CARTER BBD 2-BARREL

CARBURETOR APPLICATION

AMERICAN MOTORS

Application	AMC Carb. No. Man. Trans.	Auto. Trans.
258" 6 Cyl.		
50 State	8247	8216, 8313
Federal	8248	8246
258" 6 Cyl. 4-WD		
Federal		8256
California		8253
Altitude		8278

CHRYSLER CORP.

Application	Chrysler Corp. Carb. No. Man. Trans.	Auto. Trans.
318" V8		
Federal		BBD-8233S
360" V8		
Federal		BBD-8237S

CARBURETOR IDENTIFICATION

Carter carburetor number is stamped on a tag attached to carburetor by one air horn screw.

DESCRIPTION

Two barrel downdraft type, which incorporates three basic fuel metering systems. Idle system provides mixture for idle and low speed operation. Accelerator pump system provides additional fuel for acceleration. Main metering system provides an economical mixture for normal cruising.

In addition to these systems, the carburetor uses an automatic choke and choke diaphragm. Chrysler Corp. models are equipped with an electric assisted choke also. This provides for shorter choke "ON" time during warm weather. Choke diaphragm prevents over choking by opening choke valve when engine is being cranked.

On Chrysler Corp. models equipped with EGR system, there is an additional vacuum port in carburetor. If Ported Vacuum Control System (PVCS) is used, the vacuum port is located in the base of the carburetor. If Venturi Vacuum Control System (VVCS) is used, vacuum port is found in the side of the carburetor above the throttle valve

American Motors models (except 4-WD) are equipped with an electronically controlled stepper motor which controls air flow through metered air bleed located in each main fuel metering circuit. The stepper motor is activated through an on-board computer. The computer receives engine operation and demand information from various sensors mounted on engine and in exhaust system. It then signals the stepper motor to retract metering rods from air bleeds (lean) or extend metering rods farther into air bleeds (rich).

ADJUSTMENTS

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

American Motors – **1)** Remove air horn. Apply light pressure to float arm, seating needle in seat and raising float. See *Fig. 1*.

2) Place a straight edge across main body. Measure float level specified clearance between top edge of float and bottom of straightedge.

3) To adjust, bend float tang to obtain specified clearance. Float tang is portion of float that contacts end of float needle valve.

CAUTION – *Do not adjust float while tang is resting against needle. Damage to synthetic tip of needle may occur.*

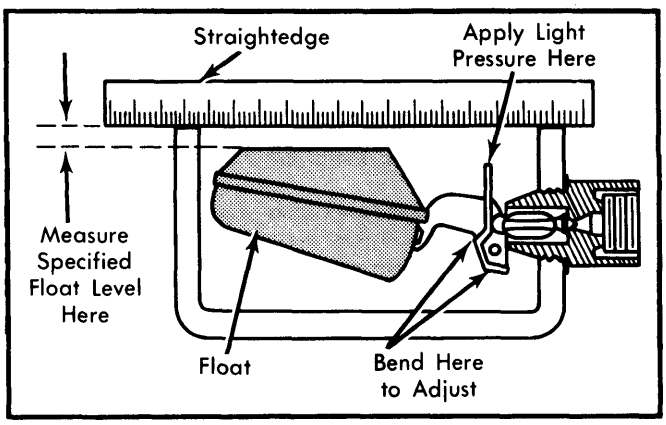

Fig. 1 Adjusting Float Level (American Motors)

Chrysler Corp. – **1)** Remove air horn. Turn main body upside down. Catch accelerator pump check ball as it falls out. Hold float pin retainer in with finger. Weight of float should be closing float needle. See *Fig. 2*.

2) Place a straightedge across main body. Measure float level specified clearance between straightedge and crown of each float.

3) To adjust, bend float tang to obtain specified clearance. Float tang is portion of float that contacts end of float needle valve.

CAUTION – *Do not adjust while tang is resting against needle. Damage to synthetic tip of needle may occur.*

CARTER BBD 2-BARREL (Cont.)

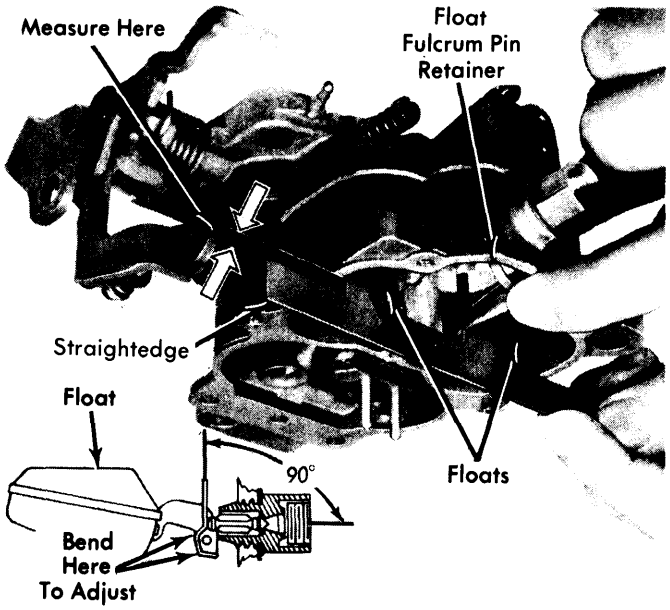

Fig. 2 Adjusting Float Level (Chrysler Corp.)

VACUUM STEP-UP PISTON GAP QUALIFICATION

NOTE – *This adjustment is required if step-up piston is removed or if piston lifter position is changed on actuating rod. This adjustment positions piston in a "mean" or centered position.*

1) Remove step-up piston cover plate and gasket. Remove lifter lock screw and remove piston. *See Fig. 3.*

2) Measure piston gap as shown in illustration. If not to specification, adjust Allen head screw on top of piston.

3) Turning screw clockwise makes mixture richer. Turning screw counterclockwise makes mixture leaner.

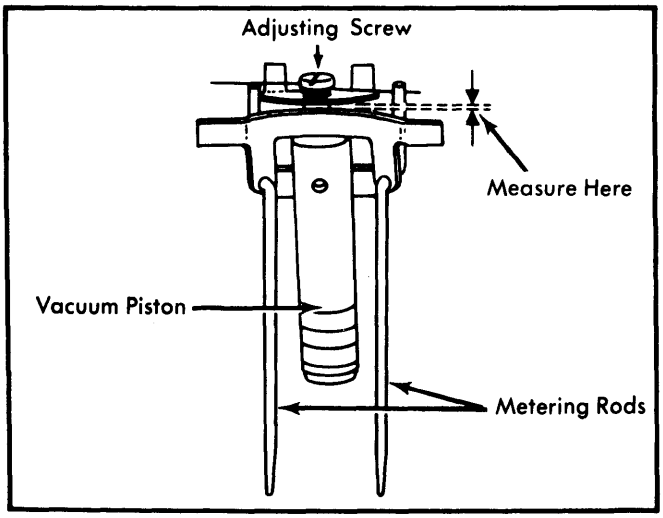

Fig. 3 Vacuum Step-Up Piston Gap Qualification

VACUUM STEP-UP PISTON

NOTE – *Perform Vacuum Step-Up Piston Gap Qualification adjustment first.*

1) With vacuum piston installed, back off idle speed screw until throttle valves are seated. Count number of turns required to seat throttle valves. Loosen lifter lock screw. *See Fig. 4.*

2) Fully depress piston in bore. At same time, hold pressure against rod lifter tab. Tighten lifter lock screw.

3) Release lifter and piston. Readjust curb idle speed screw. Install dust cover and gasket.

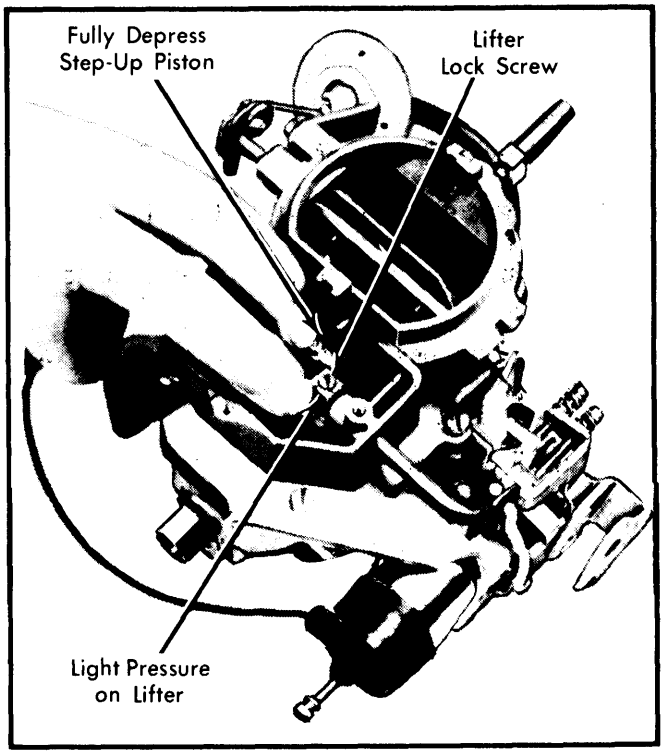

Fig. 4 Adjusting Step-Up Piston

ACCELERATOR PUMP STROKE

1) Remove step-up piston cover plate and gasket. Back off curb idle speed screw until throttle valves are seated. Count number of turns required to seat throttle valves. Fast idle cam must be in open choke position. *See Fig. 5.*

2) Now turn curb idle screw clockwise until it just touches stop. Continue (2) more complete turns.

3) Some Chrysler Corp. models may have 2 holes in accelerator pump arm. If so, make sure accelerator pump "S" link is in outer hole.

4) Measure distance between surface of air horn and top of accelerator pump shaft. If adjustment is needed, loosen pump arm adjusting lock screw and turn sleeve to adjust pump travel. When correct measurement is obtained, tighten lock screw.

5) Install step-up piston cover plate and gasket.

NOTE – ***On Chrysler Corp. models, if the accelerator pump adjustment is changed, the Bowl Vent Adjustment must be reset.***

CARTER BBD 2-BARREL (Cont.)

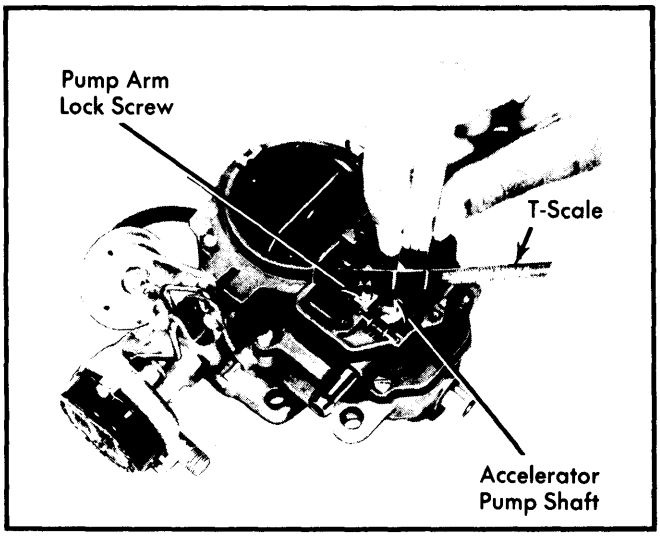

Fig. 5 Adjusting Accelerator Pump Stroke

MECHANICAL BOWL VENT VALVE ADJUSTMENT

NOTE – *This is not a precise adjustment. The purpose of this adjustment is to ensure that bowl vent is open at idle and closed at greater throttle openings. It may be performed on or off the vehicle.*

American Motors – 1) Remove rollover check valve from air horn. Position throttle on high step of fast idle cam. Bowl vent should be closed.

2) Manually move fast idle cam until fast idle speed screw drops to second step. Bowl vent should just start to open.

3) If bowl vent valve is not closed on high, fourth or third steps of fast idle cam, bend tab of valve until it is closed.

4) If valve is not starting to open on second step of cam, bend tab of valve until it just lifts off seat.

Chrysler Corp. – 1) Accelerator pump and curb idle speed must be correctly adjusted before adjusting bowl vent valve.

2) Remove step-up piston cover plate and gasket from carburetor.

3) Measure clearance by inserting .080" pin gauge between top of bowl vent valve and seat.

4) If adjustment is needed, bend bowl vent lever tab.

NOTE – *Be sure to support bowl vent lever assembly while bending tab to avoid damage to assembly.*

5) Install cover plate and gasket.

FAST IDLE CAM POSITION

1) On American Motors models, loosen choke cover retaining screws and rotate cover 90° in the rich direction. On all models, place fast idle speed screw on second step of fast idle cam. See *Fig. 6*.

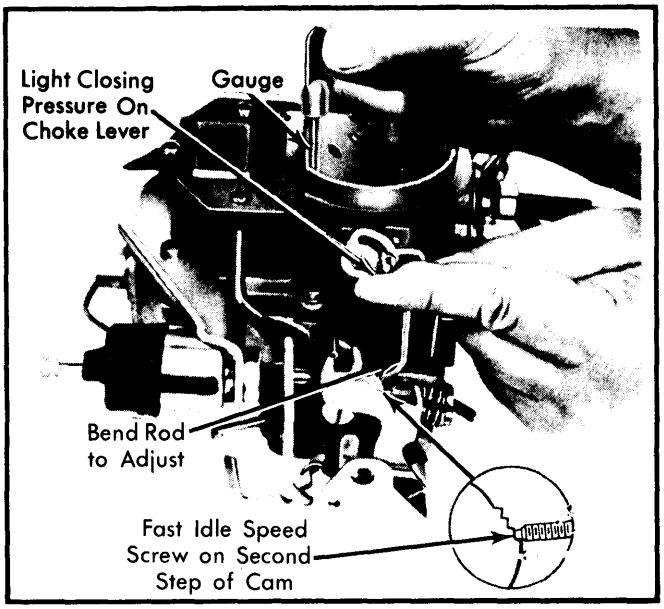

Fig. 6 Adjusting Fast Idle Cam Position

2) Hold choke valve toward closed position. Measure fast idle cam specified clearance between upper edge of choke valve and air horn wall.

3) If clearance is not to specification, adjust by bending fast idle cam rod. Bend rod down to increase clearance and up to decrease clearance. On American Motors models, readjust automatic choke.

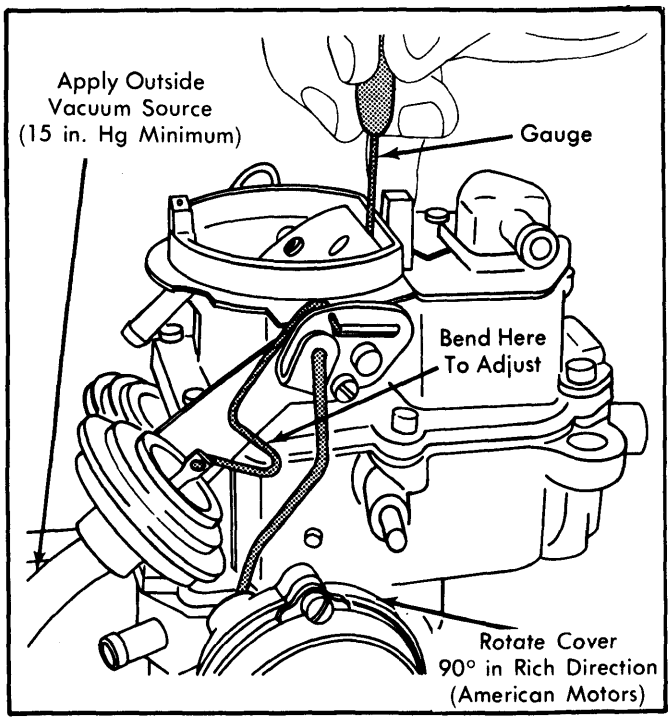

Fig. 7 Adjusting Choke Vacuum Break (Initial Choke Valve Clearance)

CARTER BBD 2-BARREL (Cont.)

CHOKE VACUUM BREAK (INITIAL CHOKE VALVE CLEARANCE)

1) On American Motors models, loosen choke cover retaining screws and rotate cover 90° in the rich direction. On all models, place fast idle speed screw on high step of fast idle cam. *See Fig. 7.*

2) Apply an outside vacuum source of at least 15 in. Hg to choke vacuum break diaphragm. Apply enough closing force on choke valve to compress spring on diaphragm stem.

3) Measure choke vacuum break specified clearance between upper edge of choke valve and air horn wall. To adjust, bend vacuum break diaphragm rod.

CHOKE UNLOADER

1) Open throttle valves wide open. Apply a light closing pressure to choke valves. *See Fig. 8.*

2) Measure specified choke unloader clearance between upper edge of choke valve and air horn wall.

3) To adjust, bend choke unloader tang. Make sure linkage is free and does not bind after making adjustment.

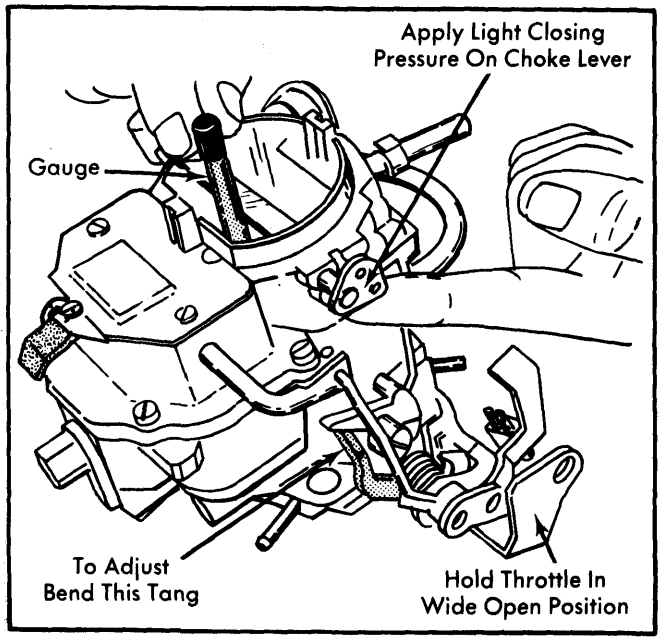

Fig. 8 Choke Unloader Adjustment

AUTOMATIC CHOKE

Automatic choke adjustment is made by loosening choke housing retaining screws and turning housing to correct index or notch on choke housing. Refer to Specification Table for correct position of each carburetor. For specific problems, choke may be set richer or leaner according to directions on choke cover.

OVERHAUL

DISASSEMBLY

All Models – 1) Place carburetor on suitable stand. Remove stepper motor (if equipped). Remove retaining clip from accelerator pump arm link and remove link.

2) Remove cover plate from over step-up piston and remove gasket. Remove locks and screws from accelerator pump arm and vacuum piston rod lifter. Slide pump lever out of air horn.

3) Lift vacuum piston and step-up rods up and out of air horn as an assembly. Remove the vacuum piston spring. Remove choke vacuum diaphragm hose. Disconnect clips and remove link from choke housing lever and choke lever.

4) On American Motors vehicles, rotate bowl vent assembly up out of bowl as far as possible and remove rubber valve seal.

5) Remove screw and lever from end of choke shaft. Remove choke vacuum break diaphragm. On AMC models, remove automatic choke assembly. On all models, remove accelerator pump assembly.

6) Remove screws securing air horn and lift air horn up and away from main body. Discard gasket. Turn air horn upside-down and compress accelerator pump drive spring. Remove "S" link from pump shaft. Remove pump assembly.

7) Remove fuel inlet needle valve, seat and gasket from main body. Carefully lift out float fulcrum pin retainer and baffle. Lift out floats and fulcrum pin. Remove the main metering jets.

8) Remove venturi cluster screws. Lift cluster and gaskets away from main body and discard gaskets. DO NOT remove idle orifice tubes or main vent tubes from cluster as they can be cleaned with solvent and dried with compressed air while assembled.

9) Turn carburetor upside down and catch accelerator pump discharge and intake check balls as they fall out.

NOTE – *Some AMC models will not use a pump intake check ball in the pump cylinder. This fuel inlet passage will not be drilled. Cylinder will fill with fuel from top at cylinder slots. Pump plunger will use a floating type cup to prevent build up of fuel vapors in pump cylinder.*

10) Turn idle limiter caps to stop. Remove plastic caps from idle mixture screws. Be sure to count number of turns it takes to seat screws for reassembly reference. Remove screws and springs.

11) Remove screws and separate throttle body from main body. Discard gasket. Check choke plate in air horn for freedom of movement. If any sticking or binding is evident, clean thoroughly.

CARTER BBD 2-BARREL (Cont.)

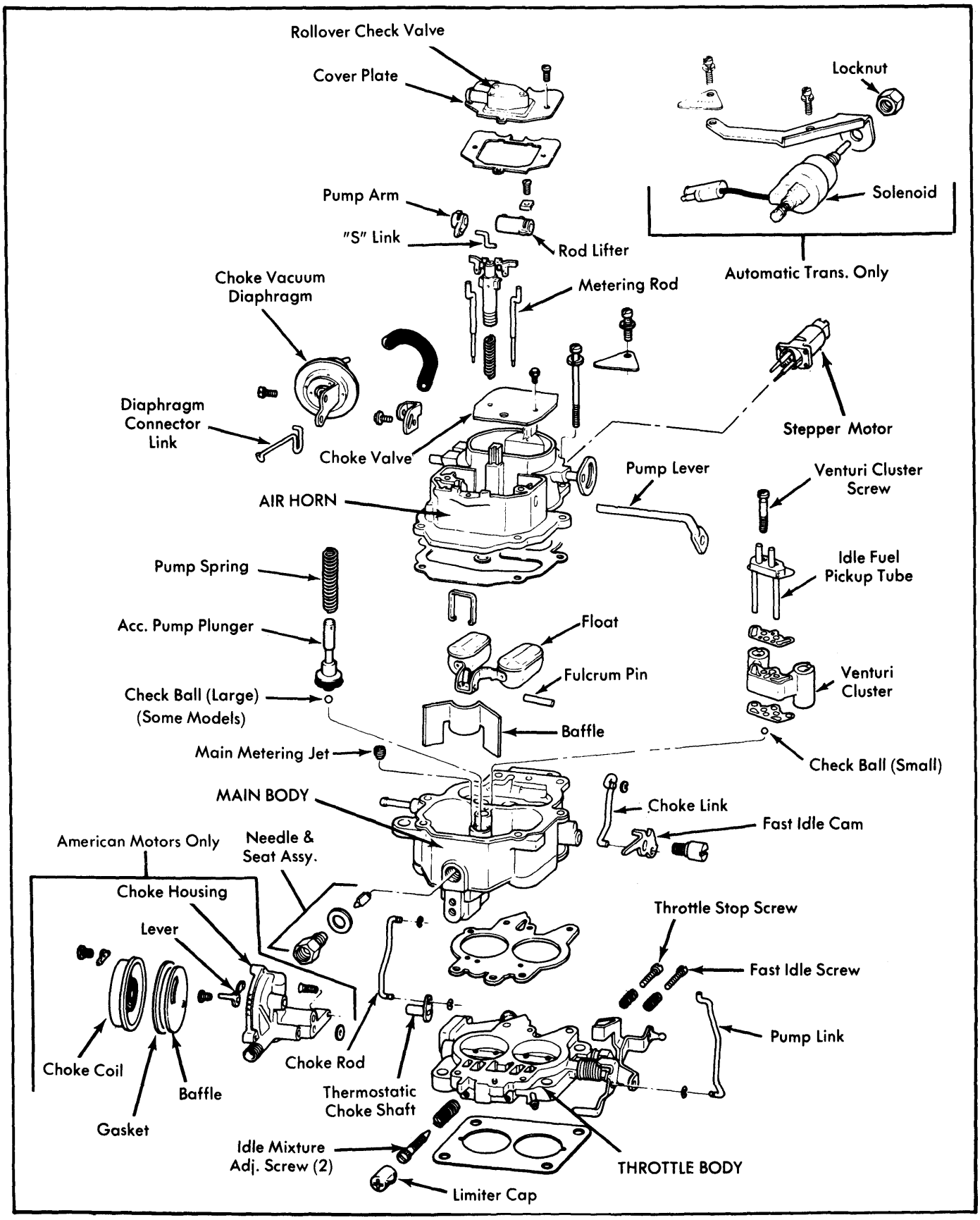

Fig. 9 Exploded View of Carter Model BBD 2-Barrel Carburetor

CARTER BBD 2-BARREL (Cont.)

CLEANING & INSPECTION

- Do not clean rubber, plastic parts or diaphragms, solenoid assemblies or pump plunger in solvent.
- Do not use wire, drill bit or hard parts to clean passages in carburetor.
- Inspect all parts for wear, cracks, nicks or burrs, uneven gasket sealing surfaces or warpage.
- Check for stripped threads, and excessive wear on throttle shafts. Replace throttle body assembly if shafts are worn.

REASSEMBLY

NOTE – *Use new gaskets and seals. Make sure new gaskets fit correctly and all holes are punched through and correctly located.*

To reassemble carburetor, reverse disassembly procedures while noting the following:

Idle Mixture Screw & Limiter Cap Installation – 1) Install idle mixture screws and springs in throttle body. Tapered portion of screw must be straight and smooth. If tapered portion is grooved or ridged, use a new screw.

2) Turn screws lightly against their seats with fingers. DO NOT use a screwdriver for installation. Back screws off seated position number of turns noted during disassembly and install plastic limiter caps with tab against stop.

Accelerator Pump Assembly – 1) Check operation as follows. Pour clean gasoline into carburetor bowl (1/2" deep). Operate pump plunger several times to fill cylinder and expel all air.

2) Using a small brass rod, hold discharge check ball down on its seat. Raise plunger and press downward. No fuel should be emitted from either intake or discharge passage. If fuel does escape from passages, check if ball seat is damaged or dirty.

3) Clean check ball seat and retest. If leakage is still present, attempt to form a new ball seat. To form a new seat, install discharge check ball and place a piece of drill rod on top of check ball. Lightly tap drill rod with a mallet to form a new seat.

4) Remove and discard check ball and install a new one. Retest as previously described. If service does not correct problem, replace carburetor.

Step-Up Piston & Rod Assembly – Be sure step-up rods move freely each side of vertical position. Carefully guide step-up rods into main metering jets.

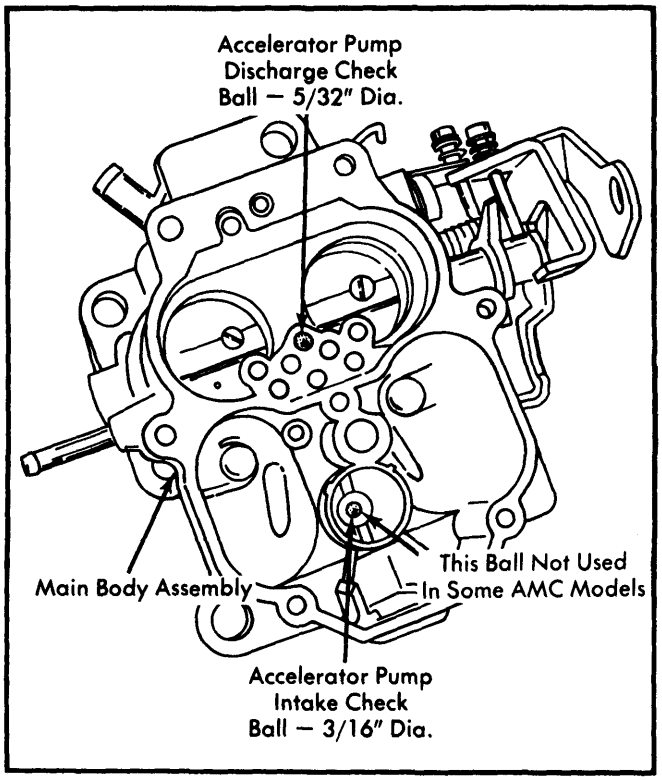

Fig. 10 Top View of Main Body Showing Installation Locations of Large and Small Check Balls

CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Float Level Setting	Vacuum Piston Gap Setting	Accel. Pump Stroke Setting	Fast Idle Cam Setting	Choke Vacuum Kick Setting	Choke Unloader Setting	Auto. Choke Setting
American Motors							
8216	.250"	.035"	.520"	.090"	.140"	.280"	2 Rich
8246	.250"	.035"	.520"	.095"	.140"	.280"	2 Rich
8247	.250"	.035"	.520"	.095"	.150"	.280"	1 Rich
8248	.250"	.035"	.520"	.095"	.150"	.280"	1 Rich
8253	.250"	.035"	.470"	.095"	.128"	.280"	2 Rich
8256	.250"	.035"	.470"	.093"	.128"	.280"	2 Rich
8278	.250"	.035"	.542"	.093"	.140"	.280"	Index
8313	.250"	.035"	.520"	.095"	.140"	.280"	1 Rich
Chrysler Corp.							
BBD-8233S	.250"	.035"	.500"	.070"	.130"	.280"	.....
BBD-8237S	.250"	.035"	.500"	.070"	.110"	.280"	.....