

ROCHESTER M4MC 4-BARREL

CARBURETOR APPLICATION

CHEVROLET & GMC

Application	Rochester Carb. No.	
	Man. Trans.	Auto. Trans.
350" V8		
Federal		
Without A/C	17080201, 213	17080205, 213 17080291 ... 17080215, 290, 295
With A/C	17080201, 213	17080206, 213 17080215, 224, 292
California		
Without A/C	17080503, 513	17080506, 513 17080526 17080515, 525
With A/C	17080513, 524	17080508, 513 17080515, 523
400" V8		
Federal		
Without A/C		17080227, 229
With A/C		17080226, 229
California		
Without A/C		17080527, 529
With A/C		17080528, 529
454" V8		
Federal	17080212	17080212
California	17080512	17080512

CARBURETOR IDENTIFICATION

The Rochester M4MC carburetor number is stamped on a vertical section of the float bowl, near the secondary throttle. If float bowl is replaced, follow manufacturer's instructions contained in service package to insure part number is transferred to new float bowl.

DESCRIPTION

The M4MC carburetor is a two stage type of downdraft design. The primary side has a triple venturi system. The secondary side is composed of two large bores using the air valve principle, in which fuel is metered in direct proportion to amount of air passing through the secondary bores. A baffle is attached to the secondary side of the air horn above the main well bleed tubes to deflect incoming air to improve secondary nozzle operation on heavy acceleration. This model uses the bowl-mounted choke housing with thermostatic control assembly.

ADJUSTMENTS

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.

▶ 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 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.

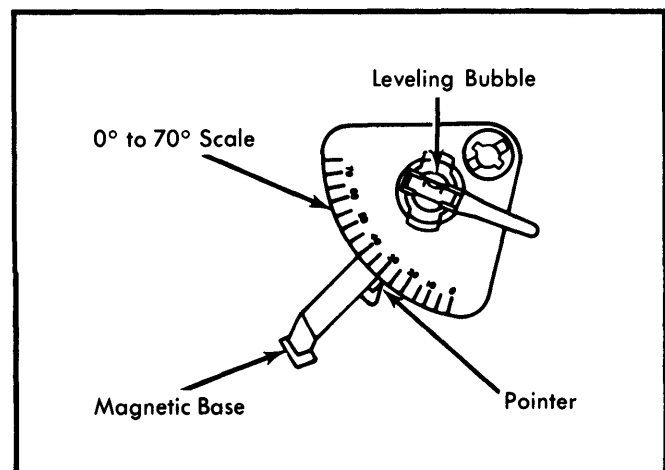


Fig. 1 Choke Valve Angle Gauge

FLOAT LEVEL

- 1) Remove air horn. Remove gasket from main body casting. Hold float retainer firmly in place. See Fig. 2.

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2) Apply light finger pressure to push float gently against needle. Measure distance with "T" scale from top of casting to top of float. Gauging point should be $\frac{3}{16}$ " back from end of float at toe.

4) Be sure to check float alignment after adjusting operation. Install new gasket and reinstall air horn.

3) If adjustment is needed, REMOVE float from main body of carburetor. Bend float arm up or down. Install float and recheck float level.

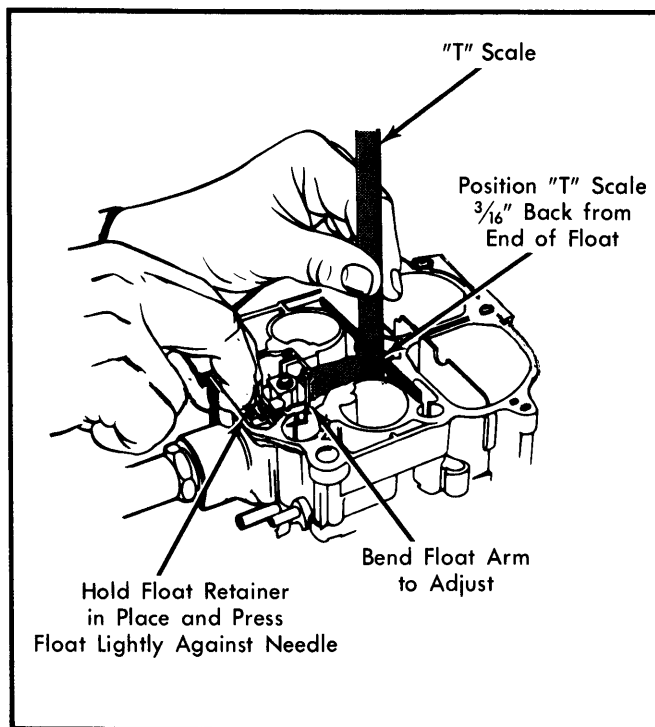


Fig. 2 Adjusting Float Level

ACCELERATOR PUMP ROD

1) Close throttle valves completely. Make sure fast idle cam follower is off fast idle cam steps. Bend secondary throttle closing tang to make sure primary throttle valves are fully closed. Readjust after accelerator pump adjustment. See Fig. 3.

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

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

4) To adjust, bend accelerator pump lever at point shown.

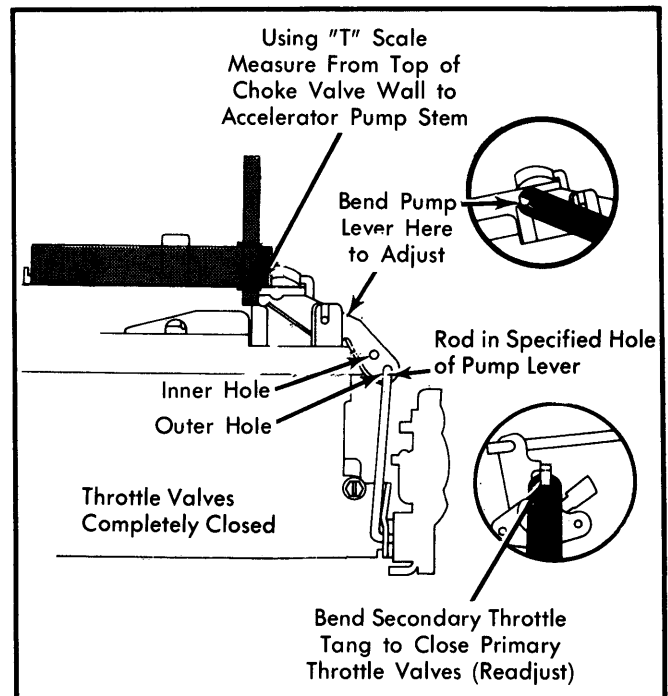


Fig. 3 Adjusting Accelerator Pump

CHOKE COIL LEVER

1) Loosen (3) screws retaining thermostatic cover and coil assembly and remove cover from housing. Press upward on thermostatic coil tang (counterclockwise) until choke valve is closed. See Fig. 4.

2) Make sure choke rod is in bottom of slot in choke lever. Insert a drill or pin gauge of specified size into hole in choke housing casting.

3) Lower edge of lever in choke housing should just touch drill or pin gauge. Bend choke rod at point shown to adjust. Install choke coil and cover. Adjust automatic choke.

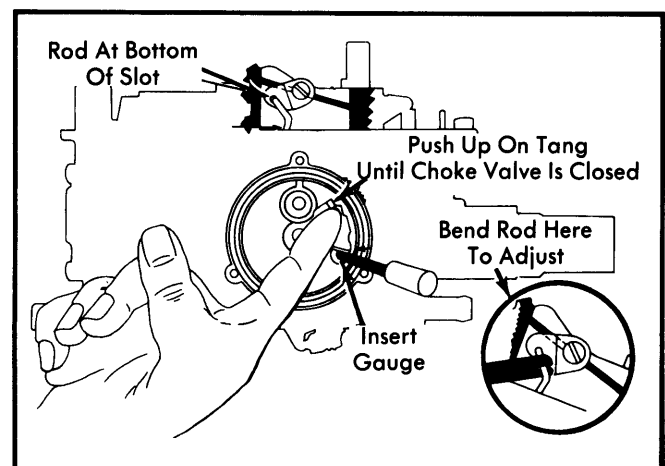


Fig. 4 Adjusting Choke Coil Lever

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**FAST IDLE ADJUSTMENT
(BENCH SETTING)**

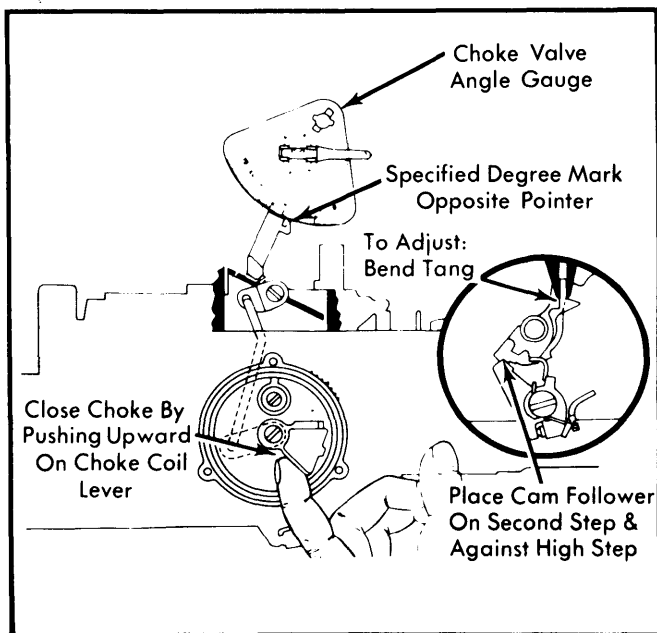
NOTE — This is a preliminary adjustment only. It is required to ensure that other adjustments are made with fast idle speed approximately correct. Final Cold (Fast) Idle Speed adjustment must be made with carburetor installed and engine running. See appropriate article in TUNE-UP SERVICE PROCEDURES.

- 1) Place fast idle speed cam follower on high step of fast idle cam. Back off fast idle speed screw until throttle valves are completely closed.
- 2) Now turn fast idle speed screw in until it just touches 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 adjustment.

- 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.



**Fig. 5 Adjusting Choke Rod
(Fast Idle Cam)**

AIR VALVE ROD – FRONT

- 1) Using an outside vacuum source, seat primary (front) choke vacuum break diaphragm. Plug purge bleed hole (if equipped) with masking tape. Hole is found in end of diaphragm. See Fig. 6.
- 2) Make sure air valve is completely closed. Insert a .015" drill or pin gauge between rod and end of slot in lever.
- 3) Bend rod at point shown to adjust clearance in slot. Remove tape and reconnect vacuum hose to diaphragm.

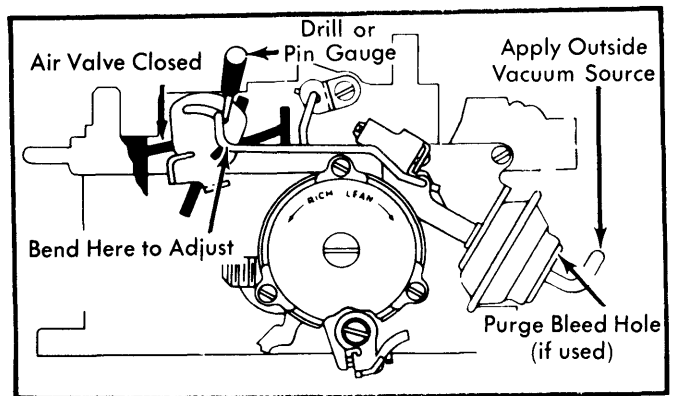


Fig. 6 Adjusting Air Valve Rod – Front

AIR VALVE ROD – REAR

- 1) Using an outside vacuum source, seat secondary (rear) choke vacuum break diaphragm. See Fig. 7.
- 3) Make sure air valve is completely closed. Insert a .015" drill or pin gauge between rod and end of slot in lever.
- 3) Bend rod at point shown to adjust clearance in slot. Reconnect vacuum hose to diaphragm.

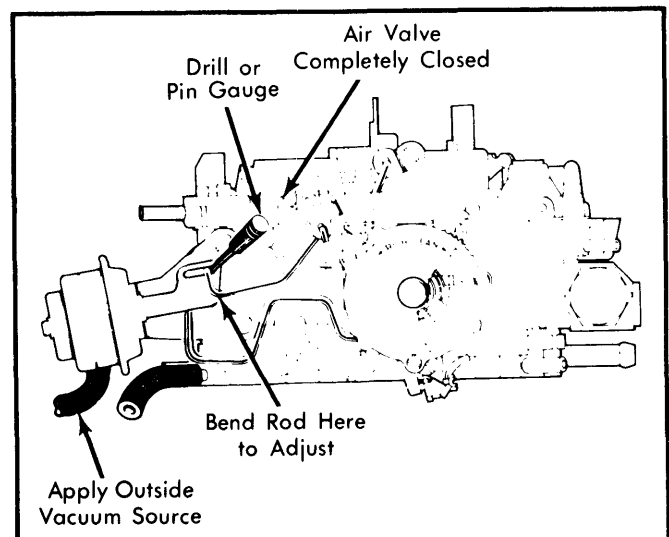


Fig. 7 Adjusting Air Valve Rod – Rear

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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 front vacuum break diaphragm. See Fig. 8.

NOTE — Plug purge bleed hole (if equipped) with masking tape. Hole is found in end of diaphragm.

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 angle gauge should be centered with specified degree mark opposite pointer.

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

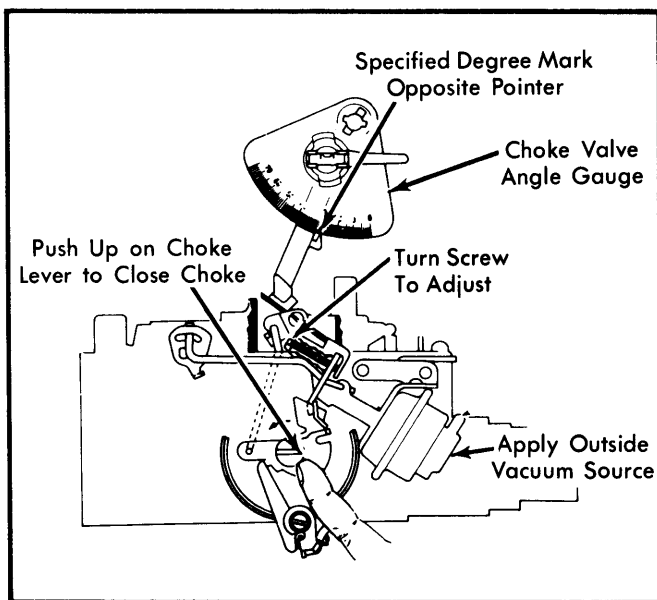


Fig. 8 Adjusting Front Vacuum Break

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 rear vacuum break diaphragm. See Fig. 9.

2) Close choke valve by pushing up on choke coil lever or vacuum break lever tang. Hold in position with a rubber band. Make sure bucking spring on diaphragm plunger (if equipped) is compressed and seated.

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

4) To adjust, bend secondary (rear) vacuum break rod at point shown in Fig. 9 until bubble of choke valve angle gauge is centered. Do not turn screw in end of diaphragm.

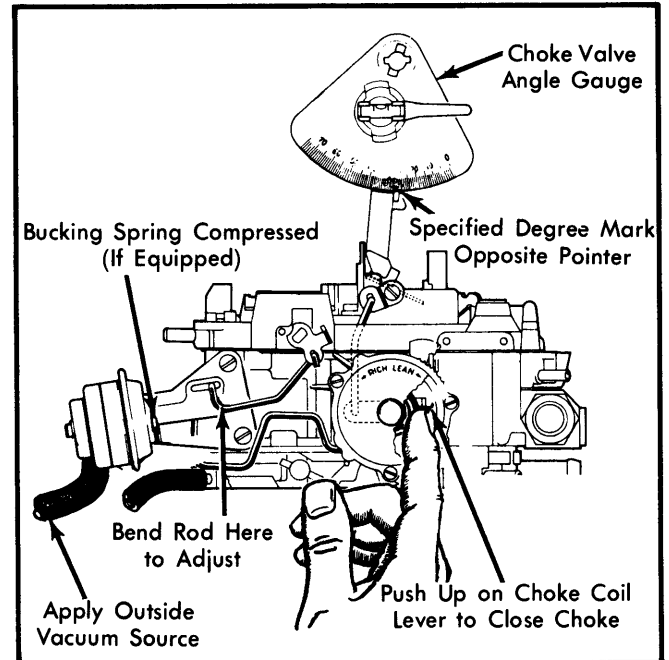


Fig. 9 Adjusting Rear Vacuum Break

AIR VALVE SPRING

1) Use hex wrench to loosen lock screw. Turn tension adjusting screw counterclockwise until air valve opens part way.

2) Hold air valve closed. Turn tension adjusting screw clockwise specified number after spring contacts pin.

3) Hold adjusting screw and tighten lock screw.

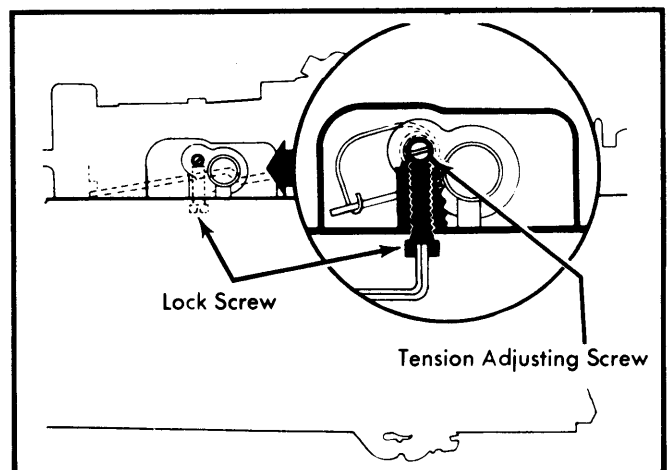


Fig. 10 Adjusting Air Valve Spring

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AUTOMATIC CHOKE

- 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. 11.
- 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.

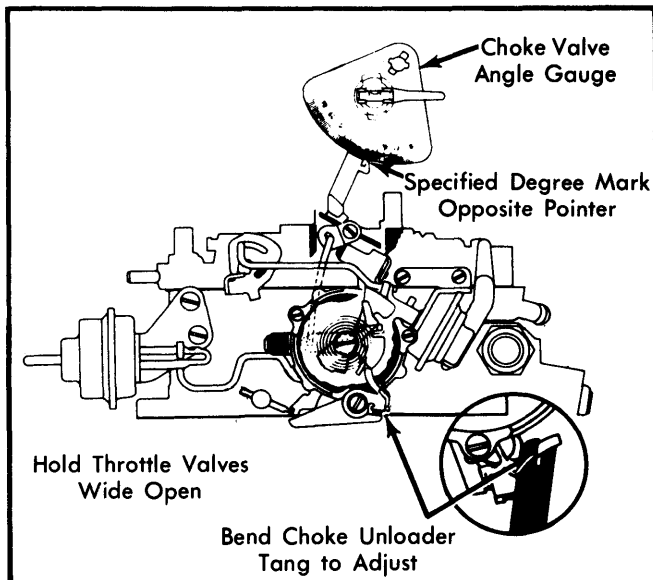


Fig. 11 Adjusting Choke Unloader

SECONDARY THROTTLE VALVE LOCKOUT

Lockout Lever Side Clearance — 1) Hold choke valve and throttle valves closed completely. See Fig. 12.

- 2) Measure secondary throttle valve lockout specified side clearance between pin and lockout lever.
- 3) Specified clearance is .015". To adjust, bend pin.

Lockout Lever Opening Clearance — 1) Push down on tail of fast idle cam and open choke valve completely. See Fig. 12.

2) Measure secondary throttle valve lockout specified opening clearance between end of pin and toe of lockout lever.

3) Specified clearance is .015". To adjust, file end of lockout pin. Make sure all burrs are removed.

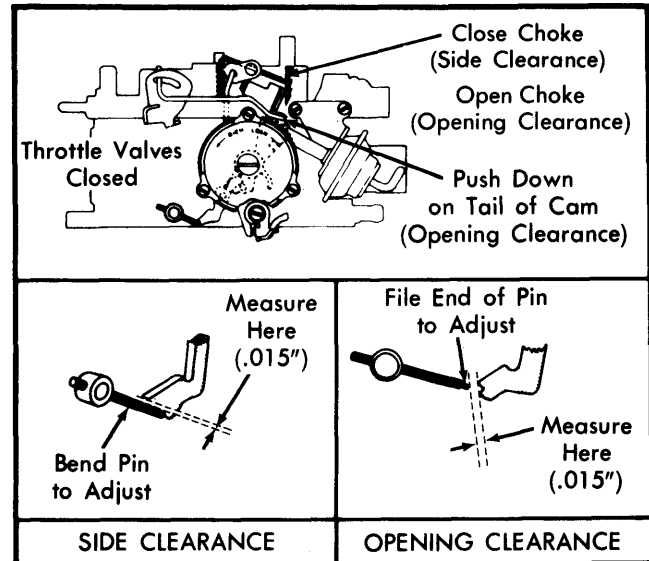


Fig. 12 Adjusting Secondary Throttle Valve Lockout

SECONDARY CLOSING LINKAGE

1) Engine idle speed must be correctly adjusted. Hold choke valve wide open and make sure fast idle cam follower is off fast idle cam steps. See Fig. 13.

2) Make sure secondary closing lever is against tang. Measure specified clearance between secondary throttle link and slot in secondary throttle lever.

3) Specified clearance is .020". To adjust bend tang.

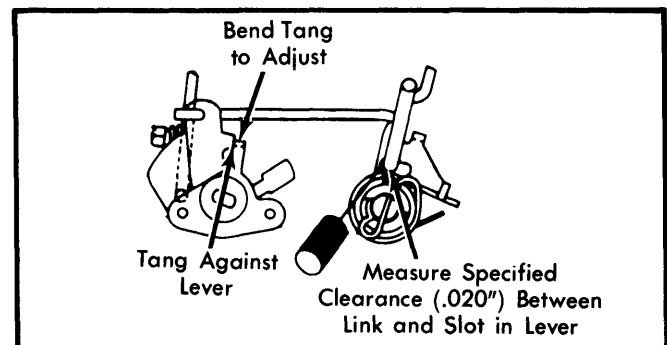


Fig. 13 Adjusting Secondary Throttle Closing Linkage

SECONDARY OPENING LINKAGE

1) Open primary throttle valves until secondary throttle link just contacts tang on secondary throttle lever. See Fig. 14.

2) Link should be centered in slot of secondary throttle lever. To adjust, bend tang on secondary throttle lever.

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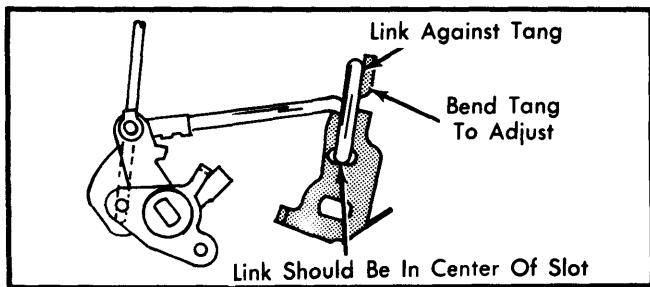


Fig. 14 Measuring Secondary Throttle Opening Linkage

OVERHAUL

DISASSEMBLY

NOTE — Before performing any service on carburetor, it is essential that carburetor be placed on a holding fixture (J-8328) to prevent damage to throttle valves.

Idle Stop Solenoid — If equipped with idle stop solenoid, remove screws securing solenoid and bracket to float bowl and remove assembly.

Air Horn Removal — 1) Remove upper choke lever from end of choke shaft by removing retaining screw. Then rotate upper choke lever to remove choke rod from slot in lever. Remove choke rod from lower lever inside float bowl casting.

NOTE — Remove rod by holding lower lever outward with small screwdriver and twisting rod counterclockwise.

2) Remove vacuum hose from front vacuum break unit. Remove secondary metering rods by removing the small screw in top of metering rod hanger. Lift upward on metering rod hanger until secondary metering rods are completely out of air horn. Metering rods may be disassembled from hanger by rotating ends out of holes in end of hanger.

3) Drive pump lever pivot pin inward until pump lever can be removed, then disconnect pump rod from pump lever. Remove air horn-to-float bowl attaching screws. Remove secondary air baffle deflector from beneath center 2 air horn screws. Remove air horn from float bowl by lifting straight up.

4) Remove front vacuum break attaching screws and front vacuum break diaphragm. Disconnect diaphragm from air valve dashpot rod and remove dashpot rod from air valve lever.

5) It is not necessary to remove choke valve and shaft unless bent or damaged. Choke valve screws are staked in place. Staking must be removed before screws are removed.

NOTE — Air horn should not be disassembled any further. Air valve screws are permanently staked in place. However, a repair kit is available for air valve closing spring and center plastic eccentric cam.

Float Bowl Disassembly — 1) Remove air horn gasket by lifting out of dowel locating pins and lifting tab of gasket from beneath power piston hanger, being careful not to distort springs holding main metering rods.

2) Remove pump plunger and return spring from pump well. Remove power piston and metering rods by depressing piston

stem and allowing it to snap free. Repeat until piston force dislodges retainer. Remove power piston spring from well.

CAUTION — Do not use pliers on metering rod hanger to remove power piston.

3) Remove metering rods from power piston by disconnecting tension spring from top of each rod and rotating out of hanger.

4) Remove plastic filler block located over float valve. Remove float assembly and fuel inlet needle by pulling up on retaining pin. Remove inlet needle seat and gasket. Remove aneroid cavity insert from float bowl.

5) Remove primary main metering jets. Remove pump discharge check ball retainer and check ball. Remove rear vacuum break attaching screws and rotate vacuum break assembly to remove vacuum break rod from slot in plunger head.

6) 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 cover and coil assembly. Remove choke housing retaining screw located inside choke housing. Slide complete choke assembly from float bowl.

7) Remove fuel inlet nut, gasket and filter. Remove throttle body-to-float bowl attaching screws and throttle body. Remove secondary throttle valve lockout lever from float bowl and lower choke lever from inside float bowl cavity (invert bowl to remove). Remove plastic tube seal from choke housing.

Choke Disassembly — Remove choke coil lever retaining screw from end of intermediate choke shaft. Remove thermostatic coil lever from flats on intermediate choke shaft and remove shaft. Fast idle cam can now be removed from intermediate choke shaft.

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 adjacent to 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 plugs will shatter. It is not necessary to remove plug completely. Remove just enough pieces to allow idle mixture adjusting tool (J-28706) or a thin walled $\frac{3}{16}$ " deep socket to be used to remove mixture screws and spring.

CLEANING & INSPECTION

- Use a regular carburetor cleaning solution. Soak components long enough to thoroughly clean all surfaces and passages of foreign matter.

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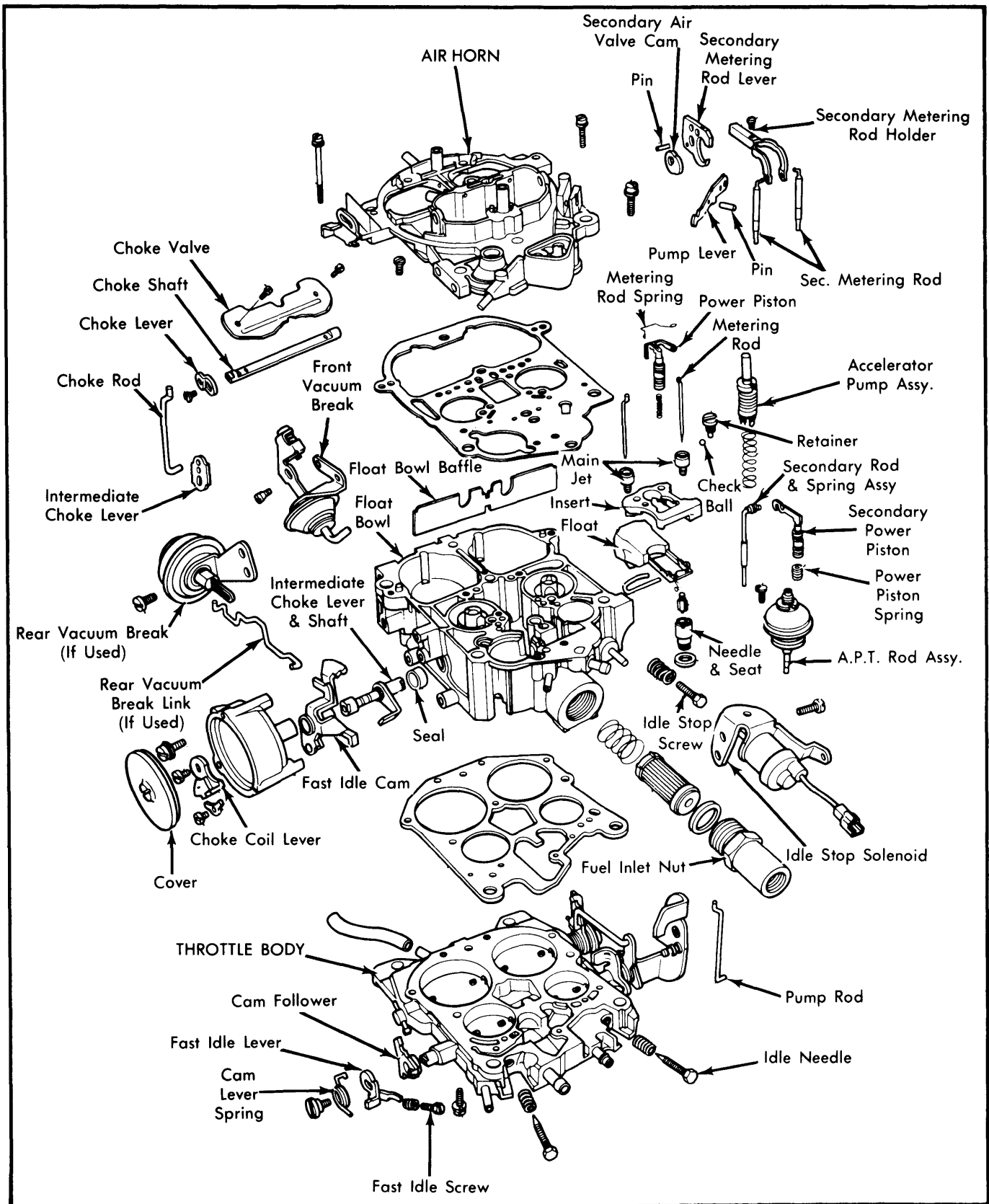


Fig. 15 Exploded View of Rochester Model M4MC 4-Barrel Carburetor

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- Remove any residue after cleaning by rinsing components in a suitable solvent.
- Do not soak any components containing rubber, leather or plastic.
- Blow out all passages with dry compressed air.

- 4) Place fast idle screw on high step of fast idle cam. Install choke coil cover, aligning notch in cover with tab on cover retainer (supplied in service kit). Install retainer with tab into screw hole in housing nearest to front of carburetor. Install remaining self tapping screws and tighten.

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.

To reassemble carburetor, reverse disassembly procedure and note the following:

- 1) Install fuel inlet needle pull clip over edge of flat on float arm facing float. Do not hook clip in holes in float arm.
- 2) Install plastic float bowl filler block after float level adjustment and before metering rod installation.
- 3) The intermediate choke shaft lever and fast idle cam are installed correctly when tang on lever is beneath fast idle cam. Make choke coil lever adjustments before installing choke coil cover.

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:

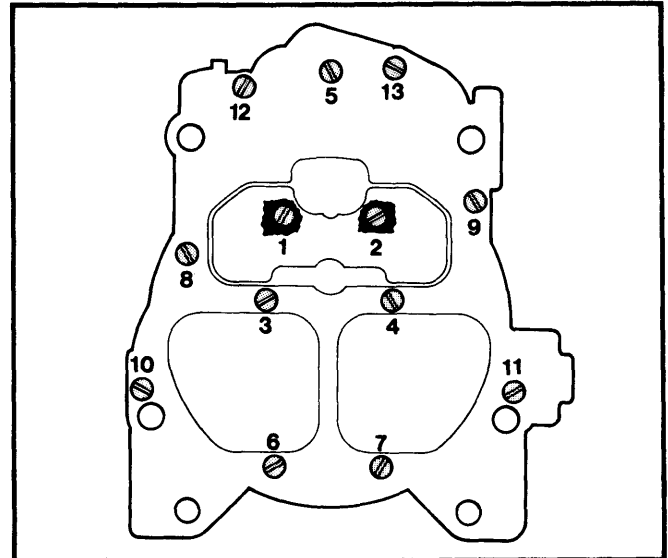


Fig. 16 Air Horn Screw Tightening Sequence

- 5) When installing air horn screws, note that the California models are equipped with 13 air horn-to-float bowl screws and Federal models are equipped with only 9. For California models, install and tighten screws evenly, securely and in order shown in Fig. 16. On Federal models, tightening sequence is 1 thru 7 as shown, then 10 and 11.

CARBURETOR ADJUSTMENT SPECIFICATIONS										
Application	Float Level Setting	Accelerator Pump		Choke Coil Lever Setting	Choke Rod Setting	Vacuum Break		Air Valve Spring Setting [Ⓢ]	Auto. Choke Setting	Choke Unloader Setting
		Stem Setting	Hole Setting			Front Setting	Rear Setting			
17080201	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080205	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080206	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080212	3/8"	9/32"	Inner	.120"	46°	24°	30°	3/4	Index	40°
17080213	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	Index	40°
17080215	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	Index	40°
17080224	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080225	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080226	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080227	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080229	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	Index	40°
17080290	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080291	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080292	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080295	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080297	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080503	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080506	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080508	15/32"	9/32"	Inner	.120"	46°	.....	26°	7/8	Index	42°
17080512	3/8"	9/32"	Inner	.120"	46°	24°	30°	3/4	Index	40°
17080513	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	Index	40°
17080515	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	Index	40°
17080523	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080524	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080525	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080526	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080527	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080528	15/32"	9/32"	Inner	.120"	46°	.....	23°	7/8	Index	42°
17080529	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	Index	40°

Ⓢ — Specification is amount of turns.