ZENITH-STROMBERG 4-BARREL

Mazda RX-2 (1971-73)
Mazda RX-3 (1972-73)

DESCRIPTION

Carburetor is a two stage four barrel downdraft model, consisting of two primary barrels for normal operation and two secondary barrels for high speed and or heavy load. Primary circuit is equipped with a semi-automatic choke, low speed circuit, diaphragm type accelerator pump, and step circuit for transfer between primary and secondary circuits.

OPERATION

FUEL RETURN CIRCUIT

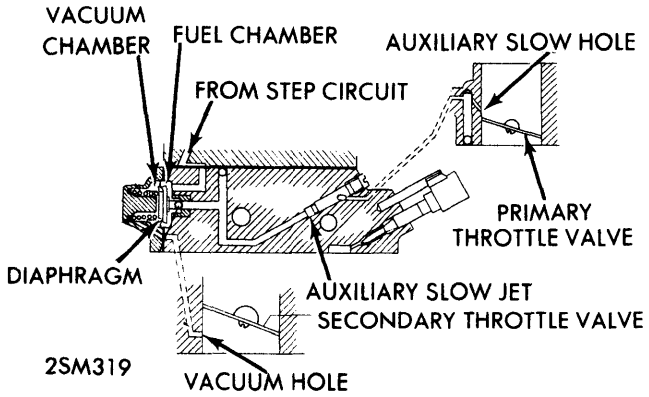
This system incorporates a bi-metal type fuel return valve to prevent percolation. When fuel temperature reaches 131°F (55°C), valve begins to open to return fuel to fuel tank.

FLOAT CIRCUIT

Float chamber is equipped with a float and needle valve. A fuel level gauge is provided for easy inspection of fuel level.

LOW SPEED CIRCUIT

During periods of idle and part throttle operation fuel is metered through the low speed jet fitted in a branch passage of the main jet. Fuel is then mixed with air from the No. 1 slow air bleed and metered by the slow speed economizer. It is again mixed with air from the No. 2 low speed air bleed. Air/fuel mixture then flows through the low speed passage and is discharged from idle hole or by-pass hole.



AUXILIARY SLOW CIRCUIT

AUXILIARY SLOW CIRCUIT

Circuit prevents misfiring and knocking at low load and high RPM due to a lean mixture. A vacuum diaphragm controlled by carburetor secondary throttle, opens a valve at a predetermined vacuum setting, allowing fuel fed from secondary step system to pass to auxiliary slow jet. From there, fuel is discharged through auxiliary slow port to primary venturi.

PRIMARY HIGH SPEED CIRCUIT

During part or full throttle operation, fuel is supplied through high speed circuit. Fuel in float chamber flows through main jet, is mixed in emulsion tube with air from main air bleed, and is sprayed through main nozzle to venturi.

ACCELERATION CIRCUIT

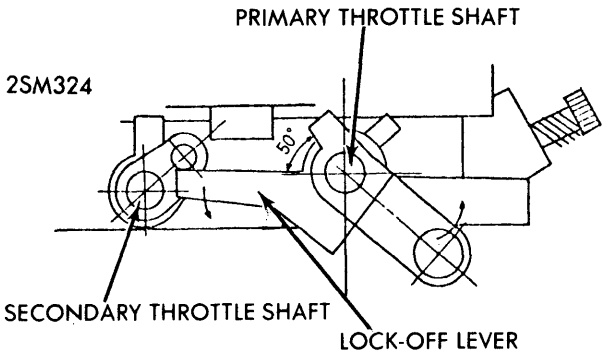
Circuit measures and supplies fuel for rapid acceleration and smooth engine operation. Accelerator pump is connected to primary throttle valve by a link. When throttle is opened, accelerator pump sprays fuel through pump nozzle into venturi.

SEMI-AUTOMATIC CHOKE

Manually operated by choke cable, but butterfly valve opening is controlled by a bi-metal spring. Bi-metal spring is electrically heated and returns choke knob to off position, when engine is sufficiently warm.

STEP CIRCUIT

Purpose is to improve transition between primary and secondary circuits. Fuel flow in secondary slow jet is mixed with air from secondary slow air bleed, passes through secondary low speed passage, and is injected into secondary bore through a passage located near secondary throttle valve.



SECONDARY THROTTLE VALVE LOCK-OFF SYSTEM

SECONDARY HIGH SPEED CIRCUIT

Secondary throttle valve is constructed so as to react to vacuum in the venturi. Vacuum jets are provided in the venturi sections of primary and secondary stages. Average vacuum of both jets acts in the diaphragm chamber and moves the diaphragm. Diaphragm and secondary throttle valve are connected by a link to open the throttle valve according to vacuum. Secondary throttle valve cannot be opened until primary throttle valve is opened to 50°. This is controlled by the lock-off lever installed on the primary shaft and the stop on the secondary shaft. When primary throttle opens more than 50°; secondary throttle is released from locked position and opens in proportion to vacuum. Then fuel from main jet is mixed with air from main air bleed and sprayed from main nozzle into the venturi.

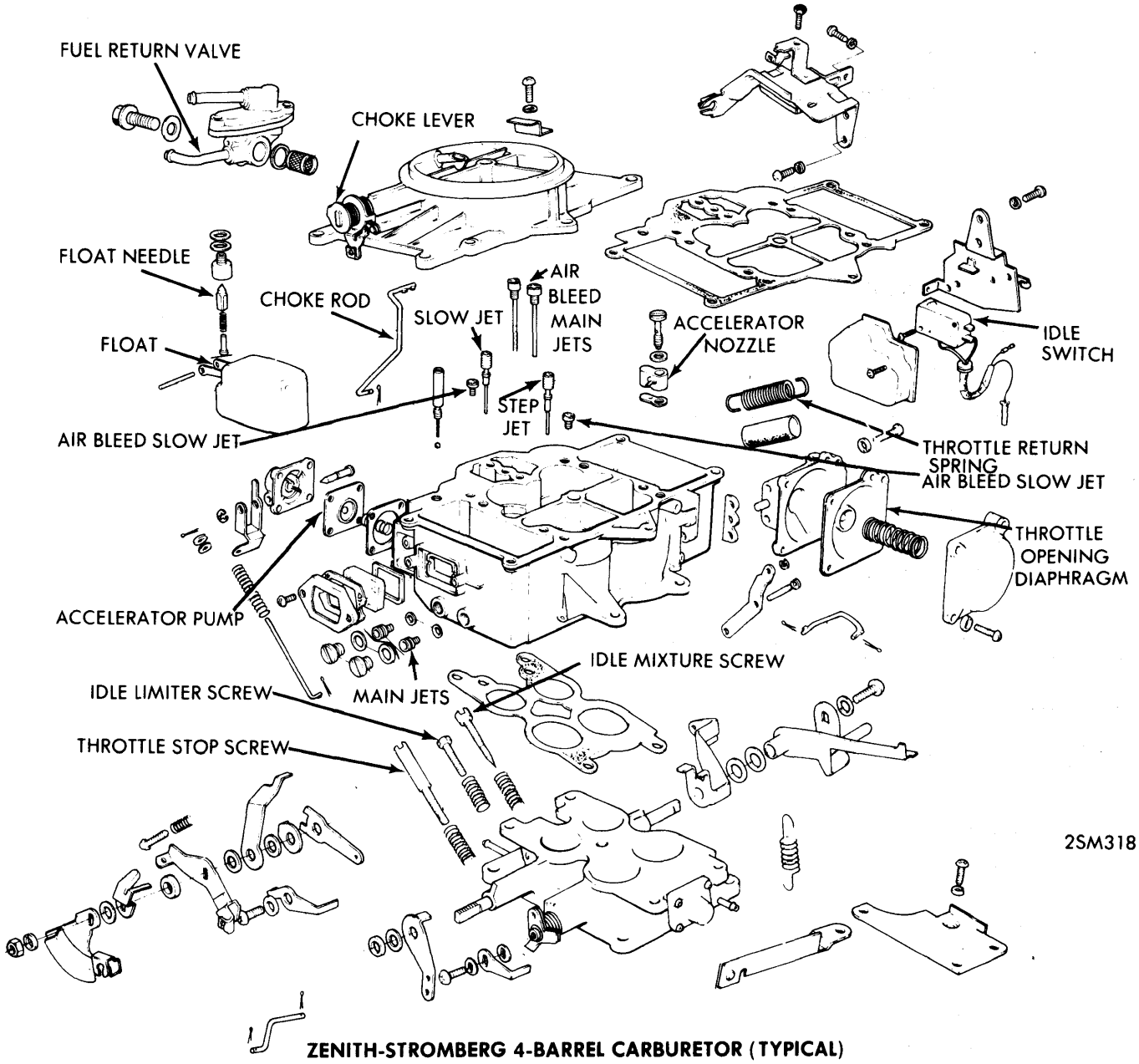
ADJUSTMENT

FLOAT LEVEL & FLOAT DROP

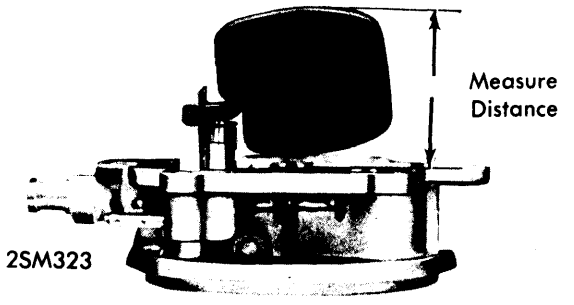
NOTE – On 1971-72 models, adjust float drop, then adjust float level. On 1973 models, adjust float level, then adjust float drop.

Float Level Adjustment (1971 & 1973) – 1) With air horn removed from main carburetor body, invert air horn and allow float to lower by its own weight. Measure distance from upper face of float to lower face of air horn gasket on 1971 models, or measure clearance between float and air horn gasket on 1973 models.

ZENITH-STROMBERG 4-BARREL (Cont.)

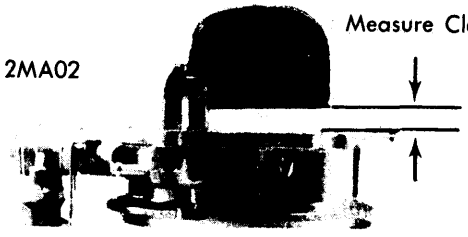


ZENITH-STROMBERG 4-BARREL CARBURETOR (TYPICAL)



FLOAT LEVEL ADJUSTMENT (1971)

2) If clearance is not as specified in Float Adjustment Specifications table, adjust level by installing or removing shim washers between fuel inlet and air horn. *NOTE — If shims are not available, clearance can be adjusted by bending float seat lip on 1973 models only.*



FLOAT LEVEL ADJUSTMENT (1972-73)

Float Level Adjustment (1972) — With air horn removed from main carburetor body, invert air horn on a stand and lower float until float seat lip just contacts needle valve. Measure clearance between float and face of air horn gasket. If clearance is not as specified in Float Adjustment Specifications table, bend float seat lip until proper clearance is obtained.

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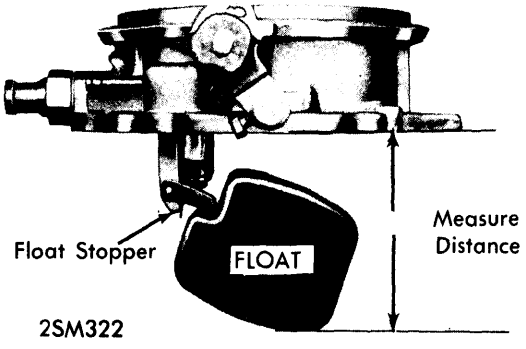
Float Drop Adjustment (All) – With air horn assembly held as shown in illustration, measure distance from lowest part of float to lower face of air horn gasket. If distance is not as specified in Float Adjustment Specifications table, adjust by bending float stopper to obtain proper distance.



FLOAT DROP ADJUSTMENT (ALL)

Float Adjustment Specifications

Application	Float Level	Float Drop
1971 RX-2	1.8-1.9"	2.1-2.2"
1972 RX-2, RX-3	.22"	2.1-2.2"
1973 RX-2, RX-3	.197"	2.1-2.2"

IDLE LIMITER

Idle limiter regulates fuel flow at low speeds and is preadjusted by manufacturer. *NOTE – No attempt should be made to adjust idle limiter.*

IDLE SPEED & MIXTURE

1971-72 – With a tachometer and a suitable exhaust gas analyzer installed, adjust idle speed and mixture to specification by alternately adjusting throttle stop screw and idle adjusting screw. *See Idle Adjustment Specifications.*

1973 Idle Speed Adjustment – With engine at normal operating temperature and secondary throttle plate closed, adjust engine idle speed to specifications by turning air adjust screw on front of carburetor. *NOTE – DO NOT tamper with idle adjust screw or throttle adjust screw as these are pre-set at factory.*

Idle Adjustment Specifications

Application	Idle Speed (RPM)	CO%
1971 RX-2	700	3(Max.)
1972 RX-2, RX-3	900	3(Max.)
1973 RX-2, RX-3	①	3(Max.)

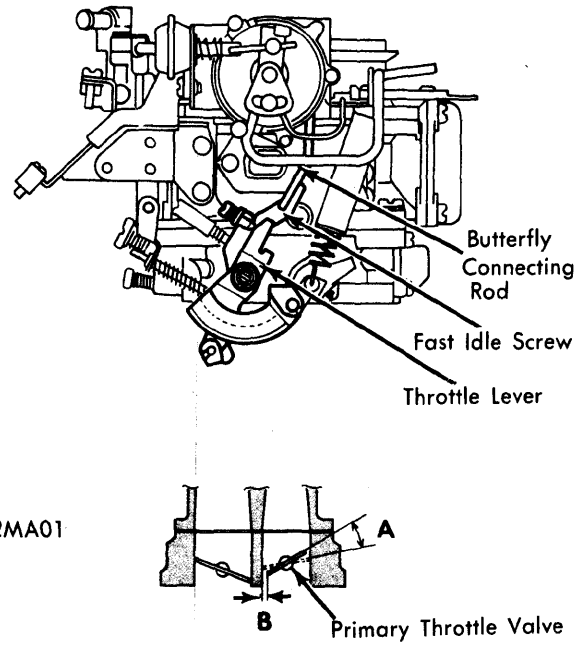
① – Standard Transmission – 900 RPM in Neutral.
Automatic Transmission – 750 RPM in Drive.

FAST IDLE

With choke fully closed, angle of throttle valve and clearance between lower edge of throttle valve should be as shown in Fast Idle Specifications table. Using a suitable wire gauge or drill bit, check clearance and adjust by bending fast idle rod.

Fast Idle Specifications

Application	Angle A	Clearance B
1971 RX-2	15°	.045"
1972 RX-2, RX-3	16.5°	.047"
1973 RX-2, RX-3		
Std. Trans.	15.5-18.5°	.046-.062"
Auto. Trans.	16-19°	.048-.062"



FAST IDLE ADJUSTMENT

ADJUSTING ACCELERATOR PUMP

At end of pump connecting rod there are three holes which provide three changes in pump injection amount. If necessary, select and use a hole according to engine condition, running conditions and atmospheric temperature.

OVERHAUL

DISASSEMBLY & REASSEMBLY

Semi-Automatic Choke – Remove screws attaching semi-automatic choke to bracket and remove choke. Disconnect vacuum sensing tube from diaphragm assembly by removing retaining pin. Unhook throttle return spring, remove screws attaching bracket to carburetor, and remove each bracket.

Air Horn – 1) Remove screws attaching fuel return valve bracket and remove bracket and valve cover. Disconnect choke connecting rod from air horn by removing cotter pin. Remove air horn by removing screws attaching air horn to body.

2) Remove main passage bolt, fuel return valve and filter. Remove float retaining pin, float and needle valve assembly. Remove gasket.

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Body – 1) Remove screws attaching idle switch and remove switch and spring. Disconnect vacuum control unit rod from secondary throttle lever by removing cotter pin. Disconnect accelerating pump lever by removing retaining pin. Remove screws attaching body and remove body and gasket from throttle chamber.

2) Remove screws attaching vacuum control unit and remove unit. Remove screws attaching cover to unit body and remove cover, spring, and diaphragm. Remove screws attaching sub-zero assist nozzle and remove nozzle. Remove screws attaching accelerator pump and remove pump. Remove screws and remove pump inlet ball (inlet valve) and outlet ball (outlet valve). Remove slow jets of primary and secondary stages and all air bleeds from body. Remove main jets by removing plug from body. *NOTE – Do not remove venturi.*

Reassembly – Follow disassembly procedures in reverse order.