

## AISAN 2-BARREL (TOYOTA M, 2M & 4M ENGINES)

**Toyota Crown M Engine (1965-67)**  
**Toyota Crown 2M Engine (1968-70)**  
**Toyota Crown 4M Engine (1971)**

### DESCRIPTION

Two-barrel carburetor is of the primary and secondary venturi type. Primary system is equipped with low speed circuit, high speed circuit, power circuit, acceleration circuit and automatic choke.

Secondary system consists of a low speed and a high speed circuit. The secondary throttle valve is operated by and linked to a vacuum diaphragm. Diaphragm action is governed by vacuums in the primary and secondary large venturi. The low speed circuit supplies an adequate air/fuel mixture when the kick-up arm opens the secondary throttle valve 2-4° from fully closed position.

**Thermostatic Valve (If Equipped)** - Prevents engine stalling, rough idle or hard starting caused by high engine temperatures. As the valve opens, it allows outside air to flow directly into the intake manifold, leaning out the rich air-fuel mixture. Valve starts to open when engine compartment temperature reaches 140°F (60°C) and fully opens at 167°F (75°C).

**Idle Retard Dashpot (If Equipped)** - Installed on carburetor body. Allows the throttle valve to gradually close when the accelerator pedal is abruptly released. Prevents the formation of an overrich air/fuel mixture due to the creation of a sudden high intake manifold vacuum.

**Auxiliary Slow (Idle) System (If Equipped)** - Vehicles equipped with the 2M engine and Synchro-mesh transmission have an auxiliary device on the carburetor to comply with

Emission Control Standards. During periods of over-run (coasting) with closed throttle, the system acts to admit a supply of air/fuel mixture directly into the intake manifold (below the throttle valve). The additional fuel supply mixture creates more complete combustion, thus lowering emission.

A valve governing the admittance of the additional mixture is controlled by a vacuum diaphragm. A sensing circuit connected to the intake manifold actuates the diaphragm when manifold vacuum reaches approximately 20-22 inches of vacuum. Fuel is drawn from the secondary system low speed circuit and is mixed with outside air on its way to the intake manifold. In addition to furnishing a more combustible mixture, the added volumetric intake into the combustion chambers results in a higher engine RPM, thus further lowering emission values.

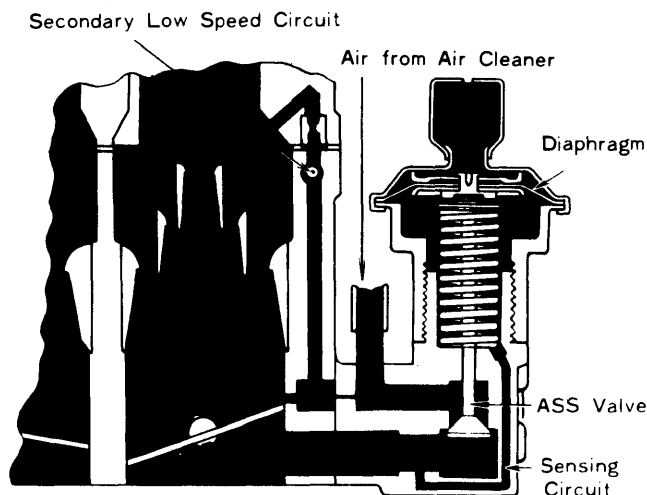
### ADJUSTMENT

*NOTE - It is recommended that Toyota carburetor adjustment kit No. 09240-41030 be obtained to aid in the following adjustments.*

#### Idle Speed & Mixture

Adjustment is made with air cleaner installed, and engine at normal operating temperature. Connect a vacuum gauge and tachometer and proceed as follows:

- 1) Adjust idle speed adjusting screw to obtain specified curb idle RPM (see table below).
- 2) Adjust idle mixture screw to obtain highest and smoothest vacuum reading. Alternate adjustments between idle speed screw and idle mixture screw until highest vacuum at specified idle RPM is obtained.



0E1202

**AUXILIARY SLOW IDLE SYSTEM**

#### Application

#### ① Idle RPM Specification

M Engine .....	550
2M Engine (W/O Air Injection).....	550
2M Engine (W/Air Injection) .....	650

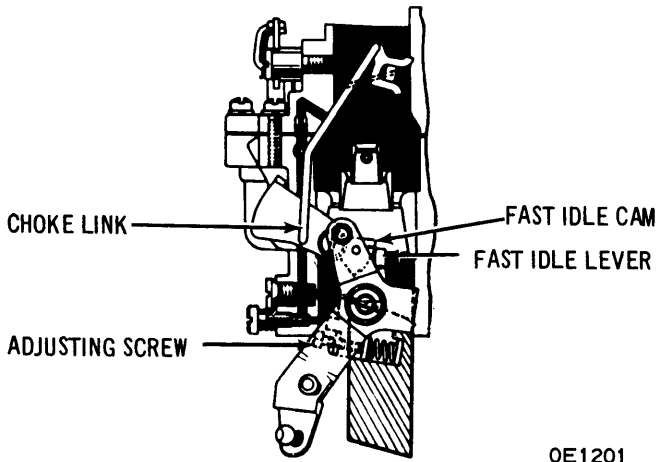
① - Automatic Transmission in DRIVE.

#### Fast Idle

- 1) With choke valve fully closed, the fast idle lever must be at the top of the fast idle cam. Adjust by bending the choke connecting link at the existing bend.
- 2) With choke valve fully closed, adjust the fast idle speed adjusting screw so that the primary throttle valve is approximately 12.5° open from the fully closed position.

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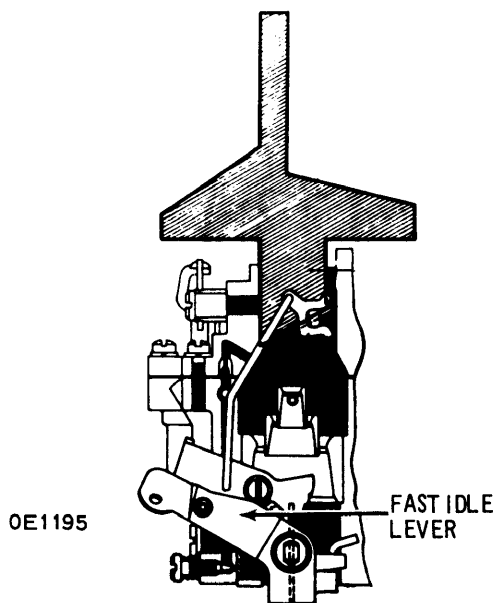


OE1201

**FAST IDLE ADJUSTMENT**

### Unloader

With the primary throttle valve fully opened, the choke valve should be opened approximately 20° from the fully closed position. Adjust by bending the fast idle lever.



**CHOKE UNLOADER ADJUSTMENT**

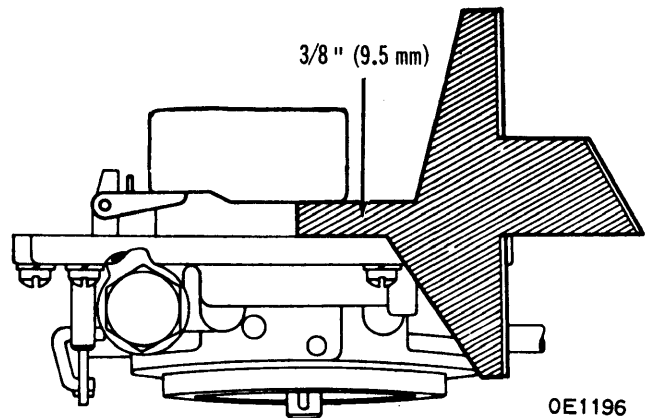
### Automatic Choke

Align the scribed line on the thermostatic coil housing with the center line on the thermostat case. With this adjustment the choke valve should be fully closed at an ambient temperature of 86°F (30°C). Depending on weather conditions and engine condition, it may be necessary to make subsequent adjustments. Rotating the thermostatic

coil housing counterclockwise obtains less choking action, while rotating the housing clockwise will obtain greater choke action.

### Float Level (Off Engine)

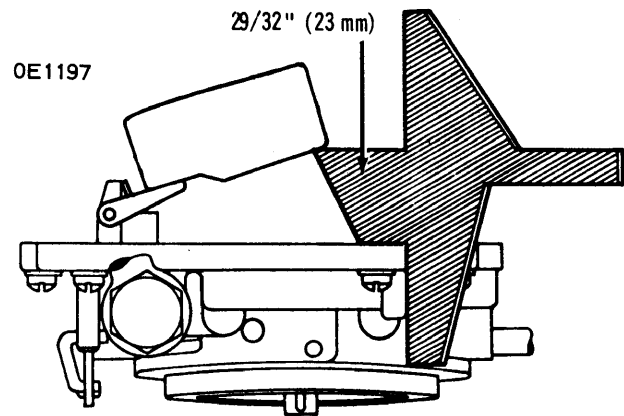
**Raised Position** – Invert the air horn allowing the float tang to rest on the needle valve. The distance between the end of the float and the air horn body should be  $\frac{3}{8}$ " (9.5 mm).



OE1196

**FLOAT LEVEL (RAISED)**

**Lowered Position** – With the air horn in its normal position, the float should drop so that a distance between the end of the float and the air horn body of  $\frac{29}{32}$ " (23 mm) is obtained.



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**FLOAT LEVEL (LOWERED)**

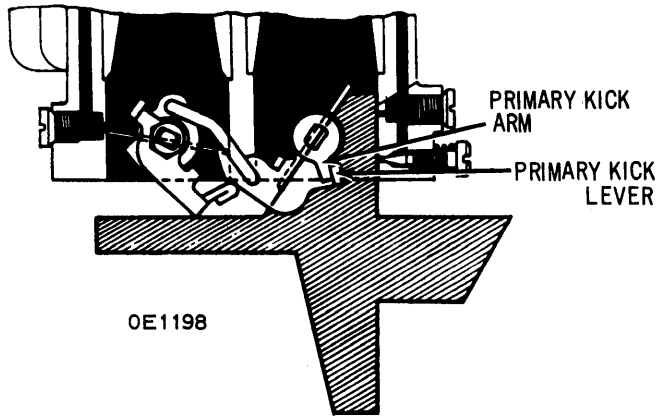
### Fuel Level (On Engine)

If the fuel level is within the level lines indicated on the carburetor sight gauge glass with the engine running, the fuel level is satisfactory.

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### Secondary Throttle Valve Primary Touch

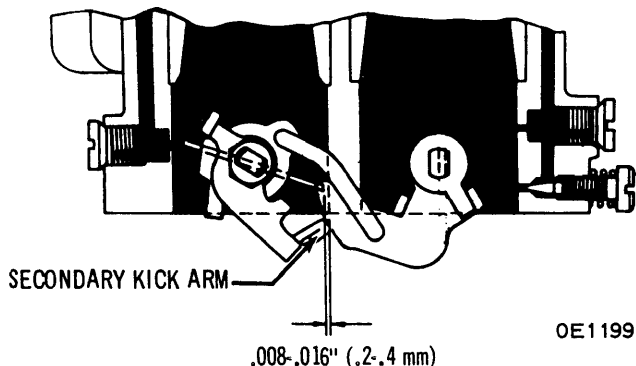
When the primary throttle valve is opened to 55° from fully closed position, the secondary throttle valve must start to open. At this point the primary kick arm and the primary kick lever should contact. To adjust, bend the kick lever (see illustration).



SECONDARY THROTTLE VALVE FIRST ADJUSTMENT

### Secondary Throttle Valve Kick-up

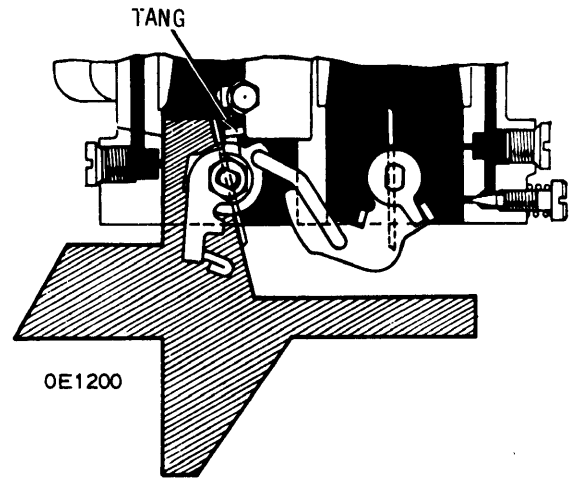
With the primary throttle valve opened to 64° from fully closed position, the secondary throttle valve to body clearance should be .008-.016" (0.2-0.4 mm). To adjust, bend the secondary kick arm (see illustration).



SECONDARY THROTTLE VALVE KICK ADJUSTMENT

### Full Secondary Throttle Opening

With primary throttle valve wide open, secondary throttle valve should be open 57° from closed position. To adjust, bend tang on secondary throttle shaft (see illustration).



SECONDARY THROTTLE  
OPEN THROTTLE ADJUSTMENT

### Acceleration Pump Stroke

Measure pump plunger travel from closed throttle to wide open throttle. Plunger stroke should be 7/32" (5.5 mm). Adjust by bending the pump connecting link.

### Dashpot

**On Bench** - With the fast idle lever positioned on high point of fast idle cam, turn the adjusting screw in or out until the screw just touches the dashpot plunger end. With choke in full open position, open the throttle to compress the dashpot plunger and diaphragm. Release the throttle. The dashpot should completely close the throttle in from five to seven seconds.

**On Car** - With engine idle speed correctly set, stop the engine. Fully open the throttle and check the elapsed time before the throttle returns to a fully closed position. Normal time is from two to three seconds. *NOTE* - The dashpot must engage the adjustable stop mounted in the bracket at less than 1300 RPM.

## OVERHAUL

### Disassembly

#### Air Horn

1) Remove, in the following order: thermostatic valve, pump lever and link, fast idle cam and springs.

2) After removing air horn from body, remove pump plunger, float and needle valve assembly. Remove the power jet piston and allied parts.

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3) After removing the choke cover and coil, remove the choke valve from the shaft. Then remove the fast idle cam lever, choke lever link, vacuum piston connector, choke shaft and vacuum piston.

### Carburetor Body

- 1) Remove the pump discharge passage plug, the discharge weight, steel ball, and venturi from the body.
- 2) Remove the power valve and jet. Remove the plug in the bottom of the bowl and remove the steel ball.
- 3) After removing the fuel passage plugs from the body, remove primary and secondary main jets, level gauge clamp and sight glass.
- 4) Remove the two plugs in the low speed circuits, the idle speed screw and the idle mixture screw and spring.
- 5) Remove the secondary kick arm and link, the retaining ring, secondary kick lever and secondary throttle spring.
- 6) Remove the primary throttle lever, dashpot lever, and fast idle lever. Remove the primary throttle valve lock ring and adjusting shim and remove the throttle shaft.
- 7) Remove the diaphragm housing cap and spring, remove the dashpot. Remove diaphragm snap ring and diaphragm.
- 8) Remove the secondary throttle valve and shaft. Remove the collar, diaphragm relief lever and diaphragm relief spring. Remove the diaphragm housing.

### Cleaning & Inspection

**Cleaning** - Soak all components (except non-metallic parts) in a suitable special carburetor cleaning fluid. After the parts have been in the special solvent the period of time recommended by the manufacturer, rinse all parts with cleaning solvent. Give parts a final rinse with water.

Blow out all jets and body fuel passages and dry all parts with compressed air. Do not run wires or drills through jets or passages.

**Inspection** - After parts have been dried, observe the following:

- 1) Inspect air horn and body for cracks or damage. Check fuel strainer for rust or damage. Inspect needle seat and needle for sign of wear.
- 2) Check power piston and valve for wear. Make sure the power piston moves freely in its bore. Inspect pump plunger for deterioration and wear.
- 3) Check the choke coil for deformation. A mark will be found scribed on the coil housing. The angle between the scribed line and the end-blade of the coil should be 17° at an ambient temperature of 68°F (20°C). If the angle is not as specified, scribe a new line. Use the new line as the proper index mark when reassembling the choke. *NOTE - The embossed mark inside the coil housing is to indicate assembling direction, and is not for indicating the assembled coil position in the housing.*
- 4) Check all springs for rust or distortion. Check steel balls for rust or pitting. Inspect diaphragm for leaks or deterioration, especially around the riveted shaft.

### Assembly

To assemble, reverse disassembly procedure, observing the following:

- 1) After assembling the choke valve on the choke shaft, install the fast idle cam lever and bend the two ears to secure the lever to the shaft.
- 2) Primary and secondary throttle valves are installed underneath the shafts. Adjust throttle valves so that they will touch the carburetor body.