1968-69 CARTER BBD 2-BARREL

1968

CHRYSLER CORP. V8

U.S. Carburetors	Carter Carburetor Number Synchro-mesh	Auto. Trans.
273" V8 ①	4416S	4417S
318" V8 ①	4420S	4421S
383" V8 ②	4422S	4423S, 4578S

Canadian Carburetors

318" V8 ①	4418S	4419S

① – 1¼" Carburetor. ② – 1½" Carburetor, see description.

1969

CHRYSLER CORP. V8

U.S. Carburetors	Carter Carburetor Number Synchro-mesh	Auto. Trans.
273" V8 ①	4605S	4606S
318" V8 ①	4607S	4608S
383" V8 ②	4613S, SA	4614S, 4774S

Canadian Carburetors

318" V8 ①	4609S	4610S

① – 1¼" Carburetor. ② – 1½" Carburetor, see description.

►CHANGES, CAUTIONS, CORRECTIONS

U. S. CARBURETORS – All carburetors are "CAS" type (used with "Clean Air System" engine installations).

CANADIAN CARBURETORS – These carburetors used on conventional engines without "Clean Air System".

►*1968 273" & 318" ENGINES FAILURE TO START WHEN COLD (With Carter BBD 1¼" Carbs.):* This condition is most prevalent after partial cool-down of engine and is caused by incorrect choke specifications. To correct, remove choke unit from intake manifold, loosen locking nut on side of unit, rotate point on wheel to center (long graduation) of scale, tighten locking nut. *NOTE* – These units originally set "2 Notches Rich".

►*1968 383" V8 ENGINES STUMBLE DURING ACCELERATION IN MID-SPEED RANGE CORRECTION (With Carter BBD 1½" Carbs.):* Remove carburetor air horn ONLY to install a heavier accelerator pump spring. Remove old spring from pump and install new spring (Carter Part No. 61-451). Inspect and flare pump leather before installing, and check float height, accelerating pump and bowl vent (see ADJUSTMENT). Start engine and check for fuel leaks. Turn engine off. Two solid streams of fuel should spurt from pump discharge holes when throttle opened by hand. If not, check for obstructed passages or improperly installed check valves.

►*1968-69 383" ENGINE ROUGH IDLE AND LOW SPEED SURGE CORRECTION:* This problem may be caused by improper idle limiter screw setting, unbalancing right and left carburetor bores. To Correct:

1) Remove both lead plugs in carburetor base to expose idle limiter screws, using a small drill and "Easy-Out".

2) Using a narrow screwdriver, turn both idle limiter screws clockwise until completely seated against idle discharge ports, no matter how much torque is required. Turn both screws 1½ turns counterclockwise.

3) Turn single idle adjusting screw counterclockwise (left-hand thread) until seated, then ¾ turn clockwise (lean direction). *NOTE – Do not disturb this screw during steps that follow.*

4) Make idle speed and mixture adjustments as required for "CAS" type carburetors, except idle limiter screws are used to adjust, rather than single idle adjusting screw. Be sure that both idle limiter screws are turned equally on each adjustment.

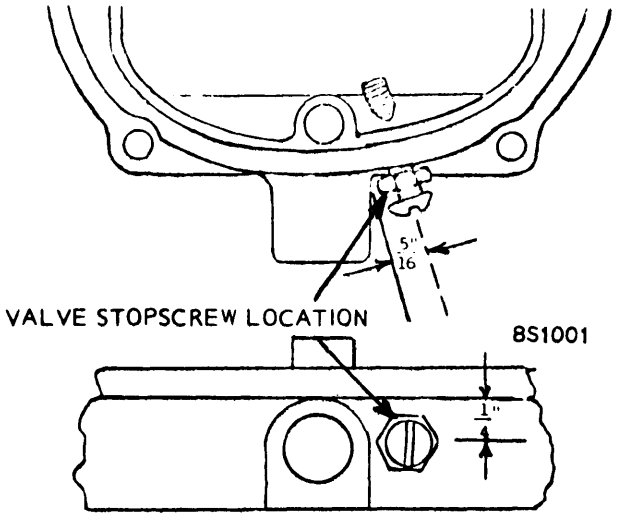
5) When correction completed, install lead plugs over limiter screws.

►*1968 383" ENGINE WITH 2-BBL. CARBURETOR CHOKE VALVE STICKING AFTER BACKFIRE CORRECTION:* Correct by adding a stop to carburetor air horn as shown below. Remove air horn from carburetor. Drill a #21 (.159") hole parallel to air cleaner gasket surface and in line with air cleaner stud, then tap for 10-32 threads. Be careful not to bend choke diaphragm bracket or link and remove all chips.

1) Install a 10-32 screw, 1¼" long, with locknut as shown. Close choke valve and adjust screw so it just touches valve surface. If hole is too low and obstructs valve, grind a conical point on the end of the screw, install and adjust so valve closes normally.

2) Tighten locknut. Reinstall air horn on carburetor. Check ignition timing and reset to prevent further backfires, if necessary.

►*1969 CARBURETOR PRODUCTION CHANGE & ADJUSTMENT CAUTION (SA Models & 4774S Carbs.):* These carburetors have a revised idle system with two idle mixture screws with limiter caps and require different adjustment procedures.



CHOKE VALVE STOPSCREW

1968-69 CARTER BBD 2-BARREL (Continued)

CARBURETOR IDENTIFICATION

Carter carburetor number is stamped on tag attached to carburetor by air horn screw. *NOTE* - "CAS" carburetors are identified by green tag.

DESCRIPTION

Two barrel downdraft type with separate "Well Type" automatic choke. An externally mounted vacuum diaphragm assembly which is connected to the choke lever by linkage provides initial choke valve opening when engine starts.

All carburetors are same design except as follows:

1968 1¼" Carburetors – Idle mixture screws have limited travel (stopscrew installed in throttle body) and will be damaged or broken if any attempt is made to remove them.

1968 1½" Carburetors – Single idle mixture screw has a **left-hand** thread. Carburetors have two idle limiter screws (in throttle body flange) and one off-idle mixture control screw (in air horn) which are adjusted at factory and sealed. **Do not remove plugs or attempt to adjust these screws**

1969 1¼" Carburetors – Idle mixture adjusting screw has idle limiter cap installed on screw which limits range of adjustment for exhaust emission control. **Do not remove or deform limiter cap and make certain ear on cap contacts stop on carburetor body to provide positive stops for mixture screw adjustment range.**

1969 1½" Carburetors – Early carburetors (with "S" part number suffix) have a single idle mixture adjusting screw which has a **left-hand** thread and no limiter cap. Later carburetors ("SA" part number suffix and 4774S) have two idle mixture adjusting screws with limiter caps. Carburetors also have two sealed idle limiter screws (in throttle body flange) and one sealed off-idle mixture control screw in air horn (early carburetors only) which are adjusted at factory and sealed. **Do not remove seal plugs or attempt to adjust these screws**

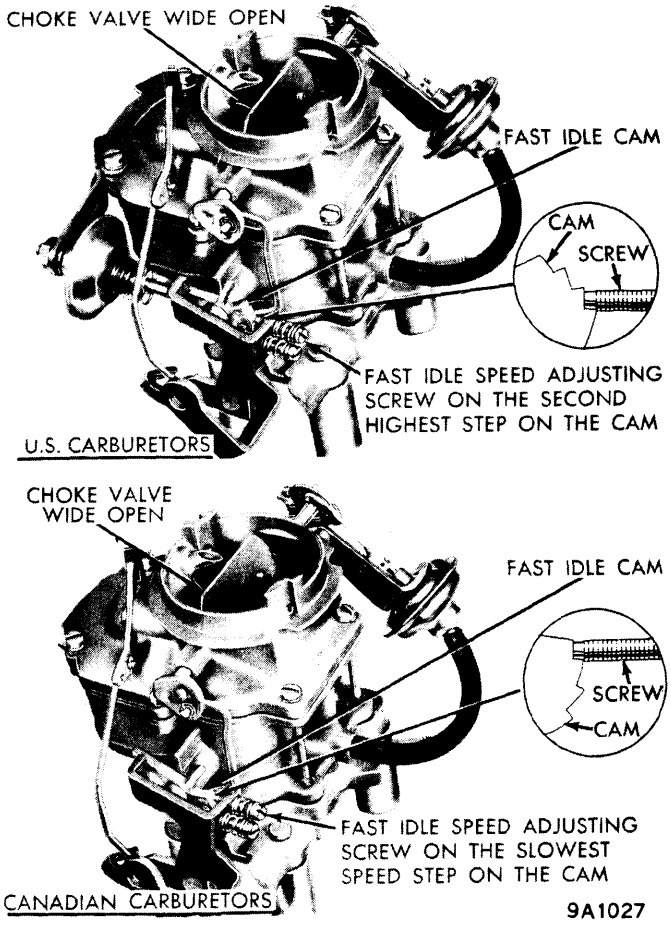
ADJUSTMENT

"ON ENGINE" ADJUSTMENT NOTE - Engine must be at normal operating temperature when making idle speed and mixture adjustment and fast idle speed adjustment. When adjusting idle speed, headlights should be turned ON, automatic transmission in Neutral, and air conditioner OFF.

Idle Speed & Mixture

CAS" Carburetors – *Exhaust Analyser must be used to ensure correct fuel air mixture setting.*

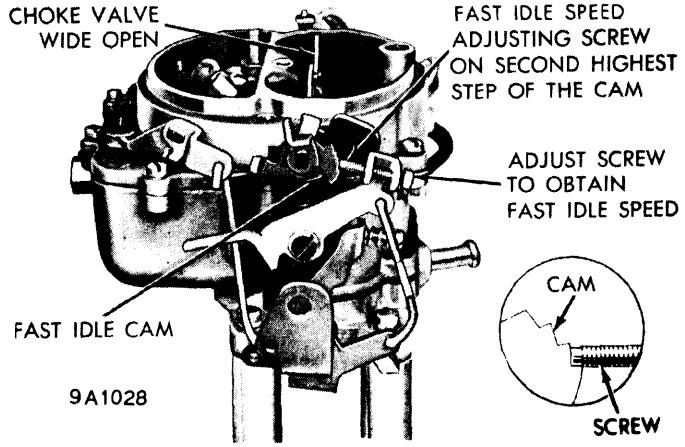
Canadian Carburetors - Adjust engine speed to correct engine RPM (see Specifications) with choke valve open, fast idle screw not contacting fast idle cam. Adjust both idle mixture screws equally for maximum engine RPM and smooth idling, then turn screws in to lean mixture until engine speed begins to drop off, finally turn screws out to richen mixture just enough to recover the lost engine speed. *This procedure will assure leanest possible fuel mixture for smooth idling.* Recheck idle speed. If necessary to readjust idle speed, repeat idle mixture adjustment.



FAST IDLE SPEED ADJUSTMENT
(273" & 318" ENGINE CARBURETORS)

Fast Idle Speed (On Engine)

All Carburetors - With hot idle speed correctly adjusted and engine idling at normal operating temperature with transmission in Neutral or Park, position fast idle screw on second highest step of fast idle cam (U.S. "CAP" carburetors), on lowest step of fast idle cam (Canadian carburetors) as shown in illustration. Turn fast idle adjusting screw in or out for correct fast idle speed (see Specifications).



FAST IDLE SPEED ADJUSTMENT
(383" ENGINE CARBURETORS)

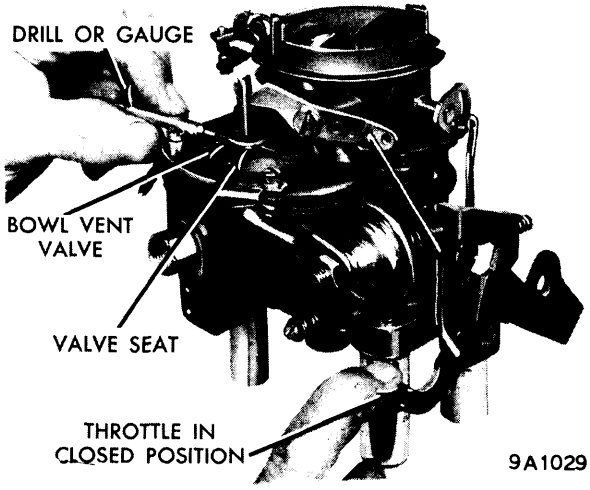
1968-69 CARTER BBD 2-BARREL (Continued)

Accelerating Pump & Bowl Vent (273"& 318" Engines)

NOTE - Three holes are provided in throttle lever for pump seasonal adjustment as indicated below (three grooves provided in pump plunger shaft for corresponding vent valve pin setting also). Pump arm has two holes and pump operating rod should be connected in outer hole (Synchro-mesh), inner hole (Auto. Trans.). This is not a seasonal adjustment.

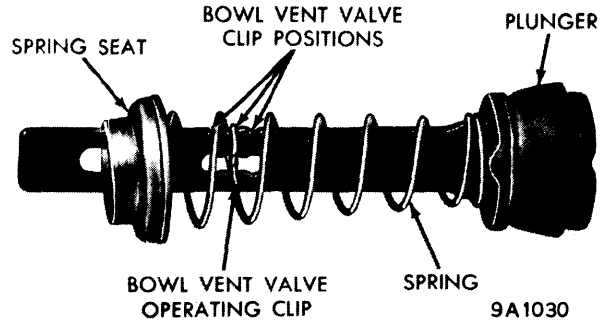
All Carburetors - With throttle stopscrew backed off and throttle valves fully closed, make certain connector rod engaged in center hole of throttle lever and outer hole of pump arm (Synchro-mesh), inner hole of pump arm (Auto. Trans.) and that bowl vent clip on pump plunger shaft is in center groove (see illustration). Measure clearance between vent valve on pump plunger and valve seat on bowl cover using gauge or drill rod of correct size (see Specifications).

Adjust by bending pump operating rod at lower angle as necessary. *NOTE* - On U.S. Carburetors, top of pump plunger stem should be 1-1 1/32" above bowl cover.



PUMP & BOWL VENT ADJUSTMENT (273" & 318" ENGINE CARBURETORS)

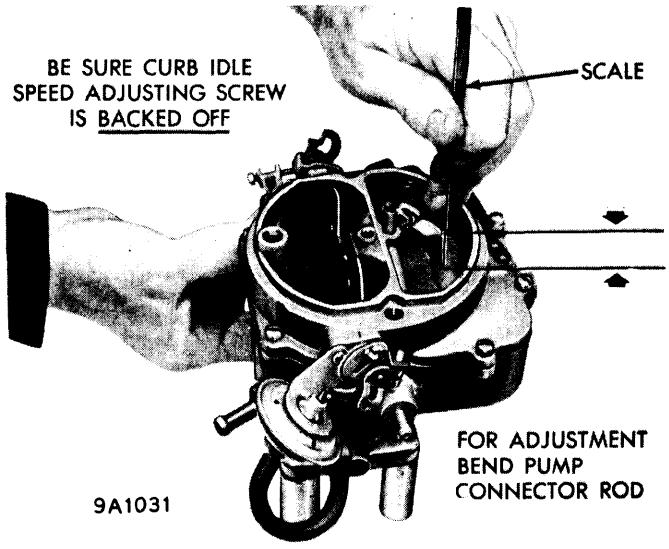
Pump Seasonal Setting - Standard setting is with pump connector rod engaged in center hole of throttle lever. *NOTE - Outer hole of throttle lever provides greater discharge; inner hole provides less.* Whenever connector rod is moved, a corresponding change must be made in pin on pump plunger as follows: Center hole (center groove of plunger); inner hole (upper groove of plunger); outer hole (lower groove of plunger).



PUMP PLUNGER ASSEMBLY (273" & 318" ENGINE CARBURETORS)

Accelerating Pump (383" Engines)

NOTE - Three holes are provided in throttle lever for pump connector rod engagement for pump seasonal setting as indicated below. Back off idle speed adjusting screw and open choke valve so throttle valves can be completely closed. With pump connector rod installed in outer hole of throttle lever and throttle valve tightly closed, distance between air horn and end of plunger shaft should be as indicated in specification table (see illustration). To adjust pump travel, bend pump connector rod at lower angle.



ACCELERATING PUMP TRAVEL ADJUSTMENT (383" ENGINE CARBURETORS)

Pump Seasonal Setting - Standard setting is with pump connector rod engaged in center hole of throttle lever. *NOTE - Outer hole of throttle lever provides greater discharge; inner hole provides less. Whenever connector rod is moved, bowl vapor vent must be readjusted.*

Bowl Vent (383" Engines)

Check and adjust bowl vent whenever pump adjustment is changed. With throttle valves closed in curb idle position, use gauge or drill rod of correct size (see Specifications) to measure clearance between underside of vent valve and valve seat on bowl cover at outermost point (largest clearance) as shown in illustration. Adjust by bending short tang on vent valve operating lever as required.

Fast Idle Cam Position

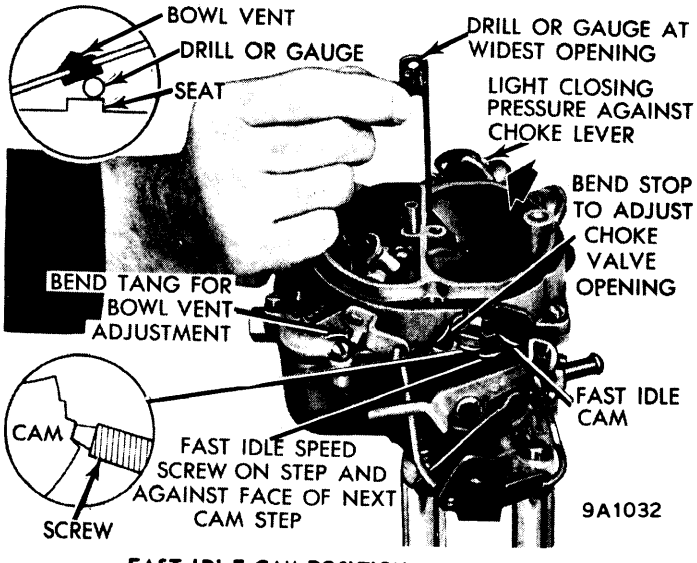
With fast idle screw on second step and against shoulder of first step of fast idle cam (see illustration), move choke valve toward closed position with light pressure. Measure choke valve opening by inserting gauge or drill rod of correct size (see Specifications) between upper edge of choke valve and air horn wall. A slight drag should be noted when gauge is withdrawn. If opening not correct, adjust by bending fast idle connector rod at the angle (273" & 318" Engine Carburetors), or by bending stop on choke shaft lever (383" Engine Carburetors).

1968-69 CARTER BBD 2-BARREL (Continued)

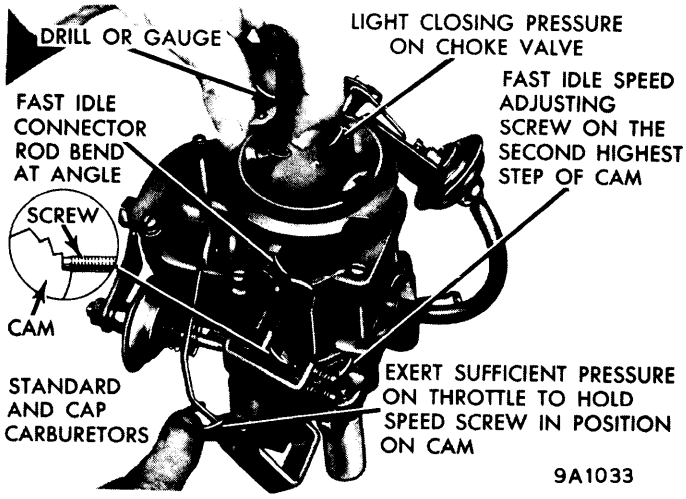
CARBURETOR ADJUSTMENT SPECIFICATIONS

Carter Carb. No.	Idle Speed (Engine RPM)		Fast Idle Cam Position	Float Level Setting	Accel. Pump Height	Bowl Vent Setting	Auto. Choke Setting	Unloader Setting	Vacuum Kick Setting
	Hot ①	Fast							
4416S	700	1400 ④	#50	1/4"	1-1 1/32"	1/16"	2 Rich ⑨	1/4"	#4
4417S	650	1600 ④	#50	1/4"	1-1 1/32"	1/16"	2 Rich ⑨	1/4"	#41
4418S	500 ⑧	700 ③	#41	1/4"	–	1/16"	Index	1/4"	#4
4419S	500 ⑧	700 ③	#41	1/4"	–	1/16"	Index	1/4"	#28
4420S	650	1300 ④	#41	1/4"	1-1 1/32"	1/16"	2 Rich ⑨	1/4"	#4
4421S	600	1500 ④	#41	1/4"	1-1 1/32"	1/16"	2 Rich ⑨	1/4"	#28
4422S	650	1600 ④	#30	5/16"	29/32" ⑤	.050" ⑥	2 Rich	1/4"	#1
4423S	600 ⑦	1600 ④	#30	5/16"	29/32" ⑤	.050" ⑥	2 Rich	1/4"	#16
4578S	600	1600 ④	#30	5/16"	29/32" ⑤	.050" ⑥	2 Rich	1/4"	#16
4605S	700	1500 ②	#41	1/4"	–	1/16"	Index	1/4"	#20
4606S	650	1600 ②	#41	1/4"	–	1/16"	Index	1/4"	#41
4607S	700	1300 ②	#41	1/4"	–	1/16"	Index	1/4"	#20
4608S	650	1700 ②	#41	1/4"	–	1/16"	Index	1/4"	#28
4609S	700	1300 ②	#41	1/4"	–	1/16"	Index	1/4"	#20
4610S	650	1700 ②	#41	1/4"	–	1/16"	Index	1/4"	#28
4613S	700	1600 ②	#30	5/16"	1.00"	1/16"	2 Rich	1/4"	#20
4614S	600	1600 ②	#30	5/16"	1.00"	1/16"	2 Rich	1/4"	#20

① – Auto. Trans. in Neutral, Air Cond. OFF.
② – After approx. 500 miles (if necessary).
③ – With fast idle screw on lowest step of fast idle cam.
④ – With fast idle screw on second highest step of fast idle cam.
⑤ – Plus or minus 1/64".
⑥ – Plus or minus .010".
⑦ – With Air Cond. ON (To correct stalling after hot start.
⑧ – With Air Cond. ON.
⑨ – Change to "Centered" setting to correct engine failure to start.



FAST IDLE CAM POSITION ADJUSTMENT (273" & 318" ENGINE CARBURETORS)



FAST IDLE CAM & BOWL VENT ADJUSTMENT (383" ENGINE CARBURETORS)

Vacuum Kick (Choke Vacuum Diaphragm)

***NOTE** - Adjustment can be made with carburetor on engine and engine running (to supply vacuum) as follows:*

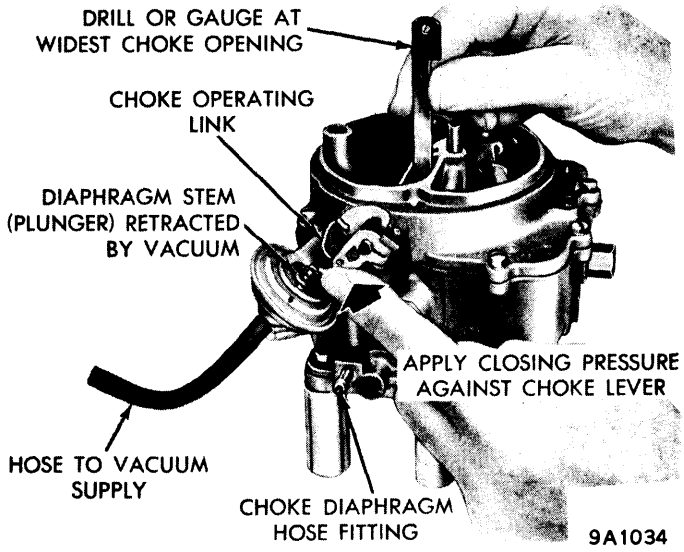
Checking - Disconnect fast idle linkage so choke can be closed to kick position with carburetor throttle at curb idle. Insert drill of correct size (see Specifications) between choke valve and air horn wall, apply sufficient closing pressure on choke rod lever to provide minimum choke valve opening without distorting diaphragm link

1968-69 CARTER BBD 2-BARREL (Continued)

(CAUTION - Diaphragm internal spring must be fully compressed which will be noted by extension of diaphragm stem). At this point, slight drag should be noted as drill withdrawn from choke valve. If choke valve not correct, adjust diaphragm link length as necessary. Reconnect fast idle linkage.

Adjustment - Change link length by opening or closing the link bend *(CAUTION - Do not apply twisting or bending force to diaphragm).*

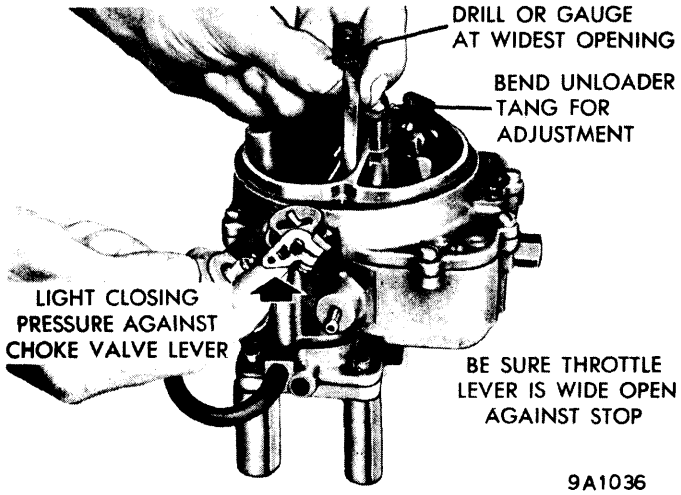
Final Check - With no vacuum applied, choke valve must move freely between open and closed positions.



VACUUM KICK SETTING CHECK (TYPICAL)

Unloader

Hold throttle in wide open position and insert a drill of proper size (see specification table) between upper edge of choke valve and air horn wall (see illustration). With slight closing pressure on valve, a slight drag should be noted as gauge is withdrawn from valve. If choke valve opening not correct, adjust by bending unloader tang on throttle lever (273" & 318" Engine Carburetors), or by bending tang on fast idle lever (383" Engine Carburetors).



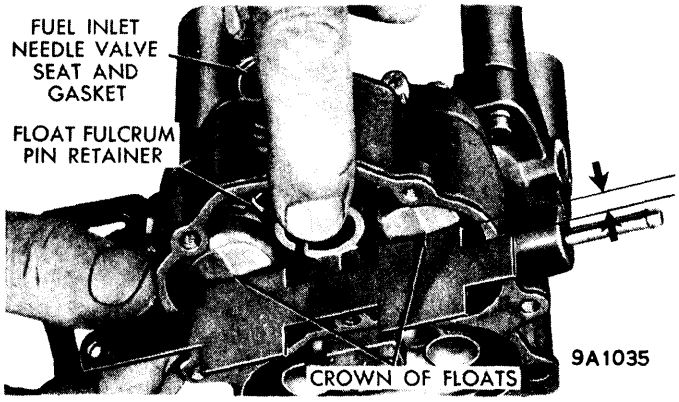
UNLOADER ADJUSTMENT
(273" & 318" ENGINE CARBURETORS)

Automatic Choke

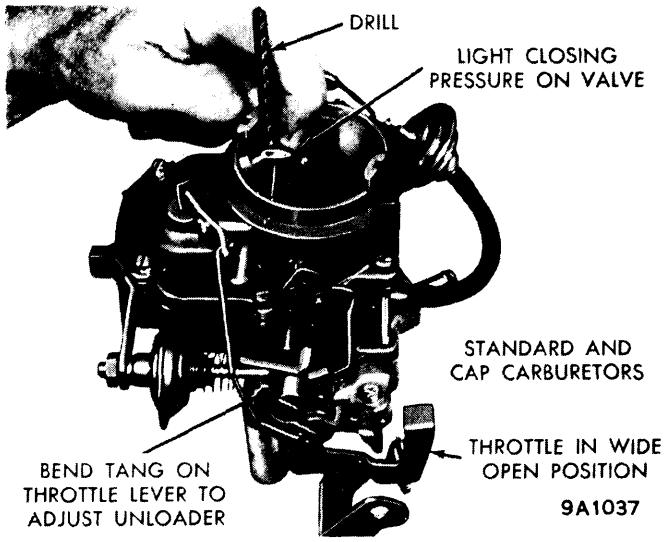
CAUTION - This unit is serviced as a complete assembly. Do not attempt to repair unit or change the adjustment.

Float Level

With carburetor off engine, remove fuel bowl cover and invert carburetor main body so that weight of float only is holding needle valve against seat (hold fingers against fulcrum pin retainer to fully seat pin). Use the correct gauge or a scale (see specification table) and measure distance between surface of fuel bowl and crown of each float at center. To adjust, bend lip of float lever. *CAUTION - When bending float lip, do not allow lip to push against rubber tipped needle valve.*



FLOAT LEVEL MEASUREMENT (TYPICAL)



UNLOADER ADJUSTMENT
(383" ENGINE CARBURETORS)

Dashpot ("CAS" Carbs.)

After idle speed and mixture adjusted, run engine with tachometer attached and open throttle to point where actuating tab on throttle lever contacts dashpot stem (stem must not be compressed), note tachometer reading. Engine speed should be 2000 RPM. Adjust dashpot by turning it in or out of mounting bracket.

1968-69 CARTER BBD 2-BARREL (Continued)

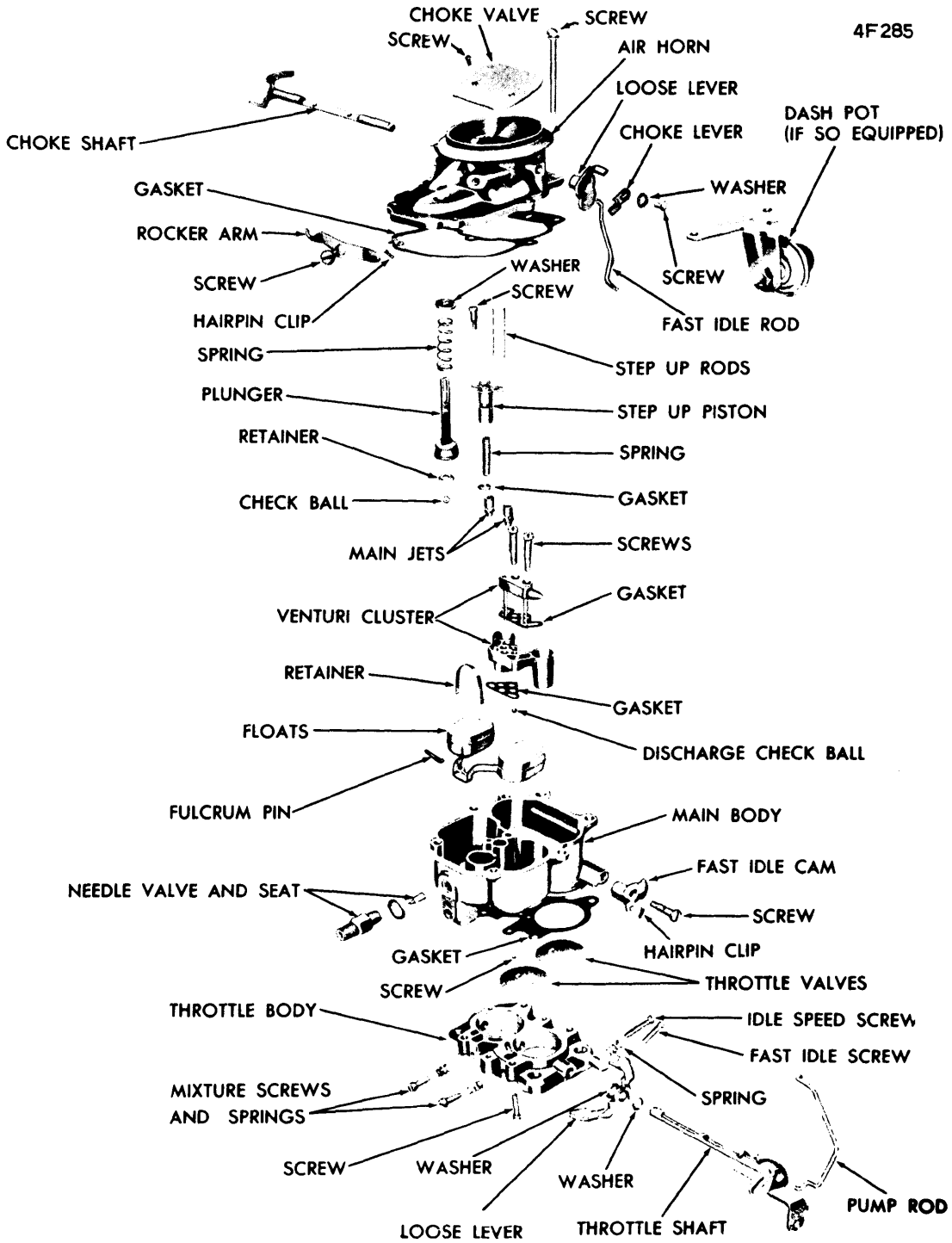
OVERHAUL

►1½" *CARBURETOR IDLE MIXTURE SCREW CAUTION: Carburetors have two idle limiter screws (in throttle body flange) and one off-idle mixture control screw (in air horn) which are adjusted at factory and sealed. Do not remove plugs or attempt to adjust these screws.*

Disassembly

1) Disconnect and remove fast idle connector rod, then disengage accelerator pump operating rod, then remove vacuum hose between main body and vacuum diaphragm. Remove choke operating link and remove vacuum diaphragm and bracket assembly.

2) Remove air horn and discard gasket. Remove dashpot and bracket (if equipped). Disengage accelerator pump plunger from rocker arm by pushing up on bottom of plunger and sliding plunger shaft off hook. Slide plunger out of air horn and remove bowl vent valve, spring and seat. *NOTE - If either the old plunger or a new plunger is to be used, immerse in gasoline to prevent it drying out.*



CARTER BBD 2-BARREL CARBURETOR ASSEMBLY (TYPICAL)

1968-69 CARTER BBD 2-BARREL (Continued)

3) Remove fuel inlet valve needle, seat and gasket, then remove floats and fulcrum pin. Remove step-up piston screw and slide piston and rods out of well. Remove piston spring and gasket.

4) Remove main metering jets and gaskets, then remove retaining screws, venturi cluster and gaskets. *NOTE - Do not remove idle orifice tubes or main vent tubes from venturi.*

5) Invert carburetor and allow accelerating pump inlet and discharge ball checks to drop out into hand. On 1¼" carburetors remove white plastic limiter cap from idle air mixture screw. While counting number of turns, turn idle mixture screw in until seated. On installation the same number of turns from seat must be maintained. On all carburetors remove screws and springs from throttle body. Remove retaining screws and separate throttle body from main body.

6) Check choke valve for free operation (if choke shaft sticks in bearings, or valve binds due to gum deposits in air horn, correct by thorough cleaning). Do not remove throttle valves or shaft unless replacement of parts required (manufacturer recommends replacement of throttle body if wear is extreme). To remove valves, mark position of valves on shaft, then remove valve screws *(CAUTION – Screws are staked, use care not to break screws off in shaft),* lift valves out and slide shaft out of throttle body.

Cleaning

Wash carburetor metal parts in a suitable carburetor cleaner or solvent. DO NOT place diaphragm assembly in any liquid.

Reassembly

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

Throttle Valve Installation - If throttle valve shaft or throttle body is worn, it is recommended that a new throttle body (with shaft) be used. Install throttle valves with mark ("C" in circle) downward and on idle port side, install new screws loosely, then close throttle valves tightly and centralize valves by tapping them lightly. Tighten screws securely and stake them in place by squeezing with pliers.

Accelerating Pump Assembly - Check the pump operation as follows: Pour clean gasoline in float bowl (½" deep), then operate pump plunger several times to fill cylinder and remove all air from discharge passage. Use a small brass rod to hold discharge ball down on its seat, and press pump plunger down. No fuel should be emitted at either the discharge or intake passages. If fuel discharge is noted, remove check balls and inspect for damage.

Step-up Piston & Rod Assembly - Make sure that step-up rods are free on piston plate (must return to vertical position when released), and that piston is free in cylinder. See that step-up rods enter metering jets when installing assembly in carburetor.

Vacuum Kick Diaphragm - Before installing, check for internal leakage by depressing diaphragm stem and placing finger over vacuum fitting to seal passage, then release stem. If stem moves more than 1/16" in 10 seconds, leakage is excessive and unit should be replaced.

Idle Limiter Cap (1¼" Carburetor) - Install idle mixture screws and springs in body. ***NOTE - Tapered portion must be straight and smooth. If tapered portion is grooved or ridged, a new idle mixture screw must be installed.*** **Turn screw lightly against seat with fingers. Back off number of turns counted at disassembly. Install new plastic cap (blue) with tab against stop.**