1972 HOLLEY 4150 & 4160 4-BARREL

CHEVROLET

Carb. Model 4150	Holley Carburetor No. Synchro-mesh	Auto. Trans.
350" V8 (Camaro)	R-6239A	R-6238A
(Corvette)	R-6239A	

CHRYSLER CORP.

Carb. Model 4160

440" V8 (Exc. Calif.) Standard		R-6160A
① H.P. Heated Air	R-6252A	R-6253A R-6255A
① H.P. Fresh Air	R-6254A	
440" V8 (Calif.) Standard		R-6290A
① H.P. Heated Air	R-6256A	R-6257A

① – H.P. = High Performance Engine.

CARBURETOR IDENTIFICATION

Holley part number is stamped on fuel bowl. Complete number may not be used (R-6290A) as "R" indicates carburetor and "A" indicates assembly. A suffix numeral indicates modifications in design or specifications.

▶ CHANGES, CAUTIONS, CORRECTIONS

▶ *Carburetors and vehicles of the "Except Calif." type meet emission control standards for exhaust and fuel evaporation only. "Calif." type vehicles, in addition to exhaust and fuel evaporation control systems, are equipped with NOx emission control systems.*

DESCRIPTION

CHEVROLET – The 1972 version of this Holley 4-Bbl. carburetor differs from previous models only slightly. The C.E.C. (Combined Emission Control) valve has been deleted. An idle stop solenoid is now mounted on a bracket attached to the carburetor body.

CHRYSLER – 1972 carburetors installed on H.P. (High Performance) engines are equipped with an idle speed solenoid which is used to maintain a higher idle speed ("fast" curb idle) when the engine is running, and allows the throttles to close to a lower idle speed ("slow" curb idle) when the ignition is turned off and the solenoid becomes de-energized. This prevents dieseling or after-running.

CHEVROLET & CHRYSLER CORP. – Carburetors used on these vehicles are equipped with a vacuum diaphragm type "Vacuum Break (Kick)" instead of a vacuum piston enclosed in the housing of an integral choke. A remote thermostatic choke coil replaces the integral type choke, and is connected by a rod to the carburetor choke valve.

NOTE – Do not attempt to adjust or tamper with idle mixture screws locked in position with plastic limiter caps. If limiter caps and idle mixture screws are removed for carburetor overhaul, fuel bowl or throttle body replacement, special procedure is required to correctly readjust idle mixture screws.

ADJUSTMENTS (ALL CARBURETORS)

Idle Speed & Mixture

Chevrolet – *NOTE – Carburetors are equipped with idle mixture limiter caps. No attempt should be made to adjust mixture. Do not remove mixture screw caps.*

"Fast" Curb Idle – With A/C OFF, disconnect distributor vacuum hose and plug vacuum source opening. Disconnect fuel tank line from evaporation emission canister on Camaro. On Corvette, remove fuel tank gas cap. With manual transmission in neutral or automatic transmission in drive, adjust idle stop solenoid to obtain specified RPM.

"Slow" Curb Idle – Disconnect electrical connection at the idle stop solenoid. Adjust the carburetor low idle speed screw to obtain 500 RPM on both Camaro and Corvette.

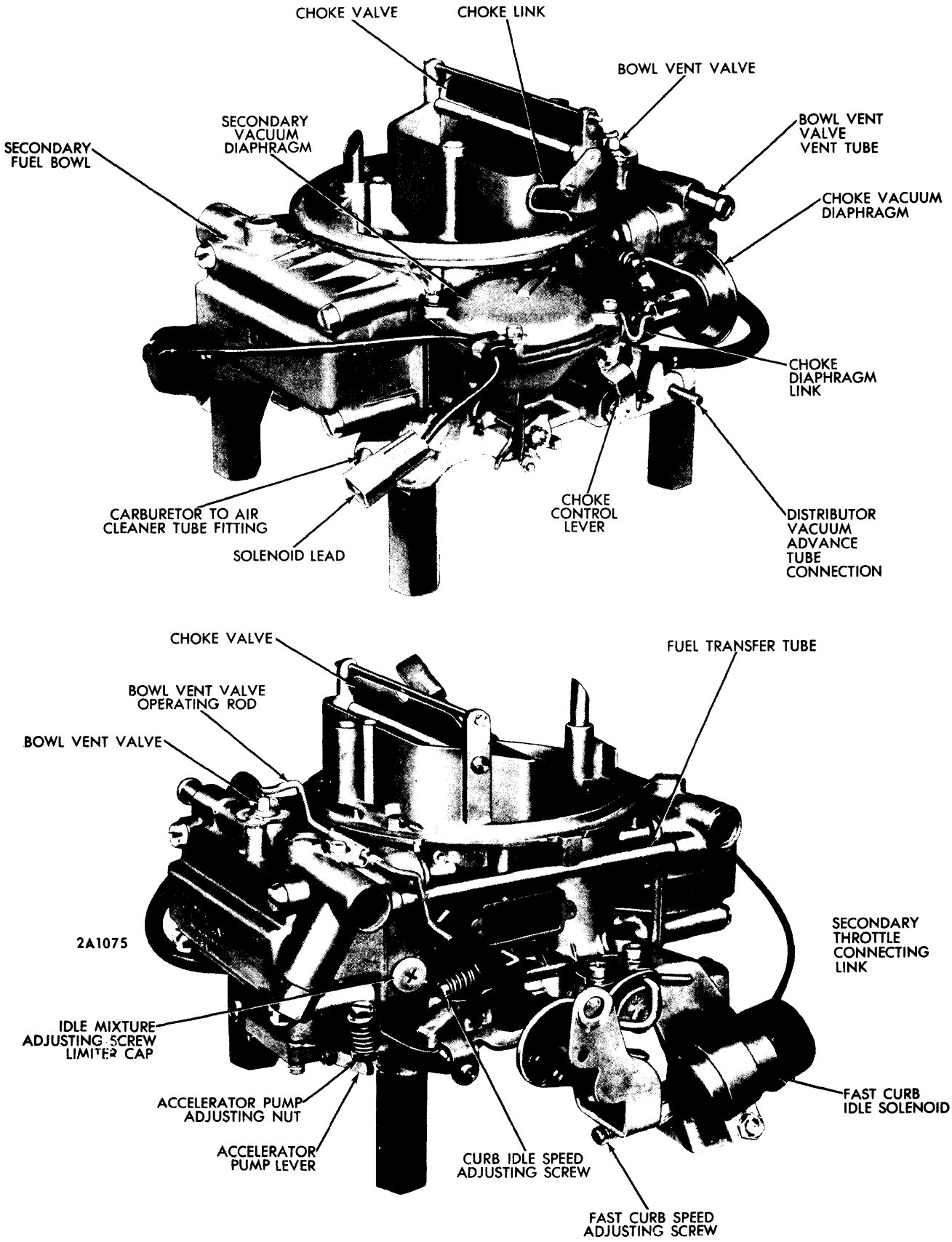
CARBURETOR ADJUSTMENT SPECIFICATIONS

Holley Carb. No.	Idle Speed (Engine RPM)		Fast Idle Cam	Bowl Vent Valve	Accel. Pump Setting	Vacuum Break	Dry ③ Float Setting		Choke Unloader	Choke Setting
	Curb ②	Fast					Primary	Secondary		
R-6160A	750	1600	.060"	.015"	.015"	.080"	#30	#3	.150"	Fixed
R-6238A	700	2350 ④	.025"	.....	.015"	.350"	⑤	⑤	.350"	1.320"
R-6239A	900	2350 ④	.025"	.....	.015"	.350"	⑤	⑤	.350"	1.320"
R-6252A	900	1800	.060"	.015"	.015"	.140"	#30	#3	.150"	Fixed
R-6253A	900	1600	.060"	.015"	.015"	.080"	#30	#3	.150"	Fixed
R-6254A	900	1800	.060"	.015"	.015"	.140"	#30	#3	.150"	Fixed
R-6255A	900	1600	.060"	.015"	.015"	.080"	#30	#3	.150"	Fixed
R-6256A ①	800	2000	.060"	.015"	.015"	.140"	#30	#3	.150"	Fixed
R-6257A ①	900	1800	.060"	.015"	.015"	.080"	#30	#3	.150"	Fixed
R-6290A ①	700	1500	.060"	.015"	.015"	.080"	#30	#3	.150"	Fixed

① – California vehicles.
② – With solenoid energized (if equipped). *See text for "slow" carb idle adjustment.*
③ – See text for wet fuel level.
④ – With vacuum spark advance. *See "Note" below.*
⑤ – Float centered in inverted bowl.

NOTE – For full vacuum advance on Camaro without gauges: Ground dual temperature terminal on left side of engine block. On Camaro & Corvette with gauges: Ground cold override temperature switch on right side of engine. Single terminal switch on Camaro, dual terminal switch on Corvette.

1972 HOLLEY 4150 & 4160 4-BARREL (Cont.)



MODEL 4160 (MANUAL TRANS.) CARBURETOR ASSEMBLY

1972 HOLLEY 4150 & 4160 4-BARREL (Cont.)

"Fast" Curb Idle – With A/C OFF, air cleaner installed, manual and automatic transmission in neutral, turn idle speed solenoid adjusting screw in or out to obtain specified RPM. On carburetors not equipped with an idle speed solenoid, turn curb idle speed adjusting screw to obtain specified RPM.

"Slow" Curb Idle – This adjustment applies to carburetors equipped with an idle speed solenoid. After adjusting the "Fast" curb idle speed, and with the solenoid still energized, adjust "Slow" curb idle speed adjusting screw until end of screw just touches stop on throttle lever. Then back off screw one full turn to obtain "slow" curb idle speed setting (approximately 600-650 RPM with solenoid de-energized).

Float Level & Fuel Level Adjustments

Chevrolet (Dry Float Setting) – Invert carburetor bowl and and bend float tang so that float is centered in bowl.

Chevrolet (Wet Fuel Level) – Adjust float so that fuel in bowl is level with bottom of sight plug hole.

Chrysler (Dry Float Setting) – Invert primary fuel bowl. Clearance between toe of float and surface of fuel bowl should be .129" (No. 30 drill). Invert secondary fuel bowl. Clearance between heel of float and surface of bowl should be .214" (No. 3 drill). Bend float tang if adjustments are required.

Chrysler (Wet Fuel Level) – Chrysler Corp. Technical Service Bulletin No. 14-19-72C deletes procedure and specifications for checking wet fuel level. Only "Dry Float Setting" procedures and specifications are to be used when making repairs and adjustments on 1972 Holley Model 4160 carburetors (see preceding paragraph).

ADJUSTMENTS (CAMARO & CORVETTE)

Fast Idle

NOTE – Make this adjustment only after curb idle speed adjustment has been made.

With engine at normal operating temperature and choke wide open, position fast idle lever on high step of fast idle cam. Bend fast idle lever as required to obtain correct fast idle idle RPM (see Specifications).

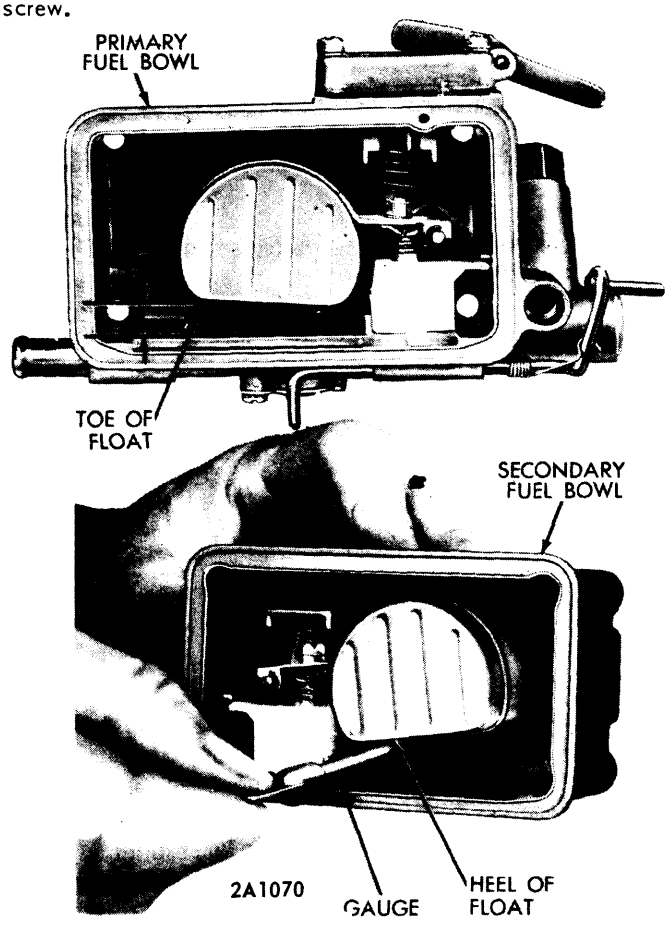
Fast Idle Cam (Bench Adjustment)

Open throttle slightly and close choke valve fully to position fast idle lever on high step of fast idle cam, and close throttles. Check throttle valve opening by inserting drill rod (see Specifications) between edge of throttle valve and carburetor wall on idle transfer slot side. Adjust by bending fast idle lever. Check fast idle speed after carburetor is installed on vehicle.

Acceleration Pump

With pump cam screw in No. one hole, hold throttle valves wide open and manually depress pump diaphragm actuating lever. Measure clearance between head of operating lever adjusting screw and pump arm (see Specifications). Adjust if required by turning adjusting screw.

Check pump action by fully closing and opening throttle valves. Slightest movement of throttle lever should cause corresponding movement of pump lever (a lag will result in a stumble or flat spot). Correct by lengthening adjusting screw.



CHECKING DRY FLOAT LEVEL

Choke Unloader

With throttle valves in wide open position, move choke valve toward closed position against unloader tang on throttle shaft. Measure clearance between lower edge of choke valve and air horn wall with drill (see Specifications). Bend choke rod at offset bend near choke valve lever if adjustment required.

Choke Vacuum Break

Install rubber band on choke operating lever to hold in "closed choke" position. Depress choke diaphragm stem until bottomed. If clearance between lower edge of choke valve and air horn wall not correct (see Specifications), bend choke diaphragm link as required.

Choke Coil Rod

Measure the distance from the bottom of the throttle body to the center of the hole in the choke coil rod operating lever. If distance not correct (see Specifications), adjust as required.

Secondary Throttle Stopscrew (Bench Adjustment)

Back off secondary throttle stopscrew until secondary throttle valves are tightly closed. Turn stopscrew in until it just contacts the stop on the secondary throttle operating lever, then turn stopscrew in, one-half additional turn.

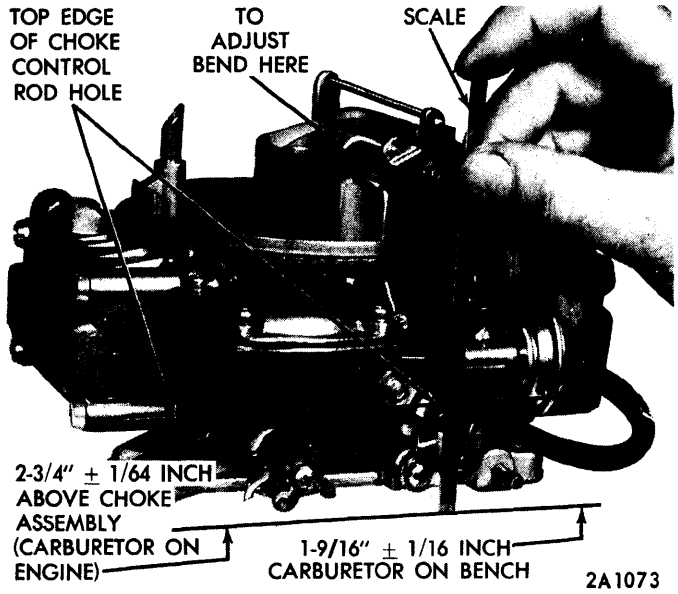
1972 HOLLEY 4150 & 4160 4-BARREL (Cont.)

ADJUSTMENTS (CHRYSLER CORP.)

Qualifying The Choke Control Lever

NOTE – Adjustment of the choke control lever is necessary to provide correct relationship between choke valve, thermostatic coil spring and the fast idle cam. This adjustment must be checked before making the Vacuum Kick, Cam Position or Unloader adjustments.

1) Open the throttle to mid-position and close the choke valve by pressing on the choke control lever.



QUALIFYING CHOKE CONTROL LEVER

2) The top of the choke rod hole in the control lever should be 2 3/4 ± 1/64" above choke assembly with carburetor installed on engine. With carburetor on bench, measurement should be 1 9/16 ± 1/16" from top of rod hole to surface of bench.

3) Adjust if necessary by bending choke shaft rod at "U" bend. *CAUTION – Improper bending will cause binding of rod. Test for free movement between open and closed choke positions.*

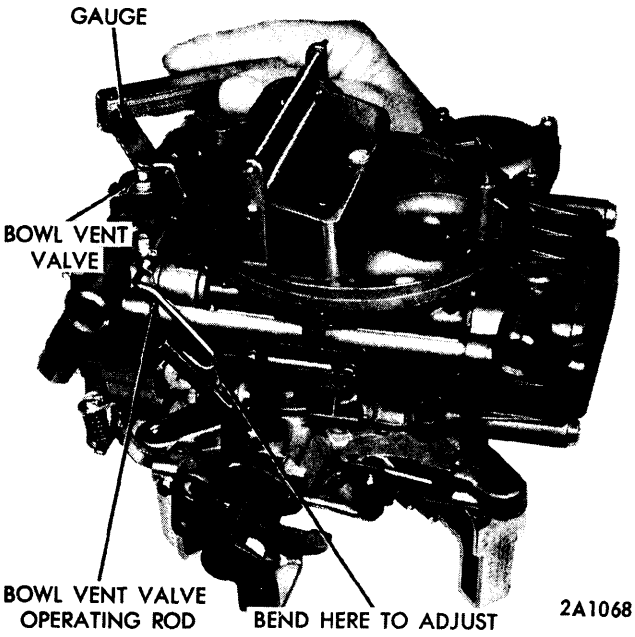
Bowl Vent Valve

1) With throttle valves at curb idle (engine not running), use specified gauge (see Specifications) to measure clearance between the vent valve plunger stem and the operating rod.

2) If adjustment is necessary, bend rod to change arc of contact with throttle lever.

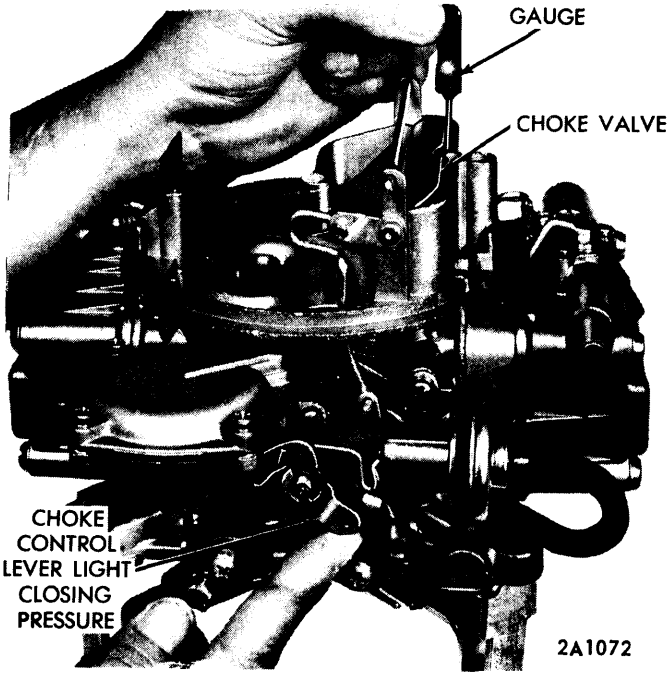
CHOKE UNLOADER

1) Hold throttle valve in wide open position. Insert specified drill gauge between the upper edge of choke valve and inner wall of the air horn (see Specifications).



ADJUSTING BOWL VENT CLEARANCE

2) With a light pressure against the choke control lever, a slight drag should be felt as the drill is withdrawn. Bend the flat tang that contacts the bottom of the fast idle cam to obtain correct clearance.



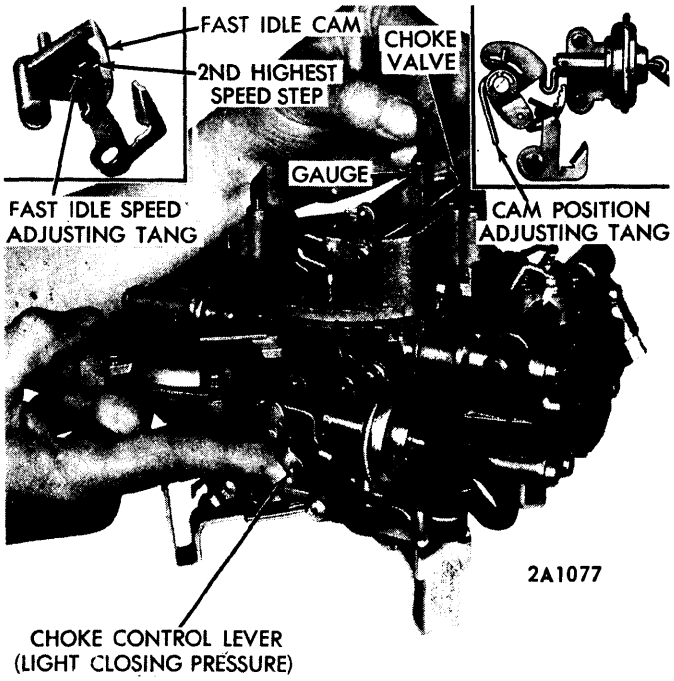
CHOKE UNLOADER ADJUSTMENT

Fast Idle Cam Position

1) With fast idle speed adjusting tang contacting the second highest step on fast idle cam, move choke valve toward closed position with light pressure on choke control lever. Insert specified drill (see Specifications) between choke valve and wall of air horn.

1972 HOLLEY 4150 & 4160 4-BARREL (Cont.)

2) A slight drag should be obtained as drill is being removed. If adjustment is necessary, bend the tang as required.



FAST IDLE CAM POSITION ADJUSTMENT

Choke Vacuum Break (Kick)

Vacuum is required to check or make this adjustment. Vacuum can be supplied from a distributor test machine, another vehicle or vehicle to be adjusted.

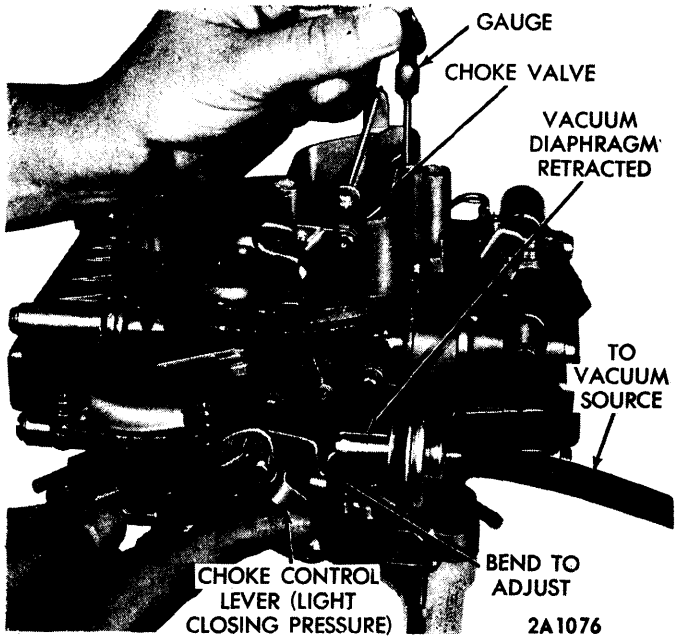
1) If the adjustment is to be made with the engine running, position the fast idle tang to allow choke closure to kick position. If auxiliary vacuum source is used, open throttle valves (engine not running) and move choke to closed position. Release throttle first, then release choke.

2) If using auxiliary vacuum source, disconnect the vacuum hose from the carburetor (NOT from the diaphragm) and connect it to the vacuum supply hose. Apply a vacuum of 10 or more inches.

3) Insert the proper drill gauge (see Specifications) between the choke valve and the air horn wall. Apply closing pressure on the lever to which the choke rod attaches to obtain a minimum choke valve opening without distortion of the diaphragm link. The cylindrical stem of the diaphragm will extend as an internal spring is compressed. This spring must be fully compressed for proper measurement of the vacuum kick adjustment.

4) If a slight drag was not noted as the drill was removed, shorten or lengthen the diaphragm link by opening or closing the bend provided in the link. *CAUTION – Do not apply twisting or bending force to the diaphragm.*

5) With no vacuum applied to the diaphragm, the choke valve should move freely between open and closed positions.



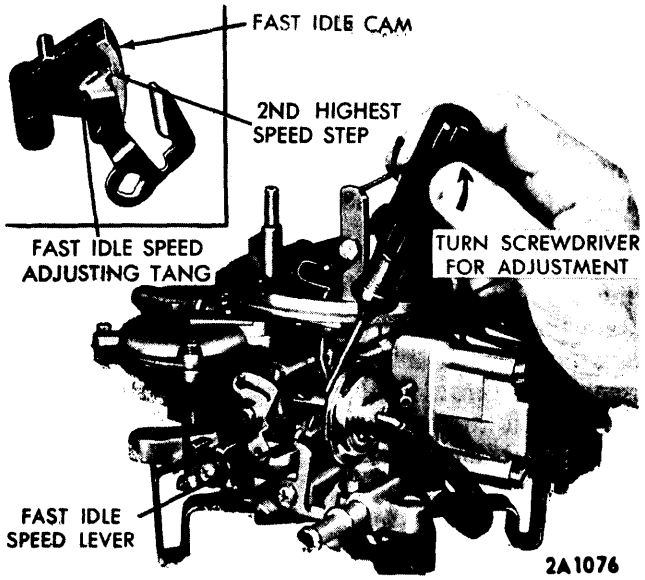
VACUUM BREAK (KICK) ADJUSTMENT

Fast Idle Speed

1) With the engine off and the transmission in Park or Neutral, open the throttle slightly and close choke valve until fast idle screw tang can be positioned on the second highest-speed step of the fast idle cam.

2) Start the engine and determine the stabilized RPM. Bend the fast idle tang by using a screwdriver in the tang slot to obtain the specified RPM (see Specifications). *CAUTION – Bend only in direction perpendicular to the contact surface of the cam. Movement in any other direction changes the cam position adjustment.*

3) Stopping the engine between adjustments is not necessary. Reposition the fast idle tang on the cam after each adjustment to provide correct throttle closing torque.



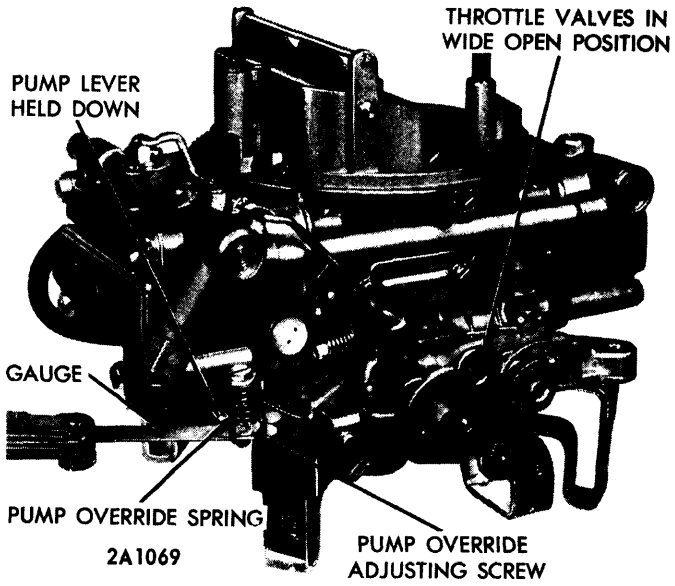
FAST IDLE SPEED ADJUSTMENT

1972 HOLLEY 4150 & 4160 4-BARREL (Cont.)

Accelerator Pump

1) With throttle valves wide open, hold the pump lever down. It should be possible to insert the specified gauge (see Specifications) between the adjusting nut and lever, with the pump cam screw in the #1 hole.

2) If clearance not as specified, adjust override screw as required. *NOTE – There must be no free movement of pump leverage when throttle is at curb idle.*



ACCELERATOR PUMP ADJUSTMENT

Automatic Choke

The remote thermostatic coil assembly mounted on the exhaust manifold differs from the 1971 assembly in that the possibility of any adjustment has been eliminated. The coil adjustment is preset at the time of manufacture, and if the coil becomes damaged or malfunctions the unit must be replaced.

OVERHAUL

Disassembly

When overhauling a carburetor, refer to the carburetor code number stamped on the air horn, adjacent to the fuel inlet. Always order and install a complete Repair Kit for the carburetor being worked on.

Disassemble Into Subassemblies – 1) Remove idle stop solenoid (if equipped) from bracket on throttle body. *NOTE – DO NOT remove bracket from throttle body. Further, DO NOT immerse solenoid in any type of carburetor cleaner.*

2) With carburetor mounted on a suitable jig or elevating legs, remove primary fuel bowl, metering body and gaskets. Disconnect secondary throttle operating rod at throttle lever.

3) Remove secondary fuel bowl, metering body and gaskets. Remove secondary throttle diaphragm from main body. Remove secondary diaphragm rod retaining clip. Remove throttle body from main body.

Disassemble Fuel Bowls – 1) Loosen inlet needle and seat lock screw, turn adjusting nut counterclockwise and remove needle and seat assembly.

2) Remove hinge pin retainer and slide float from bowl. Note position and remove spring and hinge pin. Remove bowl filler from primary bowl after float is removed.

3) Remove sight plug, inlet fitting, fuel filter, spring and gaskets.

4) On PRIMARY BOWL ONLY, remove pump diaphragm screws and lift pump housing, diaphragm and spring from fuel bowl. Check pump inlet ball for free movement and damage. Damage to ball, passage or retainer requires a new bowl.

Disassemble Metering Bodies – 1) Remove the body filler block from primary body. Remove main metering jets. Remove the power valves (1" 12 pt. socket).

2) Remove idle mixture screws and limiter caps (primary side only). On 4160 carburetors, remove limiter caps, then lightly seat idle screws with fingers and count number of turns that were necessary to seat screws. This is necessary as screws must be returned to original position on reassembly.

3) Disassembly of the secondary metering body is not required. However, it is important that the well bleed parts, main metering restrictions and idle feed restrictions are clean.

Disassemble Secondary Operating Diaphragm – 1) Remove cover screws and separate cover from housing. Remove return spring from cover, then slide diaphragm from housing.

Disassemble Main Body – 1) Remove choke vacuum break, disconnecting link at choke lever. Remove choke lever and fast idle cam and hot idle compensator valve (if used).

2) Remove pump discharge nozzle screw and nozzle. Invert the body to remove the pump discharge check valve. *NOTE Further disassembly of the main body is not required for cleaning purposes since the choke rod seal will stand normal cleaning in carburetor cleaner.*

3) If parts replacement is necessary, remove shaft screws and remove choke rod (upward through plastic seal) and remove seal from main body. Remove valve from shaft slot and slide shaft from body.

Disassemble Throttle Body – 1) In normal cleaning and overhaul procedures, do not remove the throttle valves unless they are nicked or damaged.

2) If necessary to remove throttle valves, file staking from ends of screws, remove screws and slide damaged valves from bores. Secondary valves are thicker than the primary valves. *NOTE – Install valves in same bores as when removed. Relationship of the primary valves to the idle transfer port and spark advance control ports is carefully established for one particular assembly.*

1972 HOLLEY 4150 & 4160 4-BARREL (Cont.)

Cleaning & Inspection

CAUTION - Rubber parts, plastics, diaphragms, pump plungers and electric parts should not be immersed in carburetor cleaners. The pressure relief valve in the air horn will withstand normal cleaning in carburetor cleaners.

NOTE - The secondary throttle shaft bushings and accelerator pump cam are plastic.

1) If the carburetor cleaner used recommends the use of water as a rinse, the water should be HOT. After blowing out all passages with compressed air, it is recommended that the parts be rinsed with kerosene or gasoline to be sure that no moisture remains.

2) Check secondary throttle diaphragm for free operation and leakage. Inspect idle mixture needles for grooves or ridges and replace if damaged. Check fast idle cam for excessive wear or damage.

3) Check for binding or damage to throttle and choke levers, valves and shafts. Replace filter element.

Reassembly

Assemble Throttle Body - 1) If throttle shafts were removed, install throttle shafts in throttle body. *NOTE - Shafts have plastic bushings. Roll new bushing between fingers to help shape the bushing on the shaft for easier installation.*

2) Install valves on shaft but do not tighten screws. Center the valves on the shafts by holding valves closed while tightening the screws. *NOTE - The throttle valves are installed with identification numbers down (to manifold side).* Stake the valve screws with pliers.

3) Install throttle connecting link (secondary lockout) to the throttle shaft levers. Install fast idle cam lever on primary throttle shaft and diaphragm lever on secondary throttle shaft.

4) Install idle speed screw and spring. Install accelerator pump cam on throttle lever. Install pump operating lever assembly.

Assemble Main Body - 1) Install pump discharge valve and nozzle. Install choke rod seal and choke rod in body. Install choke shaft in body and connect upper end of choke rod.

2) Install choke valve on choke shaft but do not tighten screws. Center choke valve on shaft by holding valve closed while tightening screws. Stake ends of screws with pliers. *NOTE - The choke valve is offset and should fall freely to wide open position from its own weight.*

3) Install choke lever and fast idle cam. Connect vacuum break link to choke lever, then install vacuum break to body. Install hot idle compensator valve (if used).

Assemble Secondary Throttle Operating Assembly - 1) Slide diaphragm into housing, making sure that vacuum port in housing is aligned with vacuum port in cover and with hole in diaphragm. Return spring should be installed with coiled end snapped over button in cover.

2) Test diaphragm by pressing in on stem and placing finger over port. Diaphragm should stay in retracted position.

3) Using a new gasket, install diaphragm on main body of carburetor and at the same time engage stem with secondary stop lever. Install and tighten screws.

Assemble Metering Bodies - 1) Install power valve and main metering jets. On primary metering body install filler block.

Assemble Metering Bodies - 1) Install power valve and main metering jets. On primary metering body install filler block.

2) Using new seals, install idle mixture screws and make preliminary adjustment by turning lightly to seat, then back out one turn (CHEVROLET) or back out number of turns counted at disassembly (CHRYSLER).

Assemble Fuel Bowls - 1) On primary bowl install bowl filler before float installation. Assemble spring to float, slide float into bowl and install retainer screws.

2) Install needles and seats (leave locknuts loose). Install inlet fitting, fuel filter, spring and gasket. Install sight plugs.

3) On PRIMARY BOWL ONLY, install pump spring and diaphragm in fuel bowl.

Preliminary Float Setting (CHEVROLET) - 1) Invert fuel bowl. Turn adjustable needle-seat until float is centered in fuel bowl. Adjust both primary and secondary floats in this manner. *NOTE - Final adjustment of the float (wet fuel level) is made on the vehicle (see "Adjustments" in this article).*

Preliminary Float Setting (CHRYSLER) - 1) Invert the primary fuel bowl. Use a .110" drill or gauge to measure the clearance between toe of float and surface of fuel bowl. If adjustment is required, bend float tang until correct clearance is obtained.

2) Invert the secondary bowl. Using a .204" drill or gauge, repeat the procedure given in step 1.

3) Final adjustment of the floats (wet fuel level) is made on the vehicle (see "Adjustments" in this article).