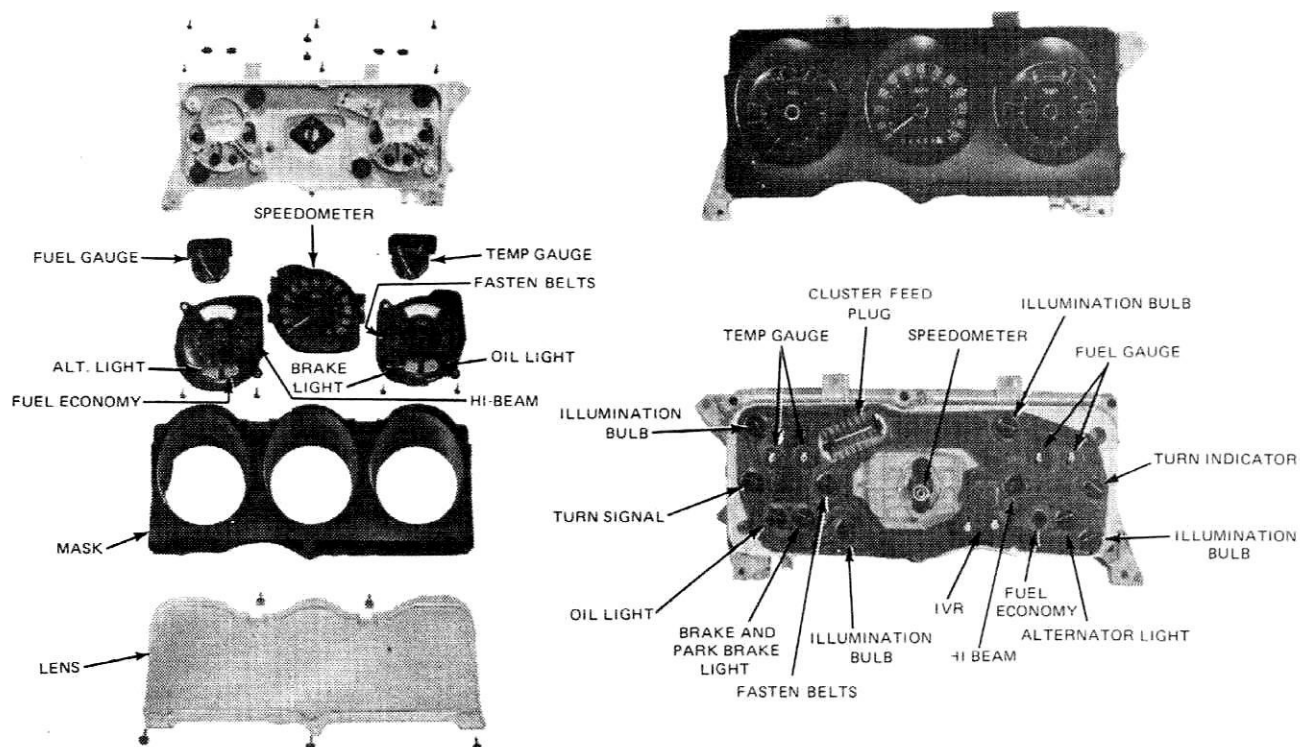




K2619-2C

FIG. 6 Instrument Cluster—Thunderbird, LTD II, and Cougar—Standard Cluster

receptacle in the cluster backplate and the tachometer connector in its receptacle in the tachometer.

3. Position the cluster to the panel and install the four cluster retaining screws.
4. From under the instrument panel, connect the speedometer cable to the speedometer by using a twisting motion until the catch is engaged.
5. Position the cluster trim cover to the cluster assembly and install the three upper and the four lower retaining screws. Install the light switch knob and bezel as outlined in Part 32-02.
6. Connect the battery ground cable.

Thunderbird, LTD II and Cougar—Standard Cluster

Removal

1. Disconnect the battery ground cable.
2. Remove three upper and four lower retaining screws from the instrument cluster trim cover and remove the trim cover.
3. Remove one screw retaining the clock or cover to the cluster and two screws retaining the clock or cover to the instrument panel.
4. Remove clock or cover. Clock removal will necessitate wiring disconnections.
5. Remove two upper and two lower screws retaining the instrument cluster to the instrument panel.
6. Pull the cluster away from the instrument panel; disconnect the speedometer cable connector.
7. Disconnect the cluster feed plug from its receptacle in the printed circuit (Fig. 6).

8. Remove cluster from vehicle.

Installation

1. Apply a 3/16 inch diameter ball of silicone damping grease in the drive hole of the speedometer head.
2. Connect the instrument cluster multiple connector to the printed circuit.
3. Align the speedometer cable connector with the speedometer adaptor and push the speedometer cable on the speedometer with a twisting motion until the catch is engaged.
4. Position the cluster to the instrument panel.
5. Install the four cluster retaining screws.
6. Install clock or cover with three screws.
7. Position the cluster front trim cover and install the seven retaining screws.
8. Connect the battery ground cable.

Thunderbird, LTD II and Cougar XR-7—Performance Cluster

Removal

1. Disconnect the battery ground cable.
2. Remove three upper and four lower retaining screws from the instrument cluster trim cover and remove the trim cover.
3. Remove two upper and two lower screws retaining the instrument cluster to the instrument panel.
4. Pull the cluster away from the instrument panel; disconnect the speedometer cable connector.

5. Disconnect the cluster feed plug from its receptacle in the printed circuit (Fig. 7).
6. Disconnect the overlay harness connector.
7. Remove the cluster.

Installation

1. Apply a 3/16 inch diameter ball of silicone damping grease in the drive hole of the speedometer head.
2. Position the cluster near panel opening.
3. Connect the instrument cluster multiple connector to the printed circuit. Connect the overlay harness connector to the panel wiring.
4. Align the speedometer cable connector with the speedometer adaptor and push the speedometer cable on the speedometer with a twisting motion until the catch is engaged.
5. Position the cluster to the instrument panel.
6. Install the four cluster retaining screws.
7. Position the cluster front trim cover and install the seven retaining screws.
8. Connect the battery ground cable.

Fairmont and Zephyr (Fig. 8).

Removal

1. Disconnect the battery ground cable.
2. Remove the steering column shroud.
3. Remove the cluster trim cover.
4. Remove one screw retaining the PRND21 control cable clamp to the steering column. Detach the cable loop from the pin on the steering column. Remove plastic clamp from around steering column.
5. Remove two upper and two lower screws retaining the instrument cluster to the instrument panel.
6. Pull the cluster away from the instrument panel. Disconnect the speedometer cable connector.
7. Disconnect the cluster feed plug from its receptacle in the printed circuit and the clock wiring connector, if applicable.
8. Remove the cluster.

Installation

1. Apply a 3/16-inch diameter ball of silicone damping grease in the drive hole of the speedometer head.
2. Connect the instrument feed plug to the printed circuit.
3. Align the speedometer cable connector with the speedometer adaptor and push the speedometer cable on the speedometer with a twisting motion until the catch is engaged.
4. Position the cluster to the instrument panel and engage the two locating pins.
5. Install the four cluster retaining screws.
6. Install the plastic PRND21 cable clamp around the steering column and engage the clamp locator pin in the slot in the column tube. Drive the clamp screw into the retaining clip, but do not seat. Place the loop on the PRND21 cable over the pin on the shift cane lever. Place the transmission selector in DRIVE position. Rotate the cable clamp about the column tube until the indicator pointer is centrally located

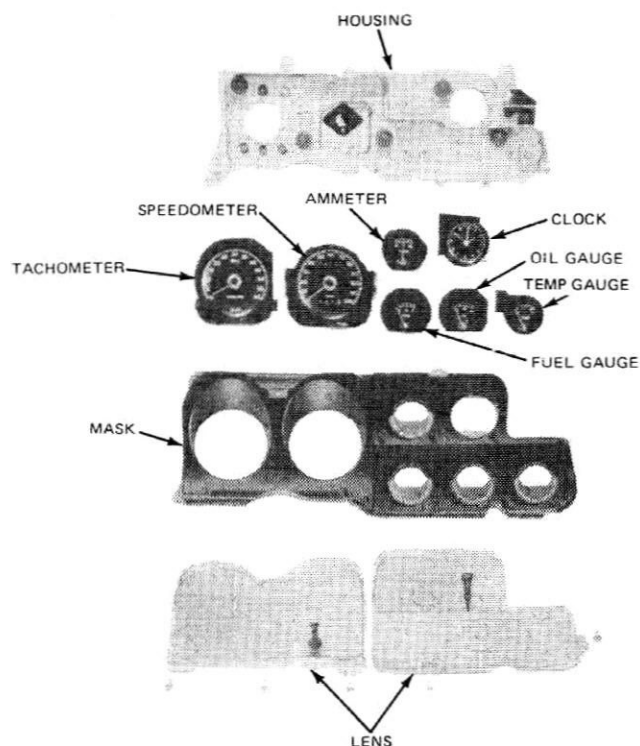


FIG. 7 Instrument Cluster—Thunderbird, LTD II and Cougar XR-7 Performance

on the D. Tighten the clamp screw to 20-30 in-lbs. Move lever through all shift positions and check pointer location.

7. Replace the cluster trim cover.
8. Replace the steering column shroud.
9. Connect the battery ground cable.

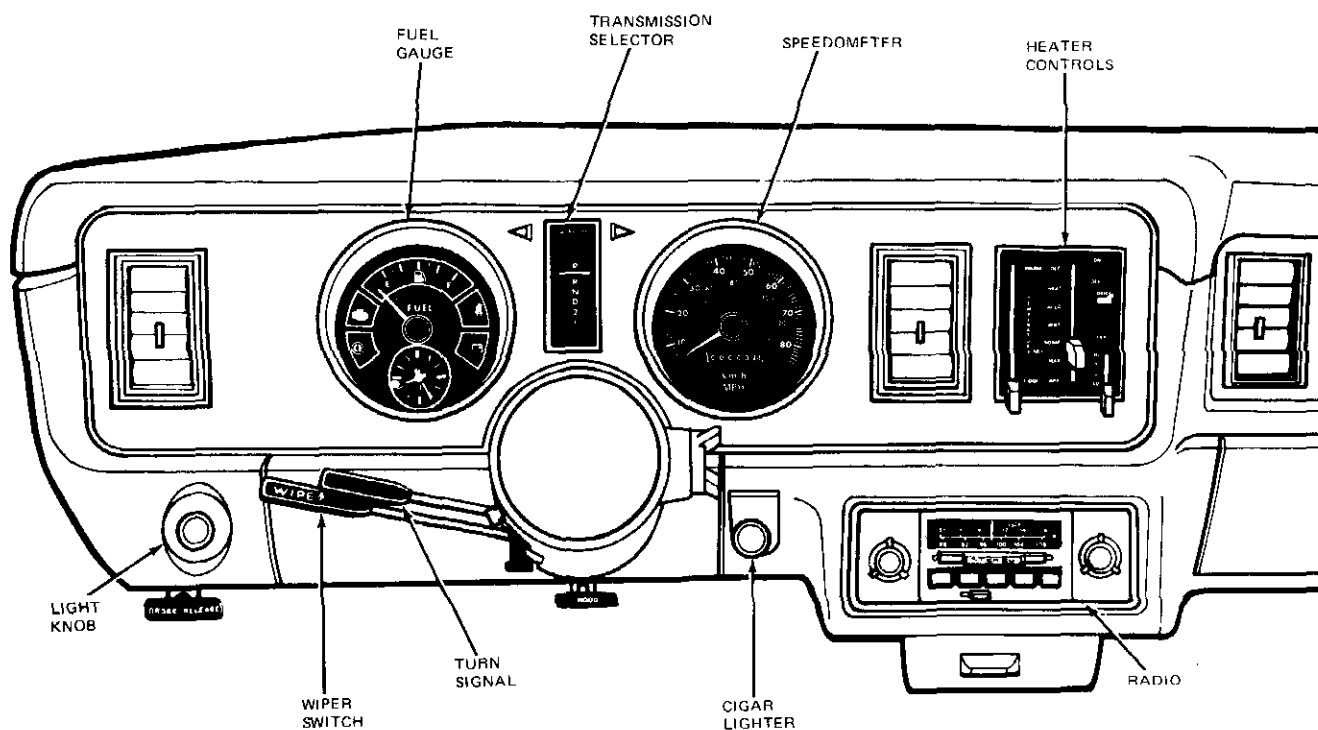
Pinto and Bobcat—Main (Youth) Instrument Cluster

Removal

1. Remove two screws attaching lower half to upper half of steering column shroud. Remove lower half of shroud.
2. Loosen forward steering column attaching nuts 3/8 inch to 1/2-inch.
3. Loosen rearward steering column attaching nuts 3/8 inch to 1/2 inch.
4. Disconnect the printed circuit and tachometer connectors.
5. Disconnect the speedometer cable.
6. Remove four screws.
7. Pull cluster out along angle of steering column.

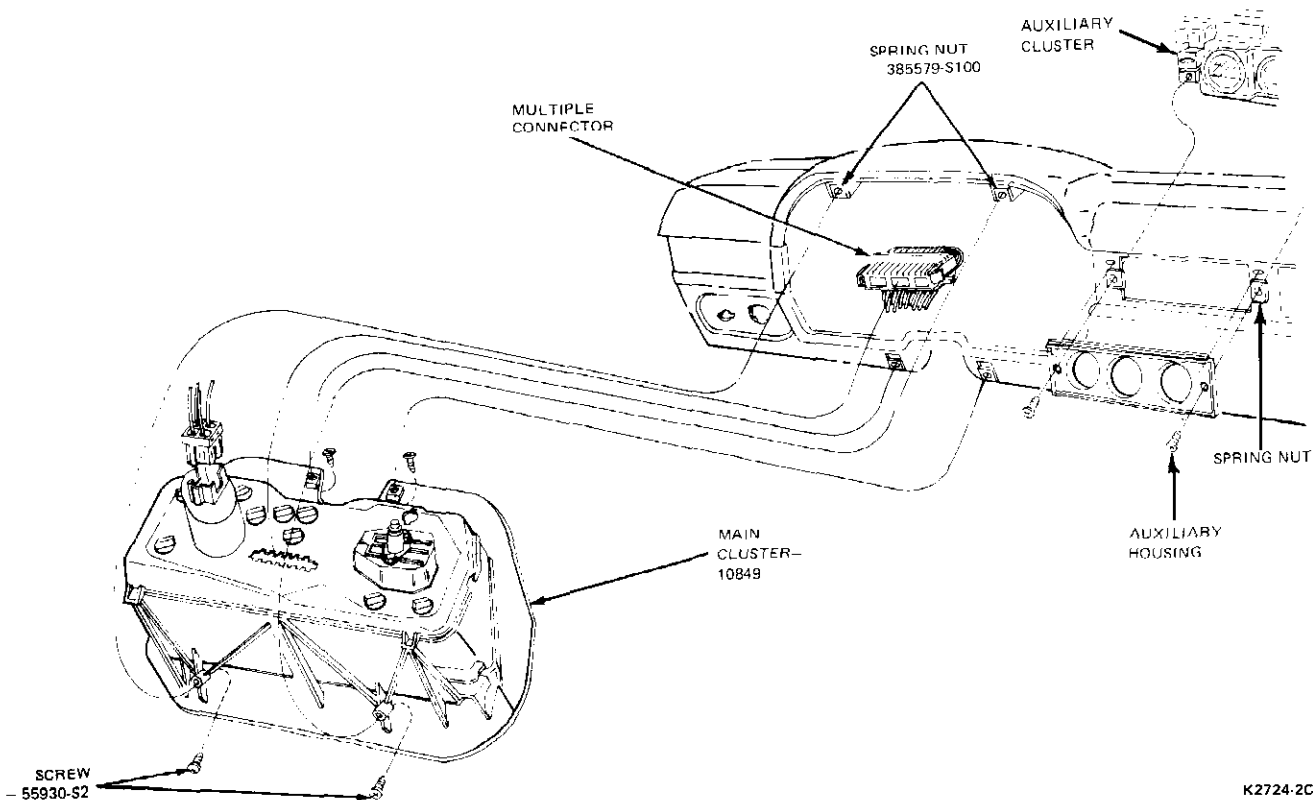
Installation

1. Reverse Steps 4, 5, 6 and 7 above.
2. Torque rearward steering column attaching nuts 20-37 ft-lbs.
3. Torque forward steering column attaching nuts 20-37 ft-lbs.
4. Attach the lower half to upper half of steering column shroud torquing the two screws to 5-10 ft-lbs.



K1159-2F

FIG. 8 Instrument Cluster—Fairmont and Zephyr



K2724-2C

FIG. 9 Instrument Cluster—Pinto and Bobcat (Main and Auxiliary)

Pinto and Bobcat—Auxiliary Instrument Cluster.

Removal

1. Remove the main cluster as described previously.
2. Remove two screws attaching the auxiliary cluster to the instrument panel.
3. Remove the auxiliary housing from the front.

4. Disconnect printed circuit plug.
5. Remove the auxiliary from the rear, through the access provided by the removal of the main instrument cluster.

Installation

Reverse above procedure.

Continental Mark V

Removal

1. Disconnect the battery ground cable.
2. Remove three screws attaching the upper access cover to the instrument panel pad.
3. Remove one screw retaining the lower cluster applique cover below the steering column.
4. Remove the steering column shroud.
5. Remove the heated rear window control knob.
6. Reach under the instrument panel and depress the button on the side of the headlamp switch while withdrawing the headlamp switch control knob and shaft assembly.
7. Remove the headlamp switch bezel.
8. Remove the windshield wiper/washer control knob.
9. Remove the threaded windshield wiper/washer control bezel.
10. Remove the cigar lighter from its receptacle.
11. Remove the four screws retaining the cluster front cover.
12. Insert a right angle standard tip screwdriver along the edges of the finish panel withdrawing the studs in sequence gradually around the periphery of the panel.
13. Remove the cluster front cover.
14. Remove one screw attaching the PRND21 control cable bracket to the steering column and disconnect the cable with the transmission selector in the "P" (Park) position.
15. Reach under the instrument panel and disconnect the speedometer cable connector.
16. Remove five screws retaining the cluster to the instrument panel.
17. Pull the cluster away from the instrument panel and disconnect the cluster feed plug from its receptacle in the printed circuit.
18. Tilt the cluster out, bottom first, and move the cluster toward the center of the vehicle.

Installation

1. Apply a 3/16 inch ball of silicone damping grease lubricant in the drive hole of the speedometer head.
2. With the cluster lens pointing upward, move the cluster from the center of the vehicle toward the cluster opening in the instrument panel.
3. Connect the instrument cluster multiple connector to the printed circuit.
4. Position the cluster to the instrument panel.
5. Install the cluster retaining screws.
6. Position selector lever in "P". Place the loop on the PRND21 cable assembly over the retainer pin on the socket casting and position into the "1" position. Secure the cable bracket to the column outer tube.

7. Place the transmission selector lever in "D" position, loosen and adjust the slotted bracket so the indicator is centrally located on the "D". Tighten the bracket screws to 20-30 in-lbs torque. Move lever through all shift positions and check pointer location.
8. Reach under the instrument panel and align the speedometer cable connector with the speedometer adaptor and push the speedometer cable on the speedometer with a twisting motion until the catch is engaged.
9. Align the cluster front cover studs with the retainers and push the cover on gradually around the periphery of the cover.
10. Install the four front cover retaining screws.
11. Install the cigar lighter.
12. Install the windshield wiper/washer control bezel and knob.
13. Install the headlamp switch bezel and control knob and shaft assembly.
14. Install the heated rear window control knob.
15. Install the steering column shroud.
16. Position the lower cluster applique cover and install one retaining screw.
17. Install the upper access cover with three screws.
18. Connect the battery ground cable.

CLUSTER ILLUMINATION AND/OR ILLUMINATOR BULBS

Granada, Monarch and Versailles

All bulbs can be replaced by reaching up under the instrument panel.

Ford, Mercury and Lincoln Continental

Disconnect the battery ground cable to gain access to the cluster illumination bulbs, remove the lower access panel (2 screws). To gain access to the indicator bulbs, remove the cluster trim panel (2 screws).

All Vehicles Except Ford, Mercury, Lincoln Continental, Granada, Monarch and Versailles

Most bulbs can be replaced by reaching up under the instrument panel. If the bulb cannot be reached from under the panel, remove the instrument cluster as outlined in this Part to gain access to the bulb.

PRINTED CIRCUIT

Ford, Mercury and Lincoln Continental

Removal

1. Disconnect the battery ground cable.
2. Remove the instrument cluster assembly as outlined in this Part.
3. Unsnap the printed circuit from the IVR, remove the IVR attaching screw and remove the IVR and radio choke assembly.
4. Remove the illumination and the indicator bulb and socket and resistor assemblies (Fig. 3).
5. Remove the two fuel gauge retaining nuts.
6. Remove the printed circuit from the cluster.

Installation

1. Place the printed circuit on the cluster housing and install the indicator and the illumination bulb and socket and resistor assemblies.
2. Install the two retaining nuts to the fuel gauge studs.
3. Position the IVR and radio choke assembly and install the attaching screw. Snap the printed circuit to the IVR.
4. Install the cluster assembly as outlined in this Part.
5. Connect the battery ground cable.

**Thunderbird, LTD II and Cougar XR-7—
Performance Cluster**
Removal

1. Disconnect the battery ground cable.
2. Remove the instrument cluster as outlined in this Part.
3. Disconnect the wire leads from the clock, ammeter and tachometer.
4. Remove the terminal nuts from the fuel, temperature and oil pressure gauges.
5. Remove the light bulb sockets.
6. Remove the instrument voltage regulator and radio choke assembly, then remove the printed circuit.

Installation

1. Position the printed circuit to the cluster back and install the instrument voltage regulator.
2. Install the light bulb sockets and the fuel, temperature and oil pressure gauge terminal nuts.
3. Connect the wire leads to the clock, ammeter and tachometer.
4. Clip the wire loom to the cluster backplate.
5. Install the cluster as outlined in this Part.
6. Connect the battery ground cable.

Granada, Monarch and Versailles
Removal

1. Disconnect the battery ground cable.
2. Remove the instrument cluster assembly as outlined in this Part.
3. Unsnap the printed circuit from the IVR, remove the IVR attaching screw and remove the IVR.
4. Remove the illumination and the seven indicator bulb and socket assemblies.
5. Remove the two (2) fuel gauge retaining nuts.
6. Remove the printed circuit from the cluster.

Installation

1. Place the printed circuit on the cluster housing and install the seven indicator and the illumination bulb and socket assemblies.
2. Install the two (2) retaining nuts to the fuel gauge studs.
3. Position the IVR assembly and install the attaching screw. Snap the printed circuit to the IVR.
4. Install the cluster assembly as outlined in this Part.
5. Connect the battery ground cable.

Fairmont, Zephyr, Pinto and Bobcat (Main Cluster)
Removal

1. Disconnect the battery ground cable.
2. Remove the instrument cluster as outlined in this Part.
3. Unsnap the printed circuit from the IVR, remove the IVR attaching screw and remove the IVR.
4. Remove the illumination and indicator bulb and socket assemblies.
5. Remove the two (2) fuel gauge attaching nuts (not required on Youth Pinto).
6. Remove the printed circuit from the instrument cluster.

Installation

1. Position the printed circuit over the locating pins on the backplate.
2. Install the bulb and socket assemblies.
3. Install the fuel gauge attaching nuts (not required on Youth Pinto).
4. Position the IVR, install the attaching screw and snap the printed circuit to the IVR.
5. Install the cluster assembly as outlined in this Part.
6. Connect the battery ground cable.

Pinto and Bobcat (Auxiliary Cluster)
Removal

1. Disconnect the battery ground cable.
2. Remove the instrument cluster as outlined in this Part.
3. Unsnap the printed circuit from the IVR, remove the IVR attaching screws and remove the IVR.
4. Remove the illumination bulb and socket assembly.
5. Remove the alternator gauge terminal insulator.
6. Remove the six gauge attaching nuts.
7. Remove the printed circuit from the instrument cluster.

Installation

1. Position the printed circuit over the locating pins on the backplate.
2. Reverse Steps 1 through 6 above.

Mustang II
Removal

1. Disconnect the battery ground cable.
2. Remove instrument cluster as outlined in this Part.
NOTE: If vehicle has V-8 engine, remove the tachometer module as outlined in Part 33-03 and retain for assembly.
3. Disengage snaps from instrument voltage regulator.
4. Remove IVR and choke assembly (if so equipped) and retain for assembly.
5. Remove the terminal nuts from the gauge assembly.
6. Remove the light sockets and retain for assembly.
7. Remove printed circuit (Fig. 5).

Installation

1. Position the printed circuit over the locating pins of the backplate.
2. Install all of the lamp sockets.
3. Install terminal nuts, being careful to position gauges properly in backplate.
4. Install IVR and choke assembly (if so equipped) and attach printed circuit.

NOTE: If vehicle has V-8 engine, install tachometer module to tachometer as outlined in Part 33-03.

5. Install instrument cluster as outlined in this Part.
6. Connect the battery ground cable.

Thunderbird, LTD II and Cougar—Standard Cluster**Removal**

1. Disconnect the battery ground cable.
2. Remove the instrument cluster.
3. Remove the terminal nuts from the fuel and temperature gauges.
4. Remove the lamp sockets and note their location for assembly.
5. Remove the instrument voltage regulator and radio choke and remove the printed circuit.

Installation

1. Position the printed circuit over the dowel pins and install the instrument voltage regulator and radio choke.
2. Install the lamp sockets.
3. Install the gauge terminal nuts.
4. Install the instrument cluster.
5. Connect the battery ground cable.

Continental Mark V

Remove the instrument cluster. Disconnect battery ground cable. Remove the four nuts attaching the printed circuit to the clock and the fuel gauge terminals. Remove the instrument voltage regulator and

radio choke. Remove the light bulb sockets and remove the printed circuit.

To install, position the printed circuit to the cluster back and install the bulb sockets. Install the instrument voltage regulator. Install the four nuts attaching the printed circuit to the clock and fuel gauge terminals. Install the instrument cluster. Connect battery ground cable.

INSTRUMENT VOLTAGE REGULATOR

The instrument voltage regulator is calibrated at the manufacturing plant. Do not attempt to re-calibrate the regulator. If the regulator does not function properly, it should be replaced.

Ford, Mercury and Lincoln Continental**Removal**

1. Disconnect the battery ground cable.
2. Remove the lower access trim panel (2 screws).
3. From behind the cluster, remove the printed circuit from the IVR and radio choke.
4. Remove the IVR attaching screw and remove the IVR and choke assembly.
5. Remove the choke from the IVR.

Installation

1. Position the choke to the IVR and snap it into place.
2. Position the IVR to the printed circuit and install the attaching screw.
3. Snap the printed circuit to the IVR and choke assembly.
4. Position the lower access trim panel and install the two attaching screws.
5. Connect the battery ground cable.

All Vehicles Except Ford, Mercury, and Lincoln Continental

Remove the instrument cluster assembly. Remove the regulator to cluster retaining screw and snap-off the printed circuit connector buttons.

Fuel Economy Indicating Systems

PART
33-60

Applies to All Models

SUBJECT	PAGE	SUBJECT	PAGE
DESCRIPTION AND OPERATION		REMOVAL AND INSTALLATION	
Fuel Economy Gauge	60-1	Fuel Economy Gauge	60-4
Fuel Economy Warning Lamp	60-1		
DIAGNOSIS	60-3	SPECIFICATIONS	
TESTING		Fuel Economy Gauge	60-5
Fuel Economy Gauge	60-2	Fuel Economy Warning Lamp	60-6
Fuel Economy Warning Lamp	60-2		

CK3386-2B

DESCRIPTION AND OPERATION

FUEL ECONOMY GAUGE

Cougar and LTD II (Base Cluster W/O Clock)

The fuel economy gauge indicates engine manifold vacuum, as a function of throttle position and engine load. The face of the gauge dial is divided into three segments; Poor (low vacuum), Good (normal vacuum for cruise), and Decelerate (high vacuum). Although the gauge is not intended as a close tolerance vacuum indicator, it may be assumed that a gauge reading continuously below the Good band (normal cruise or idle) may mean poor engine performance due to improper ignition timing or manifold vacuum leakage. Refer to Part 29-02 of this Manual for further diagnosis. The gauge as it appears in each condition is shown in Fig. 1.

The fuel economy gauge is located in the right instrument cluster opening nearest the center of the vehicle. The instrument cluster trim cover must be removed for replacement.

A manifold vacuum pulsation restrictor is inserted in the 1/4-inch vacuum tube at the end closest to the manifold vacuum connection. This enables the inside area of the vacuum hose to serve as a small vacuum reservoir, thereby reducing the manifold vacuum pulsations and to also damp the gauge reading restriction against sudden accelerator operation.

NOTE: Examine the vacuum tube end closest to the manifold vacuum connection for the installation of the pulsation restrictor whenever the gauge needle reacts excessively to vacuum changes or when needle "vibration" is noted.

FUEL ECONOMY WARNING LAMP

The fuel economy warning lamp system consists of a normally closed vacuum switch, an instrument panel warning lamp, vacuum hose, wire harness, and attaching hardware. Its operation is similar in function to that of the oil pressure (switch type) indicating

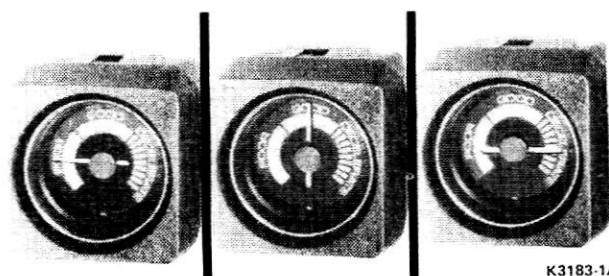


FIG. 1 Fuel Economy Gauge Readings (Typical)

system, except the switch opens when vacuum is applied, rather than pressure.

An amber colored warning lamp in the instrument panel warns the vehicle operator when the engine manifold vacuum has dropped below the specified limit. This represents a higher level of fuel consumption so that the operator may correct his driving habits or condition for improved fuel economy.

Electrical Circuit

The warning lamp bulb is powered by the ignition switch accessory circuit through the printed circuit board of the instrument panel. The wire harness and normally closed switch assembly provide the ground circuit for the bulb. With the ignition switch ON and the engine not running, the amber colored light exhibiting the words "LOW FUEL ECONOMY" will be illuminated. As the engine is started and the manifold vacuum reaches

VACUUM SWITCH MOUNTING LOCATIONS

Vehicle	Switch Mounting Location	Vehicle	Switch Mounting Location
Pontiac Bonneville	Left Fender Apron	LTD II and Cougar	Upper Cowl Right Side Above A/C Case
Mustang II	Upper Cowl Left Side	Ford/Mercury	Upper Cowl Above Brake Booster
Fairmont/ Zephyr	Right Fender Apron	Thunderbird/ Continental Mark V	
Granada/ Monarch/ Versailles	Right Side of Upper Cowl	Lincoln Continental	

CK3193-1E

the specified limit (refer to specifications), the vacuum switch opens the ground circuit and the warning lamp will go out.

Switch Mounting Locations

The fuel economy vacuum switch and mounting bracket assemblies for all car lines are mounted in the engine compartment as noted in the following chart:

Vacuum Connections

A 3/16 inch vacuum tube is connected to the vacuum port on the vacuum switch assembly. On all vehicles, except Granada, Monarch and Versailles with catalytic converters, the vacuum tube is connected to a manifold on the engine. Granada, Monarch and Versailles with catalytic converters have the vacuum tube connected into the vacuum manifold located on the cowl.

TESTING

FUEL ECONOMY GAUGE

A standard vacuum system test, using the Rotunda Tool 20-0015 or equivalent, hand-operated vacuum test pump, is conducted as follows:

1. Disconnect the vacuum tube at the manifold vacuum connection.
2. Insert the medium-size tapered-tester vacuum tip into the end of the vacuum tube and hand pump the vacuum tester to approximately 20-inches vacuum. Observe the tester vacuum gauge reading for an indicated loss in vacuum. Observe for the following results:
 - a. If the tester vacuum gauge indicates a loss in vacuum, remove the vacuum tube connector from the threaded vacuum connector on the back of the gauge. Apply a short length of Teflon Sealer Tape D0AZ-19554-C or equivalent) around the threads of the vacuum connection and reinstall the vacuum tube connector on the threaded vacuum connection. Recheck the gauge with the hand vacuum pump. If the tester gauge still indicates a loss in vacuum, replace the Fuel Economy Gauge assembly.
 - b. If the vacuum reading remains steady, the vacuum tube and gauge are OK. Check the end of the tube to be sure the pulsation restrictor is installed; then reconnect the manifold vacuum connection.
3. Remove the three upper and five lower instrument cluster trim cover retaining screws and pull the trim cover rearward to disconnect the vacuum tube from the tube connector on the back of the fuel economy gauge.
4. Connect the vacuum tube of the hand-operated vacuum test pump directly to the fuel economy gauge tube connector. Pump the tester to approximately 20-inches vacuum and observe the tester vacuum gauge reading for an indicated loss in vacuum. Observe for the following results:

If the tester vacuum gauge indicates a loss in vacuum, replace the fuel economy gauge assembly.

If the tester vacuum gauge reading remains steady, the 1/4-inch vacuum hose to the engine manifold vacuum port must be repaired or replaced.

NOTE: Be sure to transfer the pulsation restrictor to the new vacuum tube if replacement is required.

FUEL ECONOMY WARNING LAMP

Warning Lamp Circuit Test

1. Turn the ignition switch ON (do not start engine) and check the operation of all warning lamps (Fuel Economy, Alt., Engine, etc.).

Results:

- a. If the other warning lamps operate but the low fuel economy warning lamp does not operate, proceed to Step No. 2.
 - b. If the warning lamps do not function, check the fuse and ignition accessory circuit to instrument panel. Repair as required.
2. Disconnect the wire harness connector from the fuel economy vacuum switch connector.
 3. Attach a jumper wire to the terminal connector of the wire harness and attach the other end of the jumper wire to a good vehicle frame ground or to the battery negative (-) ground terminal.

Results:

- a. If the low fuel economy warning lamp lights, the circuit is OK. Refer to vacuum switch functional test and switch ground check for further system testing.
- b. If the low fuel economy warning lamp does not illuminate, the problem is a burned out indicating bulb or possible open harness wire between the vacuum switch connector and the instrument panel connector. Repair as required and recheck the system for proper operation.

Vacuum Switch Functional Test

1. Disconnect the electrical connector and vacuum tube from the switch.

2. Connect a self-powered test light to the spade terminal of the switch connector and to the vacuum switch mounting bracket.
3. Connect a short piece of 3/16-inch vacuum tube to the vacuum connector of the vacuum switch.
4. Use the Rotunda Model No. 20-0015 or equivalent hand-operated vacuum pump and apply the specified vacuum.

**Results: With No Vacuum—Test Light ON;
With Specified Vacuum—Test Light OFF.**

- a. If both of the above results are OK, the switch is good.

- b. If either of the above results are incorrect, replace the switch.

Vacuum Switch Ground Check

1. Connect a self-powered test light to the mounting bracket of the vacuum switch and to a suitable vehicle frame ground connection.

Results:

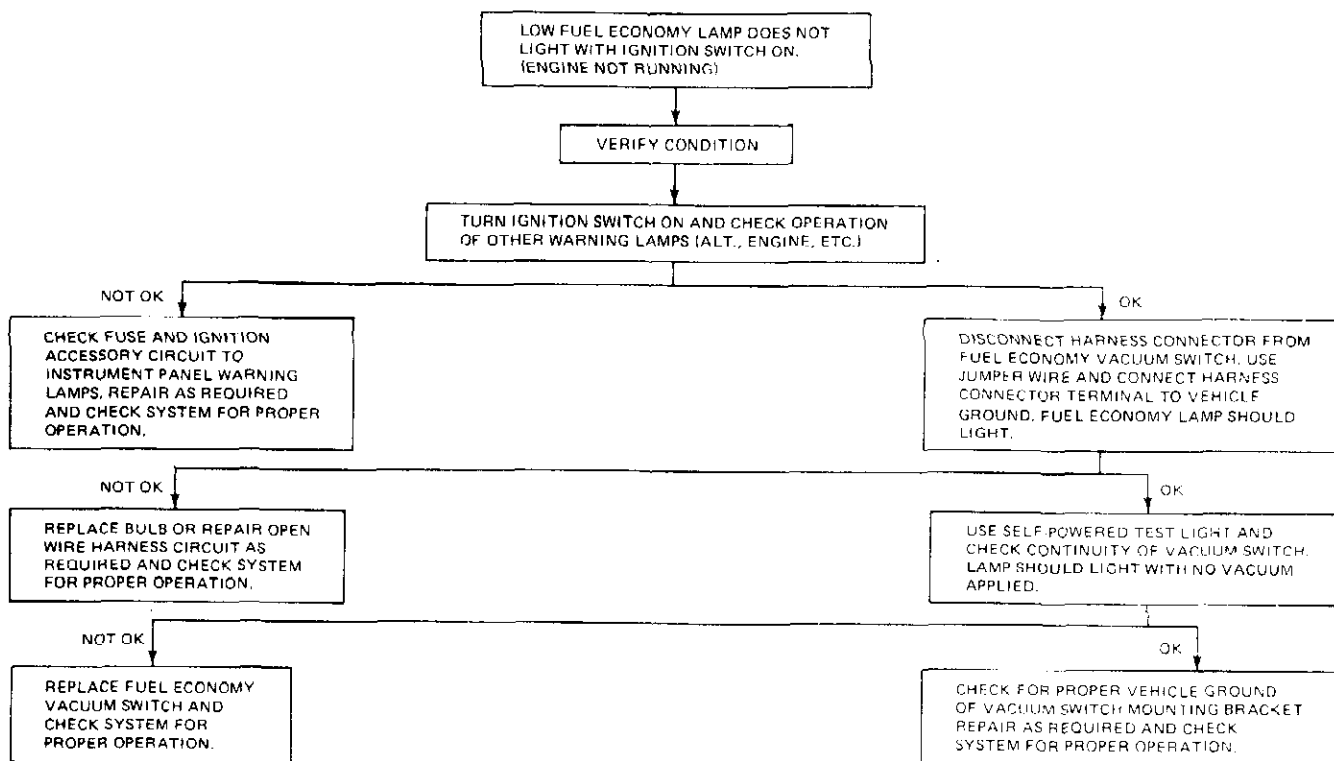
- a. If the test light illuminates, the ground is OK.
b. If the test light does not illuminate, remove the mounting bracket screws and clean the metal surfaces to insure a proper mounting bracket-to-frame ground connection.

DIAGNOSIS

FUEL ECONOMY WARNING LAMP

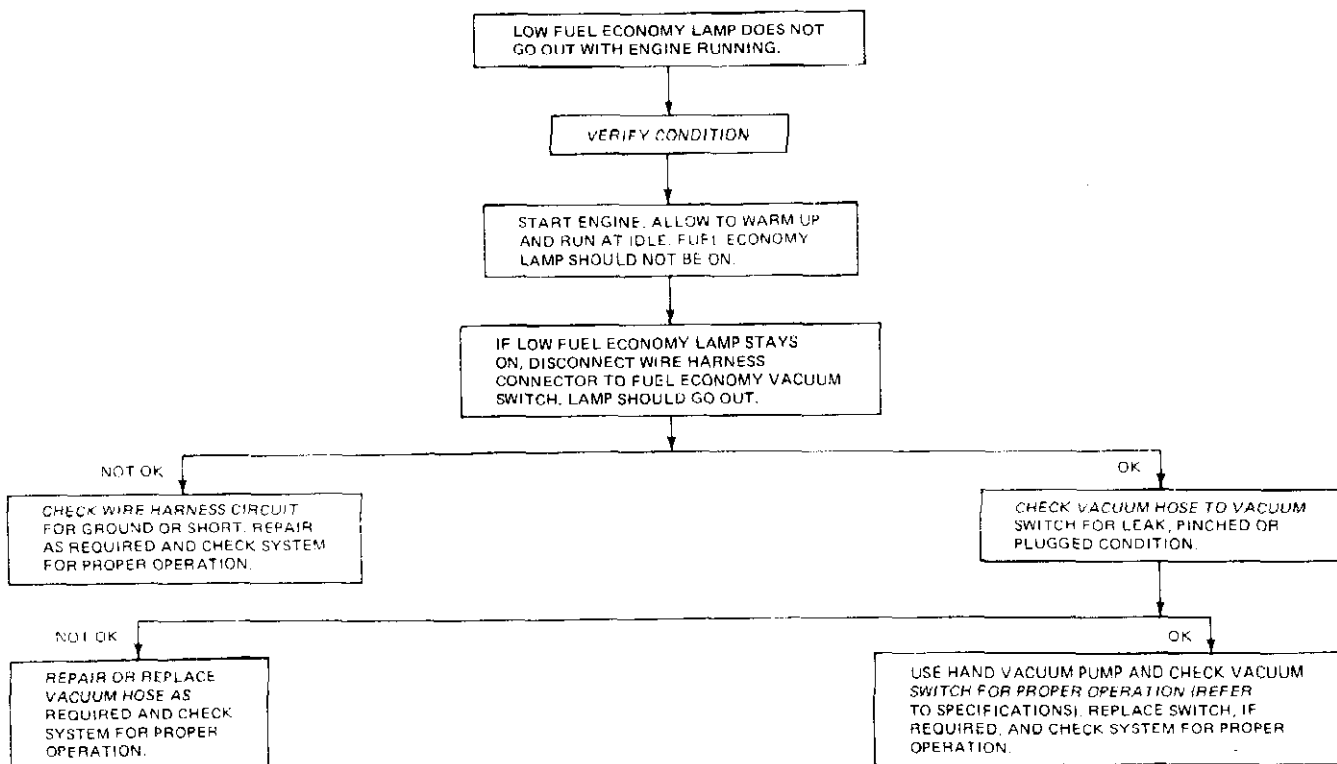
Refer to the following Diagnosis Charts for diagnosing system problems.

DIAGNOSIS CHART 1



CK3194-28

DIAGNOSIS CHART 2



CK3195-2B

REMOVAL AND INSTALLATION

FUEL ECONOMY GAUGE

Removal

1. Remove the three upper and five lower retaining screws from the instrument panel trim cover, pull the trim cover rearward and disconnect the vacuum tube from the tube connection and the bulb-and-socket assembly from the back of the fuel economy gauge. Remove the trim cover and gauge assembly (Fig. 2).
2. Remove the three fuel economy gauge cover retaining screws and remove the cover and gauge assembly from the trim cover.
3. Remove the two gauge mounting bracket retaining nuts and lockwashers. Remove the U-shaped gauge mounting bracket and the retaining ring.
4. Remove the fuel economy gauge from the gauge cover.
5. Remove the tube connector from the back at the fuel economy gauge assembly.

Installation

1. Apply a short length of Teflon Sealer Tape (DOAZ-19554-C or equivalent) around the threads of the vacuum connection on the back of the gauge. Install the vacuum tube con-

necter on the threaded vacuum connection and tighten the vacuum tube connector to specifications.

2. Insert the fuel economy gauge into the front of the gauge cover opening and align the gauge with the index slot in the gauge cover opening (Fig. 2).
3. Position the gauge retaining ring and the U-shaped gauge mounting bracket on the back of the gauge assembly.
4. Install the two gauge mounting bracket retaining nuts and lockwashers. Tighten to specifications.
5. Position the fuel economy gauge cover and gauge assembly on the back of the instrument panel trim cover. Install the three gauge cover retaining screws and tighten to specifications.
6. Position the instrument panel trim cover and gauge assembly near the instrument panel and connect the fuel economy gauge vacuum tube on the gauge tube connector.
7. Insert the panel light bulb and socket assembly into the opening on the back of the gauge.
8. Position the instrument panel trim cover and gauge assembly and install the trim cover three upper and five lower mounting screws finger tight. Tighten the mounting screws to specifications.

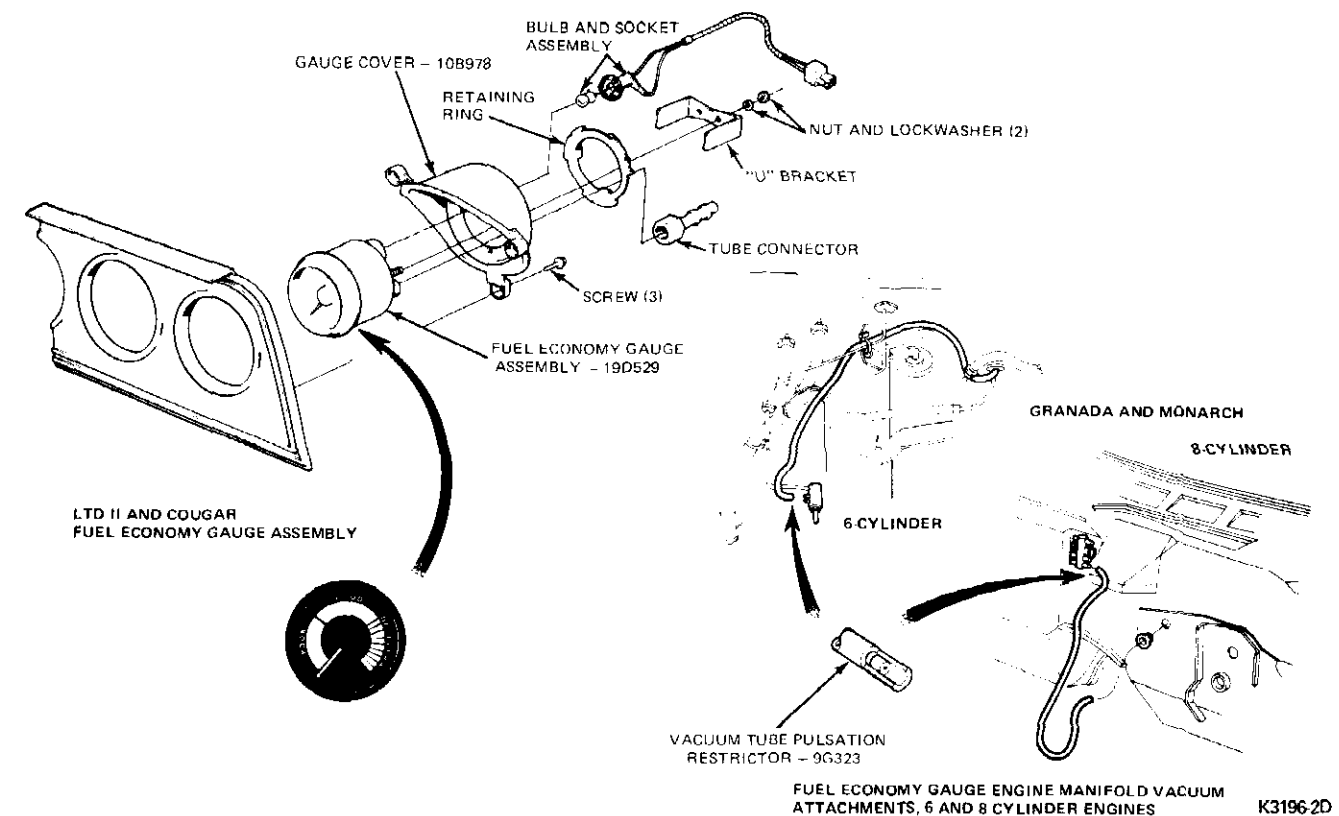


FIG. 2 Fuel Economy Gauge

SPECIFICATIONS

FUEL ECONOMY GAUGE

FUEL ECONOMY GAUGE	
Item	Torque
Gauge Bracket Attaching Nuts	2-4 in-lb
Gauge Cover Attaching Screws	5-12 in-lb
Instrument Cluster Trim Cover, Attaching Screws	8-16 in-lb
Gauge to Vacuum Tube Connector*	30-40 in-lb

*With sealer tape on threads.

FUEL ECONOMY WARNING LAMP

FUEL ECONOMY WARNING LIGHT

VACUUM SWITCH SPECIFICATIONS - (INCHES OF HG.)*

VEHICLE	Eng.	2.3L	2.8L	3.3L (200 CID)	4.1L (250 CID)	5.0L (302 CID)	5.8L (351M CID)	5.8L (351W CID)	6.6L (400 CID)	6.6L (400 CID)	7.5L (460 CID)	7.5L (460 CID) Police Inter- ceptor
	Trans.	All	All	All	M/T	A/T	M/T	A/T	All	All	All	All
Pinto, Bobcat		4	4									
Mustang II		4	6			6	6					
Fairmont, Zephyr				4	6	4	6	4				
Granada, Monarch, Versailles				4	6	4	6	4				
Cougar and LTD II							4	4	6	6	6	6
Ford, Mercury							4	4	6	6	6	6
Thunderbird, Lincoln Continental											6	
Continental Mark V											6	

*Switch Contacts Open At Indicated Vacuum or Above
Switch Contacts Closed Below Indicated Vacuum

CK3197-2E

Ignition Switch

PART
33-70

Applies to All Models

SUBJECT	PAGE	SUBJECT	PAGE
DESCRIPTION AND OPERATION	70-1	REMOVAL AND INSTALLATION	70-6
TESTING	70-3		
ADJUSTMENTS	70-5		

CK3387-2B

DESCRIPTION AND OPERATION

The ignition switch is mounted on the steering column and is controlled by the lock cylinder through an actuator in the locking mechanism (Fig. 1). The switch plunger is connected to the actuator by the switch actuator rod (Fig. 1).

The lock cylinder also controls the mechanism which provides a positive lock for the transmission linkage and the steering system. The locking mechanism is located in the casting at the upper end of the steering column (Fig. 1).

The lock positions are ACC, LOCK, OFF, RUN and START. With column shift automatic transmissions, the ignition key can be removed from the lock cylinder only when the shift lever is in PARK position and the key is in LOCK position. The ACC position operates while the

steering and transmission systems remain locked. Turning the key to OFF position shuts off the engine without locking the steering or transmission systems.

BLADE-TYPE SWITCH

The switch has blade-type terminals that engage with one multiple connector. See Figs. 2 and 3. The multiple connector is secured to the switch by integral locking fingers.

A push-button steering wheel lock mechanism is used on LTD II, Cougar, Granada, Monarch, Mustang II and Pinto vehicles equipped with the floor-mounted shift system. This button, on the left side of the steering column, must be pushed in before the ignition key can be removed.

KEY AND LOCK CYLINDER ASSEMBLY

LOCKING MECHANISM ACTUATED BY
IGNITION SWITCH KEY AND LOCK CYLINDER

GEARSHIFT LEVER

ACTUATOR

IGNITION SWITCH ACTUATOR ROD

IGNITION SWITCH PLUNGER

NUT AND WASHER
ASSEMBLY

HOLE FOR LOCKING PIN

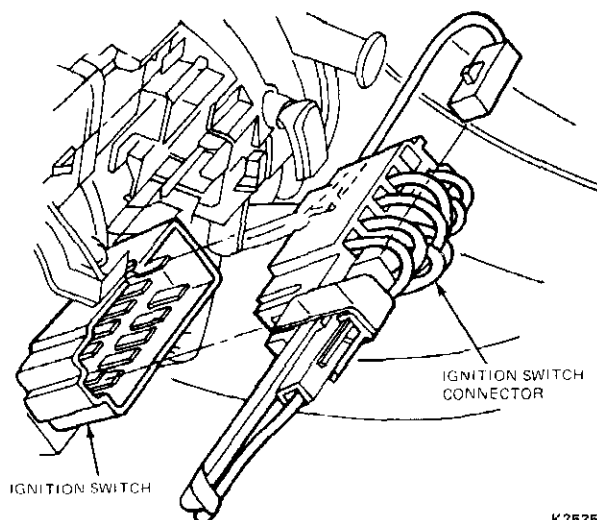
IGNITION SWITCH AND
WIRING ASSEMBLY

NUT AND WASHER

CONNECTOR PLUG TO 14401
WIRING HARNESS

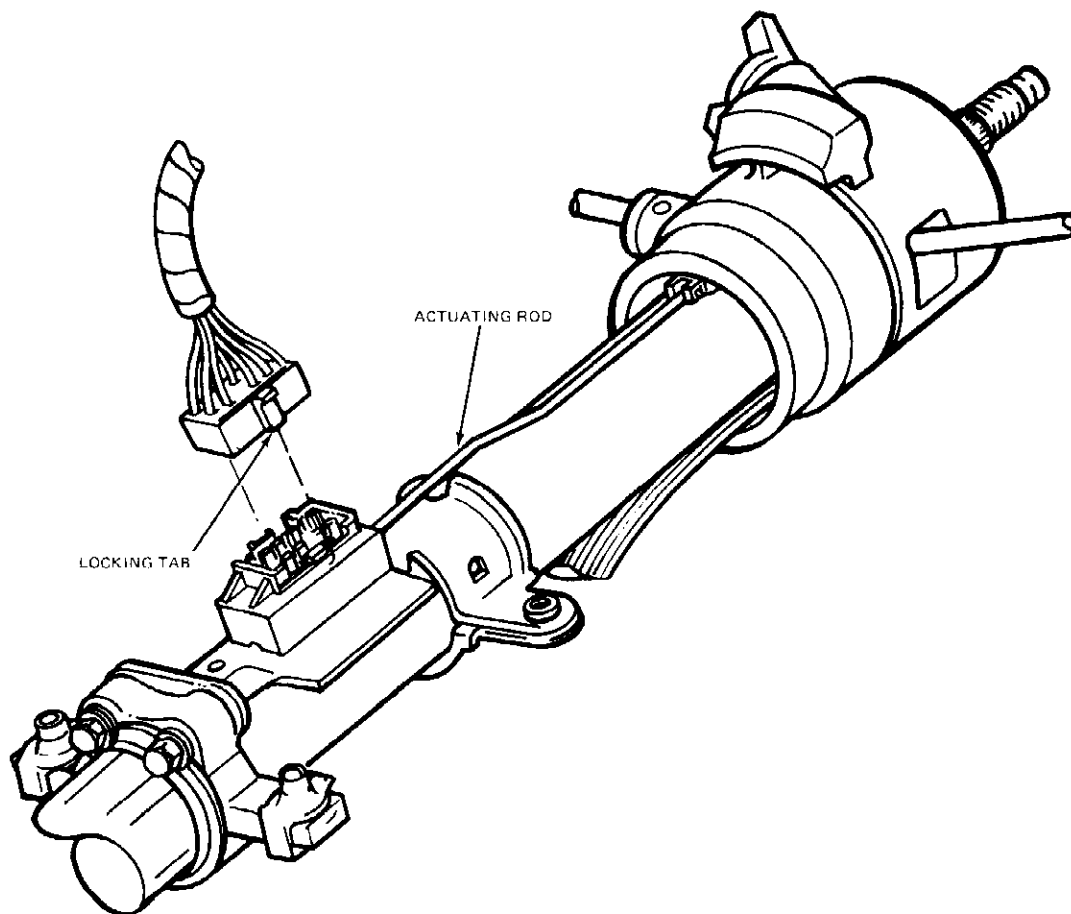
STEERING COLUMN

K2409-2E

FIG. 1 Pin Type Connector Ignition Switch

K3535 1A

**FIG. 2 Blade Type Ignition Switch for Fairmont/
Zephyr**



K2873-2D

FIG. 3 Spade-Type Connector Ignition Switch

TESTING

PIN-TYPE CONNECTOR

Disconnect the switch wire multiple plug by lifting the two retaining tabs over the spurs on the connector sides while pulling the connectors apart (Fig. 4).

To remove the connector plug from the retaining bracket, lift up on the retaining tab and pull the connector from the bracket.

Test the continuity through the switch by connecting a self powered test lamp or ohmmeter between the plug terminals indicated for each switch position in Fig. 5.

SPADE-TYPE CONNECTOR

Disconnect the multiple connector by spreading apart the locking fingers and pulling the plugs from the switch. Test the continuity through the switch by connecting a self powered test lamp or ohmmeter between the plug terminals indicated for each switch position in Fig. 6.

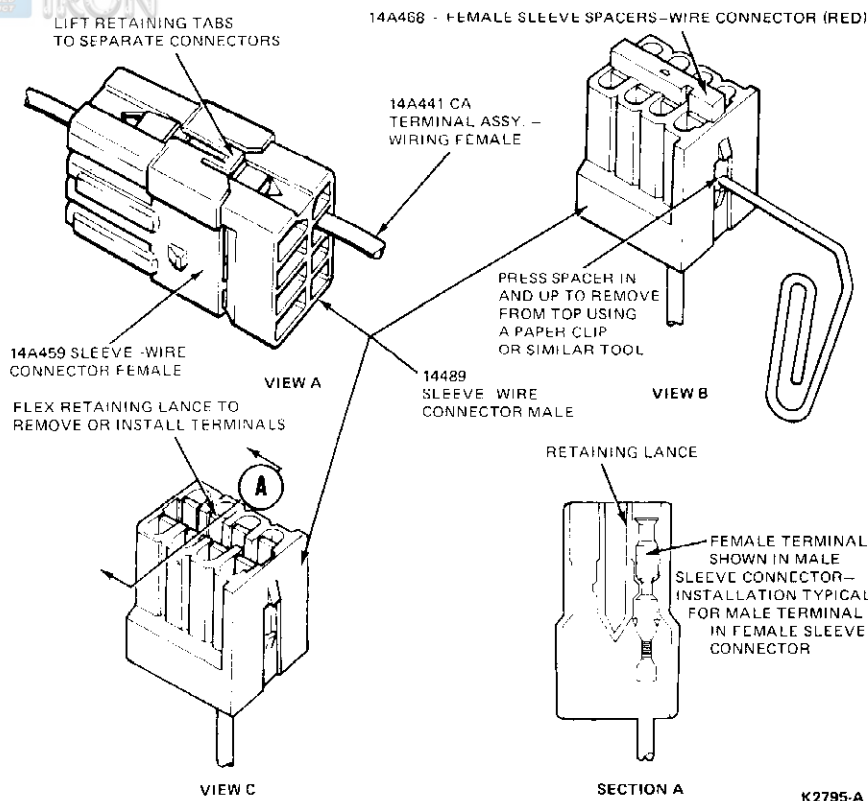


FIG. 4 Ignition Switch Wire Connector—Lincoln Continental Shown

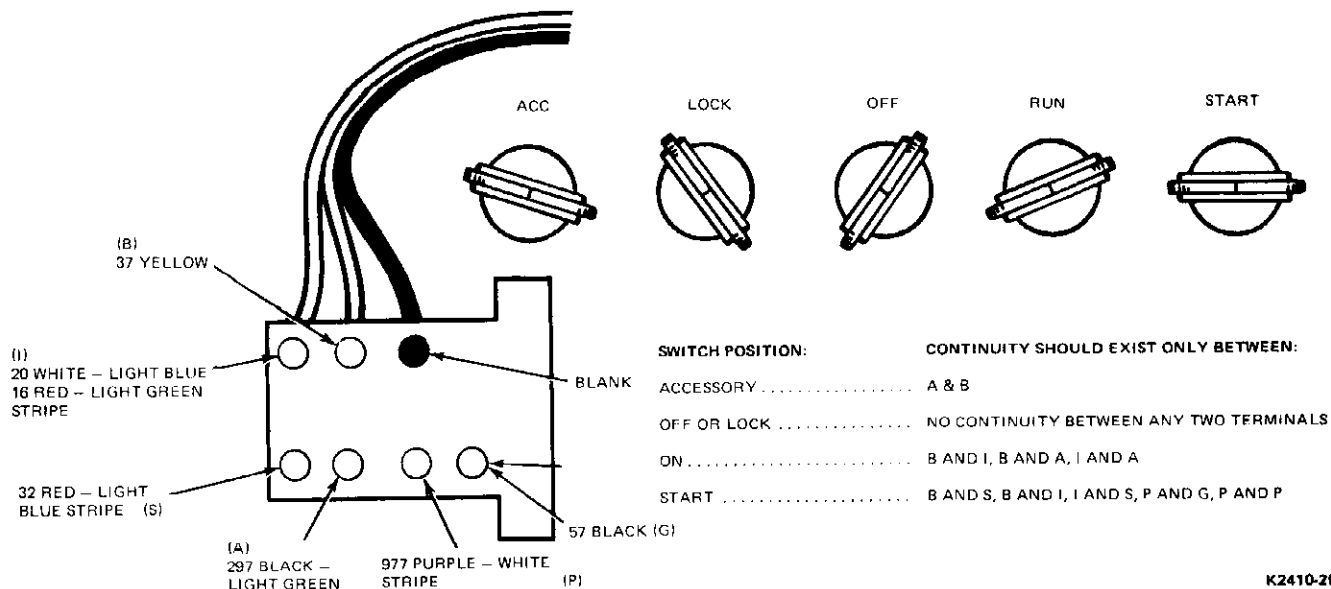


FIG. 5 Pin-Type Connector Ignition Switch Continuity Test