1990 MUSTANG

Ford

Electrical & Vacuum Trouble-Shooting Manual

1990 Mustang Electrical & Vacuum Trouble-Shooting Manual (EVTM)

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ELECTRICAL AND VACUUM TROUBLESHOOTING MANUAL
FPS-12121-90

FORD PARTS and SERVICE DIVISION

Quality is Job 1

For customer satisfaction, Ford Parts and Service Division has developed an EVTM for the 1990 model year. The EVTM is directed to you--the technician. Our goal is to provide accurate and timely service information for product maintenance.

1990 EVTM FEATURES

- A **"How to Use This Manual"** section that orients the user to the manual and its use.
- **Electrical Schematics** categorized by system and circuit.
- **"How the Circuit Works"** descriptions that explain how each circuit works. These descriptions are designed to be used in conjunction with the Electrical Schematic.
- **Component Location** information that tells where each component is located on the car as well as a reference to a **Component Location View.**
- **Troubleshooting Hints** presented in a "condition-cause-action" format.
- **Component Testing Procedures** that tell the user how to perform diagnostic tests on various circuits.
- **Connector End Views** designed to help with troubleshooting.
- **Notes, Cautions, and Warnings** that contain important safety information.
- **Component Base Part Numbers** and **Harness Base Part Numbers** to aid in ordering parts.
- **Cellular pagination** to assist in locating systems for easier referencing.
- **Expanded Contents/Index** to help with the EVTM System Location.

ORDERING INFORMATION

Information about how to order additional copies of this publication or other Ford publications may be obtained by writing to Helm Incorporated at the address shown below or by calling 1-800-782-4356. Other publications available include:

- Shop Manuals
- Service Specification Books
- Car/Truck Wiring Diagrams
- Engine/Emissions Diagnosis Manuals

Helm Incorporated
P.O. Box 87150
Detroit, Michigan 48207

1-1 CONTENTS/INDEX

Table of Contents

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IMPORTANT SAFETY NOTICE

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all motor vehicles, as well as the personal safety of the individual doing the work. This Manual provides general directions for accomplishing service and repair work with tested, effective techniques. Following them will help assure reliability.

There are numerous variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the individual doing the work. This Manual cannot possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this Manual must first establish that he compromises neither his personal safety nor the vehicle integrity by his choice of methods, tools or parts.

2-1 HOW TO USE THIS MANUAL

The purpose of this manual is to show electrical and vacuum circuits of these vehicles in a clear and simple fashion to make troubleshooting easier. With each circuit is a description of *How the Circuit Works* and some *Troubleshooting Hints.* A Component Location chart lists components and references to pictures in the manual.

Notes, Cautions and Warnings containing important information appear in boxes on text pages. Notes provide additional information to help complete a particular procedure. Cautions provide information that could prevent making an error that could damage the vehicle. Warnings provide information to prevent personal injury. The warnings list on the previous page contains general warnings to follow when working on a vehicle.

Components which work together are shown together. For example, all electrical components used in any circuit are shown on one diagram. The circuit breaker or fuse is shown at the top of the page. All wires, connectors, splices, switches, and motors are shown in the flow of current to ground at the bottom of the page. Notes are included which describe how switches and other components work. If a component is used in several different circuits, it is shown in several places.

For example, the Main Light Switch is an electrical part of many circuits and is repeated on many pages. In some cases, however, a component may seem (by its name) to belong on a page where it has no electrical connection. For example, Radio Illumination is electrically part of instrument illumination., but because it has no electrical connection at all with the actual Radio circuit, it is not shown on the Radio page.

Troubleshooting Hints point the technician in a general direction, but are not intended as a step-by-step procedure. Ignition troubleshooting is an exception to this. It includes a step-by-step procedure of basic quick checks to locate some of the more common Ignition System problems. Reading the Shop Manual provides more detailed repair procedures.

Connector end views of switches and other components are shown in Cell 149 (beginning on page 149-1) to help with bench testing. The views show the harness wire colors that connect to the mating terminals. Connector colors and locations are shown in the *Location Index* chart. Two-color listings indicate separate colors for each connector half.

A Location Index in Cell 152 (beginning on page 152-1) identifies individual components, connectors, and splices. This index describes the component, connector, or splice location and directs you to the component illustrations. In addition, the component base part number has been included for your convenience in ordering parts. A list of harness base numbers, harness names and major systems associated with the respective harness base part number is also included within the Location Index.

The Grounds pages show detailed views of multiple component ground points. This is useful for checking interconnections among the ground circuits of different diagrams.

Component Connectors with more than 5 cavities are shown in Cell 150 (Beginning on page 150-1) to help with system troubleshooting. Any component connector with 5-9 cavities will be shown with a connector end view of the connector. A component with 10 or more connector cavities will have a pinout chart in addition to the connector face. The pinout chart contains information such as cavity number, wire number and color, and circuit function.

Resistors and Diodes are currently covered with PVC molds and are taped to the harness outside the tubing. Many of the resistor and diode assemblies will be covered with heat shrinkable tubing making the assembly small enough to be placed within the harness bundle.

The wiring diagrams show the number of times the resistors and diodes are used. The wiring diagrams also show the distance from connector/length of wire in exact centimeters. Resistors and diodes are identified on the wiring diagrams by the following base part numbers:

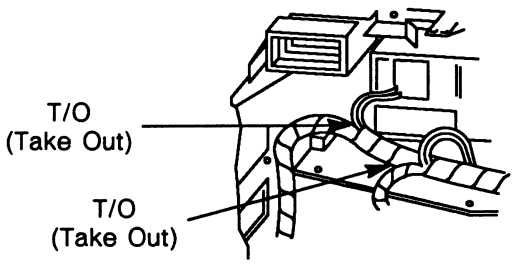
Resistor/diode assembly	14A601
Diode only	14A604

We welcome any comments you may have regarding this EVTM. Use the Feedback Sheet at the back of this manual to submit comments. The information submitted on this sheet will improve future editions.

Before using the EVTM for troubleshooting, refer to the HELPFUL REMINDERS described on this page.

1. The abbreviation T/O, for take out, used in the Component Location Chart, refers to the point at which a harness branches to feed a component. Refer to the wiring harness illustration.

Wiring harness at back of Instrument Panel, showing typical T/O (Take Out) locations



2. If a connector serves the same purpose in two separate versions (e.g., EFI/Carb), but is physically different, *two* connector numbers are used. However, if a connector serves the same purpose in two separate versions (e.g., EFI/Carb) and is physically the same, but the wire colors are different, only *one* connector number is used. If the same physical connector is used more than once, then more than *one* connector number is used.

3. Wiring diagrams provide a schematic picture of how and under what conditions the circuit is powered, of the current path to circuit components, and of how a circuit is grounded. Each circuit component is named (underlined titles). Wire and connector colors are listed (standard Ford color abbreviations are used):

COLOR ABBREVIATIONS

BL	**Blue**	**N**	**Natural**
BK	**Black**	**O**	**Orange**
BR	**Brown**	**PK**	**Pink**
DB	**Dark Blue**	**P**	**Purple**
DG	**Dark Green**	**R**	**Red**
GR	**Green**	**T**	**Tan**
GY	**Gray**	**W**	**White**
LB	**Light Blue**	**Y**	**Yellow**
LG	**Light Green**		

Whenever a wire is labeled with two colors, the first color listed is the basic color of the wire, and the second color listed is the stripe marking of the wire.

4. When reporting Vehicle Repair Location Codes to Ford Parts and Service Division, refer to Cell 160 (Beginning on page 160-1).

   Note: Do *not* use the illustrations in Cell 151 (Beginning on page 151-1) for reporting Vehicle Repair Location Codes.

5. **WARNINGS**

- *Always wear safety glasses for eye protection.*
- *Use safety stands whenever a procedure requires being under a vehicle.*
- *Be sure that the* **Ignition Switch** *is always in the OFF position, unless otherwise required by the procedure.*
- *Set the parking brake when working on any vehicle. An automatic transmission should be in PARK. A manual transmission should be in NEUTRAL.*
- *Operate the engine only in a well-ventilated area to avoid danger of carbon monoxide.*
- *Keep away from moving parts when the engine is running, especially the fan and belts.*
- *To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter, and muffler.*
- *Do not allow flame or sparks near the battery. Gases are always present in and around the battery cell. An explosion could occur.*
- *Do not smoke.*
- *To avoid injury, always remove rings, watches, loose hanging jewelry, and loose clothing.*

4-1 HOW TO FIND THE ELECTRICAL PROBLEM

TROUBLESHOOTING STEPS

These six steps present an orderly method of troubleshooting.

Step 1. Verify the problem.
- Operate the complete system to check the accuracy and completeness of the customer's complaint.

Step 2. Narrow the problem.
- Using the EVTM, narrow down the possible causes and locations of the problem to pinpoint the exact cause.
- Read the description of *How the Circuit Works* and study the wiring diagram. You should then know enough about the circuit operation to determine where to check for the trouble. Further information can be found in the Shop Manual pages listed after *How the Circuit Works.*

Step 3. Test the cause.
- Use electrical test procedures to find the specific cause of the symptoms.
- *Troubleshooting Hints* will give you helpful ideas.
- The *Component Location Charts* and the pictures will help you find components. Following each chart, there is a reference to the Location Index at the end of the manual. This index gives component location information for connectors, diodes, resistors, splices and grounds.

Step 4. Verify the cause.
- Confirm that you have found the correct cause by connecting jumper wires and/or temporarily installing a known good component and operating the circuit.

Step 5. Make the repair.
- Repair or replace the inoperative component.

Step 6. Verify the repair.
- Operate the system as in Step 1 and check that your repair has removed all symptoms without creating any new symptoms.

Some engine circuits may need special test equipment and special procedures. See the *Shop Manual* and other service books for details. You will find these circuits in this manual to be helpful with these special tests.

TROUBLESHOOTING TOOLS

JUMPER WIRE

This is a test lead used to connect two points of a circuit. A Jumper Wire can complete a circuit, bypassing an open.

WARNING

Never use a jumper wire across loads (motors, etc.) connected between hot and ground. This direct battery short may cause injury or fire.

VOLTMETER

A DC Voltmeter measures circuit voltage. Connect negative (- or black) lead to ground, and positive (+ or red) lead to voltage measuring point.

OHMMETER

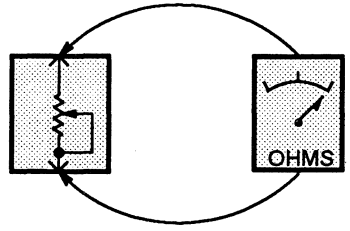


Figure 1–Resistance Check

An Ohmmeter shows the resistance between two connected points (Figure 1).

TEST LAMP

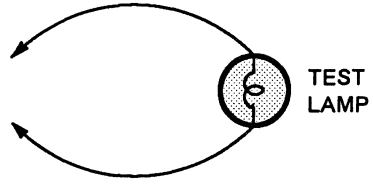


Figure 2–Test Lamp

A Test Light is a 12-volt bulb with two test leads (Figure 2).

Uses: Voltage Check, Short Check

SELF-POWERED TEST LAMP

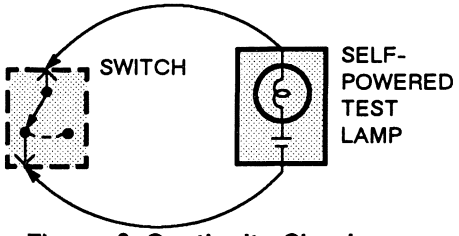


Figure 3–Continuity Check

The Self-Powered Test Lamp is a bulb, battery and set of test leads wired in series (Figure 3). When connected to two points of a continuous circuit, the bulb glows.

Uses: Continuity Check, Ground Check

CAUTION

When using a self-powered test lamp or ohmmeter, be sure power is off in circuit during testing. Hot circuits can cause equipment damage and false readings.

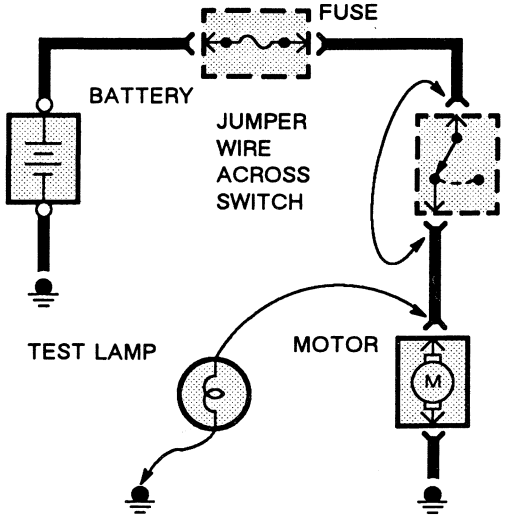


Figure 4—Switch Circuit Check and Voltage Check

In an inoperative circuit with a switch in series with the load, jumper the terminals of the switch to power the load. If jumpering the terminals powers the circuit, the switch is inoperative (Figure 4).

CONTINUITY CHECK
(Locating open circuits)

Connect one lead of Self-Powered Test Lamp or Ohmmeter to each end of circuit (Figure 3). Lamp will glow if circuit is closed. Switches and fuses can be checked in the same way.

VOLTAGE CHECK

Connect one lead of test lamp to a known good ground or the negative (-) battery terminal. Test for voltage by touching the other lead to the test point. Bulb goes on when the test point has voltage (Figure 4).

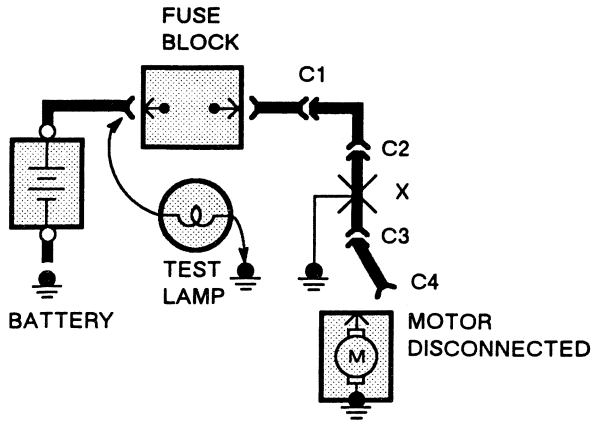


Figure 5—Short Check

A fuse that repeatedly blows is usually caused by a short to ground. It's important to be able to locate such a short quickly (Figure 5).

1. Turn off everything powered through the fuse.
2. Disconnect other loads powered through the fuse:
   - Motors: disconnect motor connector (Connector C4 in Figure 5)
   - Lights: remove bulbs.
3. Turn Ignition Switch to RUN (if necessary) to power fuse.
4. Connect one Test Lamp lead to hot end of blown fuse. Connect other lead to ground. Bulb should glow, showing power to fuse. *(This step is just a check to be sure you have power to the circuit.)*

5. Disconnect the test lamp lead that is connected to ground, and reconnect it to the load side of the fuse at the connector of the disconnected component. (In Figure 5, connect the test lamp lead to connector C4.)
   - If the Test Lamp is off, the short is in the disconnected component.
   - If the Test Lamp goes on, the short is in the wiring. You must find the short by disconnecting the circuit connectors, one at a time, until the Test Lamp goes out. For example, in figure 5 with a ground at X, the bulb goes out when C1 or C2 is disconnected, but stays on after disconnecting C3. This means the short is between C2 and C3.

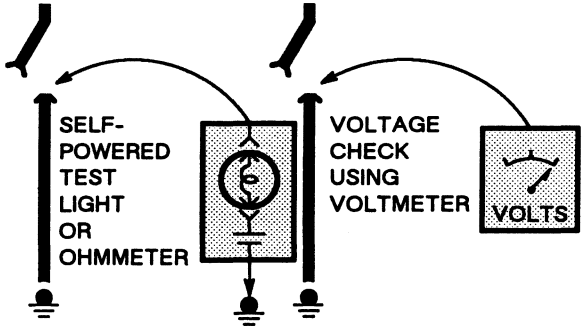


Figure 6—Ground Checks

Turn on power to the circuit. Perform a Voltage Check between the suspected inoperative ground and the frame. Any indicated voltage means that the ground is inoperative.

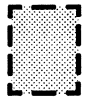
Turn off power to the circuit. Connect one lead of a Self-Powered Test Lamp or Ohmmeter to the wire in question and the other lead to a known ground. If the bulb glows, the circuit ground is OK (Figure 6).

TROUBLESHOOTING HINTS

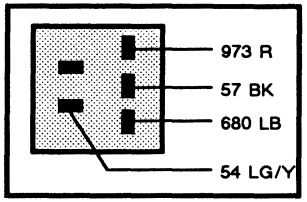
The circuit schematics in this manual make it easy to identify common points in circuits. This knowledge can help narrow the problem to a specific area. For example, if several circuits fail at the same time, check for a common power or ground connection. (See *Power Distribution* or *Grounds*.) If part of a circuit fails, check the connections between the part that works and the part that doesn't work.

For example, if low beam headlamps work, but high beams and the indicator lamp don't work, then power and ground paths must be good. Since the dimmer switch is the component that switches this power to the high beam lights and indicator, it is most likely the cause of failure.

Troubleshooting Hints unique to a particular circuit are given in a new, three column format. Included in the charts are conditions that may develop, possible causes, and one or more tests that can be done quickly to determine the cause of the condition.

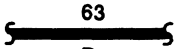


DASHED COMPONENT BOX
ONLY PART OF THE COMPONENT IS SHOWN, OR COMPONENT IS SHOWN IN TWO PLACES

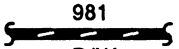


COMPONENT CONNECTOR END VIEW
SHOWS PINS OR SOCKETS ON A COMPONENT TO AID IN BENCH TESTING

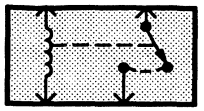
WIRE COLORS ARE LABELED FOR MATING HARNESS CONNECTOR



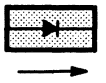
SOLID WIRE



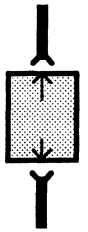
STRIPED WIRE



RELAY
CONTACTS CLOSE WITH CURRENT THROUGH COIL



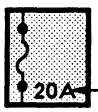
DIODES
CURRENT FLOWS IN DIRECTION OF ARROW ONLY



COMPONENT WITH CONNECTORS

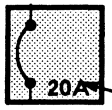
PIN TERMINAL TYPES

SOCKET TYPES

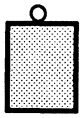


FUSE
CURRENT RATING

FUSIBLE LINK CARTRIDGE
CARTRIDGE CURRENT RATING



CIRCUIT BREAKER
CURRENT RATING

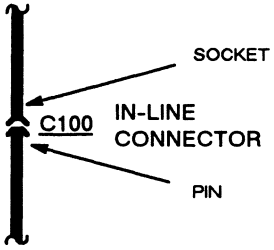


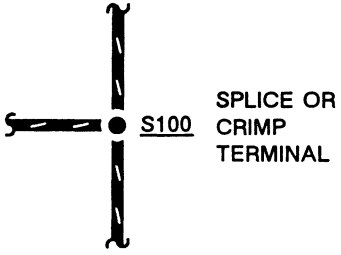
SCREW TERMINAL ON COMPONENT

SEALED ELECTRONIC COMPONENT
ANY CIRCUITRY SHOWN INSIDE THE BOX IS A FUNCTIONAL EQUIVALENT ONLY AND IS NOT EXACT

SOLID STATE

GAUGE

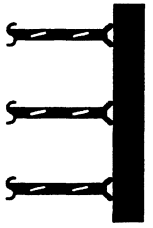




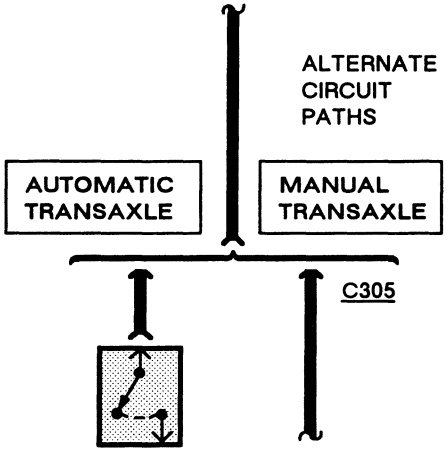
SPLICE OR CRIMP TERMINAL

GROUND CONNECTION

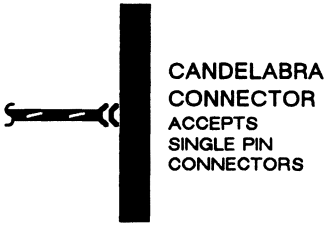
FUSE LINK



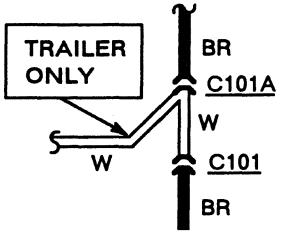
JUNCTION BLOCK



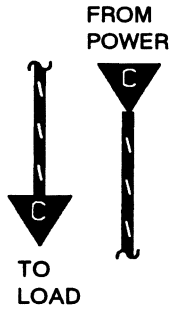
ALTERNATE CIRCUIT PATHS



CANDELABRA CONNECTOR
ACCEPTS SINGLE PIN CONNECTORS



OPTIONAL WIRING
BR WIRES (INCLUDING C101) ARE ON ALL VEHICLES, BUT W WIRES (INCLUDING C101A) ARE USED ONLY WITH TRAILER



"CUT" WIRES REFERENCED BETWEEN PAGES
ARROWS SHOW CURRENT FLOW FROM POWER TO GROUND

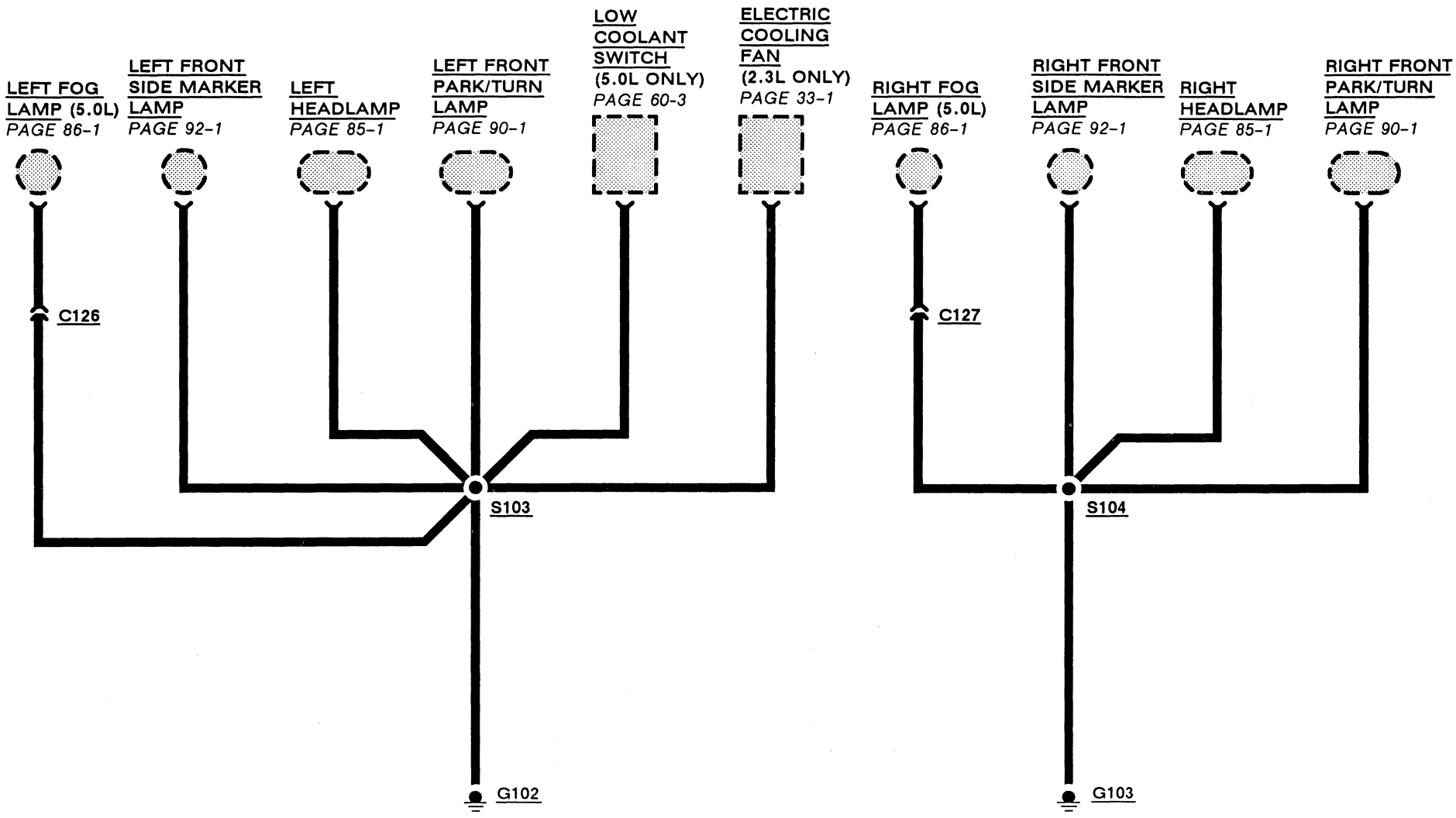
BACKUP LIGHTS

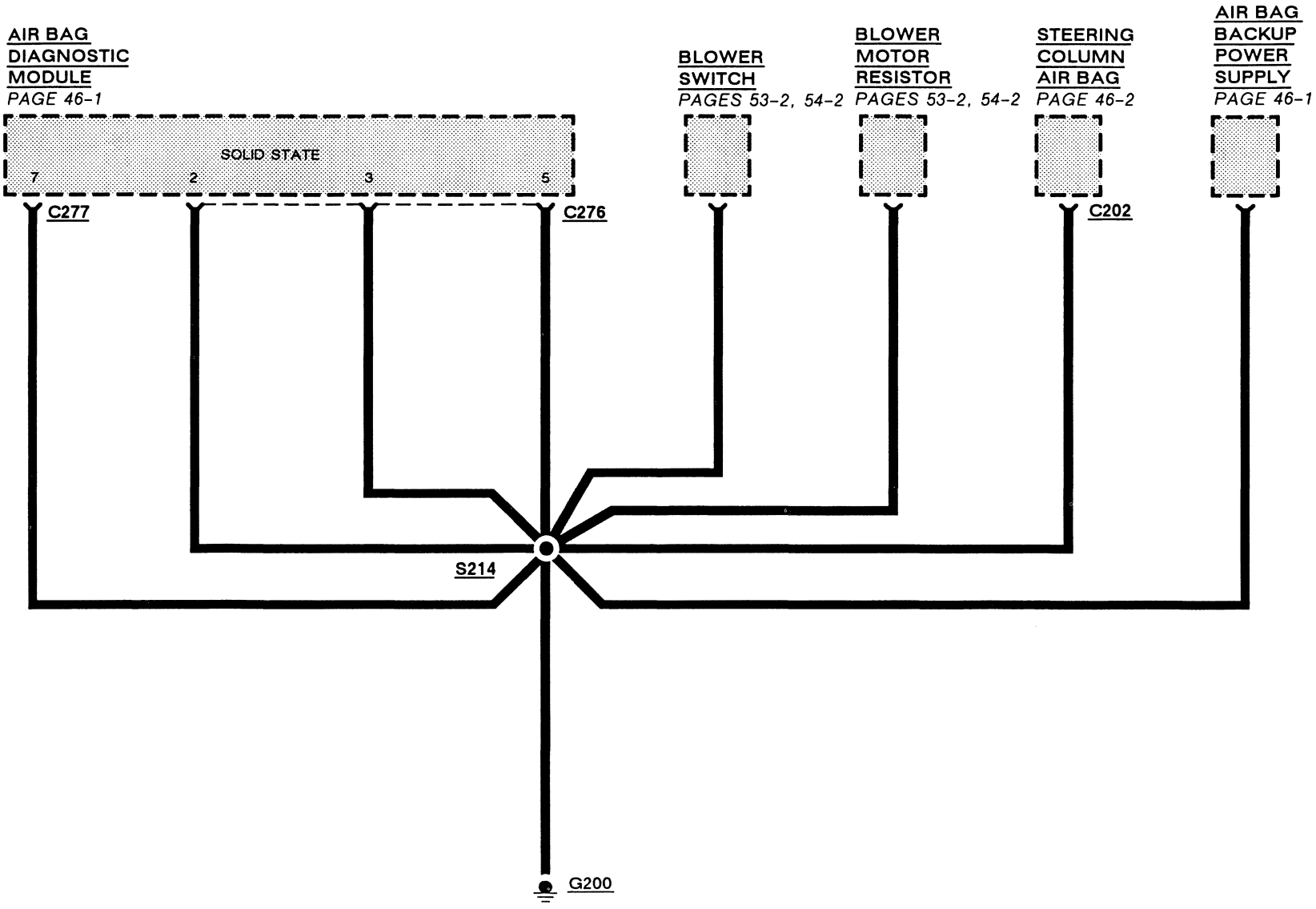
"REFERENCE" WIRES
COMPLETE WIRING SHOWN ON ANOTHER PAGE

DASHED WIRE
CIRCUITRY IS NOT SHOWN IN COMPLETE DETAIL, BUT IS COMPLETE ON ANOTHER PAGE

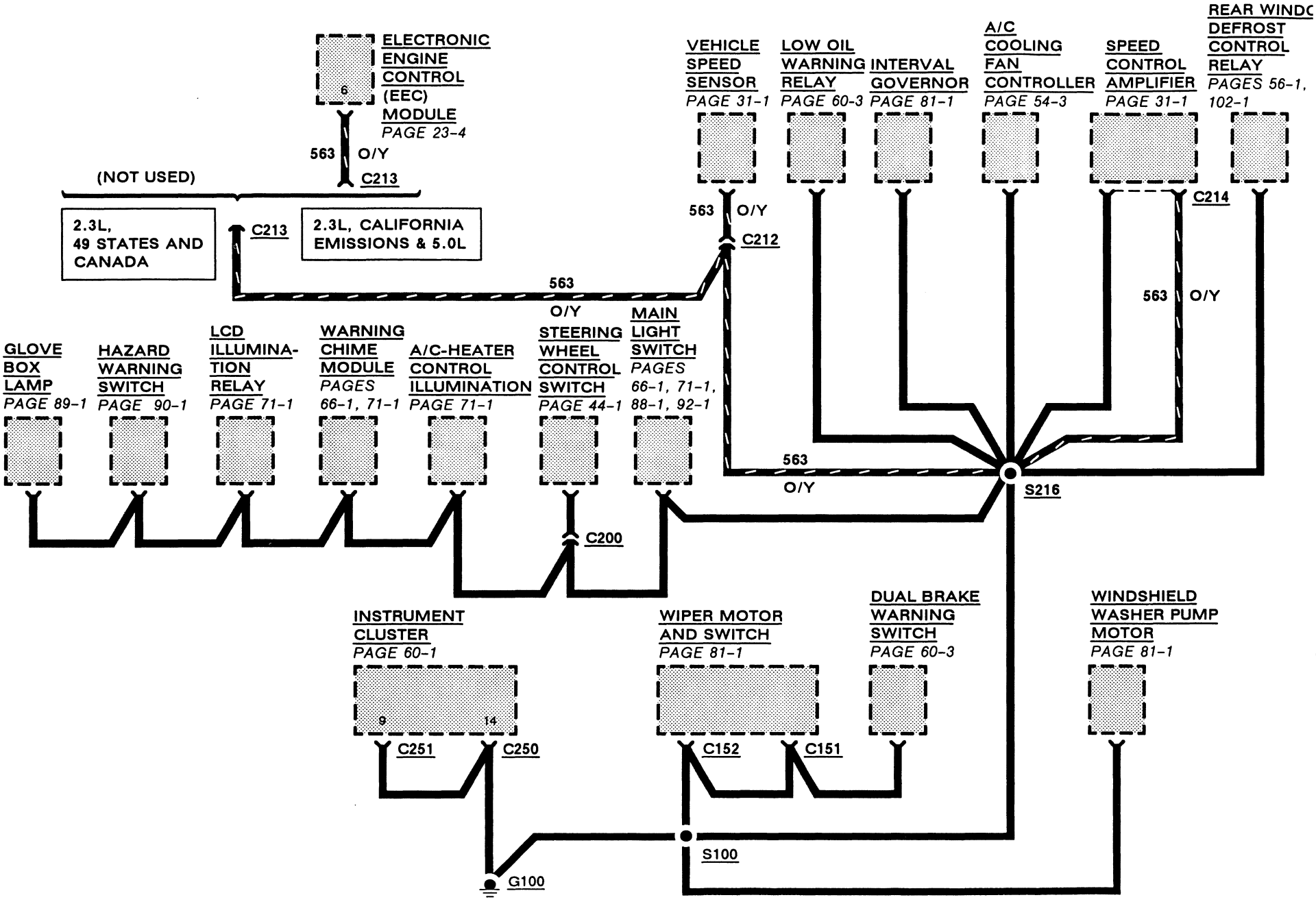
SEE GROUNDS
PAGES 10-0, 10-1

10-1 GROUNDS (G102, G103)



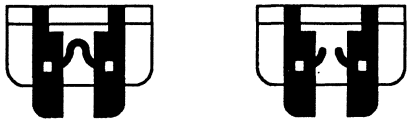

AIR BAG DIAGNOSTIC MODULE
PAGE 46-1
SOLID STATE
7
2
3
5
C277
C276
BLOWER SWITCH
PAGES 53-2, 54-2
BLOWER MOTOR RESISTOR
PAGES 53-2, 54-2
STEERING COLUMN AIR BAG
PAGE 46-2
C202
AIR BAG BACKUP POWER SUPPLY
PAGE 46-1
S214
G200

10-5 GROUNDS (G100)



11-1 FUSE PANEL/CIRCUIT PROTECTION

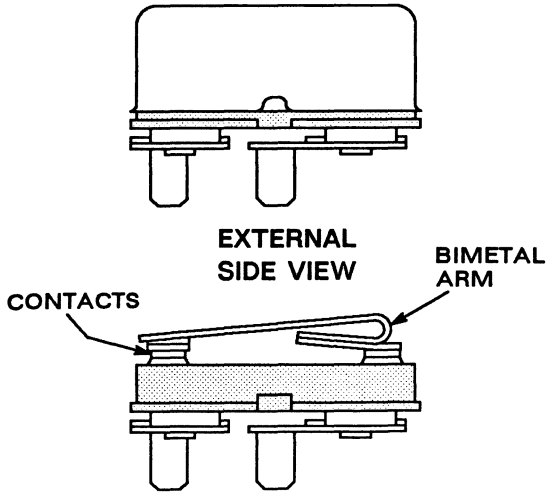
REPLACEMENT OF FUSES/CIRCUIT BREAKERS



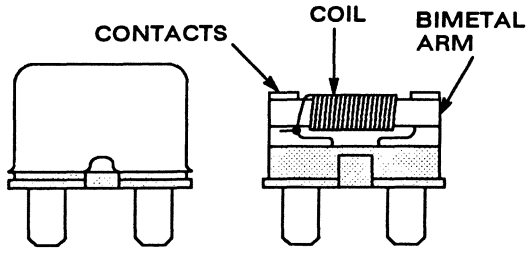
GOOD FUSE BLOWN FUSE

Fuses are mounted in the Fuse Panel. They are identified by the number rating in amperes. Some positions may have either a fuse or a circuit breaker. Be sure to replace a fuse or circuit breaker with the same kind of unit and ampere rating. Remove fuses to check them.

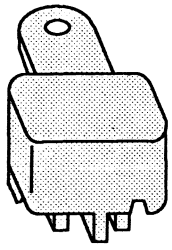
CIRCUIT BREAKER OPERATION



Cycling Fuse Panel Type



Non-Cycling Fuse Panel Type



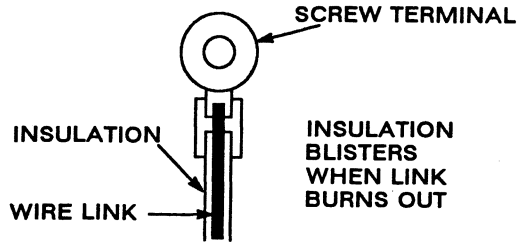
Cycling In-Line Type

Some circuits are protected by circuit breakers (abbreviated "c.b." in fuse chart). They can be Fuse Panel mounted or in-line. Like fuses, they are rated in amperes.

Each circuit breaker conducts current through an arm made of two types of metal bonded together (bimetal arm). If the arm starts to carry too much current, it heats up. As one metal expands faster than the other, the arm bends, opening the contacts. Current flow is broken. In the cycling type, the arm cools and straightens out. This cycle repeats as long as the overcurrent exists and power is applied.

In the non-cycling type, there is also a coil wrapped around the bimetal arm. When an overcurrent exists and the contacts open, a small current passes through the coil. This current through the coil is not enough to operate a load, but it does heat up both the coil and the bi-metal arm. This keeps the arm in the open position until power is removed.

FUSE LINKS



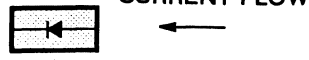
The fuse link is a short length of wire, smaller in gauge than the wire in the protected circuit. The wire is covered with a thick non-flammable insulation. An overload causes the link to heat and the insulation to blister. If the overload remains, the link will melt, causing an open circuit. The links are usually color coded for wire size as follows:

COLOR CODE

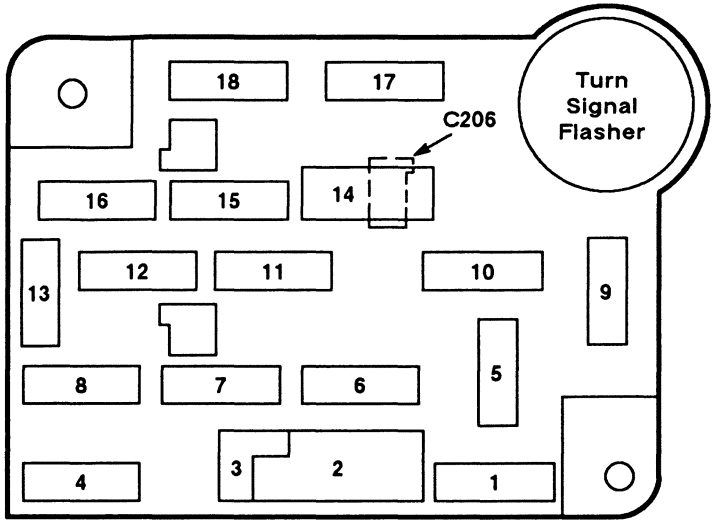
BLUE	**20 GA**
BROWN	**18 GA**
BLACK	**16 GA**
GREEN	**14 GA**
GRAY	**12 GA**

When replacing fuse links, make tight crimp joints or hot solder joints for good connections.

DIODES



Diodes are electrical devices that permit current to flow in one direction only. The current flows in the direction indicated by the arrow.



Fuse Value Amps	Color Code
4	Pink
5	Tan
10	Red
15	Light Blue
20	Yellow
25	Natural
30	Light Green

Power Distribution

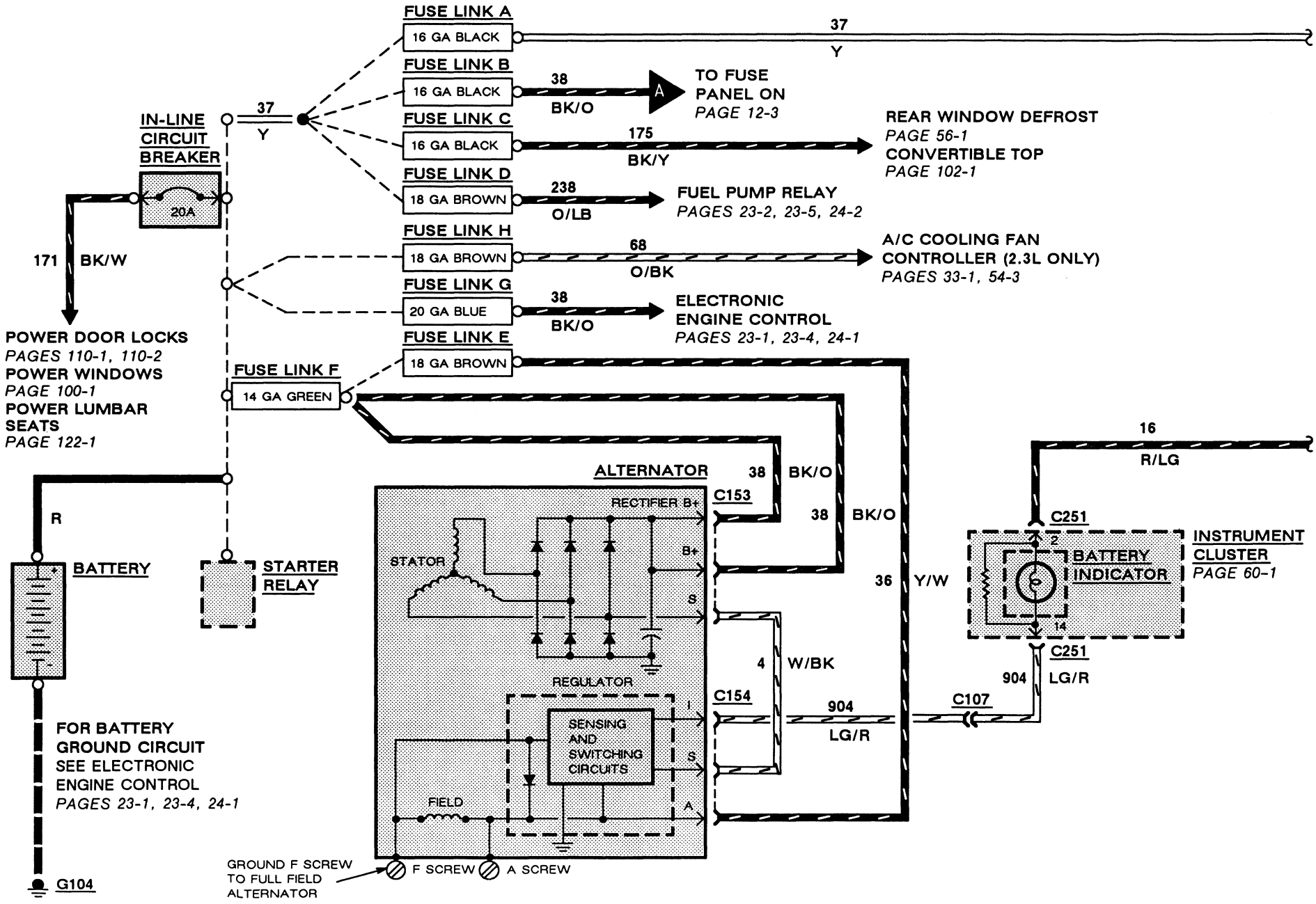
The Alternator and Battery are connected together at the Starter Relay hot terminal. Other circuits originate at the Starter Relay hot terminal and are protected by fuse links. Low power circuits are also protected by fuses.

The Ignition Switch and Headlamp Switch are powered at all times, as are fuses 1, 4, 8, 10, 12 and 16. The other fuses are powered through the Ignition Switch or the Main Light Switch.

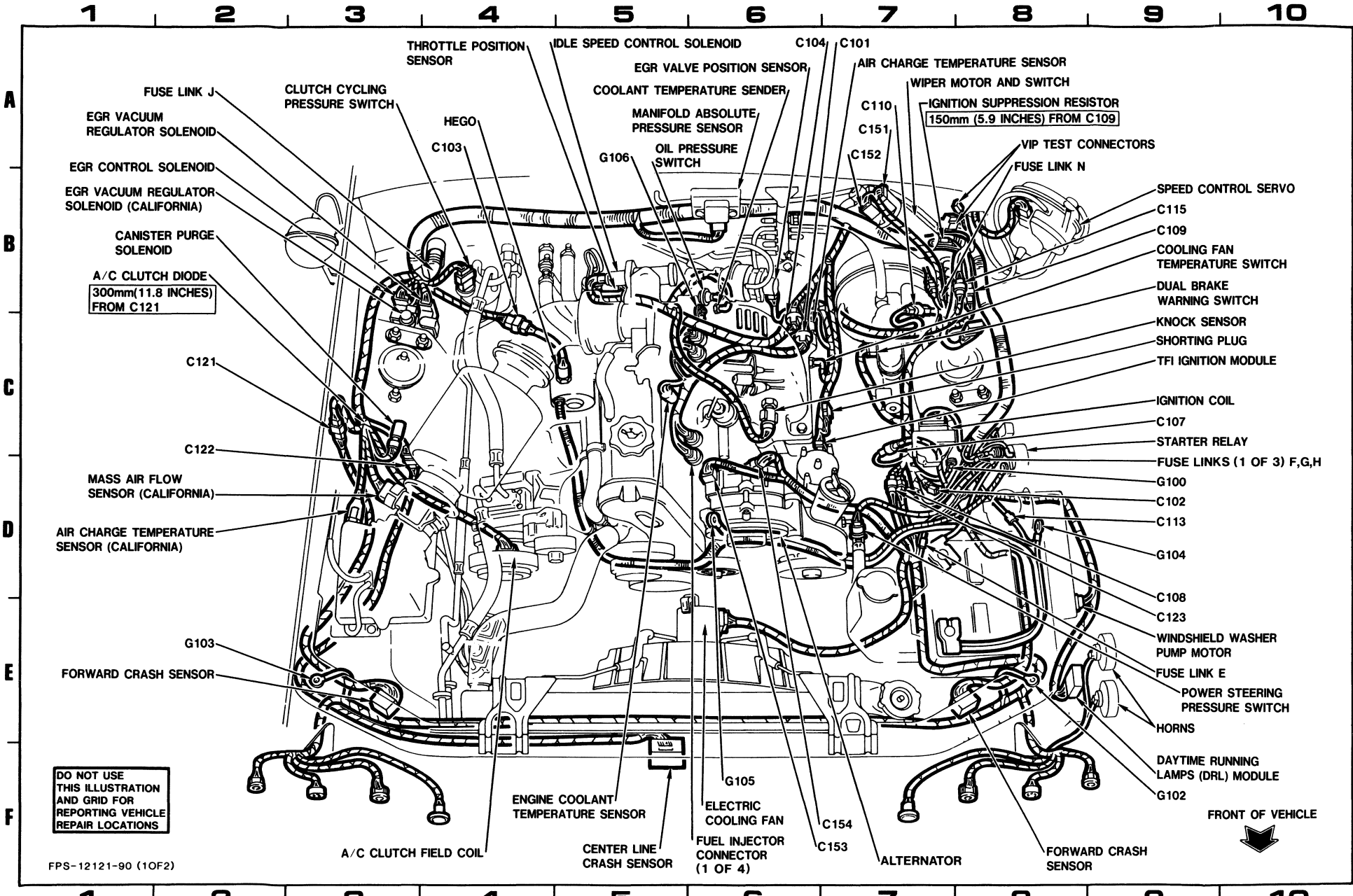
Position 3 is not used and is covered by Circuit Breaker 2.

Fuse Position	Amps	Circuits Protected
1	15	Stop/Hazard Lamps, Speed Control
2	8.25 c.b.	Interval Wiper/Washer, Washer Fluid Level Warning
3	—	(Not Used)
4	15	Exterior Lamps, Instrument Illumination
5	15	Turn Signals, Backup Lamps, Rear Window Defrost, Convertible Top, Daytime Running Lamps (DRL)
6	20	Instrument Illumination, A/C-Heater, Trunk Lid Release, Speed Control
7	15	(Not Used)
8	15	Courtesy Lamps, Radio, Instrument Illumination, Warning Chime, Power Mirrors
9	30	A/C-Heater
10	20	Flash-to-Pass, Daytime Running Lamps (DRL)
11	15	Radio
12	20	Air Bag Restraint System
13	5	Instrument Illumination
14	20 c.b.	Power Windows
15	10	Fog Lamps
16	4	Cigar Lighters, Horn
17	4	(Not Used)
18	10	Instrument Cluster, Air Bag Restraint System, Warning Chime, Low Oil Level Warning Relay

12-1 CHARGE/POWER DISTRIBUTION



151-1 COMPONENT LOCATION VIEWS



2.3L Engine

151-3 COMPONENT LOCATION VIEWS

Attach to page **151-3** of: **Mustang EVTM** - Refer to TSB **91-5B-20** for **Revised References To Electronic Engine Control Switches To Clearly Identify Each**

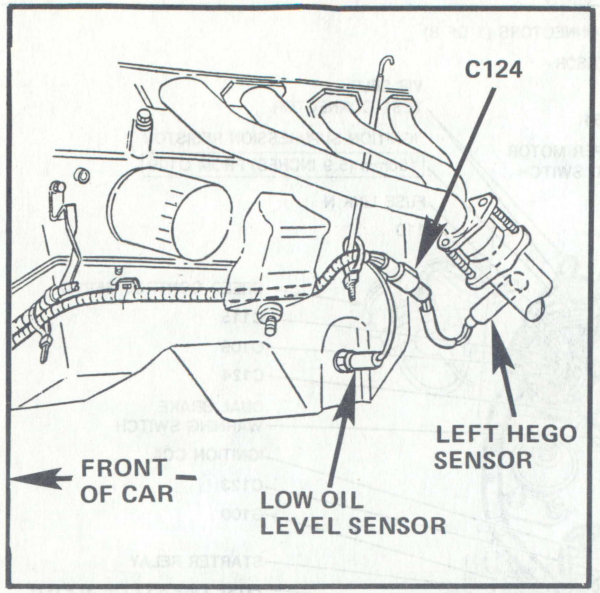


Figure 1 - Lower RH Side of 5.0L Engine

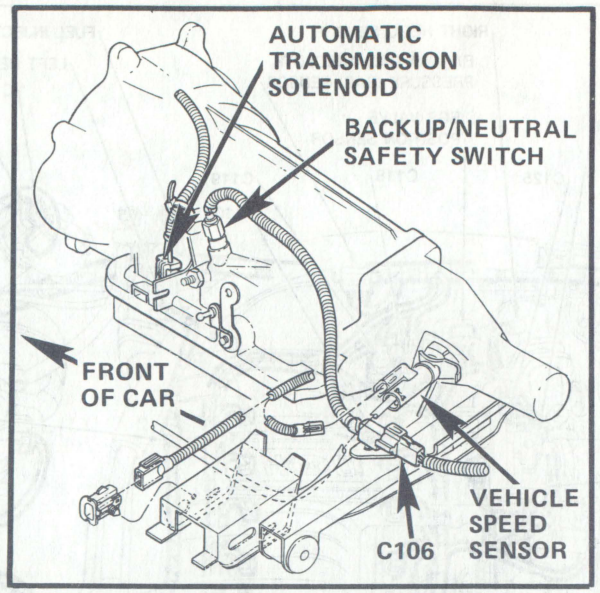


Figure 3 - LH Side of Automatic Transmission (2.3L Shown; 5.0L Similar)

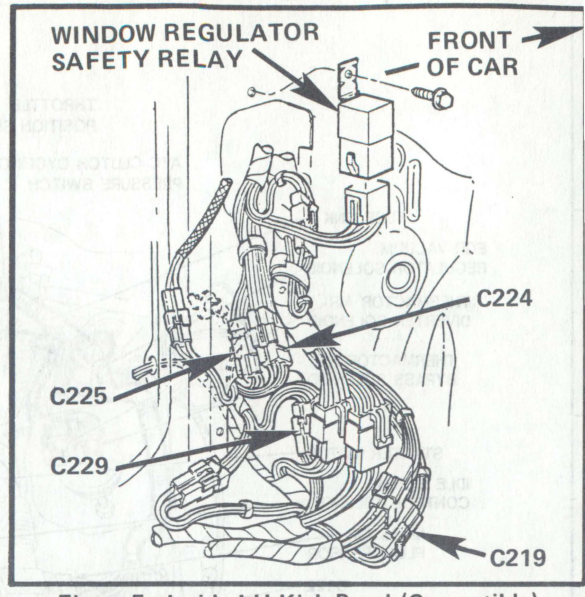


Figure 5 - Inside LH Kick Panel (Convertible)

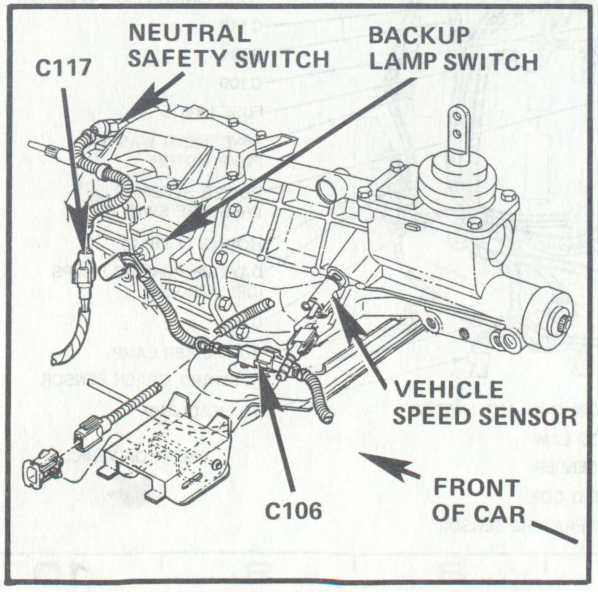


Figure 2 - LH Side of Manual Transmission (5.0L Shown; 2.3L Similar)

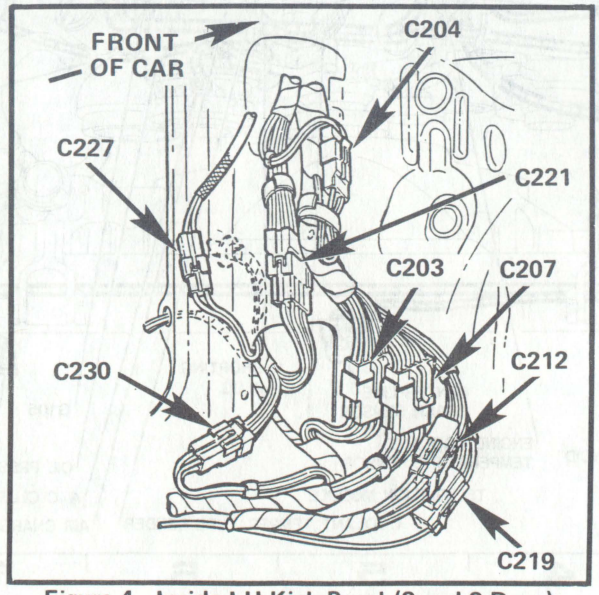


Figure 4 - Inside LH Kick Panel (2 and 3 Door)

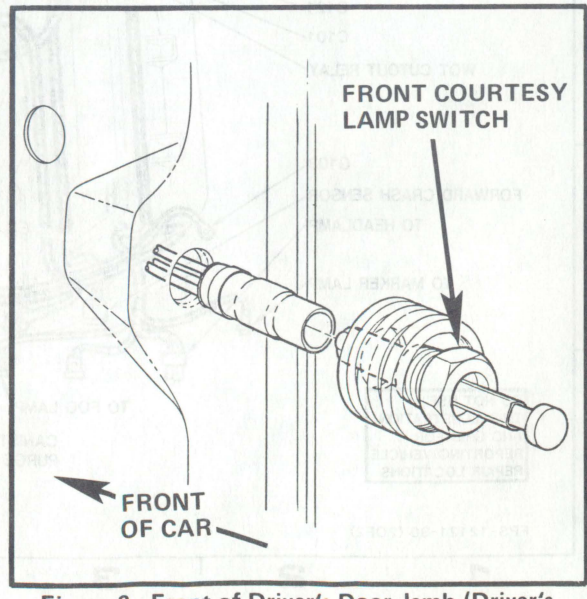


Figure 6 - Front of Driver's Door Jamb (Driver's Shown; Passenger's Similar)

151-9 COMPONENT LOCATION VIEWS

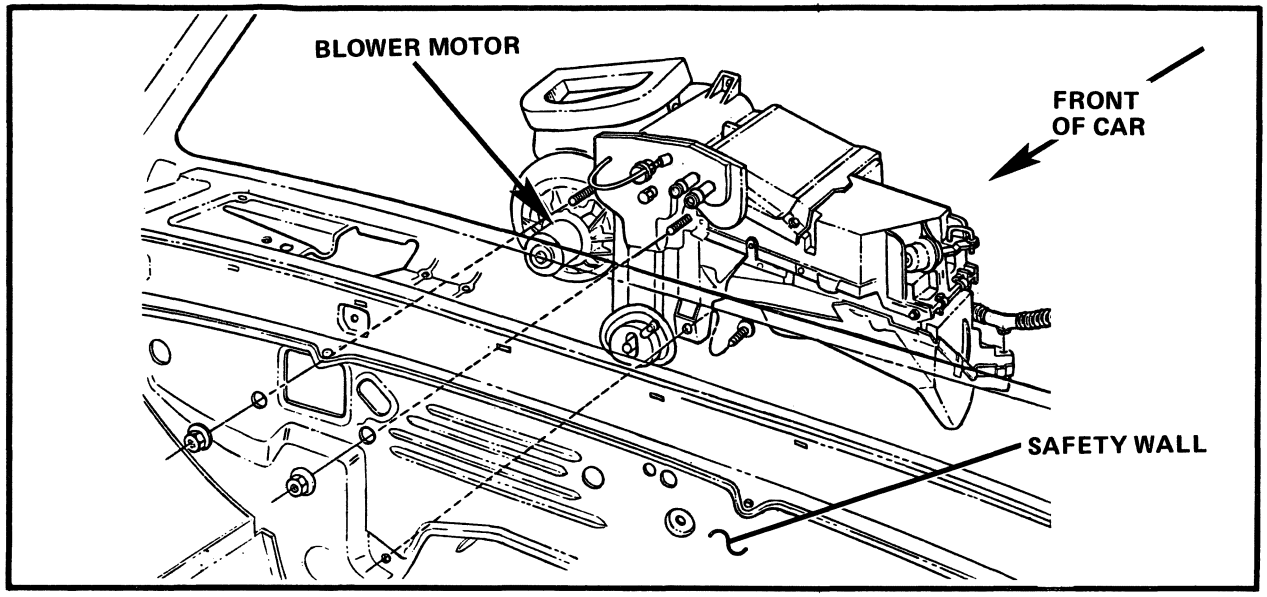


Figure 1 - Behind RH Side of Safety Wall

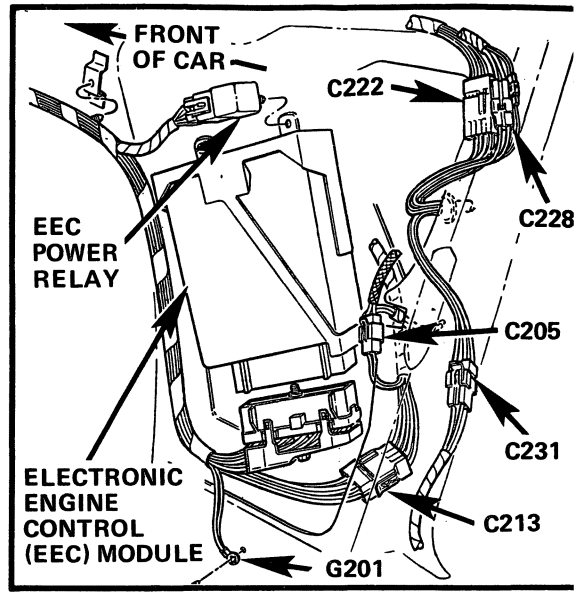


Figure 3 - Inside RH Kick Panel

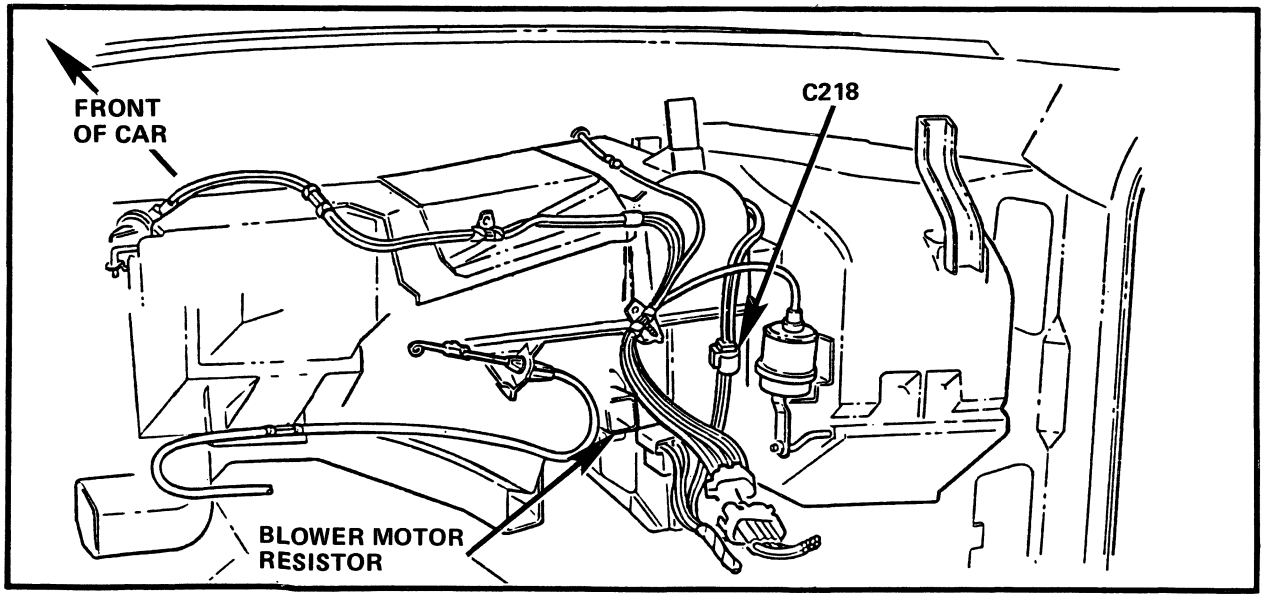


Figure 2 - Behind RH Side of I/P

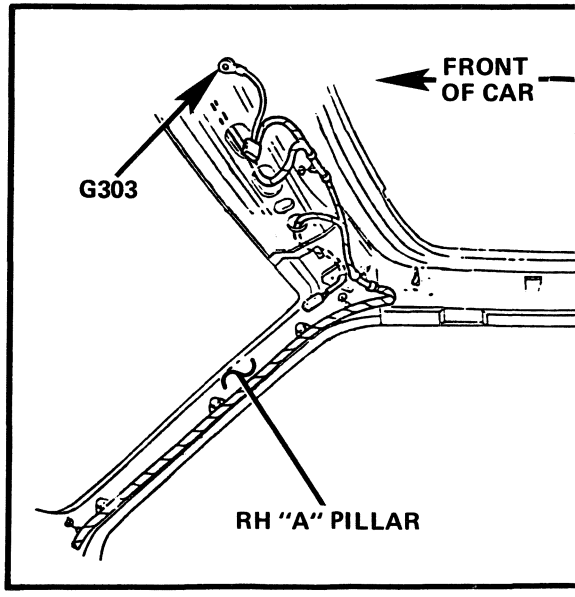


Figure 4 - Center of Windshield Header

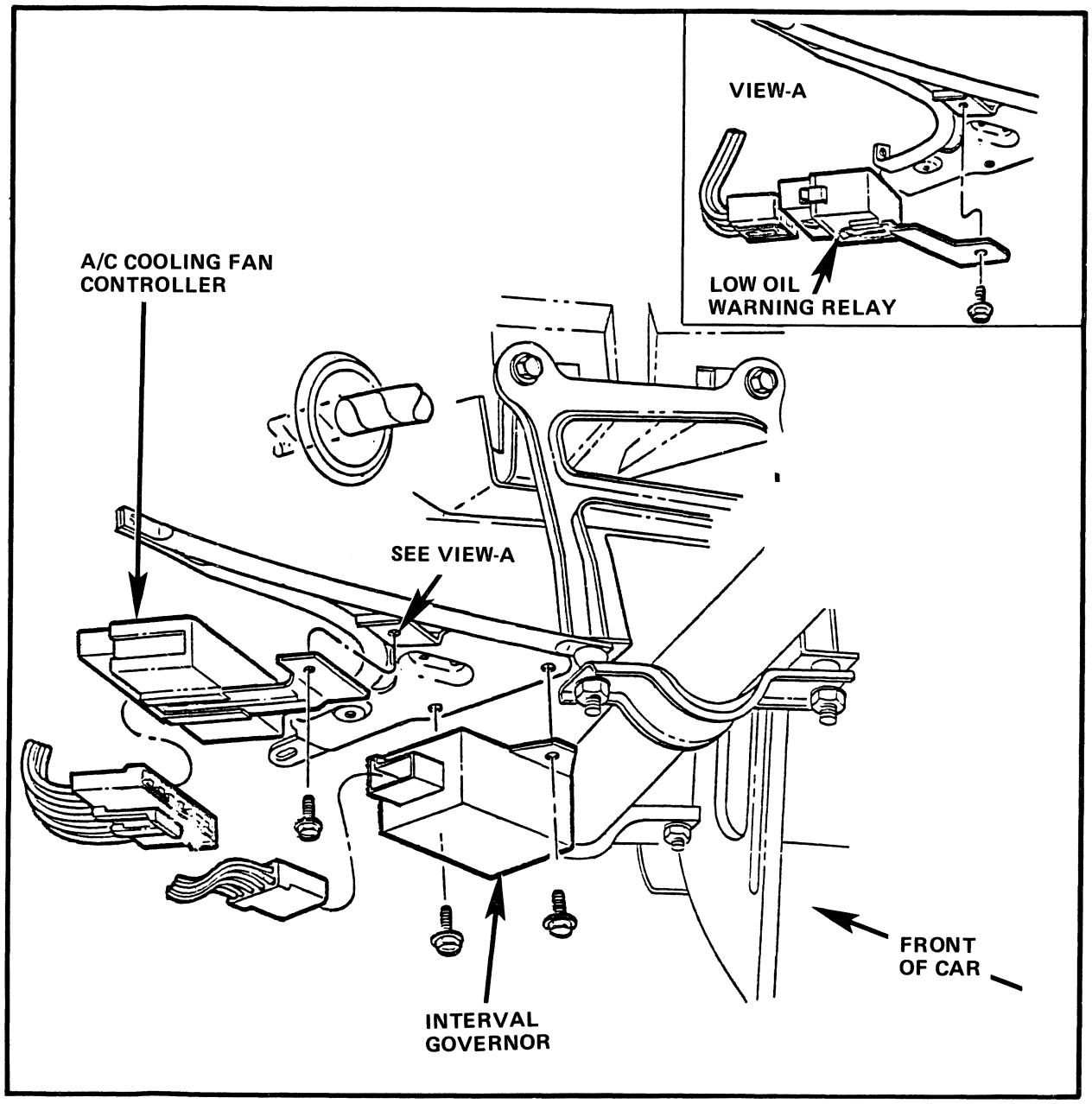


Figure 1 - Behind LH Side of I/P

152-1 LOCATION INDEX

Base Harness Number	Harness Name	Major Systems
6B018	Engine Block Heater	Engine Block Heater
7C078	Transmission Control Selector Neutral Switch	Backup Lamps
7E443	Transmission Control Switch	Speed Control Vehicle Speed Sensor
9A340	Fuel Pump Feed Jumper	Fuel Pump
9D930	Fuel Charge	Engine Controls
12A581	Engine Controls	A/C-Heater
		Air Bag Restraint System
		Engine Controls
		Start/Ignition
12A690	Engine Control Sensor Extension	Engine Controls
13412	Rear License Lamp	High Level Stop Lamp
		License Lamp
13B440	Rear License Lamp Feed	License Lamp
14024	Front Door Lock (RH)	Radio
		Right Front Power Door Locks
14025	Front Door Lock (LH)	Left Front Power Door Locks
		Power Mirrors
		Radio
14290	Dash Panel To Headlamp Junction	Alternator
		Cooling Fan
		Fog Lamps
		Front Side Marker Lamps
		Front Park/Turn Lamps
		Headlamps
		Horns
		Starter Relay
14334	Interior Lamp Feed	Courtesy Lamps
14335	Interior Lamp	Courtesy Lamps
14401	Main	A/C-Heater
		Air Bag Restraint System
		Convertible Top
		Daytime Running Lamps
		Defrost Switch
		Fog Lamps
		Fuse Panel
		Headlamps
		Horn

Base Harness Number	Harness Name	Major Systems
		Instrument Cluster
		Radio
		Rear Window
		Speed Control
		Start/Ignition
		Turn/Stop/Hazard Lamps
		Warning Chimes
		Windshield Wipers
14405	Rear Harness	Air Bag Rear Crash Sensor
		Backup Lamps
		Control Switches
		Convertible Top
		Fuel Pump Inertia Switch
		Fuel Pump Relay
		High Level Stop Lamps
		Left Courtesy Lamp Switch
		Marker Lamps
		Power Mirrors
		Radio
		Rear Window
		Turn/Stop/Hazard Lamps
14630	Right Front Window Regulator	Power Door Locks
		Radio
14631	Left Front Window Regulator	Power Door Locks
		Power Mirrors
		Power Windows
14A200	Window Regulator Relay Switch	Power Windows
14A205	Window Regulator Right Front Door	Power Door Locks
		Power Windows
14A318	Accessory Feed	Ashtray Illumination
		Cigar Lighter
14B084	Seat Back Pad Adjust	Lumbar Seats
14B121	Window Regulator Left Front Door	Power Door Locks
		Power Windows
15525	Backup Lp Sw To Rear Lamp Feed	Backup Lamps
15A702	Engine Compartment Lamp	Courtesy Lamps
18C618	Back Window Heater	Rear Window Defrost

152-3 LOCATION INDEX

Base Harness Number	Harness Name	Major Systems
18C620	Back Window Heater Ground	Rear Window Defrost
19A044	Radio Speaker Front (LH)	Power Mirrors
		Radio
19A170	Radio Speaker Jumper	Radio
19B113	Graphic Equalizer	Radio
19B516	Luggage Compartment Lamp	High Level Stop Lamp
		License Lamp
		Trunk Lid Release
19D887	Air Conditioning Jumper	A/C-Heater

Attach to page **152-4** of: **Mustang EVTM** - Refer to TSB **91-5B-20** for **Revised References To Electronic Engine Control Switches To Clearly Identify Each**

LOCATION INDEX 152-4

Component	Base Part No.	Location	Page Figure	Connector Page
A/C Clutch Diode (2.3L)		RH side of engine compartment	151-1-B1	
A/C Clutch Diode (5.0L)		LH side of engine compartment, near A/C compressor assembly	★	
A/C Clutch Field Coil (2.3L)	2A987	Lower RH front of engine, part of A/C compressor assembly	151-1-F3	
A/C Clutch Field Coil (5.0L)	2A987	Top LH front of engine, part of A/C compressor assembly	151-2-F7	
A/C Cooling Fan Controller	8B658	Behind LH side of I/P	151-16-1	150-1
Air Bag Backup Power Supply		Behind RH side of I/P, above glove box	151-7-1	150-1
Air Bag Diagnostic Module	14B056	Behind center of I/P	151-7-1	150-2
Air Charge Temperature Sensor (2.3L) (49 States and Canada)	12A697	LH side of engine	151-1-A7	
Air Charge Temperature Sensor (2.3L) (California)	12A697	RH side of engine compartment	151-1-D1	
Air Charge Temperature Sensor (5.0L)	12A697	Top center of engine	151-2-F7	
Alternator (2.3L)	10300/10346	LH front of engine	151-1-F7	150-1
Alternator (5.0L)	10300/10346	RH side of engine	151-2-F4	150-1
Automatic Transmission Solenoid		LH side of automatic transmission	151-3-3	
Backup Lamp Switch	15520	LH side of manual transmission	151-3-2	
Backup/Neutral Safety Switch	7A247	LH side of automatic transmission	151-3-3	
Barometric Absolute Pressure (BAP) Sensor	12A680	Center of safety wall	151-2-A5	
Blower Motor	19827/19805	Behind RH side of I/P	151-9-1	
Blower Motor Resistor	19A706	Behind RH side of I/P	151-9-2	
Canister Purge Solenoid (2.3L)	9C915	RH side of engine compartment	151-1-B1	
Canister Purge Solenoid (5.0L)	9C915	Lower RH side of engine	151-2-F3	
Center Line Crash Sensor	14B006	Top center of radiator support	151-1-F5	
Clutch Cycling Pressure Switch	19E561	RH rear of engine compartment, on A/C accumulator	151-1-A3	
Clutch Interrupt Switch		Behind LH side of I/P, on clutch pedal support	151-5-1	
Clutch Pedal Switch		Behind LH side of I/P, on clutch pedal support	151-4-4	
Clutch Sense Switch		Behind LH side of I/P, on clutch pedal support	151-5-1	

★ No Figure Available

152-5 LOCATION INDEX

Attach to page **152-5** of: **Mustang EVTM** - Refer to TSB **91-5B-20** for **Revised References To Electronic Engine Control Switches To Clearly Identify Each**

Component	Base Part No.	Location	Page Figure	Connector Page
Clutch Switch		Behind LH side of I/P, on clutch pedal support	151-4- 4	
Convertible Top Circuit Breaker	14526	Behind LH side of I/P, near fuse panel	151-4- 3	
Convertible Top Motor		Behind center of rear seat	151-12- 1	
Coolant Temperature Sender (2.3L)	10884	Lower LH rear of engine	151-1-A5	
Coolant Temperature Sender (5.0L)	10884	Top center of engine	151-2-F 5	
Cooling Fan Temperature Switch	8B607	Lower LH side of engine	151-1-B 9	
Daytime Running Lamps (DRL) Module	15A272	Inside front of LH fender	151-1- F9	150- 3
Door Lock Motor	14A626	Inside rear of respective door	151-10- 1	
Door Lock Switch	14028	Center of respective door, part of window control switch assembly	151-10- 1	150-22
Driver's Seat Belt Switch	10B924	Inside driver's seat belt buckle assembly	★	
Dual Brake Warning Switch	2B264	LH rear of engine compartment, on brake fluid reservoir	151-1-B 9	
EEC Power Relay	12A646	Behind RH side of I/P, at cowl panel	151-9- 31	150- 3
EGR Control Solenoid	9D474	RH rear of engine compartment, behind shock tower	151-1-A1	
EGR Vacuum Regulator Solenoid (2.3L) (49 States and Canada)	9D460	RH rear of engine compartment, behind shock tower	151-1-A1	
EGR Vacuum Regulator Solenoid (2.3L) (California)	9D460	RH rear of engine compartment, behind shock tower	151-1-B1	
EGR Vacuum Regulator Solenoid (5.0L)	9D460	RH rear of engine compartment, behind shock tower	151-2-B1	
EGR Valve Position Sensor (2.3L)	9G428	Top center of engine	151-1-A6	
EGR Valve Position Sensor (5.0L)	9G428	Top RH side of engine	151-2-A5	
Electric Cooling Fan	8K620	Center front of engine compartment	151-1- F6	

★ No Figure Available

Component	Base Part No.	Location	Page Figure	Connector Page
Electronic Engine Control (EEC) Module (2.3L) (49 States and Canada)	12A650	Behind RH side of I/P, at cowl panel	151-9- 3	150- 4
Electronic Engine Control (EEC) Module (2.3L) (California)	12A650	Behind RH side of I/P, at cowl panel	151-9- 3	150- 6
Electronic Engine Control (EEC) Module (5.0L)	12A650	Behind RH side of I/P, at cowl panel	151-9- 3	150- 8
Electronic Radio (with Premium Sound)	18805	Center of I/P	151-8- 2	150-11
Electronic Radio (without Premium Sound)	18805	Center of I/P	151-8- 2	150-10
Engine Coolant Temperature Sensor (2.3L)	12A648	LH side of engine	151-1-F4	
Engine Coolant Temperature Sensor (5.0L)	12A648	Top RH front of engine	151-2-F4	
Engine Indicator Diode	10C912	Behind LH side of I/P, taped to main harness	151-7- 1	
Forward Crash Sensor	14B004-7	Inside front of respective fender	151-1-F8	
Front Courtesy Lamp Switch	13A764	Inside front of respective door jamb	151-3- 6	
Front Window Motor		Inside front of respective door	151-10- 1	
Fuel Gauge Sender	9H307	Below rear of car, inside fuel tank	151-15- 1	
Fuel Injectors (2.3L)	9F593	Top of each cylinder	151-1-F6	
Fuel Injectors (5.0L)	9F593	Top of each cylinder	151-2-A7	
Fuel Pump	9350	Below rear of car, inside fuel tank	151-14- 2	
Fuel Pump Diode		Below rear of car, behind fuel tank	151-13- 4	
Fuel Pump Relay	9345	Below driver's seat assembly	151-11- 1	150- 3
Fuse Link A	14526	LH side of engine compartment, at starter relay	151-2-D9	
Fuse Link B	14526	LH side of engine compartment, at starter relay	151-2-D9	
Fuse Link C	14526	LH side of engine compartment, at starter relay	151-2-D9	
Fuse Link D	14526	LH side of engine compartment, at starter relay	151-2-D9	
Fuse Link E	14526	LH side of engine compartment, at starter relay	151-1-E9	

Attach to page **152-8** of: **Mustang EVTM** - Refer to TSB **91-5B-20** for **Revised References To Electronic Engine Control Switches To Clearly Identify Each**

LOCATION INDEX 152-8

Component	Base Part No.	Location	Page Figure	Connector Page
Interval Wiper/Washer Switch	17A553	Top LH side of steering column	151-6- 1	150-15
Knock Sensor	12A699	LH side of engine	151-1-C9	
LCD Illumination Relay	9345	Behind center of I/P	151-6- 3	150-15
Left HEGO Sensor	9F472	Lower LH rear of engine	151-2-A7	
Low Coolant Switch	10D968	LH front of engine compartment, in reservoir	151-2-F7	
Low Oil Level Sensor	6C624	Lower LH rear of engine	151-3- 1	
Low Oil Warning Relay	6C625	Behind LH side of I/P	151-16-1	150-16
Lower Relay		Behind center of rear seat	151-12-1	150-15
Main Light Switch	11654	LH side of I/P, left of instrument cluster	151-5- 2	150-16
Manifold Absolute Pressure (MAP) Sensor	12A680	Center of safety wall	151-1-A5	
Mass Air Flow Sensor (2.3L)	12B759	RH side of engine compartment	151-1-D1	
Mass Air Flow Sensor (5.0L)	12B579	RH side of engine compartment	151-2-C2	
Multi-Function Switch	13K359	Inside top of steering column	151-6- 1	150-16
Neutral Safety Switch	7A247	Top front of automatic transmission	151-3- 2	
Oil Pressure Sender		Lower LH front of engine	151-2-F7	
Oil Pressure Switch	9278	LH rear of engine	151-1-A5	
Park Brake Switch	15A851	Below center console, on park brake lever assembly	151-11-1	
Power Lumbar Compressor Motors		Under respective seat assembly		
Power Mirror Switch	17682	On center console	151-11-1	150-17
Power Steering Pressure Switch	3N824	Lower LH side of engine compartment	151-1-E9	
Premium Sound Amplifier	18B489	Below center console	151-8- 1	150-18
Raise Relay		Behind center of rear seat	151-12-1	150-19
Rear Courtesy Lamp Switch	13713	Center rear of cargo area	151-15-3	
Rear Crash Sensor	14B004-7	Inside front of LH rear quarter panel	151-11-2	150-19
Rear Window Control Switch		Front of respective rear quarter panel	151-12-1	150-24
Rear Window Defrost Control Relay	18C641	Behind LH side of I/P, near fuse panel	151-4- 3	150-19
Rear Window Motor		Inside front of respective quarter panel	151-12-1	
Right HEGO Sensor	9F472	Lower RH rear of engine	151-2-A5	
Shorting Plug (2.3L)	14489	Lower LH side of engine	151-1-C9	
Shorting Plug (5.0L)	14489	LH front of engine	151-2-F6	
Speed Control Amplifier	9D843	Behind LH side of I/P, near cowl panel	151-4- 1	150-20

Component	Base Part No.	Location	Page Figure	Connector Page		
C100		Lower LH side of engine compartment	151-2-D9		BK	2
C101 (2.3L)		LH side of engine	151-1-A7		BK	8
C101 (5.0L)		RH side of engine compartment	151-2-D2		BK	8
C102		LH rear of engine compartment	151-1-D9		BR	1
C103		RH rear of engine compartment	151-1-A4		BK	4
C104		LH side of engine	151-1-A6		BK	8
C106 (Automatic)		LH side of transmission	151-3- 3		GY	4
C106 (Manual)		LH side of transmission	151-3- 2		GY	4
C107		Lower LH side of engine compartment	151-1-C9		BK	4
C108		Lower LH side of engine compartment	151-1-E9		BK	8
C109		LH rear of engine compartment	151-1-B9		GY	8
C110		LH rear of engine compartment	151-1-A7		BK	8
C113		LH front of engine compartment, behind battery	151-1-D9		BK	1
C115		LH rear of engine compartment	151-1-B9		GY	4
C117		LH side of transmission	151-3- 2		BK	2
C118		Top RH side of engine	151-2-A5		BK	10
C119		Top RH side of engine	151-2-A6		GY	10
C121		RH side of engine compartment	151-1-C2		GY	4
C122		RH side of engine compartment	151-1-C2			
C123		LH side of engine compartment, near ignition coil	151-1-E9			
C124		Lower LH side of engine compartment	151-2-B9		BK	4
C125		Lower RH side of engine compartment	151-2-A4		BK	4
C126		LH front corner of engine compartment	151-2-F7		BK	2
C127		RH front corner of engine compartment	151-2-F3		BK	2
C151		LH side of safety wall, on wiper motor and switch	151-1-A7	150-24	GY	3
C152		LH side of safety wall, on wiper motor and switch	151-1-A7	150-25	BK	3
C153 (2.3L)		LH side of engine, on alternator	151-1-F7	150- 1	BK	3
C153 (5.0L)		RH side of engine, on alternator	★	150- 1	BK	3
C154 (2.3L)		LH side of engine, on alternator	151-1-F7	150- 1	BK	3
C154 (5.0L)		RH side of engine, on alternator	★	150- 1	BK	3
C200		Inside steering column	151-6- 1			
C201		Inside steering column	151-6- 1		GY	1
C202		Inside top of steering column	151-7- 1		GY	3
C203		Inside LH cowl panel	151-3- 4		BK	12

★ No Figure Available

Component	Base Part No.	Location	Page Figure	Connector Page		
C204		Inside LH cowl panel	151-3- 4		GY	2
C205		Inside RH cowl panel	151-9- 3		GY	2
C206		Behind LH side of I/P, on fuse panel	151-4- 3		W	1
C207		Inside LH cowl panel	151-3- 4		GY	12
C209		Behind LH side of I/P, on I/P support brace	151-4- 6		GY	2
C212		Inside LH cowl panel	151-3- 4		BK	8
C213		Inside RH cowl panel	151-9- 3		GR	8
C214		Behind LH side of I/P, on speed control amplifier	151-4- 1	150-20	GY	6
C215		Behind LH side of I/P, on speed control amplifier	151-4- 1	150-20		
C216		Inside RH cowl panel	★		GY	8
C217		Inside LH cowl panel	★		GY	8
C218		Behind RH side of I/P	151-9- 2		BK	2
C219		Inside LH cowl panel	151-3- 5		GY	4
C220		Behind LH side of I/P, on hazard warning switch	151-5- 3	150-12	GY	8
C221		Inside LH cowl panel	151-3- 4		GY	8
C222		Inside RH cowl panel	151-9- 3		GY	8
C224		Inside LH cowl panel	151-3- 5		BL	6
C225		Inside LH cowl panel	151-3- 5		BK	4
C227		Inside LH cowl panel	151-3- 4		GY	2
C228		Inside RH cowl panel	151-9- 3		GY	2
C229		Inside LH cowl panel	151-3- 5		GY	8
C230		Inside LH cowl panel	151-3- 4		BK	4
C231		Inside RH cowl panel	151-9- 3		BK	4
C233		Behind LH side of I/P, on I/P support brace	151-4- 6			
C250		Behind LH side of I/P, on rear of instrument cluster	151-6- 2	150-14	GY	14
C251		Behind LH side of I/P, on rear of instrument cluster	151-6- 2	150-14	BR	14
C257 (with Premium Sound)		Behind center of I/P, near electronic radio	151-8- 3		BK	8
C257 (without Premium Sound)		Behind center of I/P, on electronic radio	151-8- 2	150-10	BK	8
C258 (with Premium Sound)		Behind center of I/P, near electronic radio	151-8- 3		BK	8
C258 (without Premium Sound)		Behind center of I/P, on electronic radio	151-8- 2	150-10	BK	8
C268		Top of steering column, on multi-function switch	151-6- 1	150-16	GY	4
C269		Top of steering column, on multi-function switch	151-6- 1	150-17	GY	10

★ No Figure Available

Component	Base Part No.	Location	Page Figure	Connector Page		
C270		Top LH side of steering column, on interval wiper/washer switch	151-6-1	150-15		
C600		Inside center of passenger's door	★		BR	6
C601		Inside center of passenger's door	★		BR	6
C604		Inside lower front of passenger's door	151-10-1		GY	2

Ground	Location	Page Figure
G100	At LH fender apron	151-1-D9
G102	Top LH front of engine compartment	151-1-F9
G103	Top RH front of engine compartment	151-1-E2
G104	At LH fender apron	151-1-D9
G105 (2.3L)	LH side of engine	151-1-F6
G105 (5.0L)	Lower LH side of engine	151-2-F7
G106	LH rear of engine	151-1-A5
G109	RH rear of engine	151-2-B6
G110	LH front of engine compartment hood	151-17-1
G200	Behind center of I/P, on I/P support brace	151-8-4
G201	Behind RH cowl panel	151-9-3
G202	Behind center of I/P, on I/P support brace	151-8-4
G203	Behind center of I/P, on support I/P brace	151-7-1
G300	Below driver's seat assembly	151-11-1
G301	Below center console, on park brake assembly	151-11-1
G302 (2 Door)	RH side of trunk	151-11-3
G302 (3 Door)	RH side of hatchback	151-14-1
G303	Top center of windshield header	151-9-4
G304	Behind center of rear seat	151-12-1
G400	Center rear of cargo compartment/trunk	151-15-2
G401 (2 Door)	LH side of trunk, above wheel well	151-13-1
G401 (3 Door)	LH rear corner of hatchback	151-14-1
G402	Lower LH side of cargo area	151-13-2
G500	Inside driver's door	151-10-1

★ No Figure Available

Splice	Location
S100	Main harness, near T/O to G100
S101	Engine harness, near T/O to clutch cycling pressure switch
S102	Engine harness, near T/O to C109
S103	Dash panel to headlamp junction harness, near T/O to left headlamp
S104	Dash panel to headlamp junction harness, near T/O to right headlamp
S105	Engine harness, at T/O to C113
S106	Engine control sensor extension harness, near T/O to C101
S107	Engine control sensor extension harness, near T/O to C101
S108	Dash panel to headlamp junction harness, near T/O to G102
S109	Main harness, near T/O to windshield washer pump test connector
S110	Fuel charge harness, near T/O to fuel injector NO.2
S111	Main harness, near T/O to windshield washer pump test connector
S112	Engine harness, near T/O to C101
S113	Engine harness, near T/O to C101
S115	Engine harness, near T/O to manifold absolute pressure (MAP) sensor
S116	Engine harness, near T/O to manifold absolute pressure (MAP) sensor
S118	Dash panel to headlamp junction harness, near T/O to G102
S119	Engine harness, near T/O to clutch cycling pressure switch
S121	Fuel charge harness, near T/O to EGR valve position sensor
S122	Fuel charge harness, near T/O to fuel injector NO.4
S123	Engine harness, near T/O to clutch cycling pressure switch
S124	Engine harness, near T/O to manifold absolute pressure (MAP) sensor
S126	Engine control sensor extension harness, near T/O to C101
S127	Main harness, near T/O to C110
S128	Fuel charge harness, near T/O to C119
S129	Main harness, near T/O to windshield washer pump test connector
S130	Dash panel to headlamp junction harness, near T/O to left headlamp
S131	Engine control sensor extension harness, near T/O to idle speed control solenoid
S132	Engine harness, near T/O to C109
S133	Dash panel to headlamp junction harness, near T/O to low coolant switch
S200	Main harness, near T/O to engine indicator diode
S204	Main harness, near T/O to engine indicator diode
S205	Radio speaker jumper harness, near T/O to electronic radio
S206	Main harness, near T/O to C276
S207	Main harness, near T/O to convertible top circuit breaker
S208	Main harness, near T/O to engine indicator diode

160-1 VEHICLE REPAIR LOCATION CODE

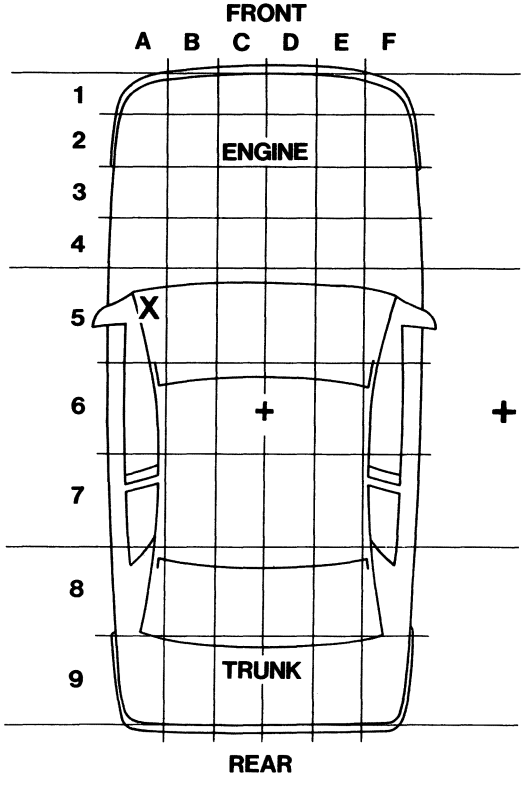
VEHICLE REPAIR LOCATION CODES

TO PINPOINT THE ACTUAL VEHICLE LOCATION OF A REPAIR. THE VEHICLE REPAIR LOCATION CODE IS REQUIRED.

FOR EXAMPLE, AN "X" HAS BEEN PLACED IN THE QUADRANT OF THE VEHICLE DIAGRAMS INDICATING THE LOCATION OF THE REPAIR. SEE DIAGRAMS.

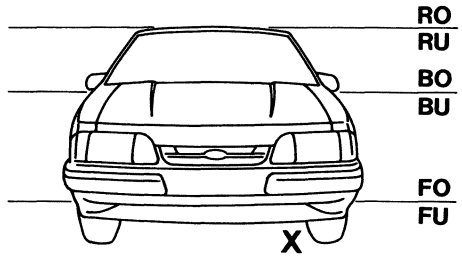
LOCATION CODE, FOR THE EXAMPLE IS: A5/FU — (UNDER THE FLOOR OF DRIVER'S LEFT FOOT.)

FRONT/REAR DIRECTION



+ CENTER OF VEHICLE

OVER/UNDER DIRECTION



R = ROOF LINE
RO = ROOF OVER
RU = ROOF UNDER

B = BELT LINE
BO = BELT OVER
BU = BELT UNDER

F = FLOOR PAN
FO = FLOOR OVER
FU = FLOOR UNDER