CARBURETOR SERVICE PROCEDURE
CARTER THERMO-QUAD 4-BARREL

FORM NO. 16C-45-841

NOTE: *Some models of the Carter Thermo-Quad may vary in general design and appearance, but basic cleaning and adjustment procedures will remain the same.*

1. DISASSEMBLY

Using the exploded view as a guide, disassemble carburetor only far enough to permit a thorough cleaning. Pay particular attention to the following.

CAUTION: *DO NOT remove throttle shafts or valves unless absolutely necessary. These parts are precisely adjusted at the factory and the slightest misalignment upon reassembly could adversely affect carburetor operation between curb idle and at 30 MPH.*

- There are 2 fuel bowl cover screws located between choke valve and air horn wall.
- To remove pump plunger, use a small diameter rod placed on upper end of plunger shaft and tap lightly. Care must be taken not to damage plunger shaft hole in bowl cover.
- Mark or identify floats to make sure they are installed in original position.
- Removal of choke or throttle valve is not necessary unless part is bent, seized or damaged, requiring repair or replacement. If removal is necessary, file staked (peened) ends of valve retaining screws prior to turning.
- Before removing throttle connector rod from accelerator pump arm, note which position rod is in. Reassemble rod in same hole. *See Fig. 9.*
- After removing accelerator pump arm screw, disengage arm from pump rod "S" link and remove lever. Leave "S" link connected to pump rod.

NOTE: *On 1980 and earlier models, do not remove idle mixture screw limiter caps unless recalibration is necessary after reassembly and new limiter caps are available. If limiter caps are removed, carburetor must be recalibrated with the required equipment to meet state and federal exhaust emission regulations. When limiter caps are removed, count number of turns required to gently seat idle mixture screws to serve as a starting point during reassembly.*

NOTE: *On 1981 models, idle mixture screws are located behind pressed roll pins (1982 models do not use roll pins). DO NOT remove idle mixture screws or tamper-resistant feature unless it is absolutely necessary to replace mixture screws or normal cleaning and air pressure will not clean idle mixture passages. If necessary to remove roll pins and mixture screws, the carburetor must be recalibrated with required equipment to meet state and federal exhaust emission regulations. If idle mixture screws are removed, count number of turns required to seat idle mixture screws. This will serve as a starting point during reassembly. If it is necessary to remove roll pins and idle mixture screws, proceed as follows:*

1. Clamp throttle body assembly in a padded vise with mixture screws upward. Drill a .078" pilot hole on 45° angle upwards toward mixture plugs. Redrill hole to .125" and drive out plugs with a punch.
2. On 1981 models, insert a sharp punch through idle mixture screw holes and drive out roll pins.

NOTE: *To remove plugs on 1983 and later Chrysler Corp. models, it is not necessary to remove carburetor from manifold.*

1. Remove air cleaner, throttle linkage and vacuum hoses to gain access to screw housings. Center punch a mark on side surface of mixture screw housings, 1/4" from front end of housings. Mark should be at 10 o'clock position on right bank and 2 o'clock position on left bank.
2. Using a 3/16" drill bit, drill through mixture screw housings at a 90° angle to the plug. Use a small drift punch to pry mixture screw plug from housing. After mixture adjustment has been performed, reinstall plug.

NOTE: *Since 1981, Chrysler Corp. models use tamper-resistant choke pull-off. To remove choke pull-off, remove rivet heads. Punch out rivets from front cover plate. Remove choke pull-off and bracket.*

2. CLEANING

- Using a regular carburetor cleaning solution, soak parts long enough to thoroughly clean all surfaces and passages of foreign matter.
- Do not soak any parts containing rubber, leather or plastic other than idle limiter caps.
- To remove any residue after soaking in cleaner, rinse parts in suitable cleaning solvent.
- Blow out all passages with dry compressed air.
- Rinse parts with hot water after using solvent.
- DO NOT leave main body in carburetor solvent for a prolonged time.

NOTE: *Plastic fuel bowl surface finish can be slightly dulled if it is soaked in some cleaners for a prolonged period. Manufacturer does not recommend soaking plastic fuel bowl.*

3. REASSEMBLY

Reassemble carburetor in reverse order of disassembly, paying particular attention to the following:

- Install pump discharge check needle with point toward base of carburetor.
- Install upper pump plunger spring in cylinder with large end first. Lubricate and install plunger, guiding 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.
- Care should be taken not to bend plastic pump passage tube.
- Install metering rod yoke assembly with guide dimples toward choke valve.
- When installing bowl cover, position upper vapor vent lever in fork of lower lever.

NOTE: *Install choke pull-off and mounting bracket. Mount front cover plate over choke pull-off assembly with rivet kit.*

4. ADJUSTMENTS

A. Float Level

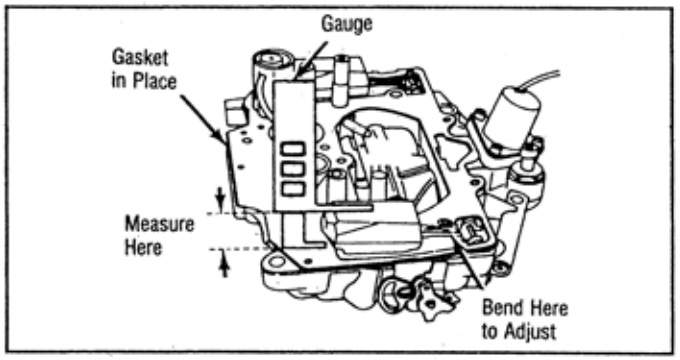

Fig. 1 Float Level Adjustment

1. Invert fuel bowl cover with gasket installed. Allow floats to rest on seated needle valves. Assemble gauge included in kit. Calibrate to "B" scale.
2. Measure float level specified distance between gasket surface and bottom outer end of float. *See Fig. 1.*
3. To adjust, bend float arm. Do not press float tang against needle when adjusting.

B. Secondary Throttle Linkage

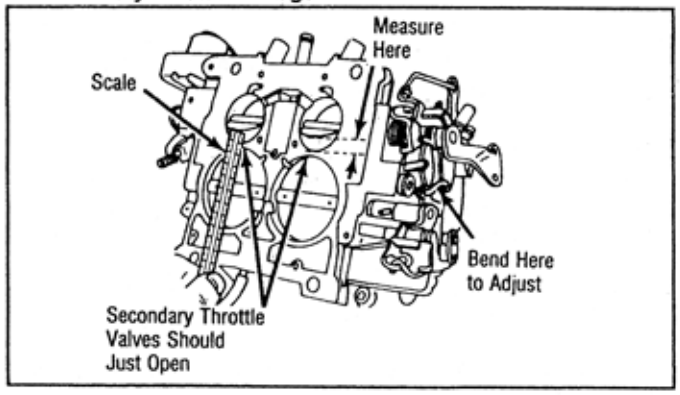

Fig. 2 Secondary Throttle Linkage Adjustment (1971-73 Chrysler Corp.)

1971-73 CHRYSLER CORP.

1. Hold choke valve wide open. Open primary throttle valves until secondary throttle valves just begin to open. *See Fig. 2.*
2. Measure secondary throttle linkage specified distance between lower edge of primary throttle valves and bore (opposite idle port).
3. To adjust, bend secondary throttle link at bend.

1974 AND LATER CHRYSLER CORP.
FORD MOTOR CO., IHC AND COMPETITION SERIES

1. Place fast idle lever in curb idle position. Open throttle lever to wide open position.
2. Primary and secondary throttle levers should both contact stops at same time. *See Fig. 3.*
3. To adjust, bend secondary throttle operating rod at bend.

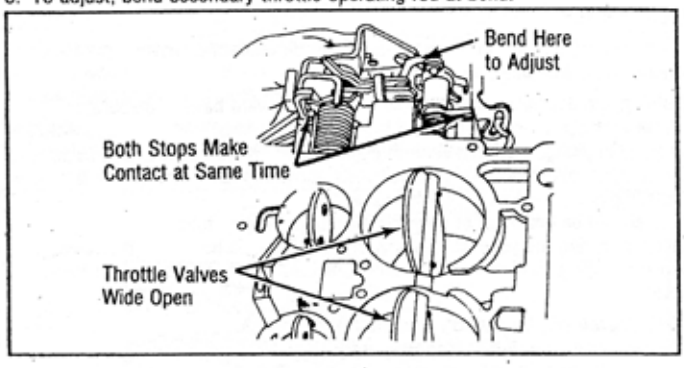

Fig. 3 Secondary Throttle Linkage Adjustment (1974 and Later Chrysler Corp., Ford Motor Co., IHC and Competition Series)

C. Choke Control lever

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

NOTE: *Some 1981 models are equipped with a hardened steel choke link rod which is not adjustable.*

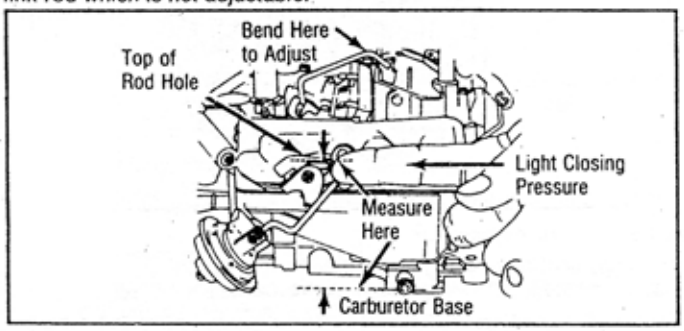

Fig. 4 Choke Control Lever Adjustment (Exc. 1981 Models)

ALL EXC. 1981 MODELS

1. Place carburetor on flat surface. Place throttle lever over edge of surface. *See Fig. 4.*
2. Apply light closing pressure on choke control lever while opening throttle slightly. This allows fast idle control lever to move up fast idle cam.
3. Measure choke control lever specified distance from base of carburetor to top of rod hole.
4. To adjust, bend choke connector rod.

1981 MODELS

1. Place carburetor on flat surface with throttle lever over edge of surface. Remove countershaft lever screw (LEFT-handed threads).
2. Apply light closing pressure on choke control lever while opening throttle slightly. Place a small screwdriver between outer and inner choke shaft lever and loosen outer choke shaft lever from countershaft taper enough to rotate outer choke lever to specification.
3. Measure choke control lever specified distance from base of carburetor to top of rod hole.
4. Holding opposite end of choke countershaft, seat the outer lever onto taper of shaft by tapping lightly with small hammer. Reinstall countershaft lever screw.

CAUTION: *Do not use screw to force outer lever onto taper of shaft.*

D. Choke Control Lever Connecting Rod (Integral Choke Models Only)

1. Remove choke coil housing, retaining ring, screws, gasket and baffle plate.
2. Open throttle slightly and close choke valve. Insert a .120" gauge (or drill) in hole in choke housing face casting. *See Fig. 5.*
3. Choke lever tang should be parallel with gauge. Straighten tang if necessary.

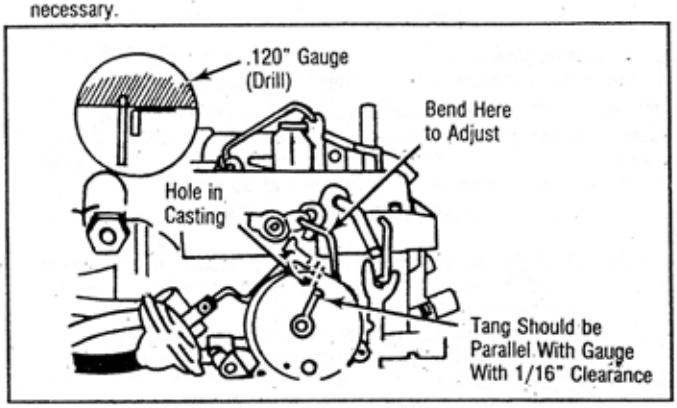

Fig. 5 Choke Control Lever Connecting Rod Adjustment (Integral Choke Models Only)

4. Measure choke control lever connecting rod specified clearance of 1/16" between gauge and tang while holding tang in a counterclockwise direction.
5. To adjust, bend choke lever connector rod.

E. Fast Idle Cam Linkage

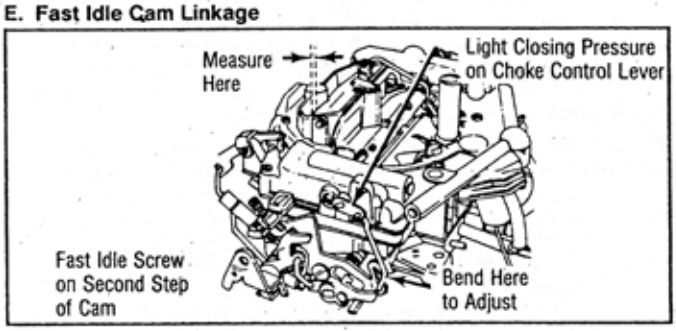

Fig. 6 Fast Idle Cam Linkage Adjustment (All Models Exc. Competition Series)

ALL MODELS (EXC. COMPETITION SERIES)

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

1. Position fast idle screw on second step of fast idle cam against highest step. *See Fig. 6.*
2. Apply light closing pressure on choke control lever to close choke valve.
3. Measure fast idle cam linkage specified clearance between lower edge of choke valve and air horn wall at throttle lever side.
4. To adjust, bend fast idle connector rod.

COMPETITION SERIES

1. Hold choke valve closed.
2. Adjust fast idle connector spring or rod so tang on fast idle connector lever aligns with index mark on fast idle cam.

F. Secondary Throttle Lockout

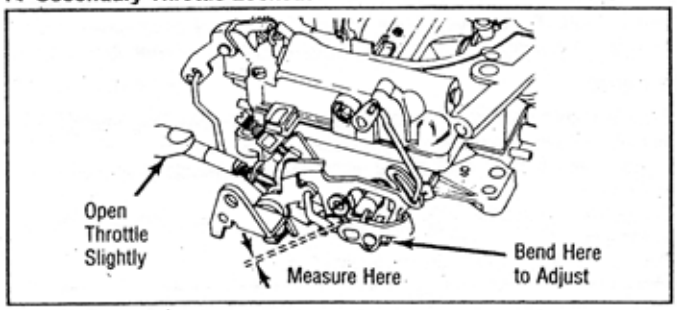

Fig. 7 Secondary Throttle Lockout Adjustment

1. Move choke control lever to wide open choke position. Open throttle slightly to allow fast idle lever to move off cam.
2. Measure secondary throttle lockout specified clearance between lockout lever and pick-up lever. *See Fig. 7.*
3. Specified clearance is .020" for 1971 models and .075" for 1972 and later models. To adjust, bend tang on fast idle control lever.

G. Choke Unloader

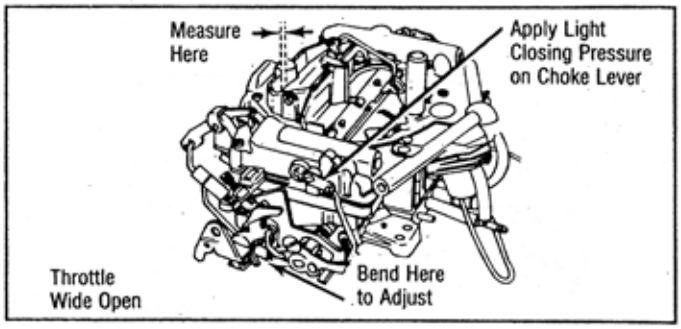

Fig. 8 Choke Unloader Adjustment

1. Hold throttle lever wide open. Apply a light closing pressure to choke control lever. *See Fig. 8.*
2. Measure choke unloader specified clearance between lower edge of choke valve and air horn wall at throttle lever side.
3. To adjust, bend tang on fast idle control lever.

H. Accelerator Pump

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

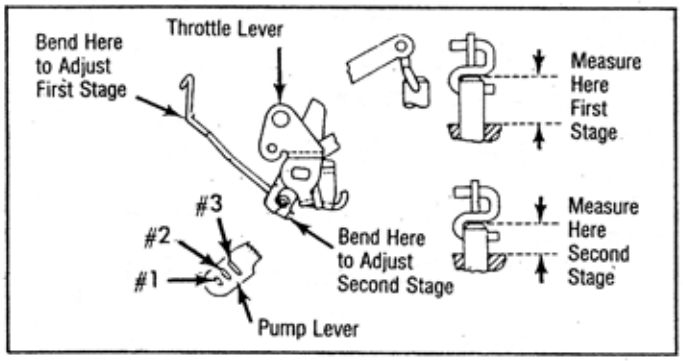

Fig. 9 Accelerator Pump Adjustment

***NOTE:** On 1983 and later Chrysler Corp. models, note the position of throttle rod in accelerator pump arm before disassembly. Reassemble rod in same slot.*

• First Stage Adjustment

CHRYSLER CORP.

1. Ensure throttle connector rod is in correct hole of pump lever. *See Fig. 9.*
   - On 1977 and earlier models, install rod in center hole on 3 hole arm and in inner hole on 2 hole arm.
   - On 1978 models, install rod in hole 3 on 318" engines, hole 1 on 360" engines and hole 2 on 400" and 440" engines.
   - On 1979 passenger car models, install rod in hole 2 on 318" engines and hole 1 on 360" engines. On 1979 and 1980 truck models, install rod in center hole on 3 hole arm and in inner hole on 2 hole arm.
   - On 1980 to 1983 passenger car and all 1981 truck models, install rod in hole 2 on all engines.
   - On all 1982 truck models, install rod in hole 1 on all engines.
2. Measure accelerator pump stem height above air horn surface.
3. To adjust stem height, bend throttle connector rod.

FORD MOTOR CO. & IHC

1. Adjust curb idle screw until throttle valves are closed tight in bore.
2. Now turn curb idle screw in until throttle valves just start to open, then turn an additional 2 turns.
3. With pump connector rod in inner hole of pump arm, measure accelerator pump stem height above air horn surface. *See Fig. 9.*
4. To adjust, bend throttle connector rod at lower bend.

• Second Stage Adjustment

***NOTE:** This adjustment applies only to carburetors with staged pump system.*

1. Open choke, then open throttle until secondary throttle lockout latch is just applied.

***NOTE:** Accelerator pump downward travel stops at this point.*

2. Measure accelerator pump stem height above air horn surface on Chrysler Corp. models. Measure from air horn surface to bottom of "S" link on Ford Motor Co. and IHC models. *See Fig. 9.*
3. To adjust, bend pick-up arm on primary throttle shaft.

I. Metering Rods

CHRYSLER CORP.

1. Adjust curb idle screw until throttle valves are closed tight in bore.
2. With choke valve wide open, insert a small screwdriver in slot of step-up piston rod. Press down to bottom of travel. *See Fig. 10.*
3. Measure metering rod specified distance from top of air horn to top of yoke assembly above dimple on both arms. Specified distance is 11/32" ±1/32".
4. This adjustment can be changed to improve driveability. Turn screw clockwise to enrich mixture and counterclockwise to lean out mixture.

FORD MOTOR CO.

1. Adjust curb idle screw until throttle valves are closed tight in bore.
2. With choke valve wide open, insert a small screwdriver in slot of step-up piston rod. Press down to bottom of travel.
3. Turn adjusting screw counterclockwise until piston is fully depressed. Now turn screw clockwise 1-1/2 turns.
4. This adjustment can be changed to improve driveabiliy. Turn screw clockwise to enrich mixture and counterclockwise to lean out mixture.

***NOTE:** Make sure linkage operates smoothly with no binding.*

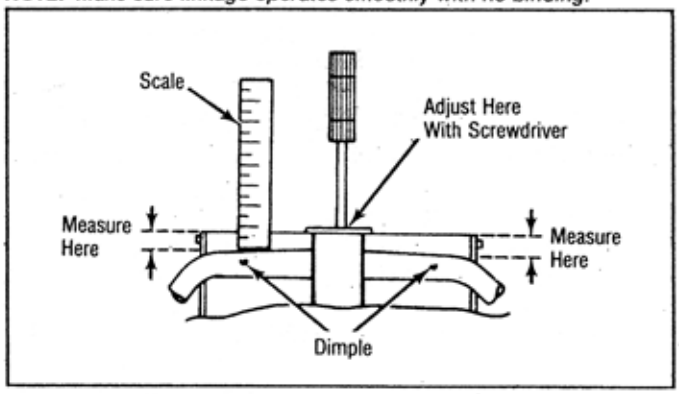

Fig. 10 Metering Rod Adjustment (Chrysler Corp. and IHC)

IHC

1. Adjust curb idle screw until throttle valves are closed tight in bore.
2. With choke valve wide open, insert a small screwdriver in slot of step-up piston rod. Press down to bottom of travel. *See Fig. 10.*
3. Measure metering rod specified distance from top of air horn to top of yoke assembly above dimple on both arms. Specified distance is 15/16" on 1974 models and 15/32" on 1979-80 models.
4. This adjustment can be changed to improve driveability. Turn screw clockwise to enrich mixture and counterclockwise to lean out mixture.

***NOTE:** Make sure linkage operates smoothly with no binding.*

J. Secondary Air Valve Opening

1. Open air valve. Measure distance air valve is open. *See Fig. 11.*
2. To adjust, bend corner of air valve with a pair of pliers. Corner of air valve is notched for adjustment.

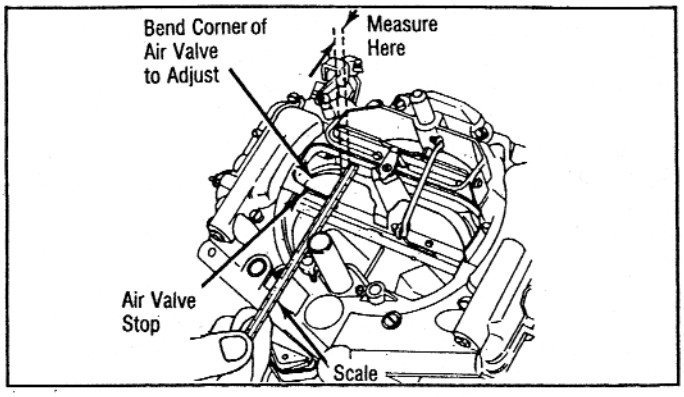

Fig. 11 Secondary Air Valve Opening Adjustment

K. Secondary Air Valve Spring

CAUTION: *When performing this adjustment, hold air valve adjustment plug with screwdriver when loosening lock plug. If not, spring may snap out of position, requiring disassembly of carburetor.*

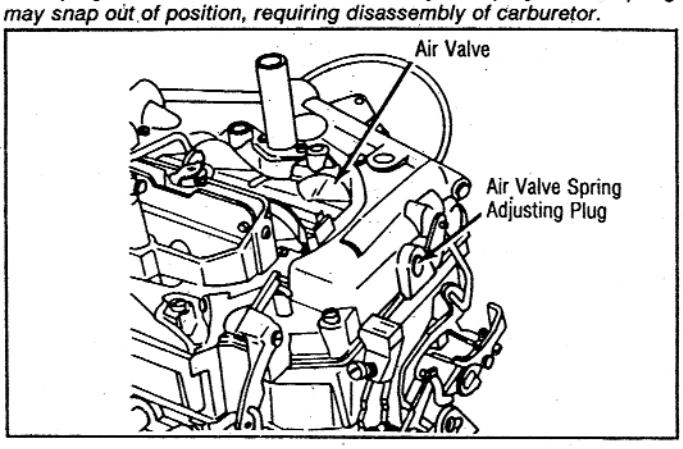

Fig. 12 Secondary Air Valve Spring Adjustment

1. Loosen air valve adjusting plug. Rotate inner plug clockwise until air valve is open.
2. Check air valve and shaft for freedom of movement.
3. Rotate inner plug counterclockwise until valve contacts stop. *See Fig. 12.*
4. Continue rotating plug counterclockwise specified number of turns. Tighten lock plug.

L. Choke Diaphragm Connector Rod

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

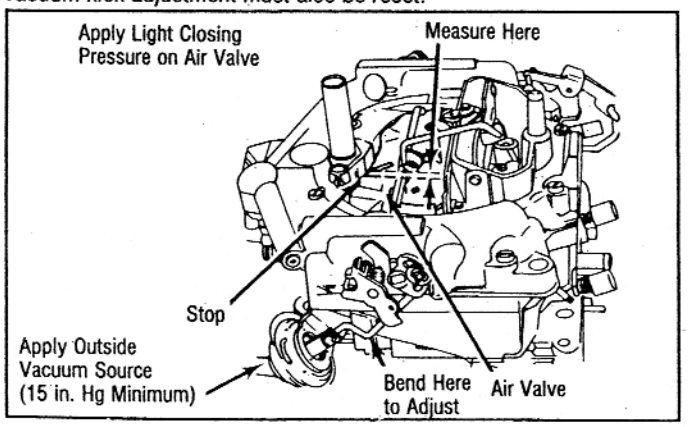

Fig. 13 Choke Diaphragm Connector Rod Adjustment (All Models Exc. Competition Series)

ALL MODELS (EXC. COMPETITION SERIES)

NOTE: *Remove choke diaphragm tamper-proof cover on all 1982 and later Chrysler Corp. models by drilling out rivets.*

1. Apply an outside vacuum source of 15 in. Hg minimum to choke diaphragm. *See Fig. 13.*
2. Make sure diaphragm stem is fully retracted. Apply light closing pressure to air valve.
3. Measure choke diaphragm rod specified clearance between air valve and air valve stop.
4. Specified clearance is .040". To adjust, bend choke diaphragm connector rod at bend.

COMPETITION SERIES

1. Extend diaphragm stem carefully until valve is against stop.
2. Rod should just contact bottom of slot on air valve lever.

M. Choke Vacuum Kick

NOTE: *Remove choke diaphragm tamper-proof cover on all 1982 and later Chrysler Corp. models by drilling out rivets.*

CHRYSLER CORP. & FORD MOTOR CO.

1. Open throttle, close choke, then close throttle to trap fast idle cam at closed choke position.

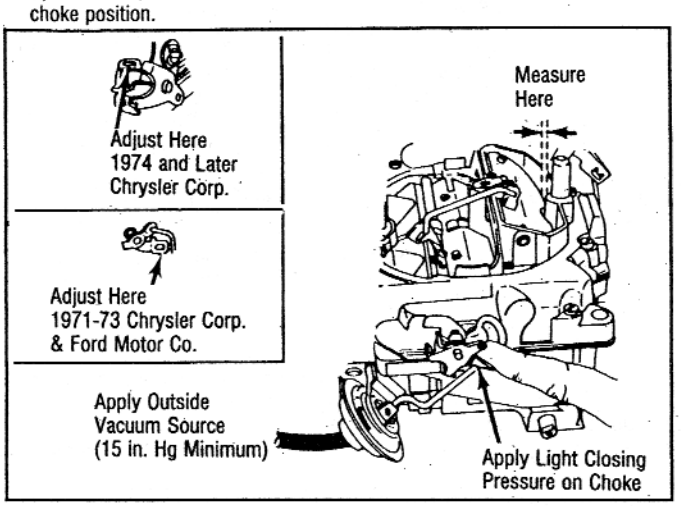

Fig. 14 Choke Vacuum Kick Adjustment (Chrysler Corp. and Ford Motor Co.)

2. Apply an outside vacuum source of 15 in. Hg minimum to choke diaphragm. *See Fig. 14.*
3. Apply light closing pressure to choke control lever. Kick adjustment tang should be against stop.
4. Measure choke vacuum kick specified clearance between lower edge of choke valve and air horn wall.
5. To adjust, twist tang by inserting a screwdriver in slot and turning.

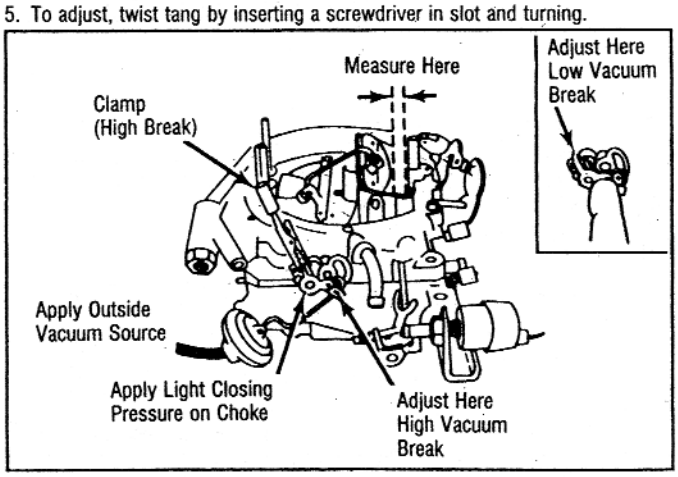

Fig. 15 Choke High and Low Vacuum Kick Adjustment (IHC Only)

IHC HIGH VACUUM KICK

1. Open throttle, close choke, then close throttle to trap fast idle cam at closed choke position.
2. Apply an outside vacuum source of 15 in. Hg minimum to choke diaphragm. *See Fig. 15.*
3. Attach a clamp to choke levers. Apply light closing pressure to choke control lever.
4. Measure high vacuum kick specified clearance between lower edge of choke valve and air horn wall. Specified clearance is .345" for 1974 models, .450" for 1979 and 1980 models.