FORD COURIER DECELERATION CONTROL SYSTEM (NON-CALIFORNIA CARS)

Ford Courier
Non California Vehicles (1972)

DESCRIPTION

The deceleration control system for all models except California is a 3-part system. One part controls throttle opening during deceleration, one part acts to retard spark during deceleration, and the third part retards spark during engine Idle. A vacuum control valve is used to control both the spark retard and the throttle opening during deceleration. It senses the higher intake manifold vacuum and activates both systems. The throttle opening system makes use of a servo diaphragm assembly connected to the primary throttle shaft. The servo diaphragm is made up of a diaphragm and a bellows. The bellows acts as an altitude compensator by contracting or expanding in accordance with changes in atmospheric pressure.

OPERATION

DURING DECELERATION

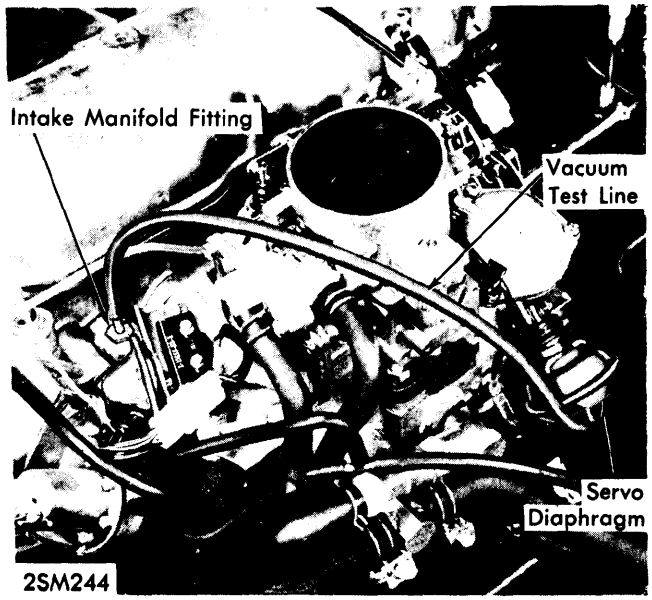
The vacuum control valve senses the high intake manifold vacuum and opens to allow vacuum to be applied to both the servo diaphragm and the vacuum switch. The diaphragm moves to open the primary throttle plate slightly and feed additional fuel to the lean air/fuel mixture. The vacuum switch closes and activates the retard points in the distributor to retard the spark.

DURING ACCELERATION

During acceleration, intake manifold vacuum is low, and the servo diaphragm no longer receives vacuum from the vacuum control valve. Likewise, the vacuum switch opens and spark operation is controlled by the standard distributor points.

DURING ENGINE IDLE

The accelerator switch controls the retard points of the distributor. The switch remains closed, retarding the ignition, whenever the accelerator pedal is released.



TESTING SERVO DIAPHRAGM

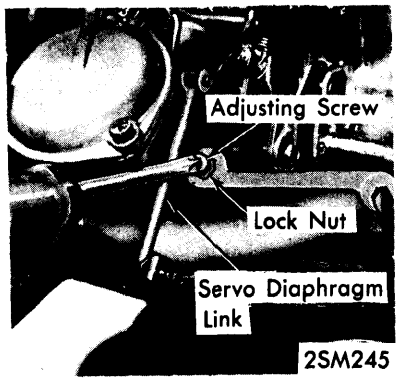
TESTING

SERVO DIAPHRAGM

1) With engine at correct Idle RPM, stop engine and disconnect vacuum line between vacuum control valve and servo diaphragm at the diaphragm.

2) Disconnect vacuum line between intake manifold and vacuum control valve at the manifold, and then disconnect vacuum line between carburetor and distributor advance diaphragm.

3) Connect a vacuum line directly from intake manifold to servo diaphragm. Connect a tachometer and start the engine. Correct engine speed should now be 1400 RPM.

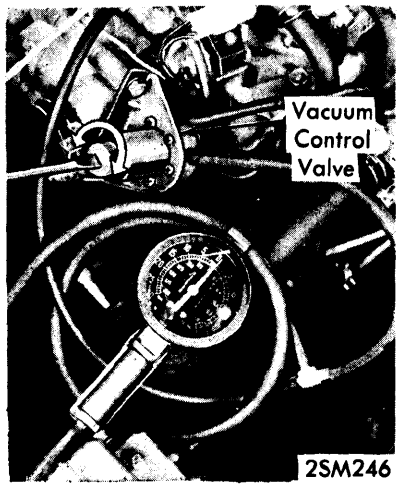


ADJUSTING SERVO DIAPHRAGM

4) If speed is not correct, adjust speed by using servo diaphragm adjusting screw. If 1400 RPM cannot be achieved, by using adjusting screw, replace servo diaphragm.

VACUUM CONTROL VALVE

1) Disconnect vacuum line between vacuum control valve and intake manifold at the manifold. Use a T-fitting to attach vacuum gauge in the vacuum line.



ADJUSTING VACUUM CONTROL VALVE

FORD COURIER DECELERATION CONTROL SYSTEM (NON-CALIFORNIA CARS) (Cont.)

2) Start engine and raise speed to 3000 RPM, then suddenly release the accelerator. Vacuum should rise above 21.3", hesitate at this point for 1-2 seconds, and then drop to normal idle vacuum of 16-18" Hg. These vacuum readings will vary depending upon the altitude as follows:

Altitude (Feet)	Vacuum (Inches Hg.)
Sea Level	21.30
1,000	20.55
2,000	19.80
3,000	19.05
4,000	18.30
5,000	17.55
6,000	16.80
7,000	16.05
8,000	15.30
9,000	14.55
10,000	13.80

3) If vacuum reading is not correct, adjust vacuum control valve by turning adjusting screw in top of valve. If correct reading cannot be achieved, replace the valve.

VACUUM SWITCH

1) Disconnect vacuum line between vacuum switch and vacuum control valve, and using T-fitting, connect vacuum gauge in line. Connect one end of hose to a vacuum source and run vacuum above 8" Hg.

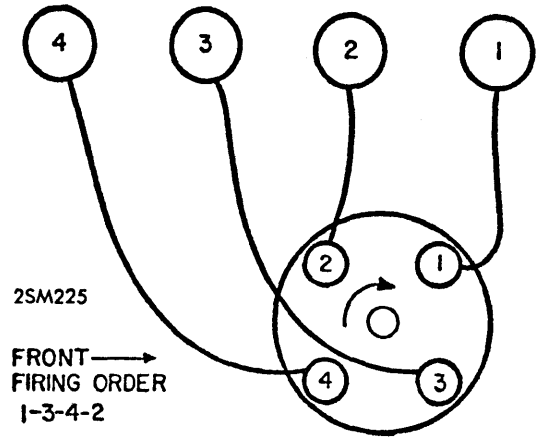
2) Allow vacuum to drop. The switch should click at about 6" Hg. If valve does not click or clicks at a point above 6½ " Hg, replace the switch.

ACCELERATOR SWITCH

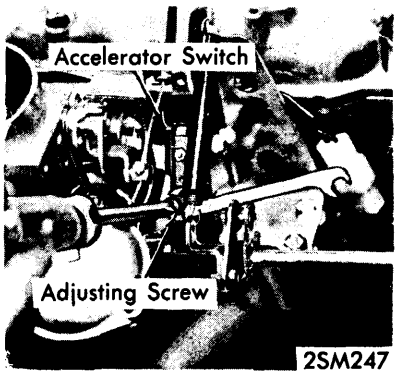
1) Connect a test light at accelerator quick disconnect and start engine. Allow it to idle. Test light should be ON. Depress the accelerator and light should go OUT.

2) If switch does not operate correctly, check to see that throttle plates are fully closed. Loosen accelerator switch adjusting screw lock nut and back adjusting screw out until it no longer contacts switch.

3) Turn screw in until the switch clicks, then turn screw ¾ turn more and tighten lock nut. Recheck operation of switch and replace if operation is still not correct.



FIRING ORDER



ADJUSTING ACCELERATOR SWITCH

IGNITION TIMING

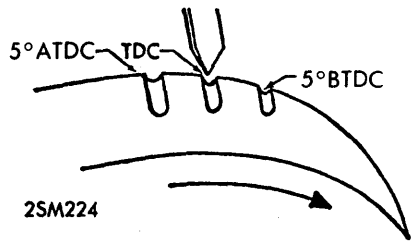
Connect timing light and tachometer to engine and set idle to about 600 RPM so that centrifugal advance will not come into operation. Disconnect vacuum line and plug the disconnected end.

1) Adjust ignition timing to 5° BTDC by rotating distributor in desired direction. Check that centrifugal advance is operating by accelerating engine to about 2000 RPM, make sure that advance is taking place.

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.

3) Reset engine to normal idle speed (see following) and check that timing is retarded to 5° ATDC.

NOTE — If ignition retard is not operating correctly, the distributor should be removed from the engine and calibrated in a distributor test stand. It should be calibrated to yield a 5° Retard at 500 RPM.



TIMING MARKS

CARBURETOR IDLE ADJUSTMENT

With engine set at normal operating temperature, transmission in neutral, and tachometer attached, set curb idle to 700-750 RPM using curb idle adjusting screw. Connect exhaust emission analyzer according to manufacturer's instructions and turn idle mixture adjusting screw to obtain 2.5-4.0% CO.