

## MOTORCRAFT MODEL 5200 & 6500 2-BARREL

### CARBURETOR APPLICATION

#### FORD MOTOR CO. (5200)

Application	Ford Motor Co. Part No.	
	Man. Trans.	Auto. Trans.
2.3L (140") 4-Cylinder Federal		
Without A/C .....	E1BE-9510-RA <sup>①</sup>	E1ZE-9510-VA
With A/C .....	E1BE-9510-RA <sup>①</sup>	E1ZE-9510-YA
High Altitude .....	E2ZE-9510-AFA	E2ZE-9510-AHA <sup>②</sup>

- ① - Capri/Mustang with 4-speed - E1ZE-9510-ACA.
- ② - With A/C; Without A/C - E2ZE-9510-AGA.

#### FORD MOTOR CO. (6500)

Application	Ford Motor Co. Part No.	
	Man. Trans.	Auto. Trans.
2.3L (140") 4-Cylinder California		
Without A/C .....	E2ZE-9510-APA <sup>①</sup>	E2ZE-9510-ACA
With A/C .....	E2ZE-9510-ARA <sup>②</sup>	E2ZE-9510-ADA

- ① - 5-Speed - E2ZE-9510-UA.
- ② - 5-Speed - E2ZE-9510-VA.

### CARBURETOR IDENTIFICATION

Carburetor identification number may be found stamped on side of float bowl or on a metal tag attached to carburetor.

### DESCRIPTION

The Motorcraft 5200 and 6500 carburetors are 2-stage, 2-venturi type with primary venturi smaller in diameter than secondary. The secondary system is operated by mechanical linkage. The primary stage of both carburetors include a curb idle system, accelerator pump system, idle transfer system, main metering system and power enrichment system (5200) or feedback system (6500). Secondary stage includes secondary idle system, transfer system, main metering system and power system. Both systems receive fuel from single fuel bowl. All models use an electrically heated choke.

The 5200 carburetor is equipped with a power enrichment system which provides enriched fuel mixture for part throttle and wide open throttle operation. The 6500 carburetor is provided with a feedback system (replacing power enrichment system of 5200) which is controlled by the MCU computer system. The feedback circuit of the MCU activates a vacuum regulator which applies vacuum to the mixture control diaphragm in the carburetor. With no vacuum present, the richest air/fuel mixture is provided; as vacuum is applied, the air/fuel mixture becomes leaner. In this manner, the air/fuel mixture can be controlled to provide efficient engine operation under all operating conditions.

All carburetors are equipped with a vacuum-operated, solenoid-assisted fuel bowl vent to improve engine starting when engine is warm. This allows fuel vapors to vent into carbon canister when engine is off. When engine is running, fuel vapors are vented into air horn. Depending upon calibration requirements, carburetors may be equipped with one of the following throttle solenoid positioner (TSP) devices: solenoid or solo-kicker. The solenoid operates when the ignition is on. The solo-kicker (solenoid/throttle kicker) provides vacuum to the throttle kicker through the solenoid. Some carburetors may also be equipped with a dashpot, throttle kicker or dashpot/throttle kicker combination.

### TESTING

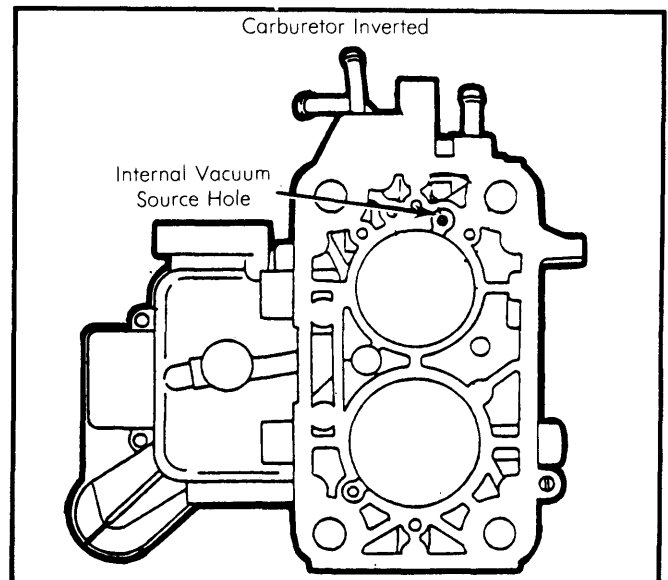
#### AUTOMATIC ELECTRIC CHOKE

- 1) Bring engine to normal operating temperature and turn engine off. Remove air cleaner and plug vacuum hoses to air cleaner. Check all vacuum hoses, solenoids and choke wires for proper connections. Be sure all linkage operates freely.
- 2) Place choke on high cam by depressing throttle lever to 1/4 open position. Push choke plate closed. Hold choke plate closed, release throttle lever, then release choke plate.
- 3) Using choke tester (Rotunda 14-0206 or equivalent), cool bi-metal cover until bi-metal coil lightly seats choke plate. Without touching throttle, start engine and observe choke plate for pulldown. If pulldown is observed, proceed to step 4). If no pulldown is observed, proceed to step 6) if pulldown motor has an external vacuum line or step 8) if pulldown motor has no external vacuum line.
- 4) With pulldown present, choke plate opening time from engine start-up until choke plate contacts air horn stops should be 1-4 minutes. Allow engine to return to curb idle. If time is within specifications, turn engine off, remove test equipment and perform adjustments. If time is not within specifications, proceed to step 5).
- 5) Disconnect choke electrical lead at choke cap. Connect test lamp between choke electrical lead and good ground. Start engine. If lamp glows, replace choke cap. If lamp does not glow, repair choke electrical circuit and repeat step 3).

- 6) If pulldown motor vacuum line is equipped with a vacuum vent delay valve, test delay valve with hand vacuum pump. Replace valve if defective and proceed to step 7). If vacuum line is not equipped with delay valve, proceed to step 7).

**NOTE** - Delay valves with one side black or white and opposite side of different color are good if vacuum can be applied in one direction only and vacuum slowly decreases after application. Valves with both sides of same color are good if vacuum can be applied in both directions and vacuum slowly decreases after application.

- 7) Remove vacuum line at choke pulldown motor and apply external vacuum source to motor. If motor activates, perform step 5). If pulldown motor does not activate, replace pulldown motor and retest.



**Fig. 1 Location of Internal Vacuum Source for Models Without External Vacuum Source**

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8) If pulldown motor is not equipped with external vacuum line, remove carburetor from engine. Invert carburetor and locate internal vacuum source hole in carburetor base. See Fig. 1. Apply external vacuum source to hole. If vacuum does not hold choke pulldown, replace pulldown diaphragm. If vacuum holds but no pulldown movement occurs, clear obstruction from hole.

### FEEDBACK DIAPHRAGM VACUUM LEAK (MODEL 6500 ONLY)

1) Remove air cleaner assembly. Remove vacuum control line at feedback tube (located behind fuel inlet assembly). Using an outside vacuum source, apply 10 in. Hg to feedback tube.

2) If vacuum drop exceeds 3 in. Hg in 30 seconds, remove carburetor, replace feedback diaphragm and repeat test. If vacuum drop is within specifications, install vacuum line and air cleaner.

### ADJUSTMENT

#### HOT (SLOW) IDLE RPM

See appropriate article in TUNE-UP SERVICE PROCEDURES.

#### IDLE MIXTURE

See appropriate article in TUNE-UP SERVICE PROCEDURES.

#### COLD (FAST) IDLE RPM

See appropriate article in TUNE-UP SERVICE PROCEDURES.

#### FLOAT LEVEL

1) With air horn and gasket removed, turn air horn upside down. Allow weight of float to press down against float needle valve. See Fig. 2.

2) Measure float level specified clearance between top of float and air horn gasket surface. Clearance can be measured using specified drill or pin gauge.

3) Make sure float tang still rests on float needle when clearance is checked. To adjust, bend tang that contacts float needle.

**NOTE** — Do not apply pressure to float needle while checking or changing adjustment.

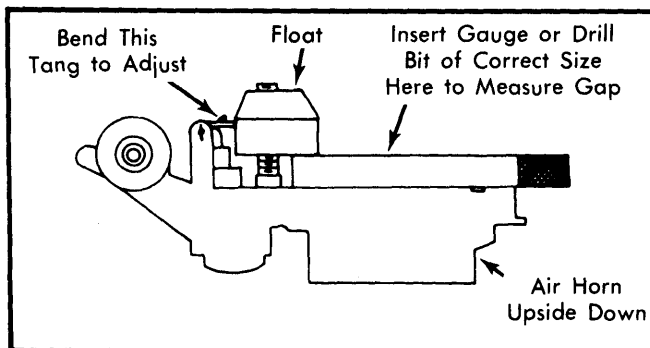


Fig. 2 Adjusting Float Lever

#### FLOAT DROP

1) With air horn and gasket removed, turn air horn right side up. Allow float to hang. Using "T" scale, measure specified float drop from air horn gasket surface to bottom edge of float. See Fig. 3.

2) To adjust, bend float tang on float arm that contacts fuel inlet needle seat boss.

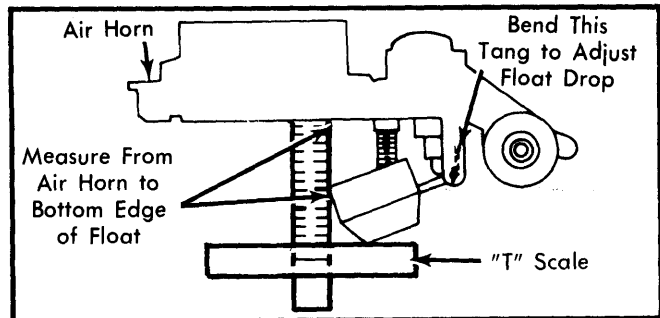


Fig. 3 Adjusting Float Drop

#### FAST IDLE CAM POSITION

1) Position fast idle speed screw on second step of fast idle cam against shoulder of next highest step. See Fig. 4.

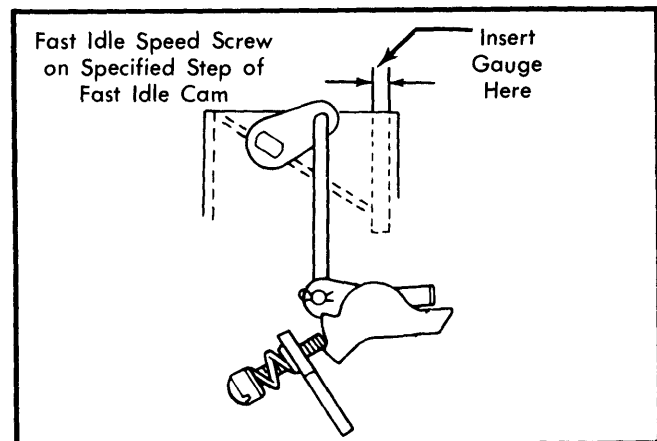


Fig. 4 Adjusting Fast Idle Cam Position

2) Apply light downward pressure on choke lever tang. With tang lightly depressed, measure fast idle cam position by inserting specified drill or pin gauge between lower edge of choke valve and air horn wall. If measurement is not to specification, replace choke lever.

**NOTE** — Choke lever tang is hardened and no attempt should be made to bend tang.

#### CHOKE VACUUM KICK (INITIAL CHOKE VALVE CLEARANCE)

**NOTE** — Carburetors are equipped with tamper-proof choke cap assemblies. To remove choke cap assembly, ensure rivet mandrels of bi-metal assembly are well below rivet head and drive mandrel down or out with a  $\frac{1}{16}$ " diameter punch. Using a  $\frac{1}{8}$ " (No. 30) drill, drill out rivet heads and drive rivets out with a  $\frac{1}{8}$ " punch. Remove screws and choke cap assembly.

1) Remove choke cap assembly. Place fast idle speed screw on highest step of fast idle cam. Place rubber band on choke linkage to remove all slack from choke linkage. See Fig. 5.

2) Press choke diaphragm step in toward stop. Measure choke vacuum kick specified clearance between lower edge of choke valve and air horn wall with specified drill or pin gauge.

3) To adjust, remove choke pulldown diaphragm cover and install new pulldown cover from service kit. Install diaphragm adjusting screw from service kit into cover so threads are flush with inside of cover. Using suitable Allen wrench, turn adjusting screw clockwise to decrease clearance and counterclockwise to increase clearance.

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4) Install new plug from service kit into diaphragm cover. Remove rubber band and install choke cap assembly.

**NOTE** — To install choke cap assembly, ensure choke cap spacer is properly installed. Then engage bi-metal loop on choke housing shaft lever pin and nylon bushing. Install cap and rotate to engage plastic spacer index tab. Install choke cap retainer and secure with loosely installed standard screw. Rivet choke cap into position and tighten standard screw.

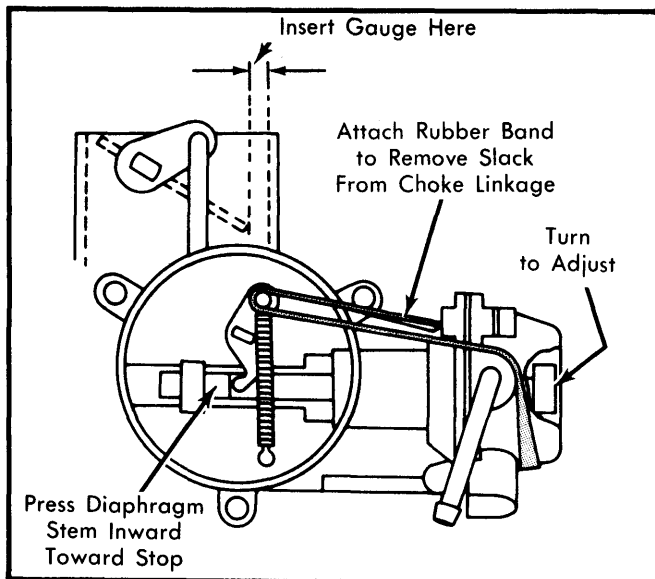


Fig. 5 Adjusting Choke Vacuum Kick

### CHOKE UNLOADER

**NOTE** — Ford Motor Co. choke unloader clearance cannot be adjusted as it is controlled by the fast idle cam setting.

### SECONDARY THROTTLE STOP SCREW

**NOTE** — Secondary throttle stop screw has been preset at the factory and staked into position. Adjustment is not required.

### AUTOMATIC CHOKE

**NOTE** — Automatic choke is electrically operated. No adjustment required.

## OVERHAUL

### DISASSEMBLY

**Air Horn** — 1) Remove bowl cover screws and lock washers. Remove plastic retainers from choke rod. Carefully lift air horn off main body. Remove choke rod seal.

2) Remove float hinge pin, float, inlet needle, inlet needle seat and gasket. On model 5200 carburetor, remove 3 enrichment valve diaphragm screws, washers and diaphragm. On model 6500 carburetor, remove 3 feedback diaphragm screws and diaphragm.

3) On all models, remove 3 vent cover/solenoid screws and cover. Remove circlip from vent diaphragm stem. Remove diaphragm assembly, vent spring, vent valve retainer and vent valve. Remove inlet filter assembly.

**Main Body** — 1) Remove choke cap as previously described. Remove retaining ring, thermostatic housing and plastic index plate as a unit to prevent damaging bi-metal coil.

2) Remove choke housing assembly screws, slide housing from main body and disengage fast idle rod. Remove and discard "O" ring from passage. Remove choke lever spring shaft nut, lock washer, choke lever and fast idle cam.

3) Remove 3 choke pulldown diaphragm cover screws. Remove cover, return spring, diaphragm and rod assembly. Remove 4 accelerator pump cover screws, pump cover assembly, pump diaphragm assembly and pump return spring. Remove pump discharge nozzle screw assembly, pump discharge nozzle and 2 gaskets. Remove 2 pump discharge check balls.

4) Remove primary high speed bleed and main well tube. Remove secondary high speed bleed and main well tube, noting size of air bleed plugs and main well tubes for reassembly reference. Remove primary and secondary main metering jets, noting size of jets for reassembly reference.

5) Remove enrichment valve (5200) or feedback assembly (6500), needle, seat and spring assembly. Remove secondary idle jet retainer and idle jets located on side of carburetor body.

6) Remove tamper-proof idle mixture plug by center punching and drilling a 3/32" hole through hardened steel plug. Install screw extractor and remove plug. Lightly seat idle mixture adjusting screw, counting number of turns required to seat screw to nearest 1/16 turn. Remove screw and needle.

7) Remove secondary operating lever return spring and throttle positioner device (if equipped). Remove throttle stop adjusting screw plastic limiter cap (if equipped) by prying with thin blade screwdriver and remove throttle adjusting screw. Remove primary throttle shaft nut, washers and accelerator pump cam. Remove hot idle compensator assembly, if equipped.

### CLEANING & INSPECTION

- Do not immerse plastic or rubber parts in solvent. Do not immerse diaphragm assemblies, dashpot or solenoid in solvent.
- Blow out all passages with compressed air. Do not use wire or drill bit to clean carburetor orifices.
- Inspect all parts for wear, cracks, nicks or burrs, and damage. Replace parts as necessary.
- After cleaning with solvent, wash all parts in hot water and blow dry with compressed air.

### REASSEMBLY

Reassemble carburetor in reverse order of disassembly, noting the following:

1) On all carburetors, use new gaskets and seals. Make sure that new gaskets fit correctly and that all holes and slots are punched through and correctly located. Reinstall main jets, bleed jets, main well emulsion tubes and idle jets in proper locations.

2) On 5200 carburetors, install enrichment valve, needle, seat and spring as an assembly, aligning 3 screw holes and tighten to 15 INCH Lbs. (2 N•m).

3) On 6500 carburetors, apply 1 drop of thread lock to each feedback diaphragm retaining screw. Position diaphragm and piston assembly over spring so attaching screw holes are aligned with air horn holes. Ensure diaphragm spring is properly installed with one end over end of adjustment screw and other end centered within cupped washer of diaphragm and piston assembly. Install and tighten screws to 4-5 INCH Lbs. (.5-.7 N•m). Adjustment screw is preset and should not be adjusted.

4) On all carburetors, install tamper-proof features removed during overhaul after all adjustments have been performed.



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## MOTORCRAFT MODEL 5200 & 6500 2-BARREL (Cont.)

CARBURETOR ADJUSTMENT SPECIFICATIONS						
Application	Float Level Setting	Float Drop Setting	Fast Idle Cam Setting	Choke Vacuum Kick Setting	Choke Unloader Setting	Auto. Choke Setting
<b>Ford Motor Co. (5200)</b>						
E1BE-9510-RA	.41-.51"	1.00"	.059-.098"	.177-.217"	.197"	.....
E1ZE-9510-VA	.41-.51"	1.00"	.059-.098"	.177-.217"	.197"	.....
E1ZE-9510-YA	.41-.51"	1.00"	.059-.098"	.177-.217"	.197"	.....
E1ZE-9510-ACA	.41-.51"	1.00"	.059-.098"	.177-.217"	.197"	.....
E2ZE-9510-AFA	.41-.51"	1.00"	.098-.138"	.217-.256"	.236"	.....
E2ZE-9510-AGA	.41-.51"	1.00"	.098-.138"	.217-.256"	.236"	.....
E2ZE-9510-AHA	.41-.51"	1.00"	.098-.138"	.217-.256"	.236"	.....
<b>Ford Motor Co. (6500)</b>						
E2ZE-9510-UA	.41-.51"	1.00"	.098-.138"	.256-.295"	.394"	.....
E2ZE-9510-VA	.41-.51"	1.00"	.098-.138"	.256-.295"	.394"	.....
E2ZE-9510-ACA	.41-.51"	1.00"	.098-.138"	.256-.295"	.394"	.....
E2ZE-9510-ADA	.41-.51"	1.00"	.098-.138"	.256-.295"	.394"	.....
E2ZE-9510-APA	.41-.51"	1.00"	.098-.138"	.256-.295"	.394"	.....
E2ZE-9510-ARA	.41-.51"	1.00"	.098-.138"	.256-.295"	.394"	.....