# Preface

This manual provides a step-by-step approach for diagnosing driveability, emission and powertrain control system symptoms. Before beginning diagnosis, it may be helpful to reference any Technical Service Bulletins (TSBs) or On-line Automotive Service Information System (OASIS) information when this is available.

This manual is used in conjunction with the Body, Chassis, Electrical, Powertrain Workshop Manuals and the Electrical Vacuum Troubleshooting Manuals (EVTM). The Workshop Manuals are used to provide additional diagnostics when directed by this manual. The Workshop Manuals are also used for component removal and replacement information. Refer to the EVTM for vehicle-specific wiring information and component, connector and splice location.

All references to specific "Groups" refer to groups in the Body, Chassis, Electrical, Powertrain Workshop Manuals. The following is a description of the information contained in each section of this manual.

### Section 1: Description and Operation

This section contains description and operation information on powertrain control systems and components. This section is designed to give the technician a general knowledge of the powertrain control system. It should be used when general information about the powertrain control system is desired, and is rarely referenced from other sections of the manual.

## **Section 2: Diagnostic Methods**

The Diagnostic Methods section contains information on specific diagnostic tasks that are used during diagnosis. Descriptions of specific diagnostic methods are included, as well as detailed instructions on how to access or perform the tasks. This section provides the technician with step-by-step instructions for performing routine diagnostic tasks.

#### **Section 3: Symptom Charts**

All diagnosis begins in Section 3 with the Symptom Index. The Symptom Index contains the list of symptoms addressed in this manual. The Symptom Index will refer the technician to the appropriate Symptom chart, which guides the technician through diagnosis.

## Section 4A and 4B: Diagnostic Subroutines

Sections 4A and 4B contain the Hard Start/No Start and Performance Diagnostic Procedures that are used to obtain quick diagnostic information. This section also contains the Powertrain Diagnostic Trouble Code (DTC) "Go To" Charts. Section 3 will direct the technician to these tests when required.

#### **Section 5: Pinpoint Tests**

All the pinpoint tests are included in Section 5. Never enter a Pinpoint Test unless directed there. When directed to a Pinpoint Test, always read the information and look at the schematic included at the beginning of the Pinpoint Test.

#### **Section 6: Reference Values**

Section 6 contains the Control System Diagnostic Sheet Reference Chart.

On Board Diagnostics II Diesel PCED