

# 1982 Rochester Carburetors

## ROCHESTER MODELS M4MC & M4ME 4-BARREL

### CARBURETOR APPLICATION

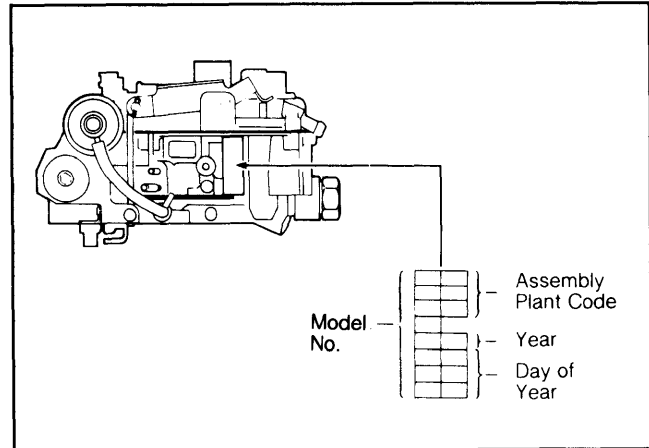
#### CHEVROLET & GMC (ROCHESTER) CARBURETOR NO.

Application	Man. Trans.	Auto. Trans.
5.0L V8		
C10		
Federal		
Without A/C	17082223, 17082227	17082220, 17082222, 17082524
With A/C	17082225	17082224, 17082226, 17082526
High Alt.	17082231	17082230
C20, G & K 10		
Federal		
Without A/C	17082227	17082220
With A/C	17082221	17082226
High Alt.	17082231	17082230
G10		
Federal		
Without A/C		17082524
With A/C		17082526
5.7L V8		
C10		
Federal		
Without A/C		17082290
With A/C		17082292
Calif.		
Without A/C		17082506
With A/C		17082508
C20		
Federal	17082213	
Calif.	17082213	17082506, 17082508
G10		
Federal		
Without A/C	17082291	17082290
With A/C	17082293	17082292
High Alt.	17082235	17082234
G20		
Federal		
Without A/C		17082290
With A/C		
Calif.		
Without A/C		17082506
With A/C		17082508
G30		
Calif.		
Without A/C		17082506
With A/C		17082508
K 10/20		
Federal		
Without A/C	17082291	17082290
With A/C	17082293	17082292
High Alt.	17082235	17082234
Calif.		
Without A/C	17082213	17082506
With A/C	17082213	17082508
7.4L V8		
C, K, & P20/30		
Federal		17080212
C & K20/30		
California	17080512	

### CARBURETOR IDENTIFICATION

The Rochester M4MC and M4ME carburetor numbers are stamped vertically on the float bowl, near the secondary throttle. If float bowl is replaced, follow manufacturer's instructions contained in service package to transfer part number to new float bowl. See Fig. 1.

Fig. 1: Carburetor Part Number Location



If float bowl is replaced, transfer part number.

### DESCRIPTION

The M4MC carburetor is a 2-stage downdraft design. The primary side has a triple venturi system. The secondary side is composed of 2 large bores using the air valve principle (fuel is metered in direct proportion to amount of air passing through secondary bores).

A baffle is attached to secondary side of the air horn above main well bleed tubes. This baffle deflects incoming air to improve secondary nozzle operation during heavy acceleration. The M4MC uses a bowl-mounted choke housing with thermostatic control assembly.

Model M4ME is used for light duty emission vehicles. The M4ME is basically the same carburetor as the M4MC. The M4ME does not have an aneroid cavity and is equipped with an electric rather than hot air choke.

### ADJUSTMENT

**NOTE:** For all on-vehicle adjustments, see 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 angle gauge.

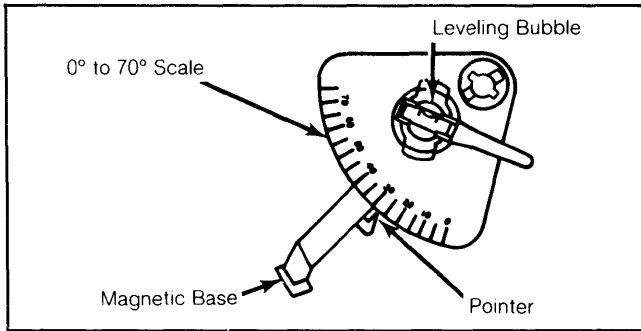
- 1) Rotate degree scale on angle gauge so that 0° mark is opposite pointer.
- 2) With choke valve closed, place angle gauge magnet squarely on choke valve. Rotate leveling bubble

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on angle gauge until it is centered. Rotate degree scale until specified degree mark is opposite pointer. See Fig. 2.

3) 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. 2: Choke Valve Angle Gauge**



*This gauge must be used to perform certain adjustments.*

### FLOAT LEVEL

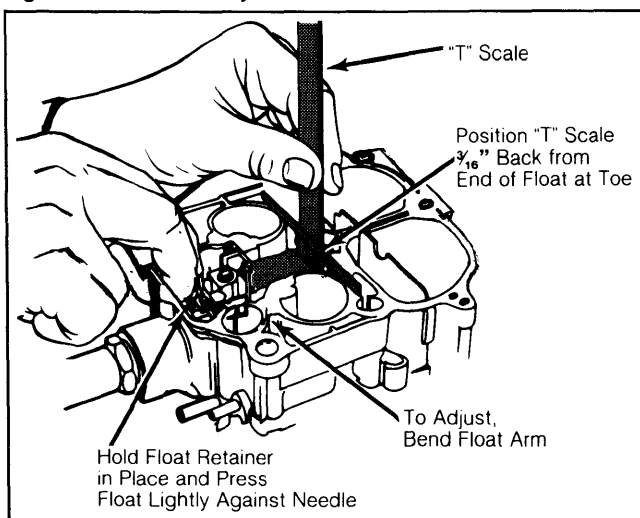
1) Remove air horn. Remove gasket from main body casting. Hold float retainer firmly in place.

2) Using light finger pressure, gently push float against needle. Using a "T" scale, measure distance from top of casting to top of float. Gauging point should be  $\frac{3}{16}$ " back from end of float at toe. See Fig. 3.

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

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

**Fig. 3: Float Level Adjustment**

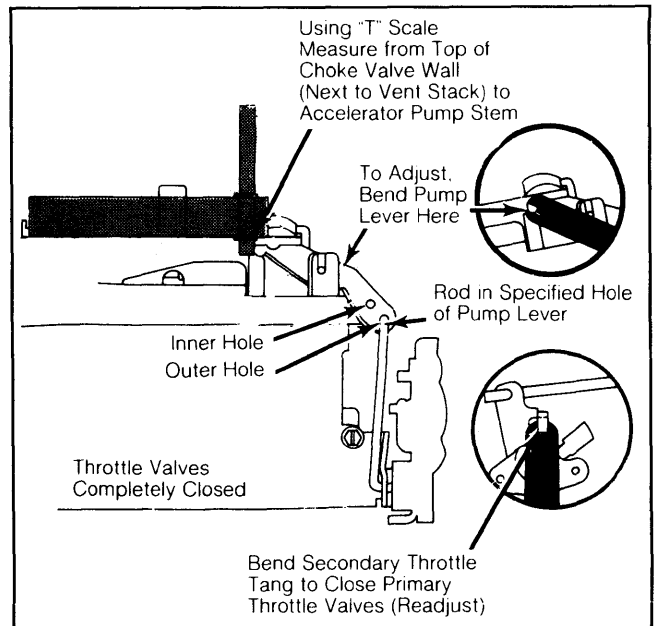


*Measure distance from float bowl casting to float.*

### ACCELERATOR PUMP

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

**Fig. 4: Accelerator Pump Adjustment**



*Make sure fast idle cam follower is off fast idle cam steps.*

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

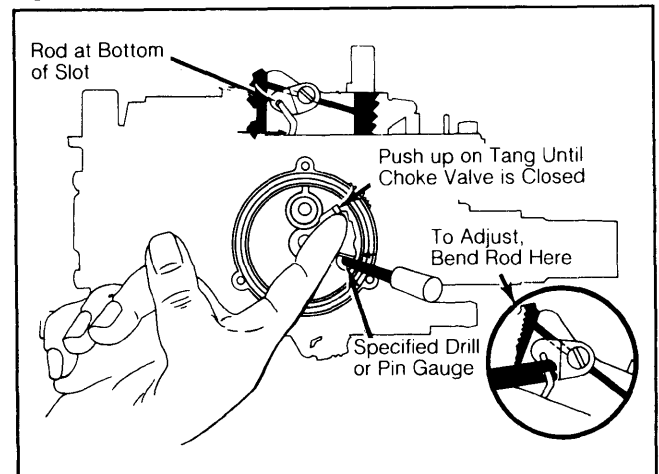
3) Using a "T" scale, measure specified distance from top of choke valve wall (next to vent stack) to top of pump stem.

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

### CHOKE COIL LEVER

**NOTE:** Choke coil cover is retained on housing with rivets to prevent tampering with factory adjustment. If necessary to remove cover, refer to Disassembly and Reassembly procedures in this article. If rivets and cover are removed, a choke thermostat cover retainer kit is required for reassembly.

**Fig. 5: Choke Coil Lever Adjustment**



*Place fast idle speed screw on high step of fast idle cam.*

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1) Remove choke thermostatic cover from choke housing. Place fast idle speed screw on high step of fast idle cam. Push up on thermostatic coil tang (counterclockwise) until choke valve is fully closed.

2) Insert specified drill or pin gauge in hole provided in choke housing. Lower edge of choke lever (inside housing) should just touch drill or pin gauge. See Fig. 5.

3) To adjust, bend choke rod at point shown in Fig. 5. Reinstall choke cover and adjust.

### 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 screw moves away from cam follower.

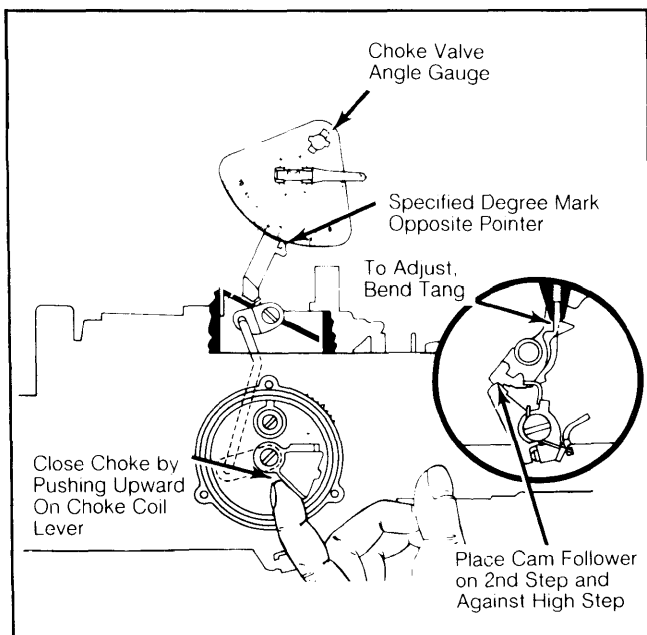
2) Turn screw in until it contacts lever. Turn screw in an additional 3 turns.

### CHOKE ROD (FAST IDLE CAM)

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

1) Place fast idle speed cam follower on 2nd step of fast idle cam against shoulder of highest step.

**Fig. 6: Choke Rod (Fast Idle Cam) Adjustment**



Hold choke closed with a rubber band.

2) Close choke by pushing up on choke coil lever or vacuum break lever tang. Hold choke closed with a rubber band. See Fig. 6.

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

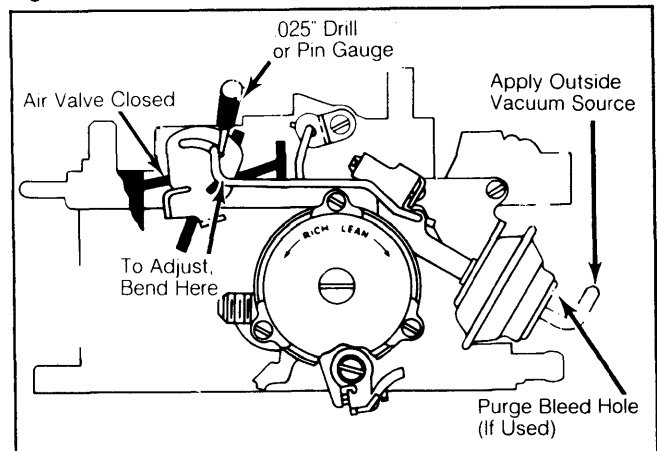
4) To adjust, bend tang on fast idle cam until bubble of choke valve angle gauge is centered.

### FRONT AIR VALVE ROD

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.

2) Make sure air valve is completely closed. Insert a .025" drill or pin gauge between rod and end of slot in lever. See Fig. 7.

**Fig. 7: Front Air Valve Rod Adjustment**



Place drill or pin gauge between rod and end of slot in lever.

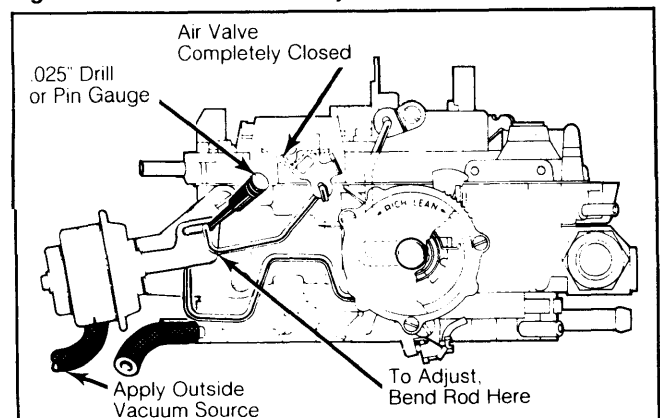
3) Bend rod at point shown in Fig. 7 to adjust clearance in slot. Remove tape and reconnect vacuum hose to diaphragm.

### REAR AIR VALVE ROD

#### Federal M4ME Only

1) Using an outside vacuum source, seat secondary (rear) choke vacuum break diaphragm.

**Fig. 8: Rear Air Valve Rod Adjustment**



This adjustment is performed on Federal M4ME models only.

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2) Make sure air valve is completely closed. Insert a .025" drill or pin gauge between rod and end of slot in lever. See Fig. 8.

3) Bend rod at point shown in Fig. 8 to adjust clearance in slot. Reconnect vacuum hose to diaphragm.

### PRIMARY VACUUM BREAK

**NOTE:** Choke coil lever adjustment must be correct before performing this adjustment. This adjustment is performed using the choke angle gauge, see procedure at beginning of Adjustment.

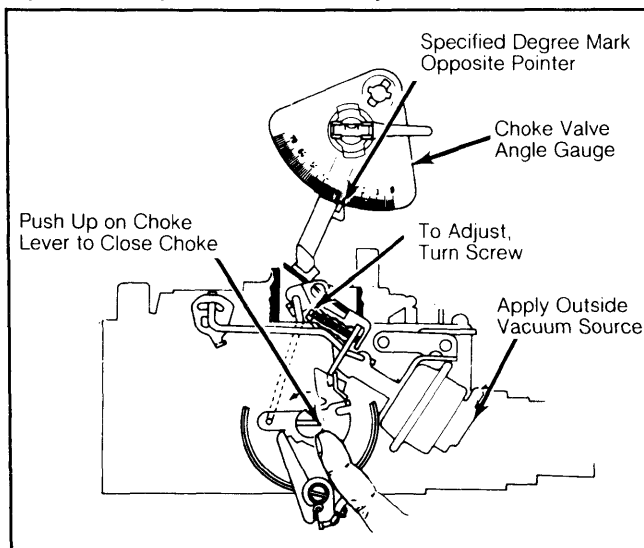
1) Using an outside vacuum source of at least 15 in. Hg, seat primary vacuum break diaphragm. Plug purge bleed hole (if equipped) with masking tape. Hole is found in end of diaphragm.

2) On delay models with air bleed, remove rubber cover over filter element and plug bleed hole in vacuum tube with masking tape. On models with air bleed in end cover, plug cover with masking tape. Remove tape after adjustment.

3) Air valve rod must not keep vacuum unit from fully retracting. If necessary, bend air valve rod at air valve lever to provide clearance for proper adjustment. Adjust final air rod clearance after setting primary vacuum break adjustment.

4) Lightly close choke by pushing up on choke coil lever or vacuum break lever tang. Hold choke closed with a rubber band. Make sure bucking spring on diaphragm plunger (if equipped) is compressed and seated. Bubble on angle gauge should be centered with specified degree mark opposite pointer. See Fig. 9.

**Fig. 9: Primary Vacuum Break Adjustment**



Lightly hold choke in closed position.

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

**NOTE:** Some models will have tamper-proof plugs over the adjustment screw. To gain access to adjustment screw, remove vacuum break bracket from carburetor. Carefully grind off

plugs over adjustment screw and replace vacuum break diaphragm.

### SECONDARY VACUUM BREAK

**NOTE:** Choke coil lever adjustment must be correct before performing this adjustment. This adjustment is performed using the choke angle gauge, see procedure at beginning of Adjustment.

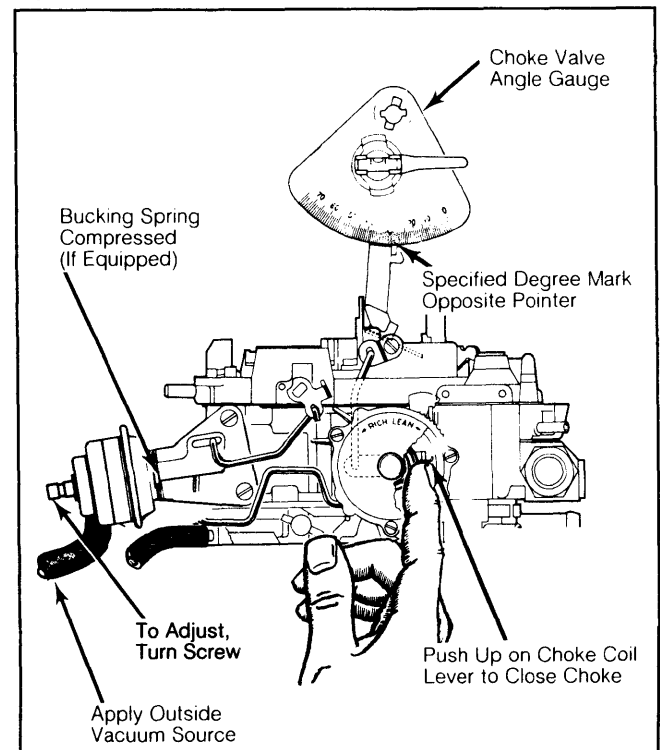
1) Using an outside vacuum source of at least 15 in. Hg, seat secondary vacuum break diaphragm. Plug purge bleed hole (if equipped) with masking tape. Hole is found in end of diaphragm.

2) On vacuum delay models with air bleed, plug end cover with an accelerator pump plunger cap (2G carburetor type). Remove pump plunger cap after adjustment.

3) Air valve rod must not keep vacuum unit from fully retracting. If necessary, bend air valve rod at air valve lever to provide clearance for proper adjustment. Adjust final air rod clearance after setting secondary vacuum break adjustment.

4) Lightly 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. Bubble on choke valve angle gauge should be centered with specified degree mark opposite pointer. See Fig. 10.

**Fig. 10: Secondary Vacuum Break Adjustment**



Lightly hold choke in closed position.

5) To adjust, turn screw at end of vacuum diaphragm until bubble in angle gauge is centered. Remove gauge.

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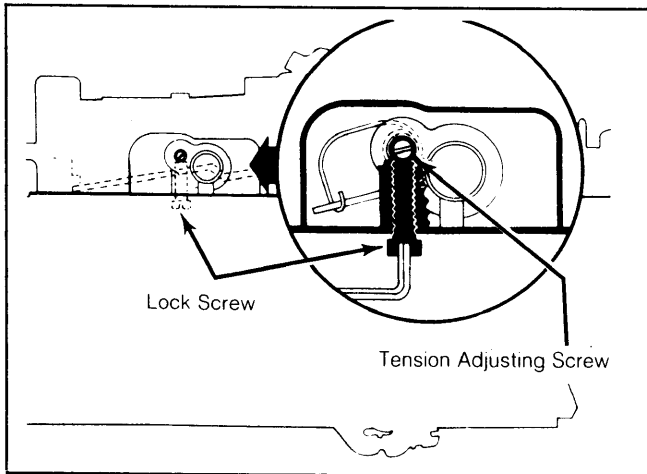
### AIR VALVE SPRING

1) Using an Allen wrench, loosen lock screw. Turn tension adjusting screw counterclockwise until air valve opens part way. See Fig. 11.

2) Turn tension adjusting screw clockwise until air valve just closes. Then turn adjusting screw clockwise specified number of turns.

3) Hold adjusting screw and tighten lock screw.

Fig. 11: Air Valve Spring Adjustment

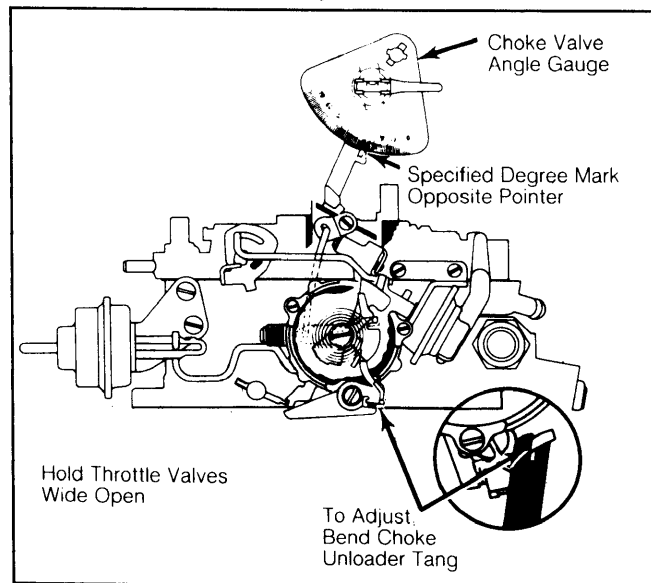


Tighten adjusting screw specified number of turns.

### AUTOMATIC CHOKE

**NOTE:** Choke coil cover is retained on housing by rivets to prevent tampering with factory adjustment. If necessary to remove cover, refer to Disassembly and Reassembly procedures in this article.

Fig. 12: Choke Unloader Adjustment



Choke thermostatic cover and coil must be installed prior to performing adjustment.

### CHOKE UNLOADER

**NOTE:** This adjustment is performed using the choke valve angle gauge. See procedure at beginning of Adjustments. Choke coil lever must be adjusted correctly, and fast idle adjustment must be set before proceeding.

1) If removed, install choke thermostatic cover and coil. Close choke by pushing up on tang on vacuum break lever. Hold in position with a rubber band. Hold primary throttle valves wide open. See Fig. 12.

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.

### SECONDARY THROTTLE VALVE LOCKOUT

#### Lockout Lever Side Clearance

1) Hold choke valve and throttle valves closed.

2) Measure secondary throttle valve lockout lever side clearance between pin and lockout lever. Bend pin to obtain clearance of .015". See Fig. 13.

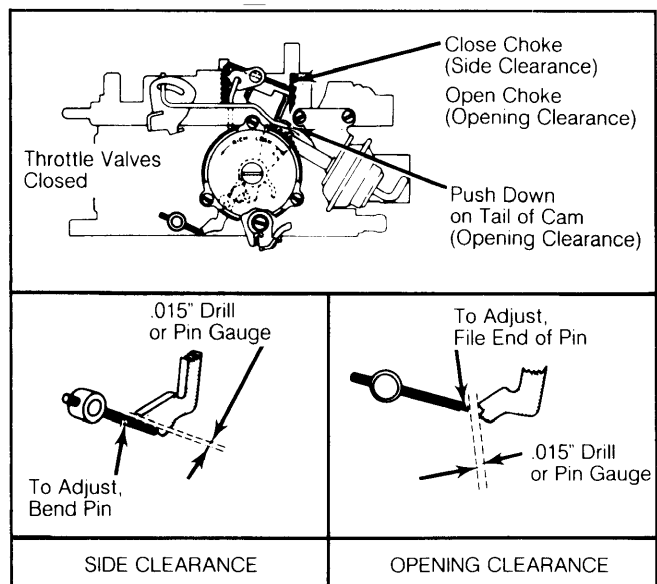
#### Lockout Lever Opening Clearance

1) Push down on tail of fast idle cam to completely open choke valve.

2) Measure secondary throttle valve lockout lever opening clearance between end of pin and toe of lockout lever. See Fig. 13.

3) File end of lockout pin to obtain clearance of .015". Make sure all burrs are removed.

Fig. 13: Secondary Throttle Valve Lockout Adjustments



Both steps must be done to perform adjustment.

### SECONDARY CLOSING LINKAGE

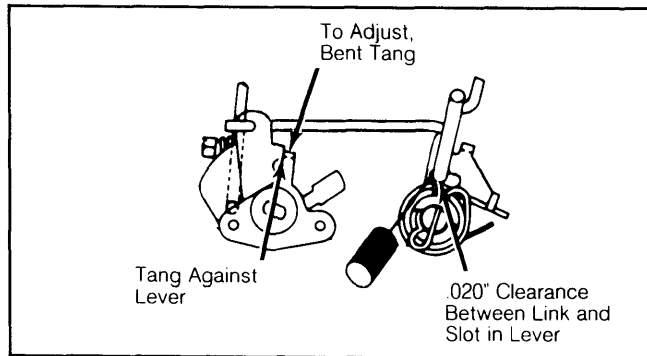
1) Engine idle speed must be correctly adjusted. Hold choke valve wide open and make sure fast idle cam follower is off fast idle cam steps.

2) Make sure secondary closing lever is against tang. Measure specified clearance between sec-

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ondary throttle link and slot in secondary throttle lever. Bend tang to obtain clearance of .020". See Fig. 14.

**Fig. 14: Secondary Throttle Closing Linkage Adjustment**



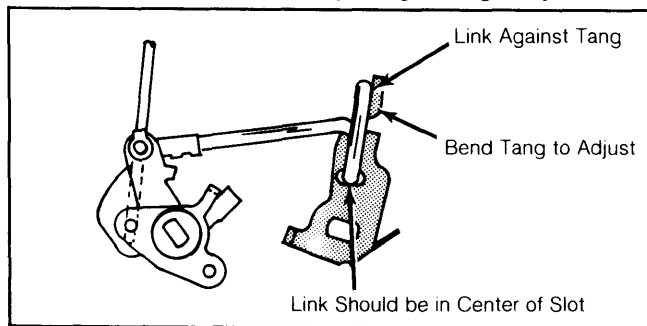
Make sure fast idle cam follower is off fast idle cam steps.

### SECONDARY OPENING LINKAGE

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

2) Link should be centered in slot of secondary throttle lever. To adjust, bend tang on secondary throttle lever. See Fig. 15.

**Fig. 15: Secondary Throttle Opening Linkage Adjustment**



Secondary throttle link should just contact tang on secondary throttle lever.

## OVERHAUL

### DISASSEMBLY

**NOTE:** Before performing any service on carburetor, it is essential that carburetor is placed on a holding fixture (J-9789-118 or equivalent) to prevent damage to throttle valves.

#### Idle Stop Solenoid

If equipped with idle stop solenoid, remove screws securing solenoid and bracket to float bowl. Remove assembly.

#### Air Horn

1) Remove upper choke lever from end of choke shaft by removing retaining screw. Rotate upper choke lever to remove choke rod from slot in lever. Remove choke rod from lower (inner) lever inside float bowl casting. Remove rod by holding lower lever outward with small screwdriver and twisting rod counterclockwise.

2) Remove vacuum hose from primary vacuum break unit. Remove secondary metering rods by removing

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. Disconnect pump rod from pump lever. Note location of pump rod for reassembly reference.

4) Remove air horn-to-float bowl attaching screws. Countersunk screws (2) are located next to venturi. Remove secondary air baffle deflector (if equipped) from beneath 2 center attaching screws. Remove air horn from float bowl by lifting straight up. Gasket should remain on float bowl for later removal.

5) Remove primary vacuum break attaching screws and vacuum break diaphragm. Disconnect diaphragm from air valve rod and remove rod from air valve lever.

6) Invert air horn to remove pump plunger stem seal (if used). Using a small screwdriver, remove staking holding seal retainer in position. Remove and discard retainer and seal. Use care removing pump plunger stem seal from air horn to prevent damage to air horn casting.

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

8) Further disassembly of air horn is not required. Air valve screws are permanently staked in position. However, a repair kit is available for air valve closing spring and center plastic eccentric cam.

#### Float Bowl

1) Remove air horn gasket by lifting out of dowel locating pins. Lift 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. Do not use pliers on metering rod hanger to remove power piston. Remove power piston spring from well.

**NOTE:** The adjustable part throttle (APT) metering rod adjustment screw is located in a well next to power piston well. The APT is preset at the factory and no attempt should be made to alter its setting. If a new float bowl is required, it will contain a preset APT screw.

3) Remove metering rods from power piston by disconnecting tension spring from top of each rod. Rotate rods 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 seat and gasket. Remove aneroid cavity from float bowl, if equipped.

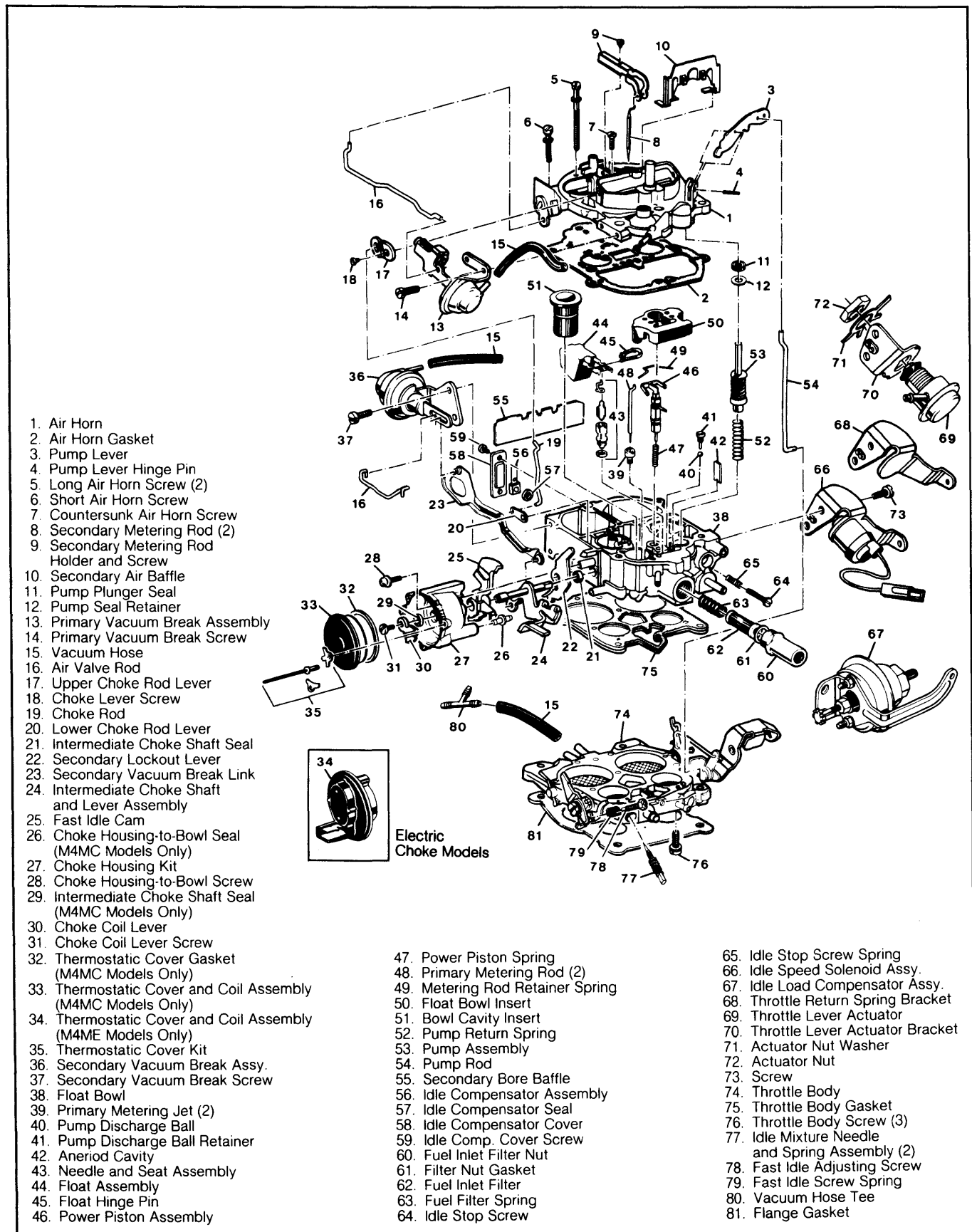
5) Remove primary main metering jets. Remove pump discharge check ball retainer and check ball. Do not remove secondary metering jets. These jets are fixed in place, and if damaged, float bowl must be replaced.

6) Remove secondary air baffle, if replacement is required. Remove secondary vacuum break attaching screws. Rotate vacuum break assembly to remove

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Fig. 16: Exploded View of Rochester Model M4MC and M4ME 4-Barrel Carburetor



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vacuum break rod from slot in plunger head. On M4ME models, do not remove the non-adjustable vacuum break link at this time.

7) Align a .159" (No. 21) drill on choke cover retaining rivet and drill only enough to remove rivet head. Repeat for remaining 2 rivets. Drive remainder of rivets out of choke housing. Remove choke cover and coil assembly.

8) Remove choke housing retaining screw located inside choke housing. Slide complete choke assembly from float bowl. Remove plastic tube seal from choke housing (M4MC models). On M4MC models, do not remove baffle plate from below coil on choke cover.

9) On M4ME models, remove non-adjustable vacuum break link. On all models, remove secondary throttle valve lockout lever from float bowl. Remove lower (inside) choke lever from inside float bowl cavity.

10) Remove choke coil lever retaining screw at end of intermediate choke shaft. Remove lever. Slide intermediate choke shaft from choke housing. Remove fast idle cam from intermediate choke shaft. On M4MC models, remove and discard cup seal from from inside choke housing shaft hole.

11) On all models, remove cup seal (intermediate choke shaft) from float bowl insert for bowl cleaning. Do not attempt to remove plastic insert.

12) Remove fuel inlet nut, gasket and filter. Remove throttle body-to-float bowl attaching screws and throttle body. Remove throttle body-to-float bowl insulator gasket.

### Throttle Body

1) Remove accelerator pump rod from throttle lever by rotating rod until tang on rod aligns with slot in lever.

2) 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.

3) If necessary to remove idle mixture plugs, proceed as follows: 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.

4) 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.

5) 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.
- 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.

### REASSEMBLY

1) Use new gaskets and seals. Make sure that new gaskets fit correctly. Make sure that all holes and slots are punched through and correctly located. To reassemble carburetor, reverse disassembly procedure and note the following:

2) Install fuel inlet needle pull clip over edge of flat on float arm facing float. Do not hook clip in holes in float arm.

3) Install plastic float bowl filler block after float level adjustment and before metering rod installation.

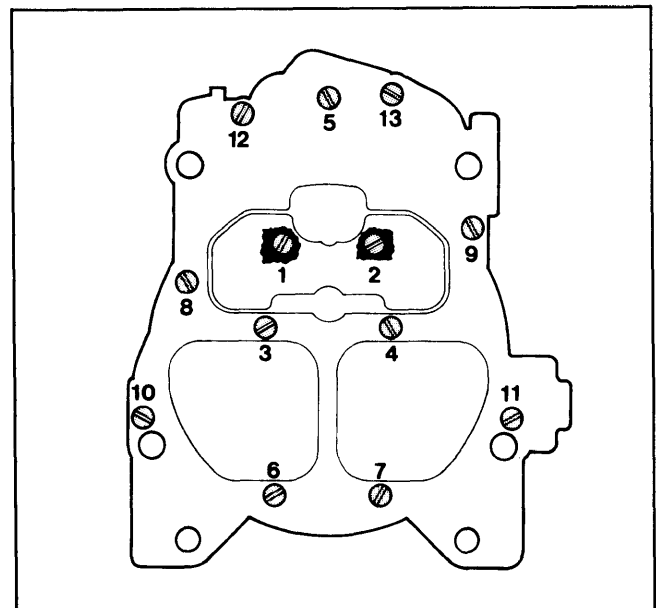
4) The intermediate choke shaft lever and fast idle cam are installed correctly when tang on lever is beneath fast idle cam. Make choke coil lever adjustments before installing choke coil cover.

5) If choke coil cover was removed, it will be necessary to install replacement rivets supplied in service kit. Do not install choke coil cover until completion of adjustments. Do not use a gasket between choke housing and choke coil cover on M4ME models. Surface contact is needed to provide a ground for electric choke.

6) 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 front of carburetor. Install remaining self-tapping screws and tighten.

7) When installing air horn screws, note that 2 long screws are installed with lock washers. Countersunk screws (2) are installed next to venturi area. Install secondary air baffle under screws No. 2 and 4. Tighten air horn screws evenly and in sequence. See Fig. 17.

**Fig. 17: Air Horn Screw Location and Tightening Sequence**



*Make sure countersunk screws are installed next to venturi area.*

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### CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Float Level	Accelerator Pump		Choke Coil Lever	Choke Rod	Vacuum Break		Air Valve Spring <sup>1</sup>	Auto. Choke	Choke Unloader
		Stem	Hole			Primary	Secondary			
17080212	3/8"	9/32"	Inner	.120"	46°	24°	30°	3/4	TR	40°
17080512	3/8"	9/32"	Inner	.120"	46°	24°	30°	3/4	TR	40°
17082213	3/8"	9/32"	Inner	.120"	37°	23°	30°	1	TR	40°
17082220	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	40°
17082222	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082223	1/8"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082224	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082225	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082226	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082227	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082230	13/32"	9/32"	Inner	.120"	46°	26°	36°	7/8	TR	39°
17082231	13/32"	9/32"	Inner	.120"	46°	26°	36°	7/8	TR	39°
17082234	13/32"	9/32"	Inner	.120"	46°	26°	36°	7/8	TR	39°
17082235	13/32"	9/32"	Inner	.120"	46°	26°	36°	7/8	TR	39°
17082290	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082291	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082292	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082293	13/32"	9/32"	Inner	.120"	46°	24°	34°	7/8	TR	39°
17082506	13/32"	9/32"	Inner	.120"	46°	23°	36°	7/8	TR	39°
17082508	13/32"	9/32"	Inner	.120"	46°	23°	36°	7/8	TR	39°
17082524	13/32"	5/16"	Outer	.120"	46°	25°	36°	7/8	TR	39°
17082526	13/32"	5/16"	Outer	.120"	46°	25°	36°	7/8	TR	39°

<sup>1</sup> — Specification is amount of turns.