1970-71 CARTER AVS 4-BARREL

CHRYSLER CORP.

Carter Carburetor No.

1970

Application	Man. Trans.	Auto. Trans.
340" V8 (C.A.S.)	4933S	4934S
With A/C		4935S
340" V8 (E.C.S.)	4936S	4937S
383" V8 (C.A.S.)		4736S
With A/C		4732S
383" V8 (E.C.S.)		4734S
440" V8 (C.A.S.)	4737S	4738S
With A/C		4741S
440" V8 (E.C.S.)	4739S	4740S

1971

383" V8	6125S
440" V8 Standard Engine	4966S
440" V8 Hi Performance	4967S, 4968S

► CHANGES, CAUTIONS, CORRECTIONS

► 1970 carburetors are designated "C.A.S." (Cleaner Air System) or "E.C.S." (Evaporation Control System). Vehicles originally first sold in California are equipped with E.C.S. carburetors which differ from C.A.S. carburetors in the manner in which the fuel bowl is vented. 1971 AVS carburetors are designed for both C.A.S. and E.C.S. emission control standards.

► *1970 CHRYSLER ENGINE SURGE* — If condition occurs during light acceleration at low speed on models equipped with a 440" engine and automatic transmission with AVS 4738S, 4740S and 4741S carburetors, and is not caused by electrical or ignition malfunctions, it may be corrected by enlarging idle pick-up tube orifice from .029" to .032" diameter.

► *440" CHRYSLER V8 ENGINE SAG, STUMBLE OR DIEOUT DURING LIGHT ACCELERATION OR AT LOW SPEED (Carter AVS 4966S Carb.)* — If this condition not corrected after thorough tune-up, make the following carburetor corrections:

1) Remove carburetor air horn and primary nozzle clusters. Using a #66 drill in a pin vise with small amount of grease on drill to prevent chips lodging in idle passages, enlarge each idle jet from .031" to .033". Clean idle jet passages thoroughly and reassemble carburetor.

2) Install accelerator pump link in long stroke position (hole in pump arm nearest pump arm pivot point).

3) Refer to Carter AVS Carburetor Adjustment data and make the following carburetor adjustments: Secondary Air Valve Torsion Spring (2 1/2 turns wind-up), Fast Idle Cam Linkage, Secondary Throttle Lock-out, and Idle Mixture and Idle Speed.

CARBURETOR IDENTIFICATION

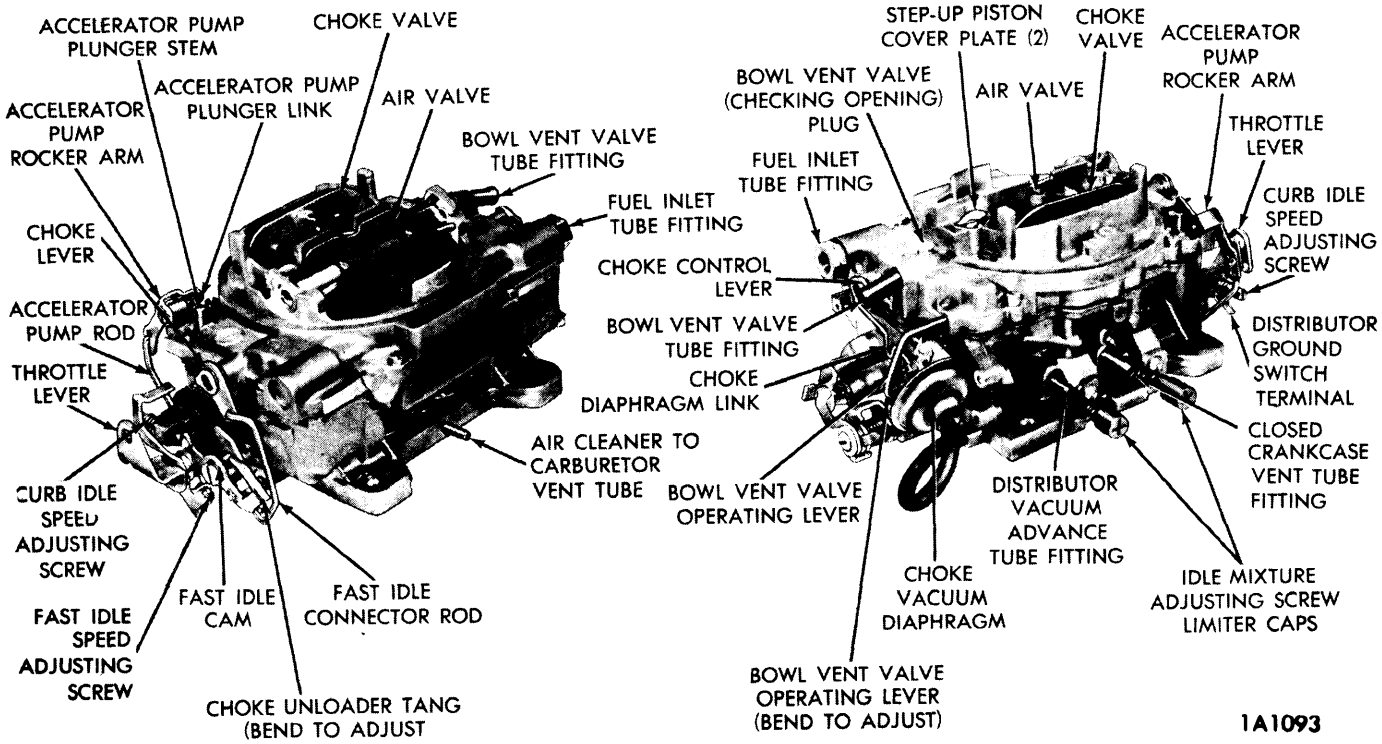
Carter carburetor number is stamped on tag attached to fuel bowl cover by one screw. If tag removed for carburetor repair or adjustment always replace in same position for future carburetor identification.

DESCRIPTION

AVS (Air Valve Secondary) 4-Bbl. carburetors are similar in design to previous models with special features listed below. An external Vacuum Kick Diaphragm is mounted externally on the carburetor body and works in conjunction with a separate "well type" automatic choke.

Secondary Air Valve – Spring-loaded velocity type valve located in air horn over secondary discharge nozzles provides smooth response when secondary throttle valves operated. *See Adjustments.*

Secondary Discharge Nozzles – Not venturi cluster type. Nozzles are pressed in secondary side of bowl.



AVS CARBURETOR ASSEMBLY (E.C.S. SHOWN)

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Hot Idle Compensator Valve – Used on all carburetors; this valve is a thermostatically operated air bleed, used to relieve an over-rich condition at idle due to abnormal temperature.

Distributor Ground Switch – An integral part of all carburetors (AVS Models) used on vehicles with 383 and 440 CID engines. Retards distributor timing when carburetor is at curb idle, for better emission control. Switch contact button is located in tip of idle speed solenoid plunger (see illustration). At closed throttle, when idle speed adjusting screw contacts button, distributor advance solenoid is grounded and vacuum advance is inoperative.

Idle Speed Solenoid – (When used). Mounted on side of carburetor. Used to maintain a higher idle speed when engine is running. Allows throttle to close to very low idle speed position when ignition switch is turned OFF.

ADJUSTMENT

Idle Speed & Mixture

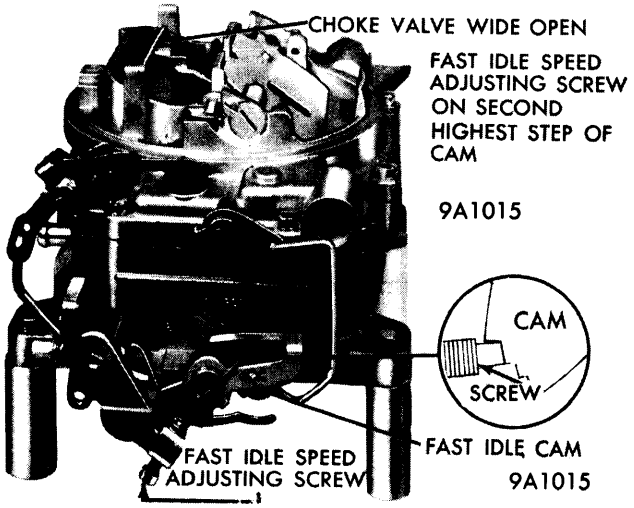
Exhaust Analyzer must be used to ensure correct air-fuel ratio.

Idle Speed Solenoid

With engine running at normal operating temperature, turn solenoid adjusting screw to obtain 900 RPM (both manual and automatic transmissions). With solenoid still energized and engine running, adjust **slow curb idle speed screw** until end of screw just touches stop on carburetor body, then back screw off 1 full turn. This will result in a slow curb idle speed of 650–700 RPM.

Fast Idle Speed (On Engine)

Position fast idle screw on second highest step of fast idle cam (see illustration). With engine idling at normal operating temperature and transmission in Neutral or Park, turn fast idle screw in or out for correct fast idle speed (see Specifications).



FAST IDLE SPEED ADJUSTMENT

Float Level

With air horn gasket in place, invert air horn and float assembly so that weight of float is on seated needle. Align floats by bending float lever so that side of each float is parallel with outer edge of air horn casting (this adjustment

CARBURETOR ADJUSTMENT SPECIFICATIONS

Carter Carb. No.	Idle Speed (Engine RPM)		Fast Idle Cam Position ③	Float Level Setting	Bowl Vent Setting	Accel. Pump Setting	Unloader Setting	Vacuum Kick Setting	Auto. Choke Setting
	Hot①	Fast②							
4732S	700	1700	#50	5/16"	3/64"	7/16"	1/4"	#44	2-Rich
4734S	700	1700	#50	5/16"	3/4"	7/16"	1/4"	#44	2-Rich
4736S	700	1700	#50	5/16"	3/64"	7/16"	1/4"	#44	2-Rich
4737S	900	2000	#50	7/32"	3/64"	7/16"	1/4"	#20	2-Rich
4738S	800	1800	#50	7/32"	3/64"	7/16"	1/4"	#20	Index
4739S	900	2000	#50	7/32"	3/4"	7/16"	1/4"	#20	Index
4740S	800	1800	#50	7/32"	3/4"	7/16"	1/4"	#20	Index
4741S	800	1800	#50	7/32"	3/64"	7/16"	1/4"	#20	Index
4933S	950	2000	#50	7/32"	3/64"	7/16"	1/4"	#35	Index
4934S	900	2000	#50	7/32"	1/8"	7/16"	1/4"	#50	Index
4935S	900	2000	#50	7/32"	1/8"	7/16"	1/4"	#50	Index
4936S	950	2000	#50	7/32"	3/4"	7/16"	1/4"	#35	Index
4937S	900	2000	#50	7/32"	3/4"	7/16"	1/4"	#50	Index
4966S	750	1800	#50	7/32"	3/4"	7/16"	1/4"	#44	2-Rich
4967S	900	2100	#50	7/32"	3/4"	7/16"	1/4"	#44	2-Rich
4968S	900	1800	#50	7/32"	3/4"	7/16"	1/4"	#44	2-Rich
6125S	800	1700	#50	7/32"	3/4"	7/16"	1/4"	#44	2-Rich

① – Transmission in "N", A/C OFF.
② – Fast idle screw on 2nd highest step of fast idle cam.
③ – Drill Size.

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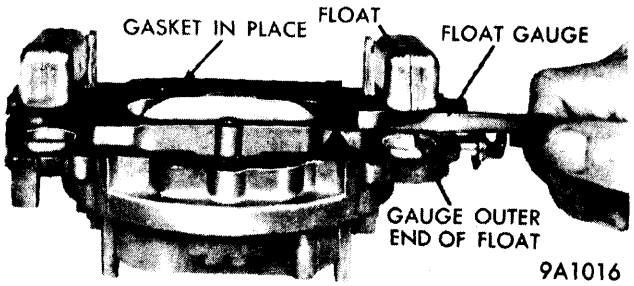
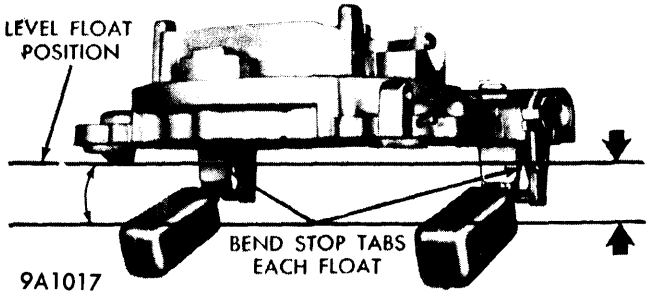
important to prevent floats hanging up in bowl when installed), remove as much clearance as possible from between float lever arms and air horn lugs (arms should be parallel with lugs). Check float level by inserting gauge of correct size (see Specifications) between air horn gasket and top of each float. If adjustment required, bend float arm. *CAUTION – Do not allow float to contact inlet needle when making adjustment (pressure on needle will compress rubber tip and cause false setting).*



CHECKING FLOAT LEVEL

Float Drop

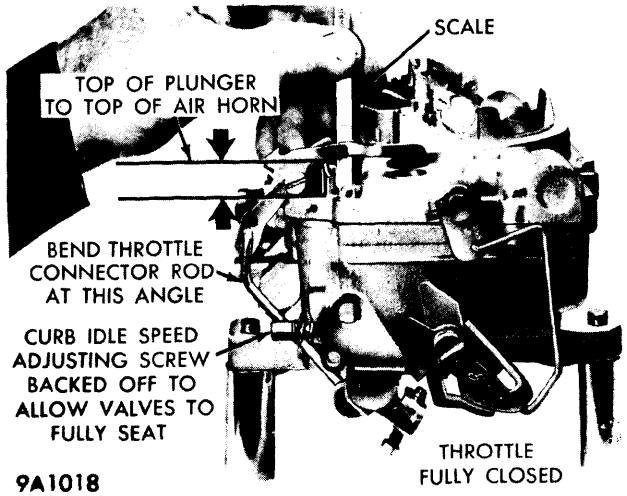
This specification is float travel. Check distance from air horn gasket to top of float at free end with air horn and float assembly inverted, then repeat same measurement with air horn upright. Difference in these two measurements is float drop which should be 1/2" (all carburetors). Adjust by bending stop tabs on floats (bend stop tabs away from the needle seat to increase float drop).



CHECKING FLOAT DROP

Accelerating Pump

This is a pump stroke adjustment and is not a seasonal adjustment. With choke valve wide open (so that fast idle cam rotated out of engagement) and throttle stopscrew backed off so that throttle valves are fully seated in bores, measure distance from top of air horn to top of pump plunger shaft. If this distance not correct (see Specifications), adjust by bending throttle connector rod at lower angle. Then adjust bowl vent valve.

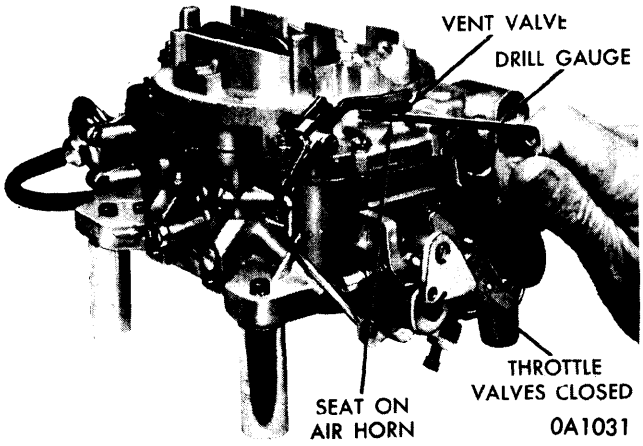


ACCELERATING PUMP ADJUSTMENT

Bowl Vent Valve

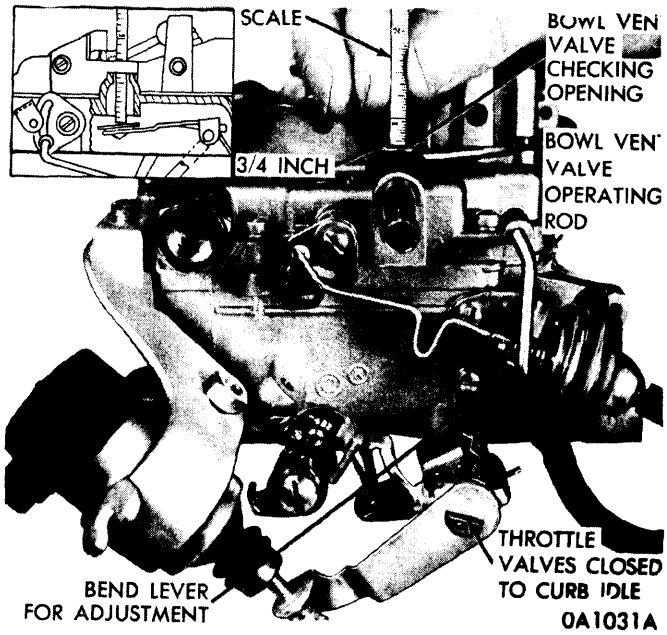
With throttle valves closed in curb idle position, check vent valve opening as follows:

C.A.S. Carburetors – Vent is outside and on top of bowl cover. Vapor emission is allowed to escape into engine compartment. Check opening by inserting drill rod of specified size (see Specifications) between valve and top of fuel bowl.



BOWL VENT VALVE ADJUSTMENT (C.A.S.)

E.C.S. & All 1971 Carburetors – Vent valve is located in underside of fuel bowl cover and vents through a hose nipple into a hose connected to the crankcase. Check valve opening



BOWL VENT VALVE ADJUSTMENT (E.C.S. & 1971)

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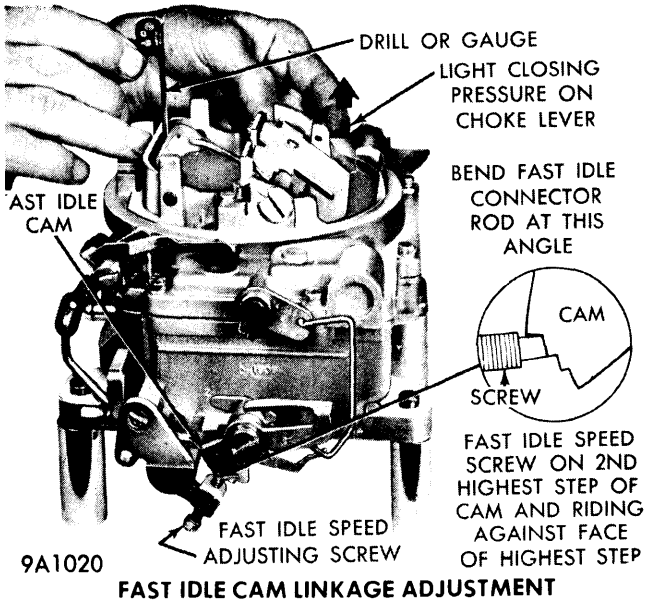
by removing plug behind hose nipple, inserting a narrow ruler, and measuring distance from top of valve to top of air horn casting at opening. Bend vent valve operating lever if adjustment necessary. Install new plug in opening.

Fast Idle Cam Linkage (Off Engine)

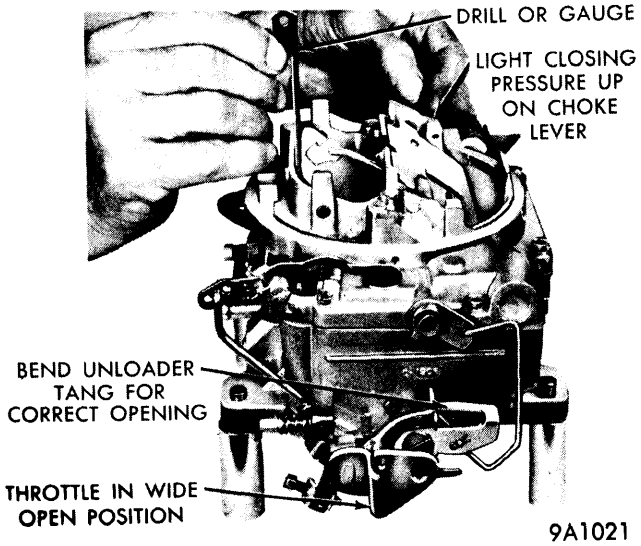
Position fast idle adjusting screw on second highest step of fast idle cam (see illustration), close choke valve as far as possible with light pressure on choke shaft lever. Check clearance between upper edge of choke valve and air horn wall with gauge or drill rod of correct size (see Specifications). If slight drag not noted as drill rod is removed, adjust by bending fast idle connector rod at lower angle as required.



FAST IDLE CAM LINKAGE ADJUSTMENT

Unloader

Hold throttle valves in wide open position, close choke valve as far as possible with light pressure on choke shaft lever. Check clearance between upper edge of choke valve and air horn wall using gauge or drill rod of correct size (see Specifications). If slight drag not noted as drill rod is removed, adjust by bending unloader tang on fast idle cam as required.

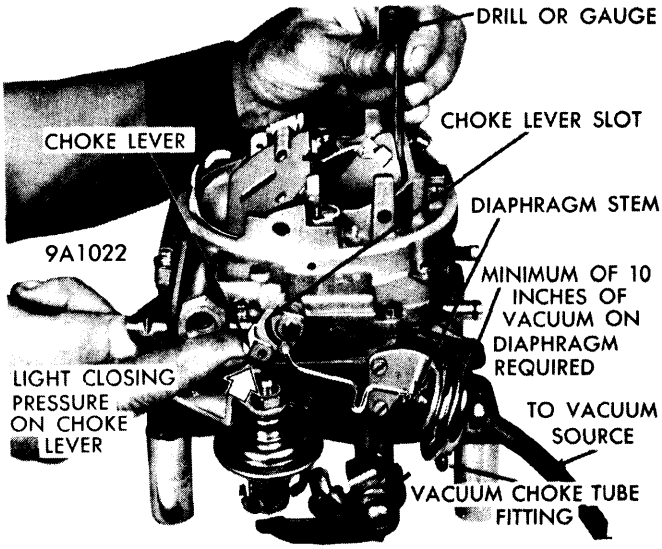


UNLOADER ADJUSTMENT

Vacuum Kick (Choke Vacuum Diaphram)

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 *(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.



VACUUM KICK ADJUSTMENT

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.

Automatic Choke

CAUTION - This unit is serviced as a complete assembly. Do not attempt to repair unit or change the adjustment. If setting has been disturbed, it can be reset by loosening locknut and using a screwdriver to turn assembly until index mark on disc is aligned with correct mark on bracket (see Specifications), tighten locknut.

Secondary Throttle Lever

Two separate adjustments required as follows:

1) Secondary Throttle Opening - Block choke valve in wide open position. Invert carburetor and open primary throttle valves until clearance between lower edge of

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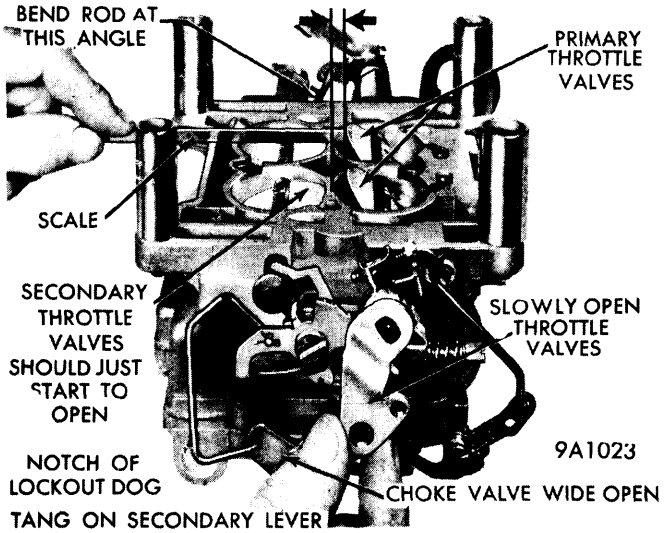
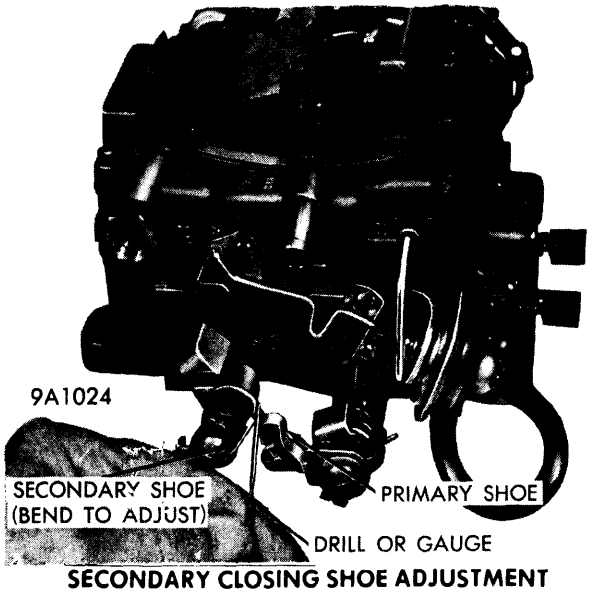
valves and carburetor wall as shown in table below. At this point, secondary throttle valves should just start to open. Adjust by bending secondary throttle operating rod at the angle.

Carb. No.	Primary Opening
All Carbs	21/64"



CHECKING SECONDARY THROTTLE ADJUSTMENT

2) Closing Shoe Clearance - With both primary and secondary throttle valves tightly closed, use feeler gauge to measure clearance between primary and secondary closing shoes (see illustration). This clearance should be .020" (all carburetors). Adjust by bending secondary throttle shoe as required.



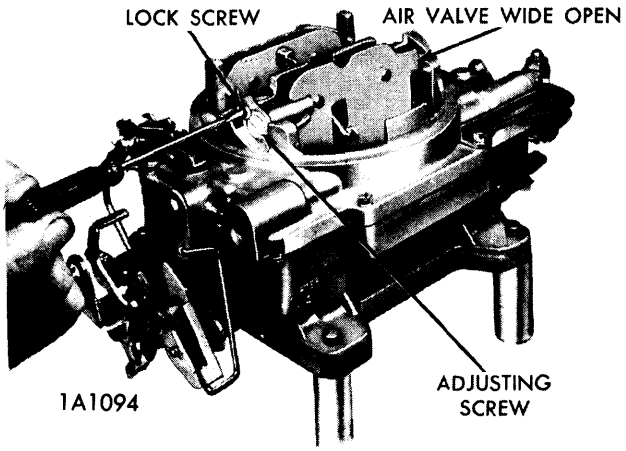
SECONDARY CLOSING SHOE ADJUSTMENT

Secondary Throttle Lockout

Crack throttle valves, then open and close choke valve. Tang on secondary throttle lever should freely engage notch in lockout dog to lock secondary throttle valves when choke valve closed. Adjust by bending tang on secondary throttle lever.

SECONDARY AIR VALVE

Loosen lock screw, allow air valve to position itself wide open. With spring barely moving valve at wide open position, turn slotted sleeve 2 full turns (1970 carburetors) or 2 1/2 full turns (1971 carburetors) counterclockwise. Hold in this position while tightening lock screw.



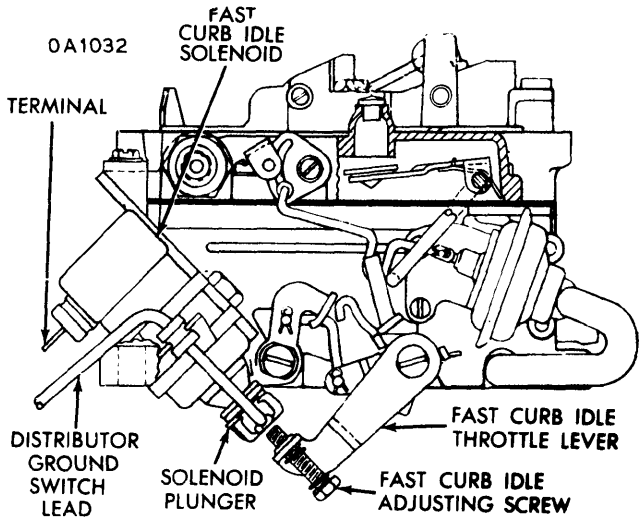
SECONDARY AIR VALVE SPRING ADJUSTMENT

IDLE SPEED SOLENOID

With engine at normal operating temperature, transmission in "N" and tachometer connected, proceed as follows:

1) With engine running, turn solenoid adjusting screw in or out to obtain approximately 900 RPM (see Specifications) (all transmissions).

2) After specified RPM has been obtained by idle speed solenoid adjusting screw, adjust curb idle speed screw until end of screw just touches stop on carburetor throttle body. Then back this screw off one full turn. This will result in a slow curb idle speed of 650-700 RPM.



IDLE SPEED SOLENOID

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OVERHAUL

Disassembly

1) Remove hairpin clip attaching fast idle connector rod to fast idle cam, disengage rod from cam, then swing rod at an arc until it can be freed from choke operating lever. Remove hairpin clip holding throttle connector rod in center hole of accelerator pump arm, disengage rod from arm and throttle lever, then remove from carburetor.

2) Remove screws attaching step-up piston and rod cover plates. Hold cover down with a finger, to prevent piston and rods from flying out, and lift off plates and slide step-up pistons and rods out of air horn, remove step-up piston springs. Remove vacuum hose between carburetor throttle body and vacuum diaphragm.

3) Remove clip from choke operating link and disengage link from diaphragm plunger (stem) and choke lever. Remove vacuum diaphragm and bracket assembly and place aside for special cleaning, as a liquid cleaner may damage diaphragm. Remove screws attaching idle solenoid bracket and solenoid to air horn and main body, remove solenoid assembly (if equipped). Remove (8) screws attaching air horn to main body, lift air horn straight up and away from body, using care not to damage floats. Remove accelerator pump, plunger lower spring, and then remove hot idle compensator and gasket.

Air Horn – 1) Invert air horn, and using a suitable tool, remove float fulcrum pins (both left and right), then lift float up and out of bosses on air horn, mark float removed from pump side so that floats may be reinstalled in their respective positions. Remove two needle valves from seats, mark needle removed from pump side, for reassembly. Using a wide blade screwdriver, remove needle valve seats, be sure each needle valve is returned to its original seat.

2) Remove shoulder screw and spring holding accelerator pump rocker arm to air horn. Remove arm and free pump link from pump stem, slide accelerator pump plunger and spring out of air horn; remove gasket. Place pump plunger in a jar of clean gasoline or kerosene (to prevent leather drying out). Remove fuel inlet fitting and filter screen from air horn. Test freeness of choke mechanism in air horn, choke shaft must float free to operate correctly.

Main Body – 1) Remove screws attaching accelerator pump jet housing to main body. Lift out jet housing and gasket, discard gasket. Invert main body and drop out discharge check needle from passage. Remove main metering jets (primary side). Primary and secondary metering jets are **not** interchangeable, therefore, it is very important that these jets be reinstalled in their respective locations at reassembly.

2) Remove secondary metering jets (secondary side). Remove screws attaching primary venturi (choke pump side) to main body, lift venturi straight up and away from main body, discard gaskets. Venturi assemblies are **not** interchangeable, side for side must be reinstalled at reassembly. Using a suitable screwdriver bit (T-109-59), remove accelerator pump intake check valve located inside fuel bowl, adjacent to accelerator pump cylinder.

3) Remove plastic idler limiter caps from idle air mixture screws, being certain to count number of turns to seat screws (from stop), as this same number of turns must be maintained at reassembly. Remove screws and springs from throttle body.

4) Do not remove throttle shafts or valves unless replacement of damaged or worn parts is required. To remove throttle valves, file off staked ends of throttle valve attaching screws, remove screws and throttle valves. *NOTE – It is not recommended that throttle shaft be replaced, if shaft worn or bent, install a new carburetor.*

Cleaning & Inspection

Clean all parts, except vacuum diaphragm assembly and pump plunger, in carburetor cleaning solution. Inspect all parts for wear or damage, replace parts as necessary. Inspect mating surfaces of castings for burrs, gouges, or other irregularities which might cause leaks.

Reassembly

Reverse disassembly procedure, install new gaskets, and note the following:

Valve Installation – Use new screws when installing valves in their respective bores. Install screws, but do not tighten. Make sure idle speed adjusting screw is backed out, then hold valves in place with fingers placed on high side of valve. Tap valves with a screwdriver (lightly) to seat them in bores, and while holding in this position, tighten screws securely and stake in place by squeezing with pliers.

Idle Mixture Screws & Limiter Cap Installation – Install idle mixture screws and springs in body, tapered portion must be straight and smooth; if tapered portion is grooved or ridged, a new screw must be used. **Do Not use a screwdriver for installing,** turn screws lightly against their seats with fingers, back off the number of turns counted at disassembly and install new plastic limiter caps with tab against stop.

Accelerator Pump Assembly – Check operation as follows: Pour clean gasoline into carburetor bowl (½" deep), operate plunger several times to fill cylinder and expel all air. Use a small brass rod and hold discharge check ball down on its seat. Raise plunger and press downward, no fuel should be emitted from either intake or discharge passage. Fuel emitted from either passage indicates either the presence of dirt or a damaged check ball seat.