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EVTM

ELECTRICAL AND VACUUM
TROUBLESHOOTING MANUAL



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**1997 Ford F-150 Truck Electrical and Vacuum
Troubleshooting Manual (EVTM)
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ELECTRICAL AND VACUUM TROUBLESHOOTING MANUAL

FCS-12263-97

FORD CUSTOMER SERVICE DIVISION

Quality is Job 1

Ford Customer Service Division has developed a new EVTMM format for the 1997 F-150. Our goal is to provide accurate and timely electrical and vacuum service information.

1997 EVTMM FEATURES

- Schematic pages now contain **Component Location** references to full-view illustrations and **Component Descriptions** that describe the system function of a component.
- **"COMPONENT TESTING"** procedures (CELL 149) that tell the user how to perform diagnostic tests on various circuits.
- **Connector End Views** are now located at the end of individual cells and are shown for connectors with five or more cavities; for connectors with ten or more cavities, a circuit function chart is provided.
- **NOTES, CAUTIONS and WARNINGS** contain important safety information.
- Full view **"COMPONENT LOCATION VIEWS"** (CELL 151) to help locate on-vehicle components.
- Circuit voltages have been added to schematic pages to help simplify troubleshooting. Nonessential troubleshooting hints have been deleted.
- **Cellular Pagination:** A specific section (or cell) in all EVTMMs is numbered by cell and starts with page 1. For example: **"HOW TO USE THIS MANUAL"** is CELL 2 and begins with page 2-1.

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:

- Service Manuals
 - Service Specification Books
 - Car/Truck Wiring Diagrams
 - Powertrain Control/Emissions Diagnosis Manuals
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"IN-LINE CONNECTOR FACES" (CELL 150) has been added for in-line connectors with six or more cavities. This feature is used for identifying electrical wiring.

"C" numbers are listed in the

).

"BERS" (CELL 153) has been added to aid in identifying warranty

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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 the methods, tools or parts does not compromise personal safety or the vehicle integrity.

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2-1 HOW TO USE THIS MANUAL

1997 F-150

The purpose of this manual is to show electrical and vacuum circuits in a clear and simple fashion to make troubleshooting easier. **NOTES**, **CAUTIONS** and **WARNINGS** containing important information appear in boxes on text pages.

- **NOTES** describe how switches and other components operate to help complete a particular procedure.
- **CAUTIONS** provide information that could prevent making an error that may damage the vehicle.
- **WARNINGS** provide information to prevent personal injury.

The **WARNINGS** list on page 2-2 contains general warnings to follow when servicing a vehicle.

Components that work together are shown together. All electrical components used in a specific system are shown on one diagram. The circuit breaker or fuse is shown at the top of the page. All wires, connectors, components and splices are shown in the flow of current to ground at the bottom of the page. If a component is used in several different systems, it is shown in several places. For example, the Main Light Switch is electrically a part of many systems and is repeated on many pages.

In some cases, a component may seem (by to belong to a system where it has no



Radio Illu-
Illumina-
connection
the Radio

Schematic pages now contain references to full-view illustrations and component descriptions for various components. The references are reverse-text blocks located next to each component and connector and refer the user to the appropriate illustration page and zone. The component descriptions summarize the system function of a component.

Schematic pages now contain circuit voltages to help simplify troubleshooting hints. 12V is used to imply battery voltage on a component connector terminal, and 0V is used to show that there should be continuity to ground on that particular terminal. Conditional voltages such as "12V with the ignition switch in RUN" will also be provided. Troubleshooting hints that can't be simplified with circuit voltages will be shown at the end of each cell.

Connector face information specific to a certain cell is now found at the end of that cell. A Connector Face Reference List is provided to locate connector faces that are shown in different cells. Component connectors with five or more terminals are illustrated. Component connectors with five or more terminals are accompanied by a pin-out chart that lists the function of all circuitry associated with that component.

In-Line connectors shown on schematic pages now contain a suffix to denote connector gender (F – socket, M – prior blade).

"GROUNDS"(Cell 10) contains ground circuitry shown in complete detail. This information is useful for checking interconnections of the ground circuits of different systems.

"POWER DISTRIBUTION" (Cell 13) contains power distribution circuitry shown in com-

plete detail. This section displays how the various fuses are powered and in turn, how each system is powered.

"COMPONENT TESTING" (Cell 149) contains testing procedures for various switches. This information includes schematics, component terminal locations and step-by-step procedures.

"IN-LINE CONNECTORS FACES" (Cell 150) contains in-line connectors with five or more terminals. This section includes both female and male mating in-line connectors arranged in order according to connector number.

"COMPONENT LOCATION VIEWS" (Cell 151) contains full-view illustrations which show the location of all components and connectors in the vehicle.

The **"LOCATION INDEX"** (Cell 152) provides the service base part numbers, locations, connector face references and illustration references for all components, connectors, splices and grounds.

HELPFUL REMINDERS

Before using the EVTM for troubleshooting, refer to the HELPFUL REMINDERS:

1. The abbreviation T/O, for take out, used in the Location Index (Cell 152), refers to the point at which a group of wires branch off the harness trunk. Refer to the wiring harness illustration.

2-3 HOW TO USE THIS MANUAL

1997 F-150

HOW TO FIND ELECTRICAL CONCERNS TROUBLESHOOTING STEPS

These six steps present an orderly method of troubleshooting.

Step 1. Verify the concern.

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

Step 2. Narrow the concern.

- Using the EVTM, narrow down the possible causes and locations of the concern to pinpoint the exact cause.
- Read the description notes at the components and study the wiring schematic. You should then know enough about the circuit operation to determine where to check for the trouble. Further information can be found by referring to the Service Manual pages listed in the box at the top of the page.

Step 3. Test the cause.

- Use electrical test procedures to find the specific cause of the symptoms.
- The *Component Location reference bars* and the pictures will help you find components. The *Location Index* (at the end of the manual) lists the location of components, resistors, relays, etc.

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 *Service Manual* and other service books for details. You will find the circuits in this manual to be helpful with those special test procedures.

TROUBLESHOOTING TOOLS

JUMPER WIRE

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

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

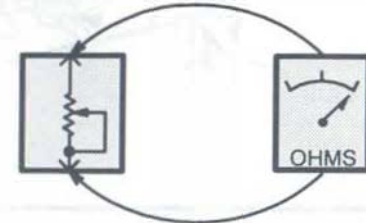


Figure 1 – Resistance Check

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

TEST LAMP

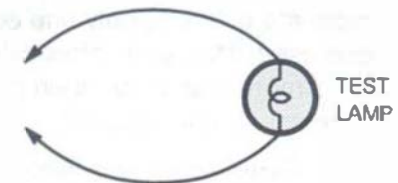


Figure 2 – Test Lamp

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

Uses: Voltage Check, Short Check

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HOW TO FIND ELECTRICAL CONCERNS (CONTINUED)

SELF-POWERED TEST LAMP

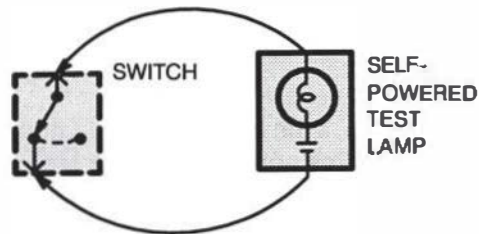


Figure 3—Continuity Check

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.

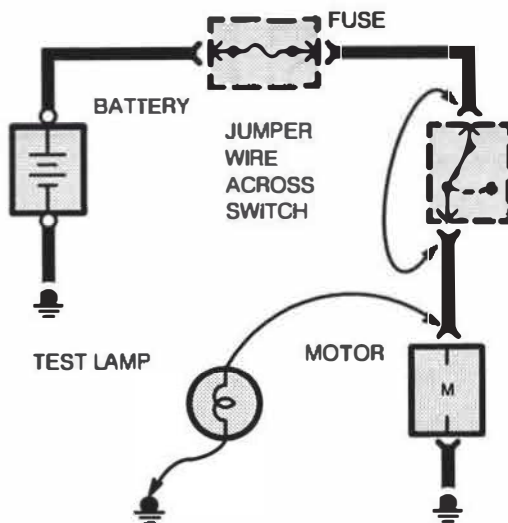


Figure 4—Switch Circuit Check and Voltage Check

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 a 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. The bulb goes on when the test point has voltage (Figure 4).

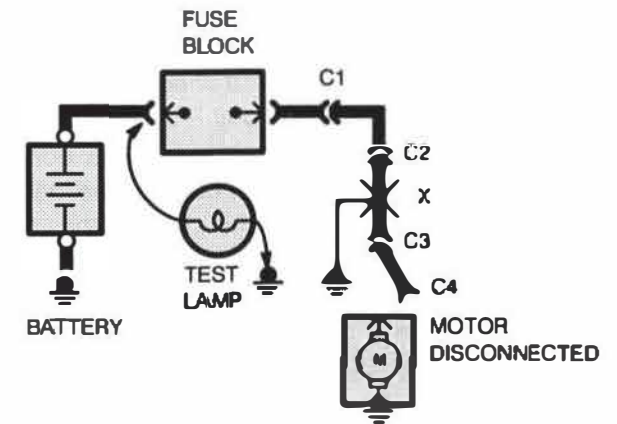


Figure 5—Short Check

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2-5 HOW TO USE THIS MANUAL

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HOW TO FIND ELECTRICAL CONCERNS (CONTINUED)

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 the Ignition Switch to RUN (if necessary) to power fuse.
4. Connect one Test Lamp lead to the hot end of the blown fuse. Connect the other lead to ground. The 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 bulb goes out. For

example, in figure 5 with a ground at X, the bulb goes out when C1 or C2 is disconnected, but not after disconnecting C3. This means the short is between C2 and C3.

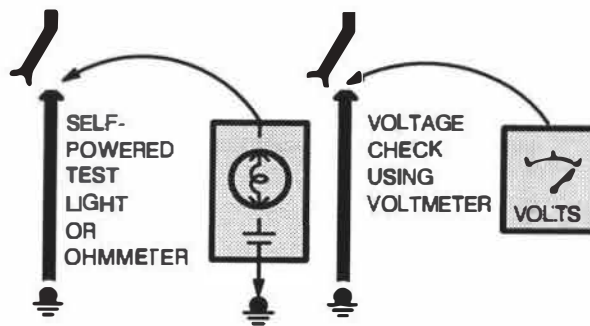


Figure 6—Ground Check

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 (Figure 6).

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).

The circuit schematics in this manual make it easy to identify common points in circuits. This knowledge can help narrow the concern 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 the lo beam headlamps work, but the high beams and the indicator lamp don't work, then the power and ground paths must be good. Since the dimmer switch is the component that switches this power to the high beam lights and the indicator, it is most likely the cause of failure.

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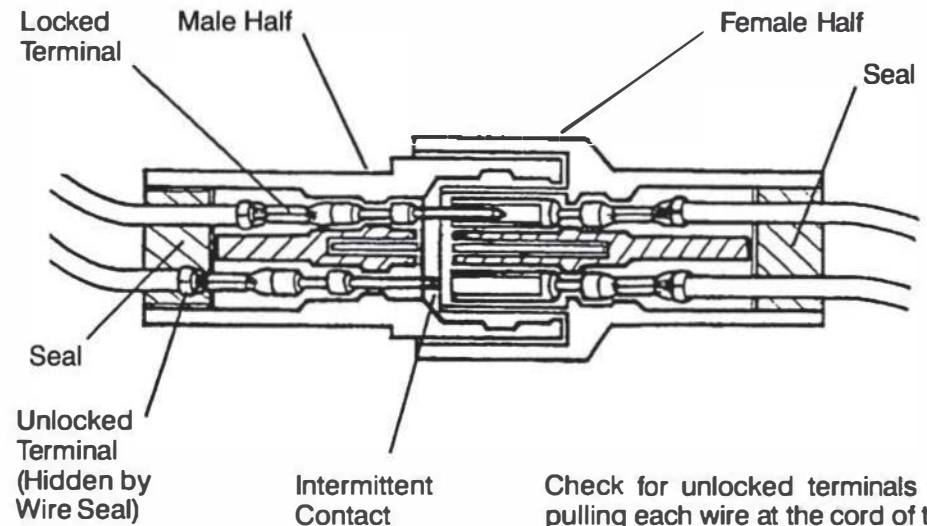
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TROUBLESHOOTING WIRING HARNESS AND CONNECTOR HIDDEN CONCERNS

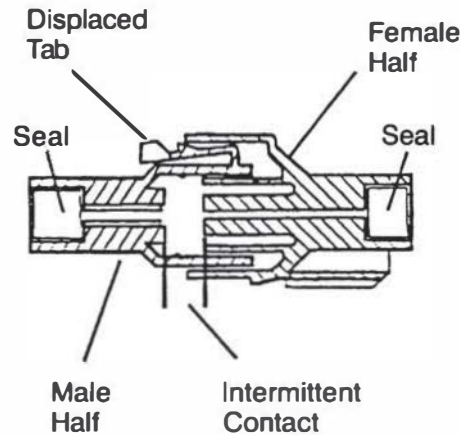
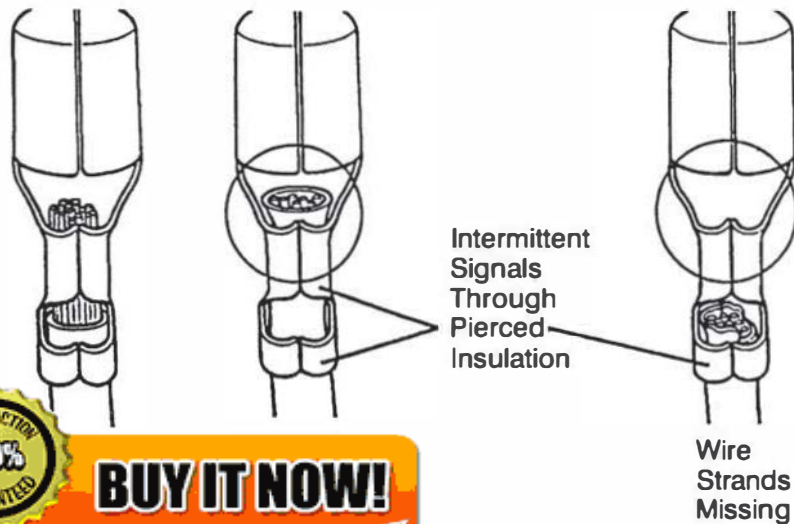
The following illustrations are known examples of wiring harness, splices and connectors that will create intermittent electrical concerns. The concerns are hidden and can only be discovered by a physical evaluation as shown in each illustration.

NOTE: When servicing gold plated terminals in a connector, only replace with gold plated terminals designed for that connector.



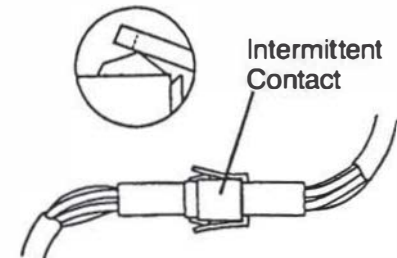
Check for unlocked terminals by pulling each wire at the cord of the connector

TERMINAL NOT PROPERLY SEATED



Lock may be displaced into an unlocked position; pull on the connector to verify the lock.

Type A



Type B

PARTIALLY MATED CONNECTORS

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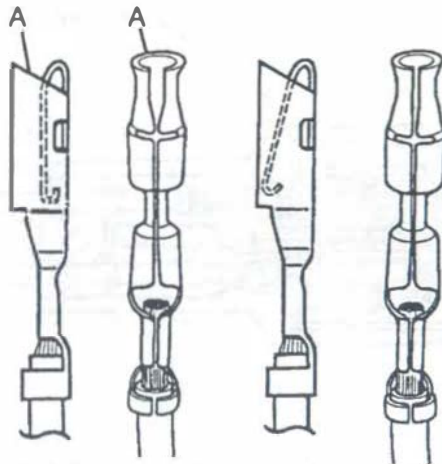
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WIRE STRIPPING

2-7 HOW TO USE THIS MANUAL

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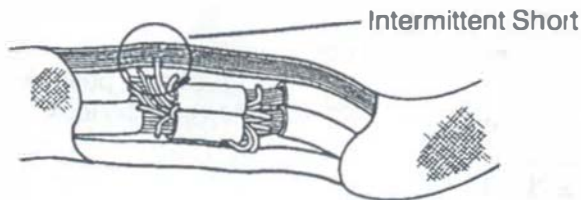


Enlarged

Normal

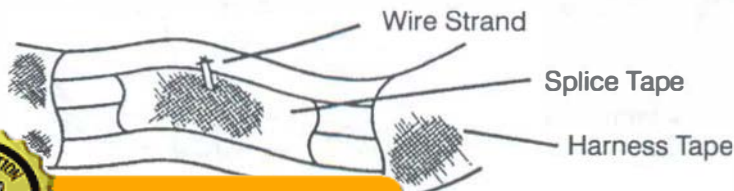
Any probe entering the terminal may enlarge the contact spring opening creating an intermittent signal. Insert the correct mating terminal (Location A) from the service kit and feel for a loose fit.

DEFORMED (ENLARGED) FEMALE TERMINALS

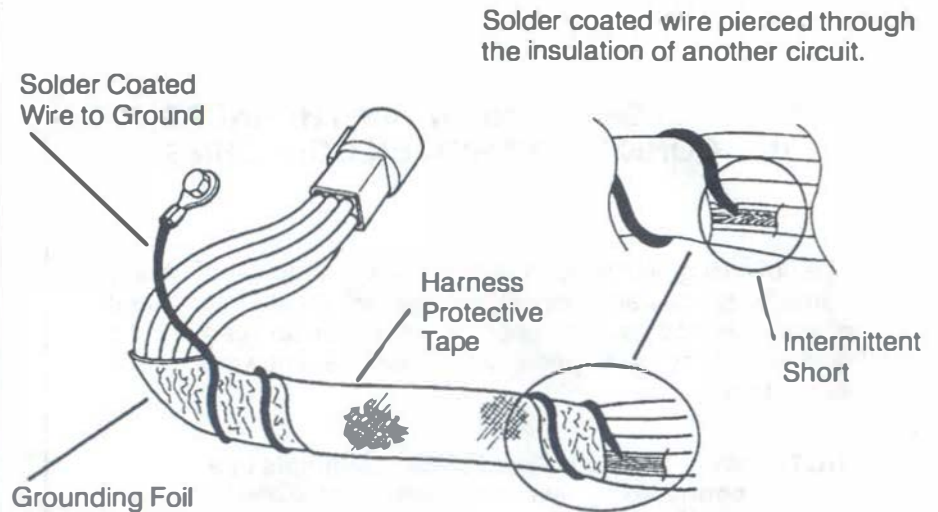


Splice Tape Removed

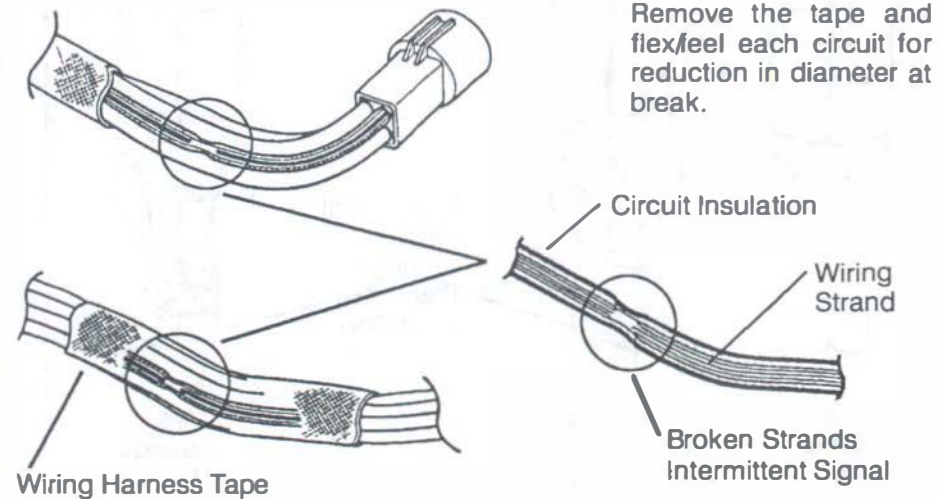
Operate the system and flex the harness at splice location noted in Section 152.



WITHIN THE HARNESS



ELECTRICAL SHORT INSIDE THE HARNESS



BROKEN WIRE STRANDS IN HARNESS

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HOW TO FIND THE VACUUM CONCERNS

These six steps present an orderly method of troubleshooting.

Step 1. Verify the concern.

- Operate the system and observe all symptoms to check the accuracy and completeness of the customer's complaint.

Step 2. Narrow the concern.

- Narrow down the possible causes and location of the concern to pinpoint the exact cause.

Step 3. Test the cause.

- Use test procedures to find the specific cause of the symptoms.

Step 4. Verify the cause.

- Confirm that you have found the right cause by operating the parts of the circuit you think are good.

Step 5. Make the repair.

- Repair or replace the inoperative component.

Step 6. Verify the repair.

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

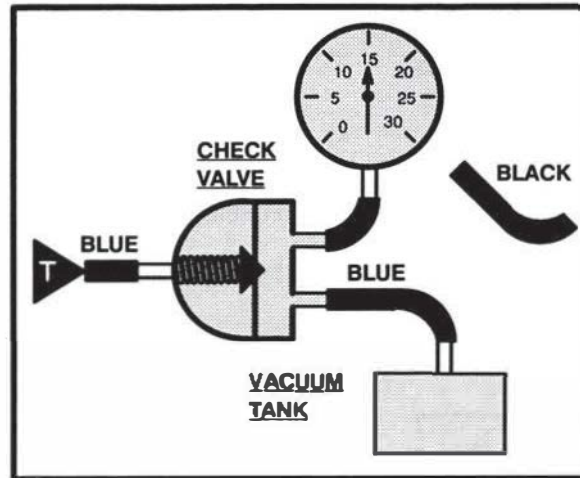


Figure 1 - System Supply Test

Vacuum Supply Test

1. Connect Vacuum Tester to system side of Check Valve (Figure 1).
2. Start engine. Gauge should show approximately 15 inches of vacuum.
3. Turn off engine, and observe gauge:
 - If vacuum holds, supply OK.
 - If vacuum fails, replace Check Valve or Tank.

Leak Test

1. Connect Vacuum Gauge and Vacuum Pump (Figure 2) to system hose in place of tank.
2. Open valve and start pump. Operate control in all modes.
3. Listen for hiss and observe gauge.

NOTE: Hissing is normal at Function Control when changing modes.

If system hisses or loses vacuum, find system leak as follows:

4. Turn on Vacuum Pump and check vacuum build-up.
5. Stop pump; vacuum should drop.
6. Clamp supply hoses with needlenose pliers, one at a time, until vacuum stops dropping (Figure 2).
7. Check vacuum schematic to find components in that line.
8. Clamp hoses through circuit to find leak.

Component Test

1. Connect Vacuum Tester to component.
2. Pump Vacuum Tester. Check that all components operate correctly and vacuum holds.
3. Replace components if vacuum does not hold.

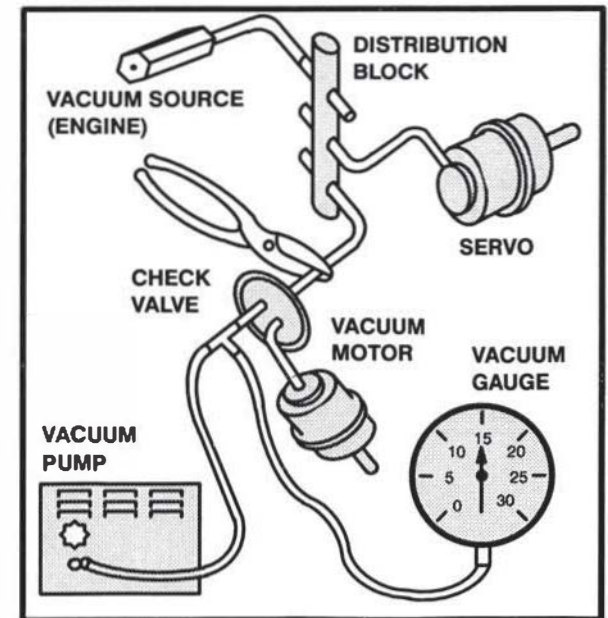


Figure 2 - Testing For Leaks In Typical Vacuum System

Vacuum system problems fall into

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2-9 HOW TO USE THIS MANUAL

1997 F-150

ELECTRICAL SYMBOLS



DASHED COMPONENT BOX
ONLY PART OF THE COMPONENT IS SHOWN ON THE PAGE. THE COMPONENT IS SHOWN COMPLETE IN ANOTHER LOCATION



COMPONENT WITH CONNECTORS



BATTERY



SCREW TERMINAL ON COMPONENT

SOLID STATE

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



FUSE
CURRENT RATING



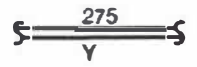
FUSIBLE LINK
WIRE SIZE AND COLOR



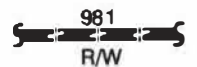
MAXI-FUSE or FUSIBLE LINK CARTRIDGE
CURRENT RATING



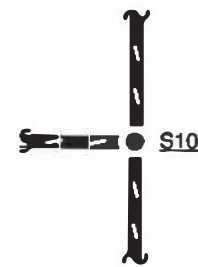
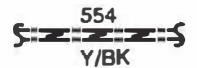
CIRCUIT BREAKER
CURRENT RATING



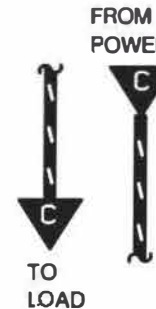
SOLID WIRE



STRIPED WIRE



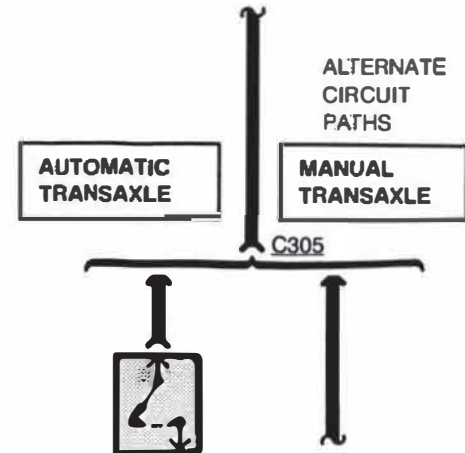
SPLICE OR CRIMP TERMINAL



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



"REFERENCE" WIRES
COMPLETE WIRING SHOWN ON ANOTHER PAGE



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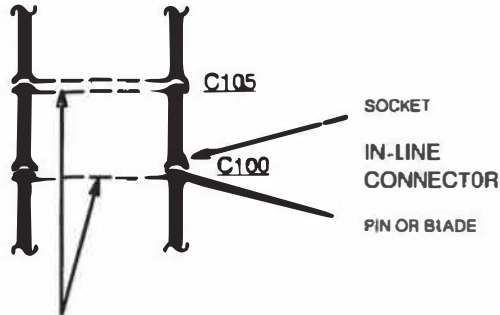
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1997 F-150

ELECTRICAL SYMBOLS

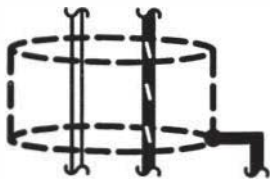


SINGLE OR DOUBLE DASHED LINE INDICATES THAT WIRE ON LEFT ALSO PASSES THROUGH THE SAME CONNECTOR

SEE GROUNDS
PAGES 10-1, 10-2



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



SHIELD
WIRES ARE
COVERED
BY A SHIELD



MOTOR



HEATING
ELEMENT



THERMISTOR



RHEOSTAT
OR
POTENTIOMETER



SOLENOID



SWITCH



GANGED
SWITCHES
CONTACTS MOVE
AT THE SAME TIME



DIODES
CURRENT FLOWS
IN DIRECTION OF
ARROW ONLY



CAPACITOR



TRANSISTOR



GAUGE



LIGHT
BULB



LIGHT
EMITTING
DIODE
(LED)



DUAL FILAMENT
LIGHT BULB



RELAY
CONTACTS
CHANGE POSITION
WITH CURRENT
THROUGH COIL

COIL

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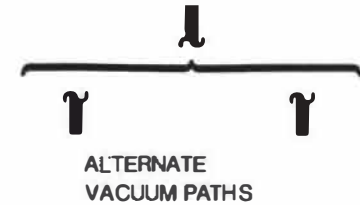
2-11 HOW TO USE THIS MANUAL

1997 F-150

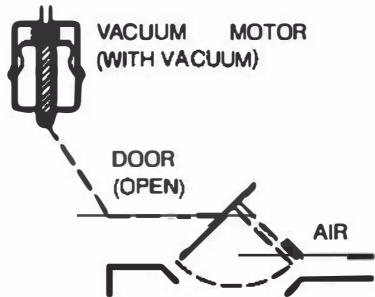
VACUUM SYMBOLS



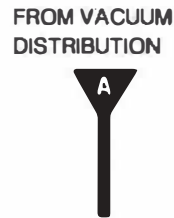
"CUT" HOSES REFERENCED BETWEEN PAGES
ARROW SHOWS FITTING TO COMPONENT



NOTE
Other vacuum symbols used on vacuum system diagrams are fully explained on those pages.



VACUUM ON VACUUM MOTOR PULLS DOOR OPEN TO LET AIR PASS THROUGH

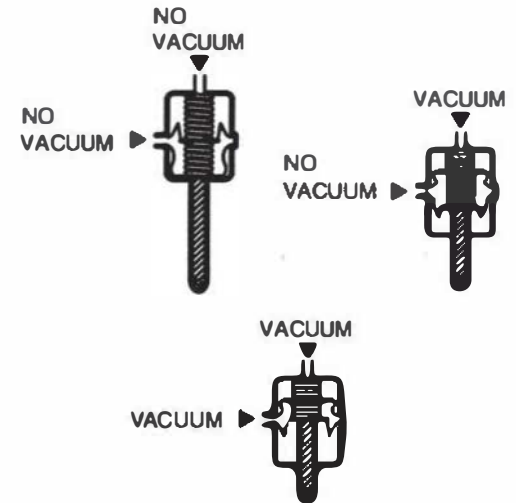


SERVO MOTOR



Some vacuum motors, such as the Servo Motor in the Speed Control, can position the actuating arm at any position between fully extended and fully retracted. The Servo is operated by a control valve that applies varying amounts of vacuum to the motor. The higher the vacuum level, the greater the retraction of the motor arm. Servo Motors work nearly the same way as two-position motors, except for the way the vacuum is applied. Servo Motors are generally larger and provide a calibrated control.

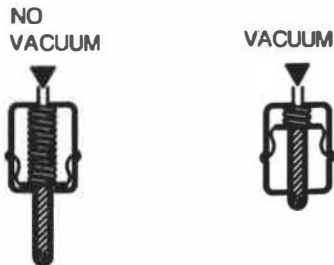
DOUBLE DIAPHRAGM MOTOR



A double diaphragm motor has three positions (it is actually two motors in one housing). When the top port gets vacuum, the shaft pulls halfway in. When both ports get vacuum, the shaft pulls all the way in.

VACUUM MOTOR OPERATIONS

SINGLE DIAPHRAGM MOTOR



Vacuum motors operate like electrical solenoids, mechanically pushing or pulling a shaft between two fixed positions. When vacuum is not applied, the shaft is pushed all the way out by a spring.

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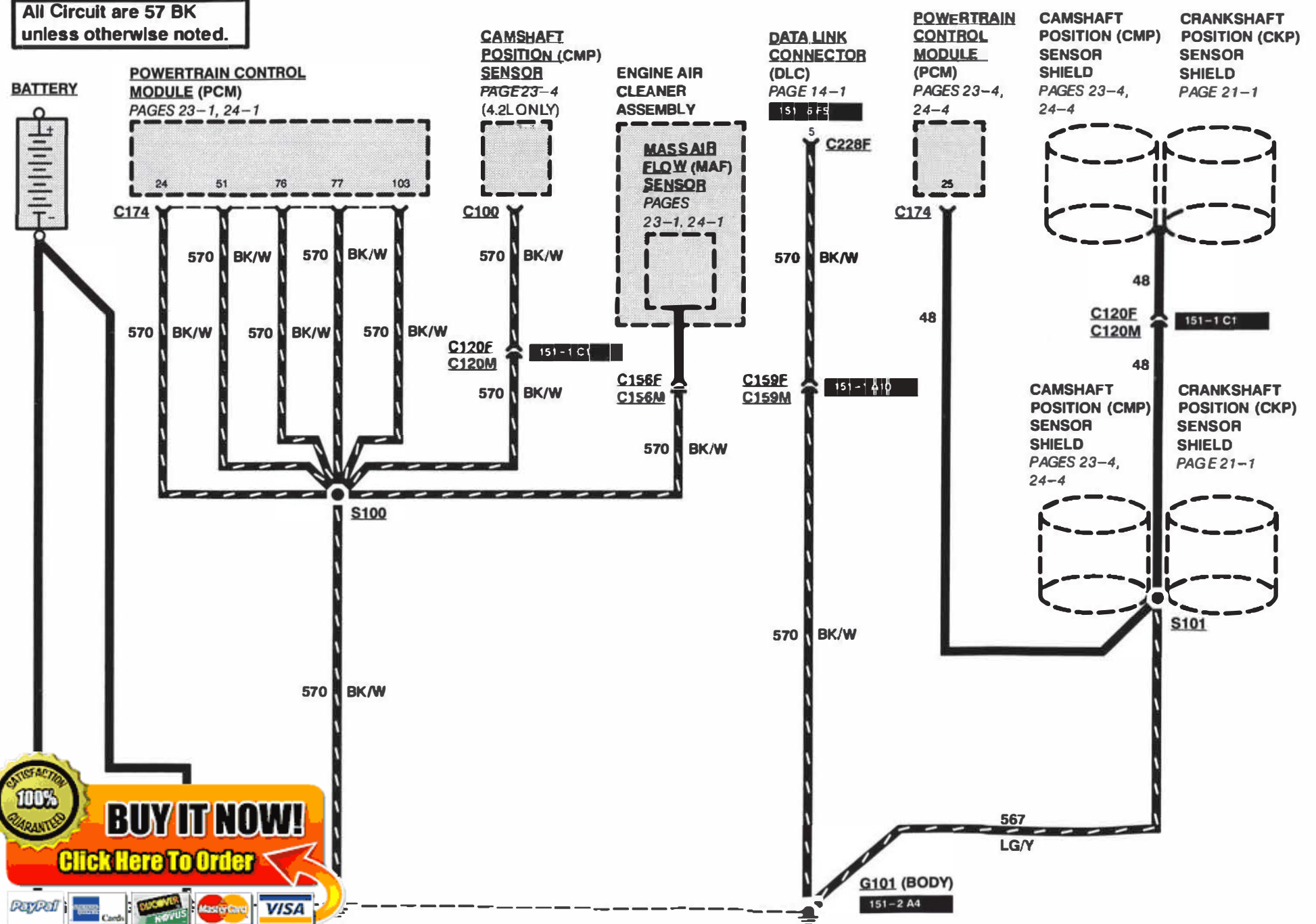
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10-1 GROUNDS

1997 F-150

All Circuit are 57 BK unless otherwise noted.



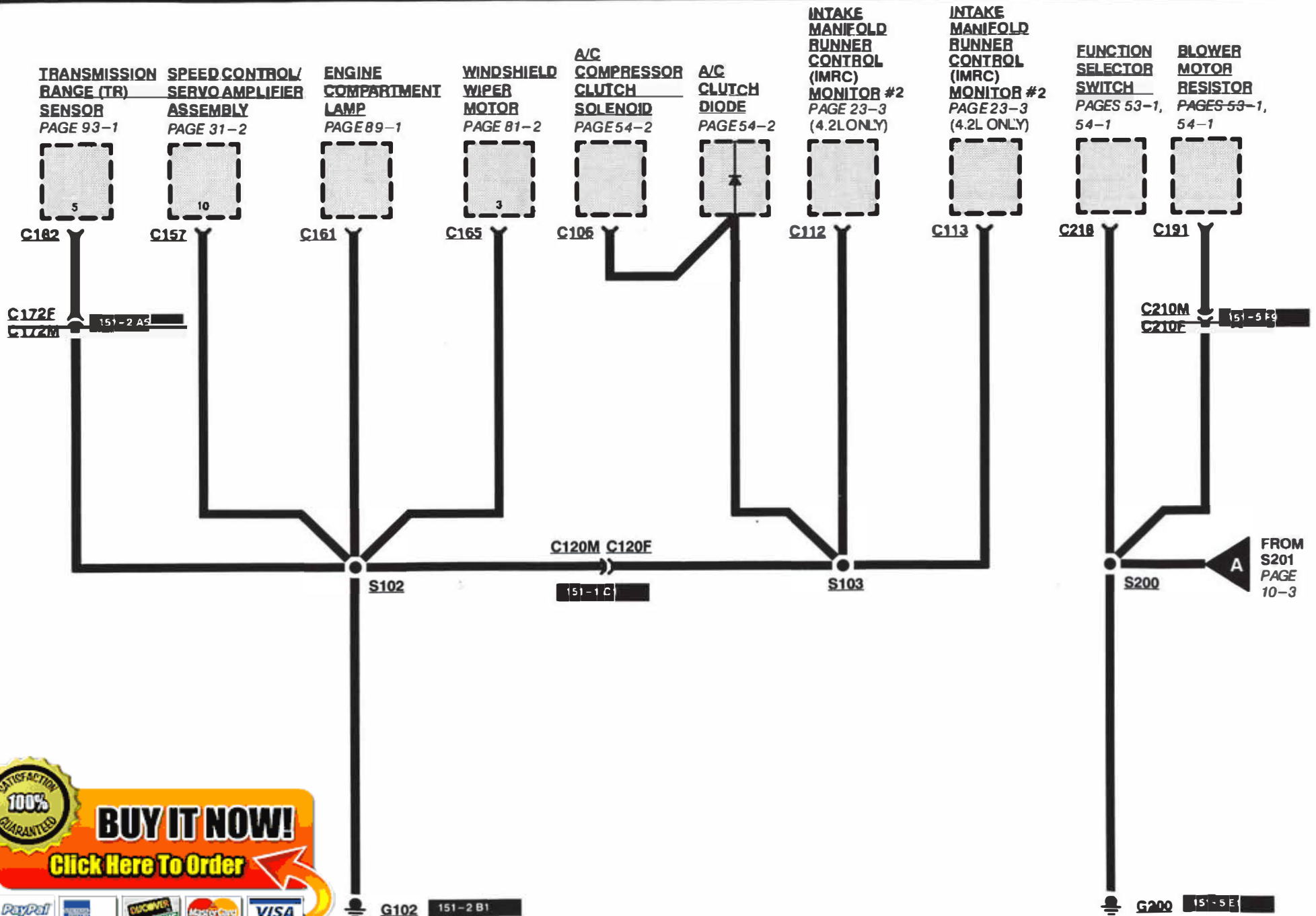
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GROUNDS 10-2

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10-3 GROUNDS

1997 F-150

BLOWER/FLASHER RELAY BLOCK

151-6 B1



INSTRUMENT CLUSTER
PAGE 62-6



C237

BLEND DOOR ACTUATOR
PAGES 53-1, 54-2



C229

DATA LINK CONNECTOR (DLC)
PAGE 14-1

15 6 F3

C228F

CLOCK SPRING ASSEMBLY
PAGE 31-1



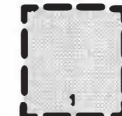
C234M
C234F

4 WHEEL DRIVE MODE SWITCH
PAGE 34-1



C230

TRANSFER CASE SHIFT RELAY
PAGE 34-2



C221



206 W

C232F
C232M

151-6 A1

206 W

S202

S201

TO S200
PAGE 10-2

A

FROM S203
PAGE 10-4

FROM S204
PAGE 10-4

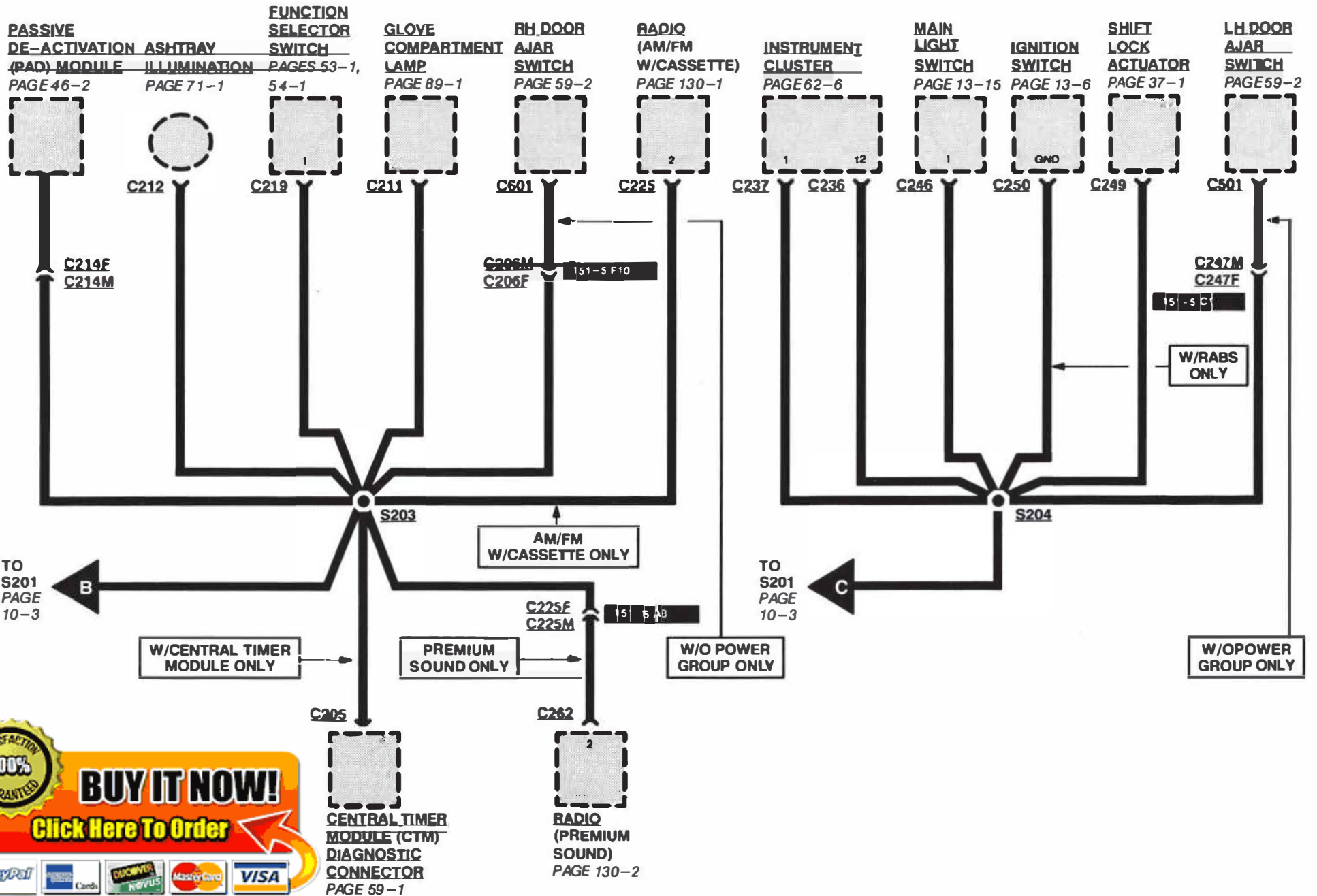
B

C

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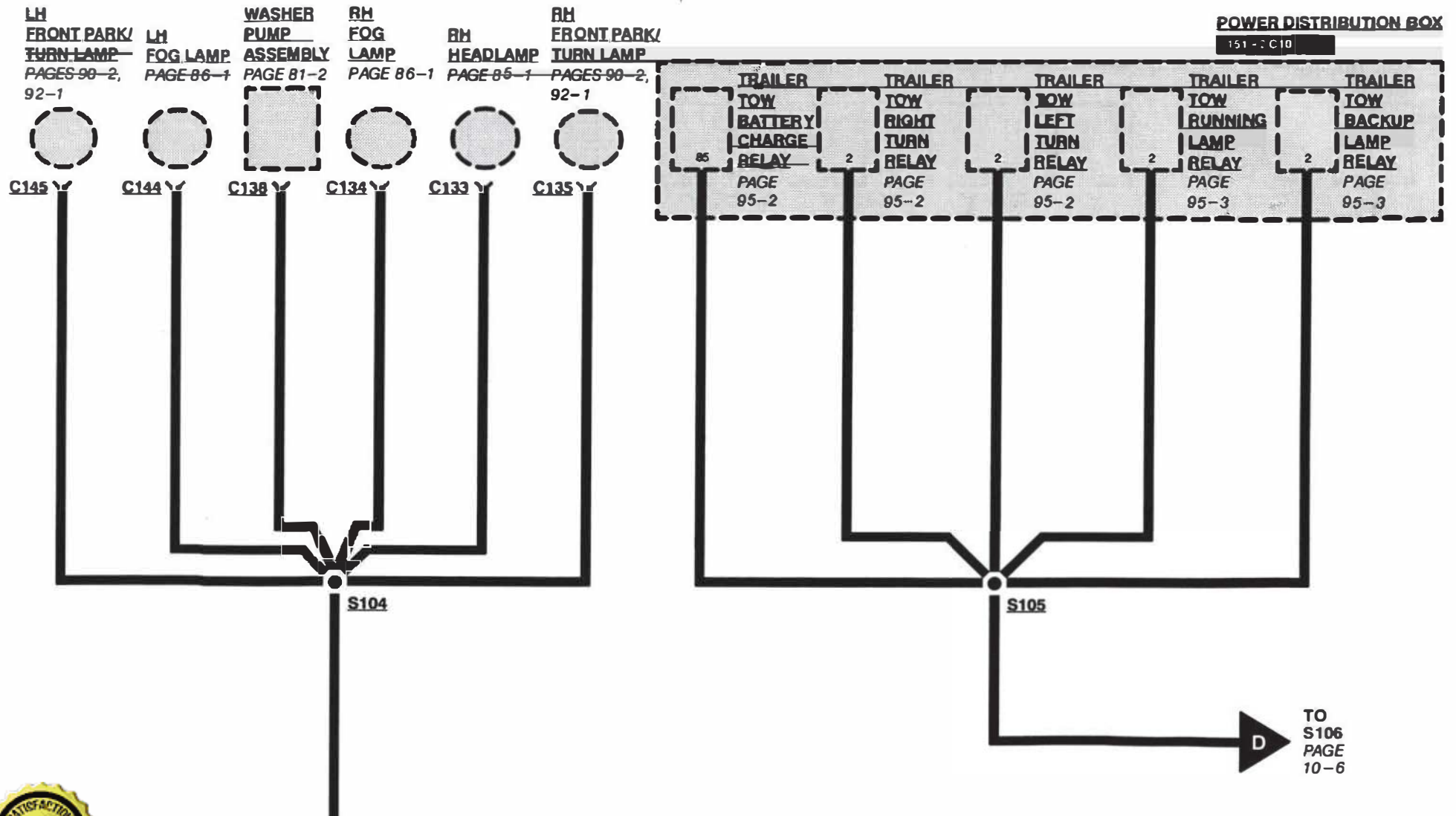
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10-5 GROUNDS

1997 F - 150



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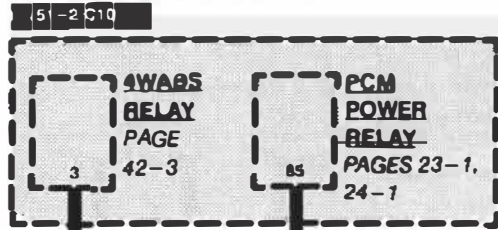
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REAR ANTI-LOCK BRAKE SYSTEM (RABS) PROPORTIONING VALVE SWITCH ASSEMBLY
PAGE 42-2

4 WHEEL ANTI-LOCK BRAKE SYSTEM (4WABS) MODULE
PAGE 42-4

POWER DISTRIBUTION BOX



BRAKE FLUID LEVEL INDICATOR SWITCH
PAGE 42

LH HEADLAMP
PAGE 85-1

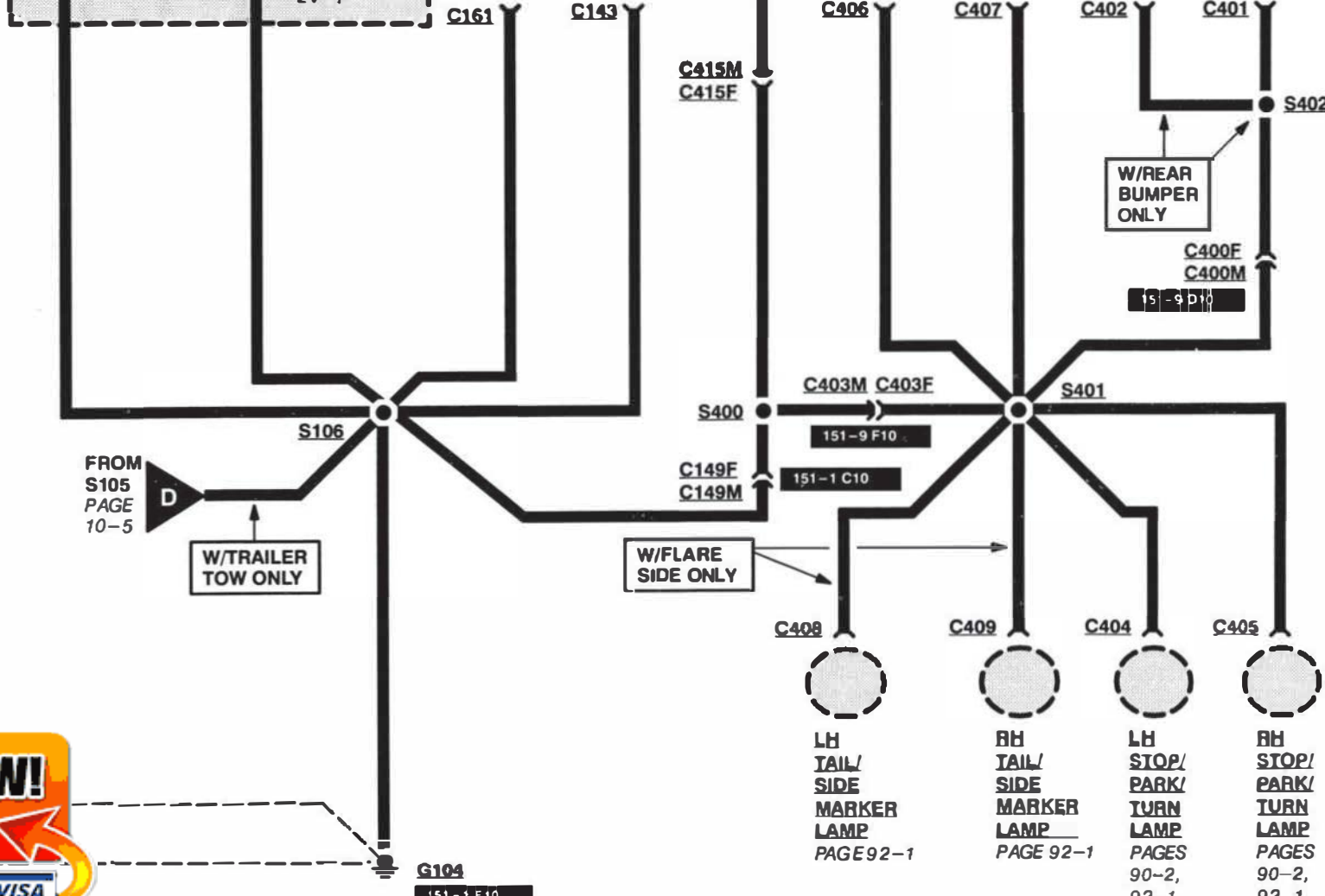
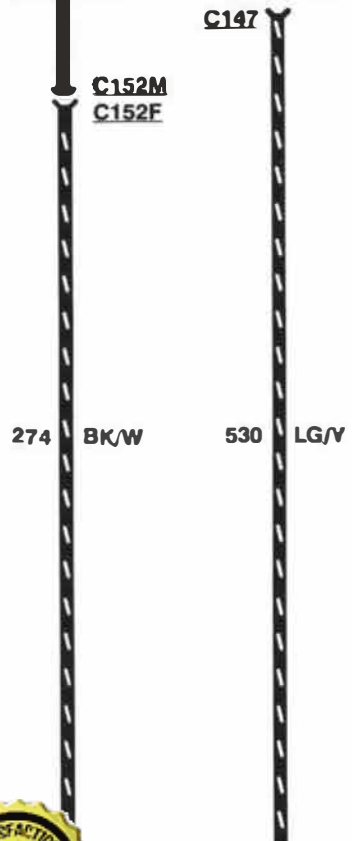
FUEL PUMP MODULE
PAGES 23-6, 24-6

LH BACKUP LAMP
PAGE 93-1

RH BACKUP LAMP
PAGE 93-1

LICENSE LAMP
PAGE 92-1

LICENSE LAMP
PAGE 92-1



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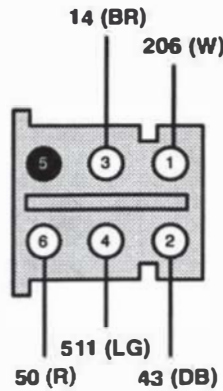
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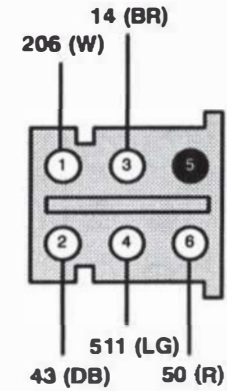
G104
151-1 E10

150-9 IN-LINE CONNECTOR FACES

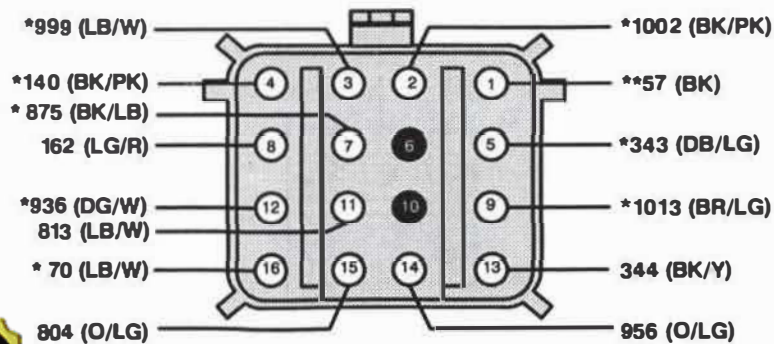
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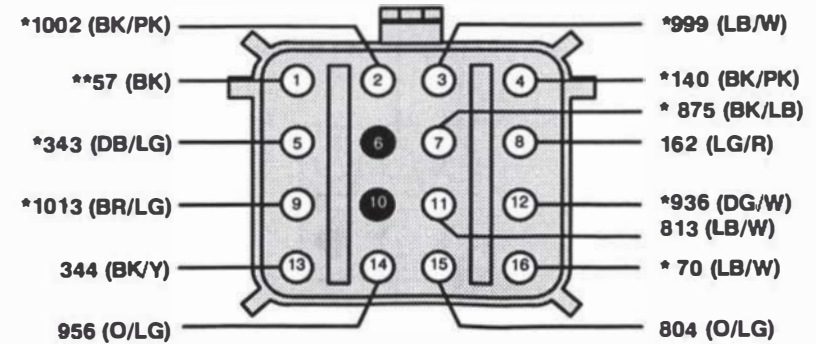
C232F



C232M



C247F



C247M

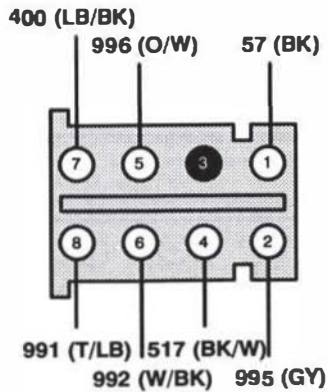
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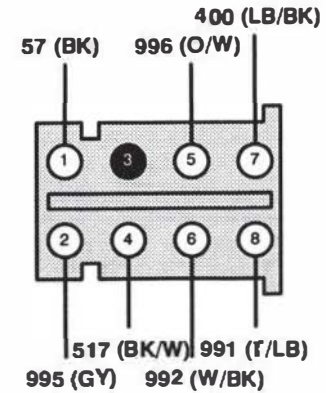
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IN-LINE CONNECTOR FACES 150-10

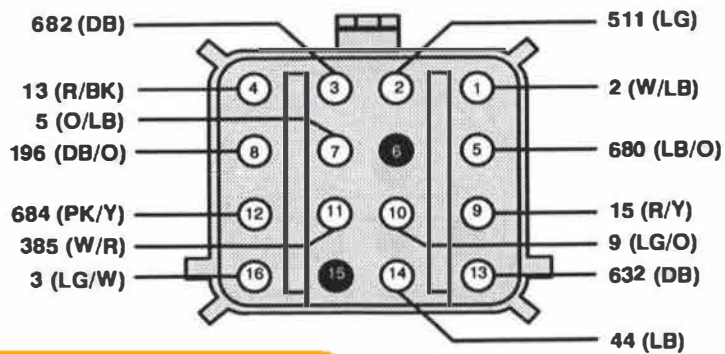
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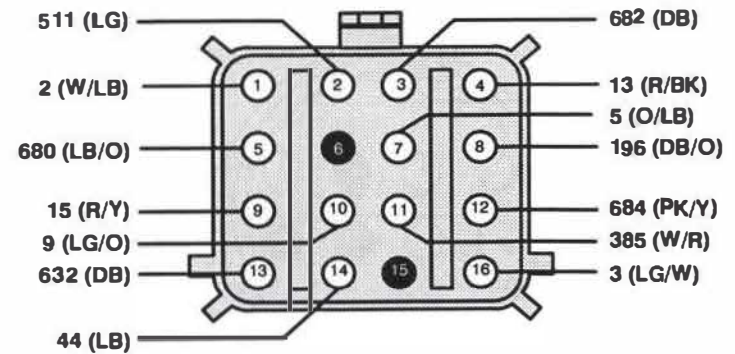
C248F



C248M



C253E



C253M

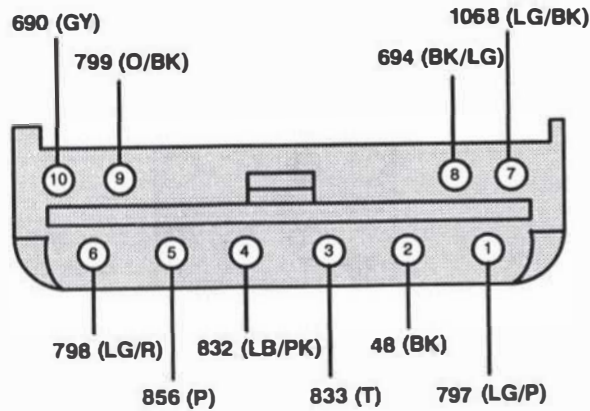
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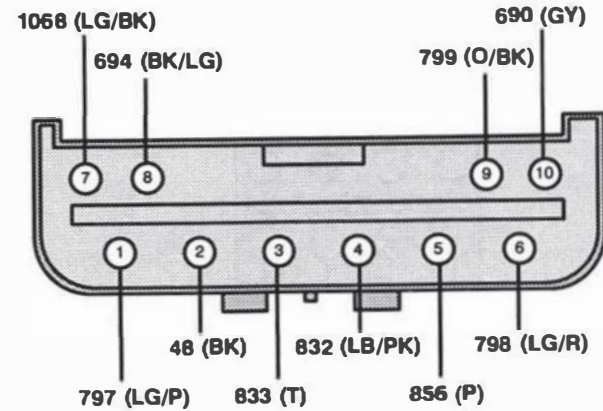
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150-11 IN-LINE CONNECTOR FACES

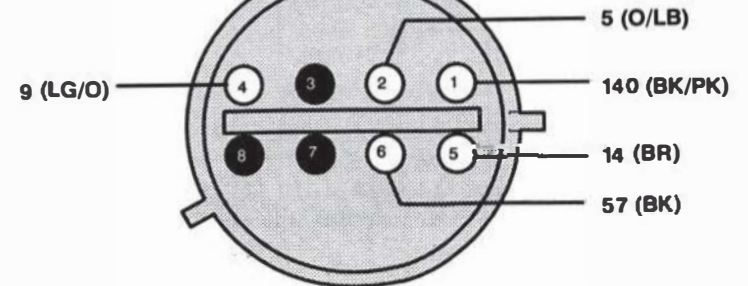
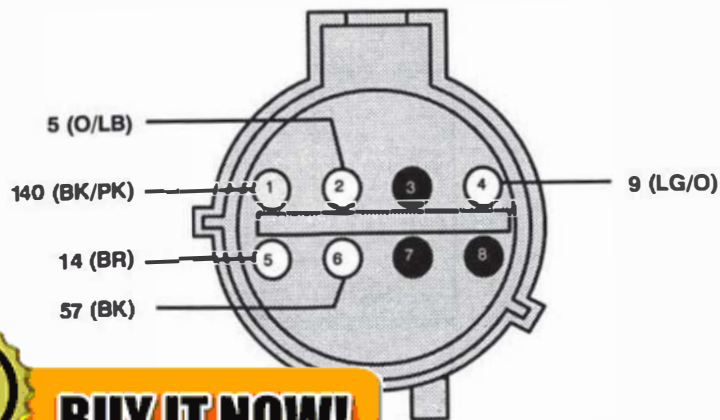
1997 F-150



C265F



C265M



C403M

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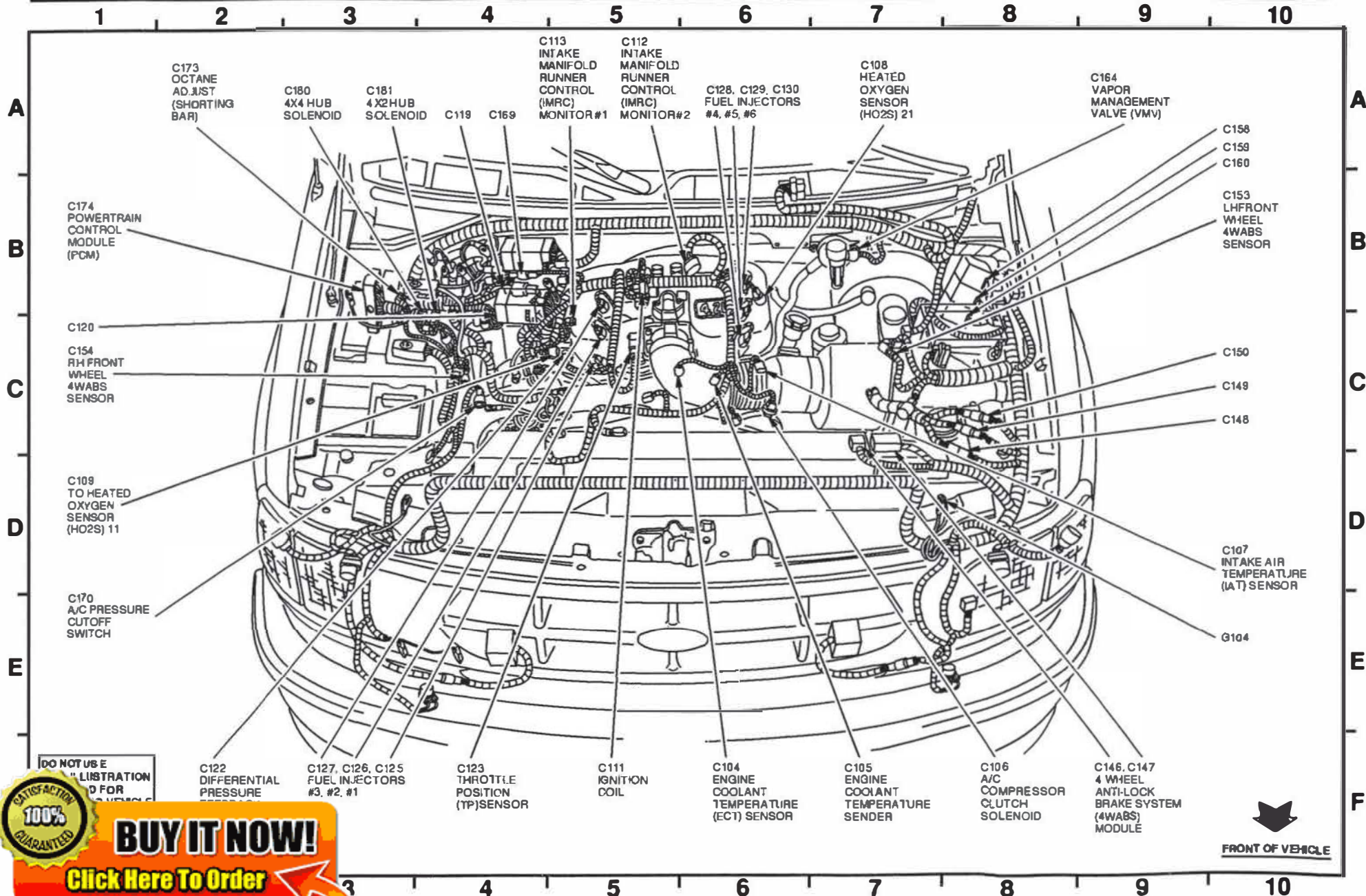
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151-1

COMPONENT LOCATION VIEWS

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4.2L ENGINE (1 OF 2)
(4.6L ENGINE SIMILAR)



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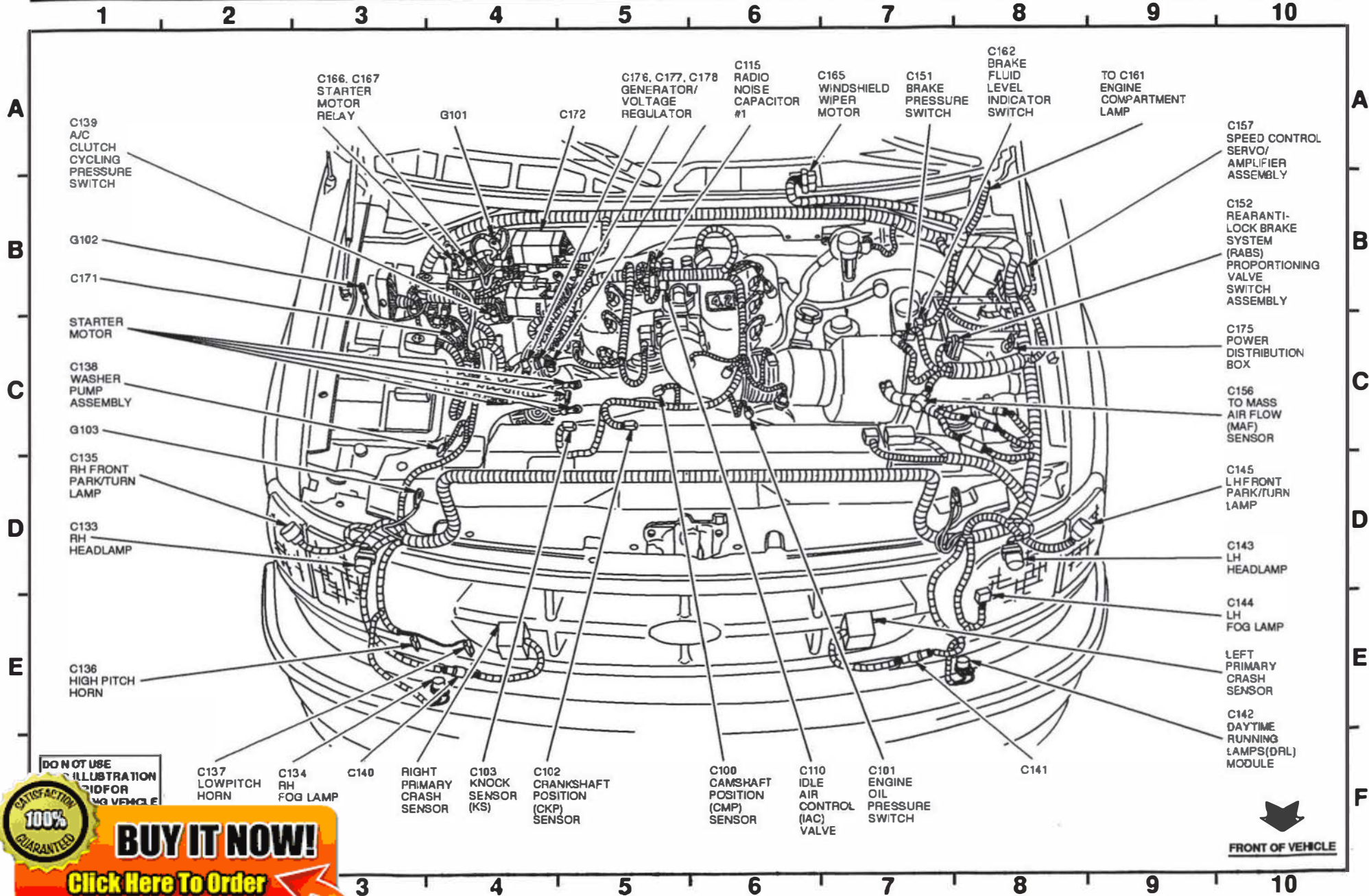
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COMPONENT LOCATION VIEWS

151-2

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- C139 A/C CLUTCH CYCLING PRESSURE SWITCH
- G102
- C171
- STARTER MOTOR
- C138 WASHER PUMP ASSEMBLY
- G103
- C135 RH FRONT PARK/TURN LAMP
- C133 RH HEADLAMP
- C136 HIGH PITCH HORN
- C137 LOW PITCH HORN
- C134 RH FOG LAMP
- C140
- RIGHT PRIMARY CRASH SENSOR
- C103 KNOCK SENSOR (KS)
- C102 CRANKSHAFT POSITION (CKP) SENSOR
- C100 CAMSHAFT POSITION (CMP) SENSOR
- C110 IDLE AIR CONTROL (IAC) VALVE
- C101 ENGINE OIL PRESSURE SWITCH
- C141
- C166, C167 STARTER MOTOR RELAY
- G101
- C172
- G102
- C176, C177, C178 GENERATOR/VOLTAGE REGULATOR
- C115 RADIO NOISE CAPACITOR #1
- C165 WINDSHIELD WIPER MOTOR
- C151 BRAKE PRESSURE SWITCH
- C162 BRAKE FLUID LEVEL INDICATOR SWITCH
- TO C161 ENGINE COMPARTMENT LAMP
- C157 SPEED CONTROL SERVO/AMPLIFIER ASSEMBLY
- C152 REARANTI-LOCK BRAKE SYSTEM (RABS) PROPORTIONING VALVE SWITCH ASSEMBLY
- C175 POWER DISTRIBUTION BOX
- C156 TO MASS AIR FLOW (MAF) SENSOR
- C145 L.H.FRONT PARK/TURN LAMP
- C143 LH HEADLAMP
- C144 LH FOG LAMP
- LEFT PRIMARY CRASH SENSOR
- C142 DAYTIME RUNNING LAMPS(DRL) MODULE

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4.2L ENGINE (2 OF 2)
(4.6L ENGINE SIMILAR)

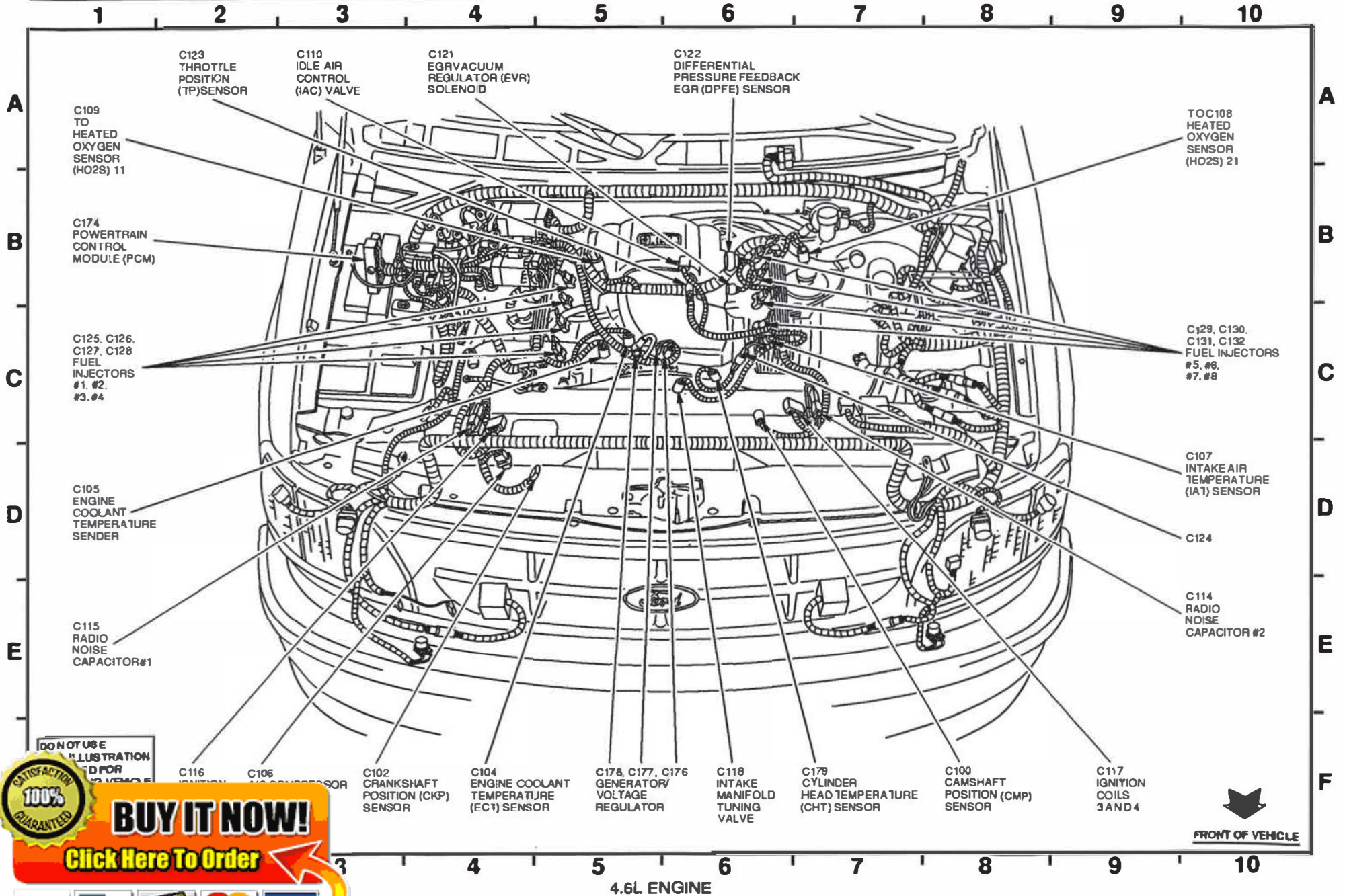
FRONT OF VEHICLE



151-3

COMPONENT LOCATION VIEWS

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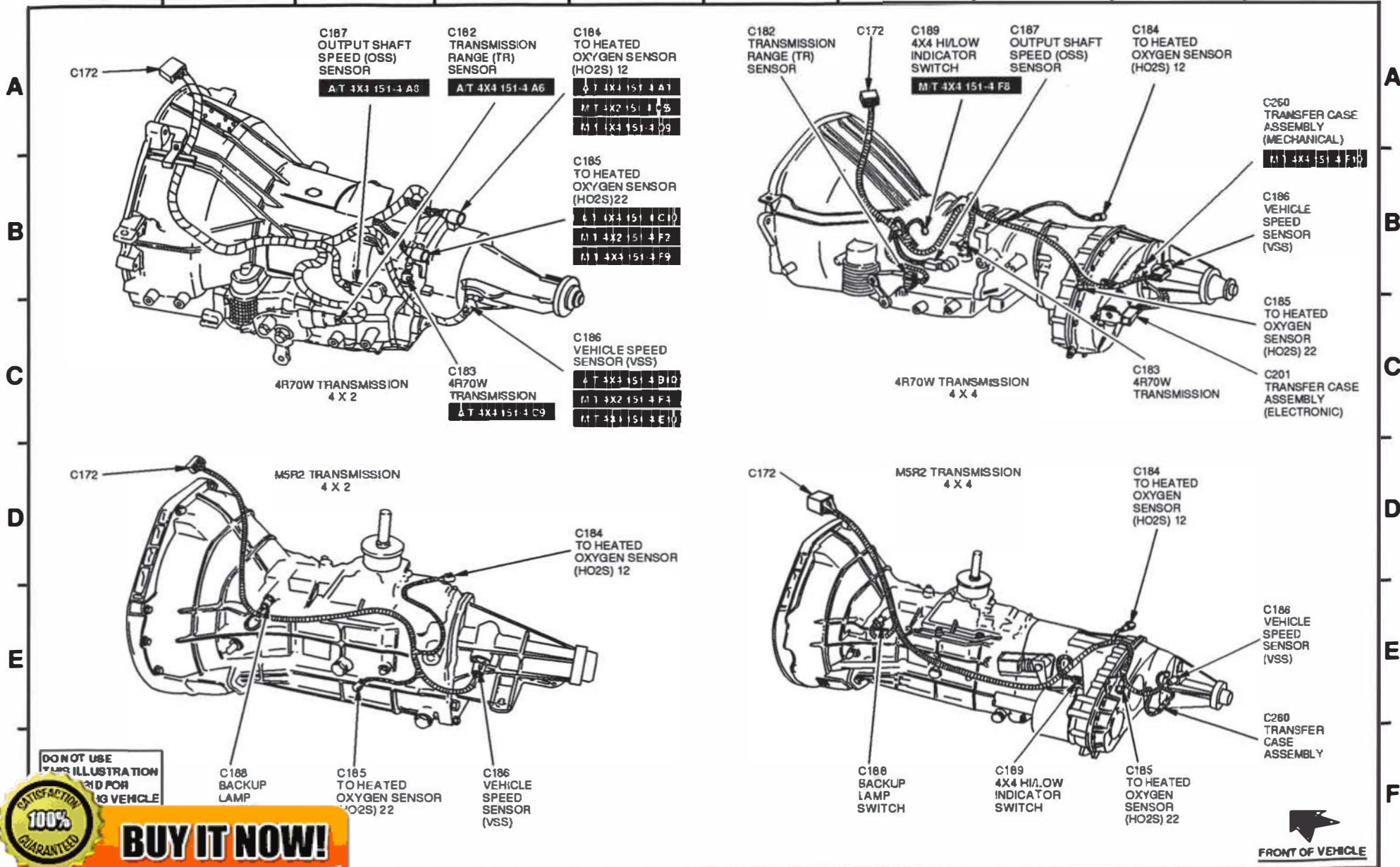
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COMPONENT LOCATION VIEWS 151-4

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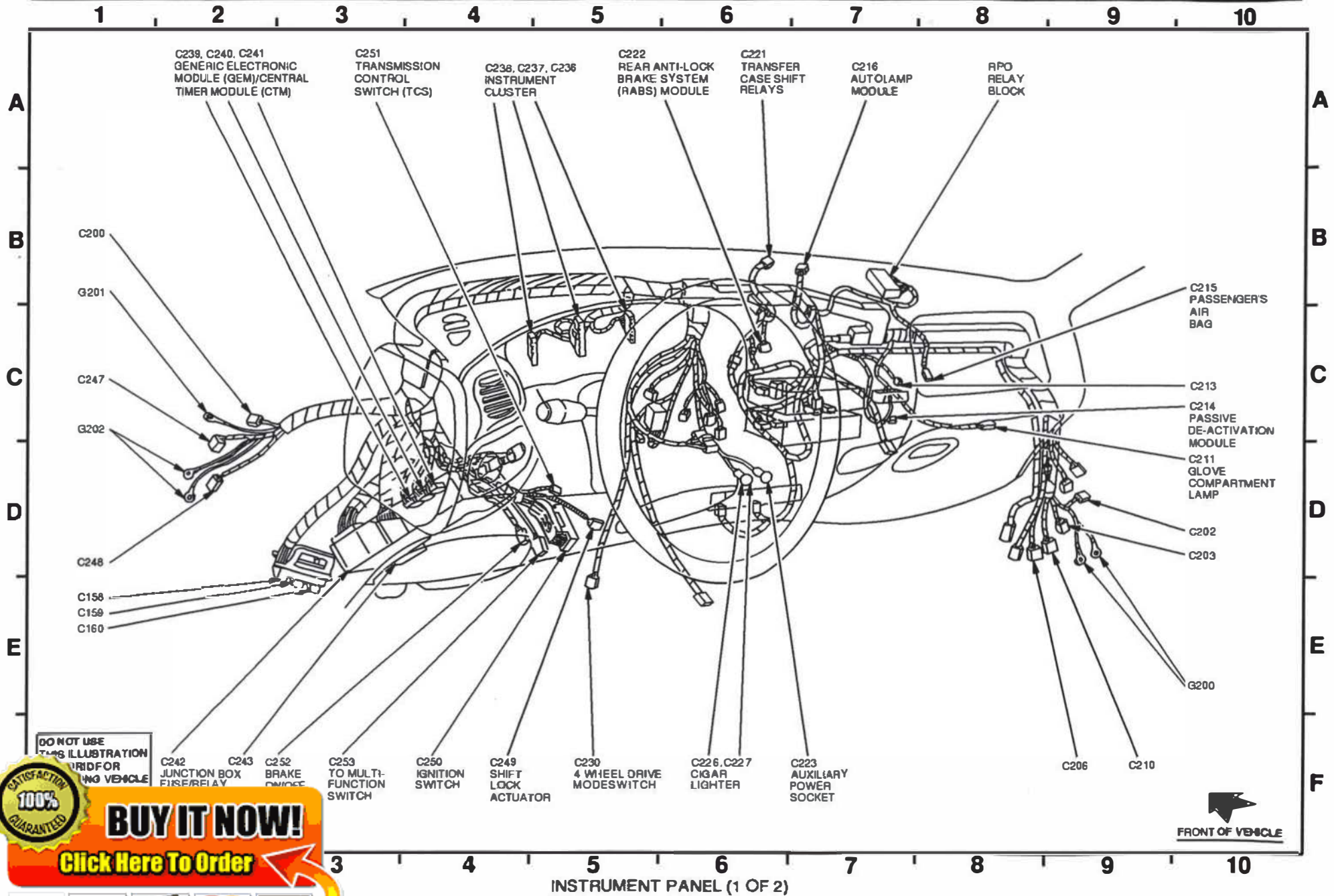
TRANSMISSIONS

FRONT OF VEHICLE

151-5

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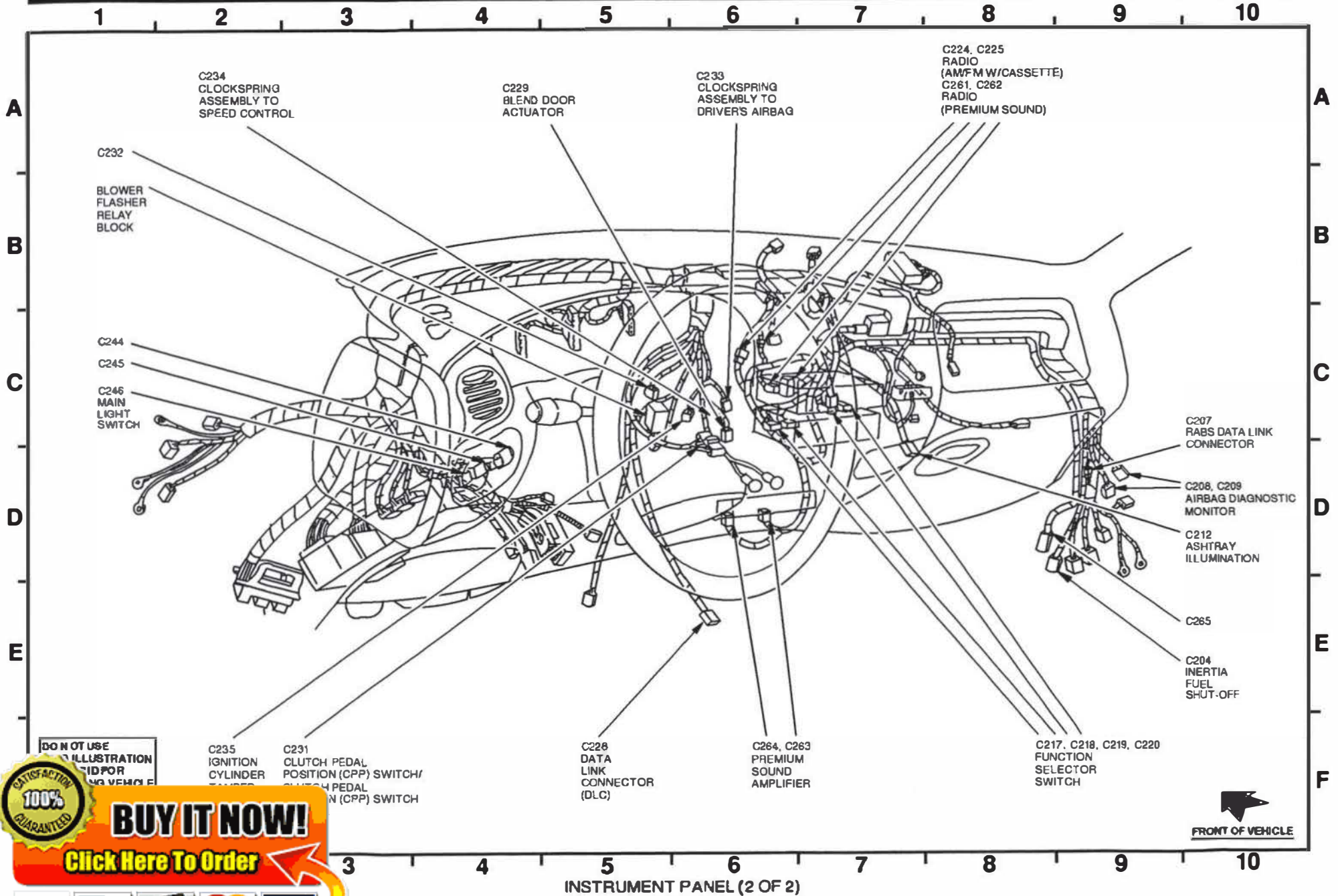
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COMPONENT LOCATION VIEWS

151-6

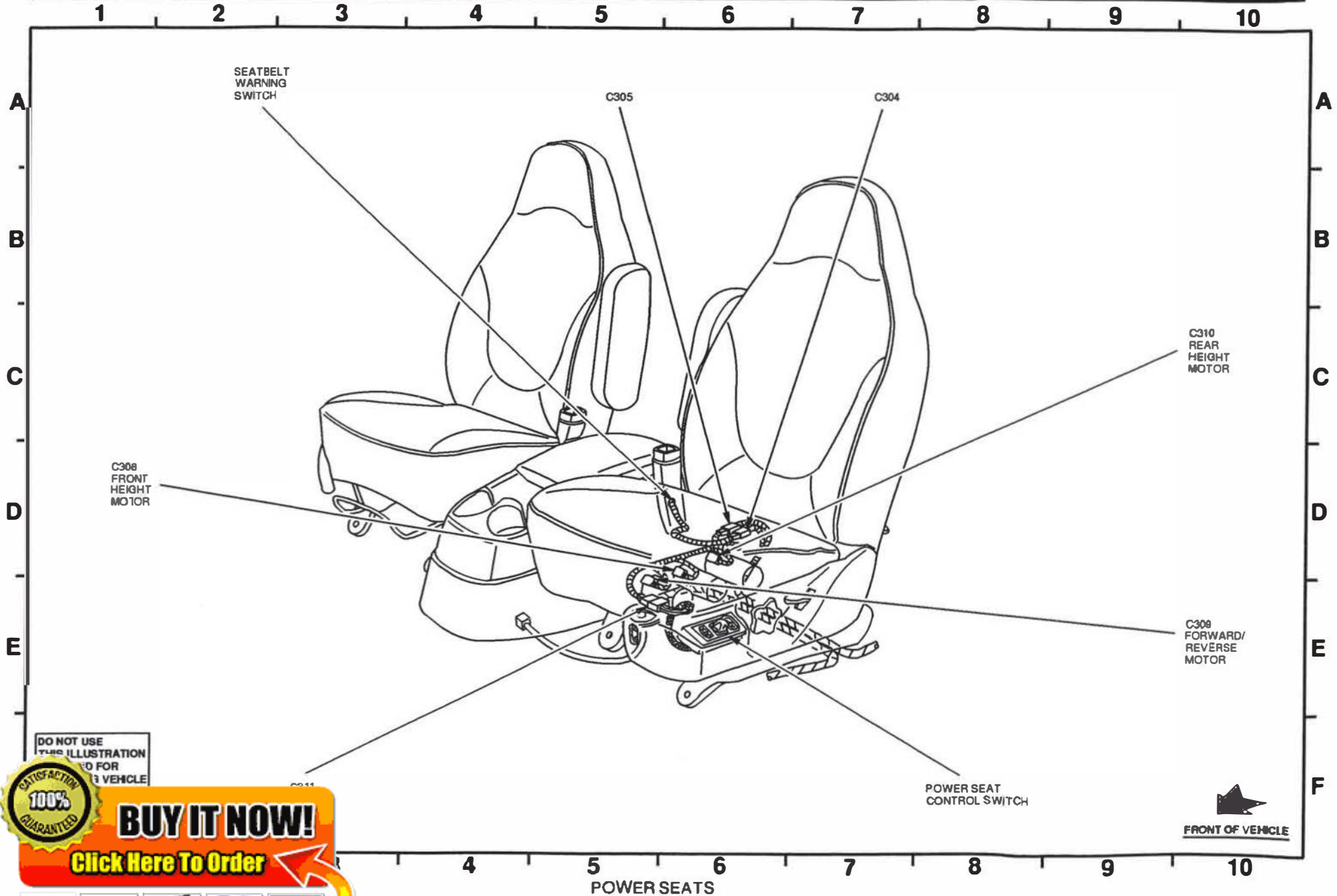
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COMPONENT LOCATION VIEWS

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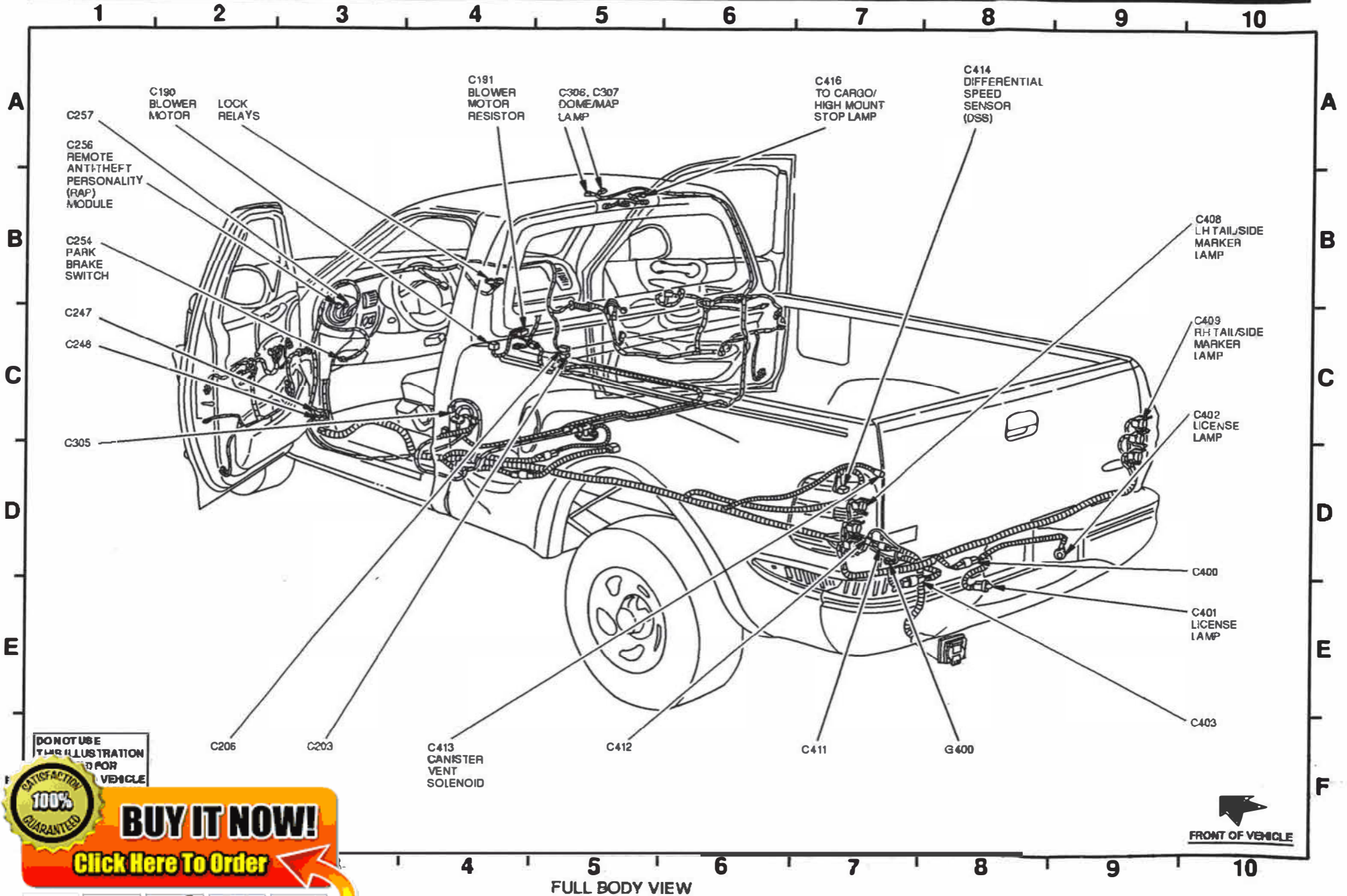
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COMPONENT LOCATION VIEWS

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152-1 LOCATION INDEX

1997 F-150

<u>Component</u>	<u>Base Part No.</u>	<u>Location</u>	<u>Component Connector</u>	<u>Page Zone</u>	<u>Connector Page</u>
4X2 Hub Solenoid	★	RH rear corner of engine compartment	C181	151-1 A3	
4X4 Hi/Low Indicator Switch	★	LH side of transmission	C189	151-4 A7	
4X4 Hub Solenoid	★	RH rear corner of engine compartment	C180	151-1 A3	
4R70W Transmission	7000	Mounted under center of vehicle	C183	151-4 C4	29-4
4WABS Relay	14N089	In power distribution box	★	★	13-18
4 Wheel Anti-Lock Brake System (4WABS) Module	2C018	LH side of engine compartment	C146, C147	151-1 F9	42-6
4 Wheel Drive Mode Switch	★	Center of I/P	C230	151-5 F5	34-6
ACC Delay Relay	★	In junction box fuse/relay panel	★	★	11-4
A/C Clutch Diode	14A604	Taped in harness, near A/C compressor clutch	★	★	
A/C Clutch Cycling Pressure Switch	19D784	RH rear corner of engine compartment	C139	151-2 A1	
A/C Compressor Clutch Solenoid (4.2L)	19E561	LH side of engine compartment	C106	151-1 F8	
A/C Compressor Clutch Solenoid (4.6L)	19E561	LH side of engine compartment	C106	151-3 F2	
A/C Pressure Cutoff Switch	190594	RH side of engine compartment	C170	151-1 E1	
Airbag Diagnostic Monitor	043B13	Behind RH side of I/P	C208, C209	151-6 D10	46-3
All Lock Relay	★	In lock relays	★	★	13-18
All Un-lock Relay	★	In lock relays	★	★	13-18
Ashtray Illumination	15052	Top side of ashtray bracket	C212	151-6 D10	
Autolamp Module	14A597	Behind center of I/P	C216	151-5 A7	87-4
Auxiliary Power Socket	★	Behind center of I/P	C223	151-5 F7	
Backup Lamp Switch	15520	LH side of transmission	C188	151-4 F2	
Battery	★	RH side of engine compartment	★	★	
Battery Saver Relay	★	In junction box fuse/relay panel	★	★	11-4
Blend Door Actuator	19E616	Behind center of I/P	C229	151-6 A4	
Blower/Flasher Relay Block	★	Behind center of I/P	★	151-6 B1	13-18
Blower Motor	14N089	RH side of engine compartment	C190	151-9 A1	
Blower Motor Resistor	19A706	Near blower motor	C191	151-9 A4	
Blower Relay	★	In blower/flasher relay	★	★	13-18
Brake Fluid Level Indicator Switch	2L140	Mounted on master cylinder	C162	151-2 A8	
Brake On/Off (BOO) Switch	13480	Behind LH side of I/P	C252	151-5 F3	
Brake Pressure Switch	★	LH rear corner of engine compartment	C151	151-2 A7	
Brake Warning Resistor/Diode	★	Near brake fluid level indicator switch	★	★	
	B288	Front of engine	C100	151-2 F6	
	B288	Front of engine	C100	151-3 F8	

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LOCATION INDEX 152-2

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<u>Component</u>	<u>Base Part No.</u>	<u>Location</u>	<u>Component Connector</u>	<u>Page Zone</u>	<u>Connector Page</u>
Cannister Vent Solenoid	★	Rear of body, near fuel tank	C413	151-9 F4	
Cargo/High Mount Stop Lamp	13776	Rear top center of cab	C416	151-9 A7	
CD Changer	186830	LH rear of cab	C266	151-8 F3	130-8
Central Timer Module (CTM)					
Diagnostic Connector	★	Behind center of I/P	C205	★	
Cigar Lighter	15055	Behind center of I/P	C226, C227	151-5 F6	
Clockspring Assembly (Air Bag)	★	Base of steering column	C233	151-6 A6	
Clockspring Assembly (Speed Control)	★	Base of steering column	C234	151-6 A2	31-3
Clutch Pedal Position (CPP) Switch	11A152	On clutch pedal arm	C231	151-6 F3	20-4
Clutch Pedal Position (CPP) Switch Jumper	14B155	Behind LH side of I/P	C231	151-6 F3	20-4
Crankshaft Position (CKP) Sensor (4.2L)	9A825	Lower front of engine	C102	151-2 F5	
Crankshaft Position (CKP) Sensor (4.6L)	9A825	Lower front of engine	C102	151-3 F3	
Cylinder Head Temperature (CHT) Sensor	★	Top front of engine	C179	151-3 F7	
Data Link Connector (DLC)	★	Behind center of I/P	C228	151-6 F5	14-2
Daytime Running Lamps (DRL) Module	15A272	LH front of engine compartment	C142	151-2 E10	97-3
Daytime Running Lamps (DRL) Module Jumper	14A464	LH front of engine compartment	C142	★	
Differential Pressure Feedback EGR (DPFE) Sensor (4.2L)	★	RH side of engine	C122	151-1 F2	
Differential Pressure Feedback EGR (DPFE) Sensor (4.6L)	★	RH side of engine	C122	151-3 A6	
Differential Speed Sensor (DSS)	6C315	On rear axle	C414	151-9 A8	
Differential Speed Sensor (DSS) Data Link Connector (DLC)	14A624	LH rear of engine compartment	C163	★	
Dome Lamp	13776	Center of cab, in roof panel	C306, C307	★	
Dome/Map Lamp	13776	Center of cab, in roof panel	C306, C307	151-9 A5	
Driver's Unlock Relay	★	In lock relays	★	★	13-18
Evacuum Regulator (EVR)	9F483	LH side of engine	C121	151-3 A4	
	15702	Attached to underside of hood	C161	151-2 A9	
	10 884	LH front corner of engine	C105	151-1 F7	

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