TOYOTA AUTOMATIC HOT AIR INTAKE SYSTEM

Celica, Corolla, Corona, Land Cruiser, Pickup, Starlet, Tercel

DESCRIPTION

This system leads a hot air supply to the carburetor in cold weather to improve driveability and prevents the carburetor from icing in extremely cold weather. All models use a thermostatic valve to control opening and closing of air inlet door. Celica, Corona and Pickup models use a separate thermal vacuum valve to operate the heated air door. All other models use a hot idle compensator (HIC) valve.

OPERATION

When intake air temperature is low, vacuum valve is closed and intake manifold vacuum will act on heated air door diaphragm. This causes diaphragm to pull up and close cool air intake. As intake air temperature rises, thermal valve opens, allowing cool air intake door to drop and unheated air into the air cleaner.

TESTING

1) Visually inspect all hoses for proper condition and connections.

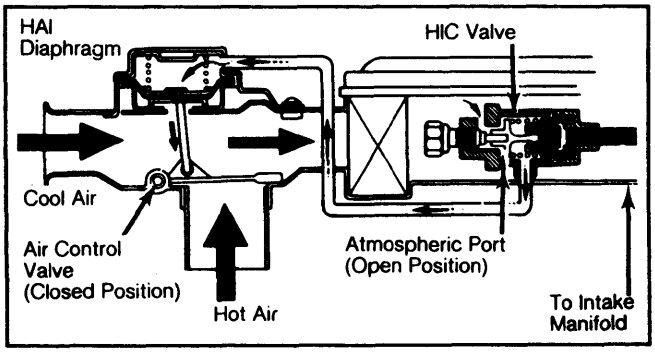
2) With engine idling, check that cold air intake is closed when engine is cold and open above specified temperature.

3) If system does not respond properly at given temperatures, check air door or linkage for binding, and replace thermal valve as necessary.

THERMAL OR HIC VALVE OPERATING TEMPERATURES

Application	Closing Temp. °F (°C)	Opening Temp. °F (°C)
Celica, Corona & Pickup	86 (30)	113 (45)
Corolla	89 (32)	101 (39)
Land Cruiser	81 (27)	91 (33)
Starlet	79 (26)	93 (34)
Tercel	72 (22)	84 (29)

Fig. 1: HIC Valve Type Thermostatic Air Cleaner



Thermal Valve type similar.

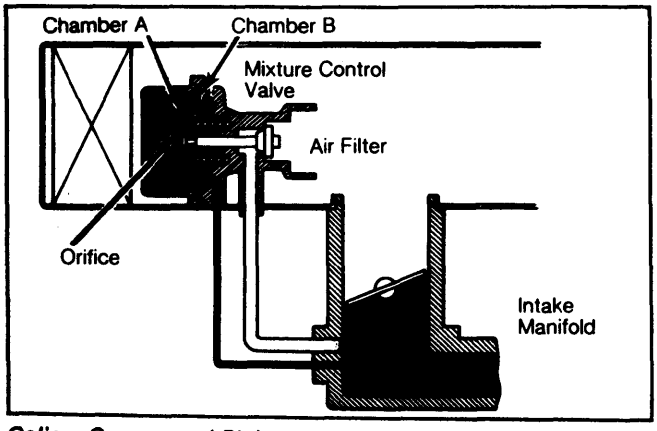
TOYOTA MIXTURE CONTROL SYSTEM

Celica (Fed. Man. Trans.), Corolla (Fed. Man. Trans.), Corona (Fed. Man. Trans.), Pickup (Calif. Man. Trans.), Tercel

DESCRIPTION

This system controls emissions of HC and CO during sudden deceleration. This is accomplished through a mixture control valve which allows additional fresh air to enter the intake manifold when sudden deceleration (closed throttle) occurs.

Fig. 1: Typical Mixture Control System



Celica, Corona and Pickup models shown; others similar.

OPERATION

When sudden deceleration occurs, high manifold vacuum acts on chamber B of mixture control valve. The valve opens and fresh air is drawn in through valve filter to intake manifold where it helps maintain a balanced air/fuel mixture. After a few seconds, vacuum in chamber A will balance vacuum in chamber B. The mixture control valve closes and no additional air is brought into intake manifold. Deceleration fuel control is then maintained by throttle positioner or deceleration fuel cut system.

TESTING

1) Start engine. Disconnect vacuum sensing hose from mixture control valve and block hose.

2) Place hand over air inlet of mixture control valve. Vacuum should not be felt.

3) Now, check that vacuum is felt momentarily when hose is connected. At this time, engine will develop rough idle or die. This is normal.