

1974-79 FUEL SYSTEMS

Aisan 2-Barrel Carburetors

**Celica, Corona, Hi-Lux,
Pickup (18R-C & 20R Engines)**

DESCRIPTION

Carburetor is a 2-barrel downdraft design with primary and secondary venturi. An automatic choke containing a heated bimetallic spring provides proper air/fuel mixture control during engine warm-up.

Secondary throttle valve is actuated by a vacuum diaphragm unit with a kick-up (open) lever. Secondary valve begins to open when primary throttle valve opening angle exceeds 55 degrees. During deceleration, a throttle positioner opens primary throttle valve slightly to maintain proper combustion of air/fuel mixture.

A thermostatic valve provides air flow under secondary throttle valve when ambient air temperature is high. System helps maintain proper combustion. Other features include choke breaker, auxiliary accelerator pump and deceleration fuel cut.

ADJUSTMENTS

IDLE SPEED & MIXTURE

See appropriate TUNE-UP PROCEDURES article.

COLD (FAST) IDLE RPM

See appropriate TUNE-UP PROCEDURES article for on-vehicle adjustment. For bench adjustment, fully close choke valve. Check clearance between primary throttle valve and throttle bore. If clearance is not .047" (1.20 mm), adjust by turning fast idle screw. See Fig. 7.

ACCELERATOR PUMP

Measure distance from top of accelerator pump operating lever to top of air horn. Make measurement with throttle valves in idle position. Make measurement again, but with throttle valves in wide open position. Difference between the two measurements is total stroke travel. Travel should be .177" (4.5 mm). See Fig. 1.

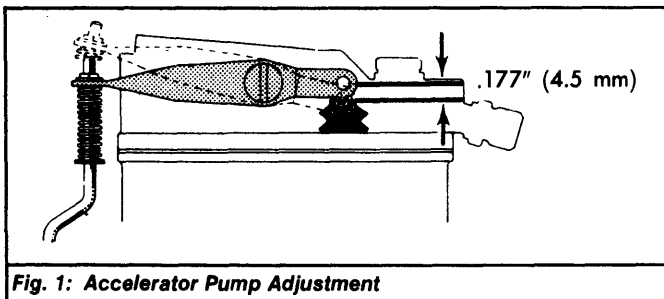


Fig. 1: Accelerator Pump Adjustment

FLOAT LEVEL

Remove gasket from air horn. Allow float to hang down by its own weight. Check clearance between float tip and air horn. On 1974-76 models, clearance should be .20" (5 mm). On 1977-79 models, clearance should be .27" (7 mm). See Fig. 2. Adjust float level by bending float lip "A".

FLOAT DROP

Lift up float. Check clearance between needle valve plunger and float lip. Clearance should be .04" (1 mm). Adjust float drop by bending float tab "B". See Fig. 3.

UNLOADER

Open primary throttle valve. Check choke valve angle with 47-50 degree angle gauge. See Fig. 4. If angle is not correct, bend fast idle lever cam follower lip.

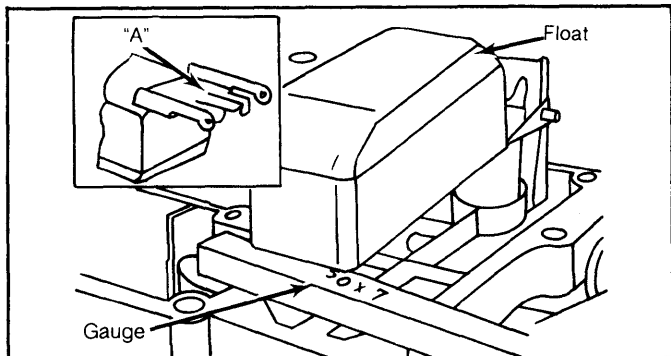


Fig. 2: Float Level Adjustment

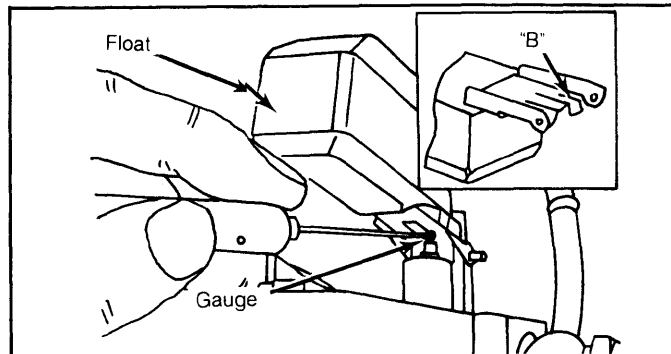


Fig. 3: Float Drop Adjustment

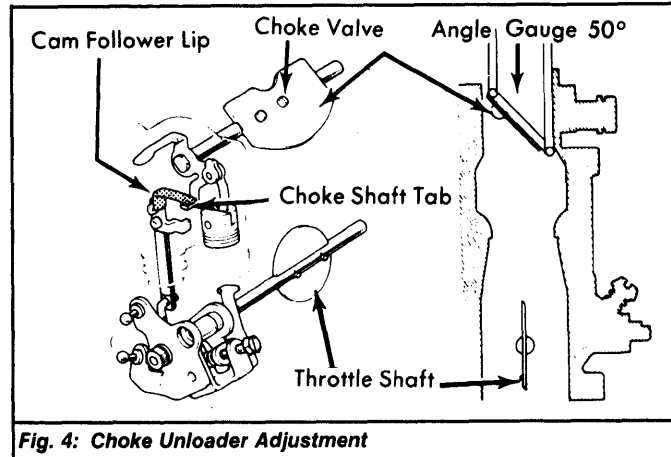


Fig. 4: Choke Unloader Adjustment

PRIMARY & SECONDARY THROTTLE VALVES

When primary throttle valve is fully opened (90 degrees from bore) check that secondary is also positioned 90 degrees from horizontal plane. If adjustment is necessary, bend throttle lever stoppers at primary and secondary throttle linkage. See Fig. 5.

SECONDARY THROTTLE

Fully open primary throttle valve. Check secondary throttle valve opening. Clearance between secondary throttle valve and bore should be .008" (.20 mm). See Fig. 6. If necessary, bend secondary throttle lever.

AUTOMATIC CHOKE

Choke plate should close at 77°F (25°C). Index cover with center mark on housing. One increment of movement of choke cover equals 9°F change.

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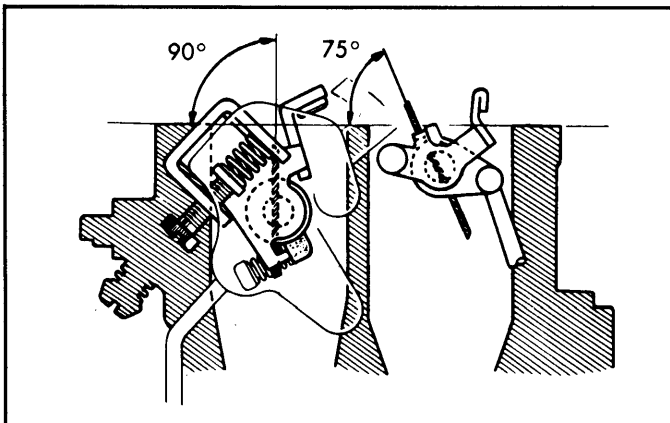


Fig. 5: Primary & Secondary Throttle Valve Adjustment

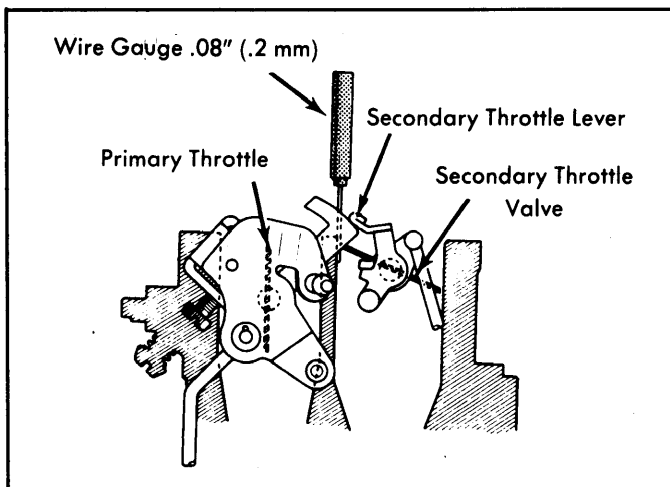


Fig. 6: Secondary Throttle Adjustment

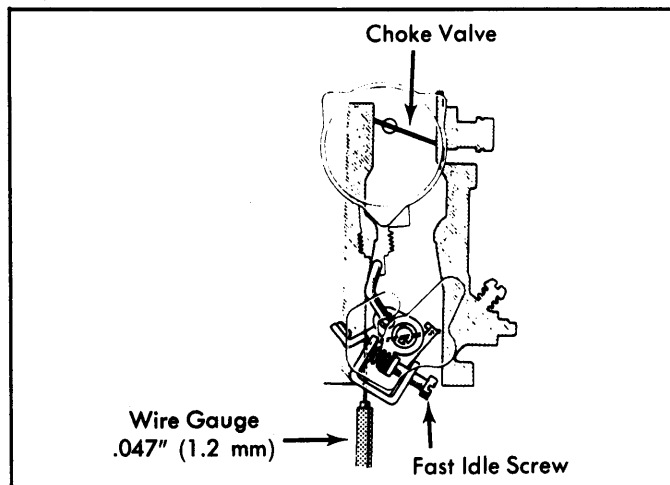


Fig. 7: Fast Idle (Bench) Adjustment

CHOKE VACUUM BREAK

Depress choke breaker rod to open choke valve. Check choke valve angle (35-40 degrees from bore). Bend relief lever until correct measurement is obtained.

CHOKE OPENER

Push in choke opener rod. Check choke valve angle (50-55 degrees from bore). Bend choke opener link until correct measurement is obtained. See Fig. 8.

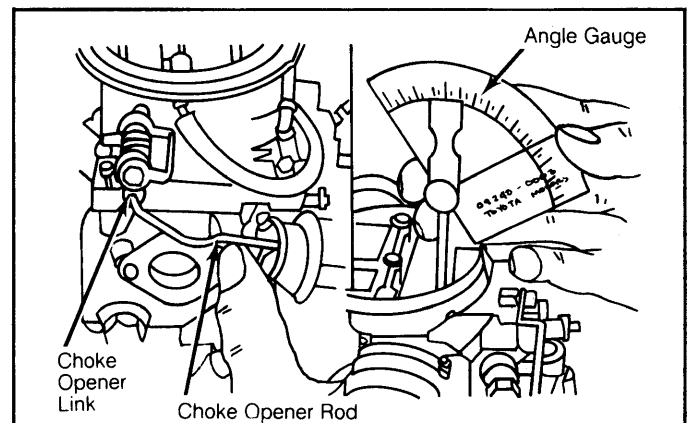


Fig. 8: Choke Opener Adjustment

THROTTLE POSITIONER

1974-76 Models - Warm engine to normal operating temperature. Adjust idle speed to specifications. Unplug thermo-sensor connector and disconnect vacuum hose from throttle positioner diaphragm. Throttle positioner linkage should now be set to hold throttle valve partially open. Set throttle positioner adjusting screw to obtain specified RPM.

1978-79 Models - With throttle positioner adjusting screw on center of lever tab, measure clearance between primary throttle valve and bore. Measurement should be .009" (.22 mm). If not, set adjusting screw to provide proper clearance. When in operation, setting speed should be 1050 RPM.

OVERHAUL

DISASSEMBLY

- 1) To disassemble air horn, remove pump arm with connecting rod. Remove connecting links and 7 air horn screws. Remove choke opener. Remove air horn. Remove float pivot pin and float. Remove needle valve assembly, pump plunger, and power piston.
- 2) To disassemble automatic choke, remove coil housing, plate and gasket. Remove choke lever and coil housing body. Remove choke breaker, relief lever, and link.
- 3) To disassemble main body, remove venturi. Remove pump jet, "O" ring, spring and ball. Remove damping spring, retainer and ball. Remove slow jet and power valve. Remove thermostatic valve and "O" ring. Remove sight glass and throttle positioner.
- 4) Remove auxiliary accelerator pump inlet plug and ball. Remove outlet plug, spring, and ball. Remove auxiliary pump housing. Remove diaphragm, spring, and gasket. Remove spring, link, and diaphragm assembly. Remove solenoid valve and fast idle cam.
- 5) Remove carburetor body and insulator. To disassemble throttle valve assembly, remove mixture screws. If necessary, remove throttle lever, spring and collars. Remove throttle positioner lever.

CLEANING & INSPECTION

Wash parts in carburetor cleaner (solvent). DO NOT soak any components containing rubber, leather, or plastic. Soak components long enough to thoroughly clean all surfaces and passages of foreign matter. Remove any residue after cleaning components in solvent. Blow out all fuel passages dry with compressed air. Inspect all parts for wear or damage and replace as necessary.

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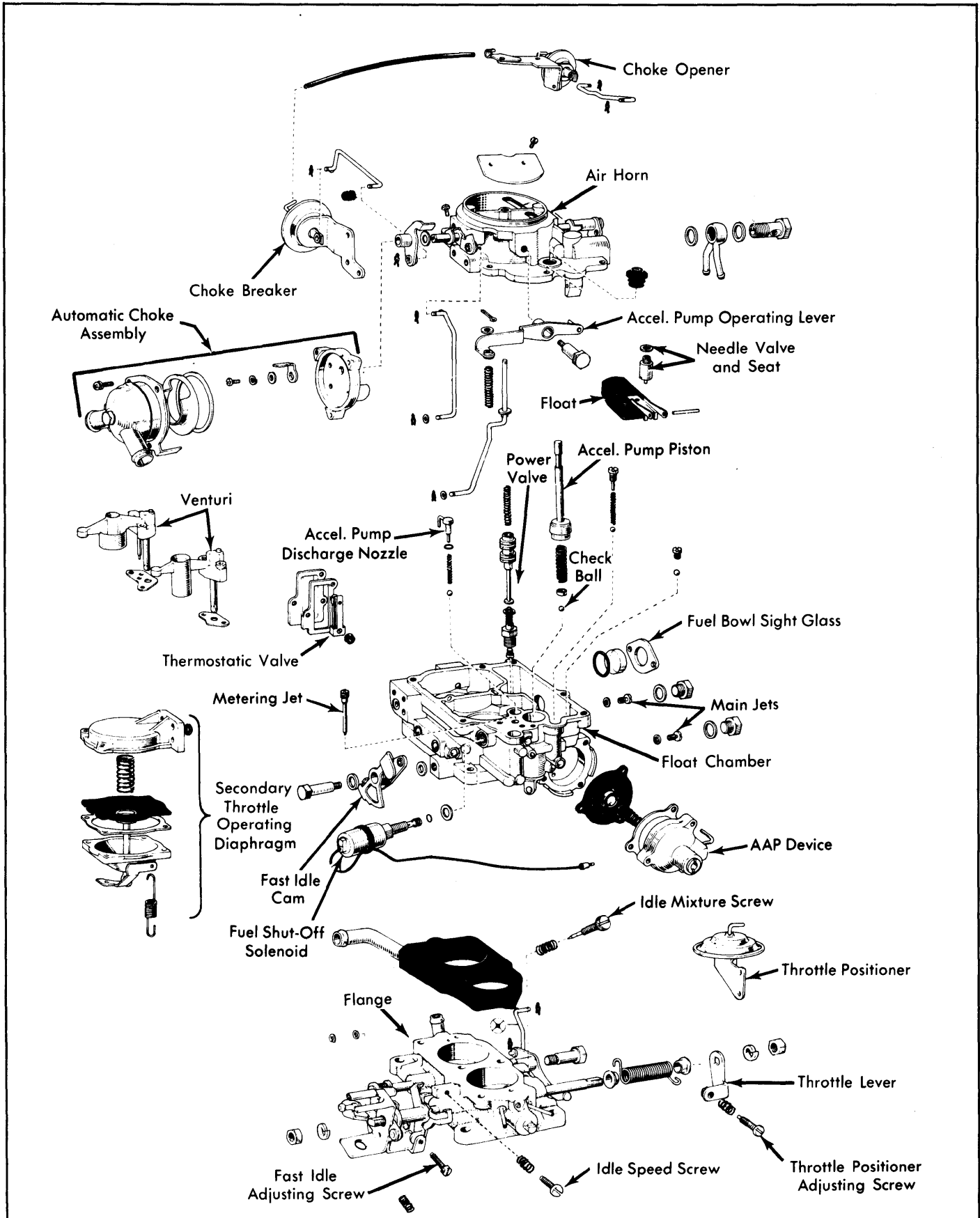


Fig. 9: Exploded View of Aisan 2-Barrel Carburetor (Toyota 18R-C & 20R Engines)

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Aisan 2-Barrel Carburetors (Cont.)

REASSEMBLY

- 1) To reassemble, reverse disassembly procedure. Install new gaskets throughout carburetor where required. Check for smooth operation of all valves and linkage.
- 2) If power piston stop screw is overtightened, the bore may be distorted resulting in sticking piston operation. DO NOT install fuel level gauge glass backwards. Dot on glass should be to inside of float bowl and bubble facing outward.

- 3) When carburetor body is viewed from sight glass end, secondary main jet (aluminum) is located in right side opening and primary main jet (brass) in left side opening. Install both jets with flat washers.
- 4) Ensure flange gasket is installed correctly. Gasket will fit backwards easily, so ensure all holes are aligned properly for correct positioning. Tighten carburetor flange nuts, with lock washers, to 5 ft. lbs. (7 N.m)

1977 CARBURETOR ADJUSTMENT SPECIFICATIONS								
Application	Idle Speed (Engine RPM)		Float Level Setting In. (mm)	Float Drop Setting In. (mm)	Choke Linkage In. (mm)	Secondary Throttle In. (mm)	Unloader Setting In. (mm)	Vacuum Break In. (mm)
	Hot	Fast						
All Models W/ 20R Engine	800-900 ^①	2200-2600 ^②	.197 (5)	.04 (1)	.04 (1)	40°	.180 (4.5)	.22" ^③ (1.55)

① — Man. Trans. is 750-850 RPM.

② — With EGR disconnected and vacuum advance hose unhooked and plugged

③ — Auto. Trans. is .017" (.43 mm)

1978 CARBURETOR ADJUSTMENT SPECIFICATIONS								
Application	Idle Speed (Engine RPM)		Float Level Setting In. (mm)	Float Drop In. (mm)	Fast Idle Clearance In. (mm)	Choke Breaker Angle	Accel. Pump Stroke In. (mm)	Throttle Positioner In. (mm)
	Hot	Fast						
20R Engine	M/T 870 ^① A/T 920 ^①	2200-2600 ^②	.276 (7)	.040 (1)	.047 (1.2)	38°	.177 (4.5)	.009 (.22)

① — Idle mixture speed shown. Idle speed is 800±50 RPM for Man. Trans.; 850±50 RPM for Auto. Trans.

② — With EGR disconnected and vacuum advance hose unhooked and plugged.

1979 CARBURETOR ADJUSTMENT SPECIFICATIONS								
Application	Idle Speed (Engine RPM)		Float Level Setting In. (mm)	Float Drop In. (mm)	Fast Idle Clearance In. (mm)	Choke Breaker Angle	Accel. Pump Stroke In. (mm)	Throttle Positioner In. (mm)
	Hot	Fast						
20R Engine	750-850 ^①	2200-2600 ^②	.276 (7)	.040 (1)	.047 (1.2)	38°	.177 (4.5)	.009 (.22)

① — Man. Trans. mixture speed — 870 RPM, Auto. Trans. mixture speed — 920 RPM.

② — With EGR disconnected and vacuum advance hose unhooked and plugged.

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Aisan 2-Barrel Carburetors (Cont.)

1974-75 CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Specifications
Idle Speed	
Man. Trans.	650 RPM
Auto. Trans.	800 RPM
Throttle Positioner	1400 RPM
Initial Mixture Screw Setting	2 1/4 Turns
Accelerator Pump Stroke	.177" (4.5 mm)
Unloader	¹
Automatic Choke	Index
Secondary Touch Angle	²
Secondary Throttle	.08" (.20 mm)
Float Level	.20" (5 mm)
Float Drop	.04" (1 mm)
Thermostatic Valve Opening Temp.	140°F (60°C)
Main Jet Diameter	
Primary	.046" (1.18 mm)
Secondary	.064" (1.62 mm)
Slow Jet Diameter	
Primary	.021" (.53 mm)
Secondary	.033" (.85 mm)
Power Jet Diameter	.026" (.65 mm)
Pump Jet Diameter	.020" (.50 mm)

¹ - With primary throttle fully opened, choke valve opens 27 degrees from CLOSED position.

² - With primary throttle valve at 31 degrees, primary throttle lever and secondary lever should come in contact.

1976 CARBURETOR ADJUSTMENT SPECIFICATIONS

Application	Specifications
Idle Speed	850 RPM
Throttle Positioner	
Man. Trans.024" (.60 mm)
Auto. Trans.020" (.50 mm)
Initial Mixture Screw Setting	1 3/4 Turns
Accelerator Pump Stroke	.177" (4.5 mm)
Unloader	¹
Choke Opener	50°
Choke Vacuum Break	40°
Secondary Throttle	.08" (.20 mm)
Float Level	.20" (5 mm)
Main Jet Diameter	
Primary	.048" (1.2 mm)
Secondary	.070" (1.8 mm)
Slow Jet Diameter	.020" (.50 mm)
Power Jet Diameter	.020" (.50 mm)
Pump Jet Diameter	.020" (.50 mm)

¹ - With primary throttle fully opened, choke valve angle should be 90 degrees.

² - Primary main jet size for carburetor part numbers 38030 and 38060 is .047" (1.2 mm).