# 1990 MUSTANG





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Electrical & Vacuum Trouble-Shooting Manual

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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

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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.

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 trouble-shooting 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 trouble-shooting. 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.

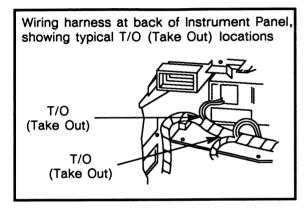
The wiring diagrams show the number of times the resistors and diodes are used. The wiring diagrams also show the distance from connector/length of wire in exact centimeters. Resistors and diodes are identified on the wiring diagrams by the following base part numbers:

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.

 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.



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	0	Orange
BR	Brown	PK	Pink
DB	Dark Blue	Р	Purple
DG	Dark Green	R	Red
GR	Green	Т	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.

 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**

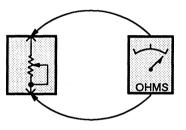


Figure 1-Resistance Check

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

### TEST LAMP

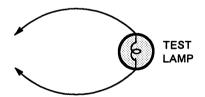


Figure 2-Test Lamp

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

Uses: Voltage Check, Short Check

### SELF-POWERED TEST LAMP

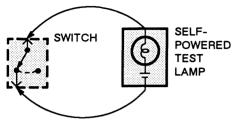


Figure 3-Continuity Check

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.

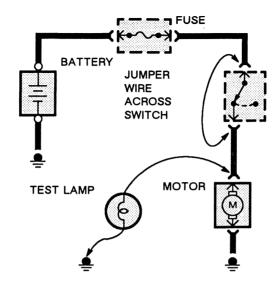


Figure 4—Switch Circuit Check and Voltage Check

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).

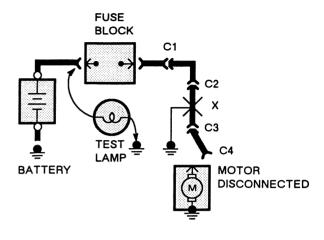


Figure 5-Short Check

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.
- 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.)

- 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.

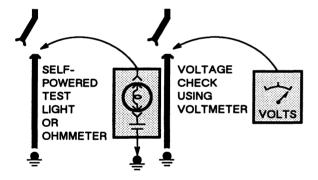


Figure 6—Ground Checks

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.

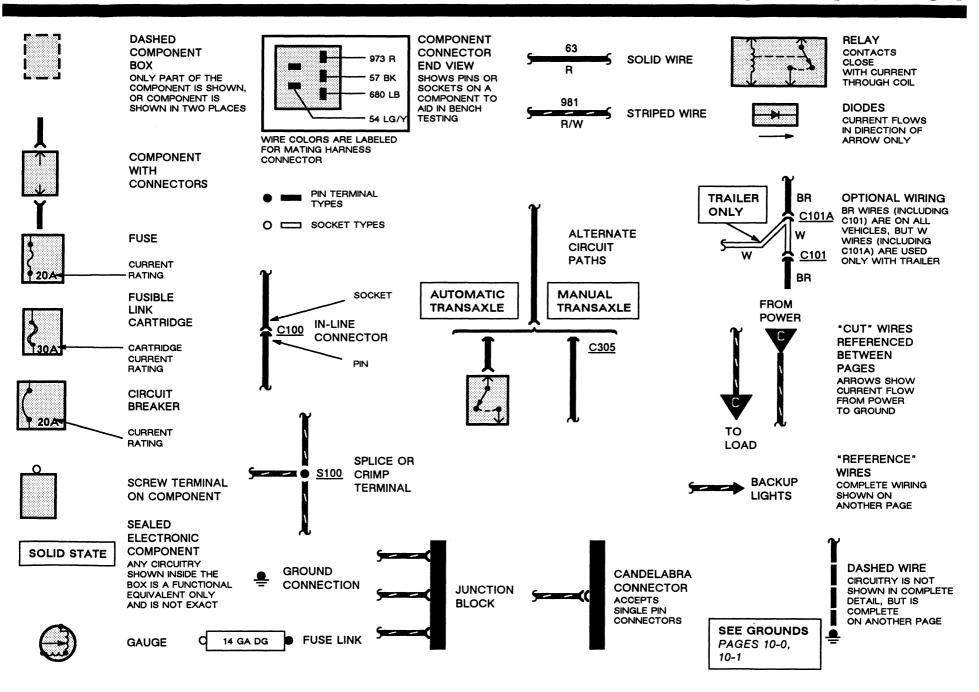
Turn off power to the circuit. Connect one lead of a Self-Powered Test Lamp or Ohmmeter to the wire in question and the other lead to a known ground. If the bulb glows, the circuit ground is OK (Figure 6).

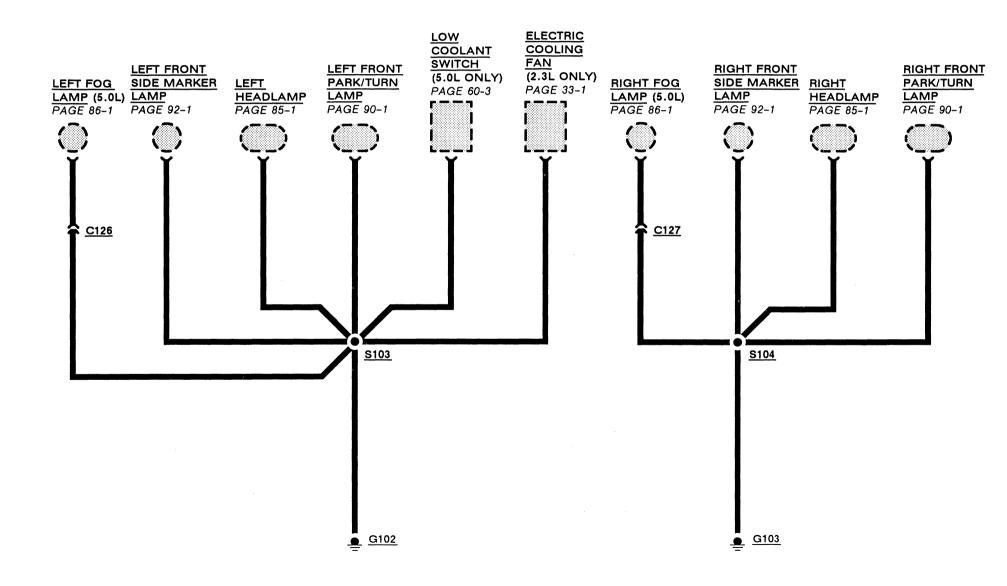
### TROUBLESHOOTING HINTS

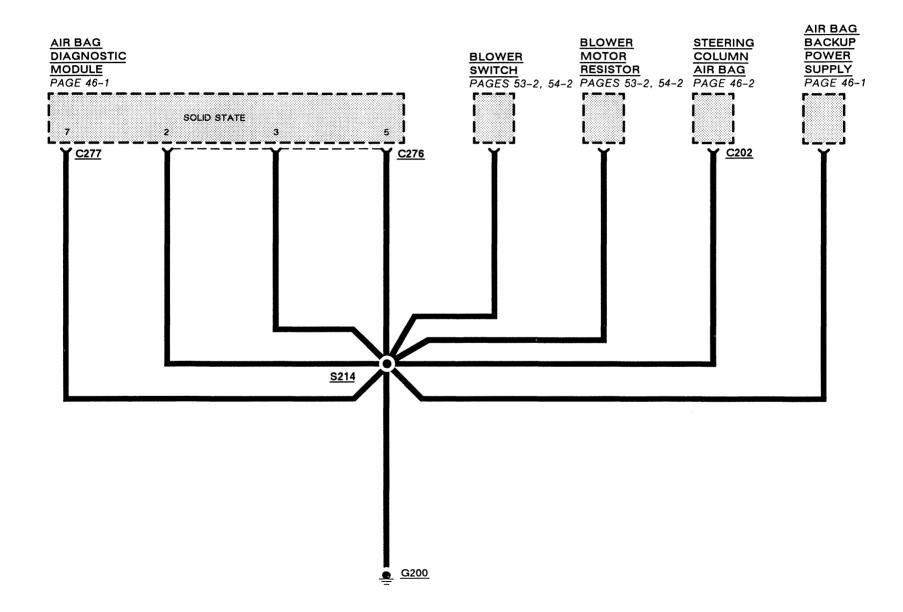
The circuit schematics in this manual make it easy to identify common points in circuits. This knowledge can help narrow the problem to a specific area. For example, if several circuits fail at the same time, check for a common power or ground connection. (See *Power Distribution* or *Grounds*.) If part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

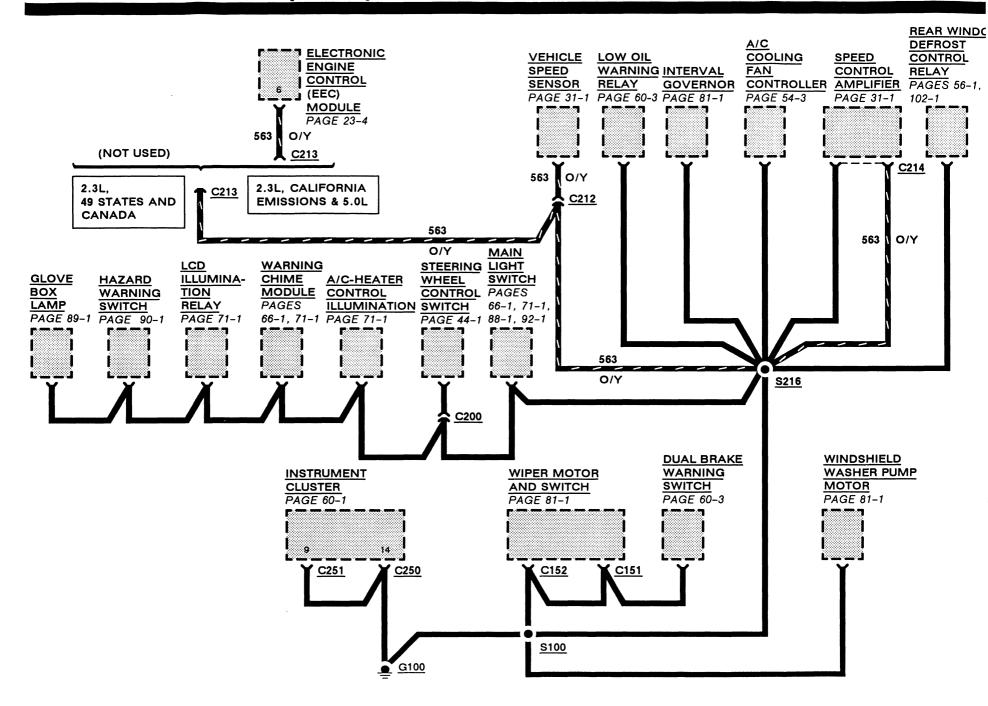
For example, if low beam headlamps work, but high beams and the indicator lamp don't work, then power and ground paths must be good. Since the dimmer switch is the component that switches this power to the high beam lights and indicator, it is most likely the cause of failure.

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.









# 11-1 FUSE PANEL/CIRCUIT PROTECTION

# REPLACEMENT OF FUSES/CIRCUIT BREAKERS



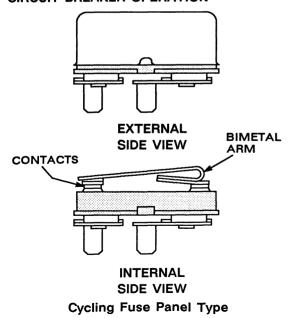


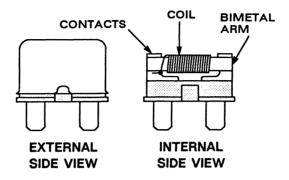
**GOOD FUSE** 

**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





Non-Cycling Fuse Panel Type



Cycling In-Line Type

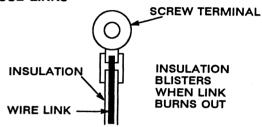
Some circuits are protected by circuit breakers (abbreviated "c.b." in fuse chart). They can be Fuse Panel mounted or in-line. Like fuses, they are rated in amperes.

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**



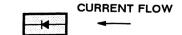
The fuse link is a short length of wire, smaller in gauge than the wire in the protected circuit. The wire is covered with a thick non-flammable insulation. An overload causes the link to heat and the insulation to blister. If the overload remains, the link will melt, causing an open circuit. The links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

### COLOR CODE

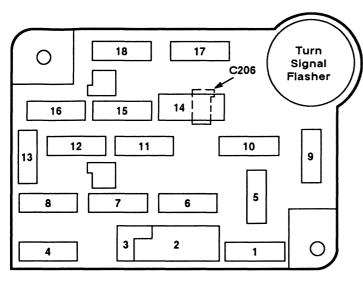
BLUE	20 GA
BROWN	18 GA
BLACK	16 GA
GREEN	14 GA
GRAY	12 GA

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**

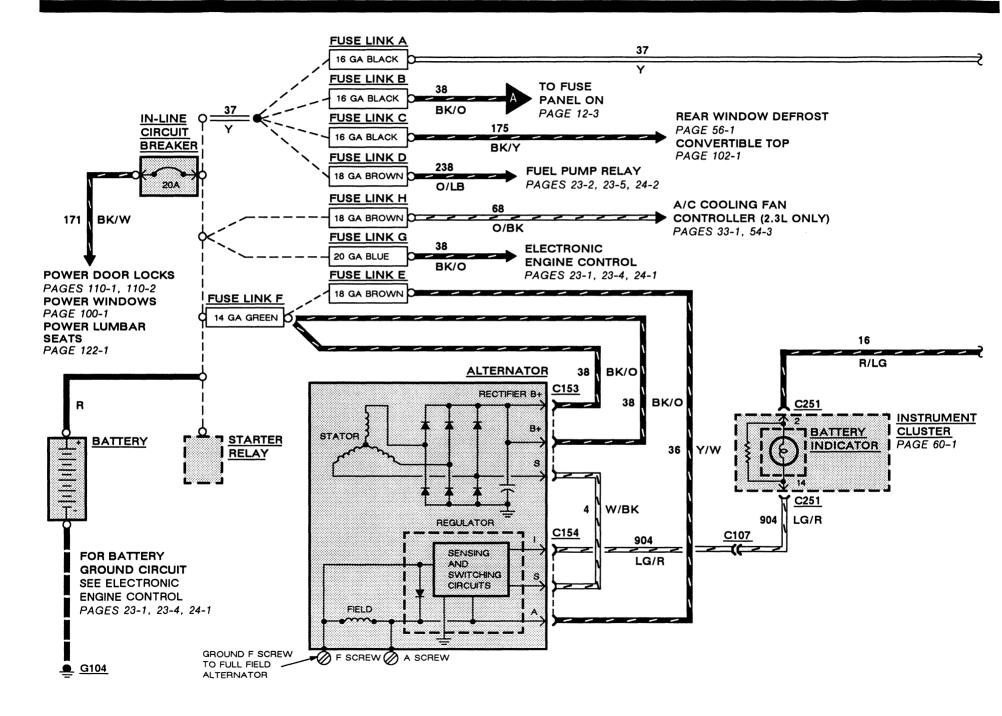
The Alternator and Battery are connected together at the Starter Relay hot terminal. Other circuits originate at the Starter Relay hot terminal and are protected by fuse links. Low power circuits are also protected by fuses.

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.

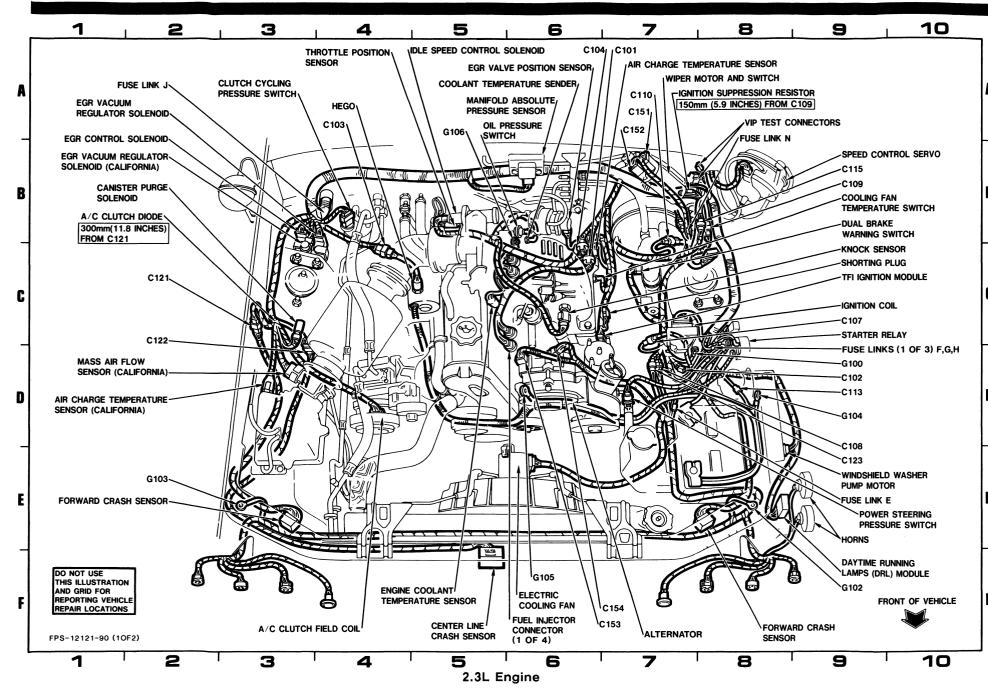
Position 3 is not used and is covered by Circuit Breaker 2.

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



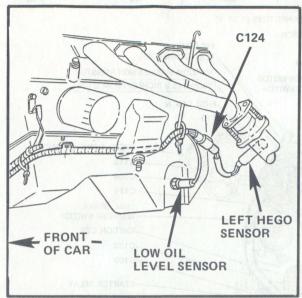


Figure 1 - Lower RH Side of 5.0L Engine

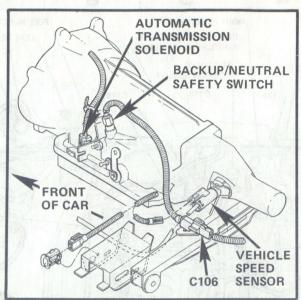


Figure 3 - LH Side of Automatic Transmission (2.3L Shown; 5.0L Similar)

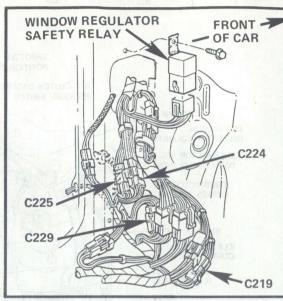


Figure 5 - Inside LH Kick Panel (Convertible)

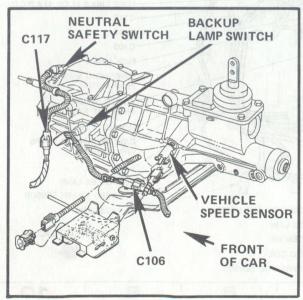


Figure 2 - LH Side of Manual Transmission (5.0L Shown; 2.3L Similar)

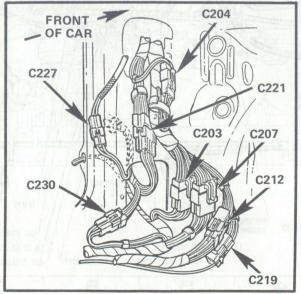


Figure 4 - Inside LH Kick Panel (2 and 3 Door)

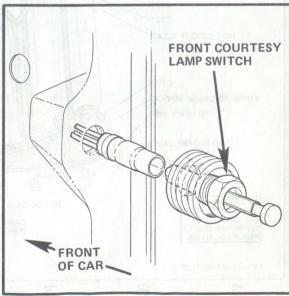


Figure 6 - Front of Driver's Door Jamb (Driver's Shown; Passenger's Similar)

# 151-9 COMPONENT LOCATION VIEWS

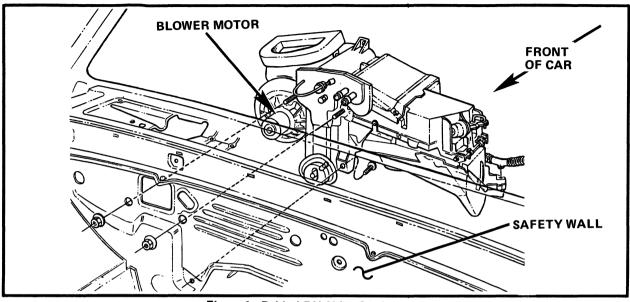


Figure 1 - Behind RH Side of Safety Wall

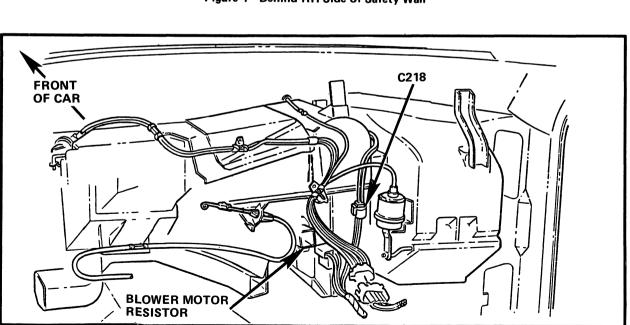


Figure 2 - Behind RH Side of I/P

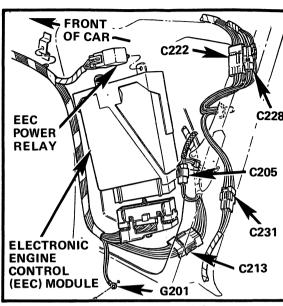


Figure 3 - Inside RH Kick Panel

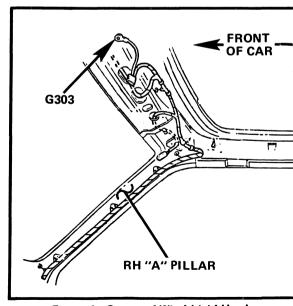


Figure 4 - Center of Windshield Header

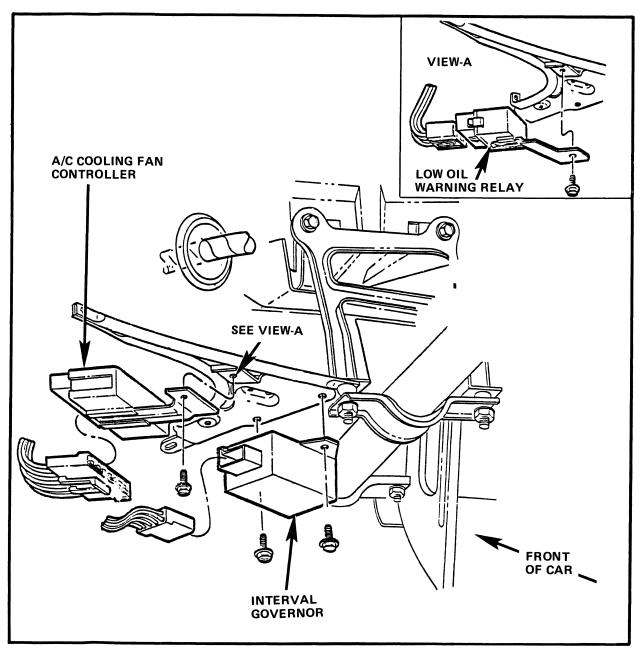


Figure 1 - Behind LH Side of I/P

# 152-1 LOCATION INDEX

Base Harness Number	Harness Name	Major Systems
6B018 7C078 7E443 9A340 9D930 12A581	Engine Block Heater	Backup Lamps Speed Control Vehicle Speed Sensor Fuel Pump Engine Controls A/C-Heater Air Bag Restraint System Engine Controls
12A690 13412	Engine Control Sensor Extension	•
13B440 14024	Rear License Lamp Feed	License Lamp
14025	Front Door Lock (LH)	Left Front Power Door Locks Power Mirrors
14290	Dash Panel To Headlamp Junction	Radio Alternator Cooling Fan Fog Lamps Front Side Marker Lamps Front Park/Turn Lamps Headlamps Horns Starter Relay
14334 14335 14401	Interior Lamp Feed	Courtesy Lamps

Base Harness Number	Harness Name	Major Systems
14405	Rear Harness	Instrument Cluster Radio Rear Window Speed Control Start/Ignition Turn/Stop/Hazard Lamps Warning Chimes Windshield Wipers . 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	
14631	Left Front Window Regulator	
14A200	Window Regulator Relay Switch	. Power Windows
14A205	Window Regulator Right Front Door	
14A318	Accessory Feed	. Ashtray Illumination Cigar Lighter
14B084	Seat Back Pad Adjust	
14B121	Window Regulator Left Front Door	
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

A/C Clutch Diode (2.3L)	
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	
A/C Clutch Field Coil (5.0L) 2A987 Top LH front of engine, part of A/C compressor	
assembly	50ne(), 611.
A/C Cooling Fan Controller	
Air Bag Backup Power Supply	
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	
Air Charge Temperature Sensor	
(2.3L) (California)	
Air Charge Temperature Sensor	
(5.0L)	
Alternator (2.3L)	150-1
Alternator (5.0L)	
Automatic Transmission	. 100 1
Solenoid	
Backup Lamp Switch	
Backup/Neutral Safety Switch	
Barometric Absolute Pressure	
(BAP) Sensor	
Blower Motor	
Blower Motor Resistor	
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	
Center Line Crash Sensor	
Clutch Cycling Pressure Switch 19E561 RH rear of engine compartment, on A/C	
accumulator	
Clutch Interrupt Switch	
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	

Component		Base Part No	<u>.</u>	Location			Page Figure	Connector Page
Clutch Switch . Convertible Top		.te.r.tat		Behind LH side of	I/P, on clutch pedal sup	port	151-4- 4	
		14526		Behind LH side of	I/P, near fuse panel		151-4- 3	
	Motor	151-1-F3		Behind center of re	ear seat	X.S.C.A	151-12-1	
(2.3L) Coolant Temper		10884	as nroc		engine		151-1-A5	
(5.0L)		10884			ne		151-2-F 5	
Cooling Fan Ter Daytime Running					engine			
Module Door Lock Moto	r	15A272		Inside front of LH f	fender		151-1- F9 151-10- 1	150- 3
Door Lock Switch	ch				ve door, part of window ssembly			150-22
					t belt buckle assembly . compartment, on brake			
				reservoir	avipos in mod Hi		151-1-B9	
					I/P, at cowl panel compartment, behind si		151-9-31	150- 3 (10
					smotie to able HJ			
EGR Vacuum Re								
(2.3L) (49 St								
Canada)					compartment, behind sl			
EGR Vacuum Re	egulator Solenoid				Carret of safety w Benind Rid side of			
(2.3L) (Califo	rnia)	9D460		RH rear of engine	compartment, behind sl	nock		
EGR Vacuum Re	egulator Solenoid				enipoe to able H8 Lower RH side of			
					compartment, behind sl			
					aufine. Io real H9			
EGR Valve Posit	ion Sensor							
(2.3L) EGR Valve Posit	ion Sensor	9G428	ocous l	Top center of engi	ne objecti. Politici to objecti. Domose		151-1-A6	
		9G428	adque.	Top RH side of eng	gine		151-2-A5	
	Fan				gine compartment			

Component	Base Part No.	Location	Page Figure	Connector Page
Electronic Engine Control				
(EEC) Module (2.3L) (49 States	404050	Debied Dilloide of UD, at apply social	454.0	450 4
	12A65U	Behind RH side of I/P, at cowl panel	151-9- 3	150- 4
Electronic Engine Control	404050	Debied Dilleide of UD at soul page	151 0 2	150 0
	12A65U	Behind RH side of I/P, at cowl panel	151-9- 3	150- 6
Electronic Engine Control	124650	Behind RH side of I/P, at cowl panel	151 0 2	150 0
Electronic Radio (with Premium	12A050	bening he side of the, at cown panel	151-9- 3	150- 6
	19905	Center of I/P	151_0_ 2	150_11
Electronic Radio (without	. 10003	Center of I/F	131-0- 2	130-11
	18805	Center of I/P	151-8- 2	150-10
Engine Coolant Temperature	. 10000		101 0 2	100 10
•	12A648	LH side of engine	151-1-F4	
Engine Coolant Temperature				
•	12A648	Top RH front of engine	151-2- F4	
		Behind LH side of I/P, taped to main harness		
		Inside front of respective fender		
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	
		Below rear of car, inside fuel tank		
		Top of each cylinder		
		Top of each cylinder		
		Below rear of car, inside fuel tank		
		Below rear of car, behind fuel tank		
•		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	454 0 50	
From Unit F	14500	relay	151-2-D9	
FUSE LINK E	. 14526	LH side of engine compartment, at starter	454 4 56	
		relay	151-1-E9	

# 152-7 LOCATION INDEX

Component	Base Part No.	Location	Page Figure	Connector Page
		LH side of engine compartment, at starter relay	151-1-D9	
Fuse Link G	. 14526	LH side of engine compartment, at starter relay	151-1-D9	
Fuse Link H	. 14526	LH side of engine compartment, at starter		
Fuse Link J (2.3L)	. 14526	relay  RH rear corner of engine compartment, taped to	151-1-09	
Fuse Link I (5.0L)	14526	engine harness	151-1-A2	
		engine harness		
*		LH rear of engine compartment		
		Behind LH side of I/P		
		Center rear of hatchback, near latch assembly		
		Behind LH side of I/P, on fuse panel		
		LH side of I/P, right of instrument cluster	151-5- 3	150-12
Headlamp	. 13008	· · · · · · · · · · · · · · · · · · ·		
		compartment		150-12
		RH rear of engine		
<u>•</u>		Behind center of I/P		150-12
Horns	. 13832	Inside front of LH fender	151-1-E9	
Idle Air Bypass Valve				
(2.3L)	. 9D278	Top center of engine	151-1-A5	
• • • • • • • • • • • • • • • • • • •	9D278	Top RH side of engine	151-2-C1	
		LH side of engine compartment, front of shock	101 2 01	
	. 12020	tower	151_1_C9	
Ignition Key Warning Switch	11 / 127	Top RH side of steering column, part of	101-1-05	
ignition key warning Switch	11/12/	ignition switch assembly	151 6 1	
Insition Compression Desister	01.603	<del>-</del>	151-0- 1	
ignition Suppression Resistor	. 8L603	LH rear of engine compartment, taped to engine	151 1 10	
Lablac O hab	44570	harness		450 42
•		Top RH side of steering column	151-6- 1	150-13
In-Line Circuit Breaker		·	454 15 5	
		Center rear of trunk		
		LH side of I/P		
Interval Governor	17C476	Behind LH side of I/P	151-16- 1	150-13

		Base Part No.	Location		Page Figure	Connector Page
			Top LH side of steering LH side of engine			150-15
LCD Illumination Relay		. 9345	Behind center of I/P		. 151-6- 3	150-15
			Lower LH rear of engine LH front of engine comp			
Low Oil Level Sensor		6C624	Lower LH rear of engine		. 151-3- 1	11.11 (2018) e
			Behind LH side of I/P Behind center of rear se			
			LH side of I/P, left of ins			
Manifold Absolute Press		should have	ngine compenment, beh		454 4 45	
			Center of safety wall RH side of engine compa			
Mass Air Flow Sensor (	5.0L)	12B579	RH side of engine compa	artment	. 151-2-C2	
			Inside top of steering co Top front of automatic tr			150-16
Oil Pressure Sender		31	Lower LH front of engine		. 151-2- F7	
			LH rear of engine Below center console, or		. 151-1-A5	
Fair Blake Switch	6-8-	15A651		. Va	. 151-11-1	
			Under respective seat as		454.44.4	450.47
			On center console Lower LH side of engine			150-17
Premium Sound Amplific	er	18B489	Below center console		. 151-8- 1	
_			Behind center of rear se Center rear of cargo are			150-19
, ,			Inside front of LH rear qu			150-19
Rear Window Control Sv Rear Window Defrost Co		34	Front of respective rear	quarter panel	. 151-12-1	150-24
		18C641	Behind LH side of I/P, ne	ear fuse panel	. 151-4- 3	150-19
·			Inside front of respective			
			Lower RH rear of engine Lower LH side of engine			
Shorting Plug (5.0L)		14489	LH front of engine		. 151-2- F6	
Speed Control Amplifier		9D843	Behind LH side of I/P, ne	ear cowl panel	. 151-4- 1	150-20

# 152-9 LOCATION INDEX

Component	Base Part No.	Location	Page Figure	Connector Page
Speed Control Servo	. 9C735	LH rear corner of engine compartment	151-1-B9	150-21
Starter Motor	. 11001	Lower RH rear of engine	151-2-C1	
Starter Relay	12B598	At LH fender apron	151-1-C9	
Stop Lamp Switch	. 13480	Behind LH side of I/P, on brake pedal support	151-4- 5	
TFI Ignition Module (2.3L)	. 9F479	Lower LH side of engine	151-1-C9	150-21
TFI Ignition Module (5.0L)	. 9F479	Center front of engine	151-2- F5	150-21
Thermactor Air Bypass Solenoid		RH rear of engine compartment, behind shock		
		tower	151-2-B1	
Thermactor Air Diverter				
Solenoid		RH rear of engine compartment, behind shock		
		tower	151-2-B1	
Throttle Position Sensor				
(2.3L)	. 9E731	Top center of engine	151-1-A4	
Throttle Position Sensor				
		Center rear of engine		
		Center rear of trunk lid, near latch assembly		
	. 13350	Behind LH side of I/P, on fuse panel	151-4- 2	
Vehicle Speed Sensor				
		LH rear side of transmission		
· · · · · · · · · · · · · · · · · · ·		LH rear side of transmission		
• • •		LH rear corner of engine compartment		
• • • • • • • • • • • • • • • • • • • •		LH rear corner of engine compartment		
		Behind center of I/P		
		Center of respective door		
		Inside LH cowl panel	151-3- 5	150-24
Windshield Washer Pump Motor	. 17664	LH side of engine compartment, inside		
		windshield washer reservoir	151-2- E9	
Windshield Washer Pump Test				
Connector		· ·		
·		LH side of safety wall		
WOT Cutout Relay		RH fender apron	151-2-D1	150-25

# **LOCATION INDEX** 152-10

Component	Base Part No.	Location	Page Figure	Connector Page		
	Laura III alda			`	DI	
		of engine compartment			BK	2
		ne			BK	8
		ne compartment			BK	8
		ne compartment			BR	1
		ne compartment			BK	4
		ne			BK	8
		smission			GY	4
, ,		smission			GY	4
		of engine compartment			BK	4
		of engine compartment			BK	8
		ne compartment			GY	8
		ne compartment			BK	8
		ine compartment, behind battery			BK	1
		ne compartment			GY	4
		smission			BK	2
		engine			BK	10
		engine			GY	10
		ne compartment			GY	4
C122	RH side of engi	ne compartment	151-1-C2			
C123	LH side of engi	ne 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
		of engine compartment			BK	2
		ty wall, on wiper motor and switch		150-24	GY	3
		ty wall, on wiper motor and switch			BK	3
		ne, on alternator			BK	3
	_	ne, on alternator		150- 1	вк	3
		ne, on alternator	151-1-F7	150- 1	BK	3
		ne, on alternator		150- 1	BK	3
		column				_
		column			GY	1
		pering column			GY	3
		panel			BK	12
* No Figure Available						

# 152-11 LOCATION INDEX

Component	Base Part No.	Location	Page Figure	Connector Page		
C204	Inside LH cowl	oanel	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 p	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 p	panel	151-3- 4	4	BK	8
C213	Inside RH cowl	panel	151-9- 3	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 p	panel	*		GY	8
C218	Behind RH side	of I/P	151-9- 2	2	BK	2
C219	Inside LH cowl p	panel	151-3-	5	GY	4
C220	Behind LH side	of I/P, on hazard warning switch	151-5- 3	3 150-12	GY	8
C221	Inside LH cowl p	panel	151-3- 4	4	GY	8
C222	Inside RH cowl	panel	151-9- 3	3	GY	8
	Inside LH cowl p	panel	151-3- 5	5	BL	6
	•	panel			BK	4
C227	Inside LH cowl p	panel	151-3- 4	1	GY	2
C228	Inside RH cowl p	panel	151-9- 3	3	GY	2
	Inside LH cowl p	panel	151-3- 5	5	GY	8
C230	Inside LH cowl p	panel	151-3-	1	BK	4
C231	Inside RH cowl p	panel	151-9- 3	3	BK	4
C233	Behind LH side	of I/P, on I/P support brace	151-4- 6	6		
C250	Behind LH side	of I/P, on rear of instrument cluster	151-6- 2	2 150-14	GY	14
C251	Behind LH side	of I/P, on rear of instrument cluster	151-6- 2	2 150-14	BR	14
C257 (with Premium Sound)	Behind center o	f I/P, near electronic radio	151-8- 3	3	BK	8
C257 (without Premium Sound)	Behind center o	f I/P, on electronic radio	151-8- 2	2 150-10	BK	8
C258 (with Premium Sound)	Behind center o	f I/P, near electronic radio	151-8- 3	3	BK	8
C258 (without Premium Sound)	Behind center o	f I/P, on electronic radio	151-8- 2	2 150-10	BK	8
C268	Top of steering	column, on multi-function switch	151-6- 1	I 150-16	GY	4
C269	Top of steering	column, on multi-function switch	151-6- 1	I 150-17	GY	10

\* No Figure Available

# **LOCATION INDEX** 152-12

Component	Base Part No.	Location	Page Figure	Connector Page		
C270	Top LH side	of steering column, on interval				
	wiper/wash	ner 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 f	front of passenger's door	151-10- 1		GY	2
			Page			
Ground	Location		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			
		apron				
G105 (2.3L)	LH side of en	ngine	151-1-F6			
G105 (5.0L)	Lower LH side	e of engine	151-2- F7			
G106	LH rear of en	ngine	151-1-A5			
G109	RH rear of er	ngine	151-2-B6			
G110	LH front of er	ngine compartment hood	151-17- 1			
G200	Behind center	r of I/P, on I/P support brace	151-8- 4			
G201	Behind RH co	owl panel	151-9- 3			
G202	Behind center	r of I/P, on I/P support brace	151-8- 4			
G203	Behind center	r of I/P, on support I/P brace	151-7- 1			
G300	Below driver's	s seat assembly	151-11- 1			
G301	Below center	console, on park brake assembly	151-11- 1			
G302 (2 Door)	RH side of tru	unk	151-11-3			
G302 (3 Door)	RH side of ha	atchback	151-14- 1			
G303	Top center of	f windshield header	151-9- 4			
		r of rear seat				
		of cargo compartment/trunk				
		unk, above wheel well				
G401 (3 Door)	LH rear corne	er of hatchback	151-14- 1			
•		e of cargo area				
		s door				

\* No Figure Available

# 152-13 LOCATION INDEX

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
	Engine harness, near T/O to manifold absolute pressure (MAP) sensor
	Engine harness, near T/O to manifold absolute pressure (MAP) sensor
	Dash panel to headlamp junction harness, near T/O to G102
	Engine harness, near T/O to clutch cycling pressure switch
	Fuel charge harness, near T/O to EGR valve position sensor
	Fuel charge harness, near T/O to fuel injector NO.4
	Engine harness, near T/O to clutch cycling pressure switch
	Engine harness, near T/O to manifold absolute pressure (MAP) sensor
	Engine control sensor extension harness, near T/O to C101
S127	
	Fuel charge harness, near T/O to C119
	Main harness, near T/O to windshield washer pump test connector
	Dash panel to headlamp junction harness, near T/O to left headlamp
	Engine control sensor extension harness, near T/O to idle speed control solenoid
S132	•
	Dash panel to headlamp junction harness, near T/O to low coolant switch
	Main harness, near T/O to engine indicator diode
	Main harness, near T/O to engine indicator diode
	Radio speaker jumper harness, near T/O to electronic radio
S206	
	Main harness, near T/O to convertible top circuit breaker
S208	Main harness, near T/O to engine indicator diode

# **LOCATION INDEX** 152-14

S209 Main harness, near T/O to multi-function switch
S212 Main harness, near T/O to trunk lid/hatchback release switch
S213 Main harness, near T/O to C251
S214 Main harness, near T/O to blower switch
S215 Main harness, near T/O to C200
S216 Main harness, near T/O to engine indicator diode
S217 Engine harness, near T/O to electronic engine control (EEC) module
S218
S219
S220 Main harness, near T/O to C251
S221 Main harness, near T/O to blower motor
S222 Main harness, near T/O to C201
S223 Main harness, near T/O to C251
S224
S225
S226
S227 Main harness, near T/O to engine indicator diode
S228 Main harness, near T/O to C213
S229 Main harness, near T/O to blower motor resistor
S230 Radio speaker jumper harness, near T/O to electronic radio
S231
S301 Rear lamp harness, near T/O to C306
S303 Interior lamp feed harness, near T/O to right vanity mirror lamp
S304 Rear lamp harness, near T/O to G300
S305 Rear lamp harness, near T/O to C302
S400 Rear lamp harness, near T/O to right backup lamp
S401 Rear lamp harness, near T/O to left rear park/stop lamp
S402 Rear license lamp harness, in T/O to license plate lamps
S404 Rear license lamp harness, near T/O to left license plate lamp
S405 Fuel pump feed jumper harness, in T/O to fuel pump
S406 Fuel pump feed jumper harness, in T/O to fuel pump
S407 Luggage compartment lamp harness, near T/O to left license lamp
S500
S600
S601
realization and the second regulation and the second realization and t

# 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

**TRUNK** 

**REAR** 

6

7

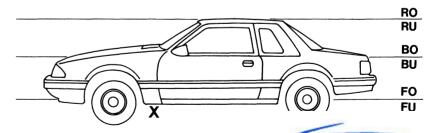
8

9

# FRONT A B C D E F 1 2 ENGINE 3 4 FO FU

- 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

+ CENTER OF VEHICLE



**Buy Now** 









