FORD COURIER DECELERATION CONTROL SYSTEM

Ford Courier
California Vehicles Only (1972)
All Vehicles (1973)

DESCRIPTION

System is designed to maintain a balanced air/fuel mixture during periods of engine deceleration. System makes use of an anti-afterburn valve to prevent fuel detonation in the exhaust system and a coasting richer valve to prevent an overly lean air/fuel mixtures. The coasting richer valve is controlled by three switches; the speedometer switch, the accelerator switch, and the clutch switch.

OPERATION

Anti-Afterburn Valve – When engine decelerates, the anti-afterburn valve senses the higher intake manifold vacuum and a diaphragm in the valve lifts to allow air from the air pump to be injected into the exhaust manifold. This additional air leans the overly rich air/fuel mixture which exists in the exhaust manifold during deceleration. This allows combustion to occur on the exhaust stroke of the piston, not in the exhaust pipe. As soon as the anti-afterburn valve completes its operation, the coasting richer valve begins its operation.

Coasting Richer Valve – Valve is controlled by three switches; the speedometer switch, accelerator switch, and the clutch switch. In order for valve to operate, all three switches must be closed. When coasting richer is activated, the solenoid is retracted, opening a fuel passage in the secondary system of the carburetor. This feeds additional fuel into the intake manifold to aid combustion.

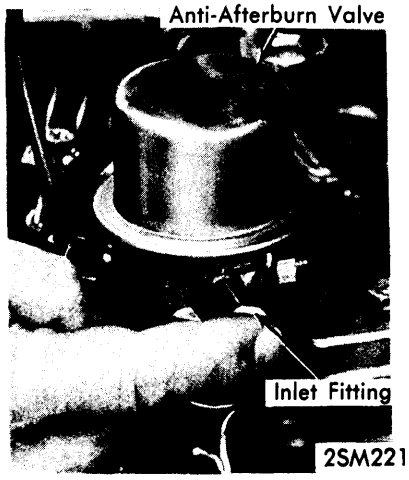
Accelerator Switch – Switch closes the coasting richer circuit whenever the accelerator pedal is in the released position. Depressing accelerator pedal opens the circuit.

Speedometer Switch – Switch closes the coasting richer circuit at speeds above approximately 18-22 MPH (17-23 MPH on 1973 vehicles). At speeds below 18-22 MPH (17-23 MPH on 1973 vehicles), the circuit is opened.

Clutch Switch – When clutch pedal is released, the coasting richer circuit is closed. When pedal is depressed, circuit is opened.

TESTING

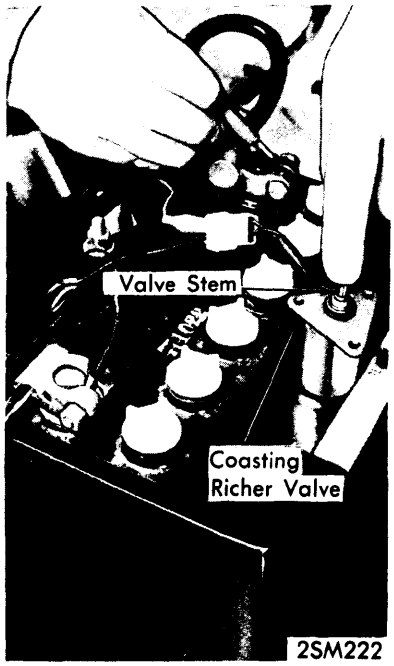
Anti-Afterburn Valve – Remove inlet hose from valve and hold a hand over inlet fitting. Raise engine RPM and quickly release accelerator. Air should be pulled into the valve for about three seconds. If the valve pulls air for longer than three seconds or does not pull air at all, replace valve.



TESTING ANTI-AFTERBURN VALVE

Coasting Richer Valve – 1) Remove valve from carburetor and connect solenoid wires to battery. As power is applied, the solenoid stem should be pulled into the valve body.

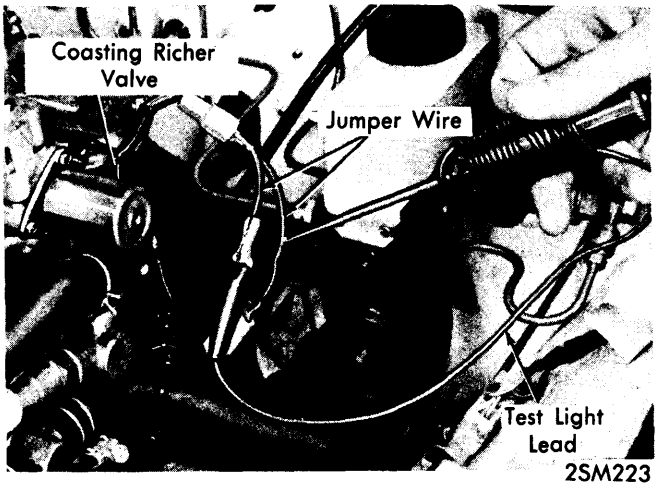
2) Replace valve on carburetor and connect jumper wires between solenoid leads and its electrical connectors. Attach a test light across the two jumper wires.



TESTING COASTING RICHER VALVE

3) Raise rear of vehicle and position on safety stands. Start engine and raise speed to above 25 MPH (30 MPH on 1973 vehicles). Release accelerator pedal. Test light should come ON and remain ON until speed falls below 18-22 MPH (17-23 MPH on 1973 vehicles). If system functions properly, no further tests are required. If malfunction is detected, test control switches for proper operation.

FORD COURIER DECELERATION CONTROL SYSTEM (Cont.)



COASTING RICHER SYSTEM TEST

Clutch Switch – Connect jumper wires between switch leads and the respective electrical connectors. Attach a test light across the two jumper wires. Turn ignition on. Test light should be ON. Depress clutch pedal, the light should go OUT. If light remains ON, replace switch.

Accelerator Switch – Connect jumper wires between switch leads and the respective electrical connectors. Attach a test light across the two jumper wires. Turn ignition on. Test light should be ON. Depress accelerator pedal, the light should go OUT. If light remains ON, replace switch.

Speedometer Switch – *NOTE – To test the speedometer switch, the instrument cluster must first be removed to gain access to the speedometer switch. The switch is integral with the speedometer head.*

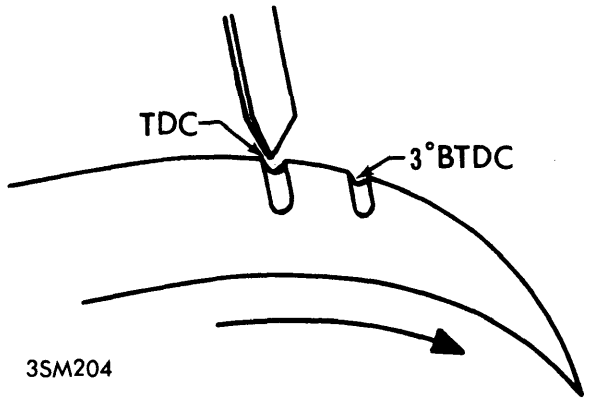
1) To remove cluster, disconnect battery ground, remove cluster attaching screws (4), pull cluster out slightly, reach behind cluster and disconnect speedometer cable. Pull multiple connector out of printed circuit and remove two ammeter leads (note position for reinstallation). On 1972 vehicles also remove screw that attaches ground lead to rear of cluster. Remove the two connectors at speedometer sensor switch and remove cluster from vehicles.

2) On 1972 vehicles attach a test light between speedometer switch relay lead and speedometer switch lead. Apply power to speedometer relay (make sure circuit is grounded). If relay clicks when power is applied, relay is operating. This indicates the speedometer switch is not operating. To replace switch, it is necessary to replace the entire speedometer head assembly.

3) On 1973 vehicles raise rear of vehicle and position on safety stands. Attach test light to speedometer switch and start engine. Depress accelerator pedal to accelerate engine and check that speed switch on ON at speeds of 20 ± 3 MPH and above. Decelerate and check that speed switch if OFF when speed drops to 20 ± 3 MPH and below.

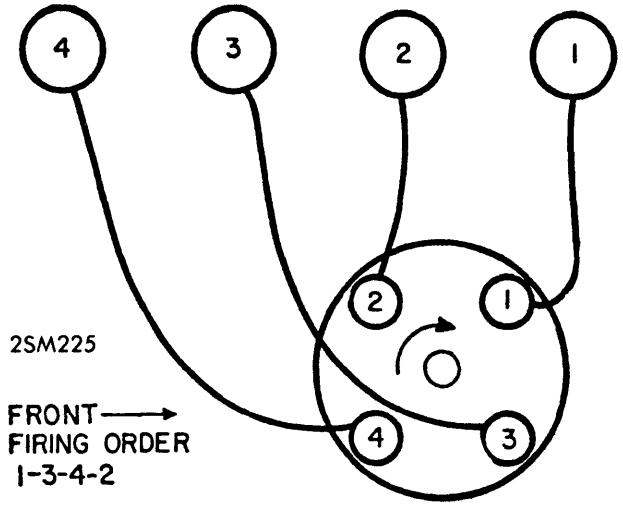
ADJUSTMENT

In addition to testing and inspection of exhaust emission control system components, it is important that the ignition and carburetor systems of the vehicle are correctly adjusted in order to keep emissions at a minimum.



TIMING MARKS

Ignition Timing – Connect timing light and tachometer to engine and set idle to 700-750 RPM so that centrifugal advance will not come into operation. Disconnect and plug vacuum line.



FIRING ORDER

1) Adjust ignition timing to specifications by rotating distributor. Check that centrifugal advance is operating by accelerating engine to about 2000 RPM and checking that advance occurs.

2) Unplug vacuum line and reconnect it to distributor. Accelerate engine to about 2000 RPM. Advance during this operation should be more than when tested for centrifugal advance alone.

Carburetor Idle Adjustment – With engine at normal operating temperature, transmission in neutral, and tachometer attached, set curb idle to specifications using curb idle adjusting screw. Connect exhaust emission analyzer according to manufacturers's instructions and turn idle mixture adjusting screw to obtain specified idle CO.