1983 Carter Carburetors

CARTER THERMO-QUAD 4-BARREL

CARBURETOR APPLICATION

CARTER THERMO-QUAD 4-BARREL

Application	Carb. No.
Chrysler Corp. 5.2L Engine	
Calif. & Federal	TQ-9385
High Altitude	TQ-9374

CARBURETOR IDENTIFICATION

Carburetor identification number is stamped on left rear foot of throttle body on vertical surface near bolt hole.

DESCRIPTION

The Thermo-Quad carburetor has 3 main parts: air horn, main body and throttle body. Air horn houses choke valve, air valve for secondaries, fuel inlet system (2 floats, inlet needles and seats), accelerating pump systems, primary boost venturi, vacuum controlled step-up piston and rods, low and high speed fuel metering systems (secondary jets, fuel discharge nozzles, air bleeds and restrictions), and the duty cycle solenoid.

Main body houses primary jets and is constructed of phenolic resin for cooler fuel temperatures. Throttle body houses throttle valves and linkage.

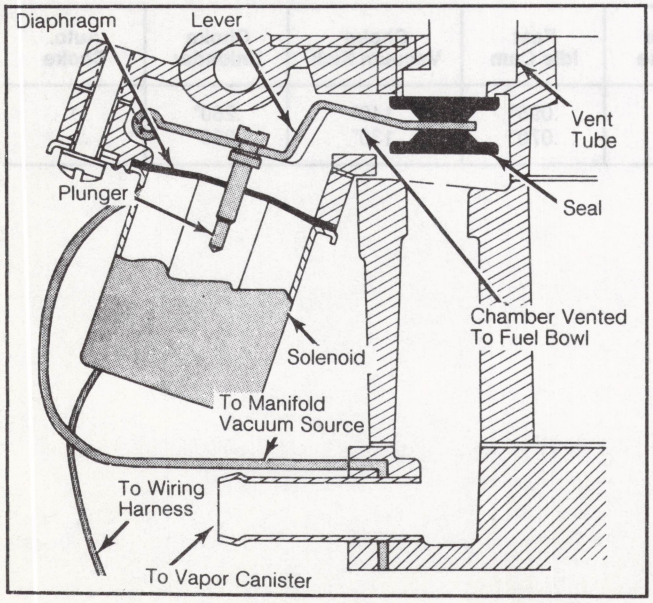
All Thermo-Quad carburetors installed on vehicles equipped with an EGR system have a venturi vacuum port on the side of the carburetor. This is the only vacuum port located in the main body. All other vacuum pickup points are located in the throttle body.

TESTING

SOLENOID BOWL VENT VALVE TEST

1) Remove air cleaner assembly. Disconnect hose to solenoid bowl vent diaphragm. Connect outside vacuum source and apply at least 15 in. Hg vacuum to diaphragm.

Fig. 1: Vent Valve Operation Test



2) Look down through air horn vent tube and observe valve movement. Turn ignition on. Remove outside vacuum source. Valve should move to down position until ignition is turned off.

3) If valve does not move with vacuum applied, diaphragm is leaking and must be replaced. If valve does not remain in down position with ignition on (vacuum removed), solenoid or related wiring is faulty.

ADJUSTMENT

Thermo-Quad carburetors have unique features which require extra caution during adjustments. Many carburetor components have at least 2 functions. Because of the separate nature of each function, separate but interrelated adjustments must be performed in proper sequence. Some of these adjustments will be necessary only if the carburetor is overhauled or disassembled. These adjustments must be made on a bench.

NOTE: For all on-vehicle adjustments not covered in this article, see appropriate TUNE-UP article.

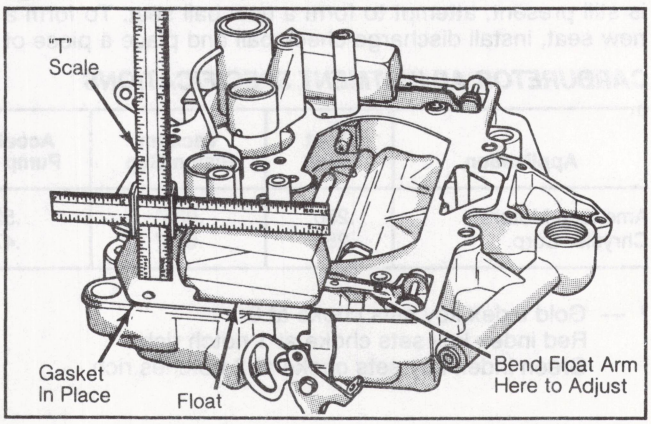
FLOAT LEVEL

1) Turn air horn upside down. Place air horn gasket in position on air horn. Make sure floats are against seated needle valve. *See Fig. 2.*

2) Measure float level specified clearance from bottom side of float to gasket surface. To adjust, bend float lever.

CAUTION: DO NOT allow lip of float lever to press against needle when adjusting. This will damage the needle and cause carburetor flooding and incorrect float level.

Fig. 2: Float Level Adjustment



SECONDARY THROTTLE LINKAGE

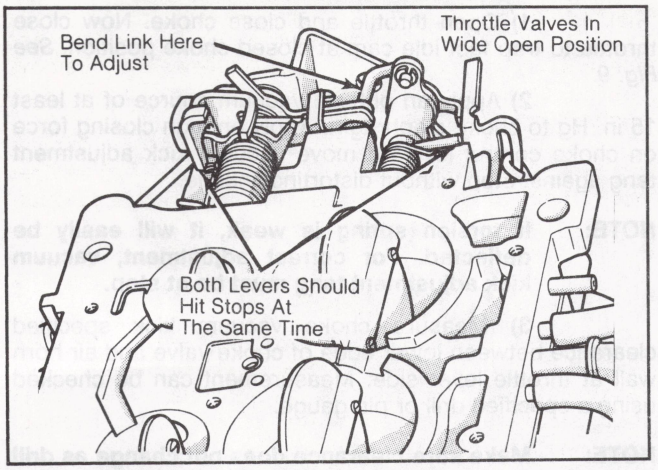
1) Hold fast idle lever in curb idle position. Turn carburetor upside down. Open throttle valves wide open. *See Fig. 3.*

2) Primary and secondary levers should both contact stops at the same time. To adjust, bend secondary throttle operating rod at point shown in *Fig. 3.*

NOTE: Check linkage for interference and smooth movement after bending linkage rod.

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Fig. 3: Secondary Throttle Linkage Adjustment



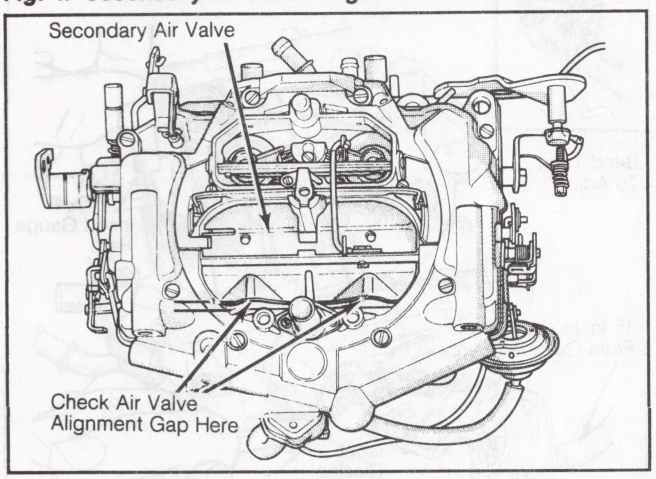
Adjust with throttle valves in wide open position.

SECONDARY AIR VALVE ALIGNMENT

1) Observe carburetor from directly above to locate air valve alignment gap. *See Fig. 4.*

2) With air valve in closed position, gap between air valve and air horn wall must be at its maximum and parallel with air horn gasket.

Fig. 4: Secondary Air Valve Alignment Check



SECONDARY AIR VALVE SPRING TENSION

CAUTION: When performing this adjustment, hold air valve adjustment plug with screwdriver when loosening lock plug. If not, spring may snap out of position. This would require taking the carburetor apart to get the spring out.

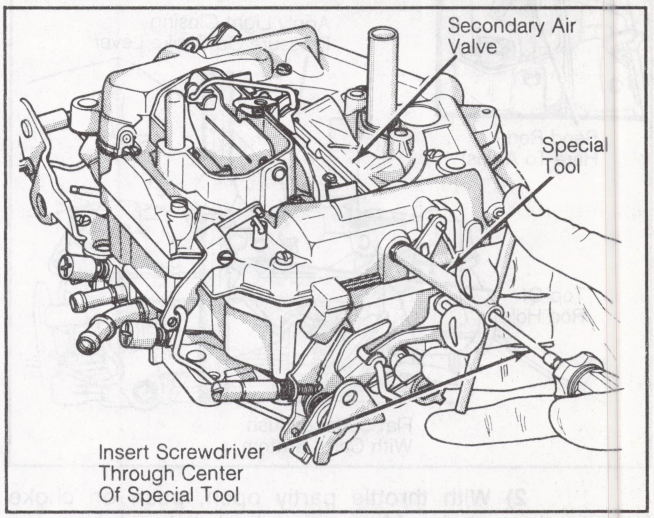
1) Loosen air valve lock plug. Turn air valve adjustment plug clockwise. This allows air valve to move to wide open position. *See Fig. 5.*

2) Insert a long slender screwdriver through center of air valve spring adjustment tool (C-4152-B).

3) With special tool positioned on air valve lock plug, turn adjustment plug counterclockwise until air valve lightly touches stop.

4) Lightly press air valve against stop with finger. Now turn adjustment plug additional amount of specified turn(s), counterclockwise. Hold adjustment plug with screwdriver and tighten lock plug with special tool.

Fig. 5: Secondary Air Valve Spring Tension Adjustment

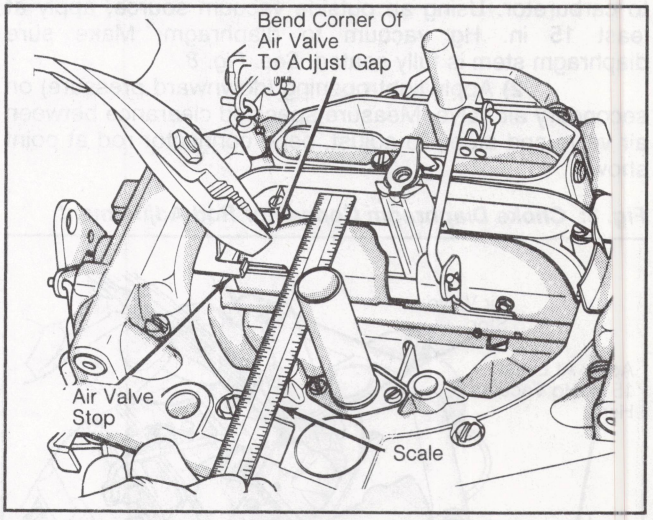


SECONDARY AIR VALVE OPENING

1) Hold secondary air valve wide open. Measure specified gap between raised edge (short side) of air valve and air horn wall. *See Fig. 6.*

2) To adjust, bend short side of air valve with pliers until specified gap is obtained. Corner of air valve is notched to aid in adjustment.

Fig. 6: Air Valve Gap Adjustment



CHOKE CONTROL LEVER

NOTE: If choke control lever adjustment is changed, vacuum kick, fast idle cam position and choke unloader adjustments must also be reset.

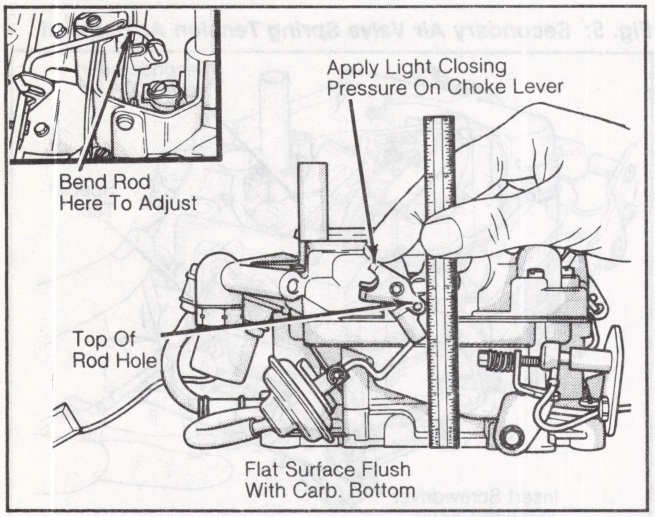
1) Place carburetor on a flat surface. Make sure bottom of throttle body is flush with flat surface and

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that flat surface extends out under choke control lever. *See. Fig. 7.*

Fig. 7: Choke Control Lever Adjustment



2) With throttle partly open, push on choke lever to close choke. Measure vertical distance from top of rod hole in control lever to flat surface. To adjust, bend rod connecting both choke shafts.

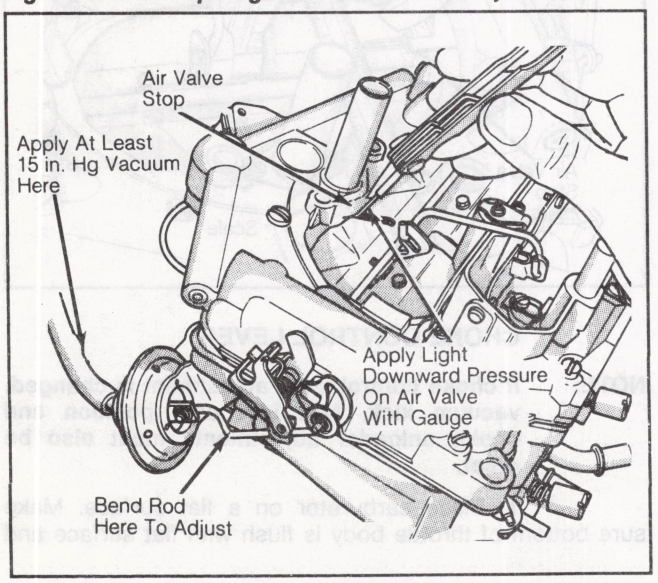
CHOKE DIAPHRAGM CONNECTOR ROD

NOTE: If choke diaphragm connector rod adjustment is changed, vacuum kick adjustment must also be reset.

1) Make sure diaphragm is securely mounted to carburetor. Using an outside vacuum source, apply at least 15 in. Hg vacuum to diaphragm. Make sure diaphragm stem is fully seated. *See. Fig. 8.*

2) Apply light opening (downward pressure) on secondary air valve. Measure specified clearance between air valve and stop. To adjust, bend connector rod at point shown.

Fig. 8: Choke Diaphragm Connector Rod Adjustment



CHOKE VACUUM KICK

1) Open throttle and close choke. Now close throttle to trap fast idle cam at closed choke position. *See Fig. 9.*

2) Apply an outside vacuum source of at least 15 in. Hg to choke diaphragm. Apply enough closing force on choke control lever to move vacuum kick adjustment tang against stop without distorting linkage.

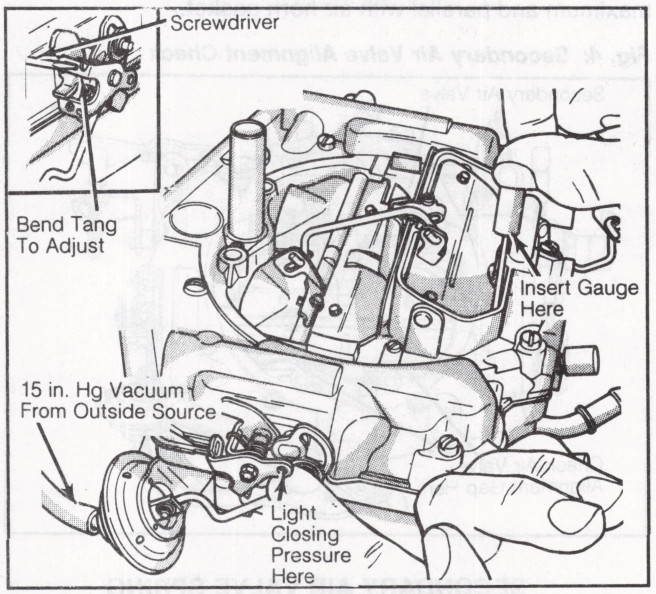
NOTE: If torsion spring is weak, it will easily be deflected. For correct adjustment, vacuum kick adjustment tang must be at stop.

3) Measure choke vacuum kick specified clearance between lower edge of choke valve and air horn wall at throttle lever side. Measurement can be checked using a specified drill or pin gauge.

NOTE: Make sure clearance does not change as drill or pin gauge is inserted or removed.

4) To adjust, insert screwdriver in slot in vacuum kick tang and twist. Do not adjust diaphragm rod. Check all linkage for freedom of movement. Reconnect vacuum hose to diaphragm.

Fig. 9: Choke Vacuum Kick Adjustment



FAST IDLE CAM POSITION

NOTE: If fast idle cam position adjustment is changed, choke unloader and secondary throttle lockout adjustments must also be reset.

1) Position fast idle speed screw on second step of fast idle cam. Close choke valve by applying light closing pressure on fast idle lever. *See Fig. 10.*

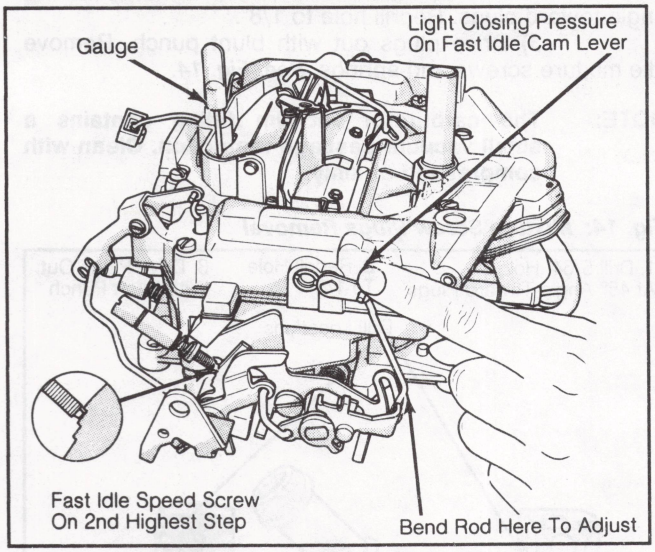
2) Measure fast idle cam specified clearance between lower edge of choke valve and air horn wall. Measurement can be checked using a specified drill or pin gauge.

NOTE: Make sure clearance does not change as drill or pin gauge is inserted or removed.

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3) To adjust, bend fast idle cam connector rod at point shown until specified clearance is obtained.

Fig. 10: Fast Idle Cam Position Adjustment



CHOKE UNLOADER

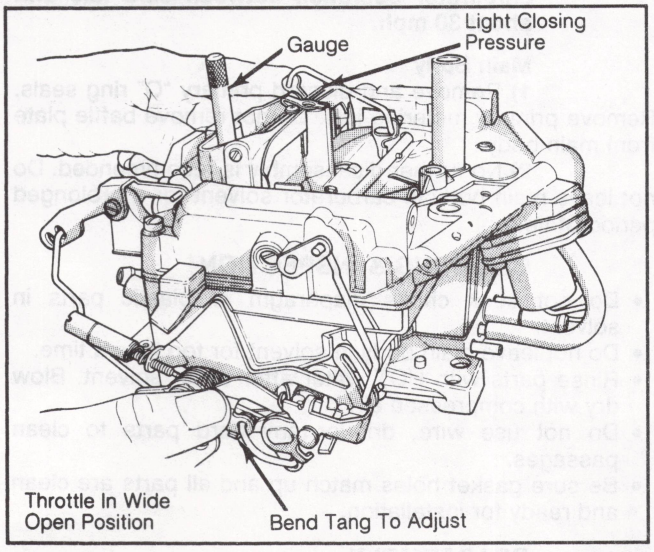
1) Open throttle valves wide open. Apply light closing pressure on fast idle cam lever to close choke valve. *See Fig. 11.*

2) Measure specified clearance between lower edge of choke valve and air horn wall. Measurement can be checked using a specified drill or pin gauge.

NOTE: Make sure clearance does not change as drill or pin gauge is inserted or removed.

3) To adjust, bend tang on fast idle lever until specified clearance is obtained.

Fig. 11: Choke Unloader Adjustment

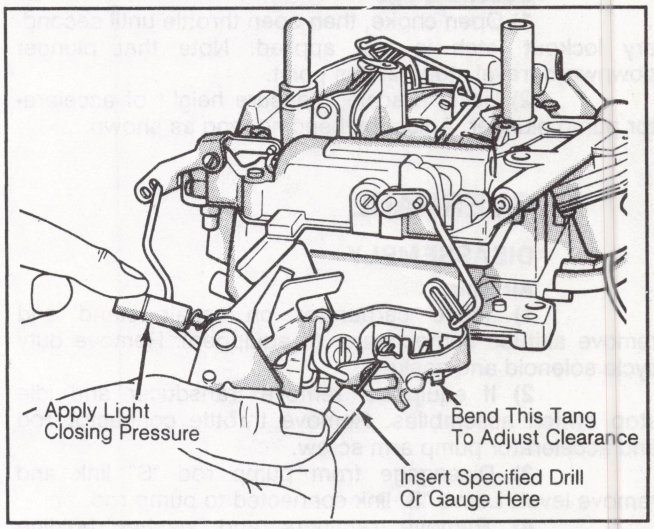


SECONDARY THROTTLE LOCKOUT

1) Move fast idle control lever to wide open choke position. Measure specified clearance between lockout lever and stop. Clearance can be checked using a specified drill or pin gauge. *See Fig. 12.*

2) To adjust, bend tang on lower end of fast idle control lever until specified clearance is obtained.

Fig. 12: Secondary Throttle Lockout Adjustment



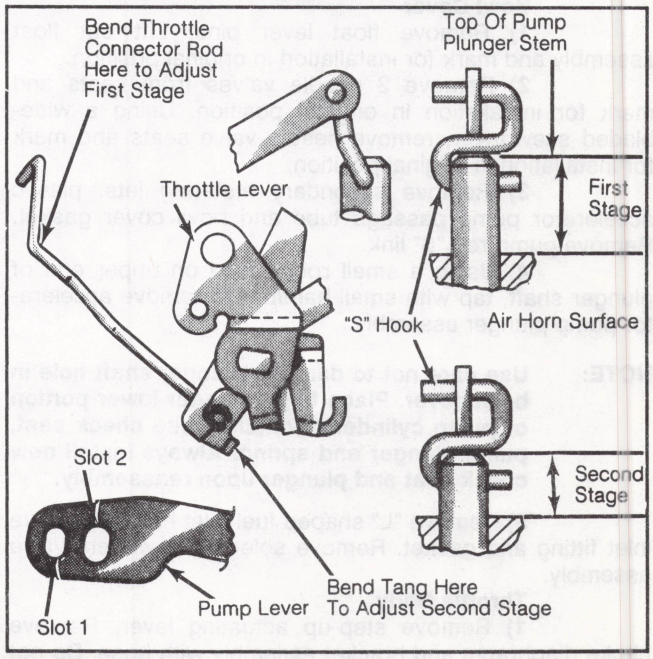
ACCELERATOR PUMP STROKE

NOTE: Accelerator pump stroke is determined by measurement of accelerator pump plunger height above air horn surface at curb idle. Carburetors with staged pump systems require a second height measurement at a throttle position related to a secondary throttle lockout.

First Stage

1) Place throttle connector rod in specified hole of pump arm. Using a scale, measure height of

Fig. 13: Accelerator Pump Stroke Adjustment



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accelerator pump plunger stem at curb idle (from stem top to air horn surface).

2) If measurement is not to specification, adjust plunger height by bending throttle connector rod. *See Fig. 13.*

Second Stage

1) Open choke, then open throttle until secondary lockout latch is just applied. Note that plunger downward travel stops at this point.

2) Using a scale, measure height of accelerator pump plunger. Adjust by bending tang as shown.

OVERHAUL

DISASSEMBLY

Air Horn

1) Place carburetor on repair stand and remove altitude compensator (if equipped). Remove duty cycle solenoid and gasket.

2) If equipped, remove transducer and idle stop switch assemblies. Remove throttle connector rod and accelerator pump arm screw.

3) Disengage from pump rod "S" link and remove lever. Leave "S" link connected to pump rod.

4) Remove retainers and washer holding choke diaphragm connector rod to vacuum diaphragm and air valve lever. Remove retainer holding rod to choke countershaft.

5) Remove step-up piston cover plate and metering rod cover plates. Remove step-up piston and link assembly with step-up rods and piston spring.

6) Remove discharge pump nozzle housing and gasket. Turn caburetor upside down and remove discharge check needle. Remove 10 bowl cover screws.

NOTE: 2 screws are located between choke valve and air horn wall.

7) Remove bowl cover with floats. Do not set down on float side. Remove float bowl from throttle body.

Bowl Cover

1) Remove float lever pins. Lift out float assembly and mark for installation in original position.

2) Remove 2 needle valves from seats and mark for installation in original position. Using a wide-bladed scewdriver, remove needle valve seats and mark for installation in original position.

3) Remove secondary metering jets, plastic accelerator pump passage tube and bowl cover gasket. Remove pump rod "S" link.

4) Using a small rod placed on upper end of plunger shaft, tap with small hammer to remove accelerator pump plunger assembly.

NOTE: Use care not to damage plunger shaft hole in bowl cover. Place fingers under lower portion of pump cylinder to catch intake check seat, pump plunger and spring. Always install new check seat and plunger upon reassembly.

5) Remove "L" shaped fuel inlet hose. Rremove inlet fitting and gasket. Remove solenoid bowl vent valve assembly.

Throttle Body

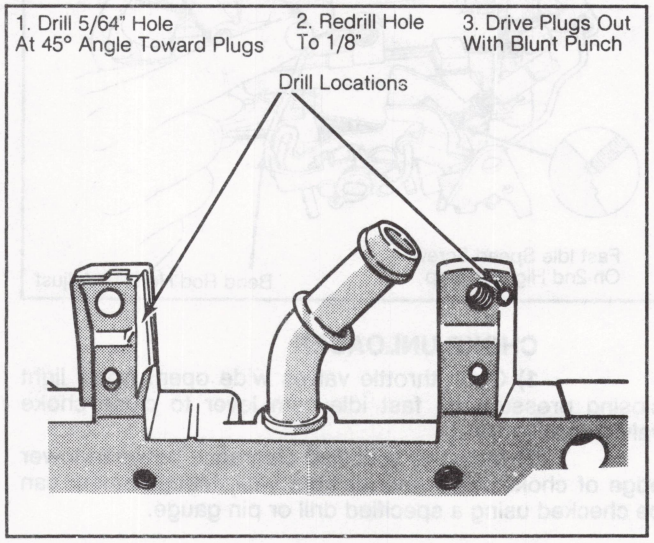
1) Remove step-up actuating lever. Remove choke diaphragm and bracket assembly with hose. Do not place choke diaphragm assembly in carburetor cleaning solvent.

2) Carefully remove idle limiter caps. To remove idle mixture plugs, drill a 5/64" pilot hole at a 45° angle toward plugs. Redrill hole to 1/8".

3) Drive plugs out with blunt punch. Remove idle mixture screws and springs. *See. Fig. 14.*

NOTE: The carburetor vacuum fitting contains a small vacuum passage restriction. Clean with compressed air only.

Fig. 14: Mixture Screw Plugs Removal



CAUTION: Manufacturer does not recommend removal of throttle shafts or valves unless absolutely necessary. These parts are precisely adjusted at factory. The slightest misalignment upon reassembly would adversely affect carburetor operation between curb idle and about 30 mph.

Main Body

1) Remove and discard primary "O" ring seals. Remove primary metering jets. Do not remove baffle plate from main body.

2) No further disassembly is recommended. Do not leave main body in carburetor solvent for a prolonged period of time.

CLEANING & INSPECTION

- Do not soak choke diaphragm or plastic parts in solvent.
- Do not leave main body in solvent for too long a time.
- Rinse parts with HOT water after using solvent. Blow dry with compressed air.
- Do not use wire, drill or any hard parts to clean passages.
- Be sure gasket holes match up and all parts are clean and ready for installation.

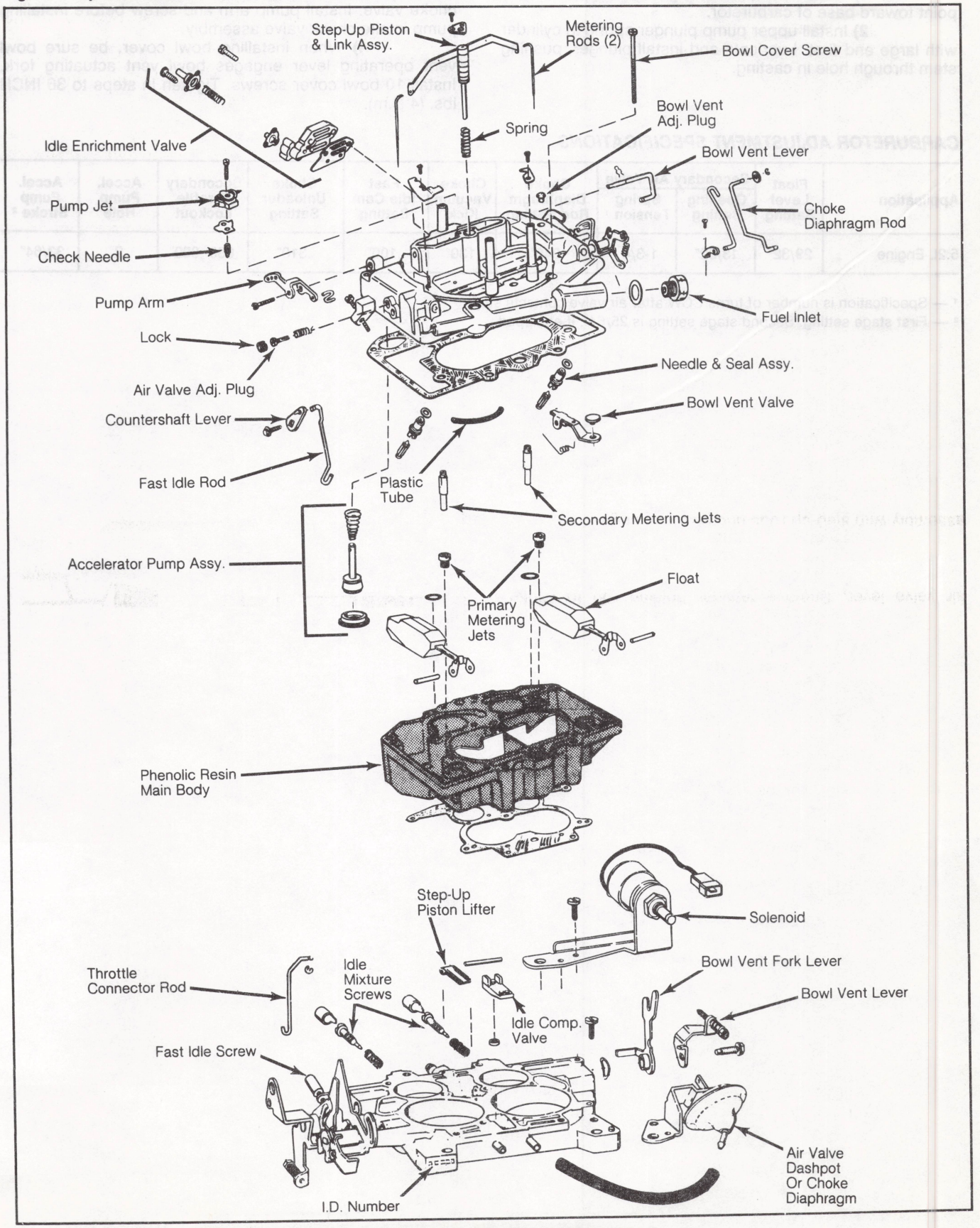
REASSEMBLY

To reassemble carburetor, reverse disassembly procedures, using new gaskets and seals. Make sure gaskets fit correcty and that all holes are punched through and correctly located. Also, note the following:

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Fig. 15: Exploded View of Carter Thermo-Quad Carburetor



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1) Install pump discharge check needle with point toward base of carburetor.

2) Install upper pump plunger spring in cylinder with large end first. Lubricate and install plunger, pushing stem through hole in casting.

3) Install "S" link with lower open end toward choke valve. Install pump arm and screw before installing pump intake check valve assembly.

4) When installing bowl cover, be sure bowl vent operating lever engages bowl vent actuating fork. Install 10 bowl cover screws. Tighten in steps to 36 INCH lbs. (4 N.m).

CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Float Level Setting	Secondary Air Valve		Choke Diaphragm Rod Setting	Choke Vacuum Kick	Fast Idle Cam Setting	Choke Unloader Setting	Secondary Throttle Lockout	Accel. Pump Hole	Accel. Pump Stroke [2]
		Opening Setting	Spring Tension [1]							
5.2L Engine	29/32"	13/32"	1-3/4	.040"	.130"	.100"	.310"	.060-.090"	2	33/64"

[1] — Specification is number of turns CCW after air valve contacts stop.
[2] — First stage setting. Second stage setting is 25/64", if equipped.