CARTER THERMO-QUAD (CHRYSLER) 4-BARREL

CHRYSLER CORP.

Application	Carter Carburetor No. Man. Trans.	Auto. Trans.
360" (Federal)	TQ-6452S	TQ-6453S
(Calif.)	TQ-6454S	①TQ-6455S
400" (Federal)	TQ-6456S	②TQ-6489S
(Calif.)		③TQ-6496S
440" Std. (Federal)		TQ-6460S
(Calif.)		TQ-6461S
440" Hi Perf. (Federal)		TQ-6462S
(Calif.)		TQ-6463S

① — Or Carburetor No. TQ-6488S.
② — Or Carburetor No. TQ-6457S.
③ — Or Carburetor No. TQ-6459S.

CARBURETOR IDENTIFICATION

Carburetor model number is stamped on metal tag attached to air horn.

DESCRIPTION

Carburetor has three main parts; air horn, main body, and throttle body. Air horn houses choke valve, air valve for secondaries, fuel inlet system (two floats and needle valves), accelerating pump system, primary boost venturis, vacuum controlled step-up piston and metering rods, and low and high speed fuel metering system.

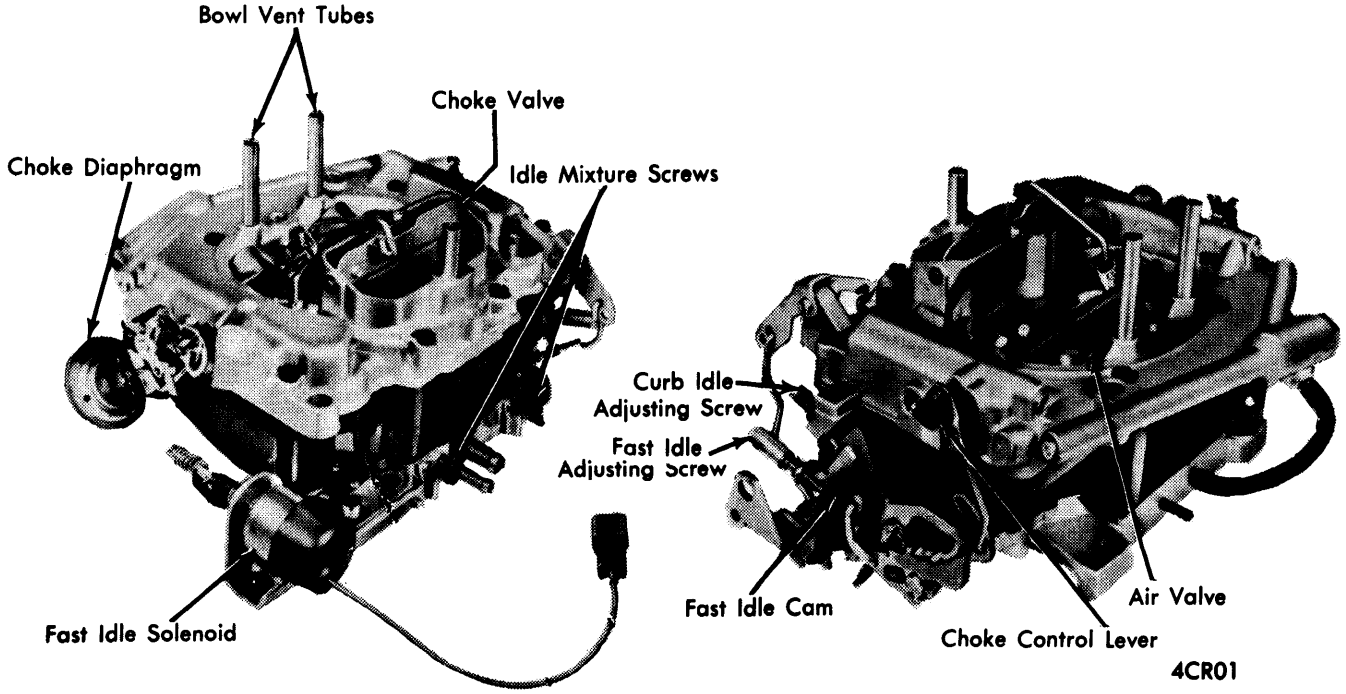
Main body houses primary jets and is constructed of phenolic resin (for cooler fuel temperatures). Throttle body houses throttle valves and linkage, air valve dashpot and choke linkage. Air valve dashpot operates by mainfold vacuum and is connected to secondary air valve. It functions to provide vacuum kick, secondary air valve restraint, and unload choke when throttles are wide open. A curb idle solenoid is mounted on choke side of carburetor. This solenoid is used to maintain high idle speed when engine is running and allows throttle to close to slow speed position when key is turned off, to prevent dieseling.

ADJUSTMENT

Thermo-quad has unique features which require extra caution during all adjustments. Many of these carburetor components have at least two functions. Because of the separate nature of these functions, separate but interrelated adjustments are necessary and these adjustments must be performed in their proper sequence. Certain of these adjustments will be necessary only if the carburetor is being overhauled or has been disassembled and should be made off the car on a bench.

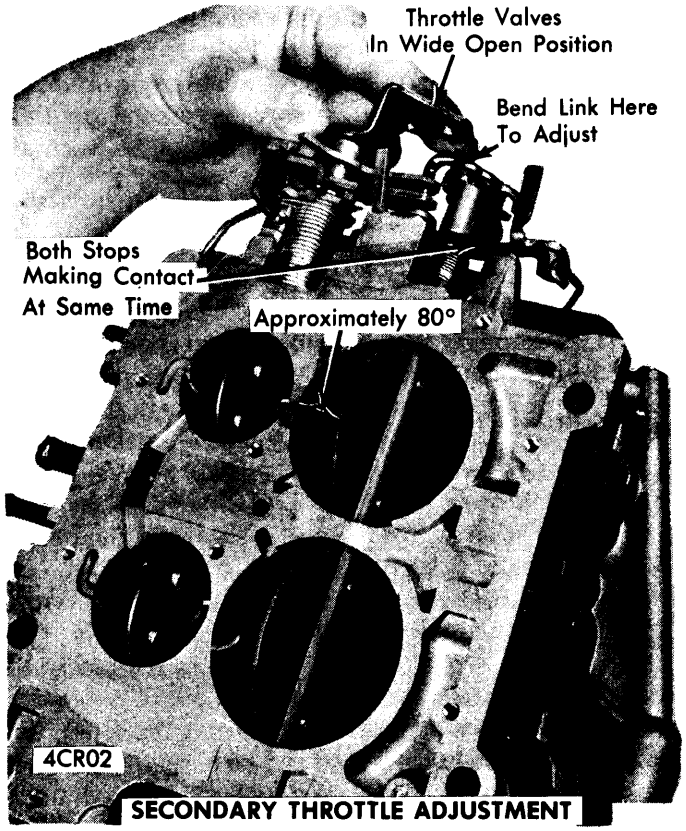
SECONDARY THROTTLE LINKAGE

Block choke valve wide open, invert carburetor. Open primary throttle valves until specified drill gauge can be inserted between lower edge of primary valve and bore opposite idle port. Secondary valves should just be starting to open. Bend secondary throttle rod at existing bend if adjustment required. See Specifications.



CARTER THERMO-QUAD CARBURETOR (TYPICAL)

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

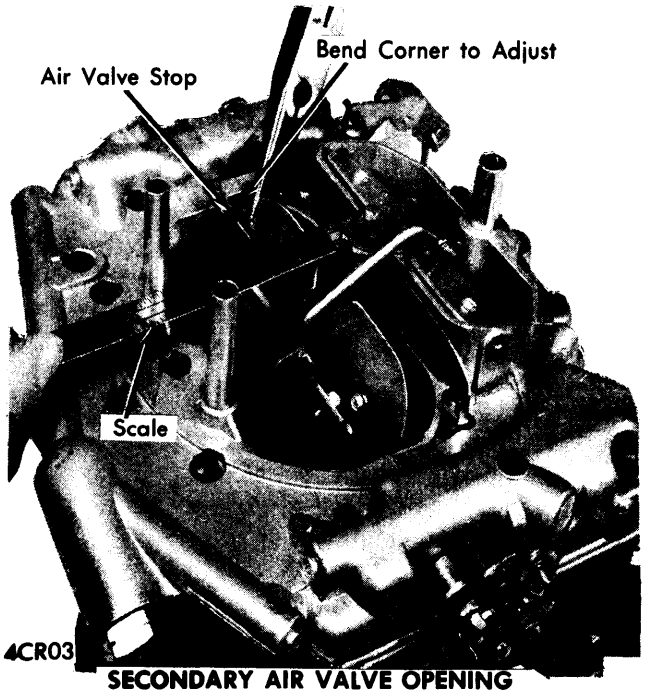


SECONDARY THROTTLE ADJUSTMENT

SECONDARY AIR VALVE OPENING

Closed Position – Opening along air valve at long side to be at its maximum and parallel with air horn gasket surface.

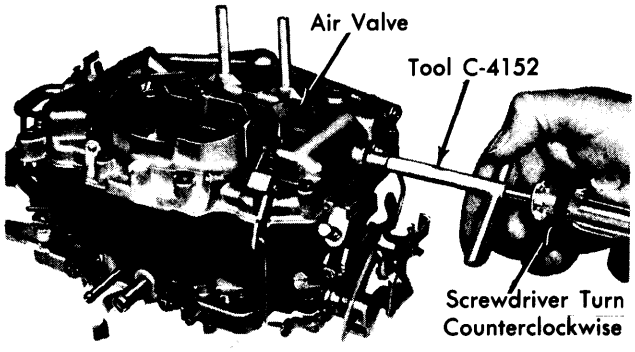
Open Position – See Specifications for clearance between air valve (short side) and air horn. Corner of air valve is notched for adjustment. Bend at this point if adjustment required.



SECONDARY AIR VALVE OPENING

SECONDARY AIR VALVE SPRING TENSION

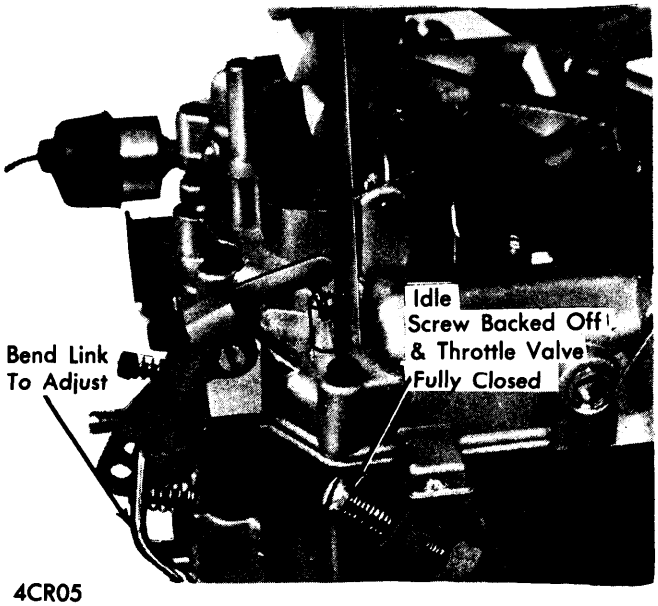
Using hollow-handle spanner (Tool C-4152) loosen air valve lock plug. Use long handle screwdriver through handle of spanner to turn plug counterclockwise until air valve contacts stop lightly, then turn and additional 1¼ turn. Hold adjustment plug with screwdriver and tighten lock plug with spanner, making sure adjustment does not move. Test valve for freedom of movement.



ADJUSTING AIR VALVE SPRING TENSION

ACCELERATOR PUMP STROKE

Release fast idle cam by opening choke wide open and back off slow curb idle speed adjust screw until throttle valves seat in bore. With throttle valves closed tightly and with throttle connector rod installed in center hole of pump arm, distance between top of bowl cover and the under side of "S" link that goes through pump plunger should be as specified (see Specifications). If adjustment required, bend throttle rod at lower angle. For second stage adjustment on manual transmission models, bend second stage stop lever.



ACCELERATOR PUMP STROKE ADJUSTMENT

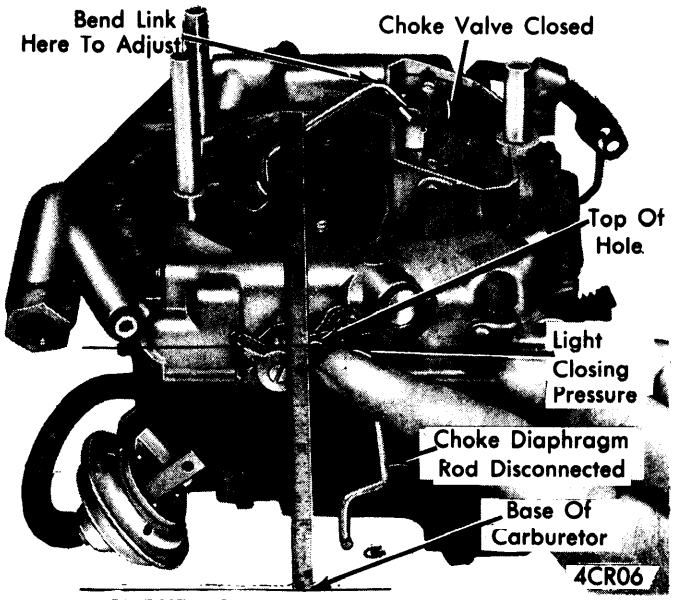
CARTER THERMO-QUAD (CHRYSLER) 4-BARREL (Cont.)

CHOKE CONTROL LEVER (OFF CAR)

1) **Off Car**, place carburetor on flat surface with surface extending out under choke control lever.

2) Fully close choke and measure vertical distance from top of rod hole in control lever down to flat surface (**off car**) or down to clean choke pad surface (**on car**).

3) Distrance should be 3 ⅜". Adjust by bending link connecting two shafts (see illustration).

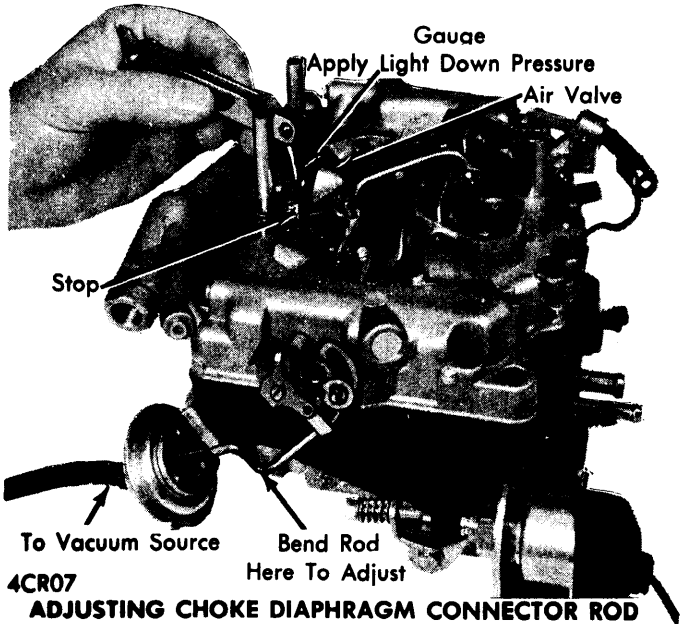


CHOKE CONTROL LEVER ADJUSTMENT

CHOKE DIAPHRAGM CONNECTOR ROD (SECONDARY AIR VALVE CONTROL)

NOTE – Make this adjustment before Vacuum Kick adjustment.

Use vehicle vacuum (or exterior source if carburetor off car) to apply a minimum of 15 inches Hg to diaphragm. Bend connector rod to obtain specified clearance between air valve and stop on bowl cover (see illustration).



ADJUSTING CHOKE DIAPHRAGM CONNECTOR ROD (SECONDARY AIR VALVE)

VACUUM KICK

NOTE – This adjustment should not be made until Choke Control Lever and Choke Diaphragm Connector Rod adjustments have been tested or adjusted.

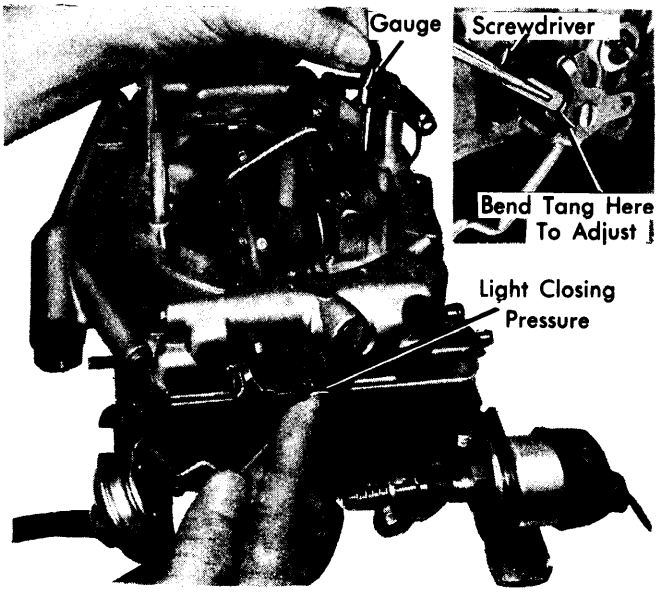
Off Car – Open throttle valve and close choke. Hold choke closed while releasing throttle in order to trap fast idle cam in closed choke position. Proceed as follows:

1) From an exterior source (such as a distributor test machine) apply a minimum of 10 inches of Hg to vacuum diaphragm (care must be taken not to damage diaphragm in removal of vehicle vacuum hose, and diaphragm must be securely mounted on carburetor).

2) Insert specified drill or gauge between lower edge of choke valve and air horn and with choke control lever close choke valve as far as possible without straining or distorting choke linkage (spring on control lever must be fully extended).

3) If slight drag is not felt as drill is withdrawn, bend tang (see illustration) as necessary. *Do not adjust diaphragm rod. Apply counter force to adjustment lever while bending tang. Do not apply any load or strain on link connecting the two choke shafts while bending tang. Distortion of link will change choke qualification. With no vacuum applied, choke valve must move freely.*

On Car – With engine running, back off fast idle speed screw until choke can be closed to the kick position at curb idle (note number of screw turns required so that fast idle can be returned to original adjustment). To complete checking and adjustment, follow procedures given in steps 2 and 3 of "Off Car" instructions. *After checking or adjustment, choke valve should move freely between open and closed positions (without vacuum applied to diaphragm).*

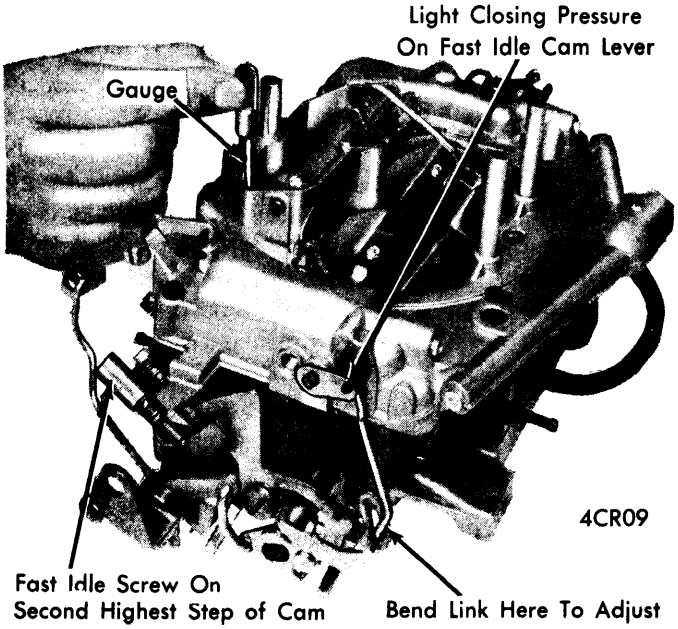


VACUUM KICK ADJUSTMENT

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

FAST IDLE CAM & LINKAGE

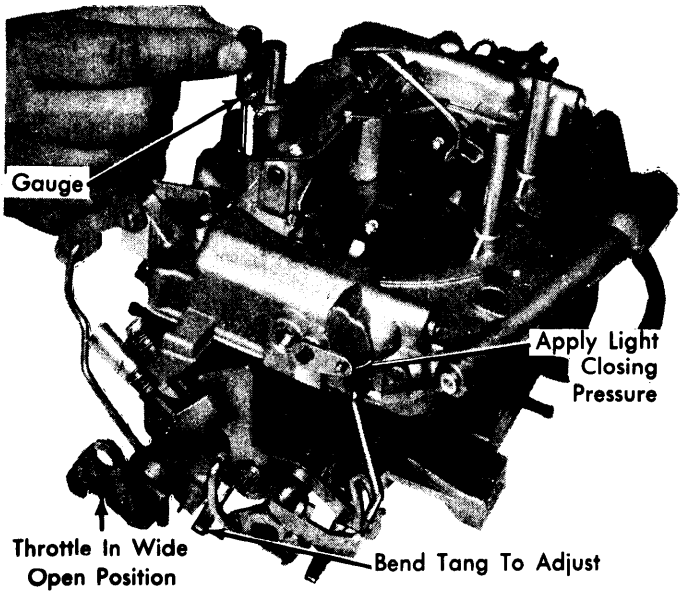
Place fast idle screw on second step of cam against shoulder of first step. Adjust connector rod to obtain specified clearance between lower edge of choke valve and air horn (see illustration).



FAST IDLE CAM & LINKAGE ADJUSTMENT

CHOKE UNLOADER

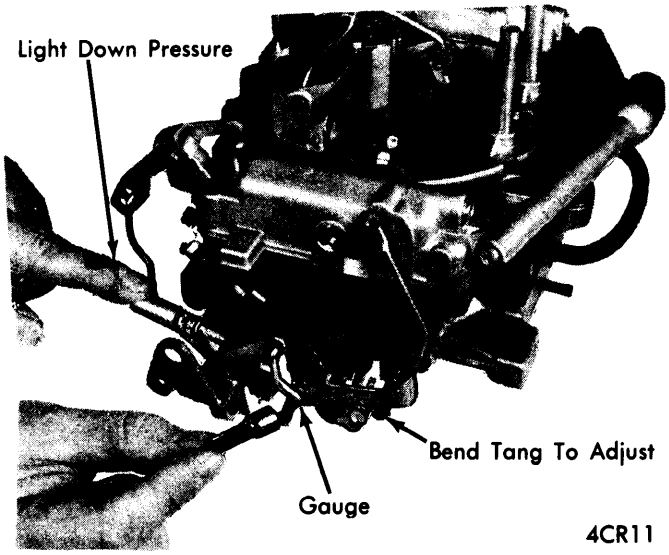
Hold throttle valves in wide open position. With specified drill (see Specifications) inserted between lower edge of choke valve and air horn and with a slight finger pressure on the choke control lever, a slight drag should be felt as drill is withdrawn. Bend tang on fast idle control lever (see illustration) if adjustment required.



CHOKE UNLOADER ADJUSTMENT

SECONDARY THROTTLE LOCKOUT

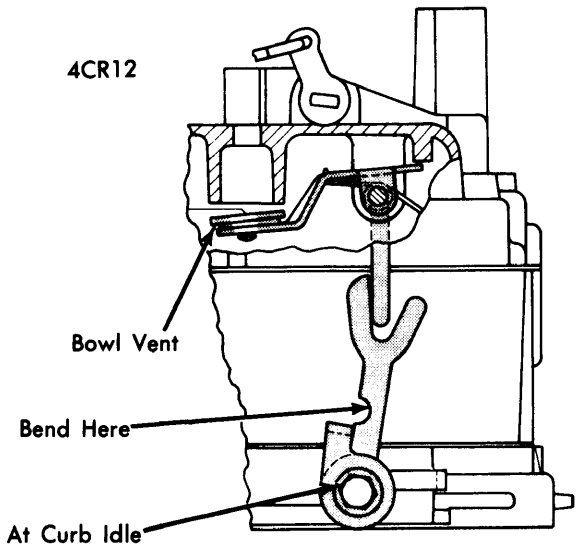
Open choke valve, using choke control lever. Measure clearance between lockout lever and stop (see Specifications). Bend tang on fast idle control lever if adjustment necessary (see illustration).



SECONDARY THROTTLE LOCKOUT ADJUSTMENT

BOWL VENT VALVE

Remove vent valve hole plug and insert a narrow ruler in hole to rest on top of valve. Measurement of distance from top of valve to top of bowl cover should be to specification when throttle valves are at curb idle position. If adjustment required (see Specifications), bend bowl vent operating lever at point of notch on lever.

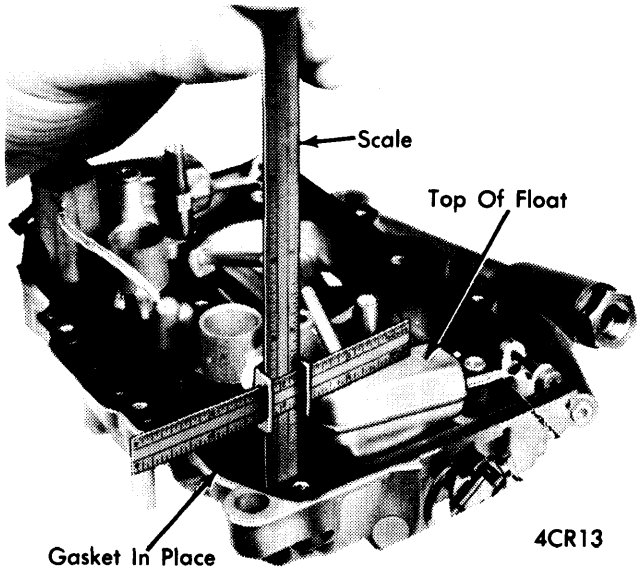


BOWL VENT VALVE ADJUSTMENT

FLOAT LEVEL

With bowl cover inverted, gasket installed, and floats resting on seated needle, measure distance from bowl cover gasket to bottom of float. If measurement not correct (see Specifications) bend float lever (see illustration) as required. *NOTE – Do not allow lip of float to press on needle while making adjustment.*

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



CHECKING FLOAT HEIGHT

IDLE SPEED ADJUSTMENT

NOTE – In order to comply with emission standards, specifications shown on engine compartment emission control tune-up decal must be used in all instances. Decal information should be considered the most valid information available. If performing adjustment procedure only, do not remove idle mixture limiter caps.

Preparations For Adjustment – Block wheels and apply parking brake. With air conditioner "OFF", place transmission in Neutral (not Park). If equipped with air pump, disconnect air outlet hose and plug hose to exhaust manifold.

Exhaust Gas Analyzer Procedure – With timing set, insert analyzer probe into tailpipe and calibrate meter. Do not remove idle mixture limiter caps. Adjust mixture screws 1/16 turn out (richer) and wait 30 seconds before reading meter. If necessary, repeat until meter indicates a definite increase in richness. Adjust mixture screws leaner or richer, as required, to give correct CO level (air/fuel ratio) shown on decal. If idle speed changes as mixture screws are turned, adjust RPM to specifications and readjust mixture screws as required to give correct CO level (air/fuel ratio) at specified RPM.

IDLE MIXTURE ADJUSTMENT

Preparations for adjustment must be completed. *See Idle Speed Adjustment.* If correct air/fuel ratio and CO level were not obtained during idle speed setting, or if a rough idle or low speed surge condition exists after setting idle, remove limiter caps and proceed as follows: Turn mixture screws in until seated, then back out each screw 1 ½ turns. Reset idle using an exhaust gas analyzer. When air/fuel ratio, CO level, and idle are reached with mixture screws turned out equally, install new limiter caps.

Alternate Method (4Bbl. With Solenoid) – With engine running and idle speed solenoid energized, turn solenoid adjusting screw in or out to obtain specified RPM. Adjust idle speed screw until it just touches stop on carburetor throttle lever, then back off one full turn. To test, disconnect solenoid wire then reconnect; solenoid plunger will have to be extended manually to obtain specified RPM.

FAST IDLE SPEED

NOTE – Timing and curb idle speed and mixture must be correctly adjusted before adjusting fast idle speed.

1) With engine not running and transmission in PARK or NEUTRAL, open throttle slightly.
2) Close choke valve until fast idle screw can be positioned on second step of cam against shoulder of first step.
3) Start engine, determine stabilized RPM. Turn fast idle screw in or out to obtain specified RPM (see Specifications).
4) Reposition fast idle speed screw on cam after each speed adjustment to provide correct throttle closing torque.

CARBURETOR ADJUSTMENT SPECIFICATIONS

Carter Carb. No.	Idle Speed (Engine RPM)		Fast Idle Cam ② Position	Vacuum Kick ②	Accel. Pump Stroke③	Choke② Unloader Setting	Float Setting ⑤	Auto. Choke ④
	Hot①	Fast						
TQ-6488S	750	1800	.100"	.160"	35/64"	.310"	1"	.....
TQ-6452S	850	1900	.100"	.210"	35/64"	.310"	1"	.....
TQ-6453S	850	1900	.100"	.160"	31/64"	.310"	1"	.....
TQ-6454S	850	1900	.100"	.210"	35/64"	.310"	1"	.....
TQ-6455S	850	1900	.100"	.160"	31/64"	.310"	1"	.....
TQ-6489S	.....	2000	.100"	.160"	31/64"	.310"	1"	.....
TQ-6496S	.....	2000	.100"	.160"	31/64"	.310"	1"	.....
TQ-6456S	900	1700	.100"	.210"	35/64"	.310"	1"	.....
TQ-6457S	.....	1800	.100"	.160"	31/64"	.310"	1"	.....
TQ-6459S	.....	1800	.100"	.160"	31/64"	.310"	1"	.....
TQ-6460S	750	1700	.100"	.160"	31/64"	.310"	1"	.....
TQ-6461S	750	1700	.100"	.160"	31/64"	.310"	1"	.....
TQ-6462S	800	1700	.100"	.160"	31/64"	.310"	1"	.....
TQ-6463S	800	1700	.100"	.160"	31/64"	.310"	1"	.....

① **Solenoid** energized.
② **Measured** at lowest edge of choke plate.
③ **Top of plunger** to top of bowl cover with throttle closed.
④ Fixed setting. Controled by electric assist.
⑤ Specifications given are for brass float. **Specification for** celluar float is 29/32".

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

UNIVERSAL CARBURETOR ADJUSTMENTS

Application	Spec.
Bowl Vent Valve	①13/16"
Choke Diaphragm Connector Rod	.040"
Secondary Air Valve Opening	½"
Secondary Air Valve Spring Tension	1½"
Secondary Throttle Linkage	②
Secondary Throttle Lockout	.060-.090"

① – Solenoid Disconnected.
② – Adjust so that primary and secondary both contact

OVERHAUL

DISASSEMBLY

1) Remove rod retainers holding throttle connector rod to accelerator pump arm and throttle lever, remove rod from carburetor. Remove accelerator pump arm screw and disengage from pump rod "S" link (leave "S" link connected to pump rod) and remove lever. Disengage lever from countershaft, then swing fast idle connector rod at an arc until it can be freed from fast idle operating lever.

2) Remove rod retainers and washer holding choke diaphragm connector rod to choke vacuum diaphragm and air valve lever, then remove lever. Remove rod retainer holding choke connector rod to choke countershaft, then disengage rod and swing rod at an arc to free choke shaft lever assembly.

3) Remove step-up piston cover plate attaching screw and cover plate, then remove step-up piston and link assembly with step-up rods. Remove step-up piston spring. Remove pump jet housing screw, housing with gasket, and then invert carburetor and remove discharge check needle. Remove (10) screws, two of the bowl cover screws are located between choke valve and wall of bowl cover, remove bowl cover and invert on bench to protect floats.

Bowl Cover – 1) Remove float lever pins and lift out float assemblies, mark float removed from pump side so that floats may be reinstalled in their respective positions. Remove two needle valves from their locations, mark needle valve removed from pump side to aid in reassembly, then using a wide blade screwdriver, remove needle valve seats. Be sure each needle valve is returned to its original seat at reassembly.

2) Remove primary jets (large screwdriver slots) and secondary jets (small screwdriver slots). Remove acceleration pump passage tube (plastic) and bowl cover gasket. Remove accelerator pump rod "S" link, using a small rod placed on upper end of plunger shaft and tapping lightly with a small hammer. *CAUTION – Use care not to damage plunger shaft hole in bowl cover, place fingers under lower portion of pump cylinder in order to catch intake check seat, disc, disc retainer, spring (light) and spring (heavy).*

3) If plunger can be reused, place in a jar of clean gasoline or kerosene to prevent leather from drying out. Note position of bowl vent connector rod and arm spring before removing retainer clip from connector rod, then remove rod from bowl vent operating arm. Remove grommet seal from operating arm, then remove fuel inlet fitting and gasket.

Throttle Body – 1) Remove choke diaphragm and bracket assembly, with hose, and place aside for special cleaning (liquid cleaners may damage diaphragm material). *NOTE – Carburetor vacuum fitting hides a very small vacuum passage restriction, clean passage only with compressed air.*

2) Remove hot idle compensator valve and gasket. Remove plastic limiter caps from idle air mixture screws, being sure to count the number of turns to seat screws (from stop), as the same number of turns must be maintained at reassembly. Remove idle mixture screws and springs. *NOTE – It is not recommended that throttle shafts or valves be removed unless wear or damage necessitates the installation of new parts.*

CLEANING & INSPECTION

Check all parts for wear or damage, replace as necessary. Check all passages for restrictions. Be sure choke and throttle shafts are not bent or scored, replace any broken or distorted springs. Clean all parts in a suitable solution, but do not immerse main body for prolonged periods of time.

REASSEMBLY

Using all new gaskets, reverse disassembly procedures and note the following:

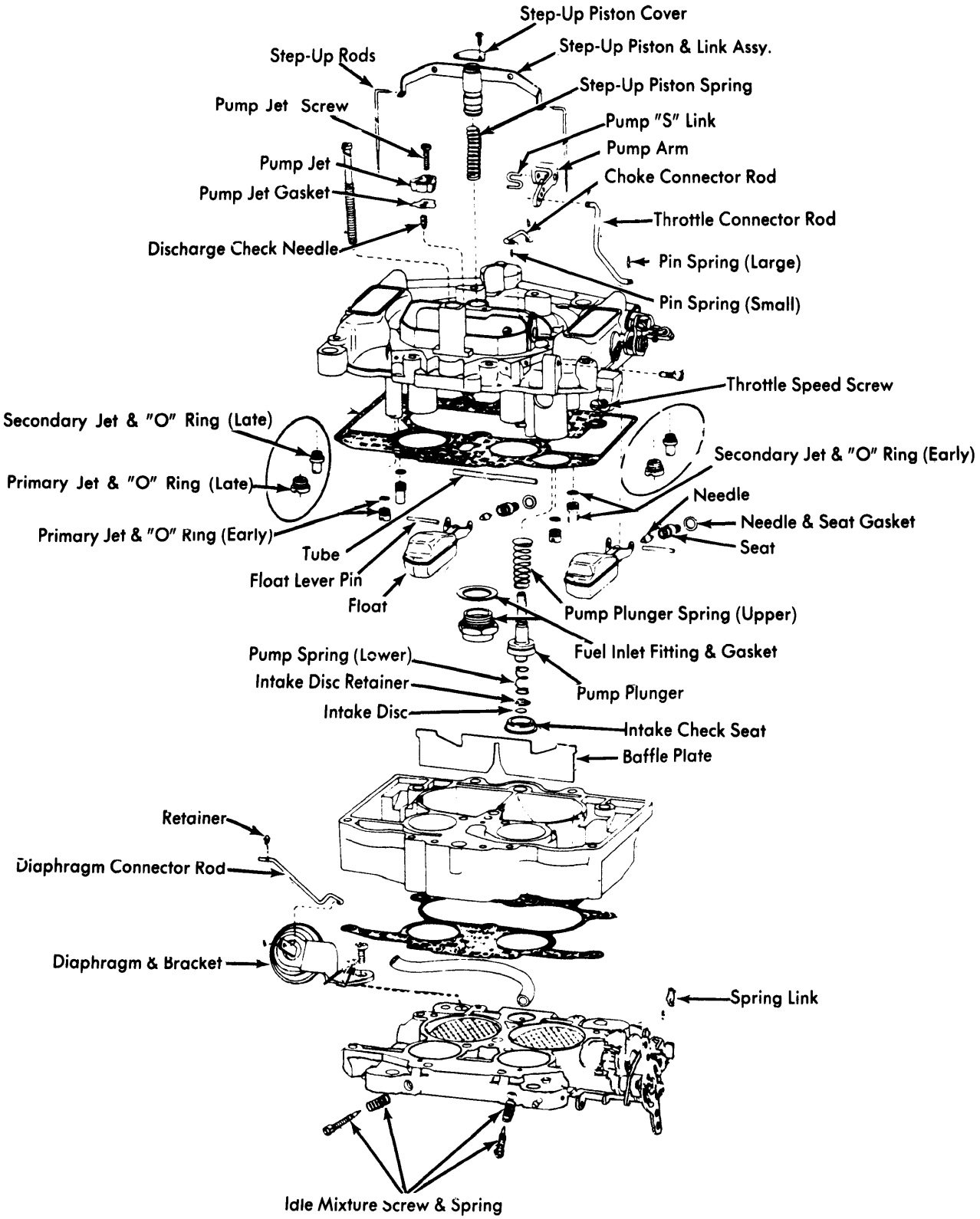
Valve Installation – Slide new throttle valves in position on throttle shaft with the valve number on the bottom (flange side) and opposite the vacuum port. Install new screws, but do not tighten. Be sure idle speed adjusting screw is backed out. Hold valves in place with fingers (hold high side of valves), then tap valves lightly with screwdriver, tighten screws securely and stake screws, being sure to support shaft when staking.

Idle Mixture Screws & Limiter Cap Installation – Install idle mixture screws and springs, tapered portion must be straight and smooth; if tapered portion grooved or ridged, a new screw must be installed. **Do not use a screwdriver when installing,** turn screws lightly against their seats with fingers, then back off the same number of turns counted at disassembly. **Do not reinstall limiter caps until carburetor has been installed on engine and idle mixture is correct.**

Choke Vacuum Diaphragm (Also Air Valve Dashpot) – Leak test diaphragm by depressing diaphragm stem, then placing finger over fitting to seal opening. Release stem; if stem moves more than 1/16" in ten seconds, leakage is excessive and assembly must be replaced.

Accelerator Pump – Pour clean gasoline into main body (½" deep), and lower bowl down on main body. Raise plunger and press lightly on plunger shaft to expel air from passage. Install accelerator pump discharge check needle, then using a small rod, hold discharge check needle firmly on its seat. Raise plunger and press downward, no fuel should be emitted from the passage. Fuel leakage from passage indicates the presence of dirt or a damaged check needle.

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



THERMO-QUAD CARBURETOR ASSEMBLY (TYPICAL)