ROCHESTER E2ME, M2MC & M2ME 2-BARREL

CARBURETOR APPLICATION

GENERAL MOTORS
(BUICK, CHEVROLET, GMC CABALLERO, OLDSMOBILE & PONTIAC)

Application	Rochester Carb. No. Man. Trans.	Auto. Trans.
229" V6 (Model M2ME)		
Federal		
Without A/C	17080131	17080130
With A/C	17080133	17080132
231" V6 (Model M2ME)		
Federal		
Without A/C	17080191	17080190, 195
With A/C	17080191	17080192, 197
231" V6 (Model E2ME)		
California		
Without A/C		17080498
With A/C	17080491	17080490, 492, 496
260" V8 (Model M2MC)		
Federal		
Without A/C		17080153, 150①
With A/C		17080150
265" V8 (Model M2ME)		
Federal		17080160
267" V8 (Model M2ME)		
Federal		
Without A/C		17080108, 138
With A/C		17080110, 140
301" V8 (Model M2ME)		
Federal		
Without A/C		17080138
With A/C		17080140

① – 17080150 is used on vehicles equipped with heavy duty cooling and/or air conditioning only.

CARBURETOR IDENTIFICATION

Carburetor model identification is stamped vertically on left rear corner of float bowl. Be sure to follow manufacturer's instructions on transferring identification number if new float bowl is to be installed on original carburetor.

DESCRIPTION

The Rochester models E2ME, M2MC and M2ME are single stage, downdraft, 2-barrel carburetors. They use the design features of the primary side of the Rochester M4MC and M4ME 4-barrel carburetors. The M2MC and the M2ME models are equipped with an adjustable part throttle (APT) screw in the float bowl. This adjustment screw helps refine fuel mixture to improve emission control. This screw has been preset at factory and adjustment should not be changed.

The E2ME is basically the same type carburetor, except it is used in conjunction with the Computer Controlled Catalytic Converter System (C-4). The carburetor is equipped with an electrically actuated mixture control solenoid mounted in the float bowl. Fuel metering is controlled by stepped metering rods that operated in removeable jets.

The metering rods are positioned by a plunger in the mixture control solenoid. The solenoid is actuated by an electric signal from the Electronic Control Module (ECM). The ECM receives a signal from an oxygen sensor mounted in the exhaust manifold. The ECM will signal the solenoid to either lower the metering rods to lean the mixture or raise the rods to richen the mixture. Air metering to the idle system is controlled at the same time by an idle air bleed valve located in the air horn. This valve follows movement of the mixture control solenoid.

Both the E2ME and the M2ME carburetor are equipped with integral electrically actuated chokes. The M2MC is equipped with an integral heated air type choke. Some models may be equipped with both a primary and a secondary choke vacuum break diaphragm.

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.

IDLE AIR BLEED VALVE (E2ME ONLY)

See appropriate article in TUNE-UP SERVICE PROCEDURES.

► ANGLE GAUGE ADJUSTMENT TOOL

Manufacturer recommends that some carburetor adjustments be performed using a choke valve angle gauge (Kent-Moore tool No. J-26701). While preparations and actual adjustments may vary with each individual adjustment, the procedure for using the angle gauge to check the choke valve angle remains the same. Use the following procedure to perform adjustments requiring the use of the choke valve angle gauge.

1) Rotate degree scale on angle gauge so that 0° mark is opposite pointer.

2) With choke valve closed, place angle gauge magnet squarely on choke valve.

3) Rotate leveling bubble on angle gauge until it is centered.

4) Rotate degree scale until specified degree mark is opposite pointer.

5) Now perform individual adjustment preparations as outlined in the following carburetor adjustments requiring angle gauge. If bubble is centered, adjustment is correct. If not, adjust carburetor as outlined.

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

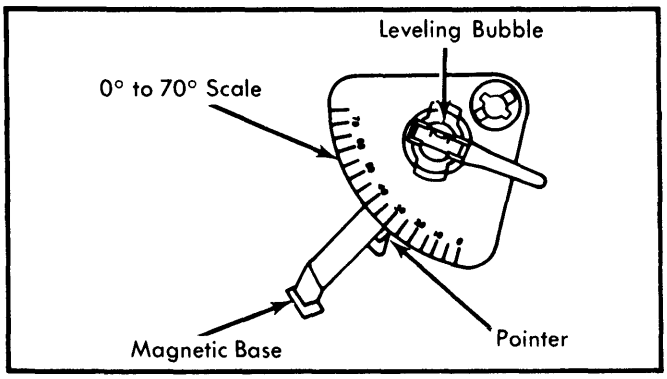

Fig. 1 Choke Valve Angle Gauge

FLOAT LEVEL

1) Remove air horn and gasket from float bowl. Hold float retainer firmly down. *See Fig. 2.*

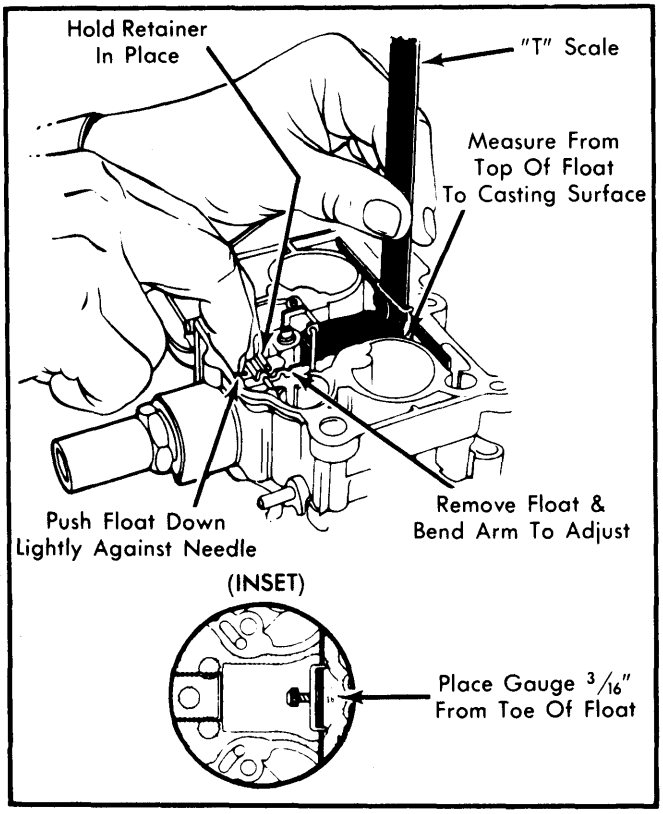

Fig. 2 Adjusting Float Level

2) Position a "T" measuring scale over toe of float at point 3/16" from end of float at toe. Measure distance from float bowl casting to float.

3) To adjust M2MC and M2ME models, remove float and bend arm. Check to make sure float is correctly aligned after adjustment.

4) On E2ME models, use the following procedure to adjust float level if setting varies more than 1/16" from specified setting.

Float Level Too High

a) Hold float retainer clip firmly in place.

b) Push down on center of float pontoon until correct float level setting is obtained.

Float Level Too Low

a) Lift out metering rods. Remove solenoid connector screws.

b) Turn solenoid mixture screw clockwise counting number of turns required to bottom screw in float bowl.

c) Turn screw counterclockwise and remove. Lift solenoid and connector from float bowl.

d) Remove float and bend arm up to adjust. Make sure float is correctly aligned after adjustment.

e) Reinstall components in reverse order that they were removed. Back out solenoid mixture screw number of turns noted in step **b)**.

ACCELERATOR PUMP

1) Close throttle valves completely. Make sure fast idle speed screw is off fast idle cam. *See Fig. 3.*

2) Make sure accelerator pump rod is in specified hole (inner or outer) of accelerator pump lever.

3) Using a "T" scale, measure accelerator pump specified distance from top of choke valve wall (next to vent stack) to top of accelerator pump stem.

4) To adjust, support accelerator pump lever with a screwdriver and bend pump arm at point shown.

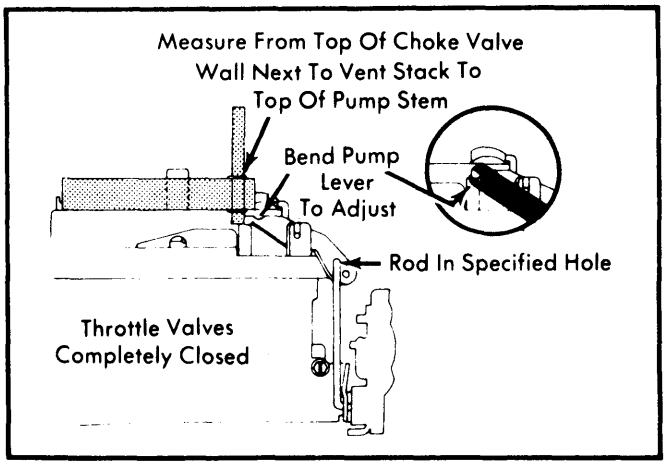

Fig. 3 Adjusting Accelerator Pump

CHOKE COIL LEVER

NOTE – *Choke coil cover uses rivets in place of retaining screws. If necessary to remove choke coil cover, refer to Disassembly and Reassembly procedures in this Section.*

1) Remove 3 retaining screws, then remove choke cover and coil from choke housing. *See Fig. 4.*

2) Position fast idle speed cam follower on high step of fast idle cam.

3) Push up (counterclockwise) on choke coil tang until choke valve is closed.

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

4) Insert a specified drill or pin gauge in hole provided in choke housing. Choke lever inside housing should just touch drill or pin gauge.

5) To adjust, bend choke rod at point shown.

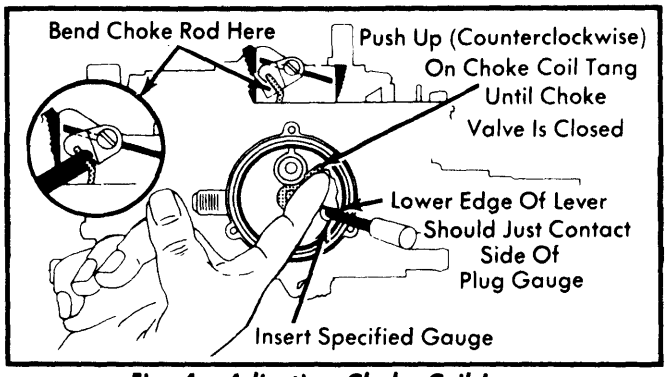

Fig. 4 Adjusting Choke Coil Lever

FAST IDLE ADJUSTMENT (BENCH SETTING)

NOTE – *This is a preliminary adjustment only. It is required to ensure that other adjustments are made with fast idle speed approximately correct. Final Cold (Fast) Idle Speed adjustment must be made with carburetor installed and engine running. See appropriate article in TUNE-UP Section.*

1) Position fast idle speed cam follower on highest step of fast idle cam. Back off fast idle speed screw until throttle valves are completely closed.

2) Turn fast idle speed screw in until it just contacts lever, then turn an additional 2 turns in.

CHOKE ROD (FAST IDLE CAM)

NOTE – *Fast idle adjustment (bench setting) and choke coil lever must be adjusted first. This adjustment is performed using choke angle gauge, see procedure at beginning of Adjustments.*

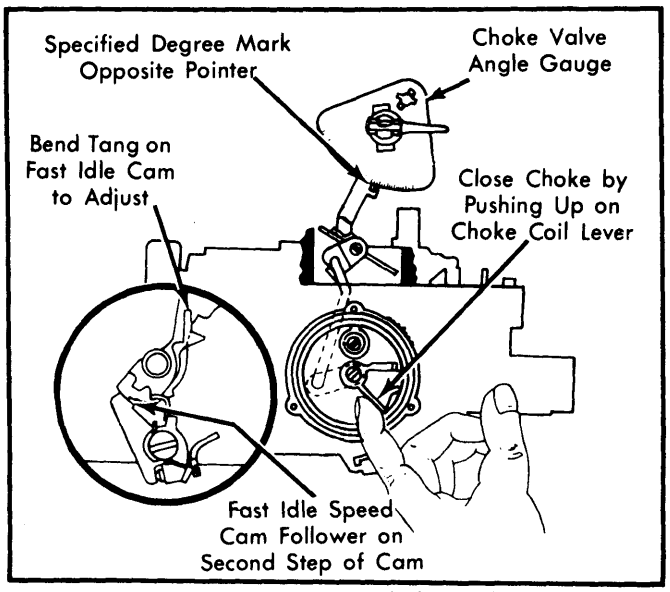

Fig. 5 Adjusting Choke Rod (Fast Idle Cam)

1) Place fast idle speed cam follower on second step of fast idle cam against shoulder of highest step. *See Fig. 5.*

2) Close choke by pushing up on choke coil lever or vacuum break lever tang. Hold choke closed with a rubber band.

3) Bubble on choke angle gauge should be centered with specified angle mark opposite pointer.

4) To adjust, bend tang on fast idle cam until bubble of choke valve angle gauge is centered.

PRIMARY (FRONT) VACUUM BREAK

NOTE – *This adjustment is performed using the choke angle gauge, see procedure at beginning of Adjustments.*

1) Using an outside vacuum source of at least 15 in. Hg, seat primary (front) vacuum break diaphragm. *See Fig. 6.*

NOTE – *On models equipped with air bleed, remove rubber cover from filter and plug vacuum tube with a piece of tape. If bleed hole is in end of diaphragm, plug hole in end of diaphragm with a piece of tape. Remove tape after completing adjustment.*

2) Close choke by pushing upon choke coil lever or vacuum break lever tang. Hold choke closed with a rubber band.

3) Bubble on choke angle gauge should be centered with specified degree mark opposite pointer.

4) To adjust, turn vacuum break adjustment screw until bubble of choke valve angle gauge is centered.

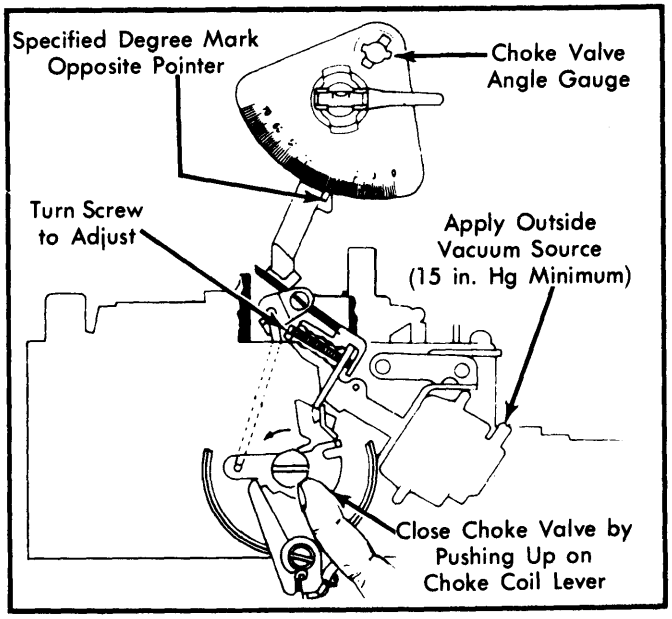

Fig. 6 Adjusting Front Vacuum Break

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

SECONDARY (REAR) VACUUM BREAK

NOTE – *This adjustment is performed using the choke valve angle gauge. See procedure at beginning of adjustments.*

1) Using an outside vacuum source of at least 15 in. Hg, seat secondary (rear) vacuum break diaphragm. See *Fig. 7*.

NOTE – *On models equipped with air bleed, remove rubber cover from filter and plug vacuum tube with a piece of tape. If bleed hole is in end of diaphragm, plug hole in end of diaphragm with a piece of tape. Remove tape after completing adjustment.*

2) Close choke by pushing up on choke coil lever or vacuum break lever tang. Hold choke closed with a rubber band.

3) Bubble on choke angle gauge should be centered with specified degree mark opposite pointer.

4) To adjust, turn rear vacuum break adjustment screw until bubble of choke valve angle gauge is centered.

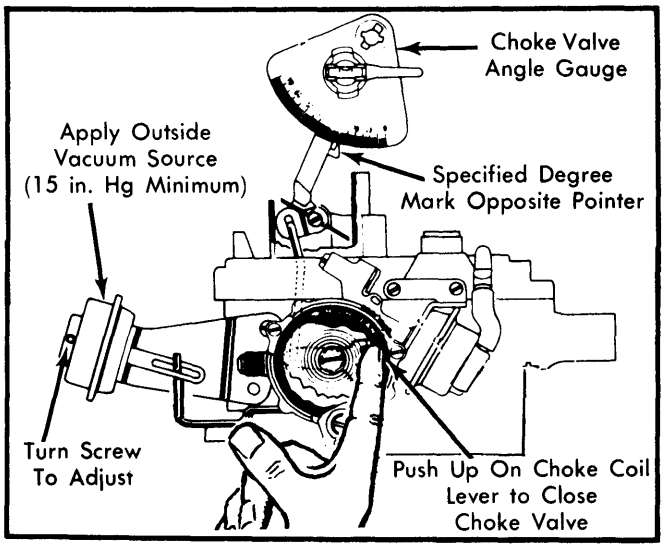

Fig. 7 Adjusting Rear Vacuum Break

AUTOMATIC CHOKE

NOTE – *Choke coil cover uses rivets in place of retaining screws. If necessary to remove choke coil cover, refer to Disassembly and Reassembly procedures in this Section.*

1) Loosen 3 choke cover retaining screws. Position fast idle cam follower on high step of fast idle cam.

2) Rotate cover in specified direction to align reference mark on cover with specified graduation in housing. Tighten cover screws.

CHOKE UNLOADER

NOTE – *This adjustment is performed using the choke valve angle gauge, see procedure at beginning of adjustments.*

1) Adjust automatic choke as previously outlined. Hold throttle valves wide open. See *Fig. 8*.

2) If engine is warm, close choke valve by pushing up on vacuum break lever tang. Hold in position with a rubber band.

3) Bubble on choke valve angle gauge should be centered with specified degree mark opposite pointer.

4) To adjust, bend choke unloader tang on throttle lever until bubble of choke valve angle gauge is centered.

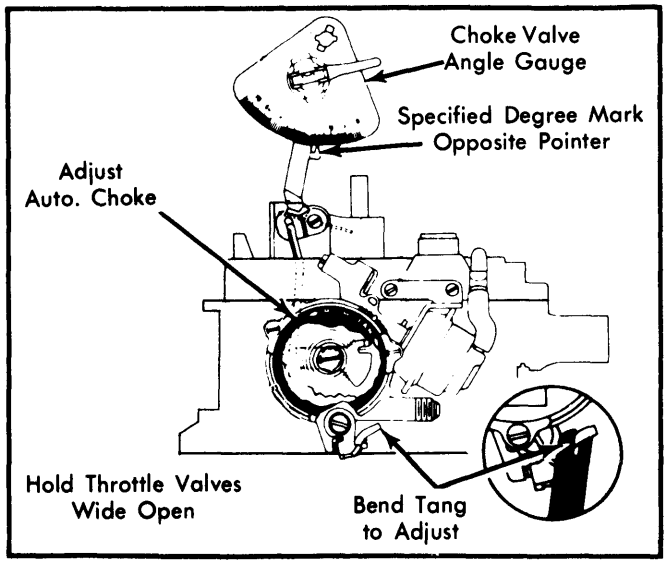

Fig. 8 Adjusting Choke Unloader

MIXTURE CONTROL SOLENOID

1) Solenoid operation can be checked on vehicle using external float level gauge tool (J-9789-130). Some material must be removed from side of tool to allow for clearance in air horn.

2) Remove air cleaner and gasket. Insert gauge in "D" shaped hole in casting next to Idle Air Bleed Valve plug. Make sure gauge moves freely in hole.

3) Press down on gauge and release. With gauge released (solenoid up position), read inch mark on gauge that lines up with top of air horn casting and record reading.

4) Lightly press down on gauge until it bottoms (solenoid up position). Read inch mark on gauge that lines up with top of air horn casting.

5) Subtract solenoid up reading from solenoid down reading. Difference is total solenoid travel. Travel should not exceed or be less than 1/16" to 1/8".

6) To adjust, remove air horn. Turn mixture control solenoid screw clockwise. Record number of turns required to lightly bottom screw in float bowl.

7) If number of turns is greater than 2½ or less than 1½ solenoid travel is incorrect and solenoid mixture control screw must be adjusted. Proceed to step **8**). If number of turns was 1½ to 2½ solenoid stop screw must be adjusted. Proceed to step **9**).

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

8) With screw bottomed, turn screw counterclockwise until screw is backed out of bowl exactly 2 turns.

9) Turn air horn upside down. Using a wrench, remove solenoid stop screw. Drive out small plug located between 2 "D" shaped vent holes. This will allow access to stop screw (when installed).

10) Reinstall solenoid stop screw and spring. Lightly bottom screw in air horn. Install air horn, with a new gasket, on main body.

11) Install external gauge tool in "D" shaped vent hole. Adjust stop screw until total solenoid travel is 1/16" to 1/8".

OVERHAUL

DISASSEMBLY

NOTE – *Place carburetor on a suitable working stand to avoid damaging throttle valves during overhaul.*

Air Horn – 1) Remove solenoid and bracket assembly.

2) Remove screw and remove upper choke lever from end of choke shaft.

3) Rotate upper choke lever to remove choke rod from slot in lever.

4) Remove choke rod from lower lever inside bowl casting.

NOTE – *Hold lever outward and twist rod counterclockwise to remove.*

5) Using suitable driver, drive pump lever pivot pin inward until pump lever can be removed from air horn.

6) Remove pump lever from pump rod, noting location of pump rod for reassembly.

CAUTION – *Be careful when removing roll pin to avoid damage to pump lever bosses.*

7) Remove 7 air horn screws. There are 2 screws that are countersunk and are located next to venturi. Lift air horn straight up to remove.

CAUTION – *On E2ME models, take care not to damage mixture control solenoid connector. On M2MC and M2ME models, do not try to remove small tubes sticking out bottom of air horn. These tubes are pressed in at factory.*

8) Remove primary (front) choke vacuum break diaphragm. No further disassembly of air horn is required unless choke valve or shaft are being replaced. If so, remove staking from 2 choke valve screws. Remove screws, choke valve and shaft.

CAUTION – *E2ME models with computer control mixture solenoid are sensitive to air/fuel mixture adjustments. The solenoid stop screw and air bleed valve are pre-set at factory. Plugs are installed to prevent adjustment. Do not remove these plugs in air horn for normal carburetor overhaul unless the carburetor and/or mixture control solenoid has been determined to be the source of trouble for engine performance.*

9) If necessary to replace Idle Air Bleed Valve on E2ME models, remove staking from around plug covering Idle Air Bleed Valve. Discard plug.

NOTE – *Use care in removing staking to prevent damage to air horn. If plug is missing, Idle Air Bleed Valve has been changed from factory setting and will require adjustment on vehicle.*

10) Using a screwdriver that fully fits slot in valve, turn valve counterclockwise to remove from air horn. Remove "O" rings from valve. New "O" rings are required for reassembly.

Float Bowl (E2ME Models) – 1) Hold down on accelerator pump plunger stem. Raise corner of air horn gasket. Remove pump plunger from pump well.

2) Remove solenoid metering rod plunger by lifting straight up. Remove rubber seal from mixture control solenoid plunger.

3) Remove air horn gasket. Remove accelerator pump spring from pump well. Remove plastic filler block from float valve.

4) Carefully remove each metering rod from metering jet. Make sure return spring is removed with each rod. Remove the spring by sliding off metering rod.

5) Remove screws connecting solenoid connector to float bowl. Turn mixture control solenoid screw counterclockwise and remove from float bowl. Carefully lift connector and solenoid from float bowl.

NOTE – *Do not remove plunger return spring or connector and wires from solenoid body. Solenoid and connector are serviced as an assembly.*

6) Remove plastic insert from cavity in float bowl beneath solenoid connector. Remove solenoid screw tension spring (next to float hanger clip).

7) Remove float assembly and needle valve by lifting straight up on retaining clip. Remove needle valve seat and gasket.

8) Remove large mixture control solenoid tension spring from boss on bottom of float bowl located bewteen metering jets. Remove metering jets (if necessary).

9) Remove accelerator pump discharge check ball retainer and check ball. Remove accelerator pump well baffle (if necessary).

10) Remove choke secondary (rear) vacuum break diaphragm and bracket. Rotate unit to remove vacuum break rod from slot in diaphragm plunger.

11) Align a .159" (No. 21) drill on choke cover retaining rivet and drill only enough to remove rivet head. Repeat for remaining 2 rivets. Remove choke coil cover and coil assembly. Remove screw and washer from inside choke housing. Slide housing out to remove.

12) Remove secondary (rear) vacuum break rod from intermediate choke lever. Remove lever screw from end of intermediate choke shaft in choke housing.

13) Remove lever from shaft. Remove intermediate choke shaft from housing by sliding outward. Remove fast idle cam from intermediate choke shaft. Turn float bowl over and remove lower choke lever.

NOTE – *If housing is to be cleaned, remove cup seal from inside choke housing shaft hole. Remove cup seal from insert to clean float bowl. Do not remove insert.*

14) Remove fuel inlet fitting, gasket, check valve/filter assembly and spring. Remove throttle body screws. Separate throttle body from float bowl and remove insulator gasket.

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

Float Bowl (M2MC & M2ME) – 1) Hold down on accelerator pump plunger stem. Raise corner of air horn gasket. Remove pump plunger from pump well. Remove accelerator pump return spring from pump well.

2) Remove power piston and metering rods by depressing piston stem and allowing it to snap free. Repeat procedure until retainer is removed from casting. Remove power piston spring from well.

CAUTION – *Do not use pliers to remove power piston.*

NOTE – *The A.P.T. metering rod adjustment screw is preset at factory. Do not change this adjustment. If float bowl is replaced the new float bowl will have a preset A.P.T. screw installed.*

3) Disconnect tension spring from top of each metering rod. Rotate rods to remove from hanger. Note position of rods for reassembly. Remove plastic filler block from float valve.

4) Remove float assembly and needle valve by lifting straight up on retaining clip. Remove needle valve seat and gasket.

5) Remove aneroid cavity from float bowl. Remove main metering jets from float bowl

NOTE – *To complete disassembly for float bowl for M2MC and M2ME models, follow steps* **9)** through **14)** for float bowl disassembly for E2MC models.

Throttle Body – 1) Remove accelerator pump rod from throttle lever.

NOTE – *It is not necessary to disassemble throttle body any further. Do not remove idle mixture screw plugs unless it is necessary to replace mixture screws or cleaning and air pressure fails to clean idle mixture passages. If necessary to remove, proceed as follows:*

2) Invert throttle body and position on a holding fixture with manifold side up. Position a punch in between 2 locator points on manifold side of throttle body. There are 2 locator points above each mixture screw.

3) Using a hammer, drive punch against throttle body to break out portion of throttle body to gain access to idle mixture screw plugs. Drive out hardened steel plugs.

NOTE – *Hardened steel plug will shatter. It is not necessary to remove plug completely. Remove just enough pieces to allow idle mixture adjusting tool (J-29030) to be used to remove mixture screws and springs. Idle mixture screw head has a "double-D" configuration and can also be removed using a piece of* 7/32" copper tubing that has been partially flattened.

CLEANING & INSPECTION

- Use a regular carburetor cleaning solution. Soak components long enough to thoroughly clean all surfaces and passages of foreign matter.
- Do not soak any components containing rubber, leather or plastic.
- Remove any residue after cleaning by rinsing components in a suitable solvent.
- Blow out all passages with dry compressed air.

NOTE – *If Idle Bleed Air Valve is not removed on E2ME model carburetors, air horn should be cleaned with a low volatile cleaning solvent. DO NOT place air horn in carburetor cleaner. Damage to valve "O" rings may occur.*

REASSEMBLY

NOTE – *Use new gaskets and seals. Make sure that new gaskets fit correctly and that all holes and slots are punched through and correctly located.*

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

1) The intermediate choke shaft lever and fast idle cam are assembled correctly when tang and lever are below fast idle cam.

2) When installing float and retaining pin, make sure open end of float retaining pin faces accelerator pump well.

3) When installing fuel inlet needle valve pull clip over edge of flat on float arm, do not hook clip in holes in float arm.

4) Make sure bleed tubes, pull-over enrichment tubes (if equipped) and plunger stem are placed in correct position when installing air horn.

5) When installing mixture control solenoid on E2ME model carburetors, make sure pin on end of solenoid aligns with hole in raised boss at bottom of float bowl.

6) On E2ME models, turn solenoid mixture screw clockwise until it is lightly bottomed in float bowl. With screw bottomed, back screw out of float bowl exactly 2 turns.

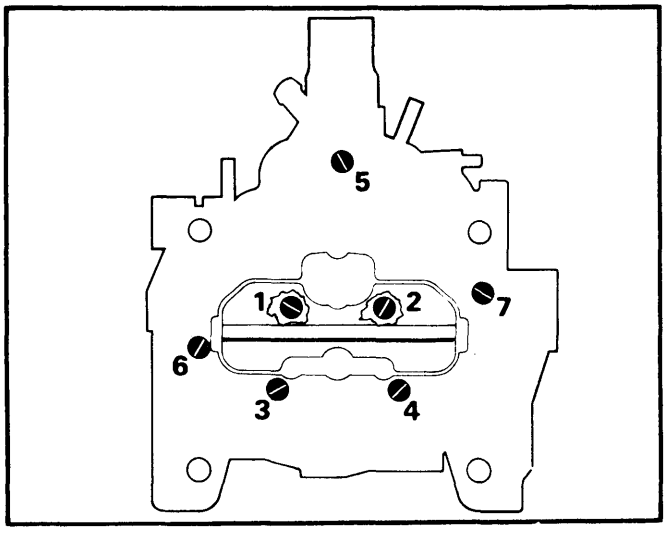

Fig. 9 Air Horn Screw Tightening Sequence

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

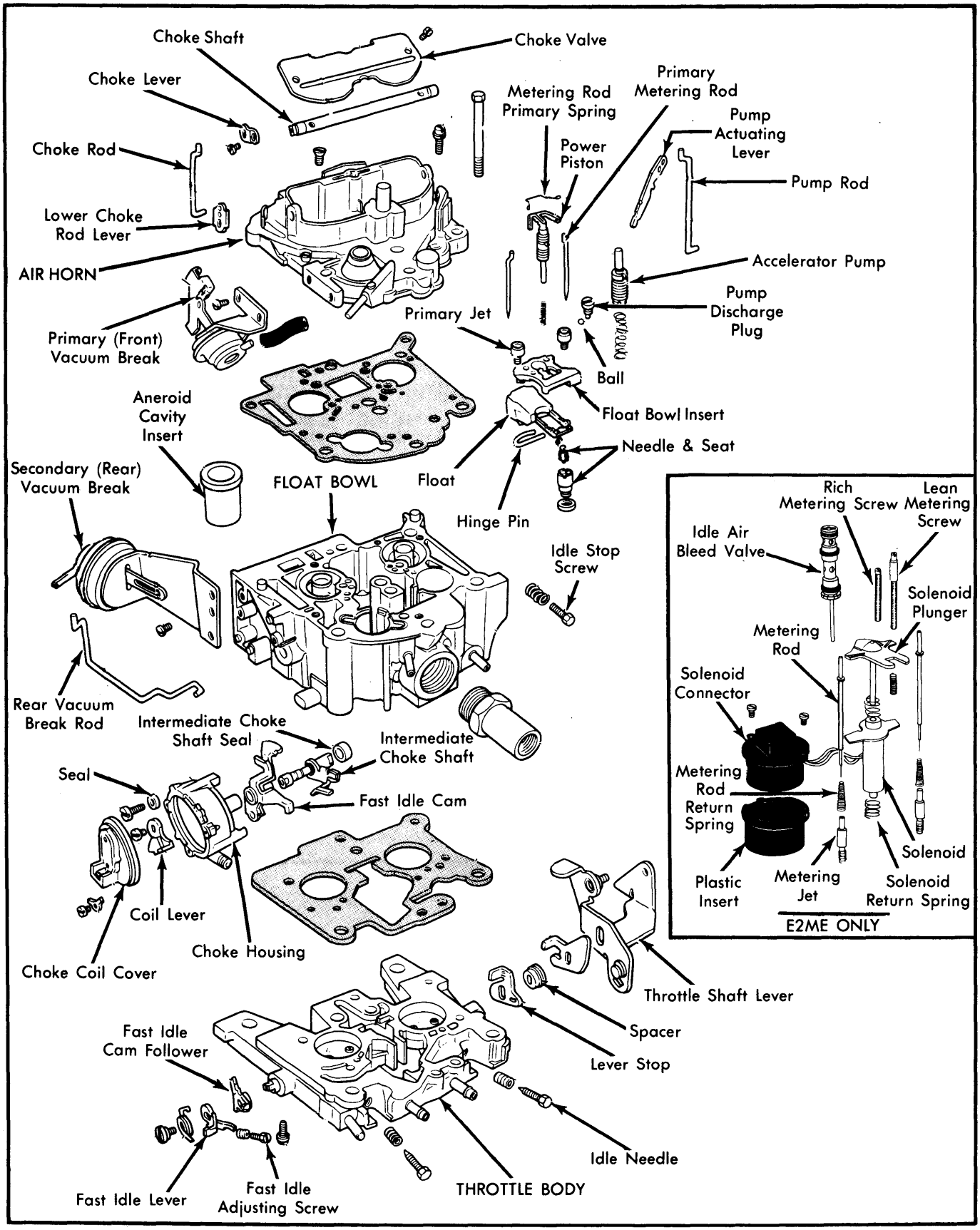

Fig. 10 Exploded View of Rochester Model E2ME, M2ME and M2MC 2-Barrel Carburetor

ROCHESTER E2ME, M2MC & M2ME 2-BARREL (Cont.)

CAUTION — *Do not force solenoid mixture screw to bottom. Damage to screw may result.*

7) When installing idle air bleed valve (if removed) on E2ME models, turn valve clockwise until it is lightly seated. Then back valve out 2 turns. Final adjustment must be made on vehicle.

NOTE — *If choke coil cover was removed, it will be necessary to install self tapping screws (supplied in service kit) to replace retainer rivets. Before installing cover, start self tapping screws into choke housing, making sure they start easily and are properly aligned. Remove screws and proceed as follows:*

8) Place fast idle screw on high step of fast idle cam. Install choke coil cover, aligning notch in cover with raised boss on housing cover flange. Install self tapping screws and tighten.

9) Install air horn screws and tighten all screws evenly, securely and in order shown in *Fig. 9*.

CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Float Level Setting	Accelerator Pump		Choke Coil Lever Setting	Choke Rod Setting	Vacuum Break		Auto. Choke Setting	Choke Unloader Setting
		Lever Setting	Hole Setting			Primary Setting	Secondary Setting		
Model E2ME									
17080490	5/16"	.....	.....	.120"	24.5°	30°	28°	Index	38°
17080491	5/16"	.....	.....	.120"	21°	30°	28°	Index	38°
17080492	5/16"	.....	.....	.120"	24.5°	30°	28°	Index	38°
17080496	5/16"	.....	.....	.120"	24.5°	21°	30°	Index	38°
17080498	5/16"	.....	.....	.120"	24.5°	21°	30°	Index	38°
Model M2MC									
17080150	3/8"	11/32"	Outer	.120"	14°	38°	27°	Index	35°
17080153	3/8"	11/32"	Outer	.120"	14°	38°	27°	Index	35°
Model M2ME									
17080108	3/8"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080110	3/8"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080130	5/16"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080131	5/16"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080132	5/16"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080133	5/16"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080138	3/8"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080140	3/8"	5/16"	Inner	.120"	20°	25°	.....	Index	38°
17080160	5/16"	1/4"	Inner	.120"	14.5°	23°	32°	Index	33°
17080190	9/32"	1/4"	Inner	.120"	24.5°	22°	20°	Index	38°
17080191	11/32"	1/4"	Inner	.120"	24.5°	18°	18°	Index	38°
17080192	9/32"	1/4"	Inner	.120"	24.5°	22°	20°	Index	38°
17080195	9/32"	1/4"	Inner	.120"	24.5°	19°	17°	Index	38°
17080197	9/32"	1/4"	Inner	.120"	24.5°	19°	17°	Index	38°