1971-72 ROCHESTER MV 1-BARREL

1971

G.M. DIVISION & ENGINE	Rochester Carburetor No. Synchro-mesh	Auto. Trans.
Chevrolet Vega	7041023	7041024
Buick, Chevrolet, Oldsmobile, Pontiac 250" 6 Cyl.	7041017	7041024

1972

Chevrolet Vega		
Except California	7042023	7042024
California Only	7042993	7042994
Chevrolet & Pontiac 250" 6 Cyl.		
Except California	7042017	7042014
California Only	7042987	7042984

▶ CHANGES, CAUTIONS, CORRECTIONS

▶ *CHEVROLET VEGA CARBURETOR OVERHAUL NOTE* – After overhaul or repair (before reassembly), coat threads of carburetor "E-Lok" screws with "Loctite" to prevent loosening. The torque retention properties of this type screw reduces once it is removed. Use "Loctite" on all screws except those with which adjustments are made.

▶ *1972 CARBURETOR ADJUSTMENT CAUTION* – After making a curb idle adjustment, the low idle speed adjustment is made at the Allen Head screw located in the end of the idle stop solenoid. DO NOT attempt to turn this screw further clockwise once it has bottomed. Any further effort will result in raising the solenoid cover up thru the staked housing.

CARBURETOR IDENTIFICATION

Carburetor part number is stamped on vertical section of float bowl, next to fuel inlet nut. If float bowl is being replaced, follow manufacturer's instructions in service package regarding transfer of part number to new fuel bowl.

DESCRIPTION

1971

Except Chevrolet "Vega" – Single barrel downdraft carburetor with automatic choke. Carburetors have throttle operated metering rod with vacuum operated power piston control (throttle drive rod engages slot in power piston so piston can lift rod up in jet for full power operation). Pressure relief valve is located at top of carburetor air horn. A hot idle compensator valve is located under cover on throttle lever side of carburetor. A diaphragm type vacuum break assembly is located under cover on side of air horn and linked directly to choke valve. Automatic choke is separate well type mounted on manifold and linked to choke valve lever by adjustable rod.

Chevrolet "Vega" – Carburetor has been modified from above with the following major differences:

1) Overall height has been reduced. Main metering system is controlled by a main well air bleed and fixed orifice jet instead of a metering rod and jet.

2) Power piston has been eliminated. A venturi velocity power enrichment system is used to enrich air-fuel mixture during moderate to heavy acceleration and at higher engine speeds.

Calibration Screw – Installed in channel at bottom of float bowl and controls fuel flow through a by-pass channel past metering jet. This is a factory adjustment to refine air-fuel mixture ratios, and screw must not be removed or setting disturbed in field. *CAUTION – Tampering with this setting will require replacement of fuel bowl or complete carburetor.*

Cranking Enrichment Valve – Located in air horn, and controls bypass passage from fuel bowl. Valve is depressed by choke valve (when choke closed for cold starting) and discharges additional fuel below choke valve to assist cold starting. *Valve is not removable and does not require adjustment.*

CARBURETOR ADJUSTMENT SPECIFICATIONS

Rochester Carb. No.	Idle Speed (Engine RPM) Hot ①	Idle Speed (Engine RPM) Fast ②	Float Level Setting	Metering Rod Setting	Fast Idle (Off Engine)	Choke Rod Setting	Vacuum Break Setting	Unloader Setting	Auto. Choke Setting
7041014	500⑥	2400③	1/4"	.080"	.100"④	.160"	.200"	.350"	⑤
7041017	550⑥	2400③	1/4"	.080"	.100"④	.180"	.230"	.350"	⑤
7041023	850/700	2400③	1/16"	.....	.110"④	.060"	.120"	.375"	⑤
7041024	650/550	2400③	1/16"	.....	.110"④	.060"	.120"	.375"	⑤
7042014	600/450	2400	1/4"	.080"	.....	.125"	.190"	.500"	⑤
7042017	700/450	2400	1/4"	.080"	.....	.150"	.225"	.500"	⑤
7042023	850/550	2400⑦	1/8"	.....	.110"④	.130"	.200"	.350"	⑤
7042024	850/550	2800⑦	1/16"	.....	.110"④	.070"	.120"	.350"	⑤
7042984	600/450	2400	1/4"	.080"	.....	.125"	.190"	.350"	⑤
7042987	700/450	2400	1/4"	.080"	.....	.150"	.225"	.500"	⑤
7042993	1200/550	2400⑦	1/8"	.....	.110"④	.130"	.200"	.350"	⑤
7042994	700/550	2400⑦	1/16"	.....	.110"④	.070"	.120"	.350"	⑤

① – Higher speed, solenoid energized. Lower speed, solenoid de-energized.
② – Distributor vacuum hose disconnected.
③ – Distributor vacuum hose connected on Chevrolet & Pontiac.
④ – Cam follower on high step of cam. On low step of cam on 1971 Buick & Oldsmobile.
⑤ – Governed by choke coil rod adjustment.
⑥ – Oldsmobile with A/C 600.
⑦ – With T.C.S. disconnected and full distributor advance, (pull connector off vacuum solenoid located on left side of firewall).

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Idle Stop Solenoid (Chevrolet Vega Only) – Solenoid controlled throttle stopscrew is connected in ignition circuit and controls idle speed when engine is running. When ignition is turned off, solenoid allows throttle valve to close further as determined by conventional throttle stopscrew setting. *See Adjustments.*

C.E.C. Valve (Except Chevrolet Vega) – The idle stop solenoid has been replaced by a Combination Emission Control Valve (C.E.C.). Valve is energized through the transmission and performs as follows:

1) When energized, increases idle speed during high gear operation. This helps in controlling overrun hydrocarbons during deceleration. Valve provides full vacuum spark advance during high gear operation.

2) When de-energized in lower gear operation and at idle, provides retarded ignition timing for improved emission control. *NOTE – Normal (curb) idle speed is obtained by idle stop screw adjustment. See Adjustments.*

1972

Except Chevrolet "Vega" – Essentially same as 1971 model with certain refinements. Note the following:

Hot idle compensator valve is used on automatic transmission models. Vacuum diaphragm mounted on air horn connects to the choke coil lever. Carburetor has internally balanced venting thru a vent hole in the air horn, leading from the fuel bowl into the bore beneath the throttle valve.

On 6 cylinder vehicles, an idle stop solenoid is attached to the fuel bowl and replaces the normal idle speed screw. The solenoid works in conjunction with the Combination Emission Control Valve (CEC). Curb idle is adjusted with the solenoid. A tube has been added in the air horn for Exhaust Gas Recirculation (EGR).

Chevrolet "Vega" – In addition to modifications made on the 1971 carburetor, note the following:

"California" vehicles use a swivel to adjust the choke coil rod length, instead of bending the rod. The float bowl casting has been revised in the pump well area to provide increased clearance for hold-down stud.

A thin-lip pump cup is provided for improved cup to wall contact during cold weather operation. The 1971 Calibration Screw and Cranking Enrichment Valve features are continued.

Additional Features –

Idle Stop Solenoid – Is used on all models including Chevrolet Vega.

C.E.C. Valve (6 Cyl. Engines Only) – The combination Emission Control Valve is now used in conjunction with the idle stop solenoid and performs the same functions as in the 1971 application.

ADJUSTMENT

Idle Speed & Mixture

NOTE – These carburetors are equipped with locked mixture adjustment screws. These screws **should not** be tampered with, since permissable exhaust emission levels may be altered. When carburetor overhaul or rework (throttle bodies, fuel bowls, jets, etc.) is performed, certain rigid procedures are required to readjust idle mixtures.

1971

Except Chevrolet Vega – Engine must be at normal operating temperature, air cleaner in position, A/C Off, Auto. Trans. in Drive, distributor vacuum hose removed from distributor and plugged. *Cam angle and ignition timing must be properly adjusted before adjusting idle speed.* Hot idle compensator valve **closed.**

1) With accurate tachometer connected, adjust carburetor curb idle speed screw (see illustration) to specification (fuel filler cap must be removed on Pontiac).

Chevrolet Vega – With engine at normal operating temperature, air cleaner in position, A/C On, Auto. Trans. in Drive, point dwell and ignition timing properly adjusted, connect tachometer and proceed as follows:

1) Disconnect: Fuel tank hose from vapor canister, distributor vacuum hose at distributor (plug hose), and electrical connection at idle stop solenoid.

2) Adjust carburetor slow idle speed screw to specified RPM.

3) Reconnect electrical connection at solenoid, open throttle momentarily and adjust solenoid screw to specified curb idle RPM.

4) Reconnect distributor vacuum hose and fuel vapor hose.

1972

Except Chevrolet "Vega" – Set idle speed with engine at normal operating temperature, air cleaner installed, choke open, A/C OFF, fuel tank vapor hose disconnected from canister, and distributor vacuum hose disconnected and plugged. Turn solenoid as necessary to obtain the solenoid energized (higher) RPM. *NOTE – Do not turn solenoid more than one complete turn without disconnecting electrical wiring.* Set low idle speed with solenoid de-energized, using the Allen Head screw on end of solenoid, to the lower RPM. *CAUTION – Do not attempt to adjust idle RPM using the C.E.C. Valve, as a decrease in engine braking may result.*

Chevrolet Vega – Set conditions as described above. Disconnect electrical connection at idle stop solenoid and adjust low idle speed screw to the lower RPM listed (solenoid de-energized). With point dwell, timing, and low idle RPM properly adjusted, reconnect solenoid wiring and open throttle momentarily. Adjust solenoid plunger screw to the specified curb idle (higher) RPM listed.

Fast Idle Speed (1971)

On Engine – *NOTE – On Chevrolet Division models, make adjustment with transmission in Neutral. On Chevy Vega, adjustment must be made with electrical lead to Transmission Controlled Spark (TCS) solenoid disconnected.* **After**

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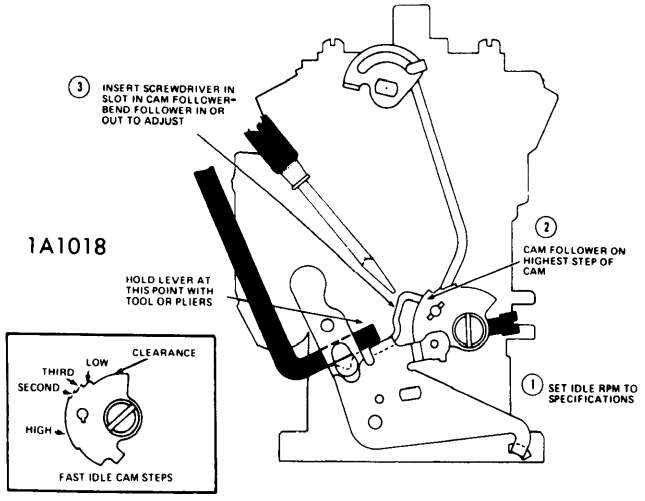
slow idle adjustment complete, with engine at normal operating temperature, and with fast idle cam follower on correct step of fast idle cam, insert screwdriver in slot in cam follower and bend follower as necessary to adjust (see Specifications) to correct speed.

Fast Idle Speed (1972)

On Engine — *NOTE — On all vehicles make adjustment with transmission in Neutral or Park.* On Chevrolet Vega, adjustment is made with TCS electrical lead disconnected (pull connector off vacuum solenoid located on left side of firewall for full advance). On 6 cylinder models, pull lead off temperature switch and ground it, to energize C.E.C. Valve (for vacuum advance).

After slow idle adjustment complete, place fast idle cam follower on high step of cam. Insert screwdriver in slot in cam follower and bend follower to obtain specified RPM (see Specifications).

Off Engine – *NOTE – Make initial idle speed setting by turning throttle stopscrew in 1 turn from closed throttle position (setting must be rechecked when carburetor installed on engine).* Position fast idle cam follower on specified step of cam. Hold cam follower against cam and check clearance between end of slow idle screw and idle stop tang on throttle lever. If clearance not correct (see Specifications), adjust by bending cam follower toward or away from fast idle cam. *NOTE — This procedure applies to both 1971 and 1972 vehicles.*



FAST IDLE ADJUSTMENT (TYPICAL)

Pressure Relief Valve

Located at top of carburetor air horn. Valve allows fuel vapors which may form in float bowl during hot engine idle or "hot soak" to be vented externally so they will not be drawn into engine intake manifold. No adjustment is required.

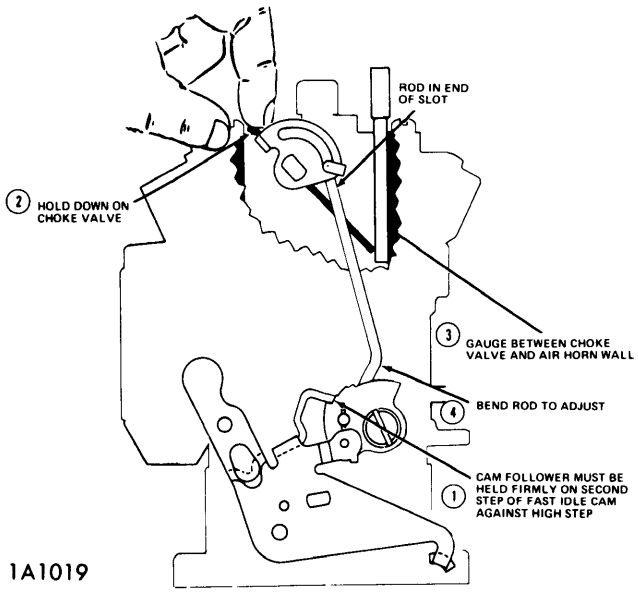
Choke Rod

NOTE – Fast idle adjustment must be made first.

1) Place fast idle cam follower on 2nd step and against high step of fast idle cam.

2) Hold choke valve toward "closed choke" position with the fingers and make certain that choke rod is at lower end of slot in choke lever.

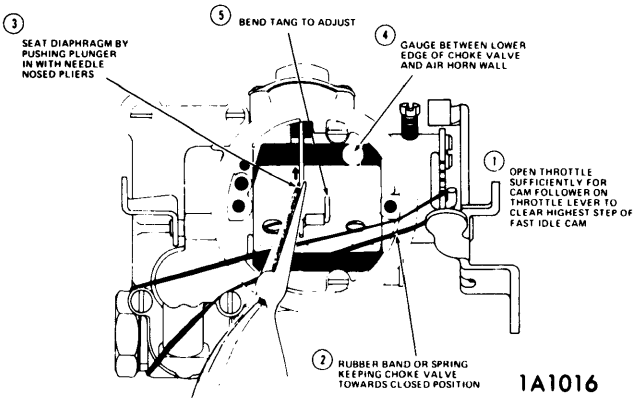
3) Bend choke rod at point shown in illustration to give specified clearance between lower edge of choke valve and air horn wall.



CHOKE ROD ADJUSTMENT (TYPICAL)

Vacuum Break

All 1971 (& 1972 Vega) Models – Open throttle valve so that cam follower clears highest step of fast idle cam. Fully close choke valve (can be held closed with rubber band) and press inward on vacuum break plunger rod until diaphragm is seated. Measure clearance between lower edge of choke valve and air horn wall with drill gauge. If required, adjust by bending tang on choke valve (see Specifications).



VACUUM BREAK ADJUSTMENT (TYPICAL)

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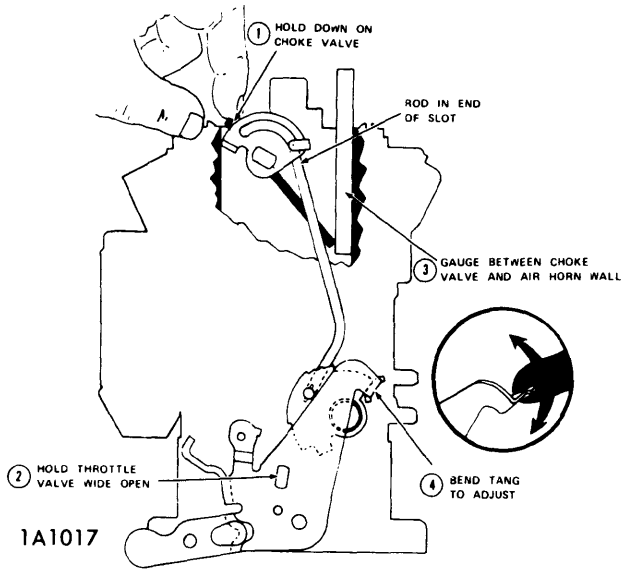
All 1972 Models (Except Vega) — Using an outside vacuum source, apply vacuum to the vacuum break diaphragm until plunger is fully seated. With diaphragm in this position, push choke valve toward the closed position. With choke valve closed, gauge clearance between lower edge of choke valve and air horn wall (see Specifications). To adjust, bend vacuum break rod at offset.

Choke Unloader

Hold choke valve towards "closed" position and rotate throttle lever to wide open position. Bend unloader tang on throttle lever to obtain specified clearance (see Specifications) between lower edge of choke valve and air horn wall.



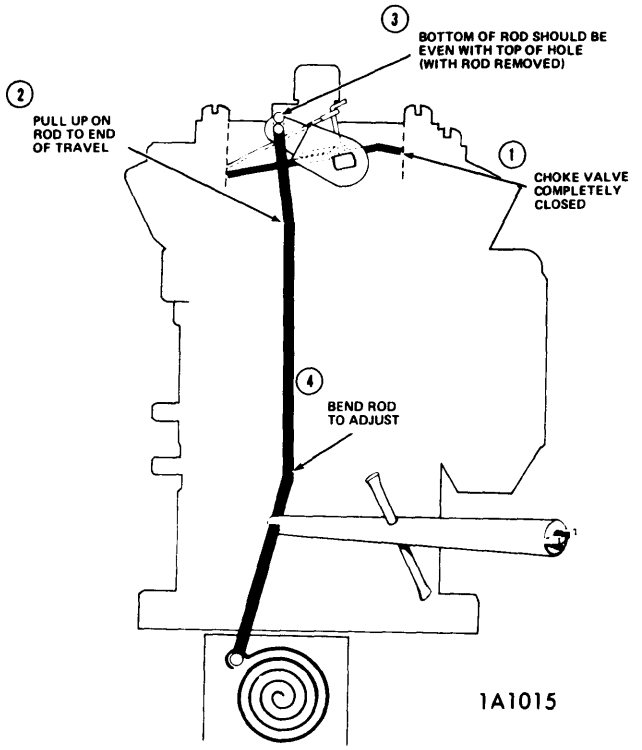
UNLOADER ADJUSTMENT (TYPICAL)

Choke Coil Rod

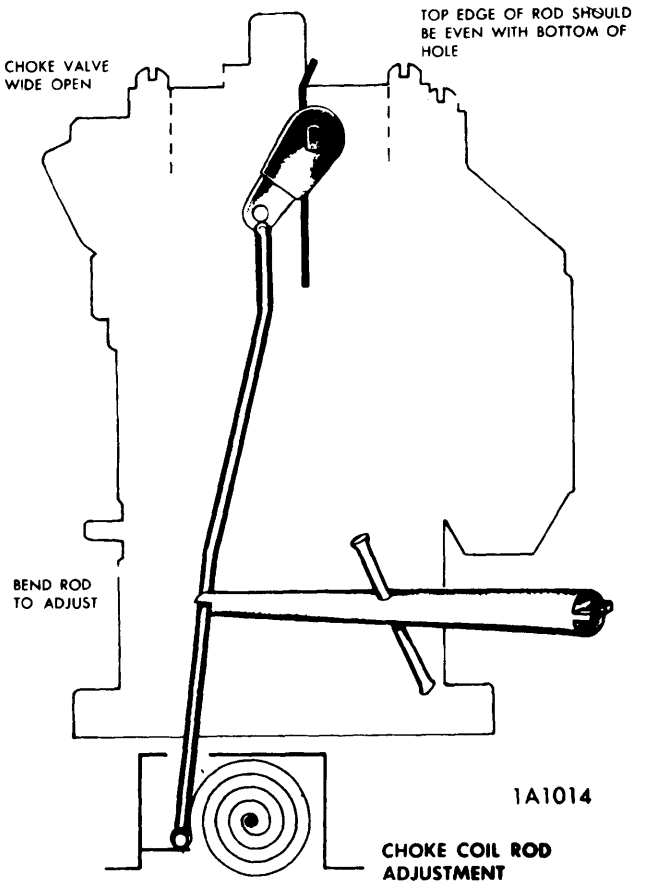
1971 Models (Except Vega) — Disconnect choke coil rod at choke lever. Hold choke valve closed, pull choke coil rod upward to limit of travel. Rod should be one rod diameter above hole in choke lever. Adjust by bending rod at existing bend.

1972 Models (Except Vega) — With thermostatic choke coil rod disconnected from upper lever, hold choke valve completely closed and push downward on rod to end of travel. With rod in full downward position, top of rod should be even with bottom of hole in lever. To adjust bend rod at existing bend.

1971-72 Chevrolet Vega — Hold choke valve completely open. With thermostatic choke coil rod disconnected from upper lever, push downward on rod to end of travel. With rod in this full downward position top edge of rod (or pin on swivel) should be even with bottom of hole in lever. To adjust, bend rod at existing bend or turn swivel up or down on "California" vehicles.



1971 CHOKE ROD ADJUSTMENT (EXCEPT VEGA)



1971 CHOKE ROD ADJUSTMENT (VEGA)

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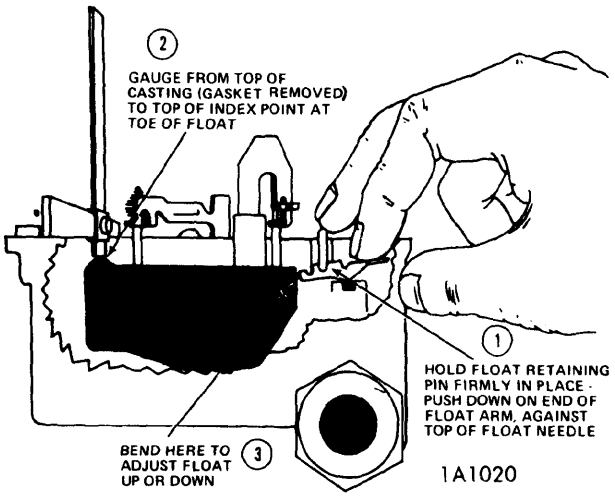
Float Level

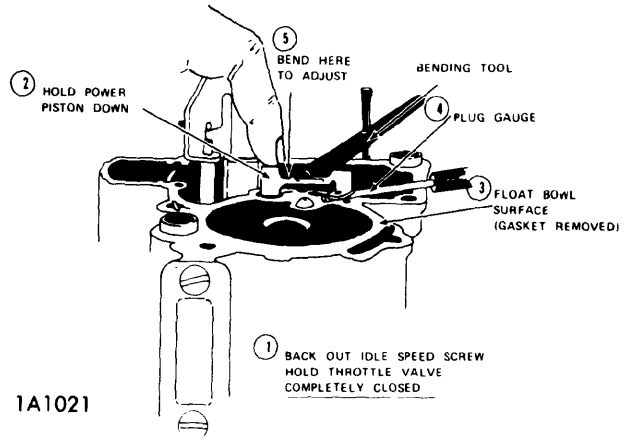
1) Hold float retainer firmly in place and float arm against top of float needle by pushing downward on float arm at outer end towards float bowl casting.

2) Use adjustable "T" scale (depth gauge) to measure the distance from top of float at adjustment point (see illustration) to float bowl gasket surface (gasket removed).

3) If measurement not as specified (see Specifications), adjust by bending the float arm up or down at a point adjacent to the float pontoon.



FLOAT LEVEL ADJUSTMENT



METERING ROD ADJUSTMENT

Metering Rod (Except Chevrolet Vega)

With air horn and bowl cover removed, remove metering rod **by holding** throttle valve wide open and pressing down on **metering rod against** spring tension and sliding rod out of **slot in holder.** Back out throttle stopscrew and rotate fast idle cam so that cam follower clears cam, hold throttle valve completely closed and press down on top of power piston so that it is held against its stop. Swing metering rod holder over flat surface of bowl casting adjacent to carburetor bore and use specified gauge to check clearance between lower surface of holder and bowl casting. Gauge should be a slide fit. If clearance not correct (see specifications), adjust by carefully bending metering rod holder up or down as required.

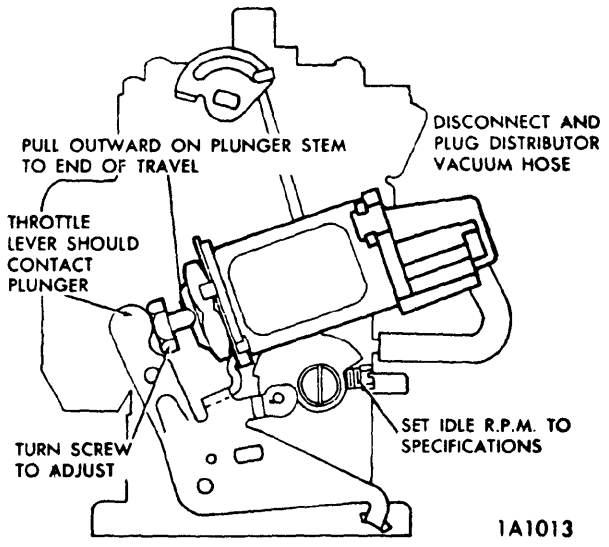
Combined Emission Control Valve

NOTE — C.E.C. Valve adjustment is preset at factory and field adjustment should be made only if solenoid is being replaced, carburetor is being major overhauled, or if throttle body has been removed. If adjustment is necessary, use the following procedure.

1971 — Using the idle speed stopscrew, set idle RPM to specification. Disconnect and plug distributor vacuum hose. Pull outward on solenoid plunger stem to end of travel until it contacts throttle lever. While holding plunger against throttle lever, turn screw in plunger in or out to obtain 850 RPM (Synchro-mesh) or 650 RPM (Auto. Trans.).

1972 — Disconnect fuel tank "evap" hose from vapor canister, then disconnect distributor vacuum hose at distributor and plug the hose. Adjust curb idle speed to specification using idle stop solenoid (energized). With solenoid de-energized, check low idle speed setting. If necessary, adjust RPM with hex screw at rear of solenoid to specification. *CAUTION — Do not turn this screw in too far, as solenoid may be damaged.*

With A/C OFF, Synchro-mesh in Neutral or Auto. Trans. in Drive, manually extend the C.E.C. Valve plunger to contact the throttle lever and pull outward on plunger stem to end of travel. Turn plunger screw to adjust engine speed to 850 RPM (Synchro-mesh) or 650 RPM on Auto. Trans. Reconnect hoses originally removed.



C.E.C. VALVE ADJUSTMENT (TYPICAL)

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OVERHAUL

Disassembly

1) On all models (except Chevy Vega) remove vacuum hose from C.E.C. valve and timed spark tube, then bend back retaining tabs on lockwashers and remove large C.E.C. valve nut, remove valve from bracket. *NOTE – Do not remove C.E.C. valve bracket from float bowl assembly unless replacement of bracket is necessary, and do not immerse C.E.C. valve in carburetor cleaner.*

2) Remove fast idle cam attaching screw, remove cam from choke rod at lower end by rotating over squirt on rod and from upper lever by rotating rod out of slot. Remove air horn to float bowl attaching screws (6) and remove air horn by lifting straight up. Invert air horn and remove two vacuum break diaphragm cover screws and carefully remove diaphragm cover.

3) Hold choke valve open, push upward on eyelet on choke valve at a 45° angle until looped end of rod slides off wire lever attached to choke valve, then remove diaphragm plunger rod through hole in air horn. If necessary, choke valve, vacuum break lever, and choke shaft can be removed from air horn by removing thermostatic coil lever attaching screw, then removing thermostatic coil lever and two choke valve attaching screws; remove choke valve and shaft from air horn. *NOTE – Choke valve screws are held in place with Loc-tite, so it will be necessary to re-stake them after assembly.*

CAUTION – Do not remove air cleaner stud bridge as Loc-tite is used on attaching screws.

4) Remove air horn to float bowl gasket (gasket has slit next to metering rod lever). Remove float assembly from bowl by lifting upward on float hinge pin, then remove hinge pin from float arm and remove float needle from seat. Disconnect accelerator pump and power piston actuator lever from end of throttle shaft by removing lever attaching screw. Hold down on power piston while removing lever, power piston spring and metering rod assembly may now be removed from float bowl.

5) Remove lower end of power piston link from actuator lever by rotating until tang on rod slides out of notch in lever. Remove actuator lever from lower end of accelerator pump link in same manner. Push down on accelerator pump and remove actuator link by rotating until tang on rod is aligned with slot on pump plunger lever, remove link.

6) Remove pump assembly from float bowl, then remove pump return spring and power piston spring from float bowl. Remove "T" guide and pump discharge spring using needle nose pliers. Invert bowl and remove pump discharge ball and idle tube. Remove main metering jet from bottom of fuel bowl and remove float needle seat and gasket using suitable tool (BT-3007). Remove two screws from idle compensator cover, then remove cover, hot idle compensator and seal from recess in bowl.

7) The idle stop screw can now be removed. Remove fuel inlet nut and gasket, then remove filter and relief spring. Invert carburetor bowl and remove throttle body to bowl attaching screws, throttle body and insulator gasket. *NOTE – Due to close tolerance fit, do not remove valve or shaft.*

Cleaning & Inspection

Thoroughly clean carburetor castings and metal parts in a suitable solution, do not immerse rubber and plastic parts in cleaner. Blow out all passages with compressed air, do not use drills to clean jets or passages. Check float needle and seat assembly for wear, inspect upper and lower casting sealing surfaces for damage, inspect holes in levers for out of round condition, examine fast idle cam for wear or damage, check throttle and choke levers for binds or damage, and check all springs for distortion or tension loss; replace parts as necessary.

Reassembly

Pump Plunger Installation – Install with slide protruding through bottom of bowl casting. Push downward on pump slide and install pump drive link into hole in lower end of shaft. Ends of drive link point towards carburetor bore.

Power Piston Installation – Install power piston and pump actuating lever to lower end of link (projection on lever points downward). Install spring into cavity, then install end of power piston actuating rod into groove on side of power piston. Install power piston metering rod assembly and actuating rod into float bowl (metering rod entering jet orifice).

NOTE – Check operation of entire drive mechanism, metering rod and accelerator pump, to ensure free operation from closed to wide open throttle, before installing air horn.

Choke Shaft Installation – Install choke shaft, choke valve and vacuum break lever. Align choke valve, tighten retaining screws and stake to prevent loosening.

Air Horn Installation – Install by gently lowering onto float bowl until seated, install long and short attaching screws, and torque screws tightly using following tightening sequence (see illustration).

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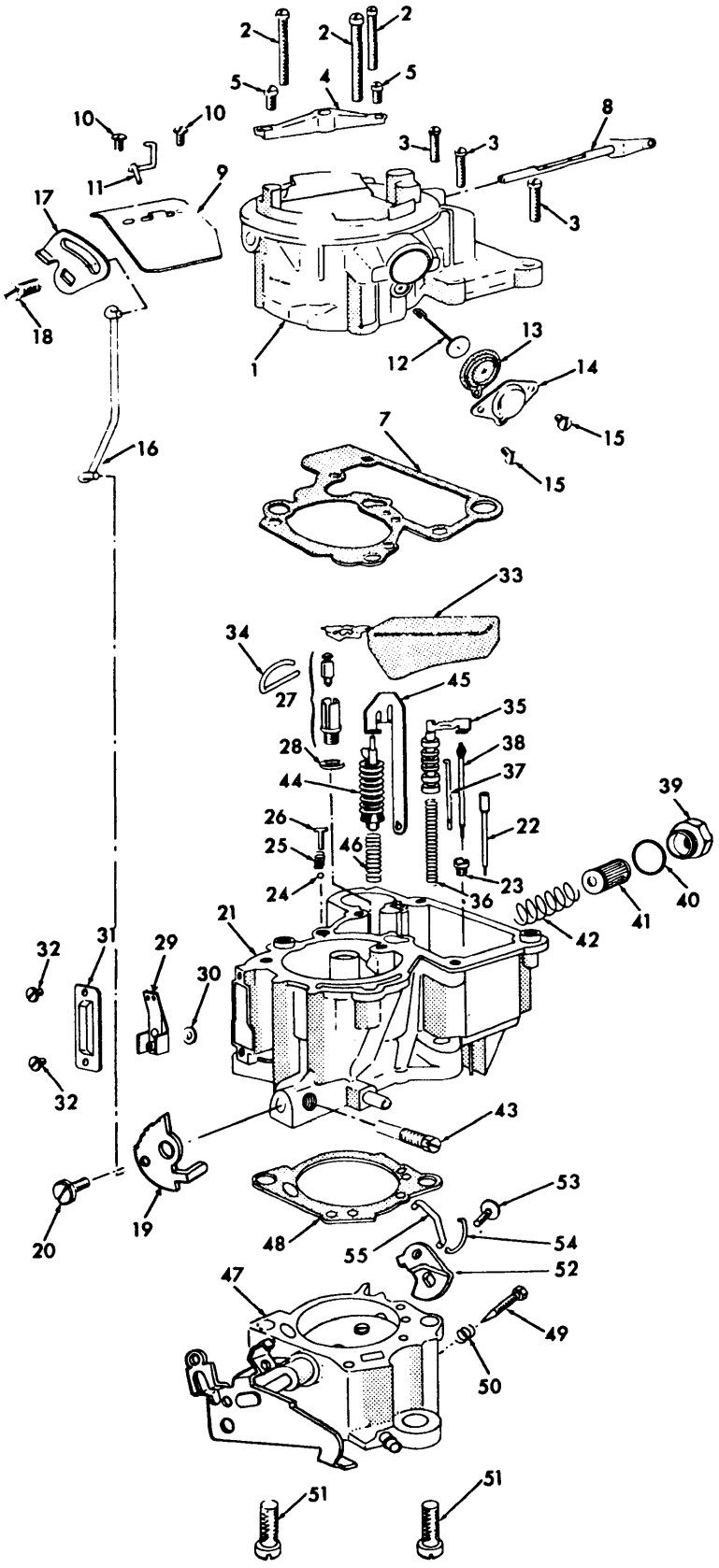
1. Air Horn Assembly
2. Screw–Air Horn–Long
3. Screw–Air Horn-Short
4. Bracket–Air Cleaner Stud
5. Screw–Bracket Attaching
7. Gasket–Air Horn
8. Choke Shaft and Lever Assembly
9. Choke Valve
10. Screw–Choke Valve
11. Lever–Vacuum Break Link
12. Vacuum Break Link Assembly
13. Diaphragm–Vacuum Break
14. Cover–Vacuum Break
15. Screw–Cover
16. Choke Rod
17. Choke Lever
18. Screw–Choke Lever
19. Cam–Fast Idle
20. Screw–Cam Attaching
21. Float Bowl Assembly
22. Idle Tube Assembly
23. Jet–Main Metering
24. Ball–Pump Discharge
25. Spring–Pump Discharge
26. Guide–Pump Discharge
27. Needle and Seat Assembly
28. Gasket–Needle Seat
29. Idle Compensator Assembly
30. Gasket–Idle Compensator
31. Cover–Idle Compensator
32. Screw–Cover
33. Float Assembly
34. Hinge Pin–Float
35. Power Piston Assembly
36. Spring–Power Piston
37. Rod–Power Piston
38. Metering Rod and Spring Assembly
39. Filter Nut–Fuel Inlet
40. Gasket–Filter Nut
41. Filter–Fuel Inlet
42. Spring–Fuel Filter
43. Screw–Slow Idle
44. Pump Assembly
45. Lever–Pump Actuating
46. Spring–Pump Return
47. Throttle Body Assembly
48. Gasket–Throttle Body
49. Idle Needle
50. Spring–Idle Needle
51. Screw–Throttle Body
52. Lever–Pump and Power Rods–New
53. Screw–Lever Attaching
54. Link–Power Piston Rod
55. Link–Pump Lever



ROCHESTER MV CARBURETOR ASSEMBLY