

## CARTER THERMO-QUAD 4-BARREL

### CARBURETOR APPLICATION

#### CHRYSLER CORP.

Application	Carter Carb. No.①	
	Man. Trans.	Auto. Trans.
5.2L (318")		
Federal .....	9357, 9371 .....	9311, 9357, 9371
Calif. ....	9330, 9367 .....	9329, 9365, 9368
5.9L (360")		
Federal .....	9314, 9359, .....	9359, 9366 9366
Calif. ....	9332, 9358, .....	9331, 9358, 9369, 9370

① — Carburetor numbers are preceded by letters "TQ", and followed by the letter "S".

### CARBURETOR IDENTIFICATION

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

### DESCRIPTION

Thermo-Quad carburetors have 3 main parts; the 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), and accelerator pump system. Also housed in air horn are primary boost venturis, vacuum controlled step-up piston and metering rods, and high and low speed fuel metering system (secondary jets, fuel discharge nozzles, and air bleeds).

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 pick-up points are located in the throttle body.

### ADJUSTMENT

Thermo-Quad carburetors have unique features which require extra caution during adjustment. The vacuum kick diaphragm provides 2 separate functions. It still provides for vacuum kick, but also controls the secondary air valve. Because of the separate nature of these functions, separate but interrelated adjustments are necessary, and must be performed in proper sequence.

**NOTE** — All carburetors incorporate tamper-proof choke, choke pull-off, and air/fuel mixture adjusting screws. Adjustments are only to be performed after a major overhaul, or if carburetor has received component damage.

### HOT (SLOW) IDLE RPM

See appropriate article in TUNE-UP SERVICE PROCEDURES

### IDLE MIXTURE

See appropriate article in TUNE-UP SERVICE PROCEDURES.

### COLD (FAST) IDLE RPM

See appropriate article in TUNE-UP SERVICE PROCEDURES.

### 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. 1.

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 needle and cause carburetor flooding and incorrect float level.

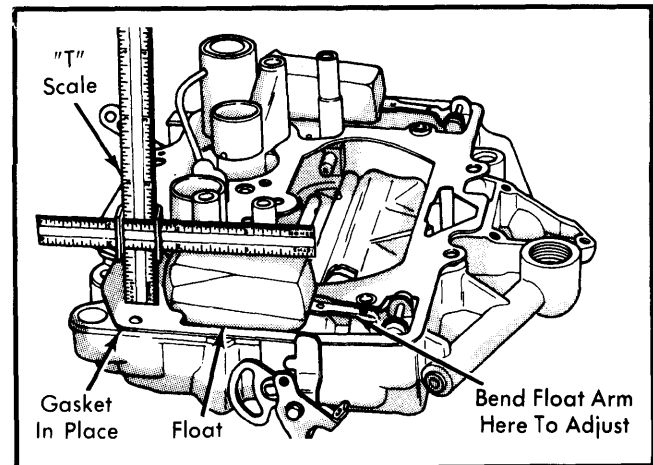


Fig. 1 Adjusting Float Level

### SECONDARY THROTTLE LINKAGE

1) Hold fast idle lever in curb idle position. Turn carburetor upside down. Open throttle valves wide open. See Fig. 2.

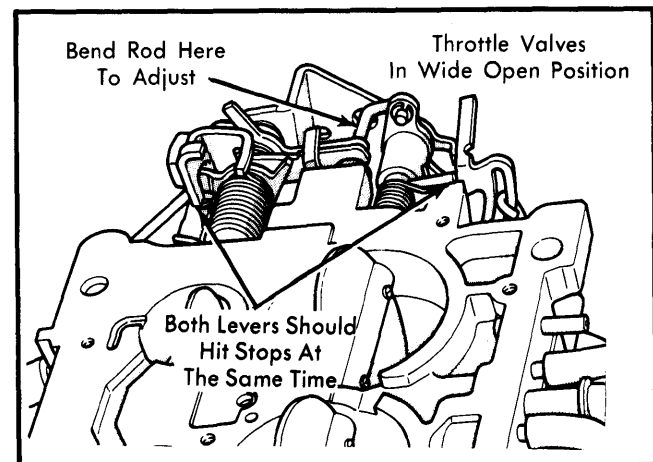


Fig. 2 Adjusting Secondary Throttle Linkage

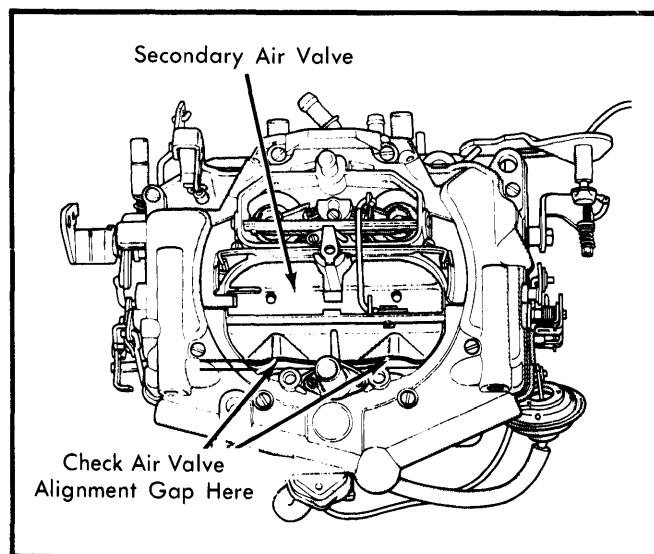
## CARTER THERMO-QUAD 4-BARREL (Cont.)

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

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

### SECONDARY AIR VALVE ALIGNMENT

1) Observe carburetor from directly above. See Fig. 3.

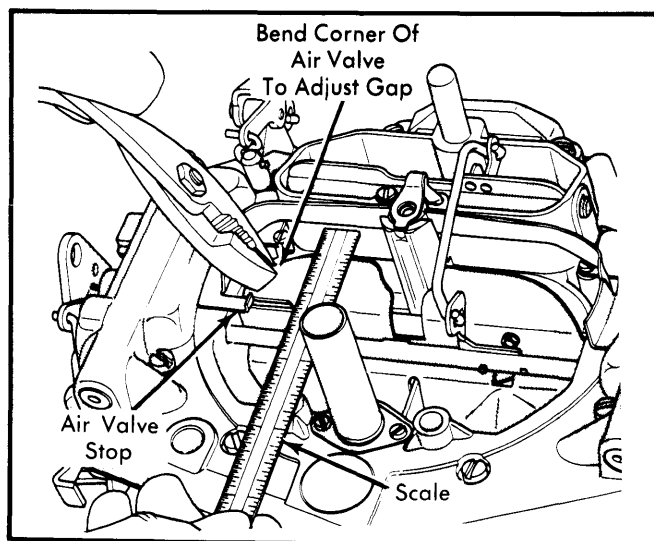


**Fig. 3** Checking Secondary Air Valve Alignment

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.

### 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. 4.



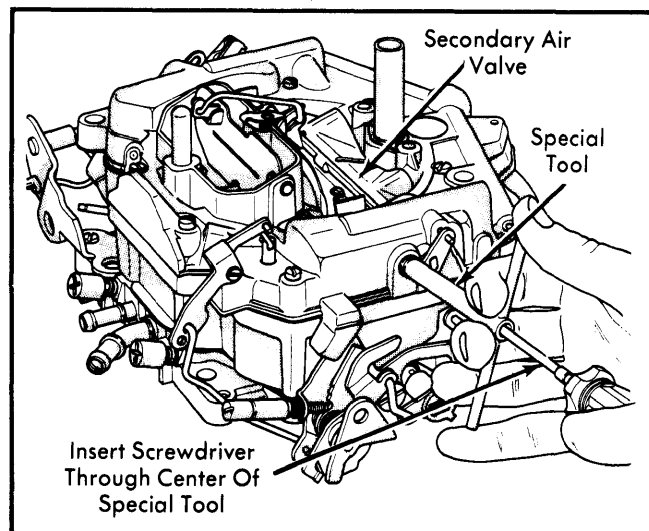
**Fig. 4** Adjusting Air Valve Gap

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.

### 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.



**Fig. 5** Adjusting Secondary Air Valve Spring Tension

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

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.

### 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 that flat surface extends out under choke control lever. See Fig. 6.

2) Close choke by pushing on choke lever with throttle partly open. Measure vertical distance from top of rod hole in control lever to flat surface.

3) Adjust choke control lever by loosening the screw (left-hand threads) holding outer countershaft lever in place. Remove countershaft lever screw.

## CARTER THERMO-QUAD 4-BARREL (Cont.)

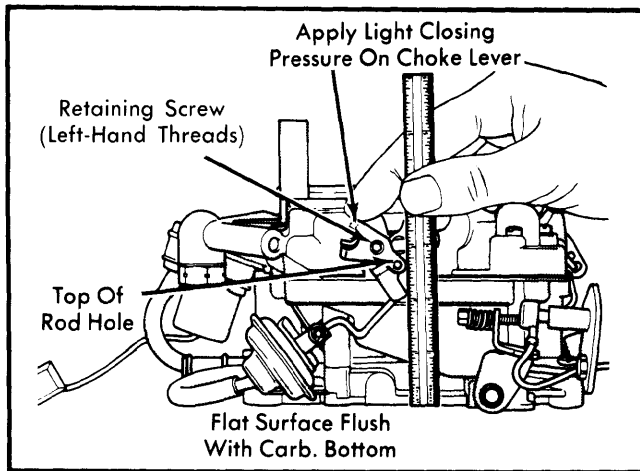


Fig. 6 Adjusting Choke Control Lever

4) Loosen outer choke shaft lever enough to rotate it on shaft. Do this by lightly prying out with a small screwdriver. Rotate outer choke lever to proper specification.

5) Holding the opposite end of choke countershaft, seat outer lever onto shaft taper by lightly tapping with a very small hammer. Install screw and tighten to 8-15 INCH lbs. DO NOT use screw to force outer lever onto taper of shaft.

## 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 of vacuum to diaphragm. Make sure diaphragm stem is fully seated. See Fig. 7.

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.

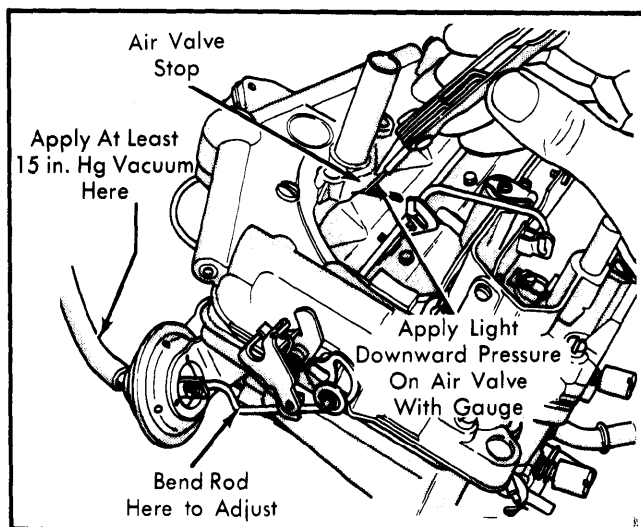


Fig. 7 Adjusting Choke Diaphragm Connector Rod

## CHOKE VACUUM KICK

1) Open throttle and close choke. Now close throttle to trap fast idle cam at closed position. See Fig. 8.

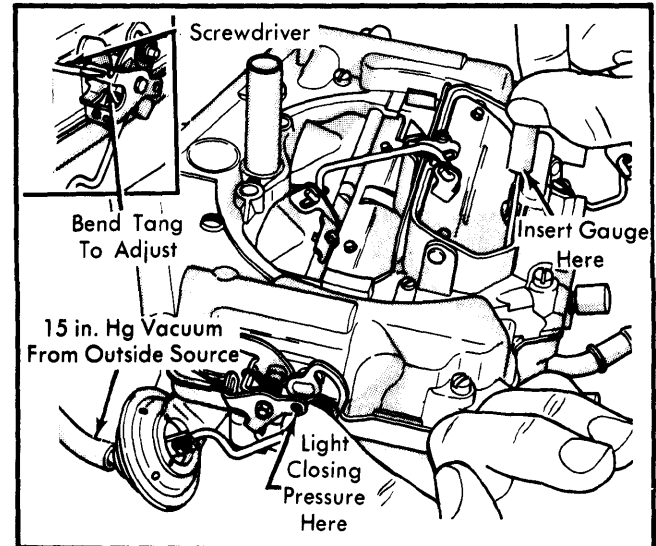


Fig. 8 Adjusting Choke Vacuum Kick

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** — A weak torsion spring will easily be deflected. Vacuum kick adjustment tang must be at stop for proper adjustment.

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.

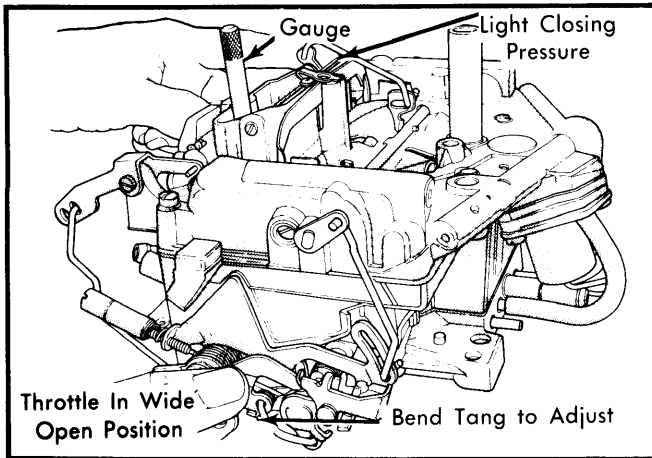
4) To adjust, insert screwdriver in slot in vacuum kick tang and twist. Do not adjust diaphragm rod. Check all linkage for freedom of movement. Reconnect vacuum hose to diaphragm.

## 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) With fast idle speed adjusting screw contacting second highest step of fast idle cam, move choke valve towards closed position using light pressure on fast idle control lever. See Fig. 9.

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**Fig. 9 Adjusting Fast Idle Cam Position**

2) Measure clearance by inserting specified gauge between bottom of choke valve and air horn wall at throttle lever side.

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

3) To adjust, bend fast idle cam connector rod at point shown until correct valve opening is obtained.

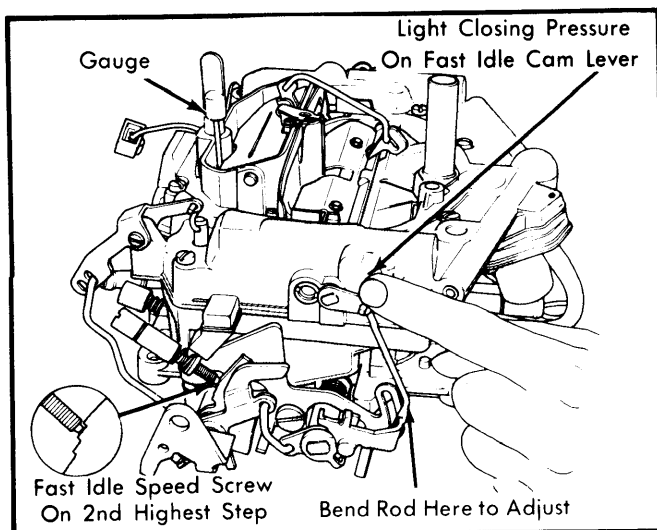
### CHOKE UNLOADER

1) Open throttle valves wide open. Apply light closing pressure on fast idle cam lever to close choke valve. See Fig. 10.

2) Measure 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.

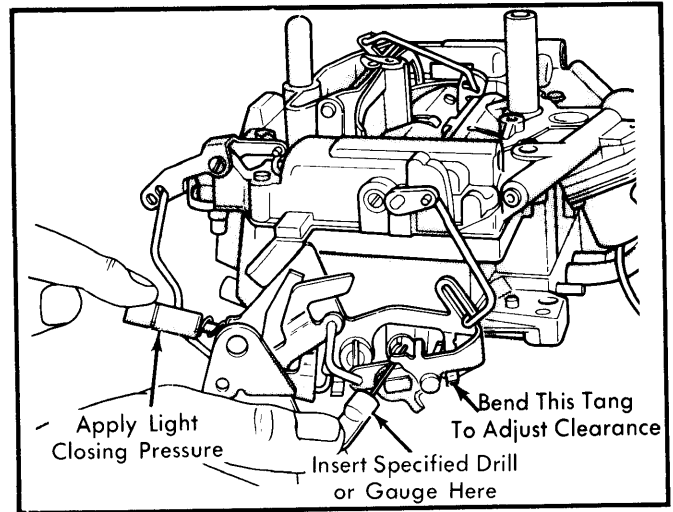
3) To adjust, bend tang on fast idle lever until specified clearance is obtained.



**Fig. 10 Adjusting Choke Unloader**

### 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. 11.



**Fig. 11 Adjusting Secondary Throttle Lockout**

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

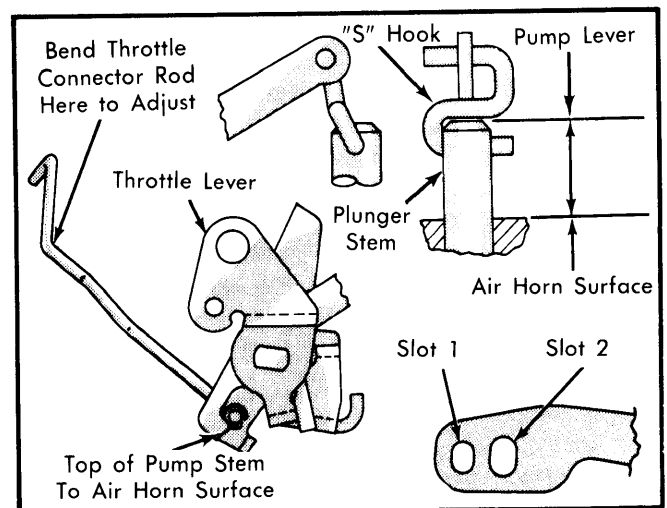
### ACCELERATOR PUMP STROKE

**NOTE** — Accelerator pump stroke is determined by measurement of accelerator pump plunger height above air horn surface AT CURB IDLE.

1) Be sure throttle connector rod is in specified hole of pump arm.

2) Use a scale to measure height of accelerator pump plunger stem (from stem top to air horn surface) at curb idle.

3) Adjust plunger height by bending throttle connector rod as shown in Fig. 12.



**Fig. 12 Adjusting Accelerator Pump Stroke**

## CARTER THERMO-QUAD 4-BARREL (Cont.)

## SOLENOID BOWL VENT VALVE TEST

- 1) Remove air cleaner assembly.
- 2) Disconnect hose to solenoid bowl vent diaphragm.
- 3) Connect outside vacuum source and apply at least 15 in. Hg to diaphragm.
- 4) Look down through air horn vent tube and observe valve movement. See Fig. 13.
- 5) Turn ignition switch ON.
- 6) Remove outside vacuum source from diaphragm. Valve should remain in down position until ignition switch is turned OFF.
- 7) If valve does not move with applied vacuum, diaphragm is leaking and must be replaced.
- 8) If valve does not remain in down position when ignition switch is turned ON and vacuum source is removed, solenoid or its related wiring is faulty.

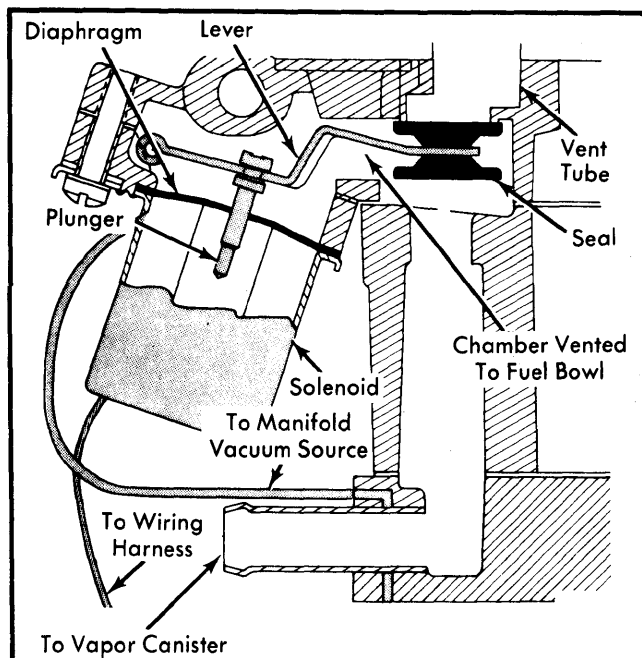


Fig. 13 Cutaway View of Solenoid Vent Valve for Checking Vent Valve Operation

## IDLE ENRICHMENT VALVE TEST

- 1) Start engine and warm to normal operating temperature.
- 2) Turn engine OFF and remove air cleaner.
- 3) Install jumper wire from carburetor idle stop switch to ground.
- 4) Connect tachometer to engine.
- 5) Disconnect hose to idle enrichment system diaphragm at plastic connector.

**NOTE** — Remove connector from carburetor hose before proceeding.

- 6) Start engine.
- 7) Place fast idle speed screw on setting (slowest speed) step of fast idle cam.
- 8) Attach outside vacuum source to enrichment diaphragm with 3 or 4 feet of hose.
- 9) Apply at least 15 in. Hg and note any engine RPM change.
- 10) If speed can be controlled by vacuum, system is working properly.
- 11) If not, block inlet air passage and note engine RPM change. If speed can be controlled in this manner, diaphragm is leaking and/or air valve is stuck open.
- 12) If speed cannot be controlled, air valve is stuck closed.
- 13) Clean air valve and repeat steps 9) and 10).
- 14) If speed cannot be controlled, replace the enrichment diaphragm.

## OVERHAUL

## DISASSEMBLY

- 1) Place carburetor on a suitable repair stand. Remove idle enrichment valve assembly.
  - 2) Remove rod retainers that hold throttle connector rod to accelerator pump arm and throttle lever. Remove connector rod from carburetor.
  - 3) Remove accelerator pump arm screw, disengage pump arm from "S" link and remove pump arm. Leave "S" link connected to pump rod.
  - 4) Remove retainers and washers 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. Remove step-up piston spring.
  - 6) Remove discharge pump nozzle housing and gasket. Invert carburetor and remove discharge check needle. Needle should drop out when carburetor is inverted.
  - 7) Remove 10 air horn (bowl cover) screws. Two of these screws are located between choke valve and air horn wall. Remove air horn with floats. Remove float bowl from throttle body.
- Bowl Cover Disassembly** — 1) Remove float lever pins and lift out float assembly.
- NOTE** — Mark floats so they can be installed in original locations.
- 2) Remove 2 needle valves from seats, marking them for reassembly location.

## CARTER THERMO-QUAD 4-BARREL (Cont.)

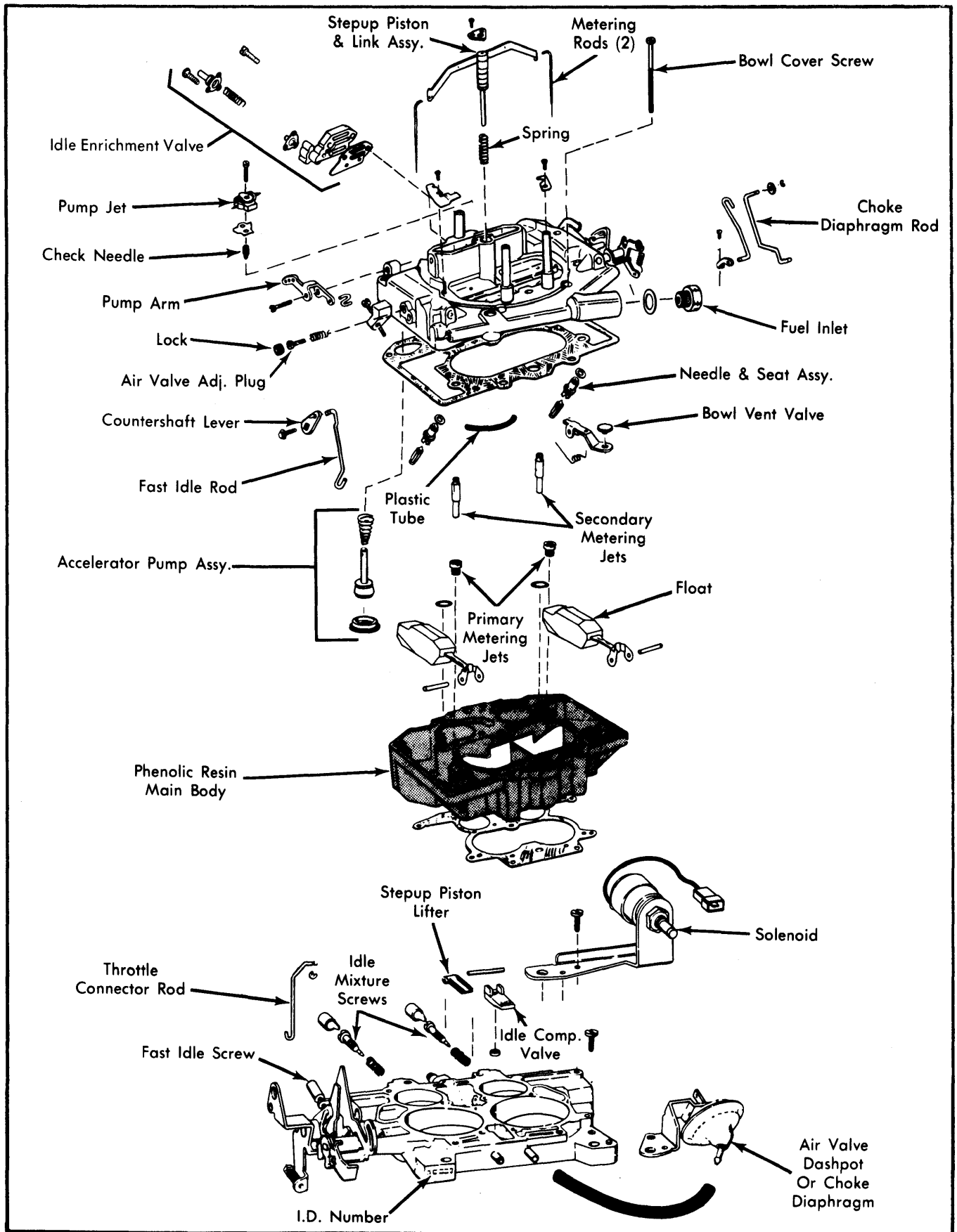


Fig. 14 Exploded View of Carter Thermo-Quad 4-Barrel

## CARTER THERMO-QUAD 4-BARREL (Cont.)

3) Remove needle valve seats (use wide blade screwdriver).

**NOTE** — Be sure to match original needle to its seat for reassembly.

4) Remove secondary metering jets.

5) Remove plastic accelerator pump passage tube.

6) Remove bowl cover gasket.

7) Remove pump rod "S" link.

8) Carefully remove accelerator pump plunger assembly. Care must be taken not to damage plunger shaft hole in cover. Catch intake check seat, plunger and spring.

**NOTE** — Always install a new check seat and plunger when carburetor is reassembled.

9) Remove fuel inlet fitting and gasket.

**Throttle Body Disassembly** — 1) Remove step-up actuating lever.

2) Remove choke diaphragm and bracket assembly with hose. Do not place this assembly in carburetor cleaning solvent.

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

3) Remove (carefully) idle limiter caps.

4) Remove idle mixture screws and springs. Be sure to count number of turns it takes to seat screws so they may be installed in their original positions.

**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 Disassembly** — 1) Remove primary "O" ring seals and discard.

2) Remove primary metering jets.

3) It is not necessary to remove baffle plate from main body.

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

## CLEANING &amp; 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 correctly and that all holes are punched through and correctly located. Also, note the following:

- 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. Install "S" link with lower open end toward choke valve. Install pump arm and screw before installing pump intake check valve assembly.
- 3) Install 10 bowl cover screws and tighten to 35 INCH lbs.

## CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Float Level Setting	Secondary Air Valve		Choke Lever Setting	Choke Diaphragm Rod Setting	Choke Vacuum Kick	Fast Idle Cam Setting	Choke Unloader Setting	Secondary Throttle Lockout	Accelerator Pump Hole
		Opening Setting	Spring Tension <sup>Ⓞ</sup>							
TQ-9311-S	$\frac{29}{32}$ "	$\frac{27}{64}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9314-S	$\frac{29}{32}$ "	$\frac{7}{16}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9325-S	$\frac{29}{32}$ "	$\frac{27}{64}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9329-S	$\frac{29}{32}$ "	$\frac{27}{64}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9330-S	$\frac{29}{32}$ "	$\frac{27}{64}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9331-S	$\frac{29}{32}$ "	$\frac{7}{16}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9332-S	$\frac{29}{32}$ "	$\frac{7}{16}$ "	2½	$3\frac{3}{8}$ "	.04"	.15"	.10"	.31"	.06-.09"	#2
TQ-9357-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9358-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.18"	.13"	.31"	.06-.09"	#2
TQ-9359-S	$\frac{29}{32}$ "	$\frac{7}{16}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9365-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9366-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9367-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9368-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9369-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9370-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2
TQ-9371-S	$\frac{29}{32}$ "	$\frac{3}{8}$ "	2	$3\frac{3}{8}$ "	.04"	.13"	.13"	.31"	.06-.09"	#2

Ⓞ — Specification is amount of turns counterclockwise after air valve contacts stop.