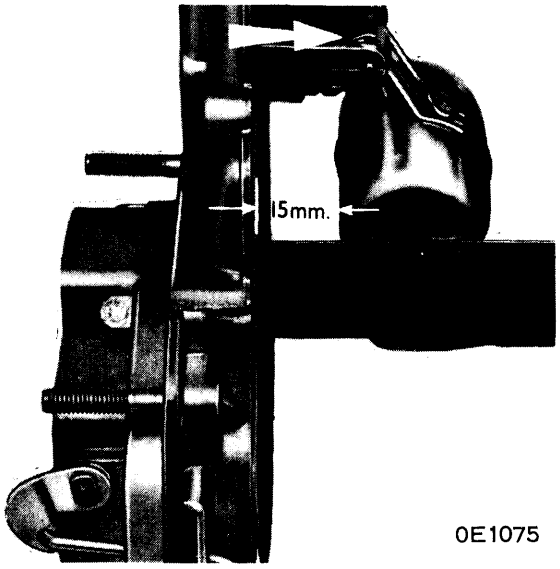
4) Check that the travel is to specifications. Measure from the cover gasket. Adjust position of tab which butts against the needle valve housing.

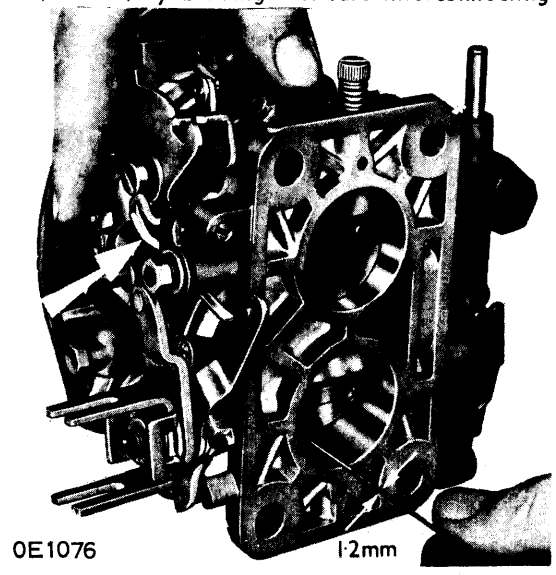
5) Refit upper body, reconnect choke rod and reconnect fuel pipe.



CHECKING FLOAT TRAVEL

Fast Idle Adjustment

NOTE – The fast idle adjustment may be done with carburetor removed as a static adjustment. Measure clearance between primary throttle plate and carburetor body adjacent to progression holes, with choke fully closed. Adjust to .05 in. (1.2 mm) by bending fast idle interconnecting rod.



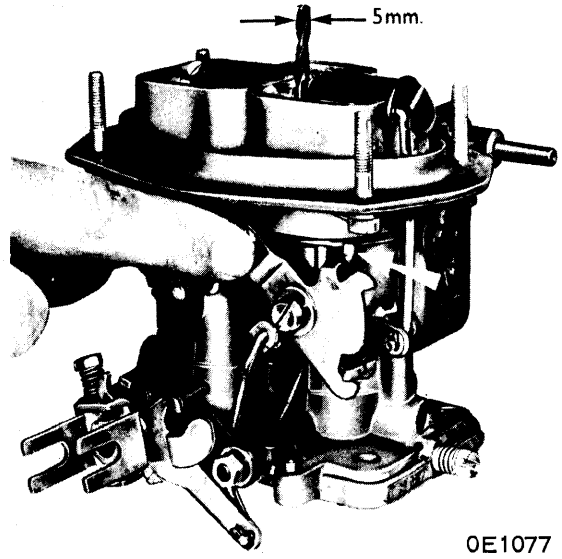
STATIC (BENCH) FAST IDLE ADJUSTMENT

1) Allow engine to reach normal operating temperature and an idle speed of 680-720 RPM.

2) Hold choke plate in fully opened position and rotate choke lever until it is stopped by choke linkage. Adjust RPM to 1100-1300 RPM by bending fast idle connecting rod.

Choke Plate Pull-Down

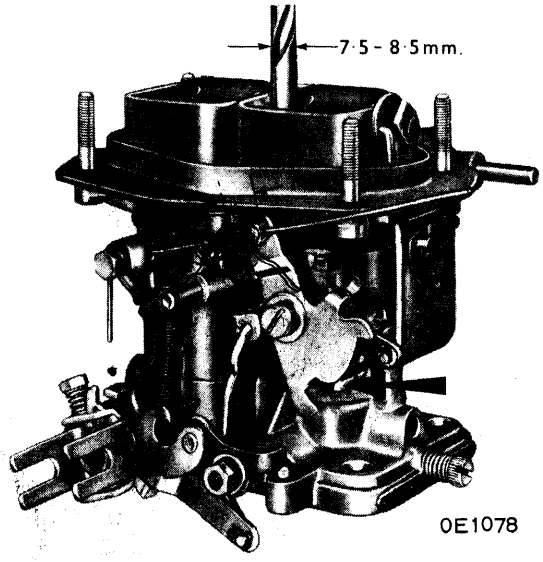
With choke fully closed, hold choke lever against stop. Open choke plates against the action of the toggle spring and measure clearance between lower edge of choke plates and inside wall of air horn. This should be .20 in. (5 mm) and can be adjusted by bending choke lever stop.



CHOKE PLATE PULL-DOWN ADJUSTMENT

Choke Plate Opening

From fully closed position move lever back .46 in. (10 mm), measured along line of choke cable. Measure clearance between lower edge of choke plates and the inside wall of the air horn. Adjust to specifications by slightly bending cam follower tag on the relay lever. Bend tag towards cam to increase opening and outwards to decrease. *NOTE – only a small degree of bending is necessary as this adjustment is sensitive.*



CHOKE PLATE OPENING ADJUSTMENT

Slow Idle Adjustment (DFD & DFM)

Connect a vacuum gauge with a suitable "Tee" connector into crankcase ventilation tube. Run engine and adjust throttle stop screw to obtain correct idle speed. Adjust mixture screw to obtain maximum vacuum and readjust idle speed as necessary.

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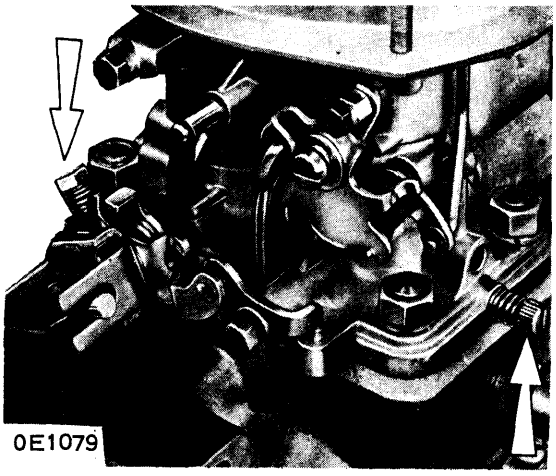
NOTE – The crankcase emission valve must be connected to the manifold while making adjustments in slow idle RPM.

Slow Idle Adjustment (DFV)

Set throttle adjusting screw to obtain specified RPM with idle mixture screw adjusted to give 13.8-14.1 air/fuel ratio. It is necessary to use an exhaust gas analyzer to perform this adjustment. If analyzer not available, the following procedure may be used until vehicle can be tested with analyzer:

1) Set engine speed to 870-890 RPM and adjust idle mixture screw until maximum RPM is obtained. Reset idle to 870-890 RPM if necessary.

2) Enrich mixture by backing out mixture adjusting screw until engine speed falls by 30 RPM.



SLOW IDLE ADJUSTMENT SCREWS

CARBURETOR SPECIFICATIONS

A – Primary Idle Jet
B – Secondary Idle Jet
C – Primary Main Jet
D – Secondary Main Jet
E – Primary Air Jet
F – Secondary Air Jet
G – Primary Emulsion Tube
H – Secondary Emulsion Tube
I – Choke Plate Opening (mm). Lever Backed Off .040 in. (10 mm).
J – Choke Plate Pull-Down (mm).
K – Float Level (mm).
L – Float Drop (mm).

Carburetor No.	A	B	C	D	E	F	G	H	I	J	K	L
32-DFD	55	50	140	162	160	140	F6	F6	7.5-8.5	5	6.25-6.75	15.0-15.5
32-DFM	50	45	150	155	160	140	F6	F6	7.5-8.5	5	7.0-7.5	15.0-15.5
32-DFV	90	40	127	140	140	150	F7	F17	6.0	5	36.25-36.75 ①	10.16

① – Measured to bottom of float.