

1982 Carter Carburetors

CARTER BBD 2-BARREL

CARBURETOR APPLICATION

CHRYSLER CORP. (CARTER) CARBURETOR NO.

Application	Man. Trans.	Auto. Trans.
3.7L 6-Cyl.		
Federal	BBD-8352S	
5.2L V8		
Federal		BBD-8348S

JEEP CARBURETOR LIST NO.

Application	Man. Trans.	Auto. Trans.
4.2L 6-Cyl.		
CJ Models		
Federal	8349	
Fed. High Alt.	8351	
Calif.	8339	
Calif. High Alt.		8338
All Other Models	8341	8338

CARBURETOR IDENTIFICATION

Carter carburetors are identified by a code number and build date. Both numbers are stamped on a tag attached to carburetor by an air horn screw. Each carburetor build month is coded alphabetically beginning with letter "A" (for January), and ending with "M" (for December). Letter "I" is not used.

Second number on tag is year in which carburetor was built. Third and fourth numbers are for build day. There may be a revision letter following build day numbers if needed.

DESCRIPTION

The Carter carburetor model BBD is a 2-barrel downdraft type. The carburetor incorporates 4 basic fuel metering systems: float (fuel inlet) system; idle (low speed) system; accelerator pump system; and the main (high speed) system. The float (fuel inlet) system maintains constant level of fuel for all engine operating conditions. The idle (low speed) system provides fuel for idle and initial part-throttle operation. The main (high speed) system provides increased fuel for part-throttle and cruising operation. The accelerator pump system provides additional fuel for acceleration.

In addition to the fuel systems, the carburetor uses an automatic choke and choke diaphragm. The choke system temporarily richens the mixture while starting, but also prevents overchoking. On all models, choke is assisted by an electric heating element. This provides for shorter choke duration during warm weather. The choke diaphragm prevents overchoking by opening choke valve when engine is being cranked.

All vehicles are equipped with an electronically controlled stepper motor which controls air flow through metered air bleeds located in each main fuel metering circuit. Stepper motor is activated through an on-board computer. Computer receives information from various sensors located on engine and in exhaust system. Computer then signals stepper motor to retract metering rods from air bleeds (lean) or extend metering rods further into air bleeds (rich).

All Jeep vehicles use a vacuum and electrically operated solenoid called a solevac. It is used to keep engine idle constant when load is placed on engine, such as air conditioning or rear window defroster.

ADJUSTMENT

NOTE: For all on-vehicle adjustments, see TUNE-UP SERVICE PROCEDURES.

FLOAT LEVEL (BENCH ADJUSTMENT)

Chrysler Corp.

1) Separate air horn from main body of carburetor. Turn main body upside-down and catch pump intake check ball as it falls out. Weight of floats should be gently forcing inlet needle against its seat. See Fig. 1.

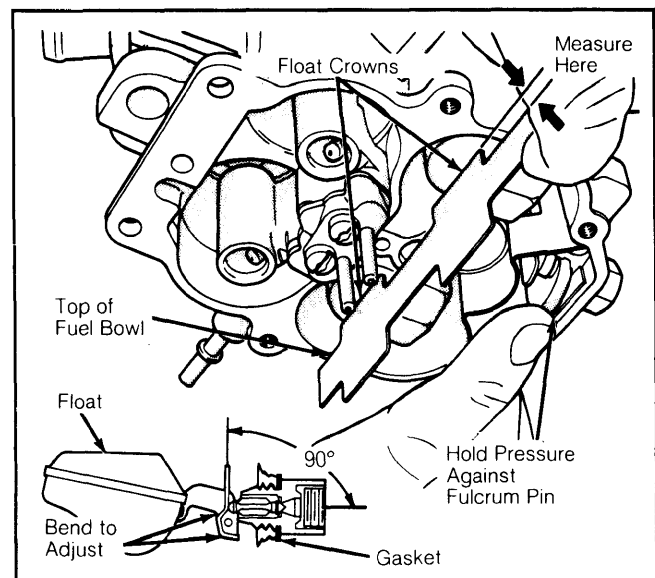
NOTE: Do not allow float lip to press against the needle. Needle has a synthetic rubber tip which is easily damaged.

2) Hold finger against retainer to fully seat fulcrum pin. Using a straightedge, check float setting. Measure from float bowl surface to crown of each float.

3) If adjustment is required, gently hold floats on bottom of bowl. Bend float lip toward or away from needle as needed. Recheck setting after bending.

4) Reassemble carburetor using new gasket.

Fig. 1: Adjusting Float Level on Chrysler Corp. Models



Hold finger against fulcrum pin retainer.

Jeep

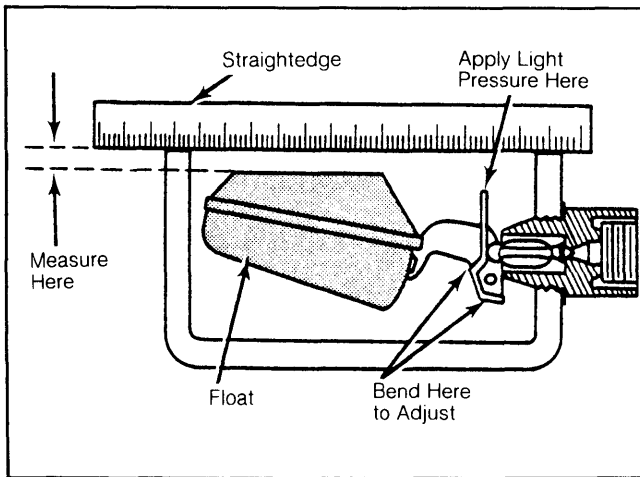
1) Remove air horn. Hold float lip gently against needle. See Fig. 2.

2) Using a straightedge, place across float bowl to measure float level. If adjustment is needed, release float and then bend float tip to obtain correct clearance. Reinstall air horn.

NOTE: To avoid damaging synthetic rubber tip, do not bend lip while float is resting against needle.

CARTER BBD 2-BARREL (Cont.)

Fig. 2: Adjusting Float Level on Jeep Models



Hold finger against fulcrum pin retainer.

VACUUM STEP-UP PISTON GAP QUALIFICATION

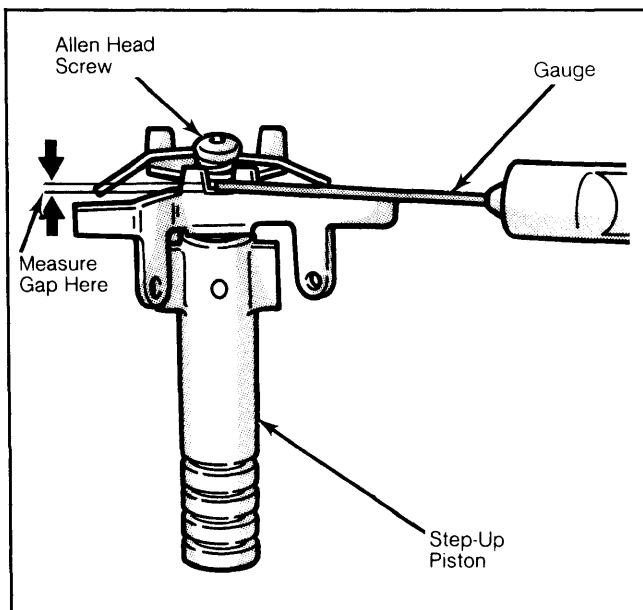
NOTE: This adjustment is required if step-up piston is removed or if piston lifter position is changed on actuating rod. This adjustment (qualification) places piston in a centered "mean" position.

1) Remove step-up piston cover plate and gasket. Remove lifter lock screw and remove piston step-up assembly.

2) Measure piston gap. See Fig. 3. If not to specification, adjust by turning Allen head screw on top of piston.

3) Record number of turns and direction to obtain proper dimension. This must be reset to its original position after vacuum step-up piston adjustment has been made.

Fig. 3: Vacuum Step-Up Piston Gap Qualification



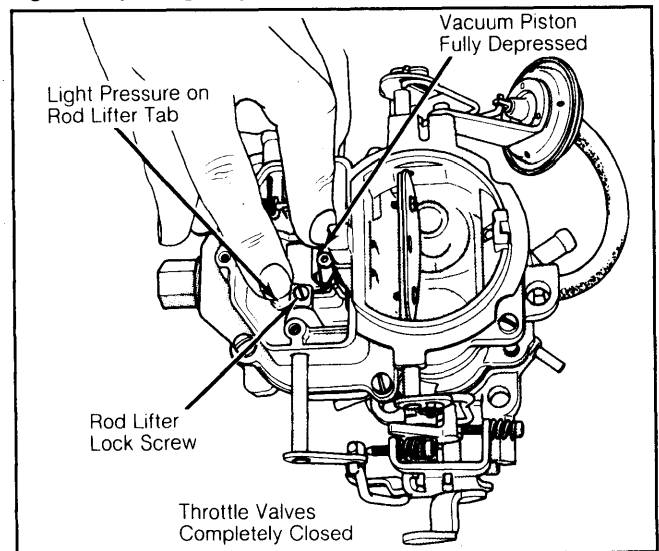
Record number of turns and direction.

VACUUM STEP-UP PISTON ADJUSTMENT

NOTE: Perform Vacuum Step-Up Piston Gap Qualification adjustment before adjusting vacuum step-up piston.

1) With vacuum piston installed, back off idle speed screw until throttle valves are completely closed. Count number of turns so screw can be returned to its original position. See Fig. 4.

Fig. 4: Adjusting Step-Up Piston



If this adjustment is changed, the step-up piston must be re-qualified.

2) Fully depress step-up piston while holding moderate pressure on rod lifter tab. While in this position, tighten rod lifter lock screw.

3) Release piston and rod lifter. Return idle speed set screw to its original position.

4) Reset Allen head calibration screw on top of step-up piston to its original position as recorded under Vacuum Step-Up Piston Gap Qualification. If this adjustment is changed, the step-up piston must be requalified.

ACCELERATOR PUMP STROKE ADJUSTMENT

1) Remove step-up piston cover plate and gasket. Back off curb idle screw to fully close throttle valves. Fast idle cam must be in open position. On Chrysler Corp. vehicles, if pump arm has 2 holes ensure pump "S" link is in outer hole. Open choke valve so fast idle cam allows throttle valves to seat. See Fig. 5.

2) Turn curb idle screw until it just touches stop. Continue 2 more complete turns. Measure distance between surface of air horn and top of accelerator pump shaft.

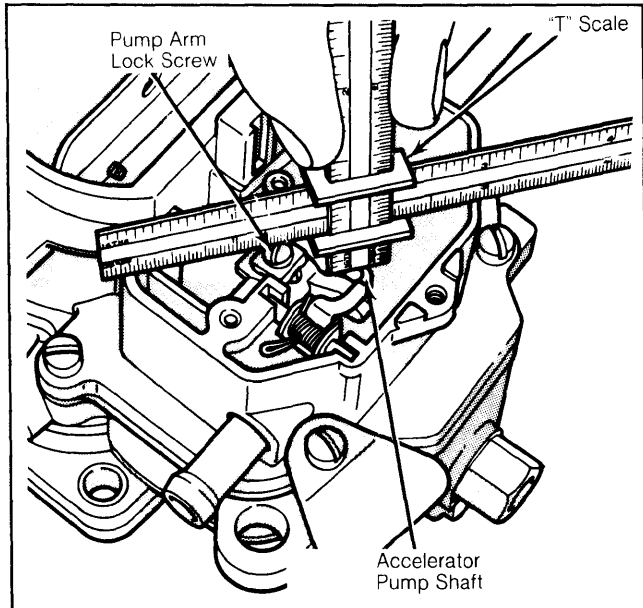
3) If adjustment is required, loosen pump arm adjusting lock screw and turn sleeve to adjust pump travel. When correct measurement is obtained, tighten lock screw. Install step-up piston cover plate and gasket.

NOTE: On Chrysler Corp. vehicles, bowl vent adjustment must be performed if accelerator pump stroke is changed.

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Fig. 5: Adjusting Accelerator Pump Stroke



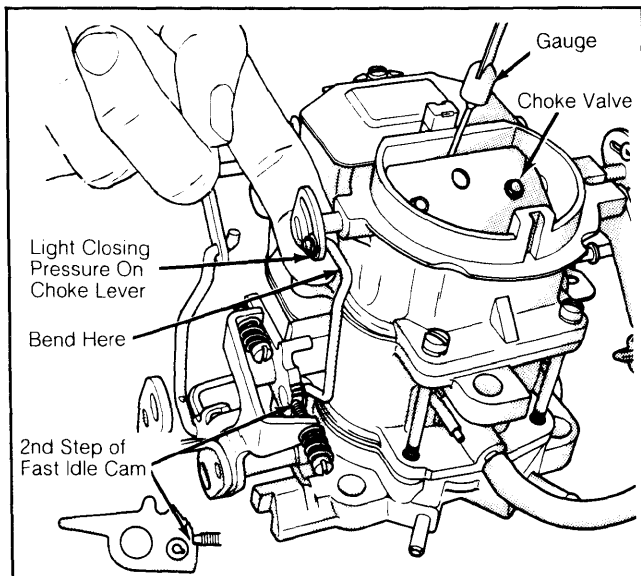
Fast idle cam must be in open position.

FAST IDLE CAM POSITION

NOTE: To meet Federal regulations, all carburetors incorporate tamper-proof choke, choke pull-off, and idle adjusting screws. The following adjustments are for after major carburetor overhaul, or if carburetor components are damaged.

1) On Jeep vehicles, remove torque-head screws and position choke cover $\frac{1}{4}$ turn rich. Retain with 1 straight-slot screw to hold choke cover in position. On all models place fast idle adjusting screw on 2nd step of fast idle cam. See Fig. 6.

Fig. 6: Adjusting Fast Idle Cam Position



Place fast idle speed adjusting screw on 2nd step of fast idle cam.

2) With specified drill or pin gauge, measure clearance between upper edge of choke valve and air horn wall. To adjust, bend fast idle connecting rod down to increase measurement or up to decrease measurement.

3) On Jeep vehicles, loosen housing cover screw and reset choke to specified index position. Install replacement torque-head screws.

AUTOMATIC CHOKE (JEEP ONLY)

NOTE: Normally, no readjustment is necessary from factory setting. Perform adjustment only after a major overhaul.

1) Loosen choke thermostat cover retaining screws.

2) Rotate cover in "Rich" or "Lean" direction to align reference mark on cover with specified scale graduation on choke housing. Tighten retaining screws.

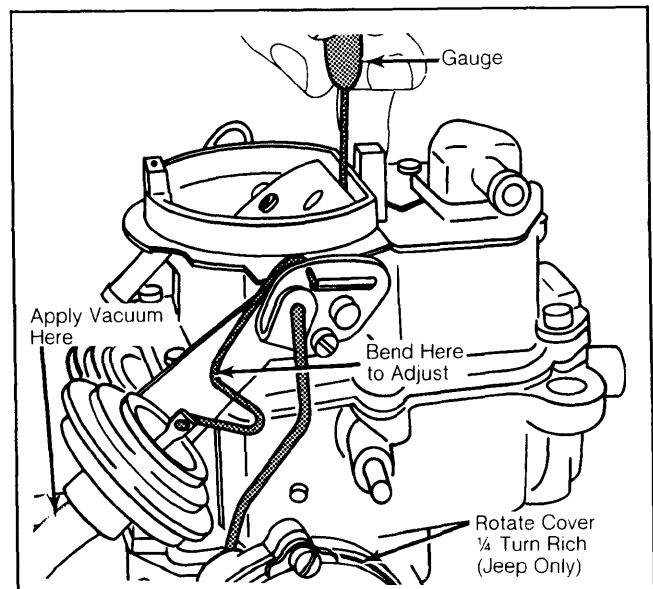
VACUUM KICK (INITIAL CHOKE VALVE CLEARANCE)

NOTE: To meet Federal regulations, all carburetors incorporate tamper-proof choke, choke pull-off, and idle adjusting screws. Adjustments given are for after major overhaul, or if carburetor components have been damaged.

1) On Jeep vehicles, grind off torque-head screw heads. Remove remaining portions of screws by turning counterclockwise with locking pliers. Turn choke cover $\frac{1}{4}$ turn rich. Retain in position with 1 straight slot screw.

2) Open throttle valve slightly to place fast idle screw on high step of cam. On Chrysler Corp. vehicles, open throttle, close choke and then close throttle to trap fast idle cam at closed choke position (highest step of cam). See Fig. 7.

Fig. 7: Adjusting Choke Diaphragm (Initial Choke Valve Clearance)



Place fast idle screw on high step of cam.

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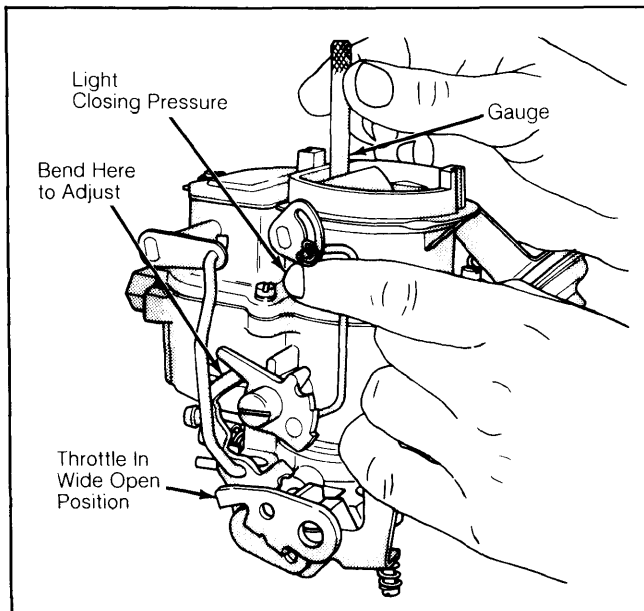
3) Using a hand vacuum pump, apply at least 15 in. Hg. vacuum to choke vacuum kick diaphragm. Spring in diaphragm stem should be compressed against stop without bending linkage. Measure clearance between choke plate and air horn wall.

4) Adjust clearance by bending diaphragm connecting link at "U" bend. On Jeep vehicles, remove straight slot screw and adjust cover index to specified notch. Install replacement torque-head screws.

CHOKE UNLOADER

1) Hold throttle valves wide open. Apply light closing pressure to choke valve lever. See Fig. 8.

Fig. 8: Adjusting Choke Unloader



Throttle valves should be in wide open position.

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

3) To adjust, bend choke unloader tang. Make sure tang does not interfere with other components after it is adjusted.

OVERHAUL

DISASSEMBLY

All Models

1) Place carburetor on a suitable repair stand, and remove stepper motor if equipped. Remove retaining clip from accelerator pump arm link and remove link.

2) Remove cover and gasket from top of air horn. Remove screws and locks from accelerator pump arm and vacuum piston rod lifter. Slide pump lever out of air horn. Remove pump arm and rod lifter.

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) Remove screw and lever from choke shaft. Remove choke diaphragm, linkage, and bracket assembly.

Remove fast idle cam retaining screw. Remove fast idle cam, choke link, and clip. On Jeep vehicles, grind heads off of torque-head screws. Remove choke cover assembly and housing from throttle body. Remove remaining portion of screws with locking pliers.

5) 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.

6) 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.

7) 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.

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

9) Turn idle limiter caps to stop. Remove plastic caps from idle air mixture screws. Be sure to count number of turns it takes to seat screws to ease reassembly adjustment. Remove screws and springs from throttle body.

10) 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.

CLEANING & INSPECTION

NOTE: Do not apply compressed air to diaphragm. Do not use wire or drill to clean jets or passageways.

- Use a regular carburetor cleaning solution. Soak components long enough to thoroughly clean all surfaces and passages of foreign matter.
- Do not soak any components containing rubber, leather or plastic.
- Remove any residue after cleaning by rinsing components in a suitable solvent.
- Blow out all passages with dry compressed air.

REASSEMBLY

Use all new gaskets and reverse disassembly procedures while noting the following:

Idle Mixture Screw & Limiter Cap Installation

1) Install idle mixture screws and springs in body. Tapered portion must be straight and smooth. If tapered portion is grooved or ridged, use a new screw. DO NOT use a screwdriver for installation.

2) Turn screws lightly against their seats with fingers. Back off number of turns counted at disassembly and install new plastic caps with tab against stop.

Accelerator Pump Check Ball Installation

Accelerator pump intake and discharge check balls are different sizes. Make sure large check ball is installed in float bowl. See Fig. 10.

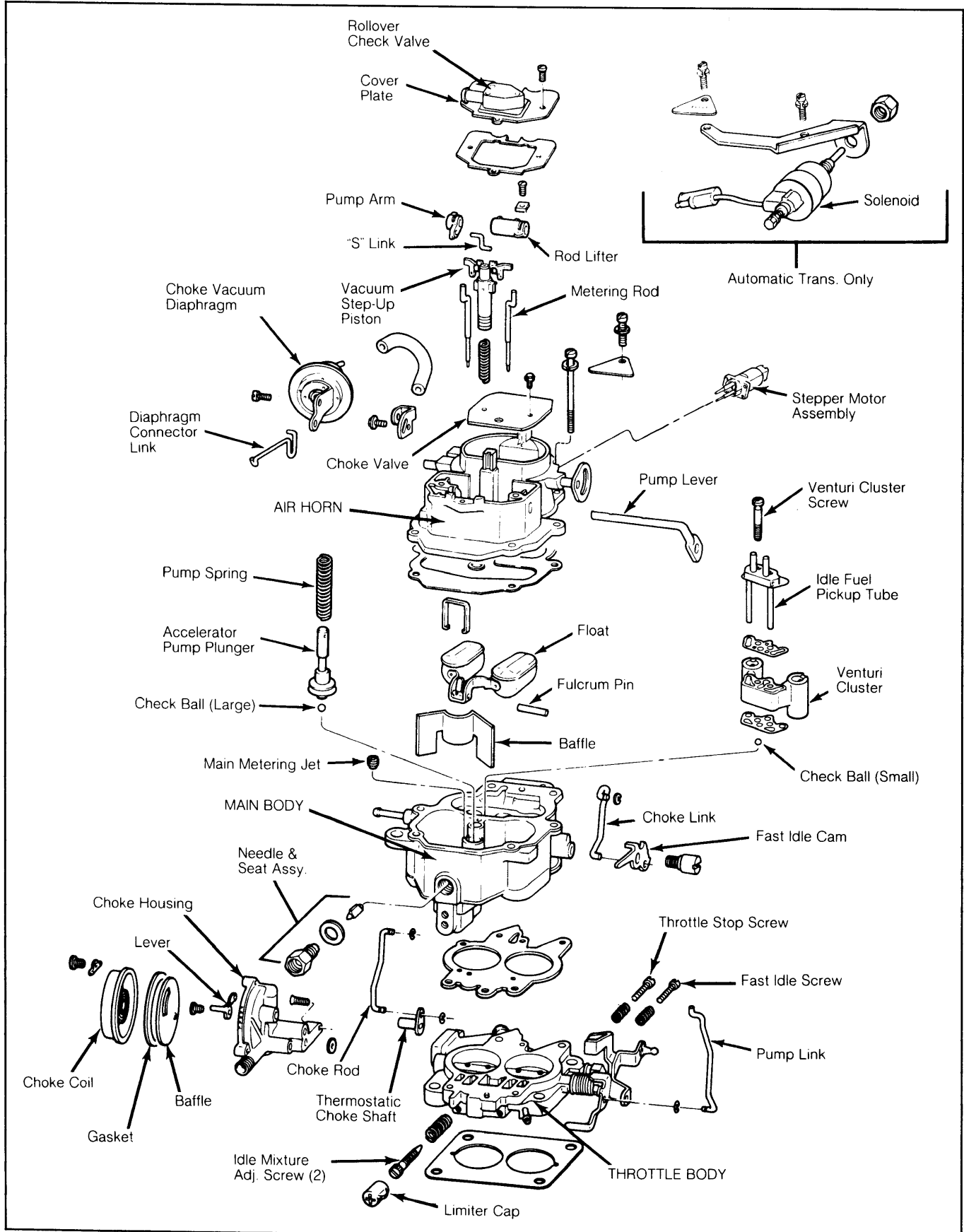
Accelerator Pump Assembly

1) Check operation as follows: Pour clean unleaded gasoline into carburetor bowl approximately 1/2" deep. Operate accelerator pump plunger several times to

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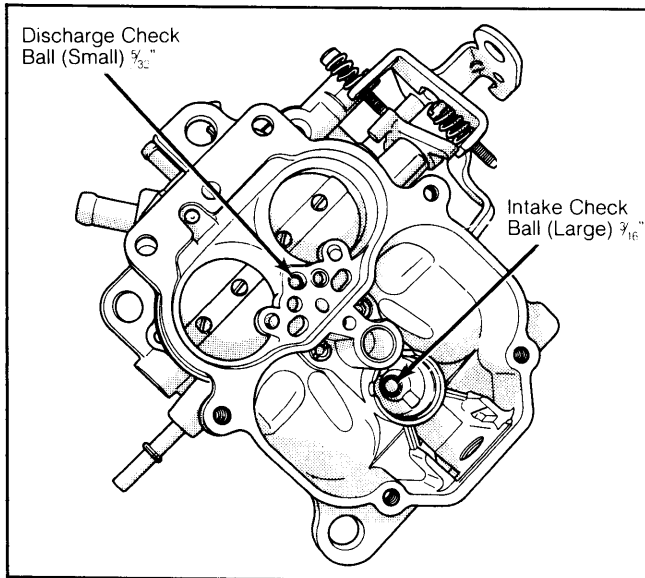
CARTER BBD 2-BARREL (Cont.)

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



CARTER BBD 2-BARREL (Cont.)

Fig. 10: Installing Accelerator Pump Intake and Discharge Check Balls



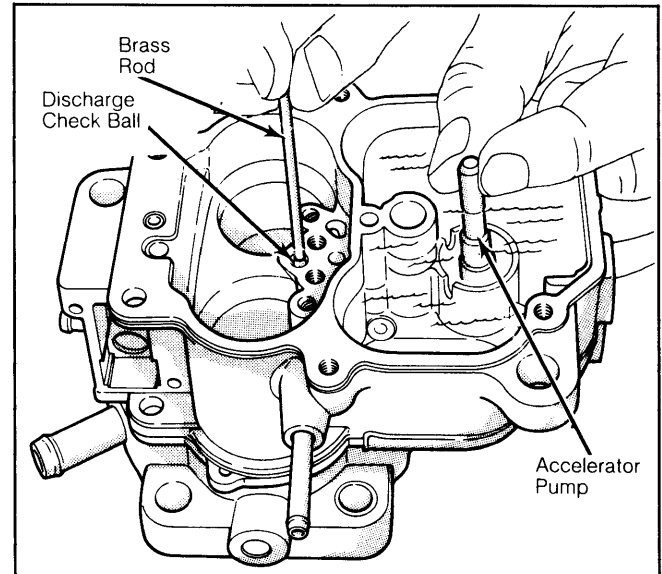
Large check ball is installed in float bowl.

expel air from pump passage. Using a small brass rod, hold discharge check ball down firmly on its seat. See Fig. 11.

2) Again raise plunger and press downward. No fuel should be emitted from either intake or discharge passage. If fuel does escape from either passage, check that ball seat is not damaged or dirty. Clean passages and retest.

3) If leakage is still present, attempt to form a new seat. This is accomplished by installing a new

Fig. 11: Testing Accelerator Pump Intake and Discharge



Hold discharge check ball down on its seat.

discharge check ball in leaking seat. Place a piece of drill rod on top of check ball and tap it lightly with a hammer to form a new seat. Remove check ball and discard. Install a new check ball and retest as described above. If service does not correct problem, carburetor replacement is necessary.

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.

CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Float Level	Vacuum Piston Gap	Accelerator Pump Stroke	Fast Idle Cam	Choke Vacuum Kick	Choke Unloader	Auto. Choke
Chrysler Corp.							
BBD-8348S	1/4"	.035"	1/2"	.070"	.130"	.310"
BBD-8352S	1/4"	.035"	1/2"	.070"	.130"	.310"
Jeep							
8338	1/4"	.035"	.520"	.095"	.140"	.280"	1 Rich
8339	1/4"	.035"	.520"	.095"	.140"	.280"	1 Rich
8340	1/4"	.035"	.520"	.110"	.150"	.280"	1 Rich
8341	1/4"	.035"	.520"	.150"	.150"	.280"	1 Rich
8349	1/4"	.035"	.520"	.095"	.128"	.280"	2 Rich
8351	1/4"	.035"	.520"	.095"	.130"	.280"	0 Rich