

**A**

Abbreviations and Their Meanings .....	0-18
ABS Automated Bleed Procedure .....	5-191
ABS Description and Operation .....	5-205
ABS Indicator Always On .....	5-188
ABS Indicator Inoperative .....	5-189
Accelerator Pedal Position (APP) Sensor Replacement .....	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-753
Accumulator Assembly, Spacer Plate and Gaskets .....	
4L60-E/4L65-E .....	7-218
Acid Rain .....	8-681
Air Cleaner .....	
Assembly Replacement .....	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-814
Element Replacement .....	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-814
Resonator Outlet Duct Replacement .....	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-815
Air Conditioning (A/C) Diagnostics - Pressure Zone A .....	1-8
Air Conditioning (A/C) Diagnostics - Pressure Zone B .....	1-10
Air Conditioning (A/C) Diagnostics - Pressure Zone C .....	1-12
Air Conditioning (A/C) Diagnostics - Pressure Zone D .....	1-13
Air Conditioning (A/C) Refrigerant Pressure Sensor Replacement .....	1-38
Air Conditioning (A/C) System - Noise Diagnosis .....	1-19
Air Conditioning (A/C) System Performance Test .....	1-5
Air Distributor Duct Replacement - HVAC .....	1-50
Air Inlet Grille Panel Replacement .....	8-58
Air Intake System Description .....	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-825
Air Outlet Replacement - Instrument Panel - HVAC .....	1-51
Air Pressure Test .....	0-114
Air/Wind Noise Diagnosis .....	0-114
Alcohol/Contaminants-in-Fuel Diagnosis .....	
Engine Controls - 4.8L, 5.3L, 6.0L ....	6-727, 6-728
Altitude vs Barometric Pressure .....	
Engine Controls - 4.8L, 5.3L, and 6.0L .....	6-410
Aluminum Wheel .....	
Porosity Repair .....	3-69
Refinishing .....	3-69
Ambient Light Sensor Replacement - Lighting Systems .....	8-637
Amplifier Replacement - Entertainment .....	11-53
Antenna Cable Replacement - Entertainment .....	11-56
Antenna Module Replacement - Entertainment .....	11-56
Arrows and Symbols, Description .....	0-4
Ashtray Replacement .....	8-499
Assist Rod .....	
Replacement - Hood .....	8-49
Assist Step .....	
Replacement .....	8-420

Audible Warnings Description and Operation .....	8-529
Audio System Troubleshooting Hints - Entertainment .....	11-45
Automatic Transmission Fluid/Filter Replacement .....	
4L60-E/4L65-E .....	7-185
Automatic Transmission Oil Cooler Flushing and Flow Test .....	
4L60-E/4L65-E .....	7-156, 7-161
Automatic Transmission Range Selector Cable Adjustment .....	
4L60-E/4L65-E .....	7-179
Replacement .....	
4L60-E/4L65-E .....	7-177
Automatic Transmission Range Selector Cable Bracket Replacement .....	
4L60-E/4L65-E .....	7-179
Axle Housing Inspection .....	
Rear Drive Axle .....	4-52
Axle Identification - Rear .....	0-13
Axle Replacement, Rear .....	
Rear Drive Axle .....	4-51

**B**

Backfire .....	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-698
Backing Patch Fabrication - Plastic Panel Information and Repair .....	8-694
Backlash Adjustment .....	
Rear Drive Axle .....	4-57
Backup Lamp Bulb Replacement - Lighting Systems .....	8-666
Backup Lamp Replacement - Lighting Systems .....	8-665
Backup Lamps Always On - Lighting Systems .....	8-604
Backup Lamps Inoperative - Lighting Systems .....	8-605
Ball Joint Replacement, Lower .....	
Front Suspension .....	3-25
Ball Joint Replacement, Upper .....	
Front Suspension .....	3-24
Base Engine Misfire with Abnormal Internal Lower Engine Noises .....	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-35
Base Engine Misfire with Abnormal Valve Train Noise .....	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-35
Base Engine Misfire with Coolant Consumption .....	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-36
Base Engine Misfire with Excessive Oil Consumption .....	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-36
Base Engine Misfire without Internal Engine Noises .....	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-34
Basecoat/Clearcoat Paint Systems .....	8-677
Battery Charging - Engine Electrical .....	6-375

- Battery Common Causes of Failure -
  - Engine Electrical ..... 6-378
- Battery Description and Operation ..... 6-407
- Battery Electrical Drain/Parasitic Load Test ..... 6-376
- Battery Inspection/Test - Engine Electrical ..... 6-373
- Battery Negative Cable
  - Disconnect/Connect Procedure - Engine Electrical ..... 6-388
  - Replacement - Engine Electrical ..... 6-388
- Battery Positive Cable
  - Replacement - Engine Electrical ..... 6-389, 6-390
- Battery Replacement - Engine Electrical ..... 6-393
- Battery Tray
  - Replacement - Engine Electrical ..... 6-396
- Battery Usage Specifications - Engine Electrical ..... 6-360
- Bearings Inspection
  - Rear Drive Axle ..... 4-52
- Bezel Replacement
  - Console Shift Lever ..... 8-519
- Blade Element Cleaning ..... 8-1043
- Bleeding the Power Steering System ..... 2-13
- Blower
  - Diagnosis
    - Operates Continuously (A/C - Manual) ..... 1-88
- Blower Motor - Noise Diagnosis ..... 1-18
- Blower Motor Replacement - HVAC ..... 1-50
- Blower Motor Resistor Assembly
  - Replacement - HVAC ..... 1-49
- Body Control Module
  - Replacement
    - Body Control System ..... 8-34
- Body Control Module Programming/RPO Configuration
  - Body Control System ..... 8-37
- Body Control System Description and Operation ..... 8-37
- Body Side Panel
  - Replacement - Outer ..... 8-209
  - Sectioning - Outer ..... 8-214, 8-219
- Brake Assist System Description and Operation - Hydraulic Brakes ..... 5-61
- Brake Assist System Diagnosis
  - Hydraulic Brakes ..... 5-26
- Brake Caliper
  - Bracket Replacement - Front
    - Disc Brakes ..... 5-97
  - Bracket Replacement - Rear
    - Disc Brakes ..... 5-101
  - Inspection
    - Disc Brakes ..... 5-66
  - Overhaul - Front
    - Disc Brakes ..... 5-83
  - Overhaul - Rear
    - Disc Brakes ..... 5-85
  - Replacement - Front
    - Disc Brakes ..... 5-79
  - Replacement - Rear
    - Disc Brakes ..... 5-81
- Brake Component Specifications
  - Hydraulic Brakes ..... 5-3
- Brake Fluid Loss
  - Hydraulic Brakes ..... 5-16
- Brake Hose Replacement - Front
  - Hydraulic Brakes ..... 5-48
- Brake Hose Replacement - Rear
  - Hydraulic Brakes ..... 5-51
- Brake Pad Inspection
  - Disc Brakes ..... 5-65
- Brake Pads
  - Replacement - Front
    - Disc Brakes ..... 5-69
  - Replacement - Rear
    - Disc Brakes ..... 5-74
- Brake Pedal Assembly Replacement
  - Hydraulic Brakes ..... 5-42
- Brake Pedal Excessive Effort
  - Hydraulic Brakes ..... 5-14
- Brake Pedal Excessive Travel
  - Hydraulic Brakes ..... 5-13
- Brake Pedal Pulsation
  - Hydraulic Brakes ..... 5-11
- Brake Pedal Pushrod Inspection
  - Hydraulic Brakes ..... 5-31
- Brake Pedal Travel Measurement and Inspection
  - Hydraulic Brakes ..... 5-28
- Brake Pipe and Hose Inspection
  - Hydraulic Brakes ..... 5-31
- Brake Pipe Replacement
  - Hydraulic Brakes ..... 5-43
- Brake Pressure Modulator Valve
  - Replacement - ABS ..... 5-194
- Brake Rotor
  - Refinishing
    - Disc Brakes ..... 5-118
  - Replacement - Front
    - Disc Brakes ..... 5-106
  - Replacement - Rear
    - Disc Brakes ..... 5-110
  - Surface and Wear Inspection
    - Disc Brakes ..... 5-64
  - Thickness Measurement
    - Disc Brakes ..... 5-64
- Brake System Bleeding
  - Hydraulic Brakes ..... 5-54, 5-55
- Brake System Diagnosis
  - Hydraulic Brakes ..... 5-22
- Brake System External Leak Inspection
  - Hydraulic Brakes ..... 5-29
- Brake System Flushing
  - Hydraulic Brakes ..... 5-56
- Brake System Internal Leak Test
  - Hydraulic Brakes ..... 5-29
- Brake System Noise
  - Hydraulic Brakes ..... 5-11
- Brake System Slow Release - Hydraulic Brakes ..... 5-16
- Brake System Specifications
  - Hydraulic Brakes ..... 5-3
- Brake System Vacuum Source Test -
  - Hydraulic Brakes ..... 5-28
- Brake System Vehicle Road Test
  - Hydraulic Brakes ..... 5-27
- Brake Warning Indicator Always On
  - Hydraulic Brakes ..... 5-8

Brake Warning Indicator Inoperative	
Hydraulic Brakes .....	5-9
Brakes Drag	
Hydraulic Brakes .....	5-15
Braking Action Uneven - Front to Rear	
Hydraulic Brakes .....	5-13
Braking Action Uneven - Pulls to One Side	
Hydraulic Brakes .....	5-12
Bumper Replacement	
Front .....	8-136
Burnishing Pads and Rotors	
Disc Brakes .....	5-78
Buzz Noise or High Frequency	
Rattle Sound	
4L60-E/4L65-E .....	7-174

## C

Camshaft	
and Bearings Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-212
Bearing Installation	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-215
Bearing Removal	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-209
Installation	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-269
Removal	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-175
Camshaft Position (CMP) Sensor	
Replacement	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-812
Camshaft Replacement	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-131
Capacities - Approximate Fluid .....	0-33
Cargo Box Cover Hinge Bracket	
Replacement .....	8-73
Cargo Box Side Panel	
Replacement - Inner .....	8-255
Carpet Replacement	
Front - Interior Trim .....	8-534
Rear - Interior Trim .....	8-535
Case Porosity Repair	
4L60-E/4L65-E .....	7-155
Caster and Camber Adjustment, Front .....	3-15
Catalytic Converter Replacement - Engine	
Exhaust .....	6-840
Caution, Notice and Important, Definition of .....	P-3
Change Engine Oil Indicator Always On .....	8-483
Charge Indicator	
Always On - Engine Electrical .....	6-381
Inoperative - Engine Electrical .....	6-381
Charging System Description and Operation ....	6-408
Charging System Test - Engine Electrical .....	6-379
Checking and Adding Fluid	
Power Steering System .....	2-16
Chime Always On	
Instrument Panel, Gages and Console .....	8-485

Chime Inoperative	
Instrument Panel, Gages and Console .....	8-487
CKP System Variation Learn Procedure	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-744
Cleanliness and Care	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-310
Clearcoat Repair Specifications	
3M Products .....	8-675
Meguiar Products .....	8-676
Clearcoat Repair without Repainting .....	8-680
Clearcoat Thickness .....	8-682
Clutch Plate Diagnosis	
4L60-E/4L65-E .....	7-151
Coding Keys and Lock Cylinders .....	0-25
Coil Spring Replacement	
Rear Suspension .....	3-62
Compartment Lid	
Replacement - Rear .....	8-98
Compartment Lid Trim	
Replacement - Rear .....	8-90
Compartment Sill Plate	
Replacement - Rear .....	8-89
Component Location	
4L60-E/4L65-E .....	7-34
Component Resistance	
4L60-E/4L65-E .....	7-17
Component Specifications	
Disc Brakes .....	5-63
Component Views	
ABS .....	5-155
Automatic Transmission Electronic	
4L60-E/4L65-E .....	7-20
Body Control System .....	8-15
Body Rear End .....	8-65
Cruise Control .....	11-6
Data Link Communications .....	8-276
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-430
Engine Cooling .....	6-319
Engine Electrical .....	6-363
Entertainment .....	11-29
Garage Door Opener .....	11-70
Horns .....	8-424
Hydraulic Brakes .....	5-5
Instrument Panel, Gages and Console .....	8-444
Keyless Entry .....	11-77
Lighting Systems .....	8-560
Power Door Systems .....	8-302
Power Roof Systems .....	8-720
Compressor Hose Assembly	
Replacement - HVAC .....	1-31
Compressor Oil Balancing - HVAC .....	1-27
Compressor Relay Replacement - HVAC .....	1-35
Compressor Replacement - HVAC .....	1-28
Condenser Replacement - HVAC .....	1-40
Connector Description	
Automatic Transmission Inline 20-Way	
4L60-E/4L65-E .....	7-243
Connector End Views	
ABS .....	5-156
Automatic Transmission Inline 20-Way	
4L60-E/4L65-E .....	7-38
Automatic Transmission Internal	
4L60-E/4L65-E .....	7-39

- Connector End Views (cont.)  
 Automatic Transmission Related  
   4L60-E/4L65-E ..... 7-40  
 Body Control System ..... 8-16  
 Body Rear End ..... 8-67  
 Data Link Communications ..... 8-279  
 Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-441  
 Engine Cooling ..... 6-320  
 Engine Electrical ..... 6-365  
 Entertainment ..... 11-33  
 Garage Door Opener ..... 11-71  
 Horns ..... 8-426  
 Hydraulic Brakes ..... 5-7  
 Instrument Panel, Gages and Console ..... 8-446  
 Keyless Entry ..... 11-78  
 Lighting Systems ..... 8-565  
 Power Door Systems ..... 8-306  
 Power Roof Systems ..... 8-724  
 Powertrain Control Module (PCM)  
   Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-438  
 Console  
   Armrest Replacement  
     Front Floor ..... 8-522  
     Replacement ..... 8-520  
   Shift Lever Bezel Replacement ..... 8-519  
   Trim Plate Replacement - Upper ..... 8-516  
 Console Compartment Door  
   Hinge Replacement ..... 8-512  
   Latch Replacement ..... 8-514  
   Lock Cylinder Replacement ..... 8-513  
 Constant Noise  
   Rear Drive Axle ..... 4-18  
 Control and Shift Solenoids  
   Replacement  
     4L60-E/4L65-E ..... 7-210  
 Control Arm Bracket Replacement, Lower  
   Front Suspension ..... 3-36  
 Control Arm Replacement, Lower  
   Front Suspension ..... 3-32  
 Control Arm Replacement, Rear Axle Lower  
   Rear Suspension ..... 3-53  
 Control Arm Replacement, Upper  
   Front Suspension ..... 3-30  
   Rear Suspension ..... 3-52  
 Control Module References  
   Body Control Systems ..... 8-33  
 Conversion Table, English/Metric ..... 0-3  
 Coolant Air Bleed Hose  
   Replacement ..... 6-346  
 Coolant Air Bleed Pipe  
   Assembly Replacement ..... 6-344  
   Cleaning and Inspection  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-246  
   Installation  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-295  
   Removal  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-161  
 Coolant Heater  
   Cord Replacement ..... 6-356  
   Inoperative ..... 6-332  
   Replacement ..... 6-355  
 Coolant in Combustion Chamber  
   Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-40  
 Coolant in Engine Oil  
   Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-40  
 Cooling Fan  
   Always On ..... 6-325  
   Inoperative ..... 6-326  
   Relay Replacement ..... 6-340, 6-341  
   Replacement - Electric ..... 6-339  
 Cooling System Description and Operation ..... 6-357  
 Cooling System Leak Testing ..... 6-333  
 Courtesy Lamps Always On - Lighting  
   Systems ..... 8-606  
 Courtesy Lamps Inoperative - Lighting  
   Systems ..... 8-607  
 Crankcase Ventilation Hoses/Pipes  
   Replacement  
     Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-73  
 Crankcase Ventilation System  
   Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-45  
 Crankshaft  
   Bearings Cleaning and Inspection  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-187  
   Bearings Installation  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-262  
   Bearings Removal  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-178  
   Balancer Cleaning and Inspection  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-198  
   Balancer Installation  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-303  
   Balancer Removal  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-154  
   Front Oil Seal Installation  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-278  
   Rear Oil Seal Installation  
     Engine Mechanical - 4.8L, 5.3L,  
     and 6.0L ..... 6-276  
 Crankshaft Balancer Replacement  
   Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-107  
 Crankshaft Front Oil Seal Replacement  
   Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-110  
 Crankshaft Position (CKP) Sensor  
   Replacement  
     Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-810  
 Crankshaft Rear Oil Seal Replacement  
   Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-113  
 Cross Bar No. 5  
   Replacement - Floor Panel ..... 8-244  
 Crossmember  
   Brace Replacement - Front ..... 8-414  
 Crossmember Replacement  
   Front Steering Gear ..... 8-414  
   Rear Steering Gear ..... 8-416  
 Cruise Control  
   Inoperative/Malfunctioning ..... 11-18  
 Cruise Control Description and Operation ..... 11-21

Cruise Control Indicator	
Always On .....	11-16
Inoperative .....	11-17
Cupholder Replacement .....	8-500
Cuts Out, Misses	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-688
Cylinder Boring and Honing	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-185
Cylinder Head	
Assemble	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-228
Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-222
Disassemble	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-219
Installation - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-284
Installation - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-286
Removal - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-167
Removal - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-168
Cylinder Head Replacement - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-98
Cylinder Head Replacement - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-102
Cylinder Leakage Test	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-41

## D

Data Link Communications Description and Operation .....	8-294
Daytime Running Lamps (DRL) Always On - Lighting Systems .....	8-608
Daytime Running Lamps (DRL) Diode Replacement - Lighting Systems ....	8-638
Daytime Running Lamps (DRL) Inoperative - Lighting Systems .....	8-609
Decimal and Metric Equivalents .....	0-3
Definition of Caution, Notice and Important .....	P-3
Definitions and Abbreviations	
Automatic Transmission	
4L60-E/4L65-E .....	7-234
Defroster Door Replacement - HVAC .....	1-53
Defroster Duct Replacement - Windshield - HVAC .....	1-52
Defrosting Insufficient - HVAC .....	1-17
Delay in Drive and Reverse	
4L60-E/4L65-E .....	7-175
Delayed Downshifts or No Part Throttle	
4L60-E/4L65-E .....	7-170
Description of Arrows and Symbols .....	0-4
Detonation/Spark Knock	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-685

Diagnosis	
Body Leans or Sways .....	3-5
Memory Steer .....	3-6
Noise - Front Suspension .....	3-8
Noise - Rear Suspension .....	3-9
Poor Directional Stability .....	3-7
Suspension Bottoms .....	3-5
Wheel Bearings .....	3-11
Diagnosis - Strategy Based .....	0-30
Diagnostic Starting Point	
ABS .....	5-158
Automatic Transmission	
4L60-E/4L65-E .....	7-41
Body Control System .....	8-18
Body Rear End .....	8-68
Cruise Control .....	11-7
Data Link Communications .....	8-280
Disc Brakes .....	5-64
Doors .....	8-313
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-450
Engine Cooling .....	6-320
Engine Electrical .....	6-365
Engine Exhaust .....	6-830
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-33
Entertainment .....	11-38
Garage Door Opener .....	11-71
Horns .....	8-426
HVAC .....	1-3
Hydraulic Brakes .....	5-7
Instrument Panel, Gages and Console .....	8-447
Keyless Entry .....	11-78
Lighting Systems .....	8-574
Park Brake .....	5-119
Power Steering System .....	2-6
Propeller Shaft .....	4-4
Rear Drive Axle .....	4-16
Roof .....	8-734
Suspension General Diagnosis .....	3-3
Diagnostic System Check	
ABS .....	5-158
Audible Warnings .....	8-449
Automatic Transmission	
4L60-E/4L65-E .....	7-42
Body Rear End .....	8-68
Cruise Control .....	11-7
Door Systems .....	8-313
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-450
Engine Cooling .....	6-321
Engine Electrical .....	6-365
Entertainment System .....	11-39
Horns .....	8-426
Instrument Cluster .....	8-448
Keyless Entry .....	11-79
Lighting Systems .....	8-575
Power Roof .....	8-735
Diagnostic Trouble Code (DTC) List	
ABS .....	5-162
Body Control System .....	8-19
Cruise Control .....	11-10
Data Link Communications .....	8-280
Doors .....	8-316
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-465
Engine Cooling .....	6-322
Engine Electrical .....	6-366



- Diagnostic Trouble Code (DTC) List (cont.)
- Entertainment ..... 11-41
  - Instrument Panel, Gages and Console ..... 8-456
  - Keyless Entry ..... 11-80
  - Lighting Systems ..... 8-578
  - Roof ..... 8-739
- Diagnostic Trouble Code (DTC)
- List - Vehicle
  - Vehicle DTC Information ..... 10-3
- Diagnostic Trouble Code (DTC) List/Type
- 4L60-E/4L65-E ..... 7-52
- Diagnostic Trouble Code (DTC)
- Type Definitions
  - 4L60-E/4L65-E ..... 7-51
  - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-412
- Diagnostic Trouble Code (DTC) Type(s)
- Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-412
- Diagnostic Work Sheets ..... 0-5
- Dieseling, Run-On
- Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-698
- Differential Adjustment Shim Specifications
- Rear Drive Axle ..... 4-14
- Differential Inspection
- Rear Drive Axle ..... 4-52
- Differential Replacement
- Rear Drive Axle ..... 4-45
- Differential Side Bearing Preload Adjustment
- Rear Drive Axle ..... 4-55
- Differential Side Bearings Replacement
- Rear Drive Axle ..... 4-49
- Dimensions
- Body ..... 8-154, 8-155, 8-156, 8-157, 8-158, 8-159
  - Frame ..... 8-410
- Disabling the Park Brake Automatic
- Adjuster ..... 5-144
- Disassembled Views
- 4L60-E/4L65-E ..... 7-23
  - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-25
- Disc Brake
- Backing Plate Replacement
  - Rear ..... 5-114
  - Hardware Replacement
  - Front ..... 5-88
  - Rear ..... 5-92
  - Mounting and Hardware Inspection
  - Rear ..... 5-67
  - Mounting and Hardware Inspection
  - Front ..... 5-67
- Disc Brake Splash Shield
- Replacement - Front ..... 5-113
- Door Adjustment ..... 8-350
- Door Ajar Indicator
- Malfunction ..... 8-326
- Door Ajar Indicator Description
- and Operation ..... 8-393
- Door Check Link
- Replacement ..... 8-356
- Door Handle
- Bezel Replacement ..... 8-342
  - Replacement
  - Inside ..... 8-358
- Door Lock Function Inoperative with
- Transmitter - Keyless Entry ..... 11-86
- Door Replacement ..... 8-351
- Door Sill Plate Replacement
- Interior Trim ..... 8-533
- Door Unlock Function Inoperative with
- Transmitter - Keyless Entry ..... 11-85
- Drain Cock
- Replacement - Engine Cooling ..... 6-351
- Draining and Filling Cooling System ..... 6-334
- Draining Fluids and Oil Filter Removal
- Engine Mechanical - 4.8L, 5.3L, and 6.0L .... 6-152
- Drive Belt Chirping Diagnosis
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-46
- Drive Belt Excessive Wear Diagnosis
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-57
- Drive Belt Falls Off Diagnosis
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-55
- Drive Belt Idler Pulley Replacement
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-61
- Drive Belt Replacement - Accessory
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-59
- Drive Belt Replacement - Air Conditioning
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-60
- Drive Belt Rumbling Diagnosis
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-51
- Drive Belt Squeal Diagnosis
- Engine Mechanical - 4.8L, 5.3L and 6.0L ..... 6-48
- Drive Belt Tensioner
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-58
- Drive Belt Tensioner Replacement -
- Accessory
  - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-62
- Drive Belt Tensioner Replacement - Air
- Conditioning
  - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-62
- Drive Belt Vibration Diagnosis
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-53
- Drive Belt Whine Diagnosis
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-50
- Drive Pinion and Ring Gear Replacement
- Rear Drive Axle ..... 4-37
- Drive Pinion Bearings Replacement
- Rear Drive Axle ..... 4-41
- Drive Pinion Flange/Yoke and/or Oil Seal
- Replacement
  - Rear Drive Axle ..... 4-33
- Driveline Disassembled Views - Propeller
- Shaft ..... 4-3
- Driver Information Center
- Switches Inoperative ..... 8-484
- Driver Information Center Description and
- Operation ..... 8-527
- Drives in Neutral
- 4L60-E/4L65-E ..... 7-173
- DTC 1025 ..... 11-42
- DTC 1035 ..... 11-42
- DTC 1045 ..... 11-42
- DTC 1055 ..... 11-42
- DTC B0012 ..... 9-42
- DTC B0013 ..... 9-42
- DTC B0014 ..... 9-42
- DTC B0016 ..... 9-42
- DTC B0017 ..... 9-42
- DTC B0018 ..... 9-42
- DTC B0022 ..... 9-45
- DTC B0024 ..... 9-45

DTC B0026	9-45	DTC B2575	8-586
DTC B0028	9-48	DTC B2580	8-588
DTC B0029	9-48	DTC B2585	8-590
DTC B0030	9-48	DTC B2600	8-592
DTC B0040	9-51	DTC B2610	8-594
DTC B0041	9-51	DTC B2615	8-596
DTC B0042	9-45	DTC B2620	8-598
DTC B0043	9-45	DTC B2645	8-600
DTC B0044	9-45	DTC B2752	8-428
DTC B0045	9-51	DTC B2815	11-43
DTC B0051	9-54	DTC B2947	11-111
DTC B0053	9-55	DTC B2948	11-113
DTC B0057	9-56	DTC B2957	11-115
DTC B0058	9-56	DTC B2958	11-117
DTC B0059	9-56	DTC B2960	11-120
DTC B0064	9-59	DTC B2961	8-462
DTC B0065	9-59	DTC B3031	11-122
DTC B0066	9-59	DTC B3033	11-123
DTC B0077	9-62	DTC B3102	11-81
DTC B0078	9-62	DTC B3802	8-602
DTC B0079	9-62	DTC B3808	8-321
DTC B0080	9-62	DTC B3809	8-323
DTC B0081	9-62	DTC B3992	8-319
DTC B0082	9-62	DTC C0221-C0227	5-163
DTC B0090	9-68	DTC C0229	5-165
DTC B0091	9-70	DTC C0235-C0237	5-166
DTC B0100	9-72	DTC C0238	5-168
DTC B0101	9-72	DTC C0241-C0254	5-169
DTC B0102	9-72	DTC C0265	5-170
DTC B0103	9-72	DTC C0266	5-170
DTC B0104	9-72	DTC C0267	5-172
DTC B0105	9-72	DTC C0268	5-172
DTC B0540	8-457	DTC C0269	5-175
DTC B0560	8-459	DTC C0271-C0273	5-176
DTC B1000	8-20	DTC C0274	5-175
DTC B1001	8-21, 9-75	DTC C0279	5-177
DTC B1004	8-22	DTC C0281	5-178
DTC B1007	8-23	DTC C0283	5-180
DTC B1009	8-24	DTC C0284	5-176
DTC B1017	8-317	DTC C0287	5-182
DTC B1372	8-461	DTC C0290	5-184
DTC B1420	8-25	DTC C0292	5-184
DTC B1440	8-27	DTC C0297	5-184
DTC B1480	8-579	DTC C0298	5-185
DTC B1533	8-319	DTC C0609	5-166
DTC B1735	8-927	DTC List	1-74
DTC B1740	8-927	DTC P0068	6-469
DTC B1745	8-927	DTC P0101	6-472
DTC B1750	8-927	DTC P0102	6-476
DTC B1755	8-927	DTC P0103	6-481
DTC B1760	8-927	DTC P0106	6-484
DTC B1815	8-927	DTC P0107	6-488
DTC B1820	8-927	DTC P0108	6-491
DTC B1825, B1850, B1860, B2355, B2365, or B2375	8-928	DTC P0112	6-494
DTC B1830	8-927	DTC P0113	6-496
DTC B1835	8-927	DTC P0116	6-499
DTC B2425	8-930	DTC P0117	6-503
DTC B2430	8-930	DTC P0118	6-505
DTC B2435	8-932	DTC P0120	6-507
DTC B2440	8-932	DTC P0125	6-512
DTC B2527	8-581	DTC P0128	6-515
DTC B2530	8-583	DTC P0131	6-518
DTC B2550	8-585	DTC P0132	6-521
		DTC P0133	6-525

DTC P0134 .....	6-528	DTC P0622 .....	6-369
DTC P0135 .....	6-531	DTC P0641 .....	6-620
DTC P0136 .....	6-535	DTC P0650 .....	6-622
DTC P0137 .....	6-539	DTC P0651 .....	6-625
DTC P0138 .....	6-543	DTC P0654 .....	8-475
DTC P0140 .....	6-547	DTC P0706 .....	7-63
DTC P0141 .....	6-531	DTC P0711 .....	7-67
DTC P0151 .....	6-518	DTC P0712 .....	7-71
DTC P0152 .....	6-521	DTC P0713 .....	7-74
DTC P0153 .....	6-525	DTC P0719 .....	7-78
DTC P0154 .....	6-528	DTC P0724 .....	7-81
DTC P0155 .....	6-531	DTC P0740 .....	7-84
DTC P0156 .....	6-535	DTC P0741 .....	7-88
DTC P0157 .....	6-539	DTC P0742 .....	7-91
DTC P0158 .....	6-543	DTC P0748 .....	7-94
DTC P0160 .....	6-547	DTC P0751 .....	7-98
DTC P0161 .....	6-531	DTC P0752 .....	7-101
DTC P0171 .....	6-550	DTC P0753 .....	7-104
DTC P0172 .....	6-553	DTC P0756 .....	7-109
DTC P0174 .....	6-550	DTC P0757 .....	7-112
DTC P0175 .....	6-553	DTC P0758 .....	7-115
DTC P0200 .....	6-556	DTC P0785 .....	7-120
DTC P0218 .....	7-53	DTC P0856 .....	5-185
DTC P0220 .....	6-559	DTC P0894 .....	7-125
DTC P0230 .....	6-564	DTC P1106 .....	6-627
DTC P0300 .....	6-566	DTC P1107 .....	6-629
DTC P0315 .....	6-570	DTC P1111 .....	6-631
DTC P0325 .....	6-571	DTC P1112 .....	6-633
DTC P0327 .....	6-572	DTC P1114 .....	6-635
DTC P0332 .....	6-572	DTC P1115 .....	6-637
DTC P0335 .....	6-575	DTC P1125 .....	6-639
DTC P0336 .....	6-578	DTC P1133 .....	6-641
DTC P0341 .....	6-580	DTC P1134 .....	6-644
DTC P0342 .....	6-582	DTC P1153 .....	6-641
DTC P0343 .....	6-585	DTC P1154 .....	6-644
DTC P0351-P0358 .....	6-588	DTC P1380 .....	6-647
DTC P0420 .....	6-590	DTC P1381 .....	6-648
DTC P0430 .....	6-590	DTC P1516 .....	6-649
DTC P0442 .....	6-593	DTC P1574 .....	11-15
DTC P0443 .....	6-596	DTC P1600 .....	6-619
DTC P0446 .....	6-598	DTC P1621 .....	6-619
DTC P0449 .....	6-602	DTC P1626 .....	11-125
DTC P0452 .....	6-604	DTC P1627 .....	6-619
DTC P0453 .....	6-606	DTC P1630 .....	11-128
DTC P0455 .....	6-608	DTC P1631 .....	11-129
DTC P0461 .....	8-464	DTC P1632 .....	11-131
DTC P0462 .....	8-465	DTC P1637 .....	6-371
DTC P0463 .....	8-467	DTC P1644 .....	5-182
DTC P0480 .....	6-323	DTC P1680 .....	6-619
DTC P0481 .....	6-323	DTC P1681 .....	6-619
DTC P0496 .....	6-613	DTC P1683 .....	6-619
DTC P0502 .....	7-56	DTC P1689 .....	5-182
DTC P0503 .....	7-59	DTC P1810 .....	7-131
DTC P0506 .....	6-615	DTC P2101 .....	6-652
DTC P0507 .....	6-617	DTC P2108 .....	6-655
DTC P0522 .....	8-469	DTC P2120 .....	6-657
DTC P0523 .....	8-471	DTC P2121 .....	6-661
DTC P0530 .....	1-79	DTC P2125 .....	6-665
DTC P0562 .....	6-367	DTC P2135 .....	6-669
DTC P0563 .....	6-368	DTC P2610 .....	6-619
DTC P0567 .....	11-11	DTC P2761 .....	7-135
DTC P0568 .....	11-13	DTC U0107 .....	6-672
DTC P0601-P0607 .....	6-619	DTC U1000 and U1255 .....	8-281
DTC P0608 .....	8-473	DTC U1001-U1254 .....	8-285



DTC U1300 .....	8-288
DTC U1301 .....	8-288
DTC U1305 .....	8-288

## E

Electronic Brake Control Module		Engine Flywheel Replacement	
Replacement - ABS .....	5-192	Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-134
Electronic Component Description		Engine Front Cover	
4L60-E/4L65-E .....	7-240	Cleaning and Inspection	
Electronic Ignition (EI) System		Engine Mechanical - 4.8L, 5.3L,	
Description		and 6.0L .....	6-237
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-824	Installation	
Diagnosis		Engine Mechanical - 4.8L, 5.3L,	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-729	and 6.0L .....	6-276
Eliminating Unwanted Odors in Vehicles		Removal	
Interior Trim .....	8-531	Engine Mechanical - 4.8L, 5.3L,	
Emblem Replacement		and 6.0L .....	6-172
Grille - Exterior Trim .....	8-396	Engine Front Cover Replacement	
Emblem/Nameplate Replacement		Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-111
End Gate - Exterior Trim .....	8-395	Engine Gaskets, Replacing	
Emission Hose Routing Diagram		Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-311
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-414	Engine ID and Partial VIN Location .....	0-10
Enabling the Park Brake Cable Automatic		Engine Identification	
Adjuster .....	5-144	Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-32
Endgate Replacement .....	8-95	Engine Mechanical Specifications	
Engine and Transmission Usage .....	0-11	Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-9
Engine Block		Engine Mount Inspection	
Cleaning and Inspection		Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-63
Engine Mechanical - 4.8L, 5.3L,		Engine Mount Replacement - Left	
and 6.0L .....	6-184	Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-64
Plug Installation		Engine Mount Replacement - Right	
Engine Mechanical - 4.8L, 5.3L,		Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-68
and 6.0L .....	6-259	Engine Noise on Start-Up, but Only Lasting	
Plug Removal		a Few Seconds	
Engine Mechanical - 4.8L, 5.3L,		Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-36
and 6.0L .....	6-181	Engine Noise Under Load	
Engine Component Description		Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-38
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-306	Engine Oil and Oil Filter Replacement	
Engine Compression Test		Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-151
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-41	Engine Oil Pressure Gage Inaccurate or	
Engine Coolant in Transmission		Inoperative - Instrument Panel,	
4L60-E/4L65-E .....	7-152	Gages, and Console .....	8-478
Engine Coolant Temperature Gage		Engine Oil Pressure Sensor and/or Switch	
Inaccurate or Inoperative .....	8-477	Replacement	
Engine Coolant Temperature (ECT) Sensor		Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-124
Replacement		Engine Overheating - Engine Cooling .....	6-328
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-745	Engine Prelubing	
Engine Cranks but Does Not Run		Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-258
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-704	Engine Rear Cover	
Engine Cranks Slowly - Engine Electrical .....	6-386	Cleaning and Inspection	
Engine Fails To Reach Normal Operating		Engine Mechanical - 4.8L, 5.3L,	
Temperature - Engine Cooling .....	6-332	and 6.0L .....	6-238
Engine Flywheel		Installation	
Cleaning and Inspection		Engine Mechanical - 4.8L, 5.3L,	
Engine Mechanical - 4.8L, 5.3L,		and 6.0L .....	6-273
and 6.0L .....	6-198	Removal	
Installation		Engine Mechanical - 4.8L, 5.3L,	
Engine Mechanical - 4.8L, 5.3L,		and 6.0L .....	6-172
and 6.0L .....	6-302	Engine Rear Cover Replacement	
Removal		Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-114
Engine Mechanical - 4.8L, 5.3L,		Engine Replacement	
and 6.0L .....	6-155	Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-135
		Engine Sight Shield Replacement	
		Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-72
		Engine Starts in Gear	
		4L60-E/4L65-E .....	7-175

Engine Valley Cover	
Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-238
Installation	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-293
Removal	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-162
Engine Valley Cover Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-80
Engine Will Not Crank - Crankshaft Will Not Rotate	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-39
English/Metric Conversion Table .....	0-3
Evaporative Emission (EVAP)	
Canister Purge Solenoid Valve Replacement	
Engine Controls - 4.8L, 5.3L, and 6.0L .....	6-792
Canister Replacement	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-800
Canister Vent Solenoid Valve Replacement	
Engine Controls - 4.8L, 5.3L, and 6.0L .....	6-794
Control System Description	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-823
Hose Routing Diagram	
Engine Controls 4.8L, 5.3L, 6.0L .....	6-415
Hoses/Pipes Replacement - Canister Vent	
Engine Controls - 4.8L, 5.3L, and 6.0L .....	6-796
Hoses/Pipes Replacement - Canister/Fuel Tank	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-800
Hoses/Pipes Replacement - Chassis	
Engine Controls - 4.8L, 5.3L, and 6.0L .....	6-796
Hoses/Pipes Replacement - Engine	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-795
Evaporator Core Replacement - HVAC .....	1-44
Evaporator Temperature Sensor Replacement - HVAC .....	1-39
Exhaust Leakage Diagnosis - Engine	
Exhaust .....	6-832
Exhaust Manifold	
Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-245
Installation - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-300
Installation - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-301
Removal - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-156
Removal - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-157
Exhaust Manifold Replacement - Left -	
Engine Exhaust .....	6-833
Exhaust Manifold Replacement - Right -	
Engine Exhaust .....	6-835
Exhaust Noise - Engine Exhaust .....	6-832

Exhaust Seal Replacement - Engine	
Exhaust .....	6-838
Exhaust System Description .....	6-853
Explanation of Scheduled Services .....	0-38
Exterior Lighting Systems Description and Operation .....	8-671
Exterior Windnoise .....	0-115

## F

Fascia Grille Replacement	
Bumpers .....	8-134
Fascia Replacement	
Front Bumper .....	8-132
Rear Bumper .....	8-137
Fastener Tightening Specifications	
ABS .....	5-152
Automatic Transmission	
4L60-E/4L65-E .....	7-13
Body Front End .....	8-39
Body Rear End .....	8-63
Bumpers .....	8-132
Disc Brakes .....	5-63
Doors .....	8-295
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-411
Engine Cooling .....	6-317
Engine Electrical .....	6-360
Engine Exhaust .....	6-829
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-7
Entertainment .....	11-23
Exterior Trim .....	8-395
Frame and Underbody .....	8-409
Front Suspension .....	3-20
Horns .....	8-422
HVAC .....	1-3
Hydraulic Brakes .....	5-3
Instrument Panel, Gages and Console .....	8-436
Interior Trim .....	8-531
Lighting Systems .....	8-546
Park Brake .....	5-119
Power Steering System .....	2-3
Propeller Shaft .....	4-3
Rear Drive Axle .....	4-14
Rear Suspension .....	3-51
Roof .....	8-715
Fasteners .....	0-15
Fender	
Replacement - Front .....	8-50
Replacement - Front - Left .....	8-53
Fender Rail	
Replacement	
Upper .....	8-247
Sectioning	
Upper .....	8-249
Fender Reinforcement	
Replacement - Lower .....	8-54
Filler Tube and Seal	
Replacement	
4L60-E/4L65-E .....	7-197
Filler Tube Replacement	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-770
First Gear Range Only-No Upshift	
4L60-E/4L65-E .....	7-166

- Flexplate/Torque Converter Vibration Test
  - 4L60-E/4L65-E ..... 7-150
- Floor Carpet Drying
  - Interior Trim ..... 8-534
- Floor Replacement
  - Rear ..... 8-257, 8-264
- Floor Shift Control
  - Replacement
    - 4L60-E/4L65-E ..... 7-181
- Floor Shift Control Knob
  - Replacement
    - 4L60-E/4L65-E ..... 7-176
- Fluid and Lubricant Recommendations ..... 0-33
- Fluid Capacity Specifications
  - 4L60-E/4L65-E ..... 7-15
- Fluid Leak Diagnosis
  - 4L60-E/4L65-E ..... 7-152
- Flushing - Engine Cooling ..... 6-335
- Flushing - HVAC ..... 1-24
- Flushing the Power Steering System ..... 2-16
- Fog Lamp Aiming Procedure - Lighting
  - Systems ..... 8-653
- Fog Lamp Bulb Replacement - Front - Lighting Systems ..... 8-652
- Fog Lamp Indicator Inoperative - Lighting
  - Systems ..... 8-610
- Fog Lamp Replacement - Front - Lighting
  - Systems ..... 8-650
- Fog Lamps Always On - Front - Lighting
  - Systems ..... 8-611
- Fog Lamps Inoperative - Lighting Systems ..... 8-612
- Folding Top
  - Rear Window Replacement - Roof ..... 8-846
  - Replacement - Roof ..... 8-842
  - Side Rail Assembly Replacement - Roof ..... 8-849
  - Stowage Compartment Lid Hinge
    - Replacement - Roof ..... 8-857
  - Stowage Compartment Lid Latch
    - Replace - Roof ..... 8-813
  - Stowage Compartment Lid Release
    - Mechanism - Roof ..... 8-859
  - Stowage Compartment Lid
    - Replacement - Roof ..... 8-851
  - Stowage Compartment Lid Striker - Roof ..... 8-816
- Frame
  - Brace Replacement ..... 8-416
  - Cushion or Insulator Replacement ..... 8-417
- Frame Sectioning
  - Front Full Frame ..... 8-164
- Front End Assembly
  - Replacement - Kit ..... 8-170
- Front Suspension General Description ..... 3-49
- Fuel Filler Door
  - Replacement ..... 8-93
- Fuel Filler Hose Replacement
  - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-777
- Fuel Filter Replacement
  - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-763
- Fuel Gage Inaccurate or Inoperative ..... 8-479
- Fuel Hose/Pipes
  - Assembly Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-776
  - Replacement - Chassis
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-774
- Fuel Hose/Pipes (cont.)
  - Routing Diagram
    - Engine Controls - 4.8L, 5.3L, and 6.0L ..... 6-416
- Fuel Injector
  - Balance Test with Special Tool
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-721
  - Balance Test with Tech 2
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-724
  - Cleaning Procedure
    - Engine Controls - 4.8L, 5.3L, and 6.0L ..... 6-790
  - Coil Test
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-719
  - Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-789
- Fuel Level Sensor Replacement
  - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-769
- Fuel Level Specifications - Instrument
  - Panel, Gages and Console ..... 8-436
- Fuel Pressure
  - Gage Installation and Removal
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-758
  - Regulator Replacement
    - Engine Controls 4.8L, 5.3L, 6.0L ..... 6-788
  - Relief Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-757
- Fuel Pump
  - Electrical Circuit Diagnosis
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-712
- Fuel Rail and Injectors
  - Installation
    - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-298
  - Removal
    - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-158
- Fuel Rail Assembly Replacement
  - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-778
- Fuel Rail Crossover Pipe
  - Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-785
- Fuel Rail Outlet Pipe
  - Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-786
- Fuel Sender Assembly
  - Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-773
- Fuel System
  - Cleaning
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-777
  - Description
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-819
  - Diagnosis
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-715
- Fuel Tank
  - Draining Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-764
  - Leak Test
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-726
  - Pressure Sensor Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-769
  - Replacement
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-764

**G**

Gages Inoperative - All .....	8-481
Garage Door Opener	
Inoperative .....	11-72
Programming - Universal .....	11-73
Garage Door Opener Description and	
Operation .....	11-74
Garnish Molding Replacement	
Rear Upper - Interior Trim .....	8-544
Windshield Pillar - Interior Trim .....	8-543
Windshield Upper - Interior Trim .....	8-543
Gear Tooth Contact Pattern Inspection	
Rear Drive Axle .....	4-59
Generator	
Bracket Replacement - Engine Electrical .....	6-404
Replacement - Engine Electrical .....	6-405
Generator Noise Diagnosis - Engine	
Electrical .....	6-382
Generator Usage Specifications - Engine	
Electrical .....	6-360
GM Oil Life System - Resetting .....	0-44
Gouge or Puncture Repair - Plastic Panel	
Information and Repair .....	8-685
Ground Strap	
Replacement - Engine Electrical .....	6-400

**H**

Handle Replacement	
Endgate .....	8-116
Hard Start	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-679
Harsh Garage Shift	
4L60-E/4L65-E .....	7-170
Harsh or Slipping 1-2 Shift	
4L60-E/4L65-E .....	7-167
Harsh Shifts	
4L60-E/4L65-E .....	7-165
Hazard and Turn Signal Flasher	
Replacement - Lighting Systems .....	8-639
Hazard Lamps Always On - Lighting	
Systems .....	8-613
Hazard Lamps Inoperative - Lighting	
Systems .....	8-614
Headlamp Aiming - Lighting Systems .....	8-648
Headlamp Bulb Replacement - Lighting	
Systems .....	8-645
Headlamp Replacement - Lighting Systems .....	8-644
Headlamp Switch Replacement - Lighting	
Systems .....	8-636
Headlamps Always On - Low or High Beam	
- Lighting Systems .....	8-615
Headlamps Inoperative - Flash to	
Pass - Lighting Systems .....	8-620
Headlamps Inoperative - High Beam -	
Lighting Systems .....	8-617
Headlamps Inoperative - Low Beams -	
Lighting Systems .....	8-618
Heat Shield	
Replacement	
4L60-E/4L65-E .....	7-199

Heated Mirrors	
Inoperative - Doors .....	8-336
Heated Oxygen Sensor (HO2S)	
Replacement Bank 2 Sensor 2	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-752
Heated Oxygen Sensor (HO2S)	
Replacement	
Bank 1 Sensor 1	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-749
Bank 1 Sensor 2	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-750
Bank 2 Sensor 1	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-751
Heated Seat Switch Replacement - Front .....	8-978
Heater Core Replacement - HVAC .....	1-58
Heater Hose Replacement - Inlet - HVAC .....	1-46
Heater Hose Replacement - Outlet - HVAC .....	1-48
Heater Replacement	
Front Seat Back .....	8-979
Heating Performance Diagnostic .....	1-15
Hesitation or Lack of Power	
4L60-E/4L65-E .....	7-175
Hesitation, Sag, Stumble	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-686
High Beam Indicator Always On - Lighting	
Systems .....	8-620
High Beam Indicator Inoperative - Lighting	
Systems .....	8-621
High Frequency Rattle Sound or	
Buzz Noise	
4L60-E/4L65-E .....	7-174
High Mounted Stop Lamp Replacement -	
Lighting Systems .....	8-663
Hinge Pillar Body	
Replacement	
Front Inner .....	8-189
Hinge Replacement	
Door .....	8-354
Endgate .....	8-99
Rear Compartment Lid .....	8-103
Hinge Shield Replacement	
Endgate .....	8-100
Hood Adjustment .....	8-40
Hood Bumper	
Replacement .....	8-40
Hood Hinge	
Replacement .....	8-43
Hood Hold-Open Rod	
Replacement .....	8-48
Hood Insulator	
Replacement .....	8-47
Hood Latch	
Adjustment .....	8-44
Replacement .....	8-45
Hood Latch Release Cable	
Replacement .....	8-45
Hood Replacement .....	8-41
Horn Replacement .....	8-434
Horns - Poor Tone .....	8-433
Horns Always On .....	8-430
Horns Inoperative .....	8-431
Horns System Description and Operation .....	8-435

- HVAC - Manual
- Component Views ..... 1-65
  - Connector End Views ..... 1-69
  - Diagnosis
    - A/C Compressor Clutch Does Not Disengage ..... 1-86
    - A/C Compressor Clutch Does Not Engage ..... 1-82
    - Air Delivery Improper ..... 1-95
    - Scan Tool Data Definitions ..... 1-74
    - Scan Tool Data List ..... 1-74
    - Scan Tool Output Controls ..... 1-74
  - Mode Actuator Replacement
    - Actuator Mode Replacement (A/C - Manual) ..... 1-99
  - Special Tools ..... 1-104
  - Specifications
    - Fastener Tightening ..... 1-61
- HVAC Module Assembly Replacement ..... 1-43
- HVAC Systems - Automatic
- Diagnosis
    - Air Recirculation Malfunction ..... 1-96
- HVAC Systems - Manual
- Description
    - Air Delivery Description and Operation ..... 1-101
    - Air Temperature Description and Operation ..... 1-102
  - Diagnosis
    - Blower Motor Inoperative ..... 1-88
    - Blower Motor Malfunction ..... 1-90
    - Diagnostic System Check - HVAC Systems - Manual ..... 1-72
    - Re-Calibrating Actuators ..... 1-97
    - Symptoms - HVAC Systems - Manual ..... 1-81
    - Too Cold in Vehicle ..... 1-93
    - Too Hot in Vehicle ..... 1-91
  - Repair
    - Air Temperature Actuator Replacement ..... 1-99
    - HVAC Control Module Replacement ..... 1-98
    - Recirculation Actuator Replacement ..... 1-100
  - Schematics
    - HVAC Schematics ..... 1-62
- Hydraulic Brake Component Operation
- Visual Inspection ..... 5-30
- Hydraulic Brake System Description and Operation ..... 5-61
- Hydraulic Brake Warning System
- Description and Operation ..... 5-61
- Hydraulic Brakes Disc Brake System
- Diagnosis ..... 5-17
- I**
- Identification, Vehicle ..... 0-6
- Ignition Coil(s) Replacement
- Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-802
- Ignition Relay Diagnosis
- Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-706
- Ignition System Specifications
- Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-410
- Important, Caution and Notice, Definition of .... P-3
- Inaccurate Shift Points
- 4L60-E/4L65-E ..... 7-166
- Indicator/Warning Message Description and Operation ..... 8-524
- Inspection/Maintenance (I/M)
- Catalyst System Set Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-736
  - Complete System Set Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-734
  - Evaporative Emission (EVAP) System Set Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-738
  - Heated Oxygen Sensor (HO2S) Heater System Set Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-742
  - Heated Oxygen Sensor/Oxygen Sensor (HO2S/O2S) System Set Procedure
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-740
  - System Check
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-733
  - System DTC Table
    - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-736
- Instrument Panel
- Carrier Replacement ..... 8-510
  - Cluster Replacement ..... 8-498
- Instrument Panel Cluster Description and Operation ..... 8-523
- Instrument Panel (I/P) Air Outlet Ducts Replacement - HVAC ..... 1-52
- Instrument Panel (I/P) Compartment Lamp Always On - Lighting Systems ..... 8-624
- Instrument Panel (I/P) Compartment Lamp Bulb Replacement - Lighting Systems ..... 8-641
- Instrument Panel (I/P) Compartment Lamp Inoperative - Lighting Systems ..... 8-623
- Instrument Panel (I/P) Compartment Lamp Replacement - Lighting Systems ..... 8-641
- Intake Manifold
- Cleaning and Inspection
    - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-242
  - Installation
    - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-296
  - Removal
    - Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-159
- Intake Manifold Replacement
- Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-74
- Interior Backlighting Does Not Dim - Lighting Systems ..... 8-622
- Interior Backlighting Inoperative - Lighting Systems ..... 8-623
- Interior Lighting System Description and Operation ..... 8-673
- Interior Windnoise ..... 0-115
- Intermittent Conditions
- Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-677
- Intermittent Noise
- Rear Drive Axle ..... 4-17



**J**

- Jacking and Lifting ..... 0-28
- Jump Starting in Case of Emergency -  
Engine Electrical ..... 6-378

**K**

- Key Coding and Lock Cylinders ..... 0-25
- Keyless Entry System Description and  
Operation ..... 11-89
- Keyless Entry System Inoperative ..... 11-83
- Knee Bolster  
Bracket Replacement  
Left ..... 8-492
- Replacement  
Left ..... 8-490
- Right ..... 8-488
- Knock or Clunk Noise - Propeller Shaft ..... 4-5
- Knock Sensor (KS)  
Replacement  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-812
- System Description  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-825

**L**

- Label - Service Parts ID ..... 0-13
- Label - Vehicle Certification ..... 0-7, 0-8
- Lack of Power or Hesitation  
4L60-E/4L65-E ..... 7-175
- Lack of Power, Sluggishness, or  
Sponginess  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-682
- Latch Release Cable  
Adjustment RT/LT - Rear  
Compartment Lid ..... 8-109
- Replacement RT/LT - Rear  
Compartment Lid ..... 8-106
- Latch Release Handle  
Replacement - Rear Compartment Lid ..... 8-115
- Latch Replacement  
Door ..... 8-365
- Endgate ..... 8-119
- Rear Compartment Lid ..... 8-113
- Lead/Pull Description ..... 3-18
- Leak at Front Slip Yoke - Propeller Shaft ..... 4-4
- Leak Testing - HVAC ..... 1-4
- License Lamp Bulb Replacement - Lighting  
Systems ..... 8-668
- License Lamp Replacement - Lighting  
Systems ..... 8-667
- License Lamps Inoperative - Lighting  
Systems ..... 8-624
- Lifting and Jacking ..... 0-28
- Line Pressure  
4L60-E/4L65-E ..... 7-16
- Line Pressure Check Procedure  
4L60-E/4L65-E ..... 7-145
- Linkage Replacement  
Endgate ..... 8-119
- Lock Cylinder  
Replacement  
Door ..... 8-362

- Lock Cylinder Latch Plate  
Replacement - Rear Compartment Lid ..... 8-105
- Lock Cylinder Latch Plate Cover  
Replacement - Rear Compartment Lid ..... 8-104
- Lock Cylinders and Key Coding ..... 0-25
- Lock Pillar Gusset  
Replacement - Rear Compartment ..... 8-241
- Lock Striker Replacement  
Endgate ..... 8-120
- Loss of Coolant ..... 6-329
- Low Fuel Indicator Inoperative ..... 8-484
- Lower Engine Noise, Regardless of  
Engine Speed  
Engine Mechanical - 4.8L, 5.3L, and 6.0L ..... 6-38
- Lubricant and Fluid Recommendations ..... 0-33
- Lubrication Description  
Engine Mechanical - 4.8L, 5.3L, and 6.0L .... 6-309

**M**

- Maintenance Items ..... 0-34
- Malfunction Indicator Lamp (MIL)  
Always On  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-703
- Inoperative  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-701
- Manifold Absolute Pressure (MAP) Sensor  
Replacement  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-747
- Manual Shift Shaft Seal  
Replacement  
4L60-E/4L65-E ..... 7-200
- Marker Lamp Bulb Replacement - Front  
Side - Lighting Systems ..... 8-655
- Marker Lamp Bulb Replacement - Rear  
Side - Lighting Systems ..... 8-658
- Marker Lamp Replacement - Front Side -  
Lighting Systems ..... 8-654
- Marker Lamp Replacement - Rear Side -  
Lighting Systems ..... 8-657
- Marker Lamps Inoperative - Lighting  
Systems ..... 8-625
- Mass Air Flow (MAF)/Intake Air  
Temperature (IAT) Sensor  
Replacement  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-747
- Master Cylinder Bench Bleeding - Hydraulic  
Brakes ..... 5-40
- Master Cylinder Fluid Level Sensor  
Replacement - Hydraulic Brakes ..... 5-41
- Master Cylinder Overhaul - Hydraulic  
Brakes ..... 5-38
- Master Cylinder Replacement - Hydraulic  
Brakes ..... 5-35
- Master Cylinder Reservoir Filling - Hydraulic  
Brakes ..... 5-32
- Master Cylinder Reservoir Replacement -  
Hydraulic Brakes ..... 5-33
- Meanings of Abbreviations ..... 0-18
- Memory Steer Description ..... 3-19
- Memory Steer Diagnosis ..... 3-6
- Metal Panel Bonding ..... 8-273

Microphone Replacement - Radio Volume	
Compensator Interior -	
Entertainment .....	11-55
Mirror Face	
Replacement - Doors .....	8-389
Mirror Replacement	
Power - Doors .....	8-387
Mirrors - Outside Automatic Day-Night	
Feature	
Inoperative .....	8-334
Mode Actuator	
Replacement (A/C - Manual) .....	1-99
Mode Door Replacement - HVAC .....	1-54
Muffler Replacement - Engine Exhaust .....	6-849

## N

New Product Information	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-307
No 2-3 Shift or 2-3 Shift Slips, Rough	
or Hunting	
4L60-E/4L65-E .....	7-168
No 3-4 Shift, Slips or Rough 3-4 Shift	
4L60-E/4L65-E .....	7-169
No Drive in All Ranges	
4L60-E/4L65-E .....	7-174
No Drive in Drive Range	
4L60-E/4L65-E .....	7-174
No First or Second Gear/No Third or	
Fourth Gear	
4L60-E/4L65-E .....	7-168
No Fourth Gear or Slips in Fourth Gear	
4L60-E/4L65-E .....	7-172
No Gear Selection	
4L60-E/4L65-E .....	7-175
No Overrun Braking - Manual 3-2-1	
4L60-E/4L65-E .....	7-170
No Park	
4L60-E/4L65-E .....	7-173
No Part Throttle or Delayed Downshifts	
4L60-E/4L65-E .....	7-170
No Reverse or Slips in Reverse	
4L60-E/4L65-E .....	7-169
No Second, Fourth and Reverse Gear	
4L60-E/4L65-E .....	7-168
No Third Gear	
4L60-E/4L65-E .....	7-173
No Third or Fourth Gear/No First or	
Second Gear	
4L60-E/4L65-E .....	7-168
No Torque Converter Clutch Apply	
4L60-E/4L65-E .....	7-171
No Torque Converter Clutch Release	
4L60-E/4L65-E .....	7-172
Noise and Vibration Analysis	
4L60-E/4L65-E .....	7-151
Noise Diagnosis - HVAC Module .....	1-20
Noise in Random Ranges	
4L60-E/4L65-E .....	7-174
Noisy in Drive	
Rear Drive Axle .....	4-17
Noisy on Turns	
Rear Drive Axle .....	4-18

Noisy When Coasting	
Rear Drive Axle .....	4-17
Notice, Caution and Important, Definition of .....	P-3

## O

Odometer Trip/Reset Switch Inoperative .....	8-482
Odor Correction - HVAC .....	1-23
Odor Diagnosis - HVAC .....	1-21
Oil Consumption Diagnosis	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-42
Oil Filter	
and Adapter Installation	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-282
and Adapter Removal	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-169
Oil Filter Adapter Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-116
Oil Filter Bypass Valve Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-118
Oil Leak Diagnosis	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-43
Oil Level Indicator and Tube	
Installation	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-302
Removal	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-156
Oil Level Indicator and Tube Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-97
Oil Out the Vent	
4L60-E/4L65-E .....	7-173
Oil Pan	
Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-240
Installation	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-279
Removal	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-170
Oil Pan Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-119
Oil Pressure Diagnosis and Testing	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-42
Oil Pressure High or Low	
4L60-E/4L65-E .....	7-165
Oil Pump	
Assemble	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-235
Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-233
Disassemble	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-230

Oil Pump (cont.)	
Pump Screen and Deflector Installation	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-272
Pump Screen and Deflector Removal	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-173
Oil Pump, Pump Screen and Deflector Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-125
Outside Mirror Description and Operation .....	8-393, 8-394
Overlap/Backing Plate Sectioning .....	8-168, 8-169
Owner Checks and Services .....	0-44

## P

Paint Gages .....	8-682
Paint Identification .....	8-680
Paint/Coatings	
Anti-Corrosion Treatment and Repair .....	8-677
Environmental Fallout	
Acid Rain .....	8-681
Panel Identification .....	8-142, 8-143, 8-144
Panel Replacement	
Body Rear Outer .....	8-270
Complete .....	8-693
Partial .....	8-689
Panic Mode Inoperative - Keyless Entry .....	11-82
Park Brake Actuator Replacement .....	5-145
Park Brake Adjustment .....	5-150
Park Brake Cable Replacement - Front .....	5-130
Park Brake Cable Replacement - Left Rear .....	5-135
Park Brake Cable Replacement - Right Rear .....	5-139
Park Brake Description and Operation .....	5-151
Park Brake Lever Assembly Replacement .....	5-127
Park Brake Shoe Inspection .....	5-122
Park Brake Shoe Replacement .....	5-124
Park Brake System Diagnosis .....	5-120
Park Brake Warning Lamp Switch Replacement .....	5-129
Park Brake Will Not Hold or Release .....	5-119
Park Lamps Inoperative - Lighting Systems .....	8-626
Park/Neutral Position Switch Adjustment	
4L60-E/4L65-E .....	7-184
Park/Neutral Position Switch Replacement	
4L60-E/4L65-E .....	7-183
Park/Turn Signal Lamp Bulb Replacement - Lighting Systems .....	8-661
Park/Turn Signal Lamp Replacement - Lighting Systems .....	8-660
Special Tools	
Roof .....	8-901
Personalization	
Description and Operation .....	11-91
Driver Personalization .....	11-91
Vehicle Personalization .....	11-91
Pickup Box	
Side Panel Brace Replacement	
Front .....	8-123
Rear .....	8-125
Pillar Lock Front Door Replacement - Inner .....	8-205
Ping, Snap, or Click Noise - Propeller Shaft .....	4-5
Pinion and Ring Gear Inspection	
Rear Drive Axle .....	4-52
Pinion Depth Adjustment	
Rear Drive Axle .....	4-53
Piston and Connecting Rod Assemble	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-206
Disassemble	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-199
Piston, Connecting Rod, and Bearing Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-200
Installation	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-266
Removal	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-176
Plastic Identification and Refinishing Systems .....	8-707
Plastic Panel Information and Repair	
Handling Precautions For Plastic .....	8-709
How to Identify Plastic Parts .....	8-707
Plastic Panels .....	8-684
Plastic Repair Instructions - General .....	8-684
Plastic Repair Precautions .....	8-710
Plastic Structure Repair - Plastic Panel Information and Repair .....	8-700
Poor Fuel Economy	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-691
Poor Fuel Fill Quality	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-694
Popping Noise	
4L60-E/4L65-E .....	7-173
Power Door Lock Inoperative	
Driver Door .....	8-329
Power Door Locks	
Inoperative .....	8-327
Passenger Door .....	8-331
Power Door Locks Description and Operation .....	8-392
Power Folding Top	
Adding Fluid .....	8-829
Inoperative .....	8-785
Power Folding Top Description and Operation .....	8-899
Power Mirror Switch	
Replacement - Doors .....	8-340
Power Mirrors	
Inoperative - Doors .....	8-332
Power Mode Mismatch	
Body Control System .....	8-31
Power Steering Cooler Replacement .....	2-22

Power Steering Gear	
Disassembled View .....	2-4
Replacement .....	2-28
Power Steering Hose	
Assembly Replacement .....	2-24
Power Steering Pulley Replacement .....	2-17
Power Steering Pump	
Disassembled View .....	2-5
Flow Control Valve Replacement - Off Vehicle .....	2-20
Replacement .....	2-18
Specifications .....	2-3
Power Steering Reservoir Replacement - Off Vehicle .....	2-19
Power Steering System Description and Operation .....	2-41
Power Steering System Fluid Leaks .....	2-9
Power Steering System Test Procedure .....	2-6
Power Window	
Inoperative	
From Master Switch - Doors .....	8-325
Power Windows Description and Operation .....	8-391
Powertrain Control Module (PCM)	
Description	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-816
Replacement	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-744
Pressure Cap Testing	
Engine Cooling .....	6-333
Pressure Regulator	
Replacement	
4L60-E/4L65-E .....	7-196
Pressure Relief Valve	
Replacement .....	8-126
Propeller Shaft Description and Operation .....	4-13
Propeller Shaft Replacement .....	4-6
Propeller Shaft Runout Specifications .....	0-47
Pull Handle	
Replacement - Doors .....	8-343

## Q

Quarter Panel	
Replacement	
Outer .....	8-232, 8-236
Quarter Panel Protector	
Replacement .....	8-122
Quick Connect Fitting(s) Service	
Metal Collar	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-759
Plastic Collar	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-761

## R

Rack and Pinion	
Boot Replacement - Off Vehicle - Power Steering System .....	2-31
Gear Rack Bearing Preload Adjustment - Off Vehicle - Power Steering System .....	2-31

Radiator	
Cleaning - Engine Cooling .....	6-335
Hose Replacement	
Inlet - Engine Cooling .....	6-337
Outlet - Engine Cooling .....	6-338
Replacement - Engine Cooling .....	6-352
Support Replacement - Engine Cooling .....	6-353
Radio Displays CAL ERR - Entertainment .....	11-48
Radio Displays LOC, LOCKED or CODE - Entertainment .....	11-48
Radio Poor Reception - Entertainment .....	11-46
Radio Replacement - Entertainment .....	11-52
Radio/Audio System Description and Operation - Entertainment .....	11-64
Rail Dust Damage Repair .....	8-682
Range Reference	
4L60-E/4L65-E .....	7-15
Range Selector Displays Incorrect Range	
4L60-E/4L65-E .....	7-141
RAP	
Diagnosis	
Diagnostic System Check .....	8-711
Ratcheting Noise	
4L60-E/4L65-E .....	7-173
Rattle, Clunk or Shudder Noise - Power Steering System .....	2-10
Rear Axle Brace Replacement	
Rear Suspension .....	3-56
Rear Axle Housing Cover and Gasket	
Replacement .....	4-28
Rear Axle Housing Replacement .....	4-51
Rear Axle Lubricant Leak Diagnosis .....	4-25
Rear Axle Shaft Replacement .....	4-29
Rear Axle Shaft Seal and/or Bearing	
Replacement .....	4-32
Rear Compartment	
Floor Rail Replacement .....	8-82
Rear Compartment Cover	
Assist Rod Replacement .....	8-72
Rear Compartment Endgate	
Access Panel Replacement .....	8-85
Hinge Mounting Bracket Replacement .....	8-86
Liner Replacement .....	8-81
Rear Compartment Lid	
Release Inoperative .....	8-69
Switch Replacement .....	8-88
Rear Compartment Lid Ajar Indicator	
Inoperative .....	8-71
Rear Compartment Lid Description and Operation .....	8-131
Rear Compartment Liner	
Replacement .....	8-75, 8-78
Rear Compartment Upper Rail	
Replacement .....	8-84
Rear Drive Axle Description and Operation .....	4-64
Rear Drive Axle Disassembled Views .....	4-15
Rear Drive Axle Noises .....	4-16
Rear Suspension General Description .....	3-65
Rearview Mirror	
Replacement .....	8-1004
Support Replacement .....	8-1005

Rearview Mirror Lamp Replacement - Lighting Systems .....	8-642
Recirculation Door Replacement - HVAC .....	1-56
Reduced Volume - One or More Speakers - Entertainment .....	11-51
Refrigerant Recovery and Recharging - HVAC .....	1-23
Refrigerant System Capacities - HVAC .....	1-3
Registered and Non-Registered Trademarks .....	0-24
Reinitialization of the Power Window .....	8-362
Repair Materials - Flexible Plastic Part - Plastic Panel Information and Repair .....	8-683
Repair Materials - Rigid Plastic Part - Plastic Panel Information and Repair .....	8-683
Restricted Exhaust - Engine Exhaust .....	6-830
Retained Accessory Power Description and Operation .....	8-714
Diagnosis Diagnostic Starting Point - Retained Accessory Power .....	8-711
RAP Inoperative .....	8-713
RAP On After Timeout .....	8-713
Scan Tool Data Definitions .....	8-712
Scan Tool Data List .....	8-712
Symptoms - Retained Accessory Power ....	8-712
Ride Diagnosis .....	3-3
Road Test Procedure 4L60-E/4L65-E .....	7-146
Rocker Panel Replacement Inner .....	8-202
Roof Mount Bracket Replacement .....	8-193
Rough, Unstable, or Incorrect Idle and Stalling Engine Controls - 4.8L, 5.3L, 6.0L .....	6-695
RPO Code List .....	0-14
RTV and Anaerobic Sealer, Use of Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-311

## S

Scan Tool Data Definitions	
ABS .....	5-161
Automatic Transmission 4L60-E/4L65-E .....	7-49
Body Control System .....	8-19
Body Rear End .....	8-69
Cruise Control .....	11-8, 11-9
Doors .....	8-315
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-457
Engine Cooling .....	6-322
Engine Electrical .....	6-366
Entertainment .....	11-40
Horns .....	8-427
Instrument Panel, Gages and Console .....	8-453
Keyless Entry .....	11-80
Lighting Systems .....	8-577
Roof .....	8-738

Scan Tool Data List	
ABS .....	5-160
Automatic Transmission 4L60-E/4L65-E .....	7-47
Body Control System .....	8-18
Body Rear End .....	8-68
Cruise Control .....	11-8
Doors .....	8-314
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-453
Engine Cooling .....	6-322
Engine Electrical .....	6-366
Entertainment .....	11-40
Horns .....	8-427
Instrument Panel, Gages and Console .....	8-450
Keyless Entry .....	11-80
Lighting Systems .....	8-576
Roof .....	8-736
Scan Tool Does Not Communicate with Class 2 Device Data Link Communications .....	8-290
Scan Tool Does Not Power Up Data Link Communications .....	8-289
Scan Tool Output Controls	
ABS .....	5-159
Automatic Transmission 4L60-E/4L65-E .....	7-43
Body Control System .....	8-18
Body Rear End .....	8-68
Doors .....	8-314
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-463
Engine Cooling .....	6-321
Horns .....	8-427
Instrument Panel, Gages and Console .....	8-450
Keyless Entry .....	11-80
Lighting Systems .....	8-576
Roof .....	8-736
Schematic Icons	
ABS .....	5-152
Automatic Transmission 4L60-E/4L65-E .....	7-17
Data Link Communications .....	8-274
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-417
Entertainment .....	11-23
Instrument Panel, Gages and Console .....	8-437
Schematic Icons - Lighting Systems .....	8-546
Schematics	
ABS .....	5-153
Audible Warnings .....	8-443
Automatic Transmission Controls 4L60-E/4L65-E .....	7-18
Body Control System .....	8-12
Body Rear End .....	8-64
Cruise Control .....	11-4
Data Link Connector (DLC) .....	8-275
Defogger .....	8-992
Door Lock/Indicator .....	8-298
Driver Information System .....	8-442
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-418
Engine Cooling .....	6-318
Exterior Lamps .....	8-551



## Schematics (cont.)

Fog Lamps .....	8-550
Garage Door Opener .....	11-69
Ground Distribution .....	8-1095
Headlamps/Daytime Running Lamps (DRL) .....	8-547
Horns .....	8-423
Hydraulic Brake Warning System .....	5-4
Instrument Cluster .....	8-438
Interior Lamps .....	8-557
Interior Lamps Dimming .....	8-559
Keyless Entry .....	11-76
Outside Mirrors .....	8-300
Power Distribution .....	8-1079
Power Folding Top .....	8-716
Power Windows .....	8-296
Radio/Audio System - Entertainment .....	11-24
SIR .....	9-18
Starting and Charging .....	6-361
Steering Wheel Controls - Entertainment .....	11-28
Theft Deterrent .....	11-103
Scraping Noise - Propeller Shaft .....	4-5
Seal Replacement	
Hood Rear .....	8-59
Sealers, Adhesives, and Lubricants	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-12
Propeller Shaft .....	4-3
Rear Drive Axle .....	4-15
Sealing Strip	
Replacement	
Front Door Window Belt Outer .....	8-385
Sealing Washer Replacement - HVAC .....	1-30
Seat	
Back Heater Replacement	
Front .....	8-979
Seat Belt Buckle Replacement	
Front .....	9-10
Seat Belt Guide Replacement	
Front .....	8-988
Seat Belt Replacement	
Front .....	9-10
Seat Belt Retractor Anchor Plate	
Replacement .....	9-15
Seat Belts	
Component Views .....	9-5
Connector End Views .....	9-6
Description	
Seat Belt System Description and Operation .....	9-16
Diagnosis	
Diagnostic Starting Point - Seat Belts .....	9-6
Fasten Safety Belt Indicator Always On .....	9-7
Fasten Safety Belt Indicator Inoperative .....	9-8
Operational and Functional Checks .....	9-6
Seat Belt Service Precautions .....	9-9
Symptoms - Seat Belts .....	9-6
Repair	
Repairs and Inspections Required After a Collision .....	9-9
Schematic	
Icons .....	9-3
Schematics .....	9-4
Specifications	
Fastener Tightening .....	9-3

## Seats

Adjuster Mechanism Replacement	
Power .....	8-974
Description	
Heated Seats Description and Operation .....	8-989
Lumbar Support Description and Operation .....	8-989
Memory Seats Description and Operation .....	8-990
Power Seats Systems Description and Operation .....	8-989
Diagnosis	
Diagnostic Starting Point - Seats .....	8-923
Diagnostic Trouble Code (DTC) List .....	8-926
Heated Seat Inoperative .....	8-943
Lumbar Support Inoperative .....	8-942
Memory Seat Inoperative .....	8-940
Power Seat Does Not Move Forward/ Rearward .....	8-936
Power Seat Does Not Tilt Forward .....	8-937
Power Seat Does Not Tilt Rearward .....	8-939
Power Seat Inoperative .....	8-933, 8-934
Power Seat Systems Diagnostic System Check .....	8-923
Scan Tool Data Definitions .....	8-925
Scan Tool Data List .....	8-924
Symptoms - Seats .....	8-933
Front Seat Back	
Panel Replacement	
Front .....	8-968
Lumbar Replacement	
Front Seat .....	8-971
Memory Seat Control Module	
Replacement .....	8-976
Power Seat Switch Replacement .....	8-972
Power Seat Systems Component Views .....	8-909
Power Seat Systems Connector	
End Views .....	8-915
Repair	
EZ Entry Seat Manual Release	
Knob Replacement .....	8-963
Seat Back Recliner Cable	
Replacement - Front .....	8-964
Seat Cushion Cover and Pad	
Replacement - Front .....	8-953
Seat Back Cover and Pad Replacement	
Front .....	8-957
Seat Back Frame Replacement	
Front .....	8-960
Seat Back Recliner Handle Replacement	
Front .....	8-964
Seat Back Recliner Replacement	
Front .....	8-960
Seat Cushion Frame Replacement	
Front .....	8-947
Seat Cushion Trim Panel Replacement	
Outer .....	8-951
Seat Replacement .....	8-946
Seat Switch Bezel Replacement .....	8-973
Specifications	
Fastener Tightening .....	8-902
Seats Cushion Heater Element	
Replacement - Front .....	8-982

- Second Gear Start  
4L60-E/4L65-E ..... 7-173
- Second/Third Gear Only or First/Fourth Gear Only  
4L60-E/4L65-E ..... 7-168
- Separating Parts  
Engine Mechanical - 4.8L, 5.3L, and 6.0L .... 6-310
- Service Parts ID Label ..... 0-13
- Service Port Valve Core  
Replacement - HVAC ..... 1-36
- Service Prior to Assembly  
Engine Mechanical - 4.8L, 5.3L, and 6.0L .... 6-258
- Service Programming System (SPS) ..... 10-8
- Shift Lever Indicates Wrong Gear  
4L60-E/4L65-E ..... 7-174
- Shift Lock Control  
Components  
Automatic Transmission Shift Lock  
Control Component Views ..... 7-7  
Automatic Transmission Shift Lock  
Control Connector End Views ..... 7-8
- Description  
Shift Lock Control Description and  
Operation ..... 7-12
- Diagnosis  
Diagnostic Starting Point - Automatic  
Transmission Shift Lock Control ..... 7-9  
Park Lock Solenoid Inoperative ..... 7-9  
Shift Lever Can Be Moved with Brake  
Pedal Depressed ..... 7-11  
Shift Lever Does Not Move with Brake  
Pedal Depressed ..... 7-10  
Symptoms - Automatic Transmission  
Shift Lock Control ..... 7-9
- Schematics  
Automatic Transmission Shift Lock  
Control Schematics ..... 7-6
- Shift Solenoid Leak Test  
4L60-E/4L65-E ..... 7-155
- Shift Solenoid Valve State and Gear Ratio  
4L60-E/4L65-E ..... 7-16
- Shift Speed  
4L60-E/4L65-E ..... 7-16
- Shims Inspection  
Rear Drive Axle ..... 4-52
- Shock Absorber  
Disposal - Front ..... 3-48  
Disposal - Rear ..... 3-62  
Replacement - Rear ..... 3-60
- Shock Module Replacement  
Front Suspension ..... 3-41
- Shock Module Yoke Replacement  
Front Suspension ..... 3-46
- Shock, Shock Component and/or Spring  
Replacement  
Front Suspension ..... 3-43
- Shoulder Belt Guide Bracket Replacement ..... 9-13
- Shudder on Acceleration at Low Speed -  
Propeller Shaft ..... 4-5
- SIR  
Component Views ..... 9-21  
Connector End Views ..... 9-32  
Description  
SIR Description and Operation ..... 9-146
- SIR (cont.)  
Diagnosis  
A Diagnostic System Check ..... 9-39  
AIR BAG Indicator Circuit Malfunction ..... 9-77  
Diagnostic Starting Point - SIR ..... 9-38  
Diagnostic Trouble Code (DTC) List ..... 9-41  
Scan Tool Data Definitions ..... 9-40  
Scan Tool Data List ..... 9-40  
Symptoms - SIR ..... 9-76
- Inflatable Restraint Front Side Impact  
Module Replacement ..... 9-112
- Inflatable Restraint Instrument Panel  
Inflator Module Replacement ..... 9-108
- Inflatable Restraint I/P Module LED  
Replacement ..... 9-115
- Inflatable Restraint I/P Module Switch  
Replacement ..... 9-113
- Inflatable Restraint Sensing and  
Diagnostic Module Replacement ..... 9-100
- Inflatable Restraint Side Impact Sensor  
Replacement ..... 9-99
- Inflatable Restraint Steering Wheel  
Module Coil Replacement ..... 9-103
- Inflatable Restraint Steering Wheel  
Module Replacement ..... 9-102
- Inflator Module Handling and Scrapping ..... 9-120
- Pretensioner Handling and Scrapping ..... 9-137
- Repairs and Inspections Required After  
an Accident ..... 9-119
- Schematics ..... 9-18  
Icons ..... 9-17
- Service Precautions ..... 9-81
- Special Tools ..... 9-150
- Specifications  
Fastener Tightening ..... 9-17
- Slip/Flare in Any Gear  
4L60-E/4L65-E ..... 7-173
- Slipping or Harsh 1-2 Shift  
4L60-E/4L65-E ..... 7-167
- Slips in First Gear  
4L60-E/4L65-E ..... 7-166
- Slips in Fourth Gear or No Fourth Gear  
4L60-E/4L65-E ..... 7-172
- Slips in Reverse or No Reverse  
4L60-E/4L65-E ..... 7-169
- Slips or Rough 3-4 Shift, No 3-4 Shift  
4L60-E/4L65-E ..... 7-169
- Soap Suds or Bubble Test ..... 0-114
- Spark Plug  
Inspection  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-806  
Replacement  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-809  
Wire Inspection  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-804  
Wire Replacement  
Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-805
- Speaker Replacement - Front Lower -  
Entertainment ..... 11-59
- Speaker Replacement - Front Upper -  
Entertainment ..... 11-61
- Speaker Replacement - Rear -  
Entertainment ..... 11-63

- Speaker Replacement Reference -
  - Entertainment ..... 11-51
- Speakers Inoperative - One or More -
  - Entertainment ..... 11-51
- Special Tools
  - ABS ..... 5-209
  - Air/Wind Noise ..... 0-115
  - Automatic Transmission
    - 4L60-E/4L65-E ..... 7-244
  - Body Front End ..... 8-62
  - Body Rear End ..... 8-131
  - Disc Brakes ..... 5-118
  - Doors ..... 8-394
  - Engine Controls 4.8L, 5.3L, 6.0L ..... 6-826
  - Engine Cooling ..... 6-359
  - Engine Electrical ..... 6-409
  - Engine Exhaust ..... 6-853
  - Engine Mechanical - 4.8L, 5.3L, and 6.0L .... 6-312
  - Entertainment ..... 11-67
  - Exterior Trim ..... 8-408
  - Front Suspension ..... 3-50
  - Garage Door Opener ..... 11-74
  - General Information ..... 0-32
  - HVAC ..... 1-59
  - HVAC - Manual ..... 1-104
  - Hydraulic Brakes ..... 5-62
  - Instrument Panel, Gages and Console ..... 8-530
  - Keyless Entry ..... 11-90
  - Lighting Systems ..... 8-674
  - Park Brake ..... 5-151
  - Power Steering ..... 2-42
  - Propeller Shaft ..... 4-13
  - Rear Drive Axle ..... 4-65
  - Rear Suspension ..... 3-65
  - SIR ..... 9-150
  - Stationary Windows ..... 8-1019
  - Steering Wheel and Column ..... 2-98
  - Suspension General Diagnosis ..... 3-13
  - Theft Deterrent ..... 11-142
  - Tires and Wheels ..... 3-75
  - Wipers/Washer Systems ..... 8-1044
  - Wiring Systems ..... 8-1212
- Special Tools Ordering Information ..... 0-5
- Specifications
  - Fastener Tightening
    - HVAC - Manual ..... 1-61
    - Seat Belts ..... 9-3
    - Seats ..... 8-902
    - SIR ..... 9-17
    - Steering Wheel and Column ..... 2-43
    - Tires and Wheels ..... 3-66
    - Wheel Alignment ..... 3-14
    - Wipers/Washer System ..... 8-1020
    - Wiring Systems ..... 8-1045
  - Propeller Shaft Runout ..... 0-47
  - Tire and Wheel Runout ..... 0-47
  - Wheel Alignment ..... 3-14
- Speedometer and/or Odometer Inaccurate
  - or Inoperative ..... 8-482
- Splash Shield
  - Replacement - Engine ..... 8-60
- Squeak Noise - Propeller Shaft ..... 4-5
- Squeaks and Rattles
  - Diagnosis
    - Squeaks and Rattles ..... 0-116
  - Tools
    - Special Tools ..... 0-116
- Stabilizer Shaft
  - Insulator Replacement
    - Front Suspension ..... 3-23
    - Rear Suspension ..... 3-59
  - Link Replacement
    - Front Suspension ..... 3-22
    - Rear Suspension ..... 3-59
  - Replacement
    - Front Suspension ..... 3-21
    - Rear Suspension ..... 3-57
- Starter Motor
  - Noise Diagnosis - Engine Electrical ..... 6-387
  - Replacement - Engine Electrical ..... 6-401
  - Shield Replacement - Engine Electrical ..... 6-403
- Starter Motor Usage Specifications - Engine
  - Electrical ..... 6-360
- Starter Solenoid Clicks, Engine Does Not
  - Crank - Engine Electrical ..... 6-386
- Starter Solenoid Does Not Click - Engine
  - Electrical ..... 6-383
- Starting System Description and Operation ..... 6-408
- Stationary Windows
  - Component Views ..... 8-994
  - Connector End Views ..... 8-996
  - Description
    - Adhesive Service Kit Description ..... 8-1017
    - Automatic Day-Night Mirror Description
      - and Operation ..... 8-1018
    - Full-Cut Method Description ..... 8-1017
    - General ..... 8-1017
    - Rear Window Defogger Description and
      - Operation ..... 8-1018
  - Diagnosis
    - Automatic Day-Night Mirrors
      - Inoperative ..... 8-1000
    - Defogger Grid Lines ..... 8-1000
    - Defogger Inoperative - Rear ..... 8-997
    - Diagnostic Starting Point - Stationary
      - Windows ..... 8-996
    - Symptoms - Stationary Windows ..... 8-996
  - Repair
    - Stationary Window Reveal Molding
      - Repair ..... 8-1003
    - Urethane Installation of Stationary
      - Windows ..... 8-1010
  - Schematics
    - Defogger ..... 8-992
    - Inside Rearview Mirror Schematics ..... 8-993
  - Special Tools ..... 8-1019
- Steering Effort Easy in One or Both
  - Directions - Power Steering
    - System ..... 2-12
- Steering Effort Hard in One or Both
  - Directions - Power Steering
    - System ..... 2-12

- Steering Gear Cylinder Pipe Assemblies/
  - O-Ring Seals Replacement - Off Vehicle ..... 2-36
- Steering Gear Stub Shaft Seals and Bearing Replacement - Off Vehicle ..... 2-38
- Steering Knuckle Replacement
  - Front Suspension ..... 3-27
- Steering Wheel and Column
  - Components
    - Wheel/Column Component Views ..... 2-46
    - Wheel/Column Connector End Views ..... 2-48
  - Description
    - Steering Wheel and Column Description and Operation ..... 2-97
  - Diagnosis
    - High Lock Effort ..... 2-53
    - High Shift Effort ..... 2-54
    - Ignition Can/Cannot Be Turned Off with Transmission in Any Gear ..... 2-49
    - Key Cannot Be Removed in the Off
      - Lock Position ..... 2-52
    - Lock System Does Not Lock ..... 2-51
    - Lock System Does Not Unlock ..... 2-51
    - Lock System Sticks in Start ..... 2-52
    - Looseness in Steering Column ..... 2-55
    - Noise in Steering Column ..... 2-53
    - Steering Column Tilt Function
      - Inoperative ..... 2-49
    - Symptoms - Steering Wheel and Column ..... 2-48
  - Repair
    - Column Replacement ..... 2-89
    - Ignition Lock Cylinder Case
      - Replacement ..... 2-70
    - Ignition Lock Cylinder Replacement ..... 2-68
    - Ignition Switch Replacement ..... 2-65
    - Inflatable Restraint Steering Wheel
      - Module Coil Centering ..... 2-95
    - Intermediate Steering Shaft
      - Replacement - Lower ..... 2-58
    - Intermediate Steering Shaft
      - Replacement - Upper ..... 2-56
    - Multifunction Turn Signal Switch
      - Housing Replacement ..... 2-71
    - Multifunction, Turn Signal Switch
      - Replacement ..... 2-73
    - Steering Column Jacket Replacement ..... 2-92
    - Steering Column Shaft Replacement ..... 2-92
    - Steering Column Tilt Head Housing
      - Replacement ..... 2-84
    - Steering Column Wire Harness
      - Assembly Replacement ..... 2-93
    - Steering Wheel Control Switch
      - Assembly Replacement ..... 2-76
    - Steering Wheel Replacement ..... 2-78
  - Schematic
    - Column/Ignition Lock ..... 2-44
  - Special Tools ..... 2-98
  - Specifications
    - Fastener Tightening ..... 2-43
- Steering Wheel and Column (cont.)
  - Steering Column Accident Damage
    - Inspection ..... 2-61
  - Steering Column Trim Covers
    - Replacement ..... 2-62
  - Visual Identification
    - Disassembled View ..... 2-45
- Steering Wheel Controls Inoperative -
  - Entertainment ..... 11-50
- Stop Lamps Always On - Lighting Systems ..... 8-626
- Stop Lamps Inoperative - Lighting Systems ..... 8-627
- Storage Compartment Replacement -
  - Instrument Panel ..... 8-497
- Strategy Based Diagnosis ..... 0-30
- Striker Replacement
  - Doors ..... 8-370
- Structure Adhesive - Identification ..... 8-149
- Structure Foam
  - Identification ..... 8-152
  - Replacement ..... 8-160
- Structure Identification ..... 8-146
- Struts or Shock Absorbers
  - Diagnosis
    - On-Vehicle Testing ..... 3-11
- Sunshade Anchor Replacement -
  - Interior Trim ..... 8-542
- Sunshade Replacement - Interior Trim ..... 8-541
- Support Cable
  - Replacement - Endgate ..... 8-111
- Surge Tank
  - Replacement - Engine Cooling ..... 6-336
- Surge Tank Hose/Pipe
  - Replacement
    - Inlet - Engine Cooling ..... 6-337
- Surges/Chuggles
  - Engine Controls - 4.8L, 5.3L, 6.0L ..... 6-681
- Suspension
  - Diagnosis
    - Body Leans or Sways in Corners ..... 3-5
    - Memory Steer ..... 3-6
    - Noise - Front Suspension ..... 3-8
    - Noise - Rear Suspension ..... 3-9
    - Poor Directional Stability ..... 3-7
    - Ride Diagnosis ..... 3-3
    - Struts or Shock Absorbers On-Vehicle
      - Testing ..... 3-11
    - Suspension Bottoms ..... 3-5
    - Symptoms ..... 3-3
    - Vehicle Leads/Pulls Diagnosis
      - Vehicle Leads/Pulls ..... 3-4
    - Wheel Bearings ..... 3-11
    - Special Tools Diagnosis ..... 3-13
  - Suspension General Diagnosis
    - Diagnosis
      - Ball Joint Inspection ..... 3-10
    - Diagnostic Starting Point ..... 3-3
  - Switch
    - Power Seat Switch Replacement ..... 8-972
    - Steering Wheel Control Switch Assembly
      - Replacement ..... 2-76
  - Switch Replacement
    - Side Window and Multi-Function
      - Doors ..... 8-337

## Symptoms

ABS .....	5-187
Automatic Transmission	
4L60-E/4L65-E .....	7-139
Body Control System .....	8-31
Body Rear End .....	8-69
Cruise Control .....	11-16
Data Link Communications .....	8-288
Doors .....	8-324
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-676
Engine Cooling .....	6-325
Engine Electrical .....	6-372
Engine Exhaust .....	6-830
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-33
Entertainment .....	11-44
Garage Door Opener .....	11-71
Horns .....	8-429
Hydraulic Brakes .....	5-7
Instrument Panel, Gages and Console .....	8-476
Keyless Entry .....	11-82
Lighting Systems .....	8-603
Park Brake .....	5-119
Power Steering System .....	2-6
Propeller Shaft .....	4-4
Rear Drive Axle .....	4-16
Roof .....	8-784

## T

Tachometer Inaccurate or Inoperative .....	8-483
Tail Lamp Bulb Replacement - Lighting	
Systems .....	8-670
Tail Lamp Replacement - Lighting Systems .....	8-669
Tail Lamps Inoperative - Lighting Systems .....	8-628
Tail, Marker, and License Lamps Always	
On - Lighting Systems .....	8-629
Tail, Marker, Land License Lamps	
Inoperative - Lighting Systems .....	8-630
Temperature vs Resistance	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-410
Theft Deterrent	
Component Views .....	11-105
Connector End Views .....	11-106
Description	
Content Theft Deterrent (CTD)	
Description and Operation .....	11-139
Theft Systems Description and	
Operation .....	11-139
Vehicle Theft Deterrent (VTD)	
Description and Operation .....	11-140
Diagnosis	
Content Theft Deterrent Alarm Mode	
Inoperative .....	11-133
Content Theft Deterrent Does Not	
Disarm with Key Lock .....	11-134
Diagnostic Starting Point - Theft	
Deterrent .....	11-106
Diagnostic System Check .....	11-107
Diagnostic Trouble Code (DTC) List .....	11-110
Horn Inoperative in CDT Alarm Mode .....	11-135
Lights Inoperative in CDT Alarm Mode ...	11-136

## Theft Deterrent (cont.)

Diagnosis (cont.)	
Scan Tool Data Definitions .....	11-109
Scan Tool Data List .....	11-108
Security Indicator Always On or	
Flashing .....	11-136
Security Indicator Inoperative .....	11-137
Symptoms - Theft Deterrent .....	11-132
Repair	
Adding Keys .....	11-138
Programming Theft Deterrent System	
Components .....	11-138
Replacing Keys .....	11-138
Schematics .....	11-103
Special Tools .....	11-142
Thermal Expansion Valve	
Replacement - HVAC .....	1-37
Thermostat	
Replacement - Engine Cooling .....	6-343
Thermostat Diagnosis - Engine Cooling .....	6-331
Thermostat Housing	
Replacement - Engine Cooling .....	6-341
Third Gear Only	
4L60-E/4L65-E .....	7-168
Thread Inserts .....	0-18
Thread Repair	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-247
Thread Repair Specifications	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-13
Throttle Actuator Control (TAC) Module	
Replacement	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-744
Throttle Actuator Control (TAC) System	
Description	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-818
Throttle Body	
Assembly Replacement	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-754
Cleaning Procedure	
Engine Controls - 4.8L, 5.3L, 6.0L .....	6-757
Installation	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-299
Removal	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-158
Tie Bar	
Replacement	
Upper .....	8-177
Replacement - Upper .....	8-57
Tie Rod End Replacement - Outer - On	
Vehicle .....	2-21
Tie Rod Replacement	
Rear Axle .....	3-55
Tie Rod Replacement - Inner - Power	
Steering .....	2-33
Timing Chain	
and Sprockets Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L,	
and 6.0L .....	6-216



Timing Chain and Sprockets		
Installation		
Engine Mechanical - 4.8L, 5.3L, and 6.0L	6-270	
Removal		
Engine Mechanical - 4.8L, 5.3L, and 6.0L	6-174	
Timing Chain and Sprockets Replacement		
Engine Mechanical - 4.8L, 5.3L, and 6.0L	6-128	
Tire		
Inflation Description	3-73	
Mounting and Dismounting	3-72	
Rotation	3-72	
Tire and Wheel Runout Specifications	0-47	
Tire Inflation Pressure Specifications	0-34	
Tire Repair	3-72	
Tires and Wheels		
Description		
All Seasons Tires Description	3-74	
General	3-72	
Inflation	3-73	
Metric Wheel Nuts and Bolts	3-73	
P-Metric Sized Tires	3-74	
Replacement Wheels	3-75	
Tread Wear Indicators	3-73	
Diagnosis		
Irregular or Premature Wear	3-66	
Radial Tire Lead/Pull Correction	3-69	
Waddle Complaint	3-67	
Wheel Mounting Surface Check	3-67	
Special Tools	3-75	
Specifications		
Fastener Tightening	3-66	
Wheel Removal and Installation	3-70	
Toe Adjustment, Front	3-16	
Tools and Equipment		
Engine Mechanical - 4.8L, 5.3L, and 6.0L	6-312	
Torque Converter		
End Play Specifications		
4L60-E/4L65-E	7-15	
Torque Converter Clutch		
Intermittent - OK Cold/Slips Hot		
4L60-E/4L65-E	7-172	
Torque Converter Clutch Pulse Width		
Modulation (TCC PWM)		
Solenoid, TCC Solenoid and Wiring Harness		
4L60-E/4L65-E	7-213	
Torque Converter Clutch Shudder		
4L60-E/4L65-E	7-171	
Torque Converter Clutch Slip		
100 RPM Slip		
4L60-E/4L65-E	7-172	
with Stall/Stumble		
4L60-E/4L65-E	7-172	
Torque Converter Diagnosis Procedure		
4L60-E/4L65-E	7-149	
Tracing Powder or Chalk Test	0-114	
Traction Control Switch Replacement - ABS	5-201	
Traction Off Indicator		
Always On - ABS	5-190	
Inoperative - ABS	5-191	
Trailer Hitch Replacement	8-418	
Training Information	0-5	
Transmission		
Replacement		
4L60-E/4L65-E	7-229	
Transmission Adaptive Functions		
4L60-E/4L65-E	7-239	
Transmission and Engine Usage	0-11	
Transmission Component and System		
Description		
4L60-E/4L65-E	7-239	
Transmission Extension Housing Assembly		
Replacement		
4L60-E/4L65-E	7-225	
Transmission Extension Housing Rear Oil Seal Replacement		
4L60-E/4L65-E	7-224	
Transmission Fluid Checking Procedure		
4L60-E/4L65-E	7-144	
Transmission Fluid Cooler Hose/Pipe Replacement		
4L60-E/4L65-E	7-188	
Transmission Fluid Pressure Manual Valve Position Switch Logic		
4L60-E/4L65-E	7-16	
Transmission Fluid Temperature Sensor Specifications		
4L60-E/4L65-E	7-13	
Transmission General Information		
4L60-E/4L65-E	7-234	
Transmission General Specifications		
4L60-E/4L65-E	7-14	
Transmission ID and VIN Derivative		
Location	0-12	
Transmission Identification Information		
4L60-E/4L65-E	7-236	
Transmission Mount		
Replacement		
4L60-E/4L65-E	7-226	
Transmission Oil Cooler Line		
Quick Connect Fitting		
4L60-E/4L65-E	7-189	
Transmission Overheats		
4L60-E/4L65-E	7-164	
Transmission Range Switch Logic		
4L60-E/4L65-E	7-16	
Transmission Support Replacement	8-411	
Transmitter		
Battery Replacement - Keyless Entry	11-87	
Programming - Keyless Entry	11-89	
Synchronization - Keyless Entry	11-88	
Trim Height Inspection Procedure	3-12	
Trim Height Specifications	3-3	
Trim Panel		
Replacement		
Door	8-345	
Trim Panel Replacement		
Instrument Panel Center	8-495	
Instrument Panel Left	8-507	
Instrument Panel Right	8-508	
Instrument Panel Upper	8-494	
Trim Plate Replacement		
Console Upper	8-516	
Instrument Panel Upper	8-493	

Trim Replacement	
Hinge Pillar - Interior Trim .....	8-532
Lock Pillar - Interior Trim .....	8-532
Turn Signal Lamps and/or Indicators Aways	
On or Flashing - Lighting Systems .....	8-631
Turn Signal Lamps and/or indicators	
Inoperative - Lighting Systems .....	8-632

## U

Universal Joint Noise - Propeller Shaft .....	4-4
Universal Joint Replacement - External	
Snap Ring - Propeller Shaft .....	4-10
Universal Joint Replacement - Nylon	
Injected Ring - Propeller Shaft .....	4-7
Upper Engine Noise, Regardless of Engine Speed	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-37

## V

Vacuum Brake Booster Check Valve and/or	
Hose Replacement - Hydraulic Brakes .....	5-60
Vacuum Brake Booster Replacement - Hydraulic Brakes .....	5-58
Valve Body and Pressure Switch Replacement	
4L60-E/4L65-E .....	7-201
Valve Guide Reaming/Valve and Seat Grinding	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-224
Valve Lifter Installation	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-283
Removal	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-168
Valve Lifter Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-106
Valve Lifters and Guides Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L ....	6-218
Valve Rocker Arm Push Rod Installation	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-289
Push Rod Removal	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-166
Push Rods Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-217
Cover Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-239
Cover Installation - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-291
Cover Installation - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-292

Valve Rocker Arm (cont.)	
Cover Removal - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-164
Cover Removal - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-165
Valve Rocker Arm and Push Rod Replacement	
Engine Mechanical 4.8L, 5.3L, and 6.0L .....	6-90
Valve Rocker Arm Cover Replacement - Left	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-82
Valve Rocker Arm Cover Replacement - Right	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-86
Valve Stem Oil Seal and Valve Spring Replacement	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-93
Vanity Mirror Lamp Bulb Replacement - Lighting Systems .....	8-643
Vanity Mirror Lamp(s) Inoperative - Lighting Systems .....	8-634
Vehicle Certification Label .....	0-7, 0-8
Vehicle Identification .....	0-6
Vehicle Speed Sensor Replacement	
4L60-E/4L65-E .....	7-226
Vent Hose Replacement	
Rear Drive Axle .....	4-27
Vibration	
Special Tools .....	0-112
Vibration Diagnosis and Correction	
Description	
Electronic Vibration Analyzer (EVA)	
Description, Setup, and Operation .....	0-109
Reed Tachometer Description .....	0-111
Vibrate Software Description and Operation .....	0-111
Vibration Theory and Terminology .....	0-100
Diagnosis	
Brake Rotor/Drum Balance Inspection .....	0-81
Component Rotational Speed Calculation .....	0-51
Diagnostic Starting Point - Vibration Diagnosis and Correction .....	0-48
Driveline Working Angles Measurement .....	0-88
Engine Order Classification .....	0-62
Hub/Axle Flange and Wheel Stud Runout Inspection .....	0-82
Pinion Flange Runout Measurement .....	0-87
Propeller Shaft Phasing Inspection .....	0-89
Propeller Shaft Runout Measurement .....	0-85
Symptoms - Vibration Diagnosis and Correction .....	0-75
Tire and Wheel Assembly Isolation Test .....	0-83
Tire and Wheel Assembly Runout Measurement - Off-Vehicle .....	0-78
Tire and Wheel Assembly Runout Measurement - On-Vehicle .....	0-77
Tire and Wheel Inspection .....	0-76
Vehicle-to-Vehicle Diagnostic Comparison .....	0-76

## Vibration Diagnosis and Correction (cont.)

## Diagnosis (cont.)

Vibration Analysis - Driveline .....	0-81
Vibration Analysis - Engine .....	0-61
Vibration Analysis - Engine Balance .....	0-70
Vibration Analysis - Engine/Accessory Isolation .....	0-65
Vibration Analysis - Hub and/or Axle Input .....	0-59
Vibration Analysis - Road Testing .....	0-49
Vibration Analysis - Tire and Wheel .....	0-53
Vibration Diagnostic Aids .....	0-72
Vibration Diagnostic Aids - Vibration Duplicated, Appears to be Potential Operating Characteristic .....	0-74
Vibration Diagnostic Aids - Vibration Duplicated, Component Not Identified .....	0-74
Vibration Diagnostic Aids - Vibration Duplicated, Difficult to Isolate/ Balance Component .....	0-74
Vibration Diagnostic Aids - Vibration Intermittent or Not Duplicated .....	0-72
Vibration in Service-Stall Test (Non-Torque Sensitive) .....	0-84
Vibration in Service-Stall Test (Torque Sensitive) .....	0-84
Repair	
Driveline System Balance Adjustment .....	0-96
Driveline Working Angles Adjustment .....	0-98
Propeller Shaft Phasing Correction .....	0-99
Tire and Wheel Assembly Balancing - Off-Vehicle .....	0-90
Tire and Wheel Assembly Balancing - On-Vehicle .....	0-94
Tire and Wheel Assembly-to-Hub/Axle Flange Match-Mounting .....	0-95
Tire-to-Wheel Match-Mounting (Vectoring) .....	0-94
Vibration in Reverse and Whining Noise in Park	
4L60-E/4L65-E .....	7-173
VIN Derivative .....	0-6
VIN, Partial, Location and Engine ID .....	0-10

**W**

Wander Description .....	3-19
Washer	
Pump Replacement .....	8-1036
Solvent Container Replacement .....	8-1035
Water Deflector Replacement	
Front Door .....	8-349
Water Management Description and Operation .....	8-62
Water Pump	
Cleaning and Inspection	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-247

## Water Pump (cont.)

## Installation

Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-300
Removal	
Engine Mechanical - 4.8L, 5.3L, and 6.0L .....	6-157
Replacement - Engine Cooling .....	6-347
Waterleaks	
Body Waterleak Repair .....	0-120
Diagnosis	
Air Hose Test .....	0-119
Dust Leaks .....	0-118
Test Preparation .....	0-117
Water Hose Test .....	0-119
Stationary Window Waterleak Repair .....	0-121
Weatherstrip Replacement	
Door .....	8-387
Endgate - Bottom .....	8-127
Endgate - Mocket Side .....	8-128
Endgate - Side .....	8-127
Rear Compartment Lid .....	8-129
Rear Compartment Opening .....	8-130
Wheel	
Removal and Installation .....	3-70
Wheel Alignment	
Description	
Camber .....	3-17
Caster .....	3-17
Lead/Pull .....	3-18
Memory Steer .....	3-19
Scrub Radius .....	3-19
Setback .....	3-18
Thrust Angles .....	3-18
Toe .....	3-18
Wander .....	3-19
Front Caster and Camber Adjustment .....	3-15
Front Toe Adjustment .....	3-16
Measuring .....	3-14
Specifications .....	3-14
Fastener Tightening .....	3-14
Wheel Bearing Diagnosis .....	3-11
Wheel Bearing, Hub, Knuckle, and Seal Replacement	
Front .....	3-39
Wheel Bearing Wear	
Rear Drive Axle .....	4-18, 4-20
Wheel Hub, Bearing, Knuckle, and Seal Replacement	
Front .....	3-39
Wheel Speed Sensor	
Replacement - ABS .....	5-196
Wheel Stud Replacement	
Front Suspension .....	3-38
Rear Suspension .....	3-64
Wheelhouse Liner	
Replacement - Front .....	8-55
Wheelhouse Liner Panel	
Replacement - Rear .....	8-92

- Wheelhouse Replacement
  - Front ..... 8-180
  - Rear Outer ..... 8-224, 8-227
- Wheels
  - Replacement Wheels Description ..... 3-75
- Whine Noise Varying with RPM or Fluid Pressure
  - 4L60-E/4L65-E ..... 7-174
- Whine or Growl Noise - Power Steering System ..... 2-11
- Whining Noise in Park and Vibration in Reverse
  - 4L60-E/4L65-E ..... 7-173
- Window Height Adjustment
  - Door Minor ..... 8-376
- Window Regulator
  - Motor Replacement
    - Door ..... 8-381
  - Replacement
    - Doors ..... 8-378
- Window Replacement
  - Door ..... 8-382
- Window Tip-In Adjustment - Door ..... 8-374
- Windshield Frame Header Panel
  - Replacement
    - Front ..... 8-196
    - Front Inner ..... 8-199
- Windshield Glass Cleaning ..... 8-1043
- Windshield Replacement ..... 8-1007
- Wiper
  - Arm Blade Replacement ..... 8-1040
  - Arm Replacement ..... 8-1039
  - Blade Element Cleaning ..... 8-1043
  - Blade Element Replacement ..... 8-1041
  - Chatter Repair ..... 8-1043
  - Motor Replacement ..... 8-1041
  - Transmission Replacement ..... 8-1042
  - Washer Nozzle Replacement ..... 8-1038
- Wipers/Washer Systems
  - Component Views ..... 8-1022
  - Connector End Views ..... 8-1024
  - Description
    - Wiper/Washer System Description and Operation ..... 8-1044
  - Diagnosis
    - Diagnostic System Check ..... 8-1025
    - Washer Always On ..... 8-1026
    - Washers Inoperative ..... 8-1028
    - Wiper Arm Tip Pressure Check ..... 8-1034
    - Wiper Blade Element Check ..... 8-1034
    - Wipers Always On ..... 8-1030
    - Wipers Inoperative - All Modes ..... 8-1031
    - Wipers Inoperative - One or More Modes ..... 8-1032
  - Schematics
    - Wiper/Washer System Schematics ..... 8-1021
  - Special Tools ..... 8-1044
  - Specifications
    - Fastener Tightening ..... 8-1020
- Wiper/Washer Systems
  - Diagnosis
    - Diagnostic Starting Point - Wiper/Washer Systems ..... 8-1025
    - Symptoms - Wiper/Washer Systems ..... 8-1026
  - Repair
    - Hose Replacement - Windshield Washer ..... 8-1038
- Wiring Harness
  - Replacement
    - Front Door ..... 8-370
- Wiring Systems
  - Components
    - Splice Pack Connector End Views ..... 8-1201
  - Description
    - Inline Harness Connector End Views ..... 8-1173
    - Master Electronic Component List ..... 8-1124
  - Diagnosis
    - Checking Aftermarket Accessories ..... 8-1054
    - Circuit Protection
      - Circuit Breakers ..... 8-1061
      - Fuses ..... 8-1061
      - Fusible Links ..... 8-1061
    - Circuit Testing ..... 8-1055
    - Connector Position Assurance Locks ..... 8-1069
    - Connector Repairs ..... 8-1069
    - Electrical Symbols ..... 8-1047
    - Flat Wire Repairs ..... 8-1062
    - General Electrical Diagnosis
      - Procedures ..... 8-1054
    - HO2S Wiring Repairs ..... 8-1062
    - Inducing Intermittent Fault Conditions ..... 8-1059
    - Measuring Frequency ..... 8-1057
    - Measuring Voltage ..... 8-1056
    - Measuring Voltage Drop ..... 8-1057
    - Probing Electrical Connectors ..... 8-1055
    - Pull to Seat Connectors ..... 8-1071
    - Push to Seat Connectors ..... 8-1070
    - Repairing Connector Terminals ..... 8-1077
    - Repairing Damaged Wire Insulation ..... 8-1062
    - Scan Tool Snapshot Procedure ..... 8-1060
    - SIR Wiring Repairs ..... 8-1067
    - Splicing Copper Wire Using
      - Splice Clips ..... 8-1062
      - Splicing Copper Wire Using Splice Sleeves ..... 8-1064
    - Splicing Inline Harness Diodes ..... 8-1066
    - Splicing Twisted or Shielded Cable ..... 8-1065
    - Terminal Position Assurance Locks ..... 8-1069
    - Testing for Continuity ..... 8-1057
    - Testing for Electrical Intermittents ..... 8-1060
    - Testing for Poor Connections ..... 8-1058
    - Testing for Short to Ground ..... 8-1057
    - Testing for Short to Voltage ..... 8-1058
    - Troubleshooting with a Digital Multimeter ..... 8-1056
    - Troubleshooting with a Test Light ..... 8-1056
    - Truck Zoning ..... 8-1046
    - Using Connector Test Adapters ..... 8-1055
    - Using Fused Jumper Wires ..... 8-1056
    - Weather Pack Connectors ..... 8-1077
    - Wiring Repairs ..... 8-1062

## Wiring Systems (cont.)

Electrical Center Identification .....	8-1154
Power and Grounding	
Component Views .....	8-1143
Power and Grounding Connector	
End Views .....	8-1172
Repair	
Console Electrical Center Replacement ...	8-1207
Rear Electrical Center Replacement .....	8-1210
Relay Replacement .....	8-1203, 8-1204
Underhood Electrical Center	
Replacement .....	8-1205

## Wiring Systems (cont.)

Schematics	
Ground Distribution .....	8-1095
Harness Routing Views .....	8-1103
Power and Grounding Schematic Icons ...	8-1078
Power Distribution .....	8-1079
Special Tools .....	8-1212
Specifications	
Fastener Tightening .....	8-1045
Work Sheets, Diagnostic .....	0-5