1968-69 ROCHESTER M & MV SINGLE BARREL

1968 MODEL M (MANUAL CHOKE)

	Rochester Carburetor No.	
CHEVY II	**Synchro-mesh**	**Auto. Trans.**
153" 4 Cyl. Eng.	7028009	7028008

1968 MODEL MV (AUTOMATIC CHOKE)

BUICK		
250" 6 Cyl.	7028017, 47	7028014
With Air Cond.	7028015	
CHEVY II, CHEVELLE, CHEVROLET & CAMARO		
230" & 250" 6 Cyl.	7028017	7028014
With Air Cond.	7028015	
OLDSMOBILE		
250" 6 Cyl.	7028017, 57	7028014
PONTIAC TEMPEST & FIREBIRD		
250" 6 Cyl. (Early)	7028065	①
(Later)	7028075	①
(With Air Cond.)	7028067	

① - Rochester Model BV carburetor used on these cars.

1969 MODEL M (MANUAL CHOKE)

CHEVY NOVA		
153" 4 Cyl. Eng.	7029008	7029008

1969 MODEL MV (AUTOMATIC CHOKE)

BUICK		
250" 6 Cyl.	7029047	7029014
CHEVY NOVA, CHEVELLE, CHEVROLET & CAMARO		
230" & 250" 6 Cyl.	7029017	7029014
With Air Cond.	7029015	
OLDSMOBILE		
250" 6 Cyl.	7029057	7029014
PONTIAC TEMPEST & FIREBIRD		
250" 6 Cyl.	7029165	7029166
With Air Cond.	7029167	7029168

► CHANGES, CAUTIONS, CORRECTIONS

► *"C.C.S." & "A.I.R." ENGINES NOTE:* These engines have special exhaust emission controls as follows: Specially calibrated distributors and carburetors, closed positive crankcase ventilation system, and related control units.

C.C.S. Engines - Have "thermo air cleaner" for control of carburetor air temperature. **A.I.R. Engines** - Also have air pump for air injection in engine at exhaust valve ports.

► 1968 BUICK 250" 6 CYL. POOR WARM-UP OR TIP-IN HESITATION CORRECTION: Fast idle cam Part No. 7034044 has been replaced by Part No. 7036239 to improve warm-up. Float level adjustment specification has been changed from 3/8" to 5/16" to prevent tip-in hesitation. Hold float retaining pin firmly in place and push down on outer end of float arm against top of float needle. *See "Float Level (Off Engine)" under Adjustments for remaining procedure.*

CARBURETOR IDENTIFICATION

Rochester carburetor part number is stamped on fuel bowl. Carburetors may be color coded for identification.

DESCRIPTION

New "Monojet" single barrel downdraft carburetor with manual choke (M) or automatic choke (MV). Carburetors have throttle operated metering rod with vacuum operated power piston control (throttle drive rod engages slot in power piston so that piston can lift rod up in jet for full power operation). Idle air vent is located on bowl cover and is operated by a tang on accelerating pump lever. A hot idle compensator valve is located under cover on throttle lever side of carburetor. Automatic choke carburetors have diaphragm type vacuum break assembly located under cover on side of air horn and linked directly to choke valve. Automatic choke is separate well type mounted in manifold and linked to choke valve lever by adjustable rod.

Calibration Screw - This screw is installed in channel at bottom of float bowl and controls fuel flow through a by-pass channel past metering rod jet. *This is a factory adjustment to refine air-fuel mixture ratios and screw must not be removed or setting disturbed in the 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 in cold starting. Valve closes as soon as choke valve begins to open. *Valve is not removable and does not require adjustment.*

Idle Stop Solenoid - Consists of a solenoid controlled throttle stopscrew mechanism connected in ignition circuit which controls idle speed with engine running. When ignition turned off, solenoid allows throttle valves to close further as determined by conventional throttle stopscrew setting. Carburetors with idle stop solenoid require special idle speed adjustment. *See Adjustment.*

ADJUSTMENT

If initial adjustment required to warm up engine, set idle mixture screw 3 turns out (Buick and Chevrolet, except 1969 Buick 2 turns out), 5 turns out (Oldsmobile and Pontiac), from a lightly seated position. On cars with idle stop solenoid, check solenoid position as follows:

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CARBURETOR ADJUSTMENT SPECIFICATIONS

Rochester Carb. No.	Idle Speed (Engine RPM) Hot ①	Idle Speed (Engine RPM) Fast ②	Float Level Setting	Metering Rod Setting	Idle Vent Setting	Fast Idle (Off Eng.)	Choke Rod Setting	Vacuum Break Setting	Unloader Setting	Auto. Choke Setting
7028008	600	2400	9/32"	.080"	.050"	.100"	.150"	None	None	None
7028009	750	2400	9/32"	.080"	.050"	.100"	.150"	None	None	None
7028014	④	⑥	9/32"	.120"	.050"	.080"	.150"	.245"	.350"	⑧
7028015	⑤	⑥	9/32"	.130"	.050"	.100"	.150"	.275"	.350"	⑧
7028017	⑤	⑥	9/32"	.130"	.050"	.100"	.150"	.275"	.350"	⑧
7028047	⑤	⑥	5/16"	.140"	.020"	–	.190"	.275"	.325"	⑧
7028057	725	750 ③	9/32"	.130"	.050"	.100"	.190"	.275"	.350"	⑧
7028065	⑦	2400	5/16"	.075"	.040"	.090"	.200"	.300"	.245"	⑨
7028067	⑦	2400	5/16"	.085"	.040"	.090"	.200"	.300"	.245"	⑨
7028075	⑦	2400	5/16"	.085"	.040"	.090"	.200"	.290"	.245"	⑨
7029008	750 ⑪	2400	1/4"	.080"	.050"	.100"	.150"	–	–	⑧
7029014	⑩	⑫	1/4"	.070"	.050"	.100"	.170"	.245"	.350"	⑧
7029015	700	⑫	1/4"	.090"	.050"	.100"	.200"	.275"	.350"	⑧
7029017	700	⑫	1/4"	.090"	.050"	.100"	.200"	.275"	.350"	⑧
7029047	700 ⑬	⑫	9/32"	.140"	.020"	.080"	.190"	.275"	.350"	⑧
7029057	725	750	5/16"	.120"	.030"	.110"	.180"	.260"	.350"	⑧
7029165	⑦	2400	9/32"	.085"	.040"	.120"	.200"	.275"	.450"	⑨
7029166	⑦	2800	9/32"	.085"	.040"	.130"	.180"	.260"	.450"	⑨
7029167	⑦	2400	9/32"	.085"	.040"	.120"	.200"	.275"	.450"	⑨
7029168	⑦	2800	9/32"	.085"	.040"	.130"	.180"	.260"	.450"	⑨

① - Auto. Trans. in Drive, Air Cond. OFF (except as noted).
② - Cam follower on HIGH step of fast idle cam (except as noted).
③ - Cam follower on THIRD step, against shoulder of second step of fast idle cam.
④ - Auto. Trans. Cars, set as follows:
Buick - 500 RPM in Drive (see Solenoid Note in text).
Chevrolet (Emission Control Engines) - 500 RPM with idle stop solenoid energized (see text for stopscrew adjustment). 600 RPM with Air Cond. ON.
Oldsmobile - 575 RPM with idle stop solenoid energized (see text for stopscrew adjustment).
⑤ - Synchro-mesh Cars, set as follows:
Buick - 700 RPM (No Air Cond.) 500 RPM (with Air Cond. OFF), see solenoid note in text.
Chevrolet (Emission Control Engines) - 700 RPM with Air Cond. OFF. (If used).
Chevrolet (Non-Emission Control Engines) - 500 RPM.
Oldsmobile - 725 RPM (Air Cond. OFF) (if used).
⑥ - All Cars, set as follows:
Buick - 20 RPM higher than hot idle speed with cam follower on LOW step of fast idle cam.
Chevrolet - 2400 RPM with cam follower on HIGH step of fast idle cam.
Oldsmobile - 750 RPM with cam follower on THIRD step of fast idle cam.
⑦ - Special procedure required. See Text.
⑧ - One rod diameter interference fit. See Text.
⑨ - Rod in gauge notch on lever. See Text.
⑩ - Auto. Trans. Cars, set as follows:
Buick - 500 RPM with idle stop solenoid energized (see text for stopscrew adjustment).
Chevrolet - 550 RPM with idle stop solenoid energized (see text for stopscrew adjustment).
Oldsmobile - 575 RPM with idle stop solenoid energized (see text for stopscrew adjustment).
⑪ - Listing is for Synchro-mesh; Auto. Trans. 600 RPM.
⑫ - All Cars, set as follows:
Buick - 720 RPM Synchro-mesh; 620 RPM Auto. Trans. with cam follower on LOW step of cam.
Chevrolet - 2400 RPM with cam follower on HIGH step of fast idle cam.
Oldsmobile - 750 RPM with cam follower on THIRD step of fast idle cam.
⑬ - With idle stop solenoid energized (see text for stopscrew adjustment).

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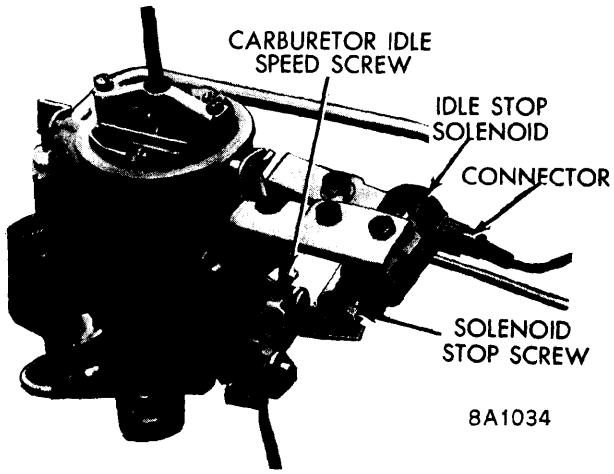
Idle Stop Solenoid Position - First set carburetor idle speed to specifications using throttle stopscrew, then close throttle against throttle stopscrew (OFF fast idle cam). Energize solenoid and turn plunger out 2 turns from fully bottomed position (13/16" to 15/16" from head of screw to solenoid body for Oldsmobile). Install solenoid so plunger just touches carburetor lever and terminal is positioned 30° outboard to clear air cleaner. Turn throttle stopscrew 1 turn counterclockwise so it will not contact lever during slow idle adjustment, then proceed with this adjustment for the car model.



IDLE STOP SOLENOID INSTALLATION (TYPICAL)

Idle Speed & Mixture

Engine must be idling at normal operating temperature with choke valve wide open and fast idle tang not contacting fast idle cam. With Auto. Trans. in Drive, Air Conditioner OFF, idle stop solenoid energized (normal running condition), and Idle Compensator Valve closed, adjust each model as directed below. *NOTE* - Hot idle compensator valve can be blocked by inserting pencil in passage in air horn *(CAUTION - pencil must be removed after adjustment completed).*

Buick - With air cleaner in place, engine at normal operating temperature, distributor vacuum hose disconnected and Auto. Trans. in Drive, proceed as follows:

1) Adjust idle stop solenoid for correct hot engine idle RPM (see Specifications), adjust idle mixture adjusting screw for highest engine RPM, then readjust throttle stopscrew for 20 RPM higher than specified idle speed, finally turn idle mixture screw in to lean mixture until engine speed drops to specified RPM.

2) Disconnect lead from idle stop solenoid to de-energize solenoid. Adjust carburetor throttle stopscrew to obtain 400 RPM (automatic or manual transmission). Do not touch mixture or idle stop solenoid screws.

3) Reconnect wire to solenoid. Accelerate engine slightly to allow solenoid to extend, then recheck normal idle speed.

Chevrolet - On all 4 Cyl. and 6 Cyl. cars Air Conditio should be turned OFF when adjusting idle speed.

1) Adjust throttle stopscrew or the idle stop solenoid stopscrew (6 Cyl. Auto. Trans.) for specified hot engine idle speed (See Specifications), then adjust idle mixture adjusting screw for highest steady idle speed, readjust throttle stopscrew (or idle stop solenoid) for specified idle speed, turn idle mixture screw in for 20 RPM drop in speed (lean roll point), finally turn idle mixture screw out exactly ¼ turn.

2) On cars with idle stop solenoid only, disconnect lead at solenoid (throttle lever will seat against regular stopscrew), adjust this stopscrew for engine idle speed of 550 RPM. *Do not change setting of idle stop solenoid stopscrew or idle mixture screw.*

Oldsmobile - Remove air cleaner, disconnect air cleaner vacuum hose at intake manifold and plug vacuum fitting, disconnect vacuum hose at distributor and plug end of hose.

1) Adjust idle stop solenoid stopscrew and idle mixture adjusting screw alternately for best idle at specified hot engine idle RPM (see Specifications), then turn idle mixture screw in (to lean mixture) for 20-25 RPM drop in engine speed, finally turn throttle stopscrew in until it contacts throttle lever.

2) Disconnect lead at idle stop solenoid (throttle lever will seat against regular stopscrew), adjust this stopscrew for engine idle speed of 400 RPM in neutral. *Do not change setting of idle stop solenoid stopscrew or idle mixture screw.*

Pontiac - Make adjustment exactly as follows:

1) Adjust idle stop solenoid stopscrew for hot engine idle speed of 730 RPM (Synchro-mesh Cars), 610 RPM (Auto. Trans. Cars).

2) With engine idling at above RPM, turn idle mixture adjusting screw in until idle speed is exactly 700 RPM (Synchro-mesh Cars), 600 RPM (Auto. Trans. Cars). *Do not change setting of idle stop solenoid screw.*

3) Disconnect lead at idle stop solenoid (throttle lever will seat against regular stopscrew), adjust this stopscrew for idle speed of 500 RPM (All Trans.). *Do not change setting of idle stop solenoid screw or idle mixture screw.*

Fast Idle Speed (On Engine)

After idle speed and mixture adjustment completed and with engine idling at normal operating temperature, position fast idle cam follower on correct step of fast idle cam and bend tang toward or away from cam for correct fast idle speed (see Specifications).

Throttle Linkage & Dashpot

See car model Tune-Up pages for adjustment procedure.

Fast Idle Speed (Off Engine)

Automatic Choke Carburetors (Stepped Cam) - *NOTE Make initial idle speed setting by turning throttle stopscrew in 1½ turns from closed throttle valve position (setting must be rechecked when carburetor installed on engine).* Position fast idle cam follower on highest step

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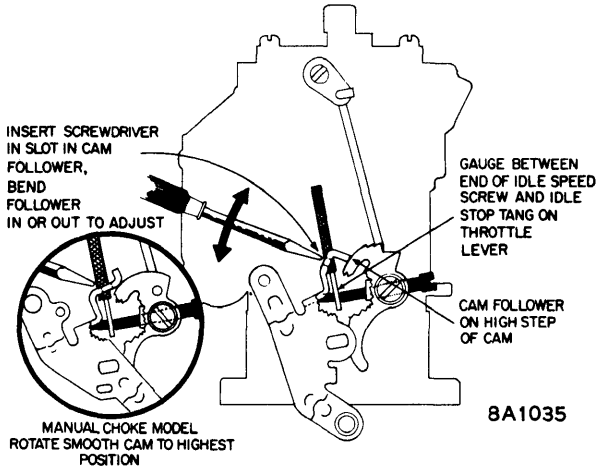
of cam, hold cam follower against cam and check clearance between end of throttle stopscrew and idle stoptang on throttle lever. If clearance not correct (see Specifications), adjust by bending cam follower toward or away from fast idle cam.

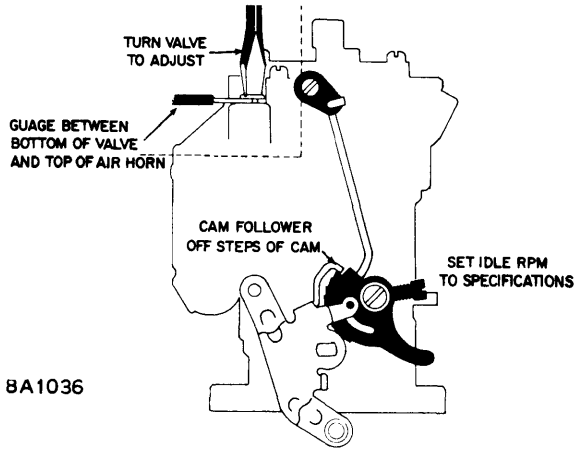


FAST IDLE SPEED ADJUSTMENT (OFF ENGINE)

Manual Choke Carburetors (Smooth Contour Cam) - Adjust in same manner as automatic choke carburetots except rotate fast idle cam clockwise to farthest up position.

Idle Vent

Engine idle RPM must be correct and idle stop solenoid (when used) must be energized when checking and adjusting idle vent. Hold choke valve wide open so that cam follower clears fast idle cam, close throttle valve so that throttle lever is against stop screw, use gauge to check clearance between lower face of vent valve and valve seat on air horn. If clearance not correct (see Specifications), adjust by using screwdriver to turn slotted vent valve head in or out as required. *NOTE* - Some vent valves do not have a closing spring and act as a pressure relief valve to vent excessive vapor pressures in bowl.



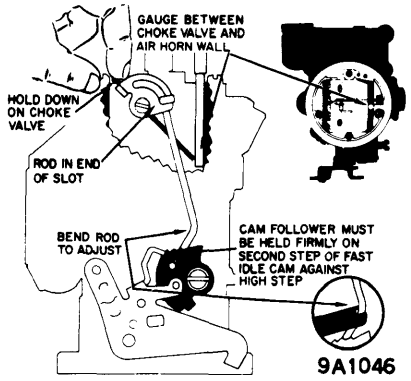
IDLE VENT ADJUSTMENT

Choke Rod

Fast idle adjustment must be made first. Adjust as follows:

Automatic Choke Carburetors (Stepped Cam) - Position fast idle cam follower on second step of fast idle cam and against shoulder of high step, close choke valve as far as possible with light pressure on high side of choke valve. Choke rod must be in end of slot in choke lever as shown. Measure clearance between lower edge of choke valve and air horn wall at center of valve. If clearance not correct (See Specifications), adjust by bending choke rod at lower angle as required.

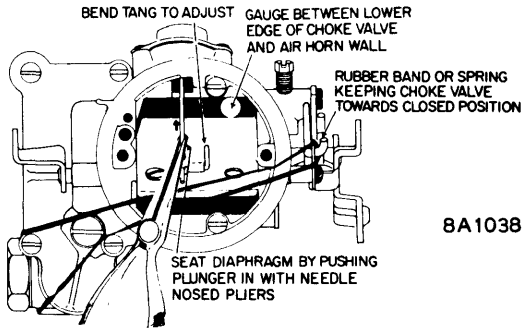
Manual Choke Carburetors (Smooth Contour Cam) - Adjust in same manner as automatic choke carburetors, except align index mark on cam with contact point of cam follower.



CHOKE ROD ADJUSTMENT

Vacuum Break (Automatic Choke Carburetors)

Open throttle valve so that cam follower clears highest step of fast idle cam; fully close choke valve (valve can be held closed with rubber band - see illustration), press inward on vacuum break plunger rod until diaphragm seated. Measure clearance between lower edge of choke valve and air horn wall using specified gauge. If clearance not correct (see Specifications), adjust by bending vacuum break lever on choke valve as required.



VACUUM BREAK ADJUSTMENT

Unloader

Hold choke valve closed with light pressure on choke coil lever, rotate throttle lever to wide open throttle position. Check clearance between lower edge of choke valve at center and air horn wall. If clearance not correct (see Specifications), adjust by bending unloader tang on throttle lever as required.

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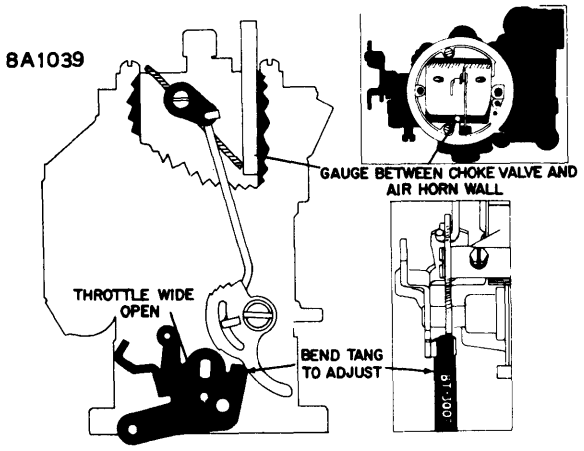
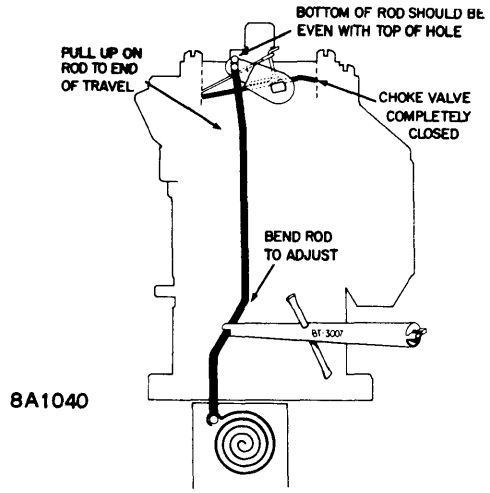


UNLOADER ADJUSTMENT

Automatic Choke

Disconnect choke coil rod at choke valve lever, hold choke valve closed, pull upward on rod to limit of travel. On all car models except Pontiac, bottom of rod end should be even with top of hole in choke lever (1 rod diameter interference fit). On Pontiac, rod end should fit freely in gauging notch on top of choke lever. Adjust by bending choke rod at existing bend (U-bend on Pontiac), connect rod. *CAUTION - Choke rod end must engage choke lever freely without bind.*



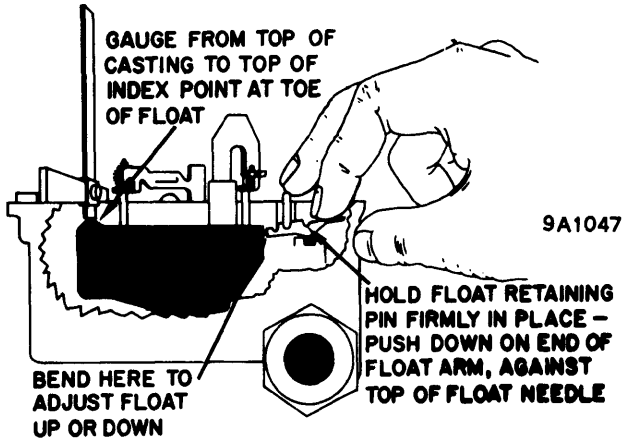
AUTOMATIC CHOKE SETTING

Manual Choke

Push choke knob in instrument panel in to within 1/8" of panel, loosen choke cable clamp at carburetor bracket and adjust cable in clip until choke valve is wide open, tighten cable clamp. Check choke operation to ensure that knob gives full closed and wide open choke valve positions.

Float Level

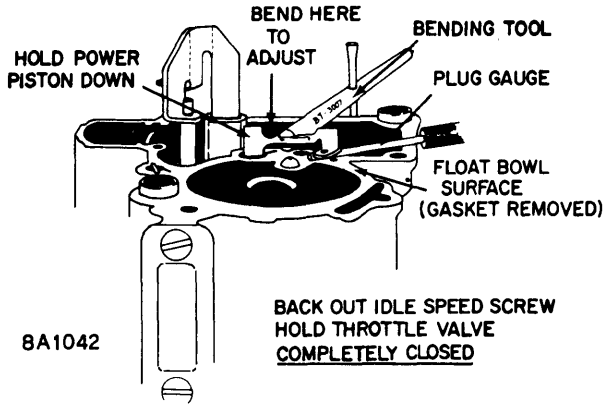
With air horn and bowl cover and bowl cover gasket removed, hold float retaining pin firmly in place and push down on float arm at outer end against top of float needle. At a point 1/16" in from end of flat surface at float toe (not on radius), or at index point, measure distance from top of float at toe, or index point, to float bowl gasket surface. If this distance not correct (See Specifications), adjust by bending float up or down at float arm junction.



FLOAT LEVEL ADJUSTMENT

Metering Rod

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. Reinstall metering rod and reassemble carburetor.



METERING ROD ADJUSTMENT

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OVERHAUL

Disassembly

NOTE - Disassembly procedures are identical for both Model M and Model MV carburetors, except Model M does not have an automatic choke.

1) Remove choke lever from shaft, lever from rod, and rod from slot in fast idle cam. *NOTE - Remember position of rod in relation to levers for reassembly, then rotate rod to remove.*

2) Remove air horn attaching screws, remove air horn, invert, and remove air cleaner bridge. Remove vacuum break diaphragm cover screws, retainer, diaphragm and plunger rod by holding choke valve open, pushing upward on diaphragm rod until eyelet slides off wire lever on choke valve, and removing diaphragm plunger rod through hole in air horn.

3) If necessary for parts replacement, choke valve, vacuum break lever, and choke shaft can be removed by removing choke valve screws. *NOTE - Remove staking on screws by filing. Choke shaft may be damaged if staking is not removed.* If necessary, remove idle vent valve by turning screw head out of plastic guide. *NOTE - Do not attempt to remove cranking enrichment valve.*

4) Remove float bowl gasket, lift up on float hinge pin to remove float assembly, and remove hinge pin from float arm.

5) Remove float needle, then float needle seat and gasket. *CAUTION - To prevent damage to needle seat use a screwdriver which completely fills slot.* Remove fuel inlet nut, gasket, paper filter element, and pressure relief spring.

6) Use long nosed pliers to remove "T" pump discharge spring retainer. Pump discharge spring, ball, and idle tube can be removed by inverting bowl.

7) Remove actuating lever on throttle shaft, remove upper end of drive link from power piston rod (for Oldsmobile synchro-mesh carburetors, see Note below), then rotate drive link from keyhole in actuating lever. Rotate pump link to remove from actuating lever, then remove upper end of pump link by rotating from keyhole in pump slide. Both power piston and pump assembly should be held down in float bowl, when removing links, as they are spring loaded.

Oldsmobile Synchro-mesh Carburetor Note - On manual transmission models a compressed spring is used on the lower end of the power piston actuator rod. It is not necessary to remove rod from float bowl unless replacement is necessary. When removing power piston, push upward on actuator rod until slot in side of power piston is above bowl.

8) Lift power piston-metering rod assembly and drive rod from float bowl, remove power piston spring from cavity, and pump plunger assembly from float bowl. Remove pump return spring and main metering jet. Remove hot idle compensator cover, compensator and gasket, then remove idle adjustment screw and fast idle cam (if necessary).

9) Remove attaching screws to separate bowl and throttle body. Remove idle mixture needle and spring. *NOTE - Do not remove throttle valve or shaft. This is a close tolerance fit.*

Cleaning & Inspection

All metal parts, including air horn with plastic vent valve guide and cranking enrichment valve, should be thoroughly cleaned in carburetor cleaning solvent. *NOTE - Make sure cleaning solvent is thoroughly removed from cranking enrichment valve cavity.* Do not immerse rubber parts, plastic parts, diaphragms, or pump plunger in carburetor cleaning solvent. Clean pump plunger in clean gasoline. Check all parts and casting passages for carbon deposits, blow out all passages with compressed air. Inspect all parts for wear or damage and REPLACE filter element.

Reassembly

Use all new gaskets. Reverse disassembly procedure and note the following:

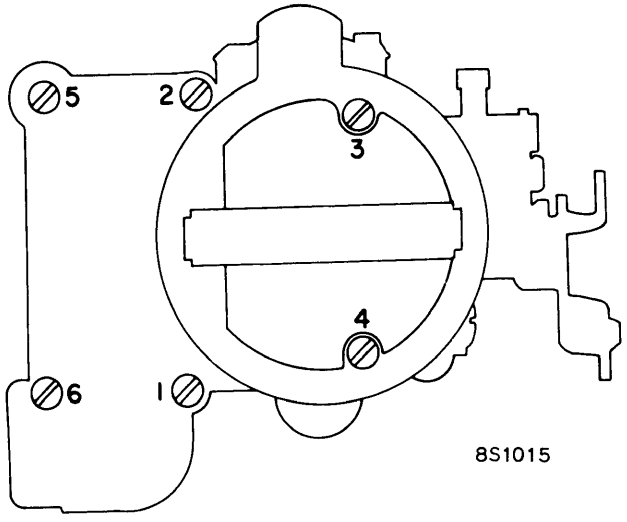
Pump Plunger Installation - Install with slide protruding through bottom of bowl casting. Push downward on pump slide and install pump drive link into hole in lower end of shaft. Ends of drive link point towards carburetor bore.

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).



AIR HORN TIGHTENING SEQUENCE

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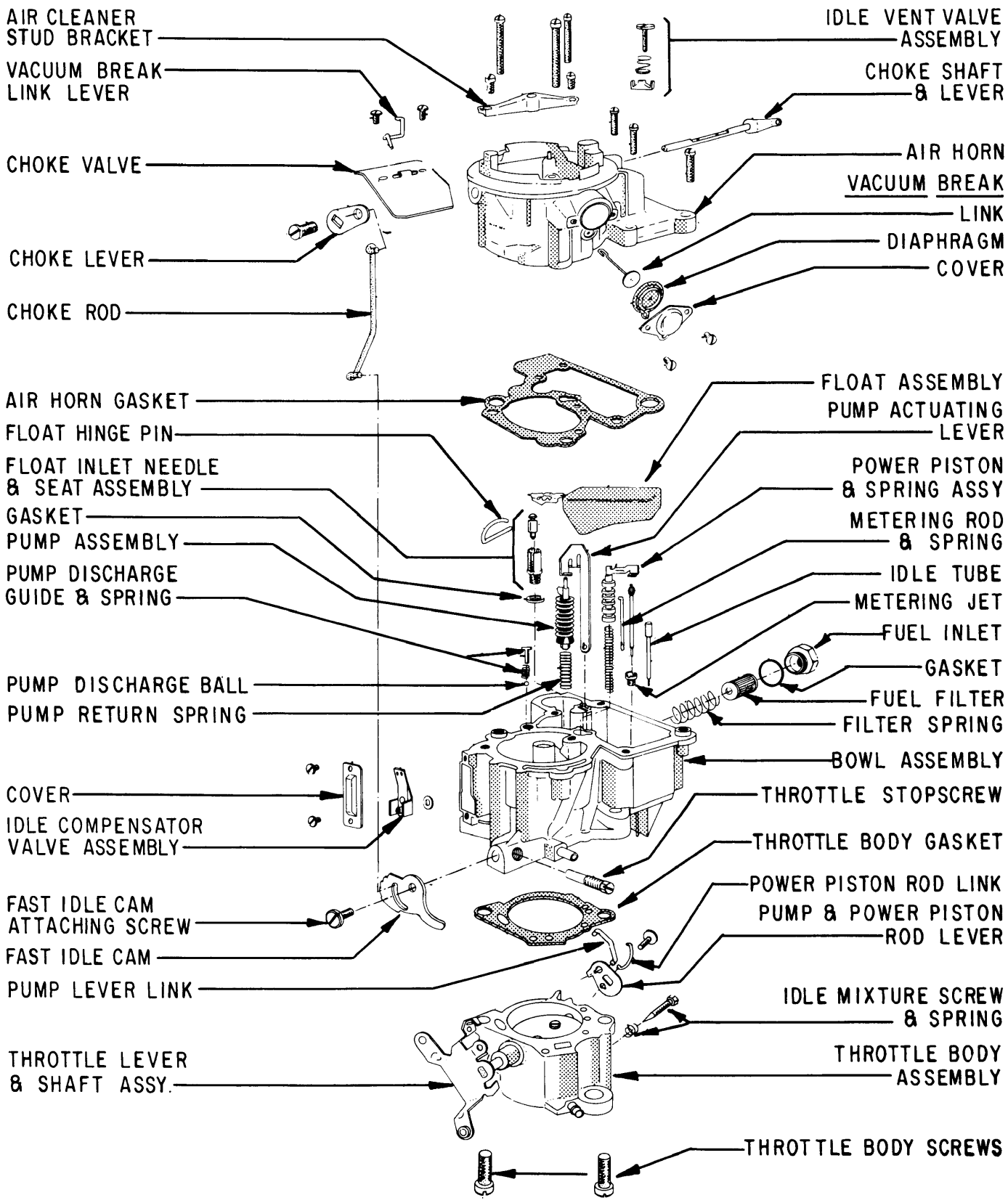

ROCHESTER M & MV CARBURETOR ASSEMBLY