1975-79 FUEL SYSTEMS
Motorcraft 4350 4-Barrel

1975-76 American Motors
1975-78 Ford Motor Co.

CARBURETOR APPLICATIONS

1975 AMERICAN MOTORS

Application	Carburetor No.
All Models	5TA4

1976 AMERICAN MOTORS

Application	Carburetor No.
Police	6TA4P
All Others	6TA4

1975 FORD MOTOR CO.

Application	Carburetor No.
460" V8	
Federal	D5VE-AD
California	D5VE-BA
460" P/C	
Federal	D5AE-CA
California	D5AE-DA

1976 FORD MOTOR CO.

Application	Carburetor No.
460" V8	
Federal	D6AE-EA, FA, EB
California	D6AE-CA
Police	D6AE-DA

CARBURETOR IDENTIFICATION

Carburetor model designation and suffix stamped on tag attached to carburetor by one air horn screw.

1977 FORD MOTOR CO.

Application	Carburetor No.
460" V8	
Federal	[1] D7VE-MA, [1] D7VE-NA [2] D7PE-AA, [2] D7VE-SA [3] D7AE-ZA, [3] D7AE-AAA [3] D7AE-ANA
High Altitude	D7VE-KA

[1] - Before and including December 6, 1976.
[2] - After December 6, 1976.
[3] - 460" P/C engine only.

1978 FORD MOTOR CO.

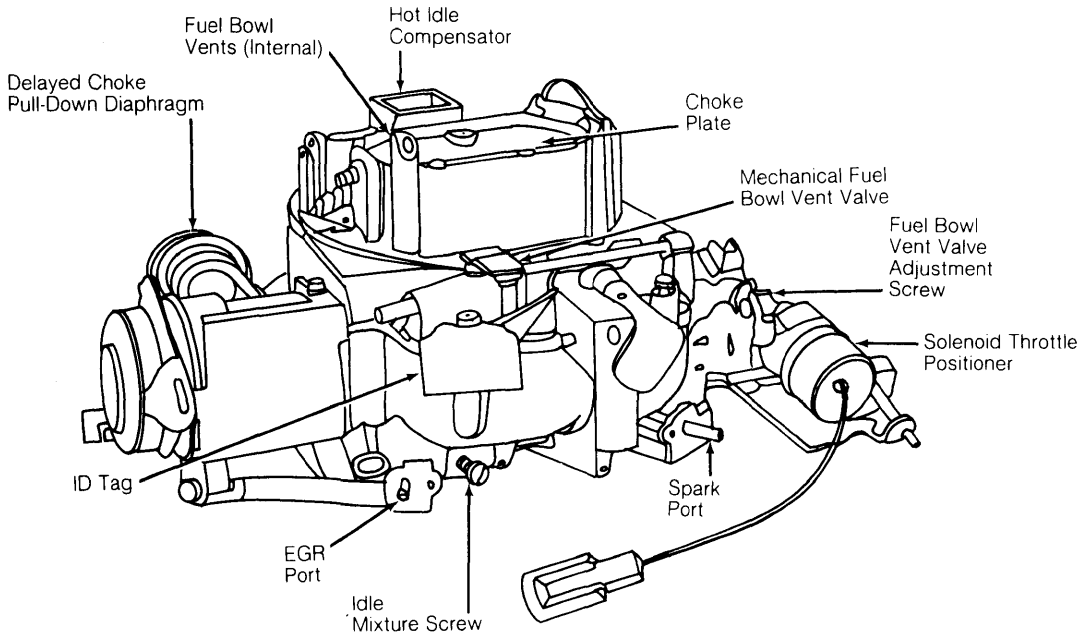
Application	Carburetor No.
460" V8 With Auto. Trans.	
Federal & Canada	[1 2] D7AE-ANA [1] D8VE-FA [1] D8VE-GA

[1] - Ford, Lincoln Continental, Mark V & Mercury.
[2] - 460" P/C engine only.

DESCRIPTION

The Motorcraft 4350 4-barrel carburetor consists of 3 main assemblies; air horn, main body and throttle body. Carburetor includes 5 basic fuel metering systems. These systems are idle circuit, primary metering circuit, secondary metering circuit, accelerating system and power enrichment system. Other systems include fuel inlet and electric assisted choke circuits.

Some Motorcraft 4350 4-Barrel carburetors are produced with altitude compensation devices. Purpose of altitude compensator is to lean out fuel mixture when operating at high altitudes. To improve high altitude cold engine starts, by-pass intake system included with compensation feature, is equipped with a choke plate linked to main choke system. High altitude system cannot be adjusted. Only service possible is cleaning of poppet valve and stem in aneroid bellows housing with appropriate choke cleaner.



Courtesy of Ford Motor Co.

Fig. 1: External View Of Motorcraft 4350 4-Barrel Carburetor Showing Major Component Location

1975-79 FUEL SYSTEMS
Motorcraft 4350 4-Barrel (Cont.)

ADJUSTMENTS

HOT (SLOW) IDLE RPM

See appropriate article in TUNE-UP PROCEDURES section.

IDLE MIXTURE

See appropriate article in TUNE-UP PROCEDURES section.

COLD (FAST) IDLE RPM

See appropriate article in TUNE-UP PROCEDURES section.

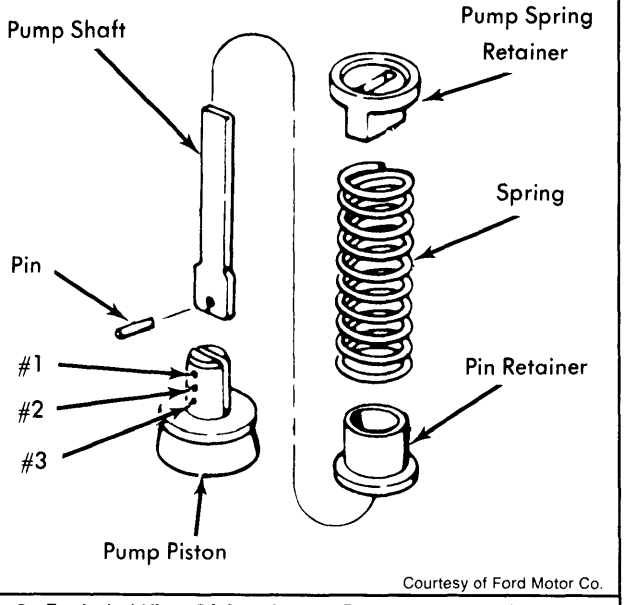
ACCELERATOR PUMP

American Motors - Make sure that accelerator pump rod is positioned in lower hole of throttle shaft lever. Back out idle speed screw until primary throttle valves are seated in bore. Turn adjusting nut on accelerator pump throttle linkage until notch in pump lever is aligned with second hole in pump plunger.

Ford Motor Co. - Accelerator pump has only 2 adjustments. Piston-to-shaft pin position and capacity adjustment. Capacity adjustment should be made only if operating arm is replaced. With air horn removed, check that hole in pump shaft in aligned with second hole in pump plunger.

Pump Shaft-To-Pin Position Check - **1)** Remove upper body of carburetor. Turn upper body assembly upside-down. Disconnect pump from operating arm. Disassemble spring and nylon keeper that retains adjustment pin.

2) Check pin position and compare to specifications. If pin is not in correct hole, remove pin and place in specified position. *See Fig. 2.* Assemble nylon retainer, spring and spring retainer. Install assembly onto upper body.



Courtesy of Ford Motor Co.

Fig. 2: Exploded View Of Accelerator Pump Assembly Showing Pin Hole Locations

Capacity Adjustment (After Pump Arm Replacement) - **1)** Remove mechanical fuel bowl vent rod and bracket assembly. Remove expansion plugs (one brass, one aluminum) from air horn over pump arm. This gives access to adjusting screw and pin hole.

2) Remove carburetor upper body. Remove vacuum piston limiter lever and nylon pump arm from pump lever and shaft assembly. Remove pump adjusting screw (with a 5/64" Allen wrench) from original nylon pump arm.

3) Install adjusting screw in new pump arm. Position so that one full thread of the point end of screw shows below pump arm. Install nylon pump lever and shaft assembly with "E" clip.

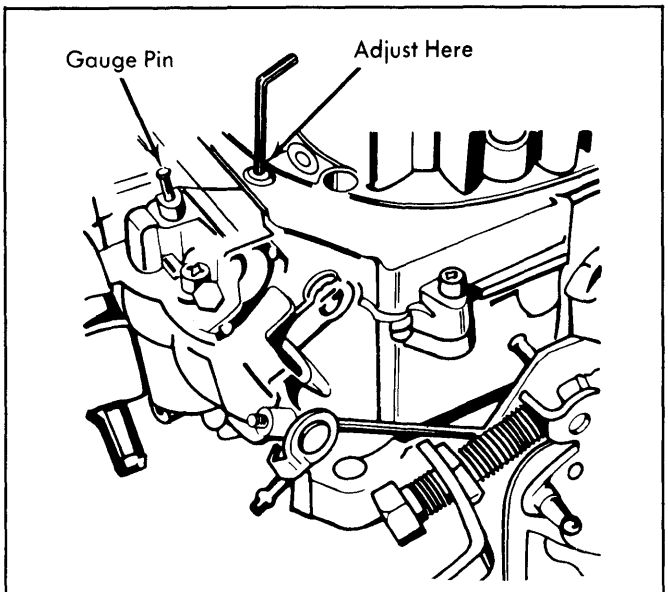
4) Install upper body to main body. Install pump rod into correct hole in throttle pump lever. Position pump gauge pin through pump gauge access hole so pin rests on top of pump stem. *See Fig. 3.*

5) Place throttle lever at idle position. Measure from top of gauge pin to upper body casting surface. Record measurement. Move throttle to wide open position. Measure distance between top of gauge pin and upper body casting surface again.

6) Difference between measurements should be 5/16". If not, adjust by turning pump adjustment screw clockwise to increase reading or counterclockwise to decrease reading. DO NOT try to adjust accelerator pump with nylon nut on vacuum piston limiter lever.

7) Recheck reading after adjustment. Install new access hole plugs. Install mechanical bowl vent rod, bracket and screw.

NOTE: Throttle plates, shafts and lever must be installed to specification to properly adjust new pump arm.



Courtesy of Ford Motor Co.

Fig. 3: Adjusting Nylon Accelerator Pump Arm

FUEL BOWL VENT VALVE ADJUSTMENT

Ford Motor Co. - **1)** Start engine and warm up to operating temperature. Allow engine to idle at curb idle speed. If equipped with solenoid throttle positioner, solenoid must be in retracted (de-energized) position.

2) Adjust vent valve so adjustment screw just touches drive tab on pump lever. *See Fig. 11.* Turn adjusting screw one full turn clockwise. Turn engine off.

3) Observe that vent operating linkage pushes down on vent valve stem. Mechanical fuel bowl vent valve should be open to carbon canister when engine is off and closed when engine is running. Make adjustment with carburetor on vehicle.

CHOKE VALVE PULL-DOWN ADJUSTMENT

American Motors - **1)** Loosen choke cover screws. Open throttle and rotate choke cover until choke valve is closed. Close throttle and ensure that fast idle speed screw is on top step of cam. Bottom choke diaphragm against set screw (DO NOT press on links).

2) Measure clearance between lower edge of choke valve and air horn. Adjust clearance by turning screw at rear of diaphragm housing. Adjust fast idle cam linkage and rotate choke cover back to correct index mark.

Ford Motor Co. - **1)** Remove choke coil housing assembly. Open throttle about half-way. Place fast idle screw on high step of fast idle cam. Bend a .036" diameter wire gauge at a 90 degree angle about 1/8" from its end.

2) Insert bent end of gauge between choke piston slot and upper edge of right-hand slot in choke housing. Turn choke lever counterclockwise until gauge is held snugly in piston slot. Hold lever lightly to maintain gauge position.
3) Move top of choke rod away from carburetor and move bottom of choke rod toward carburetor to remove slack from linkage. Insert gauge of proper size between lower edge of choke valve and air horn wall (at center of carburetor).
4) Adjust clearance by turning hex head lock screw on choke valve shaft clockwise 3 full turns. Lock screw has LEFT-HAND threads. Pry choke lever from shaft to loosen.
5) Check that choke lever rotates freely on shaft. Place correct size gauge between lower edge of choke valve and air horn wall. *See Fig. 4*. Apply light closing pressure on choke valve.
6) Tighten hex head screw on choke shaft. Using .036" gauge in vacuum slot (above top of piston), hold piston in full down position. Rotate thermostatic spring lever back and forth to check for binding. Install gasket and choke coil housing assembly.

NOTE: Carburetor Alteration Kit (Part No. D7PZ-9D544-A) is available to correct prolonged cold engine start time on 1977 Federal 460" engines. Kit provides positive choke closure and fuel enrichment while cranking.

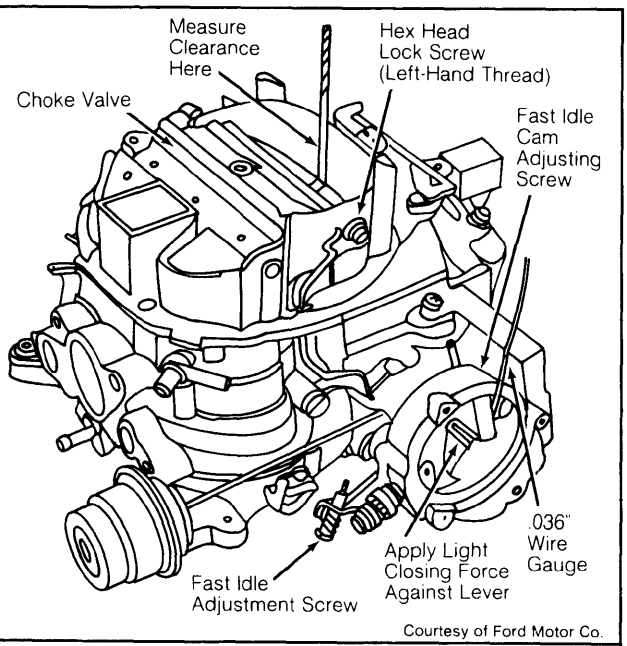


Fig. 4: Initial Choke Pull-Down Adjustment

DELAYED CHOKE PULL-DOWN ADJUSTMENT

NOTE: Vacuum operated delayed choke pull-down diaphragm should open choke to wider setting about 6 to 18 seconds after engine start-up.

Ford Motor Co. - 1) Place fast idle screw on fast idle cam. Note position of index marks on choke coil housing. Loosen choke retaining screws and rotate cap 90 degrees in RICH (closing) direction.
2) Disconnect vacuum hose from port on delayed choke pull-down diaphragm assembly. Remove filter cap and place tape over purge bleed hole in diaphragm housing. Connect outside vacuum source of at least 14-18 in. Hg vacuum to port.
3) Insert gauge or drill bit of correct size between lower edge of choke valve and center of air horn wall. Adjust clearance by turning stop screw on delayed choke pull-down diaphragm. Remove vacuum source, reconnect hose to port and reset choke cap to correct setting.

NOTE: Remember to remove tape from purge bleed hole.

FAST IDLE TOP STEP PULL-OFF

Ford Motor Co. - 1) Operate delayed pull-down diaphragm manually or connect vacuum source of at least 14-18 in. Hg vacuum to diaphragm. Place hand over holes in filter cap.
2) Place fast idle speed screw on top (high) step of fast idle cam with choke valve closed. Turn choke cap to close choke valve if necessary.
3) Operate delayed choke pull-down diaphragm. Observe fast idle speed screw. Screw should drop to second (kickdown) step of fast idle cam.

FAST IDLE CAM CLEARANCE ADJUSTMENT

Ford Motor Co. - 1) Loosen choke cover attaching screws. Turn choke housing until center index mark lines up with index mark on coil housing. Turn coil housing an additional 90 degrees counterclockwise. Tighten attaching screws.
2) Place fast idle speed screw on center (kickdown) step of fast idle cam. Close choke valve as far as it will go. Measure clearance between lower edge of choke valve and air horn wall.
3) Adjust clearance by turning fast idle cam adjusting screw in to increase clearance or out to decrease clearance. Ensure fast idle speed screw remains on center step of fast idle cam. Cam screw is located behind choke housing.
4) Loosen attaching screws and set choke coil housing to correct position. Tighten screws.

NOTE: If choke valve clearance and fast idle cam linkage adjustment is performed on engine, adjust idle speed and fuel mixture at this time.

DECHOKE CLEARANCE ADJUSTMENT

Ford Motor Co. - 1) Move throttle to wide open position and hold. Turn choke valve towards closed position until pawl on fast idle speed lever touches fast idle cam.
2) Measure clearance between lower edge of choke valve and air horn wall. Adjust by bending pawl on fast idle speed lever forward to increase or backward to decrease clearance.

CHOKE PLATE INDEXING

American Motors - 1) This procedure should be performed only if choke plate lever attaching screw has been loosened or removed. To perform adjustment, loosen choke lever.
2) Back out cam index screw until screw no longer touches automatic choke shaft lever. Loosen choke cover and rotate it 90 degrees counterclockwise until choke shaft touches fast idle cam. Tighten one choke cover attaching screw.
3) Turn cam index screw until it just touches automatic choke shaft lever, then turn screw and additional 6-7 turns. Manually close choke plate and tighten shaft lever attaching screw. Adjust choke valve clearance and idle cam linkage. Return choke cover to correct index mark and tighten attaching screws.

FLOAT LEVEL ADJUSTMENT

1) Fabricate float level gauge as shown. *See Fig. 5*. Adjust fabricated gauge to specified height. Remove air horn assembly from carburetor. Insert gauge into outboard holes in air horn. *See Fig. 6*.
2) Check clearance and alignment of floats to gauge. Both floats should just touch gauge. Align floats, if necessary, by gently twisting. Adjust float clearance to gauge by bending primary needle tab down to raise floats and up to lower floats.

NOTE: On Police models, it is necessary to set each float independently.

1975-79 FUEL SYSTEMS
Motorcraft 4350 4-Barrel (Cont.)

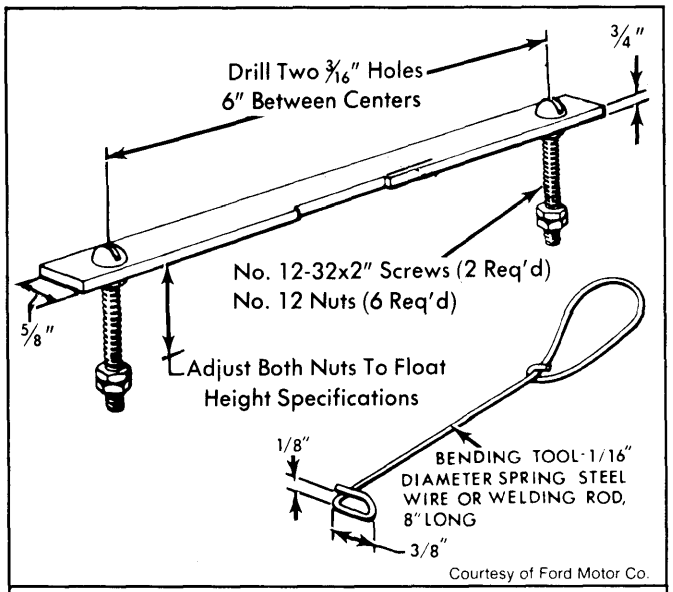


Fig. 5: Fabricated Float Level Gauge & Bending Tool

AUXILIARY FUEL INLET VALVE ADJUSTMENT

1) Install fabricated float level gauge as outlined in FLOAT LEVEL ADJUSTMENT procedure. Turn air horn assembly upside-down.
2) Measure clearance between auxiliary needle tab on rear of float arm and tip of needle shaft. If adjustment is needed, bend auxiliary fuel valve tab. *See Fig. 6.*

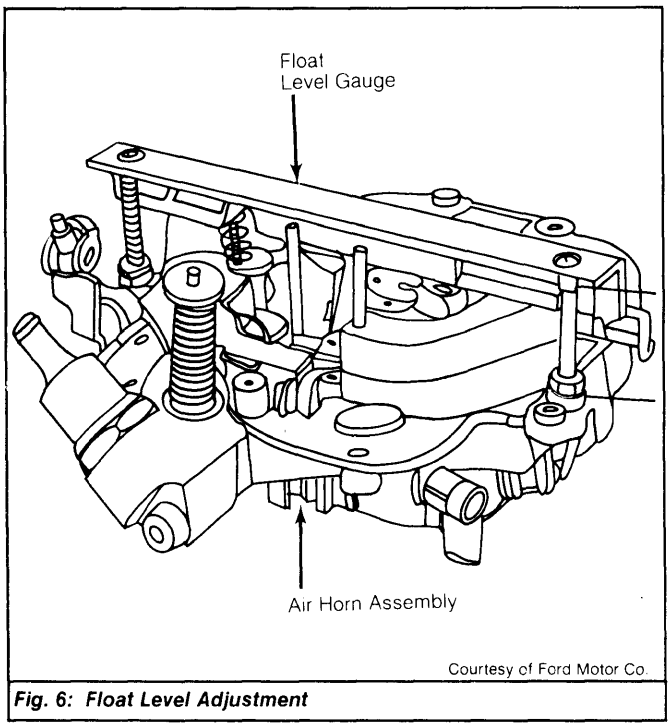


Fig. 6: Float Level Adjustment

FUEL INLET NEEDLE DROP LIMITER ADJUSTMENT

NOTE: Police applications with independent floats are not equipped with this feature. If needle drop limiter is not adjusted properly, engine stalling, fuel starvation and engine stumble on stops and turns can result.

1) After completing float level adjustment, remove float hinge pin, float assembly and inlet needle. Reinstall inlet needle drop limiter and hinge pin. Foot of limiter must be behind tang on vacuum piston limiter lever.
2) Rotate vacuum piston limiter lever until scribe marks made during disassembly are aligned. Hold limiter and shaft assembly in place with tape. Turn air horn assembly right side up.
3) Measure clearance between needle drop limiter tab and fuel inlet seat (feeler gauge). Clearance should be .005". If adjustment is needed, loosen tape and rotate vacuum piston limiter lever away from needle drop limiter.
4) Bend long foot on needle drop limiter. Rotate vacuum piston limiter lever back to original taped position and recheck clearance. Remove hinge pin and needle drop limiter.
5) Reinstall inlet needle, float assembly, and needle drop limiter. Be sure that foot of needle drop limiter is behind tab on vacuum piston limiter lever.

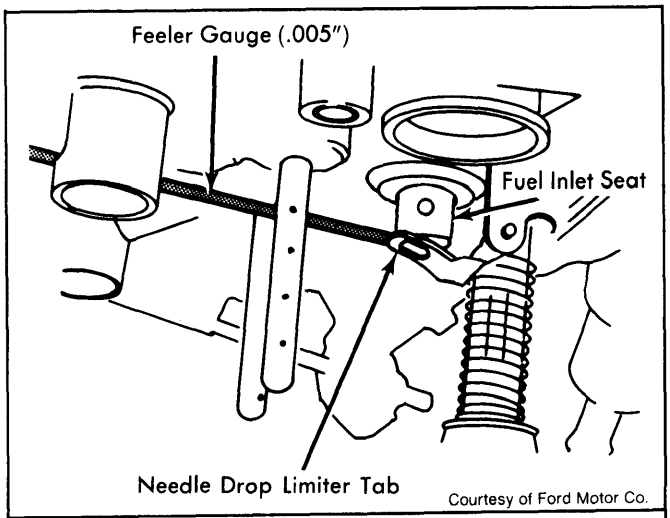


Fig. 7: Fuel Inlet Needle Drop Limiter Measurement

ALTITUDE COMPENSATOR ADJUSTMENT

Ford Motor Co. - Manufacturer does not recommend adjustment of this system. Poppet type metering valve can be cleaned, if necessary, by removing 3 screws and aneroid bellows housing.

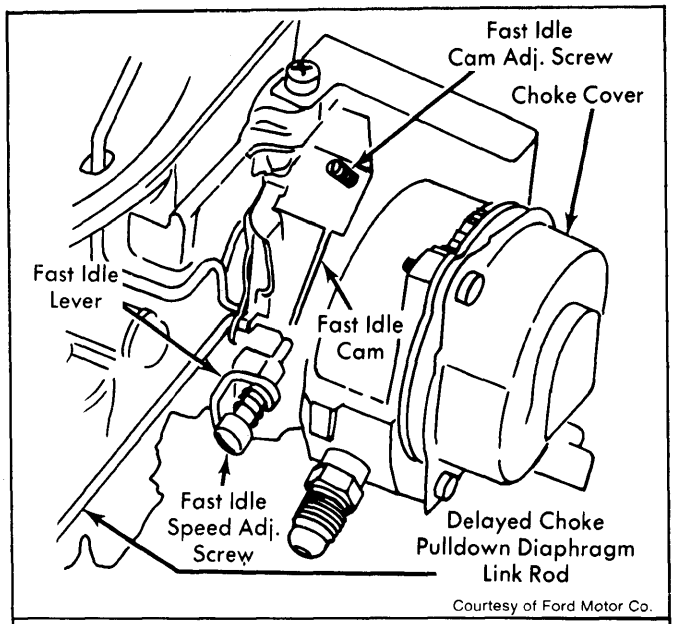


Fig. 8: Automatic Choke Adjustment

Spray carburetor cleaner directly on valve and ensure it moves freely.

AUTOMATIC CHOKE ADJUSTMENT

Loosen choke cover retaining screws. *See Fig. 8.* Rotate choke cover to align index mark on cover with correct mark on housing. Tighten retaining screws.

METERING ROD ADJUSTMENT

American Motors - 1) With metering rod yoke depressed, turn vacuum piston adjusting screw counterclockwise until yoke is seated against vacuum piston cylinder.
2) Adjust metering rod screws in until large portion of rods are seated in main jets. Remove plastic retainer and remove metering rod and yoke assembly. Turn vacuum piston adjusting screw clockwise to move vacuum piston away from yoke until a .120" clearance is obtained. Install metering rod and yoke assembly.

OVERHAUL

CARBURETOR

The fuel metering system maintains a direct relationship between fuel flow through main jets (metering and vacuum piston rod height) and throttle plate position. This relationship is preset at factory and SHOULD NOT be altered. To maintain this relationship during carburetor overhaul, proceed as follows:

1) Place fast idle speed screw on top step of fast idle cam. Scribe a line on pump operating lever and air horn. This line will be used as a reassembly reference. DO NOT use lines already scribed on lever and housing, they are for manufacturing reference only.
2) Remove throttle link-to-vacuum piston limiter lever by removing nylon adjusting nut. Place carburetor on stand to prevent throttle plate damage.
Disassembly (Air Horn) - 1) Remove fuel inlet line from filter. Disconnect choke control rod from automatic choke lever. Remove all air horn-to-main body retaining screws. Remove accelerating pump rod from throttle lever. Carefully lift air horn off main body.
2) Turn air horn upside-down. Remove float pivot pin and lift out float assembly. Remove main and auxiliary fuel inlet valve seats and gaskets. *See Fig. 11.*
3) Remove secondary air valve lever pivot pin and rod from damper piston assembly and air valve plate. Remove air valve damper piston and spring. If necessary to remove secondary air valves or shaft, scribe index mark on air valve housing and body casting.
4) Remove valve retaining screws and valves. Remove secondary air valve plate link from damper lever. Remove air valve plate screws and slide shaft out of body. Record position and number of spacers used.
5) Remove valve plate and attached metering rods. If necessary to remove choke valve, remove staking marks on choke valve retaining screws or file off flared portion of screws. Remove retaining screws and valve.

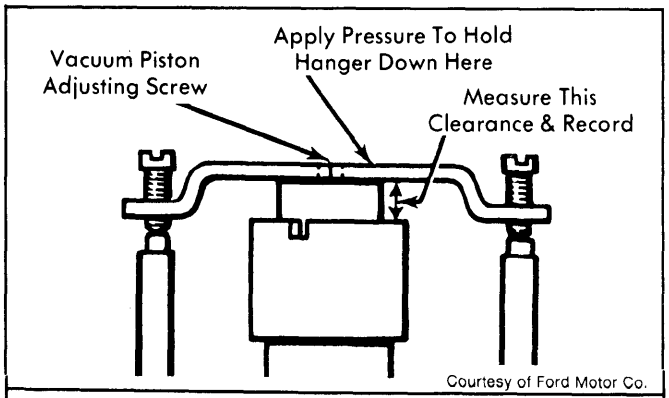


Fig. 9: Metering Rod Hanger & Vacuum Piston Measurement

6) Disconnect altitude compensation choke plate link (if equipped). Remove choke plate, shaft, and lever from air horn. Choke lever is attached with LEFT-HAND threaded screw.
7) Disengage pump arm from pump piston. Remove pump operating shaft clip. Remove both vacuum limiter lever and pump arm. Slide shaft out of air horn.
8) Remove hex head screw attaching fuel bowl vent valve operating rod retainer. Remove retainer and rod. Remove "C" clip retaining spring on shaft. Remove spring and plunger assembly.

Disassembly (Main Body) - 1) Invert main body assembly and catch accelerating pump discharge needle as it falls out. Turn main body right side up. Depress metering rod hanger and check gap between bottom edge of metering rod hanger and top of vacuum cylinder. *See Fig. 9.* Record measurement for reassembly reference.
2) Remove nylon vacuum piston stop from channel in main body. Remove main metering vacuum piston and fuel metering rods as an assembly. DO NOT change setting of piston adjusting screw or metering rod adjusting screws.
3) Unscrew vacuum piston cylinder and remove cylinder return spring and guide pin. Remove main metering jets from fuel bowl. Remove 4 screws and altitude compensation aneroid assembly. Remove 2 hot idle compensator screws through poppet valve hole and remove altitude compensator (if equipped).
Disassembly (Throttle Body) - 1) Remove throttle body-to-main body screws and separate castings. DO NOT remove idle mixture limiter caps, screws, and springs from throttle body.
2) Remove automatic choke housing cover, gasket, and thermostatic spring assembly. Remove choke piston lever retaining screw and piston assembly. Remove secondary throttle-to-primary throttle lever connecting link.
3) If necessary to remove primary or secondary throttle valves or shafts, remove staking marks on throttle valve attaching screws. Remove screws and valves.
3) With valves removed, remove screw from primary throttle shaft. Remove fast idle lever and adjusting screw. Slide primary throttle shaft out of throttle body. If necessary to remove fast idle cam or bushings, press bushing out of choke housing and bushing column.

NOTE: Housing and column must be properly supported during bushing removal and installation to prevent bending or breaking of the column.

Cleaning & Inspection - Clean all castings and metal parts in cleaning solution (plastic fast idle cam and air valve spring cover can be cleaned in the solution but floats and gaskets should not be immersed in the solution). Rinse parts in hot water and dry with air. Blow out all passages, jets, and tubes with air. Inspect all parts for wear, distortion or damage. Make certain power valve piston and rod move freely.

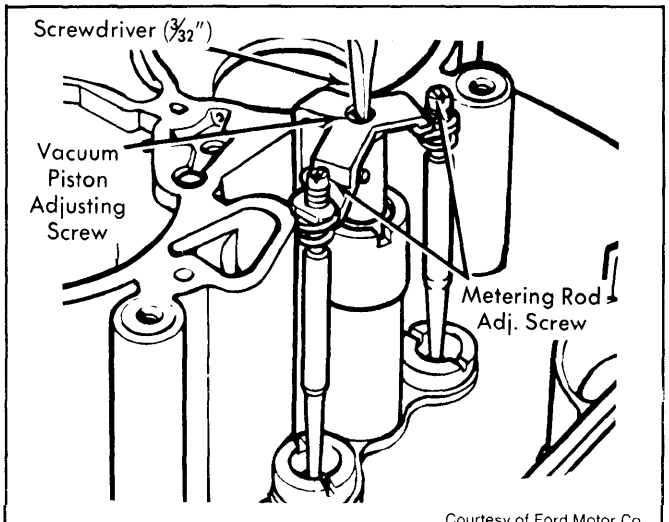


Fig. 10: Metering Rod & Vacuum Piston Adjustment

1975-79 FUEL SYSTEMS
Motorcraft 4350 4-Barrel (Cont.)

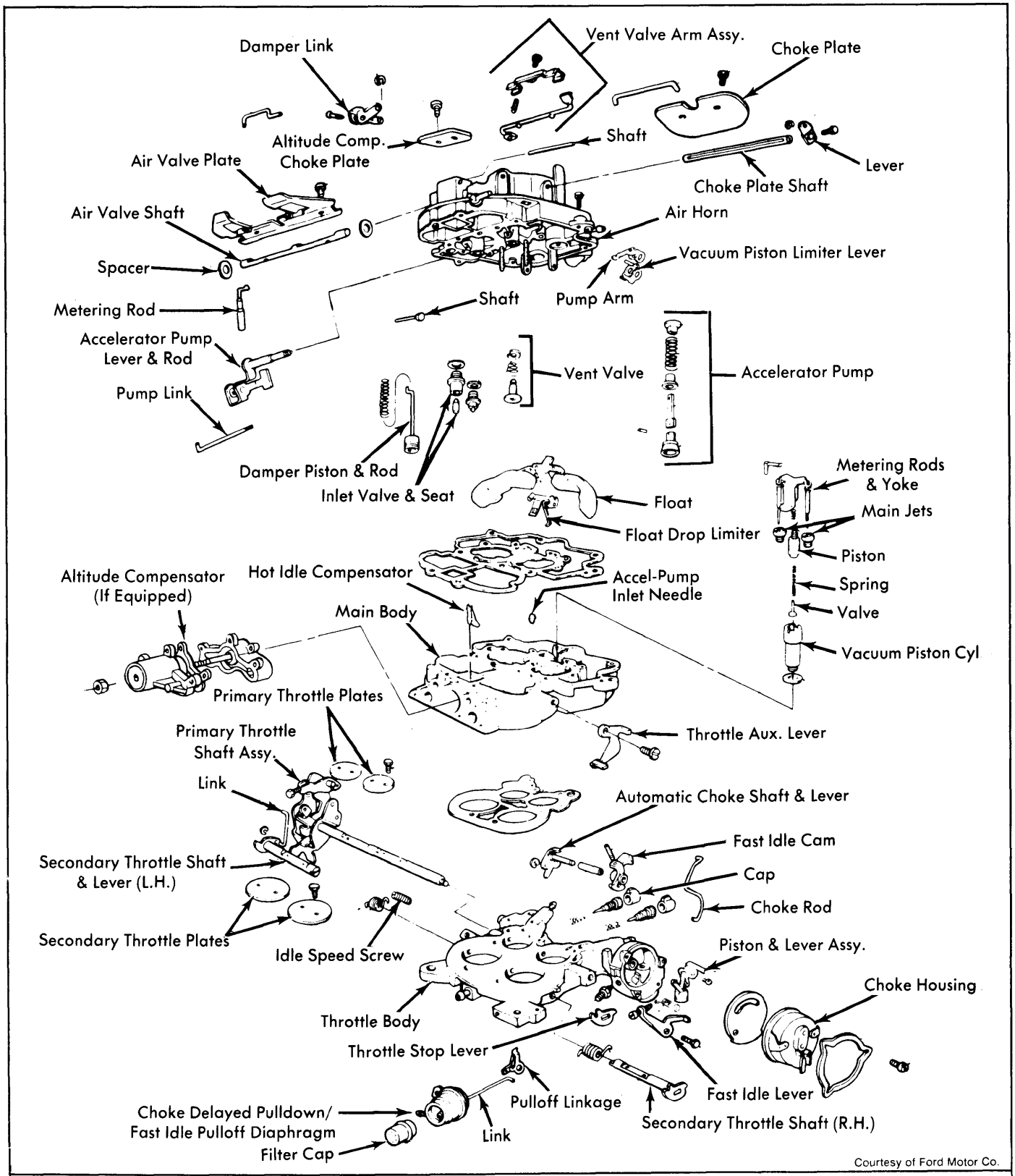


Fig. 11: Exploded View of Motorcraft 4350 4-Barrel Carburetor

Reassembly - **1)** To reassemble, reverse disassembly procedures. If metering rod adjustment has been accidentally changed, depress metering rod hanger.

2) Use a 3/32" screwdriver to turn vacuum piston adjusting screw and metering rod adjusting screws counterclockwise until hanger is fully seated against top face of vacuum cylinder. *See Fig. 10.*

3) Hold metering rod hanger in full downward position. Turn each metering rod adjusting screw clockwise until hanger just starts to rise. Turn vacuum piston screw clockwise until clearance between bottom of hanger and top of cylinder is reached. Adjust clearance to that recorded during disassembly. *See Fig. 9.*

1975-79 FUEL SYSTEMS
Motorcraft 4350 4-Barrel (Cont.)

1975 CARBURETOR ADJUSTMENT SPECIFICATIONS

Carb. No.	Idle Speed (Engine RPM)		Float Level		Choke Valve Pull-Down	Fast Idle Cam Clearance	Accel. Pump Setting	Unloader Setting	Auto. Choke Setting
	Hot	Fast	Primary Valve	Auxiliary Valve					
American Motors									
5TA4	700	① 1600	.90″	.050″	.140″	.160″	....	.325″	2-Rich
Ford Motor Co.									
D5VE-AD	②	②	15/16″	1/16″	.160″	.160″	No. 1	.300″	2-Rich
D5VE-BA	②	②	15/16″	1/16″	.160″	.160″	No. 1	.300″	2-Rich
D5AE-CA	②	②	31/32″	1/32″	.160″	.160″	No. 1	.300″	2-Rich
D5AE-DA	②	②	31/32″	1/32″	.160″	.160″	No. 1	.300″	2-Rich

① — Second step of cam, hot, with TCS and EGR disconnected. ② — See Engine Emission Control Tune-Up Decal.

1976 CARBURETOR ADJUSTMENT SPECIFICATIONS

Carb. No.	Idle Speed (Engine RPM)		Float Level		Choke Valve Pull-Down	Fast Idle Cam Clearance	Accel. Pump Setting	Unloader Setting	Auto. Choke Setting
	Hot	Fast	Primary Valve	Auxiliary Valve					
Am. Mtrs.									
6TA4	700	1600①	.90″	.050″	.130″	.135″	③	.325″	2-Rich
6TA4P	700	1600①	.94″	.030″	.130″	.135″	③	.325″	2-Rich
FoMoCo									
D6AE-CA	②	1350	1.00″	.030″	.140″	.140″	2	.30″	2-Rich
D6AE-DA	②	1350	.96″	.030″	.160″	.160″	2	.30″	2-Rich
D6AE-EA	②	1350	1.00″	.030″	.140″	.140″	2	.30″	2-Rich
D6AE-FA	②	1350	1.00″	.030″	.140″	.140″	2	.30″	2-Rich
D6AE-EB	②	1350	1.00″	.030″	.140″	.140″	2	.30″	2-Rich

① — Second step of cam, hot, with TCS and EGR disconnected. ③ — Lower hole of throttle shaft lever.
② — See Engine Emission Control Tune-Up Decal.

1977 CARBURETOR ADJUSTMENT SPECIFICATIONS

Carb. No.	Idle Speed (Engine RPM)		Float Level		Choke Valve Pull-Down	Fast Idle Cam Clearance	Accel. Pump Setting	Unloader Setting	Auto. Choke Setting
	Hot	Fast	Primary Valve	Auxiliary Valve					
D7AE-AAA	700	1350	1.00″	.030″	.140″	.140″	2	.30″	Index
D7AE-ANA	700	1350	1.00″	.030″	.140″	.140″	2	.30″	Index
D7AE-ZA	700	1350	1.00″	.030″	.140″	.140″	2	.30″	Index
D7PE-AA	700	1350	1.00″	.030″	.140″	.140″	2	.30″	Index
D7VE-KA	600	1350	1.00″	.030″	.140″	.140″	2	.30″	2-NL
D7VE-SA	650	1350	1.00″	.030″	.140″	.140″	2	.30″	Index

1978 CARBURETOR ADJUSTMENT SPECIFICATIONS

Carb. No.	Idle Speed (Engine RPM)		Float Level		Choke Valve Pull-Down	Fast Idle Cam Clearance	Accel. Pump Setting	Unloader Setting	Auto. Choke Setting
	Hot	Fast	Primary Valve	Auxiliary Valve					
D7AE-ANA	700	1350	1.00″	.030″	.140″	.140″	Hole 2	.30″	Index
D8VE-FA	①	①	1.00″	.030″	.160″	.170″	Hole 2	.30″	Index
D8VE-GA	①	①	1.00″	.030″	.160″	.170″	Hole 2	.30″	Index

① — See Emission Control Tune-Up Decal.