



Modern Automotive Technology Chapter 7

Using Service Information



*North Montco
Technical Career Center*



Chapter 7

Using Service Information

- Describe the different types of service manuals
- Find and use the service manual index
- Explain the different kinds of information and illustrations used in a service manual
- Describe the basic types of trouble shooting charts found in service manuals
- Explain how to use computer based service information





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1. Manufacturer's manuals, also known as **FACTORY MANUALS**, cover each vehicle produced by a particular company, usually for a one year period.
2. A(n) **OWNER'S MANUAL** is given to the purchaser of a new vehicle.



Service Manual Sections

INTRODUCTION

How to Use this Manual

This manual is divided into 16 sections. The first page of each section is marked with a black tab that lines up with one of the thumb index tabs on the front and back covers. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference system.

Each section includes:

1. A table of contents, or an exploded view index showing:
 - Parts disassembly sequence.
 - Bolt torques and thread sizes.
 - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Special Information



Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION:

Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE:

Gives helpful information to make the job easier.

CAUTION: Detailed descriptions of standard workshops procedures, safety principles, and service operations are not included. Please note that this manual does contain warnings and cautions against some specific service methods which could cause PERSONAL INJURY, or could damage a vehicle or make it unsafe. Please understand that these warnings cannot cover all conceivable ways

General Info



Special Tools

tools

Specifications

specs

Maintenance



Engine



Engine Electrical



Cooling



Fuel



Emission Controls

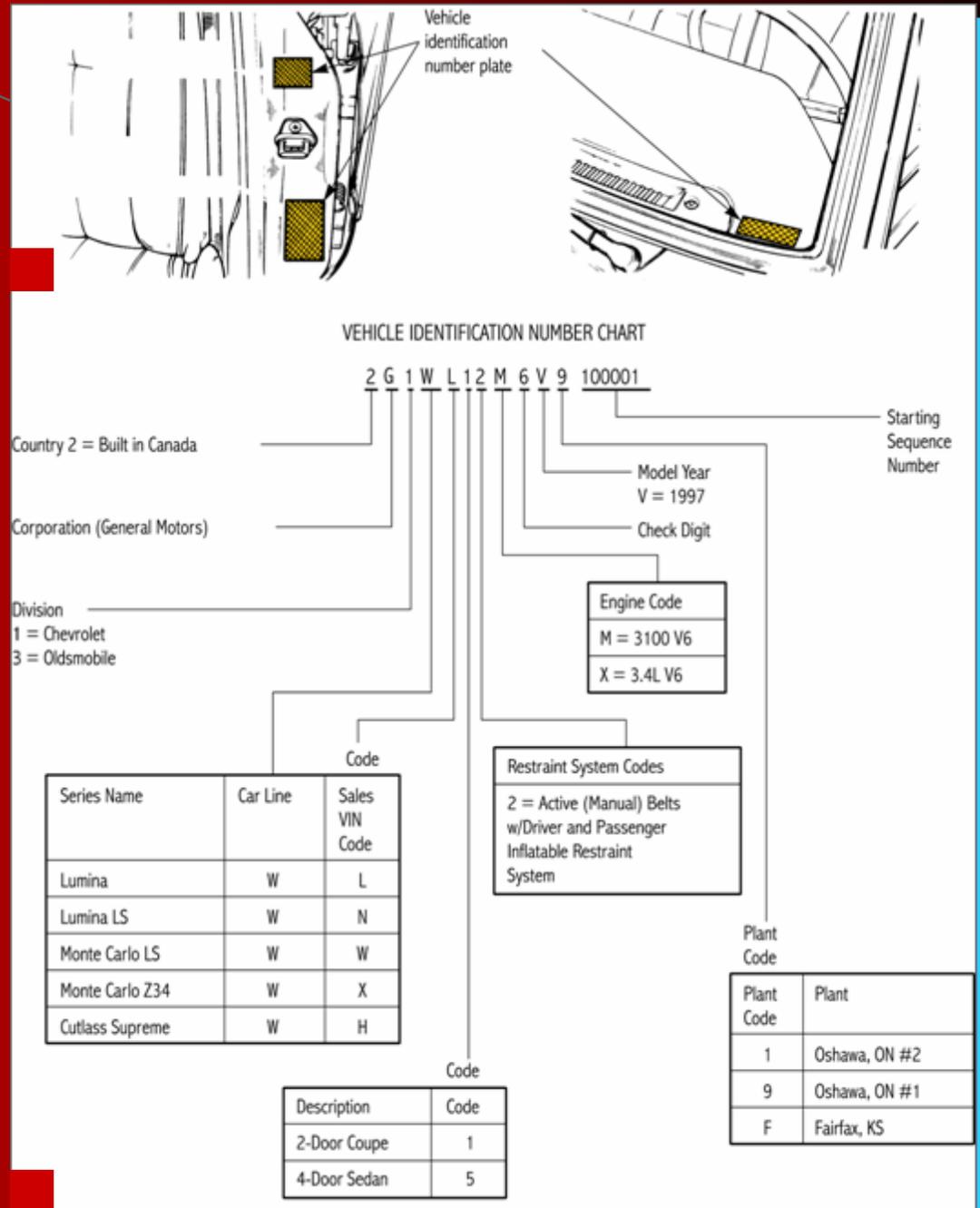


Transaxle



VIN Locations and Decoding

Located on the door, on the dashboard, or in the engine compartment





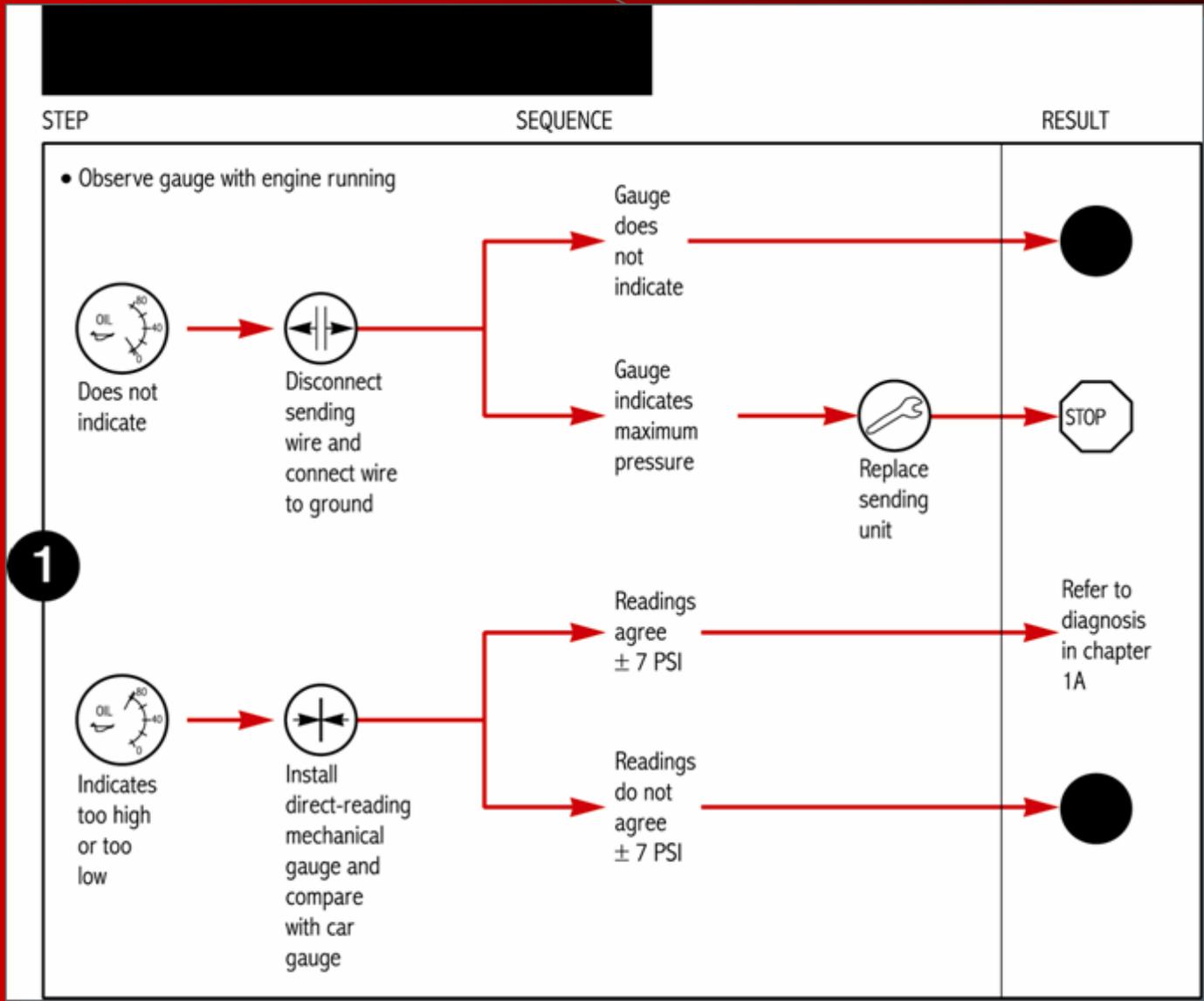
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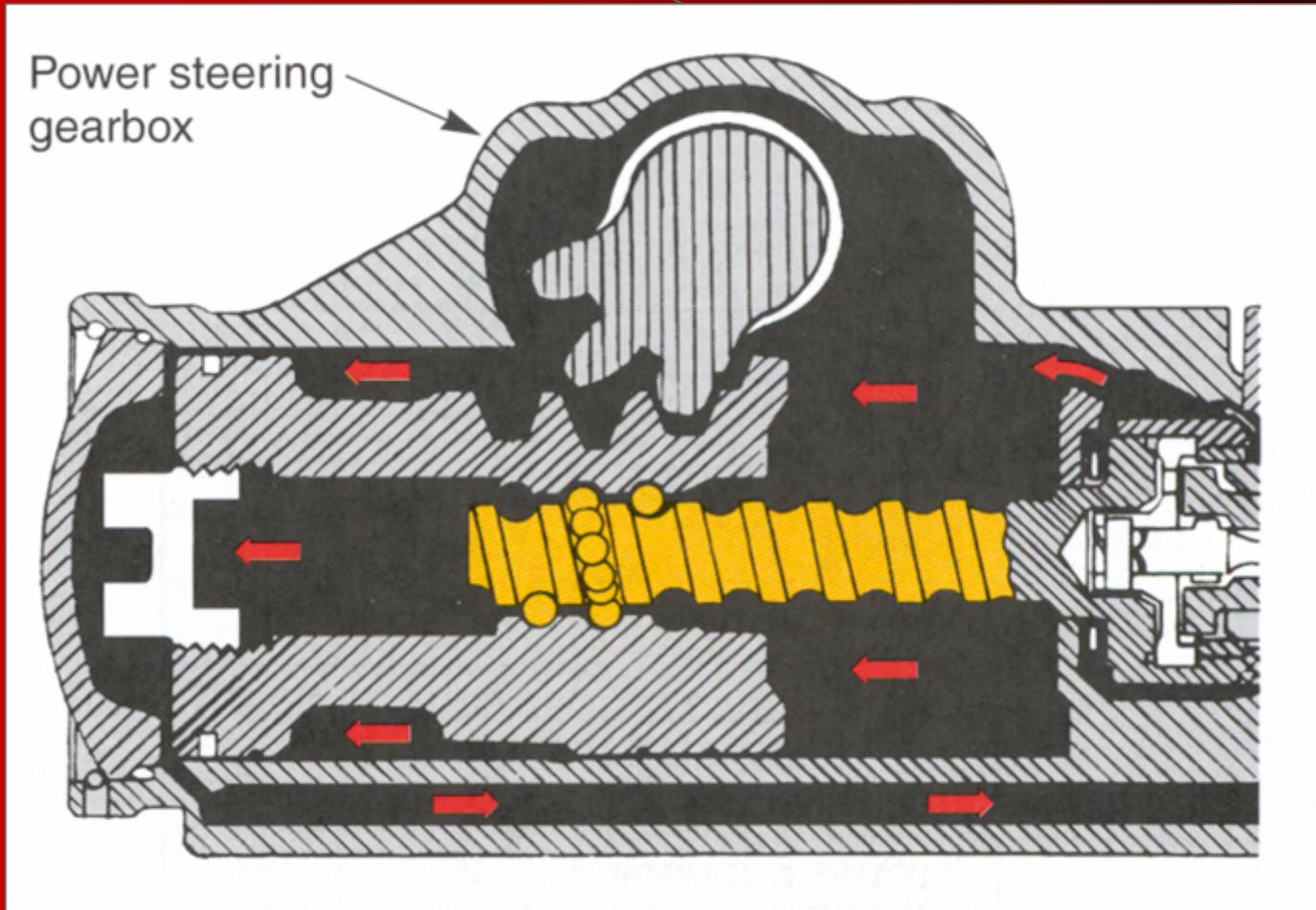
3. Pictures, symbols, and words are all used in an **ILLUSTRATED DIAGNOSIS CHARTS**.
4. Vehicle identification, basic maintenance, etc., are all found in the **GENERAL INFORMATION** section of a shop manual



Illustrated Diagnosis Chart



Operational Illustration



Shows how parts function





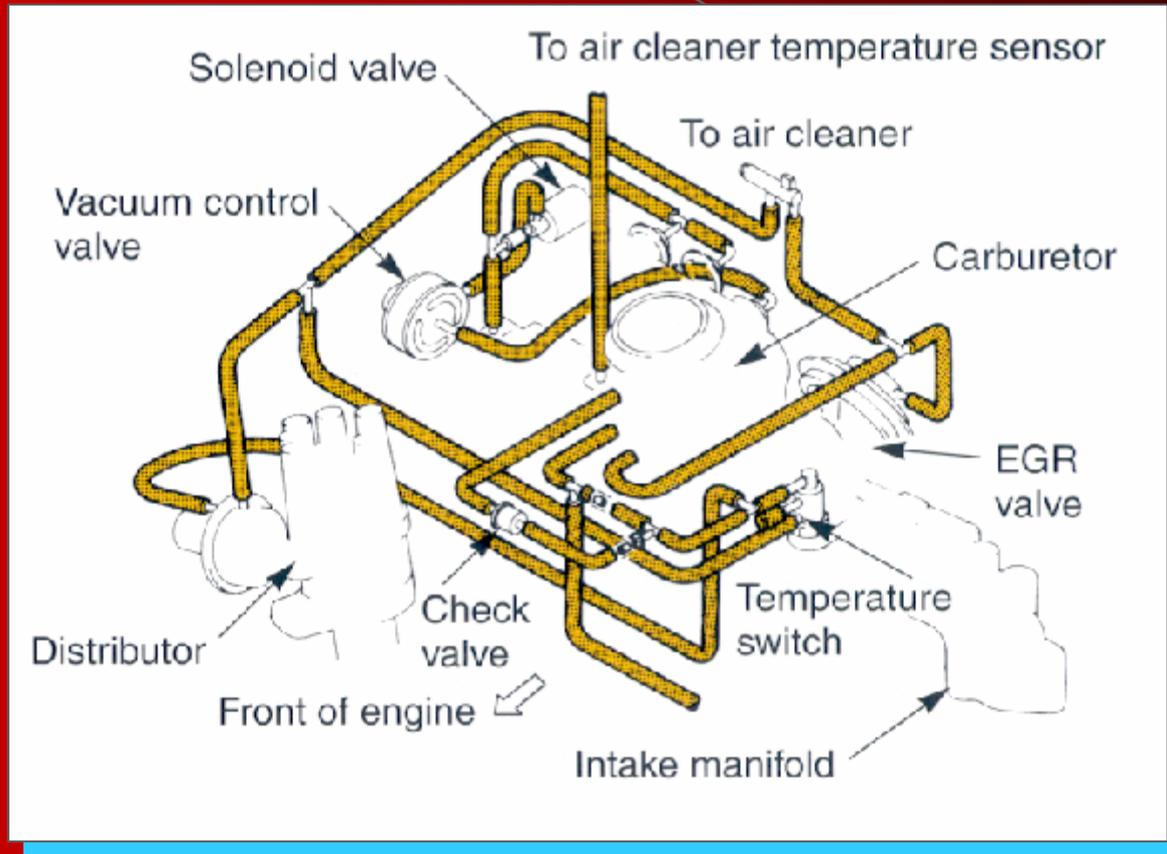
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5. **HYDRAULIC DIAGRAMS** show how fluid flows in a circuit or a part.
6. Technicians can stay up-to-date with recent technical changes, repair problems, and other service-related information by reading **TECHNICAL BULETINS**.



Vacuum Diagram



Shows how hoses connect to the engine and vacuum-operated devices





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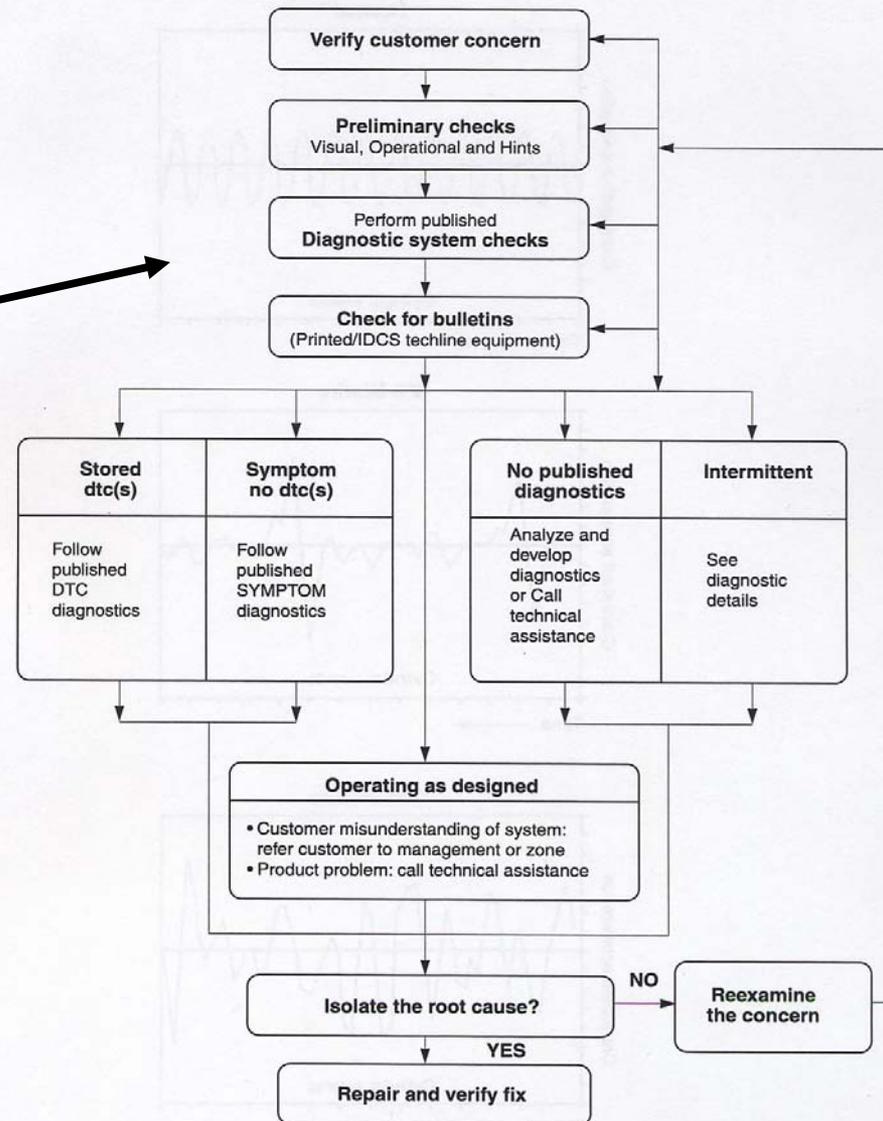
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7. A technician needs a **FLAT-RATE MANUAL** to calculate how much labor to charge a customer for a repair.
8. A **TREE DIAGNOSTIC CHART** gives a logical sequence for testing and inspecting when trying to solve a repair problem.



Strategy-Based (Tree) Diagnostic Flow Chart

Strategy-Based Diagnostics





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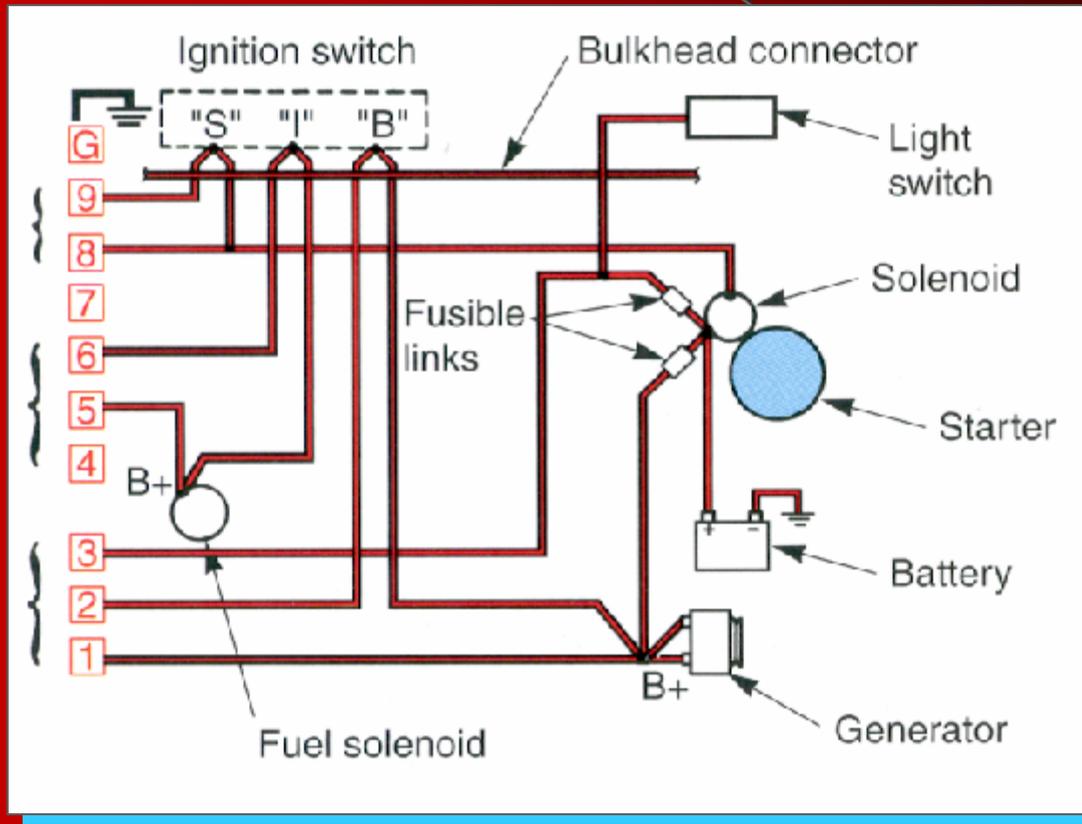
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9. **DIAGRAMS** are drawings that represent how wires, hoses, passages, and parts connect.

10. Conditions, causes, and corrections are all listed in a **BLOCK DIAGNOSTIC CHART**.



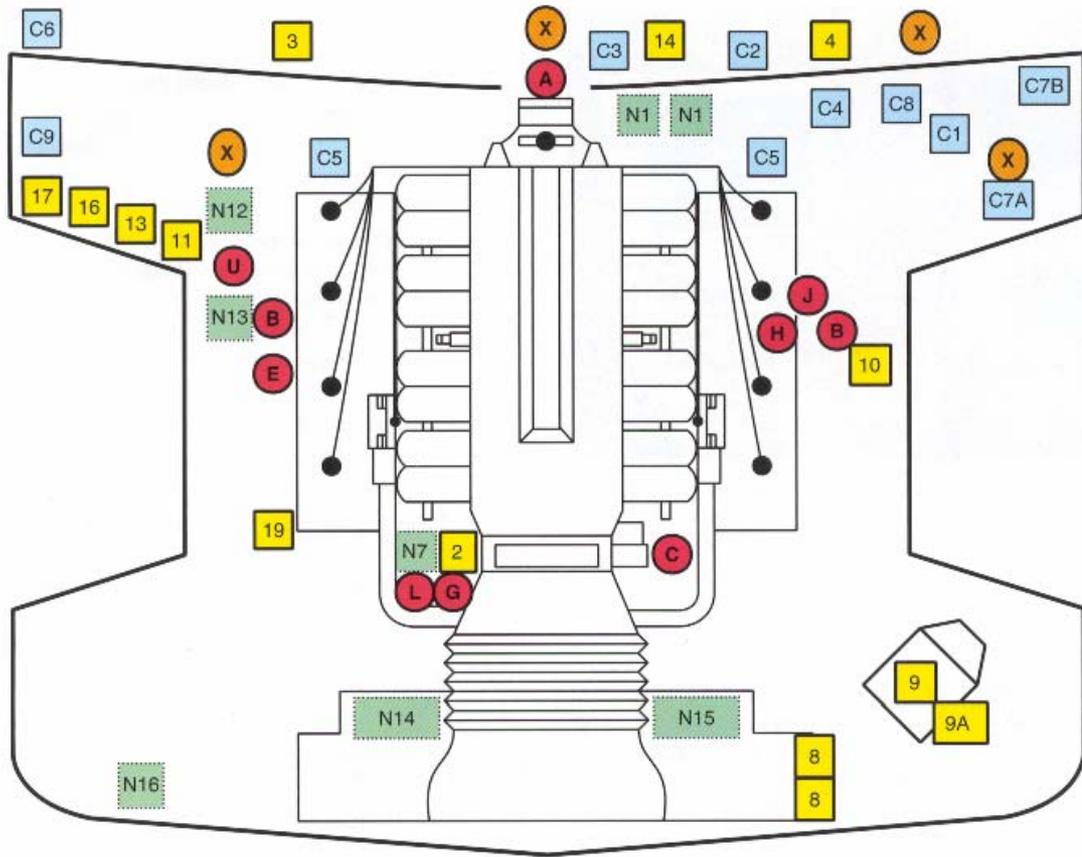
Wiring Diagram



Shows how wires connect to components



Component Location Chart

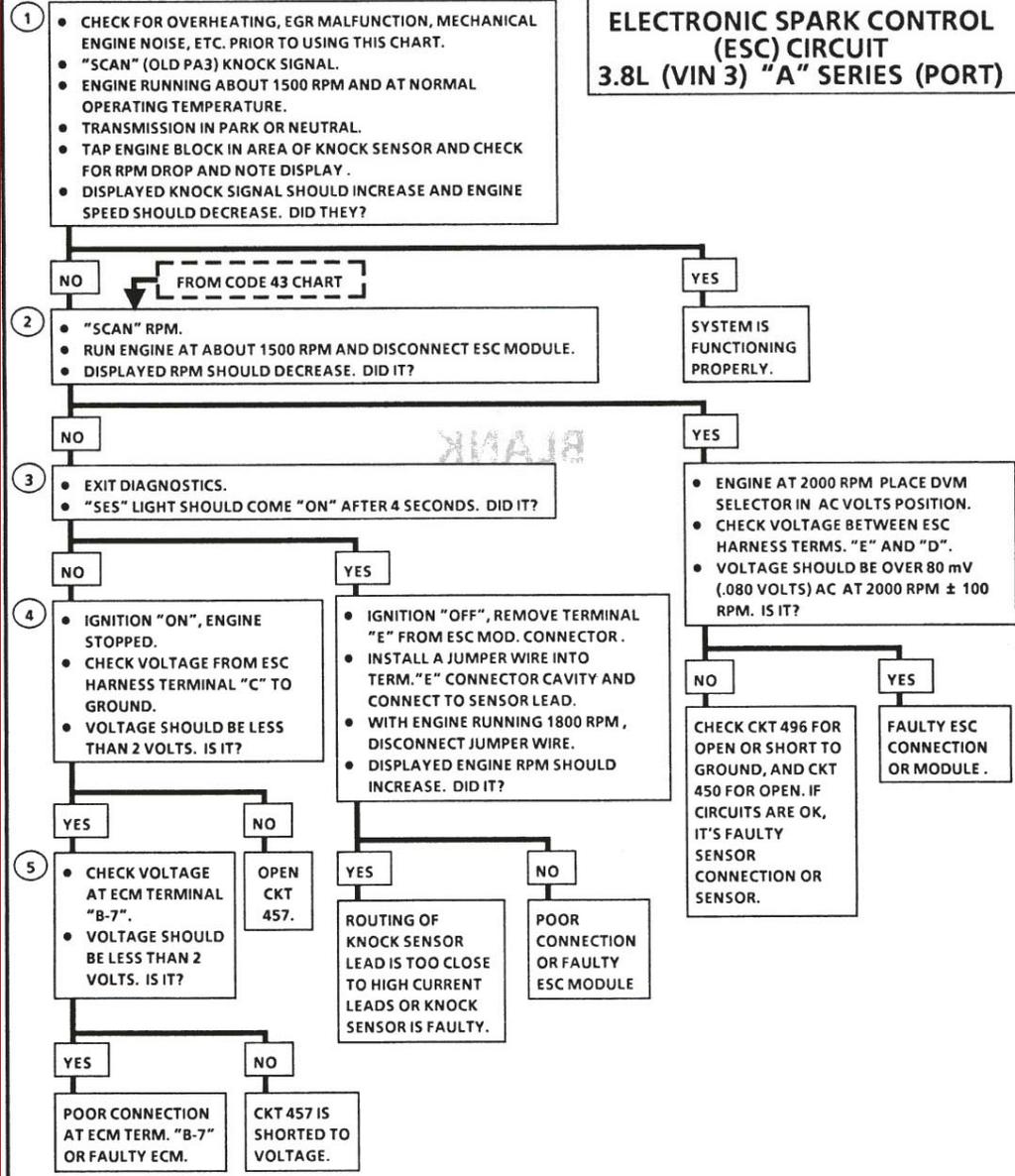


- | | |
|---|--|
| Computer Harness | Information Sensor |
| C1 Engine Control Module (ECM) | A Manifold Absolute Pressure (MAP) sensor |
| C2 Data Link Connector (DLC) | B Heated Oxygen Sensor (HO2S) |
| C3 Malfunction Indicator Lamp (MIL) | C Throttle Position (TP) sensor |
| C4 Electronic Ignition diagnostic connector | E Crankshaft Position sensor |
| C5 ECM harness grounds | F Vehicle Speed Sensor (VSS) (mounted on transmission, not shown) |
| C6 I/P fuse panel | G Intake Air Temperature (IAT) sensor |
| C7A Underhood fuse block | H Camshaft Position Sensor |
| C7B Underhood fuse block | J Knock Sensor (KS) |
| C8 Fuel pump test connector | L Engine oil temperature sensor |
| C9 TP sensor interface module | U A/C cooling fan switch |
| Not ECM Connected | X SIR System Components. Refer to section 9J of the Service Manual, for "Cautions" and information on SIR System Components. |
| N1 Crankcase ventilation valve | |
| N7 Oil pressure sensor gauge | |
| N12 A/C pressure cycling switch | |
| N13 A/C high pressure cycling switch | |
| N14 Secondary cooling fan (FAN 2) | |
| N15 Primary cooling fan (FAN 1) | |
| N16 Secondary air inlet valve electric vacuum pump | |
| Controlled Devices | |
| 2 Idle Air Control (IAC) valve | |
| 3 Fuel Pump (FP) relay (primary) | |
| 4 Fuel Pump (FP) relay (secondary) | |
| 8 Cooling fan relay(s) | |
| 9 Secondary Air Injection (AIR) pump | |
| 9A Air pump relay | |
| 10 Air bypass valve | |
| 11 2nd & 3rd gear block out solenoid | |
| 13 A/C clutch relay | |
| 14 2nd & 3rd gear block out solenoid | |
| 16 Secondary SFI control module #1 | |
| 17 Secondary SFI control module #2 | |
| 19 Linear EGR valve | |



Block Diagnostic Flow Chart

CHART C-5 ELECTRONIC SPARK CONTROL (ESC) CIRCUIT 3.8L (VIN 3) "A" SERIES (PORT)





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